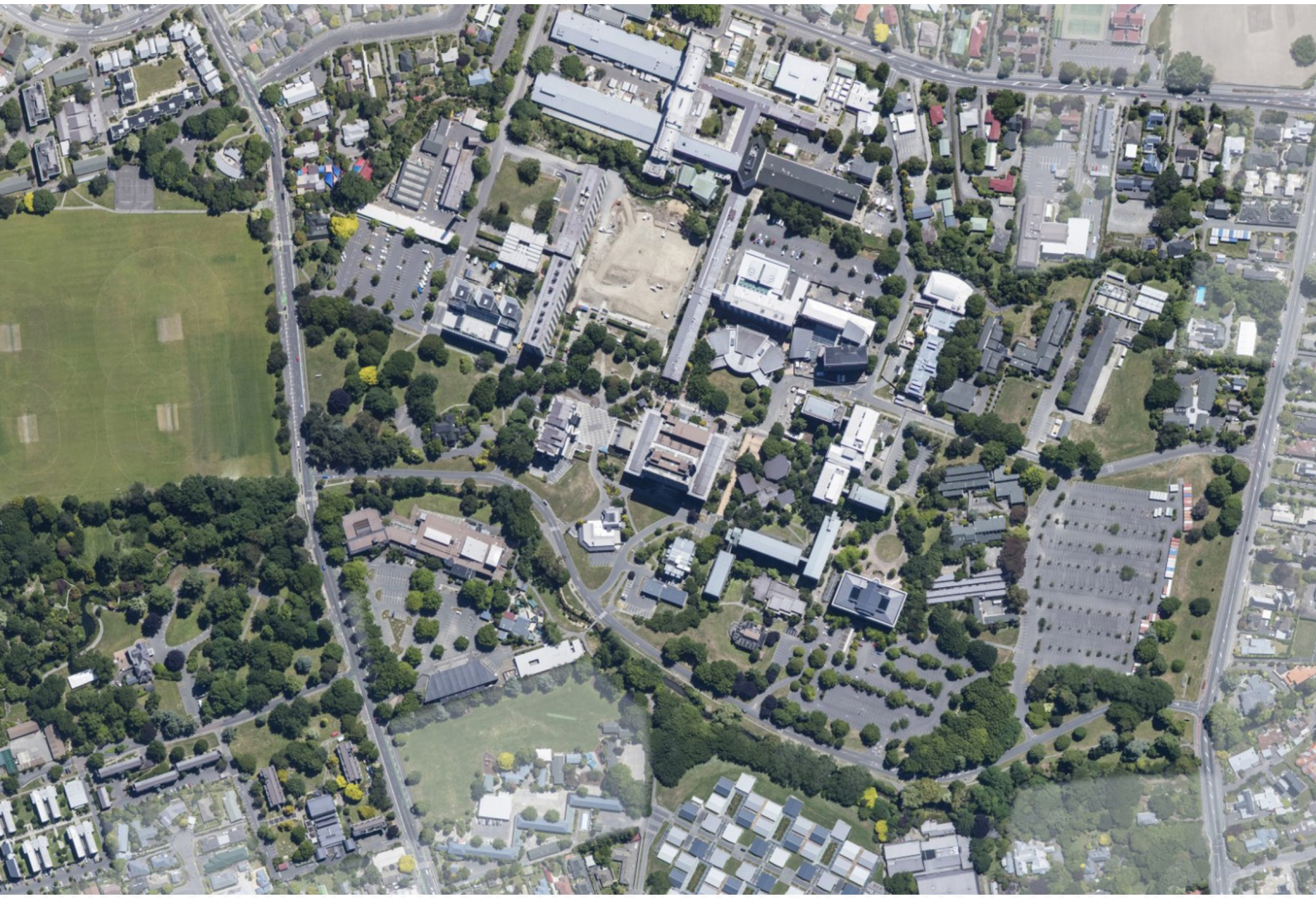
Design Guidelines
September 2019: Issue 4

UNIVERSITY OF CANTERBURY
Te Whare Wānanga o Waitaha
CHRISTCHURCH NEW ZEALAND

Section 1 General.



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Revision History

Revision Number	Description	Section Owner	Date
Issue 1	Original Draft	-	-
Issue 2	Internal Review	-	-
Issue 3	First public circulation	Simon Maindonald	October 2016
Issue 4	*Updated Issue*	*Mark Homewood*	*September 2019*

Current Document Acceptance

Update Authored	Approved	Date
Gareth Jones	*Mark Homewood*	*September 2019*

Key Updates from Previous Issue

Revision Item	Details
1.1.1.1 The Compliance Checklist	*Updated milestone schedule for submission of the Compliance Checklists.*
1.1.1.3 Updates to the Design Guidelines	*Summary of process for updating the Design Guidelines included.*
1.1.2.4 Design Stages	*Reference to the NZCIC Guidelines added to design stages description.*
1.1.6 Maintenance Considerations	*Descriptions of key Maintenance Considerations expanded. Including reference to presentations to UC Facilities Services.*
1.1.7 Hazardous Substances (HSNO)	*Reference to Hazardous Substances (HSNO) considerations on projects added.*
1.1.8 Issue Matrix	*Clarification added confirming distribution will vary depending on specific project scope.*
1.2 University Policies and Planning Documents	*Sections 1.2 and 1.3 combined including removal of policies and planning documents that are no longer used or addressed within the Design Guidelines*
1.4 Roles and Stakeholders	*Clarification added confirming roles will vary depending on specific project scope. Added description of Independent Commissioning Agent (ICA) and Clerk of Works roles.*
1.6 Document Control	*Updated document control summary to reflect current Section Owners and latest revision information. Added reference to document control pages in individual sections.*
Appendix A: Approved Equipment and Suppliers Schedule	*Updated schedule included.*

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1.1 Introduction & Principles

The Design Guidelines (DGs) are a publication that shares University of Canterbury expectation with respect to mandatory and guidance levels of instruction for the development of new or refurbished building stock. They are intended predominantly for design professionals and must be considered in the creation of new schemes at all stages of design development.

The documents form the backbone for general design related activity and offer clear direction on minimum standards and design philosophy. They are generic with specific instruction on product selection/specification included in separate appendices that support the content of the Design Guidelines themselves. The intention is to develop design strategy, philosophy and practical solutions that consistently and effectively deliver a high quality fit for purpose built environment that supports the staff, students and visitors that use them.

The Design Guidelines cover a number of topics. A full list of publications in the overall set is available on request. The directory should be reviewed by design consultants to ensure they obtain appropriate guidance that is aligned with the type of project they have been commissioned to undertake.

1.1.1 How to Use the Design Guidelines

The Design Guidelines are divided into 20 sections that cover a variety of different design disciplines and considerations. The format used in the various sections is visually consistent for ease of use. Instruction is generally in the form of guidance but where necessary the need for mandatory compliance has been highlighted.

Where appropriate, reference has been included to useful links that open pathways to other supporting documentation such as spreadsheets, graphics, photographs and appendices.

