

**NORTHPOINT BAR & BISTRO
WARRNAMBOOL**

**NEW BAR & BISTRO AND REFURBISHMENT OF
EXISTING BOTTLESHOP**

**CONSTRUCTION ISSUE 'C2'
MAY 2015**

S P E C I F I C A T I O N

of materials and workmanship to be used in
the construction of :-

**NEW BAR & BISTRO AND
REFURBISHMENT OF EXISTING
BOTTLESHOP**

**NORTHPOINT BAR & BISTRO
70-82 HOPKINS HIGHWAY
WARRNAMBOOL**

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Specification Number: 30540

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April 2011

Note:

Specification and Appendices are formatted
for printing double sided on A4 paper.

NORTHPOINT BAR & BISTRO

WARRNAMBOOL

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"SECTION" INDICATES A TRADE SECTION WITHIN THE SPECIFICATION.

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DOCUMENT 00110 LIST OF DRAWINGS

LIST OF DRAWINGS

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Mechanical

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M 01 Mechanical Services – Ductwork Layout

M 02 Mechanical Services – Roof Plan and Gas Piping Layout

Landscape Drawings

09-092

09-092L-TP01A Landscape Plan

DOCUMENT 00800 GENERAL CONDITIONS OF THE WORKS

1. Information to Sub-contractors, Suppliers and Installers

Advise sub-contractors and suppliers and installers of material of the requirements of these General Conditions of the Works.

2. Interpretation of Drawings

Check dimensions on site before proceeding with the work of the contract. Notify architect of omission or conflict in drawings and their relation to specifications.

3. Indemnity of Principal

- A. Indemnify, and keep indemnified the principal against claim, demand, action, suit or proceeding that may be brought or made against the principal by any other person who has entered into a contract with the principal to execute work associated with the project.
- B. Submit evidence of such insurance in respect of loss, damage or expense incurred by that other person by reason of an act, default or neglect of the Contractor in the performance of his obligations under the contract or arising out of or as a consequence of delay by the Contractor in executing or failing to complete work under the contract and also from costs and expenses that may be incurred by that other person in connection with such claim, demand, action, suit or proceeding.
- C. Do not proceed with work under the contract until evidence of indemnities and insurances required herein, is submitted in writing to the Superintendent.

4. Approvals, Services, Fees and Tax

- A. The following documents have been submitted by the principal, via the architect and fees paid for:
Planning permit.
Building permit.
Fire reports/consents and/or authority approvals.
- B. The Contractor is to comply with any construction related conditions contained in the Town Planning Permit.
- C. Be responsible for the connection of services, water, sewerage, drainage, electricity and gas etc. Apply for such permits, pay for fees and charges levied by relevant bodies for such connections. Issue necessary notices to such bodies. Obtain and pay for scaffolding permit.
- D. Pay tax on items where such tax is applicable. If tax is not applicable, request from the principal, via the Superintendent, a tax exemption certificate for use when ordering specified materials.
- E. Pay fees, where applicable, relating to workplace health and safety acts and other state or local government acts.
- F. Clothing and Equipment:
Tenderers are advised to discuss Standard Clothing, Protective Clothing and Equipment for this project with the M.B.A.V.
The Contractor is to supply to all eligible persons on site, clothing and equipment in accordance with the current Victorian Building Industry Agreement.
The cost of all the clothing and equipment is to be included in the Contractor's Tender and the Proprietor will not pay any claims for the cost of any clothing and/or equipment.
- G. Site Allowance:
The Contractor is to include for all costs associated with Site Allowances for this project, based on the Victorian Building Industry Agreement.
The Contractor is to include for all associated costs he/she incurs as a result of Site Allowances, including administration, overhead and profit and other 'on-costs' such as payroll tax, superannuation, workcare, etc.

5. Site Control

- A. Be responsible for activities on the site including providing access for authorised persons and restricting access by unauthorised persons. Take necessary precautions to secure the assets of the principal.
- B. Except as otherwise provided in the contract, delivery of materials for the works, space for storage of same and for building sheds, office and workshops will be allowed only as directed by the Contractor.
- C. Do not store waste building materials and flammable liquids in the building.
- D. Take proper precautions to keep poisons and other injurious substances in places secured against access by unauthorised persons.

