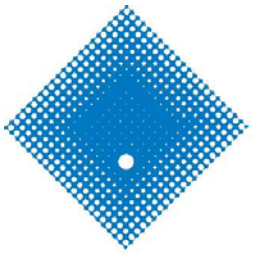
VICTORIA UNIVERSITY

MELBOURNE AUSTRALIA

Facilities Department

Building Design Standards for Minor and Capital Works

Contents



VICTORIA UNIVERSITY

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Interpretation and Definitions

Purpose of this document

These Standards have been prepared to assist professional consultants in the design and documentation of Victoria University projects. They provide direction, guidance and enable consultants to more efficiently translate the University's requirements into acceptable design solutions.

Use of this document

This document does not relieve any entity commissioned by or contracted to the University from the preparation of comprehensive Specifications for inclusion in Tender and Construction documentation. The requirements contained in the various sections of this document should be incorporated into such documentation as appropriate but no part of this document should be used as a substitute for such documentation. Victoria University Facilities Department will review these Standards from time to time and update and revise accordingly to meet newer contemporary methods and practices. Consultants should ensure that the most recent version of these Standards is applied in undertaking their commissions.

Australian Standards

Wherever an Australian Standard (AS) impacts on any matter pertaining to the design, construction or maintenance of the facility, the Australian Standard shall set the minimum criteria to be applied to the project. In many instances the University requires a higher standard as outlined later in this document and where such an instance occurs the University requirement shall take precedence. Assumptions as to acceptable standards should not be made.
Where a Standard is called upon by the Building Act, BCA or other relevant legislation, the requirements of that Standard shall be delivered or exceeded as required by these Standards.

Mandatory requirement

Where a requirement is designated in this document as being *'Mandatory'*, generally no alternative design, specification, material or manufacturer will be entertained by the University, and the requirement shall be incorporated into the documentation or construction without variation. Consultants or Contractors may offer alternative innovative solutions to these requirements for consideration and analysis by the Director, Facilities Management.

If a requirement is not designated as mandatory, the University will consider alternative designs, specifications, materials or manufacturers, provided that the alternatives satisfy the minimum standards for that requirement as outlined in this document.

Departures from the requirements of this document

For any new buildings and facilities, any departures from these Standards must be approved in writing by the DFM. Any departure made without such approval and incorporated into the design of construction of a project shall be rectified at no cost to Victoria University. Where works involve re-use of existing buildings and facilities, discretion may be applied to the use of these Standards to ensure that design solutions are cost effective and match existing conditions as far as practicable.

Consultant

The term 'Consultant' where used throughout this document shall mean as a Principal Consultant, any Architect, Engineer, Quantity Surveyor, Project Manager, Draftsperson, Surveyor or any other

individual or firm providing its services either commissioned directly under an Agreement with Victoria University, or engaged as a Sub-Consultant to the Principal Consultant.

Contractor

The term 'Contractor' where used throughout this document shall be taken to mean the Principal Contractor and any Sub-Contractors engaged in the completion of works under the relevant contract.

Equal & Approved

Wherever a brand or manufacturers' name appears in this document, an alternative brand or manufacturer will only be permitted if that brand or manufacturer can satisfy all the requirements of this document, the drawings and specifications. Prior approval must be sought from DFM before incorporating such alternatives into the design and documentation for the project which must be 'fit for purpose' and installed strictly in accordance with the manufacturers' instructions.

Any alternatives installed without prior approval from DFM are to be removed and replaced with complying materials, plant or equipment at no cost to the University.

Legislation

Victoria University operates under the authority of the Victoria University Act and its subordinate statutes, rules and regulations. Penalties for offences under this Act are enforceable under Statute Law. In addition to any monetary penalties which may be imposed under legislation, or any Conditions of Contract, persons who wilfully disregard the requirements for care and maintenance of the campus, will be liable to removal from the campus.

Abbreviations

The following abbreviations are used throughout in this document;

ITS Information Technology Services
LES Learning Environment Services
UFO University Fire Officer
BCA Building Code of Australia
AS Australian Standard
SA Standards Australia
OH&S Occupational Health & Safety

General Building Design Requirements

This section provides details of minimum requirements for Building Design. The Principal Consultant and sub-consultants are expected to produce their own specification incorporating the following information and submit all designs to the University's Project Manager, Facilities Management for review at each stage of a project for approval.

Design

Part of design is looking at buildings from a holistic point of view; therefore all new works needs to take into account its surrounding buildings and what they may be able to contribute (to minimise unnecessary repetition) or what extra capability they may provide for existing buildings to make them more efficient. Victoria University favours the use of the integrated design process methodology.

As a general principle, it is desirable that either:

- The interface between different user groups, activities and zones throughout the building be limited, and areas with similar energy requirements be grouped together, or
- Flexibility and modularity is built into design to allow for the constantly evolving/changing nature of the University

Victoria University is committed to sustainability across all its strategies, practices and policies. Sustainability is to be considered as an overarching consideration in all aspects of the University's standards. See the Environmental Sustainable Guidelines section for details.

Site Planning Controls

Where Victoria University Council has approved Site Master plans for its' Campuses, proposed development is to be controlled in accordance with these plans. Copies of the plans are available upon request from the Project Manager. Departures from approved Master plans will only be allowed in exceptional circumstances with Project Manager approval.

In addition, design consultants appointed by Victoria University are required to undertake assessment of the zoning and overlay controls of the Statutory Planning Schemes for the relevant local Municipality as to any approval requirements for use and / or development of the site in accordance with proposals.

Whole of Life Considerations

It is vital to ensure that all facilities constructed incorporate maintainability, life-cycle costing sustainability in their design.

Designs and installations must embrace and make adequate provision for:

- Servicing and maintenance of plant and equipment;
- Future removal and replacement of plant and equipment;
- Long term durability of materials and finishes;
- Energy conservation and water use minimisation;
- Adaptability and flexibility of functional space for use/ re-use and
- Potential for future expansion.

Note**:** Designers will be required to justify the selection of particular systems, equipment and products.

The justification is to include information pertaining to the environmental performance of the item/s which includes details about energy and water consumption, and all the rest of the environmental performances we could perhaps list here.

Designs which opt for minimising capital cost at the expense of on-going maintenance, energy and operating costs will be rejected by Victoria University. Such designs will be rectified at the expense of the Consultant or Contractor as the case may be.

Building Height

Building heights shall reflect the requirements of; the Site Master Plan, for the particular Campus, any requirements of local Planning Schemes and the specific requirements/constraints of the proposed facility and its designated site.

Building Façade

Consideration should be given to the design and choice of façade materials and to be respectful of the local built environment. The façade material is to be durable, easily maintained, control exterior noise and resistant to water penetration. Windows should be well shaded, provide good views and let in lots of daylight without causing glare and discomfort to occupants. If the building is not fully air-conditioned, windows should be openable for cross ventilation.

The chosen façade system should be structurally sound and the materials should have thermal resistance to keep excess heat out during summer and insulate effectively in winter. Recommended ratings are R1.5 for walls and R2.5 for ceilings. R ratings for the walls and ceilings are in accordance with Section J of the Building Code of Australia (BCA). Façade systems, shading systems and glazing is to conform to the requirements of Section J of the BCA. Expensive exterior and interior finishes shall be avoided and all external glass to curtain wall facade to be Australian Standard laminated glass.

The placement of protruding building services and equipment on building façades and rooftops shall be avoided or shielded from view.

Floor to Floor Heights

Floor to floor heights should be kept to a minimum while at the same time allowing sufficient space in ceilings for services distribution to maintaining a minimum ceiling height of 2.70m. Floor to floor height should match adjacent buildings where necessary because of linkages.

Wind around Buildings

Consideration should be given to the design of an individual building, or group of buildings, shall be such as to minimise problems of wind turbulence.

Location of Columns

Careful consideration must be given to the location of columns within the building. Columns located on the centre line of the building generally impose constraints on the layout of the floors, particularly those levels incorporating academic areas, which are generally located on the external wall of a building. This will assist in providing maximum natural light to these spaces, are generally of equal size and often results in a central corridor which must not be obstructed by columns. Columns within the body of a functional space must be avoided wherever possible. This applies in particular to Lecture Theatres and Seminar Rooms.

Clear span slabs with no intermediate columns are desirable if budgetary constraints permit.

Slabs

As stated in the previous section, clear spanning slabs without intermediate support are desirable. In designing such slabs, consideration should be given to the depth of beams to accommodate ductwork and other services suspended below the slab without unnecessarily increasing the floor to floor height. If post tensioned slabs are installed, the location of all tendons must be marked on the underside of the slab to ensure that any future core holes cut in the slab do not intersect any stressing cables.

All buildings shall be designed for floor loadings generally in accordance with AS 1170.

Floor slabs shall be designed for the most economical construction and flexibility of use with due consideration to long-term deflections and the need to core holes, now or during the course of the building's life, up to 200mm diameter adjacent to columns, or to provide penetrations up to 1200mm square in selected areas.

All floors are to be finished within a maximum tolerance of $\pm$ 3mm in a 3000mm straight edge. Thermal resistance (R-values) of the floor is to be >1.0m^2 K/W. Library stack areas shall be designed for floor loadings of 6.0kN/m^2 provided that stack height is limited to 2.3m. Provision shall be made for the installation of compactus shelving and other areas of special loading if specifically nominated by the end user.
Construction and expansion joints shall be positioned to minimise cracking and to avoid unsightly gaps in floors and wall as a result of long term movement of the structure.

All internal floor slabs on ground shall be placed on moisture barrier equivalent to 300 micron thick 'Fortecon' polythene membrane, turned up at the perimeter and with all joints sealed.

Structural Walls

Concrete or masonry walls should be kept to minimum to ensure flexibility for future internal modifications or alterations. Masonry walls should be limited to lift shafts, fire stairs and plant rooms wherever possible. Masonry walls required for bracing purposes should be carefully located so as not to impact severely on flexibility.

External Walls and Expansion Joints

Generally

The colour, materials and texture of external walls shall reflect the proposed use and functionality of the project and shall be selected on a life-cycle cost basis taking into account the long term maintenance and operation of the wall and its finishes over twenty (20) years. As the cost of building will be influenced by the structural system and external wall cladding, the method proposed and materials and texture of external walls shall be approved by Victoria University at the preliminary sketch design stage.

Innovative design solutions are encouraged.

Construction

External walls to buildings shall be designed with particular care and consideration given to ensure there are sufficient control joints in all wall materials to avoid cracking due to shrinkage and expansion of the material, or unequal settlement.