1.1.1.1 The Compliance Checklist

A compliance checklist has been included in each of the Design Guidelines to assist in the quality assurance quality assurance process, and to confirm both understanding of the document content and alignment with it.

The Compliance Checklist associated with each Section of the Design Guidelines, *is to be submitted by the respective design consultant at the end of each design stage.*

1.1.1.2 Compulsory Items

The specific clauses identified in the Design Guidelines should generally be taken as a guide to inform design direction. The content represents the University of Canterbury's desired design attributes – which should be considered within the context of each projects specific Design Brief.

The University may look at options that are outside of the scope of this document. Where a consultant or contractor believes they have other options that can enhance the services provided, lower costs, or increase the experience for our staff and students the University may look at these options. These must be clearly documented and scoped on how they will support the overall outcomes as listed in the Design Guidelines. These solutions will be considered on a case-by-case basis.

However, where clauses are identified with grey shaded boxes, such as this paragraph, the content represents a design attribute which is considered as mandatory and should be prioritised as such.

All aspects of the General Section of the Design Guidelines are to be considered mandatory unless noted otherwise.

1.1.1.3 Updates to the Design Guidelines

It is envisaged that the Design Guidelines will be updated on a yearly basis to capture updates in preferences, lessons learned from completed projects or phases, and changes in the local market or regulatory environment.

Any changes to the above items considered to be immediately pertinent to any design activity currently being undertaken will be communicated directly to the consultants by the UCPM and should take precedent over the contents of these documents.

1.1.2 Design Expectations

1.1.2.1 Performance Specifications

Generally, the design consultant is commissioned and paid to create and document design solutions. The level of design development and documentation shall be as per the consultant's contractual agreements and the project brief, and is in all cases required to provide enough information to support review and a level of understanding sufficient to evaluate design solutions early.

Performance specifications are considered to defer responsibility and timing for design decisions into procurement and construction phases of the project, minimising the ability to mitigate key project risks.

As such performance specifications are strongly discouraged and are only to be used with specific pre-approval from the University of Canterbury Project Manager.

1.1.2.2 Regulatory and Reference Documents

The use of the Design Guidelines does not in any way reduce the responsibility of each design consultant to apply regulatory minimum codes and standards to their work in line with best practice and any legal requirement in place at the time.

These reference documents are legally binding and provide a minimum performance standard that over rides all other instruction – in short where there is a conflict the reference documents set the bar with respect to minimum standard.

1.1.2.3 Planning Controls

Design Consultants must research and familiarise themselves with the planning controls that are applicable to the University of Canterbury site on which any given project is located.

1.1.2.4 Design Stages

All University of Canterbury projects fall within a standard list of design and delivery related stages which are as follows:

- Feasibility
- Concept Design
- Preliminary Design
- Developed Design
- Detailed Design – includes Tender and Contract Award
- Construction
- Defects Liability Period

It is generally expected that design development, deliverables and coordination through the project will typically align with the NZCIC Guidelines, however this does not preclude the University and Consultant team agreeing a more appropriate design pathway on a project-by-project basis.

Design evolution will include close collaboration with University of Canterbury Engineering Services staff and the Project Manager to ensure that the Guidelines of the Design Guidelines are properly interpreted and included into the emerging design. The need for confirmation of compliance at intervals in the design process will be agreed with and instructed by the Project Manager on a project by project basis.

There is also a requirement that all work has been fully coordinated with the work of other consultants contributing to design development to confirm that the overall design is cohesive and integrated. This activity must form part of the Quality Assurance (QA) process and be tested and confirmed at each formal document release.

1.1.3 Risk Management

The University of Canterbury is committed to managing its risks in a proactive, on-going and positive manner. Risk Management processes must be established and undertaken to meet this commitment on each and every project.

The Risk Management processes are expected to define the culture, processes, coordinated activities, and structures required to realize potential opportunities and manage adverse effects. The processes shall also describe Guidelines for communicating, consulting, establishing context, identifying, analysing, evaluating, treating, monitoring and reviewing risks.

1.1.3.1 Value Management

Up to and including Developed Design the design process must include a value management component to test the ability of the design to target expenditure sensibly and within any defined budget.

1.1.3.2 Safety in Design

Safety in Design goes beyond consideration of the benefits to end users by engaging with the construction process itself and even building maintenance post completion. There is the potential over the course of a building's life to minimise and even mitigate the risk of death or injury through the judicious selection of materials, well considered detailing and a measured response to how a building will be assembled and repaired. This input has to be woven into the emerging design in a proactive way to minimise the potential for the building to contribute to a negative health and safety experience.

Safety in Design therefore requires those professionals that are tasked with the creation of building designs to place emphasis on the above to ensure that safety conscious design principles are embedded in the DNA of a building for the benefit of anyone that occupies, builds or maintains it.

1.1.4 Whole of Life Cost Considerations

Our buildings generally have a long life span and are likely to be intermittently refurbished, including adaptation for other uses. The University aims to achieve the optimum balance between capital and operating costs for buildings, consistent with a constant level of quality and service throughout the lifetime of its buildings.

Throughout the design process, the design team is to consider the implications and estimates of costs for designs, materials, construction techniques, finishes, equipment and energy systems that will develop economies on a life cycle costing basis.

Whilst the question of any financial return on the capital outlay and final disposal value of these facilities is not to be considered in the project budget, all other principles governing the construction of a commercial building shall be given critical consideration. These principles shall be discussed with the University at an early stage in each project.

1.1.5 Provision of Existing Information

University of Canterbury has a limited number of As Built, Existing Condition drawings and Maintenance Manuals that are available on request.

1.1.6 Maintenance Considerations

Maintenance is a key consideration for the University and shall be given due attention during design. *Of critical importance for consideration by the design team is;*

- *Access for services maintenance and repairs:* Access hatches must be provided to all plant mounted in ceiling spaces to allow suitable access for maintenance, testing or servicing. In all instances adequate space shall be allocated for effective and unhindered maintenance.
- *Maintenance of the Building Envelope: clear and appropriate strategies for maintaining elements of the building envelope such as the roof and façade must be defined during the design.*
- *Future Proofing: Appropriate additional space should be provided for future services distribution, and to support flexibility where future Guidelines may change.*
- *Coordinated between consultants and between trades: Maintenance needs to be given due consideration across all trades, and Guidelines shall be coordinated for efficiency, ease of use, and such that one does not hinder the other. This includes appropriate allowances and strategies for maintenance of contractor design items.*
- *Minimisation of User Disruption: Servicing of certain areas, for example Student Laboratory Spaces, should be designed such that regular, predicable maintenance Guidelines can be undertaken from outside of the area wherever practicable in order to minimise disruption to user activities.*
- *Standardisations and availability of spares:* The consultant shall co-ordinate and rationalise plant and equipment types to permit interchangeability of spares and simplify maintenance and operation across the University. Only readily available models of plant and equipment shall be accepted in order to facilitate ease of timely repair.