- 6. Compliance with Ordinances, etc.**
Comply throughout with the requirements of relevant sections of the Building Code of Australia. Whenever work or type of plant or machinery, etc. is required either by the specification or by the relevant statutory authority, provide full details of such work, plant, etc. to the relevant statutory authority and make such applications, etc. as may be required within 2 weeks of receipt of Letter of Acceptance. In such cases, approval given by the Superintendent to data submitted by the Contractor will not necessarily imply that such data meet the requirements of the relevant statutory authority.
- 7. Site Amenities**
Provide statutory and necessary amenities and sanitary facilities for site workers where such are not already available in suitable locations. Maintain in working condition and clean daily. Comply with Union requirements.
- 8. Temporary Fire Extinguishers**
Maintain fully charged, and accessible fire extinguishers as are necessary for the care and safety of the works, as required by local fire authority.
- 9. Telephone and Fax**
Provide either a mobile telephone or a telephone service and pay costs of installation, rental, calls and removal.
Provide fax machine under similar conditions.
- 10. Light and Power**
Provide temporary electric light and power supply during construction and pay charges connected therewith, including electricity supply and usage charges. Provide sufficient of each as required for execution of work specified. Remove temporary supply at the completion of the works.
- 11. Water**
Provide and maintain a temporary water supply sufficient for executing the work under the contract. Disconnect and clear away same on completion and pay costs and charges in connection therewith. Provide tapping of main supply if required.
- 12. Project Identification Sign**
The Contractor shall provide and erect details of Building Permit/Registered Building Practitioners and Contact Details, as required by the Building Regulations.
- 13. Adjacent Premises / Existing Conditions Report**
Ensure that the work is carried out without damage to, and with a minimum of nuisance or annoyance to, the occupants of adjacent premises.
The Contractor shall undertake and provide existing conditions reports for all properties adjacent to the site prior to commencing the Building Works. These shall include a thorough photographic record of surfaces and elements of existing buildings adjacent to the site, as well as other supporting notes as required.
- 14. Joining Up to Existing Buildings**
Where the method of joining up of old and new work is not otherwise specified, the cutting away and joining up is to be carried out in a manner approved by the architect and made good by relevant trades to match existing adjacent work.
- 15. Interference with Existing Services**
Notify the Superintendent of connection, disconnection or interference with existing services.
Repair, to the satisfaction of the Superintendent, damage which occurs to services during currency of the contract.
- 16. Damaged Services**
Where existing services at or adjacent to the site are in non-optimum condition, arrange for an inspection by the Superintendent and the officer-in-charge of the area responsible for such service. At such meeting, record the condition and follow instructions when issued in writing by the Superintendent.
- 17. Disposal of Refuse**
Remove refuse from construction operation (including food scraps and the like) from the site at frequent intervals.

18. Solid, Liquid and Gaseous Contaminants

- A. Be responsible for the proper disposal of solids, liquid and gaseous contaminants.
- B. Discharge gaseous contaminants in such a manner that they will be sufficiently diluted with fresh air that the toxicity will be reduced to an acceptable level.
- C. Subject to statutory and local requirements, liquid contaminant may be diluted with water to a level of quality acceptable in the sewer system or contained in approved vessels for disposal at sites approved by the relevant authority.
- D. Dispose of solid contaminants by removal from the site to locations approved by the relevant authority.

19. General Attendance on Sub-contractors

General attendance includes taking delivery, assisting to unload, storing and protecting sub-contractor's materials and for allowing sub-contractors ample working space, free use of water, electricity (unless otherwise described), scaffolding, hoists and ordinary plant, etc., and messing and sanitary accommodation and for cutting away, building in and protecting finished work and making good.

20. Precautions in Carrying Out Work Under the Contract

Unless otherwise specified in the contract, observe, in the absence of statutory requirement to the contrary, the relevant current Australian Standard relating to storage, transport, use of materials, explosives, fire precautions in arc or flame cutting, flame heating and arc or gas welding operations, plant and equipment, work processes and safety precautions.

21. Dimensioning

Do not scale drawings which are clearly diagrammatic and/or marked 'not to scale' or NTS.