As a general rule, a structural separation of 26mm minimum shall be maintained for positions between individual buildings. Adequate weathering shall be provided for all copings, sills and at heads to openings. Mortar joints to face brick and face blockwork shall be ironed to a half round radius. Façade staining shall be avoided by careful design and detailing to shed water clear of the building, clear of lower projections and clear of pathways. Parapet cappings and window framing shall be designed to ensure facade staining is avoided.

In-situ Finishes

If exposed concrete is proposed and approved by Project Manager it shall have a minimum Class 2 'off-form' finish. Any exposed concrete edges shall be treated to ensure compatibility with the predominant finish to the external wall surfaces. Standard grey concrete masonry is not acceptable as a permanent external finish; however coloured concrete masonry may be used subject to the approval of the Project Manager.

Applied Finishes

Applied finish shall be a full system such as that manufactured by 'Rockcote' or 'Granosite Coating Systems', and shall have a minimum ten (10) year unconditional guarantee. Applied finish on concrete masonry shall be applied over a 4mm minimum thick 'Rockcote PM100' or 'Granoplast' Fine/Medium render coat. Application of applied finishes shall conform to the manufacturers printed instructions by approved applicators, to ensure validity of the guarantee from the manufacturer. Spray applied finishes to external surfaces is not permitted.

Colours

Colours for use on the building are to be submitted to Project Manager for review and comment prior to the preparation of a colour board to be presented to the Project User Committee for formal approval.

Sun Shading & Screening

Sun shading and screening shall be provided as required by the project to minimise the life cycle costs of air conditioning and building façade systems including soft furnishings such as curtains and blinds. Consultants are to produce Solar Charts illustrating shadow angles resulting from proposed sun control devices to be used on the project. Sun shades shall be provided to northern façades. Windows on eastern façades shall be effectively shaded. Windows shall be avoided on western façades. Sun shading shall also be used to minimise glare from adjacent buildings where necessary.

Provision for Building Signage

Provision shall be made in the design of the façade around the main entry to the building for the installation of the building name and number. Provision shall be made on remaining facades for the installation of building identifier signage being either an alphabetical or numerical character that can be seen from a distance, as per the signage guidelines. All signage is to conform to the standards as specified in the Signage Style Guide.

Sealants

Sealants shall be selected to be appropriate for their application and shall be colour matched to the finished surface. Only sealants with no VOC emissions or levels of VOCs below 420g/L are to be used.

External Protection

Provide approved bollard protection to all external areas of buildings liable to vehicle damage.

Tanking

Floors, walls and lift pits shall be fully tanked where below grade or subject to hydrostatic pressure.

Termite Control

Protection from subterranean termites shall be provided to all new buildings. All workmanship and materials shall conform to the requirements of AS 3660 Part 1: New Building Work. All tree stumps and root boles which have been exposed during excavation, together with any dead logs and other timber debris, shall be removed from the building site. Stainless steel mesh barriers which comply with the requirements of Section 6 of AS 3660.1 are to be used to provide protection against termite entry. Stainless steel mesh barriers shall also be used between the slab edge and the wall, and across wall cavities in masonry wall structures. Termite caps or strip shielding complying with the requirements of Section 5 of AS 3660.1 shall be installed on all foundation walls, piers, stumps and other substructures in such a manner that the structure is isolated by the barriers from the substructure.

The Contractor shall provide the Project Manager with a Certificate of Installation in accordance with AS 3660.1 Appendix A, from the installer of the termite management system.

Day lighting

Day lighting is the use of light from the sun and sky to supplement and replace artificial light. Day lighting summarises all building design measures (fenestration and lighting controls) that strive to optimise the availability of glare free natural lighting and meet the occupants lighting quality and quantity requirements.

An integrated approach to day lighting shall be taken that includes the potential for significant energy savings through appropriate building design, space design, shading, lighting and glazing measures.

Consideration should be given to the best use of available daylight in all circumstances for occupant comfort through the ability to relate to diurnal change and optimal work conditions for productivity outcomes. In particular open planned office spaces should be located toward external perimeters of buildings with any meeting / interview rooms, enclosed offices etc located internal of open planned areas.

The design of laboratory and workshop spaces should include elements aimed to achieve an even distribution of daylight at bench and floor levels.

Teaching spaces will require full control of daylight conditions. For lecture theatres this will generally mean no external windows while windows to classrooms will be required to be fitted with full blockout roller blinds. Notwithstanding, opportunities for visual relief from within teaching spaces should be provided.

Windows

Generally

When designing glazed openings, the benefits of natural lighting and ventilation shall be weighed against solar and thermal loads. That is, the amount of glazing in the building façade shall be determined to satisfy aesthetic and functional needs but shall also take into consideration all of the factors which impact on the total life cycle of the proposed building including capital cost of building elements, services and operating costs, the cost of glare reduction, maintenance, cleaning and energy.

Unless otherwise agreed to by the Project Manager, glazed areas should be kept below 35% of total wall area.

Care shall be taken to minimise the impact of solar load and internal glare through windows by carefully considering the options of sun shading, internal blinds or the use of solar or tinted glass or a combination of these measures. An analysis of the life cycle costs and associated solar load implications, of the proposed solution shall be submitted for consideration by the Project Manager before a final design solution is adopted.

Windows shall be of commercial quality designed in accordance with all relevant codes and shall be suitable for the specific application taking into account the requirements for security, cleaning, ventilation, maintenance and operability.

Lecture theatres shall have no windows.

Design Criteria

In design, careful attention shall be paid to the problem of noise in high winds, waterproofing, thermal and structural movement, the impact on energy consumption and security. Windows shall be designed for the relevant wind loading. In air conditioned buildings, not less than 10% of the window area shall be open able so as to provide for ventilation in the event of a system breakdown. Every room and every bay of windows on the perimeter must have at least one open able window. This requirement may be waived if alternative means of achieving this outcome can be provided. The design of the walls at windows and doors shall ensure that the cavities between the inner and outer walls are suitably flashed and the cavities are closed with the wall material and not aluminium angles.
The Design Team shall demonstrate adequate consideration of the following:

- Sun control techniques including internal and external shading devices and control of glare;
- Maximised use of natural light;
- Design in accordance with Section J of the BCA and the required thermal resistance required for external glazing;
- Generally, provision shall be made for shading of glazed areas from early October to early March;
- Internal, or glass applied, sun control treatments shall only be considered where external shades cannot be used.
- In general, the following energy targets shall be used for the window design:

Window Transmission	<5.8 W/2m²K
Window Shading Coefficient	<0.45 or shaded
Wall Insulation	>R1.5 m²K/W

Window Styles

Louvres shall be avoided except for special approved applications. Pivot hinge windows can open outwards or inwards but must be able to be cleaned from within the building. Where an external pathway, link bridge or staircase abuts the external wall of the building, any windows in that wall are not to protrude beyond the face of the wall at that level when opened.

Window Framing

Window framing shall be of thoroughly robust construction. Windows and doors shall have anodised aluminium frames. Powder coated window frames may also be used where the colour has been approved and consistent with other buildings in the vicinity. Aluminium windows shall be etched prior to anodising and the minimum thickness of anodising shall be not less than 20 microns. All exposed screw fixings, rivets and cut edges etc, shall be coloured to match the frames. Where windows or glazed panels have a common jamb with a door unit, provide strengthening to ensure that the window/door jamb does not twist and prevent the door lock from latching.

Glazing

All glass to windows in external walls shall be a tinted and laminated glass. A Thermal Safety Assessment using the Pilkington Method must be undertaken to determine if the glass is required to be heat strengthened.
Applied reflective film to glass shall not be used unless specifically approved by the Project Manager.
Windows to toilet areas shall be provided with obscure glass.

Full height glass to external walls is to be safety glass to requirements of relevant Australian Code. Where no mid-rail exists, install an adhesive tape 75mm wide similar to 3M 'Frosted Crystal Clear' on the inside of the glass at a height of 950mm to base of tape above floor level.

Window Locks

All openable window sashes shall be fitted with a lock equivalent to Lockwood 780 or 880, or an approved 'Allen Key' type lock to large bays such as in libraries, depending on the application. The locking requirement shall be confirmed with the Project Manager.
All locks shall be keyed alike.

Window Cleaning

All external surfaces of glass must be easily accessible for cleaning from the inside. If this is not possible, a proposed methodology for cleaning shall be submitted to Project Manager for consideration and approval.
All provision shall be made in the design for the approved cleaning methodology including providing safe access to the external glass surface and all safety anchors, tracks, hoisting equipment, harnesses etc.

Window Curtains & Blinds

Seminar rooms, computer teaching rooms, video conferencing rooms, meeting rooms and any other teaching spaces require 'black out' conditions to enable the effective use of audio visual facilities. This shall be achieved by fitting windows with effective 'black out' curtains or roller blinds. The use of roller blinds is preferred.
'Black out' roller blinds shall be 'FABER Multistop' roller blind system with cover profile mounted within the aluminium window frame. The blind frame shall be finished to match the window framing and the blind material shall be 'Mermet Flocke Code 11201' of an approved colour.
'Black out' curtains shall be non-pleated full height curtains of a material and colour (generally beige or grey) to be approved by Project Manager.
Particular care should be taken to prevent glare and sun penetration around edges of curtains and blinds.

Roofing

Generally

Pitched roofs shall be used in preference to flat roof systems. Care shall be taken in the design and specification of roofs to avoid rain penetration in strong winds. The minimum pitch shall not be less than the roofing manufacturer's recommendations for the particular materials adopted, however the roof pitch must never be less than five degrees (5^{o}).
Membrane roofs will not be acceptable except in special circumstances and only with the approval of the Project Manager.
All plumbing vent pipes, other pipe work, mechanical fans, cowls and the like located on or projecting above the roof shall be finished to match the roof colour. All metal framing exposed above the roof shall be hot dip galvanised after fabrication and be left unpainted.
Roof design shall minimise the number of penetrations through the decking or membrane.
All roof spaces shall have permanent, fixed, adequate access; be provided with catwalks and be sufficiently lit to enable the roof space to be traversed without danger 24 hours a day. The chemical reaction of aluminium in contact with other metals in an exposed situation shall be noted and avoided. Allow for the installation of anchor points on the roof for harness attachment.

