

Construction technology - design processes and procedures



**ASSIGN
BUSTER**

The design process of a project can be very complex, there are multiple factors in which designers must take into consideration during the early stages of a project. Each factor plays an important role not only during the design process but they can also affect the life cycle of the project, therefore the RIBA plan of work is usually used which allows clear guidance on the roles of those involved and is easy to understand. Below is a brief description of the factors surrounding the Nottingham Jubilee Campus: Advanced Manufacturing Building Redevelopment project.

Financial

Finances are usually the first thing to consider on a new project as it can massively influence if the project is feasible or not. A budget is set in place and each stage of the design and production process is allocated an amount of money to keep within the budget. Running over budget can mean that the design may have to be adapted to keep the extra costs as low as possible which can affect the overall outcome of the project in terms of aesthetics and performance. Some projects can be funded by organisations that are involved or will benefit from the project, i. e. Local Authorities/Government, Stakeholders, Companies/Partnerships, residents and Students.

Social

A consideration must be made of the potential social impact of a proposed project, this can include:

- Impacts on residents -The project should be designed so that minimal disruption is made both during the construction process and the

operation of the project. Disruptive factors such as excessive noise and visual obtrusiveness will negatively impact the view of residents who will be affected by the project in their day to day lives.

- Environmental impacts -The design should consider the local environment in which the building is to be placed. This can include higher pollution levels from increased traffic to and from the University Campus during the life cycle of the building and the impacts on local wildlife. Care should be taken to ensure that habitats that are removed are restored elsewhere so that the wildlife are not exposed to danger. It could also be possible to design certain habitats into the project itself, through green roofs/walls and planted platforms.
- Economy -Having an extension to a University Campus will provide a boost to the local economy. This can in turn lead to businesses expanding and providing more jobs to residents and potentially to the University Students.

Client needs

The Client's needs are incredibly important on a project, after all they are paying for everything. For a project, such as an extension to a University Campus, the client's needs will include:

- Fit for purpose classrooms -The University has a duty to provide education to a high standard, providing classrooms that can achieve the high standards is essential.
- Security -The safety of the students is the University's responsibility whilst on Campus, therefore having effective security measures in

place is important. These security measures can include photo ID cards that allow access to the building through a card reader, security staff that patrol the premises and CCTV cameras.

- Energy efficiency -There is a big focus on new buildings to be as environmentally friendly and sustainable through energy use due to the increased awareness of climate change. By providing ways in which energy efficiency can be increased, the running costs of the building will be lowered substantially throughout the lifecycle of the building.

Legal Constraints

The design of a building must comply with very strict Standards, Regulations and Laws. These practices are in place to ensure that any project is designed and built safely whilst providing construction guidelines. There may also be a contract in place which indicates what the client is receiving for their money. Some of the legislations in place are:

- Building regulations
- Construction Design Management (CDM) Regulations
- British Safety Standards
- EN - European Norm
- ISO - International Standards Organisation

Environmental

There must be consideration for the environment during the design process of a project, the designers should not only consider environmental impacts

during construction but also throughout the life cycle of the structure and eventually the demolition. Some aspects that should be considered are:

- Plant and machinery that is used on site to minimise pollution
- Materials: how they are manufactured, where they are sourced and the recycling possibilities
- Heat and power sources on site
- Water waste

These factors should be considered to ensure that minimal impact is made on the local wildlife habitats and residents.

There are multiple roles for numerous professions within the design team with each having a vital role. The roles and responsibilities for those involved are:

- Architect – The architect is the person who initially designs the structure based on the client's needs/requests. There can be a group of Architects working together who are given a specific section/area to design if it is a large-scale project. Architects must ensure that the designs they create comply with the relevant regulations in terms of environmental, safety and the construction of the structure. An Architect will have a University Degree with relevant experience studying art.