



## Engineering

Engineering is about solving problems: about designing processes and making products that can make a real difference to individuals and society. Engineers require a strong academic knowledge, but engineering is more than just mathematics or science. It's the ability to analyse a problem and find a solution in a practical and cost-effective way.

### Question

The task for this year's Caius Explore is to examine residential construction in the UK. Existing methods and materials vary widely, and new approaches are constantly being developed. While the potential for innovation is vast, time-tested building techniques hold their own advantages. Identify one or more of the most promising techniques and evaluate the environmental and financial cost relative to other strategies. Make recommendations as to how the UK should proceed in ensuring that housing demands in the UK are met while minimising environmental impact.

The task is to devise a strategy for homebuilding in the UK and describe associated government actions (if any) necessary for the plan to succeed. Your strategy must consider several issues:

- Over what time scale should we be thinking, and how many homes will need to be built and/or rebuilt to meet demand?
- What role should the existing inventory of buildings play, and to what extent should focus be on new construction?
- How long should buildings be expected to last, and what eventually becomes of them?
- What materials should be used, and from where should they be sourced?
- To what extent should the government be involved, and how can it influence future practices?

The strategy you come up with is entirely up to you. Ignore the current actions in the building sector! Base your design on what you think an ideal system would look like. We need a sustainable system that can reliably supply as much housing as is needed everywhere in the UK.

### Format

Your task should include two parts:

1. The developed design as a high-level presentation to a government minister. This could be a text document or a PowerPoint presentation. It should succinctly convey the important aspects of your design.
2. Explanatory notes detailing the decisions you have made and crucially why you made them. This can be as long as you wish and can contain calculations to justify your thinking if appropriate.

Please submit your entry in electronic form as a PDF.