MINISTRY OF SOCIAL DEVELOPMENT
TE MANATŪ WHAKAHIATO ORA

2 December 2025

Tēnā koe

Official Information Act Request

Thank you for your email of 30 September 2025, requesting information on the interior design of Work and Income offices from 2016 to present.

I have considered your request under the Official Information Act 1982 (the Act). Please find my decision on your request set out below.

Please find a list of attached documents in scope of your request in the **Appendix** below.

Some information has been withheld under section 6(d) of the Act as the release of this information would likely endanger the safety of Ministry staff and clients. I have noted in the Appendix which documents that information withheld.

I will be publishing this decision letter, with your personal details deleted, on the Ministry's website in due course.

If you wish to discuss this response with us, please feel free to contact OIA_Requests@msd.govt.nz.

If you are not satisfied with my decision on your request, you have the right to seek an investigation and review by the Ombudsman. Information about how to make a complaint is available at www.ombudsman.parliament.nz or 0800 802 602.

Ngā mihi nui

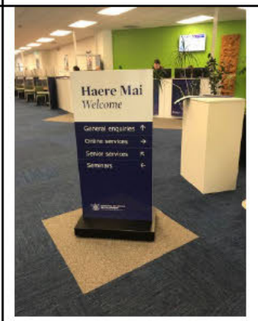
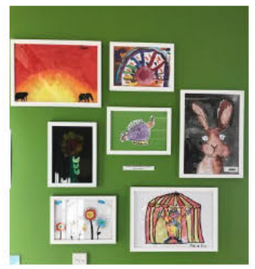
pp.

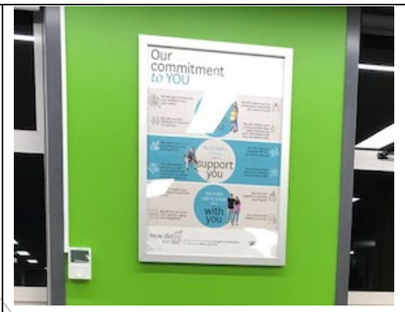
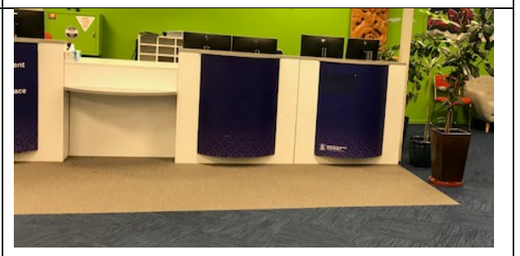
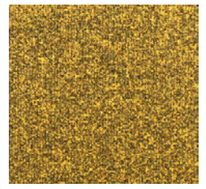
Anna Graham
General Manager
Ministerial and Executive Services

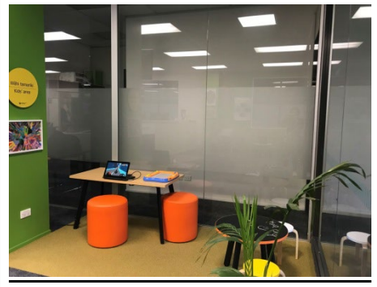
Appendix:

Document Name	Status
01. Service Centre's for the Future – Specification	Released in full
02. Signage Manual – 2018	Released in full
03. MSD Service Centre's – Reception prints and frosting	Released in full
04. Rilees Frosting Koru design	Released in full
05. MSD Service Centre's Design Guide	Released in part with some information withheld under section 6(d) of the Act.
06. Front of House Design specification	Released in full
07. Front of House Business Requirements	Released in full
08. Te Kaika Finishes Schedule	Released in part with some information withheld under section 6(d) of the Act.
09. Te Kaika Finishes Board Integrated Services	Released in part with some information withheld under section 6(d) of the Act.
10. MSD Service Centre's Finishes Schedule	Released in full
11. SCFTF Look and Feel Colour Boards	Released in part with some information withheld under section 6(d) of the Act.
12. Look and Feel TEMPLATE	Released in full
13. TV Locations Plan TEMPLATE	Released in full
14. Power Plan TEMPLATE	Released in full
15. Signage Checklist Template	Released in full
16. Waitara Completed Presentation	Released in part with some information withheld under section 6(d) of the Act

17. Upper Hutt Presentation	Released in part with some information withheld under section 6(d) of the Act
18. Waihi Completed Presentation	Released in part with some information withheld under section 6(d) of the Act
19. FSPSE – Look and Feel – Reverse Brief	Released in full
20. Look and Feel Presentation – Upper Hutt	Released in part with some information withheld under section 6(d) of the Act

Front of House design and specifications – Community lounge feel (Last updated 21/06/19)				
Zone 1 (FoH) definition: Service Delivery completed a front of house pilot in 4 sites which was focused on creating a warm and welcoming environment for clients by making improvements to our service centres. This followed a co-design process with clients, staff and external stakeholders. FoH is focusing on Mana Manaaki ensuring our clients have a positive experience every time. Making 'our place' a nicer place for people to visit, and making it feel more a part of the community.				
FoH Feature	**Purpose/objective**	**Solution**	**Who**	**Picture**
Paint	Bright and balanced colour scheme that is more inviting, relaxing and less clinical.	A selection of walls and pillars (if applicable) will have the colour green painted on them - "Resene Limeade" (G62-123-120). The green walls/pillars will have white skirting and trim (where applicable) – "Black Haze".	- FoH in conjunction with the site will decide which walls are to be painted - PM will organise painters	
Signage	Clearer signage with simple language including the Te Reo translation. Signage should have a consistency of placement and look and feel. Salience is an important concept - reducing the amount of visual clutter in service centres helps key information, such as directional signage, stand out. Pin boards for community events only. External Signage on the front of the building will have the No food and Drink section covered up and new builds will have the updated signage. Digital signage – varied national and regional comms via a TV.	Signage will be dark blue with white writing: all signage should be placed at 140mm height and 50cm away from edge of wall/carpet window or centred at request • One main Welcome standalone sign (plinth) with directional arrows for the appropriate services eg, senior services, general enquires these will be magnetic (not in all sites) • Water cooler • Online services • Reception front signage • Kids area (this will be yellow with black writing) • Fill in forms here sign (not in all sites) • Senior services (not in all sites) • Seminars (not in all sites) • There may be other signs required per individual site eg toilet • Digital signage to be placed in the main waiting area	- Rilees have designed these and will install - FoH will determine individual site requirements and co-ordinate order/installation - FoH to decide where the digital signage is placed - FoH along with sites to decide how many pin boards or if this is a requirement for sites using salience as a guide (site input required) note not every site will have one.	
Community Art	Creating an atmosphere that is more representative of the community and less clinical whilst adding more interest and colour to the space.	Artwork from the local community (eg schools, local artists etc). These will be hung on the wall and be: • A variety of A4 and A3 in size x7 pieces on paper • In white frames • To be placed close to the children's area where possible Artwork that represents the community that is already on site may also be hung in the FoH area eg Maori carving	- FoH and site will co-ordinate any current art on site and placement of this in FoH area - FOH will provide the frames and frame the art - FoH will decide on placement of the framed community art	

Commitment posters	To display our commitment posters	1 x English client commitment poster hung in window facing inside and 1 x English client commitment poster hung in window facing outside 1 x Te Reo client commitment poster hung in window facing inside and 1 x Te Reo client commitment poster hung in window facing outside If site has no window hangings then - include 2 x commitment posters (as above) in snapper frames Please note sites can choose to have more posters in other languages	- Site to provide or re-order the posters - FoH to suggest best placement of these if in snapper frames - PM to organise hanging of snap lock/window hanging display if required	
Carpet	Delineate different areas so it is known when you are in a different area eg kids' area. Create an instinctual divide for people queuing at reception allowing more space and privacy for the person being served.	**Grey carpet – (Reception cue carpet) Godfrey Hirst Carpets** Range: Long grain Material code: 195756 Colour: 0750 Pebble Width: 4 - To cover the length of reception and 1.5m out from reception's closest point **Yellow carpet (Kids area) Godfrey Hirst Carpets** Range: Rainbow Material code: 111526 Colour: 3900 Sunflower Width: 4 - **Large & Med site** - To cover the length of the tablet table (1200) + the art table est. 2m length 1.5m width - **Small site –** only have an art able to put on it therefore carpet est. is 1.5m length by 1.5m	- FoH to provide measurements and placement based on size of site so the correct amount of carpet can be ordered	  
Kiosks	An online self-service "station" for clients that provides an element of privacy and that can be sat at.	New kiosk terminals will be installed using the **current** furniture solutions with their new kiosk numbers e.g. a site with four kiosks across two 'pods' may have a new number of two kiosks and therefore would now require space for only one pod using the exact furniture/size it currently has. On-going project	- FoH to decide where kiosks are to be placed based on required numbers	 

Furniture	Different seating options and arrangements to allow ease of access and suitable seating for people with disabilities eg chairs with the arms to improve ease to get in and out of. Different fabrics and softer seating options create a community lounge feel that is relaxing, comfortable, inviting and welcoming. Reduce the perception of wait times and anxiety. Various colours of chairs to create a colour contrast so visually impaired people can differentiate between the carpet and the chair.	**Seating** • 2 seater Couch, Grey 1350L x 720D x 830H - Montage • 1 seater chair, Grey 780L x 720D x 830H - Montage • Chairs with arms (standard senior chairs) Cordova (vinyl where available) • Utilisation of existing "client chairs" (standard client chairs) Cordova (vinyl where available) **Other furniture** • Montage Luca round, 450 high black steel legs HPL top & sides in Tasmanian Ash • Forms table with pens 1800mmL x 600 deep x 740 high Montage Luca with black steel legs and HPL top and sides in Tasmanian ash. • Kids area (as below)	- FoH to order all furniture from property team - FoH to decide placement of furniture - FoH to decide how many items in each site using the sml med large guide	 
Kids area	A space that helps keep children occupied while they wait. It should be bright and fun with an element of learning.	**Furniture** • Med and Large kids areas: 1 x device table 1200mm long x 600 deep x 650 high Montage Luca with black steel legs and HPL top and sides in Tasmanian ash. Please note these have cables holes for x1 device • 1 x device with games (med & large kids areas) • Tablet Ottomans x2 400 wide x 450 high Montage in Lustrell Charisma orange vinyl • Magna Doodle (optional) placed on art or device table • Art table with 4 stools – 600mm dia Mocka • Chalk/chalk duster/chalk holder to be secured to art table (optional) • Variety of children's books in a basket placed on the art or device table (optional) • Art table ottoman 300 wide x 300 high Montage in Lustrell Charisma orange vinyl (optional)	- FOH to order furniture and devices - FOH Team will paint chalkboard table and secure devices and chalk holder - FOH to set out kids area - FOH team to work with SCMs on which elements will be in placed based on size of site and preference.	 
Water coolers	The addition of water coolers in sites is to provide clients with the basic need of water when potentially waiting for long periods so there is no need to leave the office to obtain this.	• Water cooler supplied by Big Blue Water Coolers • Drip tray • Paper cups • Bin with plastic bag	- Property team (Allana McLeod) co-ordinating the national contract and deliveries - FoH team to provide bin if not one on site - FoH team to decide on location - PM to organise plumbing if a plumbed in water cooler is appropriate and electrician (if no plug within a meter of location) if required	

Plants	Contribute to the improved feel of relaxation in the space. Plants to be selected at heights to help improve the sense of privacy in the waiting area, and also used to divide the space.	All plants supplied by Ambius - Rentokil • x3 planter troughs with x3 plants in each on wheels (smaller sites may have 2 or 1) • Small plant to be placed on a coffee table and secured with 3M tape	- Property team (Allana McLeod) co-ordinating the national contract and deliveries - FoH team to decide on placement of plants during set up	
Promotional space	A space within the FoH to display promotional material that will keep clients updated with information.	Brochure stand (we will use existing furniture where possible) if a brochure stand is required we will order the pictured item A primary promotional space • FoH area • In a place that clients will see • Snapper frame (if available) Secondary promotional space (guide) • Case manager desk area • Snapper frame (if available) This material will ideally rotate on a monthly basis with a schedule coming from the comms team (TBC) • Consistency across sites in what is being promoted to clients • Regularly updated keeping a fresh look • Salience, less clutter • Supported by digital signage each month	- FoH team to decide on placement of promotional space - Comms team to coordinate display material on a regular basis	
Employment Zone	A space in the FoH with a focus on employment that clients can easily access for employment and training information.	The site will decide what they will have in their employment zone, with FoH support. This may include things such as: - Pin board (in grey colour 'Shadow 609' if against a green wall) - Pull up banner - Tear drop banner To be in an area or room visible from reception and/or security guard The should use the guide provide to support.	- Sites can design their employment zone with FoH support and the EZ guidelines - Sites will order their promotional material and pin boards. - FoH team may decide on Employment Zone location if pin boards are being hung.	

Front of House Business Requirements

Objective

Under the Simplification programme we have explored ways of engaging with clients in front of house (FoH), particularly how we may "triage" and support clients coming into our sites, providing them with the self-help tools and information to enable them to become independent as efficiently as possible, reducing the reliance on the interview setting arrangements and promoting on-line channel usage.

In 2016 Simplification moved to an enhanced practice prototype in Lower Hutt and Flaxmere service centres. Although focused on practice; these pilots helped to understand the current design challenges and opportunities helping to shape the design requirements, including hard and soft fit-outs.

Key to a successful FoH environment within our sites is an environment that feels safe and secure, creates the right impression/experience for our clients, including the introduction of clear and simple way finding elements and signage and providing appropriate space settings for the right interaction. This includes quick conversations with staff, on-line digital areas (kiosks), work focused conversational areas.

Joint design workshops with FSPSE were undertaken in late March 2017 and generated an exchange of ideas, knowledge and practices, outputs included creative and collaborative design ideas and potential processes *(Service Delivery Design Brief).* The output of these workshops contained a number of standard elements (i.e. modern working environment, enhancing safety, efficient spaces) which will be incorporated within the Otara fit out project as a basic requirement.

The focus is to deliver a FoH environment that encourages and enables people to flow from the invited area to the front of house area, without the feeling of front of house being isolated from the remainder of the office or physical layout. s6(d)

Mandatory business requirements

The following business requirements are considered to be non-negotiable and must be implemented in the Otara site

Online service area	• provides an element of privacy • area should be visible by reception staff • should not be in path of other clients going about their business, not cross the reception queue or waiting area. • design inspiration may come from counters within banks or drop down spots similar to the central tables within a Koru lounge.

	• each station should have USB charger points for clients to charge their personal device **Required:** space should allow for 5 clients to use the online at once.
Quick chat areas	• chat stations are required for clients to complete quick transactions, without requiring an appointment. • staff will have conversations and complete quick transactions such as checking forms/documentation with clients • should not be tucked away, need to be visible and prominent and visible from reception • must be in line of the security cameras • one standing one sitting **Required:** 2 chat areas
Client phone	• area should be visible by reception • should not be in path of other clients going about their business • provides an element of privacy • phone should have internal line to both contact centre, StudyLink and IRD **Required:** 1 phone should be provided.
Way finding	• should reduce and prevent reception queue volumes (segregate clients upon entry i.e. direct to seminar rooms, self-help areas • easy to distinguish different spaces and flow (i.e. queuing, waiting areas, interview desks) • use of coloured carpet as a way to introduce way finding • signage should be plain English and font readable from a distance 10-15 metres **Required:** signage and way finding should make it intuitive for our clients to find the areas in which they need to be or go
Waiting area	• 2 separate areas; general clients (main) and seniors • should be able to see digital signage screens • people should not be able to see or look into other meeting or seminar rooms from waiting area • senior chairs should have arms • colour of seats should complement the colour of the surrounding carpet

	Required: 20 seats for main waiting area; and 10 for senior clients
Queues	• natural queues should not be around entrance or prohibit easy movement within FoH • design should prevent long queues of clients • should not be near meeting rooms, online service areas, chat stations or back onto the entrance or waiting area. **Required:** need space for at least 10 people in the queue at one time
Digital signage (TV)	• must be away from chat areas as to not interfere with conversations but still have the audio playing • must be visible from most points of the FoH **Required:** 2 TV(s) should be provided one for income support/community notices, the other employment focused.
Reception	• should have nearby exit points in case of an emergency • should not feel isolated from the rest of the physical layout • should not be in line with the entrance however not tucked away or hard to find, this can be supported with way finding • desk should not be positioned as the centre point, however easily available for staff and clients to access when required • should provide space for clients in wheelchairs • should have good flow - easy access and exit points into the public and invited areas • MFD placement should not restrict space • should have 2 workstations with PC's and have clear signage for each station one being Manage appointments and the other information, drop off forms etc • **Required:** 2 workstations should be provided and one docking station should hot desking be introduced.
Check-in	• a smart phone should be provided for supporting case managers to use to check in clients via queue manager **Required:** 1 smart phone
Employment hub	• near digital signage (TV) needs to be close

	• furniture should be provided for jotting down job information (i.e. bar leaner) • information stand for contract and local employer information. **Required:** space for 4 job seekers at one time
Information	• there should be a place to hold information that clients and staff can access • should not restrict space or be an eyesore • pin boards should be in the FoH area to display information to clients and have acoustic properties **Required:** 2 stands (including employment hub space) 2 large pin boards

Desirables

The following business requirements are considered to be nice to have and where possible should be implemented in the Otara site

Online service area	• the area should be visible by all staff • consider furniture/fitting design that has multiple purpose functionality for future proofing (as there is a project underway that is looking at options for accessing online services, i.e. kiosks in the current form)

Dependency's

The following business requirements are considered to be non-negotiable and must be implemented in the Otara site

Online service area	• work is underway in the Empathy Online Services project, this is unlikely to be delivered in time for Otara but should be monitored for progress.

Decision points for approval

- Hot desking
- Inclusion of reception desks into the physical layout*
- Two TV's for digital signage
- Use of smart phone for check in
- Client phones in all service centres

A discussion paper will be drafted by the FSPSE project, reviewed by the Otara Project team and their managers then presented to the board for sign off. The paper will discuss the findings of the utilisation study, the business requirements for the Otara service centre and the benefits of implementing the above initiatives.

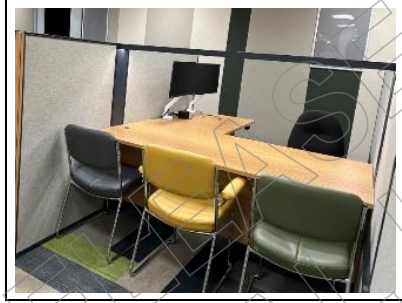
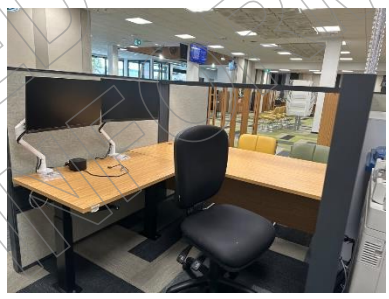
The discussion paper will describe the initiatives already in scope of FSPSE project wider rollout and others that are not; meaning budget and scope will need to be decided at the governance level.

* note this is on the agenda for discussion at the next FSPSE Board meeting, as directed by the HSSCG.

MSD Te Kaika Finishes Schedule

29/10/2024

25 College Street, Caversham Dunedin 9012

Autex Colours:  Autex Opera, Parthenon, & Gherkin 	Desk Partition and CID Screens  Warwick Globe Pumice 	Desk Tops, CID fins, & Gates:  Supreme Oak Naturale 
Client Chairs Vinyl:  Warwick Lustrell Charisma Mustard, Army, & Gunmetal 	Staff Desk Chairs Fabric:  Textilia Quantum Black 	Mobile divider Autex panel:  Autex Opera 

Other Finishes

CID aluminium framing powder coated Charcoal.

'Supermarket' tambour constructed in Black LPL with matching PVC edge clashing.

Employment stools powder coated black.

All other furniture is landlord items provided by Metalon.

All other items (paint, carpet, etc) are base build (landlord) items.

s6(d)

Te Kaika MSD Integrated Services | Finishes Board | February 2024

s6(d)

s6(d)

Autex Feature Colour (Basebuild)

Autex Opera

Autex Parthenon

Autex Gherkin

MSD Desk Furniture and Gates (Aspect)

Supreme Oak Naturale

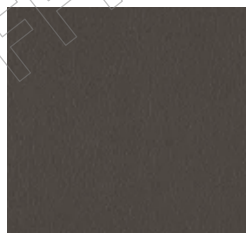
MSD Desk Screens (Aspect)

Warwick Globe Pumice

MSD Cordova Client Chairs (Aspect)

Warwick Lustrell
Charisma Mustard

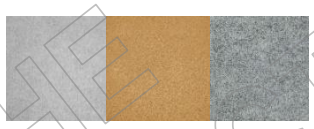
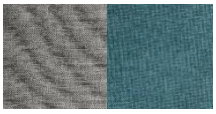
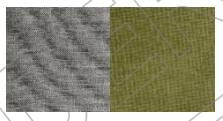
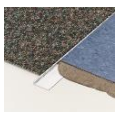
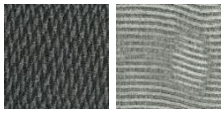
Warwick Lustrell
Charisma Army



Warwick Lustrell
Charisma Gunmetal

MSD Service Centres Finishes Schedule

REV 7 - 06/03/2025

COLOUR OPTIONS			
GENERAL COLOUR	**BLUE option**	**GREEN option**	**BUTTERSCOTCH option**
Interview Room Wall Feature Paint Colour	 Resene Chi B80-024-211	 Resene Caper G79-056-115	 Resene Sand Y84-040-077
Autex Colours  General Colours: Autex Flatiron & Myst	 Feature: Autex Falling Water	 Feature: Autex Lime	 Feature: Autex Beehive
Desk Partition Screens  General: Warwick Globe Glacier	 Warwick Globe Cascade	 Warwick Globe Herb	 Warwick Globe Brick
GENERAL FINISHES			
Wall Paint Colour Generally:  Resene Black Haze N92-006-101	Seminar Room feature wall:  Resene Half Mischka N81-006-262	FOH Feature Wall colour:  Resene Scrub G37-020-109	Paint Colour to Interior Doors:  Resene Grey Chateau N73-006-251
Paint colour to Gate Doors:  Resene Silver Chalice N76-003-139	Employment/Connected Space Autex:  Autex Simba	Carpet Tiles Generally:  Aria II 93 Gunmetal	Reception Carpet Tiles:  Long Grain II 720 Chrome
Kids Area Carpet Tiles:  Rainbow 3900 Sunflower	Entrance Matting (if required):  Advanced Coral Duo (Black Diamond)	Vinyl (if required):  TARKETT IQ OPTIMA 3242 853	Transitions (if required):  Treadsafe DT036, Carpet to Vinyl
CID Screens Fabric:  Warwick Gravity Slate & Steel	Client Chairs Vinyl:  Warwick Lustrell Charisma Rain, Textila Fresco Plus Citronelle & Cameo	Staff Desk Chairs Fabric:  Warwick Sylvester Coal	Desk Top Finishes:  BOH & Kiosks: Seasoned Oak CID & Managers: Seal Grey

MINISTRY OF SOCIAL DEVELOPMENT
TE MANATŪ WHAKAHIATO ORA

SERVICE CENTRE'S FOR THE FUTURE

SPECIFICATION

of work to be done and materials to be used in carrying out the works shown on the accompanying drawings

Ministry of Social Development

[insert image of site from outside]

[Insert site address]

Site Ref: [code]

Date:

dd/mm/yyyy

Table of Contents

1 PROJECT

1.1 General

This general section describes the project including:

- A description of the work
- Design construction safety
- Principal's Health & Safety matters
- Site description

Read All Sections Together

Read all general sections together with all other sections.

1.2 Scope of the Work

Interior fitout Existing walls, doors, finishes, furniture, ceiling insulation and services to be retained or removed as shown on the drawings. New works include – Construction of a proprietary system steel stud wall (nonstructural) or Timber Framed stud walls (nonstructural).

1.3 Restricted Building Work

This project includes no Restricted Building Work.

1.4 Design Construction Safety

The project designers are unaware of unusual or atypical features, which a reasonably experienced contractor may not be aware of, that may present a hazard or risk during a typical construction process. The Contractor is still required to undertake its own assessment, to determine if they consider there are any further safety matters and provide for these in carrying out the construction of the work.

1.5 Site Legal Description

The site of the works, the street address and the legal description are shown on the drawings.

Existing Building: Tenancy, [insert site address]

Existing Services: Emergency Warning System, Automatic Doors, Mechanical Ventilation, Signs relating to Systems or Features, Final Exits, Signs to Facilitate Evacuation

2 PROJECT PERSONNEL

2.1 General

This general section provides a list of the parties who are involved with the project. Communications to these personnel are to be sent to them at the address as listed. Refer to the construction contract for:

- The roles that they have under the contract; and
- Address details for notices being given under the contract.

Consultants

2.1 PRINCIPAL

Name: Ministry of Social Development
Postal:
Street:
Represented by:
Mobile:
E-mail:

2.2 ARCHITECTURAL DESIGNER

Practice:
Postal:
Street:
Telephone:
Represented by:
E-mail:

2.3 FIRE ENGINEER

Practice:
Represented by:
Telephone:
Email:

2.4 CONTRACTOR

Practice:
Postal:
Telephone:
Represented by:
E-mail:

3 INTERPRETATION AND DEFINITIONS

3.1 General

This general section relates to definitions and interpretation that are used in this specification.

3.2 Definitions

Hold point:	A stage of the construction where the contract administrator and any other nominated person requires notice to be given that particular work is to be carried out. Work may not proceed on that particular part until the contract administrator and any other nominated person has advised that work can continue. A notice period of 2 Working Days is required unless stated otherwise.
Notification point:	A stage of the construction where the contract administrator and any other nominated person requires notice to be given that particular work is to be carried out. Work may continue and the contract administrator and any other nominated person may choose whether or not they wish to witness the particular work being carried out. A notice period of 2 Working Days is required unless stated otherwise.
Product:	A thing or substance produced by natural process or manufacture.
Proprietary:	Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
Provide and fix:	"Provide" or "fix" or "supply" or "fix" if used separately mean provide and fix unless explicitly stated otherwise.
Required:	Required by the documents, the New Zealand Building Code or by a statutory authority.
Review:	Review by the contract administrator and other consultants are for general compliance only. Review does not remove the need for the contractor to comply with the stated requirements, details and specifications of the manufacturers and suppliers of individual components, materials and finishes. Neither can the review be construed as authorising departures from the contract documents.
Working day:	Working day means a calendar day other than any Saturday, Sunday, public holiday or any day falling within the period from 24 December to 5 January, both days inclusive, irrespective of the days on which work is actually carried out.
Workplace:	Workplace means the place where work is being carried out, or is customarily carried out, for a business or undertaking including any place where a worker goes, or is likely to be, while at work (under Health and Safety at Work Act 2015).

3.3 Personnel

Principal: The person defined as "Principal" in the conditions of contract.
Contractor: The person contracted by the principal to carry out the contract.
Contract administrator: The person appointed by the principal to administer the contract on the principal's behalf. Where no person has been appointed by the principal, it means the principal or the principal's representative.

3.4 Abbreviations

The following abbreviations are used throughout the specification:

AAMA American Architectural Manufacturers Association
AS Australian Standard
AS/NZS Joint Australian/New Zealand Standard
ASTM American Society for Testing and Materials
AWCINZ Association of Wall and Ceiling Industries of New Zealand Inc.
BCA Building Consent Authority
BRANZ Building Research Association of New Zealand
BS British Standard
COP Code of practice
CSIRO Commonwealth Scientific and Industrial Research Organisation
HERA Heavy Engineering Research Association
LBP Licensed Building Practitioner
MBIE Ministry of Business, Innovation and Employment
MPNZA Master Painters New Zealand Association Inc
NZBC New Zealand Building Code
NZS New Zealand Standard
NZS/AS Joint New Zealand/Australian Standard
NZTA New Zealand Transport Agency
NUO Network Utility Operator
OSH Occupational Safety and Health
PCBU Person Conducting a Business or Undertaking (under Health and Safety at Work Act 2015)
RBW Restricted Building Work
SARNZ Scaffolding and Rigging New Zealand Inc
SED Specific Engineering Design
TA Territorial Authority
TNZ Transit New Zealand (Transit New Zealand is now New Zealand Transport Agency NZTA - some specifications are still prefixed TNZ)

3.5 Defined Words

Words defined in the conditions of contract, New Zealand Standards, or other reference documents, to have the same interpretation and meaning when used in their lower case, title case or upper case form in the specification text.

3.6 Words Importing Plural and Singular

Where the context requires, words importing singular only, also include plural and vice versa.

4 REFERENCED DOCUMENTS

4.1 General

Throughout this specification, reference is made to various New Zealand Building Code Compliance Documents (NZBC), acceptable solutions (AS) and verification methods (VM) for criteria and/or methods used to establish compliance with the New Zealand Building Code.

Reference is also made to various standards produced by Standards New Zealand (NZS, AS/NZS, NZS/AS), overseas standards and to listed Acts, Regulations and various industry codes of practice and practice guides. The latest edition (including amendments and provisional editions) at the date of this specification applies unless stated otherwise.

It is the responsibility of the contractor to be familiar with the materials and expert in the techniques quoted in these publications.

Documents cited both directly and within other cited publications are deemed to form part of this specification. However, this specification takes precedence in the event of it being at variance with the cited documents.

4.2 Documents

Documents referred to in the GENERAL sections are:

NZBC F5/AS1 Construction and demolition hazards
AS/NZS 1170.2 Structural design actions - Wind loads
NZS 1170.5 Structural design actions - Earthquake actions - New Zealand
AS/NZS 3012 Electrical installations - Construction and demolition sites
NZS 3109 Concrete construction
NZS 3114 Specification for concrete surface finishes
NZS 3602 Timber and wood-based products for use in building
NZS 3604 Timber-framed buildings
NZS 4210 Masonry construction: Materials and workmanship
AS/NZS 5131 Structural steelwork - Fabrication and erection
NZS 6803 Acoustics - Construction Noise
Building Act 2004
Building Regulations 1992
Health and Safety at Work Act 2015
Health and Safety at Work (General Risk and Workplace Management) Regulations 2016
Health and Safety at Work (Hazardous Substances) Regulations 2017
Health and Safety in Employment Regulations 1995 New Zealand Building Code
Heritage New Zealand Pouhere Taonga Act 2014
Resource Management Act 1991
Smoke-free Environments Act 1990
WorkSafe NZ Guidelines for the provision of facilities and general safety in the construction industry
WorkSafe NZ Good Practice Guidelines - Excavation Safety
WorkSafe NZ Scaffolding in New Zealand - Good Practice Guidelines

5 DOCUMENTATION

5.1 General

This general section relates to documentation required by the Territorial Authority/Building Consent Authority for compliance with the New Zealand Building Code. It also includes documentation relating to:

- Substitutions
- Manufacturers documents

Building Consent Authority Documentation

5.2 Building Consent Authority Documentation

Obtain the building consent forms and documents from the owner and keep them on site. Liaise with the BCA for all notices to be given and all inspections required during construction to ensure compliance. Return the consent form and documents to the owner on completion.

5.3 Building Consent or Exemption Compliance

It is an offence under the Building Act 2004

- to carry out any work not in accordance with the building consent.
- to carry out Restricted Building Work by anyone other than a Licensed Building Practitioner licensed for that type of work.

The resolution of matters concerning building code compliance to be referred to the contract administrator for a direction and then if required to the BCA for consent.

Where any alteration is requested by the territorial authority or any other authority, do not undertake such alteration until the matter has been referred to the contract administrator for direction.

5.4 Project Personnel

Provide names and contact details of the contractor's key personnel and tradespersons who are involved with the project. Review the list once a month and reissue it if changes have been made.

Licensed Building Practitioner Documentation

5.5 Licensed Building Practitioners

Provide LBP details. Provide names, LBP numbers, areas of practice and contact information. Provide this information to the BCA before commencing work on the Restricted Building Work in the form required by the BCA. Advise the BCA of any change to an LPB previously advised.

Include the following as applicable

- Site LBP
- Carpenter

Also provide names and contact details of the following

- Registered plumber
- Registered electrician

5.6 Producer Statements

When producer statements verifying construction are required, provide copies to both the Building Consent Authority and the Contract Administrator. Provide producer statements in the form required by the BCA.

5.7 Record of Work

Where Restricted Building Work is carried out by a LBP, on completion provide a Record of Work. Provide copies to both the BCA and the Contract Administrator.

Compliance Information

5.8 Documentation Required For Code Compliance

Information may be required either as a condition of the contract documents or as a condition of the building consent. It may include the following:

- Applicators approval certificate from the manufacturer / supplier
- Manufacturer's / supplier's warranty
- Installer / applicator's warranty
- Producer Statement - Construction from the applicator / installer
- Producer Statement - Construction review from an acceptable suitably qualified person
-

Refer to the general sections for the requirements for compliance information to be provided by the contractor.

Refer to the building consent for the requirements for compliance information to be provided by the contractor.

Obtain required documents from the relevant parties for delivery to the contract administrator after the final inspection has been carried out by the BCA.

5.9 Documentation Required On Completion

As soon as practicable after completion of the building work, provide in writing the following information and documentation to the client and the relevant territorial authority.

Information and documentation relating to:

- The identity of the building contractor and the subcontractors who carried out the work. Maintenance requirements for any products incorporated in the building.

If applicable also provide any guarantee or insurance obtained by the building contractor in relation to the building work.

Substitutions

5.10 Acceptable Product and/or Material Suppliers

Where a product or material supplier is named in SELECTIONS, the product/material must be provided by the named supplier. Where there is more than one named supplier, any one of the named suppliers will be acceptable.

5.11 No Substitutions

Where specifically stated in a section, substitutions are not permitted to any of the specified systems, components and associated products listed in that section.

5.12 Proposed Substitutions

A substitution may be proposed where specified products are not reasonably available. A substitution may also be proposed by the contractor where the contractor considers a proposed substitution to be an alternative to the specified product. Except where a specified product is not available, the contract administrator is not bound to accept any substitutions. Where branded work sections are included in this specification, substitution of those products or systems will not be allowed.

Notify proposed substitution of specified products. Notification to include but not be limited to:

- Product identification
- Manufacturer's name, address, telephone number, website and email address
- Detailed comparison between the properties and characteristics of the specified product and the proposed substitution
- Statement of NZBC compliance including durability
- Details of manufacturer warranties

Plus an assessment of:

- Any changes required to the programme including any extension of time require
- Any consequential effects of the proposed substitution
- Any effect the substitution may have on Health & Safety requirements
- Allowance for time and cost for re-design and documentation (if applicable)
- Allowance for time and cost for obtaining an amendment to the Building Consent (if applicable)
- Any change in cost associated with the proposed substitution

And if requested:

- All current manufacturer's literature on the product
- Accreditations and appraisals available
- Reference standards Product limitations Samples
- List of existing installations in the vicinity of the project

5.13 Acceptance of Substitutions

The Contract administrator must advise of acceptance of substitutions in writing.

Variations to issued Building Consent

5.14 Contractor Variation to Building Consent

Where the contractor has sought acceptance of a substitution or a variation which is for the contractor's own convenience and the substitution or variation requires an amendment to the Building Consent, the contractor must apply for and obtain the required amendment.
The contractor must:

- Obtain approval for substitutions from the contract administrator.
- Prepare and provide to the BCA all documentation required for the variation.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans

5.15 Principals Variation to Building Consent

Where the principal is proposing a substitution or a variation which requires an amendment to the Building Consent, the contractor must provide to the principal information that the contractor has that is required for the amendment.

The principal will:

- Prepare and provide to the BCA all documentation required for the amendment.
- Pay all fees and other costs associated with this amendment.
- Where the amendment affects other approved plans, also amend those plans.

Manufacturer's documents

5.16 Branded Work Sections

Branded sections may be included in this specification relating to specific products and systems to be installed as part of the contract works. Where branded sections are included, substitutions to the branded products and systems will not be allowed.

5.17 Manufacturer’s and Supplier’s Installation Requirements

Manufacturers and supplier’s requirements, instructions, specifications or details means those issued by them for their particular material, product or component and are the latest edition.

5.18 Contractor to Obtain Current Documentation

Where manufacturer’s installation, application and execution requirements are referred to in this specification, the Contractor must ensure they are fully aware of this documentation. Whenever necessary obtain and keep on site the relevant latest version of such documentation and make it available to workers carrying out that part of the work.

5.19 Documentation Provided for Building Consent

Documentation including manufacturer’s installation instructions, specification data sheets, producer statements, BRANZ and similar appraisals may be included in the issued Building Consent. These documents have been provided only to demonstrate compliance with the NZBC.

Branded Work Sections

5.20 Cross Referenced Work Sections

If any related work is cross referenced to a generic work section, but only the equivalent branded section is included in the specification, use that branded section. Confirm with the contract

6 WARRANTIES

6.1 General

This general section refers to the requirements for warranties/guarantees as listed in this section, as referred to within the body of this specification, and as referred to within separate specifications/documents relating to this project.

It includes:

- Warranties for parts of the work required by the principal in a required form
- Installer/applicator warranties for parts of the work in the installer's/applicator's standard for
- Manufacturer/supplier warranties provided with products, appliances and the like in the manufacturer's/supplier's standard for
- Guarantees provided by contractor in the contractor's standard form

These guarantees/warranties are in addition to any warranties, implied warranties, or guarantees that are required by the Building Act, the Building Regulations, or the building consent.

Warranties

6.2 Warranties - Installer/Applicator

Where installer/applicator warranties are offered covering execution and materials of proprietary products or complete installations, provide such warranties to the contract administrator. These warranties may be provided in lieu of the warranties that are otherwise required provided that these warranties are subject to similar conditions and periods.

Provide warranties in favour of the principal. The terms and conditions of such warranties in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

Submission

6.3 Review by Contractor

Obtain the warranties from the installers, applicators, manufacturers and suppliers at the earliest possible date and review to ensure that they are correctly filled out and executed. Where warranties are executed as a deed, ensure that a duplicate copy is provided for execution by the owner/principal. Keep safe and secure until required for submission no later than 3 weeks following Practical Completion of the works.

6.4 Warranties – Required by Building Consent Authority

Obtain copies of warranties required as a condition of the building consent in the form required for submission to the BCA. Keep safe and secure until required at the time of the BCA final inspection and Code Compliance Certificate.

6.5 Warranties – Required by Contract

Obtain copies of warranties listed in the contract documents. Provide all warranties at the same time. If the project has an operations and maintenance documentation provision, present the warranties with the operations and maintenance information. If no operations and maintenance

documentation provision exists, present the warranties to the contract administrator in a loose-leaf binder with a contents index suitably labeled and including the project name and details. Provide a title on the binder edge "Warranties for (project name)".

6.6 Warranties – Submission NZS3910:2013 Contract

Refer to NZS 3910 Conditions of Contract for building and civil engineering construction, clauses 11.5 and 11.6 for requirements relating to the time for submission of warranties and guarantees. Submit all warranties/guarantees to the engineer no later than the date that the contractor notifies that it believes the contract works qualify for practical completion.

Selections

6.7 Master Build Services Ltd – 10 Year Standard Guarantee

Provide a 10 Year Standard Guarantee (including all optional cover), include all costs in the contract price. Detach the guarantee application form from the guarantee agreement. Complete the form, obtain all required signatures (builder and owner). Send the completed form to Master Build Services for approval along with a copy of the building contract (include a full scope of work for any addition/alteration work), prior to any work commencing. Obtain the Master build Services acceptance letter and provide this to the owner along with the guarantee document. On completion of the building work complete the notice of practical completion form, obtain all required signatures (builder and owner) and forward the form to Master Build Services.

