



## Sustainability Case Study Professional Standards

### CUBE 2020

CUBE 2020 ([cube2020.org/europe/](https://cube2020.org/europe/)) is a European energy consumption contest for buildings, run annually by the Institut Français pour la Performance du Bâtiment (IFPEB) in France. Winners are chosen for their ability to reduce energy consumption over a one-year period, both through quick wins like better building management and operations, and by encouraging the building's occupiers to be more frugal in their energy use. The competition aims to boost collaboration between the different stakeholders involved with buildings, in order to achieve sustainability gains.

CUBE 2020 is a contest that aims to enhance building performance – it is not a system of certification. But any actions taken during the competition may be undertaken within the context of an existing certification or green lease. How is the completion judged? Entrants provide their energy bills for the three years up to the competition date. These are used to calculate an annual baseline level of energy consumption, which is refined to reflect the use-type of the building. Then, in the competition year itself, the invoiced amounts for monthly energy consumption are collected and compared to a forecast based on the historical data, actual weather and eventual changes in the use of the building.

The IFPEB assesses the performance of each building using the international performance measurement and verification protocol (IPMVP). All winners are also subject to a full onsite audit of their information.

At the start of the contest, each entrant receives a 'Candidate Kit' including a good practice guide, based on lessons learnt earlier in the competition's history, as well as tools for communicating the competition's aims within the participating organisation. Then, through the year, the contest's organisers provide regular rankings, progress updates and newsletters, to foster a spirit of competition between the candidates and help them learn from the experience of previous entrants.

Feedback from the competition's earlier years suggests that winners have often benefited from a high level of collaboration between the building's occupiers and its facility managers. Occupiers often proved willing to change their existing behaviours, while facility managers may have taken steps to retrofit buildings, for example with updated HVAC, LED lighting and temperature control – steps that resulted in a high payback for relatively little cost.

The following four case studies – taken from prize winners of the 2015-16 competition – illustrate the dramatic improvements in building efficiency that can be possible over a relatively short space of time.

#### **Carré Suffren, Paris, owned by Foncière Des Régions (FDR)**

An office building in the Paris CBD, Carré Suffren won the Silver Medal in the category for certified office buildings, achieving energy savings of 18.5% in 2016, and a reduction in greenhouse

gas emissions (GHG) of 18.9%. Located 500 m from the Eiffel Tower, the building had gone through a complete refurbishment in 2008-9 and became the first French property with an HQE (High Quality Environmental) In Use certification. Entering the competition for 2015-16 reflected FDR's commitment to sustainability for both its new investments and existing assets. This includes the aim of raising energy efficiency by 40% across its portfolio between 2008 and 2020.

The big improvements that led Carré Suffren to win its CUBE 2020 award included reducing electricity consumption across the 24 863 m<sup>2</sup> building, particularly as a result of changing lighting systems, cutting computer use and regulating air conditioning more effectively. Some of the efficiency gains stemmed from fully exploiting the building management system (BMS) that had been installed as part of the 2008 refurbishment, via the introduction of more energy meters, clocks and daylight cells.

Involving the building's three tenants was also key – one took the initiative of advocating CUBE 2020 to the others, and 'green committees' then helped disseminate best practice knowledge among key employees.

#### **Le Leoni, Montigny Le Bretonneux, owned by Perial Asset Management and let to Leoni Wiring Systems**

Entered in the semi-industrial category, Le Leoni won a bronze medal as a result of its 11.8% improvement in energy efficiency during 2016.

This was a particularly impressive achievement given that the building, which was constructed in 1970 and refurbished in 2004, has no BMS. Instead the building's systems are now regulated and operated by the facilities manager and the general services staff working as a team – an arrangement which they christened 'Human Building Management' (HBM).

Cédric Nicard, Sustainable Development Manager at Perial, who was responsible for entering Le Leoni into CUBE 2020, says that taking part in the contest helped unite all the building's stakeholders in striving for reductions in energy use: 'As part of the competition, the tenant, technical manager, operator and sustainable development manager – including both the technical and non-technical sides of building management – gathered around the same table. The "contest" formula thus proved to be a catalyst for bringing together the owner, service providers and user to accelerate operational change.'

### **Rennes Colombiers, owned by Poste Immo**

Rennes Colombiers has risen to the challenge of maintaining its status and value while its local area – the vicinity of Rennes station – has seen the development of a number of new buildings. To help achieve this, the building was entered for CUBE 2020 in both the 2014 and 2015-16 competitions, and won the silver medal in the 2015-16 Grand Prix for energy efficiency. Since its initial baseline was set between 2011 and 2013, the building's energy efficiency has increased by 33.9%, while its greenhouse gas emissions have fallen by 31.7%.

This success has reflected a process of continuous improvement since the building was refurbished in 2010, including the installation of a BMS and thermostatic controls, restricting the ability to reset air conditioning temperatures and relamping with the use of LED bulbs. These efforts have been part of Poste Immo's commitment to the National Charter for Energy Efficiency of Tertiary Buildings, which aims for a 25% rise in energy efficiency between 2011 and 2020 on all assets larger than 5000 m<sup>2</sup>.

### **Quai Vendevre, Caen, owned by Poste Immo**

In 2015-16 Poste Immo took all three prizes in the CUBE 2020 Grand Prix for energy efficiency, and Quai Vendevre in Caen came out on top, as a result of a massive 38.5% reduction in energy use over the competition period. Here Poste Immo used the contest to encourage a high level of participation by each of the 60 employees working in the building. All were spurred on by the prospect of achieving a high ranking in CUBE 2020. It was easy to negotiate a temperature reduction from 24% to 21% and to re-plan the use of space so as to limit the impact of cold walls and windows. The winning cocktail of collaboration also included some low-tech elements – for example all the building's windows are opened by hand at the same time each morning, in order to refresh the air for a five minute period.

By winning CUBE 2020, Quai Vendevre also showed what is possible for a relatively old building. Constructed in 1966, it has single frame aluminium windows dating from 1980, only limited air conditioning, and no in-use certification.

