



Case Study: Helping the National Trust to meet sustainability targets at its new headquarters

NovaCast delivered:

- **496 cast aluminium solar shading panels**
- **4m high free-standing obelisk signs**
- **Large facade signs**
- **Cast aluminium reception desk**
- **92% recycled aluminium alloy (LM6M)**
- **Total cast alloy weight = 5,480kg**

The Background

NovaCast's involvement in the Heelis National Trust building started in 2005 when architects Feilden Clegg Bradley Studios were commissioned to design a new headquarters building that would bring together staff spread across four different sites. The basic parameters of the building were that it needed to accommodate 470 people, must be completed to a very tight budget for a building of this size, and it needed to be an exemplar for sustainable building design.

The site chosen for Heelis, the new 76,500ft² complex, was formally Brunel's Great Western Railway works in Swindon and much of the design inspiration for the new building came from the historic workshop buildings on the site. Sustainability was at the heart of all design decisions from the abundance of natural light and ventilation to the choice of materials and local suppliers, such as NovaCast.

Inside the building, materials were sourced from within the extensive National Trust estate, including bespoke carpets made from undyed Herdwick wool from estate sheep and timber cladding from its sustainable woodlands. Outside, the building was constructed from a combination of aluminium curtain walling and blue Staffordshire engineering bricks laid in lime mortar to reflect the industrial heritage of the site, reduce the use of cement, and aide ultimate recycling.





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The Requirement

It was clear from the outset that to meet the central design brief of creating a modern office building that was also sustainable in every aspect of its construction and operation, the developers would need great attention to detail. Natural lighting and ventilation were fundamental to achieving the sustainability targets because they had such a significant impact on energy consumption.

Large windows were incorporated into the design and measures put in place to ensure that a comfortable working environment could be maintained. These included mechanically operated opening façade windows which are part of an automatic stack ventilation system where rising warm air is expelled through roof vents while fresh air is drawn in at lower levels through the windows. Integral to the design were aluminium solar shading panels to the windows to help regulate light and prevent excessive heat build-up.





The Heelis Building has won multiple sustainability awards including:

- **2006 RIBA Sustainability Award**
- **2007 Civic Trust Award**
- **The Sustainability Awards: Sustainable Building of the Year 2007**
- **2008 Building Performance Award: Sustainability**

The Solution

The design team contacted NovaCast as a non-ferrous foundry that was local to Swindon. The proximity of the foundry to the construction site at just twenty-seven miles would keep transport costs to a minimum, which helped overall construction emissions targets. In addition, NovaCast has always had a commitment to sustainability in its manufacturing processes, using recycled alloys where possible and investing in technologies within the foundry that would lower the environmental footprint of the business as much as possible.

NovaCast was able to provide solutions for the solar shading louvres, main building signage and cast aluminium reception desk. All components would be cast at the Melksham foundry using 92% recycled alloy, the balance being 8% silicon added to achieve the chemical composition required by British and European standards for the specified alloy, which was LM6M. The environmental credentials of this project were further enhanced by leaving the cast alloy untreated with no chemical treatments or passivation which, given the outstanding natural resilience of this alloy, was an understandable decision.

The Result

From NovaCast's perspective, the largest part of the project was the 496 solar shading panels, which amounted to a total cast alloy weight of over 5,480kg. As recycling aluminium uses just 5% of the energy needed to produce primary aluminium, this made a significant contribution to the sustainability goals for the building, particularly when their contribution to temperature regulation within the building is factored in.

In addition to the shading panes, NovaCast also cast the main building signage including the 4m high stand-alone obelisk signs and several additional signs for fixing to the main facades. All the cast components are durable, reusable, relocatable, and fully recyclable.

Heelis has won many design and environmental awards since its completion, including the 2006 RIBA Sustainability Award, 2007 Civic Trust Award, The Sustainability Awards: Sustainable Building of the Year 2007, and the 2008 Building Performance Award: Sustainability. Heelis demonstrates that with high-quality design and attention to detail in sourcing materials, and in construction specification, improvements in sustainability can be achieved within normal institutional funding standards and budgets.



About NovaCast Limited

NovaCast has over 45 years of ferrous and non-ferrous metal casting experience extending into markets as diverse as transport, utilities, offshore and general engineering. The company's non-ferrous foundry, based in Melksham, England, is supported by a fully risk-managed supply chain that extends out to the Far East, allowing NovaCast to provide a single source solution for precision cast and machined components. NovaCast has particular expertise in the production of pressure-tight valve and industrial pump components, and converting complex fabrications and assemblies to precision castings across many engineering applications. Metals cast include alloys of Carbon and Stainless Steel, Copper, Aluminium and many others with a full range of testing, machining, surface treatment and finishing options.

To discuss your requirements, call a member of NovaCast's team on +44 (0) 1225 707466 or email sales@novacast.co.uk

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