Strategies for addressing each of these critical design considerations needs to be discussed and agreed with the UCPM and Facilities Services teams during the appropriate design phases of the project.

1.1.7 Hazardous Substances (HSNO)

As part of the project briefing or initial design activities, the consultant team shall inform the University of any likely design implications or Guidelines arising from hazardous substances within the project scope – so that appropriate processes can be put in place to resolve these from Health and Safety and compliance perspectives.

1.1.8 Issue Matrix

The following matrix illustrates the preferred minimum distribution of the Design Guidelines to the design consultants. *This is a guide only and will vary dependent on specific project scope.*

It is particularly important that for projects which do not involve one (or more) of the consultants mentioned in the matrix, that their responsibilities are passed to the next most appropriate party.

In addition to the recommendations below - additional sections of the Design Guidelines should be issued to the each of members of the design team wherever it may benefit the project.

Responsibility for the sections is denoted in the matrix below as follows:

● Indicates primary responsibility / ownership, i.e. the consultant is responsible for ensuring the information in this section of the guideline is incorporated in the design, and should submit the Compliance Checklists at the appropriate design stages.

● Indicates part responsibility / ownership, i.e. the section is likely to contain information useful to the consultant, or the consultant will be required to coordinate with the sections primary owner.

	01. General	02. Architecture	03. Audio Visual	04. Civil	05. Communication Cabling	06. Design for Access & Mobility	07. Documentation Standards	08. Electrical	09. Environmentally Sustainable Design (ESD)	10. Fire & Life Safety	11. Interior Design	12. Hydraulics	13. Infrastructure	14. Landscaping	15. Lifts	16. Mechanical	17. Metering & Controls	18. Security	19. Signage & Wayfinding	20. Structure
Lead Designer / Lead Consultant / Design Manager	●	○	○	○	○	○	●	○	●	○	○	○	○	○	○	○	○	○	○	○
Architect	○	●	○	○		●	○		○	○	●	○	○	○	●	○		○	●	○
Structural Engineer	○	○		○		○	○		○	○			○	○	○					●
Geotechnical Engineer	○			○			○						○							○
Civil Engineer	○			●		○	○		○				●	○						○
Mechanical Engineer	○				○		○	○	○						○	●	○			
Electrical Engineer	○				○		○	●	○								○	○		
Hydraulic Engineer	○			○			○		○			●	○	○			○			
Fire Engineer	○	○				○	○			●		○	○				○	○		○
Acoustic Consultant	○	○	○		○															○
ICT Consultant	○		○		●		○	○									●			
AV Consultant	○		●		○		○	○									○			
Security Consultant	○	○																●		
Planning Consultant	○	○				○				○										
Landscape Architect	○	○		○			○		○					●					○	
Façade Engineer	○	○					○		○											○

1.2 University Policies *and Planning Documents*

The University of Canterbury Policies, Procedures and Planning Documents will be issued in the project.

It is expected that each consultant using these Design Guidelines will familiarise themselves with the full extent of the policies.

1.2.1 Table of University Policies and Planning Documents

Document	*Description*	*Document Source*
Seismic Performance	*The University of Canterbury considers the safety of all persons in buildings, or on their property as being of paramount importance at all times. As an institution they demand high standards in all aspects of health and safety beginning with the built environment as a place of safety with particular emphasis on seismic performance. Life safety in the event of an earthquake is a fundamental goal with all reasonable steps explored and where possible taken to protect staff, students and visitors.* *Each project must achieve agreed seismic performance standards which will be determined through discussion with the University project governance at the start of the project. In all cases, where applicable, it is the design consultants' responsibility to establish mandatory minimum performance Guidelines and apply them effectively to their designs to ensure that at the very least minimum thresholds are met.*	*As part of project initiation*
Health and Safety	*The University of Canterbury is committed to providing and maintaining a safe and healthy working environment for its employees. In addition, the University is also committed to providing a safe and healthy environment for students, visitors, contractors and everyone attending the University*	*UC Policy Library*
Traffic Management	*The University of Canterbury Campus is an open campus and fully accessible to the public. Legally its associated roads and car parks are considered in the same way as any public road. As the owner of these public roads, the University of Canterbury has the same authority and responsibilities as the City or Regional Council. This requires the University of Canterbury to take all practicable steps to eliminate, isolate, or minimise any risks associated with roads, including traffic management within its sites.* *The purpose of this policy is to ensure that any work and/or activity undertaken on the campus road reserves is done in a safe manner not only for those directly involved, but also for all students, staff. Visitors, contractors, and the general public.*	*UC Policy Library*
Space Allocation	*All University Space, whether leased or owned, is available for allocation for the purpose of supporting the University's strategic priorities.* *The purpose of this document is to: guide space allocation; ensure that space utilisation rates are improved; overall built infrastructure is reduced and that where possible, core teaching and research activities are consolidated on the campus.*	*UC Policy Library*
Low Carbon Policy	*To be developed by UC*	*TBC*
Campus Master Plan	*The University of Canterbury Master Plan defines the programme of change which will transform our campus, our student experience, and our teaching and research while we continue to promote a world-class learning environment for our students.* *The plan summarises the current vision, strategic initiatives, goals and key progress indicators of the University.*	*Capital Works*
Cultural Narrative	*This document is provided as a cultural narrative to accompany the University's Master Plan. It provides a brief insight into what is important to mana whenua, Ngai Tuahuriri, and how that might manifest itself at the University. It is not intended to be a definitive answer to all questions pertaining to mana whenua aspirations and desire for engagement. Rather, this document focusses on giving a glimpse through a cultural lens. Further work will be required to provide specific advice and assistance for individual spaces and buildings.*	*Capital Works*

1.2 University Policies

Waste Plan	*Managing waste responsibility is a key issue for the University of Canterbury as we gradually improve processes around sustainability.* *The Waste Plan outlines the journey the University has been on regarding waste and establishes waste reduction targets and key problems that need to be resolved.*	*Capital Works*
Landscape Master Plan	*The University of Canterbury is internationally renowned for its high-quality grounds. The Landscape Plan is intended to help immediate landscaping designers as part of specific remediation projects and to inform the forward-looking Campus Master Plan.* *It presents a brief landscape history of the campus and summarises current thinking and suggests themes that landscape designs should take into consideration*	*Capital Works*
Waterways Issues and Operations	*The three streams flowing through the University of Canterbury Ilam campus are a key natural asset of a campus already renowned for its attractiveness.* *This Waterways document is intended to provide background information around the three waterways, identify key issues, risks and opportunities within a wider contemporary context, and outline past interventions undertaken on the waterways.*	*Capital Works*
Integrated Transport and Parking Strategy	*To be developed by UC*	*TBC*

1.3 Roles & Stakeholders

The following organisations, groups, individuals, and roles contribute to the development the projects at the University of Canterbury. *Involvement will vary depending on project requirements and scale.*

Contact details will be available at the discretion of the University of Canterbury Project Manager.