Roof Deck Materials

Roofs shall generally be metal pan roof decking, manufactured from G550 hi-tensile colour coated (Colorbond) steel in accordance with AS 1397 and AS 2728-Category 3, with a thickness of 0.48mm

BMT. The deck profile shall be equivalent to Stramit 'Speed Deck Ultra' and fixed on concealed clips in accordance with the manufacturer's printed instructions. All sealants, fixings and accessories shall match the colour of the roof. Ends of sheets must be turned up at ridges, penetrations and abutments, and turned down into gutters using specialist tools.
The colour of the roof sheeting must be approved by the Project Manager.
If vertical linings are required where not exposed to view, they shall be in colour matched profiled steel wall sheeting with a thickness of 0.42mm BMT, equivalent to Stramit 'K–Panel'.

Flashings and Capping

Roof flashings, capping and trims shall be designed to minimise the use of sealants, and shall be fabricated and installed in accordance with the roof deck manufacturer's recommendations.
Flashings, capping etc. associated with the roofing shall be fabricated from Colorbond steel of the same thickness and colour as the roof sheeting. All fixing types are to be as recommended by the roof deck manufacturer and colour matched to the flashing.
Where the ends of the roof sheeting are clearly visible above the eaves gutter, install a colour matched steel angle trim with the vertical leg positioned downwards and the other leg fixed to the top of the rib, with sufficient space between the vertical leg and the end of the decking pans to allow water run-off.
Flashings to penetrations for roof access hatches, skylights, exhaust vents and the like shall incorporate a soaker flashing which shall extend to the roof ridge whenever possible. Flashings to all roof penetrations shall be designed to minimise the collection of leaves and debris. All box gutters (if permitted)shall have over flashings fitted under the end of the roof decking to the trimming purlin.
'Decktite' flashings are acceptable for circular penetrations, only where they are installed in a manner which does not impede roof drainage or allow ponding, and strictly in accordance with the manufacturers printed instructions.

Roof Insulation

To the whole of the roof area, provide an R3 insulation blanket with foil faced backing laid over galvanised wire safety mesh fixed on top of the purlins.

Gutters

Generally – Box gutters ***shall not*** be installed unless there is no other viable design solution. Internal gutter design shall be considered only as a last option but if included shall clearly demonstrate the inclusion of controlled overflow to prevent leaf blockage.
As a sustainability measure, the collection of rainwater for reuse in toilet flushing and irrigation is a priority, and the use of eaves gutters to achieve this objective is acceptable only if there is no other practical solution. Gutters are to be sized for maximum rainfall intensity for a duration of 5 minutes re-occurring once in 100 years.
Materials – All gutters including accessories shall be fabricated from Type 304 stainless steel with a minimum thickness of 0.9mm with a pacified polished finish. All joints shall be welded.
Eaves Gutters – Eaves gutters shall be of a self cleaning design which clears leaf litter and other debris and is self regulating in high precipitation storms. Gutters to be a minimum depth of 90mm with a minimum of 25 mm freeboard. Provide removable galvanized mesh type leaf guard across the full area of all box gutter sumps.
Expansion Joints – Continuous lengths of gutter shall have expansion joints. These joints shall comprise stop ends with a saddle flashing over. Necessary joints shall be first class quality in design and workmanship, with an inspection opening provided for cleaning.
Overflows & Spitters – Any box gutters (if permitted) shall incorporate overflows as a safeguard against flooding caused by downpipe or drain blockages. Overflows shall be located at the high end of each gutter and the discharge from the overflow shall be visible. Horizontal overflows shall discharge a minimum of 150mm from the face of the fascia or building façade. The cross sectional

area of each overflow shall be the equivalent of the downpipe from the gutter sump. For maintenance purposes sumps are to be a minimum width of 450mm and a minimum depth of 150mm. Where the overflow discharges directly from the gutter end through the fascia or external wall, the material shall match the gutter lining, however if the overflow is required to travel any distance to discharge, the material shall be the same as for downpipes.
Where spitters are used, they shall also discharge 150mm from the face of the fascia or external wall, and shall be fabricated in No. 4 polished Type 304 stainless steel.
Leaf Guards – All box gutter sumps shall be fitted with stainless steel mesh removable leaf guards. Leaf guards shall project above the top of the sump not less than half the gutter depth at the sump.

Downpipes

All exposed downpipes shall generally be constructed of 1.6mm thick Type 304 stainless steel with all joints welded. Tested UPVC will be considered as an alternative for particular applications, in which case they shall be painted to blend with the external wall finish where exposed.
The minimum diameter of downpipes shall be 150mm.
All downpipe brackets shall be a standoff type fabricated from stainless steel for stainless steel downpipes, and painted hot dip galvanised steel for UPVC downpipes.
Downpipes shall not be built into walls or columns. If a downpipe is located internally, it shall be insulated to eliminate noise transfer into occupied spaces, be oversized, with no sharp twists and turns and be from Sanitary Plumbing Class PVC. Downpipes are not to be cast into concrete columns, but enclosed in a suitable duct within the building envelope. Should it prove necessary to cast downpipes into concrete columns, inspection openings are to be located for easy access at maximum two storey locations.
The downpipe foot shall not be connected directly to drains, but shall discharge over a stormwater sump designed to prevent leaves from entering the drains and to avoid water splashing over paths and walls. In garden areas the grate level is to be at least 75mm above any garden mulch.
All downpipes and all gutters shall be hydrostatically tested to the maximum head possible.
All downpipe design shall be approved by the Project Manager.

Roof Access & Walkways

Access is required to all roofs. Where this cannot be achieved via the continuation upward of an external escape stair, access from inside the building shall by means of a roof hatch or a door.
Access by means of hatch or door shall be situated within the roof safety zone.
Where an external stair is utilised to gain access, a secure barrier shall be provided at the landing on the highest occupied floor level to prevent unauthorised access to the roof.
Where access is via a roof hatch, a permanent steel stair must be provided. The stair shall preferably be located in a plant room, or in a separately enclosed space.
Ladders fabricated from hot dip galvanised steel shall be provided between changes in roof levels, and between access doors from plant rooms and the roof surface if required.
Walkways shall be provided across roofs to provide access to equipment, mechanical fans etc.
Walkways shall be of aluminium construction equivalent to that manufactured by Juralco.
All access stairs, ladders and walkways shall comply with AS 1657and be designed to satisfy Occupation Health & Safety Requirement.

Roof Safety System

Provide a fall-restraint safety system in accordance with the provisions of the BCA. The installation shall also comply with the relevant Australian Standards.
Preference shall be given to systems where the anchorage points or cable supports are mechanically attached to the roof deck ribs and do not rely on posts penetrating the roof sheeting to attach to the roof framing.

Consultation with the Project Manager is required when selecting the system, to ensure the components of the selected system are compatible with existing systems utilised on other campus buildings.
The system installer must provide all appropriate certification that the system complies with the relevant Standards and regulations.
Supply a minimum of one harness to be located in a lockable steel cabinet at each point of access onto the roof.

Maintainability

Maintenance procedures associated with any building development must be consistent with Victoria University practices and requirements. These shall be reviewed by the Operations Manager & Services Engineers before going to tender and be taken into account before the design is complete.
The design and construction materials shall reflect low maintenance considerations. All fabric, structural and service components shall be readily accessible and shall not be labour intensive at the repair stage.
Buildings greater than three floors in height shall be designed to take swing stage scaffolding, or other approved building access systems, for maintenance and cleaning of the external facade.
High buildings and those with access issues may require the installation of a Building Maintenance Unit (BMU). The need for this must be confirmed during the Schematic Design Stage.
Upon completion of a building project, the Victorian Building Regulations 2006 require a maintenance determination in accordance with Part 12 of the regulations.

Disability Discrimination Act

As a service provider, Victoria University must comply with the requirements of the Disability Discrimination Act (DDA). The DDA requires that equal access be provided for all users in relation to access and use of public facilities. The Building Code of Australia (BCA) and the Australian Standards for access and mobility design provide for minimum design requirements only and adherence does not necessarily mean compliance with the DDA. The BCA and Australian Standards are not the preferred standards for the University as they do not adequately address equality of access as required under the DDA.
It is essential that architects and designers regard accessibility as a design issue and not as an add-on feature.
The rights and responsibilities of building designers and managers under the DDA are further explained by the Advisory Notes on Access to Premises prepared by the Human Rights Equal Opportunity Commission (HREOC). The Notes provide further understanding on the objective of the DDA and the Australian Standard. In 1997 the HREOC recommended that, where appropriate, the enhanced requirements of the Australian Standard, Design for Access and Mobility, AS 1428 Part 2 are to be applied over the minimum requirements of Part 1.
The design elements of particular concern to Victoria University are: Access, Building Entrances, Ramps, Handrails, Automatic and Manually Operated Doors, Lifts, Signs, Flooring and Paving Surfaces, Landscape Elements**.**
The following facilities are of particular concern to the University: Sanitary Facilities, Classrooms, Lecture Theatres, Science and Computer Laboratories, Libraries
Other areas of particular concern to the University are: Furniture and Fitments, Reception Counters, Warnings, Alarm and Safety Egress.
Each new building shall:

- provide access for people with disabilities to public entry points to the building;
- provide access for people with disabilities to all occupied levels of the building and all functional areas to be used by staff, students and the general public;
- incorporate toilet facilities for people with disabilities on each level and

- have provision for adequate car parking adjacent to paths leading to the entrance for people with disabilities in compliance with AS 1428.2.

The use of tactile ground surface indicators for people with sight impairment shall be incorporated as part of the design. The extent of use of tactile indicators shall be determined by the Consultant and shall conform to AS 1428.4. Refer to Section 25.00 for requirements for Braille and tactile signage.
Facilities shall also be provided for people with hearing impairment as nominated in other Sections within this document.
Lifts within buildings shall conform to the requirements for persons with disabilities.

Safety

General

A safe design approach begins in the conceptual and planning phases with an emphasis on making choices about design, materials used and methods of manufacture or construction to enhance the safety of the finished product. The designer needs to consider how safety can best be achieved in each of the lifecycle phases.
The most effective risk control measure – eliminating the hazard – is often cheaper and more practical to achieve at the design or planning stage, rather than making changes later when the hazards become real risks to University's, users, employees and businesses. The direct costs associated with unsafe design can be significant, such as retrofitting, workers compensation and insurance levies, environmental clean ups and negligence claims.
Consultants must be aware of their obligations to carry out risk assessments during the design phase for work areas as per Section 28 OH&S Act 2004. This legislation is designed to ensure that hazards and risks that may exist in the design of a workplace are eliminated or controlled at the design stage, as far as reasonably practicable.

