

## Thermostatic Radiator Valves (TRVs) – Installer Factsheet

### What are the new regulations?



Part L of the Building Regulations (conservation of fuel and power) sets minimum standards for fixed building services in both new and existing dwellings<sup>1</sup>. This includes heating and hot water systems and their controls.

A new version of Part L comes into force in England from the 15<sup>th</sup> of June 2022, and in Wales from the 23<sup>rd</sup> of November 2022<sup>2</sup>. From this time the detail of the regulations is covered in the 2021 edition of Approved Document L, Volume 1: dwellings (2022 edition in Wales), and there will no longer be a Domestic Building Services Compliance Guide.

Section 5.20 of the new Approved Documents states that:

*“For heating systems in new dwellings, or when a heat generator such as a boiler is replaced in an existing dwelling, each room should be provided with thermostatic room controls. These should be capable of being used to separately adapt the heating output in each room served by the heating appliance.”*

The new requirement is for thermostatic room controls to be provided when a boiler is replaced. This requirement can be met through the provision of a room thermostat in one room, and TRVs (Thermostatic Radiator Valves) in all other rooms.

While this new requirement only applies in England and Wales from the dates mentioned above, a similar requirement was consulted on for the Scottish Building Standards. These are also expected to be introduced in the near future.

### Are TRVs the only way to meet this requirement?

No. Any control solution that can independently monitor and adjust the output of heat emitters in each individual room would be suitable. For example, an underfloor heating system would be likely to have a wall mounted thermostat in each room that controls the flow of warm water into the appropriate UFH loop via the distribution manifold.

Given that most UK homes have radiators, it is likely that adding TRVs to the radiators will provide a simple, cost-effective solution in the majority of cases.

The use of networked or smart TRVs that, for example, allow central control of the temperature in each room through a mobile phone app would also meet the requirement and may offer attractive additional benefits to the occupants.

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<sup>1</sup> <https://www.gov.uk/government/publications/conservation-of-fuel-and-power-approved-document-l>

<sup>2</sup> <https://gov.wales/sites/default/files/publications/2022-05/approved-document-l-vol-1.pdf>

## **Do existing TRVs have to be replaced?**

The regulations only say that each room should be provided with thermostatic room controls. The BEAMA view is that if TRVs are already in place on any radiators, and they are fully working, then there is no need to replace them.

Where there are in-situ TRVs the installer should check that there is no evidence of leakage, that the TRV is not jammed, and that adjusting it directly affects the radiator heat output. These should indicate that the TRV is fine to be retained. It is worth noting that it will be economically beneficial to replace any in-situ TRVs over 20 years old, even if they appear to be fully working, due to technology advances.

TRVs should be added to all radiators except for those in the room where the room thermostat is located.

## **Are there situations where thermostatic room controls do not need to be added?**

The Approved Document lists certain circumstances where individual room controls may not be required. These are:

1. Single-storey open plan dwellings where the living area is more than 70% of the total floor area. In this case the dwelling can be considered as a single zone.
2. Two adjacent rooms with similar functions and heating requirements (such as a kitchen and utility room) can be considered as a single heating zone. It should be noted that in this case the pipework to the zone would have to be separated and controlled so in existing dwellings it may be easier to install TRVs on a radiator in each room.
3. In certain circumstances where the requirement may be deemed as not technically feasible. Examples given are dwellings with a heat demand less than 10W/m<sup>2</sup>, or with a high thermal mass buffer zone. Neither of these situations are likely for boiler replacements in existing dwellings.

Technical feasibility may be an issue where radiators are boxed in and cannot be physically accessed. If there are compatibility issues with old radiators consideration should be given to changing the radiator as it is likely that there may be other issues affecting the performance of an older radiator.

The local building control body should be consulted if it is believed that the requirement cannot be met in specific circumstances.

## **How have the energy savings in the animation been calculated?**

TRVs have long been recognised as an energy saving measure. Recent research at the University of Salford<sup>3</sup> showed that, under standard operating conditions, a typical gas boiler will use around 18% less energy over an average UK heating season.

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<sup>3</sup> <https://www.beama.org.uk/resourceLibrary/salford-university-tests-to-establish-the-energy-savings-from-trvs---2018-pdf.html>



The average annual gas consumption in UK homes is 13,600 kWh<sup>4</sup>, of which 77% is for heating<sup>5</sup> (other uses being hot water and cooking). At a gas cost of 4p per kWh<sup>6</sup>, reducing heating costs by 18% is calculated to save £69 per year which, over the 15-year expected lifetime of a new boiler, will lead to a total saving of £1,034.

Since these calculations were made gas bills have risen significantly, and it is predicted that these will rise again in October 2022<sup>7</sup>. If these expected higher prices remain then the annual savings would rise to £202, with a saving of £3,037 over the lifetime of the boiler.

## **How can I be confident that the TRVs I install will not cause me or my customers problems?**

For installers who want to be confident that they are using high quality products the [Keymark](#) for TRVs provides an independent indicator of reliability and performance. Products with the Keymark are certified as being compliant with harmonised quality standards as confirmed by an independent third party. Product tests include resistance to bending, pressure and temperature, as well as leak-tightness and response times.

TRVs that are compliant with the standard will display the Keymark logo on the product and/or on all user guides, packaging, brochures and catalogues. Its presence means that installers can sell a guaranteed level of reliability and performance and provide consumers with greater confidence that the products being fitted in their home perform to a certain level.

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<sup>4</sup> <https://www.gov.uk/government/statistical-data-sets/annual-domestic-energy-price-statistics>

<sup>5</sup> <https://www.gov.uk/government/statistics/united-kingdom-housing-energy-fact-file-2013>

<sup>6</sup> British Gas standard tariff 4.053p per kWh - 8 Feb 2022

<sup>7</sup> <https://www.bbc.co.uk/news/business-60506940>