**Maintenance Services**

**DESIGNING FOR FUTURE MAINTENANCE**

**Guidance for Design Teams**

**26th March 2021**

Document Approval

|  |
| --- |
| Originator |
| **Stephen Boon**Head of Maintenance & Business Services |
| *Signature*  |
| Last Review Date: 26th March 2021 |
| Next Review Date: March 2022 |

Document Issue Record

|  |  |  |
| --- | --- | --- |
| ISSUE | DATE | DESCRIPTION OF AMENDMENT |
| 1 |  5/3/13 |  First issued |
| 2 |  10/5/13 |  Minor revisions to document, sections 3 & 4 |
| 3 |  10/5/19 |  Minor revisions to document, section 3  |
| 4 |  5/12/20 |  Minor revisions to document, sections 3 & 4 |
| 5 | 26/3/21 |  Minor revisions to document, section 3 |

Previous issues of this document should be destroyed.

**Contents**

1. [Scope 4](#_TOC_250006)
2. University’s Maintenance Policy 4
3. [Design Principles to be Adopted](#_TOC_250005)
	1. [Planning for Maintenance 4](#_TOC_250004)
	2. [Design Provision for Future Maintenance 5](#_TOC_250003)
	3. [Parts and Materials 5](#_TOC_250002)
	4. [Building Life 6](#_TOC_250001)
4. [Handover 6](#_TOC_250000)

# Scope

This Guidance Note sets out the principles that should be adopted by Design Teams in order to ensure that future maintenance issues are properly considered at the feasibility, design and construction stages.

The Guidance Note applies to all new build, refurbishment and maintenance projects. It does not replace existing industry standard design guidance and documentation.

The Design Team shall fully comply with the CDM Regulations in respect of safe access to plant, equipment and components for the purposes of future maintenance, removal and replacement.

# University Maintenance Policy

The University aims to ensure that, so far as it is reasonably practicable, the estate is maintained in a manner that provides a safe, reliable and secure environment, which is fit for purpose and complies with current legislation.

The relevant University Maintenance Policy **objectives** are to: -

* + Provide a built environment which is safe, fit for purpose and which effectively supports the University’s Corporate Plan.
	+ Protect the asset value of the University’s built estate by optimising the life of components, consistent with their intended use.
	+ Reduce responsive maintenance and minimise the risk of unforeseen major defects which might adversely affect the safety of staff and students or the core business of the University and incur additional costs.
	+ Ensure that, as far as reasonably practicable, maintenance projects are co-ordinated with other construction works to minimise their impact.
	+ Ensure that the University’s built estate complies with relevant legislation, including environmental legislation.
	+ Ensure that all maintenance work is undertaken in a safe manner.

# Design Principles to be Adopted

## Planning for Maintenance

* + - The Design Team shall consult with Maintenance Services at feasibility stage to discuss the proposed design, the selection of plant, equipment and components to ensure that routine maintenance will be achievable in the future.
		- When requested, Maintenance Services shall assist the Design Team in providing a pertinent history for any maintained equipment relevant to the project.
		- The Design Team shall consult with key stakeholders to discuss the likely impact of future routine maintenance activity. This should include

consideration of the access requirements for maintenance, the disruption caused by maintenance work and the likely interruption to core University business whilst maintenance work is undertaken.