Design for Safety in Maintenance & Use

Designers shall consider as a minimum, the following to facilitate normal maintenance and other foreseeable work tasks when developing the design;

- Normal cleaning operations and waste disposal
- Maintenance of plant and services through ease of access, provision of sufficient lighting and adequate space to carry out necessary tasks
- Storage of materials and equipment within expected requirements
- Clear space and access around the building perimeter for machinery and equipment necessary to maintain and clean the building facade

The design of buildings and services shall eliminate the following;

- Unnecessary need to access hazardous areas such as roof surfaces or confined spaces for maintaining plant or services
- Generation of mould and other indoor air quality issues affecting the health of users.

Asbestos & PCBs

Victoria University maintains Registers and Management Plans for asbestos materials and equipment/fittings containing PCBs occurring in its existing buildings. Contractors and Consultants involved in the refurbishment or alteration of any building constructed or approved prior to 1 January 1990, must obtain copies of these documents from Project Manager for inclusion in all documentation for tender and construction purposes.
Prior to commencing building works on any area of the campus the design team shall seek to establish and make reference to any existing, relevant asbestos / hazard audit information for the building or area. A Part 6 Hazard Audit is to be undertaken in accordance with OH&S Regulations 2007 (part 4.3 Asbestos).

Generally, any known asbestos removal work shall occur prior to the letting of the construction contract, alternatively the works may be detailed and included in the head contractor's tender. Conditions of removal or otherwise are detailed in the booklet 'Special Conditions of Contract'.

Physical Security

All buildings, car parks, walkways, bicycle paths and their immediate environs shall be designed to incorporate Crime Prevention through Environmental Design (CPTED) concepts and strategies to achieve a positive working and learning environment whilst reducing the opportunity for crimes against University property, staff and students.

In general terms, CPTED is a process which reduces the incidence and fear of crime through the effective design and use of the built environment. The application of CPTED concepts and strategies in the design of buildings and landscaping has direct benefit to the University by reducing losses through theft and vandalism, and enhancing the personal safety of staff and students.

Designers shall familiarise themselves with the application of CPTED concepts and strategies or engage the services of a specialist consultant to ensure that their designs meet the intent of these Guidelines. It is essential that designers clearly define the behavioural objectives for a given space and ensure that the design and use of that space supports those objectives. The following design factors shall be given specific attention.

Building Layout

General Requirements

The detailed arrangement of rooms shall be discussed with the User(s) and Project Manager. Generally it is desirable, in any vertical arrangement of accommodation, to locate the most populated rooms (usually undergraduate areas) at ground floor and quieter, less populated spaces, at higher levels. Where main libraries are required, they shall be located on the ground floor. The shape of all room types shall be designed according to the number of occupants and their furniture. As a security consideration, public access should be limited to one entry point if possible. Stair wells shall be located close to lifts to reduce the demand on the lifts. Design of stair wells should be appealing to encourage use.

Other layout design features to consider:

Sightlines - The inability to see what is ahead because of sharp corners, walls, topographical features, landscaping, shrubs or columns is a serious impediment to feeling and being safe. These same features provide concealment for crimes such as assault, robbery, burglary, vandalism and graffiti. Designers shall maximise 'visual permeability' and opportunities for 'natural surveillance' and avoid 'blind' corners, especially on stairs, in corridors, and in the location of toilets.

Entrapment Spots - Entrapment spots are small, confined areas, adjacent or near frequently used circulation paths. They are typically shielded on three sides by opaque barriers such as walls or vegetation. For example, dark recessed entrances, loading docks, gaps in vegetation along paths, toilet airlocks, small courtyards or certain architectural features may create entrapment spots. Entrapment spots are to be avoided either through design, such as providing maze entry systems in toilets, or by restricting access to the space by using hardware such as grilles. Where an entrapment spot is unavoidable, it shall be lit to a minimum of 30 lux and brought to the attention of the Victoria University at an early stage of the design.

Isolation - Isolated placement of facilities such as toilets, public telephones, car parks, bus stops, pedestrian paths and tunnels, after-hours computer and science laboratories, libraries, etc. can increase fear on the part of the users and the opportunities for crime. Designers shall give careful consideration to mitigating the sense of isolation by using techniques such as incorporating windows to overlook pedestrian routes and locating the abovementioned facilities in high circulation areas where opportunities for *'natural surveillance*' are enhanced. Public toilet facilities and similar amenities should be located adjacent to well trafficked circulation paths and preferably not be located within isolated corridors, stairways or the like.

Loitering - Designers shall take into consideration techniques aimed at minimising opportunities for loitering near toilet facilities and similar amenities. This may include avoidance of the placement of vending machines, notice-boards, seating, public telephones or other similar items that may be seen to 'legitimise' loitering in the vicinity.

Transitional Space and Signage - The ability to easily navigate Campuses and buildings reduces confusion and enhances confidence on the part of students, staff and particularly visitors. Designers shall incorporate techniques such as landscaping, changes in texture and/or colour, placement of furniture, etc. to aid with '*legibility*' of the site and clearly define the transition from public to semi-public to semi-private to private space. Where signs are used, their meaning shall be clear and unambiguous and they shall be strategically located at entrances and near the intersections of corridors and paths.

Arrangement of Rooms

Access for Engineering Services

Consultants shall ensure they indicate:

- How each item of plant is to be installed initially;
- How the University's routine service personnel will reach each plant item; and,
- The method to be used in changing the largest item of plant in any plant room or plant area.

'Adequate access' for routine servicing means sufficient space for a plant mechanic, irrespective of working age, to reach all items requiring routine service safely and without undue stress. Any equipment installed in a trafficable ceiling space or on a roof, shall have a permanently fixed ladder, walkway platform, handrail and easily opened trap door. The design and location shall be approved by the Victoria University's Engineering Services Manager.
Mechanical and electrical plant and equipment, particularly those requiring manual operation or routine maintenance, such as electrical control panels, pumps, fans, etc., shall have safe and comfortable access. A loose fit is essential to enable work to be carried out around them.
Wherever possible in the design of the building, electricity substations, main switch rooms and mechanical services plant rooms, external access for maintenance staff is to be secured by the University's external plant room lock systems, not the building's lock system.

The Principal Consultant shall ensure that there is coordination between the Civil Engineer, Structural Engineer and Service Engineers to allow incoming underground services, in the form of pipes and cables, to pass through the building footings.
Adequate spare conduits shall be provided to allow for future growth of services.
Because some electrical and telephone cables may be too big and heavy to be pulled around conduit bends; straight access, without bends or obstructions, shall be provided.

Location of Plant Services

At an early stage, the design and location of services plant on roof areas shall be carefully considered and discussed with the Project Manager and Engineering Services Manager. Appropriate screening treatment may be necessary especially for the aesthetic and acoustic properties of the plant and/or services.

Plant Rooms

The Principal Consultant shall request from Consultants the range of sizes for all items of mechanical and electrical plant. The Architect shall ensure that the final selection of mechanical and electrical equipment shall not require additional space. The plant room layout shall provide for a minimum 10% future expansion. The consultants shall nominate in their schematic design the percentage allowed for future expansion.
Where possible, direct access from corridors to roof areas, plant rooms, tunnels, etc. shall be provided to enable the independent control of these areas by the Facilities Department.
Plant rooms shall be located convenient to the most direct point of vehicular access that can be achieved without the introduction of extensive service road connections. It is preferable for plant rooms to be located at roof top or basement level, rather than in the body of the building, and to be accessed via the service entry rather than the front entrance. If possible, access to basement plant room shall be isolated from the main entry and foyer so that personnel do not need to enter a secured area to access the plant room. Provision shall be made in elevated plant rooms for hatches and lifting equipment to facilitate conveyance of equipment to ground. Where plant rooms are built in tier fashion within the building, access ladders shall be provided between levels within the plant room.
Plant room floors shall be graded to drain and provided with floor outlets not less that 75mm diameter to permit hosing down. Floor surfaces are to be sealed against spillages and painted with paving paint. To limit flooding, 100mm high bunds are to be constructed at door openings and around floor penetrations. Alternative flooding controls, such as spill trays with drains, are to be considered.

Plant rooms shall be provided, where required, with mechanical exhaust ventilation.
Plant rooms shall be designed so that the noise level measured with all the equipment operating under full load will not exceed the current exposure standard, less 3dbA.
All plant room doors external to comply with our fire door / locking systems standards.
All external doors to be metal skin and door closers.
No MDF internal or external and Roven door seals also to be used.

Communication Rooms

Communication Rooms at Victoria University shall be designed in accordance with the Services Standards (Data) (Section 3 of this document).

Lecture Theatre, Classroom and Office Spaces

Lecture theatres, classrooms and office spaces at Victoria University shall be designed in accordance with the Ergonomics Design Standard (Section 2 of this document).

Laboratory Design and Construction

The Australian Standards for Laboratory Construction, AS/NZS 2982 and Laboratory Safety, AS/NZS 2243 Parts 1 to 10 establishes the minimum requirements for laboratories at this University.
Consideration in design shall include access for people using wheelchairs, both to the Laboratories and to equipment benches.
As part of the briefing process, the Design Consultants shall utilise Appendix A of the AS/NZS 2982 and conduct a review at the early stages of the project with the User / client groups.
The Design Consultant must also establish, through the users, any other laboratory design criteria which must be considered beyond the AS that are relevant to the project – including but not limited to any OGTR and AQIS requirements. Guidelines for OGTR and AQIS can be downloaded from the relevant government web sites.
Ceiling tiles, where used are to be of an impervious nature / or vinyl wrapped ceiling tile panels.
Flooring in laboratory areas shall be of the chemical resistant vinyl sheeting type.
Where provided, work benches shall be provided with chemically resistant bench tops and under bench sections. Flooring beneath work benches shall also be of the chemically resistant vinyl sheeting type.

Cleaners' Rooms/Stores

A small store shall be made available on each floor for the storage of cleaning materials and equipment. When hard floor surfaces exist in the building, a cleaner's trough with hot and cold water taps shall be installed in the room. Adequate shelving is to be provided and should be of sufficient strength to hold reserve supplies of cleaning materials.
In multi-storey buildings, above two levels, a larger store room shall be provided on either the ground floor or basement level, to store toilet requisites and larger cleaning equipment.
Ideally, a separate key profile shall be allocated for these rooms to ensure the security of the items being stored.

Tea-Making Facilities

Tea-making facilities may be necessary in common rooms or alternatively a central tea-making facility may be required. When provided in carpeted areas, such as common rooms, sink benches shall be surrounded by an area of impervious flooring.

Waste and Recycling Removal

Easy removal of recycling and waste from the building is mandatory. Provision for its removal should be integral to the building design and adequate storage space shall be provided for refuse bins near the service.

