£14.5m National Trust's Heelis Centre

Swindon's new National Trust headquarters is recognised as one of the greenest office buildings in the UK, having carbon emissions 65% lower than similar developments. This scheme has won an unprecedented 12 prestigious awards, including the RIBA Award for Sustainability (2006), The Civic Trust's Sustainability Award (2007) and Building Performance Sustainability Award (2008).

Located on a brown-field site and set amongst former railway engineering sheds, the building is two-storey and deep-plan with pitched roofs and a façade of blue engineering brick, its design echoing the form of its neighbours. In keeping with the building's green credentials, innovative use of materials include carpets made from wool from the Trust's flocks of Herdwick sheep and ventilation snouts on the roof, which come from recycled beer cans.

The building is designed to be naturally ventilated, with exposed mass concrete slabs, motorised openable windows and those roof snouts that draw air through the building. An array of photovoltaic panels on the roof provides some 30% of the annual electricity requirement. All this provides the National Trust with low energy consumption and low running costs.

Acoustic Challenges – silent natural ventilation, exposed slab hard surfaces

To encourage effective communication between departments, the Trust was keen to adopt "open plan" office accommodation. This is in some contrast to their former accommodations that were cellular and spread across six different buildings. This ambition led to a key element of AAD's task to design and specify an open-plan environment within which noise disturbance would be minimised and speech privacy not unduly compromised.

Using our established working environment evaluation procedure, we visited the Trusts original offices to "benchmark" prevailing acoustic conditions. Through 3D modelling we were then able to quantify expected conditions in the new environment. We then presented comparisons describing particular differences between existing and proposed. As certain compromises were necessarily made in the transition from cellular to open plan accommodation, we were able to describe how open plan conditions could be optimised, without excessive focus upon reductions in some levels of acoustic privacy.

That's not to under estimate the nature of the task; due to the use of exposed concrete soffits and a natural ventilation philosophy the proposal presented a very challenging environment. In common with the sustainability ethos, it was essential to get the basics right. With only modest opportunity for high level sound absorption and very low background noise levels, provision of privacy was certainly set to be a challenge. Despite these issues, our initial studies suggested the acoustic environment would be acceptable provided that occupancy (workstations per m^2), followed our guidelines and that a relatively high percentage of staff would normally be "out-of-office" attending to field work.

To address risk these conditions may not arise, fallback "retrofit" options were also developed; these included a system of high level sound absorbing baffles within the pitched roof spaces and an electronic sound masking system designed to provide a controlled level of essentially un-noticeable background noise. As it is, these options were not needed and occupants have reported a high level of satisfaction with the acoustic environment.

Open Plan Meeting Space

There is a café/breakout area at the centre of the building, located adjacent to a suite of meeting rooms. To control reverberation here, sound absorption is provided by suspended acoustic baffles that include a sustainable woven lambswool facing as acoustic media. Incorporating a solid core, the baffles "double-up" as acoustic screens and using a system of pulleys, can be dropped to form "screened enclosures" within the breakout space. This attention to detailed design can also support effective communication between work groups.

With the Heelis Centre, in keeping with its strong environmental conscience, the National Trust now has a sustainable and eco-friendly building; through AAD's work and close co-working with design team members, the Heelis Centre demonstrates that acoustic control can be fully integrated with green building design providing "an exemplary working environment".

Client:	The National Trust
Architect:	Fielden Clegg Bradley
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Contractor:	Kier