22. Care of the Works

- A. Delivery, handling and storage: deliver, handle and store products in accordance with manufacturer's recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Control delivery schedules to minimise long-term storage of products at site and overcrowding of construction spaces. In particular, co-ordinate delivery and/or installation to ensure minimum holding or storage times for products recognised to be flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other sources of loss.
- B. Limiting exposure of work: to the extent possible, through control and protection methods, supervise performance of work in a manner which will ensure that none of the work, whether completed or in progress, will be subjected to harmful, dangerous, or damaging exposures during construction period.
- C. Cleaning and protection of finished work. General: during handling and installation of work as project proceeds, clean site and protect work in progress and adjoining work on a basis of perpetual maintenance. Apply suitable protective covering on newly installed work where required to ensure freedom from damage or deterioration at a time of Practical Completion; otherwise, clean and perform maintenance on newly installed work as frequently as necessary throughout remainder of construction period. Adjust and lubricate operable components to ensure equipment operates as intended.

23. General Product Compliance

- A. Provide products which comply with requirements, and which are undamaged and unused at time of installation, and which are complete with accessories, trim, finish, features required by regulation, and other devices and details needed for a complete installation and for intended use and effect.
- B. Standard products: where available, provide standard products of types which have been produced and used previously and successfully on other projects and in similar applications.
- C. Continued availability: where additional amounts of a product, by its application, are likely to be needed by principal at a later date for maintenance and repair or replacement work, provide a standard, domestically produced product which is likely to be available to principal at such later date.
- D. Manufacturer's recommendations: where installations include manufactured products, comply with manufacturer's current and applicable recommendations for installation, to whatever extent these are more explicit or more stringent than applicable requirements indicated in contract documents.
- E. Cited trade names are not an exclusive requirement, but an example of an accepted standard and that equivalent alternative products or services may be accepted subject to the superintendent's approval.

24. Shop Drawings

Shop Drawings mean complete drawings showing details of fabrication, assembly, installation, fixing and waterproofing methods of specific items or components, including necessary explanatory notes and specifications.

The Contractor shall enact the following in relation to Shop Drawings:

- A. Include provision in construction programme for the production and distribution of Shop Drawings.
- B. Refer discrepancies discovered in the contract documents to the Superintendent for direction.
- C. Verify relevant dimensions. Dimension drawings so that the items or components fit accurately into the required positions.
- D. Ensure that Shop Drawings conform with the requirements of the contract.
- E. Drawings are to be of consistent standard size and presentation.
- F. Submit 2 initial hard copies of each drawing, 1 for each of the following: architect, relevant consultant. Do not email shop drawings. Do not fax Shop Drawings as they are often illegible on receipt. Drawings will be stamped or otherwise indicated by the architect / consultant as follows:
 - review completed (no annotations were required)
 - make corrections or consider issues as noted / marked on drawings
 - resubmit (annotations may or may not be made).
 Generally, 1 copy from each reviewing party will be returned to the Contractor for action as required. (This process may or may not be chosen to be repeated until the architect considers that the Shop Drawings are satisfactory). Do not re-send amended versions of the shop drawings after initial issue unless specifically requested as above.
- G. Provide copies also as required for the Contractor's site office, manufacturers or sub-contractors.
- H. Acceptance of Shop Drawings are to imply only that the Contractor's interpretations of the relevant requirements of the contract are generally correct, but are to in no way relieve the Contractor of his obligations under the contract to construct and complete the works correctly and accurately.
- I. The architect's shop drawing review is intended to assist with achieving the architectural and design intent, however the architect does not take responsibility for approving dimensions shown, layout or quantities, nor imply that all the relevant information is necessarily shown.
- J. Do not order, manufacture, assemble or supply any item or component needed according to requirements of Shop Drawings until the architect returns the applicable stamped drawings.

25. Contractor's Quality Control

- A. Inspect each item of materials or equipment immediately prior to installation and reject damaged or defective items.
- B. Provide attachment and connection devices and methods for securing materials properly as they are installed, true to line and level, and within recognised industry tolerances unless otherwise indicated. Allow for expansion and building movements. Provide uniform joint widths in exposed work, organised for best possible visual effect. Refer questionable visual effect choices to the architect.
- C. Re-check measurements and dimensions of the work as an integral step before starting each installation.
- D. Install work during conditions of temperature, humidity, exposure and weather which will ensure the best possible results for each part of the work, or component or treatment as necessary to prevent damage and deterioration.
- E. Co-ordinate enclosure and closing-in of work with required inspections and tests, so as to avoid necessity of uncovering work for that purpose.

26. Asbestos

No asbestos products or asbestos based materials are to be used in any part or parts of this building or its services and the Contractor is to ensure that sub-contractors, nominated sub-contractors, suppliers and others are advised of this restriction.