Notice Boards

Notice boards or pin boards shall be provided where required in passages and rooms. Display boards may be necessary in common rooms and height above floor level is to be suitable for wheelchair users. Refer to AS 1428 Parts 1 and 2.

Assignment Boxes

Assignment boxes and mail boxes may be required in locations to be decided in consultation with the User Group.

Finishes

Internal Walls & Partitions

Generally

Building interiors shall be designed to provide maximum flexibility for future modifications or change in use. Load bearing walls shall be minimised and restricted to areas such as the building core for stairwells, lift shafts and toilets. All other internal walls and partitions shall be non-load bearing and able to be readily removed and altered at minimum cost. Internal finishes shall generally be designed for low maintenance with acoustically absorbent finishes where practicable. Whilst it is desirable that surfaces be easily cleanable, they shall not be durable to the extent that they create a harsh environment.
The finish on internal walls shall follow the recommendations of the Australian Standard for Interior Lighting regarding the reflectance of surfaces. If screen-based equipment is to be used, it is recommended that the wall colours have a reflectance value of between 30%–50%.
All finishes and linings to the internal walls are to comply with Specification C1.10 and C1.10a of the BCA.

Masonry Walls

Load bearing walls shall be concrete or concrete masonry as determined by application and economy. Non load bearing masonry walls shall be restricted to plant rooms, service ducts and the like, or where required to achieve fire ratings or acoustic requirements not achievable by other wall systems.
Any exposed concrete walls shall have a minimum Class 2 ‘off-form’ finish.
All face blockwork shall have half round radius ironed joints.
Adequate control and expansion joints shall be provided to prevent cracking due to building structure settlement.

Framed Partitions & Linings

Internal partitions shall be constructed using not less than 76 x 0.55mm BMT steel stud and track framing components. Size and thickness of framing components will be dictated by height and load imposed by wall mounted fittings and equipment.
Internal Walls

- Internal walls shall be lined with either vinyl or hardwood timber skirtings. MDF strips are not to be used.
- Internal walls surrounding meeting rooms and offices where minimum noise penetration is required, provision for either 50mm or 75mm polyester batts shall be incorporated into the wall. Boral ‘Sound Stop’ 13mm plasterboard, or equal and approved, may be used.
- In areas of high foot traffic where stud walls are used, high impact plasterboard is to be installed to a height not less than 1200mm.

Internal Ceilings

- All internal fixed ceilings shall be 10mm plasterboard.

All framing shall generally extend to underside of slab over, and adequate nogging shall be provided for the installation of wall mounted fittings and equipment. Deflection head tracks shall be used to accommodate slab deflection.

Framed partitions shall be sheeted with recessed edge plasterboard with flush set joints. The thickness and number of layers of plasterboard sheeting shall be to suit the application or to satisfy acoustic and fire separation requirements, but sheets shall not be less than 13mm thick.
Fibre cement sheet linings shall be used in wet and heavy use areas, and shall not be less than 6mm thick.
The lining shall extend from floor level to underside of slab above on at least one side of the partition between functional spaces and corridors, foyers and other public spaces for security, and between all spaces where required to achieve acoustic separation. Linings need only extend full height both sides if required to satisfy acoustic or other criteria.
Where the top floor of the building is covered by a steel framed roof, partition linings need not extend to underside of roof except for acoustic or fire separation reasons, but shall extend at least 300mm above ceiling level on both sides.
All penetrations in partition linings shall be sealed to maintain the required acoustic rating of the partition.

Linings to Masonry Walls

Plasterboard linings to masonry walls shall generally be adhesive fixed in accordance with the manufactures printed instructions.
If the wall to receive the plasterboard lining requires power points, data outlets and the like, then the plasterboard should be fixed on metal furring channels. Chasing of masonry walls for cabling etc. is ***not*** acceptable.
All fibre cement linings to masonry walls shall be fixed on metal furring channels.
Fibre cement linings to receive ceramic wall tiling shall be fixed strictly in accordance with the manufacturer's printed instructions. Sheets shall be installed to allow expansion joints to be full depth of tiles and lining.

Wall Protection

Anodized aluminium angle protection shall be provided to external corners of all partitions. The angle shall be 38 x 38mm, adhesive fixed and filled and continuous from top of floor coverings to underside of ceiling. Exposed ends to all nib walls shall have full aluminium capping protection.

Acoustics

Particular attention shall be paid to acoustics and noise transmission. Insulation to partition cavities shall be 'Dacron' polyester fibre or natural wool batts of thickness and density necessary to achieve the necessary sound transmission loss between spaces.
Details of intersection of partitions and external windows shall ensure sound insulation is maintained at that intersection equivalent to that of the remainder of the partition.
Partition walls between toilet/shower areas and academic offices or teaching spaces shall be constructed to eliminate the transmission of noise from voices and closing of cubicle doors.

Projection Walls

The front wall of all Lecture Theatres is used for projection. The joints in the plasterboard wall lining shall be carefully set to ensure the projected image on the wall is clear of distortion.

All spaces nominated on the Room Data Sheets as requiring a video/data projector shall have one wall suitable as a projection wall. These spaces will include the following;

- Seminar rooms
- Computer Teaching rooms
- Meeting rooms

Operable Walls

Where there is a requirement to open up adjacent similar spaces into a larger space e.g. seminar rooms, this shall be achieved by the use of operable walls.
The acoustic performance of the operable wall and baffle wall over in ceiling space shall be equal to that of a fixed partition between the spaces in accordance with the acoustic requirements.

Glazed Partitions & View Panels

Glazed view panels shall be provided in internal partitions to provide surveillance or transmission of natural light.
All academic and general offices shall have a 300mm wide glazed panel beside the door from floor to door head height.
All glazed panels shall be installed in an anodised aluminium frame to the full perimeter. Where panels abut door frames, provide stiffening to ensure that the door frame jamb does not twist and prevent the door lock from latching.
Full height glass to internal walls is to be safety glass to requirements of relevant Australian Code.
Where no mid-rail exists, install an adhesive tape 75mm wide similar to 3M 'Frosted Crystal Clear' on the inside of the glass at a height of 950mm to base of tape above floor level.
In particular situations where full vision through full height glazed screens or view panels on corridors is not desirable for privacy reasons, apply 3M 'Frosted Crystal Clear' film to the glass on the room side from 300mm above floor level to 300mm below the head height of the screen or panel.
Glazed panels to the front of a Projection Room/Bio Box in a Lecture Theatre or Auditorium shall be adequately angled to avoid reflections, and the glass shall be of a thickness to achieve the required acoustic separation.
Curtains or blinds shall not be installed to internal glass walls or panels except in exceptional circumstances approved by the Project Manager.

Toilet Cubicle Partitions

Toilet cubicle partitions shall be a proprietary brand suspended system with a laminated plastic finish.

Ceramic Wall Tiles

Walls in toilet and shower areas, including airlocks, shall be finished with ceramic tiles and shall extend from floor to ceiling. Ceramic tiles must not be adhesive fixed directly to off form concrete surfaces or blockwork, but shall be fixed to a fibre cement sheet substrate.
Wall tiles shall be glazed or semi glazed of 200 x 100mm or 150 x 150mm module with grouting in a dark colour. ***White grout shall not be used***.
As a minimum, provide sealed expansion joints at all internal angles and abutments with door frames. Joints shall be full depth of tiles and wall linings.
Where sink units, cleaners' sinks or hand basins exist in isolated locations, provide a tile splashback not less than 1m² in area. The splashback shall extend to the bottom edge of the fixture and at least two tiles wide each side.
Splashbacks shall generally be of ceramic tiles except for built in furniture and Laboratory benches.

Sealants

Sealants shall be selected to be appropriate for their application and shall be colour matched to the finished surface.

Decorative Wall Finishes

Where decorative wall finishes are used in public foyers, waiting areas, lift lobbies and the like, they must be durable, easily cleaned and impact damage resistant.

Acoustic Wall Finishes

If fabric faced acoustic treatment is used on walls in lecture theatres, it shall be located above head level or protected by handrails, chair rails or similar to avoid damaged by traffic along side aisles.

Chair Rails

Provide a chair rail 180mm x 20mm thick comprising custom wood with Tasmanian Oak laminate finish to face, top and bottom edges, to all walls of seminar rooms, tutorial rooms, video conferencing rooms, computer rooms, open learning areas and meeting rooms.
Consideration shall also be given to the protection of operable walls from damage by chairs.

Floor Finishes

Colours

Colours of all floor finishes shall form part of the overall colour scheme and maintainability for the building.
Light colours should not be used in high traffic areas or adjacent to external entries.

Carpet Finishes

Carpet finishes shall be used generally throughout all teaching spaces, office spaces, circulation areas and general purpose spaces in Victoria University buildings. Lecture theatres shall have a heavy duty commercial carpet which shall be approved by the PM.
Victoria University has adopted carpet tiles as its standard finish.When considering the range of carpet finishes, preference will be given to carpets with post consumer content and has backing made from environmentally friendly materials.
Carpet which is able to be recycled and whose manufacturer has reduced the life cycle impacts of the carpet in its manufacture and distribution, is desirable.
Only carpets with low VOC levels are acceptable. This level must not exceed 0.5mg/sq/metre/hr and any adhesive must not exceed 10mg/sq/metre/hr.
Victoria University currently supports the following manufactures- in order of preference

- Interface FLOR
- Godfrey Hirst
- Onterea

Carpet by other manufacturers shall not be specified without the approval of Project ManagerVinyl Finishes

Vinyl shall be 2mm thick Polyflor - 2000 PUR or equal and approved (resilient flooring) or Polyflor - Polysafe Astral or equal and approved (safety flooring).
All vinyl flooring shall comply with the Introductory Guide HB 197:1999 published by CSIRO and Standards Australia, for slip resistance. Slip resistance tests shall be undertaken and results provided to prove conformity.
Corridors and circulation areas directly connecting laboratories, but not comprising primary circulation through the building, shall have vinyl finish.
All joints shall be welded. Vinyl shall be fixed to floor using adhesive equal in all respects to 'Polymer 265'.
Vinyl to wet areas such as cleaner's rooms, common rooms at servery counters and isolated basins, shall be an approved non-slip safety sheet vinyl coved up the walls to a height of 150mm.
Approved anti-static vinyl shall be installed in all areas subject to static electricity discharge eg. TER rooms, bio-boxes etc.
In areas where foot traffic noise may cause disturbance or where the foot surface needs to be softer such as areas where staff and students will be standing/working for long periods, 4mm 'Acoustifloor' cushion vinyl may be required.

