



PRIORITY 4

FULL-LOAD AND PART LOAD CONDITIONS

Section 1:

What does the Directive say?

In the new Articles 14.1 & 15.1, the amended EPBD introduces the need for inspections to take into account “typical or average operating conditions”, where relevant. This provision is accompanied by a recital 36, which explains what is meant by part load conditions:

• **Recital 36:** “When carrying out inspections and in order to achieve the intended building energy performance improvements in practice, the aim should be to improve the actual energy performance of heating, cooling and ventilation systems under real-life use conditions. The actual performance of such systems is governed by the energy used under dynamically varying typical or average operating conditions. Such conditions require at most times only a part of the nominal output capacity, and therefore inspections of heating, cooling and ventilation systems should include an assessment of the relevant capabilities of the equipment to improve system performance under varying conditions, such as part load operating conditions.”

ate at full load conditions. Then the expected performance on the one side, and the actual performance on the other side, can differ significantly (“performance gap”), also because of other effects such as improper maintenance. Full load conditions do not occur very often because in practice technical building systems almost always have to deliver only a small fraction of their full capacity.

In reality, **there is a huge energy savings potential in optimising the performance of technical building systems under so-called part-load conditions.**

The amended EPBD introduces part load conditions under the term “typical operating conditions” (see recital 36 for explanations) as part of the inspection requirements for efficient heat and cold generators.

Taking into account the typical operating conditions when inspecting the heating and cooling systems, would benefit not only building owners and investors, but also occupants, because it would show the “performance gap” between the expected and the actual performance of the heating/cooling system.

Section 2:

What does it mean for Member States?

Optimising the performance through part load conditions

Setting minimum energy efficiency requirements on products is the most obvious solution to increase the energy efficiency of heating and cooling. However, **even the most energy efficient products in buildings will not lead to energy savings if they are not properly sized, installed, controlled and maintained.** Indeed, most technical building systems are dimensioned for peak situations where they have to oper-

How to optimise technical building systems under part load?

To optimize the energy performance of technical building systems under part loads in practice, the physical inspections should simply check if certain capabilities or functionalities of a heating or cooling system are indicated and report if some of these are missing. For the same reason, Article 8(1) states that system requirements for optimizing the overall energy performance, the proper installation, and the appropriate dimensioning, adjustment and control of the technical building systems should aim at optimizing the performance under typical part load operating conditions.