## Design Provision for Future Maintenance

* + - Plant shall be designed and installed in such a way that routine maintenance, inspection and testing can be carried out during normal working hours, without unreasonable disruption to the building’s core functional spaces.
	+ Suitable and sufficient provision shall be made for future removal and replacement of large/heavy plant.
		- Suitable and sufficient provision shall be made for safe access to maintained plant that does not require supplementary safety equipment such as man-safe systems, in order to carry out routine maintenance and inspection.
		- The permanent means of access shall include appropriate access doors, hatches, panels etc where required. The means of access should **not** require the removal of ‘fixed’ building fabric to gain access, for example the removal of any ceiling tiles.
		- Buildings with flat roofs that require access for maintenance or operational actives at roof level shall be constructed with a suitable parapet or guardrail. Flat roofs housing plant should be covered in a durable roof covering, with slip-proof walkways and access platforms provided to all plant and equipment requiring access.
		- Where roof mounted plant requires access with parts and tools, suitable safe access must be provided. The use of ladders is NOT considered as a safe means to access for staff carrying tools and equipment.
		- Plant, equipment and components shall generally be capable of being installed, maintained and operated safely by personnel with normal skill levels.
		- Consideration shall be given to the potential impact of critical component/plant failure. Operationally critical components should be duplicated and shall be provided with automatic or manual change over facilities appropriate to the level of risk.
		- Wet services must not be routed over other expensive plant or research equipment, to minimise the risk of water damage in the event of a leak.
		- Wet services should not be routed through electrical service cupboards to minimise the risk of water ingress into electrical conduit or fittings.
		- Gullies, hopper heads, rodding eyes and bends on rainwater down pipes must be easily accessible. Access doors shall be provided to access concealed rodding eyes. Hopper heads must not be concealed behind cladding.
		- External gullies and drainage fittings must consider the surrounding environment, the likelihood of blockage and the ease of clearance. Slot drains must not be used beneath trees or near to other sources of debris that may block the slot.
		- Redundant plant and associated services, containment etc. shall be removed as part of the project, unless agreed with Estates Maintenance.
		- Landscape design should consider the suitability and future growth of planting material. Wide spread canopy trees should not be located next to roads. Planting next to windows should consider the future height of planting and ensure this does not block or reduce the level of natural lighting within adjacent rooms.
		- Bat boxes must not be located within trees.
		- Where, for any reason, designers are unable to comply with the general and specific requirements stated in this document (e.g. perhaps working on an existing building) project teams should highlight this in their design and draw it to the attention of the Project Manager in writing.

## Parts and Materials

* + - Materials, plant and equipment specified shall be in accordance with the University’s Standard Specifications.
		- Materials, plant and equipment shall be strictly in accordance with the NBS or NBS Engineering Specification prepared for the particular project, and comply with current legislation, regulations, ACOPs, British Standards, byelaws and industry best practice.
		- Parts and materials should be selected from the University’s ‘List of

Preferred Suppliers and Manufacturers.’ Where the design team wish to utilise parts and materials that are not from preferred suppliers/ manufacturers this variation must be approved by Maintenance Services at the design stage.

* + - All projects shall utilise nominated framework contractors/preferred suppliers for services such as the installation of fire alarm and access control systems.
		- Where there is no University specification, industry standard parts should be used, subject to approval by the University’s Chief Engineer, and there should be a suitable level of availability of maintenance materials, spare parts etc.
		- Short-life components shall have provision for easy replacement and shall be readily available i.e. they must not be subject to extended manufacture, supply or delivery periods.
		- Long-life or maintenance free components shall be used in inaccessible areas wherever possible. E.g. lamps in high-level soffits.
		- The need for specialist maintenance contracts shall be minimised, wherever practicable.

## Building Life

* + - The Design Team shall consider the anticipated lifespan of existing building(s) when specifying plant, equipment and components. Where buildings have been identified as having a short remaining life (typically <5 years) it may be appropriate to specify shorter life components, subject to agreement with the Maintenance Team and the relevant Project Committee.

## Handover

* The University’s current Project Handover Procedures **must** be followed on all projects. The current Asset Information Requirement (AIR) guidance for handover is available on the Estates website.
* Requirements for warranties, test certificates and other documentation are defined in the AIR and **must** be provided as part of the handover process.
* Requirements for the O&M manual / H&S File are defined in the AIR. These documents **must** set out what maintenance/ testing/inspection regime is required on building components requiring routine or statutory maintenance/testing/inspection.
* The provision of inadequate or incomplete technical documentation and certification at practical completion is likely to prevent Estates from accepting handover of the project until such time as the information is provided.