6.8 Weathertightness and Watertightness Warranty

A warranty is required from the contractor for a minimum period of 2 years, covering the weathertightness of the complete building envelope and the watertightness of all liquid supply and disposal systems and fittings. This general warranty is in addition to any specific warranties required.

Provide this warranty in favour of the principal. The terms and conditions of this warranty in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability for execution and materials for that part of the work.

- Conform to the standard form WARRANTY AGREEMENT included in the contract documents.
- Commence the warranty from the date of Practical Completion.
- Maintain its effectiveness for the time stated.

Schedules

6.9 Schedule of Work Section Warranties

The following work sections have warranty and guarantee requirements, refer to these sections for details:

4521AC APL Commercial Aluminium Windows & Doors
4612 Glazing Interior
4711M Mammoth Thermal Insulation
5211PP Potter Aluminium Internal Partitions
5231 Interior Doors & Windows
5311 Suspended Tile Ceilings

5322 Asona Cloud Panels
5511 Joinery & Cabinetry Fixtures
5521 Hardware
5521D Dormakaba Architectural Door Hardware
5531W Window Treatments Roller Blinds
6411 Vinyl Surfacing
6512 Carpet tiles
6612AM Advance Entry Mats & Carpet
6700R Resene Painting General

6.10 Schedule of Additional Items

The following documents have warranty and guarantee requirements, refer to these documents for details:

- **n/a**

7 AS BUILT DOCUMENTATION

7.1 General

This general section relates to common requirements for the preparation, submission and review of as built documentation as listed in this section, as referred to within the body of this specification, and as referred to within separate specifications/documents relating to this project. Detailed requirements for as built documentation for particular parts of the work may be included in specific work sections.

7.2 As Built Document Requirements

Where requirements for the as built documents and records are not stated in a specific section, they shall include:

As built drawings recording:

- The actual positions as constructed of all sewer, storm water, sanitary plumbing, piped and ducted services, electrical and mechanical services.
- Inverts and locations of services at key points within the building and at the property lines.
- Dimension services in relation to the structure and building grid lines.
- Ductwork, piping, conduit and equipment, including such items provided for future use.
- Depth of various elements of foundations in relationship to the ground floor level
- Field changes of dimensions
- Other significant deviations and changes which are concealed in construction and cannot be identified by visual inspection
- Access doors and panels

Records of:

- Products and materials selected for alternatives specified
- Approved substitutions and accepted alternatives
- Other approved changes and deviations to items specified.

7.3 Provisional As Built Documents

Prior to practical completion provide provisional/draft as built documents in sufficient detail to allow the principal to operate, maintain, adjust and re-assemble the contract works and to allow for review by the reviewer. Where no named reviewer has been nominated, submit the as built documentation to the contract administrator. Submit in hard copy and electronic form.

7.4 As Built Document Review

As built document review indicates only that the reviewer is satisfied that the documents are legible. The review is not a check of the accuracy or completeness of the documents, however the reviewer may comment on any aspect of the documentation and require the documents to be revised and resubmitted. Review of as built documents does not relieve the contractor of responsibility for their correctness. Where no time is stated in a specific section, allow 10 working days for review by the reviewer. Where a large amount of documentation is involved more time will be necessary

7.5 Complete As Built Documents

Prior to the end of the defects notification/liability period, provide complete as built

documents reflecting any review requirements, with all Information of good quality and properly titled, numbered, cross-referenced and dated. Provide documents in sufficient detail to allow the principal to operate, maintain, adjust and re-assemble the contract works. Submit in hard copy and electronic form to the contract administrator.

7.6 As Built Documents – Electronic Copy

Provide an electronic copy of the as built documents in the following format:
Drawings: PDF format (in addition provide DWG files if available)
Other documents: PDF format

8 OPERATION AND MAINTENANCE

8.1 General

This general section relates to operation and maintenance (O&M) documentation as listed in this section, as referred to within the body of this specification, and as referred to within separate specifications/documents relating to this project. This documentation is required by the principal so that they can operate and maintain the contract works.

8.2 Operation and Maintenance Information

Provide operation and maintenance documentation necessary to operate and maintain the works.

This documentation is to include:

- Contractors name and contact details.
- A complete list of subcontractors' names, addresses and telephone numbers noting which portions of the contract each provided.
- A complete list of equipment and appliances including serial numbers, manufacturers' names and sources of supply.
- Copies of all manufacturers' and suppliers' product literature containing maintenance requirements/instructions, for any products in the building work.
- Information for operation and maintenance as required by work sections. Refer to
- SCHEDULES.
- Operation and maintenance manuals as required by work sections. Refer to SCHEDULES.
- Maintenance contract proposals as required by work sections. Refer to SCHEDULES.
- Final as built documents.
- Originals of all warranties and guarantees properly executed.
- Other information listed or referred to in this general section.
- Operation and maintenance information required by other project documents.

8.3 Maintenance Requirements

Provide details of any maintenance requirements required by the Building Act. In addition provide maintenance requirements for items including:

- Details of suggested building washing programme.
- Details of suggested re-painting programme.
- Location of flushing points for sub soil drainage systems.
- Locations of surface water filter systems requiring regular cleaning.
- Overflow relief gully location and means of keeping charged.

8.4 Equipment and Appliance Manuals and Operating Instructions

Provide equipment and appliance manuals and operating information including details of all isolating valves and switches.

8.5 Selections Information

Provide details of actual selections used in the construction of the works including:

- Tapware type and supplier details.
- Sanitary ware including accessories type and supplier details.
- Light fitting type and supplier details.
- Door hardware type and supplier details.
- Carpet type and colour including underlay and the supplier details.

- Vinyl flooring type and colour including supplier details.
- Overlay timber floor type and supplier details.
- Tile type and supplier details.
- Fire supplier details.
- Aluminium joinery system and finish.
- Paint type and colours used.

Include brochures and other information included with the items supplied.

8.6 Selections Information – Substitutions

Provide details of any selections used in the construction of the works that are different from what was specified.

Submission and Review

8.7 O and M Documentation Submission and Review

Unless otherwise specified in a work section, provide draft O&M documentation no later than the date of practical completion or the date on which the principal takes occupation of the works, whichever occurs first.

Submit O&M documentation to the named reviewer for review.

- Where no time is stated in a specific section, allow 10 working days for review by the reviewer.
- Where a large amount of documentation is involved more time will be necessary.
- Where no person is named in a specific section as the reviewer, submit the O&M documents to the contract administrator.
- Submit a proposed index system (as required for final documentation) to the contract administrator for review.

O&M review indicates only that the reviewer is satisfied that the documents are legible. The review is not a check of the accuracy of the documents, however the reviewer may comment on any aspect of the documentation and require the documents to be revised and resubmitted. Review of operation and maintenance documentation does not relieve the contractor of responsibility for the correctness of the documentation.

The reviewer may advise that:

- The O&M documentation has been reviewed and has been accepted without the need for further modification. The information can be included in the final documentation; or
- The O&M documentation has been reviewed and the information can be included in the final documentation subject to revision required by notes, annotations or comments provided; or
- The O&M documentation has been reviewed and is not acceptable, refer to notes, annotations or comments provided. Resubmit corrected/altered documentation for review.

Amalgamate the reviewed accepted and corrected O&M documentation into the final O&M documentation

Final Documentation

8.8 Submission of Final Documentation

Prior to the end of the defects notification/liability period, provide complete O&M documentation in both hardcopy and electronic form.

8.9 Final O and M Documentation – Hardcopy

Provide the hard copy version of the O&M documentation in a loose-leaf binder with a contents index identifying operation and maintenance documents, requirements, manuals, operating instructions and selections. In addition include the project name, contractor's name and the date of practical completion on the index page.

Include indexed sections to identify all operation and maintenance manuals that are not contained within the binder. Provide a copy of the front cover or other identifying feature of the manual within the section with a note stating "this manual has been provided separately".

Provide a title on the binder edge "Operation and maintenance instructions for (project name)". If more than one binder is required identify each binder by number and ranking (e.g. Volume 2 of 3) and group information logically between the binders for ease of reference.

Provide operation and maintenance manuals clearly and neatly marked on the spine or front cover so as to identify the project name. Where operation and maintenance manuals are a collection of loose leaf documentation, provide documentation in a loose-leaf binder as described above.

8.10 Final O and M Information – Electronic Copy

Provide a copy of all hardcopy information in PDF format arranged in logical named folders. In addition provide DWG files of documentation if available.

8.11 Review of Final Documentation

The contract administrator may review the final documentation and require alteration and resubmission.

Selections
O&M Documentation

8.12 Final Documentation – Information for Operation and Maintenance

Provide a complete electronic copy to the contract administrator.

Provide two hardcopy sets of completed O&M documentation to the contract administrator. At least one set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.

Provide any documentation (including required original documentation) as required to the relevant territorial authority.

8.13 Final Documentation – Operation and Maintenance Manuals

Provide a complete electronic copy to the contract administrator.

Provide two hardcopy sets of completed maintenance manuals to the contract administrator. At least one set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.

Provide any documentation (including required original documentation) as required to the relevant territorial authority.

8.14 Maintenance Contract Proposals

Unless otherwise specified in a work section, provide maintenance contract proposals to the contract administrator no later than the date of Practical Completion. Provide in electronic and hardcopy form.

Schedules

8.15 Schedule of Information for Operation and Maintenance

The following work sections have information for operation and maintenance requirements; refer to these sections for details:

5311 Suspended Tile Ceilings
6612AM Advance Entry Mats & Carpet
6700R Resene Painting General

8.16 Schedule of Operation and Maintenance Manuals

There are no work section requirements.

8.17 Schedule of Maintenance Contract Proposals

There are no work section requirements.

8.18 Schedule of Additional Items

The following documents have operation and maintenance requirements, refer to these documents for details:
n/a

9 ESTABLISHMENT

9.1 General

This general section relates to site establishment including:

- Notices and approvals
- Inspections
- Site preparation
- Signage
- Temporary construction

Notices and Approvals

9.2 Statutory Obligations

Comply with all statutory obligations and regulations of regulatory bodies controlling the execution of the works.

9.3 Building Consent Authority and Network Utility Approvals

Attend on Building Consent Authority officers, statutory and network utility inspectors, as necessary to obtain approvals (in addition to building consent approval) for and the satisfactory completion of, the works.

9.4 Notify Network Utility Operators

Notify all network utility operators of proposed works before commencing site operations. Ascertain location of services or confirm that none exist in the vicinity of the works. Take all necessary precautions to avoid damage to existing services.

9.5 Carry out Inspections

Contractor to visit site and inspect existing building prior to submitting tender. Contractor to confirm the extent of works shown on documents with the on site conditions and highlight any concerns during tender.

Site Preparation

9.6 Site Access

Access to site to be organised with Client. Access is limited to exterior of building and MSD Tenancy only, unless prior approval by adjacent tenant is given.

9.7 Working Area

As shown with hatched area on A-0005 Site plan

Existing Buildings

9.8 Alterations

Control access and working areas within existing buildings. Liaise with building owner to establish site limitations.

9.9 Temporary Access

Liaise with the building owner to arrange access to areas of the existing building which are not normally part of the contract.

Temporary Construction

9.10 Hoardings, Gantries, Lighting

Provide temporary fencing, hoardings, planked footways, guard rails, gantries and lighting as necessary to protect the public and others, for the proper execution of the works and to meet the requirements of territorial or other authority.

10 PROJECT MANAGEMENT

10.1 General

The site and construction process will be overseen by a MSD Site Project manager, They will control have overall authority to manage the schedule and will be the interface with the tenants, construction company and relevant stakeholders.

This general section relates to project management requirements including:

- Meetings
- Cost control
- Communicating and recording
- Programming
- Health and safety

10.2 Site Meetings

Meetings to normally be held: Weekly
The following persons to attend:

- Principal
- Contract administrator
- Project manager
- Contractor
- Architect (when needed)
- Engineer (when needed)
- Quantity surveyor (when needed)
- Services consultants (when needed)
- Subcontractors when needed (contractor to inform them).

Meeting place: Telephone Conference Call
Time: TBC
Day: TBC

10.2 Site Minutes

The contract administrator is to keep full minutes of all site meetings and arrange distribution to all those involved within 3 working days.

The minutes are to record

- Documentation and information issued and required
- Directions and variations issued
- Confirmation of contract insurances
- Programme
- General business
- Site health and safety
- Payment claim processing including costing variations

Reporting

10.3 Contractors Detailed Status Report

Where required a Contractors detailed status report is to address the following:

- A progress performance report based on the current contract construction programme addressing actual progress against programme of all activities and any variance from the programme.

- Details of measures being taken to get work back on programme where there has been a delay.
- Details of any future events that will or are likely to affect compliance with the programme.
- Variation report including progress on agreed variations, variations to be agreed and anticipated variations and the time implication of variations.
- Procurement progress on parts of the work being undertaken under a monetary allowance including the time by which direction must be given on monetary allowances to conform with the construction programme.
- Details of any discrepancies in the contract documents that require clarification or determination.
- A list of information requests by the contractor, the date when they were made, the person who they were directed to and the date by which a response is required.
- A report on compliance with the issued Building Consent and any parts of the work that have not been passed by the BCA inspector.
- A report on compliance with the issued Resource Consent and any compliance issues.
- A report of site health and safety including any notifiable incidents.

10.4 Quantity Surveyors Detailed Status Report

Where required a quantity surveyors detailed status report is to address the following:

- A report on actual cash flow compared with planned cash flow
- Variation costing and the adjusted contract price
- Monetary allowance review of sums not yet directed for expenditure by the contractor
- An assessment of the cost of known and potential variations
- An updated project budget including known and projected costs plus an allowance for contingent and unknown costs.

Cost Control

10.5 Measurement

Give reasonable notice to the contract administrator before covering up work which requires to be measured.

10.6 Daywork Vouchers

To be signed by the contractor's representative as confirming the labour, times and materials used, before being supplied to the contract administrator.

Communicating and Recording

10.7 Means of Communication

Communications between the parties shall be as follows:
Directions: In writing delivered by email with a copy by post or hand
Meeting minutes: In writing delivered by email
RFI's: (Requests for information) by email or in writing to the contract administrator

10.8 Delivery of Communications

Communications must be:

- delivered to the addressee by hand; or
- posted to the postal address stated in the Project Directory; or

- delivered to the street address as stated in the Project Directory; or
- sent by email to the email address stated in the Project Directory; or
- sent by facsimile to the fax number stated in the Project Directory.

The Principal, Contractor and the Contract administrator must notify the others if they change their address for delivery or transmission of communications.

10.9 Records

Ensure all records specified are kept, held and collated on site in a form that makes the information easily accessible when it is needed. Distribute copies as and when necessary to those persons entitled under the contract to that information.

10.10 Progress Photographs

Take digital photographs from positions agreed with the contract administrator at specified frequency and provide copies to the contract administrator.

Frequency: Weekly
Copies required: 1 set colour prints not less than postcard size
1 electronic copy delivered on disk or by email

Programming

10.11 Contract Programme

Include the proposed sequence of all significant on-site and off-site activities, including any intermediate key dates mentioned in the contract. Identify the critical path. Provide a tabulated schedule of information for each activity in order of:

- brief description
- duration in suitable time unit
- earliest start and latest finish time
- total float
- key dates for the supply of information or materials by others.

Identify the dates by which particular information, material or plant need to be supplied or arranged by the contract administrator. Also identify any constraints which may have been imposed by the programme.

Supply copies of the programme to the following:

- Contract administrator (1)
- Architect (1)
- Designer (1)
- Owner (1)
- Quantity surveyor (1)
- Site supervisor (1)

Monitor the contract programme by:

- recording progress regularly on the site chart
- informing the contract administrator promptly of any circumstances affecting any part of the programme structure and timing
- reviewing the programme once a month making alterations as needed and agreed to and re-issuing the required copies.

10.12 Working Hours Restrictions

Work on site is restricted to:

Weekdays: As noted on building consent
Saturdays:
Sundays:
Public holidays:

Work outside these hours may be permitted, but 24 hours' notice is required in writing to the contract administrator before proceeding. Obtain any necessary permits and permission for such work.

Health and Safety

10.13 Health and Safety Legislation

Refer to the requirements of the Health and Safety at Work Act 2015. Comply also with all other relevant New Zealand safety legislation.

The Contractor will ensure, so far as is reasonably practicable, that, each subcontractor they engage, each separate contractor named in the contract documents in relation to the Contract Works, is aware of and complies with its obligations under health and safety-related law.

For the purpose of health and safety-related law, the Contract Administrator and others involved in contract administration and observation and construction monitoring will not at any time have management or control of the Workplace.

10.14 Health and Safety Regulations, Codes and Guides

Comply with:

- Relevant New Zealand safety legislation including, Health and Safety at Work (General Risk and Workplace Management) Regulations 2016, also Health and Safety in Employment Regulations 1995 as amended by that Regulation and the appropriate Health and Safety at Work Regulations.
- WorkSafe NZ publications including "Guidelines for the provision of facilities for general safety in the construction industry"
- Relevant codes of practice, guides, guidelines and standards.

Until further regulations are made under the Health and Safety at Work Act 2015 to cover them, the transitional provisions of the Act continue in force until revoked or amended.

10.15 Health and Safety Implementation

Take all practical steps to make the site and the contract works safe and to provide and maintain a safe working environment. Ensure that all those working on or visiting the site are aware of the rules governing site safety, are properly supervised and are not unnecessarily exposed to hazards and risks.

Co-operate, consult and co-ordinate health and safety matters with each PCBU including all subcontractors, suppliers, separate contractors, others engaged on the project and others who may be affected by the construction of the works.

Identify any significant hazards and risks.

Maintain proper procedures for dealing with any emergencies that may arise. Immediately investigate accidents, identify their cause and maintain a register of accidents and serious

harm. Provide a copy of any report which the contractor is required to make to a public authority on any accident which is associated with carrying out the contract works and results in serious harm to any person.

Refer to individual work sections for detailed requirements on this project.

10.16 Suspension of Hazardous Work

On the request of the contract administrator, acting on reasonable grounds, suspend any identified hazardous activities and proceed to eliminate, isolate or minimise them in order to comply with the Act, without prejudice to any other rights of the principal under the contract.

10.17 Site Safety Person

Appoint a suitably qualified site safety person to co-ordinate site safety and to attend all site meetings

10.18 Health and Safety Plan

Prepare and submit to the contract administrator before commencing work on site a health and safety plan. Include in that plan all people on site and the general public, as well as the following items and any other necessary item:

- identification of existing and potential construction hazards and risks
- if required in section 1220 PROJECT, any items listed in the Design Construction Safety Report or under the clause Design Construction Safety Matters
- safety procedures to eliminate, isolate or minimise construction hazards and risks
- the equipment to be used to minimise the hazards and risks
- the maintenance of a register of hazards and risks for the site
- the name and qualifications of the site safety person
- emergency procedures
- first aid facilities and safety equipment
- the methodology for notifying, recording and investigating accidents and injuries.
- Advise contract administrator of unusual or atypical features in the Plan (exclude any features already identified in the design construction safety report or design construction safety matters

Keep a copy of the plan in the site office

10.19 Maintain Health and Safety Plan

Maintain health and safety plan and alter to accommodate changing situations and /or substitutions.
Advise contract administrator of changes

10.20 Comply with Site Safety Plan

Carry out all construction operations in accordance with the submitted health and safety plan.

10.21 Inform Workers of Hazards and Risks

Inform workers and others on the site of:

- hazards and risks they may be exposed to while working or other legitimate activities
- hazards and risks they may create while working which could harm others
- how these hazards and risks may be minimised
- emergency procedures
- the location of first aid facilities and safety equipment.

10.22 Explosives

Do not use explosives except with the written approval of the territorial authority/WorkSafe NZ. Comply with their safety requirements and use construction blasters holding a current, appropriate Approved Handler Certificate and Controlled Substance License issued by WorkSafe NZ, to the Health and Safety at Work (Hazardous Substances) Regulations.

10.23 Powder-Actuated Fastening Tools

Comply with the requirements of WorkSafe NZ and the Health and Safety at Work Act 2015. Powder-actuated fastening tool operators to have the appropriate current Certificate and/or License and tools to have the appropriate certificate of fitness if necessary.

10.24 Smoke Free Requirements

Do not smoke on site except in a designated location, in accordance with the Smoke Free Environments Act 1990. This location to be determined by the contractor with the agreement of the contract administrator.

10.25 Restrictions

Do not:

- light rubbish fires on the site
- bring dogs on to or near the site
- bring radios/audio players on to the site.

11 CONSTRUCTION

11.1 General

This GENERAL section relates to common requirements for construction issues including:

- Quality control and assurance
- Noise and nuisance Set-out and tolerances
- Common execution requirements Qualifications
- Common product requirements
- Common requirements for samples and prototypes
- Common requirements for spare and maintenance products
- Cleaning during the works
- Protection
- Completion, final presentation and cleaning
- Commissioning
- Practical completion submission
- Defects period submissions
- Completion submissions

11.2 Quality Assurance

Carry out and record regular checks of material quality and accuracy, including:

- Concrete quality and finish.
- Dimensional accuracy of structural column locations (following completion of foundations).
- All perimeter columns and frames for plumb.
- Levels of all floors relative to the site datum.
- Framing timber moisture content.

Where any material, quality or dimension falls outside specified or required tolerances, obtain written direction from the contract administrator. Where building consent approval is affected, confirm remedial action with the Building Consent Authority.

Provide all materials, plant, attendances, supervision, inspections and programming to ensure the required quality standards are met by all project personnel.

Noise and Nuisance

11.3 Limit Construction Noise

Minimise the effects of noise generation by including in the planning of the work such factors as placing of plant, programming the sequence of operations and other management functions. Limit construction noise to comply with the requirements of NZS 6803, the requirements of the Resource Management Act sections 326, 327 and 328 and the Health and Safety in Employment Regulations 1995 clause 11

11.4 Acceptable Noise Levels

Refer to NZS 6803 Tables 2 and 3 for the upper limits of construction work noise received in residential zones, dwellings in rural areas, industrial areas and commercial areas, note also the allowed adjustments. Do not exceed these limits or any limits imposed by regional councils or territorial authorities.

11.5 Provide Information to Neighbours

Provide information to neighbours of any noise generation from the site liable to constitute a

problem. Explain to them the means being used to minimise excessive noise and establish with them the timings most suitable for the noise generating work to be carried on.

Discuss with any complainant the measures being used to minimise noise. Where possible modify these measures to accommodate particular circumstances. Finally, determine the sound level at the location under discussion using methods and observation reporting as laid down in NZS 6803. If the noise level is above the upper limits of NZS 6803, table 2 and table 3, cease the noise generating operation and remedy the problem.

11.6 Inconvenience to Others

When the works are to be carried out in or around occupied premises, ascertain the nature and times of occupation and use. Carry out the works in a manner to minimise inconvenience, nuisance and danger to occupants and users.

11.7 Roadway and Footpath

Keep the adjacent footpath and road clear at all times. Where work must be carried out in the roadway or footpath, obtain required consents from the territorial authority. Where temporary use is made of the footpath or roadway for deliveries and the like ensure that public safety is protected and the goods and materials moved as soon as practicable. Sweep, wash and otherwise clean the roadway/footpath and restore it to its previous condition.

11.8 Vehicle Crossing

Make good damage that has occurred as a result of carrying out the contract works. Where there has been significant damage, contact the territorial authority and obtain instructions for making good. Pay the territorial authority costs associated with making good.

11.9 Dirt and Droppings

Remove dirt and droppings deposited on public or private thoroughfares from vehicles servicing the site to the satisfaction of the appropriate authorities and the contract administrator.

11.10 Damage and Nuisance

Take precautions to prevent damage and nuisance from water, fire, smoke, dust, rubbish and all other causes resulting from the construction works.

11.11 Smoke Free Requirements

In accordance with the Smoke Free Environments Act 1990 smoking is not allowed on site.

11.12 Restrictions

Do not:

- Light rubbish fires on the site.
- Bring dogs on to or near the site.

Set Out and Tolerances

11.13 Set Out

Set out the work to conform with the drawings.

11.14 Use of Set Out Instruments

Permit without charge, the use of instruments already on site for checking, setting out and levels.

11.15 Check Dimensions

Check all dimensions both on drawings and site, particularly the correlation between components and work in place. Take all dimensions on drawings to be between structural elements before linings or finishes, unless clearly stated otherwise.

11.16 Tolerances

All work to be level, plumb, and true to line and face. Unless otherwise specified in specific work sections of this specification, tolerances for structural work shall comply with the following:

Concrete construction:	To NZS 3109 Concrete construction Clause 3.9 Tolerances for reinforcement Table 5.1 Tolerance for precast components Table 5.2 Tolerance for in situ construction To NZS 3114 Concrete surface finishes
Masonry construction:	To NZS 4210 Masonry construction: Materials and workmanship Clause 2.6.5 Tolerances Table 2.2 Maximum tolerances
Structural steelwork:	To NZS 3404.1:1997 Steel structures standard Section 14.4 Tolerances (after fabrication) Section 15.3 Tolerances (erection)
Timber framing:	To NZS 3604 Timber-framed buildings Clause 2.2 Tolerances Table 2.1 Timber framing tolerances

Refer to work sections for tolerance requirements for finishes.

Execution

11.17 Examine Previous Work

Before commencing any part of the work carefully examine the previous work on which it depends, to ensure it is of the required standard.

11.18 Report Defective Previous Work

Refer defects to the contractor to be remedied, if the remedy is outside the scope of the contract documents the contractor shall obtain direction from the contract administrator. Do not carry out work over previous work that is defective and will affect the required standard.

11.19 Execution Generally

Construct the work in accordance with the documents issued for construction including any direction that may have been given by the contract administrator that varies the construction document.

11.20 Execution – No Detail is Provided

The documents issued for construction will not include all details relating to every material, junction and interface with other materials.

Where the detail provided is of a general nature, or where no detail is provided, refer to the manufacturer's documents for information relating to installation and execution of that part of the work.

Where there is more than one method or detail appropriate to the part of the work in question, refer the options to the Contract Administrator for direction as to which detail or method to use.

11.21 Execution – Acceptable Solution is Referred to

Where a NZBC Acceptable Solution is referred to in the specification but not shown on the plans, obtain a copy of that Acceptable Solution and make it available to the workers carrying out that part of the work

11.22 Minimise Delays Due to Weather

Use appropriate techniques and methods to prevent damage and minimise delays due to weather.

Qualifications

11.23 Qualifications Generally

The work is to be carried out by workers (trades people, installers and applicators) who are experienced, competent and familiar with the materials and the techniques specified. Workers must also be familiar with the manufacturers' and suppliers' installation and application instructions and standard details provided by them in relation to the use of the products for this project. If requested provide evidence of qualification / experience.

11.24 Qualifications – Restricted Building Work

Where restricted building work forms part of the contract works, workers, or supervisors of that work must be licensed building practitioners holding current licenses for the particular restricted building work.

11.25 Qualifications – Approved/Licensed Applicators/Installers

Where required by a manufacturer or supplier, applicators/installers must be specifically trained
/approved / accredited / registered / licensed / certified by them. Refer to individual work sections for details.

11.26 Qualifications – Workers Licensed Under Statute

Where workers or supervisors of work are required to be licensed, registered or similar under legislation, they must have a current license before they start the work and maintain currency until their part of the work has been completed and all documentation that is required has been provided.

11.27 Qualifications – Producer Statements

Where producer statements are required for parts of the work, ensure that person is suitably qualified and authorized to issue such producer statements.

11.28 Replacement of Person

If it should become necessary to replace a person, ensure that records of work, producer statements, warranties and the like required for the part of the work they have carried out are obtained.

Ensure that the replacement person takes responsibility for the work they carry out and that they are able to provide such records of work, producer statements, warranties and the like required as a condition of the contract and the building consent.

Products

11.29 New Products

Products to be new unless stated otherwise, of the specified standard, and complying with all cited documents

11.30 Compatibility of Products

Ensure all parts of a construction or finish are compatible and their individual use approved by the manufacturers and suppliers of other parts of the system. Source all parts of a system from a single manufacturer or supplier.

11.31 Delivery, Handling and Storage of Products

Protect products during transit and delivery on site and / or off site. Reject and replace goods that are defective or damaged or will not provide the required finish.

Handle products carefully to avoid damage and distortion and where required, in accordance with codes of practice and the manufacturer's or supplier's requirements. Avoid any contact with potentially damaging surfaces or conditions.

Store products to avoid environmental damage, mechanical damage and distortion, and where required in accordance with codes of practice and the product manufacturer's or supplier's requirements. Maintain the proper condition of any protective packaging, wrapping and support.

11.32 Substrate Conditions

Ensure substrate conditions are within the manufacturer's or supplier's stated guidelines both before and during the installation of any material, product or system. Obtain written instructions on the necessary action to rectify unsatisfactory conditions.

11.33 Installing Products

Install in accordance with the manufacturer's or supplier's technical literature. Ensure that all installers are familiar with the required substrate conditions and the manufacturer's or supplier's specified preparation, fixing and finishing techniques.

11.34 Comply with Standards

Comply with the relevant and/or cited Standard for any material or component. Obtain certificates of compliance when requested by the contract administrator.

11.35 Condition of Products

To be in perfect condition when incorporated into the work.

11.36 Incompatible Products

Separate incompatible materials and metals with separation layers, sleeves or gaskets of plastic film, bituminous felt or mastic or paint coatings, installed so that none are visible on exposed surfaces.

Cleaning During Works

11.37 Periodic Site Cleaning

Carry out periodic site cleaning during the contract period. Place waste material in appropriate storage pending removal from the site. Keep food waste separate from construction waste.

11.38 Trade Cleaning

Keep the work area clean, remove of all debris, unused and temporary materials and elements from the site as work progresses and on completion. Refer to individual work sections for any specific requirements.

Protection on Site

11.39 Protection

Remove all temporary markings, coverings, labels and protective wrappings to products unless instructed otherwise.

11.40 Temporary Protection

Provide temporary protection as required to protect the work in progress and on completion. Refer to individual work sections for any specific requirements.

Completion, Final Presentation of Site and Final Clean

11.41 Remove Temporary Protection

Remove all temporary protection unless instructed otherwise.

11.42 Remove Construction Waste

Remove all debris, unused materials and the like from the site. Arrange for material to be recycled to be collected or delivered to the recycler.

11.43 Defective or Damaged Work

Repair damaged or marked elements and replace them where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Refer to individual work sections for any specific requirements.

11.44 Complete All Services

Ensure all services are complete and operational, with all temporary labelling removed, required labelling fixed and service instructions provided.

11.45 Cleaning by Contractor

Clear the contract works of all construction materials, waste, dirt and debris. Clean the contract works including:

- Wipe all surfaces to remove construction dust.
- Clean out service ducts and accessible concealed spaces. Clean out all gutters and rainwater heads.
- Wipe dust from both sides of glass. Take particular care when removing paint or cementitious materials to not damage the glass. Do not use metal scrappers that may damage the glass. Remove adhesive residue left by labels and other temporary protection/markings.
- Clean out the interior of all cabinetry.
- Wash down external concrete including driveways and concrete masonry. Take care when water blasting to not cause damage to the surface or allow water to enter the building.
- Remove rubbish and building material from the area immediately adjacent to the contract works.

11.46 Cleaning by Commercial Cleaner

In addition to cleaning carried out by the contractor, use a commercial cleaning company to clean the whole of the interior of the building, including all appliances, equipment, fittings, surfaces and finishes to leave it without any blemish. Cleaning to include:

- Clean and wash down all external surfaces to remove dirt, debris and marking.
- Clean all interior surfaces including cabinetwork, joinery, sanitary and hardware items.
- Clean all floor finishes.
- Clean and polish all glass, both sides. Take particular care when removing paint or cementitious materials to not damage the glass. Do not use metal scrappers that may damage the glass.

Commissioning

11.47 Moving Parts

Adjust, ease and lubricate all doors, windows, drawers, hardware, appliances, controls and all moving parts to give easy and efficient operation

11.48 Instruction and Demonstration

Provide instruction and demonstration to the owner/occupier to the extent that is listed below and as required for them to reasonably occupy and use the building. This is to include at least the following:

- Location and isolation of all services connections.
- Operation of all emergency systems.
- Locking and security arrangements.
- Operation of basic building services including lighting, heating, mechanical ventilation, air conditioning and security.
- Special cleaning requirements and procedures.
- Any other features that the owner/occupier needs to know about.

11.49 Additional Practical Completion Information

In addition to requirements in the contract and contained elsewhere in the specification provide the following information submissions for practical completion:

- All documents which the contractor has obtained on behalf of the owner/occupier.

- Information required by the owner/occupier to be able to use the building.
- Advice that NUO accounts in the contractor's name have been closed and as appropriate changed to be in the name of the owner/occupier.
- A list of persons to be contacted to carry out any emergency or remedial work including 24 hour/7 day contact details.

11.50 Defects Remediation – Submissions

Provide the following at periods required by the contract administrator, where no period is stated, provide this information monthly:

- A copy of the contractor's check list identifying remaining defects and omissions to be completed recording progress made in completing and correcting the items.
- A copy of lists issued by the principal/employer identifying omissions and defects recording progress made in completing and correcting the items.
- A copy of lists issued by the contract administrator identifying omissions and minor defects recording progress made in completing and correcting the items.

Completion Submissions

11.51 Final Completion – Submissions

In addition to requirements in the contract and contained elsewhere in the specification provide:

- Contractor's advice that all defects have been corrected and omissions and deferred work completed.
- All documents which the contractor has obtained on behalf of the owner/occupier.

11.52 Security at Completion

Remove any temporary lock cylinders and complete final keying prior to handing over keys to the principal on completion of the works. Leave the works secure with all accesses locked. Account for all keys/cards/codes and hand to the principal along with an itemised schedule, retaining a duplicate schedule signed by the principal as a receipt.

12 PARTIAL DEMOLITION

12.1 General

This section relates to the partial demolition of existing buildings and structures, to the extent necessary to carry out the contract works.

12.2 Documents Referred To

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

- **NZBC F5/AS1** Construction and demolition hazards
- **NZDAA** Best practice guidelines for demolition in New Zealand Health and Safety at Work Act 2015

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

Requirements

12.3 Qualifications

Carry out demolition

- only under the supervision of a suitably experienced person, using only operators and drivers trained for this work
- using only experienced certified/licensed construction blasters for explosives demolition
- calling upon engineering expertise in those areas of demolition required by the NZDAA Best practice guidelines for demolition in New Zealand.

12.4 Health and Safety

Comply with the Health and Safety at Work Act 2015 in general, NZBC F5/AS1 and NZDAA Best practice guidelines for demolition in New Zealand, Section 5 Demolition safety

12.5 Fire Safety Systems

Existing fire safety systems must be maintained and appropriate parts progressively deactivated and removed as demolition advances.

12.6 Demolition Working Times

Times during which demolition may be carried out is not restricted. Comply with territorial authority consent conditions and noise and nuisance controls.

Products and Materials

12.7 Elements for Re-Use

Carefully dismantle, remove and store on site where directed. Protect from damage and weather until required.

12.8 Remaining Elements

Store all elements not scheduled for salvage or re-use on site until convenient for removal.

12.9 Material and Elements for Disposal

Remove demolished material and elements continually from the site through the period of the demolition

Execution Conditions

12.10 Existing Services

Disconnect and seal off services before work commences. Protect services adjacent to the area being demolished.
Maintain services to occupied areas of the building, particularly fire services.

12.11 Site Inspection

Visit and check the site, the building or structural work being demolished and any contents for likely hazards

12.12 Plans and Descriptions

Carefully examine all available plans of the building, including those of the territorial authority and the network utility operators, all descriptions and past uses, and become totally familiar with the past and present condition and use of the building and its services.

12.13 Examine Structure

Examine roofs, walls, cantilevered structures and basements as required by the NZDAA Best practice guidelines for demolition in New Zealand and follow their requirements.

12.14 Protection

Erect approved temporary screens and shelter to protect from weather and damage, and to prevent dust and dirt penetrating those parts of the existing building, other buildings and the remainder of the site being retained in their present condition.

12.15 Safety During Demolition

Refer to NZBC F5/AS1 and NZDAA Best practice guidelines for demolition in New Zealand.
Carry out the requirements laid down in Section 5 Demolition safety in respect of:

- instability
- supervision
- plant, tools and equipment
- personal protective equipment
- protection of the public
- unauthorised access to site.

12.16 Demolition Procedures

Refer to the NZDAA Best practice guidelines for demolition in New Zealand Carry out the

requirements laid down in section 6 Methods of demolition including:

- scaffolding
- health
- disposal of debris and waste material
- fire protection.

12.17 Carry out Demolition

Carry out all demolition to the requirements of NZDAA Best practice guidelines for demolition in New Zealand.

Completion

12.18 Reinstate

Reinstate where any damage is caused by this demolition to those parts of the existing building, other buildings and the remainder of the site being retained.

12.19 Leave

Leave work to the standard required by following procedures.

12.20 Take Away

Take away from the site all plant, tools and equipment, temporary access works, and demolished materials and elements, to leave the site completely clean and tidy.

13 GIB® PLASTERBOARD LININGS

13.1 General

This section relates to the supply, fixing and jointing of GIB® plasterboard linings and accessories to timber and steel framed walls and ceilings to form:

- standard systems

13.2 Abbreviations and Definitions

Refer to the general section INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.
The following abbreviations apply specifically to this section:

- **AWCINZ** Association of Wall and Ceiling Industries New Zealand

13.3 Documents

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

- **NZBC C/AS2-AS6** Protection from fire
- **NZBC E2/AS1**External moisture
- **AS 1397** Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminum and magnesium
- **AS/NZS 2588** Gypsum plasterboard
- **AS/NZS 2589** Gypsum linings - Application and finishing
- **NZS 3604** Timber-framed buildings
- **AS/NZS 4600** Cold-formed steel structures
- **ISO 5660.1** Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 1: Heat release rate (cone calorimeter method)
- **ISO 5660.2** Reaction-to-fire tests - Heat release, smoke production and mass loss rate - Part 2: Smoke production rate (dynamic measurement)
- **BRANZ Technical Paper P21**: A wall bracing test and evaluation procedure (2010)
- **NASH** Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria

13.4 Manufacturer/Supplier Documents

Manufacturer's and supplier's documents relating to this part of the work:

- GIB® Site Guide (Dec 2014)
- GIB® Fire Rated Systems (Oct 2012)

GreenTag Certification WWLCG001-001-A-2015 - GreenTag™ GreenRate/Level B for:

- GIB® Standard (10mm & 13mm)
- GIB Fyreline®(10mm, 13mm, 16mm &19mm)

Copies of the above literature are available at:

Company: Winstone Wallboards
Web: www.gib.co.nz
Telephone: 0800 100 442

Requirements

13.5 No Substitutions

Substitutions are not permitted to any specified GIB® systems, GIB® system components,

GIB® plasterboard, associated GIB® products or GIB® accessories.

13.6 Installer Work Skills and Qualifications

GIB® plasterboard fixers and plasterers to be experienced competent workers, familiar with GIB® plasterboard lining systems installation and finishing techniques. Submit evidence of experience on request. For example:

- National Certificate of Interior Systems; or
- Certified Business member of AWCINZ.

13.7 Inspections and Acceptance

Allow for inspection of the finished plasterboard surface:

- before applying sealer and
- before applying finish coatings or decorative papers,

so that after assessment of the type and/or angle of illumination and its effect on the completed decorative treatment, group approval and acceptance of the surface can be given.