Concrete floor slabs to receive vinyl flooring shall be properly prepared in accordance with the sheet manufacturer's printed instructions including grinding to remove ridges and all hollows filled with an approved levelling compound, to provide a clean level surface. That is, the concrete floor slab shall have a steel float finish with the appropriate tolerances specified.

Exposed concrete floor finishes shall be sealed for dust and cracking.

Cleaning Instructions

Sealing of floor coverings, to the Manufacturer's instructions, shall be included in the project's contract specifications.

Where a surface requires specialised cleaning, manufacturer's instructions are to be provided as part of the "hand over".

Vinyl Skirtings

Black vinyl feather-edge skirtings of 150mm height shall be provided to all internal partitions except where walls are tiled or where other floor finishes are turned up walls.
Painted timber or aluminium skirtings will not be accepted to any areas.

Ceramic Tile Finishes

Ceramic tiles shall be used on floors of all toilet areas and showers including air-locks, and are to be approved by Victoria University.
Floor tiles to toilet and shower areas shall be anti-slip with dark grout (charcoal or similar) and shall finish level with adjacent finishes. Careful consideration must be given to the colour selection of floor tiles to improve the visual appearance of the tiles after cleaning as a result of the anti-slip finish.
Appropriate caulked expansion joints shall be provided as required including the junction of tiles floors with walls. All tile layouts shall be approved by the Project Manager. All tiles shall comply with the following criteria:

Physical Properties	Standard	Values
Surface qualities	ISO 10545-2	Length and width + or - 0.6% Warpage of edges + or - 0.5% Thickness + or - 0.5% Wedging + or - 0.6% Flatness + or - 0.5%
Water Absorption	ISO 10545-3	> 0.5%
Modulus of Rupture	ISO 10545-4	≥ 27 N/mm^2
Deep Abrasion	ISO 10545-6	> 205 mm^2
Coefficient of Linear or Thermal Expansion	ISO 10545-8	> 9^0 K^{-1}
Resistance to Thermal Shock	ISO 10545-9	No visible defects
Moisture Expansion	ISO 10545-10	> 0.05%
Crazing Resistance	ISO 10545-11	No visible defects
Chemical Resistance	ISO 10545-13	No visible defects
Resistance to Stains	ISO 10545-14	No visible defects
Slip Resistance	AS/NZS 4586	Refer to 'An Introductory Guide to Slip Resistance of Pedestrian Surface Materials' HB 197:1999 published by CSIRO & Standards Australia

Nosing's, Junctions & Trims

Nosing's to edges of tiers and steps in aisles in Lecture Theatres are to be an illuminated type.

Provide a 50mm x 6mm flat clear anodised edge trim to the junction of the platform and riser in tiered floor Lecture Theatres. The trim is to be screw fixed to the riser at the top edge before the floor coverings are installed.
Junctions of dissimilar floor finishes shall be achieved using brass angles or strips set into the slab. Separation strips are not required between vinyl finishes and carpet tile.

Door Mats

Door mats shall be provided at normal access doors at ground level to the building on the inside of the door. Mats shall be formed by overlaying and double cutting carpet of a similar type and contrasting colour. Mats need to be a minimum of two paces from any edge ie. No matter where you step each foot falls on the mat at least once.

Plant Room

Floors to Plant Rooms, Lift Motor Rooms and accessible Service Cupboards shall be painted with an approved paving paint.

Thresholds

Provide an approved tapering clear anodised aluminium threshold at all external doors.

Access Floors

Access floors where required by the Room Data Sheets shall be a 'Unistrut MK.25A' gridless system as required for the room function.
A 150mm high flat black PVC skirting to be used at the floor perimeter.

Staircases & Ramps

Generally

Internal and external stairs and ramps shall comply in all respects with the requirements of the BCA and AS 1428 Part 1: New Buildings.
Ramps shall be provided externally as required to provide access to buildings for people with disabilities. The use of ramps internally as a means of interconnecting floors is not an acceptable alternative to providing a lift.
Victoria University will not accept designs which combine maximum height risers with minimum width treads. Treads widths and riser heights shall generally comply with the requirements of AS 1428.2, with treads a minimum of 280mm wide.

Internal Stairs

There shall be a general circulation stair to access to all levels of the building to minimise the use of lifts. This circulation stair may be a fire isolated stair provided all access doors are controlled with magnetic hold open devices connected to the fire alarm system. The design and placement of circulation stairs shall incorporate the following:

- Placement of stairs to maximise their visibility and use;
- Finishes to stair treads, risers and landings shall be ceramic tiles and walls shall be rendered and painted with matching tile skirting;
- Comply with the requirements of AS 1428.2;
- Design of stairs to be social spaces where conversations can occur;
- Design of stairs to act, where appropriate as natural ventilation shafts;
- Stairs shall be provided with natural light if possible.

Fire isolated stairs shall be provided to satisfy the requirements of the BCA. These stairs may be fully enclosed within the building envelope, or may be open framed stairs external to the building façade.

External Stairs and Ramps

The structural design of stair flights and ramps shall be to suit the actual ground conditions encountered.
Ramps for disabled access to buildings shall comply with the requirements of AS 1428.1.

Handrails

Internal general access stairs, including fire isolated stairs for general access, shall have stainless steel handrails to both sides.
Where the general access stairs are in an open well with exposed strings to flights, then a balustrade incorporating glass, perforated metal or other approved solid panels is desirable. The handrail shall be tubular stainless steel.
Handrails and balustrades to fire isolated stairs which are not general access stairs, may be galvanised steel.
In general, painted handrails are not acceptable.

Finishes

General use access stairs shall have a tiled finish to treads, risers and landings.
Tiles to stairs shall be non-slip to suit the application with tread, riser and nosing tile of a contrasting colour and matching grout. Tiled stair landings and walls adjoining stairs shall have a matching skirting tile ½ tile height or minimum 100mm high.
Fire isolated stairs, which are not general access stairs, shall have an integral non-slip finish to treads and landings, with a 'Yellow' painted nosing on both tread and landing edges.
Where carpet finishes are approved for internal non-fire isolated stairs, tread nosing's shall be aluminium with adhesive fixed contrasting coloured inserts.
All stair nosing's shall be non-skid of dimensions to comply with AS 1428.2.

Tactile Indicators

Type B tactile indicators as described in AS 1428.4 are to be provided at the top, bottom and any mid entry point of all stairs and ramps with a grade greater than 1:20. Tactile indicators shall be positioned as shown in AS 1428.4. Where separate tactile dots are used, the dots shall be 4 to 5 mm above the surrounding surface. Where dots are mounted on tiles, the tiles should be set flush with the surrounding surface.

Floor Penetrations

All floor penetrations and associated service pipes shall be sealed with a flexible material to control noise and water penetration between levels. C.P. Vinyl Locking Floor Wastes from MetCast Foundries, or equal and approved equivalent, shall be provided within all wet areas (i.e. laboratories, toilets, plant rooms, tunnels, laundries, etc.), and care shall be taken to ensure that adequate falls to these points are specified and achieved. Where appropriate, a perimeter kerb shall be installed to contain spillages and flooding.
Penetrations of any surface shall maintain the fire rating of the material being penetrated (i.e. sealant used shall comply with the designed fire rating).

Doors & Hardware

Aluminium Framed & Glazed Doors

External and internal aluminium framed glazed doors shall be in accordance with the following:
All building entry doors shall be glazed doors.
Door leaves shall have a mid rail not less than 200mm wide, and shall be glazed with safety glass.
Framing shall have an anodised finish not less than 20 microns thick to both doors and frames.

Doors leaves exceeding standard sizes must be fitted with appropriate hinges, closers, etc. to accommodate the door weight and to prevent movement and misalignment. Preference is for a single door leaf not less than 1100 mm clear opening with a side light rather than a pair of doors.
Double action swing doors shall **not** be permitted.
Sliding doors shall be used for all main exit/entry doors fitted with an automatic opening/closing mechanism.
At least one external door to each building should be fitted with an approved automatic opening and closing device. This door or doors shall also be linked into the Electronic Access Control system.
The jambs and heads of aluminium door frames shall be reinforced to avoid twisting and misalignment of the door leaf which will prevent locking, where door leaves exceed standard sizes and where door closers or magnetic locking devices are fitted to the door head.

External Doors

All doors in the external building façade other than entry doors, such as to plant rooms, service ducts, fire egress etc. shall be aluminium framed with aluminium faced plywood or aluminium louvre infill panels as appropriate for the application. All aluminium shall have an anodised finish.
Timber doors shall not be used unless they are fully protected from the weather by building overhangs and the like. Any timber door shall be solid core with marine grade plywood facing both sides, edge stripped all round with hardwood. Glue used in timber doors shall be Type A bond 'waterproof' glue, ***not*** 'water resistant' glue.
Timber doors shall be finished with an approved full gloss enamel paint system.
All external doors shall be fitted with seals as necessary to prevent ingress of water, dust and insects to the building.
Louvre panels in external doors shall be fully insect screened.

Other considerations:

- The number of external doors to buildings is to be kept to a minimum and have door furniture that enables the doors to be self-locking;
- Glass doors shall be clearly marked, such that they are visible to all users of the building, with push, pull or sliding signs and include an intermediate safety bar to avoid people walking into them;
- Where exposed to the weather anodised aluminium door and frame with laminated safety glass is preferred. As a minimum, doors to have 200mm mid-rail for Lockwood 3500 series lock or equal and approved equivalent;
- Doors to be hung using threshold pivot set with Dorma RTS85, or equal and approved equivalent, transom mounted concealed overhead closers;
- Doors in public areas to have glazing panels or glazed door sidelights;
- Fire-rated doors to be metal sheeted mineral core with pressed metal frame and hardware all to be factory fitted and assembled. If necessary, a viewing panel to be installed;
- Doors are to comply with AS 1905.1-2005 and shall be United Doormakers or equal and approved manufacturer;
- Hold open devices to be fitted in high traffic areas;
- Non fire-rated doors to be metal sheeted mineral core with pressed metal frame, factory fitted assembly as above.

