

BUILDING REGULATIONS PART L UPLIFT: ONE YEAR ON JUNE 2023



WITH THE TRANSITIONAL PERIOD NOW OVER, CHRIS CATON, PRODUCT DIRECTOR – COMMERCIAL, AT IDEAL HEATING REVISITS APPROVED DOCUMENT L, CONSERVATION OF FUEL AND POWER, AS A STEP TOWARDS NET ZERO 2050

In December 2021, the government released an update to Approved Document L, Conservation of fuel and power, providing revised practical guidance on how to meet the requirements of Building Regulations for England. Approved Document L came into effect on 15th June 2022, but allowed for a transitional period, meaning work subject to a building notice, full planning application or initial notice submitted before that date, providing the work for each building started before 15th June 2023, did not have to comply with the revised guidance. As of 15th June 2023, that transitional phase is over. Now, the uplift to Approved Document L applies to all.

WHAT IS THE DRIVING FORCE BEHIND THESE CHANGES AND HOW MIGHT THEY IMPACT HEATING SYSTEMS IN COMMERCIAL BUILDINGS?

THE ROAD TO NET ZERO

The UK government has committed to reducing its greenhouse gas emissions by 100% from 1990 levels by 2050. Net zero, as the policy is referred to, would mean the amount of greenhouse gas emissions produced by the UK would be equal to or less than the emissions removed from our environment.

Achieving net zero is not going to be easy, but decarbonising our heating has a significant contribution to make. Heating and hot water in buildings are responsible for a fifth (21%) of total carbon emissions in the UK. The key aim of the recent changes to Approved Document L is to reduce CO₂ emissions by 31% for dwellings and 27% for other buildings, whilst improving the overall energy efficiency of buildings.

ENERGY EFFICIENCY IMPROVEMENTS

Under the revised Approved Document L, a new building's energy efficiency must be measured, using 'Primary energy' in combination with CO₂ metrics to assess compliance with Part L. Primary energy calculations use several factors, including the efficiency of the building's heating system and the energy used to produce fuel and deliver it to the building. In the case of natural gas boilers, the Gross Seasonal Efficiency (GSV) has increased by 2% points in new buildings to 93% for single boilers with less than 2MW output and to 88% to those with more than 2MW. For oil boilers, the increase is considerable, going from 84% GSV to 93%.

When it comes to existing buildings, compliance to the uplift is required in buildings with a floor area greater than 1000m², where the proposed extension is

both greater than 100m² and more than 25% of the total useful floor area of the building. It also applies to existing buildings where new fixed building services are being installed, or where there is an increase to the capacity of fixed building services.



LOWERING THE TEMPERATURE

The most fundamental change for anyone specifying or installing a heating system in a commercial building, is a new maximum flow temperature of 55°C set by Approved Document L for wet space heating systems: *"all parts of the system, including pipework and emitters, should be sized to allow the space heating system to operate effectively and in a manner that meets the heating needs of the building, at a maximum flow temperature of 55°C or lower."*

There are two very good reasons for this 55°C figure.

The first is that it will enable condensing boilers to operate at their most efficient. Condensing boilers can recover heat via the flue and use it for pre-heating purposes. They can only do this when the temperature of the water returning to the boiler is less than 54°C; it's even more efficient if the temperature is 45°C. Most boilers, however, are set up to output at 80°C and return at 60°C so, whilst the boiler works, it does not condense and that valuable extra heat is not recovered and reused.

The second benefit of a reduced flow temperature is that it paves the way for heat pumps, which achieve maximum Coefficient of Performance (COP) at a flow temperature of 45°C. Heat pumps, such as our Ecomod commercial monobloc air source heat pumps, work by using a refrigeration cycle to transfer heat from the air or ground outside a building to the inside, where it is used for heating and hot water. They use a small amount of electricity to power the transfer of heat from the environment to the building, and as a result emit significantly less CO2 compared to traditional systems. Since heat is transferred rather than generated, heat pumps can operate up to four times more efficiently than traditional methods, and have the potential to produce four units of heat for every one unit of electricity that they use. When fitted in non-domestic buildings, this can lead to a 65-70% reduction in carbon emissions, compared to traditional gas boilers or direct electric appliances.

Not every building will be able to accommodate this lower temperature and in these instances Part L does allow for the heating system to be designed to the lowest design temperature possible that will still meet the heating needs of the building. Examples of exemptions given are buildings where there is insufficient space for larger radiators (necessary for systems operating at lower temperatures), or the existing distribution system is provided with higher temperature heat from a low carbon district heat network.

A further specification of Approved Document L is that all space heating and

domestic hot water boiler installations in existing non-domestic buildings must now include controls to improve the effective efficiency of the system.

THERMAL EFFICIENCY GAINS

Of course, in order for heating systems to operate at low temperatures whilst still delivering the warmth required, the building itself must be thermally efficient to retain the heat that is being generated. The Approved Document L uplift therefore has set new minimum efficiency standards for both new and replacement thermal elements, windows and doors.

DELIVERING ON THE UPLIFT AND BEYOND

The heating sector is in a transitional state, as we move towards a decarbonised future. The uplift to Approved Document L, Conservation of fuel and power, is the beginning of that transition, paving the way to net zero. Just around the corner, in 2025, the Future Buildings Standard is set to come into effect. Currently at consultation stage, the aim of the Standard is to produce highly efficient non-domestic buildings which use low-carbon heat and have the best fabric standards possible. The buildings should be zero carbon ready, with the ability to decarbonise over time alongside the national grid without any further energy efficiency retrofit work. Whilst we don't have a crystal ball to see into the future, it is clear that it will be a future with low carbon heating and energy efficient buildings.



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