1.3.1 Canterbury University Management

1.3.1.1 Vice Chancellor (VC)

The Vice-Chancellor is responsible for the management of the academic and administrative operation of the University. The Vice-Chancellors Office, along with University committees such as the Senior Management Team, assists and advises the Vice-Chancellor.

1.3.1.2 Deputy Vice Chancellor – Academic (DVCA)

The Deputy Vice-Chancellor Academic is responsible for University-wide policy and strategy related to academic programmes and teaching and learning in particular, maintaining and advancing the University's academic profile.

1.3.1.3 University Registrar

The role of the registrar involves responsibility for strategic planning, responsibilities for policies and statutes, responsibility for legal and regulatory compliance

1.3.1.4 Executive Director Learning Resources (DLR)

The role of Learning Resources is to support and help enhance teaching, learning, and research across the University. It addition to the Library and IT Services, the Director of Learning Resources oversees the Facilities Services groups which comprise Capital Works, Campus Services, and Engineering Services.

1.3.1.5 Senior Management Team *(SMT)*

The Senior Management Team is a committee of senior representatives of the University who advice the Vice-Chancellor on the strategic direction, management, and operation of the University.

1.3.1.6 Chief Financial Officer (CFO)

The Chief Financial Officer is primarily responsible for managing the financial risks of the University. The Chief Financial Officer is also responsible for financial planning and record keeping, as well as financial reporting to the Canterbury University Management.

1.3.2 Capital Works

The Capital Works department contributes to the well-being and development of the University of Canterbury by ensuring efficient and effective service delivery in Project Management

Capital Works is responsible for planning, design, and project management of new projects and building alterations

1.3.2.1 University Canterbury Project Managers (UCPM)

University of Canterbury Project Managers are assigned to each project undertaken at the university to coordinate any external t consultants, report to Canterbury University Management and oversee the delivery of the project as a whole.

1.3.2.2 Health and Safety Officer

The Health and Safety Officers role is to ensure the University meets its obligations with all occupational safety and health statutes and regulations – and are available to provide advice and assistance to staff and students around effective hazard management, education, reporting and investigating.

1.3.2.3 *Independent Commissioning Agent (ICA)*

The role of the ICA is to provide commissioning advice to the project team from appointment through to practical completion of the project and the defects notification period, interacting with the team throughout all stages of the project.

The ICA acts as an objective advocate of the University providing input as required into design reviews, development of the commissioning plan, preparation of contract documents, programming, observation of commissioning, services tuning and independent reporting.

1.3.2.4 *Clerk of Works*

The Clerk of Works role is to attend site regularly during contract works to provide independent observation, and monthly reports on the contractor's delivery on site in accordance with contract documentation.

Traditionally the Clerk of Works was an individual who had considerable building and construction experience and fulfilled an important quality control and delivery service for the owner in conjunction with the contractor. Recognising the advancement in construction techniques, materials and methodologies (particularly building services) it is envisaged this role would now comprise a team of specialists with the requisite experience rather than an individual single Clerk of Works. The skills required should reflect the scope of works being delivered by the project.

1.3.3 Campus Services

The Campus Services department is responsible for ensuring University buildings and environs are maintained in a clean and hygienic condition, providing efficient warehouse distribution and mail services, proactive and attentive security services, safe and effective vehicle fleet services, emergency services and field services.

1.3.4 Facilities Services

The Facililties Services department is responsible for the maintenance and operation of University building fabric, plant, infrastructure and grounds.

1.3.5 Sustainability Office

The Sustainability Office communicates pathways for sustainable change, promotes sustainability and supports a network of individuals and working groups across campus and the wider community. The office acts as a resource for staff, students, and the wider community who want to create sustainable change.

1.3.6 Other User Groups

1.3.6.1 Department Heads

The University of Canterbury has greater than 40 Academic Departments and Schools. Each of which has both Head of Department and Deputy Head of Department which may be called upon to represent the interests of their departments.

1.3.6.2 IT Services

The Information and Technology Services department develops, operates, and optimises the University's ICT Customer and technology services in a manner that supports the University's strategic direction and objectives IT services overall aim to simplify its engagement with students and staff and to make the use of technology, on and off campus, as easy and effective as it can be.

1.3.6.3 Audio Visual (AV) Services

AV Services are responsible for the support, supply, and maintenance of audio-visual equipment in lecture theatres throughout the University and should be consulted during all projects involving learning and learning support spaces.

1.4 Document Control

In addition to the table below, a document control page is provided with each of the Design Guidelines sections to provide an indication of key changes since the previous revision.

1.4.1 Document Controller

Overarching control of the Design Guidelines suite of documents is the responsibility of the Operations Manager of the Capital Works Department.

1.4.2 Frequency of Revisions

It is generally expected that each section of the Design Guidelines will be reviewed on a yearly basis. Should any section of the Guidelines appear to require review the Document Controller should be contacted to ensure that the latest information has been provided for design.

1.4.3 Document Control Summary

The following table summarises the ownership and revision status of each of the Design Guideline sections. Other Section Owners who should be consulted to check common content within their sections are also indicated.

Section	*Section Author*	*Section Owner*	Latest Rev.	Revised	Other Reviewers
01. General	***Gareth Jones***	***M. Homewood***	*Issue 4*	*September 2019*	02 - 20.
02. Architecture	***M. Homewood***	***M. Homewood***	*Issue 4*	*September 2019*	03, 05, 06, 11, 18, 20
03. Audio Visual	N. Gardiner	***R. Oudshoorn***	*Issue 4*	*September 2019*	02.
04. Civil	R. Oudshoorn	***R. Oudshoorn***	*Issue 4*	*September 2019*	13, 20.
05. Communication Cabling	***R. Hanschu***	***R. Oudshoorn***	*Issue 4*	*September 2019*	02, 03, 08.
06. Design for Access and Mobility	C. Scott	***R. Oudshoorn***	*Issue 3*	*October 2016*	02.
07. Documentation Standards	***R. Oudshoorn***	***R. Oudshoorn***	*Issue 4*	*September 2019*	02.
08. Electrical	***T. McEwan***	***R. Oudshoorn***	*Issue 4*	*September 2019*	16.
09. Environmentally Sustainable Design (ESD)	T. Sellin	***R. Oudshoorn***	*Issue 4*	*September 2019*	02.
10. Fire and Life Safety	P. Keogh	***R. Oudshoorn***	*Issue 4*	*September 2019*	02, 04.
11. Interior Design	***M. Homewood***	***M. Homewood***	*Issue 4*	*September 2019*	02.
12. Hydraulics	S. Palmer	***R. Oudshoorn***	*Issue 4*	*September 2019*	16.
13. Infrastructure	R. Oudshoorn	***R. Oudshoorn***	*Issue 4*	*September 2019*	04.
14. Landscaping	D. Cone	***R. Oudshoorn***	*Issue 4*	*September 2019*	02.
15. Lifts	R. Oudshoorn	***R. Oudshoorn***	*Issue 4*	*September 2019*	02, 06.
16. Mechanical	S. Palmer	***R. Oudshoorn***	*Issue 4*	*September 2019*	08, 17.
17. Metering and Controls	M. Young	***R. Oudshoorn***	*Issue 4*	*September 2019*	16.
18. Security	M. Oliver	***R. Oudshoorn***	*Issue 4*	*September 2019*	02, 10.
19. Signage and Wayfinding	R. Oudshoorn	***R. Oudshoorn***	*Issue 3*	*October 2016*	02, 06, 14.
20. Structure	***M. Homewood***	***M. Homewood***	*Issue 4*	*September 2019*	04.

