

6.0 Accommodation Requirements

6.1 Space Requirements – internal & external (car parking)

Our clients' brief states that they require the following:

- 10 Lecture Rooms – Each to house 30 student each
- 4 Lecture Theatres for 80 students (across three floors).
- 1 tiered lecture theatre – to house 300 students.

Further accommodation should be allocated for an Entrance Hall, Reception Area, Toilet Provisions, Storing & Printing Rooms, central meeting areas and Cafeteria. The internal requirements have further implications, such as having the flexibility to have spaces rented out to users outside of the University. These would typically include seminars, conferences, guest speaking etc.

The client has stated that the external space, such as communal spaces, green spaces, car parking etc should be environmentally landscaped for the community's use and also provide greater biodiversity. An objective of ours for this project is to try and boost the sustainable aspect as much as possible, being material choice, transportation methods etc. The inclusion of EV charging points will bring a great sustainable approach to the scheme as it promotes a greener method of transportation and is slowly becoming more and more common over the country. Having public transport alternatives would be a huge benefit as it would cut down on the amount of vehicles travelling to and from the campus, which would have a positive impact on the local community and environment in general.

External spaces and landscaping will have careful thought to ensure the site and its' surroundings has an aesthetical appeal and replicates a sustainable approach.

7.0 Design/Specification

7.1 Existing construction composition, level of specification

- Our initial thoughts regarding the composition and construction of our building would be a steel frame building, with a combination of both traditional and modern facades.
- The level of specification will be agreed pre-commencement of the works, to allow for the most effective materials and processes to be utilized in the project.
- A steel frame building lends itself to flexibility when determining finishes and aesthetical appearance.
- Most of the building materials will be traditional, such as Concrete for example, due to the mass and scale of the requirements of the building.
- All material and processes specifications will be carefully analysed alongside current standards and building regulations standards.

7.2 Alternative systems of construction

- The logical and most appropriate method of construction for this type of building would be steel frame structure due to its' simplicity to construct, and its construction time.
- Alternatively, a precast concrete structure could be considered to save on the length of the project, where traditional cavity wall construction methods would not be suitable due to the buildings size.
- Also, if considering an alternative proposal to a steel frame building, the relationship between other materials should be assessed to determine whether they would work well together when faced with any problems should they occur.

7.4 External Works, solar shading (especially nurseries)

- Solar shading and the buildings' orientation will require careful detail as it could play a vital role in whether the building is a comfortable place for students to study/spend time.
- External seating areas will need some shading from natural lighting, therefore, this could be incorporated into the design, by utilizing roof projections, offering shade to certain areas of the external space.
- Architectural sculptures could also be introduced to shade areas of the building, especially the study rooms where students would require full attention.
- Light isn't the only important consideration when discussing solar shading, heat is also an important factor.
- Our initial proposals sway towards the modern appearance, offering large areas of glazing. The orientation and position of these areas will be essential in the buildings fabric and heat radiation, as south facing areas would naturally gain.
- Lastly, heat loss will have to be analysed to ensure that we maximize the radiation within the building and control the heat loss/gain sensibly.

7.5 Provision for future expansion/alteration

- Due to our project being an educational establishment, the need for expansion and alterations in the future may be inevitable, therefore, it's our role as principal architects to design the building in such a way where there is flexibility for future expansions if required.
- The increase in number of students and building users may increase, which would require further learning facilities, classrooms, communal and social spaces, W.C provisions etc.
- Should the final construction method be steel frame, it would be easier to alter and amend the existing structure to allow the proposed structures to tie in.
- Simple yet effective roof structures would also allow for future expansion should be required.

7.6 Building Regs

- In today's industry, building regulations specifications and guidance are becoming a huge factor in every building project, with so many standards to reach.
- The building regulations guidance covers each stage of the build, from the foundation specifications to the choosing of internal doors.
- Levels of insulation in all walls, floors and roofs will need to be met, enabling the buildings fabric to have the best thermal conductivity.
- Due to our buildings' use, a sprinkler system will have to be incorporated, along with fire regulated doors, adequate fire escapes etc.
- All details will be covered pre-commencement of works to ensure that each aspect of the build is covered and approved by the local authority.
- Structural engineers will also be on board to ensure that the correct sizes and calculations will be put to the structure of the building, ensuring safety and longevity.

7.8 Energy Efficiency, BREEAM, EPC requirements, sustainability measures

- Energy efficiency is an important part of building projects as higher the standard of thermal conductivity, better the efficiency. By insulating a building well, it allows the building to use less heating and cooling energy to maintain and achieve a temperature defined as a thermal comfort.
- Improving energy efficiency has several benefits, such as lowering utility bills, and assists in maintaining the energy prices.
- BREEAM (*Building Research Establishment Environmental Assessment Method*) evaluates and compares procurement designs and developments against numerous benchmarks and targets which need to be met.

- This assessment looks at the sustainable values of several different categories, such as Energy, Water, Waste, Materials etc.
- All new developments and structure now require an EPC before the building can be signed off by building regulations officers. It's a certificate stating the values and rating of the buildings' energy efficiency.
- Typically, these certificates are valid for 10 years.

7.11 Secured by design issues, consultation with South Wales Police, Crime prevention design advisor

- Secured by design is a solely run police initiative which focuses on improving and maintaining the security of buildings, ensuring that they're safe and welcoming spaces for people to occupy.
- By utilizing secured by design to our project, it will enable us to control crime prevention and lower the risks of any criminal damage occurring.
- Us as principal designers will work closely with South Wales Police to ensure that the highest level of security will be maintained.
- Lastly, there will be an advisor dedicated to our scheme, offering full-time support and advice on how to approach certain incidents should they occur.

7.12 Accessibility Issues

- Accessibility will be an important factor in this building, ensuring that the entire building is accessible for all users and students. All external doors will have level threshold access and the entirety of the ground floor won't have any internal steps.
- Lift access will be provided within the building (amount will depend on number of building users and occupants). These will typically be located in the centre hub of the building; the communal space, allowing full circulation for users.
- Part M (Access) regulations and standards will have to be met. These include – Door widths, Disabled friendly W.C Provisions.
- Adequate signage will be incorporated to state that all lifts and access points should be always kept clear.

7.13 Health and Safety

- Health and Safety guidance will be followed throughout the projects' duration, ensuring that all personnel's welfare is always guaranteed.
- Throughout this project, it will be the employer's responsibility to protect the safety and welfare of everyone in the workplace.
- Adequate facilities MUST be provided for the benefits of all workers.
- Current and latest welfare regulations will be adhered to throughout this project.
- Our proposed scheme will consider the approved code of practice guidance in order to gain practical advice on how to comply and adhere to the law.
- It's believed that doing as little as following the guidance will be seen as complying with the law.
- An example of this would be that the employer ensures that all safety measures are in place before any works are to start, such as signage, warning signs, equipment.

7.14 Carbon emissions targets

- Carbon emissions and lowering carbon footprint is an important part of our scheme, as we have several intentions on how to contribute. Our scheme will be promoting a green approach, by include accessible cycling and walking paths to our site, include electrical charging points for users to utilize. Also, despite not being the most sustainable approach, buses would be a suggestion as it would cut down on the number of vehicles arriving and leaving the site.
- Another aspect we intend on exploring is including solar panels, which is a very sustainable and effective way of generating energy to our building.