



Design for future climate: adapting buildings 2

COMPETITION FOR FUNDING

MAY 2011

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Summary

We are launching a competition to fund the development of strategies to adapt UK buildings to the changing climate. We will invest up to £2.4m this year in a repeat of the 2010 competition, in which we invested £2.5m. The programme will be delivered by the Low Impact Building Innovation Platform, which is part of a broader focus on sustainability and low carbon innovation at the Technology Strategy Board.

The construction industry is already working to make buildings more energy efficient, but expected changes in the climate over the next 100 years mean that we will need to adapt our existing and new buildings if they are to cope. There is a significant market opportunity for design teams to develop climate adaptation services to respond to forthcoming changes in standards and regulations.

We are inviting proposals from clients or their design teams to develop adaptation strategies for current new build and refurbishment projects at pre-planning or detailed design stage, or those already on site. For design team applicants, contracts for the building project should already be in place between the company applying and the client.

We will award contracts for up to £100k to cover the total costs of developing an adaptation strategy. Design teams will do this by exploring five questions in depth (see Funding allocation and project details on p3). At the end of the contract, applicants must submit a detailed report of their data, designs and findings, for dissemination by the Technology Strategy Board.

We are inviting applications from single companies only, which will subcontract work to other partners as necessary. Applicants must submit with their proposal a letter of intent from the client expressing a commitment to participate fully in the design process and to consider implementing recommendations.

Applicants should plan to start work after 30 September 2011 and must complete the work by 31 August 2013. The competition documentation is available from 31 May 2011 and the deadline for registration is 29 June 2011.

Background and challenge

The ultimate aim of this competition is to develop the UK's capability for adapting buildings to the challenges posed by the future climate as projected by the UK Climate Impacts Programme (www.ukcip.org.uk).

The climate is changing, which is having an impact on the robustness of buildings to provide habitable indoor environments. We could be faced with:

- a wetter winter and a drier summer in every UK region
- a 22% decrease in average summer rainfall in the south east, which is already water-stressed
- an increase of 16% in average winter rainfall in the north west, with increases in the amount of rain on the wettest days leading to a higher risk of flooding
- a rise in sea levels by up to 36cm.

Significant changes are planned for standards and regulations. This competition is in response to the publication on 31 March 2010 of *Departmental Adaptation Plans* by all government departments (search for Adaptation across Government at www.defra.gov.uk) These plans set out

the key risks, each department's priorities around adapting to climate change, their policies and what they have already done.

The commercial lifetime of buildings varies enormously, from 20 years for typical retail units to more than 100 years for some housing and public buildings. The commercial lifetime of components also varies; for example, from 10 years for an internal office fit-out to 25 years for a façade. There is a business opportunity in adapting or replacing all existing buildings several times this century as the climate continues to warm to 2100 and beyond.

More clients, particularly local authority clients, are seeing the value in maximising the long term performance of their property portfolios by adding measures for resilience and resistance to climate change to their design briefs. To minimise the financial risks for clients in needing to refurbish buildings as the climate changes, building professionals and clients will need to assess the costs, benefits, maintenance and timing of retrofitting adaptation measures – such as adding shading, underpinning foundations, replacing glazing, and building heating, cooling and water systems – and even replacing buildings that are no longer commercially viable.

We recently commissioned a report detailing the major impacts of climate change on the work of design teams in construction, which is essential reading for all applicants. See *Design for Future Climate: Opportunities for Adaptation in the Built Environment* at www.innovateuk.org/adaptation.

Designing for higher temperatures

In the extreme drought and heat wave that hit Europe in summer 2003 more than 37,000 Europeans died. One of the main issues was that night-time temperatures remained high, so night-time cooling of buildings did not occur. While this weather was extreme, climate projections published by the UK Climate Impacts Programme indicate that in 2080 we can expect to have more than 100 days each year above 25°C. How can we adapt UK buildings to cope with more than 100 hot days each year without adding massively to the UK's carbon emissions?



Scope

We are inviting proposals to develop adaptation strategies for current **low impact new build and refurbishment projects**. Eligible building projects can be at pre-planning or detailed design stages, or already on site.

Building projects must cost more than £5m. Companies can apply to design strategies for more than one large building project – either within a single project or as separate projects if they are significantly different from each other.

We will only consider proposals to work on smaller building projects when there is strong justification that the building is part of a programme of repeat commissioning worth more than £5m, using a common design team that can roll out the learning to all buildings in the programme.

All building projects must have low impact goals aimed at a recognised standard such as BREEAM ‘excellent’ or ‘very good’.

The term ‘adaptation’ should be interpreted broadly, and the design work should address technologies, systems and processes in the areas of:

- comfort, such as internal temperatures, energy management and indoor environmental quality
- construction, such as foundation stability, resistance to driving rain, fixing methods, resistance of materials to UV, and construction processes
- water management, such as conservation, drainage and flooding.

The behaviour of the building management and occupants also needs to be considered.

If you have any specific queries about the scope of this competition please email your questions to: support@innovateuk.org.

Funding allocation and project details

We have allocated up to £2.4m in 2011 to fund design work to answer five adaptation questions that will be disseminated by the Technology Strategy Board. Applicants should plan to start work after 30 September 2011 and must complete the work by 31 August 2013.

We will award contracts for up to £100k to cover the total costs of developing strategies that answer the five questions. We are inviting applications from single companies only which are already part of the design team contracted to the client, but work may be subcontracted to other partners as necessary.

Assessment criteria will include:

- awareness of the issues covered in the *Design for Future Climate: Opportunities for Adaptation in the Built Environment* report
- clarity and credibility of the project plan
- value for money
- mix of skills in the technical team to develop adaptation expertise
- the potential to apply learning to other buildings of this type in the UK.

For successful applicants, we will award contracts to investigate the following questions:

1. What is the current risk exposure for your building(s) to the projected future climate?
2. What is the best way to adapt your specific building(s) now and in the future, to improve resistance and resilience to climate change and thus extend the commercial viability?
3. How will you decide when to recommend implementing certain adaptation measures?
4. How is it best to communicate adaptation issues and measures with clients?
5. How can this work be used to extend adaptation services to other buildings?

At the end of the contract applicants must submit a detailed report of their data, designs and findings for dissemination by the Technology Strategy Board. Further details of contractual obligations for the report contents can be found as an appendix to the contract, available to download from our website from 31 May 2011 (see www.innovateuk.org under Competitions).

The report should include design, redrawing, building control, valuations and quantity surveyor costs. These reports will enable us to compile case studies to raise awareness in the building industry of the need for adaptation, and they will also help us gather evidence to inform upcoming building regulations. The Technology Strategy Board may thus publish and otherwise disseminate all data used. Each of the companies funded by us will own any intellectual property that arises as a by-product of this contract, but such companies hereby grant to the Technology Strategy Board an exclusive royalty-free licence to use the data, designs and findings derived from this contract for the purpose of improving standards in the building industry.

In addition, applicants will be contractually obliged to inform us, in confidence, of any recommendations for adaptation their client has implemented or intends to implement that have resulted from the design work. Any information that we gather about the amount spent by clients on adaptation measures will be anonymised and used to show the impact of this competition.

Further details can be found in the *Guidance for Applicants* for this competition (available from our website after you have registered for this competition).

Application process

This is the second round of a competition with a single-stage application process.

The competition opens on **31 May 2011** and deadline for registration is noon on **29 June 2011**. Deadline for receipt of applications is noon on **6 July 2011**.

Design team applicants will need to submit the following with their application form:

- evidence that they already have a contract with a client for a building project worth more than £5m on a named building.
- a letter of intent from the client expressing their commitment to participate fully and to consider implementing recommendations of the adaptation design work
- evidence of low impact goals for the building project aimed at a recognised industry standard, such as BREEAM 'excellent'.

Client applicants will need to submit:

- evidence of sufficient finance to undertake the building work of more than £5m outlined
- a letter stating their commitment to considering implementation of the adaptation study recommendations
- evidence of low impact goals aimed at a recognised industry standard.

Further information is available in the *Guidance for Applicants* (available from our website after you have registered for this competition). We also encourage potential applicants to attend the Design for Future Climate conference on 18 May 2011 to learn from the projects funded in 2010 and

to hear a briefing on this year's competition. Registration is available at <http://designforfutureclimateadaptationstrategyshowcase.eventbrite.com>.

Note that ALL deadlines are at 12 noon.

Further information

To apply for funding through this competition and to get further details you will need to register your interest via the Competitions section of our website at www.innovateuk.org.

The *Application Form, Guidance for Applicants and Contract Template* will be available when the competition opens on **31 May 2011**.

Applicants should also read the report *Design for Future Climate: Opportunities for Adaptation in the Built Environment* at www.innovateuk.org/adaptation.

Email:
competitions@innovateuk.org

Competition helpline:
0300 321 4357

Publicity

The Technology Strategy Board frequently publicises the results of competitions and this includes engagement with the media. Willing applicants will be asked to provide an agreed form of words for use in publicity material. E-mail pressoffice@tsb.gov.uk with any queries.

The Technology Strategy Board is a business-led executive non-departmental public body, established by the Government. Its role is to promote and support research into, and development and exploitation of, technology and innovation for the benefit of UK business, in order to increase economic growth and improve quality of life.

Key dates

Design for Future Climate conference	18 May 2011 (London)
Competition opens	31 May 2011
Applicants briefing (webinar)	8 June 2011
Deadline for registration	29 June 2011 noon
Deadline for receipt of applications	6 July 2011 noon
Decision to applicants	1 August 2011
Feedback to applicants	31 August 2011

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