

- UK universities construct around 250 new buildings each year, and refurbish many more

HIGHLY COMMENDED

Dundee's Green Tribute Saves Money and Attracts Students and Staff

The University of Dundee's Queen Mother Building consolidates the previously separated activities of the Department of Applied Computing. The computer and research labs, plus offices, are in clusters of circular 'pods', grouped around a central services spine. The teaching rooms and other public spaces are free-standing within a triple height atrium. The simplicity of this pod design facilitates natural ventilation, makes maintenance straightforward (as does the use of simple interior finishes), and enhances flexibility, especially in the public areas. The building has also been designed for easy expansion by adding an additional storey. Other sustainable features of the building design include optimisation of:

- **orientation** - smaller windows on the south side minimise solar gain and glare on computer screens, whilst larger ones on the north side take advantage of good natural light and the views
- **thermal mass** - load bearing brick walls buffer internal and external heat gain and loss
- **internal layout** - the shape of the pods allows cross ventilation and enables a cellular form which gives most building users access to windows that can be opened
- **insulation** - the building has U-values of 0.18W/m² for the roof, 0.23W/m² for the walls and 0.25W/m² for the floor, while the windows are double-glazed with low-E glass.

The University's Combined Heat and Power (CHP) station provides the building's electricity and heat. This generates financial savings and reduces carbon emissions by 75%, compared to a conventional, air conditioned, computer laboratory.

According to Michael Sinclair, the building's Project Manager, the University "achieved these benefits with a cost of £1,670 per m², which is fairly low for a computer facility, and comparable with industry norms. The building's airy feel and pleasant working spaces have also made it hugely popular with users. Perhaps too much so, as both staff and students prefer to work and study in it rather than use some of the other facilities on the campus. But we've certainly achieved our objective of an iconic building, which enhances networking, and allows us to attract some of the best staff and students in a very competitive field."



Judge's Comments on Sustainable Construction (continued)

The Queen Mother Building is not pioneering, but provides an exemplar of how to achieve sustainable new build. It demonstrates a very detailed and well thought through RICS A-D design phase with the sustainability agenda at its core. This has produced an uncomplicated but effective design to achieve a very successful building for both users and the environment. The design also makes excellent use of its site, for example, by having a small façade area facing south to limit solar gain in the summer. The use of waste heat from the CHP plant is also commendable, as is the high local content of its materials.