Appendix A: Approved Equipment and Suppliers Schedule

The following equipment and suppliers have been pre-approved by the University of Canterbury for use during work on Campus. It is the preference of the University that these items are utilised on projects wherever possible and any deviations, alternatives, or additions to this appendix can only be used upon prior approval by the University.

A.02 - Architecture

Equipment	Manufacturer	Model	Comments
Doors and Door Hardware:			
Door Locking Barrels - Satin Chrome	Kaba	KABA570	
Door Co-ordinator - Satin Chrome	Ives Door Co-ordinator	COR42	
Door Closers (size EN1-4) Satin Chrome	Dorma	TS73 V-F	surface mounted only
Door Closers (size EN3-6) Satin Chrome	Dorma	TS83	surface mounted only
Door - External Lever Furniture (Satin Chrome) - Cyclinder Hole	Lockwood	4801/70	
Door - External Lever Furniture (Satin Chrome) - Plain	Lockwood	4905/70	
Door - External Lever Furniture (Satin Chrome) - Cyclinder Hole	Legge	702/29	
Door - External Lever Furniture (Satin Chrome) - Plain	Legge	712/29	
Door - Lockwood Deadbolt - Cyclinder & Turn (Satin Chrome)	Lockwood	3571WT	
Door - Lockwood Mortice Lock - Single Cyclinder (Satin Chrome)			
Door - External Lever Furniture (Satin Chrome) - Plain	Lockwood	3572Z	
Door - Lockwood Sliding Door Lock (Satin Chrome)	Lockwood	3573WT	
D Handles	EFCO	136 SCP	
Auto Doors – Sliding	*Assa Abloy*	*Unislide*	
Auto Doors - Swing	*Assa Abloy*	*Power Swing*	
Window Hardware:			
Casement Window Stay		Interlock 4-BC	Max opening of 77°
Awning Window Stay		Interlock 'A' Series friction stay	Max opening of 77°
Window Fastener		Styleline 2 - double tongue, face fix	
Sash Lock	Assa Abloy	MC76C4PLS	
Awning Lock	Assa Abloy	885CYL4	
Roofing:			
Roofing material	Colorsteel		BMT (thickness) of 0.48mm minimum for roofing and 0.55,, for capping and flashing
Fall restraints	DBI Sala Safety Linil Stay-Safr	Steel static lines	Anchors systems can be used where static line is unsuitable
Misc:			
Acoustic Seals	Raven		Or approved equivalent
Operable walls	Hufcore, Lotus		
Membranes	Nuplex, Sika		For all internal ground slabs and below ground walls/slabs

A.03 - Audio Visual

Content under review, please contact the University of Canterbury IT Service Desk for direction to the latest information.

A.04 - Civil

Equipment	Manufacturer	Model	Comments
Sewer Drainage:			
Covers and Frames	Gatic Pty	Cast Iron	

A.05 - Communication Cabling

Equipment	Manufacturer	Model	Comments
Cabling and Components:			
Copper Cabling	Systimax	X10D Cat 6	Minimum 20 year manufacturers warranty
Fibre	Emtelle	Fibreflow SGD	Alternatives accepted on approval from UC
Cable Trays - Colour	Dulux	Sky Blue	
Open Frame Racks	*Rack Technologies*	*Open frame iqof4501, cable manager iqof4510, 9004 rack power rail 10way vertical*	
Outlets:			
Telecommunications Outlets	Commscope	X10D	

A.06 - Access and Mobility

Equipment	Manufacturer	Model	Comments
Items Covered Elsewhere			

A.07 - Documentation Standards

Equipment	Manufacturer	Model	Comments

Items Covered Elsewhere

A.08 - Electrical

Equipment	Manufacturer	Model	Comments
General:			
Contractors	Telemecanique, Schneider, AB		
Socket outlets / switches / Communications outlets / accessories	PDL Electrical Solutions	600 Series	
Switchboards	Rickland, Bremca, ICS, TLJ		Must be modular and appropriate to the environment
HRC Fuses & carriers			MCB's to be used wherever possible.
Din Rail Terminals	Entrelec		
Metering:			
Electrical Metering	Schneider	Powerlogic, ION meters, NSX micrologic	ION 7650 for main incomer metering, ION 6200 or NSX or Powerlogic for submain metering connected via EtherGate or Modbus EGX100
Motors:			
Electric Motors	WEG	High Efficiency	
Fractional Horse Power	Brook Crompton, GMF		
Ball Bearing 3 Phase - Up to 12 kW	Crompton Parkinson, ASEA		
Ball Bearing 3 Phase - 12 to 40 kW	ASEA		
Cables and Cable Accessories:			
PVC cable			
Cable Markers	Grafoplast, Legrand		
Cable Tray	Multistrut, Multitray, Wireguard		Blue for Data. Galvanised for electrical. Supported by threaded rod or Gripple.
Cable Trunking -	Multistrut or Vynco	150/50 - 2-compartment powder coated aluminium	
Conduit:			
Conduit - plastic Hi-impact or standard			Conduit variety selected and installed as appropriate
Conduit - flexible	Betaflex		
Circuit Breakers:			
MCB (Miniature Circuit Breaker)	Schneider	Acti 9	
MCCB (Moulded Case Circuit Breaker)	Schneider	Compact NSX	May use Micrologic metering module with ULP module connected to an EGX1000.
Motorised Circuit Breakers	Schneider	Masterpact	
RCD's:			
Laboratory Area's 10mA / 30mA, 4-Pole	Schneider	Acti 9	
Non Laboratory Area's 10mA / 30mA, 2-Pole	Schneider	Acti 9	

