ACC
Air ConConsultants

What is 12 kilowatts? (kw)

The most commonly found air conditioning system, often referred to as a 'split system' consists of an indoor ceiling or wall mounted unit, linked to an exterior condenser by black insulated pipes that contain refrigerant. The condenser, whether linked to one or more interior units, is often a large white box mounted on a wall or flat roof that dispenses around 4 kilowatts (kW) of cooling. The regulations stipulate that where the cooling capacity of a building exceeds 12 kW, then an assessment is required. That is not where one unit has a greater capacity than 12 kW itself but where the total of whatever units are installed exceeds that amount.

Larger systems can often be air handling units (AHU). This is a large exterior unit which will cool air and then distribute it around a building through ducting and louvered ceiling vents. As a rule, the cooling capacity of an AHU tends to be greater than a split system and where one or more exceed the 12 kW threshold, then they too need to be assessed. Others can contain chillers to cool water and then distribute that to cool air in a zone.

The rules for sampling

Sampling is defined in CIBSE guide TM44 - Inspection of Air Conditioning Systems. It allows us to 'randomly' select some of the air conditioning equipment in a building for in-depth calculation as opposed to it all. However, we first have to be satisfied that all equipment is in good working order and maintained to the same standard before we more closely focus on part of it.

In the case of simple split-systems, the conventions require that we calculate the effectiveness of a minimum of three systems or 10% of the number if there are more than 30 installed.

However, where air handling systems are installed then we must calculate the effectiveness of the first ten and then sample others thereafter. For that reason, level 4 assessments can be far more complex

What an assessment involves

The Chartered Institution of Building Services Engineers (CIBSE) mandates how an assessment will be undertaken. It is against their guide **TM44** that we are regularly audited to ensure that our processes and standards are correct.

TM44 requires that we:

- identify and record all air conditioning equipment on a site;
- determine its condition of repair;
- when sampling, undertake an analysis of equipment serving different areas of activity, say, a reception, office and canteen;
- determine whether the equipment is the correct size for the task;
- determine how it is being used.

To do so we assess a system whilst it is running and calculate the 'cooling load' of an area, taking account of the presence of people and equipment, to determine whether it is of sufficient capacity to cope with demand.

The Legislation

Part 5 of the Energy Performance of Buildings (Certificates and Inspections) Regulations 2007, requires certification every five years in England, Scotland, Wales and Northern Ireland.

ISO 14001

Some of our clients are accredited to ISO 14001, the international standard for environmental management or working towards becoming accredited. The standard requires they retain a register which identifies all legislation that applies to their operation. The legislation requiring an air conditioning energy assessment has to be included as its intention is to reduce the environmental impact of their air conditioning equipment.

Lately, the ISO auditors have demonstrated how keen they are to chase up on the air conditioning assessment and we are increasingly being approached at short notice to certify the systems of ISO 14001 holders as their auditors are due to call.

Level 3 and 4 – the difference

The assessment of split systems is undertaken at the industry's level 3. However, any building where water or air (not refrigerant) is passed around to enable cooling is a level 4 assessment, such as the presence of AHUs.

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