

Scotland's
Student Challenge

Resource Efficient House

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Challenge

Presented by:

CITY OF GLASGOW
COLLEGE



MOBIE
Ministry of Building
Innovation and Education

Introduction

MOBIE with the City of Glasgow College are inviting the young people of Scotland to work together to imagine ingenious ways of solving a unique and exciting challenge.

The Efficient House is a prototype home that's on display at the BRE's Innovation Park in Ravenscraig. There is a daring plan underway to move this house from its existing location to a totally new one. This enormous task will involve a lot of challenges along the way, and we need your creativity to help make it happen. The first and biggest being, how do we get it there?

We're asking you to consider where the Efficient House should go, the logistics of re-building it, any adaptations needed, the method of construction, the building materials and maintaining its energy efficiency. In moving the house to its new location, it also needs to exemplify novel ways of protecting our planet and create a safe and healthy environment. Above all, we want you to think about how the home will be lived in and how it will change to meet the needs of its occupants over their lifetime.

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The Site

You should start by learning about the site where the home will be re-built and its surrounding area. Look at the site on a map, the drone video or from old photographs and, if possible, research about it on the internet. If you can visit the site safely, take photographs, make sketches and rough plans, take measurements of key distances.

Landscape, Nature & Environmental Conditions

If you visit the site, you could carry out a quick site survey. Check out the 'lie of the land' and the setting of the site and surrounding landscape. Ask yourself some key questions, like how big is the site, is it flat, are there any changes in levels? Is it easy to reach? Is it a quiet or noisy place to live? Where does the sun rise and set? Note any obstructions to the development such as trees, overhead cables, historic buildings.

Also, look at what plants and creatures currently call this site home? How much wildlife is already there, might there be any protected species? Is there an opportunity to create more green space and wildlife habitat in redeveloping the site?

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People, Community & Services

Find out what kinds of services, facilities and activities are on or close to the new site. Is there a sense of place and community? Find out about Glasgow as a City, the building will be in the city centre.

The Efficient House

Research the existing house. Ask questions like when was it built? Why was it built? What is special about it? How was it constructed? Which materials were used, and why? What could you do to improve it?

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The Design Challenge

Your challenge is to solve some construction problems and propose design solutions for an extension.

Challenge 1 - The dismantling and reassembly of the existing house - how do you transport the existing house to the new location and how do you need to prepare the site?

Challenge 2 - How is the building re-constructed on site?

Challenge 3 - Design an extension to be built onto the existing house. It should be a self-contained annexe to the main building. The accommodation should be suitable for family members who wish to live on-hand but independently to the main family home, such as ageing relatives, grandparents or young grown-ups seeking their own privacy and home life. This new accommodation should provide flexible rooms/spaces that reflect their needs, lifestyles and be adaptable to a range of uses. These might include working from home so provision for an office, studio, workshop by day and yoga room or family entertainment room by night? What could other spaces be used for and what needs to be in them, including smart technologies?

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The Design Challenge 2/2

Challenge 4 - How can we make this building more efficient by exploring and investing in new technologies? Could it have a ground source heat pump, or Photovoltaics as a new cladding, harvest the rain water, install a grey water system, smart technologies and materials? What can you do to improve the energy efficiency of the building and reduce its carbon footprint? Also, think about reductions in waste.

Please note, you can carry out all of the four challenges or just one or a few of them, it's entirely up to you! We want you to have fun. Perhaps some of the younger students in schools might prefer to concentrate on Challenge 3, the new home design. Working in groups with a mix of knowledge will help.

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Meeting Future Needs

Your designs must consider the planet. It must be a zero carbon proposal and sustainable to re-locate, re-build, extend and run. Its construction must use sustainable materials, which could include recycled materials and minimise waste. It must offer low running costs, energy use and have zero carbon emissions. Think about how the design and specification of the house can reduce the need for materials and energy, and then how you can create the energy that is needed from renewable resources.

Show us how the home and the extension will consider the health and wellbeing of the people who live in it as well as those in the surrounding community. Consider what new and digital technologies the occupants might need and enjoy. Your new home should be beautiful to look at, as well as beautiful to live in. Finally, how well will your design last into the future – i.e. will it be flexible for future adaptations to future lifestyles?

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Submission Details

There are 3 submission age categories:

11-15, 16-18 and 19 plus years

You can submit a physical or digital entry. Please provide something like:

- 2x A1 boards showing your designs
- Your site history and heritage report

You will probably want to make a model; you only need to submit photos of your model (but keep your model safe as we may want to display it later in the exhibition)

Please send your submissions to MOBIE by Friday, 28th June 2021 to home@mobie.org.uk

If you or your college or school would like to arrange an online meeting or chat to discuss any details or answer questions about the competition or some help with Modern Methods of Construction techniques, please contact Gerry Ruffles via email gerry@mobie.org.uk or visit our websites : www.mobie.org.uk and/or www.offsiteready.com

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How will we assess your entries?

- How has the submission considered the site and its surroundings, how has this influenced the design and thinking?
- How does the submission reflect the people, communities and their activities that will use the site and its surroundings?
- How has the submission considered 'future living' in Glasgow?
- How has the submission focused on the 'greenness of the' home, how does it protect the planet and the environment?

Good Luck!

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