No compensation will be paid if asbestos is brought on to the site and subsequently discovered and if discovered such removal and consequential making good or costs will be totally at the expense of the Contractor.

27. Occupational (Workplace) Health and Safety

Be responsible for the maintenance of a satisfactory safety system on site. Provide evidence to the Superintendent of full compliance with the provisions of the relevant state health and safety act. It is the responsibility of the contractor and sub-contractors to use the safety equipment as required by law.

The Contractor shall carry out the whole of the works in a thoroughly safe manner and in particular shall:

- A. Ensure that on site safety is maintained in accordance with the Occupational Health and Safety Act, the Victorian Building Industry Safety Code and all other relevant legislation.
- B. Ensure that Sub-Contractors conform to the requirements of the relevant Acts of Statutes of Parliament, Regulations and By-Laws or orders relating to the safety of persons on or about the site.
- C. Ensure that all workers on site are insured for Workcare in accordance with relevant legislation, and have current registration with the relevant Construction Industry Long Service Leave Authority.
- D. Ensure that all tools and tackle, gear, stagings, scaffolding, ladders, machines, winding arrangements and other equipment used by the Contractor in connection with the works are of adequate strength and safe for use.
- E. Immediately discontinue any practice or remove any equipment, which becomes or is likely to become unsafe.
- F. Ensure the removal from the works promptly of any of his employees or representatives or those of any Sub contractors who conduct tends to create danger to themselves or others or to the work.
- G. Provide all hoardings, etc. as required by local regulations and maintain all such hoardings, barriers, etc. in a neat, tidy appearance.

28. Material / Colour Selections

The architect will prepare a master Colour Schedule indicating the required colour, finish, pattern, material, texture and other pertinent information in connection with interior and exterior finishes.

29. Environmentally Sustainable Development

Where applicable, propose product alternatives of local origin for approval by architect, notwithstanding that alternatives may not be accepted.

Provide recycling service for all construction waste that can be recycled.

30. Miscellaneous Completion Procedures

- A. Removal of protection: except as otherwise indicated or requested by architect, remove temporary protection devices and facilities installed during course of the work to protect previously-completed work. Where secured to exposed-to-view new work or existing to remain, remove evidence of protection devices. Remove protection within 5 days before Practical Completion.
- B. Trade cleaning: as each trade completes its work in each area of the building, the sub-contractor is required to be responsible for "broom clean" standard of cleaning in that area.

31. Guarantees

- A. The Contractor or other approved Guarantor or Guarantors shall provide written guarantees where so specified elsewhere in this specification.
- B. Each guarantee shall be in an approved form and shall specifically include the provisions required herein.
- C. All guarantee periods shall commence from the date of the Notice of Practical Completion and shall be for the periods later specified.

32. Warranties

- A. The Contractor shall provide warranties under all specified nominated sub-contracts and nominated supply agreements.
- B. The Contractor shall also provide warranties where so specified under other trades for periods as listed within that particular section of the specification.
- C. Such warranties shall be in the form set out as attached to this specification and shall be handed over by the Contractor to the Superintendent before issue of the Final Certificate.
- D. The provision of warranties shall not relieve the Contractor of any of his liabilities or obligations under this Contract.

33. Final Cleaning

Final cleaning: provide final cleaning of the work of this specification, at time indicated, consisting of cleaning each surface of unit of work to normal 'clean' condition expected for a first class building cleaning and maintenance programme.

Examples of required cleaning are:

- A. Remove labels which are not required as permanent labels.
- B. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances which are noticeable as vision-obscuring materials. Replace broken glass and damaged transparent materials.
- C. Clean exposed exterior and interior hard surfaces finished, to a dirt free condition, free of dust, stains, fingermarks, films and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
- D. Wipe clean surface of mechanical and electrical equipment, including lift and similar equipment; remove excess lubrication and other substances.
- E. Remove debris and surface dust from limited access spaces.
- F. Clean concrete floors broom clean.
- G. Vacuum clean carpet and similar soft surfaces.
- H. Clean plumbing fixtures to a sanitary and polished condition, free of stains including those resulting from water exposure.
- I. Clean light fixtures and lamps so as to function with full efficiency.
- J. If permanent lighting fixtures have been used for construction purposes replace globes with new.
- K. Clean project site, including planted sections and footpaths, of litter and foreign substances. Sweep paved areas to a broom clean condition; remove stains, petro-chemical spills and other foreign deposits.
- L. Label keys for locks accurately and provide in duplicate to the Superintendent at the completion of the project.