A.08 - Electrical

Equipment	Manufacturer	Model	Comments
Relay's:			
< 6 Amp (Instrument Type) Flat Blade	Omron	G2R-1, or LY2	
< 6 Amp (Instrument Type) Round Pin 2 Pole	Omron	MK Series	
< 6 Amp (Instrument Type) Round Pin 3 Pole	Omron	MK Series	
> 6 Amp (Load Type)	Telemecanique		
Switch Sockets:			
3 Phase Switch Sockets	PDL	PDL56	
Combined Single phase Switch Socket Unit	PDL	PDL 56 or 600	
Combined 3 Phase & N Switch Socket Unit (5 Pin)	PDL	PDL 56	
External - Isolators, Socket Outlets, Plugs & Connectors - IP66	PDL Electrical Solutions	PDL 56 series	
High Voltage:			
HV - RMU (Ring Main Unit) 11kV - Vacuum	Holec	Xiria	
HV - Transformers	ABB (Orion equivalent)	Medium Distribution Transformers - low impedance	Cooling class - ONAN (Oil Natural-Air Natural) Up to 1 MVA only
Lighting - Controls, Fittings and Sensors:			
Indicator Lights	Telemecanique	XB5 (LED - LV)	
General lighting (preferred LED / T5)			Must be referred to Engineering Services for Manufacturer and model
Emergency Lighting	Stanilite	Nexus	RF monitored
Dali Lighting Control	Siemens	Desigo TRA	Must have KNX-AMX gateway for A/V connection
Occupancy Sensor		Ibex, Steinel	
Troffer Light fittings	Ravalo, Energylight, *Ecopoint*		LED
Circular Bulkhead light fitting	*Halcyon and Thorn*	*Thorn Luna*	
Street lighting	Betacom, *LED Roadway Lighting*	GL520 *NXT*	*Area lighting luminere*
Light Poles	*Spunlite Model Windsor Urban*	Spunlite	*Spunlite Model Windsor Urban stepped 6 Metre for public area /walkway lighting*
Linear Extrusion	*Energyline*		
LED Pan fittings	*RZB*		
Clocks:			
POE (Power over Ethernet)	Primex	POE 300mm	Available from Tellen Systems NZ Limited
Handryer	Supreme	SW 662	
Misc:			
Weatherproof Enclosures	Vynco Aria, Himel		see Switchboards

A.09 - Environmentally Sustainable Design (ESD)

Equipment	Manufacturer	Model	Comments
Items Covered Elsewhere			

A.10 - Fire and Life Safety

Equipment	Manufacturer	Model	Comments
General:			
Fire Alarm Panels	~~Ampac NZ series,~~ Ampac Firefinder, ~~Pertronic - conventional,~~ Pertronic F100-F120		
Smoke Detectors	System Sensor, Apollo		
Manual Call Points	Ampac, Pertronic		resettable types only
Paint colour - all exposed fire service pipework, cabinets, valve box covers etc	Dulux	Wildfire Red	
Sprinkler Systems:			
Fire Sprinkler DBA	Petronic DBA		
Fire Sprinklers on Suspended Ceilings	Victaulic VicFlex System		
Pipework	U/S only	Polyethylene (PE) type	
Pipework SPR System			Medium duty glav
Alert Systems:			
Sounders / Speakers		to suit AS 2220	Must be connected to the Talk-A-Phone interface module
Amplifiers	Pertronic, Ampac		
Strobe	System Sensor	SR	
Strobe	Ampac	55000-87AMP	
Magnetic Door Holders:			
Wall Mount	Ampac	4101-1004	
Floor Mount	Ampac	4101-2001	
Fire Dampers and Actuators:			
Damper actuators	Siemens, Belimo, Joventa, Staefa, Honeywell		
Fire Dampers	Haltron	FDR rectangular, BSD Circular	Shall have external indicators and Trip mechanisms to allow testing and resetting of the damper without accessing the duct.
Fire Damper Release Solenoid			
Fire Damper actuators	Siemens, Belimo, Joventa, Staefa, Honeywell		
Smoke Damper Actuator	Belimo, D&H		
Window / Vent Actuators	D&H		

A.11 - Interior Design

Equipment	Manufacturer	Model	Comments
Ceilings:			
Roof Access Doors/Hatches	Lockwood	LOPA Series 06	Minimum size 600x600
Furniture:			
General Furniture Selections			Refer to Section 11 - Appendix A, and the UC Furniture Procurement Guidelines - available on request from UC
Built-In Furniture - Hinges and Drawer Runners	Blum		Consistent with UC Carpenters Joinery Equipment
Flooring:			
Carpet Tiles			Refer to the UC Floor Finish Specification, available on request from UC
Carpet Tile Adhesive	Ardex	Strongbond 65	Alternative glues must also be clear in appearance to allow crack inspections of slab. Any alternative must be submitted and agreed in advance with the UC. Typically required in specialist situations eg. Stairs/ramps, trolley traffic areas, coved skirting etc

A.12 - Hydraulics

Equipment	Manufacturer	Model	Comments
Domestic Water Services:			
Backflow Preventers	Wilkins	BFPV	
Storage Tanks	Skellerup	Rotomould	
Isolating Valves - 50mm and below:	Tyco	Brass	SS ball valve up to 100mm
- 65mm and above:	V-Valve	Lugged Butterfly	>65°C to be EPDM-T Seat. Supplied through MRC Transmark
Combined isolating and check valves (Waterware)	N/A		
Point of use fixture isolating valves	Ball o Fix		Small ball valve small handle
Drain Valves - less than 25mm	NZF	3 piece stainless	Small plugged ball valve
Water Hammer Arrestors	Sioux Chief		
Domestic pipework material	Fusiotherm, Rehau, Buteline, PPE Ke Kelit (Cold water), PPRT Ke Kelit (Hot Water)		The manufacturer and material must be specified and designed to meet with the nature, pressure and temperature of the conveyed medium
Pressure Reducing Valves	Ajax, Singer		(Pilot Operated?)
Mixing Valve	Meynell, Caleffi	Safemix 15, Series: 521,5213,5230	
Mixers and Tapware:			
Hose tap	Methven	Lockshield	
Cleaners Room Tap (Laundry Tap)	Methven	Kowhai, Washing Machine Combination Set	CONV/SET W/MACH KOWHAI 57CP MET
Basin Mixer	Methven	Kowhai, Futura FT2050	
Sink Mixer	Methven	Centique	
Sensor Taps	Delabie	Tempomatic 4 DE440000 Basin Tap	Macdonald Industries Ltd
Cable Trunking -	Multistrut or Vynco	150/50 - 2-compartment powder coated aluminium	
Basin Tap	Delabie	Temposoft 2 DE740500 time flow basin tap (Manual push button)	Macdonald Industries Ltd
Heating and Hot Water:			
Heat Tracing	Raychem		
Solar Panel/Systems	N/A		
Hot Water Cylinders	Superheat		Model sized and selected relative to duty
Instant Hot Water Units	Superheat, Billi	BU5E or BU10E, Eco, Quato	Model sized and selected relative to duty
Domestic Water Calorifiers	Non Specific		Tube bundle type local supply
Infrastructure Pumps and Valves:			
Bore Pumps	Plueger, Grundfos		
Boost Pumps	Grundfos		
Circulating Pumps	Grundfos, Smedegard		
Tempering Valves	Caleffi		
Specialist Water Services:			

