UCL
Technical Innovation for Sustainability
CarbonBuzz

Section 1 About the project

Summary

CarbonBuzz is a unique online platform used by architects, engineers, property owners and operators in the public and private sector. It helps identify and close the energy performance gap between design stage predictions and operational use.31 universities already use the platform, which has the potential to dramatically change the way higher education buildings are designed and used.

Project partners

Supported by RIBA and CIBSE and led by Aedas R&D, the CarbonBuzz platform is the outcome of collaborative research between architects and engineers that has been funded jointly by the Technology Strategy Board and industry partners. FCB Studios, Davis Langdon, AECOM, XCO2, BRE and Autodesk, have worked closely on the platform development together with academic partner UCL.

Section 2 The results

The problem

The energy used in buildings often doesn't bear a close resemblance to the predictions made about its use at the design stage. This performance gap is the issue that motivated the development of CarbonBuzz.

The approach

CarbonBuzz is based on the idea that it's hard to tackle the performance gap unless we understand it; why and where it arises. To understand it, we need data. Developing an online platform that allows people to upload information and performance data is an effective way to build up an accurate picture of this issue.

Our goals

CarbonBuzz aims to provide a comprehensive dataset of building performance and in turn, help us understand the magnitude of the performance gap. It will help identify whether buildings were constructed as they were designed and whether they're being managed in the ways that was envisaged. CarbonBuzz contributes to a wider movement within construction towards creating buildings that use less energy, produce less carbon and have a more positive environmental impact.

Profile
Example:
- HEI
- 27,000 students (includes full and part time students)
- 9,000 staff
- Urban

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Obstacles and solutions

Obstacles

1. Lack of energy performance on the comparison between design predictions and actual energy use for new buildings and retrofit projects.
2. How to judge whether a building is performing well or poorly from annual energy use data.
3. Organisations are reluctant to share data on energy use until they are confident that they have buildings that perform well or have plans in place to make improvements.
4. Cost can be a barrier to using online data systems for which the benefits are not immediately clear to a potential user.

Solutions

1. CarbonBuzz provides a simple user friendly system that enables users to submit key data on buildings and their performance in minutes.
2. CarbonBuzz allows energy use data to be compared to the relevant building benchmark the build type or sub-type and also with peer buildings.
3. CarbonBuzz allows buildings to be uploaded and stored anonymously to start with. Data can be shared with select groups over time and ultimately buildings can be published as open case studies to demonstrate best practice.
4. CarbonBuzz is free to use and hence users can trial it to judge the benefits for themselves.

Performance and results

CarbonBuzz is regularly quoted in conferences, journal papers and the press as one of the few sources of information on the Performance Gap between design predictions and actual energy use for new buildings and retrofit projects. Almost 1,000 buildings are now held on the platform and it used by a wide range of organisations and individuals, including: property owners, property occupiers, architects, engineers, surveyors, contractors and developers.

Section 3 The future

Lessons learned

The future for CabonBuzz is promising. UCL will continue to use the platform to record, store and analyse the performance of new build and retrofit projects. Lessons are being learned all the time about the differences between design predictions for energy use and the actual energy performance of buildings in practice. UCL is involved with other CarbonBuzz partners to take the lessons from CarbonBuzz and develop a new tool that will allow design professionals to produce better predictions of actual energy use at the design stage of new build and retrofit projects.

Sharing your project

Winning a Green Gown Award has created an important opportunity to show off UCL's work on sustainability and the environment. We've promoted the success via our website, social media and through a short film; providing a positive news story and an excellent hook for the rest of our work.

What has it meant to your institution to be a Green Gown Award finalist?

Winning a Green Gown Award is a brilliant success. It has highlighted the importance of using HE research and innovation to create solutions to pressing environmental challenges and is testament to UCL's influence on wider trends in the sector, and beyond.

Further information

For more information, see the CarbonBuzz website: www.carbonbuzz.org