13.8 Fire Rating Requirements

Provide the GIB® fire resistant rated garage boundary wall systems. Refer to SELECTIONS for system/FRR.

13.9 Surface Fire Properties – Unfinished Board

All GIB® unfinished plasterboard sheet materials achieve a Group Classification of, Group 1-S to NZBC C/AS2-AS6, Table 4.1, following testing in accordance with ISO 5660.1 and ISO 5660.2.

Products and Materials – Components and Accessories

13.10 GIB® Plasterboard

Gypsum plaster core encased in a face and backing paper formed for standard and water resistance use to AS/NZS 2588. Refer to SELECTIONS for location, type, thickness and finish.
GIB® Standard plasterboard
GIB Fyreline® fire resistant plasterboard

13.11 Nails

GIB® Nails (gold passivated).
Size: 30mm, 40mm

13.12 Metal Angle Trims

GIB® galvanized steel slim angle trims.

13.13 Screws

GIB® Grabber® drywall type screws as follows:

Grabber® type	**Used for fixing:**
High Thread	GIB Ezybrace® or Standard systems to timber
Self Tapping	Standard systems to light gauge steel or timber

Dual Thread Screws	GIBFix®, GIB Ezybrace®, or Standard systems, to light gauge steel or timber
Wafer Head Needle Tip	Light gauge metal to timber not directly under plasterboard
Pancake Head Drill Tip	Light gauge metal to light gauge metal directly under plasterboard

Refer to GIB® requirements for appropriate details.

13.14 Adhesive

Timber frame and/or steel frame:
GIBFix® One ultra low VOC water based wallboard adhesive GIBFix® All-Bond solvent based wallboard adhesive

13.15 Jointing Compound

Bedding compound:	GIB Tradeset®, GIB Lite Blue®, GIB MaxSet®, GIB ProMix® All Purpose, GIB Plus 4®
Finishing compound:	GIB ProMix® All Purpose, GIB® Trade Finish®, GIB® Trade Finish® Lite, GIB ProMix® Lite, GIB® U-Mix, GIB Plus 4®, GIB Trade Finish® Multi
Cove:	GIB-Cove® Bond

13.16 Jointing Tape

GIB® paper jointing tape.

13.17 Gap Filler

GIB® Gap Filler ultra-low VOC multi-purpose acrylic flexible filler

Execution

13.18 Storage

Store GIB® plasterboard sheets and accessories in dry conditions stored indoors out of direct sunlight in neat flat stacks on either an impervious plastic sheet or clear of the floor with no sagging and avoiding damage to ends, edges and surfaces. Reject damaged material. Refer to GIB® Site Guide (Dec 2014)

13.19 Levels of Plasterboard Finish

Provide the selected plasterboard surfaces to the pre decorative levels of finish specified in AS/NZS 2589.

13.20 Confirm Levels of Plasterboard Finish Acceptance

Before commencing work, agree in writing upon the surface finish assessment procedure towards ensuring that the quality of finish expectations are reasonable and are subsequently obtained and acceptable.

Do not apply decorative treatment until it is agreed in writing by the contractor, subcontractors and decorator that the specified plasterboard Level of Finish has been achieved.

"Levels of plasterboard finish" is a tool for specifying the required quality of finish when

installing and flush stopping GIB® plasterboard prior to the application of a range of decorative finishes under various lighting conditions. Refer to AS/NZS 2589.

13.21 Substrate

Do not commence work until the substrate is plumb, level and to the standard required by the sheet manufacturer's requirements. Refer to GIB® Site Guide (Dec 2014).

13.22 Metal Framing

Metal framing, to which gypsum lining is fixed, shall comply with AS 1397, AS/NZS 4600, or NASH Residential and Low-Rise Steel Framing Part 1 2010 Design Criteria, as applicable. Where adhesion of gypsum linings is required, surfaces shall be free of oil, grease, dust and other foreign materials. Refer to the metal framing manufacturers specifications where high density gypsum linings (>800 kg/m³) such as GIB Braceline® and GIB Noiseline® are specified for fixing to light gauge steel framing.

13.23 Protection

Protect surfaces; cabinetwork, fittings, equipment and finishes already in place from the possibility of water staining and stopping damage. Refer to GIB® Site Guide (Dec 2014).

Application

13.24 Install GIBFIX® Angles

Install GIBFix® Angles to the wall and ceiling junctions to the GIBFix® Framing System requirements. Install GIBFix® Angles before installation of GIB® plasterboard linings. Run GIBFix® Angles as continuous lengths between framing members. If joints are necessary for the GIBFix® Angles, overlap the angles by a minimum of 300mm and fix as per manufacturers requirements. When jointing GIBFix® Angles, locate the shorter section at the top of the stud.

13.25 Lining Walls and Ceilings Generally

Form to GIB® Site Guide (Dec 2014). Ensure bulk insulation thickness shall not exceed that of the wall framing.

13.26 Board Orientation

Minimise joints by careful sheet layout using the largest sheet sizes possible, and generally fixing horizontally. Where part sheets are required for various stud heights they should be positioned so the cut sheet is as low as possible to keep joints below eye level.

13.27 Form Control Joints

Form control joints to GIB® Site Guide (Dec 2014) requirements.

13.28 Finishing Generally

To GIB® Site Guide (Dec 2014) and **AS/NZS 2589.**

Completion

13.29 Replace

Replace damaged sheets or elements.

13.30 Clean Down

Clean down completed surfaces to remove irregularities and finally sand down with fine paper to the sheet manufacturer's requirements, to leave completely smooth and clean.

13.31 Remove

Remove debris, unused materials and elements from the site.

13.32 Leave

Leave work to the standard required by following procedures.

14TIMBER FRAMING INTERNAL PARTITIONS GENERAL

14.1 General

This section relates to the supply and erection of timber framing, as a framed structure, or as part of a partitioning system.

14.2 Related Work

Refer to glazing section/s for glass type and thickness.
Refer to PLASTERBOARD LININGS for plasterboard linings Refer to INTERIOR DOORS AND WINDOWS for doors

14.3 Abbreviations and Definitions

Refer to the general section INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.
The following abbreviations apply specifically to this section:
SG Structural grade to **NZS 3604**

14.4 Documents

Refer to the general section REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B2/AS1 Durability
AS/NZS 2904 Damp-proof courses and flashings
NZS 3602 Timber and wood-based products for use in building
NZS 3603 Timber structures standard
NZS 3604 Timber-framed buildings
NZS 3622 Verification of timber properties
NZS 3631 New Zealand timber grading rules
NZS 3640 Chemical preservation of round and sawn timber
WorkSafe NZ Guidelines for the provision of facilities and general safety in the construction industry.
BRANZ BU 582 Structurally fixed cavity battens
***A copy of NZS 3604 Timber-framed building, must be held on site.**

Requirements

14.5 Qualifications

Work to be carried out by tradespeople experienced, competent and familiar with the materials and techniques specified

14.6 Acceptable Installers

Use only accredited workers/installers skilled and experienced in the building system specified.

14.7 Dimensions

All timber sizes except for roof battens are actual minimum dried sizes.

Products, Materials and Components

14.8 Timber Framing Treated

Species, grade and in service moisture content to **NZS 3602, NZBC B2/AS1** and treatment to **NZS 3640, NZBC B2/AS1**. Structural grade (SG) to **NZS 3604, NZS 3622** with properties to **NZS 3603.**

14.9 Appearance Timbers

Graded to **NZS 3631,** treated where required by **NZBC B2/AS1, NZS 3602,** table 1, and treatment to **NZS 3640.**

14.10 Strapping

Treated to **NZBC B2/AS1, NZS 3602**, table 1 and to **NZS 3640,** clause 6.3.1.
Species: Radiata pine
Grade: SG6
Size: 70mm x 45mm, 45mm x 45mm or 45mm x 19mm

14.11 Nails

Type to **NZS 3604,** section 4, **Durability**, and of the size and number for each particular types of joint as laid down in the nailing schedules of **NZS 3604,** sections 6-10.

14.12 Bolts and Screw

Bolts and screws of engineering and/or coach type complete with washers, to the requirements of **NZS 3604,** section 4, **Durability**, and of the number and form required for each particular junction to **NZS 3604,** sections 6-10.

14.13 Threaded Rods

Use stainless steel threaded rods of the required length, with washers and nuts at both ends, when stainless steel bolts of the required length are not available.

14.14 Timber Connectors and Fixings

Supply for each particular joint the connectors and fixings as noted on the drawings. Comply with the requirements of the manufacturer, **NZS 3604,** section 4, **Durability**, and of the number and form required for each particular junction to **NZS 3604,** sections 6-10.

14.15 Bracing Straps

Nail-on type to the requirements of **NZS 3604,** section 4, **Durability**, and of the number and form required for each particular application to **NZS 3604**, sections 6-10.corners and surfaces from damage.

14.16 Powder Actuated Fasteners

To type, size and charge required by the powder actuated tool manufacturer for each particular member and the substrate.

14.17 Corrosion Risks

For interior timber, treated with copper-based timber preservatives (H3.2 or higher), use a minimum of hot-dipped galvanized steel fixings and fasteners.

For exterior timber, timber in damp areas and timber subject to occasional wetting, use only stainless steel (or equivalent) fixings and connectors, when the timber is treated with; Copper Azole (CuAz, Preservative code 58), Alkaline Copper Quaternary (ACQ, Preservative code 90), Micronise
Copper Azole (code 88) or Micronised Copper Quaternary (code 89).

Execution

14.18 Protect Timber

Protect all timber against damage and from inclement weather. Ensure that any variation in moisture content is kept to a minimum, before and after erection and before enclosure.

14.19 Execution

Execution to comply with **NZS 3604,** except as varied in this specification. Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

14.20 Separation

Separate all timber framing timbers from concrete, masonry and brick by: -
a full length polyethylene damp-proof membrane overlapping timber by at least 6mm; or
a 12mm minimum free draining air space

14.21 Framing Moisture Content

Maximum allowable equilibrium moisture content (EMC) for non air-conditioned or centrally heated buildings, for framing to which linings are attached.

- At erection: 24% EMC maximum
- At enclosure: 20% EMC maximum
- At lining: 16% EMC maximum

14.22 Tolerances

Permissible deviations from established lines, grades and dimensions equal to or less than the following. Multiples of given limits are not cumulative.

- Deviation in plan, up to 10 metres, 5mm
- Deviation in plan, over 10 metres, 10mm total
- Deviation from horizontal, up to 10 metres, 5mm
- Deviation from horizontal, over 10 metres, 10mm total
- Deviation from vertical position per 3 metres, 3mm
- Deviation from horizontal and vertical, within openings, 3mm.

Application

14.23 Set Out

Set-out framing generally in accordance with the requirements of **NZS 3604,** to carry superimposed loads, and as required to support sheet linings and claddings. When necessary provide framing to suit required cladding/lining control joints and sheet joints.

14.24 Set Timbers

Set timbers true to required lines and levels with mitres, butt joints, laps and housings cut accurately to provide full and even contact over the whole of the bearing surface.

14.25 Timber Cutting

Select and cut spanning members to minimise allowable defects and avoiding knots and short grain on edges in the middle third, and shakes, splits and checks at mid-span and close to ends.

14.26 Timber Plates and Furring

Fix to steelwork with bolts and washers or approved proprietary fastenings at 1 metre maximum spacing and not less than 2 fixings to each member, or to engineering specific design.

14.27 Holes and Notches

Limit holes and notches, checks and half-housing for the structure to those allowable in **NZS 3604.** Neatly form holes and notches for services without lessening the structural integrity of the member.

14.28 Cutting

Cutting for straightening to comply with NZS 3604, 8.5.3, **Straightening studs**.

14.29 Exposed Timber Connectors and Fixings

Do not use steel timber connectors and fixings on any structural framing exposed to view unless detailed on the drawings.

14.30 Powder-Actuated Fastening Tools

Comply with the requirements of **WorkSafe NZ** and the **Health and Safety at Work Act 2015.** Powder-actuated fastening tool operators to have the appropriate current Certificate and/or Licence and tools to have the appropriate certificate of fitness if necessary.

14.31 Additional Framing

Position and fix all necessary members for the fixing of all services, fittings, fixtures, edges of linings or claddings, and to provide lateral support to load carrying framing.

14.32 Form Nail Joints

Fully drive nails in all structural joints with the number and location for each particular joint, to the requirements of the nailing schedules of **NZS 3604.** Where splitting could occur, pre-drill to 80% of nail diameter.

14.33 Form Bolted Joints

Drill for and set bolts to ensure full bearing and development of the joint strength, with tension to just set the washers into timber or to engineering specific design.

14.34 Fir Connectors and Fixings

Fit connectors and fixings to obtain full bearing over all contact surfaces and full development of the required loading capacity for that particular joint and in accordance with the manufacturer's requirements or to engineering specific design.

14.35 Fit Bracing

Fit and fix subfloor, wall and roof bracing elements to the requirements of the manufacturer or to **NZS 3604,** to develop the full number of bracing units required.

Completion

14.37 Clean Up

Clean up timber framing as the work proceeds so no offcuts, chips, sawdust or any other matter or items remain behind the claddings or linings.Remove debris, unused materials and elements from the site.

Leave work to the standard required by following procedures.

Remove debris, unused materials and elements from the site.

Make good damage to surrounding surfaces.

15 METAL STUD INTERNAL PARTITIONS GENERAL

15.1 General

This section relates to the supply and installation of steel stud and track sections of dry construction for internal light steel:

- wall framing

15.2 Related Work

Refer to glazing section/s for glass type and thickness.
Refer to PLASTERBOARD LININGS for plasterboard linings Refer to INTERIOR DOORS AND WINDOWS for doors

15.3 Abbreviations and Definitions

Refer to the general section INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.
The following abbreviations apply specifically to this section:

BMT Base Metal Thickness
FRR Fire Resistance Rating
STC Sound Transmission Class

15.4 Documents

Refer to the general section REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC G6/AS1	Airborne and impact sound
AS/NZS 1170.1	Structural design actions - Permanent, imposed and other actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2589	Gypsum linings - Application and finishing
NZS 4219	Seismic performance of engineering systems in buildings
NZBC C/AS1-AS7	Protection from fire
AS/NZS 4600	Cold-formed steel structures

Requirements

15.5 Qualifications

Work to be carried out by tradespeople experienced, competent and familiar with the materials and techniques specified

15.6 Acceptable Installers

Use only accredited workers/installers skilled and experienced in the building system specified. To AS/NZS 1170. Provide evidence of experience, listing completed projects of similar size and complexity.

Performance

15.7 Loading Code Requirement

To AS/NZS 1170.1, NZS 1170.5, AS/NZS 4600, NZS 4219.

15.8 Load-Carrying Members

Select sections that will satisfy the transverse, dead and live load requirements by complying with the manufacturer's design data. To AS/NZS 1170.1.

15.9 Fire Rating Requirement

Provide fire-rated wall system to requirements listed in SELECTIONS. Refer to appropriate lining board manufacturer's technical literature for detailed instructions on installation of fire-rated drywall systems.

15.10 Certification

Provide certificates and other evidence that the system complies with the standards of performance specified.

Products, Materials and Components

15.11 Steel Framing

Precision roll-formed galvanized 0.55 BMT minimum gauge steel sections. Stud webs slotted for services.

15.12 Steel Stud and Track Sections

Stud and track sections to AS/NZS 4600. Refer to SELECTIONS for type and size.

15.13 Door and Window Sections

Pre-finished fixings and framing members for window and door framing.

15.14 Screws

Refer to steel stud framing systems installation manual for screw fixing data tables, application and recommended screw and sizes.

15.15 Lining Board

To AS/NZS 2588. Refer to SELECTIONS for type, thickness and finish.

15.16 Insulation

Refer to SELECTIONS for type and thickness.

Execution

15.17 Delivery

Keep steel stud framing systems dry in transit. Take delivery of steel stud framing systems dry and undamaged. Reject all damaged materials.

15.18 Storage

Store materials and accessories on a level, firm base, in dry conditions, well ventilated, out of direct sunlight and completely protected from weather and damage. Ensure storage areas are away from current work areas. Cover to keep dry until fixed.

15.19 Handling

Avoid distortion and contact with potentially damaging surfaces/substances. Do not drag steel stud framing systems across each other, or across other materials. Protect edges, corners and surfaces from damage.

15.20 Substrate

Do not commence work until the substrate is of the standard required by the manufacturers for the specified installation; plumb, level and in true alignment.

14.21 Adjoining Surfaces

Do not commence work until the adjoining structure and/or surfaces are of a standard required by the manufacturer for the specified installation; plumb, level and in true alignment.

14.22 Setting Out

Set out the framing work true to line and square, before starting erection.

14.23 Protect

Protect surfaces, cabinetwork, fittings, equipment and finishes already in place from the possibility of damage during the building process.

14.24 Stud and Track Sections

Fix, erect and fit to finish rigid, plumb, square and true to line and face to the steel stud framing systems installation manual.

14.25 NOGGING

Screw or crimp noggings to both flanges of the studs where required to manufacturer's steel stud framing systems installation manual. Confirm with manufacturer that individual noggings may be cut from continuous lengths.

14.26 Chase Walls – Bridged

Fix, erect and fit steel stud framing system to drawings and to manufacturer's installation manual.

14.27 Window and Door Framing

Fix, erect and fit steel stud framing system to drawings and to manufacturer's installation manual.

14.28 Plumbing and Electrical Services

Fix, erect and fit to steel stud framing systems installation manual.

14.29 Steel Stud and Track Sections – Ceilings

Fix, erect and fit to finish rigid, square and true to line and face to steel stud framing systems installation manual.

14.30 Drilling

Drilling to stud framing systems installation manual. Where extra service holes are required they may be positioned using a hole saw or similar and fit grommets. Additional service holes should be positioned as close as practical to the centreline of the stud.

14.31 Control Joint

Install to lining manufacturer's requirements.

14.32 Lining

To AS/NZS 2589. Fix and finish lining boards to manufacturer's recommendations.

Completion

14.33 Replace

Replace damaged or marked elements.

14.34 Leave

Leave installation free of any marks or blemishes. Leave all work to the standard required following procedures.

14.35 Remove

Remove debris, unused materials and elements from the site.

14.36 Make Good

Make good damage to surrounding surfaces.

16 INTERIOR DOORS AND WINDOWS

16.1 General

This section relates to the supply and installation of interior:
- Timber doors and doorsets
- Proprietary Security Doors with steel frame

16.2 Documents

Refer to the general section REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:
- **AS/NZS 1170.1** Structural design actions - Permanent, imposed and other actions
- **NZS 3602** Timber and wood-based products for use in building
- **NZS 3604** Timber-framed buildings
- **NZS 3610** Specification for profiles of mouldings and joinery
- **NZS 4223.3** Glazing in buildings - Human impact safety requirements
- **WANZ PQAS**: Powder Coating Quality Assurance System\
- **WANZ SFA 3503-03:** Anodic Oxide coatings on wrought aluminum for external architectural application (2005).

16.3 Manufacturer's Documents

Manufacturer's and supplier's documents relating to work in this section are
Pacific Doors - Security Door - 5T1 Hinged Door Set
Copies of the above literature are available from
Web: www.pacificdoors.co.nz
Email:
Telephone: +64 04 568 6109
Facsimile:

16.4 Warranty – Manufacturer/Supplier

Provide a material manufacturer/supplier warranty:
5 years For Fabrication and Materials
- Provide this warranty on the manufacturer/supplier standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section WARRANTIES for additional requirements.

16.5 Warranty – Installer/Applicator

Provide an installer/applicator warranty:
5 years For Installation
- Provide this warranty on the installer/applicator standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section WARRANTIES for additional requirements.

Door Frames Materials

16.6 Timber Doors

To **NZS 3602**. Moisture content 10-14%. To **NZS 3610.**

16.7 Aluminium Extrusions

Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or

powder coating.

General Doors Materials

16.8 Timber

To NZS 3602. Moisture content 10-14%. To NZS 3610. Solid core.

16.9 Aluminum

Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.

Doorsets Materials

16.10 Standard Doorsets, Side Hung Door

Frames to profile as detailed and dimensioned, fitted with solid core door.
Refer to SELECTIONS.

16.11 Standard Doorsets, Double Doors

Frames to profile as detailed and dimensioned, fitted with solid core door.
Refer to SELECTIONS.

16.12 Proprietary Security Doors with Steel Frame

Frames and door to manufacturers details. Refer to SELECTIONS.

Components

16.13 Door Furniture

Refer to HARDWARE for type and finish.

16.14 Screws

Stainless steel or non-corrodible metal. Length sufficient to penetrate into the background support up to the shank. Screws for fixing hinges, hardware or furniture to match the item being attached.

16.15 Nails

Length sufficient to penetrate into the background support at least half the nail length, except if into radiata pine then three-fifths their length

16.16 Door Skin (Facings)

Doors skins as detailed and dimensioned.

16.17 Door Hinges

Size and gauge to carry door size and weight. 3 hinges per door. (Refer to Manufacturers specification for Security Door Hinges)

Type: Loose pin
Size: 89mm
Material: Zinc-plated steel

Pin: Loose-pin zinc-plated steel

Finish

16.18 Timber – Paint Finish

Factory applied coating system.

16.19 Aluminum – Powder Coated

Polyester powder organic coating in accordance with WANZPQAS and AS3715. 2.15 ALUMINIUM – ANODISED. To WANZ SFA 3503-03. Refer to SELECTIONS for thickness and colour.

16.20 General Execution

Execution to include those methods, practices and processes contained in the unit standards for the National Certificate in Carpentry and the National Certificate in Joinery (cabinetry, exterior joinery, stairs).

16.21 Do not deliver

Do not deliver any elements which cannot be unloaded immediately into suitable storage conditions

16.22 Handle

Handle, unload and store elements without distortion and avoiding pre-finished surfaces rubbing together, and contact with mud, moisture and other damaging materials.

16.23 Protect

Protect all elements against damage to arises and glazing beads. Store frames and doors flat and away from moisture or direct sunlight.

16.24 Fabricate Doorsets

Fabricate doorsets in the factory with doors hung, provision for furniture made, finishes applied and fully operable.

16.25 Check All Openings

To NZS 3604.Check all openings on site for size and standard of execution before installing window or door frames. Installation tolerances of windows subject to earthquake design to comply with AS/NZS 1170.1.

16.26 Assembly – Fabrication Generally

Manufacture and fabricate frames and doors as detailed. Install hinges and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

Application

16.27 Fixing Frames

Fix and assemble frames rigidly in place, plumb, level and true to line and face without distortion and with all opening sashes fully and easily operating. Fit architraves.

16.28 Distortion

Do not distort frames when wedging or other packing, or when tightening fixings. If necessary adjust packing and fixings to eliminate binding. Do not cut, plane or sand frames to remedy distortion.

16.29 Fixings

Fix frames so that nail heads are covered by applied stops and beads. Punch all nail heads below timber surfaces which will be visible in completed work. Ensure that at least one frame fixing is adjacent to each hanging point

16.30 Proprietary – Elements

Fix in accordance with the door manufacturer's requirements

16.31 Installation Generally

Wedge frames into opening and fix through into the wall framing. Locate all wedges and fixing at hinge positions and opposite, with one fixing in the vicinity of the lock. Fixings concealed behind planted stops.

Hang doors on hinges, sliding or bi-fold gear as specified and to operate freely. Fit all hardware and door furniture

16.32 Timber Stud Walls – Steel and Aluminium Frames

Using a pilot hole in the frame, fix to timber studs with countersunk self-drilling corrosion proof screws. Fix at hinges and opposite, with one fixing in the vicinity of the lock.

16.33 Timber Stud Walls – Timber Frames

Wedge into opening and nail through into the studs. All wedges and fixing to be at hinge positions and opposite, with one fixing in the vicinity of the lock

16.34 Bottom Clearance

Provide for specified floor coverings plus 5mm clearance at any point of swing. When floor covering is not specified, allow 25mm total.

For ventilated and/or air conditioned spaces allow 20mm clearance above finished floor coverings for supply/return air.

16.35 Remove Doors

Remove doors from the frames if necessary to protect them, or for re-finishing, store safely and near completion refit them, all without any damage.

16.36 Install Panels

Prime rebates and beads install sealant backing strips or silicone. Install dry beading to outside of panels as selected. Do not mitre corners of beads.

16.37 Install Furniture

Install latches, locks and door furniture as scheduled.

16.38 Check

Check and adjust operation of all doors, hardware and furniture.

Completions

16.39 Protection

Protect all finishes against damage from adjacent and following work.

16.40 Replace

Replace damaged, cracked or marked elements.

16.41 Trade Clean

Clean off or remove safety indicators at completion of the building.

16.42 Leave

Leave work to the standard required for following procedures

16.43 Remove

Remove safety indicators and protective coverings, and wipe down all doorsets thoroughly to leave them perfectly clean. Remove all debris, unused materials and elements from the site.

Selections

16.44 Paint Finish

Brand: Resene
System name: Refer to 6721R Resene Painting Interior
Finish/colours: Refer to drawing sheet A-7000

16.45 Powder Coating

Refer to 6746D DULUX POWDER AND INDUSTRIAL COATINGS for powder coating products.
Refer to 6746IP INTERPON POWDER COATINGS for powder coating products.

16.46 Hardware Schedule

Location	Type of hardware	Number off
Drawing Sheet A-7000	TBC	

17 ALUMINIUM WINDOWS AND DOORS

17.1 GENERAL

This section relates to the manufacture, supply, and installation of:

- aluminium windows
- aluminium doors and frames
- hardware and furniture
- overhead glazing
- flashings

17.2 RELATED WORK

Refer to glazing sections for glass types

17.3 ABBREVIATIONS AND TERMS

SLS	Serviceability limit state
ULS	Ultimate limit state
WGANZ	Window & Glass Association NZ
PQAS	Powder Coating Quality Assurance System

Documents

17.4 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
NZBC F4/AS1	Safety from falling
NZBC H1/VM1	Energy efficiency
NZBC H1/AS1	Energy efficiency
AS/NZS 1170.2	Structural design actions - Wind loads
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 1580.108.1	Methods of test for paints and related materials - Determination of dry film thickness on metallic substrates - Non destructive methods
AS/NZS 1734	Aluminium and aluminium alloys - flat sheets, coiled sheet and plate
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes
NZS 3604	Timber-framed buildings
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications
NZS 4211	Specification for performance of windows
NZS 4223.3	Glazing in buildings - Human impact safety requirements
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
AAMA 2603	Voluntary specification, performance requirements, and test procedures for pigmented organic coatings on aluminium extrusions and panels (with coil coating appendix)
AAMA 2604	Voluntary specification, performance requirements and test procedures for high performance organic coatings on aluminium extrusions and panels.
AAMA 2605	Voluntary specification, performance requirements and test procedures

for superior performing organic coatings on aluminium extrusions and panels.

BS 3900 Methods of tests for paints, Part C5: Determination of film thickness

BRANZ BU 636 Protecting Glass From Damage

Window & Glass Association NZ (WGANZ) documents:

Window Installation Guide Guide to Window Installation as described in E2/AS1 Amendment 7

PQAS Powder Coating Quality Assurance System

SFA 3503-03 Anodic Oxide coatings on wrought aluminium for external architectural application (2005)

US Federal Specification:

TT-S-001543A Sealing compound, silicone rubber base (for caulking, sealing and glazing in buildings and other structures)

TT-S-00230C Sealing compound, elastomeric type, single component (for caulking, sealing and glazing in buildings and other structures)

17.5 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

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Copies of the above literature are available from ~

Web: ~
Email: ~
Telephone: ~
Facsimile: ~

Warranties

17.6 WARRANTY - MANUFACTURER / SUPPLIER

Provide a material manufacturer/supplier warranty:
5 years: For fabrication
Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

17.7 WARRANTY - INSTALLER / APPLICATOR

Provide an installer/applicator warranty:
2 years: For installation

- Provide this warranty in the installer/applicator standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

17.8 SAMPLES

Refer to the general section 1270 CONSTRUCTION for details of how samples will be reviewed and how instructions to proceed will be given. Provide the following samples for review:

	Sample A	Sample B	Sample C
Sample description:	~	~	~

Sample type:	~	~	~
Number:	~	~	~
Location:	~	~	~
Supporting documentation:	~	~	~
Reviewer:	Contract administrator ~	Contract administrator ~	Contract administrator ~
Time for review:	10 working days ~	10 working days ~	10 working days ~
Review criteria:	~	~	~

17.9 SHOP DRAWINGS

Shop drawings to show the general arrangement of the aluminium joining including, but not be limited to:
Construction details (minimum scale 1:5) showing the interface between joinery elements and the building structure including: -

- Jointing details and method of fixing between individual elements and between this installation and adjacent work
- Interaction between claddings and linings
- Flashing details
- Sealants and air seals
- Non standard fixing details including bracketing

And where required the following:

- Design calculations
- Producer Statement in the form PS1 Producer Statement Design
- Rebate sizes
- Dimensions of all typical elements and of any special sizes and shapes
- Provision for the exclusion and/or drainage of moisture
- Provision for adjustment of fixings to ensure true alignment of windows and doors
- Sealant types and full size sections of all sealants and backing rods
- Provision for thermal movement
- Provision for seismic movement and movement under wind loads
- Sequence of installation
- Glazing specification and details

Where requested provide the following additional information

- Information of Professional Indemnity Insurance held by the person providing the shop drawings

Refer to the general section 1235 SHOP DRAWINGS for the requirements for submission and review and the provision of final shop drawings.

Complete shop drawing review before commencing fabrication.

17.10 QUALIFICATIONS

Work to be carried out by trades people experienced, competent and familiar with the materials and techniques specified.

17.11 COMPLIANCE

Windows and doors to be manufactured and installed to NZBC E2/AS1.

17.12 CERTIFICATION

Provide evidence of a certificate by a laboratory accredited by International Accreditation of New Zealand that the windows and doors offered comply with the requirements of NZS 4211.

Performance

17.13 PERFORMANCE - WINDOWS AND DOORS

To NZS 4211, including:
- deflection, opening sashes, air infiltration, water penetration, ultimate strength, torsional strength of sashes, marking.

Refer to SELECTIONS.

17.14 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS

The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window manufacturer.

Performance - Wind (design by contractor)

17.15 WIND - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of NZS 3604, table 5.4.
Refer to SELECTIONS for wind zone.

17.16 WIND - SPECIFIC DESIGN

Design the installation to the wind pressure parameters of AS/NZS 1170.2

Refer to SELECTIONS for ULS and SLS

PRODUCTS

Materials

17.17 WINDOWS

Refer to SELECTIONS for type and finish.

17.18 DOORS

Refer to SELECTIONS for type and finish.

17.19 ALUMINIUM EXTRUSIONS

Alloy designation to comply with AS/NZS 1866. Branded and extruded for anodising or powder coating.

17.20 ALUMINIUM SHEET AND STRIP

Complying with AS/NZS 1734 of suitable thickness. Rolled for anodising or powder coating.
Alloy designation: 5251 - H16 or 5005 - H16

17.21 STAINLESS STEEL SHEET AND STRIP

Type: 316 austenitic steel
Finish grade: 2B (satin lustre)

17.22 GLASS

Refer to the glazing section for glass types and installation.

17.23 REVEALS - ALUMINIUM

Aluminium reveals fitted to frame via thermal break.

17.24 FLASHINGS GENERALLY

To NZBC E2/AS1, 9.1.10 **Windows and Doors**. Material, grade and colour of head flashings to match the window frames. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

Materials - overhead glazing

17.25 OVERHEAD GLAZING SYSTEM

Overhead purpose made aluminium glazing bars, other system components, flashings and hardware.

Refer to SELECTIONS.

Components

17.26 GLAZING GASKETS

Thermoplastic rubber. Do not stretch glazing gaskets during installation. Measure and cut gaskets 5-10% over length before installation.

17.27 HARDWARE AND FURNITURE

Hinges, stays, catches, fasteners, latches, locks and furniture as offered by the window and door manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.

17.28 SAFETY STAYS

Stainless steel non releasable restrictors to limit window opening to NZBC F4/AS1, Section 2.0, **Opening windows**.

Sealants

17.29 STRUCTURAL SEALANT

Silicone chemically curing sealant specifically formulated and tested or approved equivalent with not less than a ± 40% movement factor complying with US Federal Specification TT S 001543A.

17.30 WEATHERING / INSTALLATION SEALANT

Building sealant used in accordance with manufacturer's instructions for weather sealing

aluminium frames to the cladding, complying with US Federal Specification TT S 0011534A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus (± 25% movement) to US Federal Specification TT S 00230C.

17.31 FOAM TAPE

Foam tape to NZBC E2/AS1, 9.1.10.7 **Closed cell foam tape**.

Finishes

17.32 ANODISED ALUMINIUM

To WGANZ SFA 3503-03. Refer to SELECTIONS for thickness and colour.

17.33 EXECUTION

Conditions - generally

17.34 DO NOT DELIVER

Do not deliver to site any elements which cannot be unloaded immediately into suitable conditions of storage.

17.35 UNLOAD WINDOW JOINERY

Unload, handle and store elements in accordance with the window manufacturer's requirements.

17.36 AVOID DISTORTION

Avoid distortion of elements during transit, storage and handling.

17.37 PREVENT DAMAGE

Prevent prefinished surfaces rubbing together, and contact with mud, plaster and cement. Keep paper and cardboard wrappings dry.

17.38 PROPRIETARY ELEMENTS

Fix in accordance with the window manufacturer's requirements.

17.39 PROTECTIVE COVERINGS

Retain protective coverings and coatings to BRANZ BU 636 and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

17.40 ADDITIONAL PROTECTION

Supply and fix additional protection as necessary to prevent marking of surfaces which will be visible on completed work.

Conditions - fixings and fastenings

17.41 SUPPLY OF FIXINGS

Use only fixings and fastenings recommended by the manufacturer of the component being fixed and to comply with the ULS wind pressure stated in SELECTIONS. Ensure fixings and fastenings exposed to the weather are of aluminium, or Type 316 stainless steel or if not exposed to the weather may they be hot-dip galvanized steel with a coating weight of 610 g/m² complying with AS/NZS 4680.

17.42 INSTALLATION FIXING

To NZBC E2/AS1, 9.1.10.8, **Attachments for windows and doors**. Fix windows/doors through reveal to frame with a pair of 75 x 3.15mm minimum galvanised jolt head nails or a pair of 8 gauge x 65mm minimum stainless steel screws. Fix at a maximum of 450 centres along all reveals and a maximum of 150mm from reveal ends. Ensure fixings do not penetrate metal flashings.
Install packers between reveals and framing at fixing points, except at the head.

Assembly

17.43 FABRICATION

Fabricate frames as detailed on shop drawings. Install glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection. Temporarily secure all opening elements for transportation.

17.44 TIMBER / PVC REVEALS

Before fixing to aluminium frames, ensure that timber reveals which are being painted have been primed on all surfaces.

17.45 HARDWARE GENERALLY

Factory fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.

17.46 SAFETY STAYS

Factory fit safety stays to all windows scheduled for safety stays and to all windows where safety stays are required to comply with NZBC F4/AS1 4.0, Opening windows.

Installation - windows and doors

17.47 CORROSION PROTECTION

Before fixing, apply suitable barriers of bituminous coatings, stops or underlays between dissimilar metals in contact, or between aluminium in contact with concrete.

17.48 CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames. Do not proceed with the window and door installation until required preparatory work has been completed.

Required preparatory work includes the following:

- wall underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames to NZBC E2/AS1:9.1.5 **Wall underlays**

to wall openings.

- Full height 20mm jamb battens to NZBC E2/AS1 figure 72A (direct fix only)
- claddings neatly finished off to all sides of openings
- installation of flashings (those which are required to be installed prior to frames).

17.49 INSTALLATION

Fix to comply with the reviewed shop drawings and installation details including flashings and bedding compounds, pointing sealants and weathering sealants.

17.50 INSTALL FLASHINGS

Install flashings to heads, jambs and sills of frames as supplied and required by the window manufacturer and as detailed on the drawings. Finish head flashings to match window finish.

Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the upstand of the sill flashing. Ensure that sill flashings drain to the outside air.

Except where window/door frames are recessed, ensure that head flashings over-sail unit by 20mm minimum plus any jamb scriber width at each end.

17.51 COMPLETE AIR SEAL

To NZBC E2/AS1:9.1.6 Air seals. Form an air-tight seal by means of a proprietary expanding foam or sealants used with backing rods, applied between the window / door reveal and structural framing to a depth of 10 - 20mm, to provide a continuous air tight seal to the perimeter of the window or door.

17.52 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Installation - overhead glazing system

17.53 INSTALL OVERHEAD GLAZING SYSTEM

Check that the trimmed openings are formed and constructed to suit the required units. Do not proceed until roof and structural openings are properly formed. Install and fix the overhead glazing system strictly in accordance with the roof window manufacturer's requirements and drawings. Install flashings and overflashings as detailed and as required to make the installation completely weatherproof.

17.54 INSTALL OVERHEAD GLAZING SYSTEM HARDWARE

Install selected accessories and hardware. Install and complete all operating systems.
Application - jointing and sealing

17.55 SEAL FRAMES ON SITE

Seal frames to each other and to adjoining structure and finishes, all as required by the window manufacturer and to make the installation weathertight. In very high and extra high or greater wind zones, seal between the window head and the head flashing. Do not seal the junction between the sill member and the cladding or sill flashing which must remain open.

17.56 PREPARE JOINTS

Ensure joints are dry. Remove loose material, dust and grease. Prepare joints in accordance with the sealant manufacturer's requirements, using required solvents and primers where necessary. Mask adjoining surfaces which would be difficult to clean if smeared with sealant.

17.57 BACK UP

When using back-up materials do not reduce depth of joint for sealant to less than the minimum required by the manufacturer of the sealant. Insert polyethylene rod or tape back-up behind joints being pointed with sealant.

17.58 SEALANT FINISH

Tool sealant to form a smooth fillet with a profile and dimensions required by the sealant manufacturer. Remove excess sealant from adjoining surfaces, using the cleaning materials nominated by the sealant manufacturer and leave clean.

Completion - cleaning

17.59 REMOVE TRADE DEBRIS

Remove trade debris by appropriate means on a floor by floor basis as each floor is completed and again before any work is covered up by others. Arrange for general removal.

17.60 TRADE CLEAN

Trade clean window frames, operable windows and doors, glass and other related surfaces inside and out at the time of installation to remove marks, dust and dirt, to enable a visual inspection of all surfaces.

Completion

17.61 PROTECTIVE COVERINGS

Retain protective coverings and coatings and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades.

17.62 SAFETY

Indicate the presence of transparent glasses for the remainder of the contract period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface. Masking tape must not be used for this purpose.

17.63 REMOVE

At the appropriate stage of the project, remove safety indicators and protective coverings and wipe down all joinery thoroughly.

17.64 REPLACE

Replace damaged, cracked or marked elements.

17.65 MANIFESTATIONS

To NZS 4223.3, 2.2 Manifestation (making glass visible).

17.66 SELECTIONS

Performance

17.67 THERMAL PERFORMANCE

R-value: ~ (as determined from NZBC H1/VM1 or H1/AS1)

17.68 AIR INFILTRATION

For NZS 4211, table 3 **Air infiltration**.
Non-air conditioned zones: ~
Air conditioned zones: ~

Performance - Wind (design by contractor)

17.69 WIND - NON SPECIFIC DESIGN

Building wind zone ~ (refer to NZS 3604, table 5.4)

17.70 WIND - SPECIFIC DESIGN

The design wind pressures are to AS/NZS 1170.2.
SLS ~ Pa
ULS ~ Pa

Window and door system

17.71 ALUMINIUM WINDOWS

Manufacturer: ~
Type / location: ~

17.72 ALUMINIUM DOORS

Manufacturer: ~
Type / location: ~

17.73 VENTILATORS

Brand / type: ~

17.74 ALUMINIUM REVEALS

Type: ~
Finish: ~

17.75 FLASHINGS

Material/type: ~
Pattern: Formed to suit details provided

17.76 STRUCTURAL SEALANT

Brand/type: ~
Movement: ~mm
Colour: ~

17.77 HARDWARE

	Brand/style	Material/finish
Sash fasteners:	~	
Door furniture:	~	

17.78 WEATHERING SEALANT

Brand/type: ~ 1-part polyurethane moisture curing, elastic joint sealant
Colour: ~

17.79 OVERHEAD GLAZING SYSTEM

Location: ~
Brand/type: ~
System: ~
Finish/colour: ~
Hardware: ~

17.80 MANIFESTATIONS

Location: ~
Type/details: ~

Finishes - Anodising

17.81 ANODISED ALUMINIUM FINISH

Thickness grade: ~ microns
Colour/finish: ~
Brand: ~

Temporary protection:

18 ADVANCE ENTRY MATS AND CARPET

18.1 General

This section relates to the supply and installation of Advance Flooring Systems Ltd entry mats and carpet. It includes:

- custom-made entrance carpets (in sheet and tile format)
- associated trims and frames

18.2 Documents

Refer to the general section REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

- **NZBC C/AS1-AS7** Protection from fire
- **ISO 9239.1** Reaction to fire tests for floorings - Determination of the burning behaviour using a radiant heat source.

18.3 Manufacturer/Supplier Documents

Manufacturer's and supplier's documents relating to this part of the work
Advance Technical Product Literature including Installation instructions and data sheets.
Manufacturer/supplier contact details
Company: Advance Flooring Systems Ltd
Web: www.advanceflooringsystems.com
Email: info@advanceflooringsystems.com
Telephone: 0508 238 262

18.4 Warranty – Manufacturer/Supplier

Provide a material manufacturer/supplier warranty:
5 years: For materials

- Provide this warranty on Advance standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section WARRANTIES for additional requirements.

18.5 Warranty – Installer/Applicator

Provide an installer warranty:
1 year: For installation

- Provide this warranty on the installer standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

18.6 No Substitutions

Substitutions are not permitted to any specified system, or associated components and products

18.7 Qualifications

Entrance matting and carpet installers to be competent, experienced workers familiar with the materials and techniques specified

18.8 Information for Operation and Maintenance

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of Advance Maintenance Instructions - Advance Entrance Matting Systems as electronic PDF format documents:

Provide this information prior to practical completion

18.9 Surface Fire Performance

Products tested to ISO 9239.1 and achieve the minimum critical radiant flux requirements of NZBC C/AS2-AS6, Table 4.2, Critical radiant flux requirements for flooring. Critical radiant flux achieved is as follows:

Coral Duo entry carpet	4.8kW/m²

Products, Materials, Accessories and Components

18.10 Entry Carpet – Coral Duo Carpet

Coral Duo entry carpet, made of alternate ribs of specially textured polyamide yarns and micro-fibres bonded to an impervious vinyl backing, with a thickness of approximately 10mm. Available in rolls 2m wide x 27.5m long and a range of colours. Refer to SELECTIONS.

18.11 Entry Carpet Aluminum Frame and Ramping

Proprietary Advance aluminum frame and ramping. Refer to SELECTIONS for options

18.12 Adhesive - For Bonding Entry Carpet to Substrate

Adhesive suitable for bonding entry carpet to the particular substrate. Refer to SELECTIONS for options.

Execution Conditions

18.13 Inspection

Before starting work inspect the substrate to ensure that it will allow work of the required standard where the matting/carpet/tiles are to be installed.

18.14 Protection

Protect adjoining work surfaces and finishes during the installation

18.15 Layout

Plan the general layout to:

- to conform with pattern orientation requirements as specified
- to maximize perimeter and mat/carpet/tiles sizes

18.16 Temperature

Floor temperature: Minimum 16°C.
Concrete pH: No more than 10.0.

18.17 Handle and Store

Keep matting dry. Protect from damage.

18.18 Installation – Substrate Preparation

Prepare Floor Substrate
Refer to 6192 FLOORING SUBSTRATE PREPARATION for preparation of flooring substrate. Ensure base is smooth and level before commencing installation

18.19 Installation – Entry Carpet

Install proprietary frame and entry carpet in accordance with Advance details and requirements.

Completion

18.20 Replace

Replace damaged or marked matting.

18.21 Leave

On completion of the installation thoroughly vacuum the finished matting, using the vacuuming technique recommended by the matting/carpet/tiles manufacturer. Leave surfaces free of adhesive, dirt and debris and to the standard required by following procedures.

18.22 Remove

Remove debris, unused materials and elements from the site.

18.23 Protect

Protect completed work from damage for the period between completion of installation and completion of the contract works.

18.24 Selections

For further details on selections go to www.advanceflooringsystems.com Substitutions are not permitted to the following, unless stated otherwise.

18.25 Materials – Advance Entry Carpet

Location:	Entry Lobby
Manufacturer:	Advance Flooring Systems
Carpet range:	Coral Duo
Carpet colour:	Black Diamond CD 9730
Install/type:	Surface Mounted
Carpet frame:	ALF3510 low profile
Carpet ramping:	ALR4010 low profile

Carpet size: Custom to suit project
Frame/ramp finish: Mill Aluminum
Adhesive: Polymer 2650

19 SUSPENDED TILE CEILINGS

19.1 GENERAL

This section relates to the manufacture, supply and installation of a proprietary suspended ceiling system. It includes:

- Suspension system
- Ceiling tiles
- Grid
- Perimeter trim profile
- All necessary elements to complete the system

19.2 RELATED WORK

Refer to ~ for ~.

19.3 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:

NRC Noise reduction coefficient
CAC Ceiling attenuation class
STC Sound transmission class
AWCINZ Association of Wall and Ceiling Industries of New Zealand Inc

Documents

19.4 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B1/VM1 Structure general
NZBC C/AS1-AS2 Protection from fire
AS/NZS 1170.0 Structural design actions - General principles
AS/NZS 1170.1 Structural design actions - Permanent, imposed and other actions
AS/NZS 1170.2: 2011Structural design actions - Wind actions
NZS 1170.5 Structural design actions - Earthquake actions - New Zealand
AS/NZS 2785 Suspended ceilings - Design and installation
NZS 4219 Seismic performance of engineering systems in buildings
NZS 4541 Automatic fire sprinkler systems

19.5 MANUFACTURER DOCUMENTS

Manufacturer and supplier documents relating to work in this section are:
~
Copies of the above literature are available from ~

Company:	~
Web:	~
Email:	~
Telephone:	~

19.6 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

~ years	For ~ suspension and grid system
~ years	File ~ tile

Provide this warranty on the manufacturer/supplier standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT

Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

19.7 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

2 years	For ~

Provide this warranty on the installer/applicator standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT

Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

19.8 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.
Provide evidence of experience, listing completed projects of similar size and complexity.

19.9 QUALIFICATIONS WORKERS - INDUSTRY QUALIFICATION REQUIREMENTS

Installation by a manufacturer accredited installer, using the manufacturer technical services. Installers are to be members of the AWCINZ. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.
Provide evidence of experience, listing completed projects of similar size and complexity.

19.10 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

19.11 SAMPLES

Refer to the general section 1270 CONSTRUCTION for details of how samples will be reviewed and how instructions to proceed will be given. Provide the following samples for review:

	Sample A	Sample B	Sample C
Sample description:	~	~	~
Sample type:	~	~	~
Number:	~	~	~

Location:	~	~	~
Supporting documentation:	~	~	~
Reviewer:	Contract administrator ~	Contract administrator ~	Contract administrator ~
Time for review:	10 working days ~	10 working days ~	10 working days ~
Review criteria:	~	~	~

19.12 SHOP DRAWINGS

Refer to the general section 1235 SHOP DRAWINGS for the requirements for submission and review and the provision of final shop drawings.

Provide shop drawings to show the general arrangement including, but not be limited to:

- Design calculations.
- Fully dimensioned elevations of all elements.
- Complete details of construction, connections and all support systems.
- Dimensions of all typical elements.
- Jointing details and method of fixing between individual elements and between this installation and adjacent work.
- Provision for thermal movement.
- Provision for seismic movement and movement under prevailing wind loads.
- Bracing requirements, due to wind and seismic loads (indicate any design and construction work by others, to meet these requirements).
- Sequence of installation.
- Co-ordination requirements with other work.
- A full schedule of materials, finishes and componentry.

19.13 AS BUILT DOCUMENTS

Refer to the general section 1238 AS BUILT DOCUMENTATION for the requirements for submission and review of as built documents and records.

Provide the following as built documents and records:

~

- Provide draft as built information prior to practical completion.
- Provide final as built information prior to the end of the defects liability period.

19.14 INFORMATION FOR OPERATION AND MAINTENANCE

Refer to the general section 1239 OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:
Supply information on the materials and method of cleaning the ceiling system over its expected life.

Compliance information

19.15 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:

- Manufacturer / supplier warranty.
- Producer Statement (PS1) - Design from supplier independent engineer.
- Producer Statement (PS3) - Construction from the applicator / installer.

- Producer Statement (PS4) - Construction Review from an acceptable suitably qualified person.
- Other information required by the BCA in the Building Consent Approval documents.

Performance

19.16 LOADING CODE REQUIREMENT

To AS/NZS 2785, comply with the requirements of; AS/NZS 1170.0, AS/NZS 1170.1, AS/NZS 1170.2, NZS 1170.5, NZBC B1/VM1, as appropriate

19.17 CERTIFICATION

Provide:
- Certificates and other evidence that the system complies with the standards of performance specified
- Producer Statements

19.18 ACOUSTIC REQUIREMENTS

Use an independent testing authority to test a specimen of the ceiling system to AS/NZS 2785, 2.6 Acoustic Requirements, and submit the results for acceptance.
Refer to SELECTIONS.

19.19 FIRE HAZARD PROPERTIES

Ceiling tiles to provide a maximum Group Number to NZBC C/AS2, Table 4.3 Surface Finishes, to suit the appropriate fire risk group.
Refer to SELECTIONS.

19.20 FIRE RATING REQUIREMENT

Design the ceiling system so that together with the floor it is to NZBC C/AS1 - AS2, Appendix C, 5.1 Fire Resistance.
Refer to SELECTIONS.

19.21 ENVIRONMENTAL REQUIREMENTS

Durability to NZBC B2/AS1.
Design the ceiling system for use over its expected life without deterioration in the specified temperature and humidity range. Refer to SELECTIONS.

REFLECTANCE

Refer to SELECTIONS.

Performance - Wind (design by contractor)

19.22 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR

Design the installation to the wind pressure parameters of AS/NZS 1170.2. Refer to General section 1220 PROJECT for general details. Refer to SELECTIONS specific design performance requirements.

Performance - Seismic (design by contractor)

19.23 SEISMIC - SPECIFIC DESIGN

Design the system and its anchorages/fixings to resist the earthquake loads of the seismic zone in accordance with NZS 1170.5. Refer to General section 1220 PROJECT for general details.
Refer to SELECTIONS specific design performance requirements.

19.24 PRODUCTS

Suspension system

19.25 GRID SUSPENSION SYSTEM

Manufactured by a member of the AWCINZ. Hot-dip galvanized steel elements to AS/NZS 2785 for carrying ceiling tiles/panels, light fixtures and air distribution elements and complying with NZS 1170.5, section 8. Including perimeter trim, expansion joints and seismic joints etc. to AS/NZS 2785.

19.26 GRID FINISH

All exposed surfaces of grid must be coated with a durable polyester finish. Finish shall have good paint adhesion and uniform surface hardness.

19.27 SEISMIC RESTRAINT

To AS/NZS 2785, 4.3.3 Seismic Restraint Types and/or suitable proprietary back braces for ceiling systems.

Tile, panels or cells

19.28 FIBRE BASED TILES

Tiles manufactured from semi-rigid or rigid fibre insulation, finished with a suitable decorative facing. Refer to SELECTIONS

19.29 PLASTERBOARD TILES

Gypsum plaster core encased in a durable face and backing papers.
Refer to SELECTIONS.

19.30 FIBROUS PLASTER TILES

Manufacture by a member of the AWCINZ. Cast gypsum plaster, fibreglass reinforced. Refer to SELECTIONS.

19.31 WOOD BASED BOARD TILES

Engineered timber board tiles with decorative pre-finish and/or fire performance pre-finish. Refer to SELECTIONS.

19.32 WOOD FIBRE TILES

Pressed low density wood fibre. Refer to SELECTIONS

19.33 LINEAR METAL

Manufactured by a member of the AWCINZ. Hot-dip galvanized steel or aluminium pans finished with a durable polyester finish.
Refer to SELECTIONS.

19.34 OPEN CELL

Manufactured by a member of the AWCINZ. Hot-dip galvanized steel strip grid with a pre-painted coating.
Refer to SELECTIONS.

Components

19.35 SCREWS

25mm x 6 gauge non-rusting Type S self-drilling and self-tapping buglehead screws to fix perimeter trim, or as required by manufacturer/supplier.

EXECUTION

Conditions

19.36 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

19.37 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.
Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

19.38 CO-ORDINATE SERVICES

Co-ordinate and co-operate with electrical and mechanical work to avoid conflict between suspension members and light fittings, diffusers, pipework and ducting. Confirm the provision of extra hangers and fixings.

Ensure co-operation with work in and above the ceiling, including the marking of specific ceiling tiles below major access points to above-ceiling services. Colour coded markings to follow the standards laid down by mechanical and electrical services

Services and other attachments, attached to or supported by the ceiling grid system to AS/NZS 2785, ensure that:

- items over 7.5kg and items under 7.5kg but falling greater than 3m, require a tether to AS/NZS 2785, anchored to structure.
- items attached to the ceiling grid must be under 10kg mass, items over 10kg cannot be attached to the grid and must be independently supported.
- unless designed otherwise, the ceiling systems total load of services and other attachments must not exceed 3kg/m².
- light fittings installed to AS/NZS 2785 and NZS 4219.
- ceiling system clearances to structure and services etc. that are not attached to the ceiling system, to be to NZS 4219, and/or NZS 4541 for sprinklers

19.39 SITE CONDITIONS

Do not begin installation until the building is closed in, fully glazed, the roof watertight, and mechanical and electrical duct work above the ceiling completed. To AS/NZS 2785, Appendix C, site conditions, Installation and Inspections.

19.40 RESPONSIBILITY

Ensure that conditions are suitable for the ceiling installation. Arrange for the programming of the work to suit required practice.

Installation

19.41 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

19.42 INSTALL

Install the system to AS/NZS 2785 minimum standards and the ceiling manufacturer requirements.

Allowance for support members:
- Space required by the loads on the system and the type of ceiling.
- For the installation of services and accessories, including ductwork, light fittings and diffusers.
- Additional back support or suspension members for the fixing of services and accessories to prevent distortion, overloading or excessive vertical deflection.
- For access for maintenance of services.

Allowance for a ceiling system where failure of any one suspension point does not cause a progressive failure of the ceiling.

Allowance for height adjustment with a length adjustment device at each suspension point, permitting length variation of at least 50 mm.

If required, allow for notch grid members at the junction with the perimeter trim to make sure the ceiling units lie flat on the perimeter trim.
Do not attach the suspension system to the lip or flange of purlins.

Fix, erect and fit to finish rigid, plumb, square and true to line and face. Where components required cutting on site, use metal snips, fine-toothed band or hack saws.

Install all movement joints required.

Services support to conform to the following:
- If the service has not been designed to accept the ceiling load, do not fix suspension members to services (e.g. ductwork).
- If services obstruct the ceiling supports, provide bridging and suspension on each side of the services.
- Do not support services terminals on ceiling tiles/units.

19.43 INSTALL SEISMIC RESTRAINTS

Install ceiling system seismic restraints and bracing as required to prevent lateral movement and resist the imposed horizontal seismic force, to AS/NZS 2785.

19.44 ACCESSIBILITY

Provide access to the ceiling system and the in-ceiling and above-ceiling services so that maintenance and removal of any part can be carried out without damage to the ceiling system or panels.

19.45 PENETRATIONS

To AS/NZS 2785 and NZS 4219 generally, with sprinkler systems to NZS 4219, and/or NZS 4541.
Accommodate recessed light fittings, air conditioning outlets and other electrical and/or mechanical services that are fixed to or pass through the ceiling system. Provide independent support and/or required clearances for these as necessary.

19.46 RETURN AIR PLENUM

Encapsulate tiles to prevent release of fibres into the ceiling space, air conditioning or ventilation system. Clip tile down to the grid to stop lifting.

19.47 PROTECT EXISTING WORK

Protect adjacent existing work from damage during the installation.

Completion & Commissioning

19.48 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.

19.49 SELECTIONS

Substitutions are not permitted to the following, unless stated otherwise.

Performance requirements

19.50 ACOUSTIC REQUIREMENTS

Location:	~
Noise reduction coefficient (NRC):	~ minimum
Ceiling attenuation class (CAC):	~ minimum room to room

19.51 FIRE HAZARD PROPERTIES

Location:	~
Group Number:	~

19.52 FIRE RATING REQUIREMENT

FRR (minimum)	Ceiling	Floor system	Location
~/~/~	~	~	~

19.53 ENVIRONMENTAL REQUIREMENTS

Temperature range:	~ - ~°C
Maximum relative humidity:	~ %

19.54 REFLECTANCE

Reflectance:	~ % minimum
For (colour):	~

Performance - Wind (design by contractor)

19.55 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR

Wind design and performance criteria to AS/NZS 1170.2 as follows:

Parameter	**Parameter**
Design wind speed (Vdes.Ø)	~ m/s
Terrain Category (Mz,cat)	~
Shield Factor (Ms)	~
Topographic multiplier (Mt)	~
Hill-shape multiplier (Mh)	~
Lee multiplier (Mlee)	~
Internal pressure coefficient (Cp,i)	~

Performance - Seismic (design by contractor)

19.56 DESIGN PARAMETERS SEISMIC - DESIGN BY CONTRACTOR

Seismic design and performance criteria to NZS 1170.5 as follows:

Parameter	**Value**
Building Importance Level	~
Design Working Life	~ years
Site Sub-soil Class	~
Near Fault Factor N(T,D)	~
Part Classification Category (P1-P7)	~
Interstorey Drift - ULS	~ mm
Interstorey Drift - SLS	~ mm

Suspension system

19.57 GRID SUSPENSION SYSTEM

Location:	~
Brand:	~
System:	~
Module:	~ mm x ~mm
Grid width:	~ mm
Grid finish/colour:	~
Access:	~ %

19.58 PERIMETER TRIM

Brand/form:	~

Material:	~
Finish/colour:	~

19.59 SEISMIC RESTRAINT

Location:	~
Brand:	~
Type:	~
Material:	~

Tiles, panels or cells

19.60 FIBRE BASED TILES

Brand:	~
Type/material:	~ / ~
Facing/pattern:	~ / ~
Thickness:	~ mm
Size:	~ mm x ~mm to suit grid
Edge profile:	~

19.61 PLASTERBOARD TILES

Brand:	~
Thickness:	~ mm
Size:	~ mm x ~mm to suit grid
Finish:	~

19.62 FIBROUS PLASTER TILES

Brand:	~
Pattern:	~
Thickness:	~ mm
Size:	~ mm x ~mm to suit grid
Edge profile:	~
Backing/insulation:	~

19.63 WOOD BASED BOARD TILES

Brand:	~
Type/material:	~ / ~
Surface treatment:	~
Backing:	~
Thickness:	~ mm
Size:	~ mm x ~mm to suit grid
Edge profile:	~
Finish:	~

19.64 WOOD FIBRE TILES

Brand:	~
Type:	~
Pattern:	~
Thickness:	~ mm
Size:	~ mm x ~mm to suit grid.

Edge profile:	~
Finish:	~

19.65 LINEAR METAL

Brand:	~
Metal:	~
Profile:	~
Finish/colour:	~
Closure:	~
Insulation:	~

19.66 OPEN CELL

Brand:	~
Panel size:	~ mm x ~mm.
Colour:	~

Spares & maintenance products

19.67 SPARES & MAINTENANCE PRODUCTS

Refer to the general section 1270 CONSTRUCTION for details of how spares and maintenance products will be handled. Provide the following spares and maintenance products:

Item:	~
Quantity:	~
Location:	Refer to 1270 CONSTRUCTION

20 RONDO SYSTEMS - PLASTERBOARD & SHEET CEILINGS

20.1 GENERAL

This section relates to the supply and installation of **Rondo Ceiling Systems.** It includes;

- Rondo KEY-LOCK Concealed Ceiling System
- Rondo XPRESS® Drywall Grid System
- Rondo Steel Stud Drywall Concealed Ceiling System
- Direct-fix or fully suspended applications
- Non-fire rated and fire-rated systems
- Bulkhead, curved ceilings
- Seismic and acoustic designs

20.2 RELATED WORK

Refer to ~ for ~

20.3 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:
AWCINZ Association of Wall and Ceiling Industries of New Zealand Inc

Documents

20.4 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC B1/VM1	Structure general
NZBC B2/AS1	Durability
AS/NZS 1170.0	Structural design actions - General principles
AS/NZS 1170.1	Structural design actions - Permanent, imposed and other actions
AS/NZS 1170.2:	2011 Structural design actions - Wind actions
NZS 1170.5	Structural design actions - Earthquake actions - New Zealand
AS/NZS 2588	Gypsum plasterboard
AS/NZS 2785	Suspended Ceilings - Design & Installation
NZS 4219	Seismic performance of engineering systems in buildings
NZS 4541	Automatic fire sprinkler systems
AS/NZS 4600:	2005 Cold formed steel structures
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium

20.5 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:
Rondo Professional Design Manual

Rondo KEY-LOCK® installation guide
Rondo XPRESS® Drywall Grid System Rondo brochure
Rondo Steel Stud Drywall Concealed Ceiling System in Design Guide
Certificate of Licence for New Zealand Made trademark - Licence No. 806965

Manufacturer/supplier contact details
Company: **Rondo Building Services Pty Ltd**
Web: www.rondo.co.nz
Email: steve.hardy@rondo.co.nz
Telephone: 09 636 5110

Warranties

20.6 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:
10 years For Rondo branded products against defects in materials under normal use. In addition, Rondo warrants that the Rondo KEY-LOCK® Suspended Ceiling Systems will remain structurally sound for a period of 15 years.

- Provide this warranty on the manufacturer/supplier standard form
- Commence the warranty from the date of purchase.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

20.7 QUALIFICATIONS GENERALLY

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.
Provide evidence of experience, listing completed projects of similar size and complexity.

20.8 QUALIFICATIONS WORKERS – INDUSTRY QUALIFICATION REQUIREMENTS

Installation by a manufacturer accredited installer, using the manufacturer technical services. Installers are to be members of the AWCINZ. Refer to 1270 CONSTRUCTION for additional requirements relating to qualifications.
Provide evidence of experience, listing completed projects of similar size and complexity.

20.9 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

20.10 SAMPLES

Refer to the general section 1270 CONSTRUCTION for details of how samples will be reviewed and how instructions to proceed will be given. Provide the following samples for review:

	Sample A	Sample B	Sample C
Sample description:	~	~	~
Sample type:	~	~	~

Number:	~	~	~
Location:	~	~	~
Supporting documentation:	~	~	~
Reviewer:	Contract administrator ~	Contract administrator ~	Contract administrator ~
Time for review:	10 working days ~	10 working days ~	10 working days ~
Review criteria:	~	~	~

20.11 RONDO SPECIFIC DESIGN DOCUMENTS

Refer to SELECTIONS for project specific design documentation by Rondo Building Services Pty Ltd, generally consisting of:

- Design calculations
- Dimensioned plans/elevations of elements
- Details of construction, connections and support systems
- Dimensions of all typical elements
- Jointing details and method of fixing between individual elements and between this installation and adjacent work
- Provision for thermal and seismic movement
- Bracing requirements, due to wind and seismic loads
- A schedule of materials, finishes and componentry

20.12 SHOP DRAWINGS

Refer to the general section 1235 SHOP DRAWINGS for the requirements for submission and review and the provision of final shop drawings.

Provide shop drawings to show the general arrangement including, but not be limited to:

- Design calculations.
- Fully dimensioned elevations of all elements
- Complete details of construction, connections and all support systems
- Dimensions of all typical elements
- Jointing details and method of fixing between individual elements and between this installation and adjacent work
- Provision for thermal movement
- Provision for seismic movement and movement under prevailing wind loads
- Bracing requirements, due to wind and seismic loads (indicate any design and construction work by others, to meet these requirements)
- Sequence of installation
- Co-ordination requirements with other work
- A full schedule of materials, finishes and componentry

20.13 AS BUILT DOCUMENTS

Refer to the general section 1238 AS BUILT DOCUMENTATION for the requirements for submission and review of as built documents and records.

Provide the following as built documents and records:

~

- Provide draft as built information prior to practical completion.
- Provide final as built information prior to the end of the defects liability period.

Compliance information

20.14 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation:
- Manufacturer / supplier warranty.
- Internal Rondo engineered design - refer to SELECTIONS.
- Producer Statement (PS1) - Design from supplier independent engineer.
- Producer Statement (PS3) - Construction from the applicator / installer.
- Producer Statement (PS4) - Construction Review from an acceptable suitably qualified person.
- Other information required by the BCA in the Building Consent Approval documents.

20.15 PRODUCER STATEMENT – DESIGN

Refer to SELECTIONS for an independent Producer Statement - Design (PS1).

Performance

20.16 LOADING CODE REQUIREMENT

To AS/NZS 2785, comply with the requirements of; AS/NZS 1170.0, AS/NZS 1170.1, AS/NZS 1170.2, NZS 1170.5, NZBC B1/VM1, as appropriate.

20.17 CERTIFICATION

Provide:
- Certificates and other evidence that the system complies with the standards of performance specified.
- Producer Statements.

20.18 FIRE RATING REQUIREMENT

Design the ceiling system so that together with the floor and ceiling lining system, it is to NZBC C/AS1 - AS2, Appendix C, 5.1 Fire Resistance. Refer to SELECTIONS.

20.19 ENVIRONMENTAL REQUIREMENTS

Durability to NZBC B2/AS1.

Performance - Wind (design by contractor)

20.20 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR

Design the installation to the wind pressure parameters of AS/NZS 1170.2. Refer to general section 1220 PROJECT for general details.
Contact Rondo Building Services Pty Ltd for their internal engineering design service or to facilitate Producer Statement - Design (PS1).
Refer to SELECTIONS specific design performance requirements.

Performance - Seismic (design by contractor)

20.21 SEISMIC - SPECIFIC DESIGN

Design the system and its anchorages/fixings to resist the earthquake loads of the seismic zone in accordance with NZS 1170.5. Refer to general section 1220 PROJECT for general details. Contact Rondo Building Services Pty Ltd for their

internal engineering design service or to facilitate Producer Statement - Design (PS1).
Refer to SELECTIONS specific design performance requirements.

Quality control and assurance

20.22 INSPECTIONS

~

PRODUCTS

Suspension system - Rondo KEY-LOCK suspended ceiling system

20.23 KEY-LOCK SUSPENDED CEILING SYSTEM

KEY-LOCK suspended ceiling system to AS/NZS 2785, hot-dip galvanized steel elements manufactured from G2 steel strip to AS 1397 including furring channels and snap in sections. Primary (Top Cross Rail) and secondary components (Furring Channel).

20.24 SEISMIC RESTRAINT

To AS/NZS 2785, 4.3.3 Seismic Restraint Types and/or suitable proprietary back braces for ceiling systems.

Direct-fix ceiling system - Rondo KEY-LOCK direct-fix ceiling system

20.25 KEY-LOCK DIRECT FIX CEILING SYSTEM

KEY-LOCK direct fix ceiling system to AS/NZS 2785, including suspension depths of up to 200mm.
Furring channels, Direct fix clips for fixing to timber, steel and concrete, to carry ceiling sheets, light fixtures and air distribution elements to comply with NZS 1170.5.
Provide diagonal bracing to provide lateral stability if required. Perimeter trim, expansion joints and seismic joints etc. to AS/NZS 2785, as required.
Hot-dip galvanized steel elements manufactured from steel strip to AS 1397.

20.26 PRIMARY SECTIONS

Rondo 25mm or 38mm top cross rail to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

20.27 FURRING BATTEN SECTIONS

Rondo 16mm, 28mm, or 35mm furring/batten sections to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

Components

20.28 DIRECT FIX CLIPS

Hot-dip galvanized steel elements manufactured from steel strip to AS 1397.

20.29 SECTION JOINERS

Hot-dip galvanized steel elements manufactured from steel strip to AS 1397.

20.30 RONDO WALL TRIM

Rondo wall trim sections to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

20.31 RONDO SUSPENSION RODS, BRACKETS CLIPS, RODS & ANCHORS

Rondo components to AS 1397. Steel grade and zinc coating class G2 Z275 to AS 1397.

Accessories

20.32 FASTENERS SUSPENSION SYSTEM

Pop rivets or 8g-16 x 12mm (minimum) self drilling wafer head screws to join furring channels and C channels as detailed in Rondo Professional Design Manual and to Rondo Building Services Pty Ltd requirements.

20.33 FASTENERS DIRECT FIX

8g-16 x 25mm (minimum) self drilling wafer head screws for fixing to timbers detailed in Rondo Professional Design Manual and to Rondo Building Services Pty Ltd requirements.

20.34 SCREWS

25mm x 6 gauge non-rusting Type S self-drilling and self-tapping bugle head screws as detailed in Rondo Professional Design Manual and to Rondo Building Services Pty Ltd requirements.

Rondo XPRESS® Drywall Grid System

20.35 RONDO XPRESS® DRYWALL GRID SYSTEM

Rondo XPRESS® Drywall Grid System to AS/NZS 2785, hot-dip galvanized steel, Z275 finish.

20.36 MAIN TEES

38mm deep with 24mm and 38mm face width options in standard and heavy duty gauges, refer to SELECTIONS.

20.37 CROSS TEES

38mm deep with 24mm and 38mm face width options, refer to SELECTIONS.

20.38 WALL TRIMS

Refer to SELECTIONS.

20.39 CLIPS

Refer to SELECTIONS.

Components

20.40 SUSPENSION CLIPS, BRACKETS, RODS & WIRE

Refer to SELECTIONS.

Accessories

20.41 FASTENERS

Pop-rivet, Tek® Screws, XDSC Clip

Materials - Rondo Steel Stud Drywall Ceiling System

20.42 STEEL STUD SECTIONS

Rondo stud sections to AS/NZS 4600. Steel Grade and zinc coating class G2 Z275 to AS 1397 with preformed service holes to stud webs and a range of BMT options. Refer to SELECTIONS for type.

20.43 STEEL TRACK SECTIONS

Rondo track sections to AS/NZS 4600. Steel Grade and zinc coating class G2 Z275 to AS 1397 with a range of widths and BMT options. Refer to SELECTIONS for type.

20.44 MECHANICAL JOINTS

Joint Type:	Fastener:
Type 1 (spans up to 3.0m or 2 or 3 span ceilings up to 4.0m)	1/#8-18 x 16mm wafer head tek screw in 2 places
Type 2 (spans larger than 3.0m)	2/#10-16mm tek screws
Type 3 (spans larger than 3.0m)	3/#10-16mm tek screws

20.45 SUSPENSION JOINT TYPE 1

30mm x 0.8mm hoop iron strapping wrapped around underside of purlin and fixed to web with 2/#8-18 x 16mm wafer head tek screws each side of purlin and screws.

20.46 SUSPENSION JOINT TYPE 2

Rondo angle bracket 553 fixed to purlin with 2/#8-18 x 16mm wafer head tek screws in 4 places.

20.47 SUSPENSION JOINT TYPE 3 - CONCRETE SOFFIT

Rondo angle bracket 247 fixed to stud with 2/#8-18 x 16mm tek screws and bracket fixed to concrete soffit with proprietary masonry anchor.

Lining and Insulation

20.48 PLASTERBOARD

Gypsum plaster core encased in a face and backing paper formed to AS/NZS 2588. Refer to SELECTIONS for type and thickness.

20.49 LINING BOARD

Refer to SELECTIONS for type, thickness and finish.

20.50 INSULATION

Refer to SELECTIONS for type and thickness.

Access Panels

20.51 ACCESS PANEL

Refer to SELECTIONS.

EXECUTION

Conditions

20.52 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

20.53 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements. Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

20.54 SUBSTRATE

Ensure substrate is plumb, level and in true alignment. Do not start erection if the substrate will not allow work of the required standard. Complete any remedial work found necessary before framing erection.

20.55 COMMENCING THIS WORK

Commencing this work means the substrate is accepted as allowing work of the required standard.

20.56 CO-ORDINATE SERVICES

Co-ordinate and co-operate with electrical and mechanical work to avoid conflict between suspension members and luminaires, diffusers, pipework and ducting. Confirm the provision of extra hangers and fixings.

Ensure co-operation with work in and above the ceiling, including the marking of specific ceiling tiles below major access points to above-ceiling services. Colour coded markings to follow the standards laid down by mechanical and electrical services.

Services and other attachments, attached to or supported by the ceiling grid system to AS/NZS 2785, ensure that:

- items over 7.5kg and items under 7.5kg but falling greater than 3m, require a tether to AS/NZS 2785, anchored to structure.
- items attached to the ceiling grid must be under 10kg mass, items over 10kg cannot be attached to the grid and must be independently supported.
- unless designed otherwise, the ceiling systems total load of services and other

attachments must not exceed 3kg/m².
- light fittings installed to AS/NZS 2785 and NZS 4219.
- ceiling system clearances to structure and services etc. that are not attached to the ceiling system, to be to NZS 4219, and/or NZS 4541 for sprinklers.

20.57 SITE CONDITIONS

Do not begin installation until the building is closed in, fully glazed, the roof watertight, and mechanical and electrical duct work above the ceiling completed. To AS/NZS 2785, Appendix C, site Conditions, Installation and Inspections.

Installation generally

20.58 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

20.59 SETTING OUT

Set out the framing work true to line and square before starting erection.

20.60 INSTALL

Installation to AS/NZS 2785 minimum standards, and the systems Rondo Professional Design Manual and Rondo Building Services Pty Ltd requirements.

Allowance for support members:
- Space required by the loads on the system and the type of ceiling.
- For the installation of services and accessories, including ductwork, light fittings and diffusers.
- Additional back support or suspension members for the fixing of services and accessories to prevent distortion, overloading or excessive vertical deflection.
- For access for maintenance of services.

Allowance for a ceiling system where failure of any one suspension point does not cause a progressive failure of the ceiling.
Allowance for height adjustment with a length adjustment device at each suspension point, permitting length variation of at least 50mm.

If required, allow for notch grid members at the junction with the perimeter trim to make sure the ceiling lining lies flat on the perimeter trim. Do not attach the suspension system to the lip or flange of purlins.

Fix, erect and fit to finish rigid, plumb, square and true to line and face. Where components required cutting on site, use metal snips, fine-toothed band or hack saws. Adjust all suspension systems and clips by laser level until they are all level. Hangers and bracing are not to be fixed closer than 150mm to plenum building services.

Install all movement joints required.

Services support to conform to the following:
- If the service has not been designed to accept the ceiling load, do not fix suspension members to services (e.g. ductwork).
- If services obstruct the ceiling supports, provide bridging and suspension on each side of the services.
- Do not support services terminals on ceiling lining, unless specified.

20.61 BULKHEADS

Form bulkheads to manufacturer requirements. Diagonally brace at regular intervals to provide lateral stability. In addition to the dead load of the bulkhead, all bulkheads should be designed for the following minimum loads:

- 0.25 kPa laterally.
- 0.15 kPa vertically.

20.62 INSTALL SEISMIC RESTRAINTS

Install ceiling system seismic restrains and bracing as required to prevent lateral movement and resist the imposed horizontal seismic force, to AS/NZS 2785.

20.63 PENETRATIONS

To AS/NZS 2785 and NZS 4219 generally, with sprinkler systems to NZS 4219 and/or NZS 4541.
Accommodate recessed light fittings, air conditioning outlets and other electrical and/or mechanical services that are fixed to or pass through the ceiling system. Provide independent support for these as necessary.

20.64 ISOLATE

Isolate dissimilar metals with neoprene sheeting, tape or pipe lagging.

20.65 INSULATION

Install insulation to insulation manufacturer and Rondo Building Services Pty Ltd requirements.

20.66 LINING

Fix and finish lining boards to manufacturer and Rondo Building Services Pty Ltd requirements.
Install services before lining. Stagger sheet joins.

20.67 ACCESSIBILITY

Provide access to the ceiling system and the in-ceiling and above-ceiling services so that maintenance and removal of any part can be carried out without damage to the ceiling system or panels.

20.68 ACCESS PANEL

Install to Rondo Panther installation requirements.

20.69 INSTALLATION – SPECIFIC

Refer to SELECTIONS for Rondo Building Services Pty Ltd project specific design documentation.

20.70 PROTECT EXISTING WORK

Protect adjacent existing work from damage during the installation.

Installation - Rondo KEY-LOCK Ceiling System

20.71 INSTALLATION

Install the Rondo KEY-LOCK suspension system to AS/NZS 2785, and the Rondo Professional Design Manual and KEY-LOCK® installation guide.
Screw-fix sheets to furring channel sections at the centres required by the ceiling lining manufacturer. Stagger joints and fully support on furring sections and primary sections at centres to suit the load and Rondo installation manual.
Refer to 5113 PLASTERBOARD LININGS for plasterboard and stopping specification.

Installation - Rondo XPRESS® Drywall Grid System

20.72 INSTALLATION

Install the Rondo XPRESS® Drywall Grid System to AS/NZS 2785, Rondo Professional Design Manual, Rondo XPRESS® Drywall Grid System Rondo brochure and Rondo Building Services Pty Ltd requirements.

Installation - Rondo Steel Stud Drywall Ceiling System

20.73 INSTALLATION – GENERAL

Installation to Rondo® Steel Stud Drywall Framing Systems Steel Framing Installation Guide, Rondo Professional Design Manual and Rondo Building Services Pty Ltd requirements. Fix, erect and fit to finish rigid, plumb, square and true to line and face.

20.74 INSTALLATION - STEEL STUD DRYWALL CEILING SYSTEM

Installation to Rondo Professional Design Manual and Rondo Building Services Pty Ltd requirements.

20.75 BRIDGING TRACK SECTIONS

Fit bridging in position with fasteners in accordance with the Rondo Professional Design Manual.

Completion

20.76 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.

20.77 SELECTIONS

For further details on selections go to www.rondo.co.nz
Substitutions are not permitted.

20.78 FIRE RATED SYSTEMS

Location:	~
FRR:	~ / ~ / ~ minutes

20.79 ACOUSTIC RATED SYSTEMS

Location:	~
STC:	~

Performance - Wind (design by contractor)

20.80 DESIGN PARAMETERS WIND - DESIGN BY CONTRACTOR

Wind design and performance criteria to AS/NZS 1170.2 as follows:

Parameter	Wind
Design wind speed (Vdes.Ø)	~ m/s
Terrain Category (Mz,cat)	~
Shield Factor (Ms)	~
Topographic multiplier (Mt)	~
Hill-shape multiplier (Mh)	~
Lee multiplier (Mlee)	~
Internal pressure coefficient (Cp,i)	~

Performance - Seismic (design by contractor)

20.81 DESIGN PARAMETERS SEISMIC - DESIGN BY CONTRACTOR

Seismic design and performance criteria to NZS 1170.5 as follows:

Parameter	Value
Building Importance Level	~
Design Working Life	~ years
Site Sub-soil Class	~
Near Fault Factor N(T,D)	~
Part Classification Category (P1-P7)	~
Interstorey Drift - ULS	~ mm
Interstorey Drift - SLS	~ mm

20.82 SEISMIC RESTRAINT

Location: ~
Brand: ~
Type: ~
Material: ~

Design documentation

20.83 RONDO SPECIFIC DESIGN

Document: ~
Submitted: ~
Available: ~

20.84 PRODUCER STATEMENT – DESIGN

PS1: ~
Available: ~

Rondo KEY-LOCK Ceiling System

20.85 RONDO KEY-LOCK SUSPENDED CEILING SYSTEM

Location:	~
Type/Brand:	KEY-LOCK Suspended Ceiling System
FRR:	~
Acoustic Mounts:	~
Curved radius:	~
Top Cross Rails (TCR):	~
Furring Channels (FC):	~
TCR to FC Joiners:	~
Perimeter Trims:	~
Suspension Brackets & Clips:	~
Lining Configuration/Pattern:	~

20.86 RONDO KEY-LOCK DIRECT FIX CEILING SYSTEM

Location:	~
Type/Brand:	KEY-LOCK Direct Fix Ceiling System
FRR:	~
Acoustic Mounts:	~
Curved radius:	~
Furring Channels (FC):	~
Perimeter Trims:	~
Fasteners direct fix:	~

20.87 RONDO KEY-LOCK BULKHEAD SYSTEM

Location:	~
Type/Brand:	KEY-LOCK Bulkhead System
FRR:	~
Acoustic Mounts:	~
Curved radius:	~

Materials - Rondo XPRESS® Drywall Grid System

20.88 RONDO XPRESS® DRYWALL GRID SYSTEM

Location: ~
Type/Brand: Rondo XPRESS ® Drywall Grid System
Grid configuration: ~
Main Tee: ~
Cross Tee: ~
Wall Trim: ~
Clips: ~
Suspension: ~
Direct fix brackets: ~
Control joints: ~
Expansion Joints: ~

Components

20.89 TRIM

Location:	~

Wall trim:	~
Bulkhead trim:	321 (13mm)

Steel Stud Drywall Ceiling System

20.90 RONDO STEEL STUD AND TRACK CEILING SYSTEM

Location:	~
Type/Brand:	Rondo Steel Stud and Track Ceiling System
FRR:	~
Ceiling studs:	~
Wall track:	~
Bridging:	~
Fixing:	~

Access Panels

20.91 METAL FACED ACCESS PANELS

Location:	~
Brand:	Rondo PANTHER® Access Panel Systems
Type:	Metal faced
Size:	~

20.92 SOUND RATED ACCESS PANELS - Rw 30

Location:	~
Brand:	Rondo PANTHER® Access Panel Systems
Type:	Sound rated
Size:	~

20.93 SOUND RATED ACCESS PANELS - HIGH PERFORMANCE Rw 51

Location:	~
Brand:	Rondo PANTHER® Access Panel Systems
Type:	Sound rated
Size:	~

20.94 FIRE RATED ACCESS PANELS

Location:	~
Brand:	Rondo PANTHER® Access Panel Systems
Type:	Fire rated
Size:	~

20.95 TILE FACED ACCESS PANELS

Location:	~
Brand:	Rondo PANTHER® Access Panel Systems
Type:	Tile faced
Size:	~

20.96 WET LINE MOISTURE RESISTANT POLYMER BOARD FACED ACCESS PANEL

Location:	~
Brand:	Rondo PANTHER® Access Panel Systems
Type:	Advanced Polymer Board Panel
Size:	~

20.97 PERFORATED PLASTERBOARD ACCESS PANEL

Location:	~
Brand:	Rondo PANTHER® Access Panel Systems
Type:	Formed to accept Decorative Plasterboard Insert sound rated
Size:	~

Insulation & Linings

20.98 INSULATION

Location:	~
Brand:	~
Type:	~
Thickness:	~

20.99 PLASTERBOARD

Location:	~
Brand:	~
Type:	~
Thickness:	~
Finish:	~

20.100 LINING BOARD

Location:	~
Brand:	~
Type:	~
Thickness:	~
Finish:	~

Spares & maintenance products

20.101 SPARES & MAINTENANCE PRODUCTS

Refer to the general section 1270 CONSTRUCTION for details of how spares and maintenance products will be handled. Provide the following spares and maintenance products:

Item:	~
Quantity:	~
Location:	Refer to 1270 CONSTRUCTION

21EARTHWOOL® GLASSWOOL THERMAL INSULATION

21.1 GENERAL

This section relates to **Earthwool®** glasswool thermal insulation systems including installation.
It includes:
Earthwool® glasswool insulation

- Earthwool® glasswool insulation: Underfloor Rolls with wind wash barrier
- Earthwool® glasswool insulation: Underfloor Quilted Batts with wind wash barrier
- Earthwool® glasswool insulation: External Wall Batts
- Earthwool® glasswool insulation: Ceiling Batts
- Earthwool® glasswool insulation: Roof blankets

21.2 RELATED WORK

Refer to ~ for ~
Refer to 4161 UNDERLAYS, FOIL AND DPC for wall underlay and roofing underlay.

21.3 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.
The following abbreviations apply specifically to this section:

~ ~

Documents

21.4 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS1-AS2	Protection from Fire
NZBC H1/AS1	Energy efficiency
NZBC H1/VM1	Energy efficiency
AS/NZS 3000	Electrical installations (Australian/New Zealand Wiring Rules)
AS/NZS 4859.1:	2002 Materials for the thermal insulation of buildings - General criteria and technical provisions
AS/NZS 5110	Recessed Luminaire Barriers
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance
NZS 4214	Methods of determining the total thermal resistance of parts of buildings
NZS 4218	Thermal insulation - Housing and small buildings
NZS 4220	Code of Practice for energy conservation in non-residential buildings
NZS 4243.1	Energy Efficiency - Large Buildings - Building Thermal Envelope
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

21.5 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer and supplier documents relating to this part of the work:

BRANZ Appraisal 648	Earthwool® glasswool Insulation
BRANZ Appraisal 975	Earthwool® glasswool insulation: quilted underfloor batt.
CodeMark	GM-CM30095-RevA1 Refer to conditions and limitations listed in the CodeMark. Refer to Compliance clause CODEMARK CERTIFICATE for list of Product
GreenTag	KNI-001-v2-2016

Manufacturer/supplier contact details

Company:	Knauf Insulation New Zealand
Web:	www.knaufinsulation.co.nz
Email (Technical):	tech.nz@knaufinsulation.com
Email (Sales):	sales.nz@knaufinsulation.com
Telephone:	0800 KNAUFi (562 834)

Warranties

21.6 WARRANTY

Provide a warranty for:

50-years	For unfaced Earthwool® glasswool insulation materials
15-years	For Earthwool® glasswool insulation underfloor

- Provide this warranty on the manufacturer/supplier standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT)
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

21.7 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

~ -years	For installation of insulation

- Provide this warranty on the installer/applicator standard form (if not available then use the standard form in the general section 1237WA WARRANTY AGREEMENT).
- Commence the warranty from the date of practical completion of the contract works

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

21.8 QUALIFICATIONS – GENERAL

Refer to 1270 CONSTRUCTION for requirements relating to experience, skill, and qualifications.

21.9 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

Performance - thermal insulation

21.10 R-VALUE RATING

Refer to SELECTIONS for location, type, R-Value, and thickness.

Performance - fire properties

21.11 FIRE PROPERTIES

Earthwool® glasswool insulation is non-combustible to test criteria under the 30's Needle Flame Test to AS/NZS 60695.11.5.

Compliance

21.12 CODEMARK CERTIFICATE

Earthwool® glasswool meets the requirements of the NZBC when used in accordance with the conditions and limitations of its Certificate of Conformity. Refer to MANUFACTURER/SUPPLIER DOCUMENTS for CodeMark certificate.

The following Earthwool® glasswool Product Datasheets and Installation Instructions, relevant to this section, listed in the CodeMark conditions and limitations:

- Ceiling:	Product datasheet ref: KINZ1213029DS, April 2017
- Ceiling Roll:	Product datasheet ref: KINZ0914115DS, January 2017
- Underfloor Roll:	Product datasheet ref: KINZ0616380DS, June 2016
- Wall:	Product datasheet ref: KINZ00914114DS, January 2017
- Multi-Use roll:	Product datasheet ref: KINZ0616396DS, June 2017
- Quilted underfloor batts:	Installation instructions, ref: KINZ0817602MIS
- Ceiling batts:	Installation instructions, ref: KINZ1017631MIS
- Ceiling Rolls:	Installation instructions, ref: KINZ1017632MIS
- Quilted Underfloor batts:	Installation instructions, ref: KINZ0817602MIS
- Underfloor Roll:	Installation instructions, ref: KINZ1017636MIS
- Wall batts:	Installation instructions, ref: KINZ1017633MIS

PRODUCTS

Materials - Ceiling Thermal Insulation

21.13 EARTHWOOL® GLASSWOOL INSULATION: CEILING ROLL/ROOF BLANKET

An insulation roll to NZBC H1/AS1, AS/NZS 4859.1:2002. Made using recycled glass

and with ECOSE® Technology, it is suitable for thermal applications.
Refer to SELECTIONS for options.

Components

21.14 TAPES

Polypropylene or similar strapping stapled across framing to retain insulation in wall and ceiling applications.

Accessories - General

21.15 WIRE NETTING

Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting used to support the insulation.

21.16 REFLECTIVE FOIL

Refer to 4161 UNDERLAYS, FOIL AND DPC for reflective foil.

21.17 VAPOUR BARRIER

Refer to 4161 UNDERLAYS, FOIL AND DPC for vapour barrier.

21.18 EXECUTION

Conditions

21.19 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery. Storage and handling of products.
Do not use damaged or wet insulation material.

21.20 ROUTINE MATTERS

The building envelope must be maintained to a weathertight condition to ensure the insulation remains dry. Cavities must be clean and dry before fitting insulation.

21.21 PRE-INSTALLATION REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for this part of the work.

Location and framing:	free from moisture, and the cavities are not interconnected.
Moisture content:	~% maximum for framing
Insulation re-loft	Allow to re-loft/relax to specified thickness.
Discard	Damaged or wet insulation
Underlays	Ensure roof and wall underlays are installed, dry, clean, undamaged and free of debris before being covered with insulation
Vapour Barriers	Ensure vapour barrier forms one homogeneous sheet

Installation

21.22 INSTALLATION – GENERAL

Lay, install, fit and fix to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope, and to manufacturer requirements. Install in housing to NZS 4218 and NZS 4246. Install in large buildings to NZS 4243.1 and NZS 4220. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Refer to manufacturer installation instructions and NZS 4246 for further details.

21.23 RECESSED LIGHT FITTING CLEARANCES - NON-RESIDENTIAL

Non-residential recessed light fittings to AS/NZS 3000, 4.5.2.3.5;
- Existing fittings or retrofit situations, fittings maybe unmarked
- New fittings can only be labelled - CA 80, CA 90, CA 135, IC, IC-F, IC-4, NON-IC or Do-not Cover

Refer to clause INSULATION CLEARANCES GENERALLY for clearances.

21.24 INSULATION CLEARANCES – GENERAL

Insulation may need to have a gap to some mechanical and electrical services and equipment, including ducts and chimneys. The gaps should be to the NZS 4246 based tables below or to the equipment manufacturer requirements if they require larger gaps. Smaller gaps to manufacturer requirements can be used for equipment specifically manufactured with heat shielding or similar (excludes light fittings). Installed gap not to be more than 50mm bigger than the required gap.

The following tables are subject to:
- The requirements of NZS 4246.
- The insulation is exposed to the source of heat or equipment etc.
- Insulation, has passed the needle flame test to AS/NZS 60695.11.5 and/or is non-combustible.
- Gaps to hot surfaces may have to be increased with non-compliant insulation and plastic/polymeric type insulation (EPS, XPS, PIR, etc), check with insulation manufacturer.
- Gaps to hot surfaces may be able to be reduced with non-combustible insulation, check with equipment manufacturer.
- "Secure insulation" if required means, glue, mechanical fix, or provide fixed barriers at gap edge of insulation to hold in place. Rigid or semi rigid insulation may only need a firm friction fit (secure loose pieces).

LIGHT FITTINGS

Type of fitting	**Minimum insulation clearance**	**Comments**
Recessed, marked NON-IC, or unmarked	100mm(increase if over 100W)	NON-IC fittings and new or old unmarked & unknown fittings, and/or insulation. Secure insulation.
Recessed, CA 80, CA 90 or CA 135	Abut fittings	Do NOT cover the fittings.
Recessed, IC, IC-F or IC-4	Abut & cover fittings	Ensure insulation complies
Recessed, marked Do-Not-Cover	Manufacturers clearances	Do not cover the fittings

Independent control gear	Place on top of insulation and 50mm from fitting	If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.
Surface fittings not exposed to insulation	Nil	Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Secure insulation.

FOR MINIMUM INSULATION CLEARANCES TO INBUILT RECESSED HOT APPLIANCES - REFER TO NZS 4246

INSULATION CLEARANCES FROM EXTRACTS, VENTS, PIPES & ROOF UNDERLAY

Application	**Minimum insulation clearance**	**Comments**
Ducted fan motors	50mm	Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts).
Ducted fan ducts	Abut	Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent.
Passive vents (still in use)	200mm	To prevent debris falling through. Clearance may be able to be reduced, with more cohesive insulation, like some of the rigid plastic types or providing a fixed barrier around the vent.
Plumbing penetrations through floors	100mm	Keep gap between pipe penetration and floor insulation in case of leaks.
Roofing material/underlay	25mm	From underside of roofing or flexible roofing underlay, to prevent wicking.

Installation - Ceiling

21.25 CEILING - SINGLE LAYER (ROLLS OVER CEILING FRAMING)

Loose lay over ceiling framing and between truss chords. Fit securely around all penetrations, leave clearances where required. Cut ceiling roll as required.

21.26 CEILING INSULATION EDGE DETAIL

Where perimeter of ceiling space is too low to allow full depth of insulation plus the 25mm air gap to the underlay, provide reduced perimeter insulation to NZS 4246. 6.2, and maintain the 25mm gap.

Completion & Commissioning

21.27 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.
Earthwool® glasswool insulation packaging is recyclable.

21.28 SELECTIONS

For further details on selections go to www.knaufinsulation.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

Ceiling - Thermal insulation

21.29 EARTHWOOL® GLASSWOOL INSULATION: CEILING ROLL/ROOF BLANKET

Location: ~
Brand: Earthwool® glasswool insulation
R-value: R~
Thickness: ~mm
Size: ~

22KINGSPAN KOOLTHERM® SOFFIT & FRAMING BOARDS

22.1 GENERAL

This section relates to the supply and installation of **Kingspan** Kooltherm® products providing thermal insulation for concrete soffits and behind wall lining and framed walls.
It includes:

- Kooltherm® K10G2 Soffit Board
- Kooltherm® K12 Framing Board
- and associated componentry necessary to complete the installation.

22.2 RELATED WORK

Refer to ~ for ~

Documents

22.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS1-AS2	Protection from fire
NZBC H1/AS1	Energy efficiency
AS/NZS 1530.3	Methods for fire tests on building materials, components and structures - Simultaneous determination of ignitability, flame propagation, heat release and smoke release
AS/NZS 3837	Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter
NZS 4218	Thermal insulation - Housing and small buildings
NZS 4220	Code of practice for energy conservation in non-residential buildings
NZS 4243.1	Energy efficiency - Large buildings - Building thermal envelope
NZS 4246	Energy efficiency - Installing bulk thermal insulation in residential buildings
AS/NZS 4859.1:	2002 Materials for the thermal insulation of buildings – General criteria and technical provisions
ISO 9705	Fire tests - Full scale room test for surface products
BS EN ISO 9001:	2008 Quality management systems - Requirements

22.4 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
Kooltherm® K10G2 Soffit Board brochure
Kooltherm® K12 Framing Board brochure
CodeMark™ SAIG-CM20099 Kooltherm K12 Framing Board

Manufacturer/supplier contact details

Company:	**Kingspan Insulation NZ Ltd**
Web:	www.kingspaninsulation.co.nz
Email:	info@kingspaninsulation.co.nz
Telephone:	0800 123 231

Warranties

22.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:
10 years For Kooltherm® products

- A Project Specific Warranty provided by Kingspan Insulation must be submitted subsequent to a satisfactory site inspection.
- Registration for the Project Specific Warranty to be made online at: www.kingspaninsulation.co.nz/PSW

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

22.6 QUALIFICATIONS

Installers to be experienced, competent trades people familiar with the materials and techniques specified.

22.7 NO SUBSTITUTIONS

Substitutions are not permitted to any of the Kooltherm® specified systems, components and associated products listed in this section.

Performance

22.8 ENERGY EFFICIENCY

Maintain the energy efficiency requirements to NZBC H1/AS1, 2.0 Building thermal envelope. Install to NZS 4218 for small buildings, to NZS 4243.1 for large buildings and to the Kooltherm® technical requirements.

22.9 FIRE GROUP NUMBERS

The Group Number Classification to NZBC C/AS2, table 4.3, has been determined in accordance with NZBC C/VM2 Appendix A, following testing to ISO 9705.

Product	Group Number
Kooltherm® K10G2 Soffit Board	2 - S

Kooltherm® K12 Framing Board is tested to AS/NZS 1530.3.

22.10 COMPLIANCE - K12 FRAMING BOARD

Kooltherm® K12 Framing Board meets the requirements of the CodeMark™ certificate CodeMark™ SAIG-CM20099 when used within the conditions and limitations of its Certificate of Conformity. Achieves compliance with NZBC as follows:

- NZBC B1.3.1, 3.2, 3.3, 3.4
- NZBC B2.3.1 (c)
- NZBC C3.3.4
- NZBC E2.3.2
- NZBC E3.3.1
- NZBC F2.3.1
- NZBC H1. 3.1

PRODUCTS

Materials

22.11 INSULATION FOR USE BEHIND WALL LINING AND FRAMED WALLS

Kingspan Kooltherm® K12 Framing Board, a high performance, fibre-free rigid thermoset phenolic insulation, faced on both sides with a low emissivity composite foil bonded to the insulation during manufacture. Complies with AS/NZS 4859.1:2002.
A smoke obscuration of not more than 100m²/kg, when tested to AS/NZS 3837.
Manufactured under quality control systems approved to BS EN ISO 9001.
Designed to thermally insulate concrete, block and framed walls.
Supplied in a 2400mm x 1200mm board and available in a range of thicknesses and R-values. Refer to SELECTIONS for options.

Components

22.12 FASTENERS - GENERALLY

Fasteners to suit the particular application in accordance with Kooltherm® installation instructions.

22.13 TAPE

Kingspan Foil Tape, aluminium foil tape, minimum of 48mm and 96mm wide.

EXECUTION

Conditions

22.14 DELIVERY, STORAGE AND HANDLING

Take delivery of materials and goods and store on site and protect from damage.
Protect finished surfaces, edges and corners from damage.
Move/handle goods in accordance with manufactures requirements.
Reject and replace goods that are damaged or will not provide the required finish.

Installation - generally

22.15 INSTALL INSULATION – GENERAL

Lay, install, fit and fix to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to NZS 4218 and NZS 4246. Install in large buildings to NZS 4243.1 and NZS 4220. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

22.16 PIPES AND PLUMBING

Cut holes in the Kooltherm® with a sharp knife and notch around obstacles such as pipes and plumbing.

22.17 ELECTRICAL CABLES

Fit Kooltherm® board behind or in front of electrical wiring and plumbing. Ensure there are no gaps or undesirable compression at edges.
Use extreme caution when working around electrical cables.

22.18 CHECK WALL AND ROOF UNDERLAYS

Ensure these are dry, clean, undamaged and free of debris before being covered.

22.19 INSULATION BOARD – CUTTING

Cut Kooltherm® board by using a fine toothed saw or by scoring with a sharp knife, snapping the board over a straight edge and then cutting the facing on the other side. Ensure joints are close-butted to maintain continuity of insulation.

Installation - Kooltherm® K12 Framing Board, fastening

22.20 FASTENERS - KOOLTHERM® BOARD FIXED OVER WALL TIES

Fix Kingspan Kooltherm® K12 Framing Board to external surface of frame structure (maximum 600mm centres stud spacing) ensuring vertical board joints coincide with vertical member. Ensure boards are lightly butted for continuity of insulation. Use large headed galvanized clout nails or screws as fixings prior to boards being tied to frame with appropriate timber frame wall tie and insulation retaining disc. Ensure fixings are coincident with underlying timber studs, top and bottom wall plates.

Installation - Kooltherm® K12 Framing Board, taping

22.21 INSULATION BOARD – TAPING

Tape all board joints with a minimum 48mm wide foil tape.

- Check climate conditions are suitable application of tape. Confirm details with Kingspan Insulation NZ Ltd if unsure of conditions.
- Remove dust, dirt or oil and clean surface of board with a dry cloth before applying tape.
- Remove liner on tape 300mm to 600mm at a time and press adhesive firmly on to the insulation. Do not stretch tape.
- Ensure tape is applied over the centre of the join so that there is adequate area on both sides of the joint.
- Wipe tape firmly from the centre out (like wallpaper) with a plastic squeegee. The more pressure applied, the greater the bond surface.
- Cut and fit tape with a knife and scissors. Repeat wiping instructions as above.

Completion

22.22 ROUTINE CLEANING

Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused materials and elements from the site.

22.23 PROTECT

Protect new work from damage.

22.24 SELECTIONS

For further details on selections go to www.kingspaninsulation.co.nz
Substitutions are not permitted to the following, unless stated otherwise.

Materials

22.25 KINGSPAN KOOLTHERM® INSULATION FOR USE BEHIND WALL LINING & FRAMED WALLS

Location: ~
Manufacturer: Kingspan Insulation NZ Ltd
Brand/type: Kingspan Kooltherm® K12 Framing Board
Board size: 2400mm x 1200mm
Construction type:
Fixing type: ~
Thickness: ~mm
R value: ~

23 AUTEX GREENSTUF® ACOUSTIC INSULATION

23.1 GENERAL

This section relates to **Autex Industries Limited** GreenStuf® polyester fibre insulation installed, laid, hung or fitted as acoustic insulation.

23.2 RELATED WORK

Refer to ~for ~.

23.3 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

STC	Sound Transmission Class
NRC	Noise Reduction Coefficient
IIC	Impact Insulation Class
Rw	Weighted sound reduction index
CAC	Ceiling Attenuation Class
GSM	Grams per Square Metre

Documents

23.4 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC C/AS1-AS2	Protection from fire
NZBC C/VM2	Protection from fire
NZBC G6/VM1	Airborne and impact sound
AS/NZS 3000	Electrical installations (Known as the Australian/New Zealand Wiring Rules)
AS/NZS 60695.11.5	Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance
AS/NZS ISO 9001	Quality management systems - requirements
ISO 9705	Fire tests - Full-scale room test for surface products

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

23.5 MANUFACTURER/SUPPLIER DOCUMENTS

Autex Insulation documents related to this section are:

Autex Insulation Product Manual, including:

Data sheet	GreenStuf® Sound Solution®
Data sheet	GreenStuf® Masonry Wall Blanket
Data sheet	GreenStuf® ASB
Data sheet	GreenStuf® BaffleBlock®
Data sheet	GreenStuf® AAB
Data sheet	GreenStuf® GIB® Noise Control Systems

Data sheet GIB® Noise Control Systems Supplement

Autex Insulation - Acoustic Design Guide
Installation Instructions - GreentStuf® Sound Solution®
Installation Instructions - GreenStuf® Masonry Wall Blanket
Installation Instructions - GreenStuf® ASB
Installation Instructions - GreenStuf® BaffleBlock®
Installation Instructions - GreenStuf® AAB
Installation Instructions - GreenStuf® ASL Soffit Liner
Autex Insulation Warranty Certificate
BRANZ Fire Assessment Report FAR 4045 - Assessment Report on Autex GreenStuf® with Variations to Tested Product.
Buy NZ Made Campaign Ltd - Certificate of Licence No. 705337

Manufacturer/supplier contact details
Company: **Autex Industries Limited**
Web: www.autex.co.nz
Email: enquiries@autex.co.nz
Telephone: 0800 428 839

Warranties

23.6 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:
- 50 year product durability warranty for Autex polyester thermal and acoustic insulation products.
- Provide this warranty on the Autex Insulation Certificate of Warranty standard form.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

23.7 QUALIFICATIONS GENERAL

Refer to 1270 CONSTRUCTION for requirements relating to qualifications.

23.8 NO SUBSTITUTIONS

Substitutions are not permitted to any of the specified systems, components and associated products listed in this section.

Performance

23.9 REVERBERATION CALCULATION

Provide Autex reverberation modelling and certificate as required.

23.10 SOUND RATED REQUIREMENTS

Provide sound rated wall, floor and ceiling system as scheduled.

23.11 FIRE GROUP NUMBERS

The Group Number Classification to NZBC C/AS2, table 4.3, has been determined in

accordance with NZBC C/VM2 Appendix A, following testing and data reduction to ISO 9705.

Product	Group number
GreenStuf®, all variations up to 4,800GSM Refer to BRANZ Fire Assessment Report FAR 4045	1-S

PRODUCTS

Materials

23.12 POLYESTER FIBRE ACOUSTIC PANEL

Autex GreenStuf® AAB - 100% polyester fibres thermally bonded to form a flexible panel/sheet. Manufactured in NZ under AS/NZS ISO 9001 and ISO 14001 quality and environmental management systems. Refer to SELECTIONS for details.

Components

23.13 FASTENERS, POLYESTER FIBRE ACOUSTIC PANELS

Insulation anchors/fasteners for attaching insulation to substrate.

23.14 ADHESIVE, POLYESTER FIBRE ACOUSTIC PANELS

Contact type adhesive to the manufacturer's requirements.

23.15 WIRE NETTING

Refer to 4161 UNDERLAYS, FOIL AND DPC for wire netting used to support the insulation.

23.16 PLASTIC STRAPPING TAPES

Proprietary plastic strapping tape, stapled over framing to retain insulation in unlined wall, ceiling and underfloor locations.
For drained cavities where stud spaces are greater than 450mm and only flexible underlay is used, strapping required to NZBC E2/AS1 9.1.8.5

Wall framing behind cavities.

EXECUTION

Conditions

23.17 DELIVERY, STORAGE & HANDLING OF PRODUCTS

Refer to 1270 CONSTRUCTION for requirements relating to delivery, storage and handling of products.

23.18 ROUTINE MATTERS

Refer to 1250 TEMPORARY WORKS & SERVICES for protection requirements.
Refer to 1270 CONSTRUCTION for requirements relating to defective or damaged work, removal of protection and cleaning.

23.19 HANDLING

Avoid delamination or distortion of the rectangular form. Maintain full thickness unless compression is an installation system requirement.

23.20 INSPECTION

Before starting installation of Autex GreenStuf® insulation materials, check that the location and framing are free from moisture, that the cavities are not interconnected and that any required mesh, underlays and vapour barriers are in place.

Application

23.21 INSTALL INSULATION GENERALLY

Lay, install, fit and fix to manufacturer's requirements. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

23.22 RECESSED LIGHT FITTINGS - NON-RESIDENTIAL

Non-residential recessed light fittings to AS/NZS 3000, 4.5.2.3.5;

- Existing fittings or retrofit situations, fittings maybe unmarked
- New fittings can only be labelled - CA 80, CA 90, CA 135, IC, IC-F, IC-4, NON-IC or Do-not Cover

Refer to clause INSULATION CLEARANCES GENERALLY for clearances.

23.23 INSULATION CLEARANCES GENERALLY

Insulation may need to have a gap to some mechanical and electrical services and equipment, including ducts and chimneys. The gaps should be to the NZS 4246 based tables below or to the equipment manufacturers requirements if they require larger gaps. Smaller gaps to manufacturers requirements can be used for equipment specifically manufactured with heat shielding or similar (excludes light fittings). Installed gap not to be more than 50mm bigger than the required gap.

The following tables are subject to:

- The requirements of NZS 4246 The insulation is exposed to the source of heat or equipment etc.
- Insulation has passed the needle flame test to AS/NZS 60695.11.5 and/or is non-combustible.
- Gaps to hot surfaces may have to be increased with non-compliant insulation and plastic/polymeric type insulation (EPS, XPS, PIR, etc), check with insulation manufacturer.
- Gaps to hot surfaces may be able to be reduced with non-combustible insulation, check with equipment manufacturer.
- "Secure insulation" if required means, glue, mechanical fix, or provide fixed barriers at gap edge of insulation to hold in place. Rigid or semi rigid insulation may only need a firm friction fit (secure loose pieces).
- Loose fill insulation will require fixed barriers to NZS 4246 to maintain gaps.

LIGHT FITTINGS

Type of fitting	Minimum insulation clearance	Comments

Recessed, marked NON-IC, or unmarked	100mm(increase if over 100W)	NON-IC fittings and new or old unmarked & unknown fittings, and/or insulation. Secure insulation.
Recessed, CA 80, CA 90 or CA 135	Abut fittings	Do NOT cover the fittings
Recessed, IC, IC-F or IC-4	Abut & cover fittings	Ensure insulation complies
Recessed, marked Do-Not-Cover	Manufacturers clearances	
Independent control gear	Place on top of insulation & 50mm from fitting	If not on top allow 50mm clearance to insulation, do not cover. Includes, transformers, ballasts & drivers etc.
Surface fittings not exposed to insulation	Nil	Where surface fittings are isolated from insulation by appropriate linings. Excludes high heat fittings.
Surface fittings & exposed insulation	200mm	This is exposed insulation to any part of the exposed fitting & bulb/tube (e.g. exposed light in an unlined basement). Secure insulation.

EXTRACTS, VENTS, PIPES & ROOF UNDERLAY

Application	**Minimum insulation clearance**	**Comments**
Ducted fan motors	50mm	Includes ducted rangehoods, extractors etc. Applies to the motor unit and electrical enclosures (not the ducts)
Ducted fan ducts	Abut	Excludes motor unit and electrical enclosures.
Unducted fan motors usually discharging to ceiling space	200mm	Includes unducted, rangehoods, extractors etc, discharging into roof space. To prevent debris falling into motor. Clearance may be able to be reduced, by providing a fixed barrier around the vent.
Passive vents (still in use)	200mm	To prevent debris falling through. Clearance may be able to be reduced, with more cohesive insulation, like some of the rigid plastic types or providing a fixed barrier around the vent.
Plumbing penetrations through floors	100mm	Keep gap between pipe penetration and floor insulation in case of leaks.
Roofing material/underlay	25mm	From underside of roofing or flexible roofing underlay, to prevent wicking

23.24 CHECK FOILS

Ensure foils are dry, clean, bright, undamaged and free of debris before installing insulation.

23.25 CHECK WALL WRAPS AND ROOF UNDERLAYS

Ensure these are dry, clean, bright, undamaged and free of debris before installing insulation.

23.26 LAY WIRE NETTING - UNDER JOISTS / PURLINS

Lay at right angles across the rafters/roof joists (under purlins). Pull tight and fix.

23.27 LAY PLASTIC STRAPPING TAPE

Lay at right angles across the framing at a minimum of 300mm centres, staple tape to each framing member with stainless steel staples.

23.28 FIT POLYESTER FIBRE ACOUSTIC PANELS

Attach Autex GreenStuf® AAB panels to substrate using mechanical fixings such as insulation anchors, or contact type adhesive. Butt edges firmly to the adjoining panel. Adhesives are available for some applications and are to be used in accordance with Autex and the adhesive manufacturer's instructions.

Fix insulation anchors to the substrate at 600mm centres in both directions. Install GreenStuf® AAB with the smooth slightly textured surface facing out from the substrate, i.e. facing the sound source.

Completion

23.29 COMPLETION MATTERS

Refer to 1270 CONSTRUCTION for completion requirements and if required commissioning requirements.

23.30 SELECTIONS

For further details on selections go to www.autex.co.nz.
Substitutions are not permitted to the following, unless stated otherwise.

23.31 INSULATION ANCHORS, ACOUSTIC INSULATION PANELS

Distributor: Forman Building Systems
Brand: AGM Industries Fasteners or similar

23.32 AUTEX GREENSTUF® AAB ACOUSTIC INSULATION, PANEL

Location: ~
Brand: Autex GreenStuf® AAB
Product: AAB ~
Product weight: ~
Thickness: ~
Density: ~
R-Value: ~
NRC: ~
Colour:~
NZ Made™: Autex Licence no. 705337

24 SANITARY FIXTURES, TAPWARE & ACCESSORIES

24.1 GENERAL

This section relates to the supply and installation of sanitary fixtures, tapware and sanitary accessories.

24.2 RELATED WORK

Refer to 7120 or 7123 HOT AND COLD WATER SYSTEM for hot water cylinders.
Refer to 7420 or 7421 SANITARY SYSTEMS for the supply and fitting of waste disposal pipework
Refer to the electrical section/s for electrical connection of accessories.

Documents

24.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E3/AS1	Internal moisture
NZBC F2/AS1	Hazardous building materials
NZBC G1/AS1	Personal hygiene
NZBC G12/VM1	Water supplies
NZBC G12/AS1	Water supplies
NZBC G13/AS1	Foul water
NZBC G13/AS3	Plumbing and drainage
AS/NZS 1730	Washbasins
AS/NZS 2023	Baths for ablutionary purposes
AS/NZS 3500.1	Plumbing and drainage - water services
AS/NZS 3500.2	Plumbing and drainage - sanitary plumbing and drainage
AS/NZS 3662	Performance of showers for bathing
NZS 4223.3	Glazing in buildings - Human impact safety requirements
Plumbers, Gasfitters and Drainlayers Act 2006	

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

24.4 MANUFACTURER DOCUMENTS

Manufacturer and supplier documents relating to work in this section are:
~

Copies of the above literature are available from ~
Web: ~
Email: ~
Telephone: ~
Facsimile: ~

Requirements

24.5 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a Certifying Plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

24.6 SUPPLIER

A specialist in the supply of tapware, and employing experienced architectural representatives available to assist during the course of the installation.

24.7 SUBMIT A SUPPLIER'S SCHEDULE

~

PRODUCTS

24.8 SANITARY FIXTURES

Refer to SELECTIONS for product selection.

24.9 TAPWARE

Refer to SELECTIONS for product selection.

24.10 SANITARY APPLIANCES

Refer to SELECTIONS for product selection.

EXECUTION

Conditions - sanitary fixtures

24.11 DELIVERY

Only deliver to the site fixtures or fittings that can be immediately unloaded into suitable storage or be placed for direct installation.

24.12 STORAGE AND HANDLING

Take delivery of and store components complete with protective casings and coverings in areas that are enclosed, clean and dry and where no work is being done. Remove protection only to the extent that will allow installation.

24.13 QUALITY STANDARDS INCLUDING AS/NZS 3500.2

Installation work to comply with NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, AS/NZS 3500.2, as modified by NZBC G13/AS3, and the fixture manufacturer's requirements.

24.14 SUBSTRATE

Ensure substrate and fixings will allow work of the specified standard.

24.15 CO-ORDINATION

Do not proceed if the points of supply and drainage services do not match the points of the fixtures without force or distortion.

24.16 INSTALLATION REQUIREMENTS INCLUDING AS/NZS 3500.2

Install to NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC E3/AS1, AS/NZS 3500.2, as modified by NZBC G13/AS3, and to the fixture manufacturer's installation requirements for each component. Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries and sealants in sequence.

Seal between all sanitary fixtures and floors, wall linings, fixtures and the tops they are in, the tops and wall linings, to NZBC E3/AS1, 3.2. Fixtures include toilets, urinals, baths, basins, tubs or sinks. Tops include, vanities, bath surrounds, sink benches, etc, and there upstands.

24.17 PROVIDE SUPPORT

Confirm fixing points needed for each unit and provide solid blocking at each fixing bracket location.

24.18 EARTHING OR EQUIPOTENTIAL BONDING METALLIC FIXTURES

If it is an electrical requirement, before installation or enclosing, ensure at-risk metallic sanitary fixtures are earthed or equipotential bonded (or at least conductor cable attached) to NZBC G12/AS1, 9.0.

Conditions - tapware

24.19 RETAIN

Retain tapware in the manufacturer's original packaging and ensure that units are complete with fixings and installation instructions. Label each unit separately with its fitting name and space number.

24.20 STORE

Store tapware packages in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.

Installation - sanitary fixtures

24.21 INSTALLING TOILET PAN

Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries/bedding and sealants in sequence. Fit the toilet pan in position, plumb, level, flush and rigid without stressing the attachment points of the component. Fixings to be corrosive resistant. Fit seat.

24.22 INSTALLING CISTERNS

Fit firmly in place and connect the specified cisterns from the supply services through the flush pipes to the relative fixtures in the positions as detailed all plumb and level.

24.23 INSTALLING URINALS - WALL HUNG

Carry out preparatory and assembly work, including connections to supply and drainage services and the application of sealants in sequence. Fit and fix the urinal in

position plumb, level, flush and rigid without stressing the attachment points of the component. Connect units to drainage pipework through trap and complete screw fixing of units to wall. Fixings to be corrosive resistant. Seal perimeter of each unit to wall surface, using a compatible silicone sealant.

Installation - Basins

24.24 INSTALLING WASHBASINS

Install to NZBC G1/AS1, AS/NZS 1730. Set basins firmly to walls or vanities as detailed and to comply with NZBC E3/AS1. Connect to supply and drains through trap to the drainage system.

Installation - Showers

24.25 INSTALLING SHOWER FITTINGS

Shower waste, mixer and rose to be install to NZBC G1/AS1 and to AS/NZS 3662. Seal shower wall lining penetrations (shower head, shower hose, mixer, taps etc) to NZBC E3/AS1, Fig. 6.

24.26 INSTALLING PROPRIETARY SHOWER CUBICLE

Install to NZBC G1/AS1 and to AS/NZS 3662 and in accordance with shower manufacturer's details and requirements. Ensure that doors fit closely and accurately. Test for water egress around sides and base. Lining materials and finishes to comply with NZBC E3/AS1.

Installation - Sinks

24.27 INSTALLING SINK BENCHES

Install in accordance with manufacturer's/supplier's requirements. Connect to supply and drainage services.

Installation - Miscellaneous

24.28 INSTALLING STAINLESS STEEL FIXTURES

Carry out preparatory work and fit elements in position plumb, level, flush and rigid without stressing the attachment points in sequence. Connect to supply and drainage services.

24.29 INSTALLING SANITARY FIXTURES & ACCESSORIES - PEOPLE WITH DISABILITIES

Install fixtures to NZBC G1/AS1: Part 3 and Part 4 and to comply with the relevant layouts shown in Figures 5,6,7,8 and 9. Provide number of facilities in accordance with NZBC G1/AS1 tables 1, and 2.

Application - tapware

24.30 GENERAL

To AS/NZS 3500.1 and in accordance with the manufacturer's requirements. Maintain safe water temperatures to comply with NZBC G12/AS1.

Completion

24.31 REPLACE

Replace damaged or marked elements.

24.32 PROTECTIVE COVERINGS

Leave fixtures, fittings and accessories clean and unblemished with stickers and protective coverings removed, with supply and drainage connections and all parts fully operating and working. Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following work.

24.33 REMOVE

Remove debris, unused materials and elements from the site.

SELECTIONS

24.34 TOILET

Location: ~
Toilet pan: ~
Trap type: ~
Toilet seat: ~
Flush system: ~
Isolating valve: ~

24.35 URINAL

Location: ~
Urinal type: ~
Urinal make/model: ~
Trap/waste: ~
Flush system: ~
Flush make/model & details: ~
Isolating valve:~
Accessories: ~

24.36 BASIN

Location: ~
Basin: ~
Basin taps/mixer: ~
Waste/plug: ~
Trap: ~
Isolating valves: ~

24.37 SHOWER CUBICLE – PROPRIETARY

Location: ~
Manufacturer: ~
Model: ~
Trap/Waste: ~
Mixer: ~
Shower set: ~

Shower seat: ~
Grab rails: ~

24.38 KITCHEN COMBINED SINK AND DRAINER

Location: ~
Sink drainer model: ~
Accessories ~
Mixer: ~
Waste/plug: ~
Trap: ~
Isolating valves: ~

24.39 SANITARY APPLIANCES

Dishwasher: ~
Waste disposal unit: ~
Washing machine: ~

25 SANITARY SYSTEMS

25.1 GENERAL

This section relates to above ground gravity flow sanitary systems;
- for foul water
- from sanitary fixtures to first underground drain connection
- including system wastes, floor wastes, floor waste gullies, traps, vents and valves
- with associated components and accessories to make the system work

25.2 RELATED SECTIONS

Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for sanitary fixtures.
Refer to 7123 HOT AND COLD WATER SYSTEM for potable water systems.
Refer to 7431 DRAINAGE COMMON REQUIREMENTS for underground drains.
Refer to 7142 GREYWATER SYSTEMS for greywater systems.

Documents

25.3 DOCUMENTS REFERRED TO

Documents referred to in this section are:

NZBC G1/AS1	Personal hygiene
NZBC G12/AS1	Water supplies
NZBC G13/AS1	Foul water - Sanitary plumbing
NZBC G13/AS3	Foul water - Sanitary plumbing and drainage
AS 1589	Copper and copper alloy waste fittings
AS 2887	Plastic waste fittings
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent applications
AS/NZS 2032	Installation of PVC pipe systems
AS/NZS 3500.2	Plumbing and drainage - Sanitary plumbing and drainage

Plumbers, Gasfitters and Drainlayers Act 2006

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

25.4 MANUFACTURER DOCUMENTS

Manufacturer and supplier documents relating to work in this section are:
~

Copies of the above literature are available from ~
Web: ~
Email: ~
Telephone: ~
Facsimile: ~

Requirements

25.5 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a certifying plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

25.6 PIPEWORK LAYOUTS

~

25.7 OPERATION AND MAINTENANCE MANUALS

Supply maintenance manual information to requirements set out in the 1239 OPERATION & MAINTENANCE section.

Performance

25.8 TESTING

Confirm timing before carrying out any tests. Supply potable water and apparatus needed. Test to NZBC G13/AS1 or AS/NZS 3500.2, 15 as required. Carry out and record a visual inspection that each joint showed no evidence of leaks.

PRODUCTS

Materials

Components

25.9 PROTECTIVE TAPE

Plasticised PVC tape system with primer, mastic fixing and outer coating.

EXECUTION

Conditions

25.10 ELECTROLYTIC ACTION

Avoid electrolytic action by eliminating actual contact or continuity of water between dissimilar metals.

25.11 EQUIPOTENTIAL BONDING METALLIC WASTE PIPES

If it is an electrical requirement, before enclosing, ensure metallic waste pipes connected to metallic drains and attached metallic sanitary fixtures are equipotential bonded (or at least conductor cable attached) similar to NZBC G12/AS1, 9.0.

25.12 HANDLE AND STORE

Handle and store pipes, fittings and accessories to avoid damage. Store on site under cover on a clean level area, stacked to eliminate movement and away from work in progress.

25.13 SETTING OUT

Set out location of all stacks, discharge pipes, fittings and vent pipes and the completeness of their discharge into the drainage system.

25.14 CORE HOLES AND SLEEVES

Fit core holes and sleeves as needed throughout the structure in conjunction with the boxing, reinforcing and placing of concrete. Sleeve diameter to be 25mm larger than outside diameter of pipe accommodated. Strip core holes and make good after installation of pipework.

25.15 PIPE ACCESS

Fit and fix stacks, wastes and pipes in ducts independent of all other services so they are easily replaceable for their full length. Wrap or tape pipes buried in concrete.

25.16 FITTINGS ACCESS

Fit and fix traps and wastes to enable access for cleaning and for maintaining the total system.

25.17 CONFIRM LOCATIONS

Unless the location and height are clearly delineated on the drawings, confirm installation height and plan locations of sanitary fittings before commencing the piping installation.

25.18 TRAPS AND WASTES

Conceal traps and wastes in the fabric of the building unless detailed otherwise. Fit and fix satin chrome plated exposed pipes, traps and wastes unless detailed otherwise.
Refer to 7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES for locations and types of traps.

25.19 CORROSION

Separate metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.

Application - jointing

Application - fixing

25.20 THERMAL MOVEMENT

Accommodate longitudinal movement in pipes resulting from temperature changes. Incorporate expansion joints in copper and PVC-U pipes. Install PVC pipes to AS/NZS 2032. Take particular care to allow for movement at horizontal take-off locations from stacks.

25.21 FLASH ROOF PENETRATIONS

Flash or arrange for roofer to flash all penetrations to NZBC E2/AS1.
For profiled metal roofs, fit proprietary EPDM pipe collar flashings to NZBC E2/AS1, 8.4.17 Roof Penetrations, and manufacturer's requirements.

Completion

25.22 REPLACE

Replace damaged or marked elements.

25.23 LEAVE

Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following procedures.

25.24 REMOVE

Remove debris, unused materials and elements from site.

SELECTIONS

25.25 SANITARY SYSTEMS - PROTECTIVE TAPE

Brand: ~
Width: ~mm

26 RESENE PAINTING GENERAL

26.1 General

This section relates to the general matters related to Resene painting work.

26.2 Related Work

Refer to 18 RESENE PAINTING INTERIOR
Refer to 18 RESENE ENVIRONMENTAL PAINTING INTERIOR

26.3 Abbreviations and Definitions

Refer to the general section INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.
The following abbreviations apply specifically to this section:

- MPNZA Master Painters New Zealand Association Inc.
- SIPDS Surface Information & Preparation Data Sheets

26.4 Documents

Refer to the general section REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

- Health and Safety at Work Act 2015
- AS/NZS ISO 9001 Quality management systems - Requirements MPNZA Health and Safety Programme

26.5 Manufacturer/Supplier Documents

Manufacturer's and supplier's documents related to this section are:
Resene Surface Information & Preparation Data Sheets (SIPDS) (hard copy or at www.resene.co.nz)
Resene Product Data Sheets
(Hard copy or at www.resene.co.nz)
Resene Putting your safety first
Copies of the above literature are available from Resene Telephone: 0800 RESENE (0800 737 363)

26.6 Warranty – Manufacturer/Supplier

Warrant this work under normal conditions of use against failure referring to the Resene Promise of Quality in the Resene One-Line specifications and product data manual.

26.7 No Substitutions

Substitutions are not permitted to any specified Resene coating system, or associated components and products. Do not combine paints from different manufacturers in a paint system.

If in the applicator's own expertise and judgment an amendment to this specification is

required, or where a substrate preparation or required painting system is not covered in this specification, this shall be brought to the attention of the contract administrator and any amendment agreed before work proceeds any further

26.8 Qualifications

Painters to be experienced competent workers, familiar with the materials and the techniques specified and with the Resene coating systems and be members of the Master Painters New Zealand Association Inc.

The applicator is to have the necessary skill, experience and equipment to undertake the work. The applicator remains responsible for ensuring proper completion of the work.

Painters to be selected from the Resene Eco. Decorator programme. The Resene Eco. Decorator programme is designed to recognize a nationwide network of environmentally responsible, quality focused painting contractors.
Refer to www.resene.co.nz/ecodecorator.htm for a list of Eco. Decorators in your area.

26.9 Prior Work Commencing

Before any work commences painters should verify, with Architects or specifying authority, that their paint matches a previously supplied standard card or panel. Differently coloured paints will vary in price, opacity and durability. Resene normally only specify two coats of colour but with certain colours, such as yellows and oranges, three coats may be needed. Refer to SELECTIONS for location and type.

26.10 Information for Operation and Maintenance

Refer to the general section OPERATION & MAINTENANCE for provision of the following general operation and maintenance information as electronic PDF format documents:
Maintenance guide for Resene paint finishes
www.resene.co.nz/comn/services/maintenance.htm.

Provide this information prior to practical completion.

26.11 Health and Safety

Refer to and comply with the requirements of the Health and Safety at Work Act 2015 including the obligation to:

- Eliminate hazards and if hazards cannot be eliminated or isolated, then minimise the hazards in this work by using the proper equipment and techniques as required by the MPNZA Health and Safety Programme.
- Supply protective clothing and equipment.
- Inform the contractor as well as the employees and others on site of those hazards and put in place procedures for dealing with emergencies.

26.12 Safety Data Sheets

Obtain from Resene (phone 0800 RESENE, or www.resene.co.nz) the safety data sheet for each product used and comply with the required safety procedures. Keep sheets on site

26.13 Resene Inspection

Permit representatives of Resene to inspect the work in progress and to take samples of their products from site if requested. Resene will take care when inspecting the work, but does not accept any responsibility for the proper completion of the work before or after such inspection

26.14 Inspection of the Work

Inspection of the whole of the work at each of the stages set out in SELECTIONS may be made. Agree on a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection

26.15 Materials Generally

Do not combine paints from different manufacturers in a paint system.

Use only Resene products (which are guaranteed for consistency and performance under AS/NZS ISO 9001 and APAS) prepared, mixed and applied as directed in the Resene One-Line Specifications and Product Data Manual. This specification has been written using where practical and available both low/no VOC and Environmental Choice approved products.

26.16 Dark Colours

Darker colours in areas of high sun exposure place significant stress on the coating and substrate. Resene 'CoolColour' technology reduces heat absorption of a wide range of colours. Contact your local Resene Representative or visit www.resene.co.nz for more information or visit www.resene.co.nz/coolcolour. View a list of Resene colours that can be made using Resene CoolColour technology at www.resene.co.nz/colourlibrary.

26.17 Thinners/Additives

Use only if and when expressly directed by Resene for their particular product in a particular application. Always wear gloves when handling any solvents including turpentine as harmful chemicals may be absorbed into the body through the skin

26.18 Accessories

Contact your local Resene ColorShop for a full range of accessories and usage advice.

26.19 Execution

To conform to required trade practice, which shall be deemed to include those methods, practices and techniques contained in the Master Painters New Zealand Association Inc. Specification manual?

26.20 Treated Surfaces

Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding

26.21 Back Painting

Co-ordinate with cladding and/or lining installer as to who will do the work and timing.

Exterior
For exterior cladding and trim that require on site finishing, paint the back and exposed bottom edges at the base of the cladding (generally, bottom plate overhang and horizontal flashings) to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if pre-primed.
Refer to appropriate exterior paint sections SELECTION clauses for claddings to be back painted.

Interior
For lining and trim that require on site finishing and/or back painting (usually wet areas), paint the back and exposed bottom edges at the base of the lining, to the manufacturer's requirements, but at least to 150mm up from base. Coating to match front finish, generally apply 2 coats or 1 coat if
Pre-primed, or if no front finish, seal to manufacturer's requirements.
Refer to appropriate interior paint sections SELECTION clauses for linings to be back painted.

26.22 Ancillary Surfaces

The descriptions of areas in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain written instructions before proceeding

26.23 Hardware

Do not paint hinges or hardware that cannot be removed. Before commencing work carefully remove hardware, fixtures and fittings, set aside where they cannot be damaged or misplaced and replace on completion. Refer to SELECTIONS for hardware, fixtures and fittings for removal

26.24 Protection

Supply, lay and fix drop sheets, coverings and masking necessary to protect adjoining, fixtures, fittings and spaces from paint drops, spots, spray and damage.

26.25 Surface Preparation

Refer to the Resene Surface Information & Preparation Data Sheets (SIPDS) and product data manual for surface preparation sheets (or obtain them by phoning 0800 RESENE or at www.resene.co.nz) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

26.26 Sharp Edges, Cracks and Holes

Remove and/or repair sharp edges, cracks and holes if present, as outlined in the preamble of the Resene One-Line specifications and product data manual.

Elastomeric sealants, if used, should not be painted. The paint film will not match the flexibility of the sealant and may severely limit its effectiveness

26.27 Remedial Work

If any substrate or surface, that even with the preparation work called for in this section,

cannot be brought up to a standard that will allow painting or clear finishing of the required standard then do not proceed until remedial work is carried out.

26.28 Gap Filling

Make good cracks, holes, indented and damaged surfaces. Use suitable gap fillers to match the surface being prepared. Any special priming requirements of the fillers must be satisfied. Allow to dry or set before sanding back level with the surface. Prime or seal timber before using putty.

Exterior and wet areas: Use only Portland cement base or water-insoluble organic base gap fillers

26.29 Off-Site Work

Carry out this work under cover in a suitable environment with suitable lighting. Store items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage, properly stacked and spaced to allow air circulation and to prevent sticking. Specific instructions for transport to site to avoid damage to the factory applied paint system may be required particularly for metallic top coat paints.

26.30 Priming Joinery

Pre-treat any cut surfaces of preservative treated timber before priming. Ensure L.O.S.P. treated joinery has dried sufficiently to lose solvent odour. Pre-treat bare timber with Resene TimberLock (see Data Sheet D48) to improve the durability of subsequent coats. Liberally coat end grain, allow to soak in and then recoat.

26.31 Concealed Joinery Surfaces

Where off-site coatings are specified they must be applied to surfaces including those concealed when incorporated into the building.

26.32 Concealed Metal Surfaces

Apply primer to suit the coating system to surfaces which will be concealed when incorporated into the building.

26.33 External Doors

Prime or seal and paint bottom edges before hanging.

26.34 Bead Glazing

Stained, varnished, or painted joinery to have the first two coats of a suitable primer and one undercoat, applied to rebates and beads before glazing

26.35 Putty Fronting – Linseed Glazing Putties

According to the putty manufacturer's instructions allow putty to set, then prime with Resene Wood Primer (see Data Sheet D40) or Resene Enamel Undercoat (see Data Sheet D44). Fully protect the putty by completing the Resene coating system as soon as it is sufficiently firm. Glazing putties not based on linseed oil to be over coated according to the putty.

Application – Generally

26.36 Painting – Generally

Comply with the Resene SIPDS Surface Information & Preparation Data Sheets or Resene One-Line specifications and product data manual data sheets and the additional requirements of this work section.
Ensure large wall areas that require more than one container of paint per coat, have enough paint boxed (mixed) together to complete the final coat. This will not apply if a single factory batch of paint, rather than shop tinted paint, is applied.

26.37 Mixing

Although generally supplied ready to use, all paints must be thoroughly mixed to lift any settled pigment and ensure the paint is homogeneous

26.38 Environment

Defer painting of exterior surfaces until weather conditions are favourable - warm dry days without frost or heavy dews. Avoid painting in direct sunlight any surfaces that absorb heat excessively. As far as possible apply paint in the temperature range 15°C to 25°C. If temperatures fall outside the range of 10°C and 35°C do not paint unless paints with the necessary temperature tolerance have been specified. Resene Hot Weather Additive can be added to most Resene waterborne top coats to extend open time when application is undertaken at elevated temperatures or conditions that will cause rapid loss of water from the applied wet film. Do not apply solvent borne paint if moisture is present on the surface.

26.39 Sequence of Operations

Painting work to generally follow the following sequences:

- Back painting and pre-installation painting, then post-installation exposed-face painting
- Complete surface preparation before commencing painting.
- Apply primers, sealers, stains, undercoats, paints and clear coatings in the sequences laid down by Resene.
- Allow the full drying time between coats laid down by Resene.
- Do not expose primers, undercoats and intermediate coats beyond Resene's recommendations before applying the next coat.
- Finish broad areas before painting trim.
- Ensure batch numbers of tins are matched for whole areas.
- Internally, paint ceilings before walls and walls before joinery, trim and other items

26.40 Application

Select brush, roller, or pad and apply coatings to the requirements of Resene to obtain a smooth, even coating of the specified thickness, uniform gloss and colour.

26.41 Lightly Sand

Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. A more thorough sanding to provide a mechanical key for the new paint system may be required depending upon the condition or age of the existing paint system.

26.42 Defective Work

Correct defective work immediately and recoat as required, following precisely the Resene system being applied. The same applies to transportation damage to site of factory painted items.

26.43 Each Coat

Each coat of paint and the completed paint system to have the following qualities and properties:

- Uniform finish, colour, texture, sheen and hiding power and the proper number of coats applied.
- No blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, significant brush marks, ladder marks and blistering.
- Proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application

Completion

26.44 Clean

Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at the completion of the building works. Clean glass inside and out to a shining finish. Use the Resene Washwise on site 'paint equipment clean-up water' reclamation system to minimise the environmental impact of cleaning paint application tools.

26.45 Leave

Leave the whole of this work uniform in gloss and colour, of correct thickness, free from painting defects, clean and unmarked and to the standard required by following procedures.

26.46 Remove

Remove drop sheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

26.47 Replace

Replace hardware without damage to it or the adjoining surface and leave hardware properly fitted and in working order.

26.48 Disposal of Paints and Thinners

Note: The use and disposal of paint and thinners represents a significant environmental hazard. Ensure all paint and thinners are disposed of in the following manner:

- When requested hand over part used paint containers to client for maintenance touch ups.
- Recycle leftover paint at a Resene ColorShop as part of the Resene "Paintwise programme". Contact your local Resene ColorShop for details or view information online at www.resene.co.nz/paintwise.htm.
- Donate left over paint to local community groups.
- Solvent based paints, paint thinners, turpentine, mineral spirits and solvents require special disposal procedures. Do not pour down sewer or stormwater drains, sinks or

into the ground. If they cannot be recycled they must be disposed of in a refuse dump licensed to take toxic waste.

26.49 Maintenance

Good maintenance of coating systems involves a routine of regular cleaning as well as regular inspections. Regular inspections of the coating systems are recommended to identify breakdown, accidental damage to or undesirable deterioration of the paint.
Wash down of exterior coatings should be undertaken on an annual basis using Resene Paint Prep and Housewash (see Data Sheet D812).

Refer the Resene Caring for your paint finish brochure and the Resene website, www.resene.co.nz/comn/services/maintenance.htm.

26.50 Selections

Refer to 18 RESENE PAINTING INTERIOR for selections.
Refer to and 18 RESENE ENVIRONMENTAL PAINTING INTERIOR for selections

27 RESENE PAINTING INTERIOR

27.1 General

This section relates to the surface preparation, painting and clear finishing of new and existing interior substrates using Resene architectural and decorative coating systems

27.2 Related Work

Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work

27.3 Materials

PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES
Refer to 6700R RESENE PAINTING GENERAL for product clauses.

27.4 Execution Conditions

Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

Selections

Substitutions are not permitted to the following, unless stated otherwise.

27.5 Inspection of Work

Stage	Resene SIPDS number/system
Final Inspection	No.1

Resene interior paint systems

Plasterboard - new

27.6 Resene New Interior Plasterboard, Walls - Dry Areas (Level 4 Finish)

Surface Prep: Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating: Group 1-S. Test Report FH4967
1st coat Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat: Resene Zylone Sheen D302, Waterborne Low Sheen
3rd coat: Resene Zylone Sheen D302, Waterborne Low Sheen

27.7 Resene New Interior Plasterboard, Ceilings - Dry Areas (Level 4 Finish)

Surface Prep: Resene SIPDS No1 and Spec Sheet 1: 1/1
Fire rating: Group 1-S, Test Report FH4967
1st coat: Resene Broadwall D403, Waterborne Wallboard Sealer
2nd coat: Resene Ceiling Paint D305, Waterborne Flat
3rd coat: Resene Ceiling Paint D305, Waterborne Flat

Where durable easily cleaned coating is required substitute 2nd & 3rd coats with:

- Plasterboard – existing

27.8 Resene Existing Interior Plasterboard, Walls - Dry Areas

Surface Prep: Resene SIPDS No1 and Spec Sheet 1: 1/3
Spot Prime: Resene Broadwall D403, Waterborne Wallboard Sealer
1st coat: Resene Zylone Sheen D302, Waterborne Low Sheen
2nd coat: Resene Zylone Sheen D302, Waterborne Low Sheen

- Interior timber - new

27.9 Resene New Interior Timber Joinery – Skirting

Surface Prep: Resene SIPDS No2 and Spec Sheet 2: 9/1
1st coat: Resene Quick Dry D45, Waterborne Acrylic Primer Undercoat
2nd coat: Resene Lustacryl D310, Waterborne Enamel
3rd coat: Resene Lustacryl D310, Waterborne Enamel

- Interior metal - existing

27.10 Resene Existing Interior Mild Steel

Surface Prep: Resene SIPDS No4 and Spec Sheet 4: 5/3
Spot Prime: Resene GP Metal Primer D411, General Purpose Modified Alkyd (NEC)
1st coat: Resene Lustacryl D310, Semi-Gloss Waterborne Enamel
2nd coat: Resene Lustacryl D310, Semi-Gloss Waterborne Enamel

28 ELECTRICAL STANDARD

28.1 General

This section relates to the wiring for complex/large residential and medium scale commercial/industrial installations, including:

- power
- lighting
- fire rate sealers, liners and accessories

28.2 Abbreviations and Definitions

Refer to the general section INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

CFL compact fluorescent lamp
ELV extra low voltage
GLS general lighting service
IP international (ingress) protection classification
LCD liquid crystal display
LED light emitting diode
MCB miniature circuit breaker
NUO Network Utility Operator
PCB printed circuit board
PIR passive infrared
RCBO residual current-operated circuit breaker with over current protection
RCCB residual current-operated circuit breakers
RCD residual current device
SIA security integration architecture
TPS tough plastic sheathed
TCF Telecommunications Carriers' Forum

28.3 Documents

Refer to the general section REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1 External moisture
NZBC F6/AS1 Visibility in escape routes
NZBC F7/AS1 Warning systems
NZBC F8/AS1 Signs
NZBC G4/AS1 Ventilation
AS/NZS 1125 Conductors in insulated electric cables and flexible cord
AS/NZS 1768 Lightning protection
AS/NZS 2053.2 Conduits and fittings for electrical installations - Rigid plain conduits and fittings of insulated material
AS/NZS 2201.1 Intruder alarm systems - Client's premises - Design, installation, commissioning and maintenance
AS 2293.1 Emergency escape lighting and exit signs for buildings - System design, installation and operation
AS 2293.3 Emergency escape lighting and exit signs for buildings - Emergency escape luminaires and exit signs
AS/NZS 3000 Electrical installations (known as the Australian/New Zealand Wiring Rules)

AS/NZS 3008.1.2 Electrical installations - Selection of cables - Cables for alternating voltages up to and including 0.6/1 kV - Typical New Zealand installation conditions
AS/NZS 3100:2009 Approval and test specification-general requirements for electrical equipment
AS/NZS 3112 Approval and test specification - Plugs and socket-outlets
AS/NZS 3113 Approval and test specification - Ceiling roses
AS/NZS 3190 Approval and test specification - Residual current devices (current- operated earth-leakage devices)
AS/NZS 3350.1 Safety of household and similar electrical appliances - General requirements
AS/NZS 3439.1 Low voltage switchgear and controlgear assemblies - Type-tested and partially type-tested assemblies
AS/NZS 3439.3 Low-voltage switchgear and controlgear assemblies - Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use - Distribution boards
AS 3786 Smoke alarms
NZS 4219 Seismic performance of engineering systems in buildings
NZS 4514 Interconnected smoke alarms for houses
AS/NZS 4961 Electric cables - Polymeric insulated - for distribution and service applications
AS/NZS 5000.2 Electric cables - Polymeric insulated - for working voltages up to and including 450/750v
AS/NZS 60598.2.2:2001 Luminaires - Particular requirements - Recessed luminaires
IEC 61643 Components for low voltage surge protection devices
Electricity (Safety) Regulations 2010 (Reprint as at 4 April 2016) TCF Premises Wiring Code of Practice 2011

28.4 Warranties

Warrant the complete electrical installation under normal environmental and use conditions against failure of materials and execution.

1 year: Warranty period

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Requirements

28.5 Comply

Comply with the Electricity (Safety) Regulations 2010, AS/NZS 3000, AS/NZS 3008.1.2, and TCF Premises Wiring Code of Practice for listed and prescribed work and with the utility network operator's requirements. Apply for the service connection. Arrange for the required inspections of listed work. Pay all fees.

28.6 Qualifications

Carry out work under the supervision of an electrical licensed supervisor.

28.7 Safety of Installation – Design by Electrician

Before installation work commences obtain from the electrical engineer a Certified Design. The Certified Design is to comply with the Electrical (Safety) Regulations (2010), regulation 58.

28.8 Safety of Installation - Design By Electrician

Before installation work commences provide a Certified Design. The Certified Design is to comply with the Electrical (Safety) Regulations (2010), regulations 58. It must be signed by the designer of the installation.

28.9 Electrical Certificate of Compliance

Supply a certificate of compliance (CoC) to the owner, and if required the NUO, as required by the Electricity (Safety) Regulations (2010), prior to connection.
Arrange for the NUO to inspect before the meter installation, listed work inspection, polarity check and supply becoming live.
Arrange for an inspector to inspect as required by regulation 70.

28.10 Electrical Safety Certificate

Provide an Electrical Safety Certificate (ESC), as required by the Electrical (Safety) Regulations 2010, to the owner and when required the BCA. To be provided no later than 20 working days after connection and prior to Practical Completion.

28.11 Producer Statements

Provide a 'producer statement - design' and 'producer statement - construction' to the satisfaction of the Building Consent Authority, for the complete electrical installation.

28.12 Compliance Schedules

Provide compliance schedules for the installation to the satisfaction of the territorial authority, in accordance with the New Zealand Building Code requirements for the complete electrical installation.

Products

28.13 Mains Supply

Tough plastic sheathed neutral screened cable to AS/NZS 4961 and AS/NZS 3008.1.2, with a minimum rating of 60 amps per phase. Include pilot cable where required by network utility company.

28.14 Cable Ladders

Fabricated from galvanized steel and/or aluminum with rungs at 300mm centers and complete with ladder manufacturer's standard bends, risers, curves and reducers and of sufficient strength for the envisaged cabling without deflection. Size 20% over width for designed cable loading including spaces between to avoid de-rating cables. Form fixing holes and slots before galvanizing. Allow for expansion joints where necessary.

28.15 Heavy Duty Rigid PVC Conduit

For underground wiring to AS/NZS 2053.2, with corrosion proof fittings and accessories, brand matched to the conduit manufacturer's requirements.

28.16 Rigid PVC Conduit

High impact, cold setting medium duty to AS/NZS 2053.2, jointed together and to fittings with solvent cement to the conduit manufacturer's requirements. Fittings and accessories brand matched to the conduit manufacturer's requirements.

28.17 Cables

Tough plastic sheathed copper conductors to **AS/NZS 5000.2,** stranded above 1.0mm², and to **AS/NZS 3008.1.2.** Minimum sizes as below. Increase sizes if the method of installation, thermal insulation, cable length or load will reduce the cable rating below that of the MCB rating, or produce an excessive voltage drop.

- Lighting circuits: Domestic: 1.5mm² on 10 amp
- MCBs Lighting circuits: Commercial: 1.5mm² on 16 amp MCBs
- Power circuits: 2.5mm² on 16 amp MCBs for domestic and unenclosed or unfilled cavity construction
  2.5mm² on 16 amp MCBs for domestic insulated construction, or filled cavity
  2.5mm² on 20 amp MCBs for unenclosed or unfilled cavity construction
  2.5 mm² on 16 amp MCBs for insulated construction, or filled cavity, or lengths over 30 meters
- Hot water cylinder circuits: Single phase: 2.5mm² on 20 amp MCB
- Range/oven/hob circuits: Single phase: 6mm² on 32 amp MCBs

Heat resistant cable for final connections to all heated appliances, and high temperature cable in ambient conditions that may be above 35°C.

28.18 Switchboard Commercial

To AS/NZS 3439.1 and manufactured from heavy gauge steel with baked enamel finish in approved colour. Switchboards to have 20% spare capacity for future additions and alterations.

- Main switchboard: form 3
- Distribution boards: form 1

Fault rating graded to suit maximum prospective fault from network utility

- operator minimum 22kA, 1.0 seconds for main switchboards
- Minimum 20kA, 0.1 seconds for distribution switchboards.

Complete, fully wired, factory tested of sizes to suit space allocated, designed to give easy access to and removal of component parts and constructed to contain equipment to the approval of the network utility operator and/or independently qualified person.

Design the installation for full discrimination between switchboards.
For emergency lighting provide test facilities to AS 2293.1.

28.19 Circuit Protection

General requirements including main switch 63A or 100A minimum. Residual current protection 30mA, ensure RCCBs' meet Type A and comply with AS/NZS 3190.
MCBs to 4.5kA domestic or 6kA for commercial.

28.20 Wall Boxes

Standard grid size or equivalent to be manufactured from plastic or metal, with 2 or more gang size to be metal with steel inserts for accessory securing screws. Screw fixed.

28.21 Switch Units

Single pole switches to be 16 amp minimum rated, double pole or intermediate to be 16 amp minimum rated. All switches to be 230 volt a.c. polycarbonate flushplate units. Refer to drawings/schedules for number of switches per unit, dimmer units, neon (indicator or toggle) units and 2 way units.

28.22 Switch Panels

To accommodate switches to separate circuits and phases and flush mounted within a metal wall box with selected colour powder coated flush plate 2.5mm thick. Switches individually secured within a mounting plate behind the flush plate. Engrave the flush plate to indicate the use of each switch. Permanently label circuit numbers on back of plate.

28.23 Hot Water System Switch

One way 20 amp switch complete with cable clamp for flexible PVC conduit to element enclosure.

28.24 Switched Socket Units

10 amp, 230 volt flat 3 pin socket outlets fitted with safety shutters and manufactured to AS/NZS 3100, AS/NZS 3112 and AS/NZS 3113, single or multi gang as detailed.

28.25 Surge Protection

Protection for the homes appliances with IEC 61643 Class ll surge protection devices fitted to the switchboard. For variable electronic equipment fit IEC 61643 Class lll surge protection to switched socket outlets.

28.26 Ceiling Roses

White plastic mounting base with screwed cover, manufactured to AS/NZS 3113.
Terminal type. Cylindrical section TPS for suspended fittings.

28.27 Batten Holders

Standard white plastic bayonet cap, with cap angled where wall mounted. Brass liners.

28.28 Light Fittings

Fluorescent and High Intensity Discharge fittings with low loss control or electronic gear and power factor corrected to 0.95 minimum. Control gear suitable for dimming if this is required. All fittings complete with lamps; Incandescent GLS lamps pearl, coiled-coil 240v rated, bayonet cap; Linear fluorescent triphosphor and CFL - 2700K (domestic) and 4,000K (commercial); halogen ELV 12v dichroic reflector with cover glass unless detailed otherwise; integral/non-integral LEDs, reflectors, lenses, heatsinks and drivers - 3,000K to 4,000K, CRI >80, L70.

28.29 Emergency Light Fittings

Emergency escape lighting and exit signs for buildings to AS 2293.3 and NZBC F8/AS1. Fittings may be, ceiling or wall mounted or recessed, refer to SELECTIONS.

Note: Photoluminescent exit signage requires adequate charging to NZBC F8/AS1, 4.5.4, for the required time to NZBC F6.

Execution

28.30 Main Supply

Lay underground mains to the NUO requirements. Excavate trench, install cable and marker tape and backfill.

28.31 Meter Box

Fit to meter box manufacturer's and Electricity Retailer's requirements. Recess into external wall in sheltered area and flash to weatherproof to NZBC E2/AS1 fig 69. Arrange for meter installation and connection.

28.32 Switchboard

Fit to AS/NZS 3000 and board manufacturer's requirements. Recess into wall, surface or floor mount plumb and level, with seismic restraints to NZS 4219. Ensure fire containment properties of the enclosure are maintained.

28.33 Circuit Protection

Install MCBs at switchboard to AS/NZS3000 to protect each final sub circuit.

28.34 Earth Bonds

Bond together and to earth all plumbing fittings not adequately isolated, to AS/NZS 3000, the Electricity (Safety) Regulations 2010 and the fitting manufacturer's requirements.

28.35 Main Earth

Provide a plastic toby box to contain and protect the earth electrode. Fix the connecting earth wiring closely and securely against wall surfaces.

28.36 Earth Leakage Protection

Install RCD protection to AS/NZS 3000.

28.37 RCD - Specific Installations

Install 30mA RCDs at the distribution board.
Install fixed wired RCD protected outlets (SRCD) in the following areas:

- Wet areas: bathrooms, laundries, kitchens.
- Near pools and water features.
- Where intended for use with cleaning equipment.
- Hand-held tools subject to movement in use, i.e. work-shops, garages.

28.38 Set-Out

The position of outlets and equipment shown on drawings is indicative of requirements. Confirm documents and site conditions are not in conflict with other services or features. Resolve conflicts and discrepancies before proceeding with work affected. Confirm on site

the exact location, disposition and mounting heights of all outlets, fittings, equipment, penetrations, and use of exposed wiring. Fix outlet items level, plumb and in line.

28.39 Cabling

Install wiring systems to AS/NZS 3000. All cabling run concealed. No TPS cable laid directly in concrete. Locate holes in timber framing for the passage of cables at the centre line of the timber member. Install cable in conduits where required to pass through concrete or underground. In walls run cabling horizontally and vertically in straight lines. In ceilings run cabling attached to catenary wires.

28.40 Cabling Circuits

Install all circuits with the appropriately rated cable and circuit protection. Install with a maximum of, 8 light switch units or 8 amps, or 4 double or single switched socket units, on any circuit. Minimum 2 lighting circuits per domestic floor. Separate circuits for all electric heating appliances. Kitchen sockets to be on at least two different circuits. Dedicated circuits for security systems, fire panels, data panels etc.

28.41 Wall Boxes

Mount flush in cavity construction size to fit products selected. Fix vertically mounted wall boxes to studs. Screw fix horizontally mounted switched socket outlet wall boxes to solid blocking or nogs. Fix switch panel wall boxes to solid blocking.

28.42 Switch and Socket Units

Fit all single and double switch units, all sockets to the following heights (to the centre of the unit) unless shown otherwise on the drawings.

- Switch Units: 1000mm above finished floor
- Socket Units: 150mm above work benches
  400mm above finished floor

Mount light switches and switch socket outlets vertically and socket units horizontally. Label all switch units that control electrical equipment or special lighting circuits by colour filled engraving on the switch. Use proprietary engraved switch mechanisms where applicable.

28.43 Permanently Connected Equipment

Supply and set into position. Install an isolating switch of the correct current rating, weatherproof flush mounted in a metal wall box, flush plate or protected type surface mounted to suit the location, with conductors between conduit and equipment enclosed in PVC flexible conduit.

28.44 Isolating Switches

Locate isolating switches in positions as confirmed by the owner, when not specifically shown on the drawings.

28.45 Light Fittings

Install light fittings in locations and at heights specified and confirmed by the owner, in accordance with the fitting manufacturer's requirements. Fix fittings through lining into framing.

28.46 Extra Low Voltage Lighting

Use electronic, transformers (halogen) or drivers (LED) for ELV lamps, one transformer/driver per lamp. Locate to manufacturer's requirements and as close as practicable to the lamp. Ensure transformers/drivers and rear of light fittings are adequately ventilated and appropriately clear of any building elements, to AS/NZS 3000.
Non-residential applications;
The clearance between insulation and recessed downlights;

- Leave 100mm gap to AS/NZS 3000, figure 4.9
- Provide larger gaps where required by the downlight manufacturer

Residential applications;

- Ensure new recessed downlights are one of the new classes classified in AS/NZS 60598.2.2; CA 80, CA 135, IC and IC - F.
- Classification type CA 80, CA 135, to AS/NZS 60598.2.2; insulation can abut the sides (wrapping around the sides)
- Classification type IC and IC - F, to AS/NZS 60598.2.2; insulation can abut and cover over the top of the downlight
- Provide larger gaps where required by the light manufacturer
- In a retrofit situation where the insulation is non-approved or unknown, ensure 100mm clearance from the insulation to AS/NZS 3000, figure 4.9.

28.47 Emergency Lighting

Emergency escape lighting and exit signs for buildings to AS 2293.1 and NZBC F6/AS1. Fit emergency light fittings to manufacturer's specifications. Refer to plans for position of fittings.

28.48 Surge Protection

Install surge protection devices to manufacturer's requirements and in accordance with AS/NZS 3000 and AS/NZS 1768. When fitting IEC 61643 Class ll protection at the switchboard, protect the device by a dedicated MCB.

28.49 Electric Powered Fittings and Equipment

Install and wire fittings and equipment to individual fittings and equipment manufacturer's requirements. Refer to the drawings for required layouts and locations for equipment. Refer to SELECTIONS for schedules of fittings.

28.50 Labeling

Include label under each controller, switch and circuit breaker on distribution boards. Include a warning notice if light dimmers are used in the installation. List the rating of each circuit.

28.51 Seismic Restraint

Seismically restrain electrical service equipment, including recessed light fittings, switchboards, cabinets, machinery and racks to NZS 4219.

Fire rated accessories

28.52 Selections Fittings and Hardware

Confirm selections of all outlet fittings and hardware with the owner in writing before ordering.

MINISTRY OF SOCIAL DEVELOPMENT
TE MANATŪ WHAKAHIATO ORA

Signage Manual

November 2018

rilee's
YOUR BRAND PARTNER

Ministry of Social Development

Work and Income provides financial assistance and employment services throughout New Zealand. Work and Income offer a single point of contact for New Zealanders needing job search support, financial assistance and in-work support. This is what this signage needs to express visually: strength,confidence and a clear purpose.

Signage

The placement of signs in offices should be planned to achieve a consistent corporate identity throughout all sites.
Think about the customer's perspective—traffic and pedestrian flows along the street, the position of entrances to buildings and floors, and customer flows within the building should all be "walked through" to decide where signs can be placed for maximum effectiveness.
Keep public customer areas uncluttered. They should be tidy and welcoming.

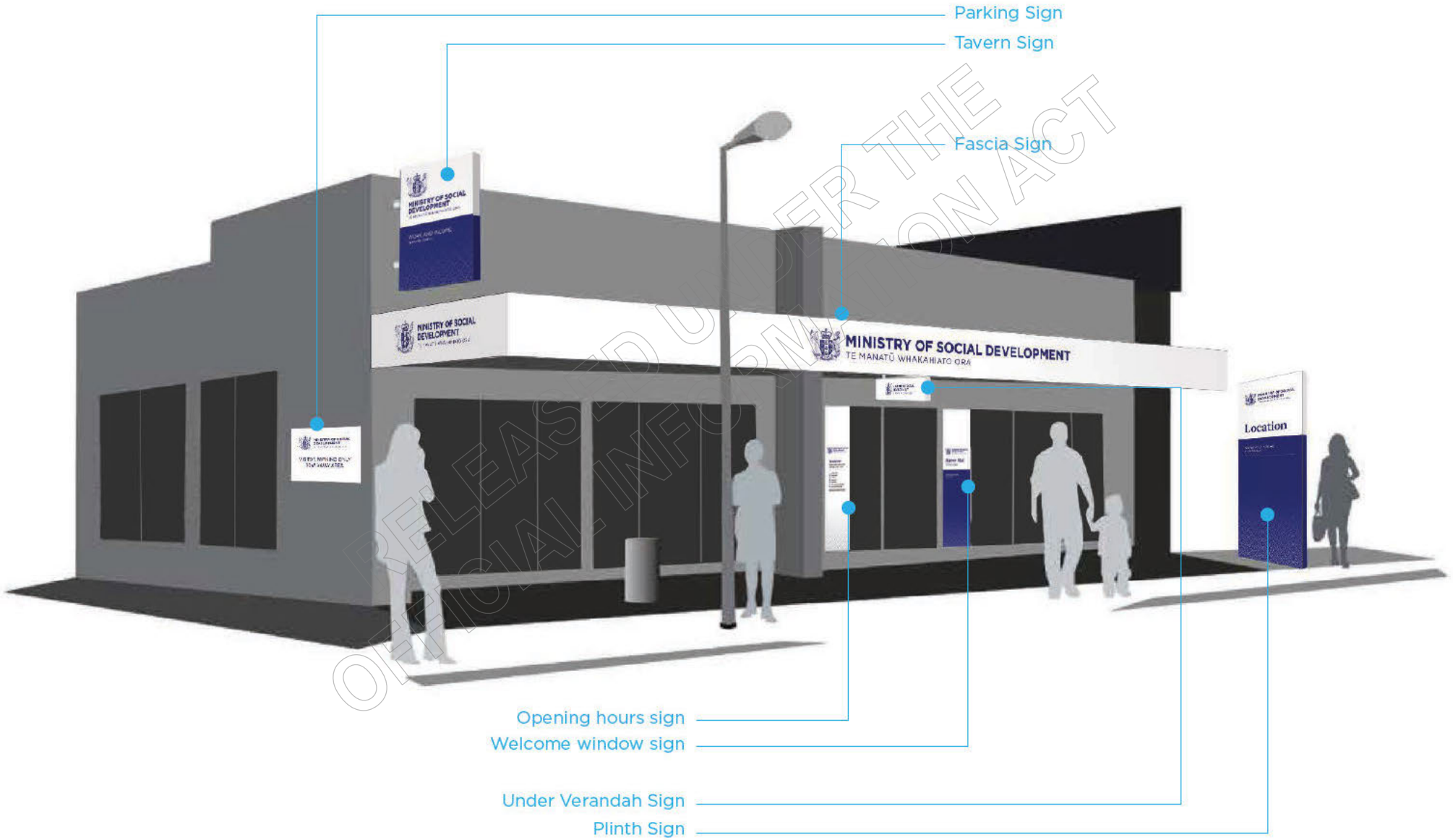
Components

There are two levels of signage components:
Primary information – main external signage and customer reception areas.
Secondary information – directory type information and general support information that identifies facilities in Work and Income.

The examples shown represent the most common signage sizes.
If you require a larger or smaller sign, please adjust proportionally. For sign requirements that fall outside the guidelines, please contact

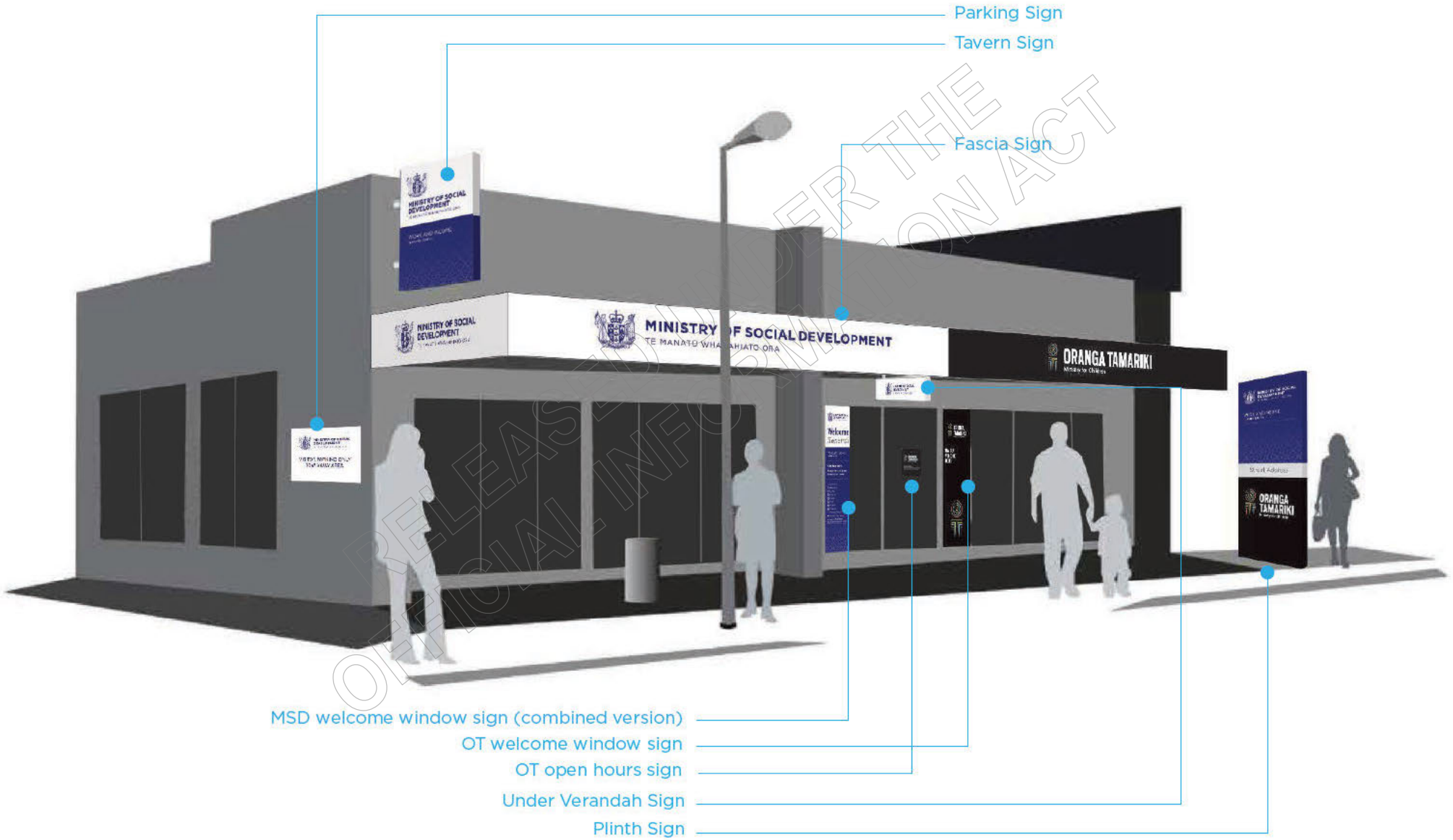
OUTDOOR SIGNAGE - MSD STANDALONE

Keep it clear, simple & consistent



OUTDOOR SIGNAGE - CO BRANDED

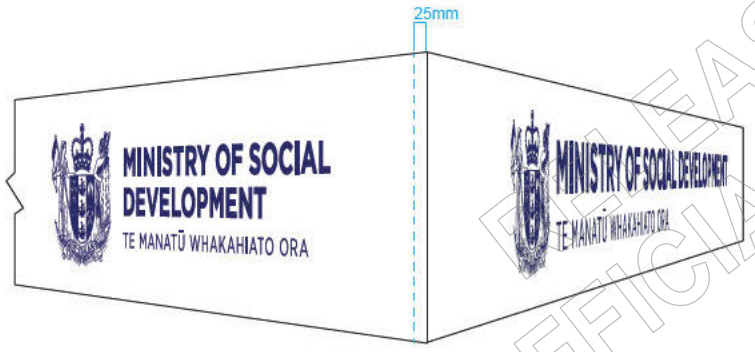
Keep it clear, simple & consistent



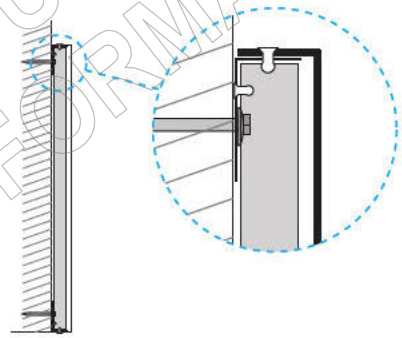
FRONT ELEVATION

SIDE ELEVATION

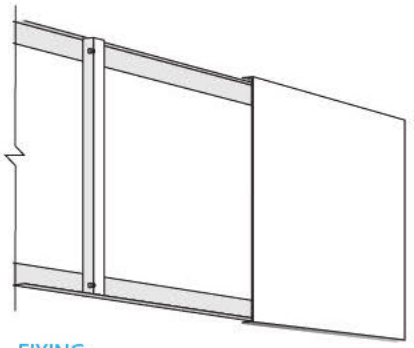
SIDE ELEVATION



PERSPECTIVE



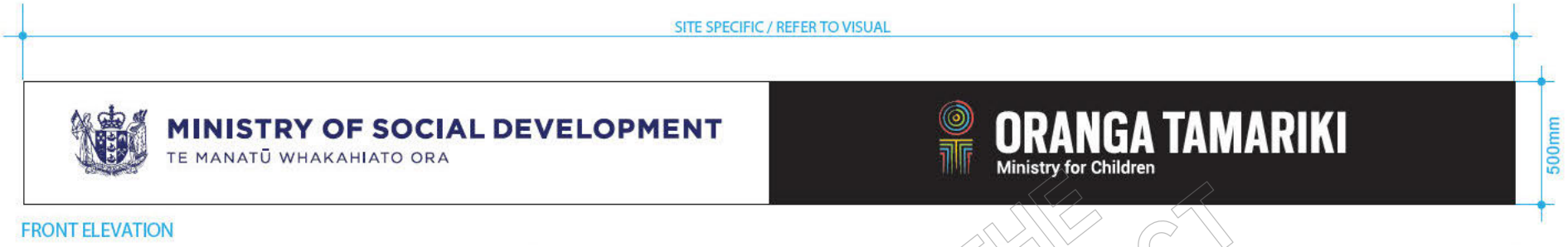
CROSS SECTION



FIXING

RWIFS - FASCIA SIGN

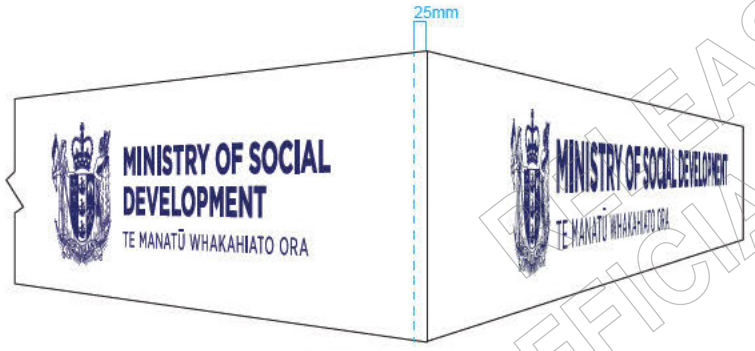
Fascia signs to identify Ministry of Social Development office from street.
Folded ACM panel with blue and white vinyl to face
Size refer to site specific



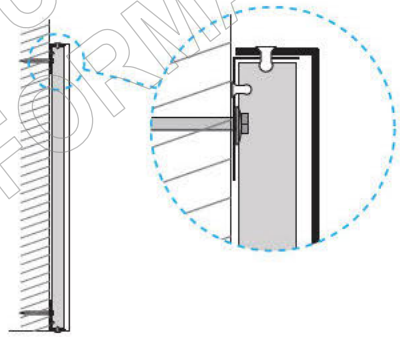
FRONT ELEVATION

SIDE ELEVATION

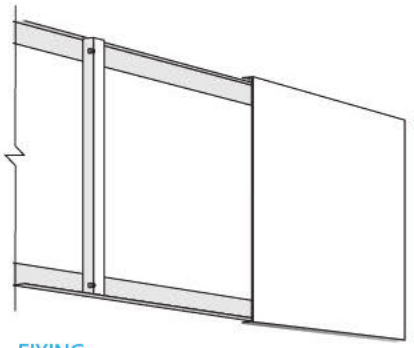
SIDE ELEVATION



PERSPECTIVE



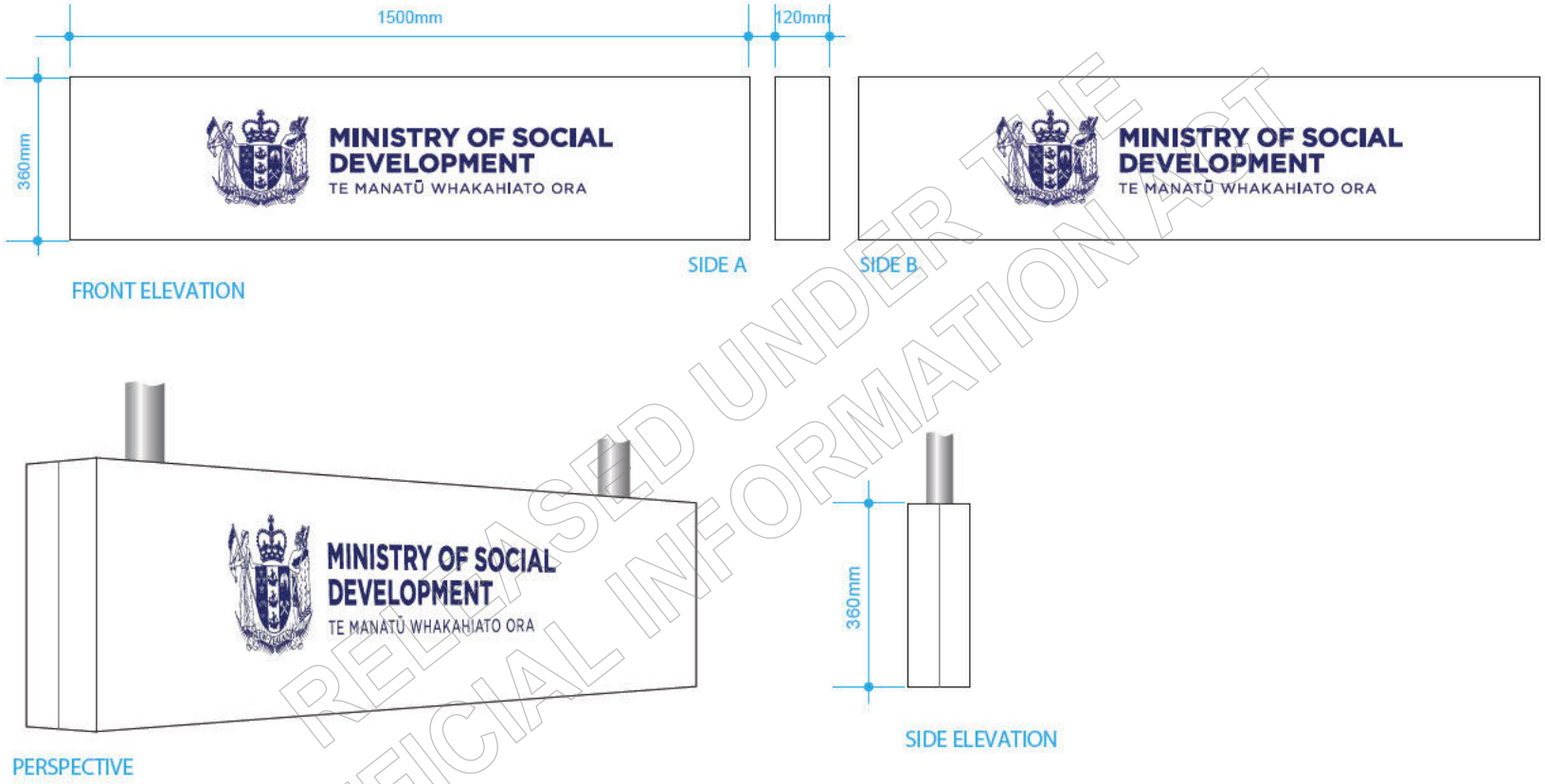
CROSS SECTION



FIXING

RWIFS - FASCIA SIGN - CO BRANDED

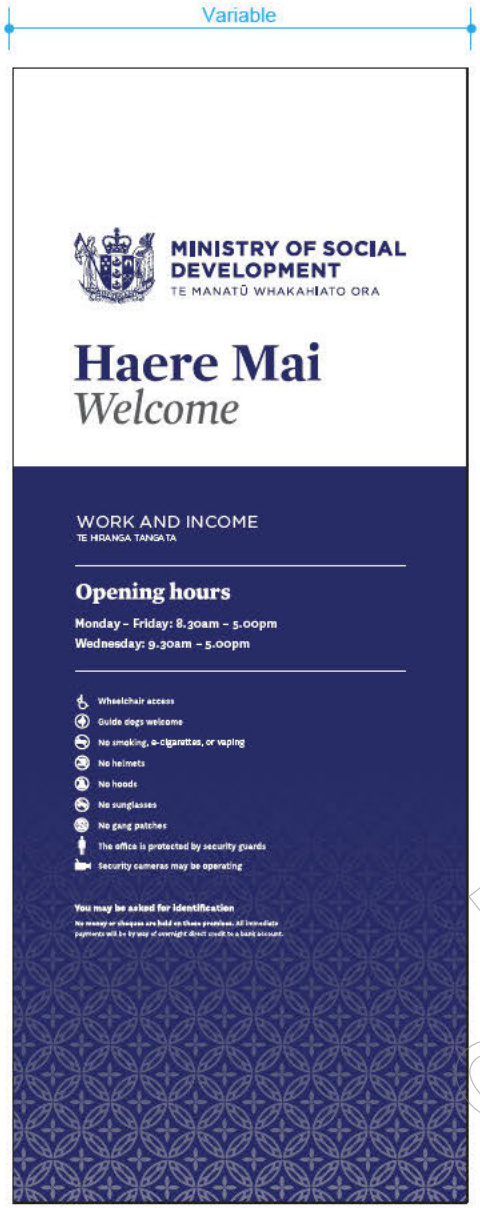
Fascia signs to identify Ministry of Social Development / Oranga Tamariki office from street.
Folded ACM panel with blue, white, black and digitally printed vinyl OT logo to face
Size refer to site specific



RWIUVS - Under Verandah Sign

Under verandah signs to identify Ministry of Social Development office from pedestrian walking entry way.
Double sided under verandah sign
Size: 360mm x 1500mm x 120mm

Fabricated sign case + droppers & rods
Apply cut graphics edge wrap all sides
with blue and white vinyl to face



Welcome Sign - Combined Version

Combined version of MSD Welcome & Hours Signs

Option A: Reverse printed on to clear media and backed up with white
Option B: Printed on to white media and graffiti guard laminated

Oranga Tamariki Welcome Sign

Sign to welcome clients

Option A: Reverse printed on to clear media and backed up with white
Option B: Printed on to white media and graffiti guard laminated

Colour
Spot Pantone 2756 C
C100 M97 Y27 K19

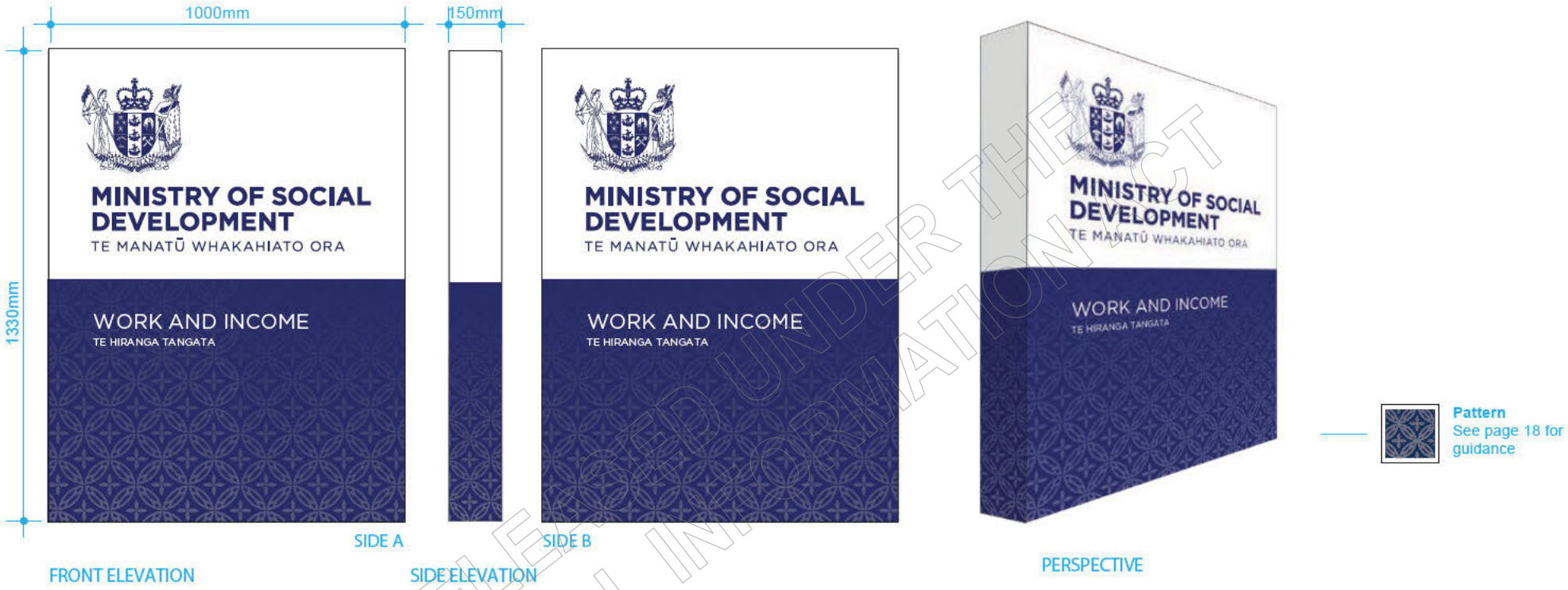
Pattern
See page 18 for guidance

RWIPS - PLINTH SIGN

Plinth signs to identify office building and address from street level.
Size refer to site specific
Plinth sign refurbish
Standard size: 2600mmx 1000mm x 150mm
ACM panel with 75mm returns
Apply graphics and graffiti guard

RWIPS - PLINTH SIGN - CO BRANDED

Plinth signs to identify office building and address from street level.
Size refer to site specific
Plinth sign refurbish
Standard size: 2600mmx 1000mm x 150mm
ACM panel with 75mm returns
Apply graphics and graffiti guard



RCLTS - Tavern Sign

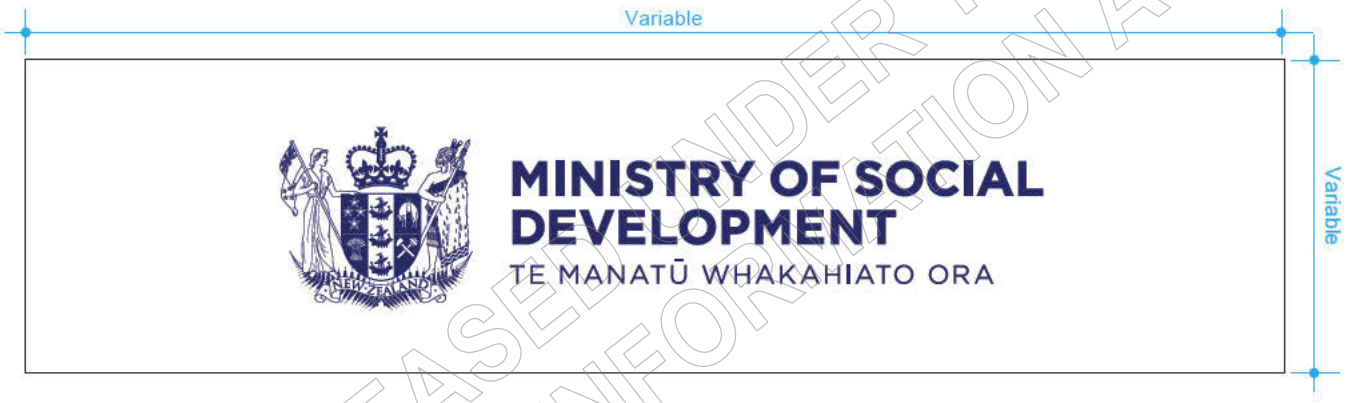
Double sided Tavern sign to identify office building and services from street level when on coming from either direction.
Size: 1330mm x 1000mm x 150mm

ACM panel with 75mm returns
Apply graphics and graffiti guard

RWICPS - Carpark Sign

Carpark sign to direct client to the appropriate parking.
Size: 590mm x 850mm

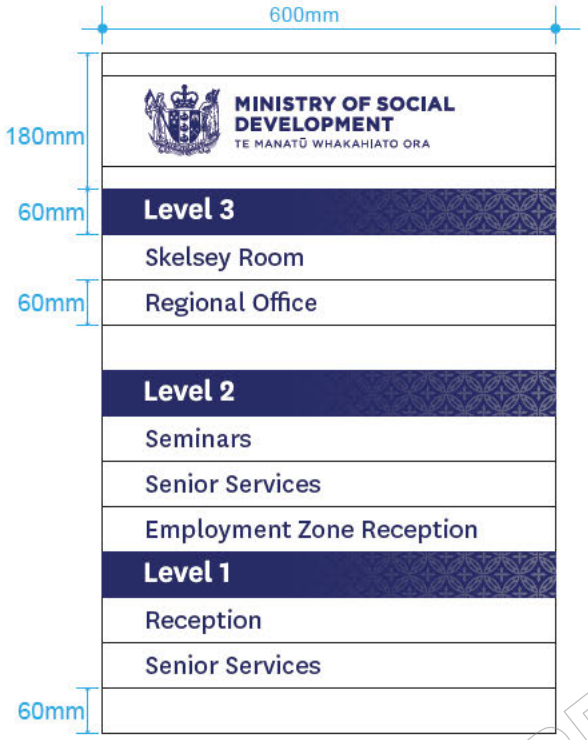
ACM panel
Apply graphics to ACM and graffiti guard

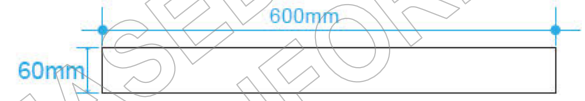


RWITS - Transom Sign

Transom sign at above the entry door to direct client to the entry.
Size : Site specific / refer to visual

ACM panel
Apply graphics and graffiti guard





Size of individual signslats.

Typeface: National Regular (National to be used on all internal wayfinding signage).

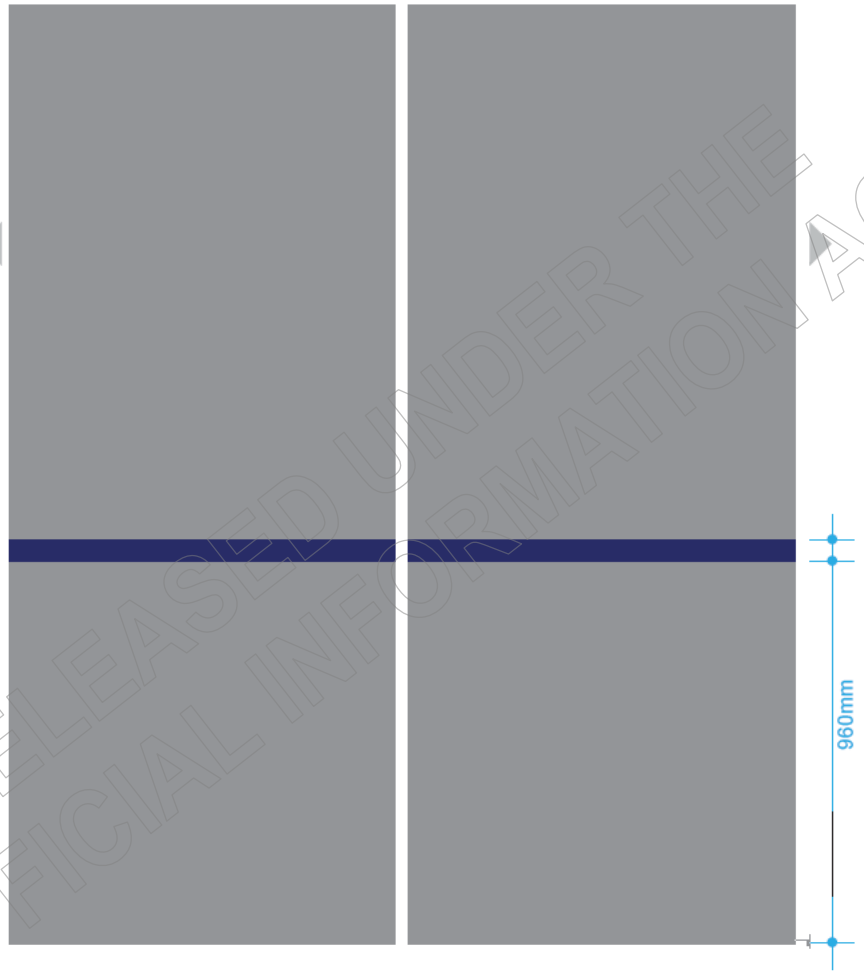
Pattern
See page 20 for guidance

Arrows align to the right hand margin. Arrows should only be used when enough negative space is present. The arrow itself makes up the negative space requirements on the left hand side.

RWIDBS - DIrectory Board Sign

Size: refer to site specific

Changable signslats system

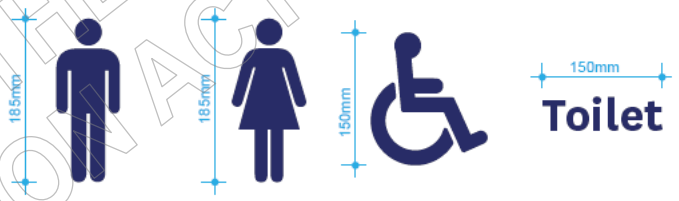


RWIWF - Exterior Automatic Door Vision strip

Size: site specific refer to visual

Digital cut MSD blue vinyl reverse applied to glass

Colour
Spot Pantone 2756 C
C100 M97 Y27 K19



RWIMRDP - Meeting Room Door Sign
Size: 320 x 160mm
Router-cut 3mm PVC panels with vinyl graphic applied to face and edge trim.

RWITDP - Decals
Size: 130x70mm

RWITDP - Toilet Door Plaques
Size: Various

Router-cut 3mm PVC panels with vinyl graphic applied to face and edge trim.

Reception Signage

Type 1A (Wall fixed)

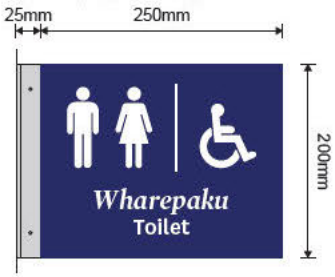
Sites to confirm whether baby-changing facilities are available or not

Type 1B (Flag-mounted)

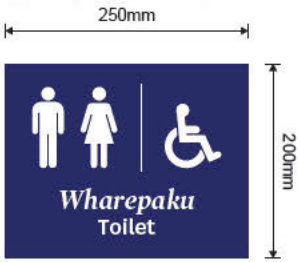
Type 1C (Suspended)

On the Door Signage

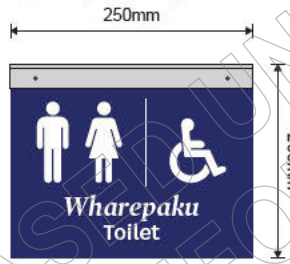
Type 2A (Flag-mounted)



Type 2B (Wall/Door fixed)



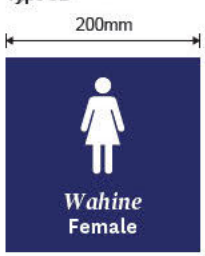
Type 2C (Suspended)



Toilet Door Signage (Single)

Type 3A

Type 3B

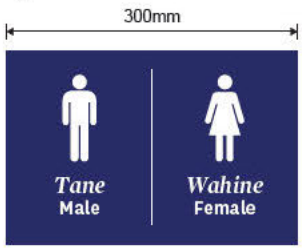


Type 3C

Type 3D

Toilet Door Signage (Shared)

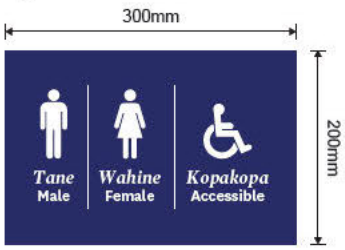
Type 4A



Type 4B

Type 4C

Type 4D



Type 4E

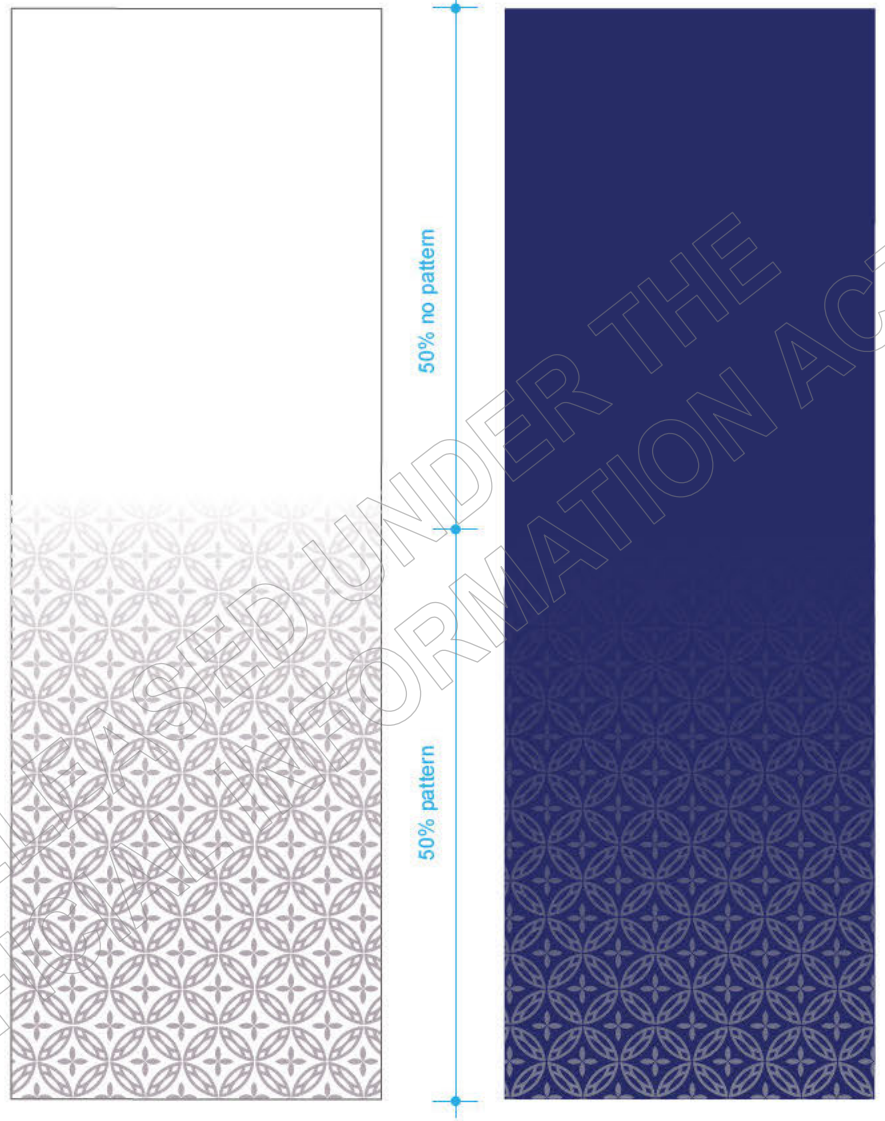
CUSTOMER TOILET SIGNAGE

Variable sizes for different applications
All signage digitally printed with a matt laminate, applied to 3mm white acrylic/PVC panels
No edge wrapping

Background Colour
White
C0 M0 Y0 K0

Pattern Colour Fade
The pattern fades to white
C0 M0 Y0 K0

Pattern Colour Fade
The pattern starts at a 30% tint
and fades to white
Spot Pantone 8403C - 50%
C0 M0 Y0 K80 - 50%



Background Colour
Spot Pantone 2756 C
C100 M97 Y27 K19

Pattern Colour Fade
The pattern starts a 50% tint
and fades to 100%
Spot Pantone 2756 C
C100 M97 Y27 K19

Pattern Colour Fade
The pattern starts a 50% tint
and fades to 100%
Spot Pantone 2756 C - 50%
C100 M97 Y27 K19 - 50%

The pattern should go up 50% of the panel unless large amounts of copy appear (eg p 06) when the pattern should stop slightly under the copy.

Forms

Forms

Senior services (A)

Senior services (B)

Wheelchair

Online services

Water (A)

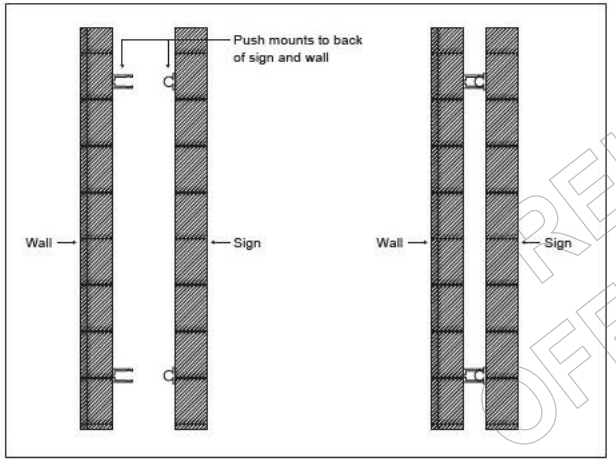
Water (B)

Phone

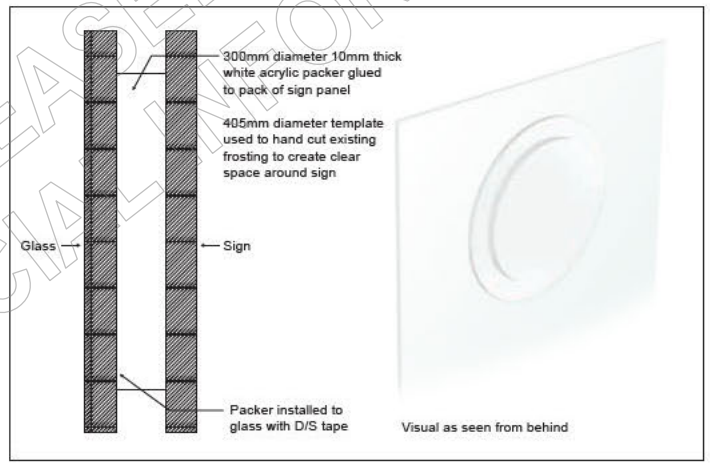
Kids' area

Exit

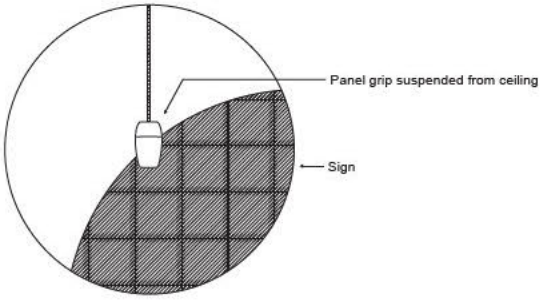
Wall-mounted signage Installation:



Glass-mounted signage Installation:



Ceiling-mounted signage Installation:



INTERNAL SIGNAGE - CIRCLES

6mm clear acrylic panels routercut to 385mm diameter circles with polished edges
Digitally printed graphics with matt laminate applied to faces, no edge wrapping

Installation notes:
Circle signage should be installed on a wall/pillar 1400mm from the ground (to bottom of circle)
Signs should be 300mm in from the edge of wall or centered when placed on a pillar.

Blue background
Spot Pantone 2756 C
C100 M97 Y27 K19

Yellow background
- - -
C0 M5 Y100 K0

Green background
- - -
C60 M10 Y95 K0

rilee's YOUR BRAND PARTNER

Background Colour
Spot Pantone 2756 C
C100 M97 Y27 K19

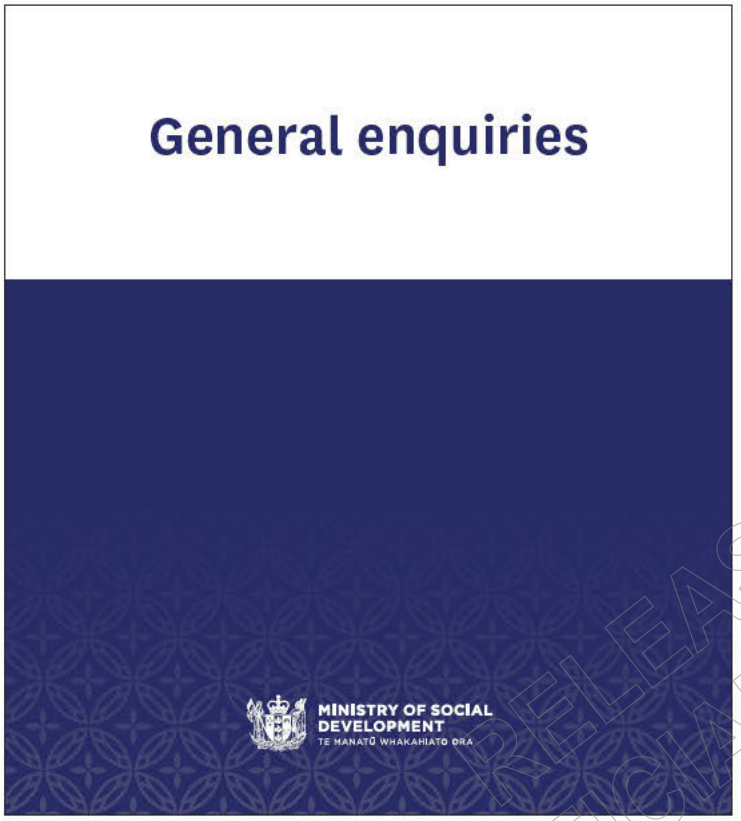
Pattern Colour Fade
The pattern starts a 50% tint and fades to 100%
Spot Pantone 2756 C
C100 M97 Y27 K19

Pattern Colour Fade
The pattern starts a 50% tint and fades to 100%
Spot Pantone 2756 C - 50%
C100 M97 Y27 K19 - 50%

INTERNAL SIGNAGE - PLINTH

Sheetmetal clad plinth with internal light gauge steel frame
Matt laminated digital prints to wrap cladding
Directional slats on magnetic media with matt laminate applied
Self-adhesive arrows applied to magnetic slats
Steel base with spigots and hidden casters

Reception Pod (A)



Reception Pod (B)

Background Colour
Spot Pantone 2756 C
C100 M97 Y27 K19

Pattern Colour Fade
The pattern starts a 50% tint and fades to 100%
Spot Pantone 2756 C
C100 M97 Y27 K19

Pattern Colour Fade
The pattern starts a 50% tint and fades to 100%
Spot Pantone 2756 C - 50%
C100 M97 Y27 K19 - 50%

Installation Note:
Reception pod print with "General enquiries" text to be installed on far left of reception, with plain patterned prints to the right as required

INTERNAL SIGNAGE - RECEPTION PODS

Matt laminated digital prints applied to face of existing pods on-site
Size: 930mm W x 1135mm H

Reception Pods

Option 1
Description: Digitally Printed vinyl applied direct to counter.

Option 2
Description: Digitally Printed vinyl applied direct to counter.

rilee's

Client: Ministry of Social Development
Project: Service Centres
Version: 10
Date: 30/10/2020

Sales: Brent Cheeseman
Creative: Alex Clark

☐ Approved
☐ Approved with alterations

Signed *Date* *Operator*

rilee's

Client: Ministry of Social Development
Project: Service Centres
Version: 10
Date: 30/10/2020

Sales: Brent Cheeseman
Creative: Alex Clark

☐ Approved
☐ Approved with alterations

Designer's impression only. This design concept remains the property of Rilee Signs Ltd.

Signed *Date* *Operator*

Frosting - Option 1 - Equal size glass panels.

Description: Digitally Printed frosted vinyl applied direct to glass.
"Welcome Words" panel artwork setup to fit panel width.

"Welcome Words" panel always next to the door.

Pattern graphics always 1200mm wide regardless of panel width.

rilee's

Client: Ministry of Social Development
Project: Service Centres
Version: 10
Date: 30/10/2020

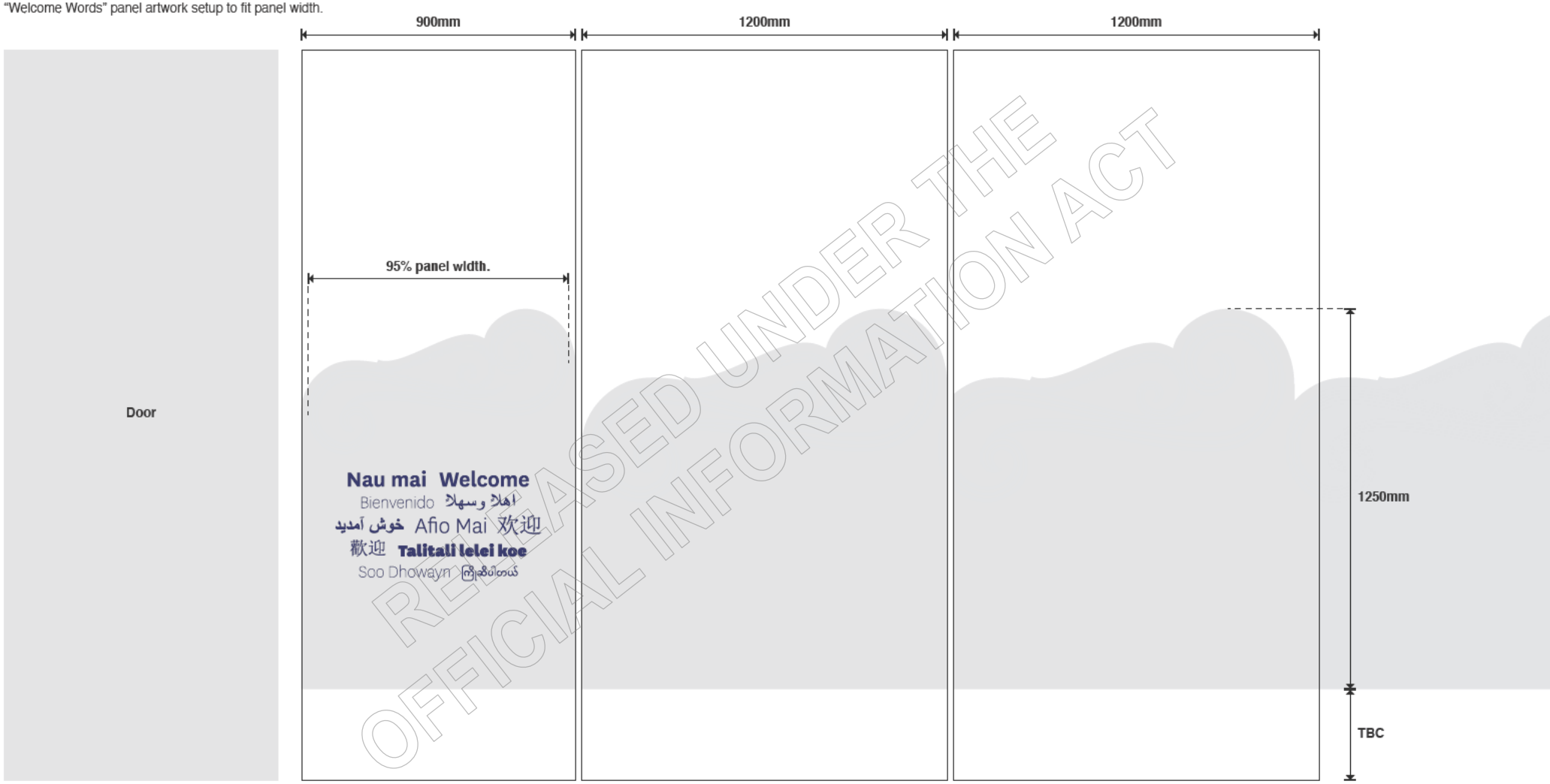
Sales: Brent Cheeseman
Creative: Alex Clark

☐ Approved
☐ Approved with alterations

Signed *Date* *Operator*

Frosting - Option 2 - Different size glass panels.

Description: Digitally Printed frosted vinyl applied direct to glass.
"Welcome Words" panel artwork setup to fit panel width.



"Welcome Words" panel always next to the door.

Pattern graphics always 1200mm wide regardless of panel width.

rilee's

Client: Ministry of Social Development
Project: Service Centres
Version: 10
Date: 30/10/2020

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☐ Approved
☐ Approved with alterations

Designer's impression only. This design concept remains the property of Rilee Signs Ltd.

Signed *Date* *Operator*

[Site Name] Power Plan REV [X]– [Date]

[Insert Snipping of coloured plan from DD]
Power plan can be based off cabling plan
Remember to include power for staffroom TV

Legend

- Drop Pole
- Umbilical - supplied by Aspect
- Power, double outlet
- Power, double outlet – height requirement 1250mm from floor
- Desk Power – 1 * 20 AMP CMS
- Ceiling Mounted Desk Power - 1 * 20 AMP CMS
- Ceiling Power – double outlet
- ADT Power – double outlet to be placed 300mm below ceiling
- X — Number requirement – power
- Existing Digital Signage TV on wall to be relocated
- Existing Security ADT TV
- Existing Outlets – retain

Signage Checklist Template

FOH Signs

Sign	Sign Picture	Required	Number Required
Water Cooler		☑	Retain existing on site OR advise if new required
Online Services		☑	Retain existing on site OR advise if new required
Kids Area		☑	Retain existing on site OR advise if new required
General Enquiries		☑	
Te Pae Tawhiti Wall Mural		☑	
Te Pae Tawhiti Canvas		☑	

Connected Logo	Connected .govt.nz Employment, Education & Training	☑	
Connected Triangle		☑	

Toilet Signs

Sign	Sign Picture	Required	Number Required
General Toilet Sign		☒	
Client Toilet		☒	
Female Toilet		☑	
Male Toilet		☑	

Disabled Unisex		☑	

Room Signs

Sign	Required	Number Required
(Seminar Room)	☑	
(Interview Room)	☑	
(Meeting Room)	☒	
Store Room	☒	
Server Room	☑	
Cleaner	☑	
Staff Only	☒	
Staff Room	☑	
Shower	☒	

Service Centres for the Future – Waitara

LOOK AND FEEL


Door Colour
Feature Wall Colour
Feature Wall Colour
Main Wall Colour
Sit Stand Desk Divide Screen Colour
Sit Stand Desk Privacy Screen Colour
Sit Stand Desk Privacy Screen Colour
Sit Stand Desks
CID desk
Feature Wall Acoustic Fabrics
CID Screen Fabric
Service Centres for the Future
Employment Space Furniture
Pinboard
Brand Images
FOH Wall Colour

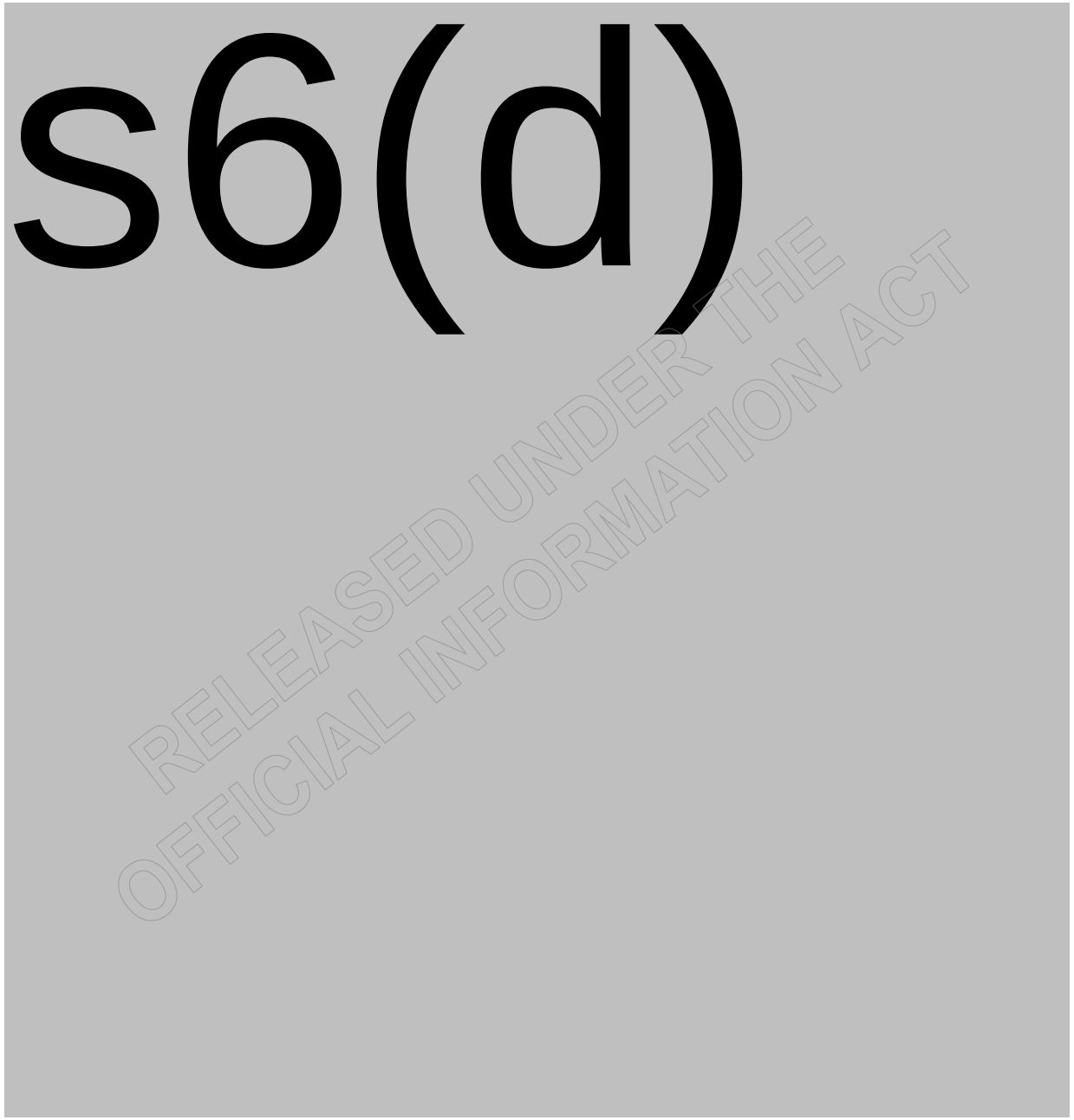
WAITARA

s6(d)

OR

EMPLOYMENT ZONE

BRAND IMAGES



s6(d)

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s6(d)

s6(d)

Service Centres for the Future – Upper Hutt

LOOK AND FEEL

Please note: when printing colours are not a true representation of the materials

s6(d)

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Te Pae Tawhiti – Our Future

MINISTRY OF SOCIAL DEVELOPMENT
TE MANATŪ WHAKAHIATO ORA

Look & Feel • **Ministry of Social Development** • 2021
Service Centres for the Future • Colour Boards

Please note: when printing colours are not a true representation of the materials

Please note: when printing colours are not a true representation of the materials

Please note: when printing colours are not a true representation of the materials


s6(d)

Te Pae Tawhiti – Our Future

MINISTRY OF SOCIAL DEVELOPMENT
TE MANATŪ WHAKAHIATO ORA

Look & Feel • **Ministry of Social Development** • October 2020
Service Centres for the Future

UPPER HUTT

TRY

Brand Images

Regional Images

Employment Zone

Please note: when printing colours are not a true representation of the materials

DESIGNGROUP
NEW ZEALAND

CLIENT
MINISTRY OF SOCIAL DEVELOPMENT

PROJECT NAME
FSPSE LOOK & FEEL - REVERSE BRIEF

SEPTEMBER 2020

MINISTRY OF SOCIAL DEVELOPMENT

designgroup new zealand

MINISTRY OF SOCIAL DEVELOPMENT PURPOSE & VISION

Manaaki tangata, manaaki whānau

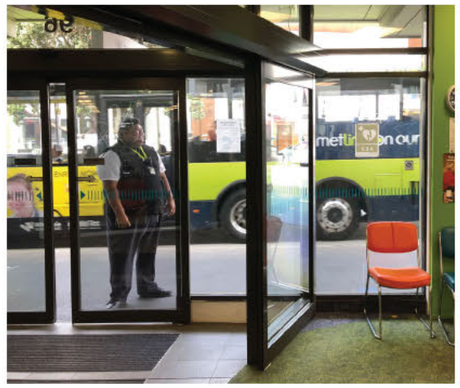
We help New Zealanders to be safe, strong and independent

Support the aspirations of Māori, connecting and collaborating to build effective partnerships and community approaches that achieve better outcomes for those who most need our support

To provide our diverse range of services in the best possible way

‘Our Ministry is all about helping to build successful individuals, and in turn building strong, healthy families and communities’.

CURRENT LOOK & FEEL ANALYSIS



ENTRANCE LOBBY

The entrance lobby varies from site to site but typically the floor is tiled with an inset mat. These are hardy materials and inherently dark in colour thus, can feel quite harsh and uninviting.

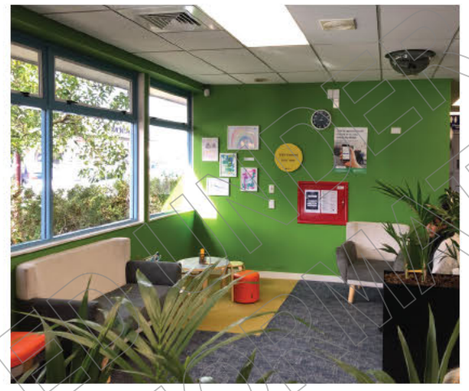
As this is a heavy traffic area, it is imperative these materials are durable. A new material selection could be considered; it would be nice to introduce a subtle pattern or some colour to enhance the space and create a real sense of arrival.

Carefully considered signage or messaging would define the beginning of the client's journey.

RECEPTION

As the reception counter units fulfil the functional requirements, however it is proposed to upgrade the graphics to the front face.

A material or colour could be applied to emphasise these forms as the primary point of service.



CLIENT INTERVIEW DESKS

The timber fins to the CID's offer a lovely warmth and rhythm to the space. However, this is lost due to the expanse of space and number of the CID's; especially when set against a stark white wall and the charcoal carpet tiles.

Carefully curated messaging, a colour or texture to the rear wall would give a sense of dynamism. A pattern to the carpet would also help lift the space.

WAITING & KIDS AREAS

The current selections of highly saturated colours to the Waiting and Kids Area can be overwhelming.

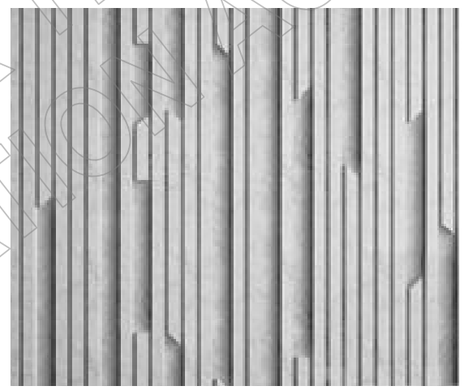
The colour palette could be refined and desaturated. A controlled and considered use complimentary colours could subtly define the waiting area.

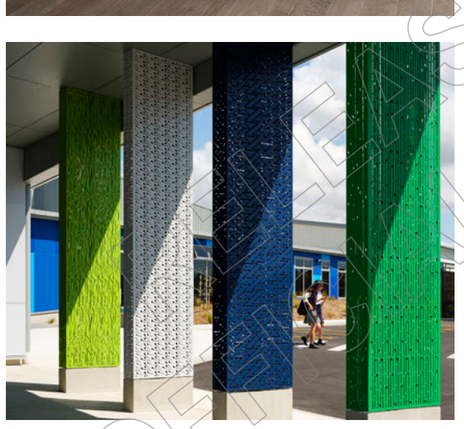
SEMINAR ROOM

The glazed partitions to the Seminar Rooms are generic construction methodology.

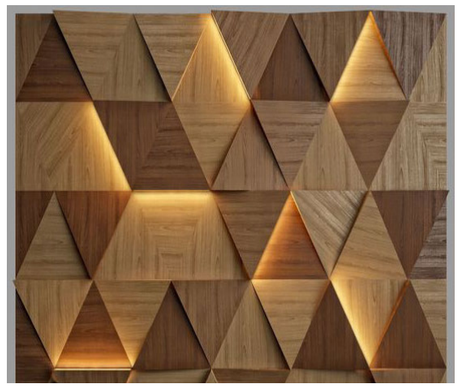
It would be a nice to break up the wall vertically or horizontally. This could be simply achieved with manifestations or by material selection.

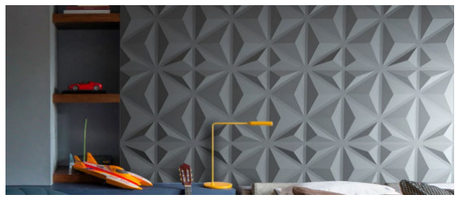
PRECEDENT IMAGES TEXTURE



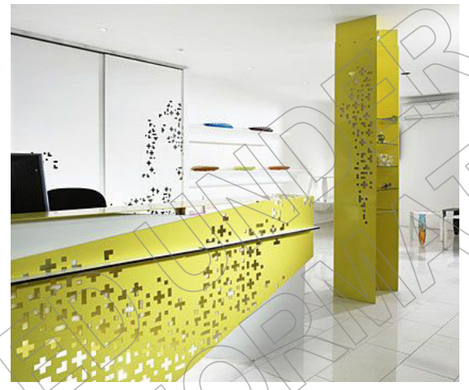


Textured wall panels and ceiling battens define a space or zone. The natural play of light will offer a sense dynamism

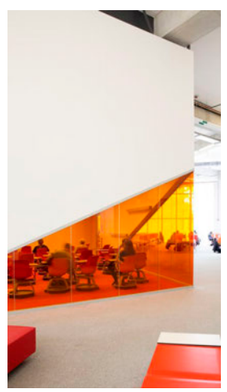




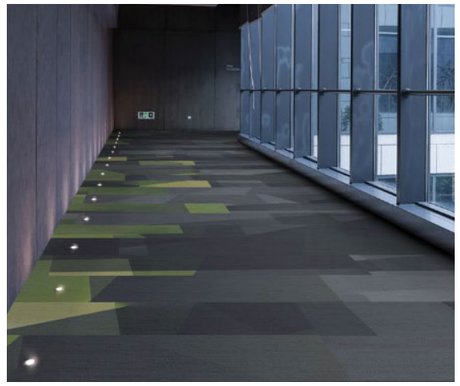
PRECEDENT IMAGES FORM & COLOUR



Controlled and considered use of complimentary colours define different zones and emphasise architectural forms

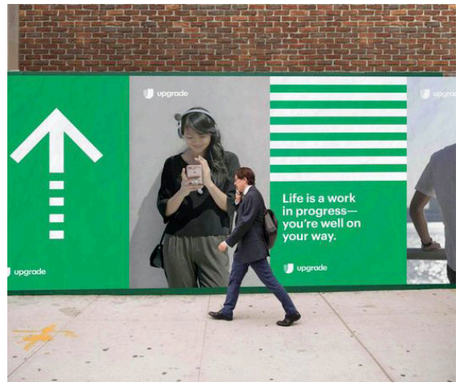


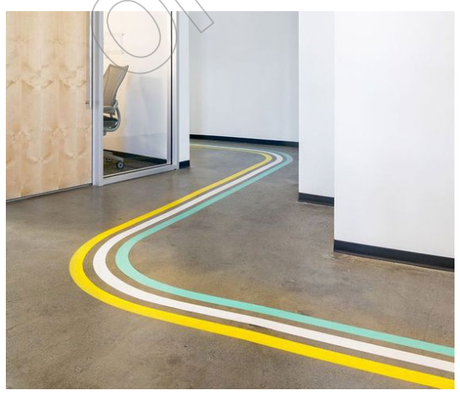
PRECEDENT IMAGES WAY-FINDING & MESSAGING

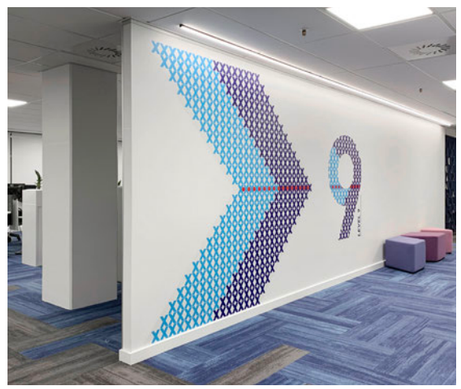


Subtle colour and material transitions will innately guide the client through the space

Bold, graphic messaging is a device to highlight key zones. This messaging will set the tone for the customer experience - this could potentially be quite playful







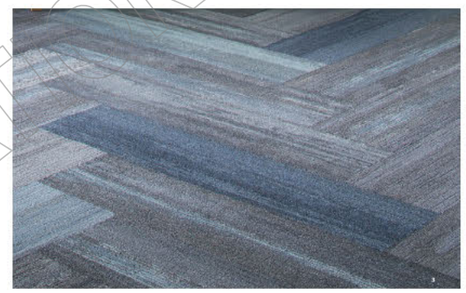
PROPOSED MATERIALITY

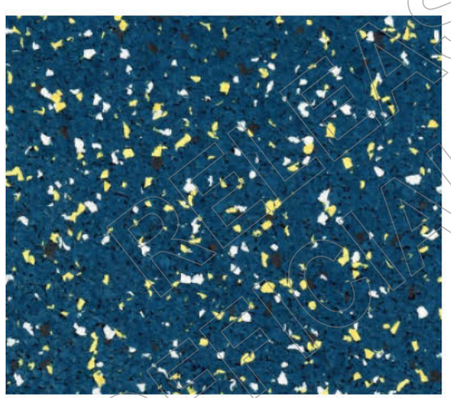
A refined material and colour palette will offer a sense of cohesion and balance. The reduced palette can be expressed through a selection of finishes and textures which will add depth

The form of the existing furniture items ought to inform the new architectural elements; this will introduce a spatial dialogue – an example, the curves in the reception counter could be mimicked in new suspended acoustic ceiling battens

A single species of timber should be celebrated – an example could be a timber wall treatment matching that of the furniture items

A subtle accent of a bold, complimentary colour should be carefully crafted – an example the yellow fleck in the flooring reflected in the glazing film





Service Centres for the Future – Waihi

LOOK AND FEEL


Door Colour
Feature Wall Colour
Feature Wall Colour
Main Wall Colour
Sit Stand Desk Divide Screen Colour
Sit Stand Desk Privacy Screen Colour
Sit Stand Desk Privacy Screen Col
Sit Stand Desks
CID desk
Feature Wall Acoustic Fabrics
FOH Furniture ex
Service Centres for the Future
Employment Space Furniture
Pinboard
Brand Images
FOH Wall Colour
RELEASED UNDER THE OFFICIAL INFORMATION ACT

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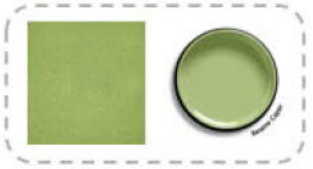
WAIHI

REGIONAL IMAGES

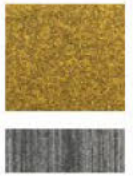
OR



OR

s6(d)

EMPLOYMENT ZONE



s6(d)

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s6(d)

Te Pae Tawhiti – Our Future

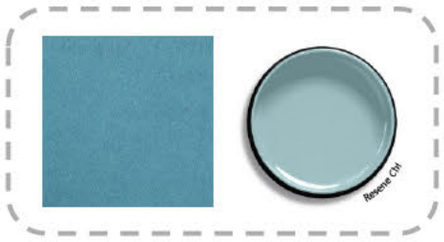
MINISTRY OF SOCIAL DEVELOPMENT
TE MANATŪ WHAKAHIATO ORA

Look & Feel ▪ **Ministry of Social Development** ▪ [Month] 2024

[SITE NAME]

Delete this box once used

- Use to indicate Autex feature walls
- Use to indicate feature walls paint
- Use to indicate Employment Autex
- Use to indicate Kids area paint
- Use to indicate TPT canvas/mural



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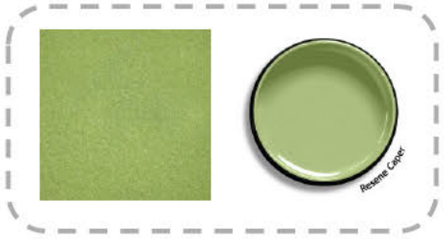
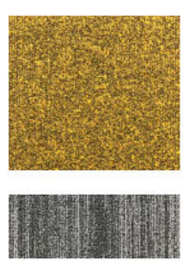


OR

OR

[Insert snipping of site plan]

EMPLOYMENT ZONE



Look & Feel ▪ **Ministry of Social Development** ▪ [Month] 2024

*Please note: when printing colours are not a true representation of the materials

Look & Feel ▪ **Ministry of Social Development** ▪ [Month] 2024

*Please note: when printing colours are not a true representation of the materials

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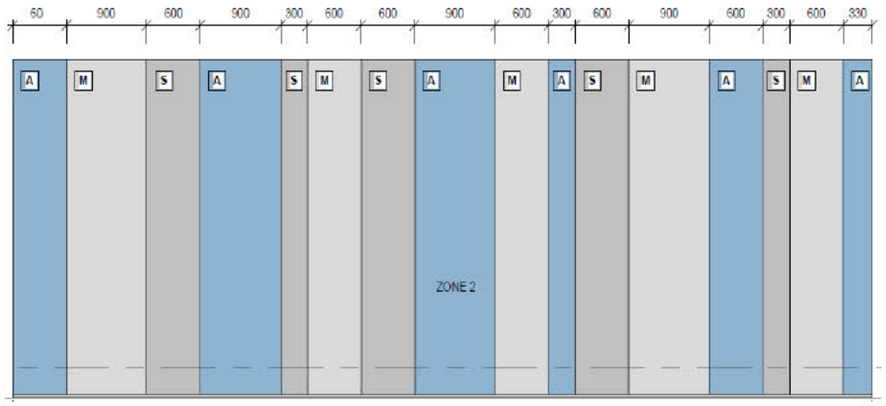
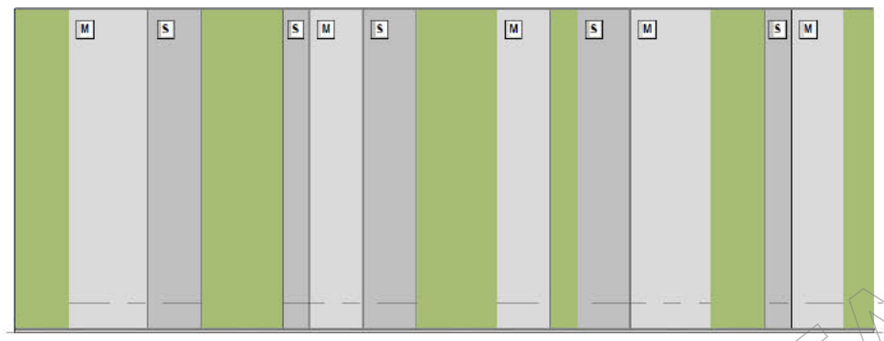
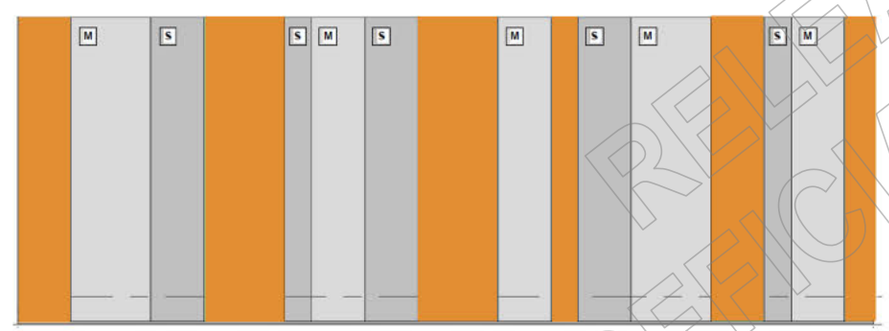
*Please note: when printing colours are not a true representation of the materials

Feature Walls

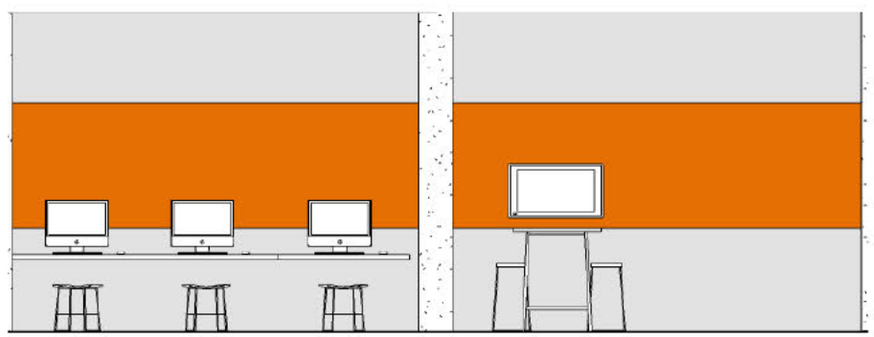
Feature wall – typical elevation

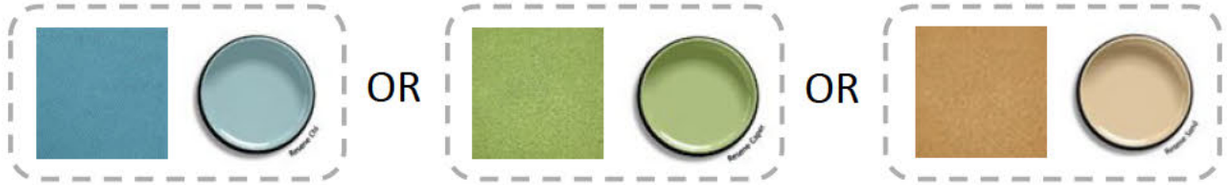


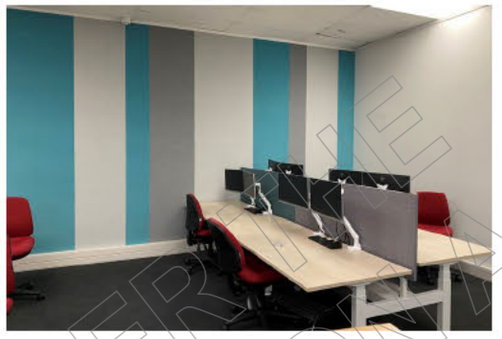


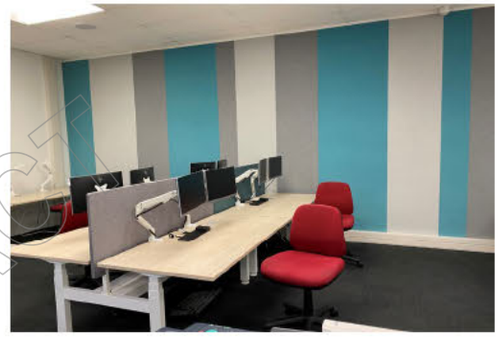


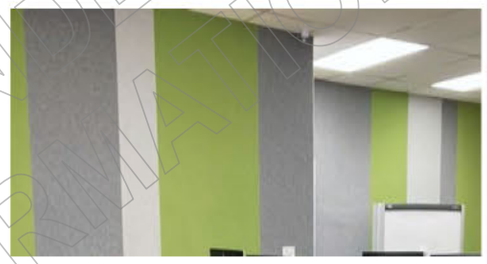
Employment Space

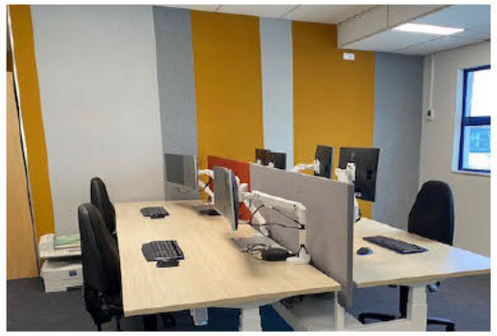


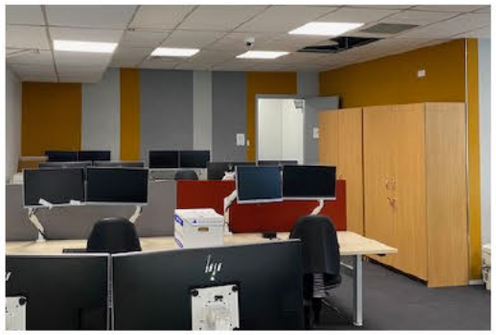


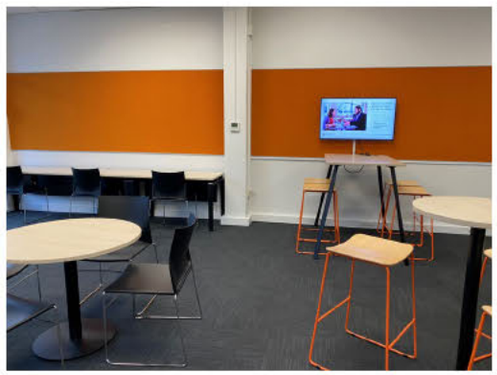


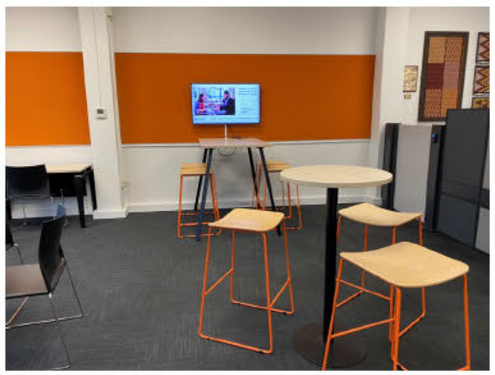












[Site Name] TV Locations – [Date]

Insert Snipping of Coloured Site Plan

Legend

- Interview room TV – Supplied by Ten Four
  Power Socket Height 800-1000mm
- Employment Space TV – Supplied by Ten Four
  Power Socket Height 1250mm
- Staff Digital Signage TV – Supplied by Ten Four
  Ceiling Power Socket
- Seminar room TV – Supplied by Ten Four
  Power Socket Height 900-1250mm
- Existing Digital Signage Location – to be kept in current location
- Relocated Digital Signage Location
  Ceiling Power Socket

*delete non applicable items