SPECIFICATION
20412

ALTERATIONS TO POOL DECK & RESIDENTS AMENITIES

LEVEL 5 99 SPRING STREET, MELBOURNE

ISSUE 02 – TENDER
10.3. 2022

RICE DESIGN PTY LTD
LEVEL 2
1 HARWOOD PLACE MELBOURNE
VICTORIA 3000 AUSTRALIA
TELEPHONE 03 9663 2466
WWW.RICEDESIGN.CO

ARCHITECTURE AND
INTERIOR DESIGN

RICE

INDEX

SPECIFICATION PART 1

TENDER FORM & GENERAL REQUIREMENTS

SPECIFICATION PART 2 (TRADE SPECIFICATIONS)

ARCHITECTURAL SCHEDULES (Appended)

SCHEDULE OF COLOURS & FINISHES

SCHEDULE OF FITTINGS & FIXTURES

DOOR & WINDOW SCHEDULE

APPENDICES

ASBESTOS REPORT

BODY CORPORATE RULES

ENGINEERS COMPUTATIONS

TABLE OF CONTENTS

01. TENDER FORM 2

02. NOTICE TO TENDERERS 4

02.01 OUTLINE DESCRIPTION OF THE PROJECT – TENDER CONDITIONS 4
02.02 FURTHER INFORMATION – TENDER CONDITIONS 4
02.03 FORM OF CONTRACT – TENDER CONDITIONS 4
02.04 TENDER SUBMISSION – TENDER CONDITIONS 5
02.05 DISCREPANCIES, ERRORS & OMISSIONS – TENDER CONDITIONS 5

03. CONDITIONS OF TENDERING 6

03.01 GENERAL – TENDER CONDITIONS 6
03.02 TENDER DOCUMENTS – TENDER CONDITIONS 6
03.03 DOCUMENTS ISSUE – TENDER CONDITIONS 6
03.04 SUBMISSION OF TENDERS – TENDER CONDITIONS 6
03.05 TENDER LODGEMENT – TENDER CONDITIONS 6
03.06 EVIDENCE OF THE CONTRACTOR'S REGISTRATION OR LICENSING – TENDER CONDITIONS 7
03.07 ACCEPTANCE OF THE TENDER – TENDER CONDITIONS 7
03.08 PROPRIETARY NAMES – TENDER CONDITIONS 7
03.09 ALTERNATIVE PROPOSALS – TENDER CONDITIONS 7
03.10 ALTERNATIVE TIME FOR PRACTICAL COMPLETION – TENDER CONDITIONS 7
03.11 CONTRACT ADMINISTRATION – TENDER CONDITIONS 7

04. CONDITIONS OF CONTRACT 9

04.01 CONTRACT SCHEDULES, BUILDING CONTRACT SW-2018 – TENDER CONDITIONS 9

01. TENDER FORM

Name of Owner(s): OWNERS CORPORTION RP2983

Name of project: Alteration to existing pool area and residents' amenities level 5 99 spring street

Tender:
I/We tender to perform the work for the above project as described in, and in accordance with, the tender documents for the lump sum (which includes specified monetary sums) of:

……
(Nett Sum in words – excluding GST)

…… ……
(Goods & Services Tax in words) (Total including GST in figures)

The contract duration in working days from the date of site possession shall be ……

This tender remains open for consideration for 60 calendar days from the date and time of closing of the tender period.

I/We acknowledge the receipt during the tender period of addenda numbered: ……..

Name of Tenderer ……

ACN …… **Telephone** …… **email** ……

Tenderer's address or registered business office address:

……
Address for service of notices:

……
Tenderer's bank and address:

……

Execution if Tenderer is an individual or unincorporated body
Tenderer's signature Witness' signature

…… ……

Execution if Tenderer is a company
(The common seal of the Tenderer was affixed in accordance with the Articles of Association)

Director's or authorized officer's signature Secretary's or witness' signature

…… ……

Date of tender.....2023

TENDER BREAKDOWN

Tenderers are to fill out the following schedule, indicating the breakdown of the tender in accordance with the various trades:

Trade Sections	% of total contract amount	Amount ($)
Preliminaries (General Requirements)		
Demolition		
Carpentry		
Structural Work		
Masonry		
Waterproofing		
Doors & Windows		
Internal Linings		
Plastering		
Tiling		
Floor Coverings		
Painting		
Joinery		
Mechanical Services		
Hydraulic Services		
Electrical Services		
Provisional Sums		
Prime Cost Items		
other items		
Total Nett Amount (excluding GST)		
Goods & Services Tax		
Total Amount (including GST)		

02. NOTICE TO TENDERERS

02.01 OUTLINE DESCRIPTION OF THE PROJECT – TENDER CONDITIONS

Description:

Extent: The Tender shall be for the whole of the Works described in the accompanying Tender Documents, and includes, but not limited to the following:

- Description of the Works, including but not limited to:
  - Demolition and refurbishing of existing apartment
- Provision of attendance and access for the Owner's Contractors in the supply and installation of specific work
- All services work, including any "Builder's Work" identified in the services documentation
- Obtaining an "Certificate of Occupancy" and all other required certificates of compliance
- Obtaining all "Operation & Maintenance Manuals" for services and other building work as specified
- Obtaining all "As-Built Drawings" for services as specified

Not included: The Tender shall be deemed to have not include the following monetary items:

- Site allowances that may be agreed after the signing of the Contract

Excluded: The following work will be undertaken by an Owner's Contractor that will require co-ordination by the Contractor and include any 'builder's work' nominated in the appended documents for that work:

- Other work as listed in the Contract

02.02 FURTHER INFORMATION – TENDER CONDITIONS

Contact person:

Notice: Refer enquires during the Tender Period in writing to the following person:

- Name: Helen Rice
- Email: mail@ricedesign.co

Site inspections:

Notice: Unless otherwise organized site inspections shall be arranged directly with the Contact Person.

Addenda:

Notice: Addenda to the Tender Documents may be issued prior to the closing of Tenders for the purpose of clarifying the documents or to reflect modifications in the design or to the contract terms. If a tenderer is in doubt as to the meaning of any part of the tender documents, the tenderer should notify the Architect and obtain clarification of the tender documents, which will made only by formal addendum. The Owner will not be responsible for any other interpretation. Each addendum will be issued to each organization tendering for the Project.

Acknowledgement: Tenderers must acknowledge receipt of all addenda with the Tender. All addenda that are issued will become part of the Tender Documents, and ultimately form part of the Contract.

02.03 FORM OF CONTRACT – TENDER CONDITIONS

Contract conditions:

General: The Tender shall be for a Lump Sum, including GST (Good & Services Tax).

The form of contract shall be:

- ABIC SW-2018 Australian Building Industry Contract – Minor Works Contract Victoria, issued by the Australian Institute of Architects and Master Builders Association

Copy of Contract: These tender documents do not include a copy of the Contract. Tenderers must make their own arrangements to obtain a copy of the Contract. However, a copy of the Schedules to the Contract, partly completed, is included in these TENDER CONDITIONS.

02.04 TENDER SUBMISSION – TENDER CONDITIONS

Closing of tenders:

Tenders will close at the following time and date:

Time: 3.00pm on the date advised.

Date:

Place for lodgement:

Email to the office of the Architect:

- Rice Design Pty. Ltd.
  1 Harwood lane, Melbourne, Victoria 3000

Tender validity period:

Unless withdrawn, tenders must remain valid from the date and time for closing of tenders, for the following period: 60 calendar days.

Qualifications: Tenders containing unauthorized alterations, additions or qualifications may be rejected.

02.05 DISCREPANCIES, ERRORS & OMISSIONS – TENDER CONDITIONS

Notification:

Requirement: Should the Tenderer find any discrepancy, error or omission in the Tender Documents, they shall notify the Architect in writing thereof, before the closing date of Tenders.

Discrepancies: In the case of discrepancies within the Tender Documents, and in the absence of an instruction from the Architect to the contrary, the Tenderer shall allow for the greater quantity, quality or cost. If subsequent direction allows a lesser quantity, quality or cost, the cost difference will be deducted from the Tendered amount.

03. CONDITIONS OF TENDERING

03.01 GENERAL – TENDER CONDITIONS

Status:

Notice: These "TENDER CONDITIONS" will not form part of the Contract. TENDER FORMS will form part of the Contract.

03.02 TENDER DOCUMENTS – TENDER CONDITIONS

Issue:

The Tender Documents shall comprise:

- Building Contract (by reference)
- Schedules to the selected building contract
- Tender Forms
- Specifications
- Drawings
- Additional information appended:
  - body corporate rules

Notice: No explanation or amendment to the Tender Documents will be recognised unless it is in the form of written addendum issued by the Architect, receipt of which must be acknowledged in writing by the tenderer.

03.03 DOCUMENTS ISSUE – TENDER CONDITIONS

Issue:

Supply: Tenderers will be supplied with one hard copy and one PDF electronic copy of the Tender Documents.

03.04 SUBMISSION OF TENDERS – TENDER CONDITIONS

Requirements:

Tender form: The tender must be submitted on the TENDER FORM pro forma provided.

The tenderer must state:

- (if a person) their name and address in full
- (if a firm) the name and address of the firm and each member of the firm in full
- (if a corporation or company) the name of the corporation or company and its registered office

Notices: Tenderers must include an address for service of notices for the purpose of this tender and any subsequent contract arising out of this tender.

Submissions: Tenderers must contain all other documents required to be included by the Conditions of Tendering.

Documents to be lodged with tenders:

Requirement: Listed below are the documents which need to be completed and lodged with the tender:

- TENDER FORM
- Schedule of Rates (if applicable)
- Schedule of Prices

03.05 TENDER LODGEMENT – TENDER CONDITIONS

Lodgement:

Procedure: Tenders can be mailed or emailed, marked with the description of the work and must be delivered to, or sent by prepaid post to, the address shown above and must be received by the date and time for closing of tenders.

Conforming tender: Electronically transmitted tenders that include all required tender documents and that are received by the date and time for closing of tenders may be admitted for consideration subject to a conforming tender being received within 24 hours. The Architect will not take responsibility for the quality of transmission or timely receipt of electronically transmitted tenders.

Registered post: Tenders submitted by registered post, which arrive late, may be considered only if it can be established, to the satisfaction of the Architect, that they were posted before the date and time for closing of tenders and, in the ordinary course of post, would have been received at the above address by the stated date and time. Impressions of franking machines are not acceptable evidence of timely posting or dispatch.

Oral tenders: Oral tenders will not be considered.

Tenders received after the date and time for closing of tenders will not be considered.

Informal and non-conforming tenders:
Notice: Any tender may be rejected which does not comply with the requirements of or which contains provisions not required or allowed by the tender documents.

03.06 EVIDENCE OF THE CONTRACTOR'S REGISTRATION OR LICENSING – TENDER CONDITIONS

Requirement:
Submission: Where an Act of the state or territory requires a contractor (as defined by the Act) to be registered or licensed to carry out the work described in the tender documents, the tenderer must provide evidence of registration or license at the time of tendering.

03.07 ACCEPTANCE OF THE TENDER – TENDER CONDITIONS

Notice:
Non-acceptance: The Owner will not be bound to accept the lowest or any tender; or to give any reasons thereto.

Acceptance: A tender will not be deemed to have been accepted until notice in writing of acceptance is:

- Handed to the tenderer; or
- Sent by email
- Left at the address stated in the Tender Form for service of notices

Formal instrument of agreement: Required.

03.08 PROPRIETARY NAMES – TENDER CONDITIONS

Notice:
General: When proprietary names, brands, catalogue or reference numbers are specified in the tender documents, they are intended to set a minimum standard, and preference for any particular material or equipment is not intended. The tenderer may offer material or equipment of equivalent characteristic type, quality, appearance, finish, method of construction and performance.

03.09 ALTERNATIVE PROPOSALS – TENDER CONDITIONS

Alternative proposals and conforming tender:
Requirement: Tenderers may submit alternative proposals for consideration, but must also submit a conforming tender.

Submissions: Where an alternative is tendered, the tenderer must include a fully detailed description and must state clearly the manner in which it differs from that specified.

03.10 ALTERNATIVE TIME FOR PRACTICAL COMPLETION – TENDER CONDITIONS

Requirement:
Conforming tender: The Schedules to the contract may specify the time for Practical Completion and the liquidated damages applicable under the contract or each separable part of the Works. Tenderers must submit a tender in accordance with these requirements. Where times are not indicated then tenderers are required to provide times for consideration.

Alternative tender: Consideration will however be given to additional tenders that offer different times for Practical Completion. The specified liquidated damages will apply to those different times.

03.11 CONTRACT ADMINISTRATION – TENDER CONDITIONS

Notice:
General: Tenderers are advised that the Architect, will undertake the Tendering of the Works and the letting of the Contract. They will administer the Contract.

04. CONDITIONS OF CONTRACT

04.01 CONTRACT SCHEDULES, ABIC BUILDING CONTRACT SW-2018 HOUSING VICTORIA – TENDER CONDITIONS

Schedule 1 – Contract information:

Item 1: If the Owner has financed the Works using a lending authority:
Clause A5
Name of lender: .....
Representative: .....
Address: .....
.....
Email: .....
Mobile: .....
Telephone: .....
Facsimile: .....

Item 2: The Architect:
Clause A6

Name:	RICE DESIGN Pty. Ltd.
Registration No.	Victoria: 14440
Representative:	Helen Rice
Address for notices:	1 Harwood Place Melbourne, Victoria 3000
Email:	mail@ricedesign.co
Mobile:	.....
Telephone:	(03) 9663 2466
Facsimile:	

Item 3: Special Conditions:
Clause B2
Are there any other special conditions: ~~**Yes**~~ **No**
(if yes, the special conditions in Schedule 2a apply)

Will the Owner remain in occupation: ~~**Yes**~~ **No**
(if yes, the owner occupier special conditions in Schedule 2b apply)

Item 4: The Contract Price:
Clause N1
Cost of building work: (The accepted tender amount)

Item 5: The Works:
Clause A2
Brief description of the works: renovation of existing amenities area including new services and alterations to existing exterior deck/pool area area.

Item 6: The site of the Works:
Clause A2
The address/location of the site: part level 5/99 spring street

Item 7: Security provided by the Contractor:
Item 7a: Is the Contractor to provide security to the Owner? **YES** ~~**NO**~~
Clause C1

Item 7b: Owner's nominated type of security: ~~Cash Retention /~~ Unconditional guarantee
Clause C1

Item 8: Percentage of contract price for cash retention: 5%
Clause C2 (if nothing stated 5%)

Item 9: Percentage of contract price for Each unconditional guarantee: 2.5%
Clause C3 (if nothing stated 2.5%)

Item 10: Period for payment of certificates and for release of security: 10 days
Clauses C6, N6, N13, Q10, Q18 (if nothing stated 7 calendar days)

Item 11: Public liability insurance
Clause E1
Is the Owner or the contractor to take out and maintain public liability insurance: The Contractor
(if nothing stated the Contractor)

Item 12: Contract Works insurance
Clause E2
Is the Owner or the contractor to take out and contract works insurance: The Contractor
(if nothing stated the Contractor)

Item 13: Amount to cover fees of the Architect and other consultants:
Clause E4.1 15%
(if nothing stated 10% of the Contract price)

Item 14: Amount to cover cost of Demolition and removal of debris:
Clause E4.1 10%
(if nothing stated 10% of the Contract price)

Item 15: Amount of insurance for injury illness, disease or death:
Clause E4.2 $20,000,000.00
(if nothing stated $20,000,000.00)

Item 16: Insurance excess:
Clause E9
Amount for excess for public liability Insurance (clause E1:) $1,000.00
(if nothing stated $1,000.00)

Amount for excess for contract works Insurance (clause E2:) $1,000.00
(if nothing stated $1,000.00)

Item 17: Percentage for the contractor's overheads and profit:
Clause H2 15%
(if nothing stated 15%)

Item 18: Adjustment of time costs (clause H5)

Clause H5

Stage of completion of the works (description)	Sum per working day (incl. GST)
……..	$……
……..	$……
……..	$……
……..	$……

Item 19: Percentage of the difference to be added to the **contract price*

Clause K4.2 — 10% (if nothing stated 10%)

Item 20: Allowance for delay due to disruptive weather conditions:

Clauses: L2, L4 — Nil…….working days

Item 21: Allowance for delay having regard to the nature of the Contract and the works which do not entitle adjustment of time costs:

Clauses: L2, L4

Cause	Allowance (working days)
None	Nil .....
.....	.....
.....	.....

Item 22: Date for practical completion:

Clause M1 — (Contractor to supply date for contract)

Item 23: Commissioning tests for practical completion:

Clause M1

Mechanical Services
Hydraulic services K
Pool equipment (exist & new)
Appliances installed by the Contractor
Sauna
Locks and other door hardware

Item 24: Rate for liquidated damages:

Clause M9 — $100.00 per calendar day incl. GST

Item 25: Defects liability period for the works:

Clause M13 — 12 months (if nothing stated, 12 months)

Item 26: Date for submitting progress claims:

Clause N3 — 15th of the month (if nothing stated, 15th Month)

Item 27: Information to be included in a Progress Claim:

Clause N3

Percentage of each trade completed for the month
Percentage of each trade completed in total
Variation adjustments / expenditure approved
Adjusted date for practical completion
Statutory declaration confirming all trade payments authorized in the previous certificate have been paid

Item 28: Interest rate on overdue amounts:

Clause N15

10%
(if nothing stated, 10% per annum)

Schedule 1 – contract information

Item 29: Governing law:

Clauses P4, P5, P6 and R9

Victoria.
(if nothing stated, the state or territory where the site is located)

Item 30: Official documents:

Item 30a: Official documents required to begin the works but to be obtained by the Contractor:

.....
.....
.....

Item 30b: Official documents required to complete the works but to be obtained by the owner:

Building Permit
.....
.....

- REFER NEW ITEM 31 IN SPECIAL CONDITIONS

Schedule 2a – Special conditions:

Special Conditions:
Item 3 of Schedule 1
Clause B2

- REFER FOLLOWING PAGES FOR SPECIAL CONDITIONS

ABIC SW 2008

Special conditions – Schedule 2a to Contract

between

OC Plan No. 2983 (99 Spring Street, Melbourne)

and

[Contractor]

Section A – Overview

1. Delete clauses A2.3, A4.1e, A5.4, A5.5 and A5.6 and mark them “Not used”.

2. Insert the following new clauses A3.2 and A3.3:

".2 The contractor warrants that:

a. prior to executing the contract it:

.1 carefully examined the **contract documents* and satisfied itself that they are suitable and adequate for the purpose of constructing the **works* in accordance with the contract

.2 informed and satisfied itself of the nature of the work, materials, equipment and construction plant necessary for the performance and completion of the **works* and

b. it is satisfied that the **contract price* and date for **practical completion* make sufficient allowance for the performance and completion of the **works* in accordance with the contract.

.3 The contractor warrants that it will:

a. perform the **works* in a proper and workmanlike manner

b. use the materials and standards of workmanship required by the contract. In the absence of any requirement to the contrary, the contractor shall use suitable new materials

c. ensure that upon **practical completion*, the **works* are fit for their intended purpose as stated in or reasonably able to be inferred from the **contract documents* and

d. ensure that the **works* are undertaken by persons and subcontractors who are suitably qualified and experienced.”

Section C – Security

3. Delete subclause C1.1a.

4. Delete clause C2 and mark it “Not used”.

5. Delete subclause C4.1b and mark it “Not used”.

Section D – Liability

6. Delete clause D4 and subclause D5.2 and mark them “Not used”.

Section E – Insurance

7. Delete clauses E3 and E9 and mark them “Not used”.

Section F – The site

8. Insert the following new clause F10:

"F10 **Occupational Health and Safety**

.1 The contractor acknowledges and agrees that for the purposes of the **relevant legislation* concerning occupational health and safety, the owner:

a appoints the contractor as the "principal contractor" in respect of the **works* and the **site* and

b authorises the contractor to manage and control the **site* to the extent necessary to discharge the duties imposed on a "principal contractor" under the **relevant legislation* concerning occupational health and safety for the **works*.

.2 The contractor shall:

a comply with all applicable **relevant legislation* concerning occupational health and safety and ensure that its subcontractors and their respective employees and contractors comply with such **relevant legislation*

b ensure that safe access is provided to the **site* and that a safe workplace is provided

c **promptly* take all precautions and measures necessary to eliminate or overcome conditions that involve any risk of bodily harm to workers and other persons and any risk of damage to property and

d notify the architect in writing **promptly* after becoming aware of any environmental incident, harm, potential harm or any non-compliance with any **legislative requirement* concerning occupational health and safety on **site* whether caused by the contractor or others.

.3 The contractor indemnifies the owner against any loss, damage, action, suit, claim, prosecution, demand, cause of action, proceedings or notice arising out of or in connection with a breach or an alleged breach of the contractor's obligations under this **clause F10."**

Section G – Building the works

9. Insert the following new subclause G4.4:

"The contractor must obtain the architect's prior written approval, which approval must not be unreasonably withheld, to subcontract (or allow a subcontractor to subcontract) any work set out in **item 31** of **schedule 1."**

10. Insert the following new clauses G10 and G11:

"G10 **Suspension for cause**

.1 The architect may instruct the contractor to suspend the whole of the **works* for such time as the architect thinks fit, if the architect is of the opinion that it is necessary:

a because of an act, default or omission of:

.1 the architect, the owner or a person for whom the owner is responsible or

.2 the contractor, a subcontractor or either's employees or agents

b for the protection or safety of any person or property or

c to comply with a court order.

.2 If the contractor wishes to suspend the whole of the *_work_s, otherwise than pursuant to clause **Q12**, the contractor shall obtain the architect's prior written approval. The architect may approve the suspension and may impose conditions of approval.

.3 As soon as the architect becomes aware that the reason for any suspension no longer exists, the architect shall direct the contractor to recommence suspended *_works_ as soon as reasonably practicable. The contractor may recommence the *_works_ suspended pursuant to **subclause G10.2** at any time after reasonable notice to the architect.

G11 **Suspension for owner's convenience**

.1 At the owner's request, the architect must instruct the contractor to suspend the whole of the *_works_ for the owner's convenience. The contractor must *_promptly_ comply with the instruction.

.2 If the suspension continues for more than 20 *_working days_ the contractor may within a further 10 *_working days_ terminate its engagement in accordance with **clause Q13** as if it has already given the notice of termination under clause **Q12**.

.3 After an instruction to suspend the *_works_ has been given and the owner wishes to recommence the *_works_, the architect must instruct the contractor in writing to recommence the *_works_. The contractor must promptly comply with the instruction. If the contractor has left the *_site_, it must promptly return to the *_site_ and proceed with the *_works_."

Section J – Variation to the works

11. Delete subclause J2.1 and substitute the following:

"J2.1 The contractor must *_promptly_ review any written instruction issued by the architect under **subclause J1.1**. Within 5 *_working days_ of receipt of such instruction, the contractor must notify the architect in writing whether the instruction is in the nature of an instruction referred to in **subclause J2.2** or **subclause J2.3**, specifying which."

12. In subclause J2.4, delete the expression "20 *_working days_" and substitute:

"10 *_working days_ of receipt of an instruction issued under **subclause J1.1"**

Section L – Adjustment of time

13. Delete subclause L1.1a and substitute the following:

"a loss of or damage to the *_works_, or materials or equipment on the *_site_ that are intended to be incorporated in the *_works_, or plant or equipment used on the

site, provided that loss or damage was caused by an act or omission of the owner or a person for whom the owner is responsible"

14. Delete subclause L1.1c and substitute the following:

"c an architect's instruction, other than an instruction having the effect of directing that the contractor carry out the *works* in accordance with the *contract documents*"

15. Insert new subclause L1.1k:

"k an event of Force Majeure."

16. Insert at the foot of subclause L1.1:

"provided the contractor is or will be delayed in reaching *practical completion* by the date for *practical completion* by that cause."

17. Insert the following new subclauses L6.4 and L6.5:

".4 For the avoidance of doubt, references in this **clause L6** to causes of delay are references to the causes of delay set out in and complying with **subclause L1.1** unless otherwise stated.

.5 When a cause of delay set out in **subclause L1.1** overlaps with a cause of delay not set out in subclause **L1.1**, the contractor is entitled to an adjustment of time equal to the proportion of the delay to *critical construction activities* to which a cause set out in **clause L1.1** contributed."

Section M – Completion of the works

18. Insert the following new subclause M1.1d as follows:

"d all keys and security access arrangements, all operating and maintenance manuals, and warranties for equipment incorporated in the *works* or installed by or for the contractor, have been provided to the architect."

19. Delete subclauses M8.2 and M8.3 and mark them "Not used".

20. Delete subclause M12.2 and mark it "Not used".

Section N – Payment for the works

21. Insert a the end of subclause N3.2b:

", provided the materials and equipment are insured by the contractor, and provided the materials and equipment are labelled as the property of the owner subject to payment of the claim"

22. Amend subclause N3.3 such that every occurrence of "declaration" is preceded by the word "statutory".

23. Insert at the end of subclause N4.2c:

", and provided the other matters set out in **subclause N3.2b** are satisfied"

24. Delete subclauses N8.2 and 8.3 and mark them "Not used".

25. Amend subclause N10.2 such that the word "declaration" is preceded by the word "statutory".

Section Q – Termination of engagement

26. Delete subclauses Q12.3 and Q12.4 and mark them "Not used".

27. Delete the contents of subclause Q13.1 and substitute:

"Within 20 **working days* after the contractor has given the owner written notice of suspension under **clause Q12,** the contractor may terminate its engagement under this contract by giving the owner written notice of termination."

28. Delete the contents of subclause Q15.1 and substitute:

"If the contractor terminates its engagement under **clause Q13** or **Q14**, the owner must pay the contractor the amount the owner would have had to pay if the owner had wrongfully repudiated the contract. If the contractor terminates its engagement under **clause Q13**, the contractor is not entitled to a quantum meruit."

Section R – Miscellaneous

29. Insert the following new clause R14:

"**R14 Security of Payment Act**

.1 The owner appoints the architect as its agent for the purposes of receiving service of a payment claim, providing a payment schedule, receiving service of an adjudication application, lodging and serving an adjudication response and the giving and receiving of all other notices or documents under the **Security of Payment Act*.

.2 If the contractor becomes aware that a subcontractor or supplier has or claims an entitlement to suspend work pursuant to the **Security of Payment Act*, it must ***promptly*** provide the architect with a copy of any written communication in respect of such suspension.

.3 The times set out in **item 26** of **Schedule 1** for submission of claims for progress payments are reference dates.

.4 If the owner becomes aware that a subcontractor or supplier has or claims an entitlement to suspend work pursuant to the **Security of Payment Act*, the owner may (in its absolute discretion) pay the subcontractor or supplier such money that is or may be owing to it for any ***necessary work***, materials or equipment necessary to progress or complete the ****works***. Any sum paid by the owner to a subcontractor or supplier is to be taken into account by the architect in preparing its certificate under **clause N4**, provided the owner has not already paid the contractor for the same."

Section S – Definitions

30. Insert the following new definitions (alphabetically)

"*event of Force Majeure*

a. earthquake, named tropical cyclone, declared natural disaster, tsunami, or explosion caused by any of these

b. war, act of a public enemy (whether war is declared or not), civil war, rebellion, revolution, military usurped power, military insurrection, military commotion or other like

hostilities, or explosion caused by any of these

c. chemical, nuclear or biological contamination

d. ionising radiation or contamination by radioactivity

e. an act of terrorism except to the extent insured, including as a result of the *Terrorism Insurance Act 2003* (Cth) or

f. epidemic or pandemic,

which:

g. occurs at or directly in the vicinity of the **site* and

h. prevents the contractor from carrying out all or a material part of its obligations under the contract."

"*Security of Payment Act* — *Building and Construction Industry Security of Payment Act* 2002 (Vic). Defined terms in the **Security of Payment Act* have the same meaning where used in **clause R14**."

~~Replace **clause M1.2** with the following:~~

~~" From 4.00pm on the day the architect issues the notice of practical completion, the contractor ceases to have access to the works except by prior arrangement with the owner."~~

~~Replace **clause Q3.1** with the following:~~

~~"If the owner terminates the engagement of the contractor under clause Q1 or Q2 before practical completion, the owner may exclude the contractor from the site."~~

Schedule 3 – Order of precedence:

The order of precedence of contract documents is:

Clause B2

1. Any special conditions shown on schedule 2a
2. Any owner occupier conditions shown in schedule 2b
3. The conditions set out in this contract and schedule 1
4. The Specifications described below:

   SPECIFICATION 20412
   ALTERATIONS TO POOL DECK & RESIDENTS AMENITIES LEVEL 5 99 SPRING STREET, MELBOURNE
   Including schedules: 20412 fittings & fixtures
   20412 colours & finishes
   20412 doors & windows
5. The drawings listed below:
   - Architectural: 20412/WD01-WD18
   - Structural: S01-S05
   - Services: 17616/E01-E04
     17616/H01-H02
     17616/M01-M05
6. Any other documents described below:
   - N/A

Schedule 4 – Site information:

The site information is:

Clause F3

- Included on the Architectural Drawings

Schedule 5 – Form of guarantee:

Contractor's unconditional guarantee to the owner:

Clause C3

(Refer to the Contract)

Schedule 6 – Provisional sums:

Provisional sums:

Section K

Sum allowed for the supply & installation:	Description of work:	Particular person to supply & install work:
$20,000.00	window coverings	TBA
$20,000.00	gym equipment	TBA
$3,000.00	sauna	TBA
$5,000.00	speakers	TBA

Schedule 7 – Prime cost sums:

Prime Cost sums:

Section K

Sum allowed for the supply only:	Description of work: the component:	Particular person to supply

N/A

Schedule 8 – Items to be supplied by the owner:

Items to be supplied by the owner for incorporation into the works:

Clause N1

Items to be supplied by the owner and installed by the Contractor (and only the costs of installation are included in the contract price).

Items to be supplied and installed by the owner for incorporation into the works:

Clause N1

Items to be supplied and installed by the owner (where the costs for the supply and installation are not included in the contract price):

- N/A

TABLE OF CONTENTS

Table of contents .....
Section 01 Preliminaries 2
Section 02 General requirements 5
Section 03 Adhesives, sealants and fasteners 24
Section 04 Fire-stopping 30
Section 05 Metals and prefinishes 35
Section 06 Timber products, finishes and treatment 39
Section 07 Demolition 42
Section 08 Light steel framing 47
Section 09 Steel – hot-dip galvanized coatings 49
Section 10 Stone masonry 51
Section 11 Light timber framing 55
Section 12 Decking 58
Section 13 Waterproofing – external and tanking 61
Section 14 Windows and glazed doors 67
Section 15 Doors and access panels 73
Section 16 Door hardware 77
Section 17 Glazing 82
Section 18 Glass components 86
Section 19 Acoustic insulation 89
Section 20 Lining 92
Section 21 Suspended ceilings 98
Section 22 Joinery 103
Section 23 Metalwork 110
Section 24 Fire extinguishers and blankets 115
Section 25 Window coverings 117
Section 26 Signage 119
Section 27 Cementitious toppings 124
Section 28 Waterproofing – wet areas 130
Section 29 Ceramic tiling 134
Section 30 Stone and terrazzo tiling 142
Section 31 Resilient finishes 150
Section 32 Carpets 154
Section 33 Painting 159
Section 34 Textured and membrane coatings 166
Section 35 Appliances 169
Section 36 Sanitary fittings and tapware 170

SECTION 01 PRELIMINARIES

1 GENERAL

1.1 GENERAL

Interpretation

General: The words owner and architect have the same meaning, respectively, as principal and contract administrator, unless the context requires otherwise.

Cross reference: **INTERPRETATION** in *General requirements* also applies.

1.2 EXISTING SERVICES

General

Service to be continued: Repair, divert or relocate service, as documented.

Redundant services: Remove redundant parts and make safe.

Interruptions to services: Minimise the number and duration of interruptions.

Changes to existing services: Submit proposals.

- Purpose of submission: For review.
- Timing of submission: Before starting work to existing services.

1.3 CONSTRUCTION PLANT

General

Temporary works: Provide and maintain required barricades, guards, signs and lighting.

Protective clothing

Requirement: Make available protective clothing for the use of visitors, as follows:

- Safety helmets: Type 1 to AS/NZS 1801.
- High visibility safety vests: To AS 4602.1.

Certification: Required.

- Certification provider: An organisation accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

Signboards

Signboards: Obtain approval before display of advertisements or provision of other signboards.

1.4 BUILDING THE WORKS

Safety

Accidents: Promptly notify the architect of the occurrence of the following:

- Accidents involving death or personal injury.
- Accidents involving loss of time.
- Incidents with accident potential such as equipment failure, slides and cave-ins.

Accident reports: Submit reports of accidents.

- Purpose of submission: For information.

Contractor's representative

General: Must be accessible, and fluent in English and technical terminology.

Contacts: Submit names and telephone numbers of responsible persons who may be contacted after hours during the course of the contract.

- Purpose of submission: For information.
- Timing of submission: At the first site meeting.

Subcontracting

General: Submit a complete list of proposed subcontractors and suppliers.

Program of work

Construction program: Submit a construction program showing the following:

- Sequence of work.
- Critical paths of activities related to the work.

- Allowance for holidays.
- Activity inter-relationships.
- External dependencies including provision of access, document approvals and work by others.
- Periods within which various stages or parts of the work are to be executed.

Time scale: Working days.

Updated program: Identify changes since the previous issue, and show the estimated percentage of completion for each item of work.

Purpose of submission: For information.

Program chart: Display in the contractor's site office an up-to-date bar chart and network diagram based on the construction program.

Site meetings

General: Hold and attend site meetings throughout the contract and arrange for the attendance of appropriate subcontractors, architect and appropriate consultants.

Minutes: Make a record of site meetings. Distribute a copy of the minutes to each party.

- Purpose of submission: For review.
- Timing of submission: Within 5 working days after each meeting.

Progress photographs

General: Take colour progress photographs within 5 working days, before each site meeting. Submit 2 sets of prints and the digital files. Identify the project, date, time, location and orientation.

- Purpose of submission: For information.
- Timing of submission: At each site meeting.

1.5 COMPLETION OF THE WORKS

Final cleaning

General: Before the date for practical completion, clean throughout, including interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces. Clean debris from the site and drainage systems. Remove waste and surplus materials.

Samples: Remove non-incorporated samples, prototypes and sample panels.

Reinstatement

General: Before the date for practical completion, clean and repair damage caused by installation or use of temporary work and restore existing facilities used during construction to original condition.

Adjoining properties

Evaluation: At practical completion, for each property recorded, inspect the property with the architect and owner and occupant of the property, recording any damage that has occurred since the pre-commencement inspection.

Removal of plant

General: Within 10 working days before practical completion, remove temporary works and construction plant no longer required.

1.6 PAYMENT FOR THE WORKS

Progress claims

Anticipated progress claims: Submit a schedule of anticipated progress claims for the contract period.

- Purpose of submission: For information.
- Timing of submission: At commencement of the works.

Progress claim breakdown: Submit a statement of amounts claimed in respect of each worksection or trade heading designated in the specification.

- Purpose of submission: For review.
- Timing of submission: With each progress claim.

Method of measurement

General: In conformance with the principles of the
Australian and New Zealand standard method of measurement of building works (ANZSMM).

1.7 MISCELLANEOUS

Contractor and owner to observe confidentiality

Publicity: Do not issue information concerning the project for publication in the media without prior written approval of the owner. Refer enquiries from the media concerning the project to the owner.

SECTION 02 GENERAL REQUIREMENTS

1 GENERAL

1.1 PRECEDENCE

General

Order of precedence: If there is conflict or inconsistency between the worksections of this specification, the requirements of worksections take the following order of precedence:

- All worksections other than those listed below.
- *General requirements*.
- *Adhesives, sealants and fasteners*.
- *Fire-stopping*.
- *Metals and prefinishes*.
- *Timber products, finishes and treatment*.

1.2 CROSS REFERENCES

Common requirements

Requirement: Conform to the following worksections:

- *Adhesives, sealants and fasteners*.
- *Fire-stopping*.
- *Metals and prefinishes*.
- *Timber products, finishes and treatment*.

Cross referencing styles

General: Within the text, titles are cross referenced using the following styles:

- Worksection titles are indicated by *Italicised* text.
- Subsection titles are indicated by CAPITAL text.
- Clause titles are indicated by **BOLD CAPITAL** text.
- Subclause titles are indicated by **Bold Sentence case** text.

1.3 REFERENCED DOCUMENTS

General

Precedence: The requirements of worksections override conflicting requirements of their referenced documents. The requirements of the referenced documents are minimum requirements.

Contractual relationships: Responsibilities and duties of the principal, contractor and contract administrator are not altered by requirements in the documents referenced in this specification.

Current editions: Use referenced documents which are the editions, with amendments, current 3 months before the closing date for tenders.

Exception to current editions: If statutory requirements reference other editions or standards, conform to those other editions or standards.

European standards: Any national European Standard (e.g. BS EN, IS EN or DIN EN) may be used in place of the equivalent referenced European Standard (EN).

1.4 CONTRACT DOCUMENTS

Services diagrammatic layouts

General: Layouts of service lines, plant and equipment shown on the drawings are diagrammatic only, except where figured dimensions are provided or calculable.

Before commencing work:

- Obtain measurements and other necessary information.
- Coordinate the design and installation in conjunction with all trades.

Levels

General: Spot levels take precedence over contour lines and ground profile lines.

Drawings and manuals for existing services

Warranty: No warranty is given as to the completeness or accuracy of drawings and/or manuals of existing services.

1.5 INTERPRETATION

Abbreviations

General: For the purposes of this specification the following abbreviations apply:

- AS: Australian Standard.
- BCA: National Construction Code Series Volume One: Building Code of Australia Class 2 to 9 Buildings and Volume Two: Building Code of Australia Class 1 and Class 10 Buildings.
- EN: European Norm (European Standard).
- IP: Ingress protection.
- NATA: National Association of Testing Authorities.
- NCC: National Construction Code.
- NZS: New Zealand Standard.
- PCA: National Construction Code Series Volume 3: Plumbing Code of Australia.
- PVC: Polyvinyl Chloride.
- PVC-U: Unplasticised Polyvinyl Chloride. Also known as UPVC.
- SDS: Safety data sheets.
- VOC: Volatile Organic Compound.
- WHS: Work Health and Safety.

Definitions

General: For the purposes of this specification, the following definitions apply:

- Access for maintenance: Includes access for maintenance, inspection, measurement, operation, adjustment, repair, replacement and other maintenance related tasks.
- Accessible, readily: Readily accessible, easily accessible, easy access and similar terms mean capable of being reached quickly and without climbing over or removing obstructions, using a movable ladder, and in any case not more than 2.0 m above the ground, floor or platform.
- Accredited Testing Laboratory:
  - . An organisation accredited by the National Association of Testing Authorities (NATA) to undertake the relevant tests; or
  - . An organisation outside Australia accredited to undertake the relevant tests by an authority recognised by NATA through a mutual recognition agreement; or
  - . An organisation recognised as being an Accredited Testing Laboratory under legislation at the time the test was undertaken.
  - . An organisation accredited for compliance with ISO/IEC 17025 to undertake the relevant tests.
- Appropriately qualified person: To NCC Schedule 3.
- Attendance: Attendance, provide attendance and similar expressions mean give assistance for examination and testing.
- Commissioning: Advancement of an installation from static completion to full working order, including verification that the systems, sub-systems, and their components meet the project requirements. This includes all work described as commissioning in referenced documents, even if carried out before static completion.
- Contract administrator: Has the same meaning as architect or superintendent and is the person appointed by the owner or principal under the contract.
- Contractor: Has the same meaning as builder and is the person or organisation bound to carry out and complete the work under the contract.
- Default: Specified value, product or installation method which is to be provided unless otherwise documented.
- Design life: The period of time for which it is assumed, in the design, that an asset will be able to perform its intended purpose with only anticipated maintenance but no major repair or replacement being necessary.
- Design parameters: Information used as the basis for design. It includes design requirements, performance criteria, performance parameters and similar terms.

- Documented: Documented, as documented and similar terms mean contained in the contract documents.
- Economic life: The period of time from the acquisition of an asset to the time when the asset, while still physically capable of fulfilling its function and with only anticipated maintenance, ceases to be the lowest cost alternative for satisfying that function.
- Electricity distributor: Any person or organisation that provides electricity from an electricity distribution system to one or more electrical installations. Includes distributor, supply authority, network operator, local network service provider, electricity retailer or electricity entity, as may be appropriate in the relevant jurisdiction.
- Errors and omissions: For the design prepared by the contractor, errors and omissions have the same meaning as defects.
- Fire hazard properties: To NCC Schedule 3.
- Gas Network Operator: Has the same meaning as network operator in AS/NZS 5601.1.
- Geotechnical site investigation: The process of evaluating the geotechnical characteristics of the site in the context of existing or proposed construction.
- Give notice: Give notice, submit, advise, inform and similar expressions mean give notice (submit, advise, inform) in writing to the contract administrator.
- High level interface: Systems transfer information in a digital format using an open system interface.
- Hot-dip galvanized: Zinc coated to AS/NZS 4680 after fabrication with coating thickness and mass to AS/NZS 4680 Table 1.
- Ingress protection: IP, IP code, IP rating and similar expression have the same meaning as IP Code in AS 60529.
- Joints:
  - Construction joint: A joint with continuous reinforcement provided to suit construction sequence.
  - Contraction joint: An opening control joint with a bond breaking coating separating the joint surfaces to allow independent and controlled contraction of different parts or components, induced by shrinkage, temperature changes or other causes. It may include unbound dowels to assist vertical deflection control.
  - Control joint: An unreinforced joint between or within discrete elements of construction which allows for relative movement of the elements.
  - Expansion joint: A closing control joint with the joint surfaces separated by a compressible filler to allow axial movement due to thermal expansion or contraction with changes in temperature or creep. It may include unbound dowels to assist vertical deflection control.
  - Sealant joint: A joint filled with a flexible synthetic compound which adheres to surfaces within the joint to prevent the passage of dust, moisture and gases.
  - Structural control joint: A control joint (contraction, expansion and isolation) in structural elements when used with applied material and finishes.
  - Substrate joint: A joint in the substrate which includes construction joints and joints between different materials.
  - Weakened plane joint: A contraction joint created by forming a groove, extending at least one quarter the depth of the section, either by using a grooving tool, by sawing, or by inserting a premoulded strip.
- Local authority (local council): A body established for the purposes of local government by or under a law applying in a state or territory.
- Low level interface: Systems transfer information via terminals and voltage free contacts.
- Manufacturer's recommendations: Recommendations, instructions, requirements, specifications (and similar expressions) provided in written or other form by the manufacturer and/or supplier relating to the suitability, use, installation, storage and/or handling of a product.
- Metallic-coated: Steel coated with zinc or aluminium-zinc alloy as follows:
  - Metallic-coated steel sheet: To AS 1397. Metal thicknesses specified are base metal thicknesses.
  - Ferrous open sections zinc coated by an in-line process: To AS/NZS 4791.
  - Ferrous hollow sections zinc coated by a continuous or specialised process: To AS/NZS 4792.
- Network Utility Operator: To NCC Schedule 3. A person who undertakes the piped distribution of drinking water or non-drinking water for supply; or is the operator of a sewerage system or a stormwater drainage system.

- Obtain: Obtain, seek and similar expressions mean obtain (seek) in writing from the contract administrator.
- Pipe: Includes pipe and tube.
- Practical completion or defects free completion: The requirements for these stages of completion are defined in the relevant building contract for the project.
- Pre-commissioning: Verifying that the installation of a system is complete and ready for commissioning.
- Principal: Principal has the same meaning as owner, client and proprietor and is the party to whom the contractor is legally bound to construct the works.
- Professional engineer: To NCC Schedule 3.
- Proprietary: Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
- Prototype: A full size mock-up of components, systems or elements to demonstrate or test construction methods, junctions and finishes, and to define the level of quality.
- Provide: Provide and similar expressions mean supply and install and include development of the design beyond that documented.
- Record drawings: Record drawings has the same meaning as as-installed drawings, as-built drawings and work-as-executed drawings.
- Referenced documents: Standards and other documents whose requirements are included in this specification by reference.
- Required: Required by the contract documents, the local or statutory authorities.
- If required: A conditional specification term for work which may be shown in the documents or is a legislative requirement.
- Sample: A physical example that illustrates workmanship, materials or equipment, and establishes standards by which the work will be judged. It includes samples and sample panels.
- Statutory authority: A public sector entity created by legislation, that is, a specific law of the Commonwealth, State or Territory.
- Static completion: The state of a system when installation works are complete but have not been commissioned.
- Supply: Supply, furnish and similar expressions mean supply only.
- Tests - integrated system: Tests conducted on the project as a complete, integrated system to verify successful integration, interaction, and operation of all interrelated systems to the project requirements.
- Tests - production: Tests carried out on an item, before delivery to the site.
- Tests - site: Tests carried out on site.
- Tests - type: Tests carried out on an item identical with a production item, including with respect to materials, material suppliers, manufacturing processes, dimensions and marking.
- Tolerance: The permitted difference between the upper limit and the lower limit of dimension, value or quantity.
- Utility service provider: Includes Electricity distributor, Network Utility Operator, Gas Network Operator and organisations providing other reticulated utilities including data and telecommunications services.
- Verification: Provision of evidence or proof that a performance requirement has been met or a default exists.

2 SUBMISSIONS AND INSPECTIONS

2.1 SUBMISSIONS

General

Contractor review: Before submitting, review each submission item, and check for coordination with other work of the contract and conformance to contract documents.

Submission times

Default timing: Submit information or other material for information, comment or approval at least 5 working days before ordering products or starting installation of the respective portion of the works.

Submission response times: Allow in the construction program for at least the following times:

- Shop drawings: 10 x working days.
- Samples and prototypes: 10 x working days.
- Manufacturers' or suppliers' recommendations: 10 x working days.
- Product data: 10 x working days.
- Product/design substitution or modification: 10 x working days.

Proposed products schedules: If major products are not specified as proprietary items, submit a schedule of those proposed for use within 3 weeks of site possession.

Identification

Requirement: Identify the project, contractor, subcontractor or supplier, manufacturer, applicable product, model number and options, as appropriate and include relevant contract document references.

Non-conformance: Identify proposals that do not conform with project requirements, and characteristics which may be detrimental to successful performance of the completed work.

Errors

Requirement: If a submission contains errors, make a new or amended submission as appropriate, indicating changes made since the previous submission.

Electronic submissions

Electronic copies file format: PDF

CAD file format for shop drawing coordination purposes: CAD files in AutoCAD .dwg format using an agreed layering and drawing convention.

Project requirements

General: Submit the following, as documented:

- Authority approvals: Notes of meetings with regulatory authorities and utility service providers whose requirements apply to the work and evidence that notices, fees and permits have been sought and paid, that utility service provider connections are complete and that statutory approvals by the authorities whose requirements apply to the work have been received.
- Building penetrations: Details of the methods to maintain the required structural, fire and other properties to **BUILDING PENETRATIONS**.
- Certification: Certificates of conformance to documented requirements..
- Design documentation: Drawings, calculations and specifications as documented.
- Execution details: Execution programs, schedules and details of proposed methods and equipment. For building services include the following:
  - . Embedded services: Proposed method for embedding services in concrete walls or floors or chasing into concrete or masonry walls.
  - . Fixing of services: Typical details of locations, types and methods of fixing services to the building structure.
  - . Inaccessible services: If services will be enclosed and not accessible after completion, submit proposals for location of service runs and fittings.
- Fire performance: Evidence of conformity to requirement for combustibility, fire hazard properties and fire-resistance of building elements.
- Marking and labelling: Samples and schedules of proposed marking and labels to **MARKING AND LABELLING.**
- Operation and maintenance manuals: For the whole of the work to **OPERATION AND MAINTENANCE MANUALS**.
- Products and materials: Products and materials data, including manufacturer's technical specifications and drawings, product data sheets, type tests results, evidence of conformity to documented requirements, product certification, performance and rating tables, service connection requirements and installation and maintenance recommendations.
- Prototypes: Prototypes of components, systems or elements.
- Records: As-built documents, photographs, system diagrams, schedules and logbooks to **RECORD DRAWINGS**.
- Samples: Representative of proposed products and materials and including proposals to incorporate samples into the works, if any to **SAMPLES AND PROTOTYPES**.
- Shop drawings: To **SHOP DRAWINGS**.
- Substitutions: To **SUBSTITUTIONS**.

- Tests:
  . Test reports for testing performed under the contract.
- Warranties: To **WARRANTIES**.

2.2 INSPECTION

Notice

Concealment: If notice of inspection is required for parts of the works that are to be concealed, give notice when the inspection can be made before concealment.

Notification times

Minimum notice: As documented.

Light levels

Lighting levels for inspection: To AS/NZS 1680.2.4.

Attendance

General: Provide attendance for documented inspections and tests.

3 PERFORMANCE

3.1 CORROSION RESISTANCE

Galvanizing

Severe conditions: Galvanize mild steel components (including fasteners) to AS/NZS 1214 or AS/NZS 4680 as appropriate, if:

- Exposed to weather.
- Embedded in masonry.
- Exposed to or in air spaces behind the external leaf of masonry walls.
- In contact with chemically treated timber, other than copper chrome arsenate (CCA).

3.2 NOISE LEVELS

General

Requirement: Install systems to operate within the noise level limits, as documented for the contract design and documented equipment performance.

3.3 STRUCTURE

General

Requirement: If required, provide structures, installations and components as follows:

- Fixed accessways: To AS 1657.
- Structural design actions: To the AS/NZS 1170 series.

4 DESIGN

4.1 DESIGN DEVELOPMENT

General

Requirement: Complete the design of the work, including development of the design beyond that documented.

Conflict with the documents: If it is believed that a conflict exists between statutory requirements and the documents, notify the contract administrator immediately and provide a recommendation to resolve the conflict.

4.2 DESIGNER

General

Design by contractor: If the contractor provides design, use only appropriately qualified persons.

5 PRODUCTS AND MATERIALS

5.1 GENERAL

Consistency

General: For each material or product use the same source or manufacturer and provide consistent type, size, quality and appearance.

Low VOC emitting paints

Paint types: To the recommendations of AS/NZS 2311 Table 4.2.

Prohibited materials

General: Do not provide the following:

- Materials, exceeding the limits of those listed, in the Safe Work Australia *Hazardous Chemical Information System* (HCIS) Workplace exposure standards.
- Blowing agents:
  - . Materials that use chlorofluorocarbon (CFC) or hydrochlorofluorocarbon (HCFC) in the manufacturing process.
  - . A blowing agent with a global warming potential (GWP) ≥ 700.

5.2 PROPRIETARY ITEMS

Manufacturer's or supplier's recommendations

General: Provide manufactured items to the manufacturer's or supplier's recommendations.

Proprietary items/systems/assemblies: Assemble, install or fix to substrate to the manufacturer's or supplier's recommendations.

Project modifications: Advise of activities that supplement, or are contrary to the manufacturer's or supplier's recommendations.

Identification of proprietary items

Sealed containers: If items are supplied by the manufacturer in closed or sealed containers or packages, bring them to point of use in the original containers or packages.

Other items: Marked to show the following, as applicable:

- Manufacturer's identification.
- Brand name.
- Product type.
- Quantity.
- Reference code and batch number.
- Date of manufacture.

5.3 SUBSTITUTIONS

General

Identified proprietary items: Identification of a proprietary item does not necessarily imply exclusive preference for the identified item, but indicates the necessary properties of the item.

Alternatives: If alternatives to the documented products, methods or systems are proposed, submit sufficient information to permit evaluation of the proposed alternatives, including the following:

- Product, method or system identification.
- Manufacturer's contact details.
- Detailed comparison between the properties of the documented product and proposed substitution.
- Details of manufacturer and/or installer warranty.
- Statement of NCC compliance, if applicable.
- Evidence of conformity to a cited standard.
- Evidence that the performance is at least equal to that specified.
- Samples.
- Essential technical information, in English.
- Reasons for the proposed substitutions.
- Statement of the extent of revisions to the contract documents.

- Statement of the extent of revisions to the construction program.
- Statement of cost implications including costs outside the contract.
- Statement of consequent alterations to other parts of the works.

Availability: If the documented products or systems are unavailable within the time constraints of the construction program, submit evidence.