A.12 - Hydraulics

Equipment	Manufacturer	Model	Comments
Carbon Filters	Millipore		Use Millipore package unit system design. Supplier - ThermoFisher Scientific
Reverse Osmosis Plant (Globalscience, Chemtest, Sartorius, etc)	Millipore	Elix	Use Millipore package unit system design. Supplier - ThermoFisher Scientific
Water -Type 1	Millipore	Synergy; Milli-Q Synthesis	
Storage Tanks	Rotamold		
Pumps	Grundfos		316 Stainless Steel
Laboratory pipework material	ABS	Unfilled PVC, Polyethylene, etc	Use Millipore package unit system design.
Water - Type 2	Millipore	Elix 35	Use Millipore package unit system design in conjunction with Millipore
Pure water piping materials/valves	Fusiotherm		Non-metallic joints and components

Sanitary Plumbing and Drainage:

Wall basin	Caroma	Concorde 500 vanity basin	
Toilet pans		Skirt type/concealed	
Cistern	Caroma	Sovereign deluxe close coupled suite	
Urinal wall hung	Caroma	Torres Invisi urinal suite	
Mercury Traps			
Amalgm Traps	N/A		
Waste pipe material (Glass, PVC, SS, etc)	PVC		PVC or prefer sustainable equivalent

Aquarium/Salt Water Equipment:

Pipework materials	ABS / PVC/ Fusiotherm		The manufacturer and material must be specified and designed to meet with the nature, pressure and temperature of the conveyed medium. Copper/Brass not to be used in water circuit. 316 Stainless steel only in fittings.

Specialist Gases / Lab Equipment:

Vacuum Pumps	Speck, Busch		
Compressors	Kaiser, Hydrovane, Atlas Copco, Compare		Rotary screw with VSD as part of package
Reciever Supplier			
Manifold supplier	BOC		
Gas Regulators	N/A		
Gas Meters	N/A		
Distribution Headers	N/A		
Isolation Valves	BOC Medical or Norgren		Manufacturer dependant on service
Zone Isolation Valves	BOC Medical, Medigas		
Pipework (Copper, Pexel, Fusiotherm, etc)	as required		As required for each lab
Bench-top fixtures and Tap Outlets	Broen	LC Series, Boss	If Broen unavailable, Enware may be considered.
Snaplock Fitting Type (Aero, etc)	Aero quip		need to research

Safety:

Eyewash	Carlos Arboles	EW= MOD. 2210	
Drench Shower	Carlos Arboles	DS= MOD. 1100	
Hand Shower	Carlos Arboles	HS= MOD. 3000	

Appendix A: Approved Equipment & Suppliers Schedule

A.13 - Infrastructure

Equipment	Manufacturer	Model	Comments
11kV			
Cable		*300mm2 XLPE HD Aluminium singles*	*With 185mm2 Cu tails*
Ring Main Unit	*Holec*	*Xiria*	*Vaccuum breaker*
Switch gear	*Holec*	*SVS*	*Vaccuum switch*
Tranformer	*ETC or ABB*	*Standard Orion configuration*	*Low impedence model eg for 1MVA %Z =4.7*
System controls	*Com Ap*		
Emergency broadcast system			
Broadcast tower	*Talkaphone*		*Linked to informacast software*
Potable water			
Incoming flow meter	*ABB*	*Aquamaster 3 FER*	*Electromagnetic Flowmeter*
Ring Main Isolation Valves	*CCC standard*	*Resilient seated clockwise to open*	
Fire Ring Main			
Pipework	*various*	*Polyethelyne*	*No less than 150mm ID*
Isolation valve	*various*	*Fire lock butterfly vavle*	*Complete with positioning switch*

A.14 - Landscaping

Equipment	Manufacturer	Model	Comments
Planting			
Plants			Refer to the Approved Plants list in Appendix A of Section 01 - Landscaping for Details.
Grass - Shady Areas		70/30 mix fescue/brown top	Fescue/Rye alternatives are acceptable
Grass - Other Areas		30/70 mix fescue/brown top	Fescue/Rye alternatives are acceptable

A.15 - Lifts

Equipment	Manufacturer	Model	Comments
Items Covered Elsewhere			

A.16 - Mechanical

Equipment	Manufacturer	Model	Comments
HVAC Primary Equipment:			
Air Handling Units	Cooke , EPI, Carrier		
Fan Coil Units	Temperzone, Sinko		Sinko supplied by Energy Products International
Underfloor Heating	Waterware or Rehau		
Fan Supplier	Fantech, Woods, Ziehl, Cookes, EBM-Papst		
Fume cupboard supplier	Thermoplastic Eng, Calibre		
Air/Air Heat Recovery Heat Exchangers	Avon/Heatex, Smoothair		
Humidfiers	Neptronic	SKS, SKE	
Electroduct Heaters	Avon or Fin element		
Split System Air Conditioning Supplier	Daikin, Mitsubishi, Panasonic	Inverter	
VRV/VRF	Daikin, Mitsubishi, Fujitsu	VRV III & iTouch controller, City Multi R2 Series,	
Chillers	Powerpax, Trane, Carrier, Climaventa, York		
Refrigerant type		R410a, R407c, R134a	Suitably manufacturer matched and phase-out compliant refigerant
Circulating Pumps	Wilo, Grundfos, Smedegard	T Series Smedegard	Wherever possible repairable pumps used
Heat Exchangers	Alfalaval, APV		
Ductwork and Components:			
Grille/Diffuser Supplier	Holyoake, Temperzone, Trox, Halton		
Rigid Duct Access Panels	Metu Systems		
Vibration Isolation	Embleton		
Duct Mounted Coil Supplier	Steelfort or other NZ Supplier		
Flexible Duct Connections	Wavebar		
Rigid Duct Flange Type	Mez, Sword, etc	Duct mate or equivalent	Products supplied by Galco
Flexible ductwork	Spiroflex, Apex, Smooth Air		
Ductwork Internal Insulation	Acoustop, Nova	ARA 24, Hushliner	
Panel Filters	Camfil	Farr 30/30 equivalent	Disposable
Bag & Compact Filters	Camfil		Filter selection based upon installation position, level of target contaminant removal required and Life cycle cost
Condensate Pipework (uPVC)			
Automatic Air Vents	Spirotech	Spirotops	
Fire Damper Rectangler	*Halton*	*FDR*	
Fire Dampers Round	*Halton / Ravenscroft*	*BSD-C*	
Mechanical Dampers:			
Airfoil damper assemblies	Holyoake		
Pipework and Materials:			
RW pipe material			most sustainable
HL pipe material	Black MS		Welded
RW Pipework Insulation	Armaflex, Centurylon	FR	
HL Pipework Insulation	Fibreglass		Calico painted >2m AFL

A.16 - Mechanical

Equipment	Manufacturer	Model	Comments
Aluminium cladding required/extent?			< 2m AFL alummium clad
Dosing agent	Ionic Water Care		

Valves:

Lockshield Valves	Hiemier		
Safety relief valves	Burkett Bailey		
Isolating Valves – up to 50mm or or or	Tyflow Keystone Keystone Whitney	1710 brass ball valves screwed BSP F990 R382 SBBT = T1 stainless steel ball valves stainless steel ball valves	Must be SS with correct temp seat/seal c/w F401 water style butterfly valves. Any butterfly valve used up to 60°C to have an EPDM seat.
Isolating Valves – 65mm and larger or	V-Valve V-Valve Gate Valve	lugged butterfly valves lugged butterfly valves	50 -100mm SS Ball valve with correct temp. >125mm = Crane gate valve ensure correct install (Supplied through MRC Transmark) All butterfly valves are to be used to <80C only and have an EPDM-T seat rated to 140°C (Supplied through MRC Transmark). All valve used > 80c must be a Ball or Gate rated to 140C All main isolation valves on the MTHW mains must be a Gate valve rated > 140c. All main isolation Valves off the MTHW mains must be a Gate valve rated >140c
Isolating Valves – Motorised 50mm & 80mm	V-Valve Ball valve Gate Valve	lugged butterfly valves	Lugged style butterfly valve complete with 230/50 actuator. Any butterfly valves can only be used to <80c to have an EPDM-T seat rated to 140°C (Supplied through MRC Transmark). All valve used > 80c must be a Ball or Gate rated to 140C All main isolation valves on the MTHW mains must be a Gate valve rated > 140c. All main isolation Valves off the MTHW mains must be a Gate valve rated >140c
Check/Non Return Valves – up to 50mm	Tyflow	1700 bronze swing check screwed BSP	
Check/Non Return Valves – 65mm & larger (Stat Isolating Regulating Valve)	N/A		
Drain Valves - less than 25mm NZF 3 piece stainless			Plugged ball Valve
Strainers	non specific		
Bypass Valves	Tour & Anderson		

Misc:

Electric boilers	Morrow Engineering		
LPG Boilers	Aquatherm/Ygnis, Aquaheat		
Water Treatment	Ionic Watercare	Bioguard, Circuitguard, Boilerguard	Chemical selection based upon particular application.
Pressure Gauge	Wika		Consider BMS digital combo
Test Pockets	Binder		
Feed & Expansion	Pneumatex, Cimm		
Isolating Regulating Valves	Tour & Anderson		
Flexible Hoses	Powerflex, Aquakneckt		braided stainless

A.16 - Mechanical

Equipment	Manufacturer	Model	Comments
Radiator Panels	Aquatherm	Aquatherm	
Test Binders (Flow Design Inc, etc)	Binder		

A.17 - Metering and Controls

Equipment	Manufacturer	Model	Comments
General:			
Contactors	Telemecanique, *Schnieder*		
BMS Infrastructure	Siemens	Desigo PX/TRA	All controllers shall be BACnet IP
Standalone Controllers	Siemens		Must be programmable
Control Cables	Belden, Carol, General Cable	Brown/orange = 24v AC PurpleGrey(-ve)= DC WhiteBlack= 230V control	All control cabling must be numbered using specified cable markers both in the control board and in the field
Power Cables for Mechanical Services		TPS black circular min 1.5mm2	All cabling must be numbered using specified cable markers both in the control board and in the field
Sensors:			
Room Temp/Humidity Sensor	Siemens, ACI		
Room Temp Sensor Display Only	Siemens, ACI		
Room Temp Sensor User Adjustable	Siemens, ACI		
Pipe Temp Sensor	Seimens, Intech, ACI	PT1000,10K, QAE type	
Wet Floor Sensors			
Transducers:			
Differential Pressure Transducer	Huba, Siemens, ACI		
Duct Temp Transducer	Siemens, Intech, ACI	PT1000 , 10K	
Duct Humidity Transducer	Siemens, ACI	0-10v	
Air Velocity Transducer	Siemens, ACI	0-10v	
Meters:			
Electricity Meters	Schneider	ION meters, NSX	ION 7650 for sub station incommer metering. ION7650 *or PM8000* for building incommer metering. ION6200 for submain metering connected via EtherGate. NSX where applicable via modbus.
Check Meters	Schneider	Powerlogic *(IEM, SmartLink, Acti9)*	Must be modbus and be compatable with SPM
Energy Meters	ABB, Siemens	Magflo, UH50, *Sitrans*	Siemens Energy meters must have BACnet pulse-out. ABB meters must have MODBUS. BOTH types must have appropriate multicore control cabling.
Water Flow Meters	ABB, *Siemens*	Magflo , *Sitrans*	
Switches:			
Flow Switches	IFM, Siemens	*Ultrasonic SR series*	
Current Switch	Sentry + Hawkeye + Automation components		*Must have adjustable switching points*
Auto/Off/Manual Switches	K + N , Telemecanique, Schnieder		
Differential Pressure Switch	Siemens, ACI		

A.17 - Metering and Controls

Equipment	Manufacturer	Model	Comments
Misc:			
Differential Pressure Gauge	Dwyer, Siemens, Sauter		
Current Transformer	Hawkeye, Schnieder		
Din Mount Rail		Aluminium 35mm	
Fuses <415V HRC			
Motor rated Circiut Breakers	Telemecanique AK5 JB143 (400v Bus)	LUB12/LUCBO5B	Modular Contactor/OL/CB/Aus complete with 24 AC coil powered driect from BMS output
Overload Relays	Telemecanique		included in above
Thermostat	Trafag Siemens		
Thermostatic Radiator Valves	Hiemier	B and K type	B= corridors/public K= offices
Variable Speed Drives	Schneider -Telemecanique, Danfoss,		with BACnet Comms options
Control Valves, and Valve Actuators	Siemens Magnetic	MXG/MXF	Must have position FB
Damper Actuators	Siemens	GLB	Must have position FB

A.18 - Security

Equipment	Manufacturer	Model	Comments
Building Access & Security Systems:			
Access Control	Gallagher (existing)		
Security Alarms - Centralised	Gallagher	FT Access and Alarm System	
Security Alarms - Stand Alone	Bosch	Solution 16i	Only where connection to the Gallagher FT system is not possible
CCTV	~~Cameron~~ *Camera*	Axis IP	IP cameras as specifically advised by UC
Digital Locks	Schlage	C0100 King Cobra with bypass	
Key Pads	Gallagher	T20 Reader	Pin only configuration
Key Switches			Shall be compatible with Kaba System
Access Controlled Doors:			
Automatic Doors - Sliding	~~Besam~~ *Assa Abloy*	UniSlide	Supplied by Assa Abloy Entrance Systems NZ. Doors to be framed
Automatic Doors - Swing	~~Besam~~ *Assa Abloy*	Powerswing	Supplied by Assa Abloy Entrance Systems NZ.
Automatic Doors - controllers	Assa Abloy	Besam Units	Must have integrated security board and fire alarm with automatic reset, electric motor locking system and battery backup
Emergency Release for Access Controlled Doors		EM-REX	
CCTV System	Geutebruck (existing)		
Misc:			
Window / Vent Actuators	D&H		

A.19 - Signage and Wayfinding

Equipment	Manufacturer	Model	Comments

Section Under Development:

A.20 - Structure and Seismic

Equipment	Manufacturer	Model	Comments

Items Covered Elsewhere: