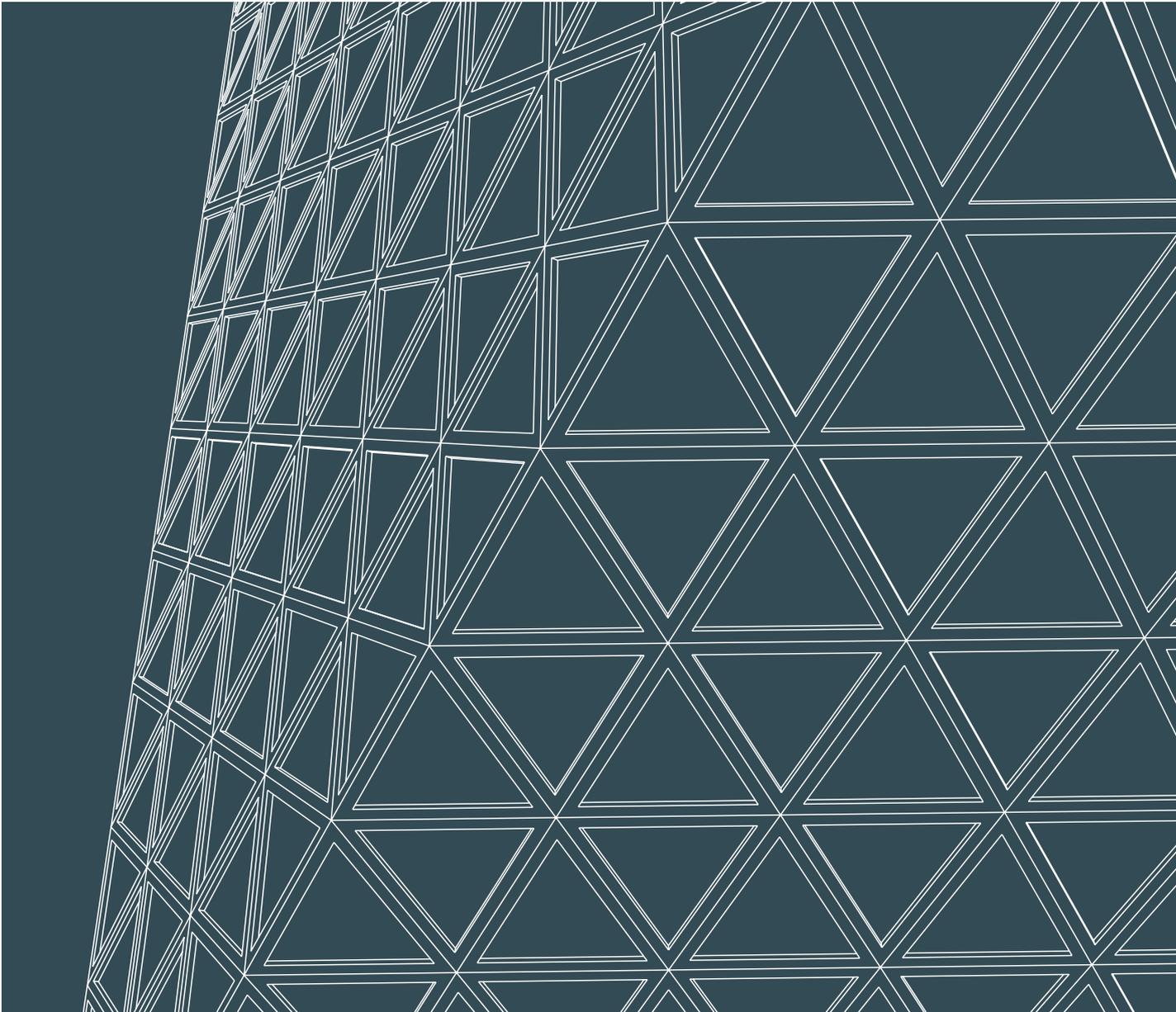


3.0 Architecture



Architecture Design Guidelines

The design guidelines have been developed to provide a greater level of certainty for all stakeholders when CIAL embark on developing a new commercial asset – the focus is to deliver on the three core pillars of our mission: enhancing people’s lives, fuelling economic prosperity and being great Kaitiaki of our planet.

This document outlines CIAL’s architecture design requirements for commercial projects with the aim of providing safe, compliant, sustainable, simple and cost effective outcomes for the architectural elements of a building asset.

PURPOSE

CHAMPIONING TE WAIPOUNAMU
THE SOUTH ISLAND AND
AOTEAROA NEW ZEALAND
FOR TODAY AND TOMORROW

MISSION

CHRISTCHURCH AIRPORT IS RECOGNISED FOR

ENHANCING
PEOPLE'S LIVES

Our team,
customers, partners,
communities



FUELLING
ECONOMIC
PROSPERITY

of the South Island
and New Zealand



GREAT KAITIAKI
OF OUR PLANET

Safety, security
and sustainability



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3.1 INTRODUCTION

The architecture section provides a reference document to support consistency across design and engineering objectives, providing guidance on the performance standards for architectural design.

All projects are to complete the attached compliance checklist for each major design phase.

The guidelines are not intended to restrict designers from making recommendations in the interest of the project but rather to encourage the incorporation of features and systems that will provide flexibility for change of use, new technologies and future expansion.

The guidelines are intended to ensure that the architecture is to a consistent high standard and balances future flexibility and building performance with consideration of capital cost and sustainability initiatives.

This section of the Design Guidelines is intended to be read and implemented in conjunction with section 1.0 General Design Guidelines and any project specific brief and agreements.

CIAL Design Guidelines: <https://www.christchurchairport.co.nz/about-us/doing-business-with-us/contractors-and-suppliers/>

3.2 ENVIRONMENTALLY SUSTAINABLE DESIGN PRACTICES

Environmentally sustainable design (ESD) practices and features should be considered for the architectural systems installed in CIAL developments in accordance with section 1.1.7 of the General Design Guidelines.

Some specific ESD practices to be considered for architecture are listed below:

- Consider the full life cycle cost of installed products.
- Use products and materials that can be reused, refurbished or recycled at the end of life.
- Use locally manufactured materials and equipment.

- Where possible, consider sustainable lower environmental impact materials such as low-VOC paints and carpet with high recycled fibre content.
- Look to develop tenant amenity through natural light, outdoor space and general connectivity with the surrounding precinct and campus.
- Undertake façade performance analysis.
- Use NABERSNZ.
- Use Green Star/LEED assessment or another suitable building rating system.
- Undertake life cycle assessment to understand the underlying carbon baseline of the building and where gains could be made.

3.3 CODES AND STANDARDS

The building and site works shall meet the requirements of the New Zealand Building Act, regulations, all sections of the NZBC and appropriate standards.

Commonly used standards for architecture include but are not limited to the following:

- NZS 4121:2001 *Design for access and mobility: Buildings and associated facilities*
- NZS 3604:2011 *Timber-framed buildings*
- NZS 4218:2009 *Thermal insulation – Housing and small buildings*
- NZS 4243.1:2007 *Energy efficiency – Large buildings – Building thermal envelope*
- NZS 4223.3:2016 *Glazing in buildings – Part 3: Human impact safety requirements*

All CIAL regulations and design guidelines must be reviewed and adhered to. Deviations from standard CIAL requirements must be agreed with CIAL before commencing any design documentation.

3.4 HEALTH AND SAFETY BY DESIGN

The design shall evaluate and mitigate negative health and safety outcomes in the context of construction, operation, maintenance, asset renewal and safe and easy access for installation and future maintenance and replacement.

This section should be read in conjunction with section 2.0 Health and Safety by Design Guidelines.

Designers shall consider and apply where feasible:

- pedestrian safe access routes and wayfinding externally and internally
- vehicle manoeuvring that avoids visitors and staff
- avoiding conflict between heavy goods vehicles and cars/cycles
- avoiding vehicle reverse manoeuvring particularly on roads or busy accessways – avoid dead-end traffic paths
- clear directional signage
- safe access to clean and maintain buildings
- gradual sloping gradients and no isolated steps
- barriers, security fencing and screening.

Consideration shall be given to the size, weight and type of the plant, services and any ancillary equipment required for installation and maintenance. Maintenance access shall form a part of the safety by design review for the development and mitigation measures put in place to minimise the risks.

Designers shall avoid locating plant and services in inaccessible or difficult to access locations. This may include areas such as:

- above stairwells or similar
- above roadways
- within or directly above hazardous areas
- above operating machinery
- at height within areas of a building inaccessible to elevated access platforms.
- Other CIAL site-specific matters to be considered include:
 - structure setbacks from airside and public/private roads
 - aircraft noise impact
 - contaminated land.

3.5 EARTHQUAKE PROTECTION AND SEISMIC RESTRAINT

Consultation is required with CIAL and the tenant to determine the importance level of the new building, and suitable seismic restraint shall be allowed for in full compliance with all applicable standards. The electrical and mechanical designer or contractor shall employ a chartered professional structural engineer or specialist seismic restraint supplier to design the services supports, flexible connections at seismic joints and any other measures required for the entire services system.

The design must be compliant with NZS 4219:2009 *Seismic performance of engineering systems in buildings*, include specific design of aspects that are not covered by standard NZS 4219:2009 solutions and incorporate the requirements of any other standards applicable to the support of the electrical services systems such as AS/NZS 1170.2:2011 *Structural design actions – Part 2: Wind actions for wind loading for exterior-mounted plant*.

The seismic designer shall provide design and as-built drawings along with a PS1 and PS4.

The architectural design shall include seismic restraint of wall partitions, ceilings and joinery.

3.6 APPROVED CONTRACTORS

Consider and discuss with CIAL prior to tendering of main works in CIAL developments whether there is a preference for any nominated main contractors or subcontractors.

3.7 DESIGN CONDITIONS AND REQUIREMENTS

3.7.1 DOCUMENTATION LEVEL

The level of detailing (LOD) appropriate for architecture shall be considered and discussed with CIAL. However, the minimum level of detailing expected for these services is LOD 300.

New Zealand BIM Handbook: <https://www.biminnz.co.nz/nz-bim-handbook>

3.7.2 COORDINATION WITH DESIGN TEAM

The architectural design and associated drawings/models shall be coordinated with the wider design team including but not limited to the following:

- Civil
- Structural
- Hydraulic
- Mechanical
- Electrical, security and communications
- Fire, including passive fire and fire protection services
- Surveying
- Geotechnical
- Contaminated land.

Where any of these consultants are not engaged on a specific project, the lead designer shall notify CIAL who is responsible for this section of design work.

3.7.3 FUTURE FLEXIBILITY

Consideration shall be given by the designer for future flexibility, in particular spatial requirements to allow for potential future expansion. Additional consultation with CIAL and the lessee shall be carried out and allowances made for any specific requirements.

3.7.3.1 Expansion

Where it is confirmed expansion capability is required, consideration and allowance shall be made for how the building fabric will be altered or added to enable said expansion.

3.7.3.2 Renewable energy generation systems

As a minimum, the design shall enable future installation of renewable energy systems. The architecture consultant shall liaise (as a minimum) with the structural engineer and the electrical, communications and security consultant in accordance with section 4.0 Structural Design Guidelines and section 6.0 Electrical, Communications and Security Design Guidelines.

3.7.4 KEY DESIGN PRINCIPLES

Key objectives of this section are to encourage good design decisions, with a particular emphasis on value for money and the design of low-maintenance flexible facilities/buildings that will perform over the course of their intended lifespan.

In general terms, the following key design principles shall be applied:

- Confirm building importance level.
- Early engagement with key stakeholders for preparation of project design brief and outline specification.
- Resolution of lessee versus lessor delivery scope and responsibility.
- Building design shall set occupancy levels as discussed with CIAL, including appropriate circulation and ancillary spaces.
- Space planning shall consider future flexibility by adopting an open-plan floor layout with careful consideration given to structural grids, column locations, stair/lift shafts, vertical services shafts and the penetration of natural light.
- Loadbearing built elements that restrict future flexibility should be confined wherever possible to the building core or external walls, leaving the interior open and uncluttered.

- Building services must be designed/configured to support easy access and modification.
- Consideration must be given to the space allocation for services reticulation in horizontal and vertical tunnels/ducts and ceiling voids to ensure ease of access for maintenance and future changes.
- Cognisance in the design of the importance of ease of access, the significance of wind tunnelling/turbulence and the need to include appropriate wayfinding and visual cues to aid in understanding and navigating through the campus.
- The design shall minimise the risk of vermin entry/occupation and the roosting of birds.
- The design shall support crime prevention through visibility of areas and good lighting.

3.7.5 PUBLIC REALM

Although the design of leased space is for the benefit of the tenant, the designer shall consider how this ties in with the wider precinct and airport campus. The designer should be aware of section 10 Landscape Design Guidelines, which identify general fencing, planting and access areas.

3.8 SPACE PLANNING

3.8.1 ANALYSIS OF DISTRICT PLAN AND SPECIAL PURPOSE AIRPORT ZONE (SPAZ) REQUIREMENTS

CIAL is to be informed before proceeding with design work where a development will breach specific rules.

3.8.2 BUILDING SITING

- Where possible, new buildings will be located and oriented on a site to maximise natural light, views and ease of access and evacuation to a safe place.
- Consider sensitivity to natural features on campus such as green spaces.
- Locate heavy goods vehicles access with clear line of sight that is easy to manoeuvre in and does not conflict with public and staff accessways.
- Review as-built building and services documentation and avoid existing underground services.
- Consider location and operations of adjacent properties.
- Maximise site density without compromising the safety of pedestrian and vehicular access.
- Consider building siting in the context of access for H&S
- When using Stainless Steel – Ensure the spec is 316 for external

3.8.3 CIRCULATION

Interior lobby and corridor size and width shall align with the maximum design capacity of the building. They shall take account of suitable access to toilets, cleaning cupboards, communications rooms and electricity DB spaces. Particular notice should be made of door swings and ensuring minimal conflicts.

3.8.4 CEILING HEIGHTS AND SPACES

In general, the minimum acceptable ceiling height shall be not less than 2700mm.

The minimum clearance in the ceiling space to the underside of structural members shall be no less than 400mm.

3.8.5 ENCLOSED OFFICES

Locate enclosed offices to areas either adjacent to the building's core or away from the building's perimeter and, where possible, facing sources of natural light.

3.8.6 OPEN-PLAN OFFICES

Open-plan work areas will generally be a mixture of individual and shared work zones and must be capable of accommodating alternative layouts as easily as possible.

The building perimeter should be prioritised for use as open, flexible work spaces to maximise the potential for natural light and outlook.

3.8.7 ENTRY LOBBIES

Confirm with CIAL if an entry wind lobby is to be provided. Locate the lobby at the main entry and on an accessible route. Provide visual transparency between the lobby and interior/exterior spaces.

3.8.8 RECEPTION/WAITING

Reception and waiting spaces are to be directly adjacent to entry lobbies with a visual connection to the exterior. Allow clear seating and accessways appropriate for the activity and occupancy of the building.

3.8.9 MEETING ROOMS AND INDIVIDUAL OFFICES

Meeting rooms and individual offices are to be designed to minimise disruptive noise transfer and integrated with ceiling linings as required. Locate meeting rooms adjacent to reception/entry areas. Refer to section 3.9 Acoustics for minimum requirements.

3.8.10 AMENITIES

Provision for bathroom and shower facilities are to be provided as a minimum to NZBC G1/AS1 requirements, including accessible bathrooms. Bathrooms are to be located in a private screened transitional zone for staff and public use. For larger buildings, consider multiple bathroom locations and surface finishes appropriate for the occupants' working environment.

3.8.11 CLEANERS' FACILITIES

At least one cleaners' store is to be provided for each building accessible to entry/exits for receiving delivery of cleaning goods and storage for laundry (such as hand towel rolls).

Typically, specify one wall-mounted stainless steel sink on heavy duty brackets with integrated stainless steel splashback. If the sink is located in a corner, the splashback must be on both walls.

Locate in a practical location adjacent to amenities and staff room facilities. For multiple tenanted spaces this should be in a common area and easily accessed.

3.8.12 STAFF ROOMS

Provide a separate staff room or break space with direct access to the exterior. The location is to be screened from public and road frontages, maximising daylight exposure and sheltered from prevailing wind.

Provide as a minimum joinery a tea-making facility, including a stainless steel undermount sink, acrylic bench top, splashback, hot and cold water supply and space for a dishwasher and microwave. Joinery is to have easy clean durable surfaces with soft-close hardware.

3.8.13

PLANT ROOMS AND PLANT COMPOUNDS

Plant room and plant compounds are required to provide protection for mechanical plant and equipment from mechanical damage, weather or tampering by unauthorised personnel.

Plant rooms and compounds are to be sufficiently sized to allow unhindered access to all equipment by maintenance personnel and contractors. Plant rooms shall be fully integrated both aesthetically and functionally into the building design and located on the ground floor where practical and where noise levels will not hinder occupants.

Location of plant rooms within buildings shall take into consideration the most direct point of vehicular access without additional accessways.

Roller door and/or full door access shall be provided at ground level. Access shall enable existing and future equipment to be removed and installed. Restricted-access stairways are to be provided to upper-level plant rooms.

3.8.14

SERVICE YARDS

Provide waste and recycling zones, external to the building, with sufficient storage. Service yards are to be sensitively located and screened from the public and roads where practical.

3.8.15

EXTERNAL YARDS

All buildings shall have an external space for tenant enjoyment. Consider orientation to sun and prevailing winds. Wind protection shall be suitably designed for the wind zone and possible tunnelling effects of the surrounding elements. Screening from public spaces and roads is preferred where practical.

3.8.16

BRANDING AND SIGNAGE

All façades are to have allocated zones for signage purposes and must be approved by CIAL before installation.

The area of signage must be complementary in scale to surrounding buildings and not dominate the architectural form.

Allocate a zone for a future signage plinth and direction information, located to avoid conflict with traffic and visual obstruction. Provide a duct for future illumination.

Signage is not permitted on any roof.

3.9

ACOUSTICS

Acoustic requirements will be reviewed and confirmed before detailing finalisation to minimise disruptive noise transfer with integrated floors, walls and ceiling lining/insulation as required.

Typically, the following STC ratings must be achieved:

- Shared walls between offices and warehouse/industrial spaces to have a minimum STC rating of 56.
- Meeting rooms, individual offices and bathroom spaces to have a minimum STC rating of 40.
- All acoustic rated spaces to have walls up to the acoustic ceiling or underside of roof insulation.

A suitably qualified acoustic consultant is to be engaged to provide an assessment and calculations of the façade sound insulation performance to achieve the minimum sound insulation requirements specified in the Christchurch District Plan for predicted aircraft noise contours.

An assessment for façade acoustic compliance versus natural ventilation is essential.

3.10 BUILDING ELEMENTS

This section offers discussion of elements that are likely to fall within the scope of the architectural design.

3.10.1 FLOORS

Ground floors are to be concrete construction unless an alternative is approved by CIAL. Upper floor substrates are to be reviewed and agreed with CIAL.

Mezzanine floors may be timber to allow for future flexibility.

Exterior door thresholds shall slope away from the building with no isolated steps.

Specify commercial grade removable entry mats to all entry lobbies.

Specify commercial grade carpet tiles to offices and sheet vinyl with welded joints to amenities and staff rooms.

Specify slip-resistant safety vinyl to all internal wet areas.

Transitional threshold bars are required for level access and to protect floor covering edges.

Each floor is to be designed to enable services for that floor to be isolated from the level above or below.

Floor tiles and solid limited laminate may be considered subject to CIAL approval. Consider durability and replacement.

All floor penetrations and associated service pipes are to be fully sealed for fire and acoustics.

All underground ducts and services must terminate within the building envelope. Services and ducts terminating at an exterior foundation edge are not permitted unless agreed by CIAL.

3.10.2 WALLS

3.10.2.1

External walls

External walls may be constructed from variable materials and achieve appropriate levels of structural integrity, durability, weathertightness and aesthetics.

Important considerations for external walls:

- Choice of façade materials and treatment is to be in keeping with the local built environment.
- Façade materials is to be durable, economical, easily maintained and sustainable.
- Resistance to water penetration and control of exterior noise.
- Windows and other façade elements should consider safety, thermal gain, insulation and reflectivity.
- Provide good visual connection to the exterior without causing glare discomfort to occupants. Refer to section 3.10.7 Windows.
- The chosen façade elements should have thermal properties to keep excess heat out during summer and insulate effectively in winter.
- The façade system should seek to optimise the building comfort conditions nominated in the specific project brief and assist in Green Star or NABERS building performance when specifically requested.
- The placing of protruding building services and equipment on building façades and rooftops shall be avoided or shielded from view.
- Buildings greater than three floors in height or where access to the façade by cherry picker is restricted shall be designed to take swing stage scaffolding or other approved building access systems for maintenance and cleaning of windows and the external façade.
- Generally, all exterior precast or in situ concrete walls shall be painted.
- Combinations of the following materials are acceptable solutions but must be a fully designed performance system in accordance with the NZBC E2/AS1 requirements:
- Office thermal envelope must exceed the minimum requirements of NZBC H1/AS1 and H1/VM1. Thermal calculations are to be provided as evidence of building performance.
- Use of ACM Alpolic, Alucobond or similar composite sheet alu-minium cladding must be agreed by CIAL.
- Façade elements must be designed to optimise the potential for self-cleaning by rain. This will include attention to detailing that minimises flat surfaces where detritus can

build up resulting in localised staining.

- Recesses and ledges are to be avoided to reduce nooks where birds can stand and nest. If recesses are critical, surfaces should be adequately sloped to deter perching and reduce the build-up of bird matter. Similarly, louvres are to be adequately sloped. Services penetrations are to be fully sealed.
- Material selections are to consider end-of-life recycling and reuse for extensions and alterations.

3.10.2.2

Internal walls

- Interior walls shall be designed to be as flexible as possible.
- Partition walls are to be lightweight and constructed using standard wall assemblies documented by the manufacturers of framing and lining systems.
- Internal partitions must be considered with respect to seismic movement, bracing, wind uplift and imposed upper level live load.
- Consider potential to anchor and support freestanding elements within a room including building services – for example, metal stud partitions may require additional ply linings to support the fixing of free-standing elements.
- Materials must be selected to perform in the environment in which they will be placed. Framing members must be suitably treated or finished to remain sound for their intended life, and linings must meet performance standards for fire, acoustics, impact resistance, bracing and so on.
- Internal partitions must be designed to accommodate building services and the reticulation that supports them. All walls that are vulnerable to impact damage or undue wear and tear (such as external corners in main circulation corridors) shall be fitted with wall protection products.
- Consider noise reverberation from doors closing by specifying additional support to openings.
- Consider floor coverings transitioning under internal partitions for future partition flexibility.
- Partitions that are non-sound rated should terminate at the underside of a suspended ceiling to allow the grid to continue through for future partition flexibility and avoiding the need to modify the ceiling grid.
- Operable walls may only be used with the express approval of CIAL. If approved, they shall be a proprietary system and have an acoustic rating equal or greater to the other walls of the room. Structural support of all track systems must prevent sagging, distortion and movement. Consideration is to be given to the health and safety risk profile presented by the usual operation of the wall (such as pinch points and manual handling).