Criteria: If the substitution is for any reason other than unavailability, submit evidence that the substitution:

- Is of net enhanced value to the principal.
- Is consistent with the contract documents and is as effective as the identified item, detail or method.

5.4 SAMPLES AND PROTOTYPES

General

Incorporation of samples: Only incorporate samples that have been endorsed for inclusion in the works. Do not incorporate other samples.

Retention of samples: Keep endorsed samples in good condition on site, until the date for practical completion.

Unincorporated samples: Remove on completion.

5.5 SHOP DRAWINGS

General

Documentation: Include dimensioned drawings showing details of the fabrication and installation of structural elements, building components, services and equipment, including relationship to building structure and other services, cable type and size, and marking details.

Diagrammatic layouts: Coordinate work shown diagrammatically in the contract documents, and prepare dimensioned set-out drawings.

Services coordination: Coordinate with other building and service elements. Show adjusted positions on the shop drawings.

Space requirements: Check space and access for maintenance requirements of equipment and services indicated diagrammatically in the contract documents.

Commissioning requirements: Show provisions for testing and commissioning on the drawings.

Access for maintenance: Show space and provisions for access for maintenance.

Building work drawings for building services: On dimensioned drawings show the following:

- Access doors and panels.
- Holding down bolts and other anchorage and/or fixings required complete with loads to be imposed on the structure during installation and operation.
- Openings, penetrations and block-outs.
- Sleeves.
- Plinths, kerbs and bases.
- Required external openings.

Record drawings: Amend all documented shop drawings to include changes made during the progress of the work and up to the end of the defects liability period.

6 ANCILLARY BUILDING WORK

6.1 WALL CHASING

Holes and chases

General: If holes and chases are required in masonry walls, make sure structural integrity of the wall is maintained. Do not chase walls with a fire-resistance level or an acoustic rating.

Parallel chases or recesses on opposite faces of a wall: Not closer than 600 mm to each other.

Chasing blockwork: Only chase core-filled hollow blocks or solid blocks which are not documented as structural.

Concrete blockwork chasing table

Block thickness (mm)	Maximum depth of chase (mm)
190	35

Block thickness (mm)	Maximum depth of chase (mm)
140	25
90	20

6.2 FIXING

General

Suitability: If equipment is not suitable for fixing to non-structural building elements, fix directly to structure and trim around penetrations in non-structural elements.

Fasteners

General: Use proprietary fasteners capable of transmitting the loads imposed, and sufficient for the rigidity of the assembly.

6.3 BUILDING PENETRATIONS

Penetrations

Requirement: Maintain the required structural integrity, fire performance, waterproofing performance and other properties when penetrating or fixing to the following:

- Structural building elements including external walls, fire walls, fire doors and access panels, other tested and rated assemblies or elements, floor slabs and beams.
- Membrane elements including damp-proof courses, waterproofing membranes and roof coverings. If penetrating membranes, provide a waterproof seal between the membrane and the penetrating component.

Sealing

Fire-resisting building elements: Seal penetrations with a system conforming to AS 4072.1.

Non fire-resisting building elements: Seal penetrations around conduits and sleeves. Seal around cables within sleeves. If the building element is acoustically rated, maintain the rating.

Sleeves

General: If piping, cables or conduits penetrate building elements, provide metal or PVC-U sleeves formed from pipe sections as follows:

- Movement: Arrange to permit normal pipe or conduit movement.
- Diameter (for non fire-resisting building elements): Sufficient to provide a ring shaped space around the pipe or pipe insulation of at least 12 mm.
- Ferrous surfaces: Prime paint.
- Sealing: Seal between pipes or conduits and sleeves to prevent the entry of vermin.
- Terminations:
  - Cover plates fitted: Flush with the finished building surface.
  - Fire-resisting and acoustic rated building elements: 50 mm beyond finished building surface.
  - Floors draining to floor wastes: 50 mm above finished floor.
  - Other locations: 5 mm beyond finished building surface.
  - Termite management: To AS 3660.1.
- Thickness:
  - Metal: 1 mm or greater.
  - PVC-U: 3 mm or greater.

6.4 SEISMIC RESTRAINT OF NON-STRUCTURAL COMPONENTS

General

Earthquake design category: Refer to structural documentation.

Seismic restraint to AS 1170.4: Required.

7 BUILDING SERVICES

7.1 SERVICES INSTALLATION

General

Fixing: If non-structural building elements are not suitable for fixing services to, fix directly to structure and trim around penetrations in non-structural elements.

Installation: Install equipment and services as follows:

- Plumb and securely fixed.
- Allow for movement in both structure and services.
- Arrange services running together, parallel to each other and adjacent building elements.

Concealment: Conceal all cables, ducts, trays and pipes except where installed in plant spaces, ceiling spaces and riser cupboards or documented to be exposed. If alternative routes are available, do not locate on external walls.

Lifting: Provide heavy items of equipment with permanent fixtures for lifting to the manufacturer's recommendations.

Dissimilar metals

Jointing: Join dissimilar metals with fittings of electrolytically compatible material.

Temporary capping

Pipe ends: During construction, protect open ends of pipe with metal or plastic covers or caps.

Piping

General: Install piping in straight lines at uniform grades without sags. Arrange to prevent air locks. Provide sufficient unions, flanges and isolating valves to allow removal of piping and fittings for maintenance or replacement of plant.

Spacing: Provide at least 25 mm clear between pipes and between pipes and building elements, additional to insulation.

Changes of direction: Provide as follows:

- If practicable, long radius elbows or bends and sets, and swept branch connections.
- If pipes are led up or along walls and then through to fixtures, provide elbows or short radius bends.
- Do not provide mitred fittings.

Vibration: Arrange and support piping to prevent vibration whilst permitting necessary movement. Minimise the number of joints.

Embedded pipes: Do not embed pipes that operate under pressure in concrete or surfacing material.

Valve groupings: If possible, locate valves in groups.

Pressure testing precautions: Isolate items not rated for the test pressure. Restrain pipes and equipment to prevent movement during pressure testing.

Support and structure

Requirement: Provide incidental supports and structures to suit the services.

Pipe support systems

General: Provide proprietary support systems of metallic-coated steel construction.

Vertical pipes: Provide anchors and guides to maintain long pipes in position, and supports designed for the mass of the pipe and its contents.

Saddles: Provide saddle supports only on DN 25 or smaller pipes.

Dissimilar metals: If pipe and support materials are dissimilar, provide industrial grade electrically non-conductive material securely bonded to the pipe to separate them. Provide fasteners of electrolytically compatible material.

Uninsulated pipes: Clamp piping supports directly to pipes.

Insulated pipes:

- Spacers: Provide spacers at least as thick as the insulation between piping supports and pipes. Extend either side of the support by at least 20 mm.
- Spacer material: Rigid insulation material of sufficient strength to support the piping and suitable for the temperature application.

Support spacing: As follows:

- Cold and heated water pipes: To AS/NZS 3500.1 Table 5.6.4. Provide additional brackets, clips or hangers to prevent pipe movement caused by water pressure effects.
- Sanitary plumbing: To AS/NZS 3500.2 Table 10.2.1.
- Other pipes: To AS/NZS 3500.1 Table 5.6.4.

Hanger size table

Nominal pipe size (DN)	Minimum hanger diameter for single hangers (mm)
50 maximum	10
65 to 90	12
100 to 125	16
150 to 200	20

Differential movement

General: If the geotechnical site investigation report predicts differential movements between buildings and the ground in which pipes or conduits are buried, provide control joints in the pipes or conduits, as follows:

- Arrangement: Arrange pipes and conduits to minimise the number of control joints.
- Magnitude: Accommodate the predicted movements.

7.2 PLANT AND EQUIPMENT

General

Location: Locate so failure of plant and equipment (including leaks) does not create a hazard for the building occupants and causes a minimum or no damage to the building, its finishes and contents including water sensitive equipment or finishes.

Safe tray and an overflow pipe: Provide to each tank, hot water heater and storage vessel.

7.3 ACCESS FOR MAINTENANCE

General

Requirement: Provide access for maintenance of all items requiring inspection, measurement, operation, adjustment, repair, replacement and other maintenance-related tasks.

Standards: Conform to the relevant requirements of AS 1657, AS 1892.1, AS 2865 and AS/NZS 3666.1.

Work Health and Safety: Conform to the requirements of the applicable Work Health and Safety regulations.

Refrigerated or cooling plant: If the space is a refrigerated or cooling chamber inside a duct, air handling plant or similar, provided with an access door or personnel access panel and of sufficient size for a person to enter, provide the following to BCA G1.2:

- An access door.
- Internal lighting with external indicator lamp.
- An alarm.

Protection from injury: Protect personnel from injury caused by contact with objects including those that are sharp, hot or protrude at low level.

Plant room flooring surfaces: R10 Slip resistance classification to AS 4586.

Trip hazards: Do not run small services including drains and conduits across floors where they may be a trip hazard.

Manufacturer's standard equipment: If necessary, modify manufacturer’s standard equipment to provide the plant access documented.

Clearances

Minimum clearances for access: Conform to the following:

- Vertical clearance: ≥ 2100 mm, vertically above horizontal floors, ground and platforms.
- Horizontal clearance: Preferably ≥ 750 mm clear, but in no case less than 600 mm between equipment or between equipment and building features including walls.
- If tools are required to operate, adjust or remove equipment, provide sufficient space so the tools can be used in their normal manner and without requiring the user to employ undue or awkward force.
- Hinged or removable components: To the manufacturer's recommendations.

- Within plant items: Conform to the preceding requirements, and not less than the clearances recommended in BS 8313.

Elevated services other than in occupied areas

Access classifications:

- Access class A: Readily accessible. Provide clear and immediate access to and around plant items. If plant or equipment is located more than 2.0 m above the ground, floor or platform, provide a platform with handrails accessible by a stair, all to AS 1657.
- Access class B: If the plant item requiring access is located more than 2.0 m above the ground, floor or platform, provide a platform with handrails accessible by a non-vertical ladder, all to AS 1657.
- Access class C: Locate plant so temporary means of access conforming to Work Health and Safety regulations can be provided.

Temporary means of access: Make sure there is adequate provision in place which is safe and effective.

Areas in which access is restricted to authorised maintenance personnel: Provide access as follows:

- Instruments, gauges and indicators (including warning and indicating lights) requiring inspection at any frequency: Readily accessible.
- Access required monthly or more frequently: Access class A.
- Access required between monthly and six monthly: Access class A or B.
- Access required less frequently than six monthly: Access class A, B or C.

Other areas: Provide access as follows:

- Locate to minimise inconvenience and disruption to building occupants or damage to the building structure or finishes.
- In suspended ceilings, locate items of equipment that require inspection and/or maintenance above tiled parts. If not possible, provide access panels where located above set plaster or other inaccessible ceilings. Arrange services and plant locations to reduce the number of access panels. Coordinate with other trades to use common access panels where feasible.
- Do not locate equipment requiring access above partitions.
- Instruments, gauges and other items requiring inspection at any frequency: Readily accessible.
- Labelling: If equipment is concealed in ceilings, provide marking to **MARKING AND LABELLING**, **Equipment concealed in ceilings**.

Facilities for equipment removal and replacement

Requirement: Provide facilities to permit removal from the building and replacement of plant and equipment, including space large enough to accommodate it and any required lifting and/or transportation equipment. Arrange plant so large and/or heavy items can be moved with the minimum changes of direction.

Removal of components: Allow sufficient space for removal and replacement of equipment components including air filters, tubes of shell and tube heat exchangers, removable heat exchanger bundles, coils and fan shafts. Provide access panels or doors large enough to permit the safe removal and replacement of components within air handling units.

Facilities for access

Equipment behind hinged doors: Provide doors opening at least 150°.

Equipment behind removable panels: Provide panels with quick release fasteners or captive metal thread screws.

Removable panels: Provide handles to permit easy and safe removal and replacement.

Insulated plant and services: If insulation must be removed to access plant and services for maintenance, arrange it to allow for removal and replacement without damage.

Piping

Requirement: Conform to the following:

- Provide access and clearance at fittings which require maintenance, inspection or servicing, including control valves and joints intended to permit pipe removal.
- Arrange piping so it does not interfere with the removal or servicing of associated equipment or valves or block access or ventilation openings.
- Preferably run piping, conduits, cable trays and ducts at high level and drop vertically to equipment.

Electrical equipment and controls

Electrical equipment: Provide clearances and access space to AS/NZS 3000.

Switchboards and electrical control equipment: Locate near the main entrance to plant space and with switchboards visible from the plant being operated.

Control panels: Locate near and visible from the plant being controlled.

7.4 VIBRATION SUPPRESSION

General

Requirement: Minimise the transmission of vibration from rotating or reciprocating equipment to other building elements.

Standard

Machinery noise and vibration: Vibration severity in Zone A to ISO 20816-1 and ISO 10816-3.

Speeds

General: If no maximum speed is prescribed, do not exceed 1500 r/min for direct driven equipment.

Connections

General: Provide flexible connections to rotating machinery and assemblies containing rotating machinery. Isolate pipes by incorporating sufficient flexibility into the pipework or by use of proprietary flexible pipe connections installed to prevent placing stress on pipes due to end reaction.

Inertia bases

General: If necessary to achieve the required level of vibration isolation, provide inertia bases having appropriate mass and to the following:

- Construction: Steel or steel-framed reinforced concrete with reinforcing bars welded between base sections. Position foundation bolts for equipment before pouring concrete.
- Supports: Support on vibration isolation mountings using height saving support brackets.

Vibration isolation mountings

General: Except for external equipment that is not connected to the structure of any building, support rotating or reciprocating equipment on mountings as follows:

- For static deflections < 15 mm: Single or double deflection neoprene in-shear mountings incorporating steel top and base plates and a tapped hole for bolting to equipment.
- For static deflections ≥ 15 mm: Spring mountings.

Selection: Provide mountings selected to achieve 95% isolation efficiency at the normal operating speeds of the equipment.

Installation: Set and adjust vibration isolation mounting supports to give clearance for free movement of the supports.

Spring mountings: Provide freestanding laterally stable springs as follows:

- Clearances: ≥ 12 mm between springs and other members such as bolts and housing.
- High frequency isolation: 5 mm neoprene acoustic isolation pads between baseplate and support.
- Levelling: Provide bolts and lock nuts.
- Minimum travel to solid: ≥ 150% of the designated minimum static deflection.
- Ratio of mean coil diameter to compressed length at the designated minimum static deflection: ≥ 0.8:1.
- Snubbing: Snub the springs to prevent bounce at start-up.
- Vertical resilient limit stops: To prevent spring extension when unloaded, to serve as blocking during erection and which remain out of contact during normal operation.

7.5 FINISHES TO BUILDING SERVICES

General

Requirement: If exposed to view (including in plant rooms), paint building services and equipment.

Surfaces painted or finished off-site: Conform to *Metals and prefinishes*.

Exceptions: Do not paint chromium or nickel plating, anodised aluminium, GRP, stainless steel, non-metallic flexible materials and normally lubricated machined surfaces. Surfaces with finishes applied off-site need not be re-painted on-site provided the corrosion resistance of the finish is not less than that of the respective finish documented.

Standard: Conform to the recommendations of AS/NZS 2311 Sections 3, 6 and 7 or AS 2312.1 Sections 6, 7 and 8, as applicable.

Inaccessible surfaces: If surfaces are inaccessible after installation, complete finish before installation.

Painting systems

New unpainted interior surfaces: To AS/NZS 2311 Table 5.1.

New unpainted exterior surfaces: To AS/NZS 2311 Table 5.2.

Paint application

Coats: Apply the first coat immediately after substrate preparation and before contamination of the substrate can occur. Make sure each coat of paint or clear finish is uniform in colour, gloss, thickness and texture and free of runs, sags, blisters or other discontinuities.

Combinations: Do not combine paints from different manufacturers in a paint system.

Protection: Remove fixtures before starting to paint and refix in position undamaged when painting is complete.

Repairs to finishes

Requirement: Repair damaged finishes to restore their corrosion protection, appearance and service life.

Painting of pipe threads: After pipe installation and before other finishes or insulation are applied, paint exposed threads in metallic-coated steel pipe with zinc rich paint.

7.6 MARKING AND LABELLING

General

Requirement: Mark and label services and equipment for identification purposes as follows:

- Locations exposed to weather: Provide durable materials.
- Pipes, conduits and ducts: To AS 1345 throughout its length, including in concealed spaces.
- Cables: Label to indicate the origin and destination of the cable.

Consistency: Label and mark equipment using a consistent scheme across all services elements of the project.

Label samples and schedules

Requirement: For each item or type of item, prepare a schedule of marking and labelling, including the following:

- A description of the item or type of item for identification.
- The proposed text for marking or labelling.
- The proposed location of the marking and labelling.

Submission timing: Before marking or labelling.

Electrical accessories

Circuit identification: Label isolating switches and outlets to identify circuit origin.

Operable devices

Requirement: Mark to identify the following:

- Controls.
- Indicators, gauges, meters.
- Isolating switches.

Equipment concealed in ceilings

Location: Provide a label on the ceiling, to indicate the location of each concealed item requiring access for routine inspection, maintenance and/or operation and as follows:

- Tiled ceilings, locate the label on the ceiling grid closest to the concealed item access point.
- Flush lined ceilings, locate adjacent to closest access panel.

Concealed equipment: Items to be labelled include the following:

- Fan coil units and terminal equipment (e.g. VAV terminals).
- Fire and smoke dampers.
- Isolating valves not directly connected to items otherwise labelled.
- Motorised dampers.

Wall mounted equipment in occupied areas

Location: Provide labels on wall mounted items in occupied areas including the following:

- Services control switches.
- Temperature and humidity sensors.

Points lists

Automatic control points: Provide plasticised, fade-free points lists for each automatic control panel and include terminal numbers, point addresses, short and long descriptors in the lists. Store in a pocket on the door of the panel.

Pressure vessels

General: Mount manufacturer's certificates in glazed frames on a wall next to the vessel.

Valves and pumps

General: Label to associate pumps with their starters and valves. Screw fix labels to body or attach label to valve handwheels with a key ring.

Labels and notices

Materials: Select from the following:

- Cast metal.
- For indoor applications only, engraved two-colour laminated plastic.
- Proprietary pre-printed self-adhesive flexible plastic labels with machine printed black lettering.
- Stainless steel or brass minimum 1 mm thick with black filled engraved lettering.

Emergency functions: To AS 1319.

Colours: Generally to AS 1345 as appropriate, otherwise black lettering on white background except as follows:

- Danger, warning labels: White lettering on red background.
- Main switch and caution labels: Red lettering on white background.

Edges: If labels exceed 1.5 mm thickness, radius or bevel the edges.

Labelling text and marking: To correspond to terminology and identifying number of the respective item as shown on the record drawings and documents and in operating and maintenance manuals.

Lettering heights:

- Danger, warning and caution notices: Minimum 10 mm for main heading, minimum 5 mm for remainder.
- Equipment labels within cabinets: Minimum 5 mm.
- Equipment nameplates: Minimum 40 mm.
- Identifying labels on outside of cabinets: Minimum 5 mm.
- Isolating switches: Minimum 5 mm.
- Switchboards, main assembly designation: Minimum 25 mm.
- Switchboards, outgoing functional units: Minimum 10 mm.
- Switchboards, sub assembly designations: Minimum 15 mm.
- Valves:
  - ≥ DN65: Minimum 25 mm.
  - < DN65: Minimum 10 mm.
- Self-adhesive flexible plastic labels:
  - Labels less than 2000 mm above floor: 5 mm.
  - Labels minimum 2000 mm above floor: 10 mm.
  - Other locations: Minimum 5 mm.

Label locations: Locate labels so they are easily seen and are either attached to, below or next to the item being marked.

Fixing: Fix labels securely using screws, rivets, proprietary self-adhesive labels or double-sided adhesive tape and as follows:

- If labels are mounted in extruded aluminium sections, use rivets or countersunk screws to fix the extrusions.
- Use aluminium or monel rivets for aluminium labels.

Vapour barriers: Do not penetrate vapour barriers.

8 COMPLETION

8.1 TRAINING

General

Standard: To SA TS 5342.

Duration: Instruction to be available for the whole of the commissioning and running-in periods.

Format: Conduct training at agreed times, at system or equipment location. Also provide seminar instruction to cover all major components.

Operation and maintenance manuals: Use items and procedures listed in the final draft operation and maintenance manuals as the basis for instruction. Review contents in detail with the principal's staff.

Certification: Provide written certification of attendance and participation in training for each attendee. Provide register of certificates issued.

Demonstrators

General: Use only qualified manufacturer's representatives who are knowledgeable about the installations.

Operation

General: Explain and demonstrate to the principal's staff the purpose, function and operation of the installations.

Maintenance

General: Explain and demonstrate to the principal's staff the purpose, function and maintenance of the installations.

Seasonal operation

General: For equipment requiring seasonal operation, demonstrate during the appropriate season.

8.2 CLEANING

Final cleaning

General: Before the date for practical completion, clean throughout, including all exterior and interior surfaces except those totally and permanently concealed from view.

Labels: Remove all visible labels not required for maintenance.

Removal of material

General: Dispose of building waste material off site to the requirements of the relevant authorities.

8.3 WARRANTIES

General

Requirement: If a warranty is documented, name the principal as warrantee. Register with manufacturers as necessary. Retain copies delivered with components and equipment.

Approval of installer: If installation is not by manufacturer, and product warranty is conditional on the manufacturer's approval of the installer, submit the manufacturer's written approval of the installing firm.

Principal's responsibilities: Submit details of responsibilities of the principal required to keep warranties in force.

9 TESTING AND COMMISSIONING

9.1 TESTING - GENERALLY

Inspection and testing plan

General: Comply with the requirements of the relevant services disciplines documents.

9.2 COMMISSIONING

General

Requirement: Conform to SA TS 5342.

General: Comply with the requirements of the relevant services disciplines documents.

10 PROJECT RECORDS

10.1 RECORD DRAWINGS

General

Requirement: Prepare record drawings showing the following:

- Installed locations of building elements, services, plant and equipment.
- Off-the-grid dimensions and depth if applicable.
- Any provisions for the future.

Recording, format and submission

Requirement: Record changes made during the progress of the works on a set of drawings kept on site for that specific purpose.

Drawing layout: Use the same borders and title block as the contract drawings.

Quantity and format: Conform to **SUBMISSIONS**.

Endorsement: Sign and date all record drawings.

Accuracy: If errors in, or omissions from, the record drawings are found, amend the drawings and re-issue in the quantity and format documented for **SUBMISSIONS**.

Date for submission: Not later than 2 weeks after the date for practical completion.

Services record drawings

General: Comply with the requirements of the relevant services disciplines documents.

10.2 OPERATION AND MAINTENANCE MANUALS

General

Standard: To SA TS 5342.

Authors and compilers: Personnel experienced in the maintenance and operation of equipment and systems installed, and with editorial ability.

Referenced documents: If referenced documents or worksections require submissions of manuals, include corresponding material in the operation and maintenance manuals.

Subdivision: By installation or system, depending on project size.

Revisions: Amend operation and maintenance manuals to include changes made to the installation during the work.

Contents of manual

General: Comply with the requirements of the relevant services disciplines documents.

Date for submission

Draft submission: The earlier of the following:

- 4 weeks before the date for practical completion.
- Commencement of training.

Final submission: Prior to practical completion.

11 MAINTENANCE

11.1 PERIODIC MAINTENANCE OF SYSTEMS AND EQUIPMENT

General

Requirement: Carry out periodic inspections and maintenance work as recommended by manufacturers of supplied systems and equipment and to statutory requirements.

Duration: From the time systems and equipment are put into service to the end of the maintenance period.

Maintenance period: The greater of the defects liability period and the period documented in the **Maintenance requirements schedule**.

Faults: Rectify promptly.

Emergencies: Attend emergency calls promptly.

Annual maintenance: Carry out recommended annual maintenance procedures before the end of the maintenance period.

Maintenance program

General: Submit details of maintenance procedures and program, relating to installed plant and equipment, 6 weeks before the date for practical completion. Indicate dates of service visits. State contact telephone numbers of service operators and describe arrangements for emergency calls.

Maintenance records

General: Record in binders provided with the operation and maintenance manuals.

Referenced documents: If referenced documents or technical worksections require that log books or records be submitted, include this material in the maintenance records.

Certificates: Include test and approval certificates.

Service visits: Record comments on the functioning of the systems, work carried out, items requiring corrective action, adjustments made and name of service operator. On completion of the visit, obtain the signature of the principal's designated representative on the record of the work undertaken.

Site control

General: Report to the principal's designated representative on arriving at and before leaving the site.

11.2 STATUTORY INSPECTIONS AND MAINTENANCE

General

Duration: From the time systems and equipment are put into service to the end of the maintenance period.

Requirement: Provide inspections and maintenance of safety measures required by the following:

- AS 1851.
- Other statutory requirements applicable to the work.

Records: Provide mandatory records.

Certification: Certify that mandatory inspections and maintenance have been carried out and that the respective items conform to statutory requirements.

Annual inspection: Perform an annual inspection and maintenance immediately before the end of the maintenance period.

12 SELECTIONS

12.1 WARRANTIES

In addition to manufacturers/suppliers standard form of warranties, which is to name the Principal in each case as warrantee, provide additional project specific warranties, executed by all parties, as set out in the warranty proforma. Warranties are to apply to the following:

Waterproofing	– membrane	20 years
	– other built–in waterproofing	20 years
Flooring	– sheet or tile	As per manufacturer's warranty
Paving	– concrete, terrazzo, etc. (in–situ or tiles) laid	5 years
Suspended ceilings	- including suspension systems	2 years
Wall tiling	– fixed	2 years
Doors	–	As per manufacturer's warranty
Sanitary fittings		1 year
External wall cladding	– including metal, windows, sealants, etc.	10 years
Window systems	- including framing and glazing	10 years
Glazing	- including and mirrors	10 years

Anodizing		10 years
Powdercoating		10 years
Plumbing installation		
Stainless steel fittings	– special – stock	2 years 2 years
Faucets, etc.		1 years
Fire services, hydrants, etc.		1 year
Internal glazing, double and special		10 years
Special joinery, panelling, etc.		2 years
Plastering generally, including suspended ceilings		2 years
Painting		2 years
Signage		2 years
Stormwater drains		1 year
Sewerage drains		6 years
Fire sprinklers		1 year
Emergency luminaries back up batteries		1 year
Hot dip galvanised coatings		2 years
Light timber framing		2 years
Window hardware		As per manufacturer's warranty
Overhead doors		As per manufacturer's warranty
Door hardware		As per manufacturer's warranty
Applied wall finishes (acrylic render)		10 years
Appliances		As per manufacturer's warranty
Carpet		As per manufacturer's warranty

SECTION 03 ADHESIVES, SEALANTS AND FASTENERS

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirements: Conform to the following:

- Fitness for purpose: Suitable for particular use, capable of transmitting imposed loads, sufficient to maintain the rigidity of the assembly, or integrity of the joint.
- Finished surface: That will not cause discolouration.
- Compatibility: Compatible with the products to which they are applied.
- Sealant replacement: Capable of safe removal without compromising the application of the replacement sealant for future refurbishment.
- Movement: If an adhered or sealed joint is subject to movement, select a system certified to accommodate the projected movement under the conditions of service.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.3 SUBMISSIONS

Products and materials

Adhesives and sealants: Submit product data sheets.

Samples

Visible joint sealants: Submit colour samples.

Tests

Compatibility testing: Submit adhesion and compatibility testing data demonstrating that adhesive, sealant or fastener is compatible with materials to be fixed and is suitable for the project conditions.

Warranties

Manufacturer's warranty: Submit the manufacturer's published product warranties.

2 PRODUCTS

2.1 ADHESIVES

High strength adhesive tape

General description: A foam of cross linked polyethylene or closed cell acrylic coated both sides with a high performance acrylic adhesive system, encased in release liners of paper or polyester.

Product classification: Select tape to suit substrate as follows:

- Firm high strength foam tapes: For high energy surfaces including most bare metals such as stainless steel and aluminium.
- Conformable high strength foam: For the following:
  - . Medium energy surfaces including many plastics, paints and bare metals.
  - . Lower energy surfaces including many plastics, most paints and powder coatings, and bare metals.

Thickness: Select the tape to make sure a mismatch between surfaces does not exceed half the tape thickness under the applied lamination pressure.

Total VOC limits

Requirement: Conform to the following maximum limits:

- General purpose adhesives: 50 g/L.
- Structural glazing adhesive, timber flooring and laminate adhesives: 100g/L.

2.2 SEALANTS

Standards

General: To ISO 11600.

External masonry joints

General: Provide sealant and bond breaking materials which are non-staining to masonry. Do not use bituminous materials with absorbent masonry units.

Bond breaking backing:

- Bond breaking materials: Non-adhesive to sealant, or faced with a non-adhering material.
- Foamed materials: Closed cell or impregnated, not water-absorbing.

Lightweight building element joints

Joints subject to rapid changes of movement: Provide sealants that accommodate the movement of the contact materials.

Floor control joints

General: Provide trafficable sealants.

Bond breaking backing:

- Bond breaking materials: Non-adhesive to sealant, or faced with a non-adhering material.
- Foamed materials: Closed cell or impregnated, not water-absorbing.

Total VOC limits

Requirement: Conform to the following maximum limits:

- General purpose sealants: 50 g/L.
- Acoustic sealants, architectural sealants, waterproofing sealants: 250 g/L.
- Wood flooring and laminate sealant: 100 g/L.

2.3 FASTENERS

General

Masonry anchors: Proprietary expansion or bonded type anchors, as documented.

Plain washers: To AS 1237.1.

- Provide washers to the heads and nuts of bolts, and the nuts of coach bolts.

Plugs: Proprietary purpose-made plastic.

Stainless steel fasteners: To ASTM A240/A240M.

Steel nails: To AS 2334.

- Length: At least 2.5 times the thickness of the member being secured, and at least 4 times the thickness if the member is plywood or building board less than 10 mm thick.

Unified hexagon bolts, screws and nuts: To AS/NZS 2465.

Fasteners in CCA treated timber: Epoxy coated or stainless steel.

Bolts

Coach bolts: To AS/NZS 1390.

Hexagon bolts Grades A and B: To AS 1110.1.

Hexagon bolts Grade C: To AS 1111.1.

Corrosion resistance

Atmospheric corrosivity category: To *General requirements*.

Steel products: Conform to the **Corrosion resistance table** or provide proprietary products with metallic and/or organic coatings of equivalent corrosion-resistance.

Corrosion resistance table

Atmospheric corrosivity category to AS 4312	**Threaded fasteners and anchors**		**Powder actuated fasteners**
	Material	**Minimum local metallic coating thickness (µm)**	**Material**
C1 and C2	Electroplated zinc or Hot-dip galvanized	30	Stainless steel Type 316
C3	Hot-dip galvanized	45	Stainless steel Type 316
C4	Stainless steel Type 316	-	Stainless steel Type 316

Atmospheric corrosivity category to AS 4312	Threaded fasteners and anchors		Powder actuated fasteners
	Material	Minimum local metallic coating thickness (µm)	Material
Note: For categories C5, CX and T to the AS/NZS 2312 series, seek specialist advice.			

Finishes

Electroplating:

- Metric thread: To AS 1897.
- Imperial thread: To AS 4397.

Galvanizing:

- Threaded fasteners: To AS/NZS 1214.
- Other fasteners: To AS/NZS 4680.

Mild steel fasteners: Galvanize if:

- Embedded in masonry.
- In external timbers.
- Exposed to or in air spaces behind the external leaf of masonry walls.
- In contact with chemically treated timber other than CCA treated timber.

Epoxy coated: CCA treated timber.

Nuts

Hexagon chamfered thin nuts Grades A and B: To AS 1112.4.

Hexagon nuts Grade C: To AS 1112.3.

Hexagon nuts Style 1 Grades A and B: To AS 1112.1.

Hexagon nuts Style 2 Grades A and B: To AS 1112.2.

Screws

Coach screws: To AS/NZS 1393.

Hexagon screws Grades A and B: To AS 1110.2.

Hexagon screws Grade C: To AS 1111.2.

Hexagon socket screws: To AS 1420.

Self-drilling screws: To AS 3566.1.

Self-tapping screws:

- Cross-recessed countersunk (flat – common head style): To AS/NZS 4407.
- Cross-recessed pan: To AS/NZS 4406.
- Cross-recessed raised countersunk (oval): To AS/NZS 4408.
- Hexagon: To AS/NZS 4402.
- Hexagon flange: To AS/NZS 4410.
- Hexagon washer: To AS/NZS 4409.
- Slotted countersunk (flat – common head style): To AS/NZS 4404.
- Slotted pan: To AS/NZS 4403.
- Slotted raised countersunk (oval – common head style): To AS/NZS 4405.

Blind rivets

Description: Expanding end type with snap mandrel.

Type: Closed end for external application, open end for internal application.

End material:

- Aluminium base alloy for metallic-coated or prepainted steel.
- Stainless steel for stainless steel sheet.
- Copper for copper sheet.

Size:

- For sheet metal to sheet metal: 3 mm.
- For sheet metal to supports, brackets and rolled steel angles: 4.8 mm.

3 EXECUTION

3.1 ADHESIVES

General

Requirement: Install to the manufacturer's recommendations.

Preparation

Substrates: Conform to the following:

- Remove any deposit or finish which may impair adhesion.
- If framed or discontinuous, provide support members in full lengths without splicing.
- If solid or continuous, remove excessive projections.
- If previously painted, remove cracked or flaking paint and lightly sand the surface.

Contact adhesive

Precautions: Do not use contact adhesive if:

- A substrate is polystyrene foam.
- A PVC substrate may allow plasticiser migration.
- The adhesive solvent can discolour the finished surface.
- Dispersal of the adhesive solvent is impaired.

Two-way method: Immediately after application, press firmly to transfer adhesive and then pull both surfaces apart. Allow to tack off and then reposition and press firmly together. Tap areas in contact with a hammer and padded block.

One-way method: Immediately after application, bring substrates together and maintain maximum surface contact for 24 hours by clamps, nails or screws as appropriate. If highly stressed, employ permanent mechanical fasteners.

High strength adhesive tape

Preparation:

- Non-porous surfaces: Clean with surface cleaning solvents such as isopropyl alcohol/water, wash down and allow to dry.
- Porous surfaces: Prime the surface with a contact adhesive compatible with the tape adhesive system.

Application to copper, brass, plasticised vinyl and hydrophilic surfaces such as glass and ceramics in a high humidity environment: Conform to manufacturer's recommendations.

Applied lamination pressure: Make sure the tape experiences 100 kPa.

Application temperature: Generally above 10°C and to the manufacturer's recommendations.

Completion: Do not apply loads to the assembly for 72 hours at 21°C.

3.2 JOINT SEALING

General

Requirement: Install to the manufacturer's recommendations.

Joint preparation

Cleaning: Cut flush joint surface protrusions and rectify if required. Mechanically clean joint surfaces free of any deposit or finish which may impair adhesion of the sealant. Immediately before sealant application, remove loose particles from the joint, using oil-free compressed air.

Bond breaking: Install bond breaking backing material.

Taping: Protect the surface on each side of the joint using 50 mm wide masking tape or equivalent means. On completion of sealant application, remove the tape and remove any stains or marks from adjacent surfaces.

Primer: Apply the recommended primer to the surfaces in contact with sealant materials.

Sealant joint proportions

General weatherproofing joints (width:depth):

- 1:1 for joint widths less than 12 mm.
- 2:1 for joint widths greater than 12 mm.

Sealant application

General: Apply the sealant to dry joint surfaces using a pneumatic applicator gun. Make sure the sealant completely fills the joint to the required depth, provides good contact with the full depth of the

sides of the joint and traps no air in the joint. Do not apply the sealant outside the recommended working time for the material or the primer.

Weather conditions

Two pack polyurethanes: Do not apply the sealant if ambient conditions are outside the following:

- Temperature: Less than 5°C or greater than 40°C.
- Humidity: To the manufacturer's recommendations.

Joint finish

General: Force the sealant into the joint and finish with a smooth, slightly concave surface using a tool designed for the purpose.

Excess sealant: Remove from adjoining surfaces using cleaning material nominated by the sealant manufacturer.

Protection

General: Protect the joint from inclement weather during the setting or curing period of the material.

Rectification

General: Cut out and remove damaged portion of joint sealant and reinstall so repaired area is indistinguishable from undamaged portion.

3.3 FASTENERS

General

Requirement: Install to the manufacturer's recommendations.

Fastening to wood and steel

Timber substrates: To AS 1720.1 Section 4.

Self-drilling screws: To AS 3566.1 for timber and steel substrates.

Masonry anchors

Installation: To the manufacturer's recommendations.

4 SELECTIONS

4.1 ADHESIVES

Application schedule

Type	Adhesives generally
Requirement:	All adhesives are to be premium quality, fit for purpose, approved where required, and in accordance with recommendations made by the various manufacturers' and suppliers' of materials or assemblies requiring adhesives.
Proposals:	Required.
Locations:	Throughout.

4.2 SEALING, POINTING AND BEDDING

Application schedule

Type	Sealing, pointing, bedding generally
Requirement:	All sealing, pointing, and bedding is to be carried out in accordance with best practice using methods and proprietary products that are premium quality, fit for purpose, approved where required, and in accordance with recommendations made by the various manufacturers' and suppliers' of materials or assemblies requiring sealing, pointing, and bedding.
Proposals:	Required.
Samples:	Required.
Locations:	Throughout.

Application	Product	Relevant worksections
Window and external doors	To approval	*Windows and glazed doors*, *Doors and access panels*

Adhesives, sealants and fasteners combined function schedule

Application	Product	Relevant worksections
Control joints, tile adhesives and wet area sealants		*Ceramic tiling*, *Stone and terrazzo tiling*
Wet area sealants and lightweight detail items		*Joinery*, *Sanitary fixtures*

4.3 FIRE RATED SEALANTS

Fire rated sealants schedule

Type Fire rated sealants generally

Requirement: All fire rated sealants are to be premium quality, fit for purpose, approved where required, and in accordance with recommendations made by the various manufacturers' and suppliers' of materials or assemblies requiring fire rated sealants.

Compliance: Fire rating to AS 1530.4.

Reference: Refer to *Fire-stopping worksection.*

SECTION 04 FIRE-STOPPING

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 STANDARDS

General

Service penetration fire-stopping systems: To BCA C3.15.

Control/construction joint fire-stopping systems: To AS 4072.1 and BCA C3.16.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS 4072.1 apply.

1.4 SUBMISSIONS

Certification

General: Submit evidence of conformity with the recommendations of AS 4072.1 Appendix B.

Certification: Submit a completed certification list and schedule for installed fire-stopped penetrations and control/construction joints.

- List form: To AS 4072.1 Figure B1.
- Schedule form: To AS 4072.1 Figure B2.

Execution details

General: Give notice, if substrates or penetrants or both are not suitable for fire-stopping.

Operation and maintenance manuals

General: For fire-stopping systems which are intended to be modified in service, submit a user manual.

Products and materials

General: Submit the following:

- Evidence that systems conform to documented requirements.
- Copies of relevant manufacturers' instructions.
- Product data sheets (PDS).

Type tests: Submit type test reports as evidence of conformance for each combination of fire-stopping system, application, type of service, substrate, penetration orientation and drawings of tested details. Include for the following:

- Service penetration fire-stopping systems: Fire-resistance tested to AS 1530.4.
- Fire-stop mortars: Resistance to explosive spalling to AS 1774.36.
- Control joint fire-stopping systems: Fire-resistance tested to AS 1530.4.

Samples

Sample panels: Supply a sample panel of each fire-stopping assembly, on representative substrates. If built into the works, identify by marking it as a control sample.

Size: 500 mm run for junction seals and 500 x 500 mm area for penetration seals.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

Warranties

Proprietary fire-stopping products and systems: Submit the manufacturer's published product warranties.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Service penetrations completed and ready for fire-stopping.

- Control/construction joints completed and ready for fire-stopping.
- Finished fire-stopping, before being concealed.

Authority inspections: Ensure all required inspections are made and fire-stopping is approved before covering up work.

2 PRODUCTS

2.1 MATERIALS

Storage and handling

General: Deliver, unload and store products and accessories in unbroken manufacturer's packaging in a dry, well-ventilated and secure storage area, unaffected by weather.

Shelf life: Use materials that have not exceeded their shelf life.

Control joints

General: To AS 4072.1 clauses 2.3 and 4.7 and Appendix C.

Toxicity

Toxic materials: Free of asbestos and lead, and free of, nor requiring the use of, toxic solvents.

Toxicity in fire: Non-toxic.

Product certification

Conformance: Address the following:

- Statutory and performance requirements.
- Adequacy of application/installation.

Appointment: In the joint names of the contractor and the principal.

2.2 FIRE-STOPPING PRODUCTS

Fire-stop mortars

Type: Re-enterable cement-based compound, mixed with water. Non-shrinking, moisture resistant. Insoluble in water, after setting.

Formulated compound of incombustible fibres

Material: Formulated compound mixed with mineral fibres, non-shrinking, moisture resistant. Insoluble in water after setting.

Fibre stuffing

Material: Mineral fibre stuffing insulation, dry and free of other contaminants.

Standard: To AS/NZS 4859.1 Section 7.

Intumescent fire pillows

Material: Self-contained self-locking intumescent fire pillows for medium to large openings, where no additional support is required.

Fire-stop composite sheets

Material: Composite system comprised of a number of components, including a fire-resistive elastomeric sheet, bonded on either side with layers of sheet steel and/or steel-wire mesh covered with aluminium foil.

Fire-stop sealants

Material: Elastomeric sealant. Soft, permanently flexible, non-sag, non-shrinking, moisture resistant. Capable of providing a smoke-tight, gas-tight and waterproof seal when properly installed. Insoluble in water after setting.

Fire-stop foams

Material: Single component compound of reactive foam ingredients, non-shrinking, moisture resistant. Insoluble in water after setting.

Fire-stop putty

Material: Single component, mouldable, permanently flexible, non-shrinking, moisture resistant, intumescent compound which conforms to the following:

- Expands on exposure to surface heat gain to form a high-volume thermally insulating char that closes gaps and voids.
- Resists the turbulence of a severe fire.
- Can be placed by hand to form an immediate fire seal.

- Insoluble in water after setting.

2.3 COMPONENTS

Fire-stop collars

Material: Mechanical device with incombustible intumescent fillers covered with sheet steel jacket. Airtight and watertight.

Fire-stop pillows

Material: Formed self-contained compressible flexible mineral fibre in cloth bags, rated to permit frequent changes in service.

Multi-service cable transit box

Material: Mechanical device consisting of a sheet steel sleeve containing heat reactive intumescent polymer, including intumescent seals and smoke rated brushes. The insulation rating can be increased by the incorporation of other fire-stopping products.

Control joint insert – elastomeric foam strip

Material: Elastomeric foam strip laminated with a graphite based intumescent compound on both sides, which is a water resistant seal that expands when exposed to heat.

Accessories

Permanent dam material: Non-combustible.

Installation accessories: Provide clips, collars, fasteners, stainless steel cable ties, temporary stops and dams, backing rods and other devices required to position, support and contain fire-stopping and accessories.

3 EXECUTION

3.1 PREPARATION

Substrates

Cleaning: Clean substrates of dirt, dust, grease, oil, loose material, and other matter which may affect the bond of fire-stopping products.

Primer: Dry substrates for primers and sealants.

Restraint: Install backing and/or damming materials to arrest liquid material leakage. Remove temporary dams after material has cured.

3.2 INSTALLATION

General

Extent: Fire-stop and smoke-stop interruptions to fire-resistance rated assemblies, materials and components, including penetrations through fire-resisting elements, breaks within fire-resisting elements (e.g. expansion joints), and junctions between fire-resisting elements.

Sequence: Fire-stop after services have been installed through penetrations and properly spaced and supported, after sleeving where appropriate, and after removal of temporary lines, but before restricting access to the penetrations, including before dry lining.

Ventilation: Supply ventilation for non-aqueous solvent-cured materials.

Density: Apply fire-stopping material to a uniform density.

Fire-stopping exposed to view: Finish surfaces to a uniform and level condition.

Cable separation: Maintain cable separation.

Protection: Protect adjacent surfaces from damage arising through installation of fire-stopping. Protect completed fire-stopping from damage arising from other work.

Loose or damaged fire-stopping material: Remove and replace.

Penetrations by pipes and ducts: Allow for thermal movement of the pipes and ducts.

Preventing displacement: Reinforce or support fire-stopping materials with non-combustible materials when:

- The unsupported span of the fire-stopping materials is greater than 100 mm.
- The fire-stopping materials are non-rigid (unless shown to be satisfactory by test).

Penetrations: Provide structural support around the opening.

3.3 FIRE-STOPPING SYSTEMS

Control joint insert – elastomeric foam strip

Site conditions: Make sure that the application area is free from dust, oil, solvents or any other foreign substances.

Fire-stop mortars

Ambient conditions: Do not install below 5°C.

Fibre stuffing

Installation: Compress to 40% of its uncompressed volume.

Fire-stop sealants

Ambient conditions: Do not store above 32°C. Do not install outside the temperature range recommended by the sealant manufacturer. Do not install when humidity exceeds that recommended by the sealant manufacturer for safe installation.

Fire-stop foams

Ambient conditions: Do not store above 32°C. Do not install below 15°C or above 32°C. Do not apply when temperature of substrate and air is below 15°C. Maintain this minimum temperature before, during and for 3 days after installation.

Installation: Test substrates for adhesion and prime if necessary. Place in layers for homogenous density, filling cavities and spaces. Place sealant to completely seal junctions with adjacent dissimilar materials.

Fire-stop putty

Ambient conditions: Do not install below 5°C. Do not allow the material to freeze.

Fire-stop pillows

Ambient conditions: Do not install in conditions outside the manufacturer's recommendations.

3.4 COMPLETION

Cleaning

Requirement: Clean the finished surfaces and remove spilled and excess fire-stopping materials without damaging other work.

Labelling

Requirement: To the recommendations of AS 4072.1 Appendix B.

Additional marking: Include the following text in addition to the above: CAUTION – FIRE BARRIER MUST REMAIN SEALED.

Location: Attach labels to cables, conduits, pipes and ducts on both sides of and close to, the control joint or penetration. On large items, provide multiple labels.

Warranties

Requirement: Provide warranties as offered by the manufacturer.

4 SELECTIONS

4.1 FIRE STOPPING REQUIREMENTS

Fire stopping schedule

Type	Fire stopping throughout
Requirement:	Assess the fire stopping, smoke sealing, fire separation, and fire retardation requirements across the whole building, including but not limited to those requirements and details shown on the drawings, those required by statutory regulations, standards and codes, those imposed by project specific fire engineering solutions, and those reasonably required to mitigate other potential fire hazard risk.
Acceptable products:	PROMAT, HILTI or BOSTIK.
Schedule:	Prepare a project specific schedule identifying all fire stopping solutions, their relative scopes within the building, the FRL to be achieved in each case, the proprietary item or system proposed to be adopted in each case, and relevant manufacturers or suppliers data related to each product.
Submissions:	To superintendent for approval. The schedule/proposal needs to be approved by the building surveyor. Adjust any items as required.

Testing:	Site specific testing of material is required. Extent and scope to be determined in conjunction with preparation of the schedule noted above.
Site photographs:	Take site photographs of the each type of fire-rated construction before the work is covered over and an additional photograph of every fire collar or other penetration treatment to fire rated work.
Cross reference:	To mechanical, electrical, hydraulics, fire services, lift services documentation for particular requirements in each instance including fire collars.
Locations:	Throughout the works as required.

SECTION 05 METALS AND PREFINISHES

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirement: Provide metals in sections of strength and stiffness suited to their required function, finish and method of fabrication.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.3 SUBMISSIONS

Samples

Requirement: Submit samples of the following:

- Stainless steel: One sample of every documented surface finish.
- Anodising: One sample of every colour and finishing option.

2 PRODUCTS

2.1 METALS

Aluminium and aluminium alloys

Drawn pipe: To AS/NZS 1867.

Drawn rod, bar and strip: To AS/NZS 1865.

Extrusions: To AS/NZS 1866.

Plate and sheets: To AS/NZS 1734.

Copper and copper alloys

Casting: To AS 1565.

Plate, sheet and strip: To AS 1566.

Rods, bars and sections: To AS/NZS 1567.

Composition and designations: To AS 2738.

Stainless steel

Bars: To ASTM A276/A276M.

Plate, sheet and strip: To ASTM A240/A240M.

Welded pipe (plumbing applications): To AS 1769.

Welded pipe (round, square, rectangular): To ASTM A554.

Steel

Sheet: To AS/NZS 1595.

Structural bars and sections: To AS/NZS 3679.1.

Structural hollow sections: To AS/NZS 1163.

Steel for prefinishes

Cold rolled bar: Bright bars to AS 1443.

Cold rolled sheet: To AS/NZS 1595.

Electric resistance welded tube: To AS 1450.

3 EXECUTION

3.1 GENERAL

Metal separation

Incompatible sheet metals: Prevent direct contact between incompatible metals. Provide separation by one of the following:

- Apply an anti-corrosion, low moisture transmission coating such as alkyd zinc phosphate primer or aluminium pigmented bituminous paint to contact surfaces.
- Insert a concealed, non-metallic separation layer such as polyethylene film, adhesive tape, neoprene, nylon or bituminous felt.

Incompatible fixings: Do not use.

Incompatible service pipes: Install lagging or grommets. Do not use absorbent, fibrous or paper products.

Brazing

Lap-joints: Make sure brazed lap-joints have sufficient lap to provide a mechanically sound joint.

Butt joints: Do not use butt jointing for joints subject to load. If butt joints are used, do not rely on the filler metal fillet only.

Filler metal: To AS/NZS 1167.1.

Soldering

Lap-joints: Provide a mechanically sound soldered joint with sufficient lap for roofing, guttering, metalwork.

Pipes: Make a leakproof soldered joint using joiners for copper pipes.

Solder: To AS 1834.1.

Welding

Aluminium: To AS/NZS 1665.

Stainless steel: To AS/NZS 1554.6.

Steel: To AS/NZS 1554.1.

Finishing

Visible joints: Finish visible joints made by welding, brazing or soldering using methods appropriate to the class of work (including grinding or buffing) before further treatment such as painting, galvanizing or electroplating. Make sure self-finished metals are without surface colour variations after jointing.

Preparation

General: Before applying decorative or protective prefinishes to metal components, complete welding, cutting, drilling and other fabrication, and prepare the surface using a suitable method.

Standard: To AS 1627 series.

Priming steel surfaces: If site painting is documented to otherwise uncoated mild steel or similar surfaces, prime as follows:

- After fabrication and before delivery to the works.
- After installation, repair damaged priming and complete the coverage to unprimed surfaces.

3.2 FERROUS STEEL FINISHES

Metallic-coated steel

General: Steel coated with zinc or aluminium-zinc alloy as follows:

Electrogalvanized (zinc) coating on ferrous hollow and open sections: To AS 4750.

- Ferrous open sections by an in-line process: To AS/NZS 4791.
- Ferrous hollow sections by a continuous or specialised process: To AS/NZS 4792.
- Steel sheet and strip: To AS 1397.
- Steel wire: To AS/NZS 4534.

3.3 STAINLESS STEEL FINISHES

General

Requirement: Provide a surface finish to match the approved sample.

Pre-assembly

Bead blasted finish: Provide a uniform non-directional low reflective surface by bead blasting. Do not use sand, iron or carbon steel shot. Blast both sides of austenitic stainless steel to equalise induced stress.

Post-assembly pre-treatment

Heat discolouration: Remove by pickling.

Welds: Grind excess material, brush, and polish to match the pre-assembly finish.

Post-assembly finish

Electropolish finish: Provide an electro-chemical process to stainless steel Type 316.

Brushed electropolish finish: Conform to the following:

- Pre-assembly finish: No. 4 polished.
- Post-assembly finish: Provide an electro-chemical process to achieve a surface roughness R_a, no greater than 0.50 µm.

Mirror finish: Conform to the following:

- Pre-assembly finish: 2B cold-rolled finish.
- Post-assembly finish: Apply a polishing and buffing process to achieve a No. 8 mirror finish.

Completion

Cleaning: Clean and rinse to an acid free condition and allow to dry. Do not use carbon steel abrasives or materials containing chloride.

Protection: Secure packaging or strippable plastic sheet.

3.4 NON-FERROUS METAL FINISHES

Mechanical finishes

Bright finished copper alloy surfaces: For indoor applications, apply a clear lacquer protective coating.

3.5 ELECTROPLATED FINISHES

Electroplated coatings

Chromium on metals: To AS 1192.

- Service condition number: At least 2.

Nickel on metals: To AS 1192.

- Service condition number: At least 2.

Zinc on iron or steel: To AS 1789.

3.6 ANODISED FINISHES

General

Standard: To AS 1231.

Thickness grade: To the recommendations of AS 1231 Appendix H.

3.7 METAL SPRAYED FINISHES

Metal spray

Standard: To ISO 2063-2.

Minimum thicknesses:

- Indoor applications: 125 µm.
- Outdoor applications: 175 µm.

Process: Electric arc.

Seal coat: Cover the metal spray finish with two coats of vinyl seal to a total dry film thickness of 80 µm.

3.8 PREPAINTED FINISHES

Air-drying enamel

Application: Spray or brush.

Finish: Full gloss.

General use:

- Primer: Two-pack epoxy primer to AS/NZS 3750.13.
- Top coats: 2 coats to AS 3730.6.

Oil resistant use:

- Primer: Two-pack epoxy primer to AS/NZS 3750.13.
- Top coats: 2 coats to AS/NZS 3750.22.

Equipment paint system

Description: Brush or spray application using paint as follows:

- Full gloss enamel finish coats, oil and petrol resistant: To AS/NZS 3750.22, two coats.
- Prime coat to metal surfaces generally: To AS/NZS 3750.19 or AS/NZS 3750.20.
- Prime coat to zinc-coated steel: To AS 3730.15 or AS/NZS 3750.16.
- Undercoat: To AS/NZS 3750.21.

Prepainted metal products

Standard: To AS/NZS 2728.

Product type: To AS/NZS 2728: Not lower than the type appropriate to the documented atmospheric corrosivity category.

Stoving enamel

Application: Spray or dip.

Two-pack liquid coating

Application: Spray.

Finish: Full gloss.

Primer: Two pack epoxy primer to AS/NZS 3750.13.

Topcoat:

- Internal use: Proprietary polyurethane or epoxy acrylic system.
- External use: Proprietary polyurethane system.

3.9 COMPLETION

Damage

Damaged prefinishes: Remove and replace items, including damage caused by unauthorised site cutting or drilling.

Repair

Anodising: Use sprayers or pens for minor scratches and mitre cuts as required.

Metallic-coated sheet: If repair is required to metallic-coated sheet or electrogalvanizing on inline galvanized steel products, clean the affected area and apply a two-pack organic primer to AS/NZS 3750.9.

SECTION 06 TIMBER PRODUCTS, FINISHES AND TREATMENT

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirements:

- Appropriate for durability and fire-resistance.
- Appropriate certification for the finishing applications.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.3 STANDARDS

General

Sawn and milled products:

- Hardwood: To AS 2796.1.
- Softwood: To AS 4785.1.

Reconstituted wood based panels:

- Particleboard: To AS 1859.1.
- Dry process fibreboard: To AS/NZS 1859.2.
- Decorative overlaid wood panels: To AS/NZS 1859.3.
- Wet process fibreboard: To AS/NZS 1859.4.

Plywood:

- Structural: To AS/NZS 2269.0.
- Interior: To AS/NZS 2270.
- Exterior: To AS/NZS 2271.
- Marine: To AS/NZS 2272.

Glued laminated timber: To AS/NZS 1328.1.

Laminated veneer lumber: To AS/NZS 4357.0.

1.4 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the following abbreviations apply:

- EWPAA: Engineered Wood Products Association of Australasia.
- LVL: Laminated Veneer Lumber.
- MDF: Medium Density Fibreboard.

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 4491 and the following apply:

- Dry process fibreboard (MDF): Panel material with a nominal thickness of 1.5 mm or greater, manufactured from lignocellulosic fibres (derived from wood or other materials) with application of heat and pressure, the bond of which is derived from a synthetic adhesive added to the fibres and the panels are manufactured with a forming moisture content less than 20%.
- Particleboard: Panel material manufactured under pressure and heat from particles of wood (wood flakes, strands, chips, shavings, sawdust and similar) and/or lignocellulosic material in particle form (flax shives, hemp hurds, bagasse fragments, rice hulls, wheat straw and similar) with the addition of an adhesive.
- Wet process fibreboard: Panel material with a nominated thickness of 1.5 mm or greater, manufactured from lignocellulosic fibres (derived from wood or other materials) with application of

heat and/or pressure, the bond of which is derived from the felting of the fibres and the panels are manufactured with a forming moisture content greater than 20%.

1.5 SUBMISSIONS

Products and materials

Chain of custody of forest products: Submit the following as evidence of conformity to **CERTIFICATION**, **Timber source certification**:

- Third party certification of supplier's chain of custody management system.
- Formal claim of chain of custody by supplier.

Certificate of preservative treatment: Submit a certificate that the timber has been treated to AS/NZS 1604.1 clause 1.5.3.6.

2 PRODUCTS

2.1 GENERAL

Storage and handling

General: Deliver timber products to site in unbroken wrapping or containers and store so that the moisture content is not adversely affected.

Product identification

Preservative treated timber: Marking to AS/NZS 1604.1 clause 1.5.3.2 and including the following:

- A unique identifier for the treatment plant.
- A unique identifier for the preservative.
- Hazard class.

2.2 CERTIFICATION

Timber source certification

Requirement: Use timber products originating from sustainably managed forests.

Engineered timber product certification and identification

Branding: Brand timber products under the authority of a certification scheme applicable to the product. Locate the brand on faces or edges which will be concealed in the works.

Inspection: If neither branding nor certification is adopted, have an independent inspecting authority inspect the timber.

2.3 FIRE-RESISTANCE

General

Timber structures: To AS/NZS 1720.4.

2.4 DURABILITY

General

Requirement: Provide timbers with natural durability appropriate to the conditions of use, or preservative-treated timber of equivalent durability.

Natural durability class: To AS 5604.

Naturally termite-resistant timbers: To AS 3660.1 Appendix C.

Timber quality: Free of core wood (material within 50 mm of the tree's centre) and free of splits, checks, loose knots and cavities. Free of sapwood (lighter coloured wood found on the outer layer of the tree).

Lyctid susceptible timbers: Do not provide untreated timbers containing lyctid susceptible sapwood.

Untreated sapwood: If used, place to the outside of joints or in locations exposed to higher levels of ventilation.

Preservative treatment

Wood-based products: To AS/NZS 1604.1.

Verification requirements: To AS/NZS 1604.2.

Test methods: To AS/NZS 1604.3.

Moisture content

Test: Methods as follows:

- Timber: To AS/NZS 1080.1.

- Plywood: To AS/NZS 2098.1.
- Reconstructed wood-based products: AS/NZS 4266.1.

Protection: Protect timber and timber products stored on site from moisture and weather. For milled, prefinished, prefabricated and similar elements that are to be protected in the final structure, provide temporary weather protection until the permanent covering is in place.

2.5 FINISHING

Production finish

Hardwood: To AS 2796.1 Table B1.

Softwood: To AS 4785.1 Table B1.

Surface coating

Painting and staining: To *Painting*.

Application: To the manufacturer's specification.

3 EXECUTION

3.1 JOINTS

General

Joints and connections: Use hot-dipped galvanized or stainless steel fasteners, composite bolts, nails or nailed metal connectors.

Timber-to-timber interfaces: Provide a seal coating of preservative treatment and include inside bolt holes and the end grain of the timber.

Water retention: Avoid details that may trap water including housed, checked or birdsmouth joints.

Fasteners: To prevent chemical treatments reacting with fasteners, install to manufacturer's recommendations.

3.2 SHRINKAGE RESTRAINT

General

Requirement: Use seasoned timber, if possible, to avoid shrinkage restraint, particularly where timber elements are integrated with steel and/or concrete.

Moisture content: Use finishes and end-grain sealants to minimise moisture content changes.

Fasteners: Align fasteners along member axis and use single fasteners at joints.

Connections: Use connections that allow for movement without adversely affecting the performance of the connection.

Unseasoned timber: Provide as follows:

- Drill holes 10% oversize.
- Use species with similar shrinkage values to reduce movement and shrinkage.
- For framing provide adequate clearance at the top of masonry veneer and face fixed members to reduce vertical movement.

3.3 FINISHING

Ploughing

General: Back plough boards liable to warp (e.g. if exposed externally on one face). Make the width, depth and distribution of ploughs appropriate to the dimensions of the board and degree of exposure.

Painting

Edges: Chamfer edges of work to receive paint or similar coatings.

Priming: For woodwork to be painted, prime hidden surfaces before assembly.

SECTION 07 DEMOLITION

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 STANDARDS

General

Demolition: To AS 2601.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection, the following definitions apply:

- Demolition: The complete or partial dismantling of a building or structure, by pre-planned and controlled methods or procedures.
- Dilapidation record: The photographic or video and written record of the condition of the portion of the existing building retained, adjacent buildings, and other relevant structures or facilities, before the start of demolition work.
- Dismantle: The reduction of an item to its components in a manner to allow re-assembly.
- Recover: The disconnection and removal of an item in a manner to allow re-installation.

1.4 SUBMISSIONS

Authority approvals

Evidence of compliance: Before starting demolition, submit evidence of the following:

- Requirements of authorities relating to the work under the contract have been obtained.
- A permit to demolish has been obtained from the appropriate authority.
- A scaffold permit has been obtained from the appropriate authority (if scaffolding is proposed to be used).
- Certification that each person having access to the construction site has completed site-specific WHS induction training.
- Precautions necessary for protection of persons and property have been taken and suitable protective and safety devices have been provided to the approval of the relevant authority.
- Treatment for rodent infestation has been carried out and a certificate has been obtained from the appropriate authority.
- Fees and other costs have been paid.

Execution details

Requirement: Submit the following, as documented:

- Hazardous Substances Management Plan including laboratory analysis of hazardous substance.
- Investigation and work plan.

Off-site disposal locations: Submit details of the proposed locations for the disposal of material required to be removed from the site, and evidence of conformance with the requirements of relevant authorities.

Recycling: Submit details of the proposed recycling facility.

- Certification: Submit evidence of disposal of recycled materials.
- Concrete crushing: If proposed on site, submit details of plant and environmental controls.

Stockpile locations: Submit details of the proposed locations of on-site stockpiles for demolished materials for recycling in the works. Coordinate with the locations for storage of other waste streams, and prevent mixing or pollution.

Records

Dilapidation record:

- Before demolition: Submit to each owner of each adjacent property, a copy of the part of the record relating to that property and obtain their written agreement to the contents.
- Rectification work: Submit written acceptance of rectification works from the owner of each adjoining property affected.

Tests

Requirement: Submit test results of compliance tests for building service components to be re-used.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Adjacent structures before starting and at completion of demolition.
- Services before disconnection or diversion.
- Site after removal of demolished materials.
- Services after reconnection or diversion.

2 PRODUCTS

2.1 DEMOLISHED MATERIALS

Demolished material classes table

Class	Requirement	Ownership
Recovered items for re-use in the works	Recover without damage items identified in the **Recovered items for re-use in the works schedule**	Principal/proprietor
Recovered items for delivery to the principal	Recover without damage items identified in the **Recovered items for delivery to the principal schedule**	Principal/proprietor
Demolished material for recycling in the works	Stockpile material identified in the **Demolished material for recycling in the works schedule**	Contractor
Demolished material for recycling off-site	Demolish and deliver for recycling material identified in the **Demolished material for recycling off-site schedule**	Contractor
Dismantle for relocation as part of the works	Dismantle without damage and store items identified in the **Dismantle for relocation schedule**	Principal/proprietor
Demolish for removal	Remove from the site demolished materials identified in the **Demolish for removal schedule**. Do not burn or bury on site Transit: Prevent spillage of demolished materials in transit	Contractor

3 EXECUTION

3.1 HAZARDOUS SUBSTANCES

Identified hazardous substances

Register: Hazardous substances have been identified as present on site. The Contractor is to arrange for Hazardous substances Audit to be prepared before commencing demolition works.

Audit

Requirement: Prepare a Hazardous Substances Management Plan to AS 2601 clause 1.6.1. Include the following:

- Asbestos or material containing asbestos.
- Flammable or explosive liquids or gases.

- Toxic, infective or contaminated materials.
- Radiation or radioactive materials.
- Noxious or explosive chemicals.
- Tanks or other containers which have been used for storage of explosive, toxic, infective or contaminated substances.

Removal of hazardous substances

Standard: To AS 2601 clause 1.6.2.

3.2 INVESTIGATION AND WORK PLAN

General

Requirement: Before demolition or stripping work, prepare the work plan to AS 2601 Section 2. Include the checklist items appropriate to the project from AS 2601 Appendix A, and the following:

- Method of protection and support for adjacent property.
- Locations and details of service deviations and terminations.
- Sequence of work.
- If the demolition program results in components temporarily cantilevered, provide a certificate from a professional engineer.

3.3 SUPPORT

Temporary support

General: If temporary support is required, certification for its design and installation is required from a professional engineer engaged by the contractor.

Ground support: Support excavations for demolition of underground structures.

Adjacent structures: Provide supports to adjacent structures where necessary, sufficient to prevent damage resulting from the works.

- Lateral supports: Provide lateral support equal to that given by the structure to be demolished.
- Vertical supports: Provide vertical support equal to that given by the structure to be demolished.

Permanent supports

General: If permanent supports for adjacent structures are necessary and are not documented, give notice and obtain instructions.

3.4 PROTECTION

Encroachment

General: Prevent the encroachment of demolished materials onto adjoining property, including public places.

Weather protection

General: If walls or roofs are opened for alterations and additions or the surfaces of adjoining buildings are exposed, provide temporary covers to prevent water penetration. Provide covers to protect existing plant, equipment and materials intended for re-use.

Dust protection

General: Provide dustproof screens, bulkheads and covers to protect existing finishes and the immediate environment from dust and debris.

Security

General: If walls or roofs are opened for alterations or additions, provide security against unauthorised entry to the building.

Exposed surfaces

General: Where necessary, protect and weatherproof the surfaces of adjacent structures exposed by demolition.

Existing services

Location: Before starting demolition, locate and mark existing underground services in the areas which will be affected by the demolition operations.

Utility services: Contact DIAL BEFORE YOU DIG to identify location of underground utility services pipes and cables.

Excavation: Do not excavate by machine within 1 m of existing underground services.

Recovered items
General: If items are documented for recovery and re-use, minimise damage during removal and recover all associated components required for their re-use.

3.5 DEMOLITION – BUILDING WORKS

Encroachment
General: If encroachments from adjacent structures are encountered and are not documented, give notice and obtain instructions.

Concrete slabs
General: Using a diamond saw, neatly cut back or trim to new alignment with a clean true face existing concrete slabs to be partially demolished or penetrated. Do not overcut at corners.

Material below grade
Remaining voids: Stabilise and provide barriers.

Explosives
General: Do not use explosives.

3.6 DEMOLITION – BUILDING SERVICES

General
Requirement: Decommission, isolate, demolish and remove from the site all equipment and associated components that become redundant as a result of the demolition.

Breaking down: Disassemble or cut up equipment where necessary to allow removal.

Demolition of refrigeration systems
Standard: To AS/NZS 5149.4.

Components for re-use
General: Before returning to service, clean components and test for conformance to Australian Standards, as required.

3.7 COMPLETION

Notice of completion
General: Give at least 5 working days' notice of completion of demolition so that adjacent structures may be inspected following completion of demolition.

Reinstatement
Assessment of damage: Use the dilapidation record to assess the damage and rectification work arising from the demolition work.

Rectification: Repair damage arising out of demolition work. Obtain written acceptance from the owner of each adjoining property of the completeness and standard of the rectification work.

Temporary support
General: Remove at completion of demolition.

4 SELECTIONS

4.1 DEMOLITION

Recovered items for re-use in the works schedule
None required.

Recovered items for delivery to the principal schedule
None required.

Demolished material for recycling in the works schedule
None required.

Demolished material for recycling off-site schedule
At the contractor's discretion.

Dismantle for relocation schedule
Other than noted above, nothing required.

Demolish for removal schedule
All other demolished materials.

SECTION 08 LIGHT STEEL FRAMING

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 STANDARDS

General

Design, materials and protection: To AS/NZS 4600.

Residential and Low-rise steel framing: To NASH-1 (National Association of Steel Housing) and NASH-2.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in the NASH-1 and NASH-2 Standards apply.

1.4 TOLERANCES

General

Manufacturing, assembly and installation tolerances: To NASH-1 Appendix D and NASH-2 Appendix A.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Requirement: Transport all components to site and store, if required, so that components or their coating are not damaged or distorted.

Exposure: Minimise exposure of components to the weather, both during storage, handling and after erection.

2.2 COMPONENTS

Cold-formed steel framing

General: Cold-formed sections from steel, metallic-coated to AS 1397.

Corrosion protection: To NASH-2 Section 8.

Framing members

Cold-formed steel framing for proprietary systems: To NASH-1 or NASH-2.

3 EXECUTION

3.1 GENERAL

Frame fabrication

Length: Cut members accurately to length so that they fit firmly against abutting members.

Service holes: If not pre-punched, form holes by drilling or punching, without compromising the structural integrity of the frame, located centrally within the centre third span of the element, conforming to the requirements of NASH-2.

Swarf: Immediately remove swarf and other debris from cold-formed steel framing.

Fastening

Prefabricated framing: Fasten framing elements using fasteners, as documented, to the fabricator's requirements.

Framing built in-situ: Use fasteners, as documented, from the following types:

- Bolting.
- Self-drilling, self-tapping screws.

- Blind rivets.
- Proprietary clinching system.
- Structural adhesives.
- Welding. On-site welded connections are not permitted.

Compatibility: Compatible with steel frame to prevent galvanic corrosion of dissimilar metals.

Welding

Burning: Avoid procedures that result in greater than localised burning of the sheets or framing members.

Prefabricated frames

General: Protect frames from damage or distortion during erection.

Unseasoned or CCA treated timber

General: Do not fix in contact with framing without fully painting the timber and/or the steel.

Protection

General: Restore coatings which have been damaged by welding or other causes. Thoroughly clean affected areas back to base metal and coat with a zinc rich organic primer.

Metal separation: Install lagging to separate non-ferrous service pipes and accessories from the framing.

Grommets: Provide grommets to isolate piping and wiring from cold-formed steel framing.

Site cut holes: Provide plastic bushes or grommets to site cut holes.

3.2 WALL FRAMING

Wall studs

General: Provide studs in single lengths without splices. Place a stud and a stiffened top plate under each structural load point from the roof or ceiling (except at openings). Provide multiple studs at points of concentrated load.

Maximum stud spacing: 600 mm.

Heads to openings

Requirement: Provide lintels appropriate to load and span.

Additional support

General: Provide additional support in the form of noggings, trimmers and studs for support and fixing of lining, cladding, hardware, accessories, fixtures and fittings.

3.3 COMPLETION

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the installer.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier.

SECTION 09 STEEL – HOT-DIP GALVANIZED COATINGS

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 STANDARDS

General

Coating: To AS/NZS 4680.

Coating on fasteners: To AS/NZS 1214.

Durability: To AS/NZS 2312.2.

Metal finishing

Coating mass/thickness minimum: To AS/NZS 4680.

Threaded fasteners coating mass/thickness minimum: To AS/NZS 1214.

1.3 SUBMISSIONS

Execution details

Holes and lifting lugs: If holes and lifting lugs are required to facilitate handling, filling, venting and draining during galvanizing, submit details on size and location.

Detailing features: If design and fabrication features of the items to be galvanized may lead to dimensional change, distortion or difficulties during galvanizing, identify these and submit details for improvement.

1.4 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Coating appearance and thickness, at the galvanizing plant.

2 EXECUTION

2.1 GENERAL

Care

Embrittlement: Take due care to avoid embrittlement of susceptible steels.

Mechanical properties: Avoid mechanical damage. Make sure that mechanical properties of the base metal do not change.

Surface preparation

Surface contaminants and coatings generally: Chemical clean, then acid pickle.

Chemical cleaning: To AS 1627.1.

Acid pickling: To AS 1627.5.

- Inhibitor: Required.

Coating process

General: To AS/NZS 4680 Section 6.

Threaded fasteners: To AS/NZS 1214 Section 5.

Post treatment

General: Passivate.

Drilling after completion of hot-dip galvanizing

Repair: Prime drill hole surfaces to AS/NZS 4680 Section 8 before the surfaces begin to corrode.

Surface finish

Standard: To AS/NZS 4680 Section 7.

Coating quality: Continuous and as smooth and evenly distributed as possible. Free of blisters, roughness, sharp points, flux residues and any defects that may affect the end use of the article.

Silicon killed steels: Dull grey is acceptable provided a sound and continuous coating is achieved.

Surplus zinc on fastener threads: Remove.

Friction-type bolted connections: Treat coated contact surfaces to achieve the required design slip factor, without removing excessive coating thickness as follows:

- Contact surface preparation: To *GAA Best practice guide for hot dip galvanized bolts and bolted joints.*
- Slip factor test: To AS 4100 Appendix J.

Coating repair

Rejection: If uncoated surfaces or areas damaged by handling at the galvanizing plant exceed the limits specified for repair in AS/NZS 4680 Section 8, reject the galvanizing.

Extent and methods: To AS/NZS 4680 Section 8.

Preparation of galvanized surfaces for paint finishes

Coarse preparation: Remove spikes, and make sure edges are free from lumps and runs.

Light sweep blasting before painting: Required.

- Maximum zinc removal: 10 microns.
- Abrasive grade (range): 150 to 180 microns.
- Abrasive type: Clean ilmenite or garnet.
- Blasting angle to surface: 45° maximum.
- Blast pressure (maximum): 275 kPa.
- Distance of nozzle from surface (range): 350 to 400 mm.
- Nozzle type: 10 to 13 mm orifice diameter venturi type.

2.2 TESTING

Galvanizing tests

Coating thickness tests: To AS/NZS 4680 clause 9.2 and Appendix G.

2.3 SITE WORK

Site welding

Grinding of edges: Permitted.

Weld areas: Reinstate coating to AS/NZS 4680 Section 8.

Site coating reinstatement

Rejection: If any item has damaged areas exceeding the limits specified for repair in AS/NZS 4680 clause 8.1, reject the item.

Extent: Areas damaged by transport, site welding, site flame cutting, site handling, or erection.

Method: To AS/NZS 4680 Section 8.

SECTION 10 STONE MASONRY

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements.*

1.2 STANDARD

General

Masonry: To AS 3700.

1.3 TOLERANCES

General

Requirement: To AS 3700 Table 12.1.

Dimension stone units

Maximum deviation from required dimensions:

- Load bearing stone: ± 2 mm.
- Other stone: ± 10 mm.

1.4 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Proposed stone source (quarry, storage yard).
- Proposed mason's yard.
- Materials stored at the yard or on site.
- Prepared stone sample range.
- Stone in worked condition at the mason's yard.
- Installed prototype.
- Substrate prepared to receive the specified stonework.
- Stone laid out before fixing.

2 PRODUCTS

2.1 DURABILITY

General

Exposure locations: To AS 3700 clause 5.4.

2.2 NATURAL STONE

Stone selection

Performance: Select stone as follows:

- To the designated quality grade and of uniform quality within any grade.
- Within each grade for the optimum matching of visual properties such as colour and pattern.
- Sound and free from defects liable to affect strength, appearance and durability under the intended conditions of use.

2.3 MORTAR

Mortar materials

Cement: To AS 3972.

White cement: With not more than 1% iron salts content.

Lime: To AS 1672.1.

Sand: Fine aggregate with a low clay content and free from efflorescing salts, selected for colour and grading.

Crushed stone: Fine aggregate consisting partly or wholly of crushed stone, made from material of the same type as the stone facing.

Water: Clean and free from any deleterious matter.

Admixtures: Do not provide admixtures.

Pigment: To EN 12878, and as follows:

- Integral pigment mix proportion: Not more than 10% by weight of cement.
- For light colours: Use off white cement in the mix.

Mortar mix

Batching: Batch by weight and machine mix.

Mix compressive strength: Not more than compressive strength of the stone bedded on it.

Mix permeability: More than stone permeability.

Preparing lime putty:

- Using hydrated lime: Add lime to water in a clean container and stir to a thick creamy consistency. Leave undisturbed for at least 16 hours. Remove excess water and protect from drying out.
- Using quicklime: Run to putty as soon as possible after receipt of quicklime. Partly fill a clean container with water, add lime to half the height of the water, then stir and hoe ensuring that no lime remains exposed above the water. Continue stirring and hoeing for at least 5 minutes after all reaction has ceased, then sieve into a maturing bin. Leave undisturbed for at least 14 days. Protect from drying out. Take appropriate safety measures.

Sand stockpile

General: Before commencing stonework, stockpile sand sufficient for the whole of the works. Keep stockpiled sand dry.

2.4 BUILT-IN COMPONENTS

General

Durability class of built-in components: To AS 3700 Table 5.1.

Wall ties

Standard: To AS 2699.1.

Type: A.

Corrosion protection: To AS 2699.1.

Wall ties category table

Classification to AS 2699.1	Service conditions
Medium duty	Normal cavity construction
Medium duty	Tie bonding at abutments
Heavy duty	Cavities > 60 mm wide

Connectors and accessories

Standard: To AS 2699.2.

Corrosion protection: To AS 2699.2.

Flashings and damp-proof courses

Standard: To AS/NZS 2904.

Fixings

General: Provide metal fixings as follows:

- Corrosion-resistant, e.g. non-ferrous metal or stainless steel.
- Stamped for identification.
- Compatible with the materials the fixings will contact or insulated from electrochemical reaction with incompatible materials.

3 EXECUTION

3.1 GENERAL

Storage and handling

Stone masonry: Store stone to protect from the weather and atmospheric pollution, clear of the ground on its natural bed, on supports that do not locally overstress the stone and in conditions suitable to promote good seasoning without staining, marking or damage.

Protection

Masonry materials and components: Protect from ground moisture and contamination.

During construction: Cover the top surface of masonry to prevent the entry of rainwater and contaminants.

Cutting

General: Cut, shape and surface the stone to designated profiles including weathering, jointing, chasing, forming grooves and drilling for handling and fixing. Work the bed, face and back joints of the stone square and true.

Carving and moulding

General: Provide a clean sharp finish.

Building in

Embedded items: Build in wall ties and accessories as the construction proceeds.

Rate of construction

General: Regulate the rate of construction to eliminate joint deformation, slumping or instability.

3.2 LAYING UNITS

Bedding

General: Remove dust and foreign material from the bedding surfaces. If necessary, adjust the moisture content of the stone units so that adverse effects, such as reduced bond, are kept within acceptable limits. If possible, bed and joint the stone in one operation. Lay each stone on a full bed of mortar. Solidly fill vertical joints, joggles and cramps as the work proceeds. Point up joints around flashings, as necessary.

Natural bed

General: Lay load bearing sedimentary stone or slate with its natural bed normal to the load (e.g. horizontal in walling, perpendicular to the line of thrust in arch voussoirs), except for the following:

- Overhanging projecting stones (cornices and string courses): If edge bedding is required, lay each stone with its natural bed vertically and at right angles to the wall.
- Cladding panels: In non-load bearing cladding panels, form each panel with its natural bed at right angles to the face.

Temporary support

General: Provide support as necessary to the stonework as follows:

- While the mortar is curing, using bracing, joint spacers, or both.
- If the final stability of the stonework is dependent on (structural) elements to be constructed later.

Bracing and joint spacers: Non-damaging and non-staining softwood wedges or laths soaked in water. Do not allow metal pinch bars to bear directly on the stone.

Raking and toothing

General: Raise advanced work no more than 1.5 m above the general level, and rake back. Do not tooth stonework for subsequent additions except where toothing is documented.

Bonding

General: Bond the masonry to provide stability and monolithic structural action to the stonework assembly.

3.3 FIXINGS

Provision of fixings

General: Provide fixings to support and restrain each stone and to resist the loads from permanent, imposed, wind and earthquake actions that the stonework will be subjected to in service, if not provided as part of the building structure.

Fixings: Stainless steel.

3.4 WALL TIES

Location

General: Space wall ties in conformance with AS 3700 clause 4.10 and at the following locations:

- Not more than 600 mm in each direction.
- Adjacent to vertical lateral supports.
- Adjacent to control joints.

Installation

Embedment: At least 50 mm into mortar. Make sure that mortar cover is 15 mm minimum to the outside face of the mortar.

Fixing of masonry veneer ties:

- To timber frames: Screw fix to outer face of timber frames with fasteners to AS 3566.1.
- To concrete: Masonry anchors.
- To steel frames: Screw fix to outer face of steel studs with fasteners to AS 3566.1.

3.5 JOINTING AND POINTING

General

Requirement: Carry out jointing and pointing simultaneously to form a homogeneous bed.

Column and mullion joints

Method: Bed the joints in stone columns and mullions in mortar:

- Joggle the bed joints to prevent movement.
- Dowel the stones together with restraint fixings.
- Make column joints over a concealed lead pad with the centre cut out to allow for settlement.

3.6 COMPLETION

Cleaning

Requirement: Leave the stonework clean on completion

4 SELECTIONS

4.1 SCHEDULE

Stone masonry schedule

Type	Stone walling
Finish code:	**ST-3**
Stone type:	Natural Quartzite Cottage Cladding.
Preferred supplier:	Artisan Exterior.
Sizes:	Random. To approval.
Mortar joints:	Tight-fit lightly raked mortar joints to approval.
Ties:	Provide stainless steel ties at approx 600mm ctrs both ways. Ties are to be secured to adjacent blockwork supporting wall. Ties as required and to approval.
Support:	Stone Clip SETSIZE or ADJUSTABLE STONECLIP as required. Secure to structural support at all stone junctions.
Sealer:	S-3
Locations:	Refer to drawings.

SECTION 11 LIGHT TIMBER FRAMING

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 STANDARDS

General

Framing: To AS 1684.2, AS 1684.3 or AS 1684.4, as appropriate.

Design: To AS 1720.1.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in the AS 1684 series apply.

1.4 TOLERANCES

Floors

Maximum deviation from a 3 m straightedge laid in any direction on the floor framing: 5 mm.

Wall tolerances table

Property	Permitted deviation
Generally: Verticality in 2 m	1:500
Generally: Flatness[1] in 2 m	3 mm
Features[2]: Verticality in 2 m	1:1000
Features[2]: Horizontality in 2 m	1:1000
1. Flatness: Measured under a straightedge laid in any direction on a surface. 2. Features: Conspicuous horizontal or vertical lines including external corners, parapets, reveals, heads, sills.	

1.5 SUBMISSIONS

Certification

Requirement: Submit certification by a professional engineer of the design, documentation and erected work to the AS 1684 series and AS 1720.1. Include the following:

- Reactions: Provide location and magnitude of reactions to be accommodated by the support structure.
- Floor, wall and roof frame member sizes: A schedule of proposed member sizes, certified as meeting stated project requirements for spans, spacings, loadings and deflections.
- Species and stress grade.

Products and materials

Supply: Submit supplier's evidence of conformity (which may be included on an invoice or delivery docket) verifying that the timber conforms to the documented requirements.

Inspection: Submit the inspection authority's evidence of conformity verifying that the erected timber frame conforms to the documented requirements.

Moisture content: Submit records of moisture content.

CCA treated timber: If proposed to be used, submit details.

Shop drawings

General: Submit shop drawings, to a scale that best describes the detail, certified by a professional engineer stating that the design has been carried out to the requirements of the AS 1684 series and AS 1720.1, for the documented configurations and loadings.

Prefabricated roof trusses: Include the following:

- Marking plans.
- Truss plan layout.
- Elevations, with the arrangement of members allowing for the accommodation of in-roof services and the size and section type of each member.
- Camber of all elements.
- The method of assembly, connection, lifting, holding down and bracing.

Prefabricated wall frames: Include the following:

- Wall plan, showing all wall layouts.
- Elevations showing the arrangement of members, and the size and section type of each member.
- The method of assembly, connection, lifting, holding down and bracing.

Subcontractors

Prefabricated items: Submit the name and contact details of proposed manufacturers, suppliers and installers.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Prefabricated units before installation.
- Fabricated items before priming or water-repellent treatment.
- Bolts after final tightening.
- Timber work after erection but before it is covered.

2 PRODUCTS

2.1 GENERAL

Storage and handling

General: Do not distort or damage timber or timber products.

Moisture content: Maintain the equilibrium moisture content of seasoned timber.

Marking

Branding: Brand structural timber, under the authority of a recognised product certification scheme to *Timber products, finishes and treatment* as applicable to the product. Locate the brand mark on faces or edges which will be concealed in the works. Include the following data for timbers not covered by branding provisions in Australian Standards or regulations for which branding is required:

- Stress grade.
- Method of grading.
- If seasoned, the word, SEASONED or DRY, or an abbreviation of seasoned, such as SEAS or S.
- The certification mark of the product certification scheme.
- The applicable standard.

Trusses: Permanently mark each truss to show:

- Project identification.
- Manufacturer.
- Tag or number.
- Location.
- Support points.

Preservative treatment

Requirement: To *Timber products, finishes and treatment*, including for termite treatments.

2.2 TIMBER

Certification

Requirement: Certification, chain of custody and product labelling to *Timber products, finishes and treatment*.

2.3 STRUCTURAL PLYWOOD

General

Standard: To AS/NZS 2269.0.

Bond: Type A to AS/NZS 2754.1.

Veneer

Veneer quality to visible surfaces: CD (minimum) to AS/NZS 2269.0.

2.4 COMPONENTS

Fasteners

Requirement: Conform to *Adhesives, sealants and fasteners.*

Installation: Do not split or otherwise damage the timber.

Coating: Before placing bolts in contact with CCA treated timber, coat the shank of the bolt in a grease or bituminous coating.

2.5 FINGER JOINTED STRUCTURAL TIMBER

General

Performance: To AS/NZS 8008 (Int).

Production: To AS 5068.

3 EXECUTION

3.1 FLOOR FRAMING

Bearers and joists

Levelling: Level bearers and joists by checking or by packing for the full width of the member with dense corrosion-resistant material which is secured in place.

Maximum thickness of packing: 3 mm.

Spring: Lay bearers and joists to allow for straightening under loading.

Joints

Requirement: Locate joints only over supports:

- Minimum bearing of bearers: 50 mm.
- Minimum bearing of joists: 30 mm.

Fixing and restraint

Fixing: Secure bearers and joists to supports to provide restraint against lateral movement.

Deep joists: To AS 1684.2 clause 4.2.2.3 or AS 1684.3 clause 4.2.2.3 as appropriate.

Herringbone strutting dimensions: Minimum 38 x 38 mm.

Trimmers or blocking dimensions:

- Depth: Joist depth less 25 mm.
- Minimum thickness: 25 mm.

Engineered timber joists 200 mm deep or greater: Provide lateral restraint using blocking or seasoned rim board.

3.2 WALL FRAMING

Additional support

Requirement: Provide additional support in the form of noggings, trimmers and studs for fixing lining, cladding, hardware, accessories, fixtures and fittings, as required.

Spacing of noggings: Maximum 1350 mm centres.

SECTION 12 DECKING

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 STANDARDS

General

Timber flooring and decking: To AS 1684.2, AS 1684.3 or AS 1684.4, as appropriate.

Slip resistance

Classification: To AS 4586.

1.3 TOLERANCES

Decking

Maximum vertical deviation for adjacent boards: 3 mm.

Maximum gap between boards:

- Boards ≤ 150 mm wide: 6 mm.
- Boards > 150 mm wide: 10 mm.

1.4 SUBMISSIONS

Certification

Requirement: Submit evidence of conformity to documented requirements for grading, species and board size. Evidence may be in any of the following forms:

- Supplier's certificate which may be included on an invoice, delivery docket or packet label.
- Report by an independent inspecting authority.

Moisture content: Submit documentation noting moisture content of timber products.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

Tests

Site tests: Submit results, as follows:

- Slip resistance of completed installation.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Subfloor before laying decking.
- Completion of installation.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Timber decking: Deliver to site and store on dry ground on level bearers 150 mm high, block stacked, banded and protected against the weather.

2.2 DECKING

New timber decking

Durability:

- Natural durability classification to AS 5604: Class 1 minimum.

Product certification scheme

Identification: Identify timber products using branding or certification.

- Certification: Provide certification from a recognised product certification scheme to *Timber products, finishes and treatment* as appropriate to the product.

3 EXECUTION

3.1 PREPARATION

Subfloors

Flatness: Less than 3 mm deviation of the substrate under a 3 m straightedge laid in any direction with no abrupt variations greater than 1 mm over 250 mm.

3.2 FIXING DECKING

Timber decking

Standard: To AS 1684.2, AS 1684.3 or AS 1684.4 as appropriate.

Installation: Lay in long lengths with the ends of each board firmly butted to the next and firmly in contact with the joists. Stagger the end joints and locate them centrally over joists.

Gap between edges of seasoned boards: Minimum 4 mm.

Minimum number of spans across supports: 3.

Sealing: Apply one coat of water repellent preservative and one coat of finish coat to top surface of joists and all surfaces of boards before fixing.

3.3 TESTING

Site tests

Slip resistance of completed installation: To AS 4663.

3.4 COMPLETION

Rectification

General: Correct any defects to joints, remove any excess joint adhesive, and leave the floor panel installation complete, clean and ready for the installation of finishes.

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and installer.

- Form: Against failure of materials and execution under normal environment and use conditions.

Period: As offered by the supplier/manufacturer.

4 SELECTIONS

4.1 SCHEDULES

Timber decking schedule

Type	Timber decking
Finish code:	**TS-3**
Decking:	Blackbutt.
Supplier:	Britton Timbers.
Durability:	Class 1.
Size:	135 x 32mm with 3mm gaps between each board.
Profile:	Pencil round edges.
Fixing:	Countersunk stainless steel decking screws to approval. Two at each crossing.
Sealer:	S-4 sealer. Refer to *Painting* worksection.
Substrate:	Install over 40x60mm Structur-AL aluminium decking system on NIVO adjustable pedestals.
Samples:	Required.

Locations: Refer to drawings.

SECTION 13 WATERPROOFING – EXTERNAL AND TANKING

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirements:

- Graded to falls to dispose of stormwater without ponding above the depth of lapped seams.
- Able to accommodate anticipated building movements.
- Able to accommodate its own shrinkage over the warranty life of the roofing system.
- Able to resist water under hydrostatic pressure.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.3 STANDARDS

External waterproofing

Membrane materials: To AS 4654.1.

Membrane design and installation: To AS 4654.2.

Stormwater drainage

Standard: To AS/NZS 3500.3.

Slip resistance

Classification: To AS 4586.

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS 4654.1 and AS 4654.2 and the following apply:

- Bitumen: A viscous material from the distillation of crude oil comprising complex hydrocarbons, which is soluble in carbon disulphide, softens when it is heated, is waterproof and has good powers of adhesion. It is produced as a refined by-product of oil.
  - . APP bitumen: Bitumen modified with atactic (meaning non-crystalline or amorphous) polypropylene wax to form a plastomeric sheet. The membrane is reinforced with fibreglass or non-woven polyester (NWP).
  - . SBS bitumen: Bitumen modified with styrene-butadiene-styrene, a thermoplastic rubber that undergoes a phase inversion at elevated temperature and converts to an elastomeric material. The membrane is reinforced with fibreglass or non-woven polyester (NWP).
- Bond breaker: A system preventing a membrane bonding to the substrate, bedding or lining.
- Double detail joint: A joint formed by turning up and bonding the horizontal membrane to a vertical substrate and adding an overflashing of membrane material bonded to the vertical substrate and folded over and bonded to the horizontal membrane. In certain situations the double detail can be achieved by bonding an angle profile of membrane material to the junction prior to laying the membrane.
- Liquid applied: A water-based formulation which cures to form an elastomeric membrane.
- Polyurethane: Water or solvent-based formulations which moisture cure to form an elastic rubber membrane.
- Substrate: The surface to which a material or product is applied.

1.5 SUBMISSIONS

Operation and maintenance manuals

Requirement: On completion, submit the manufacturer's maintenance recommendations, including the following:

- Preventative maintenance procedures.
- Instructions and procedures for the repair of the membrane.

Products and materials

Manufacturer's data: Submit product data sheets.

Type tests: Submit certificates verifying conformance to AS 4654.1 Section 2, Tables 2.1 to 2.3.

Prototypes

General: Apply waterproofing to 10 m^2 of substrate to demonstrate surface preparation, crack and joint treatment, corner treatment, and execution quality. Install final surface finish to demonstrate aesthetic affects, physical properties, and quality of materials and execution as applicable.

Records

General: Submit photographic records of application and protection of membranes. Label photographs with date, location and weather during application or curing.

Timing: Record at the following stages:

- After substrate preparation.
- After primer application.
- After membrane installation.
- After protection from traffic provided.

Liquid applied membranes:

- Record wet film thickness once every 10 m^2 and compare to the manufacturer's requirements.
- On completion of every 100 m^2 of each coat, compare the amount of membrane used with the manufacturer's application rate and record the result.

Flood tests: Submit photographic records of flooded areas and adjacent areas noted in **TESTING**, **Flood test**. Label photographs with date and location.

Samples

Requirement: Submit 300 x 300 mm samples of each type of membrane including the finish of the visible surface.

Shop drawings

Requirement: Submit shop drawings showing the following:

- Junctions with vertical surfaces and upstands.
- Junctions at perimeters.
- Drainage details.
- Control joints.
- Flashings.
- Penetrations.
- Corners.
- Terminations and connections.
- Membrane layers.
- Insulation and protection.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers as recommended by the manufacturer.

Tests

Site tests: Submit results, as follows:

- Slip resistance test of completed installation.
- Substrate moisture content test.
- Flood tests, including records of retesting after rectification.

Warranties

Requirement: Submit warranties to **COMPLETION**, **Warranties**.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrates prepared and ready for installation of the waterproofing and tanking systems.

- Secondary layers prepared and ready for subsequent layers.
- Membranes after installation and before concealment.

2 PRODUCTS

2.1 GENERAL

Storage and handling

General: Store and handle to the manufacturer's recommendations and as follows:

- Protect materials from damage.

2.2 MEMBRANES

Membrane system

Requirement: Proprietary membrane system suitable for the intended external waterproofing.

2.3 ACCESSORIES

Control joint covers

Corners, crossovers, tees and bends: Factory mitred, welded and provided with 50 mm legs.

End closures: Factory folded and sealed to match joint cover profile.

Fixing hobs: Concrete or timber.

3 EXECUTION

3.1 PREPARATION

Substrates

General: Prepare substrates as follows:

- Clean and remove any deposit or finish which may impair adhesion of membranes.
- Remove excessive projections.
- Fill voids and hollows in concrete substrates with a concrete mix not stronger than the substrate.
- Fill cracks in substrates wider than 1.5 mm with a filler compatible with the membrane system.
- Remove all traces of a concrete curing compound if used.

Concrete substrates: Cure for more than 28 days.

Moisture content

Requirement: Verify that the moisture content of the substrate is compatible with the water vapour transmission rate of the membrane system by testing to **TESTING, Substrate moisture tests**.

Falls

Requirement: Verify that falls in substrates are greater than 1:100.

Joints and fillets

Internal corners:

- Liquid applied membranes: Provide 15 x 15 mm 45° fillets.
- Sheet membranes: Provide 40 x 40 mm 45° fillets.

Fillet material: Cement or plastic.

External corners: Round or arris edges.

Control joints: Prepare all substrate joints to suit the membrane system.

Priming

Compatibility: If required, prime the substrates with compatible primers for adhesion of the membrane system.

3.2 INSTALLATION

Ambient conditions

Requirement: Do not install in conditions outside the manufacturer's recommendations.

Protection

Damage: Protect membrane from damage during installation and for the period after installation until the membrane achieves its service characteristics that resist damage.

Drains

General: Prevent moisture from tracking under the membranes at drainage locations.

Drains and cages: Provide removable grates or cages to prevent blockage from debris. If the finished surface is above the level of the membrane, provide a slotted extension piece to bring the grate up to the level of the finished surface.

Overflows: Apply a bond breaker to the perimeter of the overflow outlet at its junction with the surface to which the membrane will be fixed. Turn the membranes into the overflow to prevent moisture from tracking behind the membrane.

Sheet membrane joints

Orientation of laps: Lap sheets on the upslope side of the roof fall over sheets on the downslope side.

End laps generally: Stagger end lap joints.

Bituminous sheet membranes:

- Side laps: ≥ 75 mm.
- End laps: ≥ 150 mm.
- Method: Heat welded.

Movement and control joints

General: Install membranes to accommodate control joints in the substructure.

Bond breakers: Size to allow the membrane to accommodate movement.

Joint backing gutter: Fix a formed metal gutter to one side of the soffit directly below the joint and fall to a suitable disposal or drainage point.

Control joint covers: Install after fixing hobs and membranes.

Membrane terminations

Membrane upturns: Provide upturns above the maximum water level expected from the exposure conditions of rainfall intensity and wind.

- Height: To AS 4654.2 Table A1.
- Anchoring: Secure sheet membranes along the top edge.
- Edge protection: Protect edges of the membrane.

Waterproofing above vertical upward terminations: Waterproof the structure above the termination to prevent moisture entry behind the membrane using cavity flashings, capping, waterproof membranes or waterproof coatings.

Horizontal terminations: Do not provide. Use vertical terminations.

Membrane penetrations

Vertical penetrations: Provide overflashing fixed to the substrate for vertical penetrations including pipes, ducts and vents.

Horizontal penetrations: Provide SBS bitumen flange to seal to membrane to rigid PVC-U conduits and pipes without burning the PVC-U. Do not use high density polyethylene (HDPE), polypropylene (PP) pipes or flexible PVC conduit.

Membrane at balcony doors and windows

Requirement: Install membrane before fixing door or window frames.

Upturn height above external finished floor level: To AS 4654.2 Table A1.

Hobless and flush thresholds: Install membrane before fixing door or window frames. Provide a continuous grated drain abutting the external face of the door or window sill.

Membrane to planter boxes

Membrane: Extend root-resistant membrane at least 100 mm vertically above the soil or fill level and secure.

Drainage: Grade the base of the planter to adequately sized drainage outlets and terminate the membrane in the outlets.

Drainage riser: Install a riser with drainage slots that extend from the membrane level to the top of the drainage cell. Extend the riser above the soil fill level and finish with a screw cap to provide access for drain clearing.

Protection board: Provide protection board to the full extent of the membrane including areas between soil level and the underside of flashings and cappings.

Drainage cell: Provide geo-filter fabric wrapped drainage cell to the base of the planter and turn geo-filter fabric up drainage riser at least 100 mm above drainage slots.

Cappings and flashings: Provide capping to the tops of planter walls to protect the membrane. Extend the capping to overlap the top of the protection board on the inside face of the planter wall. Where planter walls abut other walls, provide a flashing over the top of the membrane.

Overlaying finishes on membranes

Compatibility: If a membrane is to be overlaid with another system such as tiles, pavers, ballast, insulation or soil, provide an overlaying system that is compatible with and will not cause damage to the membrane.

Bonded or partially bonded membranes: If the topping or bedding mortar is to be bonded to the membrane, provide sufficient control joints in the topping or bedding mortar to reduce the movement over the membrane.

Slip sheet: If the topping or bedding mortar is structurally sufficient to not require bonding to the substrate, lay a double slip sheet over the membrane to separate it from the topping or bedding mortar.

3.3 TESTING

Substrate moisture tests

Moisture content of concrete substrate: Test substrate in-slab relative humidity to ASTM F2170. Perform three tests for the first 100 m^2 of subfloor area and an additional test for each additional 100 m^2.

Site tests

Slip resistance of completed installation: To AS 4663.

3.4 COMPLETION

Reinstatement

Extent: Repair or replace faulty or damaged work. If the work cannot be repaired satisfactorily, replace the whole area affected.

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the applicator.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier.

4 SELECTIONS

Membrane systems generally

Requirement: the schedules below are not exhaustive and set the parameters for the general types, quality, and situations required. Take responsibility for the adequacy and fitness for purpose of waterproofing systems having regard to potential failures and exposure. Carry out flood testing and keep photographic records of the installations. Provide results for scrutiny.

Applicators: Select experienced and competent installers, licenced to use, install, and apply the various proprietary items and installations noted.

Substitutions: If it is felt that the systems scheduled below are not suitable for the particular installation or circumstance refer same for direction, complete with all relevant supporting information. Where torch applied membranes are specified, liquid membrane systems are not to be used.

Suitability: Ensure membrane and component systems are compatible with the various adhesives and acoustic membrane systems to be used in conjunction with the waterproofing.

Sheet membrane schedule

Type	Concealed, torch applied membrane
Proprietary item:	Tremco TREMPROOF 4000 APP modified torch applied membrane or similar approved.
Priming:	Required.
Extent:	Refer to drawings.
Locations:	Apply to pool decking and terraces below pavers/timber decking on pedestals. Do not expose to UV light.
Type	Pool membrane

Proprietary item:	Mapei MAPELASTIC SMART waterproofing membrane. Prepare and apply in accordance with the manufacturers recommendations.
Extent:	Pool lining and over the top of pool wall below new pool coping.

SECTION 14 WINDOWS AND GLAZED DOORS

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.2 STANDARDS

General

Selection and installation: To AS 2047.

1.3 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the following abbreviations apply:

- AGWA: Australian Glass and Window Association (formerly Australian Window Association (AWA)).
- WERS: Window Energy Rating Scheme.

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 4668 and the following apply:

- Hardware: To AS 4145.1 Section 2.
- Total system SHGC: Solar heat gain coefficient as defined by the NCC and tested in conformance with NFRC 200.
- Total system U-Value: Thermal transmittance as defined by the NCC and tested in conformance with NFRC 100.

1.4 SUBMISSIONS

Certification

Conformance: Submit evidence that window and door assemblies conform to AS 2047.

Sealant compatibility: Submit statements from all parties to the installation certifying the compatibility of sealants and glazing systems to all substrates.

Toughened glass: For each batch of glass, submit certification from the manufacturer of heat soaking.

Protection of openable windows: Submit a certificate of on-site fall prevention testing.

Fire performance

Fire-resistance level: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire-resistance of building elements**.

Operation and maintenance manual

Window and door assemblies: Submit the window and glazed door manufacturer's published instructions for operation, care and maintenance.

Hardware: Submit the manufacturer's published recommendations for use, care and maintenance.

Products and materials

Safety glazing materials: Submit evidence of conformity to AS/NZS 2208 Appendix A.

Type tests: Submit results, as follows:

- Acoustic performance of windows and doors.
- Protection of openable windows.

Prototypes

Sample installations: Install the designated typical window and door assemblies in their final position incorporating at least one example of each component in the system, including attachments to the structure, flashing, caulking, sealing, glazing, operating hardware, locks and keys.

Samples in prototypes: Required samples may form part of prototypes.

Samples

Window and door framing: Submit the following:

- Colour samples of prefinished production materials showing the limits of the range of variation in the documented colour.
- Joints made by proposed techniques.
- Sections for frames, sashes, louvres and slats.

Hardware and accessories: Submit samples of the following:

- Window manufacturer's standard hardware and accessories including locks, latches, handles, catches, sash operators, anchor brackets and attachments, masonry anchors and weatherseals (pile or extruded).
- Generic hardware: Submit samples of generic hardware not documented as proprietary items.

Labelling: Label each sample, with the series code reference and date of manufacture.

Shop drawings

General: Submit shop drawings, to a scale that best describes the detail, showing the following:

- Full size sections of members.
- Hardware, fittings and accessories including fixing details.
- Junctions and trim to adjoining surfaces.
- Layout (sectional plan and elevation) of the window assembly.
- Lubrication requirements.
- Methods of assembly.
- Methods of installation, including fixing, caulking and flashing.
- Provision for vertical and horizontal expansion.
- Method of glazing, including the following:
  - . Rebate depth.
  - . Edge restraint.
  - . Clearances and tolerances.
  - . Glazing gaskets and sealant beads.

Subcontractors

General: Submit names and contact details of proposed manufacturers and installers.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Openings prepared to receive windows.
- Fabricated window assemblies delivered to the site, before installation.
- Commencement of window installation.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Storage: Store in a clean, dry area and unaffected by weather, to the manufacturer's recommendations. Protect from building materials and loose debris such as wet plaster, mortar, paint and welding splatter.

Handling: Handle frames to the manufacturer's recommendations and the following:

- Stack upright, off the ground and against a flat, vertical surface.
- Carry in the vertical position with sashes locked.
- Do not rack frames out of square.
- Do not remove any bands and corner bracing until after installation.

Acoustic performance

Windows and doors: Rating to AS/NZS ISO 717.1.

Protection of openable windows

Fall prevention: To BCA D2.24 and BCA 3.9.2.

Testing: To AS 5203.

Marking

Window assemblies: To AS 2047 Section 8.

2.2 FIRE PERFORMANCE

Fire-resistance of building elements

Fire-resistance level: Tested to AS 1530.4.

2.3 VENTILATING LOUVRE ASSEMBLIES

General

Requirement: Metal louvre blades, mounted in a metal surround frame or subframe, and able to withstand the permissible-stress-design wind pressure for that location, without failure or permanent distortion of members, and without blade flutter.

Expansion joints

Requirement: Provide for expansion and contraction in continuous sections (e.g. continuous louvres, interlocking mullions), at spacings not exceeding those recommended by the manufacturer, or 6 m, whichever is the lesser.

Fixed metal louvres

General: Metal louvre blades, mounted in a metal surround frame or subframe.

Screens

Requirement: Provide metallic-coated steel wire, stainless steel or PVC mesh screens behind louvres to prevent the entry of vermin, birds, rodents and wind-blown leaves and papers.

2.4 ALUMINIUM FRAME FINISHES

Powder coatings

Polyester coating grade: To AS 3715.

Anodised

Standard: To AS 1231.

Thickness:

- Internal: 15 microns.
- External: 20 microns.

2.5 OTHER MATERIAL FRAME FINISHES

Finish

Standard: To AS 2047 clause 3.4.1.4.

2.6 ANCILLARY COMPONENTS AND FITTINGS

Trims

General: Provide trims, shadow gaps and architraves as detailed on the drawings.

Extruded gaskets and seals

Materials: Non-cellular (solid) elastopressive seals as follows:

- Flexible polyvinyl chloride (PVC): To BS 2571, 100% solids with high consistency, ultraviolet stabilised.
- Rubber products (neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber): To BS 4255-1.

Nylon brush seals

General: Dense nylon bristles locked into steel holding strips and fixed in a groove in the edge of the door or in purpose-made anodised aluminium holders fixed to the door or frame to the manufacturer's instructions.

Pile weather strips

Standard: To AAMA 701/702.

Materials: Polypropylene or equivalent pile and backing, low friction silicone treated, ultraviolet stabilised.

Finned type: A pile weatherseal with a central polypropylene fin bonded into the centre of the backing rod and raised above the pile level.

2.7 HARDWARE

Hardware documented generically

General: Provide hardware of sufficient strength and quality to perform its function, appropriate to the intended conditions of use, compatible with associated hardware, and fabricated with fixed parts firmly joined.

Window locks and latches

Standard: To AS 4145.3.

Window catches: Provide 2 catches per sash to manually latched awning or hopper sashes over 1000 mm wide.

Sash balances

Requirement: Match the spring strength of the balances to the sash weight they support.

Sash operators

Requirement: Provide sash operators, as documented.

2.8 KEYING

Contractor's keys

Master key systems: Do not use any key under a master key system.

Identification

Labelling: Supply each key with a purpose-made plastic or stamped metal label legibly marked to identify the key, attached to the key by a metal ring.

Key material

Pin tumbler locks: Nickel alloy, not brass.

Lever locks: Malleable cast iron or mild steel.

Keying system

Requirement: Keying system, as documented.

Coding of locks: If window locks are included in building key code groups, provide cylinder or pin tumbler locks coded to match.

3 EXECUTION

3.1 INSTALLATION

Windows and glazed doors

General: Install windows and glazed doors frames as follows:

- Plumb, level, straight and true within building tolerances.
- Fixed or anchored to the building structure in conformance with the wind action loading requirements.
- Isolated from any building loads, including loads caused by structural deflection or shortening.
- Allow for thermal movement.

Weatherproofing

Flashing and weatherings: Install flashings, weather bars, drips, storm moulds, joint sealant and pointing to prevent water penetrating the building between the window frame and the building structure under the prevailing service conditions, including normal structural movement of the building.

Fixing

Fasteners and fastener spacing: Conform to the recommendations of the manufacturer.

Packing: Pack behind fixing points with durable full width packing.

Fasteners: Conceal fasteners.

Prepared masonry openings: If fixing of timber windows to prepared anchorages needs fastening from the frame face, sink the fastener heads below the surface and fill the sinking flush with a material compatible with the surface finish.

Joints

General: Make accurately fitted tight joints so that neither fasteners nor fixing devices such as pins, screws, adhesives and pressure indentations are visible on exposed surfaces.

Sealants:

- If priming is recommended, prime surfaces in contact with jointing materials.

- If frames are powder coated apply a neutral cure sealant.

Operation

General: Make sure moving parts operate freely and smoothly, without binding or sticking, at correct tensions or operating forces and are lubricated.

Protection

Removal: Remove temporary protection measures from the following:

- Contact mating surfaces before joining up.
- Exposed surfaces.

Trim

General: Provide mouldings, architraves, reveal linings, and other internal trim using materials and finishes matching the window frames. Install to make neat and clean junctions between frames and the adjoining building surfaces.

3.2 VENTILATING LOUVRE ASSEMBLIES

Installation

General: Screw fix stiles and mullions to the building structure. Provide weather strips to heads and sills.

Metal louvres

General: Install as for metal window installations.

3.3 HARDWARE

Fasteners

Materials: Use materials compatible with the item being fixed and of sufficient strength, size and quality to perform their function.

- Concealed fasteners: Provide a corrosion-resistant finish.
- Exposed fasteners: Match exposed fasteners to the material being fixed.

Support: Provide appropriate back support (for example lock stiles, blocking, wall noggings and backing plates) for hardware fasteners.

- Hollow metal sections: Provide backing plates drilled and tapped for screw fixing, or provide rivet nuts with machine thread screws. Do not use self-tapping screws or pop rivets.

Operation

General: Make sure working parts are accurately fitted to smooth close bearings, without binding or sticking, free from rattle or excessive play, lubricated where appropriate.

Supply

Delivery: Deliver window hardware items, ready for installation, in individual complete sets for each window set, as follows:

- Clearly labelled with the intended location.
- In a separate dust and moisture proof package.
- Including the necessary templates, fixings and fixing instructions.

3.4 COMPLETION

Hardware

Adjustment: Leave the hardware with working parts in working order, and clean, undamaged, properly adjusted, and lubricated where appropriate.

Keys

Contractor's keys: Immediately before the date for practical completion, replace cylinders to which the contractor has had key access during construction with new cylinders that exclude the contractor's keys.

Keys: For locks keyed to differ and locks keyed alike, verify quantities against key records, and deliver to the contract administrator at practical completion.

Key codes: Submit the lock manufacturer's record of the key coding system showing each lock type, number and type of key supplied, key number for re-ordering, and name of supplier.

Repair of finish

Polyester or fluoropolymer coatings: Contact supplier for approval to apply touch up products, otherwise replace damaged material.

Cleaning

Method: Clean with soft clean cloths and clean water, finishing with a clean squeegee. Do not use abrasive or alkaline materials.

Extent: All frames and glass surfaces inside and out.

Warranties

Window and door assemblies: Provide the manufacturer's published product warranties.

Hardware: Provide the manufacturer's published product warranties.

4 SELECTIONS

4.1 PERFORMANCE

Window and glazed doors schedule

Window framing selections noted below, where nominating a proprietary product, set the intents of the required system in each case relative to its appearance, arrangements, performance, and the like. Alternative solutions may be proposed and will be the subject of approval in each case.

Select systems to meet design wind loading, thermal values, and other required performance criteria and characteristics.

Type	Double glazed aluminium windows and doors
Proprietary item:	Capral 425 NARROWLINE 100mm suite aluminium window assemblies, incorporating Capral 215 hinged door assemblies.
Finish:	Anodised AL-1.
Shop drawings:	Required.
Locations:	Refer to drawings.

4.2 LOUVRES

Louvres schedule

Type	Aluminium louvres
Requirement:	Weatherproof aluminium louvres as detailed on the drawings. Vermin mesh to internal face.
Finish:	Anodised AL-1.
Fixings:	Concealed as per manufacturer's instructions, and to approval.
Shop drawings:	Required.
Samples:	Required.
Locations:	Refer to drawings.

4.3 FINISHES

Finishes schedule

Type	Anodising
Ref code:	**AL-1**
Requirement:	Black anodised aluminium.
Location:	Aluminium windows and doors generally. Refer to drawings.

SECTION 15 DOORS AND ACCESS PANELS

1 GENERAL

1.1 RESPONSIBILITIES

General

Requirement: Provide doors, frames, doorsets, security screen doors, smoke doors and fire-resisting doorsets, as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.3 STANDARDS

General

Timber and composite doors: To AS 2688.

1.4 SUBMISSIONS

Operation and maintenance manuals

Recommendations: Submit the manufacturer's published recommendations for service use.

Samples

General: Submit 2 samples as follows:

- Colour range from prefinished production material (e.g. anodised or organic coated extrusions and sheet). Following the colour selection, submit 5 sets of samples showing the colour range.
- Door manufacturer's standard hardware items.
- Finishes to prepared surfaces (e.g. timber stains or veneers).
- Joints using proposed techniques.
- Proposed sections for frames, louvres and slats.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Door frames in place before building in to masonry.
- Door frames installed before fixing trim.

2 PRODUCTS

2.1 FRAMES

Aluminium frames

Construction: Assembled from aluminium sections, including accessories such as buffers, pile strips, strike plates, fixing ties or brackets and cavity flashings, with provision for fixing documented hardware.

Threshold: If the frame includes a threshold member, provide a self-draining section with slip-resistant surface.

Timber frames

Hardwood: To AS 2796.1:

- Grade: Select.

Softwood: To AS 4785.1:

- Grade: Select.

Joints:

- Morticed head and through tenons.
- Trenched head:
  - Bare faced tenons on jambs.

. Full let-in jambs.

Construction: Assembled from timber sections, with provision for fixing documented hardware including rebates for door seals, where documented.

2.2 DOORS

General

Doors: Proprietary products manufactured for interior or exterior applications and for the finish required.

Materials

Standards: Conform to the following:

- Decorative laminated sheets: To AS/NZS 2924.1.
- Wet process fibreboard (including hardboard): To AS/NZS 1859.4.
- Dry process fibreboard (including medium density fibreboard): To AS/NZS 1859.2.
- Particleboard: To AS 1859.1.
- Plywood and blockboard for interior use: To AS/NZS 2270.
- Plywood and blockboard for exterior use: To AS/NZS 2271.
- Seasoned cypress pine: To AS 1810.
- Timber – hardwood: To AS 2796.1.
- Timber – softwood: To AS 4785.1.

Identification

Panel doors: Provide panels branded under the authority of a recognised certification scheme to *Timber products, finishes and treatment*, as applicable to the product. Locate the brand on faces or edges which will be concealed in the works.

Joinery doors

General: Provide joinery doors, as documented.

Flush panel doors

General: Provide flush panel doors of balanced construction, as documented.

Medium density fibreboard doors: Single thickness of moisture resistant general purpose medium density fibreboard with the same surface finish to both sides, for internal use.

Construction

General: To AS 2688.

Adhesives:

- Internal: To AS/NZS 2270.
- External: To AS/NZS 2271.

Door thickness:

- General: 35 mm.
- External doors and doors over 900 mm wide: 40 mm.

Cut-outs: If openings are required in flush panel doors (e.g. for louvres or glazing), do not make cut-outs closer than the width of the stiles at the edges of the doors.

Edge strips: Minimum thickness 10 mm. Increase overall thickness to greater than 15 mm to accommodate the full depth of the rebate in rebated doors. Apply to the external edges of door after the facings are bonded to the door framing/core and finish flush with outside surface of the facings.

Louvre grilles: Construct by inserting the louvre blades into a louvre frame, and fix the frame into the door.

Double doors

Square edged doors: Bevel as necessary to prevent binding between the leaves.

Rebated meeting stiles: If not double acting doors, provide rebated meeting stiles or fix equivalent metal T stop to one leaf where documented. Form rebates to suit standard rebated hardware.

2.3 DOORSETS

Acoustic performance

Doorsets: Rating to AS/NZS ISO 717.1.

Cavity sliding doors

General: Proprietary product comprising steel and timber frame construction with rigid steel top, base and rear supporting members and incorporating the overhead door track, ball race type wheel carriages, guides, stops, split jamb linings and removable pelmet.

Duct access panels

General: Proprietary products comprising metal-faced doors side-hung to steel door frames, including hardware and accessories such as hinges and lock and installation lugs.

2.4 ANCILLARY MATERIALS

Trims

General: Provide trims, shadow gaps and architraves as detailed on the drawings.

Extruded gaskets and seals

Materials: Non-cellular (solid) elastopressive seals as follows:

- Flexible polyvinyl chloride (PVC): To BS 2571, 100% solids with high consistency, ultraviolet stabilised.
- Rubber products (neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber): To BS 4255-1.

Jointing materials

General: Compatible with each other and with the contact surfaces and non-staining to finished surfaces. Do not provide bituminous materials on absorbent surfaces.

Nylon brush seals

General: Dense nylon bristles locked into holding strips and fixed in a groove in the edge of the door or in purpose-made anodised aluminium holders fixed to the door or frame.

Pile weather strips

General: Polypropylene or equivalent pile and backing, low friction silicone treated, ultraviolet stabilised, fixed to the door or frame to the manufacturer's instructions.

Standard: To AAMA 701/702.

3 EXECUTION

3.1 FRAMES

General

Frames: Install the frames as follows:

- Plumb, level, straight and true.
- Fixed or anchored to the building structure.
- Isolated from any building loads, including loads caused by structural deflection or shortening.

Frame fixing

Brackets: Metallic-coated steel:

- Width: Minimum 25 mm.
- Thickness: Minimum 1.5 mm.

Depth of fixing for building into masonry:

- Brackets: Minimum 200 mm.
- Expansion anchors: Minimum 50 mm.
- Plugs: Minimum 50 mm.
- Rods: Minimum 60 mm.

Jamb fixing centres: Maximum 600 mm.

Joints

General: Make accurately fitted joints where fasteners, pins, screws, adhesives and pressure indentations are not visible on exposed surfaces.

Aluminium frames

Building into masonry: Screw galvanized steel brackets twice to jambs and build in.

Fixing to masonry openings: Use proprietary expansion anchors and screw twice through jambs at each fixing.

Fixing to stud frame openings: Screw once to studs at each fixing.

Timber frames

Building into masonry: Screw galvanized steel brackets twice to jambs and build in.

Fixing to masonry openings: Use proprietary expansion anchors and screw twice through jambs at each fixing.

Fixing to stud frame openings: Back screw twice to jambs at each fixing.

Fixing to thresholds: Dowel external door frames to thresholds other than timber with 10 mm diameter brass dowels, 100 mm long.

Heads of fasteners: Conceal if possible, otherwise sink the head below the surface and fill the sinking flush with a material compatible with the surface finish.

Finishing

Trim: Provide mouldings, architraves, reveal linings, and other internal trim using materials and finishes matching the door frames to make neat and clean junctions between the frame and the adjoining building surfaces.

Seals

General: Provide the fixings, rebates, grooves, and clearances required for installation and operation of the seals. Allow seals unwound from coils to settle before use.

Weatherproofing

Flashings and weatherings: Install flashings, weather bars, drips, storm moulds, caulking and pointing to prevent water from penetrating the building between the door frame and the building structure under the prevailing service conditions, including normal structural movement of the building.

3.2 DOORS

Priming

General: Prime timber door leaves on top and bottom edges before installation.

Tolerances

Installation: To AS 2688, Section 7.

3.3 DOORSETS

General

Installation: To AS 2688 Section 7.

3.4 COMPLETION

Operation

General: Make sure moving parts operate freely and smoothly, without binding or sticking, at correct tensions or operating forces and that they are lubricated where appropriate.

Opening force performance: To AS 1428.1.

Protection

Temporary coating: On or before the date for practical completion, or before joining up to other surfaces, remove all traces of temporary coatings used as a means of protection.

Warranties

General: Provide warranties as offered by the manufacturer.

4 SELECTIONS

4.1 DOOR FRAME TYPES SCHEDULE

Door frame type schedule

Requirement: Refer to detailed drawings and to *Door Schedule*.

4.2 DOOR TYPES

Door type schedule

Requirement: Refer to detailed drawings and to *Door Schedule*.

SECTION 16 DOOR HARDWARE

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the abbreviations given in AS 4145.1 Appendix D apply.

Definitions

General: For the purposes of this worksection, the general definitions given in AS 4145.1 Section 2 and Appendix E apply.

1.3 SUBMISSIONS

Execution details

Door-by-door schedule: Submit a door-by-door hardware schedule.

- Information sources: This worksection and the contract drawings.

Key control system:

- New works: Submit details of the proprietary key control security system proposed by the lock manufacturer for locks required to accept a group key (master, grandmaster).

Operation and maintenance manuals

Manual: Submit the manufacturer's published recommendations for use, care and maintenance of the hardware provided.

Records

Door hardware schedule: Submit an amended schedule, prepared by the door hardware supplier, showing changes to the contract door hardware schedule resulting from the following:

- Approval of a hardware sample.
- Acceptance of an equivalent to a specified proprietary item.
- A contract variation to a door hardware requirement.

Key coding system: Submit the lock manufacturer's record of the key coding system showing each lock type, number and type of key supplied, key number for re-ordering, and name of supplier.

Samples

Generic items: Submit samples of hardware items offered as meeting the description of items not specified as proprietary items.

2 PRODUCTS

2.1 GENERAL

Supply

Delivery: Deliver door hardware items, ready for installation, in individual complete sets for each door, as follows:

- Clearly labelled to show the intended location.
- In a separate dust and moisture proof package.
- Including the necessary templates, accessories fixings and fixing instructions.

Hardware specified generically: Hardware of the required strength and quality to perform its function, appropriate to the intended conditions of use, suitable for use with associated hardware, and fabricated with fixed parts firmly joined.

2.2 LOCKS AND LATCHES

Standard

General: To AS 4145.2.

Padlocks

Standard: To AS 4145.4.

Lock and latch classification

Rating systems: To AS 4145.1 Section 3.

Performance requirements: To AS 4145.2 Section 3.

2.3 HINGES

Butt hinge materials

Doors fitted with closers: Provide low friction ball bearing hinges.

Fire-resisting doors: To AS 1905.1.

Power transfer hinges: Do not load and install with other compatible hinges.

Lift-off doors: If toilet cubicles require lift-off doors, provide lift-off hinges and allow for door panel with sufficient clearance at the head to allow door removal.

2.4 ANCILLARIES

Bolts

General: Barrel bolts, flush bolts and tower bolts with keepers, including lock plates, staples, ferrules or floor sockets.

Mortar guards

General: For steel door frame installations, provide mortar guards designed to allow the full extension of the lock tongue or similar devices and the correct operation of the locking mechanism.

Rebated doors

General: For mortice locks or latches to rebated doors, provide purpose-made rebated pattern items.

Strike plates

General: Use strike plates supplied with the locks or latches. Do not provide universal strike plates.

2.5 DOOR CONTROLLERS

Standard

General: To AS 4145.5.

Performance

Requirement: Door controllers, pivots, floor or overhead door closers, and automatic door operators, suitable for the door type, size, weight, sliding action and swings required and the operating conditions, including wind and air conditioning pressure.

Closers

Hinged and pivot doors:

- Fire-resisting doors: Closers tested and certified for use as components of fire-resisting door assemblies:
  . Standard: To AS 1905.1.

2.6 ELECTRONIC CONTROL DEVICES

General

Requirement: Electric strikes, electric locks, drop bolts and/or similar devices to suit door construction and hardware.

Electromagnetic hold-open devices: To AS 1905.1 and AS 1670.1.

Fail-safe: Connect door control devices in a fail-safe mode to permit egress in the event of power failure.

Fail-secure: Connect door control devices in a fail-secure mode to prevent egress in the event of power failure.

Glass doors: Tumbler, drop bolts or magnetic holders.

Double leaf doors (solid frame): Electric strike or lock on the inactive leaf, connected to the door frame by concealed flexible wiring.

Activation

Activation device: Keypads, card readers or other activation devices located next to entry points.

External: Weatherproof (IP56) hoods or housings for external units.

Mounting height: 900 to 1100 mm from floor level and not less than 500 mm from internal corners.

2.7 KEYING

Keying requirements

Requirement: Provide door hardware and keys, as documented.

Temporary construction keys and cylinders

Requirement: Provide one of the following:

- Loan cylinder: Install for construction locks and replace at practical completion.
- Construction keyed master key cylinder: Keep up-to-date records of keys issued including recipient's name, company and contact details, date issued and date returned.

Delivery of keys

Great grandmaster, grandmaster and master keys: Arrange for delivery direct to the principal.

Locks keyed to differ and locks keyed alike: Check the quantity against key records, and deliver keys to the contract administrator at practical completion.

Group keying

Keying system: As documented.

Future extensions: Provide master and grandmaster group keying systems capable of accommodating future extensions.

Proprietary keying control security system: Provide for cylinder or pin-tumbler locks that accept a group key (e.g. master key, maison key).

Stamping: Stamp keys and lock cylinders to show the key codes and/or door number as scheduled.

Identification

Labelling: Supply each key with a purpose-made plastic or stamped metal label legibly marked to identify the key, attached to the key by a metal ring.

Key material

Lever locks: Malleable cast iron or mild steel.

Pin tumbler locks: Nickel alloy, not brass.

Number of keys table

Key code	Key type	Minimum number of keys
GGMK	Great grandmaster keys	2
GMK	Grandmaster keys	2
MK	Master keys	2 per code group
KD	Locks keyed to differ	2 per lock
KA	Locks keyed alike:	
	- 2 locks in code group	4
	- 3 to 10 locks in code group	6
	- 11 to 40 locks in code group	10
	- 41 and over locks in code group	1 per 4 locks or part thereof

3 EXECUTION

3.1 INSTALLATION

General

Handing: Before supply, verify on site, the correct handing of hardware items.

Operation: Make sure working parts are accurately fitted to smooth close bearings, without binding or sticking, free from rattle or excessive play, lubricated where appropriate.

Mounting height

Locks and latches: Centreline of the door knob or lever spindle above finished floor: 1000mm unless noted otherwise.

Locks

Cylinders: Fix vertically and with consistent key alignment.

Door stops

Fixing: Fix on the floor, skirting or wall, as appropriate, to prevent the door or door furniture striking the wall or other surface.

Fasteners

Materials: Provide materials compatible with the item being fixed, and of sufficient strength, size and quality to perform their function.

- Concealed fasteners: Provide a corrosion-resistant finish to concealed fasteners.
- Exposed fasteners: Match exposed fasteners to the material being fixed.

Security: Locate exposed fasteners to lock furniture on the inside faces of external doors and on the inside faces of internal doors to lockable rooms.

Support: Provide appropriate back support (for example lock stiles, blocking, wall noggings and backing plates) for hardware fasteners.

- Hollow metal sections: Provide backing plates drilled and tapped for screw fixing, or provide rivet nuts with machine thread screws. Do not use self-tapping screws or pop rivets.

Floor springs

General: Form a recess in the floor slab for the floor spring box, securely fix and grout the box in place so that the cover plate is flush with the finished floor.

Hinges

Metal frames: Fix hinges using metal thread screws. Do not weld hinges to frames.

Timber doorsets: Install butt hinges in housings equal in depth to the thickness of the hinge leaf (except for hinges designed for mounting without housing), and fix with countersunk screws.

3.2 COMPLETION

Adjustment

General: Leave the hardware properly adjusted with working parts in working order, and clean, undamaged, properly adjusted, and lubricated where appropriate.

Automatic door operators: Maintain and adjust the system throughout the defects liability period.

Keys

Contractor's keys: Immediately before practical completion, replace or reset cylinders to which the contractor has had key access during construction to exclude the contractor's keys.

Warranties

Requirement: Cover materials and workmanship in the form of interlocking warranties from the manufacturer or distributor and the installer.

Automatic door operators: Provide interlocking warranties from the supplier and installer covering materials and workmanship.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier and installer.

4 SELECTIONS

4.1 SELECTION

Door hardware generally schedule

Requirement: Refer to *Door Schedule*. The Contractor shall provide a fully detailed door hardware schedule for approval.

Provide all required hardware including seals, hinges, closers and the like to complete the work.

Samples: provide samples of all door hardware unless otherwise instructed.

Type	Sliding door track
Requirement:	Fitzroy A500 Medium Duty track. Track to be installed in ceiling space, supported from slab above as detailed on the drawings.
Samples:	Required.

Locations: D.09 sliding door panels. Refer to drawings.

Locks and latches schedule

Type Tube latch

Proprietary item: Approved proprietary heavy duty metal tube latch.

Finish: Black.

Locations: All hinged doors where electronic strike not scheduled. Refer to *Door Schedule* and the drawings.

Type Mortice lock

Proprietary item: Dormakaba mortice lock to suit location and compatible with Dormakaba KES900 Series Electric Strike.

Finish: Black.

Locations: All hinged doors where electronic strike is scheduled. Refer to *Door Schedule* and the drawings.

Type Privacy latch

Proprietary item: Pitella 789-TE kit privacy latch as scheduled.

DDA bathroom privacy latch to be DDA compliant to approval.

Finish: Black.

Locations: Refer to *Door Schedule* and the drawings.

Furniture schedule

Requirement: Refer to *Door Schedule* for door furniture.

Door seals schedule

Requirement: generally Kilargo perimeter door seals and drop down automatic door bottom seal

4.2 ELECTRONIC ACCESS

Electronic access schedule

Type Electronic access generally

Requirement: Refer to *Door Schedule.*

Suppliers schedule: Required.

Samples: Required.

Locations: Refer to drawings.

4.3 KEYING

Keying schedule

Type Generally

Requirement: Provide a hierarchical keying system as an extension of the existing system as directed. Provide all keys, including master and grand master keys as required.

Keying schedule: Required for approval.

Locations: Throughout.

SECTION 17 GLAZING

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Thermal qualities: U-Value and Solar heat gain coefficient (SHGC) as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.3 STANDARDS

Glazing

Glass type and thickness: To AS 1288, if no glass type or thickness is nominated.

Materials and installation: To AS 1288.

Quality requirements for cut-to-size and processed glass: To AS/NZS 4667.

Roof glazing: To AS 1288 Section 6.

1.4 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the following abbreviations apply:

- R_w: Weighted sound reduction index.

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 4668 apply.

1.5 SUBMISSIONS

Certification

Design: Submit an engineer's certificate confirming conformance to AS 1288.

Toughened glass: For each batch of glass, submit certification from the manufacturer of heat soaking.

Installation: Submit certification from the fabricator that the method of glazing, the selection of sealant systems and conditions next to the glass conform to the following:

- Compatible with the edge seal of insulating glass units (IGUs) and self-cleaning glass.
- Will not be detrimental to the long-term structural performance, weathering capabilities and visual qualities of the glass.

Glazier's data: Submit the glazing subcontractor's statement certifying the following:

- A satisfactory thermal safety assessment.
- The assembled frame provides the required glazing clearances and tolerances, and maximum and minimum joint configurations, based on the bow, warp and kink characteristics of the required glass types, and is ready for glazing.

Execution details

Site glazing: If site glazing is intended, submit proposals.

Operation and maintenance manuals

Requirement: Submit manufacturers' published recommendations for in-service use.

Products and materials

Safety glazing materials: Submit evidence of conformity to AS/NZS 2208 Appendix A.

Samples

General: Submit samples of glazing materials, each at least 200 x 200 mm, showing specified visual properties and the range of variation, if any, for each of the following:

- Tinted or coloured glass or glazing plastics.
- Surface modified or surface coated glass.
- Insulating glass units.

- Mirror glass.

Shop drawings

Requirement: Submit shop drawings showing the following:

- Method of glazing
- Rebate depth.
- Edge restraint.
- Clearances and tolerances.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Glass products before they are installed.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Storage: Store glass and glazing materials in a clean, dry area and unaffected by weather, to the manufacturer's recommendations. Protect from building materials and loose debris such as wet plaster, mortar, paint and welding splatter.

Handling: Handle glass to the manufacturer's recommendations.

2.2 GLASS AND GLAZING

Performance

Glass: Free from defects which detract from appearance or interfere with performance under normal conditions of use.

Heat soaking

Requirement: Heat soak the following:

- Toughened glass.
- Heat strengthened glass with a surface compression greater than 52 MPa tested to ASTM C1279.

Standard: To EN 14179-1.

Marking: To EN 14179-1 or certified by the manufacturer to AS 1288 clause 3.8.2.

Safety glazing materials

Standard: To AS/NZS 2208.

Type: Grade A to AS 1288.

Certification: Required.

- Certification provider: An organisation accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

Marking: To AS 1288 clause 5.23.

Heat strengthened glass

Requirement: Heat strengthened annealed glass that requires extra strength and thermal resistance.

Standard: To ASTM C1048.

Insulating glass units (IGUs)

Manufacture, testing and installation: To AS 4666.

Glass thickness selection: To AS 1288.

Noise reducing glazed assemblies

Identification: Label each panel with a legible non-permanent mark, self-destroying when removed, stating and certifying the R_w rating, and identifying the testing authority. Remove when directed.

2.3 GLAZING MATERIALS

General

Requirement: Putty, glazing compounds, sealants, gaskets, glazing tapes, spacing strips, spacing tapes, spacers, setting blocks, shims and compression wedges appropriate for the conditions of application and required performance.

Primer

Compatibility: Apply the manufacturer's recommended primer to the surfaces in contact with sealant materials.

2.4 ANCILLARY COMPONENTS AND FITTINGS

Extruded gaskets and seals

General: Provide seals, as documented.

Materials: Non-cellular (solid) elastopressive seals as follows:

- Rubber products (neoprene, ethylene propylene diene monomer (EPDM) or silicone rubber): To BS 4255-1.
- Flexible polyvinyl chloride (PVC): To BS 2571, E type compounds, colour fastness grade B.

Pile weather strips

Standard: To AAMA 701/702.

Material: Polypropylene or equivalent pile and backing, low friction silicone treated, ultraviolet stabilised.

Finned type: A pile weather seal with a central polypropylene fin bonded into the centre of the backing rod and raised above the pile level.

3 EXECUTION

3.1 GLASS PROCESSING

General

Processing: Perform required processes on glass, including cutting, obscuring, silvering and bending. Form necessary holes, including for fixings, equipment, access openings and speaking holes. Process exposed glass edges to a finish not inferior to ground arrised.

3.2 INSTALLATION

Glazing

Requirement: Install the glass as follows:

- Permanently fix in place each piece of glass to withstand the normal loadings and ambient conditions at its location without distortion or damage to glass and glazing materials.
- No transfer of building movements to the glass.
- Watertight and airtight for external glazing.

Temporary marking: Use a method which does not harm the glass. Remove marking on completion.

Toughened glass: Do not cut, work, or permanently mark after toughening. Use installation methods which prevent the glass making direct contact with metals or other non-resilient materials.

Heat absorbing glass: In locations exposed to direct sunlight, provide wheel cut edges free from damage or blemishes, with minimum feather.

Preglazing

Window assemblies and glazed doors: Supply inclusive of glazing, shop preglazed.

3.3 COMPLETION

Replacement

Requirement: After replacing damaged glass, leave the work clean, polished, free from defects, and in good condition.

Cleaning

Method: Clean with soft clean cloths and clean water, finishing with a clean squeegee. Do not use abrasive or alkaline materials.

Extent: All frames and glass surfaces inside and out.

Warranties

Glazing subcontractor’s warranty: Provide an undertaking conditional only on compliance with the manufacturers’ recommendations for maintenance, to repair or replace glass and glazing materials that become defective or prove unsuitable for the nominated application; during the warranty period.

Glass manufacturer’s warranty: Provide an undertaking, conditional only on compliance with the manufacturer’s recommendation for installation and maintenance, to supply replacement glass units to the site for replacement of defective units defined as follows:

- IGU units: Units in which the hermetic seal has failed as evidenced by intrusion of foreign matter, or internal condensation at temperature above 2°C.
- Coated glass units (including coated super insulating glass units): Units in which the metallic coating shows evidence of manufacturing defects, including but not necessarily limited to cracking or peeling, as determined in conformance with ASTM C1048.

Toughened glass warranty: Provide a manufacturer's warranty that toughened glass supplied has been subjected to a heat soaking process that has converted at least 95% of the nickel sulfide content to the stable beta-phase.

4 SELECTIONS

4.1 GLAZING

Glass schedule

Wind pressure: Design wind pressures as provided by the structural engineer, for wind design criteria at various points around the building.

Responsibility: All glazing is to be selected and sized to comply with AS 1288, the wind load design criteria predicted by the structural engineer.

Type	Clear double glazing
Code:	**GS-1**
Requirement:	Refer to Schedule of colours & finishes.
	DGU minimum 6mm /12mm gap / 6.38mm laminated clear.
Location:	External windows and doors generally. Refer to drawings.

Type	Clear double glazing
Code:	**GS-2**
Requirement:	Refer to Schedule of colours & finishes.
	DGU to sauna manufacturers specification.
Location:	Sauna. Refer to drawings.

Type	Clear single glazing
Code:	
Requirement:	Minimum 10.38mm toughened laminated clear.
Location:	Pivot door D.08 including sidelight. Refer to drawings.

Type	Clear single glazing
Code:	
Requirement:	Minimum 6.38mm toughened laminated clear.
Location:	Sliding door panels D.09. Refer to drawings.

SECTION 18 GLASS COMPONENTS

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 STANDARDS

General

Materials and installation: To AS 1288.

Quality requirements for cut-to-size and processed glass: To AS/NZS 4667.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 4668 apply.

1.4 SUBMISSIONS

Samples

General: Submit samples, each at least 200 x 200 mm, showing specified visual properties and the range of variation, if any, for each of the following:

- Mirror glass.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Glass components before they are installed.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Storage: Store in a clean, dry area and unaffected by weather, to the manufacturer's recommendations. Protect from building materials and loose debris such as wet plaster, mortar, paint and welding splatter.

Handling: Handle glass to the manufacturer's recommendations and the following:

- Stack upright, off the ground and against a flat, vertical surface.
- Carry in the vertical position.

2.2 GLASS

Performance

Glass: Free from defects which detract from appearance or interfere with performance under normal conditions of use.

Heat soaking

Requirement: Heat soak the following:

- Toughened glass.
- Heat strengthened glass with a surface compression greater than 52 MPa tested to ASTM C1279.

Standard: To EN 14179-1.

Marking: To EN 14179-1 or certified by the manufacturer to AS 1288 clause 3.8.2.

Safety glazing materials

Standard: To AS/NZS 2208.

Type: Grade A to AS 1288.

Certification: Required.

- Certification provider: An organisation accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

Marking: To AS 1288 clause 5.23.

2.3 GLAZING MATERIALS

General

Requirement: Putty, glazing compounds, sealants, gaskets, glazing tapes, spacing strips, spacing tapes, spacers, setting blocks, shims and compression wedges appropriate for the conditions of application and required performance.

Jointing materials

Requirement: Provide recommended jointing and pointing materials that are compatible with each other and with the contact surfaces and non-staining to finished surfaces. Do not provide bituminous materials on absorbent surfaces.

Elastomeric sealants

Sealing compound (polyurethane, polysulphide, acrylic): To ASTM C920 or ISO 11600.

Sealing compound (silicone): To ASTM C920 or ISO 11600.

Sealing compound (butyl): To ASTM C1311.

Primer

Compatibility: Apply the manufacturer's recommended primer to the surfaces in contact with sealant materials.

Control joints

Depth of elastomeric sealant: One half the joint width, or 6 mm, whichever is the greater.

Foamed materials (in compressible fillers and backing rods): Closed-cell or impregnated types that do not absorb water.

Bond breaking: Provide backing rods, and other back-up materials for sealants, that do not adhere to the sealant.

2.4 MIRRORS

Reflective surface

Type: Silver layer deposited on the glass or glazing plastic.

Protective coatings: Copper free coating, at least 5 µm thick, and 2 coats of mirror backing and edge sealing paint having a total dry film thickness of at least 50 µm.

Safety glass mirrors

Type: Grade A safety glass to AS 1288.

Safety compliance: To AS/NZS 2208.

Solid backed annealed glass mirrors

Type: Annealed glass mirror with backing.

Backing: 9 mm waterproof plywood.

3 EXECUTION

3.1 GLASS PROCESSING

General

Processing: Perform required processes on glass, including cutting, obscuring, silvering and bending. Form necessary holes, including for fixings, equipment, access openings and speaking holes. Process exposed glass edges to a finish not inferior to ground arrised.

3.2 INSTALLATION

Glazing

Requirement: Install the glass as follows:

- Permanently fix in place each piece of glass to withstand the normal loadings and ambient conditions at its location without distortion or damage to glass and glazing materials.
- No transfer of building movements to the glass.
- Watertight and airtight for external glass.

Temporary marking: Use a method which does not harm the glass. Remove marking on completion.

Toughened glass: Do not cut, drill, edge-work, or permanently mark after toughening. Use installation methods which prevent the glass making direct contact with metals or other non-resilient materials.

Frameless installations: Join the vertical edges of adjacent glass panels with silicone jointing compound.

Heat absorbing glass: In locations exposed to direct sunlight, provide wheel cut edges free from damage or blemishes, with minimum feather.

3.3 FIXING MIRRORS

General

Adhesive fixing: Clean surfaces to be bonded. Apply non-acidic silicone adhesive to the manufacturer's recommendations. Secure the mirror to the substrate with double sided adhesive tape until the adhesive cures.

3.4 COMPLETION

Cleaning

Method: Clean with soft clean cloths and clean water, finishing with a clean squeegee. Do not use abrasive or alkaline materials.

Extent: All frames and glass surfaces inside and outside.

Warranties

Barriers: Manufacturer's and installer's warranty:

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the manufacturer and the installer.

4 SELECTIONS

4.1 GLASS COMPONENTS

Mirror glass schedule

Type	Mirror glass
Ref code:	
Requirement:	Viridian/Oceania MirraEcho clear mirror as detailed on the drawings.
Thickness:	6mm.
Size:	As drawn.
Samples:	Required.
Locations:	Refer to drawings.

Visual indicator strip schedule

Type	Visual indicator strip
Ref code:	
Requirement:	Graphic film strip as directed.
Compliance:	NCC and AS 1428.1
Locations:	Refer to drawings.

SECTION 19 ACOUSTIC INSULATION

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.2 INTERPRETATION

Definitions

General: For the purposes of this worksection, the following definitions apply:

- Acoustic insulation: Materials or methods of construction to reduce the transmission of airborne and structure-borne sound through floors, walls and ceilings or other enclosing elements in buildings.
- Acoustic underlay: A resilient material laid between the subfloor and the flooring material to provide sound isolation.
- Airborne sound: Sound radiated directly from a source, such as a loudspeaker or machine, into the surrounding air.
- Batts: Flexible insulation supplied as factory cut pieces and composed of glass wool.
- Bio-soluble: A product that dissolves in bodily fluids and is quickly cleared from the lungs.
- Blankets: Flexible insulation supplied as factory cut rolls and composed of glass wool, and may be combined with reflective facings.
- Fire hazard properties: To NCC Schedule 3.
- Impact sound: Sound caused by impacts on building structure. Typical sources include footsteps, dropped objects on horizontal surfaces and the slamming of doors.
- Sound insulation (isolation): Reduction of sound energy passing through building elements.
- Structure-borne sound: Sound waves transmitted within the building structure and re-radiated into other spaces as airborne sound. Typical sources include direct impact from dropped objects and vibrating machinery.

1.3 SUBMISSIONS

Fire performance

Fire hazard properties: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire hazard properties**.

Products and materials

Acoustic insulation properties: Submit evidence of conformity to documented requirements for insulation.

Warranties

Manufacturer's published product warranties: Submit on completion.

1.4 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Insulation after installation and before concealment.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Labelling: Deliver mineral wool products to site in packaging with third party mark of conformity indicating product is bio-soluble and not listed as hazardous material in the Safe Work Australia *Hazardous Chemical Information System* (HCIS).

2.2 FIRE PERFORMANCE

Fire hazard properties

Insulation materials to be non-combustible tested to AS 1530.1

Facing materials: Tested to AS 1530.2: Flammability Index ≤ 5.

2.3 MATERIALS

General

Mineral wool insulation: Bio-soluble and not listed as a hazardous material in the Safe Work Australia *Hazardous Chemical Information System* (HCIS).

Bulk insulation

Mineral wool blankets and batts: Glass wool or rock wool bonded with thermosetting resin.

Polyester blankets and batts: Thermally bonded polyester fibres.

Board insulation

Mineral wool panels: High density glass wool or rock wool bonded with thermosetting resin.

Wet process fibreboard (including softboard): To AS/NZS 1859.4.

Composite plasterboard panels: Proprietary items.

Flexible sheet insulation

Impregnated vinyl: Lead impregnated vinyl sheeting.

Recycled rubber/cork: Recycled rubber granules and/or cork bound with polymers.

2.4 COMPONENTS

Fasteners and supports

General: Metallic-coated steel.

Resilient mounts: Proprietary fixing clips with rubber or acrylic pads.

Adhesives

General: Compatible with the substrate and the insulation and conforming to the insulation manufacturer's recommendations.

Sealants

Acoustic sealant: Non-hardening sealant compatible with the substrate materials.

Fire-resisting sealant: Non-hardening sealant compatible with the substrate materials and having a fire-resistance rating equal to that of the building element it seals.

Sealant strips: Closed cell resilient foam.

3 EXECUTION

3.1 GENERAL

Bulk insulation

General: Firmly butt together with no gaps except as follows:

- Access openings and vents: Do not obstruct.
- Light fittings: To AS/NZS 3000 clause 4.5.
- Electrical cables: To AS 3999 clause 2.6.

Glass wool and rock wool insulation: Conform to the
ICANZ Industry code of practice for the safe use of glass wool and rock wool insulation.

3.2 FLOORS

Acoustic underlays

Handling: Store horizontally and keep dry.

Conditioning: Roll out underlay and leave in place for a minimum of 12 hours to acclimatise.

Installation: Adhesive fixed or loose laid, as documented.

3.3 WALLS

Framed walls and partitions

Fibre batts: Friction fit between framing members. If other support is not provided, staple nylon twine to the framing and stretch tight.

Mineral wool panels: Fix to face of studs with adhesive and temporarily fasten with single screw until plasterboard installed.

3.4 CEILINGS

Framed ceilings

Fibre batts: Fit tightly between framing members. If support is not otherwise provided, staple nylon twine to the framing and stretch tight.

Suspended ceilings

Fibre batts and blankets: Lay batts/blankets over the ceiling system close butted to each other and to the suspension rods.

3.5 FLANKING SOUND INSULATION

Baffles

General: Install plenum baffles tightly butted to building structure, service ducts, pipes and conduits and to the top of the partition or to the top of the suspended ceiling structure directly above the line of the partition. Seal joints, penetrations and intersections and maintain the required performance.

Bulk insulation: Install individual layers to fill space between building structure and the top of the partition or the top of the suspended ceiling.

Flexible sheet insulation: Fix to soffit through a continuous furring channel, hang to meet the top of the partition and extend horizontally 900 mm over the suspended ceiling.

Abutments

Trims: Install over sealant. Allow for movement at abutting surfaces.

Cable management

Power outlets: Do not install general purpose socket outlets back to back. Separate adjoining socket outlets with a continuous layer of the documented wall insulating material.

Ducted skirtings: If a ducted skirting extends continuously across an abutment, pack the cavities firmly with bulk insulating material for 300 mm each side of the abutment, and scribe and seal the joint.

4 SELECTIONS

4.1 SCHEDULES

Acoustic insulation schedule

Type	Acoustic wall insulation (Non-combustible)
Requirement:	CSR Bradford ACOUSTIGARD 11kg/m3 glass wool.
Thickness:	75mm
Locations:	Partitions Type B. Refer to drawings.
Type	Impact noise underlay
Requirement:	Regupol SONUS MULTI for tiles. Ensure that the selected product is compatible with the intended floor preparation, screeds, waterproofing, and floor finish in each case.
Thickness:	4.5mm
Locations:	All stone tiled floors. Refer to drawings.
Note:	To pedestals supporting stone tiles provide rubber pad below each pedestal.The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

SECTION 20 LINING

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirement: Provide lining system with a surface that is:

- Resistant to impacts expected in use.
- Resistant to moisture encountered under expected environmental conditions.
- Free of irregularities.
- A suitable substrate for the nominated final finish.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 4491 and the following apply:

- Decorative overlaid wood panels: Particleboard or fibreboard with a bonded decorative finishing surface such as thermosetting resin (low pressure melamine), PVC film, paper foils or wood veneer.
- Dry process fibreboard (MDF): Panel material with a nominal thickness of 1.5 mm or greater, manufactured from lignocellulosic fibres (derived from wood or other materials) with application of heat and pressure, the bond of which is derived from a synthetic adhesive added to the fibres and the panels are manufactured with a forming moisture content less than 20%.
- Fibre cement sheet linings: Treated cellulose fibre in a matrix of cement and sand autoclaved sheet, sealed on one side.
- High pressure decorative laminates (HPDL):
  - . Panels consisting of core layers impregnated with phenolic and/or aminoplastic resins and a surface layer(s) impregnated with aminoplastic resins (mainly melamine resins).
  - . Sheets consisting of a decorative face and layers of fibrous sheet material (e.g. paper) impregnated with thermosetting resins and bonded together under heat and pressure of at least 5 MPa.
- Particleboard: Panel material manufactured under pressure and heat from particles of wood (wood flakes, strands, chips, shavings, sawdust and similar) and/or lignocellulosic material in particle form (flax shives, hemp hurds, bagasse fragments, rice hulls, wheat straw and similar) with the addition of an adhesive.
- Wet process fibreboard: Panel material with a nominated thickness of 1.5 mm or greater, manufactured from lignocellulosic fibres (derived from wood or other materials) with application of heat and/or pressure, the bond of which is derived from the felting of the fibres and the panels are manufactured with a forming moisture content greater than 20%.

1.4 TOLERANCES

Permitted deviations

Bearing surface of finished framing:

- Gypsum lining: To AS/NZS 2589 clause 4.2.2.
- Other lining: 4 mm from a 1.8 m straightedge.

1.5 SUBMISSIONS

Fire performance

Fire hazard properties: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire hazard properties**.

Samples

Prefinished panels: Minimum 300 x 600 (wide) mm panel for each finish with associated trim.

Shop drawings

General: Submit shop drawings to a scale that best describes the detail, showing the following:

- Decorative panels: Panel set-out, large scale panel fixing details, attachment devices and other components.

Warranties

Requirement: Submit warranties on completion.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate or framing before installation of linings.
- Finished surface of installation before applying:
  - . Sealer.
  - . Finish coatings or decorative papers.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Requirement: Store lining stacked in pallets horizontally on a smooth, level surface. Prevent distortion or moisture ingress.

Timber or fibreboard panels: Store off the ground in a well-ventilated area.

Handling: Do not drag sheets across each other or across other materials. Protect edges, corners and surface from damage.

Certification

Timber based products: Label panels under the authority of a recognised certification scheme to *Timber products, finishes and treatment*, as applicable to the product. Locate the label on faces or edges that will be concealed in the works.

2.2 FIRE PERFORMANCE

Fire hazard properties

Group number: To AS 5637.1.

2.3 PLASTERBOARD

General

Standard: To AS/NZS 2588.

2.4 FIBRE CEMENT

General

Standard: To AS/NZS 2908.2.

Wall and ceiling linings: Type B category 2.

2.5 PLYWOOD AND BLOCKBOARD

General

General interior use: To AS/NZS 2270.

Areas requiring moisture resistance: To AS/NZS 2271.

Visible surfaces with a clear finish: Veneer quality A.

Other visible surfaces: Veneer quality B.

Back/face veneer: Veneer quality C or D.

Presealed plywood: Plywood pre-sealed both sides and edges with a machine applied sealer.

2.6 ADHESIVES, SEALANTS AND FASTENERS

Adhesives

For wallboards: Gunnable synthetic rubber/resin based mastic contact adhesive formulated for bonding flooring and wallboards to a variety of substrates.

Sealants

Fire-resisting sealant: Non-hardening sealant, compatible with the materials to be sealed and having a fire-resistance rating equal to that of the building element it seals.

Acoustic sealant: Non-hardening sealant compatible with the materials to be sealed.

Fasteners

Steel nails: Hot-dip galvanized.

3 EXECUTION

3.1 CONSTRUCTION GENERALLY

Conditions

Requirement: Do not start lining work until the building or installation area is enclosed and weathertight, and all wet trades have been completed.

Preparation

Requirement: Before fixing linings, check and adjust the alignment of substrates or framing, if necessary.

Substrate: Make sure substrates are plumb, level, in true alignment and to the lining manufacturer's recommendations.

Timber, steel framing and battened masonry: To AS/NZS 2589 clause 4.2.

Pre-conditioning

General: Acclimatise timber panels in the in-service conditions for 2 to 3 weeks before installing.

Battens

General: Fix at each crossing with structural framing members, to solid walls or ceiling support. Provide wall plugs in solid substrates.

Ceiling linings

General: Do not install until the timber roof structure is fully loaded for at least 14 days.

Accessories and trim

General: Provide accessories and trim as necessary to complete the installation.

Adhesives

General: Provide adhesive types appropriate for the purpose, and apply them so they transmit the loads imposed without causing discolouration of the finished surfaces.

Fire-resisting and acoustic rated installations

Sealing: Apply sealant to the manufacturer's recommendations and as follows:

- Around services pipes and penetrations.
- Electrical outlets and recessed lights: Line back and sides of fixture with plasterboard and seal around fixture junction with sealant.
- Around perimeter of lining panels: Provide continuous runs of sealant.

3.2 PLASTERBOARD

Installation

Gypsum plasterboard and fibre reinforced gypsum lining: To AS/NZS 2589.

Level of finish and jointing: To AS/NZS 2589 clause 3.1.

Supports

General: Install timber battens or proprietary cold-formed galvanized steel furring channels as follows:

- Where framing member spacing exceed the recommended spacing.
- Where direct fixing of plasterboard is not possible, due to the arrangement or alignment of the framing or substrate.
- Where the lining is the substrate for tiled finishes.
- If required for penetrations for services, including mechanical grilles and lighting fixtures.
- If required to support fixtures.

Multiple sheet layers

Application: Fire-resisting and acoustic rated walls.

Joints: Fill and flush up all joints and fasteners in each layer and caulk up perimeters and penetrations before installing following layers. Stagger all sheet joints by minimum 200 mm.

Joints

Flush joints: Provide recessed edge sheets and finish flush using perforated paper reinforcing tape.

Butt joints: Make joints over framing members or provide back blocking.

External corner joints: Make joints over metallic-coated steel corner beads.

Dry joints: Provide square edged sheet and finish with a PVC-U joining section.

Control joints: Provide purpose-made metallic-coated control joint beads at not more than 12 m centres in walls and ceilings and to coincide with structural control joints.

Wet areas: Install additional supports, flashings, trim and sealants as required.

Joints in tiled areas: Do not apply a topping coat after bedding perforated paper tape in bedding compound.

3.3 TRIM AND ACCESSORIES

General

Requirement: Provide trim such as beads, mouldings and stops to make neat junctions between lining components, finishes and adjacent surfaces.

Proprietary items: Provide complete with installation accessories.

Timber and MDF trim: Fix using full length so that trim is secure and without movement. Where nail or screw fixings are used, make sure fastener finishes sufficiently below face of trim so that stopping piece finishes flush with the face.

3.4 COMPLETION

General

Damaged or marked lining and components: Replace.

Exposed surfaces: Touch up shop applied finishes and restore damaged or marked areas.

Timber panels: If appearance is not uniform, replace panels.

Cleaning: Clean completed surfaces to remove irregularities and leave panels smooth and clean, to the manufacturer's recommendations. If required, sand with fine paper to remove irregularities and refinish panel surface.

- Debris and unused material: Remove from site.

Warranties

Requirement: Warrant against defective materials and installation.

4 SELECTIONS

4.1 SHEET LINING

Wall lining schedule

Requirements: All plasterboard wall linings used in wet areas is to be moisture resistant type to approval.

Where walls are acoustic, extend plasterboard lining from floor structure full height to underside of floor structure above. Seal junctions of plasterboard to abutting surfaces with sealants as required, and to approval.

To avoid issues with glancing light in finished work, plasterboard finish is to be level 5 in areas of large expansive walls and ceilings where natural light is prevalent.

Type	13mm thick flush plasterboard wall lining
Description:	Proprietary 13mm thick flush jointed plasterboard sheets (use water resistant plasterboard in wet areas) to approval.
Substrate:	Stud frame/furring channels.
Locations:	Refer to drawings.

Type	Multi-layer 13mm thick flush plasterboard wall lining

Description:	Proprietary 2x13mm thick flush jointed plasterboard sheets (use water resistant plasterboard in wet areas) to approval.
Substrate:	Stud frame/furring channels.
Locations:	Refer to drawings.

Type	Timber wall lining
Finish code:	**TS-1**
Requirement:	Refer to *Schedule of colours & finishes.*
	Western red cedar Channel Clad.
Supplier:	Modinex
Size:	86x12mm
Fixing:	Secret fixed.
Sealer:	S-2.
Sample:	Required.
Locations:	Refer to drawings.

Type	Contour timber wall lining
Finish code:	**TS-2**
Requirement:	Refer to *Schedule of colours & finishes.*
	Porta Contours CIRQUE Tasmanian Oak. Code LINB7821TOSL.
Supplier:	Porta.
Size:	78x21mm
Fixing:	Secret fixed.
Finish:	WS-1
Sample:	Supply 2 finished samples to Architect for approval prior to installation.
Locations:	Lift lobby. Refer to drawings.

Ceiling lining schedule

Requirements: All plasterboard ceiling linings used in wet areas is to be moisture resistant type to approval.

Where walls are acoustic, extend plasterboard lining from floor structure full height to underside of floor structure above. Seal junctions of plasterboard to abutting surfaces with sealants as required, and to approval.

To avoid issues with glancing light in finished work, plasterboard finish is to be level 5 in areas of large expansive walls and ceilings where natural light is prevalent.

Type	13mm thick flush plasterboard sheet ceiling lining
Lining:	1 x layer proprietary 13mm thick flush jointed plasterboard sheets (use water resistant plasterboard in wet areas) to approval.
Substrate:	Metal ceiling suspension system. Refer *Suspended Ceilings* worksection.
Locations:	Refer to drawings.

4.2 TRIM

Trim schedule

Type	Architraves generally
Requirement:	Refer to architectural and interior documentation.
Locations:	Throughout.

Type	Skirtings generally
Reference:	Refer to architectural and interior documentation.
Locations:	Skirtings to painted walls. Refer to drawings.

Type	Cornices
Requirement:	Not required. Wall/ceiling junctions to be square set plaster.
Locations:	All ceiling junctions, unless otherwise shown. Refer to drawings.

Type	Incidental trim
Requirement:	Provide all incidental and required trim to finish linings to a high standard including stopping angles, long leg stopping angles, shadowline trim, and the like. Casing beads or angles will not be accepted.
Finish:	No visible faces to lining trim, particularly shadowline trim will be left unpainted.
Locations:	Throughout as required.

4.3 ACCESS PANELS

General requirements

Access panels generally: Drawings show anticipated number, sizes, and locations of ceiling access hatches only. In conjunction with the services contractors, and the architect, provide all access hatches (quantity, locations, and sizes) required for the project. Obtain approval for final locations via the shop drawing process.

Access panel schedule

Type	Ceiling access panel
Proprietary item:	Rondo PANTHER flush ceiling access panels.
Size:	Varies. Refer to drawings.
Finish:	Paint. Refer *Painting* workection.
Lock:	Budget lock.
Perimeter finish:	Flush stopping beads.
Locations:	Flush ceilings where shown or required. Refer to drawings.

SECTION 21 SUSPENDED CEILINGS

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.2 STANDARDS

General

Suspended ceilings: To AS/NZS 2785.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 2785 and the following apply:

- Ceiling unit: Tile, panel, plank, strip or open grid supported within or to a suspended ceiling system.

1.4 TOLERANCES

Ceiling system

Flatness, twist, winding and bow: 1.5 mm deviation from a 1.5 m straightedge placed in any position.

Deflection: To AS/NZS 2785 Table 2.4.5.

Setting out and levelling: To AS/NZS 2785 Appendix D.

Sheeted or flush ceiling suspension system

Suspension system bearing surface for flush lined ceiling: To AS/NZS 2589 Table 4.2.2.

Deflection: To AS/NZS 2589 Table 3.5.1.2.

1.5 SUBMISSIONS

Fire performance

Fire hazard properties: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire hazard properties**.

Fire-resistance level: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire-resistance of building elements**.

Operation and maintenance manuals

General: On completion, submit manufacturer's recommendations for the care and maintenance of the ceiling, and operating instructions for demounting, if applicable.

Products and materials

Type tests: Submit results as follows:

- Weighted suspended ceiling normalized level difference: To AS/NZS ISO 717.1.
- Weighted sound absorption coefficient: To AS ISO 11654, as tested to AS ISO 354.
- Weighted sound reduction index: To AS/NZS ISO 717.1.

Prototypes

General: Provide a prototype of the ceiling system, including at least one example of each of the specified components, including services terminals.

Size: At least 10 m^2.

Samples

General: Submit samples as follows:

- Suspension system: Sections proposed for the suspension system, including suspension rods, clips and wall angles.
- Accessories including access panels and wall trim.
- Ceiling material: Lining or ceiling units, with insulation, showing the extremes and mean of variation in colour, pattern, or texture of the proposed finish.

Shop drawings
Set-out drawings: Submit proposed set-out, indicating the grid module, type and ceiling unit layout, before installation. Coordinate with plenum services layouts, building structure and other factors affecting the layout.

Warranties
Requirement: Submit warranties to **COMPLETION**, **Warranties**.

1.6 INSPECTION

Notice
Inspection: Give notice so that inspection may be made of the following:

- The suspension system before the installation of ceiling units or lining.
- The ceiling assembly before the installation of fittings and site painting, if applicable.
- The completed ceiling.

2 PRODUCTS

2.1 GENERAL

Suspended ceiling systems
Requirement: Provide suspended ceilings as complete systems, fabricated by one manufacturer.

Storage and handling
Requirement: Store suspended ceiling components in a dry and secure area, and to the manufacturer's recommendations.

2.2 FIRE PERFORMANCE

Fire hazard properties
Group number: To AS 5637.1.

Fire-resistance of building elements
Fire-resistance level: Tested to AS 1530.4.

2.3 SUSPENSION SYSTEM

Ceiling suspension system
Consistency: Provide ceiling systems as complete proprietary systems, fabricated by one manufacturer.

General: As documented.

Materials
Coated steel: To AS 1397.

Aluminium: To AS/NZS 1866.

Protective coatings for steel components: To AS/NZS 2785 Appendix F.

3 EXECUTION

3.1 SUBCONTRACTORS

General
Requirement: Use specialist installers recommended by the ceiling system manufacturer.

3.2 GENERAL

Working environment
General: Do not start work before the building is enclosed, wet work is complete and dry, and all work above the ceiling, including services, is complete.

Protection
General: Protect existing work from damage during the installation.

Partitions
General: If partitions are attached to the underside of the ceiling systems, include the partition mass in the seismic mass of the ceiling.

Stability
General: Install the ceilings level and fix to prevent looseness or rattling of ceiling components under normal conditions.

Structure-borne sound

General: Provide a ceiling system which does not amplify structure-borne sound. Provide suitable proprietary products or systems for reducing contact vibrations between structure and ceiling.

Control of movement

Abutments: Install the ceiling to allow for differential movement at abutting surfaces.

Alignment: Align ceiling control joints with structural control joints. Do not bridge structural control joints.

Prefinishes

General: Repair damaged prefinishes by recoating.

Curtain recesses

General: Provide curtain recesses, including the following:

- Lining.
- Curtain track support.
- Accommodation for motors and cabling.

3.3 SUSPENSION SYSTEM

Ceiling grid

Set-out: Align ceiling unit joints and centrelines of visible suspension members with documented grid lines. If not documented, set out with equal margins.

Suspension system

General: Fix suspension system to the structural soffit.

Support members: Install support members as follows:

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

Failure: Provide a ceiling system where failure of any one suspension point does not cause a progressive failure of the ceiling.

Height adjustment: Provide height adjustment with a length adjustment device at each suspension point, permitting length variation of at least 50 mm.

Grid members: If required, notch grid members at the junction with the perimeter trim to make sure the ceiling units lay flat on the perimeter trim.

Restriction: Do not attach the suspension system to the lip or flange of purlins.

Services

Support: Conform to the following:

- If the service has not been designed to accept the ceiling load, do not fix suspension members to services.
- If services obstruct the ceiling supports, provide bridging and suspension on each side of the services.
- Do not support services terminals on ceiling units.

Bracing

General: Provide bracing to prevent lateral movement and to resist the imposed horizontal seismic force.

Bulkheads

General: Integrate bulkheads with the ceiling structure and brace to prevent lateral movement. If the ceiling is terminated at a bulkhead, provide for seismic requirements.

External suspended soffits

General: Support external suspended soffits on rigid members capable of carrying the loads from imposed actions. Install members to minimise any eccentricity, and carry the upward and downward loads from wind actions through to the supporting structure.

Fasteners

General: Provide concealed fasteners. If material supporting hangers is less than 3 mm thick, do not use screw fasteners.

3.4 CEILING UNITS

Installation

Fitting: Fit ceiling units accurately and neatly, without distortion.

Lock clips: If ceiling units are exposed to loads from wind actions or if required for security, insert lock clips at the junction of carrier rails and units.

Pattern and texture: Set out patterned or heavily textured materials with a consistent direction of pattern or texture, or as documented.

Service penetrations

General: Provide openings for all services elements, including light fittings, ventilation outlets, detectors, sprinklers and loudspeakers. If services pass through ceiling grid members, provide additional grid members and support.

Cut ceiling unit edges

General: Conceal, or finish to match prefinished edges, including at openings for services elements.

3.5 TRIM

General

Trim: Provide trim at junctions with other building elements and surfaces, including walls, beams and penetrations, consistent with the materials and finishes of the ceiling system.

Accessories

General: Provide accessories as part of the proprietary ceiling system necessary to complete the installation.

Fire-resisting walls

Requirement: Seal to soffit with sealant with an equivalent fire-resistance level before fixing decorative cornices, if any.

3.6 COMPLETION

Spares

General: Provide spare matching ceiling components, as follows, and store the spare materials on site where directed:

- Supporting system: One spare supporting member (hanger or framework member) for every 100 members or part thereof of the same type installed in the ceiling.
- Ceiling units: One spare unit for every 50 units or part thereof installed in the ceiling.
- Accessories: One spare of each type for every 50 units or part thereof installed in the ceiling.

Warranties

Requirement: Provide warranties for materials and workmanship in the form of interlocking warranties from the supplier and the installer.

Form: Against failure of materials and execution under normal environment and conditions of use.

4 SELECTIONS

4.1 GENERAL

Proprietary suspension system schedule

Support: Do not support suspended ceiling systems off ductwork.

Type	Interior concealed system
Proprietary item:	Rondo Building Systems KEYLOCK concealed suspended ceiling system.
Lining:	Plasterboard.
Locations:	All flush plasterboard ceiling areas, unless otherwise detailed. Refer to drawings.

Type	Interior concealed system
Proprietary item:	Rondo Building Systems KEYLOCK concealed suspended ceiling system.
Lining:	Various.
Design:	For ceilings that are to have composite, or heavy, ceiling finishes, obtain design computations/verification as required to confirm that the suspension system is suitable for use.

Locations: All composite ceiling areas, unless otherwise detailed. Refer to drawings.

Type Bulkheads, coffers, recesses, pelmets

Requirement: Form required bulkheads, coffers, recesses, pelmets, nooks, and the like as shown on the drawings.

4.2 LINING

Sheet lining schedule

Type Flush plasterboard

Reference: Refer *Linings* worksection.

SECTION 22 JOINERY

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 TOLERANCES

General

Requirement: Fabricate and install joinery items to substrates undamaged, plumb, level, straight and free of distortion.

Tolerances table

Property	Tolerance
Plumb and level	1:800
Offsets in flush adjoining surfaces	0.5 mm
Offsets in revealed adjoining surfaces	2 mm
Alignment of adjoining doors	0.5 mm
Difference in scribe thickness for joinery items centred between walls	2 mm
Doors centred in openings	0
Joints in finished surfaces	0

1.3 SUBMISSIONS

Certification

Requirement: Submit evidence of conformity to documented requirements for grading, species and board size. Evidence may be in any of the following forms:

- Supplier's certificate which may be included on an invoice, delivery docket or packet label.
- Report by an independent inspecting authority.

Moisture content: Submit documentation noting moisture content of timber products.

Operation and maintenance manuals

General: Submit manufacturer's published recommendations for service use.

Products and materials

Manufacturer's data: Submit manufacturer's product data.

Proprietary items: Submit the manufacturer's standard drawings and details showing:

- Methods of construction.
- Assembly and fixing, with dimensions and tolerances.

Samples

General: Submit samples as follows:

- Boards: Two of each type, complete with finish and edge stripping.
- Joints: Two of each type.
- Typical hardware item: Two samples, showing each finish.
- Stone cladding: Provide three variants, two samples of each variant showing maximum variation.
- Timber veneer: Provide three variants, two samples of each variant showing maximum expected variation.
- Fabric: Two swatches of each type.
- Stainless steel items: Two of each type.
- Timber bench cupboard door: One sample, complete with hardware.
- Drawer front: One sample, complete with hardware.

Clear finished timber: Submit samples as follows:

- Initial submission:
  - . Veneered board: Three samples each 600 x 600 mm for each species.
  - . Solid timber: Three samples each 40 x 19 x 600 mm for each species.
- Control sample: The approved selection from the initial submission.
- Finished sample: Cut the control sample in half and apply the finish to half the remaining area.

Shop drawings

General: Submit shop drawings to a scale that best describes the detail, showing the following:

- Overall dimensions.
- Materials, thicknesses and finishes of elements including doors, divisions, shelves and benches.
- Type of construction including mitre joints and junctions of members.
- Hardware type and location.
- Temporary bracing, if required.
- Procedures for shop and site assembly and fixing.
- Locations of benchtop joints.
- Stone benchtop layout including joint arrangement and penetrations.
- Locations of sanitary fixtures, stoves, ovens, sinks, and other items to be installed in the units.
- Relationship of fixture to adjacent building elements.
- Details of fabrication involving other trades or components.
- Proposals for the break-up of large items as required for delivery to the site.
- Proposed method of joining the modules of large items.

Timing: Before fabrication.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

1.4 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Shop fabricated or assembled items ready for delivery to the site.
- Openings prepared to receive assemblies.
- Completion of installation.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Requirement: Deliver joinery units to site in unbroken wrapping or containers and store so that its moisture content is not adversely affected. Do not store in areas of wet plaster. Store in an adequately ventilated space away from heat and direct sunlight. Keep storage time to a minimum by delivering items only when required for installation.

2.2 JOINERY MATERIALS AND COMPONENTS

Visible work

Clear finished timber and veneer: Make sure all visible surfaces are free of branding, crayon or chalk marks and of blemishes caused by handling.

Joinery timber

Hardwood for trim: To AS 2796.1.

Hardwood for furniture: To AS 2796.3.

Seasoned cypress pine: To AS 1810.

Softwood for trim: To AS 4785.1.

Softwood for furniture: To AS 4785.3.

Finished sizes of milled timbers: Not less than the documented dimensions unless qualified by a term such as nominal, out of or ex to which industry standards for finished sizes apply.

Plywood

Interior use generally: To AS/NZS 2270.

Interior use, exposed to moisture: To AS/NZS 2271.

Visible surface with a clear finish: Veneer quality A.

Other visible surfaces: Veneer quality B.

Wet process fibreboard (including hardboard)

Standard: To AS/NZS 1859.4.

Particleboard

Standard: To AS 1859.1.

Melamine overlaid particleboard: Particleboard overlaid on both sides with low pressure melamine.

Dry process fibreboard (including medium density fibreboard)

Standard: To AS/NZS 1859.2.

Melamine overlaid medium density fibreboard: Medium density fibreboard (STD MDF) overlaid on both sides with low pressure melamine.

Decorative overlaid wood panels

Standard: To AS/NZS 1859.3.

Certification

Timber based products: Label panels under the authority of a recognised certification scheme to *Timber products, finishes and treatment,* as applicable to the product. Locate the brand on faces or edges which will be concealed in the works.

High-pressure decorative laminate (HPDL) sheets

Standard: To AS/NZS 2924.1.

Minimum thickness: Conform to the following:

- For horizontal surfaces fixed to a continuous substrate: 1.2 mm.
- For vertical surfaces fixed to a continuous substrate: 0.8 mm.
- For post formed laminate fixed to a continuous substrate: 0.8 mm.
- For vertical surfaces fixed intermittently, including to studs: 3.0 mm.
- For edge strips: 0.4 mm.

Stone facings

General: Provide stone or engineered stone slabs within the visual range of the approved samples. Repair mud veins or lines of separation that are integral to the selected pattern with resin fillers and back lining.

2.3 VENEERS

Timber veneer

Requirement: Provide veneers slip matched and flitch batched and falling within the visual range of the approved samples.

Veneer quality: To AS/NZS 2270.

Minimum grade:

- Select grade, veneer quality A, for visible surfaces to have clear finish or to have no coated finish.
- General purpose grade, veneer quality B, for other visible surfaces.

Vinyl veneer

Type: Proprietary unbacked vinyl fabric factory-bonded to the designated surface.

2.4 JOINERY ASSEMBLIES

General

Standard: To AS 4386.

Plinths

Material: Select from the following:

- Exterior general purpose plywood.
- High moisture resistant particleboard.
- High moisture resistant medium density fibreboard.

Thickness: 18 mm.

Fabrication: Form up with front and back members and full height cross members at not more than 900 mm centres.

Fasteners: Conceal with finish.

Installation: Scribe to floor and secure to wall to provide level platform for carcasses.

Carcasses

Material: Select from the following:

- Overlaid high moisture resistant particleboard.
- Overlaid high moisture resistant medium density fibreboard.

Thickness: 18 mm.

Adjustable shelves: Support on proprietary pins in holes bored at equal centres vertically.

- Spacing: 32 mm.

Fasteners: Conceal with finish.

Installation: Secure to walls at not more than 600 mm centres.

Drawer fronts and doors

Material: Select from the following:

- Melamine overlaid high moisture resistant particleboard.
- Melamine overlaid high moisture resistant medium density fibreboard.

Thickness: 18 mm.

Door size: Not exceeding 1.5 m^2 on face, with 2400 mm maximum height or 900 mm maximum width.

Drawer fronts: Rout for drawer bottoms.

3 EXECUTION

3.1 JOINERY

General

Joints: Provide materials in single lengths where possible. If joints are necessary, make them over supports.

Framing: Frame and trim where necessary for openings, including those required by other trades.

Concealed surfaces: Prime surfaces concealed by substrates.

Deficiencies: Examine joinery units for completeness and remedy deficiencies.

Substrate: Damp clean and vacuum substrate surfaces that will be permanently concealed.

Acclimatisation

General: Acclimatise the joinery items by stacking in the in-service conditions with air circulation to all surfaces after the following are complete:

- Air conditioning operational.
- Lighting operational.
- Site drainage and stormwater works are complete.
- Space fully enclosed and secure.
- Wet work complete and dry.

Accessories and trim

General: Provide accessories and trim necessary to complete the installation.

Fasteners

Visibility: Do not provide visible fasteners except in the following locations:

- Inside cupboards and drawer units.
- Inside open units, in which case provide proprietary caps to conceal fixings.

Visible fasteners: Where fasteners are unavoidable on visible joinery faces, sink the heads below the surface and fill the sinking flush with a material compatible with the surface finish. In surfaces which are to have clear or tinted finish, provide matching wood plugs showing face (not end) grain. In surfaces which are to have melamine finish, provide proprietary screws and caps finished to match.

Fixing to substrate: Fix joinery units to substrates as follows:

- Floor mounted units: 600 mm centres maximum.
- Wall mounted units: To each nogging and/or stud stiffener.

Fasteners: Screws with washers into timber or steel framing, or masonry anchors.

Adhesives

General: Provide adhesives to transmit the loads imposed and for the rigidity of the assembly, without causing discolouration of finished surfaces.

Finishing

Junctions with structure: Scribe, plinths, benchtops, splashbacks, ends of cupboards, kickboards and returns to follow the line of structure.

Joints: Scribe internal and mitre external joints.

Edge strips: Finish exposed edges of sheets with edge strips which match sheet faces.

Matching: For surfaces which are to have clear or tinted finish, arrange adjacent pieces to match the grain and colour.

Hygiene requirements: To all food handling areas and voids at the backs of units in all areas, seal all carcass and junctions wall/floor, and cable and pipe entries with silicone beads for vermin proofing. Apply water resistant sealants around all plumbing fixtures and make sure sealants are fit for purpose.

Benchtops

Installation: Fix to carcass at least twice per 600 mm length of benchtop.

Joint sealing: Fill joints with sealant matching the finish colour and clamp with proprietary mechanical connectors.

Edge sealing: Seal to walls and carcasses with a sealant, which matches the finish colour.

Labelling

General: Permanently mark each unit of furniture with the manufacturer's name, on an interior surface.

3.2 TRIM

General

Requirement: Provide trims such as architraves, beads, mouldings, stops and skirtings to make neat junctions to openings and between lining components, finishes and adjacent surfaces.

Fixing

To masonry walls: Screw with wall plugs at 600 mm centres maximum.

To stud walls: Nail to plate or framing at 600 mm centres maximum.

3.3 COMPLETION

Cleaning

Requirement: Remove all dust, marks and rubbish from all surfaces and internal spaces. Clean and polish all self-finished surfaces such as anodised and powder coated metals, sanitary ware, glass, tiles and laminates.

Temporary coatings: On or before completion of the works, or before joining up to other surfaces, remove all traces of temporary protective coatings.

4 SELECTIONS

4.1 JOINERY FINISHES

Finishes schedule

Type	Joinery finishes generally
Requirement:	Refer to architectural documentation.
Shop drawings:	Required.
Samples:	Required.
Locations:	Joinery finishes throughout.

Type	Plastic laminate
Finish code:	**LC-1, LC-2**
Requirement:	Refer to *Schedule of colours & finishes.*
	Laminex Absolute Matte
Edges:	To match.
Colour:	As scheduled.

Samples: Required.
Locations: Refer to drawings.

Type Timber veneer
Finish code: **TV-1**
Requirement: Refer to *Schedule of colours & finishes.*
Edges: as detailed.
Colour: As scheduled.
Samples: Required.
Locations: Refer to drawings.

Type Bulletin board
Finish code: **PIN-1**
Requirement: Refer to *Schedule of colours & finishes.*
Forbo BULLETIN BOARD (Krommenie Cork).
Thickness: 6mm.
Colour: As scheduled.
Samples: Required.
Locations: Office. Refer to drawings.

4.2 JOINERY ACCESSORIES

Framing support
Requirement generally: Provide solid blocking to all framing and behind all fixing points for these items to ensure they are fixed securely in position.

Joinery hardware schedule
Type Miscellaneous joinery hardware
Requirement: Refer to architectural documentation.
Samples: Required.
Locations: Joinery hardware items throughout.

Type Joinery handles 1
Requirement: Refer *Schedule of fittings and fixtures.*
Index + Co Semi Round.
Size: As scheduled.
Finish: As scheduled.
Locations: Bar, office, tearoom. Refer to drawings.

Type Joinery handles 2
Requirement: Refer *Schedule of fittings and fixtures.*
Made Measure metal recessed pull.
Size: As scheduled.
Finish: As scheduled.
Locations: Bar, office. Refer to drawings.

Type Drawers
Requirement: Refer *Schedule of fittings and fixtures.*
Blum LEGRABOX metal drawer system with blumotion.
Size: As drawn.

Finish:	As scheduled.
Locations:	General joinery. Refer to drawings.

Type	Joinery hinges
Requirement:	Refer *Schedule of fittings and fixtures.*
	Blum blumotion clip top to suit application.
Finish:	As scheduled.
Locations:	General joinery. Refer to drawings.

Ancillary items generally schedule

Type	Ancillary items generally
Requirement:	Refer *Schedule of fittings and fixtures* and to detailed joinery drawings for each room.
Scope:	Ancillary and incidental items associated with joinery and carpentry, and which include robe hooks, grab rails, shower seat, shower shelf, toilet paper holders, tv brackets and the like.
Samples:	Required.
Support:	Ensure solid support and/or blocking exists where each item is positioned so that secure fixing can be achieved.

SECTION 23 METALWORK

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirements:

- Undamaged, plumb, level and straight or as documented.
- Free of surface defects or distortions or as documented.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.3 STANDARDS

General

Access for maintenance: To AS 1657.

1.4 TOLERANCES

General

Requirement: ± 2 mm from design dimensions.

1.5 SUBMISSIONS

Execution details

Welding procedures: Submit details of proposed welding procedures and risk mitigation before fabrication.

Welding dissimilar metals: Submit the following details:

- Type and thickness of materials to be welded.
- Proposed joint preparation and welding procedures.
- Proposed filler metal.
- Expected dilution (proportion of fused parent metal in the weld metal).

Operation and maintenance manuals

General: Submit manufacturer's published recommendations for service use.

Products and materials

Proprietary items: Submit the manufacturer's standard drawings and details showing:

- Methods of construction.
- Assembly and fixing, with dimensions and tolerances.

Stainless steel: For each batch of stainless steel supplied to the works, submit the certificate of conformance or test certificate to the applicable standard, as documented.

Stainless steel welding: Before fabrication commences, submit evidence of qualification of the welding procedure by testing to AS/NZS 1554.6 clause 4.7 or evidence of prequalification to AS/NZS 1554.6 clause 4.12.

Prototypes

Installation: Erect prototype items in their final locations, incorporating at least one example of each component and fixing to building elements.

Samples

General: Submit samples of the following:

- Each type of joint.
- Each type of finish illustrating the range of variation.
- Sections for use in fabricated work.

Shop drawings

General: Submit shop drawings to a scale that best describes the detail, showing the following information:

- Overall and detail dimensions.
- Details of fabrication and components.
- Details of fabrication involving other trades or components.
- Information necessary for site assembly.
- Proposals for the break-up of large items as required for delivery to the site.
- Proposed method of joining the modules of large items.

Subcontractors

General: Submit names and contact details of proposed suppliers, fabricators and installers.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Shop fabricated or assembled items ready for delivery to the site.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Requirement: Store and handle fabricated metalwork, as follows:

- Deliver to site in unbroken wrapping or packing.
- Store on a level base, away from uncured concrete and masonry and areas of wet plaster.
- Do not store in contact with other materials that may cause staining, denting or other surface damage.
- Use gloves when handling precoated finishes.
- Keep storage time to minimum by delivering items only when required for installation.

Marking

General: Provide suitable and sufficient marks or other means for identifying each member of site-erected assemblies, and for their correct setting out, location, erection and connection. Mark bolted connections to show the bolting category. Do not mark stainless steel by notching.

2.2 MATERIALS

Metals and components

Performance: Provide metals and components in quantity, lengths and cross-sections of strength and stiffness suited to their required function, finish, fabrication and method of installation.

Fasteners

Performance: Provide fasteners to resist galvanic corrosion in materials of structural and mechanical strengths and corrosion resistance at least equal to that of the lowest resistant metal in the connection.

Materials: Provide fasteners as follows:

- To copper and copper alloys: Copper or copper-alloy fixing devices only.
- To aluminium and aluminium alloys: Aluminium alloy or non-magnetic stainless steel fixing devices only.
- To stainless steel: Appropriate stainless steel materials only.

2.3 OTHER MATERIALS

Tactile ground surface indicators

Tactile ground surface indicators to stairs: To AS/NZS 1428.4.1.

3 EXECUTION

3.1 CONSTRUCTION GENERALLY

Aluminium structures

Standard: To AS/NZS 1664.1 or AS/NZS 1664.2.

Metals

Incompatible metals: Separate using concealed layers of suitable materials in appropriate thicknesses.

Fabrication

Workshop: Fabricate and pre-assemble items in the workshop wherever practicable.

Edges and surfaces: Keep clean, neat and free from burrs and indentations. Remove sharp edges without excessive radiusing.

Tube bends: Form bends in tube without deforming the cross section and the material thickness.

Colour finished work: Match colours of sheets, extrusions and heads of fasteners.

Thermal movement: Accommodate thermal movement in joints and fastenings.

Joints

General: Fit joints to an accuracy appropriate to the class of work. Finish visible joints made by cutting, drilling, welding, brazing or soldering using grinding, buffing or other methods appropriate to the class of work, before further treatment.

Self-finished metals: Free of surface colour variations, after jointing.

Joints: Fit accurately to a fine hairline or as documented.

Splicing

General: Provide structural members in single lengths.

3.2 WELDING AND BRAZING

Welding

Quality: Provide finished welds which are free of surface and internal cracks, welding slag, and porosity.

Site welds: Avoid site welding wherever possible. If required, locate site welds in positions for down hand welding.

Butt weld quality level: Not inferior to the appropriate level recommended in AS/NZS 1554.1 Section 6, AS/NZS 1554.6 Section 6 or AS/NZS 1665 Section 6, as appropriate.

Brazing

General: Make sure brazed joints have sufficient lap to provide a mechanically sound joint.

Butt joints: Do not use butt joints for joints subject to load. If butt joints are used, do not rely on the filler material only.

3.3 STAINLESS STEEL FABRICATION

Welding stainless steel

Certification of welders: To AS 1796.

Riveting

General: Use only to join stainless steel sheet or strip less than 1 mm thick. Drill (not punch) the rivet hole, and drive the rivet cold. On completion, clean and passivate the riveted assembly.

Soldering

General: Do not solder stainless steel.

3.4 COMPLETION

Cleaning

Temporary coatings: On or before completion of the works, or before joining up to other surfaces, remove all traces of coatings used as temporary protection.

4 SELECTIONS

4.1 MISCELLANEOUS METALWORK ITEMS

Miscellaneous items schedule

Type	Pool ladder
Requirement:	Refer to *Schedule of fittings & fixtures.*
	JP Lennard Easy Access or approved equivalent pool ladder
Finish:	Mirror polished stainless steel handrails, anti-slip stainless steel treads.
Fixing:	Stainless steel fixings.
Locations:	Pool access. Refer to drawings.

Type	Pool pump room ladder
Requirement:	Refer to *Schedule of fittings & fixtures.*
Finish:	Custom fabricated mirror polished stainless steel handrails, anti-slip stainless steel treads to comply with AS 1657
Fixing:	Stainless steel fixings.
Locations:	Pool access. Refer to drawings.

Type	Stainless steel finish
Finish code:	**SS-1**
Requirement:	Refer to *Schedule of Colours & Finishes.*
	Linished finish #4.
Samples:	Required.
Locations:	Refer to drawings.

Type	Stainless steel mesh
Finish code:	**SS-2**
Requirement:	Refer to *Schedule of Colours & Finishes.*
	Jacob WEBNET N2.
	3mm wire rope diameter.
Samples:	Required.
Locations:	Pool rear fence. Refer to drawings.

Type	Stainless bin chute door
Requirement:	Replace bin chute door including frame in stainless steel.
Locations:	Refer to drawings.

Balustrade schedule

Type	Vertical fin balustrade
Requirement:	150 x 10mm hot dip galvanised mild steel vertical fins at 110mm centres welded to RHS bottom rail and with 2 No 10mm dia horizontal rod rails. All welds to be ground smooth. Refer to structural documentation for RHS bottom rail/plate detail.
Finish:	PS-1 paint system. Refer to *Painting* worksection.
Fixings:	Concealed to approval.
Shop drawings:	Required.
Samples:	Required.
Locations:	External pool deck area. Refer to drawings.

Flooring ancillaries schedule

Type	Individual tactile indicators
Proprietary item:	Classic Architectural Group CLASSIC TREDFX S10HC individual stainless steel tactile indicator with stainless steel screw fixing.
Finish:	Stainless steel.
Sample:	Required.
Compliance:	AS1428.1
	P5 slip rating.
Locations:	Tactile groupings where indicated on the drawings and as required adjacent to stairs. Refer to drawings.

Type	Stair nosing

Proprietary item:	Classic Architectural Group CLASSIC TREDFX IKB121 aluminium stair nosing with black grip strip insert.
	Rebate into timber treads.
Finish:	Aluminium with black insert.
Dimensions:	57x5mm.
Sample:	Required.
Compliance:	AS1428.1
	P5 slip rating.
Locations:	Refer to drawings.

SECTION 24 FIRE EXTINGUISHERS AND BLANKETS

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.2 SUBMISSIONS

Products and materials

Requirement: Submit evidence of suitability for use, to BCA A5.0, for all fire protection products.

Records

General: Submit any routine service records to AS 1851.

2 PRODUCTS

2.1 EXTINGUISHERS

Portable fire extinguishers

General: To AS/NZS 1841.1.

Type:

- Water: To AS/NZS 1841.2.
- Wet chemical: To AS/NZS 1841.3.
- Foam: To AS/NZS 1841.4.
- Powder: To AS/NZS 1841.5.
- Carbon dioxide: To AS/NZS 1841.6.
- Non-rechargeable: To AS/NZS 1841.8.

Selection, location and distribution: To AS 2444.

2.2 BLANKETS

Fire blankets

General: To AS/NZS 3504.

Selection and location: To AS 2444.

3 EXECUTION

3.1 INSTALLATION

Fire fighting equipment

Standard: Installation to AS 2444.

Signage: Provide signs to **STATUTORY SIGNS** in *Signage* worksection.

3.2 COMPLETION

Routine service

Portable fire extinguishers: To AS 1851 Section 10.

Fire blankets: To AS 1851 Section 11.

Baseline data

Requirement: Provide baseline data to AS 1851.

4 SELECTIONS

4.1 EQUIPMENT

Fire extinguishers schedule

Type	All fire extinguishers
Requirement:	Provide all fire extinguishers required for the project, and as directed by the building surveyor, wall hung in final positions with all appropriate signage.
Shop drawings:	Submit plans with all extinguishers indicated in their required positions.
Locations:	Final positions will be to approval.

SECTION 25 WINDOW COVERINGS

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.2 SUBMISSIONS

Fire performance

Fire hazard properties: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire hazard properties**.

Operation and maintenance manuals

General: Submit the manufacturers' data as follows:

- Recommendations for service use, care and maintenance.
- List of manufacturers and suppliers of replacement parts.

Products and materials

Manufacturer's drawings: Submit manufacturer's standard drawings and details showing methods of construction, assembly and fixing, with dimensions and tolerances.

Pest resistance: Submit evidence of conformity to PRODUCTS, **MATERIALS**, **Pest resistance** tested to AS 2001.6.1.

Samples

General: Submit two samples showing material, colour, texture, pattern and other visible characteristics for each of the following:

- Venetian blinds: 400 mm long slat.
- Track systems: 400 mm long, and including manufacturer's standard control system furniture items and accessories.

Shop drawings

General: Submit shop drawings to a scale that best describes the detail, showing the following:

- Window coverings: Show sizes, locations, and details of fabrication and installation.
- Tracks: Show installation and anchorage details, and locations of controls.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

Warranties

Requirement: Submit warranties to **COMPLETION**, **Warranties**.

1.3 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Building locations or substrates prepared to receive window coverings before installation.

2 PRODUCTS

2.1 FIRE PERFORMANCE

Fire hazard properties

Windows coverings: Tested to AS/NZS 1530.3.

2.2 MATERIALS

Fabrics

Uncoated woven and knitted fabrics: To AS 2663.1.

- Performance classification (minimum): 2.

Coated woven and knitted fabrics: To AS 2663.2.

- Performance classification (minimum): 2.

Antimicrobial treatment

Requirement: Non-metallic, colourless, odourless, positively charged polymer applied during manufacturing to form a molecularly bonded surface to resist bacteria and mould growth.

Pest resistance

Requirement: Provide window coverings composed entirely of materials either inherently resistant to insect attack or treated against insect attack, by application of insecticide to the yarn during the dyeing or scouring process.

3 EXECUTION

3.1 INSTALLATION

General

Installation: Install tracks in documented locations using manufacturer's purpose fabricated mounting brackets, clips, track splicing and other hardware. Install window coverings to hang plumb and level, and true to line.

Fixing: Provide concealed mechanical fixings suitable for mounting tracks to substrate. Match exposed mounting hardware to the finish and colour of adjacent track.

Adjustment: Adjust all operating hardware for smooth operation free from binding, and to provide even, accurate alignment of window covering in open and closed positions.

Safety: Install child safety devices on all control cords and chains. Install all control cords and chains in conformance with *Competition and Consumer (Corded Internal Window Coverings) Safety Standard.*

3.2 COMPLETION

Warranties

Requirement:

- Manufacturer's warranty against defects in workmanship.
- Installer's warranty against defects in installation.

4 SELECTIONS

4.1 SCHEDULES

Blinds schedule

Type	Timber venetians
Requirement:	Refer to *Schedule of fittings & fixtures.*
	Vertilux CEDARLINE timber.
Size:	60mm.
Finish:	UV laquer finish dark/medium with tapes (confirm with architect).
	Headbox/cassette to be black.
Operation:	Motorised operation with RTS motors.
Samples:	Required.
Locations:	Lounge, boardroom, bathroom, gymnasium, office. Refer to drawings.

SECTION 26 SIGNAGE

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirement: Provide signage as follows:

- Appropriately secured.
- Located within a clear line of vision.
- With characters and symbols contrasting with the background.
- With clean, well-defined edges or arrises, and free from blemishes.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.3 STANDARDS

Signs

Safety signs - design and use: To AS 1319.

Signs and graphics for disability access: To AS 1428.1 and AS 1428.2.

Tactile wayfinding signs: To AS 1428.4.2.

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection, the following definitions apply:

- Changeable letter systems: Sign systems consisting of display boards or holders into which removable individual letters, numbers, symbols or other characters can be inserted.
- Changeable plate systems: Sign systems consisting of fixed plate holders to which removable interchangeable sign plates can be attached or inserted.
- House signage: Internal and external project specific signs.
- Illuminated signs: Signs consisting of cabinets enclosing a light source, illuminating translucent face panels bearing the specified signage.
- Statutory signs: Signs prescribed by the NCC and statutory authorities.
- Variable room identification systems: Changeable plate systems incorporating fixed room numbers and removable name strips.

1.5 SUBMISSIONS

Operation and maintenance manuals

General: Submit the manufacturers' data as follows:

- Recommendations for service use, care and maintenance.
- List of manufacturers and suppliers of replacement parts.

Samples

Materials: Submit samples showing each colour and finish of exposed signage materials and accessories. If there is a range of colours and/or textures for a particular item, submit samples showing the extremes and mean of the range.

Shop drawings

General: Submit shop drawings showing the following, if appropriate:

- Layout, construction and fixing details for custom designed (non-standard) signage.
- Large scale (full size if practicable) lettering layouts for individual letter signs.
- Computer generated graphic images.
- Full size spacing templates for individually mounted characters.
- Location templates for anchorages to permanent construction, including the type of anchorage.

- Wiring diagrams for illuminated signs.

Warranties

Requirement: Submit the manufacturer's published product warranties.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Custom-built signage and graphic items fabricated and ready to be delivered to the site.
- Signage and graphic items delivered to site before installation.
- Building locations or substrates prepared to receive signage and graphic items before they are installed.

2 PRODUCTS

2.1 MATERIALS

Standards

Aluminium:

- Plate for engraving: Alloy and temper designation 6063-0 to AS 2848.1.
- For casting: To AS 1874.
- Finishes:
  - . Anodising: To AS 1231.
  - . Powder coating: To AS 3715 and AAMA 2604.

Stainless steel:

- External: Type 316. Mirror electropolish surface finish.
- Internal: Type 304. No. 4 brushed (general purpose polished) surface finish.

Plastics:

- PVC-U sheet: Semi-rigid sheet.
- Rigid cellular polystyrene: To AS 1366.3, class VH for cut-out shapes.

Brass and bronze: Plate, sheet and strip: To AS 1566.

- Finish: Patinated.

Glass type and thickness: To AS 1288.

Photoluminescent exit signs: To BCA E4.8(b).

Adhesive

General: Proprietary solvent based contact adhesive compatible with the substrate and signage material.

3 EXECUTION

3.1 WORKMANSHIP

Production

General: Form signage and graphic items accurately with clean, well-defined edges or arises, free from blemishes.

3.2 INSTALLATION

General

Requirement: Install signage and graphic items level and plumb, securely mounted, with concealed corrosion and theft-resistant fixings.

Self-adhesive signs

Requirement: Fix free of bubbles and creases.

Aluminium and stainless steel signs

Pin fixing: Epoxy fix to substrate.

3.3 COMPLETION

Cleaning

General: Remove protective coverings, replace damaged signage and leave the work clean, polished, free from defects, and in good condition.

Warranties

Requirement: Warrant against defective materials and incorrect installation.

4 SELECTIONS

4.1 STATUTORY SIGNS

Braille and tactile exit signage

Location	To BCA Spec D3.6 for every door described in BCA E4.5
Message	Exit (and) Level (followed by the floor level number) (Braille and tactile signage)
Letter height (minimum)	BCA Spec D3.6
Mounting height	Braille and tactile signage between 1200 mm and 1600 mm above finished floor level
Sign type	
Conformance	BCA E4.5, BCA D3.6 and BCA Spec D3.6

Lifts – warning

Location	Near every call button for passenger lift(s)
Message	DO NOT USE LIFTS IF THERE IS A FIRE (or) Do not use lifts if there is a fire
Letter height (minimum)	10 mm (upper case) 8 mm (lower case)
Sign type	Incised, inlaid or embossed letters on metal, wood, plastic or similar plate securely and permanently attached to the wall; or letters incised or inlaid directly into the surface of the material forming the wall
Conformance	BCA E3.3

Fire hose reels and fire hydrants

Location	Cupboard door or adjacent the FHR
Message	FIRE HYDRANT (and/or) FIRE HOSE REEL
Letter height (minimum)	50 mm
Sign type	Adhesive backed vinyl
Conformance	AS 2441 clause 10.4.4 AS 2419.1 clause 11.3.5

Fire hose reel – Location sign

Location	Above or adjacent the FHR if located in a recess, cavity or obscure location
Message	To AS 2441 Figure 10.1
Letter height (minimum)	16 mm

Mounting height (minimum)	2000 mm above finished floor level or at a height visible to a person approaching the fire hose reel location
Sign type	Adhesive backed vinyl
Conformance	AS 2441 clause 4.1

Portable fire extinguishers – Cabinet

Location	Cabinet
Message	FIRE EXTINGUISHER
Letter height (minimum)	32 mm
Sign type	Adhesive backed vinyl
Conformance	AS 2444 clause 3.6

Portable fire extinguishers – Location sign

Location	As nominated in AS 2444 clause 3.2 at every installed extinguisher nominated in BCA Table E1.6
Message	FIRE EXTINGUISHER (and prescribed graphic)
Letter height (minimum)	16 mm
Mounting height (minimum)	2000 mm above finished floor level
Sign type	Computer generated adhesive backed vinyl graphic
Conformance	AS 2444 clause 3.3

Fire blankets

Location	As nominated in AS 2444 clause 6.4 at every blanket location nominated in AS 2444 clause 6.3
Message	FIRE BLANKET (and prescribed graphic)
Letter height (minimum)	16 mm
Mounting height (minimum)	2000 mm above finished floor level
Sign type	Computer generated adhesive backed vinyl graphic
Conformance	AS 2444 clauses 6.3, 6.4 and Figure 6.1

Unisex accessible sanitary facilities

Location	To BCA Spec D3.6
Message	- Braille and tactile signage incorporating the international symbol of access. - Indicate suitability for left or right handed use.
Symbol size	AS 1428.2 clause 16, Table 1.
Letter height (minimum)	Braille: BCA Spec D3.6 Raised characters: Sans serif type font 20 mm.
Sign type	
Conformance	AS 1428.1 clause 5.1 BCA D3.6

Non-accessible sanitary facilities

Location	At each bank of sanitary facilities that are not provided with an accessible unisex sanitary facility
Message	- Braille and tactile signage incorporating the international symbol of access.

	- Indicate location of the nearest accessible unisex sanitary facility with directional arrow.
Letter height	AS 1428.2 clause 17, Table 2
Symbol size	AS 1428.2 clause 16, Table 1
Sign type	
Conformance	AS 1428.1 clause 5.1 BCA D3.6

SECTION 27 CEMENTITIOUS TOPPINGS

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirements:

- If bonded, without drummy areas.
- Without obvious shrinkage cracks.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.3 STANDARDS

Slip resistance

Classification: To AS 4586.

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection, the following definitions apply:

- Concrete class – normal: Concrete that is specified primarily by a standard compressive strength grade up to 50 MPa and otherwise in conformance with AS 1379 clause 1.5.3.
- Granolithic topping: A topping mix with the coarse aggregate restricted to between 2 and 3 mm.
- Substrate: The surface to which a material or product is applied.
- Topping: Mixture of binders, aggregate and water applied to substrates in a plastic state and dried and cured to a hard surface.
- Topping function:
  - . Levelling: Topping placed to receive applied floor finishes.
  - . Wearing: Topping placed to act as the finished floor.
- Topping method:
  - . Bonded or post applied: Topping which is bonded to a hardened substrate from which laitance has been removed and to which a bonding agent has been applied.
  - . Floating: Topping which is separated from a hardened substrate by a resilient layer.
  - . Monolithic or wet applied: Topping placed on a plastic substrate so that a chemical bond is created between the substrate and the topping.
  - . Separated: Topping which is separated from a concrete subfloor by a membrane.

1.5 TOLERANCES

General

Thickness: Deviation from the documented thickness:

- Thickness < 15 mm: ± 2 mm.
- Thickness ≥ 15 < 30 mm: ± 5 mm.
- Thickness ≥ 30 mm: ± 10 mm.

Flatness: Maximum deviations from a straightedge laid in any direction on a plane surface:

- Class A: 4 mm from a 2 m straightedge.
- Class B: 6 mm from a 3 m straightedge.

1.6 SUBMISSIONS

Operation and maintenance manuals

Requirement: At completion, submit the manufacturer's published use, care and maintenance instructions.

Products and materials

Manufacturer's data: Submit manufacturer's product data for the following:

- Admixtures.
- Bonding products.
- Colouring products.
- Curing products.
- Sealant products.
- Slip-resistant products.
- Surface treatment products.

Prototypes

General: Prepare prototypes of each topping type:

- Size: 1200 x 2400 mm.

Samples

General: Submit samples of the following products:

- Colouring products.
- Control joint products.
- Surface treatment products.

Tests

Site tests: Submit results, as follows:

- Flatness.
- In situ crushing resistance/soundness.
- Slip resistance test of completed installation.

Warranties

Requirement: Submit warranties on completion.

1.7 INSPECTION

Notice

General: Give notice so that inspections may be made of the following:

- Substrates ready for laying of toppings.
- Prototypes ready for inspection.

2 PRODUCTS

2.1 MATERIALS

Admixtures

Standard: To AS 1478.1.

Aggregates

Standard: To AS 2758.1.

Coarse aggregate: Nominal single size less than or equal to 1/3 topping thickness.

Fine aggregate: Fine, sharp, well-graded sand with a low clay content and free from efflorescing salts.

Bonding products

General: Provide proprietary products manufactured for bonding cement-based toppings to concrete substrates.

Cement

Standard: To AS 3972.

- Type: SL.

Colouring products

General: Provide proprietary products manufactured for colouring cement toppings.

Integral pigment proportion: 10% maximum by weight of cement.

Concrete

Standard: To AS 1379.

Unreinforced topping: Normal-class.

Reinforced topping table

Exposure location	Strength grade	Cover to reinforcement (mm)
Internal and external greater than 50 km inland and non-industrial and non-tropical	N25	20
External greater than 50 km inland and tropical and External near coastal (> 1 km < 50 km)	N32	30
External coastal less than 1 km but not in the splash zone	N40	35

Reinforcement

Standard: To AS/NZS 4671.

Mesh sizes for joint spacing as follows:

- SL 42: Up to 3 m internal, 2 m external.
- SL 62: Up to 6 m internal, 4 m external.

Curing products

General: Provide proprietary products manufactured for use with cement-based toppings and with the floor finish to be laid on the toppings.

Water

General: Clean and free from any deleterious matter.

Mixes

General: Provide pre-mixed concrete for toppings as follows, or alternatively select mix proportions to the **Mix proportion table**:

- Air entrainment: ≤ 3%.
- Nominal coarse aggregate size: ≤ 0.3 x topping thickness.
- Slump: 80 mm.
- Standard strength grade: N25.

Water quantity: The minimum necessary to achieve full compaction and prevent excessive water being brought to the surface during compaction.

Mix proportion table

Mix type	Thickness (mm)	Upper and lower limits of proportions by weight		
		Cement	Fine aggregate	Coarse aggregate
Bonded – cement and sand	35	1 1	3 4.5	0 0
Bonded – fine concrete	40	1 1	3 3	1 2
Floating – fine concrete	100	1 1	3 3	1 2
Granolithic	Floors: 25 Skirtings: 13	1	2	1
Separated – fine concrete	70	1 1	3 3	1 2

Slip resistance products

General: Provide proprietary products manufactured to improve the wet slip resistance of toppings.

- Silicon carbide granules:
  - . Granule size: ≥ 300 < 600 µm.
- Silicon carbide two-part resin:
  - . Granule size: ≥ 300 µm.

Surface treatment products

General: Provide proprietary products manufactured for use with cement-based toppings to change the characteristics of the surface of the finished topping.

2.2 CONTROL JOINTS

Control joint materials

General: As documented.

Control joint strip: A proprietary expansion joint consisting of a neoprene filler sandwiched between plates with lugs or ribs for mechanical keying. Set flush with the finished surface.

Proprietary slide plate divider strip: An arrangement of interlocking metal plates grouted into pockets formed in the concrete joint edges.

Sealant: One-part self-levelling non-hardening mould-resistant, silicone or polyurethane sealant applied over a backing rod. Finish flush with the terrazzo surface.

- Floors: Trafficable, shore hardness greater than 35.

Backing rod: Compressible closed cell polyethylene foam with a bond breaking surface.

3 EXECUTION

3.1 PREPARATION

Substrates

General: Provide substrates as follows:

- Clean and free from any deposit which may impair adhesion of monolithic or bonded toppings.
- Remove excessive projections and voids and fill hollows with a mix not stronger than the substrate or weaker than the topping.

Substrates for bonded toppings

Hardened concrete: Roughen by scabbling or the like to remove 2 mm of the laitance and expose the aggregate.

Bond product: Before laying topping wash the substrate with water and provide a bonding product, or treat as follows:

- Keep wet for 2 hours or more.
- Remove surplus water and brush on neat cement or a clean slurry of cement and water.
- Place the topping while the slurry is wet.

3.2 APPLICATION

Installation

General: Spread the mix and compact. Strike off, consolidate and level surfaces to finished levels.

Monolithic toppings: Lay while concrete subfloor is plastic and the surface water is no longer visible.

Unbonded toppings: Lay separating layer.

Toppings over 50 mm thick:

- Lay in two layers of equal thickness.
- Place a layer of reinforcement between the topping layers. Lap reinforcement 200 mm and tie. Do not create four way laps.

Temperature control

General: Make sure that the temperature of mixes, substrates and reinforcement are not less than 5ºC or greater than 35ºC at the time of application.

Severe temperature: If the ambient shade temperature is greater than 38°C, do not mix topping.

3.3 CONTROL OF MOVEMENT

General

Requirement: Provide control joints as follows and as documented:

- Location:
  - . Over structural control joints.
  - . To divide complex room plans into rectangles.
  - . Around the perimeter of the floor.

. At junctions between different substrates.
. To divide large topping-finished areas into bays.
. At abutments with the building structural frame and over supporting walls or beams where flexing of the substrate is anticipated.

- Depth of joint: Right through to the substrate.
- Depth of elastomeric sealant: One half the joint width, or 6 mm, whichever is the greater.

Control joints to divide topping into bays: Provide joints using one of the following methods:

- Form in situ using square edge steel forms and trowelling a 3 mm radius to edges.
- Form a groove, extending at least one quarter the depth of the section, either by using a grooving tool, by sawing, or by inserting a premoulded strip.
- Install a control joint proprietary product, as documented.

3.4 TESTING

Site tests

General: Test and assess conformity of construction as follows:

- Flatness: If flatness properties are required:
  . Method: To ASTM E1155.
- In situ crushing resistance/soundness: If a soundness category is required:
  . Method: To BS 8204-1.

3.5 COMPLETION

Curing

General: Prevent premature or uneven drying out and protect from the sun and wind.

Curing: Use a curing product or, as soon as toppings have set sufficiently, keep them moist by covering with polyethylene film for seven days.

Joint sealant

General: If required, seal joints as follows:

- Formed joints: ≤ 25 mm deep with filler and bond breaker.
- Sawn joints: Full depth of cut.

Protection

General: Protect finished work from damage during building operations.

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty from the installer.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the installer.

4 SELECTIONS

4.1 SCHEDULES

Cementitious toppings construction schedule

Type	Infill and packing screeds laid to fall
Thickness:	Varies. Refer to drawings.
Reinforcement:	Required in screeds exceeding 45mm in thickness.
Topping function:	Substrate screeds for floor finishes scheduled elsewhere.
Topping method:	Bonded.
Falls:	Grade to required falls shown on the drawings.
Flatness tolerance:	Class B.
Primary finish:	Steel trowel or wood float as required by the scheduled floor finish.
Floor finish:	Tiled, stone or timber decking as scheduled.
Locations:	Wet areas internally, external pool deck/terrace area. Refer to drawings.

Type	Hob

Requirement:	Form hob below line of glazing as detailed on the drawings.
Reinforcement:	Refer to structural documentation for reinforcement and dowel details.
Floor finish:	Stone as detailed.
Locations:	Refer to drawings.

SECTION 28 WATERPROOFING – WET AREAS

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirements:

- Graded to floor wastes, to dispose of water without ponding.
- Able to prevent moisture entering the substrate or adjacent areas.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.3 STANDARDS

Waterproofing wet areas

Standard: To AS 3740.

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS 3740 and the following apply:

- Membranes (waterproof): Impervious barriers to liquid water which may be:
  - . Installed below floor finishes.
  - . Installed behind the wall sheeting or render.
  - . Installed to the face of the wall sheeting or render.
  - . Applied in liquid or gel form and air cured to form a seamless film.
- Wet area: An area within a building supplied with a floor waste.

1.5 SUBMISSIONS

Products and materials

Manufacturer's data: Submit product data sheets.

Type tests: Submit certificates verifying conformance to AS/NZS 4858 Table 8.1.

Records

General: Submit photographic records of application and protection of membranes. Label photographs with date and location.

Timing: Record at the following stages:

- After substrate preparation.
- After primer application.
- After membrane installation.
- After protection from traffic provided.

Liquid applied membranes:

- Record wet film thickness once every 10 m^2 and compare to the manufacturer's requirements.
- On completion of every 100 m^2 of each coat, compare the amount of membrane used with the manufacturer's application rate and record the result.

Samples

Requirement: Submit 300 x 300 mm samples of each type of membrane.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers as recommended by the manufacturer.

Tests

Site tests: Submit results, as follows:

- Substrate moisture content test.

Warranties

Requirement: Submit warranties on completion.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrates prepared and ready for installation of the wet area waterproofing systems.
- Secondary layers prepared and ready for subsequent layers.
- Membranes after installation and before concealment.

2 PRODUCTS

2.1 GENERAL

Storage and handling

General: Store and handle to the manufacturer's recommendations and as follows:

- Protect materials from damage.

2.2 MEMBRANES

Standards

Standard: To AS/NZS 4858.

Membrane system

Requirement: Proprietary membrane system suitable for the intended internal wet area waterproofing.

Total VOC limits

Requirement: Conform to the following maximum TVOC content:

- Waterproof membrane: 250 g/L.

2.3 ACCESSORIES

Liquid membrane reinforcement

Requirement: Flexible fabric compatible with the waterproof membrane system.

Sealants

Requirement: Waterproof or water resistant, flexible, mould-resistant and compatible with the waterproofing system and to the manufacturer's recommendations.

Adhesives

Requirement: Waterproof and compatible with the waterproofing system.

3 EXECUTION

3.1 PREPARATION

Substrates

General: Prepare substrates as follows:

- Clean and remove any deposit or finish which may impair adhesion of membranes.
- If walls are plastered, remove loose sand.
- If walls or floors are framed or discontinuous, make sure support members are in full lengths without splicing.
- If floors are solid or continuous:
  - . Remove excessive projections.
  - . Fill voids and hollows greater than 10 mm with abrupt edges with a cement:sand mix not stronger than the substrate nor weaker than the bedding.
  - . Fill depressions less than 10 mm with a latex modified cementitious product with feathering eliminated by scabbling the edges.
  - . Fill cracks in substrates wider than 1.5 mm with a filler compatible with the membrane system.

Concrete substrates: Cure for more than 28 days.

External corners: Round or arris edges.

Moisture content

Requirement: Verify that the moisture content of the substrate is compatible with the water vapour transmission rate of the membrane system by testing to the recommendations of AS 3740 Appendix F.

Falls

Membrane applied to substrate: Make sure the fall in the substrate conforms to the fall documented for the finish.

Priming

Compatibility: If required, prime the substrates with compatible primers for adhesion of the membrane system.

3.2 INSTALLATION

Ambient conditions

Requirement: Do not install in conditions outside the manufacturer's recommendations.

Protection

Damage: Protect membrane from damage during installation and for the period after installation until the membrane achieves its service characteristics that resist damage and an overlaying finish is installed.

Extent of waterproofing

Waterproof or water resistant surfaces: To the requirements of BCA F1.7 or BCA 3.8.1.2, as applicable.

Flashings

Vertical flashings: Provide vertical corner flashings continuous across wall/wall junctions to at least 1800 mm above finished floor level of the shower or base of the bath or tray, or 50 mm above the shower rose, whichever is the higher.

Vertical liquid applied flashings:

- Return legs at least 40 mm on each wall.
- Overlap the vertical termination of the floor waterproofing membrane at least 20 mm.

Vertical sheet flashings:

- Return legs at least 50 mm on each wall.
- Overlap shower tray upstands at least 50 mm.
- Do not penetrate flashing with wall lining fasteners.

Reinforcement: At coves, corners and wall/floor junctions with gaps greater than 3 mm, reinforce liquid applied membranes with reinforcement fabric tape recommended by the membrane manufacturer. Fold the tape in half lengthways and embed it in the first coat of membrane with one half of the tape on each side of the corner or joint. Apply a second coat of membrane to seal the fabric.

Drainage connections

Floor wastes: Provide floor wastes of sufficient height to accommodate the thickness of floor finishes and bedding at the outlet position. Position leak control flange to drain at membrane level. Turn membrane down 50 mm minimum into the floor waste leak control flanges, and adhere to form a waterproof connection.

Showers without hobs or step-downs

Frameless shower screens:

- Install a waterstop angle directly below where the base of the shower screen will be installed.
- Support and adhere the membrane over the waterstop angle and extend the membrane at least 50 mm in to the adjacent area.
- Install a capping angle over the membrane and vertical leg of the waterstop angle to protect the exposed membrane.
- Install the shower screen over the capping angle.

Unenclosed showers

Requirement: Extend membrane at least 1500 mm into the room from the shower rose outlet, on the walls and floor.

Taps and spouts

Requirement: Waterproof penetrations for taps and spouts with preformed flange systems or a sealant.

Provision for servicing: Install taps so tap washers or ceramic discs can be serviced without damaging the waterproofing or seal.

Curing of liquid membrane systems

General: To the manufacturer's instructions.

Curing: Allow membrane to fully cure before tiling.

Overlaying finishes on membranes

Requirement: Protect waterproof membranes with compatible water resistant surface materials that do not cause damage to the membrane.

Suitable materials: Conform to AS 3740.

Bonded or partially bonded membranes: If the topping or bedding mortar is to be bonded to the membrane, provide sufficient control joints in the topping or bedding mortar to reduce the movement over the membrane.

3.3 TESTING

Substrate tests

Moisture content: Test substrate for suitability for the installation of membranes to AS 3740 Appendix F.

- Maximum relative humidity of concrete or cementitious screeds: To AS 3740 Appendix F2.4.
- Moisture content of timber and plywood substrates: To AS 3740 Appendix F2.3.

3.4 COMPLETION

Reinstatement

Extent: Repair or replace faulty or damaged work. If the work cannot be repaired satisfactorily, replace the whole area affected.

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the supplier and the applicator.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: As offered by the supplier.

4 SELECTIONS

4.1 SYSTEMS

Liquid membrane system schedule

Liquid applied membrane systems schedule

Type	General internal wet area waterproofing	
Ref code:		
Requirement:	Provide a premium quality liquid applied waterproofing membrane to floors and walls as required.	
	Membranes are to be suitable for the substrate to which they are applied, compatible with the scheduled surface finish, and applied in strict accordance with the manufacturers published recommendations.	
Floor areas:	One layer to structural slab, and a second layer above screeds.	
Applicator:	An approved applicator, experienced in the product proposed. Submit names and details for approval.	
Substrates:	Prepared in accordance with the waterproofing membranes recommendations.	
Locations:	All apartments:	
	Hand basins -	Waterproof the wall behind up to a height of 150mm min. above basin rim. Applies to vanities as well.
	Showers -	Entire shower floor area.
		Up to 2100 mm min. above the finished shower floor.
		Seal all penetrations.
	Bathrooms -	Entire floor area. Turn up 200mm at adjacent walls.

SECTION 29 CERAMIC TILING

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirements:

- Consistent in colour and finish.
- Firmly bonded to substrates for the expected life of the installation.
- Set out with joints accurately aligned in both directions and wall tiling joints level and plumb.
- Direct all water flowing from supply points to drainage outlets without leakage to the substrate or adjacent areas.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.3 STANDARDS

Tiling

General: Conform to the recommendations of those parts of AS 3958.1 referenced in this worksection.

Slip resistance

Classification: To AS 4586.

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection, the following definitions apply:

- Acoustic underlay: A resilient material laid between the subfloor and the flooring material to provide sound isolation.
- Adhesives - cementitious (C): Adhesive in which the binders are hydraulic, e.g. General purpose cement, with aggregates and organic additives.
- Adhesives - dispersion (D): Adhesives in which the binders are in the form of aqueous polymer dispersion with mineral fillers and organic additives.
- Adhesives - reaction resin (R): Adhesives in which in the binders are synthetic resins with mineral fillers and organic additives. The curing occurs by chemical reaction.
- Bedding: Mixtures of materials which are applied to substrates in a plastic state and which dry, cure and adhere tiles to substrates:
  - . Adhesive bedding: Paving/tiling adhered by adhesives.
  - . Mortar bedding: Paving/tiling adhered in a cementitious mortar bed.
- Lippage: Height deviation between adjacent units.
- Stepping: The relative surface level of adjacent paving elements within the expanse of the main pavement.
- Substrate: The surface to which a material or product is applied.
- Tile: Thin slab made from clay and/or other inorganic raw materials used generally as coverings for floors and walls and adhered to continuous supporting substrates.
- Tiles – cementitious: Cement based prefinished tiles.
- Tiles – dry-pressed: Tiles made from a finely milled body mixture and shaped in moulds at high pressure. Also known as Type B.
- Tiles – extruded: Tiles whose body is shaped in the plastic state in an extruder then cut to size. Also known as Type A.
- Underlay: A non-structural layer of rubber, cork, plywood or in situ levelling compound to provide a smooth and flat surface for flooring installation. Rubber and cork underlays have acoustic sound absorbing properties.

- Wet area: An area within a building supplied with a floor waste.

1.5 TOLERANCES

Completed tiling

Requirement: To the recommendations of AS 3958.1 clause 5.4.6.

1.6 SUBMISSIONS

Execution details

Grouting: Submit proposals for grouting methods and materials.

Margins: If it appears that minor variations in joint widths or overall dimensions will avoid cut tiles, submit a proposal.

Operation and maintenance manuals

General: Submit a manual describing care and maintenance of the tiling, including procedures for maintaining the slip-resistance classification stating the expected life of the slip-resistance classification.

Products and materials

Product conformity: Submit the following:

- Tiles: Evidence of conformity to AS 13006.
- Tile adhesive: Evidence of conformity to AS ISO 13007.1.
- Acoustic underlay: Evidence of weighted normalised impact sound pressure level to AS ISO 717.2 as measured for the complete tiling system.

Type tests: Submit results, as follows:

- Slip resistance to AS 4586.

Samples

General: Submit labelled samples of tiles, including fittings, accessories, grout and sealants, illustrating the range of variation in colour and finish.

Sample panels: Prepare a sample panel of each type of tiling system as follows:

- Size: > 2 m^2.
- Include samples of junction details and trim.
- Preserve the panel until related work is complete.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

Tests

Site tests: Submit results, as follows:

- Slip resistance test of completed installation.
- Impact sound insulation rating.

1.7 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate immediately before tiling.
- Trial set-outs before execution.
- Control joints before sealing and grouting.
- Grout and sealant colours before application.

2 PRODUCTS

2.1 UNDERLAY

Acoustic underlay

General: Provide a proprietary product recommended by the manufacturer as compatible with the tiling system.

2.2 TILES AND ACCESSORIES

Tiles

Standard: To AS 13006.

Coves, nosings and skirtings: Provide matching stop-end and internal and external angle tiles moulded for that purpose.

Exposed edges: Purpose-made border tiles with the exposed edge (whether round, square or cushion) glazed to match the tile face. If such tiles are not available, mitre tiles on external corners.

Accessories

General: Provide tile accessories which match the composition, colour and finish of the surrounding tiles.

2.3 ADHESIVES

General

Standard: To AS ISO 13007.1.

Type

General: Provide adhesives compatible with the materials and surfaces to be adhered, and as documented.

Prohibited uses: Do not provide the following combinations:

- Cement-based adhesives on wood, metal, painted or glazed surfaces, gypsum-based plaster.
- Organic solvent-based adhesives on painted surfaces.
- Organic PVC-based adhesives and organic natural rubber latex adhesives in damp or wet conditions.
- PVA (polyvinyl acetate) based adhesives in wet areas or externally.

2.4 MORTAR

Materials

Cement type to AS 3972: GP.

- White cement: Iron salts content ≤ 1%.
- Off-white cement: Iron salts content ≤ 2.5%.

Lime: To AS 1672.1.

Sand: Fine aggregate with a low clay content selected for grading, sharp and free from efflorescing salts.

Measurement of volume: Measure binders and sand by volume using buckets or boxes. Do not allow sand to bulk by absorption of water.

Bedding mortar

Mix proportion (cement:sand), by volume: Select proportions from the range 1:3 to 1:4 for satisfactory adhesion. Provide minimum water.

Mixing: To AS 3958.1 clause 2.15.

Water

General: Clean and free from any deleterious matter.

2.5 GROUT

Type

Cement based proprietary grout: Mix with water. Fine sand may be added as a filler in wider joints.

Terracotta tiles: Use proprietary polymer modified grout.

General purpose cement based grout: Mix with fine sand. Provide minimum water consistent with workability.

Mix proportions (cement:sand), by volume:

- For joints < 3 mm: 1:2.
- For joints ≥ 3 mm: 1:3.

Pigments

Pigments for coloured grout: Provide colourfast fillers compatible with the grout material. For cement-based grouts, provide lime-proof natural or synthetic metallic oxides compatible with cement.

2.6 CONTROL JOINTS

Control joint materials

Control joint strip: A proprietary control joint consisting of a neoprene core sandwiched between metal plates with lugs or ribs for mechanical keying. Set flush with the finished surface.

Proprietary slide plate divider strip: An arrangement of interlocking metal plates grouted into pockets formed in the concrete joint edges.

Sealant: One-part self-levelling non-hardening mould resistant, silicone or polyurethane sealant applied over a backing rod. Finish flush with the finished surface.

- Floors: Trafficable, shore hardness greater than 35.

Backing rod: Compressible closed cell polyethylene foam with a bond breaking surface.

3 EXECUTION

3.1 SUBSTRATES

Drying and shrinkage

General: Before tiling, allow at least the following times to elapse (for initial drying out and shrinkage) for these substrates:

- Concrete slabs: 42 days.
- Concrete blockwork: 28 days.
- Toppings on slabs and rendering on brick or blockwork: A further 21 days.
- Rendering swimming pool shell: A further 21 days minimum.

3.2 PREPARATION

Standard

Preparation: To the recommendations of AS 3958.1 Section 4.

Ambient temperature

General: If the ambient temperature is less than 5°C or greater than 35°C, do not lay tiles.

Substrates without wet area membranes

General: Make sure substrates are as follows:

- Clean and free of any deposit or finish which may impair adhesion or location of tiles.
- If framed or discontinuous, support members are in full lengths without splicing.
- If solid or continuous:
  - . Remove excessive projections.
  - . Fill voids and hollows greater than 10 mm with abrupt edges with a cement:sand mix not stronger than the substrate or weaker than the bedding.
  - . Fill depressions less than 10 mm with a latex modified cementitious product and eliminate feathering by scabbling the edges.

Absorbent substrates: If suction is excessive, control it by dampening but avoid over-wetting and do not apply mortar bedding to substrates showing surface moisture.

Dense concrete: If not sufficiently rough to provide a mechanical key, roughen by scabbling or the like to remove 3 mm of the surface and expose the aggregate; then apply a bonding treatment.

Substrates with wet area membranes

General: Make sure substrates are as follows:

- Clean and free of any deposit or finish which may impair adhesion or location of tiles.
- Compatible with all components of the floor system.

Trial set-out

General: Prepare a trial tile set-out of each area, as follows:

- Maximise the size of equal margins of cut tiles.
- Locate control joints.
- Note minor variations in joint widths to eliminate cut tiles at margins. Set out tiles from the centre of the floor or wall to be tiled and, if possible, ensure cut tiles are a half tile or larger.
- Locate fittings on walls.

3.3 FIXING UNDERLAY

Installation

Requirement: Lay in staggered (brick) pattern, perpendicular to the direction of the subfloor, with joins in the underlay not coinciding with joints in the subfloor. Fix with fasteners and fastener spacing to the manufacturers recommendations.

3.4 TILING GENERALLY

Sequence

General: Fix wall tiles before floor tiles.

Cutting and laying

Cutting: Cut tiles neatly to fit around fixtures and fittings and at margins where necessary. Drill holes without damaging tile faces. Cut recesses for fittings such as soap holders. Rub edges smooth without chipping.

Laying: Return tiles into sills, reveals and openings. Butt up to returns, frames, fittings, and other finishes. Strike and point up beds where exposed. Remove tile spacers before grouting.

Variations

General: Distribute variations in hue, colour, or pattern uniformly, by mixing tiles or tile batches before laying.

Protection

Floor tiles: Keep traffic off floor tiles until the bedding has set and attained its working strength.

Cleaning: Keep the work clean as it proceeds and protect finished work from damage.

3.5 SETTING OUT

Tile joints

Joint widths: Set out tiles to give uniform joint widths within the following limits:

- Floors:
  - . Dry pressed tiles: 1-3 mm.
  - . Vitrified: 3 mm.
- Mounted mosaics: To match mounting pattern.
- Walls:
  - . Dry pressed tile: 1.5 mm.

Joint alignment: Set out tiling with joints accurately aligned in both directions and wall tiling joints level and plumb.

Joint position: Set out tiles from the centre of the floor or wall to be tiled.

Margins

General: Provide whole or purpose-made tiles at margins where practicable, otherwise, set out to give equal margins of cut tiles. If margins less than half a tile width are unavoidable, locate the cut tiles where they are least conspicuous.

Fixtures

General: If possible, position tiles so that holes for fixtures and other penetrations occur at the intersection of horizontal and vertical joints or on the centre lines of tiles. Continue tiling fully behind fixtures which are not built in to the tiling surface. Before tiling make sure fixtures interrupting the tile surfaces are accurately positioned in their designed or optimum locations relative to the tile layout.

3.6 FALLS AND LEVELS

Grading

Requirement: Grade floor tiling to even and correct falls to floor wastes and elsewhere as required. Make level junctions with walls. Where falls are not required, lay level.

Fall: Conform to the following:

- General: 1:100 minimum.
- Shower areas to a central waste outlet: 1:80 minimum.

Change of finish: Maintain finished floor level across changes of floor finish including carpet.

3.7 BEDDING

Standard

Cement mortar: To AS 3958.1 clause 5.5.

Adhesive: To AS 3958.1 clause 5.6.

Preparation of tiles

Adhesive bedding: Fix tiles dry; do not soak.

Mortar bedding: Soak porous tiles in water for half an hour and then drain until the surface water has disappeared.

Bedding

General: Use bedding methods and materials which are appropriate to the tile, the substrate, the conditions of service, and which leave the tile firmly and solidly bedded in the bedding material and adhered to the substrate. Form falls integral with the substrate.

Thin adhesive beds

General: Provide only if the substrate deviation is less than 3 mm, tested with a 3 m straightedge. Cover the entire tile back with adhesive when the tile is bedded.

Thickness: 1.5 to 3 mm.

Thick adhesive beds

General: Provide on substrates with deviations up to 6 mm, tested with a 3 m straightedge, and with tiles having deep keys or frogs.

Nominal thickness: 6 mm.

Adhesive bedding application

General: Apply adhesive by notched trowel to walls and floors and direct to tiles if required, to provide evenly distributed coverage after laying as follows:

- Domestic internal walls: > 65%.
- Domestic internal floors: > 80%.
- Other walls and floors: > 90%.
- Wet areas and benchtops: 100%.

Pattern of distribution of adhesive: To the recommendations of AS 3958.1 clause 5.6.4.3. Verify by examining one tile in ten as work proceeds.

Wall tile spacers: Do not use spacer types that inhibit the distribution of adhesive.

Curing: Allow the adhesive to cure for the period nominated by the manufacturer before grouting or allowing foot traffic.

Mortar beds

For floor tiles: Either lightly dust the screeded bed surface with dry cement and trowel level until the cement is damp, or spread a thin slurry of neat cement, or cement-based thin bed adhesive, on to the tile back. Do not use mortar after initial set has occurred.

- Nominal thickness: 20 to 40 mm.

Thick reinforced beds: Place mortar bed in two layers, and incorporate the mesh reinforcement in the first layer.

3.8 CONTROL OF MOVEMENT

General

Requirement: Provide control joints carried through the tile and the bedding to the recommendations of AS 3958.1 clause 5.4.5 and as follows:

- Floor location:
  - . Over structural control joints.
  - . To divide complex room plans into rectangles.
  - . Around the perimeter of the floor.
  - . At junctions between different substrates.
  - . To divide large tiled areas into bays.
  - . At abutments with the building structural frame and over supporting walls or beams where flexing of the substrate is anticipated.
- Wall location:
  - . Over structural control joints.
  - . At junctions with different substrate materials when the tiling is continuous.
  - . At vertical corners in shower compartments.
- Depth of joint: Right through to the substrate.
- Sealant width: 6 to 25 mm.
- Depth of elastomeric sealant: One half the joint width, or 6 mm, whichever is the greater.

3.9 GROUTED AND SEALANT JOINTS

Grouted joints

General: Commence grouting as soon as practicable after bedding has set. Clean out joints as necessary before grouting.

Face grouting: Fill the joints solid and tool flush. Clean off surplus grout. Wash down when the grout has set. When grout is dry, polish the tiled surface with grout film remover and a clean cloth.

Edges of tiles: Grout exposed edge joints.

Epoxy grouted joints: Make sure tile edge surfaces are free of extraneous matter such as cement films or wax, before grouting.

Mosaic tiles

Grouting mosaics: If paper faced mosaics are to be bedded in cement mortar, pre-grout the sheeted mosaics from the back before fixing. After fixing, rub grout into the surface of the joints to fill any voids left from pre-grouting. Clean off surplus grout. When grout has set, wash down. If necessary, use a proprietary cement remover.

Sealant joints

General: Provide joints filled with sealant and finished flush with the tile surface as follows:

- Where tiling is cut around sanitary fixtures.
- At internal corners of walls in showers.
- Around fixtures interrupting the tile surface, for example pipes, brackets, bolts and nibs.
- At junctions with elements such as window and door frames and built-in cupboards.

Material: Anti-fungal modified silicone.

Width: 5 mm.

Depth: Equal to the tile thickness.

3.10 JOINT ACCESSORIES

Floor finish dividers

General: Finish tiled floors at junctions with differing floor finishes with a corrosion-resistant metal dividing strip fixed to the substrate using mechanical fixings, with top edge flush with the finished floor. If changes of floor finish occur at doorways, make the junction directly below the closed door. Grout up underneath to provide continuous support.

Stepping: Less than 5 mm.

Adjustments

Requirement: Check that the height of the floor finish divider is sufficient for the topping and tile thickness. Adjust as required with a matching flat bar adhesive fixed to the divider angle.

3.11 TESTING

Site tests

Slip resistance of completed installation: To AS 4663.

Impact sound insulation rating of completed installation: To AS ISO 717.2.

3.12 COMPLETION

Cleaning

General: Clean tiled surfaces using an appropriate tile cleaning agent, and polish.

Spare tiles

General: Supply spare matching tiles and accessories of each type for future replacement purposes. Store the spare materials on site.

Quantity: At least 1% of the quantity installed.

4 SELECTIONS

4.1 SCHEDULES

Wall tiling schedule

Type	Ceramic wall tiling
Finish code:	**CT-1, CT-2**
Requirement:	Refer to Schedule of colours & finishes.

	Signorino CIFRE Torino Alchimia
Colour:	As scheduled.
Size:	150x150x8mm.
Joint thickness:	2mm.
Adhesives:	Proprietary premium quality adhesives to approval, and as recommended by the tile supplier/manufacturer.
Grout:	Laticrete or similar approved premium quality proprietary grout as selected, or as recommended by the manufacturer/supplier. Colour as directed.
Sample:	Required.
Locations:	Bathroom walls. Refer to drawings.

Pool tiling schedule

Type	Ceramic pool tiling
Finish code:	**CT-3**
Requirement:	Refer to Schedule of colours & finishes.
	Cotto
Colour:	As scheduled.
Size:	47x47mm. Sheet 295x295mm.
Joint thickness:	To match mounting pattern.
Adhesives:	Proprietary premium quality adhesives to approval, and as recommended by the tile supplier/manufacturer.
Grout:	Laticrete or similar approved premium quality proprietary grout as selected, or as recommended by the manufacturer/supplier. Colour as directed.
Sample:	Required.
Locations:	Pool lining. Refer to drawings.

SECTION 30 STONE AND TERRAZZO TILING

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirements:

- Consistent in colour and finish.
- Firmly bonded to substrates for the expected life of the installation.
- Set out with joints accurately aligned in both directions and wall tiling joints level and plumb.
- Direct all water flowing from supply points to drainage outlets without leakage to the substrate or adjacent areas.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.3 STANDARDS

Tiling

General: Conform to the recommendations of those parts of AS 3958.1 referenced in this worksection.

Slip resistance

Classification: To AS 4586.

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection, the following definitions apply:

- Acoustic underlay: A resilient material laid between the subfloor and the flooring material to provide sound isolation.
- Adhesives - cementitious (C): Adhesive in which the binders are hydraulic, e.g. General purpose cement, with aggregates and organic additives.
- Adhesives - dispersion (D): Adhesives in which the binders are in the form of aqueous polymer dispersion with mineral fillers and organic additives.
- Adhesives - reaction resin (R): Adhesives in which in the binders are synthetic resins with mineral fillers and organic additives. The curing occurs by chemical reaction.
- Bedding: Mixtures of materials which are applied to substrates in a plastic state and which dry, cure and adhere tiles to substrates:
  - . Adhesive bedding: Paving/tiling adhered by adhesives.
  - . Mortar bedding: Paving/tiling adhered in a cementitious mortar bed.
- Lippage: Height deviation between adjacent units.
- Stepping: The relative surface level of adjacent paving elements within the expanse of the main pavement.
- Substrate: The surface to which a material or product is applied.
- Tile: Thin slab made from clay and/or other inorganic raw materials used generally as coverings for floors and walls and adhered to continuous supporting substrates.
- Tiles – cementitious: Cement based prefinished tiles.
- Tiles – industrial cast: Tile products of reconstituted stone. Also known as manufactured stone.
- Tiles – natural stone: Tiles cut from natural stone.
- Wet area: An area within a building supplied with a floor waste.

1.5 TOLERANCES

Completed tiling

Requirement: To the recommendations of AS 3958.1 clause 5.4.6.

1.6 SUBMISSIONS

Execution details

Grouting: Submit proposals for grouting methods and materials.

Margins: If it appears that minor variations in joint widths or overall dimensions will avoid cut tiles, submit a proposal.

Operation and maintenance manuals

General: Submit a manual describing care and maintenance of the tiling, including procedures for maintaining the slip-resistance classification stating the expected life of the slip-resistance classification.

Products and materials

Product conformity: Submit evidence of conformity to the following:

- Marking and classification of tile adhesive to AS ISO 13007.1.
- Weighted normalised impact sound pressure level to AS ISO 717.2 as measured for the acoustic underlay as part of the entire tiling system.

Type tests: Submit results, as follows:

- Slip resistance of tiles.
- Accelerated wear test.
- Stone tile properties.

Samples

General: Submit labelled samples of tiles, including fittings, accessories, grout and sealants, illustrating the range of variation in colour and finish.

Sample panels: Prepare a sample panel of each type of finish as follows:

- Size: ≥ 2 m^2.
- Include samples of junction details and trim.
- Preserve each panel until related work is complete.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

Tests

Site tests: Submit results, as follows:

- Slip resistance test of completed installation
- Impact sound insulation rating.

1.7 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate immediately before tiling.
- Trial set-outs before execution.
- Control joints before sealing and grouting.
- Grout and sealant colours before application.

2 PRODUCTS

2.1 UNDERLAY

Acoustic underlay

General: Provide a proprietary product recommended by the manufacturer as compatible with the tiling system.

2.2 ADHESIVES

General

Standard: To AS ISO 13007.1.

Type

General: Provide adhesives compatible with the materials and surfaces to be adhered, and as documented.

Prohibited uses: Do not provide the following combinations:

- Cement-based adhesives on wood, metal, painted or glazed surfaces, gypsum-based plaster.
- Organic solvent-based adhesives on painted surfaces.
- Organic PVC-based adhesives and organic natural rubber latex adhesives in damp or wet conditions.
- PVA (polyvinyl acetate) based adhesives in wet areas or externally.

2.3 MORTAR

Materials

Cement type to AS 3972: GP.

- White cement: Iron salts content ≤ 1%.
- Off-white cement: Iron salts content ≤ 2.5%.

Lime: To AS 1672.1.

Sand: Fine aggregate with a low clay content selected for grading, sharp and free from efflorescing salts.

Measurement of volume: Measure binders and sand by volume using buckets or boxes. Do not allow sand to bulk by absorption of water.

Bedding mortar

Mix proportion (cement:sand), by volume: Select proportions from the range 1:3 to 1:4 for satisfactory adhesion. Provide minimum water.

Mixing: To AS 3958.1 clause 2.15.

Water

General: Clean and free from any deleterious matter.

2.4 GROUT

Type

Cement based proprietary grout: Mix with water. Fine sand may be added as a filler in wider joints.

General purpose cement based grout: Mix with fine sand. Provide minimum water consistent with workability.

Mix proportions (cement:sand), by volume:

- For joints < 2 mm: 1:2.
- For joints ≥ 2 mm: 1:3.

Pigments

Pigments for coloured grout: Provide colourfast fillers compatible with the grout material. For cement-based grouts, provide lime-proof natural or synthetic metallic oxides compatible with cement.

2.5 CONTROL JOINTS

Control joint materials

Control joint strip: A proprietary control joint consisting of a neoprene core sandwiched between metal plates with lugs or ribs for mechanical keying. Set flush with the finished surface.

Proprietary slide plate divider strip: An arrangement of interlocking metal plates grouted into pockets formed in the concrete joint edges.

Sealant: One-part self-levelling non-hardening mould resistant, silicone or polyurethane sealant applied over a backing rod. Finish flush with the finished surface.

- Floors: Trafficable, shore hardness greater than 35.

Backing rod: Compressible closed cell polyethylene foam with a bond breaking surface.

3 EXECUTION

3.1 SUBSTRATES

Drying and shrinkage

General: Before tiling, allow at least the following times to elapse (for initial drying out and shrinkage) for these substrates:

- Concrete slabs: 42 days.
- Concrete blockwork: 28 days.

- Toppings on slabs and rendering on brick or blockwork: A further 21 days.

3.2 PREPARATION

Ambient temperature

General: If the ambient temperature is less than 5°C or greater than 35°C, do not lay tiles.

Substrates without wet area membranes

General: Make sure substrates are as follows:

- Clean and free of any deposit or finish which may impair adhesion or location of tiles.
- If framed or discontinuous, support members are in full lengths without splicing.
- If solid or continuous:
  - . Remove excessive projections.
  - . Fill voids and hollows greater than 10 mm with abrupt edges with a cement:sand mix not stronger than the substrate or weaker than the bedding.
  - . Fill depressions less than 10 mm with a latex modified cementitious product and eliminate feathering by scabbling the edges.

Absorbent substrates: If suction is excessive, control it by dampening but avoid over-wetting and do not apply mortar bedding to substrates showing surface moisture.

Dense concrete: If not sufficiently rough to provide a mechanical key, roughen by scabbling or the like to remove 3 mm of the surface and expose the aggregate; then apply a bonding treatment.

Substrates with wet area membranes

General: Make sure substrates are as follows:

- Clean and free of any deposit or finish which may impair adhesion or location of tiles.
- Compatible with all components of the floor system.

Trial set-out

General: Prepare a trial tile set-out of each area, as follows:

- Maximise the size of equal margins of cut tiles.
- Locate control joints.
- Note minor variations in joint widths to eliminate cut tiles at margins. Set out tiles from the centre of the floor or wall to be tiled and, if possible, ensure cut tiles are a half tile or larger.
- Locate fittings on walls.

3.3 TILING GENERALLY

Sequence

General: Fix wall tiles before floor tiles.

Cutting and laying

Cutting: Cut tiles neatly to fit around fixtures and fittings and at margins where necessary. Drill holes without damaging tile faces. Cut recesses for fittings such as soap holders. Rub edges smooth without chipping.

Laying: Return tiles into sills, reveals and openings. Butt up to returns, frames, fittings, and other finishes. Strike and point up beds where exposed. Remove tile spacers before grouting.

Variations

General: Distribute variations in hue, colour, or pattern uniformly, by mixing tiles or tile batches before laying.

Protection

Floor tiles: Keep traffic off floor tiles until the bedding has set and attained its working strength.

Cleaning: Keep the work clean as it proceeds and protect finished work from damage.

3.4 SETTING OUT

General

Joint widths: Set out tiles to give uniform joint widths as follows:

- Floors:
  - . Stone tiles 400 x 400 mm or less and with sawn edges: 1-2 mm.

Margins

General: Provide whole or purpose-made tiles at margins where practicable, otherwise, set out to give equal margins of cut tiles. If margins less than half a tile width are unavoidable, locate the cut tiles where they are least conspicuous.

Fixtures

General: If possible, position tiles so that holes for fixtures and other penetrations occur at the intersection of horizontal and vertical joints or on the centre lines of tiles. Continue tiling fully behind fixtures which are not built in to the tiling surface. Before tiling make sure fixtures interrupting the tile surfaces are accurately positioned in their designed or optimum locations relative to the tile layout.

3.5 FALLS AND LEVELS

Grading

Requirement: Grade floor tiling to even and correct falls to floor wastes and elsewhere as required. Make level junctions with walls. Where falls are not required, lay level.

Fall: Conform to the following:

- General: 1:100 minimum.
- Shower areas to a central waste outlet: 1:80 minimum.

Change of finish: Maintain finished floor level across changes of floor finish including carpet.

3.6 BEDDING

Preparation of tiles

Adhesive bedding: Fix tiles dry; do not soak.

Mortar bedding: Soak porous tiles in water for half an hour and then drain until the surface water has disappeared.

Bedding

General: Use bedding methods and materials which are appropriate to the tile, the substrate, the conditions of service, and which leave the tile firmly and solidly bedded in the bedding material and adhered to the substrate. Form falls integral with the substrate.

Thin adhesive beds

General: Provide only if the substrate deviation is less than 3 mm, tested with a 3 m straightedge. Cover the entire tile back with adhesive when the tile is bedded.

Thickness: 1.5 to 3 mm.

Thick adhesive beds

General: Provide on substrates with deviations up to 6 mm, tested with a 3 m straightedge, and with tiles having deep keys or frogs.

Nominal thickness: 6 mm.

Adhesive bedding application

General: Apply adhesive by notched trowel to walls and floors and direct to tiles if required, to provide evenly distributed coverage after laying as follows:

- Domestic internal walls: > 65%.
- Domestic internal floors: > 80%.
- Other walls and floors: > 90%.
- Wet areas and benchtops: 100%.

Pattern of distribution of adhesive: To the recommendations of AS 3958.1 clause 5.6.4.3. Verify by examining one tile in ten as work proceeds.

Wall tile spacers: Do not use spacer types that inhibit the distribution of adhesive.

Curing: Allow the adhesive to cure for the period nominated by the manufacturer before grouting or allowing foot traffic.

Mortar beds

For floor tiles: Either lightly dust the screeded bed surface with dry cement and trowel level until the cement is damp, or spread a thin slurry of neat cement, or cement-based thin bed adhesive, on to the tile back. Do not use mortar after initial set has occurred.

- Nominal thickness: 20 to 40 mm.

Thick reinforced beds: Place mortar bed in two layers, and incorporate the mesh reinforcement in the first layer.

3.7 CONTROL OF MOVEMENT

General

Requirement: Provide control joints carried through the tile and the bedding to the recommendations of AS 3958.1 clause 5.4.5 and as follows:

- Floor location:
  - . Over structural control joints.
  - . To divide complex room plans into rectangles.
  - . Around the perimeter of the floor.
  - . At junctions between different substrates.
  - . To divide large tiled areas into bays.
  - . At abutments with the building structural frame and over supporting walls or beams where flexing of the substrate is anticipated.
- Wall location:
  - . Over structural control joints.
  - . At junctions with different substrate materials when the tiling is continuous.
  - . At vertical corners in shower compartments.
- Depth of joint: Right through to the substrate.
- Sealant width: 6 to 25 mm.
- Depth of elastomeric sealant: One half the joint width, or 6 mm, whichever is the greater.

3.8 GROUTED AND SEALANT JOINTS

Grouted joints

General: Commence grouting as soon as practicable after bedding has set. Clean out joints as necessary before grouting.

Face grouting: Fill the joints solid and tool flush. Clean off surplus grout. Wash down when the grout has set. When grout is dry, polish the tiled surface with grout film remover and a clean cloth.

Edges of tiles: Grout exposed edge joints.

Epoxy grouted joints: Make sure tile edge surfaces are free of extraneous matter such as cement films or wax, before grouting.

Grouting cementitious terrazzo tiles: Thoroughly work grout into tile joints by flood grouting.

Sealant joints

General: Provide joints filled with sealant and finished flush with the tile surface as follows:

- Where tiling is cut around sanitary fixtures.
- At internal corners of walls in showers.
- Around fixtures interrupting the tile surface, for example pipes, brackets, bolts and nibs.
- At junctions with elements such as window and door frames and built-in cupboards.

Material: Anti-fungal modified silicone.

Width: 5 mm.

Depth: Equal to the tile thickness.

3.9 JOINT ACCESSORIES

Floor finish dividers

General: Finish tiled floors at junctions with differing floor finishes with a corrosion-resistant metal dividing strip fixed to the substrate using mechanical fixings, with top edge flush with the finished floor. If changes of floor finish occur at doorways, make the junction directly below the closed door. Grout up underneath to provide continuous support.

Floor finish divider strips for resin terrazzo tiles: A proprietary neoprene T section.

Stepping: Less than 5 mm.

Adjustments

Requirement: Check that the height of the floor finish divider is sufficient for the topping and tile thickness. Adjust as required with a matching flat bar adhesive fixed to the divider angle.

3.10 TESTING

Site tests

Slip resistance of completed installation: To AS 4663.

Impact sound insulation rating of completed installation: To AS ISO 717.2.

3.11 COMPLETION

Cleaning

General: Clean tiled surfaces using an appropriate tile cleaning agent, and polish.

Spare tiles

General: Supply spare matching tiles and accessories of each type for future replacement purposes. Store the spare materials on site.

Quantity: At least 1% of the quantity installed.

4 SELECTIONS

4.1 SCHEDULES

Internal floor tiling schedule

Type	Bluestone
Finish code:	**ST-1**
Requirement:	Refer to *Schedule of colours & finishes.*
	Bamstone standard grade bluestone.
Size:	400 x 400 x 20mm.
Finish:	Honed.
Joint thickness:	Minimal.
Grout:	Proprietary grout to approval. Colour as selected.
Sealer:	S-3
Sample:	Required.
Locations:	General floor. Refer to drawings.

Type	Bluestone
Finish code:	**ST-2**
Requirement:	Refer to *Schedule of colours & finishes.*
	Signorino dark sawn bluestone.
Size:	400 x 400 x 15mm.
Finish:	Sawn.
Joint thickness:	Minimal.
Grout:	Proprietary grout to approval. Colour as selected.
Sealer:	S-3.
Slip Resistance:	P5
Sample:	Required.
Locations:	Bathroom, DDA bathroom floor. Refer to drawings.

External floor tiling schedule

Type	Bluestone on pedestals
Finish code:	**ST-4**
Requirement:	Refer to *Schedule of colours & finishes.*
	Signorino dark sawn bluestone.
Size:	400 x 400 x 30mm.
Finish:	Sawn.
Joint thickness:	Minimum determined by pedestal.
Support:	Proprietary screwjack type pedestals, BUZON or equal approved. Height

	adjustable 20–150mm.
Sealer:	S-3.
Slip Resistance:	P5.
Sample:	Required.
Locations:	Pool terrace area. Refer to drawings.

Type	Pool coping tiles
Finish code:	**ST-4**
Requirement:	Refer to *Schedule of colours & finishes.*
	Signorino dark sawn bluestone.
Profile:	Custom profile as detailed on the drawings.
Finish:	Sawn.
Joint thickness:	Minimal.
Sealer:	S-3.
Slip Resistance:	P5.
Sample:	Required.
Locations:	Pool coping. Refer to drawings.

SECTION 31 RESILIENT FINISHES

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.2 STANDARDS

General

Installation: To AS 1884.

Slip resistance

Classification: To AS 4586.

1.3 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS 1884 and the following apply:

- Acoustic underlay: A resilient material laid between the subfloor and the flooring material to provide sound isolation.
- Resilient floor coverings classification: To EN ISO 10874.
- Substrate: The surface to which a material or product is applied.
- Underlay: A non-structural layer of in situ levelling compound to provide a smooth and flat surface for flooring installation.

1.4 SUBMISSIONS

Certification

General: Submit a certificate of conformity for static dissipative and static conductive floor installations.

Fire performance

Fire hazard properties: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire hazard properties**.

Operation and maintenance manuals

General: Submit manufacturer's instructions for care and maintenance for each type of finish.

Products and materials

Manufacturer's data: Submit the manufacturer's product data sheets for each type of finish, and the manufacturer's recommendations for its application including the following, as appropriate:

- Thickness and width of sheet.
- Adhesive and jointing method.
- Resistance to wear, indentation, chemicals, light and fire.
- Flexibility and bending strength.

Type tests: Submit results, as follows:

- Slip resistance to AS 4586.

Samples

Range: Submit labelled samples of resilient finishes illustrating the range of colour, pattern or texture of the product.

Minimum size per sample:

- Sheet: 450 x 450 mm.

Identification: Label each sample, with brand, product name, and manufacturer's code reference (including the code for each coat of multi-coat work).

Trial set-out: Prepare a trial set-out before fixing.

Subcontractors

General: Submit names and contact details of proposed suppliers and installers.

Substrate acceptance: Submit evidence of installer's acceptance of the flooring substrate before starting installation.

Tests

Site tests: Submit results, as follows:

- Slip resistance test of completed installation.
- Surface pH test.
- Moisture content test.

Warranties

Requirement: For each type of resilient finish specified, submit the manufacturer and installer's warranty of the material, workmanship and application.

1.5 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate immediately before fixing resilient finishes or underlay.
- Trial set-outs before execution.
- Completed underlay, if any.
- Finished surface before applying sealers or polishes (if any).
- Completed installation.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Requirement: Store and handle to the manufacturer's recommendations.

2.2 FIRE PERFORMANCE

Fire hazard properties

Critical radiant flux: Tested to AS ISO 9239.1.

2.3 UNDERLAYS

Cementitious

General: Polymer modified cementitious smoothing and self-levelling compound.

Thickness: 3 mm minimum.

2.4 ADHESIVES

General

Requirement: To the resilient finishes manufacturer's recommendations.

2.5 SHEETS, TILES AND PLANKS

Rubber

Standard:

- Smooth rubber: To EN 1817.
- Textured/relief rubber: To EN 12199.

2.6 SYNTHETIC SPORTING SURFACES

Standard

General: To EN 14904.

3 EXECUTION

3.1 SUBCONTRACTORS

General

Requirement: Use specialist installers recommended by the material manufacturers.

3.2 PREPARATION

Substrates

General: To AS 1884 Section 3.

Substrate tolerance table

Property	Length of straightedge laid in any direction	Max. deviation under the straightedge
Planeness	2000 mm	4 mm
Abrupt deviation tolerance	150 mm	0.5 mm

Concrete substrates

Requirement: Do not start installation of the resilient finishes until the concrete substrate conforms to AS 1884 clause 3.1 and the adhesive and resilient finish manufacturers' recommendations.

Substrate rectification: Conform to the following:

- Surface treatments: Mechanically remove any incompatible surface treatments, including the following:
  - . Sealers and hardeners.
  - . Curing compounds.
  - . Waterproofing additives.
  - . Surface coatings and contamination.
- Surface quality: Remove projections and fill voids and hollows with a smoothing and self-levelling compound compatible with the adhesive. Allow filling or levelling compound to dry to manufacturer's recommendations.

Cleaning: Remove loose materials or dust.

Working environment

General: Do not start work before the building is enclosed, wet work is complete and dry, overhead work is complete and good lighting is available. Protect adjoining surfaces.

Conditioning

Conditioning of floor covering and subfloor: To AS 1884 clause 4.1 and manufacturer's recommendations.

3.3 INSTALLATION

General

Requirement: To AS 1884 Section 5 and the manufacturer's recommendations.

Sheet set-out

General: Set out sheets to give the minimum number of joints. Position joints away from areas of high stress. Run sheet joints parallel with the long sides of floor areas, vertically on non-horizontal surfaces.

Edges

General: Make sure edges are firm, unchipped and machine-cut accurately to size and square to the face, and that edges are square to each other before installation.

Joints

Non-welded: Butt edges together to form tight neat joints showing no visible open seams.

Doorways: Where changes of floor finish occur at doorways, locate the joint on the centreline of the door leaf in the closed position.

Expansion joints

General: To the manufacturer's recommendations for joint widths, and area and length limitations.

Junctions

General: Scribe neatly up to returns, edges, fixtures and fittings. Finish flush with adjoining surfaces.

Rolling

General: If rolling is required, roll the finish in multiple directions before the adhesive sets.

Change of finish

General: Maintain finished floor level across changes of floor finish including carpet.

Cleaning

General: Keep the surface clean as the work proceeds.

3.4 TESTING

Substrate tests

Moisture content: Test substrate for suitability for the installation of resilient floor coverings to AS 1884 Appendix A.

- Maximum relative humidity of concrete: To AS 1884 Appendix A3.2.

Surface pH: Test concrete subfloor for suitability for the installation of resilient floor coverings to AS 1884 Appendix C.

- Maximum pH: 10.

Site tests

Slip resistance of completed installation: To AS 4663.

3.5 COMPLETION

Protection

Finished floor surface: Keep traffic off floors for a minimum of 24 hours after laying or until bonding has set, whichever period is the longer. Avoid contact with water for minimum 7 days after laying.

Reinstatement

Extent: Repair or replace faulty or damaged work. If the work cannot be repaired satisfactorily, replace the whole area affected.

Cleaning

General: Clean the finished surface. Buff and polish. Before the date for practical completion, mop and leave the finished surface clean and undamaged on completion.

Spare materials

General: Supply spare matching resilient finishes and accessories of each type for future replacement purposes. Store the spare materials on site where directed.

Quantity: At least 1% of the quantity installed.

4 SELECTIONS

4.1 SCHEDULES

Preparation

Type	High spots
Requirement:	Remove high spots in concrete substrates using a grinder to approval, prior to laying carpet or underlay.

Type	Low spots
Requirement:	Fill low spots in concrete substrates using an approved cement based filler such as Dunlop ARDIT FLOOR LEVELLER.

Rubber flooring schedule

Type	Rubber flooring
Finish code:	**RF-1**
Requirement:	Refer to *Schedule of colours & finishes.*
Proprietary item:	Rephouse NEOFLEX 500 rubber flooring 1.2m wide roll.
Thickness:	12mm.
Colour:	As scheduled.
Installation:	Direct stick as per manufacturers installation instructions.
Samples:	Required.
Locations:	Gymnasium floor. Refer to drawings.

SECTION 32 CARPETS

1 GENERAL

1.1 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.2 STANDARDS

Slip resistance

Classification: To AS 4586.

1.3 INTERPRETATION

Abbreviations

General: For the purposes of this worksection, the following abbreviations apply:

- ACCS: Australian Carpet Classification Scheme.
- CIAL: Carpet Institute of Australia Limited.
- ECS: Environmental Certification Scheme.
- IRA: Insect Resist Agent.
- VOC: Volatile Organic Compound.

Definitions

General: For the purposes of this worksection, the definitions given in AS 2454, AS 2455.1 and AS 2455.2 apply.

1.4 TOLERANCES

General

Requirement: To AS/NZS 1385.

1.5 SUBMISSIONS

Fire performance

Fire hazard properties: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire hazard properties**.

Operation and maintenance manuals

Contents: Submit maintenance manuals with the following:

- A technical specification of the carpet installation.
- The manufacturer's recommendations for use, care and maintenance of the carpet to AS/NZS 3733.
- The names and address of the supplier and manufacturer of each component.

Products and materials

Manufacturer's documentation: Submit copies of the following data:

- Product data sheets.

Slip resistance classification: Submit evidence of conformity to documented requirements.

Type tests: Submit results of testing to PRODUCTS, **TESTS**, as evidence of conformity to documented requirements.

Samples

General: Submit labelled production run samples demonstrating the range of colour, pattern, texture and pile yarn available in each documented carpet type.

Sample size: Submit the following:

- Carpet: Manufacturer's standard swatch.
- Edge strip, trims and extrusions: Submit a 300 mm length of each type.

Shop drawings

General: Submit a floor covering plan to a scale that best describes the detail, conforming to AS 2455.1 clause 2.2.2.

Subcontractors

General: Submit name and contact details of proposed suppliers and installers.

Substrate acceptance: Submit evidence of installer's acceptance of the substrate before starting installation.

Tests

Moisture content and alkalinity of subfloor/substrate: Submit test report as evidence of conformity to **PREPARATION**, **Substrate**.

Warranties

General: Submit the manufacturer's product warranties.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Substrate immediately before fixing underlay.
- Fixings, edge strips, and underlay installed ready to lay carpet.
- Completed carpet after cleaning and before covering for protection.

2 PRODUCTS

2.1 GENERAL

Storage and handling

Requirement: Store on a flat, clean, dry, well ventilated and secure storage area, elevated above the subfloor and unaffected by weather.

2.2 FIRE PERFORMANCE

Fire hazard properties

Critical radiant flux: Tested to AS ISO 9239.1.

2.3 CARPET

Batching

Requirement: Carpet from one manufacturing batch and dye lot.

Antimicrobial treatment

Requirement: Non-metallic, colourless, odourless, positively charged polymer applied during manufacturing to form a molecularly bonded surface to resist bacteria and mould growth.

Insect resistance

Requirement: Carpets and underlays comprising materials either inherently resistant to insect attack or treated against insect attack by moth and carpet beetle, by application of insect resist agents (IRA) to the yarn during wet processing at the manufacturing stage.

Insect resist treatment of wool: Application Level 4 to the recommendations of Woolmark Specification CP-4.

Electrostatic propensity

Maximum electrostatic propensity value: 2500 V at a relative humidity of 25% tested to AATCC TM 134.

Stain and soil resistance

Requirement: Carpet with one or more of the following:

- Fluoro-treatments: Fluorochemical soil and liquid repelling chemical treatment applied during manufacturing.
- Stain blockers: Colourless acid-based dye stainblocker applied to dyed fibres.

Total VOC

Total VOC emission tested to ISO 10580: < 0.5 mg/m^2/h.

2.4 UNDERLAYS

Application

Performance: To AS 2455.1 clause 1.5.2.

Cementitious

General: Polymer modified cementitious smoothing and self-levelling compound.

Thickness: 3 mm minimum.

2.5 OTHER MATERIALS

Adhesives

General: Compatible with the floor covering material, and suitable for bonding it to the subfloor to AS 2455.1 clause 1.5.3.

Friction compound: Suitable for holding carpet tiles in position without permanent sticking.

Hot-melt adhesive tapes

General: Commercial grade glass fibre and cotton thermoplastic adhesive-coated tape 60 mm wide on a 90 mm wide metal foil base and backed with silicone-coated release paper.

Edge strips

Location: At exposed edges of the carpet, and at junctions with differing floor finishes or finishes of a different thickness. Where edge strips occur at doorways, locate the junctions directly below the closed door.

3 EXECUTION

3.1 PREPARATION

General

Pre-installation requirements: To AS 2455.1 Section 2.

Working environment: Do not start work before the building is enclosed, wet work is complete and dry, overhead work is complete and good lighting is available.

Protection: Protect adjoining surfaces.

Substrate

General: Conform to the following:

- To AS 2455.1 or AS 2455.2, as appropriate.
- Clean and free of any deposit or finish which may impair adhesion or location and functioning of control joints.
- Free of any imperfections, including ridges, indentations and projections which may adversely affect the installed carpet.

Concrete substrate rectification: Remove projections, grind as necessary and fill voids and hollows with a levelling compound compatible with the adhesive to achieve the required tolerance.

Moisture content: Do not start installation unless:

- Concrete: The moisture content of the concrete has been tested to AS 2455.1 Appendix B and the values in AS 2455.1 Appendix B and AS 2455.2 Appendix B as appropriate have been obtained.

Alkalinity: Do not start installation unless:

- Concrete: The alkalinity of the concrete has been tested to AS 2455.1 Appendix B and the values in AS 2455.1 Appendix B and AS 2455.2 Appendix B as appropriate have been obtained.

Fixtures: Remove door stops and other fixtures, and refix in position undamaged on completion of the installation. Make sure fixings penetrate substrate and are stable.

Substrate tolerance table

Property	Length of straightedge laid in any direction	Max. deviation under the straightedge
Flatness Class B	3 m	6 mm
Smoothness	150 mm	1 mm
Planar	2000 mm	4 mm

Conditioning

General: Stabilise the room temperature for seven days before, and two days after laying carpet as follows:

- Areas with air conditioning installed: Run air conditioning at operational temperature.
- Air conditioned areas not operational: Maintain a room temperature range between 10°C and 35°C.

Carpet: Cut to length and lay in position, 24 hours before installation.

3.2 INSTALLATION - CARPET

General

Requirement: To AS 2455.1 Section 3 and the manufacturer's recommendations.

Batching

Requirement: In a single area and for each documented type, quality, or colour, use carpet from one manufacturing batch and dye lot.

Seaming methods

Tufted carpet: Seam with hot-melt adhesive tape.

Seam sealing: Apply appropriate seam sealer to each cut edge.

Cutting laid carpet

Method: If penetrations through laid carpet are necessary for electrical, telephone or other outlets, cut the carpet either by cross cutting or by cutting rectangular or circular openings.

Cutting holes in concrete floors: Protect the carpet and remove concrete particles and dust on completion. Replace the cut carpet over the opening without any signs of fraying or other damage, and fix with a peel-up adhesive, or resew.

3.3 COMPLETION

Spares

Spare material: Supply spare matching materials of each type, colour and design of carpet from the same batch for future replacement purposes.

Offcuts: Retain carpet offcuts exceeding 0.5 m^2 in area and 450 mm in both length and width.

Labelling: Label spare and offcut material appropriately, including the location of the laid area corresponding to each batch. Securely and separately package each batch in a suitable wrapping.

Quantity of spare material: At least 1% of the quantity installed, in full or part length rolls.

Cleaning

Requirement: Progressively clean the work. Remove waste, excess materials and adhesive.

Final cleaning: When the installation is complete, clean the carpet as necessary to remove extraneous matter, marks and soiling and to lift the pile where appropriate.

Protection

Requirement: Provide fabric drop sheets. Do not use plastic sheeting. If wheeled traffic is to follow carpet installation, protect with hardboard sheets butted and fixed with adhesive tape.

4 SELECTIONS

4.1 SCHEDULES

Preparation

Type	High spots
Requirement:	Remove high spots in concrete substrates using a grinder to approval, prior to laying carpet or underlay.

Type	Low spots
Requirement:	Fill low spots in concrete substrates using an approved cement based filler such as Dunlop ARDIT FLOOR LEVELLER.

Carpet schedule

Type	Tretford roll
Finish code:	**CPT-1**
Requirement:	Refer to *Schedule of colours & finishes.*
Proprietary item:	Tretford 2m wide roll, 80% goat hair carpet.
Thickness:	7mm.
Colour:	As scheduled.
Installation:	Direct stick as per manufacturers installation instructions.
Samples:	Required.
Locations:	Office. Refer to drawings.

SECTION 33 PAINTING

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirement:

- Consistent in colour, gloss level, texture and dry film thickness.
- Free of runs, sags, blisters, or other discontinuities.
- Paint systems which are fully opaque or at the documented level of opacity.
- Clear finishes at the level of transparency consistent with the product.
- Fully adhered.
- Resistant to environmental degradation within the manufacturer's stated life span.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements*.

1.3 STANDARDS

Painting

General: To the recommendations of those parts of AS/NZS 2311 referenced in this worksection.

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS/NZS 2310 and the following apply:

- Gloss: The optical property of a surface, characterised by its ability to reflect light specularly.
- Gloss unit: Numerical value for the amount of specular reflection relative to that of a standard surface under the same geometric conditions.
- Levels of gloss finish: When the specular direction is 60 degrees, surfaces with the following specular gloss reading is defined as follows:
  - . Full gloss: Over 85 gloss units.
  - . Gloss: Over 50 and up to 85 gloss units.
  - . Semi-gloss (satin): Over 20 and up to 50 gloss units.
  - . Low gloss (low sheen): Over 5 and up to 20 gloss units.
  - . Flat finish (matt): Up to 5 gloss units.
- Opacity: The ability of a paint or textured and membrane coating to obliterate the colour difference of a substrate.
- Paint or coating system: A product in liquid form, which when applied to a surface, forms a dry film having protective, decorative or other specific technical properties.
- Primer, prime coat: The first coat of a painting system that helps bind subsequent coats to the substrate and which may inhibit its deterioration.
- Sealer: A product used to seal substrates to prevent the following:
  - . Materials from bleeding through to the surface.
  - . Reaction of the substrate with incompatible top coats.
  - . Undue absorption of the following coat into the substrate.
- Substrate: The surface to which a material or product is applied.
- Undercoat: An intermediate coat formulated to prepare a primed surface or other prepared surface for the finishing coat.

1.5 SUBMISSIONS

Products and materials

General: Submit the following at least 3 weeks before the paint is required:

- Paint brand name and product range quality statement.
- The published recommendations for maintenance.

Samples

Clear finish coatings: Submit labelled samples of timber or timber veneer matching those to be used in the works as follows:

- Label for identification and prepare, putty, stain, seal and coat, as documented.
- Size: Minimum 500 x 500 mm.

Opaque coatings: Submit labelled samples of each coating system, on representative substrates, showing surface preparation, colour, gloss level, texture, and physical properties.

Subcontractors

Specialist applicators: Submit name and contact details of proposed specialist applicators.

1.6 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Opaque finishing stages:
  - . Completion of surface preparation.
  - . After application of final coat.
- Clear finishing stages:
  - . Before surface preparation of timber.
  - . Completion of surface preparation.
  - . After application of final coat.

2 PRODUCTS

2.1 GENERAL

Storage and handling

General: Store materials not in use in tightly covered containers in well-ventilated areas with temperatures maintained at the manufacturer's recommendations.

2.2 PAINTING MATERIALS

Standards

Paint types: To AS/NZS 2311 Table 4.2 and the following:

- Metal primer - general purpose for iron and steel: To AS/NZS 3750.19.
- Metal primer - latex for metallic zinc surfaces: To AS 3730.15.
- Metal primer - solvent borne for ferrous metallic surfaces: To AS 3730.21.
- Metal primer - zinc-rich organic for iron and steel: To AS/NZS 3750.9.

Combinations

General: Do not combine products from different manufacturers in a paint system.

Clear timber finish systems: Provide only the combinations of putty, stain and sealer recommended by the manufacturer of the topcoat.

Putty and fillers

Material: To the recommendations of the paint system manufacturer, suitable for the substrate and compatible with the primer.

Tinting

General: Provide only products which are colour tinted by the manufacturer or supplier.

Toxic ingredients

General: To the *Poisons Standard (SUSMP)* Part 2 Section 7.

3 EXECUTION

3.1 PREPARATION

Order of work

Other trades: Before painting, complete the work of other trades as far as practicable within the area to be painted, except for the installation of fittings, floor sanding and laying flooring materials.

Clear finishes: Complete clear timber finishes before commencing opaque paint finishes in the same area.

Protection

General: Before painting, clean the area and protect it from dust contamination. Use drop sheets and masking agents to protect surfaces, including finished surfaces and adjacent finishes, during painting.

Fixtures and furniture: Remove door furniture, switch plates, light fittings and other fixtures before painting, and conform to the following:

- Labelling and storage: Attach labels or mark fixtures using a non-permanent method, identifying location and refixing instructions, if required. Store and protect against damage.

Difficult to remove fixtures: Where removal is impractical or difficult, apply surface protection before substrate preparation and painting.

Substrate preparation – generally

General: Prepare substrates to receive the documented paint system.

Cleaning: Clean down the substrate surface. Do not cause damage to the substrate or the surroundings.

Filling: Fill cracks and holes with fillers, sealants, putties or grouting cements as appropriate for the finishing system and substrate, and sand smooth:

- Clear finish: Provide filler tinted to match the substrate.

Clear timber finish systems: Prepare the surface so that its attributes will show through the clear finish without blemishes, using methods including the following:

- Removal of bruises.
- Removal of discolourations, including staining by oil, grease and nailheads.
- Bleaching where necessary to match the timber colour sample.
- Puttying.
- Fine sanding, with the last abrasive no coarser than 220 grit, so that there are no scratches across the grain.

Treated surfaces: If surfaces have been treated with preservatives or fire retardants, make sure the paint system is compatible with the treatment and does not adversely affect its performance.

Unpainted surfaces

Standard: To AS/NZS 2311 Section 3.

Cleaning external surfaces

Sound external surfaces other than timber: Remove dirt, grease, loose and foreign matter, efflorescence and mould by water blasting or steam cleaning without damaging the surface. Remove remaining loose material with hand tools. Use sanding blocks to preserve the arrises of masonry and stone details.

Efflorescence: Eliminate the source of salt and water before cleaning. Allow surface to dry for 15 to 30 days before repainting.

New masonry: Allow 30 days for the masonry to cure and pH level to stabilise before painting.

3.2 PAINTING SYSTEMS

General

Number of coats: Except where one or two coat systems are documented, each paint system consists of at least 3 coats.

Low VOC emitting paints

General: Provide the VOC limits as documented.

New unpainted interior surfaces

Standard: To AS/NZS 2311 Table 5.1.

New unpainted exterior surfaces

Standard: To AS/NZS 2311 Table 5.2.

Specialised painting systems

Standard: To AS/NZS 2311 clause 5.2. Provide the following final coats:

- High build textured or membrane finishes for concrete and masonry: Paint reference number B38 using products conforming to the AS 4548 series.
- Two-pack gloss pigmented polyurethane: Paint reference number B44.
- Two-pack epoxy: Paint reference number B29.
- Two-pack water based epoxy: Paint reference number B29A.

3.3 APPLICATION

Light levels

General: ≥ 400 lux.

Substrate moisture content

Requirement: Use a moisture meter to demonstrate that the moisture content of the substrate is at or below the recommended maximum level for the type of paint and the substrate material.

Paint application

Standard: To AS/NZS 2311 Section 6.

Timing: Apply the first coat immediately after substrate preparation and before contamination of the substrate can occur. Apply subsequent coats after the manufacturer's recommended drying period has elapsed.

Painting conditions

General: Unless the paint is recommended for such conditions, do not paint under the following conditions:

- Dusty conditions.
- Relative humidity: > 85%.
- Surface temperature: < 10°C or > 35°C.

Priming timber before fixing

General: Apply one coat of wood primer, and 2 coats to end grain, to the back of the following before fixing in position:

- External fascia boards.
- Timber door and window frames.
- Bottoms of external doors.
- Associated trims and glazing beads.
- Timber board cladding.

Spraying

General: If the paint application is by spraying, use conventional or airless equipment which conforms to the following:

- Satisfactorily atomises paint being applied.
- Does not require paint to be thinned beyond the maximum amount recommended by the manufacturer.
- Does not introduce oil, water or other contaminants into the applied paint.

Paint with known health hazards: Provide personal protection, masking, ventilating and screening facilities to AS/NZS 4114.

Sanding

Clear finishes: Sand the sealer using abrasives no coarser than 320 grit without cutting through the colour. Take special care with round surfaces and edges.

Repair

Requirement: Clean off marks, paint spots and stains progressively and restore damaged surfaces to their original condition.

Maintenance painting: To AS/NZS 2311 Section 8.

Repair of galvanizing

Cleaning: For galvanized surfaces which have been subsequently welded, power tool grind to remove all surface contaminants, including rust and weld splatter. Prime affected area immediately after cleaning.

Primer: Type 2 organic zinc-rich coating for the protection of steel to AS/NZS 3750.9.

Tinting

General: Tint each coat of an opaque coating system so that each has a noticeably different tint from the preceding coat, except for top coats in systems with more than one top coat.

Windows

Operation: Make sure opening windows function correctly before and after painting.

Doors

Drying: Maintain door leaf in the open position during drying. Do not allow door hardware or accessories to damage the door finish during the drying process.

Wet paint warning

Notices: Place in a conspicuous location and do not remove until the paint is dry.

3.4 COMPLETION

General

Protection and masking: Remove masking and protection coverings before paint has dried.

Cleaning: On completion of painting, remove splatters from adjacent finished surfaces by washing, scraping or other methods which do not scratch or damage the surface.

Reinstatement: Repair, replace or refinish any damage, including works of other trades. Touch up new damaged paintwork or misses only with the paint batch used in the original application.

Fixtures: Refix removed and undamaged fixtures in the original locations. Make sure they are properly fitted and in proper working order.

Disposal of paint and waste materials

Requirement: Conform to requirements of the local government authority.

Spares

Spare material: Supply clearly labelled sealed containers of each type, coat and colour of paint/coating from the same batch, for future repair purposes.

4 SELECTIONS

4.1 PAINTING SCHEDULES

Interior painting schedule

Type	Interior painting generally
Requirement:	The schedules indicate some paint/sealer requirements. Notwithstanding those particular requirements, paint and/or seal all visible surfaces (unless shown or directed otherwise) throughout as directed.
Samples:	Required.
Locations:	Interiors. Refer to drawings.

Type	Walls - Interior acrylic, low sheen
Finish code:	**PSA**
Requirement:	Refer to *Schedule of colours & finishes.*
Proprietary item:	Dulux WASH AND WEAR low sheen acrylic.
Colour:	As scheduled.
Samples:	Required.
Locations:	Interior plasterboard walls generally. Refer to drawings.

Type	Ceilings - Interior acrylic, flat
Finish code:	**PFA**
Requirement:	Refer to *Schedule of colours & finishes.*
Proprietary item:	Dulux CEILING WHITE flat acrylic.
Colour:	As scheduled.
Samples:	Required.
Locations:	Interior plasterboard ceilings generally. Refer to drawings.

Type	Interior water based enamel, low-gloss
Finish code:	**PSE**
Requirement:	Refer to *Schedule of colours & finishes.*
Proprietary item:	Dulux AQUANAMEL low-gloss
Colour:	As scheduled.
Samples:	Required.
Locations:	Interior wet area plasterboard walls and ceilings . Refer to drawings.

Type	Interior water based enamel, gloss
Finish code:	**PGE**
Requirement:	Refer to *Schedule of colours & finishes.*
Proprietary item:	Dulux AQUANAMEL gloss
Colour:	As scheduled.
Samples:	Required.
Locations:	Interior door leaves and jambs and architraves generally. Refer to drawings.

Specialised paint systems schedule

Type	Epoxy enamel, flat
Finish code:	**PS-1**
Requirement:	Refer to *Schedule of colours & finishes.*
	Dulux METALSHIELD epoxy enamel, flat.
Application:	Site applied
Colour:	Black.
Samples:	Required.
Locations:	Balustrade to pool deck area. Refer to drawings.

Type	Electrostatic paint finish
Finish code:	**PS-2**
Requirement:	Refer to *Schedule of colours & finishes.*
	Site applied electrostatic paint finish.
Colour:	As scheduled.
Samples:	Required.
Locations:	Lift doors. Refer to drawings.

Sealer schedule

Type	Cement render sealer
Finish code:	**S-1**
Requirement:	Refer to *Schedule of colours & finishes.*
	Rockote vapour permeable REPEL sealer.
Colour:	Clear matte.
Samples:	Required.
Locations:	Cement render. Refer to drawings.

Type	Timber sealer
Finish code:	**S-2**
Requirement:	Refer to *Schedule of colours & finishes.*
	Fiddes Hard wax Oil.
Colour:	Clear matte.
Samples:	Required.
Locations:	All interior timber – solid and veneer. Refer to drawings.

Type	Stone sealer
Finish code:	**S-3**
Requirement:	Refer to *Schedule of colours & finishes.*
	Stainproof Drytreat
Colour:	Clear matte.
Samples:	Required.
Locations:	All natural stone. Refer to drawings.

Type	Timber decking sealer
Finish code:	**S-4**
Requirement:	Refer to *Schedule of colours & finishes.*
	Stainproof Drytreat
Colour:	Clear matte.
Samples:	Required.
Locations:	All exterior decking. Refer to drawings.

Wood stain schedule

Type	Wood stain
Finish code:	**WS-1**
Requirement:	Refer to *Schedule of colours & finishes.*
	Grimes Woodstain to match TV-1
Samples:	Required.
Locations:	Refer to drawings.

SECTION 34 TEXTURED AND MEMBRANE COATINGS

1 GENERAL

1.1 RESPONSIBILITIES

Performance

Requirement:

- Consistent in colour, gloss level, texture and dry film thickness.
- Free of runs, sags, blisters, or other discontinuities.
- Fully opaque coating systems.
- Clear finishes at the level of transparency consistent with the product.
- Fully bonded.
- Resistant to environmental degradation within the manufacturer's stated life span.
- Accommodating movement in the substrate between control joints.

1.2 CROSS REFERENCES

General

Requirement: Conform to the following:

- *General requirements.*

1.3 STANDARDS

Textured and membrane coatings

General: Comply with the recommendations of those parts of AS/NZS 2311 which are referenced in this worksection.

1.4 SUBMISSIONS

Operation and maintenance manuals

Requirement: At completion, submit the manufacturer's published use, care and maintenance instructions.

Samples

General: Submit labelled samples of each coating system, on representative substrates, showing surface preparation, colour, gloss level, texture, and physical properties.

Subcontractors

General: Submit name and contact details of proposed specialist applicators.

Substrate acceptance: Submit evidence of applicator's acceptance of the coating substrate before starting installation.

Warranties

Requirement: Submit warranties to **COMPLETION**, **Warranties**.

2 PRODUCTS

2.1 GENERAL

Storage and handling

General: Store materials not in use in tightly covered containers in well-ventilated areas with temperatures maintained at the manufacturer's recommendations.

2.2 COATINGS

Standards

Coating types:

- Wall coatings - latex extensible: To AS/NZS 4548.1.
- Latex finish coatings – high-build, low profile: To AS/NZS 4548.2.
- Latex – textured coatings – non aggregate: To AS/NZS 4548.3.
- Latex – textured coatings – aggregate filled: To AS/NZS 4548.4.

Combinations
General: Do not combine coatings from different manufacturers in a coating system.

Tinting
General: Provide only products which are colour tinted by the manufacturer.

Toxic ingredients
General: To the *Poisons Standard (SUSMP)* Part 2 Section 7.

3 EXECUTION

3.1 PREPARATION

Standard
General: To AS/NZS 2311 Section 3.

Order of work
Other trades: Before applying textured and membrane coatings, complete the work of other trades as far as practicable within the area to be coated.

Protection
Fixtures: Remove door furniture, switch plates, light fittings and other fixtures before starting coating, and refix in position undamaged on completion of the coating.

Adjacent surfaces: Protect adjacent finished surfaces liable to damage from coating operations.

Substrates
General: Prepare substrates to receive the coating systems.

Cleaning: Clean down the substrate surface. Do not cause undue damage to the substrate or damage to, or contamination of, the surroundings.

Filling: Fill cracks and holes with fillers, sealants or grouting cements as appropriate for the coating system and the substrate.

Moisture content: Use a moisture meter to demonstrate that the moisture content of the substrate is at or below the recommended maximum level for the type of coating and the substrate material.

Wet paint warning
General: Place notices conspicuously and do not remove them until the coating is dry.

3.2 APPLICATION

Proprietary coating systems
General: Apply the complete coating system to the manufacturer's recommendations.

Standard
Methods of application: To AS/NZS 2311 Section 6.

Light levels
General: ≥ 400 lux.

Coating conditions
General: Unless the coating system is recommended by the manufacturer for such conditions, do not apply under the following conditions:

- Dusty conditions.
- Relative humidity: > 85%.
- Surface temperature: < 10°C or > 35°C.

Coating application
Timing: Apply the first coat immediately after substrate preparation and before contamination of the substrate can occur. Apply subsequent coats after the manufacturer's recommended drying period has elapsed.

Spraying
Coatings with known health hazards: Not permitted on site.

Repair
General: Clean off marks, coating spots and stains progressively and restore damaged surfaces to their original condition.

3.3 COMPLETION

Cleaning

General: On completion of coatings, remove splatters by washing, scraping or other methods which do not scratch or damage adjacent finished surfaces.

Reinstatement: Repair, replace or refinish any damage, including works of other trades. Touch up new damaged coatings or misses with the coating product batch used in the original application.

Fixtures: Refix removed and undamaged fixtures in their original location, make sure they are properly fitted and in proper working order.

Disposal of products and waste materials

Requirement: Conform to requirements of the local government authority.

Warranties

Requirement: Provide the coating manufacturer's warranty.

Interlocking performance warranty: Provide an interlocking performance warranty that includes materials and application:

- Form: Against failure of materials and execution under the normal environment and use conditions.

4 SELECTIONS

4.1 COATING SYSTEMS

Coatings schedule

Type	Applied render
Finish code:	**AR-1**
Requirement:	Refer to *Schedule of colours & finishes.*
	Rockcote SMOOTH SANDING PATCH acrylic compound with G.P. cement.
	Apply 2 coats x 1mm thick steel trowel and rolled.
Colour:	Grey (3.3kg G.P. cement per 15 litres of SMOOTH SANDING PATCH).
Primer:	Rockote Acrylic primer.
Sealer:	S-1 sealer. Refer *Painting* worksection
Sample:	Required.
Locations:	Lounge, bathrooms, northern passage, pool deck. Refer to drawings.

SECTION 35 APPLIANCES

5 GENERAL

5.1 CROSS REFERENCES

General

General: Conform to the *General requirements* worksection.

5.2 GENERAL

This section contains a listing of primary architecturally related electrical and gas appliances. Refer to the Hydraulics, Electrical and Mechanical documents for detailed hydraulic and electrical requirements.

Check the manufacturers data for each item scheduled and provide for all service connections/supply, control valves, space requirements, clearances, ventilation, and the like required in each case.

6 SELECTIONS

6.1 APPLIANCES SCHEDULES

Refer to *Schedule of fittings & equipment.*

SECTION 36 SANITARY FITTINGS AND TAPWARE

1 GENERAL

1.1 CROSS REFERENCES

General
General: Conform to the *General requirements* worksection.

1.2 GENERAL

This section contains a listing of primary architecturally related sanitary fixtures, and tapware. Refer to the Hydraulics documents for detailed hydraulic requirements.

Check the manufacturers data for each item scheduled and provide for all service connections/supply, control valves, space requirements, clearances, ventilation, and the like required in each case.

2 SELECTIONS

2.1 SANITARYWARE FITTINGS

Refer to *Schedule of fittings & equipment.*

2.2 TAPS, VALVES AND OUTLETS

Refer to *Schedule of fittings & equipment.*

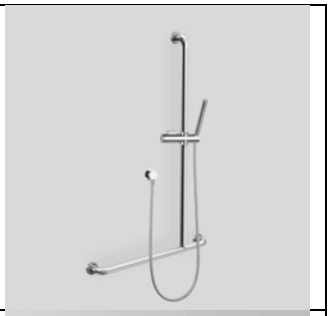
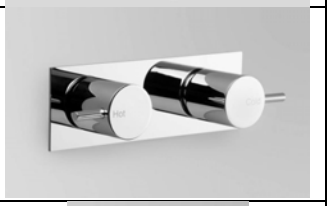
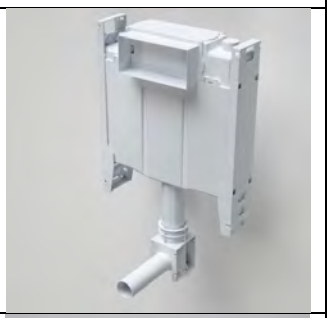
Type	Miscellaneous taps, valves, mixers
Requirement:	Provide all additional taps, valves, and mixers as may be required to properly complete and commission the project. All selections to approval, or as directed. Additional selections will include cistern stops, garden taps, and the like.
Samples:	Required.
Prototypes:	Required.
Locations:	Refer to drawings.

ARCHITECTURAL SCHEDULES

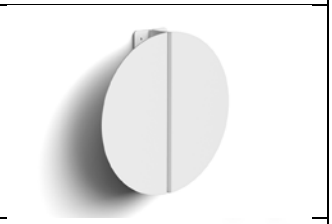
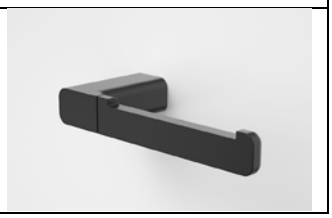
schedule of fittings & fixtures

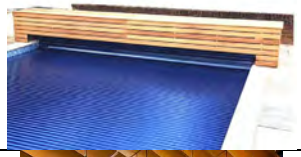
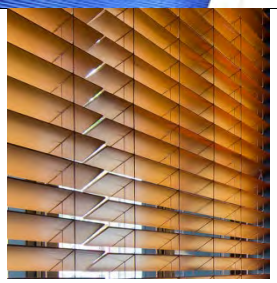
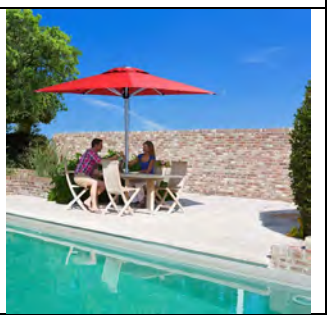
project : Level 5 Upgrade 99 Spring St. Melbourne
project no : 20412
date : OCT '22
revision :

item	description & code	finish	no	location	image
Kitchen Sink	**Memo** design: Hugo Granite model: Single Compact No Taphole code: 2402892 supplier: installed with metal waste & plug	black granite	2	Tea Room & Kitchenette	
Kitchen Tap Set	**Astra Walker** design: icon model: a69.05.48.bp supplier:	Matte black	1	Tea Room	
Kitchen Tap Set	**Astra Walker** design: icon model: a69.08.02 supplier:	Matte black	1	Kitchenette	
Basin Taps & Outlet Set	**Astra Walker** design: disabled compliant DDA model: a69.02.ex supplier:	Matte Black	2	Bathroom & DDA Bathroom	
Tap	**Billi** design: Sahara 320 with XT Touch Dispenser (Boiling & Still) model: 943020TMB supplier:	Matte Black	1	Kitchenette	
Shower Rose Type 1	**Astra Walker** design: icon model: a69.10.v2.a supplier:	Matte Black	1	Bathroom	

Shower Rose Type 2	**Astra Walker** design: Disabled Compliant DDA model: a69.43.93.70.LH supplier:	Matte Black	1	DDA Bathroom	
Shower Tap Set Type 1	**Astra Walker** design: icon model: a69.49.bp supplier:	Matte Black	1	Bathroom	
Shower Tap Set Type 2	**Astra Walker** design: model: supplier:	Matte Black	1	DDA Bathroom	
Exhaust Fan	Refer services consultants doc				
Cistern	**Caroma** design: Invisi II model: 4.5/3L concealed cistern with adjustable flush pipe supplier: installed with brackets to suit		2	Bathroom	
W/C Type 1	**Caroma** design: Luna Cleanflush Invisi II wall faced toilet suite model: 844910W seat & lid: Xena soft close supplier: installed with brackets to suit		1	Bathroom	
W/C Type 2	**Caroma** design: Leda Care Invisi Series II wall faced suite with backrest model: 719105BW seat & lid: Caravelle Care Single flap supplier: Reece installed with brackets to suit	white	1	DDA Bathroom	

Flush Button Type 1	**Caroma** design: Invisi Series II model: Round Dual Flush Plate & Buttons finish: metal size: 210 x 110 x 5.5 supplier:	Matte black	1	Bathroom	
Flush Button Type 2	**Caroma** design: Invisi Series II model: Round Dual Flush Plate & Raised Care buttons with germgard finish: Plastic size: 210 x 110 x 25.5 supplier:	black	1	DDA Bathroom	
Basin	**Roca** design: Meridian Wall Basin 750 model: Left Hand Bowl supplier: Reece installed with ss waste & plug		2	Bathroom & DDA Bathroom	
Wall Basin Siphon cover	**Roca** design: Meridian model: Wall Basin Siphon Cover trap to suit supplier: Reece		2	Bathroom & DDA Bathroom	
Door Handles	**refer to door & window schedule**				
Grab Rail Type 1	**Astra Walker** design: Disabled Compliant DDA model: a69.97.96RH supplier:	Matte Black	1	DDA Bathroom	
Grab Rail Type 2	**Astra Walker** design: Disabled Compliant DDA model: a69.99.30 supplier:	Matte Black	1	DDA Bathroom	
Grab Rail Type 3	**Astra Walker** design: Disabled Compliant DDA model: a69.93.70LH supplier:	Matte Black	1	DDA Bathroom	

Shower Seat	**SuperQuip** design: Sapphire 077 model: 450mm Fold down Seat supplier: Washroom Accessories	Brown Rimu	1	DDA Bathroom	
Door Stops	refer to door & window schedule				
Door Locks	refer to door & window schedule				
Window Locks	refer to door & window schedule				
Joinery Handles 1	**Index + Co** design: Semi Round Size: 160mm supplier: Index + Co	Matte Black	2	Bar / Office / tearoom	
Joinery Handles 2	**Made Measure** design: Metal Recessed Pull size: 195mm supplier: Made Measure	Matte Black		Bar / Office	
Drawers	**Blum** type: legrabox with blumotion. Colour & size to suite supplier: lincoln sentry	Refer Joinery Details		General Joinery	
Drawer Runners	**Blum** design: blumotion to suit application supplier: lincoln sentry	Stainless Steel		General Joinery	
Hinges	**Blum** design: Blumotion clip top to suit application supplier: lincoln sentry	Stainless Steel		General Joinery	
Robe Hooks	**Made Measure** design: Leather Full Coat Hook model: supplier:	black		Gym, Bathroom, DDA Bathroom	
Shower Shelf	**ROGERSELLER** design: eon model: custom size: 600 x 120mm	Matt black	1	Bathroom	
Toilet Roll Holder	**Caroma** design: Luna Toilet Roll Holder model: 99607BL supplier:	Satin Black	2	Bathroom / DDA Bathroom	

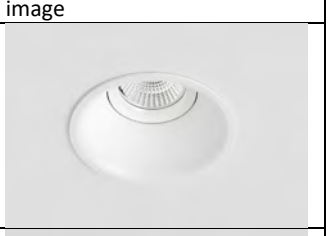
Pool Pump Room Ladder	**Custom design** **To comply with AS1657**	SS	1	Pool Deck	
Pool Ladder	**JP Lenard** design: easy access pool ladder model: supplier:		1	Pool	
Pool Cover	**REMCO** design: custom to suit	blue	1	Pool	
Timber Venetians	**Vertilux** design: Venetian Roller Blind System model: Motorised Operation with RTS motors size: 60mm Measures as per site visit, Drops approx. 2500mm finish: Cedar Line Timber, UV Lacquer Finish dark/medium with tapes (confirm with architect)	Timber / (Headbox/ Cassette to be black)		Lounge / Boardroom / Bathroom / Gymnasium / Office	
Umbrella	**Umbrello** design: cafe & resort style size: 3m square supplier: Umbrello Note: fixing and wind loadings to be confirmed with structural engineer prior to installation	eggshell white	2	Pool Deck	

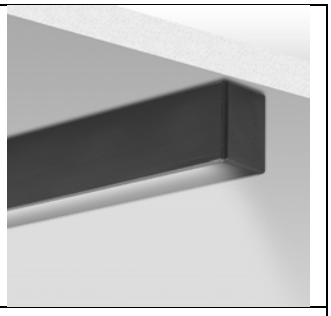
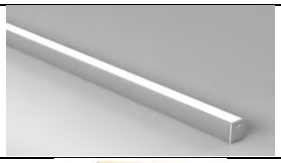
appliances / equipment

item	description	finish	no	location	item
Refrigerator Type 1	**Esatto** design: 91L Mini Fridge/Freezer model: EBF91B supplier:	Black	1	Tea Room	
Refrigerator Type 2	**Liebherr** design: Underbench Integrated fridge model: SUIK 1510 supplier		1	Kitchenette	

HWS	**Refer services drawings**				
TV-1	**Sony** design: Bravia LED model: 65" X75K / 4K TV code: KD65X75K supplier:		1	Boardroom	
TV-1	**Sony** design: Bravia LED model: 50" X85J / 4K TV code: KD50X85J supplier:		1	Gymnasium	
Sauna	**Tylo** design: Custom supplier: Sauna and Steam		1	Bathroom	
Hand Dryer	**ML Eclipse Designer** design: Slimline Automatic Operation Hand Dryer supplier: Metlam Australia	matte black	2	Bathroom / DDA Bathroom	

electrical

item	description & code	finish	no	location	image
LF-1	**Inlite** design: Deep Starr Code: LL-9060-W supplier: Inlite	white		General	
LF-2	**Inlite** design: Deep Starr IP44 Code: LL-9060-IP44-W supplier: Inlite	white		Wet Areas	
LF-3	**Aria** design: PERFETTO-IN 90 IP66 code: 266-069BN-21 supplier: inlite	white	1	Shower	
LF-4	**Delta Light** design: Splitbox 2 + 2 x Splitbox Spy size: lamp: supplier: Inlite	black	7	Lounge	
LF-5	**Artemide** design: Cuneo Wall Light size: 200x170x70mm lamp: supplier:	Rust	7	Pool Deck	
LF-6	**Lambert & Fils** design: Waldorf Suspension Triple supplier: Living Edge	Black	1	Boardroom	
LF-7	**Fortana Arte** design: sillaba small size: 9cm dia supplier:		4	Sauna	
LF-8	**platek** design: Medio Roll Over code: 8410116 supplier: Inlite		7	External	

LF-9	**Klus** design: PDS-ZMG size: 1m supplier: Inlite	Black anodised		Office / Gymnasium	
LF-10	**tbc** design: size: supplier:		3	Lower Level	
LF-11	**flos** design: oplight size: supplier: euroluce	black	2	lounge	
Strip Lighting	design: 3700K size: 10 X 10mm opaque diffuser supplier:	black	4	Joinery where noted & pool edging	
Switch Plates/GPO	**Clipsal** style: "B" Style Flat Plate	Brass & Black		On timber paneling	
Stereo System	**By others**				
Switch/GPO/data	**Clipsal** style: *"B" Style Flat Plate*	*SS & black*		On rendered walls/mirrors/tiles & paint	
GPO/data	**Clipsal** design: iconic	Black/ white		Inside joinery (colour depends on interior colour)	
Floor Box	**cableway** design: shallow floor box supplier:	SS	1	boardroom	
Exit sign	Refer services consultants doc				
Smoke Detectors	Refer services consultants doc				
Cable trays	**Lincoln sentry** design: desk prodigy cable basket	black		office	

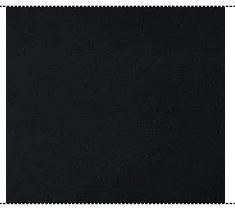
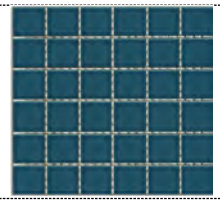
NOTE:

- All fittings and fixture locations are to be approved by designer & client on site prior to fixing.
- all wastes & plugs to be metal (chrome or satin chrome as specified)
- Suppliers listed are a recommendation only.
- All light fittings to be connected to the appropriate Atco Transformers (or similar approved) and fitted with correct G.P. lamps
- No of switches depends on ganging options. Wherever possible one plate is to be used.
- Refer to drawings to determine No. & type of switch & GPOs required.
- This schedule is a design development document only and not to be used for construction.

schedule of colours & finishes

project : Level 5 Upgrade 99 Spring St
project no : 20412

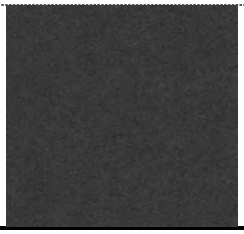
date : 20.10.22
revision :

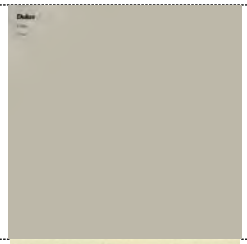
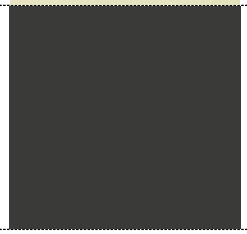
code	description	notes/general location	Image
AL- (No)	**ALUMINIUM**		
AL-1	black anodised	door / window frames	
AC	**ACOUSTIC FIBRE TILES**		
AR	**APPLIED RENDER**		
AR-1	**Cement Render** range: Acrylic Render product: Smooth Sanding Patch with G.P Cement finish: Steel Trowel + Rolled colour: Natural Grey to match Architect's sample sealant: S-1 supplier: Rockcote	lounge / bathrooms / northern passage pool deck	
BAG	**BAGGED BLOCKWORK**		
BL	**BLOCKWORK**		
CPT-(NO)	**CARPET**		
CPT-1	**Tretford Roll** code: 534 colour: Anthracite supplier: Gibbon Architectural description: 2m wide roll. 80% goat hair. 7mm height (install as per manufacturers installation instructions) contact: https://gibbonarchitectural.com.au/	Office	
CT- (No)	**CERAMIC TILES**		
CT-1	**CIFRE Torino Alchimia** finish: Gloss size: 150x150 x 8mm colour: White supplier: Signorino contact: https://www.signorino.com.au/	Bathroom Walls	
CT-2	**CIFRE Torino Alchimia** finish: Gloss size: 150x150 x 8mm colour: Olive Green supplier: Signorino contact: https://www.signorino.com.au/	Bathroom Walls	
CT-3	**Cotto** finish: Gloss size: tile: 47 x 47mm sheet: 295 x 295mm colour: Lagoon Blue supplier: Cotto	Pool Lining	
CO	**CUSTOM ORB**		
CONC	**CONCRETE FINISH**		
FB	**FACE BRICKWORK**		
FC	**FIBRE CEMENT SHEET**		
FG	**FIBREGLASS**		
GS- (No)	**GLASS**		
GS-1	clear glass to meet AS1288 for location	Windows/Doors	
GS-2	double glazed to meet AS1288 for location	Sauna	
HP	**HARD PLASTER**		
LC- (No)	**PLASTIC LAMINATE**		

schedule of colours & finishes

project : Level 5 Upgrade 99 Spring St
project no : 20412

date : 20.10.22
revision :

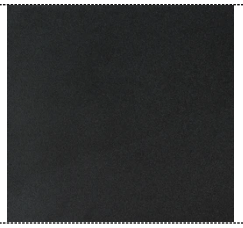
LC-1	**Laminex** code: 460 finish:Absolute Matt colour: Black supplier: Laminex	Tearoom	
LC-2	**Laminex** code: 200 finish:Absolute Matt colour: White supplier: Laminex	Office	
MDF	**MEDIUM DENSITY FIBREBOARD**		
MIR	**MIRROR**		
MS	**MILD STEEL**		
OFC	**OFF FORM CONCRETE**		
PB	**PLASTERBOARD**		
PIN-(No)	**PINBOARD**		
PIN-1	**Bulletin Board** code: 2209 colour: Black Olive supplier: Forbo description: 6mm thick	Office	

PC- (No)	**PAINT COLOUR**		
PC-1	**Dulux** code: S16A2 colour: Putty	Southern Passage / Lift Lobby / Tea Room	
PC-2	**Bristol** code: P165-C3 colour: Green Haze	gym	
PC-3	**Dulux** code: colour: deep onyx	Existing doors & door frames & as noted	
PC-5	**Dulux** code: S16A2 finish: colour: Putty (half strength) supplier:	office	
PC-6	**Dulux** code: colour: ceiling white	ceilings	
PMA	**MATT ACRYLIC PAINT FINISH**		
PGE	**GLOSS ENAMEL PAINT FINISH**		
PSA	**LOW SHEEN ACRYLIC PAINT FINISH**		

schedule of colours & finishes

project : Level 5 Upgrade 99 Spring St
project no : 20412

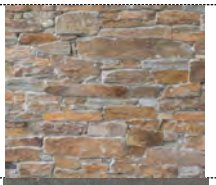
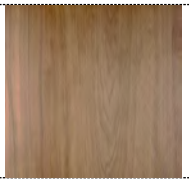
date : 20.10.22
revision :

PSE	**SATIN ENAMEL PAINT FINISH**		
PS-(No)	**SPECIAL PAINT FINISH**		
PS-1	**Dulux** product: Metalshield epoxy enamel flat paint colour: Black	Balustrade	
PS-2	**ELECTROSTATIC PAINT FINISH** colour : to match PC-3	Lift doors	
RC	**REINFORCED CONCRETE**		
RF-1	**Neoflex** code: Neoflex 500 rubber flooring finish: Fitness Flooring size: 12mm thick Roll (roll size 1.2m wide) colour: Colour 500 (black) supplier: Rephouse contact: http://www.rephouse.com/products/commercial	Gymnasium Floor	
S-(No)	**SEALER**		
S-1	**Cement Render Sealer** name: repel colour: clear matte sealant: stainproof supplier: Rockcote		
S-2	**Timber Sealer** name: fiddes hard wax oil colour: clear matte sealant: as per manufacturer's instruction supplier: fiddes	All interior timber (solid & veneer)	
S-3	**Stone Sealer** name: drytreat colour: clear matte sealant: stainproof	All natural stone	
S-4	**Timber Sealer** name: drytreat colour: clear matte sealant: stainproof	Exterior decking	
SS	**STAINLESS STEEL**		
SS-1	**Stainless steel** Finish: linished finish #4		
SS-2	**Stainless steel mesh** name: webnet N2 3mm wire colour: SS supplier: jakob	Pool rear fence	
ST-(No)	**STONE**		
ST-1	**Bluestone** finish: Honed size: 400x400mm colour: Bluestone supplier: Bamstone contact: https://bamstone.com.au/ sealer: S-3	General Floor	

schedule of colours & finishes

project : Level 5 Upgrade 99 Spring St
project no : 20412

date : 20.10.22
revision :

ST-2	**Bluestone** finish: Dark Sawn (P5 slip rating) size: 400x400mm 15mm thick colour: Bluestone Dark supplier: Signorino contact: https://www.signorino.com.au/ sealer: S-3	Bathroom & DDA Bathroom	
ST-3	**Artisan Exterior** Design: Cottage Cladding finish: Natural Quartzite supplier: Artisan Exterior contact: https://artisanexterior.com.au/	Pool Deck	
ST-4	**Bluestone** finish: Sawn (P5 slip rating) size: 400x400mm 30mm thick and custom for pool edging colour: Bluestone Dark supplier: Bamstone sealer: S-3	Outside & pool edging	
TS	**SOLID TIMBER SKIRTING**		
TV-(No)	**TIMBER VENEER**		
TV-1	**Maxi veneer** type: birch ply substrate size: 3000x1200x18 colour: American walnut Crown Cut supplier: maxiply		
TS- (No)	**SOLID TIMBER**		
TS-1	**Modinex Cedar Sales** finish: Western Red Cedar product: Channel Clad size: 86x12 supplier: Modinex contact: https://www.modinex.com.au/products/		
TS-2	**Porta Contours** finish: WS-1 profile: cirque product: tasmanian oak Code: LINB7821TOSL size: 78x21mm instruction: Builder to supply 2 finished samples to Architect for approval prior to installation supplier: Porta contact: https://www.porta.com.au/porta-contours-2/	Lift Lobby	
TS-3	**Solid timber** finish: Blackbutt size: 86mm (and as required) supplier: Britton Timbers Install over 40x60mm Structur-AL Aluminium decking system on NIVO adjustable pedestals. https://newtechwood.com.au/composite-decking-australia/deck-framing-system/	Timber Decking	
WS- (No)	**WOOD STAIN**		
WS-1	**Grimes & Sons** finish: Custom Woodstain to match TV-1 supplier: Grimes & Sons contact: https://grimesandsons.com/	Where noted	

schedule of colours & finishes

project : Level 5 Upgrade 99 Spring St
project no : 20412
date : 20.10.22
revision :

general notes

1. CONTRACTOR TO PROVIDE ARCHITECT WITH SAMPLE OF ALL MATERIALS AND FINISHES PRIOR TO ORDERING OR PROCEEDING ON SITE.

2. ALL GLAZING (INCLUDING MIRRORS) TO CONFORM TO AS1288

3. PAINTED DOOR FRAMES ARE TO MATCH COLOUR OF WALLS UNLESS OTHERWISE NOTED

4. DOORS TO BE PAINTED SAME COLOUR BOTH SIDES UNLESS OTHERWISE NOTED

5. SKIRTINGS ARE AS FOLLOWS

PC PAINTED WALLS & CARPET	-	MDF SKIRTING
ALUMINIUM GLAZING FRAMES	-	NO SKIRTING
PAINTED WALL & STONE FLOOR	-	MDF SKIRTING
CERAMIC TILES	-	CERAMIC TILES
RENDER WALL & STONE FLOOR	-	NO SKIRTING

6. REFER TO DRAWINGS FOR CLARIFICATION OF EXTENT OF FINISHES, IF UNSURE PLEASE CONFIRM WITH ARCHITECT PRIOR TO ORDERING OR APPLYING.

7. AN A4 SAMPLE OF ALL COLOURS IS TO BE SUBMITTED TO ARCHITECT FOR APPROVAL PRIOR TO ORDERING.

8. NOTE

TYPICAL CEILINGS	-	PFA
WET AREA CEILINGS	-	PSE
TYPICAL WALLS	-	PSA (Unless Noted)
WET AREA WALLS	-	PSE
DOORS & DOOR FRAMES	-	PGE

9. NOTE : EXTENT & LOCATION OF CHANGES OF PAINT COLOURS TO PASSAGES TO BE IDENTIFIED ON SITE

d o o r / w i n d o w s c h e d u l e

project : level 5 99 spring street
project no : 20412

date : OCT 2022
revision :

schedule

door/ window no.	room name	leaf type	furniture	lock	*security*	hinge	closer	*stop*	door seals	comments/ special finishes	rev.
D01	Corridor	T1	F2**	L1	P1	H5	H4		S1,2&3		
D02	Tea room	T3	F2	L1	P1	H2	H4				
D03	office	T2	F2	*L1*	P1	H2		DS1	S1 & 2		
D04	DDA bathroom	T2	F2	L3		H2	H4		S1 & 2		
D05	Gym	T1	F2	L1	P1	H2	H4		S1 & 2		
D06	bathroom	T2	F2	L1	P1	H2	H4	DS1	S1 & 2		
D06A	shower	T7	F3	L3		H2					
D06B	WC	T7	F3	L3		H2	H4				
D07	Sauna	T4	F3			*				*refer sauna manufacturer	
D08	Lounge	T5	F1	L1	P1	H1	H4				
D09	Boardroom	T6	F4			H3					
D10	pool	T1	F2**	L1	P1	H5	H4		S1,2&3	**Handles to be mounted @1500mm AFFL	
W01	Pool	WT1									
W02	pool	WT1									
W03	Gym	WT1									
W04	gym	WT1									

d o o r / w i n d o w s c h e d u l e

project : level 5 99 spring street
project no : 20412

date : OCT 2022
revision :

legend doors

leaf type	description & code	finish
T1	**description:** **single swing aluminium framed door** construction: aluminium framed with double glazing to AS1288 door size: refer door reveal: refer detail drawing	AL-1 exterior AL-1 interior GS-2/GS-1
T2	**description:** **Flush panel single swing door** construction: solid blockboard core to AS2688 faced with timber veneer both sides size: refer drawings door reveal: refer detail drawing	TV-1
T3	**description:** **Flush panel single swing door** construction: solid blockboard core to AS2688 faced with TS-2 finish one side paint other size: refer drawings door reveal: refer detail drawing	TS-2 PC-3
T4	**description:** **frameless glass single swing door** construction: as per sauna contractors spec size: refer drawings door reveal: none	GS-1
T5	**description:** **Solid timber frame glazed pivot door with matching side panel** construction: solid timber frame size: refer to drawings glazing to AS1288 door door reveal: none, refer detail drawing	TS-3/S-2 GS-1
T6	**description:** **custom timber & glass sliding doors** construction: solid timber & glass size: refer to door & window schedule drawing door reveal: none, refer detail drawing	GS-1 TS-3/S-2
T7	**description:** **bathroom partition doors** construction: **Flush panel single swing door** construction: solid blockboard core to AS2688 faced with TS-1 finish one side paint other size: refer drawings door reveal: refer detail drawing	TS-1

legend windows

type	description & code	finish
WT1	**description:** **aluminium glazed window** construction: aluminium frame and fixed glazing to as1288 size: refer to drawings	AL-1 GS-2exterior GS-1 interior

d o o r / w i n d o w s c h e d u l e

project : level 5 99 spring street
project no : 20412

date : OCT 2022
revision :

furniture	description & code	finish
F1	**description:** **pull handle** manufacturer: **index & co** design: pop semi round code: 200 SE M POPRD/BTB/	Satin brass
F2	**description:** **Lever handle** manufacturer: Pitella design: saftey door handle code: MNSA10 include latch kit to suit Black opaque note: use narrow	Black opaque
F3	**description:** **bathroom partitions** manufacturer: chicama wave timber handle unfinished design: approved by architect	Stained to match doors
F4	**description:** **Routed door handle** refer to drawing	

lock	description & code	finish
L1	**description:** PRELOAD ELEC STRIKE Z/ALLOY MTD 12/24VDC manufacturer: dormakaba code: KES900Z design: approved by architect	Matt black
L2	**description:** manufacturer: code: design: approved by architect	
L3	**description:** **privacy lock** manufacturer: pitella code: 789-TE kit	Black opaque
Note: *All locks to be on Building Master key system with provision for a sub master key system*		

security	description & code	finish
P1	**description:** **connected to building security system** manufacturer: code:	Matt black
ES	**description:** manufacturer: code:	

Door stop	description & code	finish
DS1	**description:** **door stop** manufacturer: dormakaba code: DS114 doorstop SCP	matt black

d o o r / w i n d o w s c h e d u l e

project : level 5 99 spring street
project no : 20412

date : OCT 2022
revision :

hinge type	description & code		finish
H1	**description:** manufacturer: code:	**Pivot** fitz jurgens System 3	Exposed parts: Dulux powdercoat – duralloy black matt 19319
H2	**description:** manufacturer: product: note:	**Hinge** Dorma Fast fix ball bearing quantity to accord with manufacturers recommendations for leaf size & weight	SS
H3	**description:** manufacturer: product:	**Sliding door track** Fitzroy track A 100	
H4	**description:** manufacturer: code: design:	**concealed door closer** lockwood 8015SIL approved by architect	Black
H5	**description:** manufacturer: design: code:	**aluminium doors** dorma 100 X 70 Fast Fix Hinge DKH100/70FF AF BLK	Black
H6	**description:** manufacturer: design: code:	 dorma 100x100x2.5mm Fixed Pin Broad Butt Hinge DKH100/100FP BLK	Black
H7	**description:** manufacturer: design: code:	**timber doors** dorma 100 X 70 Fast Fix Hinge DKH100/70FF AF BLK	Black

seal type	description & code		finish
S1	**description:** manufacturer: design:	Finger Guard (Hinge Pin Side/Pull Side) Timber or Aluminium Door MK1B supplied & installed approved by architect	Black
S2	**description:** manufacturer: code: Or similar approved	**door seals for aluminium doors** kilargo IS7087SI-SDS-PPC - recessed into door stile next to sidelight IS8010SI-CA - install to bottom of door, into frame MK1B Finger Guard (Hinge Pin Side/Pull Side)	Black
S3	**description:** manufacturer: design:	**Nylon brush strip seal** **EPDM compression seal** supplied & installed by window manufacturer approved by architect	To match Dulux powdercoat – duralloy black matt 19319

keying schedule	description & door nos	

d o o r / w i n d o w s c h e d u l e

project : level 5 99 spring street
project no : 20412

date : OCT 2022
revision :

Master key		
Sub master key		
Keyed alike		
Keyed individually		

Note any additional lockable doors to be keyed as per this schedule

COPY

WORLD RECOGNISED
ACCREDITATION
NATA ACCREDITED LABORATORY
NUMBER 15132

Enclosed is your report as detailed below:

DIVISION 5 ASBESTOS IN THE WORKPLACE SURVEY AND RISK ASSESSMENT

For

OWNERS CORPORATION STRATA PLAN #2983

Of

99 SPRING STREET, MELBOURNE - SELECTED AREAS

30 & 31 October, 2012 & 12 April 2016

Report Reference: 17578-1-reissued. This report replaces 17578-1-superseded

Copy: 2

Copy 1: Owners Corporation Strata Plan #2983

Copy 2: Owners Corporation Strata Plan #2983

Copy 3: Identifibre Pty. Ltd.

Report Prepared By	Report Authorised By	Date Authorised
Eliza Warren and Catherine McGuinness	Rebecca Murphy	12 April, 2016

Division 5 Asbestos in the Workplace Survey and Risk Assessment Report of 99 Spring Street, Melbourne - Selected Areas,

1.0 Table of Contents

1.0 Table of Contents 1

2.0 Scope of Risk Reassessment 2

3.0 Survey Method 3

4.0 Limitations of a Building Survey 4

4.1 SPECIFIC AREAS NOT ACCESSED 5

5.0 Demolition or Refurbishment Works 6

6.0 Survey Findings – Discussions and Recommendations 7

6.1 IDENTIFICATION OF ASBESTOS IN THE WORKPLACE 7

6.2 IDENTIFIED MATERIALS 7

6.2.1 Insulation to Pipe Work, Vessels and Associated Debris 8

6.2.2 Asbestos Cement Products 9

6.2.3 Asbestos-Containing Bituminous Coating 10

6.2.4 Mastic Sealant 10

6.2.5 Asbestos Backed Vinyl Sheet Coverings 11

6.2.6 Vinyl Tiles 11

6.2.7 Fire Doors 12

6.2.8 Gaskets 13

7.0 General Guidelines for Treatment of *'In Situ'* Asbestos Materials 14

8.0 Removal of Asbestos-Containing Materials 15

9.0 Asbestos Works by Non Approved Personnel 16

10.0 Qualitative Risk Assessment 17

10.1 TIMING OF CONTROL PROCEDURES 18

11.0 Future Assessment Activities for Asbestos Materials 18

12.0 Asbestos Materials Register 19

Appendix A: Asbestos Bulk Sample Analysis Report

2.0 Scope of Risk Reassessment

This report presents the findings of a Division 5 asbestos in the workplace materials survey and risk assessment conducted for Owners Corporation Strata Plan #2983 of 99 Spring Street, Melbourne - Selected Areas, on 30 & 31 October, 2012 & 12 April 2016. This report satisfies the requirements of ***Division 5 – Asbestos in workplaces*** of the ***Victorian Government Occupational Health and Safety Regulations 2007 Chapter 4 Part 4.3***.

This report is limited to the following areas of the site:

- Ground floor corridor and toilets behind shop areas
- Ground floor lift lobby and mail retrieval area
- Riser shafts throughout where accessible (lift lobbies, stairwells, electrical rooms)
- Basement car parks (three levels)
- One basement storage room as a representative of all storage rooms
- Basement, pump rooms 1& 3
- Basement ,main switch room
- Basement, water holding area and diesel pump
- Basement, fan room
- Ground floor PMG room
- Levels 1-4 electrical rooms
- Level 5, pool area, common room, gym and sauna
- Level 5, building superintendant's office
- Level 5, laundry and maintenance stores
- Level 5, elevator control room and electrical rooms
- Level 5, plant room
- Apartment 7-1 only, as a representative of all apartments
- Lift lobbies levels 5-25
- Stairwells ground floor – level 26
- Level 26 plant room
- Roof top area including water cooling and elevator control room

Please note that Catherine McGuinness of Identifibre attended the premises to inspect the basement level carpark ceiling lining in the ramp area and the plant room 3 area on 12 April, 2016. Other areas of the site were not inspected at the time.

The premises were constructed prior to 1980. The premises are primarily constructed of masonry materials and concrete. The premises were occupied and operating normally at the time of the assessment.

It is recommended that this report be used as the basis for the development of a comprehensive Asbestos Management Plan. The objective of this plan must be to minimise the risk of exposure of personnel to airborne asbestos in the workplace.

Where any asbestos materials are found to be present, appropriate recommendations have been made for the control of any associated risk.

3.0 Survey Method

The scope of the survey was limited to a visual examination of accessible and representative construction materials and the collection of materials suspected to contain asbestos. Representative samples of suspected asbestos materials were collected where it was possible to do so without substantially damaging decorative finishes or waterproofing membranes etc. No destructive sampling or damage to the existing finishes and services was performed to obtain samples or gain access to otherwise inaccessible areas. Due to the destructive nature of the sampling process, it is not possible to collect samples of all materials. Where it was not possible to collect a sample of a material, the inspector has used his/her professional experience to make a judgement as to the asbestos status of the material or the areas concerned. Where the inspector suspects or believes the material may contain asbestos, this has been recorded in this report and these materials must be treated as asbestos materials. If work is required to be performed on these materials, they must first be analysed to confirm the presence, or absence, of asbestos.

This survey does not include any assessment of soils, underground storage tanks or any other environmental contamination, which may be present in the grounds.

4.0 Limitations of a Building Survey

The survey attempted to locate all asbestos containing materials, however as the survey involves a visual inspection and sampling process, only those materials that are physically accessible can be located and identified. Therefore, it is possible that materials, which may be concealed within inaccessible areas / voids, or are contained within operational electrical or mechanical equipment, may not be located during the surveys. Such concealed and / or inaccessible areas fall into a number of categories:

1. Inside set ceilings or wall cavities.
2. Building facades or other height restricted areas.
3. Those areas accessible only by dismantling equipment, performing minor local demolition works or disturbing live electrical control or transmission equipment, or entering restricted high voltage enclosures.
4. Service shafts, ducts etc, concealed within the building structure or internal areas of plant or equipment.
5. Totally inaccessible areas such as voids and cavities created and intimately concealed within the building structure. These voids are only accessible during building works.
6. Under-croft areas considered to be confined spaces

Therefore, without substantial demolition of the building, it is not possible to guarantee that every source of asbestos has been detected.

4.1 Specific Areas Not Accessed

The following areas were not accessed during this assessment:

- Citipower substations in the basement were not accessed as they were locked at the time of assessment.
- There was no access to the rubbish chute due to confined space restrictions.
- Operational machinery was not accessed due to safety hazards.
- There was no access beneath carpet throughout the areas of investigation due to destructive access requirements.
- There was no access to the range hood flue in apartment 7-1 due to destructive access requirements.

During the course of any refurbishment works, care should be exercised when entering previously inaccessible areas and it is imperative that work cease pending further sampling if unknown materials are encountered.

5.0 Demolition or Refurbishment Works

Where demolition or refurbishment works are planned, ***Division 6 – Demolition and refurbishment where asbestos is present*** of the ***Victorian Government Occupational Health and Safety Regulations 2007 Chapter 4 Part 4.3*** requires:

1. A review of the findings of any existing Division 5 asbestos in the workplace risk assessment having regard to the planned works.
2. Where there is uncertainty as to whether asbestos is present or there are areas where asbestos is likely to be present the employer or person carrying out the refurbishment of demolition works must:
    - deem that asbestos is present; or
    - arrange for analysis of a sample by an approved analyst.
3. If it has been determined that asbestos is present the employer or person carrying out the works must ensure that any asbestos which may become disturbed as a result of those works, is removed prior to commencement of the works.

It is recommended that an asbestos management and/or abatement plan, specific to the proposed works, be implemented. This plan should take into account any relevant areas not previously accessed, materials not sampled or any other limitations of the original assessment. Additional inspections may be required as access to previously enclosed areas becomes available through the demolition or refurbishment process.

6.0 Survey Findings – Discussions and Recommendations

The following discussion and recommendations are designed to facilitate development of strategies and protocols for dealing with different asbestos materials and hazard situations. With this in mind, each different type of asbestos material identified is discussed in a sub section specific to that particular material.

Asbestos containing materials present a health hazard when respirable asbestos fibres become airborne and are inhaled or ingested. Friable (or non-bonded) asbestos materials have a higher propensity to produce elevated airborne fibre concentrations than non-friable asbestos materials. These materials therefore present a greater risk to health. For this reason the comments and recommendations in this report place emphasis on the friability and condition of the identified asbestos containing materials.

6.1 Identification of Asbestos in the Workplace

The ***Victorian Government Occupational Health and Safety Regulations 2007*** require that if an occupier has determined that asbestos is present, the occupier must ensure:

- that the presence and location of asbestos is clearly indicated, and;
- if practicable, the indication is by labelling.

6.2 Identified Materials

Asbestos materials have been identified at this site in the following forms:

- Pipe insulation
- Cement products
- Asbestos bituminous coating
- Mastic sealant
- Asbestos backed sheet vinyl coverings
- Vinyl tiles (deemed to contain asbestos)
- Fire doors
- Gaskets

Observation of the general and specific recommendations contained within this report will help to minimise any potential exposure of personnel to the asbestos materials.

6.2.1 Insulation to Pipe Work, Vessels and Associated Debris

Asbestos containing insulation is a friable material which presents a risk to personnel of exposure to airborne asbestos fibres. Should any outer coverings such as calico wrap or metal cladding be damaged such that the insulation is exposed, there would be a greater risk. Where the insulation is in particularly poor condition and has begun to deteriorate to such a level that there is insulation debris present, removal of the material must be immediately considered. Approved Class A licensed asbestos removal contractors must perform any removal or repair of asbestos insulation. Where any work on or near asbestos insulated pipes would require the disturbance of the insulation or associated debris, the work must be carried out by trained personnel wearing appropriate personal protective equipment including full face respirators supplied by air line and wearing disposable coveralls.

Selected calico wrapped pipes within the level 26 plant room are lagged with asbestos insulation. These pipes are currently labelled and paint sealed. It is believed that the pipes in the ground floor PMG room originate from the level 26 plant room. These pipes should be treated as asbestos lagged pipes unless analysis determines otherwise.

No calico pipe wrapping was disturbed throughout the areas of investigation. Care should be taken when disturbing calico wrapped pipes throughout the areas of investigation.

It is noted that the pipes in the levels 6-25 elevator lobby riser shaft are lagged with polystyrene.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. Consideration should be given to the removal of all asbestos pipe insulation.
2. Warning signs or labels should be installed or remain installed to warn of the presence of this material.
3. Any removal or works involving friable insulation must be performed by a Class A asbestos removal contractor.

6.2.2 Asbestos Cement Products

Asbestos cement products are generally regarded as non friable materials. Provided the cement matrix remains stable and no airborne dust is produced, these products present a negligible health risk. External surfaces of asbestos cement products are prone to gradual degradation and softening under normal environmental influences.

Where asbestos cement sheeting has been identified as a backing material for ceramic tiles, it should be assumed that any other area of ceramic tiles including those mounted to masonry walls, might also be mounted on asbestos cement sheeting.

Cement products deemed to contain asbestos have been identified in the following locations:

- Rooftop, lining beneath water tanks between the wooden crate and metal water tank. There is a mixture of asbestos and non asbestos cement sheet in this area; it would be prudent to treat all cement sheets in this area as asbestos containing.
- Basement, pump room 3, cement sheet boxed structure above the entrance door.
- Basement car ramp area, lining of the ceiling. Some sections of this lining have sustained damage.
- Level 5 sauna, cement sheet deemed to be present behind ceramic tiles throughout.
- Level 5 laundry, cement sheet deemed to be present behind the ceramic tile sink splashback.
- Level 5 building superintendant's office, deemed to be present behind ceramic tiles throughout.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. Where practicable asbestos cement products should be appropriately labelled.
2. Any damaged and broken asbestos cement products should either be replaced with non asbestos alternatives, or the exposed edges should be sealed to prevent fibre release. Larger holes should be patched sealed with a non-asbestos material and an adhesive to fix the patch in place.
3. As a long term objective consideration should be given to the eventual replacement of asbestos cement products with non asbestos alternatives. Removal of asbestos cement products should be ranked in an order so that older or more degraded products receive priority over materials in good repair.

6.2.3 Asbestos-Containing Bituminous Coating

Bituminous coating is principally used as a fireproofing material or as a substrate material. The membrane should be considered to be non-friable and of very low risk to health. Although the membrane may become degraded and slightly friable over a period of time, it would still only present a very low health risk as it is usually present in minor quantities. It is highly unlikely that under normal circumstances any detectable airborne fibre concentration could be recorded as a result of the presence of this material. It would only be likely that significant fibre release could be recorded if the material were to be machine tooled or during removal of the membrane.

Asbestos containing bituminous coating has been identified on black or dark green coloured pipes throughout the areas of investigation including the basement areas.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. Maintain in good condition and advise building maintenance personnel of the presence of this material.
2. Machine tooling of this membrane should be prohibited.

6.2.4 Mastic Sealant

Under normal circumstances asbestos containing mastics do not present a significant health risk. However, disturbance such as removal work can result in some fibre release and therefore present a risk to personnel.

Asbestos containing mastic sealant has been identified within the joins of the metal rectangular ductwork within the plant room on level 5. Asbestos mastic should be deemed to be present within the joins of all metal ductwork throughout the areas of investigation.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. Install warning signs or labels to advise that asbestos material is present.
2. If works need to be conducted in areas where it is likely to cause disturbance of mastic, the mastic should first be removed by an asbestos removalist. Alternatively the items or materials to which the mastic is attached could be removed and disposed of as asbestos waste.

6.2.5 *Asbestos Backed Vinyl Sheet Coverings*

These vinyl coverings usually do not contain asbestos within the upper surface material, however the under surface has a layer of asbestos containing millboard material. The asbestos layer is moderately friable, however when the vinyl floor covering is in place and intact, this layer is covered and sealed off from air currents. There is little risk of asbestos fibres being released into the atmosphere unless the vinyl is ripped or worn through to a degree that the backing is exposed.

Asbestos backed mosaic patterned sheet vinyl has been identified as the lower layer of floor lining in apartment 7-1. It is understood that the apartments throughout the building have been renovated at different stages. Any older style sheet vinyls throughout the apartments should be treated as asbestos containing.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. Damaged or worn vinyl sheet floor coverings that are likely to expose the friable asbestos backing, should be removed by an approved Class A asbestos removal contractor.
2. As an interim measure, worn or damaged sections of vinyl sheet floor coverings should be isolated from personnel by covering with a protective material such as masonite or similar material.
3. Avoid sanding or dry scouring of the backing material.

6.2.6 *Vinyl Tiles*

Asbestos containing vinyl tiles are a non friable product. Provided the tiles remain intact and are well maintained, they present a negligible risk of exposure of personnel to airborne asbestos fibre. The risk of exposure is only likely to increase during major disturbances such as demolition, refurbishment, or removal and replacement operations.

It is noted that asbestos containing black glue can be present as a vinyl tile adhesive. If black glue is encountered under vinyl tiles then the glue should be tested for the presence of asbestos prior to works likely to disturb the glue.

Vinyl tiles deemed to contain asbestos are present as the floor lining of the level 5 maintenance cupboard adjacent the laundry.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. Advise maintenance and cleaning staff of the presence and location of these tiles.
2. Maintain these tiles in good order and do not allow dry scouring of the tile surfaces particularly with power tools.
3. Should any maintenance, refurbishment or demolition operations have an impact upon these tiles they should be removed by an approved asbestos removal contractor prior to any works commencing.

6.2.7 Fire Doors

Asbestos containing fire doors present a negligible health risk to personnel. These doors contain a friable to moderately friable asbestos material. However the asbestos is encapsulated within the outer casing of the door. Respirable fibre is therefore prevented from being released into the atmosphere. The level of risk to personnel is only likely to be elevated should the door be damaged, such that the internal insulation is exposed.

It should be noted that in order not to compromise the integrity and fire rating of fire doors, sampling is limited to accessible sections of these doors. Usually access is available only at latch and handles mechanisms. Therefore it would be prudent to assume that all fire doors contain asbestos unless sampling confirms otherwise.

Asbestos containing fire doors have been identified throughout this site. These doors are labelled and are in good condition.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. All asbestos containing fire doors should be clearly labelled or remain labelled..
2. All relevant personnel, particularly maintenance personnel should be advised of the presence, nature and location of these doors.
3. Should any of these doors be damaged such that the internal asbestos insulation is exposed or released from within, take immediate action to isolate the area. Arrange for immediate repair, clean up or removal by an approved Class A asbestos removal contractor.

6.2.8 Gaskets

Asbestos-containing gaskets and packing are likely to be present in plant and equipment in many locations, particularly in plant rooms. Gaskets can be either of the preformed (non-friable) type or the woven (friable) type. They are usually enclosed or encapsulated within plant equipment, which they service. Under normal circumstances these materials do not present a health risk due to the release of asbestos fibres into the atmosphere. Neither the use of preformed materials 'in-situ' nor the cutting of these materials will result in the release of any significant levels of airborne asbestos. However disturbance of the friable woven gaskets can result in some fibre release, and therefore present a risk to personnel.

During works, however, the removal of gaskets with the use of power tools has a greater potential to result in fibre release. Gaskets and seals should therefore always be removed by scraping with hand tools.

Asbestos-containing gaskets have been identified within machinery flange joins in the level 26 plant room.

Machinery within the plant rooms and lift motor rooms on levels 5, 26, the rooftop and basement areas was not accessed as it was operational at the time of assessment. Asbestos containing gaskets may be present in these areas in machinery flange joins and boiler door and hatch seals.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. Substitute with non-asbestos containing alternatives during normal maintenance procedures.
2. Maintenance personnel should be alerted to the possible presence of asbestos containing gaskets and packings.

6.2.7 Fire Doors

Asbestos containing fire doors present a negligible health risk to personnel. These doors contain a friable to moderately friable asbestos material. However the asbestos is encapsulated within the outer casing of the door. Respirable fibre is therefore prevented from being released into the atmosphere. The level of risk to personnel is only likely to be elevated should the door be damaged, such that the internal insulation is exposed.

It should be noted that in order not to compromise the integrity and fire rating of fire doors, sampling is limited to accessible sections of these doors. Usually access is available only at latch and handles mechanisms. Therefore it would be prudent to assume that all fire doors contain asbestos unless sampling confirms otherwise.

Asbestos containing fire doors have been identified throughout this site. These doors are labelled and are in good condition.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. All asbestos containing fire doors should be clearly labelled or remain labelled..
2. All relevant personnel, particularly maintenance personnel should be advised of the presence, nature and location of these doors.
3. Should any of these doors be damaged such that the internal asbestos insulation is exposed or released from within, take immediate action to isolate the area. Arrange for immediate repair, clean up or removal by an approved Class A asbestos removal contractor.

6.2.8 Gaskets

Asbestos-containing gaskets and packing are likely to be present in plant and equipment in many locations, particularly in plant rooms. Gaskets can be either of the preformed (non-friable) type or the woven (friable) type. They are usually enclosed or encapsulated within plant equipment, which they service. Under normal circumstances these materials do not present a health risk due to the release of asbestos fibres into the atmosphere. Neither the use of preformed materials 'in-situ' nor the cutting of these materials will result in the release of any significant levels of airborne asbestos. However disturbance of the friable woven gaskets can result in some fibre release, and therefore present a risk to personnel.

During works, however, the removal of gaskets with the use of power tools has a greater potential to result in fibre release. Gaskets and seals should therefore always be removed by scraping with hand tools.

Asbestos-containing gaskets have been identified within machinery flange joins in the level 26 plant room.

Machinery within the plant rooms and lift motor rooms on levels 5, 26, the rooftop and basement areas was not accessed as it was operational at the time of assessment. Asbestos containing gaskets may be present in these areas in machinery flange joins and boiler door and hatch seals.

Refer to the Asbestos Materials Register at the end of this report for further details.

Recommendations

1. Substitute with non-asbestos containing alternatives during normal maintenance procedures.
2. Maintenance personnel should be alerted to the possible presence of asbestos containing gaskets and packings.

7.0 General Guidelines for Treatment of *'In Situ'* Asbestos Materials

To minimise the possibility of liberation of respirable asbestos fibres, the following general guidelines regarding asbestos-containing products should be observed at all times:

1. All asbestos-containing materials should be kept in good repair.
2. Asbestos-containing materials should never be tooled, cut, sanded, abraded, machined, or subjected to excessive vibration.
3. Personnel should be advised of the presence and location of asbestos-containing materials in the workplace. This is essential where friable materials are present. Maintenance personnel or contractors who are likely to disturb 'in situ' asbestos products in the course of their duties must be supplied with suitable personal protective equipment and appropriate training whenever they are required to work in high risk asbestos environments.
4. Areas containing friable or damaged asbestos materials should be isolated from personnel.
5. As far as is practicable all asbestos-containing materials should be appropriately labelled.
6. Consideration should be given to replacement of all asbestos-containing materials (particularly friable materials) with non-asbestos containing alternatives, whenever and wherever this is practicable.
7. Before any demolition or refurbishment takes place, the risk to personnel arising from the work must be assessed. The results of this assessment must be made available to persons responsible for carrying out the demolition or refurbishment. This also applies to the removal of redundant equipment.

8.0 Removal of Asbestos-Containing Materials

In accordance with the provisions of ***Division 6 – Demolition and refurbishment where asbestos is present*** of the ***Victorian Government Occupational Health & Safety Regulations 2007 Chapter 4 Part 4.3***, all asbestos-containing materials which are likely to be disturbed by planned demolition or refurbishment works should be (so far as is practicable) removed prior to commencement of those works.

It is recommended that all removal of asbestos products should be performed by approved asbestos contractors. Where friable materials are to be removed this must be done by an approved Class A contractor. Non friable materials may be removed by either a Class A or B contractor.

Removal of asbestos materials must be conducted in a manner that will eliminate (so far as is practicable) the release of airborne asbestos fibres. The asbestos contractor must ensure that any control measures used to control the risk associated with exposure to airborne asbestos fibres are properly used, installed and maintained.

Particularly in relation to friable materials, it is recommended that static air monitoring be conducted. During removal of non-friable materials circumstances such as site sensitivity, occupancy of adjoining areas or other factors may indicate that static air monitoring is appropriate.

The ***Division 6 – Demolition and refurbishment where asbestos is present*** requires that at the end of the removal process a visual inspection of the asbestos removal area should be performed by an independent person to verify that there is no asbestos residue remaining as a result of the removal work. In the case of friable materials clearance air monitoring must be conducted within the enclosed area to verify that asbestos fibre levels are less than 0.01 fibres per millilitre. Clearance monitoring may also be appropriate where non-friable materials have been removed from internal or enclosed areas. An asbestos hygienist is an appropriate person to give guidance in these matters and to provide air monitoring and inspection services.

9.0 Asbestos Works by Non Approved Personnel

We recommend that approved asbestos removal contractors should be used, whenever and wherever work involves the removal or disturbance of asbestos-containing materials.

We note however, that on some occasions such works may be of a very minor nature or it may be necessary to minimise immediate health risk in an emergency situation, and that the duration of the works would be measured in minutes rather than hours. Where these minor works involve only non-friable asbestos materials, the probability of creating elevated airborne asbestos fibre concentrations would be low. Works of this nature may include:

- the removal of a small quantity of asbestos cement sheet, or pieces of asbestos cement debris following damage to some 'in situ' sheeting;
- the sealing of damaged edges of cement sheeting, or;
- the removal of a few vinyl floor tiles.

Division 7 – Removal of Asbestos of the ***Victorian Government Occupational Health and Safety Regulations 2007 Chapter 4 Part 4.3*** recognises that some minor works may be such that the use of an approved asbestos removal contractor may not always be necessary. Under the Regulations there is provision for these works to be carried out by non-approved personnel. The Regulations allow non-approved persons to carry out asbestos removal works for **a maximum of one hour in any seven-day period**. This only applies to non-friable asbestos materials. Any such person must have appropriate training and be provided with suitable Personal Protective Equipment.

Where non-approved personnel are involved in any work involving asbestos materials we make the following recommendations:

- Asbestos works involving non approved personnel must not be allowed to commence without prior written approval from the officer responsible for Health and Safety matters. Failure to do this may breach the 'Duty of Care' provisions of the Occupational Health & Safety Act.
- Non-approved personnel should be prohibited from carrying out any work which involves the disturbance of friable asbestos materials.
- All personnel required to carry out work involving asbestos materials, must be trained in the use of appropriate Personal Protective Equipment and the handling and disposal of asbestos materials.
- Protective respiratory equipment and clothing must always be worn during these works. Appropriate protective equipment would include, as a minimum, a class P2 half face respirator (replaceable filter or disposable face piece) and a disposable protective suit with hood.

10.0 Qualitative Risk Assessment

Asbestos materials are identified through a combination of visual inspection and material sampling. The qualitative risk assessment is based on evaluation of factors such as, location and condition of the material, whether activities in the area are likely to cause disturbance, and any other information which is considered relevant. As part of the risk assessment process, each asbestos hazard identified has been allocated a **Priority Rating**.

Priority Rating for Control of Asbestos Hazards
The following priority rating system has been incorporated into the Asbestos Register. The priority rating system is designed as a guide to those responsible for asbestos management. The actual setting of priorities for the implementation of asbestos control procedures will be dependent not only on the allocated rating, but also on factors such as changes to work practices or the physical environment which would occur during the refurbishment or demolition. Notwithstanding this, the allocated rating provides a reasonable guide to appropriate priority setting with regard to the current condition of the material.

Priority 1: Immediate Elevated Risk Level
A friable material, which due to its present condition and location presents an immediate health risk. Immediate risk control measures are required and the area containing this material must be isolated from personnel. Abatement of this particular hazard is strongly recommended at the earliest practicable time.

Priority 2: Potential Elevated Risk Level
A damaged or unstable material, which if disturbed is likely to present an immediate health risk. Short term risk control measures are required and the area containing this material must be isolated from personnel. Abatement of this particular hazard is recommended.

Priority 3: Low Risk Requiring Minor Maintenance
A stable material, which has some minor areas of damage requiring remedial action or is likely to be subject to damage or to degrade due to environmental conditions or proposed works. Maintenance work should be performed to stabilise and repair damaged areas. Controls must be implemented to protect these materials from further damage or degrading factors.

Priority 4: Negligible Risk under Present Conditions
A stable material, which is unlikely to present a risk to health unless damaged. It is recommended that these materials be maintained in good order. Reassess rating if planned works are likely to have an impact on these materials.

10.1 Timing of Control Procedures

Priority 1, Immediate Control
Procedures to reduce risk should be implemented immediately to reduce risk level to Stable Priority 4.

Priority 2, 3-Month Control
Procedures to reduce risk should be implemented within three months to reduce risk level to Stable Priority 4.

Priority 3, 1-Year Control
Procedures to reduce risk should be implemented within one year to reduce risk level to Stable Priority 4.

Priority 4, Maintain in Present Condition
Material should be re-assessed as part of the five year cycle or earlier if circumstances change.

11.0 Future Assessment Activities for Asbestos Materials

It is recommended that all asbestos materials be re-assessed on an ongoing basis. The purpose of re-assessments is to ensure that any deterioration or damage to the asbestos materials is identified and repaired or removed. This will help to reduce the potential of exposure of persons to airborne asbestos.

Victorian Government Occupational Health and Safety Regulations 2007 Chapter 4 Part 4.3 requires that buildings should be reassessed every five years for the presence and condition of asbestos materials. Reassessments may need to be conducted sooner if:

- There is a change in the condition of the asbestos containing material;
- The asbestos containing material has been removed, enclosed or sealed, or;
- There is evidence to indicate that the risk assessment no longer adequately assesses the risk associated with asbestos in the workplace.

12.0 Asbestos Materials Register

99 Spring Street, Melbourne - Selected Areas								30 & 31 October, 2012 & 12 April 2016
Material	**Location**	**Sample Number**	**Asbestos present**	**Friable Y/N**	**Condition**	**Priority Number**	**Activities that might disturb / damage asbestos**	**Comments / Recommendations**	**Re-inspect date**
Pipe lagging	Selected calico wrapped pipes within the level 26 plant room are lagged with asbestos insulation. These pipes are currently labelled and paint sealed. It is believed that the pipes in the ground floor PMG room originate from the level 26 plant room, these pipes should be treated as asbestos lagged pipes unless analysis determines otherwise.	-	Yes	Yes	Satisfactory	4	Machine and pipe maintenance	No calico pipe wrapping was disturbed throughout the areas of investigation. Care should be taken when disturbing calico wrapped pipes throughout the areas of investigation. It is noted that the pipes in the levels 6-25 elevator lobby riser shaft are lagged with polystyrene. As this material is friable reinspection should be conducted on a two year basis rather than every 5.	Oct 2014
Flat cement sheet	Rooftop, lining beneath water tanks between the wooden crate and metal water tank.	-	Deemed	No	Satisfactory	4	Weathering	There is a mixture of asbestos and non asbestos cement sheet in this area; it would be prudent to treat all cement sheets in this area as asbestos containing. Label, leave and maintain in good condition.	Oct 2017
	Basement, pump room 3, cement sheet boxed structure above the entrance door.	Refer to Z72206	Yes	No	Satisfactory	4	General maintenance	Leave and maintain in good condition. Ensure that this material remains labelled.	Oct 2017

Priority rating for control of asbestos materials.
1: Immediate elevated risk level. **2:** Potential elevated risk level. **3:** Low risk requiring control. **4:** Negligible risk under present conditions.

99 Spring Street, Melbourne - Selected Areas									30 & 31 October, 2012 & 12 April 2016
Material	**Location**	**Sample Number**	**Asbestos present**	**Friable Y/N**	**Condition**	**Priority Number**	**Activities that might disturb / damage asbestos**	**Comments / Recommendations**	**Re-inspect date**
Flat cement sheet	Basement carpark, car ramp area, lining of the ceiling.	Z72206	Yes	No	Unsatisfactory	3	General maintenance	Ensure that this material remains labelled. Any damaged and broken asbestos cement products should either be replaced with non-asbestos alternatives, or the exposed edges should be sealed to prevent fibre release. Larger holes should be patched sealed with a non-asbestos material and an adhesive to fix the patch in place. As a long term objective consideration should be given to the eventual replacement of asbestos cement products with non-asbestos alternatives, particularly materials that have sustained damage.	Oct 2017
Flat cement sheet	Level 5 sauna, present behind ceramic tiles throughout.	-	Deemed	No	Concealed	4	Plumbing maintenance	Label, leave and maintain in good condition.	Oct 2017
	Level 5 laundry, present behind the ceramic tile sink splashback	-	Deemed	No	Concealed	4	Plumbing maintenance	Label, leave and maintain in good condition.	Oct 2017
	Level 5 building superintendant's office, present behind ceramic tiles throughout.	-	Deemed	No	Concealed	4	Plumbing maintenance	Label, leave and maintain in good condition.	Oct 2017
Asbestos containing bituminous coating	Identified on black or dark green coloured pipes throughout the areas of investigation.	Z51691	Yes	No	Satisfactory	4	Plumbing maintenance	Label, leave and maintain in good condition.	Oct 2017
Mastic sealant	Identified within the joins of the metal rectangular ductwork within the plant room on level 5. Asbestos mastic should be deemed to be present within the joins of all metal ductwork throughout the areas of investigation.	Z51692	Yes	No	Satisfactory	4	Plumbing maintenance	Label, leave and maintain in good condition.	Oct 2017

Priority rating for control of asbestos materials.
1: Immediate elevated risk level. **2:** Potential elevated risk level. **3:** Low risk requiring control. **4:** Negligible risk under present conditions.

99 Spring Street, Melbourne - Selected Areas									30 & 31 October, 2012 & 12 April 2016
Material	**Location**	**Sample Number**	**Asbestos present**	**Friable Y/N**	**Condition**	**Priority Number**	**Activities that might disturb / damage asbestos**	**Comments / Recommendations**	**Re-inspect date**
Mosaic patterned sheet vinyl	Identified as the lower layer of floor lining in apartment 7-1. It is understood that the apartments throughout the building have been renovated at different stages. Any older style sheet vinyls throughout the apartments should be treated as asbestos containing.	Z51693	Yes	Yes	Satisfactory	4	General maintenance	Label, leave and maintain in good condition.	Oct 2017
Vinyl tiles	Present as the floor lining of the level 5 maintenance cupboard adjacent the laundry.	-	Deemed	No	Satisfactory	4	General maintenance	Label, leave and maintain in good condition.	Oct 2017
Fire doors	Identified throughout the areas of investigation	-	Yes	Yes	Satisfactory	4	Changing door hardware	Label, leave and maintain in good condition.	Oct 2017
Gaskets	Asbestos-containing gaskets have been identified within machinery flange joins in the level 26 plant room. Asbestos containing gaskets may be present machinery flange joins and boiler door and hatch seals throughout the areas of investigation.	Z51688	Yes	Yes	Satisfactory	4	Gasket changes	Machinery within the plant rooms and lift motor rooms on levels 5, 26, the rooftop and basement areas was not accessed as it was operational at the time of assessment. Label, leave and maintain in good condition.	Oct 2017

NOTE: The following areas were not accessed during the site investigation:

- Citipower substations in the basement were not accessed as they were locked at the time of assessment.
- There was no access to the rubbish chute due to confined space restrictions.
- Operational machinery was not accessed due to safety hazards.
- There was no access beneath carpet throughout the areas of investigation due to destructive access requirements.
- There was no access to the range hood flue in apartment 7-1 due to destructive access requirements.

Priority rating for control of asbestos materials.
1: Immediate elevated risk level. **2:** Potential elevated risk level. **3:** Low risk requiring control. **4:** Negligible risk under present conditions.

OWNERS CORPORATION PLAN 2983 (NO. 1)
99 SPRING STREET, MELBOURNE

99 SPRING STREET
OWNERS CORPORATION HANDBOOK

BUILDING RULES AND INFORMATION

Registered Owners Corporation Manager:
Sentinel Strata Services Pty Ltd
Level 2, 47 Bourke Street
MELBOURNE VIC 3000
Web: sentinelservices.com.au
Email: admin@sentinelservices.com.au
Tel: 9654 0188

Building Supervisor:
Facility Management Victoria Pty Ltd
Web: fmv.com.au
Email: bm99spring@bigpond.com
Tel: 0411 411 961

Updated April 2021

Emergency phone numbers and website links

Police / fire / ambulance / poison / **all emergencies 000**

Fire Rescue Victoria	1300 367 617
Victoria Police	13 14 44
Victorian Poison Information Centre	13 11 26
Building Supervisor	0411 411 961
Carpark roller door: AAA Doors	9708 2337
CitiPower	13 12 80
Gas leak	13 27 71
Lifts: Thyssen Krupp	1300 799 599
Locksmith: API Security	9321 5555
Plumber: Vanguard	1300 468 219
Security: Southern Cross Security	1300 136 102
Water/sewer: City West Water	13 26 42

OWNERS CORPORATION PLAN 2983 (NO. 1)

The following information is provided to assist owners and residents to understand their rights, responsibilities, facilities available within the building and to protect the integrity of the building.

1. Health, safety and security of owners, residents, occupiers, and others

A lot, unit or premises owner or occupier must not use it, or permit it to be used so as to cause a hazard to the health, safety and security of an owner, occupier, or user of another a lot, unit, or premises.

1.1 Owner's duties

1.1.2 Lot owners, residents and occupiers must:

a) comply with the *Owners Corporations Act 2006*, *Owners Corporations Regulations 2018*, and the rules of the owners corporation

b) not use or neglect common property in a manner likely to cause damage or deterioration.

1.1.3 Owners are obliged to maintain a state of good and serviceable repair any part of their lot which affects the outward appearance of the lot or the use and enjoyment of other lots or common property.

1.1.4 A lot owner is required to maintain any service which serves the lot exclusively.

1.1.5 Owners are responsible for the conduct of visitors on common property, including visitors' compliance with the building's COVIDSafe Plan, and use of a QR Code to access the gym and pool areas as necessary.

1.2 Storage of flammable liquids and other dangerous substances and material

1.2.1 Except with the approval in writing of the owners corporation, an owner or occupier of a lot must not use or store on the lot or on the common property any flammable chemical, liquid or gas or other flammable material.

1.2.2 This rule does not apply to:

a) chemicals, liquids, gases, or other material used or intended to be used for domestic purposes

b) any chemical, liquid, gas or other material in a fuel tank of a motor vehicle or internal combustion engine.

2. Lockers

2.1 These are held by owners under a licence issued by the Owners Corporation and terminate upon the sale of the lot, unit, or apartment.

2.2 It is a fundamental condition of the licence that flammable liquids or chemicals are not stored in lockers.

3. Lost keys

If an owner, resident or occupier is not able to gain entry to their apartment or the building and the Building Supervisor is not available, call Southern Cross Protection 1300 136 102 to arrange for a representative to attend the building with a master key. For security purposes, the owner, resident, or occupier will be required to provide proof of identity.

4. Water damage

In vacant premises, it is prudent to turn off water supply to plumbed-in appliances (hot and cold) as damaged or burst connecting hoses may result in water damage to areas of the building. Such damage is the legal liability of the responsible lot owner.

5. Insurance - Contents and public risk

5.1 The Owners Corporation provides a statutory insurance cover of the building on a replacement reinstatement basis.

5.2 The insurance of lot or apartment contents, including high standard wall, ceiling and flooring finishes added by the owner, is the entire responsibility of the owner. It is strongly recommended that owners have their own Public Liability Insurance.

6. Security

6.1 Owners, residents and occupiers should also be pro-active protecting against intruders and unauthorised persons gaining access to the building. Owners and residents should not allow any person into the building who is not known to them.

6.2 All contractors/tradespeople working within the building must sign the attendance register with the Building Supervisor before commencing work and also register for contact tracing through the COVID Safe QR code displayed at entrances to the building and outside the Building Supervisor's office.

6.3 Building security is 24-hours, seven days per week, by means of security cameras located in building entrances, lobby, and car park. Entrance doors are permanently locked, and access is by security fob only.

6.4 An owner, resident or occupier is not to grant a person access to the building unless that person is known to the resident. If in doubt, residents should refer the person to the Building Supervisor.

6.5 Residents or occupiers using the basement car park must wait until the roller door is closed before moving on to their parking space or exiting to Spring Street.

6.6 The **front door entrance keypad** and core console (located on the wall outside the Spring Street door) for residents, visitors, and emergency services to enter the front foyer.

6.7 Any visitor using the building recreation facilities must be accompanied by a resident and must comply with the building's COVIDSafe Plan requirements for visitors.

7. Fire and emergency

7.1 **Sound** – The **Alert** is a repetitive **beep, beep** sound. This is an **alert** only.

If this alarm sounds, please stand by for an announcement from the Fire Indicator Board, or if there is no announcement within a few minutes, the Evacuation alarm will sound.

7.2 **Sound** – the **Evacuation** alarm is a **wailing siren.**
When this alarm sounds, the building must be evacuated by use of the stairs only. Elevators must not be used in the event of a fire.

7.3 When the alarm is activated it alerts Fire Rescue Victoria.

7.4 Fire Rescue Victoria will check the Fire Indicator Board in the residential lobby to determine the source of the activated alarm. There may be a short interval between the fire alert signal and any announcement over the building's public address system.

7.5 The building fire alarm is tested monthly. This is a **test only**.

7.6 Residents are responsible for ensuring the batteries of apartment smoke alarms are changed regularly.

8. Warden Intercommunication Point

8.1 Warden telephones are situated on each floor for the use only of Fire Rescue Victoria.

8.2 Warden telephones are a direct line to the Master Emergency Control, situated in the residential lobby.

9. Fire evacuation procedure

a) Do not use lifts during evacuation. Fire Rescue Victoria will disable lifts.
b) Proceed to nearest fire exit as quickly as possible. Fire exists are on each floor.
c) Descend via the stairs to street level and assemble at The Hotel Windsor, 111 Spring Street (across Little Collins Street).
d) Residents should familiarise themselves with evacuation procedure displayed on each floor.

9.1 Any person, on discovering a fire, should activate the nearest alarm by breaking the glass on the face of alarm and pressing button. Alarms are located on walls adjacent to lifts and everyone should familiarise themselves with these locations.

10. Pets

Owners, residents, and occupiers are advised that keeping an animal or bird on the building's common property is not permitted. Pets are the total responsibility of pet owners.

11. Noise and nuisance control

11.1 An owner, resident or occupier must take all reasonable steps to ensure that their visitors do not behave in a manner that unreasonably interferes with the peaceful enjoyment of any other person in the building.

12. Use of common property

12.1 An owner, resident or occupier of a lot must not obstruct the lawful use and enjoyment of the common property by any other person entitled to use the common property.

12.2 If the owners corporation has decided that an animal is a danger of, or is, causing a nuisance to the common property, it must give reasonable notice of this decision to the owner, resident or occupier who is keeping the animal.

12.3 An owner, resident or occupier of a lot who is keeping an animal that is the subject of a notice under subrule (12.2) must remove that animal.

12.4 Subrules (12.2) and (12.3) do not apply to an animal that assists a person with an impairment or disability.

13. Damage to common property

13.1 An owner, resident or occupier of a lot must not damage or alter the common property without the written approval of the owners corporation.

13.2 An owner, resident or occupier of a lot must not damage or alter a structure that forms part of the common property without the written approval of the owners corporation.

13.3 An approval under subrule (13.1) or (13.2) may state a period for which the approval is granted and may specify the works and conditions to which the approval is subject.

13.4 An owner or person authorised by an owner may install a locking or safety device to protect the lot against intruders, or a screen or barrier to prevent entry of animals or insects, if the device, screen or barrier is soundly built and is consistent with the colour, style and materials of the building.

13.5 The owner or person referred to in subrule (13.4) must keep any device, screen or barrier installed in good order and repair.

14. Swimming pool area

14.1 Hours of use: 6am to 10pm.

14.2 The following rules must be observed:

(a) Children under the age of 12 years must always be accompanied by an adult resident.

(b) Both doors leading to the swimming pool must be kept secured at all times.

(c) Visitors, both adults and children, must always be accompanied by a resident.

(d) Glass is not permitted in the swimming pool area.

14.3 Visitors must use the building's QR Code (for contact tracing compliance) when using the pool area.

15. Building maintenance

15.1 The Building Supervisor is an employee of Facilities Management Victoria. The Building Supervisor is responsible for the routine maintenance of the common areas only. The Building Supervisor is available in emergencies but should not be expected to provide routine assistance in individual apartments.

15.2 The Building Supervisor's duties generally include:

a) Maintenance of all building services.

b) Supervision of daily cleaning of public areas to a high COVIDSafe standard.

c) Maintain maintenance service records, including all exterior window cleaning from ground level to 25th floor.

d) Promptly attend to equipment or service malfunction.

e) Ensure that essential safety measure compliances are maintained, including regular Annual Essential Service Maintenance Report inspection and testing.
f) Verify purchase orders and invoices for maintenance, goods and services for payment by the Owners Corporation Manager.

16. Window cleaning

16.1 Residents are responsible for internal cleaning of windows. Residents are responsible for cleaning external windows on balconies.

16.2 The Owners Corporation is responsible for the regular cleaning of all other external windows from the ground level to 25th floor.

17. Car Parking

17.1 Owners, residents and occupiers are to ensure that car parking arrangements in the basement are observed with vehicles parked only in the car space of the owner, resident or occupier.

17.2 It is the responsibility of the owner, resident, or occupier to ensure that visitors do not park vehicles in the basement unless they are being parked in the host's car space.

17.3 Vehicles are not permitted to park at entrances to lifts.

17.4 Vehicles must not be left unattended on the driveway.

18. Apartment alterations

18.1 The Building Supervisor must be notified prior to any apartment alterations or construction works in the building. The Building Supervisor will provide the owner with two documents:
a) Residential Works Agreement
b) Move in or out inspection form

18.2 All contractors/tradespeople working in the building must register daily with the Building Supervisor and register daily with the COVID Safe QR code.
a) All construction work undertaken must be carried out in the building between the hours of 8am to 5pm on weekdays. Work of a noisy nature is not to be undertaken before 9am or after 5pm. No weekend work is permitted other than emergency repairs.
b) No formations, building materials or large objects are to be brought through the lobby or ground floor entrances of the building. These materials must be taken through the car park entrance.
c) Contractor/tradespeople vehicles are not to be parked in the building unless using an owner's car space with the owner's permission.
d) Lifts are not to be used by contractors/tradespeople for carrying building materials unless prior arrangements have been made with the Building Supervisor. At least one day's notice is required of availability of the lift and suitable cladding material to protect the lifts interior.

18.3 A security bond of $5000 is required against common property damage during building alterations to an owner's apartment.

18.4 Works are to be carried out in accordance with all relevant and applicable state legislation, regulations, applicable council permits, provisions, and bylaws.

a) All necessary insurances are to be taken out and copies forwarded to the Owners Corporation Manager prior to commencement of works.
b) Relevant plans and permits are to be submitted to the Owners Corporation Manager a minimum of 14 days prior to commencement of works.
c) The project manager should report to the Building Supervisor on the progress of the work, any damage caused to Owners Corporation property and other related issues.
d) Structural walls (load bearing), floors and ceilings must not be compromised.
e) All Owners Corporation property, services, cables etc. must always be protected. The Building Supervisor is to be notified in writing of the date on which the works will proceed, and an estimate of the completion time and date provided.
f) Should the Owners Corporation committee consider it reasonable and necessary to refer to an architect, engineer or any other professional concerning the works being carried out, the cost is to be borne by the relevant owner.
g) Lifts, doors, and flooring in the common areas are to be protected when materials are being moved through the property.
h) Public access to the property should always remain unhindered. The project manager or owner (as applicable) will be responsible for the general conduct of workers while on Owners Corporation property.
i) The maximum load to be carried in a lift at any time shall not exceed 1000 kilograms and the load must be evenly distributed throughout the lift.
j) Owners and their agents are responsible to ensure that the applicable works schedule is undertaken safely and effectively by competent persons who have a demonstrated awareness of occupational health and safety considerations and the need to prevent risk to the health and safety of contractors, employees, residents and visitors.
k) Owners need to be aware that dust particles and fumes can set off the fire alarm system and must therefore consult the Building Supervisor before work is commenced to have Alexon isolate the fire alarm.
l) Building works may only be carried out between 8am and 5pm Monday to Friday. Weekend, public holiday, or after-hours work is not permitted.
m) All materials and equipment must be brought in or taken out of the building through the basement car park. The carriage of materials and equipment through the ground floor entrances of the building is not permitted.
n) No building materials are to be disposed of in the building's waste chutes. Contractors must remove building waste from the building.
o) Building skips can only be placed on private car spaces. Building skips are not permitted on common property.

19. Building façade

No owner, resident or occupier may make changes to the façade of the building, including alterations to balconies, or any external part of the building.

20. **Building Security**

For the maintenance of building security and the convenience of other residents, access doors and lift doors shall not be propped open during activity related to furniture removal or building works.

21. Rubbish removal

21.1 An owner, resident or occupier must ensure that the disposal of garbage or waste does not adversely affect the health, hygiene, or comfort of others.

21.2 Bottles are to be emptied completely before disposal.

21.3 No building materials are to be disposed of in the waste chutes. Contractors must take building renovation waste with them. Building skips can only be placed on private car spaces. Building skips are not permitted on common property.

21.4 General rubbish is to be bagged and sent down the garbage chute. At no time, is liquid to be placed in the garbage chute. Large or heavy items, such as appliances are to be removed from site by the resident.

21.5 Hard rubbish collection by the City of Melbourne can be arranged via the Building Supervisor.

22. Selling an apartment

22.1 The following procedure is to be adopted by estate agents when handling the sale of an apartment:

a) Apartments are to be inspected by appointment only.

b) When inspecting an apartment, the client is to accompany the vendor's agent while in the building.

c) Agent's notices are not to be placed within the precinct of the building.

d) Auctions are not to be conducted on Owners Corporation property.

e) An owner who sells a lot must provide the name and address of the purchaser to the Owners Corporation Manager within one month of the completion of the contract.

f) A purchaser is required to advise the owners corporation of their name and address within one month of the completion of the contract.

23. Providing a copy of the rules to a tenant

An owner is required to provide their tenant with a copy of these rules.

24. Cabana room

This room is available for use by residents. Bookings for functions are to be made with the Building Supervisor. The cabana room must be vacated no later than 11pm.

25. Gymnasium

25.1 Residents using the gym facilities and equipment do so at their own risk. The Owners Corporation, its members, employees, and agents will not supervise the use of facilities or equipment and will not be responsible for any injury. Persons intending to use the facilities or equipment should obtain medical advice that they may do so safely.

25.2 Children under the age of 12 years are not permitted in the gymnasium. Older children may use the equipment under the supervision of an adult.

25.3 Residents and visitors must use the building's QR Code and booking system to access the gym.

26. Electronic building access failure

In the event of electronic system failure, call the Building Supervisor on 0411 141 961 or Southern Cross Protection on 1300 136 102.

27. Connectivity services (Wi-Fi, cable TV, NBN, ADSL etc.)

The Building Supervisor must be contacted prior to any work on connectivity services to premises and the building.

28. Address for service of documents

An owner who does not occupy their lot or will not be occupying for more than three months, is required to provide the owners corporation with an address for service of documents. Any change to the address is to be given to the Owners Corporation Manager as soon as possible.

29. Owners who do not occupy their lot/s

29.1 An owner who does not occupy a lot is required to provide their contact details to the Owners Corporation Manager.

29.2 The absent owner is not relieved of obligation to properly repair and maintain the premises if they do not occupy the premises. Although a lease may oblige a tenant to maintain the premises, the responsibility to ensure that any required maintenance is undertaken rests with the owner.

30. Approved solar coating (window tinting) to existing exterior windows

The Building Supervisor will provide details of the building's approved window tinting.

31. Owners Corporation committee

The Owners Corporation committee is elected at the Annual General Meeting. The committee meets at 8am on the third Friday of each month except January. Approved committee meeting minutes are available in a secure portal of the OC Manager's website at sentinelservices.com.au

32. Emergency phone numbers and website links

Police / fire / ambulance / poison / **all emergencies**	**000**
Fire Rescue Victoria	1300 367 617
Victoria Police	13 14 44
Victorian Poison Information Centre	13 11 26
Building Supervisor	0411 411 961
Carpark roller door: AAA Doors	9708 2337
CitiPower	13 12 80
Gas leak	13 27 71

Lifts: Thyssen Krupp	1300 799 599
Locksmith: API Security	9321 5555
Plumber: Vanguard	1300 468 219
Security: Southern Cross Security	1300 136 102
Water/sewer: City West Water	13 26 42