

Sustainability Guide for Construction, Refurbishment and Maintenance Projects

What's this guide about?

This construction, refurbishment and maintenance guide identifies the main sustainability factors that need to be considered during the design, refurbishment, construction or ongoing maintenance of buildings on our Campus.

What do I need to know?

Read this guide to understand what you need to consider when you design, implement or manage the refurbishment, construction or ongoing maintenance of buildings on behalf of the College. We expect all staff, contractors and their sub-contractors to follow this guide in so far as it applies to the product and service that they are supplying.

- (1) Design and Layout
- (2) Energy Supply
- (3) Water Conservation and Management
- (4) Accessibility and Movement
- (5) Biodiversity
- (6) Sustainable Materials
- (7) Appendix 1 - Checklist

What do I need to do?

1. Design and Layout

Aim: Ensure the design and layout of the building maximises energy efficiency.

The design or layout of a building should minimise the energy requirements of the occupants, reducing energy resources and minimising greenhouse gas emissions produced through the burning of fossil fuels. A wide range of measures can be used to reduce energy consumption when you design, implement or manage the refurbishment, construction or ongoing maintenance of buildings. The following should be considered:

- Minimise artificial lighting and maximise the use of passive solar design and natural day light.
- Make positive use of the local topography and landscape features to allow best use of natural daylight, solar energy, wind sheltering and create development that responds to its context.
- Orientate buildings to maximise the use of natural energy sources to provide light and heat.
- Fit thermal insulation to roofs, walls and floors that exceeds the current Building Regulation Standards.
- Windows should be double-glazed and have low emissivity glass to comply with current Building Regulations. Triple glazing should be considered, when appropriate.
- Use of natural ventilation to keep buildings naturally cool in the summer and warm in the winter.
- Ensure all plant and equipment is energy efficient meets the current Building Regulation Standards.

2. Energy Supply

Aim: Reduce overall energy use and maximise potential for renewable energy supply and use.

When you design, implement or manage the refurbishment, construction or ongoing maintenance of buildings on campus you should consider the potential to use on-site renewables. Renewable energy can be produced in a variety of ways through a range of technologies. The selection should be based on the mix of feasible technologies that can achieve the greatest reduction in CO₂. Sources of renewable energy that should be considered are:

- Solar Water Heating and Photovoltaic's
- Heat Pump - Ground Source/Water/Air Source
- Combined Heat and Power (CHP)
- Wind Power
- Biomass

If you are required to upgrade or install an energy supply, ensure that you received the correct permission and notified all the necessary parties.

3. Water Conservation and Management

Aim: Conserve water resources, enhance water quality and incorporate water sensitive design.

Each of the following elements should be considered when you design, implement or manage the refurbishment, construction or ongoing maintenance of buildings:

- Water Recycling
- Green / Brown Roofs
- Water Conservation
- Percussion spray taps
- Infrared operated taps
- Waterless urinals
- Aerated shower heads
- Low or dual flush toilets
- Water-saving white goods
- Sustainable Urban Drainage Systems (SUDS)

4. Accessibility and Movement

Aim: Ensure land-use patterns minimise the need to travel and reduce the need and the propensity to travel by car.

To reduce dependence on private car usage and its associated impacts, the College has a Travel Plan, ensure that you are familiar with this and consider:

- Providing information points for pedestrian, cycle and public transport routes for buildings users.

5. Biodiversity

Aim: Conserve and enhance the environment in relation to biodiversity and habitat provision.

When you design, implement or manage the refurbishment, construction or ongoing maintenance of buildings you should aim to conserve and enhance biodiversity by;

- Minimising damage to the natural environment by enhancing the local landscape character and ecology.
- Minimising the impacts of noisy operations.
- Minimising the impact of artificial lighting

6. Sustainable Materials

Aim: Maximise the use of materials from sustainable sources.

To achieve the maximum usage of materials from sustainable sources where possible, the aim should be to use:

- Reclaimed / Recycled Materials
- Locally Sourced Materials
- Low Energy Materials

7. Appendix 1 Checklist

Question	Yes	No
1. Does the design of a building or site minimise the energy requirements?		
2. Does the layout of a building or site minimise the energy requirements?		
3. Have energy efficiency measures been incorporated into the design?		
4. Has solar gain been maximised?		
5. Has there been consideration given to insulation and ventilation?		
6. Has shading been designed to keep out summer sun and allow winter sun to penetrate?		
7. Are there any measures to promote energy efficiency in the development?		
8. Does the design minimise energy use and carbon emissions?		
9. Does the design maximise water conservation and protection measures?		
10. Have you specified water and energy efficient appliances?		
11. Are there any measures to enhance water quality?		
12. Is the access hierarchy at the heart of the design to promote non-car modes of transport and disabled promote non-car modes of transport and disabled access?		
13. Do pedestrian routes connect key buildings or destinations?		
14. Does the development have easy access to public transport and information?		
15. Do designs reduce indirect impacts of the development on species, habitats and landscapes, which include level of noise, and lighting disturbance?		
16. Have habitats been created that encourage wildlife and support the local environment?		
17. Has any existing valuable vegetation on the site been retained?		
18. Have the effects of the development on the surrounding environment and biodiversity been considered?		

19. Has waste been minimised through re-use and recycling of construction waste and designing for recycling facilities?		
20. Have building materials been procured from sustainable or local sources?		
21. Does the choice of materials contribute towards the character of the site?		
22. Have materials been used with a low embodied energy?		

Document Control

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