Internal Doors

Internal doors other than aluminium glazed doors shall be 40mm minimum thick plywood faced solid core doors, finished in Tasmanian Oak Veneer with 12mm thick matching mitred edge strips all round.
Doors in high traffic areas and where allowed by fire regulations, shall have a viewing panel minimum 150 mm wide by 600 mm high positioned 100 mm from the leading edge of the door and

150mm from the top. Ensures that the viewing panel does not conflict with door hardware and signage. Provide a viewing panel to all laboratory doors, including fire doors, to comply with the requirements of AS 2982. Doors shall have an approved 'clear' polyurethane finish.
Air grilles may be installed in doors only where their installation does not affect acoustic and physical security. Where installed, air grilles shall be fixed with concealed screw fixings on the inside face. (***Note***: Doors to Disabled toilets are not to be fitted with an air grille).
Door sizes shall generally be of a standard size not less than 2040 x 920mm wide, unless nominated otherwise or required to be larger for particular purposes or to meet statutory requirements.
All doors to plant rooms, seminar rooms and laboratories, and other doors as required by the Space Description Forms, shall generally be single leaf of 1000mm minimum width, and shall open outwards taking care not to swing across traffic paths. Where pairs of doors are required, one leaf shall be of the minimum width nominated.
Doors to cleaners' rooms, service ducts and small storage cupboards shall also open outwards.
Doors to fully enclosed sanitary compartments for people with disabilities shall comply with AS 1428.1 and shall open outward.

Other considerations:

- May be anodised aluminium as for external;
- Timber doors shall be solid-core with a minimum thickness of 40mm. Finish to suit i.e. sliced cut mountain ash to clear finish, prime coated hardboard for gloss paint, plastic laminate to wet areas;
- All doors to have timber edge strips to top and two sides. If required viewing panels should be installed;
- Internal fire-rated doors as for external with finish to suit installation;
- Framed timber doors to be minimum thickness of 42mm with top rail and stiles 120mm wide;
- Middle and bottom rail to be 190mm wide;
- The bottom of all doors is to be fully sealed with zinc rich paint;
- Aluminium doors not to be narrow style but full size to accommodate 3570 series primary lock i.e. Lockwood.

Fire Doors

Fire doors shall be provided to satisfy the requirements of the BCA, and shall be finished as previously nominated for either internal or external timber doors.
The use of fire doors in lieu of standard timber doors to provide access to and from spaces which experience high levels of traffic, shall be avoided wherever possible, however if this cannot be avoided then doors shall be held open by magnetic hold-open devices interlinked with the Fire Alarm system.

Frames

All doors other than aluminium glazed doors shall be hung in a one piece fully welded metal door frame which shall fully wrap around sheet wall linings to both stud framed partitions and masonry walls.
All metal frames shall be securely fixed into the wall or partition opening, and fully grouted where in masonry walls or acoustically sealed to the partition framing.
Aluminium door frames shall be sufficiently rigid to avoid distortion by the door weight or the twisting action of the door closer.
Generally all door frames shall have three hinges per leaf with the middle hinge approximately 200mm below the top hinge. Doors with leaves 1000mm or greater in width shall have four hinges.

Other considerations:

- All external door frames are to be anodised aluminium or pressed steel. Pressed steel to be 1.6mm thick and zinc coated, rebated, fully welded and reinforced and backplated for 3no. 100x75mm hinges, lock strike and door closer. 2no. rubber buffers are to be fitted to the lock side. All to be shop primed and installed to manufacturers recommendations;
- Pressed steel is preferred for internal door frames. When in timber they are to be 32mm minimum thickness kiln dried hardwood for the full width of the wall.

Hinges

Except for aluminium doors, all hinges shall be stainless steel, **screw-fixed** to door leaves and frames with stainless steel screws. Hinges shall be left unpainted.
Hinges generally shall be 'Lane', loose pin butt hinges, Catalogue No. 8580SS.
Outward opening doors shall have fixed pins and shall be 'Lane', Catalogue No. 8588SS.
Hinges for aluminium doors shall be' McAllum A104' aluminium hinges.

Locks

Except where otherwise scheduled, the requirements for door locking are as follows;
Mechanical locks/latches shall be 'Dorma ST9600' or 'Lockwood 3570' dead latching series. All locks must be of the same manufacture, and mixing lock brands within the same building is not desirable. In refurbishment projects, the lock type must match the existing lock type throughout the building;
Locks shall be mounted such that the strike is 1000mm above finished floor level except where an indicator bolt is fitted to toilet entry doors.
No locks are to be mounted in the bottom rails of doors.
All locks shall have cams which prevent over 90° key rotation wherever possible.
Doors to fire isolated stairs are to be fitted with 'Boyd Roller Bolts No. RB1/1' (stainless steel roller) to the top edge of -/120/30 fire doors in accordance with CSIRO Certificate of approval No. 192.
Electric locks shall be:

- Electric locks shall be 'Fail Safe' or 'Fail Secure' if on an external door and activated by the building Fire Alarm System, as determined by FM. If the internal and external handles are secure, a key override must be installed on both sides, however if the inside handle is free and the outside handle is secure, a key override is to be installed on the outside only unless otherwise advised by FM.
- Electric mortice locks and magnetic locks shall be as nominated in Appendix 1 'Victoria University Access Control Standards'.

Note: Drop Bolts are not to be installed in the mid rails of aluminium doors.
Where electronic locks are installed, any required card readers shall be located so as to be accessible to people with disabilities.
When installing electronic or magnetic locks, the Contractor shall provide the following for connection to the Electronic Access Control (EAC) System by an approved specialist Sub-Contractor;

- Conduit access to from the card reader position to an access point in the ceiling space.
- Conduit access from door frame head to ceiling space for magnetic locking devices.
- Conduit access from the electric locking power transfer device to an access point in the ceiling space.
- Conduit access from the hinge side to the lock side in all doors fitted with electric locking devices.
- Install suitable power transfer devices equivalent to 'Abloy 8810' at time of hanging the doors.
- Provide horizontal separation where a card reader is installed externally and internally on the same door to prevent electronic interference.

Door Furniture
Door furniture shall be 'Lockwood 1800/1900 Series' with SCP finish and 'Dalco 1353-04' offset D handles surface mounted to aluminium doors.
Push/pull plates and handles shall be stainless steel. All plates are to be glued and screwed with stainless steel countersunk head screws.

Door Closers
Surface Mounted door closers shall be provided to entrance doors, external doors, internal doors from general office space to public corridors, lecture theatre doors and doors to all teaching spaces, plant rooms, toilets, air-locks and fire doors. Closers shall not be mounted on the outside face of the door leaf.
Closer type shall be 'Dorma TS 83S' with hold open and delayed action controls for disabled access as directed. Non hold open door closers shall be provided between all air-conditioned spaces and non-air conditioned spaces, except for individual staff offices. A mounting plate is to be used when mounting door closers on aluminium doors.
Care shall be taken to ensure that closers do not puncture wall linings when the door is opened.
When mounting door closers in conjunction with acoustic seals, provide suitable mounting packers to keep the arm of the door closer clear of the seal. In all cases screws are not to penetrate glazing beads or acoustic seals.
Note: All outward opening doors shall have parallel arms and inward opening doors shall be regular arms.

Electro Magnetic Hold-Open Devices
Electromagnetic hold-open devices (EMHODs) as required shall be 'Dorma' type and be provided to all fire doors in high traffic areas and all fire isolated stairs used for circulation. These shall be activated by the Building Fire Alarm System, and be mounted at 1800mm above finished floor level near the leading edge of the door.
Where fitted to external doors, Electromagnetic hold-open devices will be linked to the EAC System for time controlled lock down of the building.

Kick Plates
Kick plates, where required, e.g. toilets, shall be 200mm x 0.9mm satin stainless steel to the full width of the door, screw fixed with countersunk head screws. Where timber doors are subject to excessive damage from trolleys etc, the stainless steel kick plates shall be provided and shall extend to the top of the door furniture.

Door Stops
To any door where the door may strike a wall, provide an aluminium and rubber door stop, floor/or wall mounted, in a position that will allow full access clear of door furniture.

Cabin Hooks
Cabin Hooks shall be provided as required to doors without door closers.

Acoustic Seals
Where acoustic seals are required by the design consultant to the bottom edge of a door leaf, the seal shall be surface mounted and not rebated into the face of the door.
Where heavy-acoustic seals are required by the acoustic consultant, the formed metal stop of the door frame shall be deleted and the planted door stop is formed by the acoustic seal.
Acoustic seals shall not be fitted to the bottom edge of doors to offices.
Door seals:

- Raven type to suit application, or equal and approved equivalent;

- Door seals shall be provided to external doors to comply with part J of the BCA.

Automatic Door Operating System

The operating mechanism to automatic opening doors shall be 'Edingtons EZY-FIT EL300' electric sliding door system or equivalent as approved, with a 'Fail Safe' feature integrated into the EAC System and fire alarm, and with an automatic reset and BWN electric motor locking system.
A battery back-up system on the drive motor for the automatic doors must be supplied to give a minimum of 2 hours continuous use after power failure.

Keying System & Keys

Only master keying shall be used. Maison keying will not be approved.
The lock/hardware schedule will be prepared by the architect in consultation with FM.
Construction cylinders will be used during construction of any new buildings or alteration works.
At practical completion of the construction and before handover to Victoria University, the construction cylinders shall be removed and replaced with barrels and keys to one of the University's Restricted Key Series.

Painting

Generally

All internal wall surfaces including those in Plant Rooms, Lift Motor Rooms and Service Cupboards but excluding inaccessible service ducts shall be painted unless noted otherwise.

Paint Finishes, Materials

Where possible only paints that contain no volatile organic compounds (VOC's) are to be used. This applies to both interior and exterior applications.
Currently Ecolour is our preferred manufacturer of zero VOC paint. However other brands are acceptable provided they meet the following requirements and are approved by thethe Project Manager. As a minimum the paint must not contain any VOC's and must be listed on either ecospecifier or meet the requirements under GECA 23-2012 Paints and Coatings v2.1.The proposed paint types shall be specified in the tender documents. Paints shall be delivered to the site in the manufacturer's labelled and unopened containers.
Paints and/or colours from different manufacturers shall not be combined in a paint system.
MSDS forms of materials must be available on site at all times.
Colour tinting shall be by the relevant manufacturer unless otherwise approved. The addition of tint or stainers must be in accordance with the manufacturer's recommended colour without detriment to the formula, and provided the tinting produces the required colour without detriment to the durability or aesthetic performance of the product.
Gloss Level - Flat, low gloss, semi gloss, gloss and full gloss finishes shall be to AS 2310 and AS 2311, Clause 4.1 as applicable. Light coloured internal finishes shall be utilised in order to minimise lighting power densities. Ceiling/wall/floor reflectance shall be at least 70% / 50% / 15% respectively.

