

ECOFIX - A Radical Retrofit Challenge

We want your ideas to help us fix our flats, houses, buildings, and streets!

How can we turn the page on how we think about the design of our homes and the way we build our communities?

Did you know?

In England there are c.640,000 empty homes.

Construction accounts for up to 50% of an average building's whole life energy emissions.

When buildings are demolished, over 54% of these valuable resources are wasted, going straight to landfill.

We need you

To select a building or buildings which are currently energy inefficient and in vital need of creative ideas and improvement, and apply your skills and imagination to present a proposal for a retrofit scheme. It can be your home, your street, your apartment block, wherever you live, or pick any homes in need!

Who can apply

12-14 years, 15-18 years and 19 plus years
(including graduates and young professionals)

Submission Deadline

Friday 28 April 2023

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Introduction

'Home is the most important piece of architecture in our lives'.

Everyone should be able to live in a home that is at least, warm, (and cool), healthy affordable and energy efficient.

MOBIE (Ministry of Building Innovation & Education), **Grimshaw** and **Mace** are inviting young people across the country to imagine ingenious ways to upgrade our current homes or re-use old, vacant buildings.

The EcoFix Challenge

Your challenge is to select a building or buildings which are currently energy inefficient and in vital need of creative ideas and improvement! It can be your home, your street, your apartment block, wherever you live, or pick any homes in need.

Find out what does it take to become more energy efficient, emit little or no carbon emissions, reduce the costs of heating and lighting, help protect ourselves against climate change and create affordable, functional, comfortable places in which to live.

This challenge is all about saving our homes, saving energy, saving precious resources, saving our environment. So incredibly vital and urgent are these to all of our futures, that we want everyone to have the opportunity of telling us how all of these can be achieved.



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Retrofit

The term retrofit, in relation to housing, means applying new technologies, materials, and thinking to existing properties. It is a process of adding new features, services and facilities that were not available or thought necessary at the time of construction.

Although the retrofitting of homes usually means improving the energy efficiency, it also means adapting to new ways of living and meeting the current and future needs of the occupants.

Your design

We would like you to apply your design skills and imagination to present a proposal for a retrofit scheme to a building, place of your choice that will **update, upgrade, repurpose**, possibly extend the homes, while meeting the criteria outlined below.

Your design should provide you with the efficient, functional, comfortable, beautiful home you require for the future. In developing your retrofit scheme, you should consider the following:

Think how your design will address the inefficiencies in heating and cooling existing homes.

Show us how you could achieve a significant reduction in energy use and carbon emissions. How will you improve the building's fabric to achieve this?



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Could you adapt your homes to protect against the climate crisis?

Issues such as temperature extremes, drought and flooding have become more common. What are your ideas to modify homes in response to these changes?

Think about renewable energy sources your home will need to reduce reliance on fossil fuels.

Could your home generate or store power? How could it collect and use water efficiently? How could clean energy reduce monthly costs and help fight fuel poverty?

What materials will you use in your retrofit project?

These could include non-traditional bio or plant-based materials, sustainable, locally sourced and recycled materials. What are the key criteria for a sustainable material to reduce carbon emissions and what advantages could they offer your design over traditional materials?

Alongside improving the home's performance, how could your design improve the space for the people living there?

How could you update homes for the way people live today? Think about recent changes like working from home and multigenerational living for example.

Could your retrofit design support the natural environment by creating habitats for plants and animals?

How will you include areas for planting, green roofs or walls?



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Thinking wider, could your retrofit design improve and strengthen the surrounding community?

Is it a community focused initiative, bringing together an entire street, block, or neighbourhood?

How would you engage with people locally and what opportunities could the retrofit process offer the community as a whole?

Are your retrofit ideas repeatable and adaptable so that as many households as possible can benefit from your design?

Think about the efficiencies of designing with components and the economies of scale this offers.

The existing building & location

You should tell us about your chosen site, location, type of existing property(ies) and the surrounding area.

Take some photographs.

Include some background / historical / environmental facts.

Outline the reasons for your choice, e.g. our own house, student accommodation, interesting building / location, current and impending problems, etc.



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Requirements:

You need to submit:

- ① Images, the location and description of the building you are proposing to retrofit.
- ② Details of the occupants of this home.
- ③ The research that has led you to your design and specification and any changes you made along the way explaining why you made those changes.
- ④ Inspiration and concept boards, sketches and drawings (hand or CAD).
- ⑤ The brief you have developed as clients for your particular project.
- ⑥ Materials specification – the materials you have chosen to use and why.
- ⑦ Photographs of any model(s) in any chosen format that best illustrates and explains your retrofit scheme (keep your model safe as we may need to display it later in the exhibition).
- ⑧ Your thoughts on what our government could and should be doing to support these challenges.

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Starting points

As a starting point for your initial research, you might look to some of the exemplary housing retrofit projects of recent years and decide what's missing or could be improved in future.

Use the internet to look for: Chimney Pot Park, Salford, Park Hill, Sheffield, Granby 4 Streets, Liverpool, the Byker Wall, Newcastle.

Also, further afield, the work of French architects Lacaton and Vassal, especially their Tour Bois-le-Pretre retrofit schemes for social housing tower blocks.

Consider building up – roof extensions, dormer windows, loft conversions (and down for basements).

Possible helpful energy efficiency suggestions – Insulation, windows, blocking off chimneys, roofs, heat pumps (if space permits), wall cladding (interior / exterior, but thickness can present problems), insulation paints, whiteboards, innovative materials, e.g. Mycelium based products.

Climate crisis consequences – look for inspiration from different home types across the world. How have houses in other countries been adapted to deal with different climates? For example, compare our traditional windows to those in the Mediterranean, with deeper reveals, external shutters and shades to stop heat from the sun while allowing air to flow. Plus, intelligent glass technology options, alternative materials (recycled, renewables), roofs, walls etc.

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Consider increased risks of flooding, and providing sacrificial basements / ground floors, positioning of electric sockets, wall and floor finishes.

Consider outdoor spaces, shading and providing cool areas.

Challenge support

MOBIE, Grimshaw, and Mace will be providing help and support after the launch and during the challenge with a series of webinars, workshops, events, virtual talks from professionals featuring case studies and examples of their related projects.

We will be supported at the webinars and workshops by volunteers from Grimshaw and Mace's young graduate employees and MOBIE's Young Community, previous challenge winners and finalists.

This challenge is for young people interested in designing a beautiful and sustainable community for future living and education.

You can address and answer as many of the above questions as you like, concentrating on whichever most interests you, your age category, available time, course, area of study etc. For example you might prefer to focus on the site and landscaping, or energy and technology.

Good luck everyone!

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