3.10.3

INTERIOR JOINERY

- Carcasses, shelving, cupboard doors, drawer fronts and shelving are to be 18mm low-pressure laminate with 2mm PVC edging.
- Scribes are to be in matching material with sufficient clearance to prevent handles clashing with wall linings.
- Bench tops to be an acrylic solid surface suitable for future repairs and can withstand high temperatures or stainless steel. Stainless steel sinks are to be under-mounted and fully sealed to the bench top.
- Commercial food preparation bench top surfaces are to be polished 316 stainless steel.
- High-pressure laminate and natural stone bench tops are prohibited unless agreed by CIAL.
- Hardware, including handles, is to be commercial grade stainless steel.
- Drawer guides and cupboard hinges are to be commercial grade soft close.
- Provide ventilation for appliances to manufacturers' requirements.
- Splashbacks are to be easily cleaned, prefinished high-density boards, back-painted glass or tiles. Allow provision for electrical services.
- Provide provision for waste bins and open shelves for microwaves.
- Provide spaces for dishwashers and fridge sizes according to the purpose of the activity.

3.10.4

ROOF

- Roof materials, products and systems specified must have a proven performance record in New Zealand.
- Coating systems are to be appropriate for exposure at airport zones. Refer to manufacturers' requirements.
- Use/application must be in accordance with the manufacturers' instructions, best trade practice and relevant codes and standards to ensure a long-term weather-proof barrier requiring minimal maintenance and repair.
- Internal gutters, spouting, overflows and downpipes shall only be used with express approval from CIAL. They must be detailed and sized to minimise the potential for water to back up and overflow into the building interior even under exceptional circumstances.
- All flashings and penetrations are to be in accordance with the [NZ Metal Roof and Wall Cladding Code of Practice](https://www.metalroofing.org.nz/codeonline) <https://www.metalroofing.org.nz/codeonline> and NZBC E2/AS1 with a minimum BMT of 0.55mm.

- Minimum roof pitches are to in accordance with manufacturers' instructions. Avoid trapezoidal profiles less than 4°.
- Flat and glazed roofs are to be avoided wherever possible. Any variation from this is to be approved by CIAL.
- Use of insulated panels shall be agreed by CIAL and adhere to fire appropriate fire standards.
- Translucent sheeting shall have a proven performance record in New Zealand with high UV protection and hail protection. Surface finishes are to comply with appropriate fire group ratings.
- Install safety mesh where required.
- Roof underlays and safety mesh are to be specified and installed to best trade practice.
- Underlays should be white foil faced when exposed in warehouse and factory environments.
- Design the thermal envelope to the underside of the roof cladding with appropriate clearances. Avoid thermal envelopes directly on top of suspended ceilings.
- External spouting shall be Colorsteel with appropriate slopes and snow clip supports.
- 316 stainless steel is to be approved by CIAL with consideration for a maintenance regime.
- External downpipes are to be Colorsteel in visually sensitive areas. Painted uPVC is to be used for warehouses. Galvanised steel shrouds to protect uPVC downpipes are required in industrial and vehicle zones. Consider locations from an operational perspective.
- Use of membrane roofing products must be approved by CIAL on a case-by-case basis. All internal gutters must have snow boards and overflow outlets.

3.10.4.1

Mechanical plant platforms

- The design and location of services plant on roof areas shall be carefully considered and discussed with CIAL.
- The preferred location of plant is on a ground floor slab in all situations. Approval must be obtained to mount plant on a roof platform.
- Plant shall be weather protected where practical and screened from public spaces.
- Roof plant platforms and access platforms are to be designed by a structural engineer, including safety barriers, stairs and ladders.

3.10.4.2

Roof safety

- Roof safety systems may only be installed when agreed by CIAL.
- Roof maintenance and the need for safety restraints are to be reviewed in safety by design workshops.
- Where required for maintenance/cleaning and general access, provide a fall restraint system where work or access is needed outside of a roof safety zone.
- The roof safety system shall include the appropriate combinations of components, including horizontal safety cable, anchorage points or other and must be selected from the approved equipment schedule. An installation plan must be provided by the designer/installer for CIAL approval prior to installation.
- In all cases, the access point onto the roof, whether through a hatch or door, must be positioned no closer than 3m from the roof edge.
- The roof design must incorporate a parapet/balustrade of appropriate height or fixing points for a fall-arrest system that mitigates any risk of accidental falling.

3.10.4.3

Roof insulation

- Roof insulation, where required, are to be provided using standard insulating products installed in accordance with manufacturers' instructions.
- Appropriate ancillary products must be specified as necessary to ensure the insulation remains in the right position to maintain the necessary insulation value for the life of the building. Insulation values may vary from project to project depending on the building use.
- Provide a thermal envelope to the underside of the roof cladding with appropriate underlay clearances to insulation and ventilation air circulation.
- Avoid specifying insulation directly on top of suspended ceilings.