Paint Finishes, Workmanship

Paint and related materials shall be applied in accordance with the requirements of AS 2311, AS 2312, and the manufacturer's recommendations.
Where recommended by the manufacturer, sanding between coats from top to bottom and dust down before recoating shall be specified.
Spray painting of any external or internal surface is not permitted without prior approval from the Project Manager.
Warning notices etc must be placed conspicuously and not removed until paint is dry, unless approval is given and precautions are taken to deny access to all but painting staff.

Painting will not be permitted in dusty conditions, or in unsuitable weather such as when the relative humidity exceeds 85%, or when the surface temperature of the substrate is less than 10°C or more than 50°C, unless the paint is suitable and recommended for such conditions.
During preparation of surfaces, painting and inspection, light levels must be maintained such that the luminance (photometric brightness) of the surface is at least equal to that produced under daylight and/or maximum permanent artificial illumination conditions.
The areas in which painting is being carried out must be adequately ventilated, and precautions must be taken to prevent fire and accumulation of solvent fumes.
Paint-soiled rags, waste, empty cans and other debris arising out of the painting work must be removed from the site upon completion of each day's work.
Paint must be mixed and applied in accordance with the manufacturer's printed recommendations.
Paint shall not be mixed in areas or on surfaces liable to damage from spillage.
A suitable container for the washing of brushes, rollers and utensils must be provided by the Contractor. The container must be removed from the site on completion of works in accordance with current environmental practices.
Prior to surface preparation and application of material remove all items such as locks, furniture, hardware, switches and the like and replace upon completion of painting. For light switches and general purpose outlets, precautions must be taken when releasing from surfaces to be painted.

Paint Colours

Paint colours specified shall be from the Dulux, Ecolour, or Wattyl standard range. Differing colours may be selected for individual walls, ceilings, trims, doors, frames, cupboards or any other distinct element of the building. All colour schemes are to be approved by the Project Manager prior to issue.

Summary: Design Standards (Finishes)

Walls & Ceilings	
Internal Walls	76 x 0.55mm BMT steel stud and track framing components + anodized aluminium angle (38 x 38mm)
Standard	+ 13mm plasterboard shall be provided.
Meeting Rooms / Offices / Lecture Theatres / Teaching Spaces	+ 50mm or 75mm 'Dacron' polyester fibre or natural wool batts incorporated into the wall + Boral 'Sound Stop' 13mm plasterboard, or equal and approved.
High foot traffic areas	+ high impact 13mm plasterboard installed to a height not less than 1200mm.
Wet Areas	Fibre cement sheet linings shall be used in wet and heavy use areas, and shall not be less than 6mm thick.
Toilet Cubicles	Toilet cubicle partitions shall be a proprietary brand suspended system with a laminated plastic finish.
Ceilings	+ 10mm plasterboard
	Note: all penetrations in partition linings shall be sealed to maintain the required acoustic and fire rating of the partition.
Floors	
Carpet	
Meeting Rooms / Offices / Teaching spaces / Circulation Areas / General Purpose Spaces	**Nominated Type:** Carpet Tiles - Interface Flor: Syncopation Range and Cubic Collection – i-line. Alternative acceptable brands Godfrey Hirst Carpet Tiles Ontera Carpet Tiles *Installation by the direct stick method, using an approved pressure sensitive adhesive.*
Lecture Theatres	**Nominated Type:** Broadloom Carpet - Heavy duty commercial carpet or equal and approved.
Replace existing Broadloom Carpet	**Nominated Type:** Broadloom Carpet - Godfrey Hirst: Kingsgate Town Range *If the carpet is to be installed by the conventional installation method, the recommended underlay is to be used with suitable architectural smooth edge installed around the floor perimeter walls and joins to be heat taped.*
Underlay	**Nominated Type:** Bridgestone "Airstep" min 8mm thickness or equivalent
Vinyl	
Wet Areas / Kitchenettes / Cleaner's Room / Communication rooms / Corridors and circulation areas directly connecting laboratories and kitchens	**Nominated Type:** Polyflor - 2000 PUR (2mm) or equal and approved. *Vinyl is to be coved to all walls and cabinetry using a preformed fillet. (minimum height 150mm uniform throughout)*
High foot traffic (noisy) areas	4mm 'Acoustifloor' cushion vinyl may be required.
Laboratories / Kitchens	**Nominated Type:** Polyflor - Polysafe Astral (2mm) or equal and approved. *Vinyl is to be coved to all walls and cabinetry using a preformed fillet. (minimum height 150mm uniform throughout)*
Skirting	Black vinyl feather-edge skirtings of 150mm height.

Epoxy	
Plant Rooms	Floor surfaces are to be sealed against spillages and painted with paving paint.
Painting	All paints must be GECA certified and contain no VOCs
External Walls	**Nominated Paint**: ecolour Eco Weather Proof **Nominated Finish**: Low Sheen (Acrylic)
Internal Walls	**Nominated Paint**: ecolour Eco Living **Nominated Finish**: Low Sheen (Acrylic)
Ceiling	**Nominated Paint**: ecolour Ceiling White **Nominated Finish**: Flat (Acrylic)
Doors	**Nominated Paint:** ecolour Eco Living Gloss **Nominated Finish:** Gloss Acrylic
Windows (wood)	**Nominated Paint**: ecolour Eco Living Gloss **Nominated Finish**: Gloss Acrylic
Windows (metal)	**Nominated Paint:** ecolour Eco Living Gloss **Nominated Finish:** Gloss Acrylic
Eaves & Soffits	**Nominated Paint**: ecolour Eco Weather Proof **Nominated Finish:** Low Sheen (Acrylic)
Fascia & Guttering	**Nominated Paint**: ecolour Eco Weather Proof **Nominated Finish:** Gloss (Acrylic)
Wet Areas Toilets, Bathrooms	Toilets to be painted with ecolour Eco Living with Mould Additive as per above colour selection finish to be Satin to all surfaces
	Note: wall colours to have a reflectance value of between 30%-50%.
Bathrooms/Toilets/Showers	
Wall Tiles	Nominated - 150x150mm (white) or as directed "Johnson" brand or equivalent. Min 5.5mm thick. Unglazed edges to body tiles and glazed edges for edge tiles.
Floor Tiles	Nominated - 200x200mm "Johnson Waringa Stone Grey" # 711172 Slip Rating R11 or equivalent.
Epoxy	
Shower Bases & Screens	905x905mm " Decina Prelude Square" centre waste (white) or equivalent Nominated - To suit shower base, powder coated frames, min 6mm toughened glass, hinged doors
Showerheads	Minimum of 3 stars WELS, 9 Litres per minute. Handheld showers only to be installed in disabled toilets.
Mirrors	Mirrors to have C/P or white powder coated frame, sizes may vary according to bathroom configuration, generally 600x600mm, silicone fixed to walls
Hand Dryers	Metlam Auto operation hand dryer (Eco-Fast01 & Eco-fast 05)
Toilet	Leda Invisi Suite – Inwall Concealed Cistern Model No: 989115
Urinal	Leda Invisi Urinal Suite Model No: 984775W
Disabled Toilet	JD MacDonald, Recessed Mounted Toilet Paper Holder Model No: 7402 – SD (Satin Recessed)
Kitchen Cabinetry	
Bench Tops	Min 32mm thick HMR particleboard laminated 180 degree bullnose,

	Laminex: Pearl Grey "Dimensions Finish"
Doors & Drawers Fronts	Min 16mm thick HMR particleboard or high moisture resistant medium density fibreboard MDF laminated. 2mm PVC plastic edge strip to all doors and drawers. Laminex White "Dimensions Finish"
Drawers	13mm thick (bottom 16mm) of either HMR particleboard or high moisture resistant medium density fibreboard MDF, finished with white melamine. Completely integrated drawer slide system comprising a high quality epoxy coated white steel self closing feature runner 30kg load capacity.
Carcass	Min 16mm thick high moisture resistant HMR particleboard with white melamine finish to all internal surfaces, including edge of frame, carcass and shelves.
Kickboard	Min 16mm thick high moisture resistant HMR particleboard with 2mm black vinyl or high pressure high resistance laminate finish, including any edges.
Hinges & Handles	Use concealed side wall-mounted self closing hinges with 170 degree swing Cupboard/drawer handles are not to be used. Finger pulls to be located in door & drawer fronts fitted with a suitable plastic grommet
Doors	
External	United Doormakers or equal and approved manufacturer;
	Dorma RTS85, or equal and approved equivalent, transom mounted concealed overhead closers;
Internal	40mm minimum thick plywood faced solid core doors, finished in Tasmanian Oak Veneer with 12mm thick matching mitred edge strips all round.
High Traffic / Fire Doors	Doors in high traffic areas and where allowed by fire regulations, shall have a viewing panel minimum 150 mm wide by 600 mm high positioned 100 mm from the leading edge of the door and 150mm from the top.
Mechanical locks/latches	shall be ‘Dorma ST9600’ or ‘Lockwood 3570’ dead latching series
Electric locks	shall be ‘Fail Safe’ or ‘Fail Secure’ if on an external door and activated by the building Fire Alarm System, as determined by FM
Door furniture	shall be ‘Lockwood 1800/1900 Series’ with SCP finish and ‘Dalco 1353-04’ offset D handles surface mounted to aluminium doors.
Door Closer	shall be ‘Dorma TS 83S’ with hold open and delayed action controls for disabled access as directed.
Electromagnetic hold-open devices (EMHODs)	shall be ’Dorma’ type and be provided to all fire doors in high traffic areas and all fire isolated stairs used for circulation. These shall be activated by the Building Fire Alarm System, and be mounted at 1800mm above finished floor level near the leading edge of the door.

Kick plates	shall be 200mm x 0.9mm satin stainless steel to the full width of the door, screw fixed with countersunk head screws
Acoustic door seals	Raven seal or equivalent
Automatic door operating system	shall be 'Edingtons EZY-FIT EL300' electric sliding door system or equivalent as approved, with a 'Fail Safe' feature integrated into the EAC System and fire alarm, and with an automatic reset and BWN electric motor locking system.
Furniture	**Refer to Office Furniture Catalogue**
Partitions	
Partition Fabric	Rim Fabrics Product: Trilogy One
Classroom Furniture	Chairs: PantoFlex 460 Ergo Dynamic Chairs; Frame: black; Colours: aqua blue, magma red, midnight or mist – **Woods Furniture**
	Tables: T-19 Table (1200x600x720mm high) with performance edge; Frame: black; Laminate Colours: fog grey, sebel stone, bull blue – **Sebel Furniture**
Lecture Theatre Seats	Camatic Seating
Workstations	Refer to Facilities **Office Furniture Catalogue**
External Ashtrays	AC3 Smoko. Street Furniture Australia 1800 027 799