3.10.5

STAIRS AND RAMPS

- Stairwells should be designed and positioned to encourage their use for vertical circulation close to lifts where possible.
- Stair design must be NZBC compliant with additional recognition of the need to address egress and access requirements for all building occupants and activities.
- Treads must have a slip-resistant finish, and compliant handrails should be provided to all stairs and ramps.
- Tactile ground surface indicators are to be installed at the top and bottom of stair flights and ramps.
- Ramps shall be provided at the main point of entry in accordance with NZBC D1/AS1 where floor levels are elevated above ground.
- Handrail materials are to be appropriate for the working environment with limited maintenance.
- Handrails are to have rounded corner profiles for safe use and down-turned ends.

3.10.6

DOORS

3.10.6.1

External doors

- All external entrance doors shall be recessed into foyers sufficient to provide protection from prevailing wind pressure when opened. These shall also be able to be hand locked and keyless in direction of escape.
- Floors of entrance door recesses shall slope away from the building to prevent surface rainwater ingress.
- All main entry doors are to be aluminium framed and fully glazed with commercial grade hardware and manifestations.
- All industrial/commercial secondary egress external doors shall be solid core with powdercoated aluminium facings in powdercoated steel frames.
- All exterior doors are to have weather seals, door closers, door stops and commercial/industrial grade hardware.
- Vermin and draught seals are to be fitted to all exterior doors.
- Automatic glass doors are to have commercial grade sliding door gear with push release in the direction of escape and battery back-up in the event of power failure.

3.10.6.2

Internal doors

- All internal doors shall be solid core paint grade finish. Carbon core doors may be considered for low-impact areas.
- Provide vision panels for double-action doors and doors entering common spaces such as meeting rooms, lobbies, accessways and staff rooms. The size of the panel shall ensure visibility for accessible and able persons.
- Specify acoustic and wool pile seals to all aluminium-framed doors.
- All doors are to have stainless steel kickplates on both sides. Recess stainless steel kickplates into door leaf for cavity sliders.
- Kickplates shall be 150mm minimum high and nominal full door width, 0.9mm thick 304 no. 4 satin stainless steel, glued and screw fixed with stainless steel raised-head screws to both sides of each door.
- Where timber doors are subject to excessive damage from trolleys or similar impacts, the stainless steel kickplates shall extend to a height of 600mm minimum above floor level.
- Generally, all door hardware is to be satin chrome finish and commercial grade quality lever handles from an industry-recognised reputable manufacturer.
- Install commercial grade door closers typically to most doors for temperature control and draught prevention. Provide suitable internal blocking or locally reinforce the door frame at the fixing point.
- All doors are to be fitted with door stops.
- Door grilles are to be powdercoated and located on both sides of the door leaf.

3.10.6.3

External roller doors

All roller shutter doors are to feature items noted below as a minimum:

- 3-phase motors located to the side of a clear opening (not above the door opening).
- Windlock guides.
- Galvanised slats and guides. Powdercoated slats may be considered by CIAL in visually important areas.
- Commercial grade automatic push button control panel.
- Safety beams.
- Chain drives to be located clear of the jamb and returned behind galvanised steel brackets.
- Continuous woven nylon seals to slats at door guides.
- Neoprene compressible rubber base seals.
- Wicker doors are not permitted unless agreed by CIAL.

3.10.6.4

Cubicle partitions and doors

All cubicle partitions and doors are to feature items noted below as a minimum:

- 13mm minimum compact laminated partitions and doors.
- Specify commercial grade powdercoated aluminium or stainless steel hardware, including indicator bolts, hinges, coat hooks/door stops, pedestals, assembly support bars, channels and brackets.
- Additional door stops are required where doors hinge back to gib walls.
- Hinges are to be adjustable to keep the door in an open position when not in use.

3.10.7

WINDOWS

3.10.7.1

External windows

External windows/glazing systems are building elements that combine with external cladding systems to create a weatherproof façade.

Where appropriate, opening sashes are to be provided to deliver appropriate levels of fresh air and ventilation. However, opening sashes must comply with aircraft noise contour acoustic requirements.

Consideration shall be given to the set-out of frames and glass sizes. These must be sized to cope with loading/spans but ensure efficiencies and cost savings are available where materials are selected that sit within the upper end of their performance capability.

Joints must be designed and located to allow easy access for the replacement and/or repair of sealants, seals and gaskets.

Glazed elements must be designed to optimise the potential for self-cleaning by rain.

This will include attention to detailing that minimises flat surfaces where detritus can build up resulting in localised staining.

Window frames shall be prefinished in the workshop with an appropriate powdercoated finish.

The following considerations must be taken into account when selecting and detailing exterior window systems:

- Durability, maintenance and ease of installation.
- Ease of access for maintenance and repairs. Access strategy/methodology must be clearly explained to the client as part of the façade presentation/approval process.
- Safety in design – the short-term, medium-term and long-term risk profile of the product with respect to initial installation, ongoing maintenance for the life of the building and consideration of demolition and waste disposal.
- Recycling potential.

3.10.7.2

Window hardware

All windows shall have factory-fitted scheduled hardware with locks and keys as required to address security and/or health and safety issues.

Hardware is to be powdercoated finish (or to match the frame finish) and generally colour matched.

3.10.7.3

Internal glazing

All internal glazing must be encapsulated in a frame sized by the manufacturer to be fit for purpose in its intended location. Where an aluminium extrusion is used, it shall be powdercoated finish.

Glass specification must address health and safety, fire, seismic and acoustic considerations. Privacy, where required, may be achieved through the use of interstitial blinds or manifestations. Frameless partitions or balustrading will not be accepted by CIAL.

3.10.8

CANOPIES

3.10.8.1

Office and retail canopies

- Typically, specify a cantilevered structure over main entry doors with sufficient depth and height to protect public from weather. Consider location and projection to avoid vehicle damage and long-term serviceability.
- Consider architectural aesthetics to complement the main building.

3.10.8.2

Industrial canopies

- Consider location in terms of prevailing adverse weather and logistic functionality.
- Height clearance should be suitable for loading and unloading heavy goods, including head clearance for forklifts and container side loading operations.
- Canopies are to be typically cantilevered and extend past door openings, providing adequate weather protection ideally along the majority of the warehouse length.
- Install bird proofing to the underside of canopies on the form of mesh and coil-coated profile iron and angular flashings. Consider services under bird netting and accessibility e.g. fire wire
- Specify removable folded galvanised steel protection shrouds to all downpipes under canopies and locations susceptible to damage.

3.10.9

BOLLARDS AND SHROUDS

3.10.9.1

Industrial zones

Powdercoated or painted heavy-duty galvanised steel concrete encased bollards should be located 1.2m minimum above pavement and FFL at the following junctions:

- Interior and exterior of roller shutter door jambs.
- Exterior of the hinged side of doors complete with door stops.
- Corners of buildings and screens prone to vehicular damage.
- Mechanical plant and compounds.
- Electrical MSB.

Consider any requirement for Armco-style barriers in high-use zones and along the building frontage. Discuss requirement with CIAL during design.

3.10.9.2

Commercial and retail zones

Powdercoated or stainless steel bollards should be located 1.1m minimum above pavement and FFL at the following junctions:

- Interior and exterior of roller shutter door jambs.
- Exterior of the hinged side of doors complete with door stops.
- Corners of buildings and screens prone to vehicular damage.
- Mechanical plant and compounds

Consider removable bollards for vehicular access for enhanced security subject to CIAL approval.

3.10.10

PAVEMENTS AND HARDSTANDS

3.10.10.1

Crossings

- Refer to section 8.0 Civil Design Guidelines.
- Locate with clear visibility for vehicles and pedestrians.
- Allow sufficient queuing spaces.

3.10.10.2

Carpark

- Carpark spaces and aisles are to comply with the Christchurch District Plan and NZS 4121:2001 section 5. Lined markings are to be painted white with clear visibility. Consider larger carparking spaces for ease of access, particularly for vehicle leasing premisses and luggage/trolley handling (e.g. 2.5m).
- Wheel stops are to be avoided due to trip hazards and ongoing maintenance. Preference is for carparks that abut a solid concrete kerb.

3.10.10.3

Line Marking

These shall be specified in accordance with the NZTA M7 - Spec for Roadmarking paints with a minimum specification of A. Classification to be confirmed with CIAL prior to design finalising.

3.10.11

SECURITY FENCES, GATES AND SCREENS

3.10.11.1

Industrial zone fences and gates

Specify the following:

- Galvanised 1.8m high chainlink mesh with three strands of barbed wire above to a total height of 2.4m above ground level in areas not facing the road frontage.
- Galvanised steel posts encased in a concrete footing. Security fences facing road frontages are to be powder coated black and have Black Spike Top panel fencing.
- Security gates are to be hot dip galvanised steel powdercoated black when facing road frontages.
- Sliding gates are to be located on level reinforced concrete beams.
- Provide underground ducts for future automation and security.
- Screens are to be low maintenance and durable with aesthetic qualities. Wind loading is to be assessed for stability and secure fixings. Screens must be easily demountable for future access or repair.
- Centurians D10 – preferred auto gates

3.10.11.2

All other campus zones

- Gates, fences and screens are to be powdercoated galvanised steel, 316 stainless steel or safety glass.
- Timber may be used when agreed by CIAL.