Clean Site and Access Roads:

Be responsible for maintaining clean roads and access. Remove and clean away mud, building debris from footpaths, gutters, drains, walls etc. when such occurs.

34. Authority Approvals and Certificates

- A. Prior to the issue of Practical Completion Notice for the whole or section of the work, lodge with the Superintendent relevant certificates issued by local authorities.
- B. Produce to the Superintendent a certificate of clearance of reinstatement of damage to footpaths and road, etc. from the appropriate road authority or city engineer before issue of Practical Completion Notice.

35. Record of Services

The Contractor shall mark and dimension 2 complete sets of the drawings and mark thereon the exact position and route of underground services as actually laid, by dimensions from boundaries, buildings and other fixed points.

The position of valves, branches, inspection openings and the like, will be dimensioned and checked by the Contractor before the work is covered up. Record on the drawings the invert levels of drains and other relevant piped services. Variations in position of size of the pipes, valves and the like within the building, will also be marked on these sets of drawings and checked by the Contractor.

Return the completed dimensioned 'as-built' drawings to the Superintendent before the Certificate of Practical Completion will be issued. Refer also to Services Documents and comply with requirements.

Variation to Services shall be marked on the plan progressively as the work proceeds and not at the completion of the Contract.

END OF DOCUMENT

SECTION 02050 DEMOLITION

PART I GENERAL

101 General

- A. Examine documents: examine parts of the drawings and this specification for requirements which affect the work of this section. In particular, take note of related work.
- B. Co-ordination: co-ordinate with other trades affecting or affected by work of this section, co-operating as necessary to ensure steady and satisfactory progress of the work.
- C. Refer to Site Plan for Sequencing

102 Related Work

Co-ordinate and co-operate with the following trades:
Disconnection of existing services by appropriate other trades
Site preparation – Excavation Asbestos removal
Water distribution Sanitary sewerage
Storm drainage

103 Scope

Note: Refer to drawings for extent of demolition work, for materials, fixtures & fittings to be removed and reused. All demolished materials etc. not reused are to be removed from site.
The work of this Section will include but is not limited to the following items:-

- A. External & Internal (Refer to Drawings)
 - Demolish & remove all items as shown on Demolition Plan(s) or as required.
 - Retain and protect existing items where shown to be relocated, reused or handed to school, make good where required. Carefully remove and hand over / store items to be retained by Proprietor / re-used in new works.
- B. Services
Refer to Electrical, Mechanical and Hydraulic Service drawings for extent of demolition and removal of existing services.
- C. In-ground Services and Footings
Remove all redundant services and footings, which formed part of the demolished sections of the building. All services and footings to be removed to a depth of 900mm below grade. Services more than 900mm below grades are to be sealed or terminated in accordance with the regulations of the Authorities having jurisdiction over the works. Generally all services that become redundant as a result of the works shall be disconnected, sealed or terminated in accordance with the regulations of the Authorities having jurisdiction over the works.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS 2436 Guide to noise control ... and demolition sites.

AS 2601 Demolition of structures.

AS 4687 Temporary fencing and hoardings.

Comply also with the requirements of applicable building regulations, statutory authority having jurisdiction, local council.

105 Public and Property Protection

Provide measures required by municipal and state ordinances, laws and regulations for the protection of surrounding property, trees, footpaths, streets, kerbs, the public, occupants and workmen during demolition operations. Comply with the above ordinances, laws etc. in carrying out measures including barricades, fences, warning lights and signs, rubbish chutes, etc. Existing trees shown to be retained are to be carefully protected during the currency of the works.

No blasting for demolition purposes will be permitted.

Exercise due care in executing this work.

Make good to original condition, damage to structures to be retained and to adjacent property which results from demolition operations.

Perform restoration work without expense to the proprietor.

106 Fees

Pay fees due to authority requiring same in connection with the work of this section.

107 Services

Before demolishing and removing parts of building having electrical wiring, gas and water pipes, conduit or similar items embedded in them, notify the Superintendent, authorities having jurisdiction, and make sure that these items are out of service so that they can be removed without danger.

PART II MATERIALS**201 Demolished Materials**

All material required to be demolished and not specified to be reused shall become the property of the Contractor and shall be removed from the site.

202 Equipment

- A. Supply equipment required to perform the work of sufficient capacity to meet the time schedule.
- B. Provide disposal containers for disposal required.
- C. No containers may be located on public streets or pavements without obtaining required municipal permits for same. Co-operate with sub-contractors doing work in or near container locations to prevent disruption of their work.

PART III EXECUTION**301 Examine The Site Conditions**

Examine carefully the site conditions so as to be informed of all allowances and requirements and include associated costs that are necessary to complete the Works.
Start of work means total acceptance of conditions.

302 Existing Reinforced Concrete, Concrete Paving & Bituminous Concrete Paving

Neatly cut back or trim to new alignment with a clean true face on material to be retained. Cut with diamond saw where necessary to achieve clean, straight and true surfaces.

303 Shoring

Provide necessary shoring in accordance with structural engineering instructions.
Alter, adapt, and maintain temporary works as necessary, and strike or withdraw them progressively as the work proceeds. Obtain the written consent of the Superintendent/structural engineer if such works are to be left in position at the completion of the work.

304 Exposed Excavations

Leave excavations open after removal of work below ground level until completion of inspection by Superintendent/structural engineer.

305 Methods and Operations

- A. Demolish and remove completely parts of structure listed and/or drawn for demolition. The methods of cutting and removal of floors, walls, and other items to be removed are to be approved by authorities having jurisdiction.
- B. Furnish flame-cutting required to dismantle sections of equipment too large to be otherwise removed. Flame-cutting is to be performed only by experienced and qualified mechanics. Protect combustible surfaces during flame cutting. Maintain fire extinguishers, required by the fire authority, at hand.
- C. Do not drop or throw material more than 5 metres. Lower by means of hoists or rubbish chutes. Wet down thoroughly during demolition to prevent nuisance of dirt and dust. Equip trucks used in hauling debris with tarpaulins to cover the loads. Do not load so excessively as to spill debris on streets.
- D. Plaster removal: in general, removal of existing plaster showing cracks, bulges or drumminess is required. Refer to architect if in doubt.
- E. Lead paint removal: comply with AS4361.2 Guide to lead paint management—Residential and commercial buildings.
- F. Except as placed in approved disposal containers, do not allow combustible material and rubbish to accumulate on the site. Remove daily, or as directed. Burn no debris on site.
- G. Upon completion of wrecking, demolition and the removal of rubbish and debris, remove equipment.

306 Reinstatement

Restore to original condition, without expense to the proprietor, any damaged parts of the remaining construction resulting from failure to provide adequate protection. Refer also clause 105.

307 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

Leave the site in an entirely clean condition, ready for the work of other trades.

END OF SECTION

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SECTION 02150 ASBESTOS REMOVAL

PART I GENERAL

101 Scope

The work of this section includes but is not limited to:

Identification, removal and safe disposal of all materials containing asbestos fibres as identified, within the subject building work areas.

Contractor to allow to carry out an Asbestos Audit Report – Part 6, and remove all asbestos to the subject building work areas.

102 Related Work

- A. Co-ordination: co-ordinate with other trades affecting or affected by the work of this trade section. Co-operate as necessary to ensure steady and satisfactory progress of the work.
- B. Unit prices: submit with tender a schedule of rates for work required to be done not identified at time of tender. The schedule of rates is required to reflect costs on a square metre rate for sheets or panels to be removed and on a metre run basis for other work. Such costs are to cover work referred to in clause 101 above.

103 Quality Assurance

- A. Registration of Asbestos Removalists. Comply with CODE OF PRACTICE.
- B. Submit evidence, before starting work, of the training and experience of those who will be performing the required work.
- C. Comply with CODE OF PRACTICE.

104 References

Perform asbestos removal in accordance with:

- A. National Code of Practice for the Safe removal of Asbestos, current edition [NOHSC].
- B. Relevant state government department or state statutory authority, which has jurisdiction over the work of this section, and which is in force at the time of tendering.
- C. The Victorian Asbestos Removal Industry Consultative Committee (VARICC) has produced 'Standard Specification for Asbestos Removal for Buildings and Construction Workplaces' in association with representatives of various industry bodies including Building Workers' Industrial Union of Australia and Plumbers and Gasfitters Employees Union. Both unions are contributing founding members of VARICC. This document is available from either of these union bodies in Victoria and New South Wales and is intended to be used in association with, and in alignment with the Code of Practice - See Clause 104(A).

105 Submissions

- A. Submit as and when required all of the reports and submissions required by the statutory authorities referred to in clause 104 above.
- B. Submit the data required in CODE OF PRACTICE.
- C. Submit tenders conforming with documents referred to in clause 104.

106 Planning and Programming

- A. Comply with CODE OF PRACTICE.
- B. Arrange for and attend a pre-demolition conference. Abide by decisions and schedules established at such conference.

107 Project Site Control / Staging of Works

Asbestos removal may be required to take place in stages.

108 Notices and Fees

Provide notices to statutory authority which needs data relating to asbestos removal. Pay fees due to any statutory authority which requires, by law, fees to be paid.

PART II EQUIPMENT

201 Decontamination Facilities

Where required by regulations of the controlling statutory authority, provide appropriate decontamination facilities as described in CODE OF PRACTICE.

202 General Hygiene Requirements

Where required by regulation of the controlling statutory authority, comply with general hygiene requirements as described in the CODE OF PRACTICE.

203 Protective Clothing and Equipment

Where required by regulations of the controlling statutory authority, comply with protective clothing and equipment, CODE OF PRACTICE.

NOTE : the use of glove-bags is described and should be used where necessary in accordance with CODE OF PRACTICE.

204 Labelling and Warning Signs

Provide necessary labels and warning signs in accordance with the requirements of "GUIDE TO THE CONTROL OF ASBESTOS HAZARDS IN BUILDINGS AND STRUCTURES." Refer to CODE OF PRACTICE.

205 Tools and Equipment

Provide tools and equipment necessary for the work. Refer to CODE OF PRACTICE.

PART III EXECUTION**301 Examination**

- A. Inspect relevant site conditions.
Establish conditions which may be discovered relevant to asbestos removal without disturbing material containing asbestos.
- B. Start of work means total acceptance of conditions.

302 Preparation

- A. Prepare for asbestos removal in full accordance with the requirements of CODE OF PRACTICE.
- B. Install decontamination facilities in a location agreed upon with the superintendent and other relevant parties.
- C. Install required labelling and warning signs. Refer clause 204 above.
- D. Remove from the work area items which may be damaged by the work of this trade section.
- E. Protect item of furniture, surface, equipment or plant which may be damaged or soiled during the preparation for and action of asbestos removal. Be responsible for damage resulting from asbestos removal actions, processes and other works.

303 Asbestos Removal

- A. Advise the superintendent in advance of proposed removal methods.
- B. Comply with the requirements of CODE OF PRACTICE and with the instructions of the authorised superintendent of the work.
- C. Removal techniques: Comply with CODE OF PRACTICE.

304 Monitoring of Airborne Asbestos

Comply with CODE OF PRACTICE.

305 Field Quality Control

Work will be performed under the supervision of an authorised superintendent. Comply with his requirements which are in accordance with the CODE OF PRACTICE, and other requirements to which parties have agreed.

306 Dismantling of Asbestos Removal Area

Comply with CODE OF PRACTICE.

307 Removal of Asbestos Material From Site

Arrange with relevant local authorities the identification of the place to which asbestos material is to be taken from the demolition site. Comply with requirements of the authorities.
Remove such materials to the approved location.

308 Reinstallation

Reinstall those items removed to prepare for asbestos removal.

309 Cleaning

Thoroughly clean areas in which work has been performed and those adjacent to the work area. Remove and dispose of traces of the asbestos removal process, protective materials, etc.

310 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent, and/or authorised superintendent of the works. Leave the site in a condition suitable for the work of other trades, in co-operation with Superintendent and contractor.

END OF SECTION

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SECTION 02315 SITE PREPARATION - EXCAVATION**PART I GENERAL****101 Scope**

The work of this section comprises but is not limited to excavation, disposal of surplus excavated material both on and off the site, supply of compaction and filling material and the preparation necessary to bring the areas to correct shape and level prior to building construction, and supply and installation of Termite treatment and waterproofing membrane.

102 Related Work

Co-ordinate and co-operate with the following trades:

Demolition	Sewer and Stormwater drainage
Concrete	Bitumenous Concrete Pavement
Concrete Paving	Landscaping Trades

103 References

A. Comply with applicable portions of the current edition of the following Australian Standards:

AS 1289.0	Methods of testing soils for engineering purposes. <i>There are many parts to this Standard, each refers to a specific application.</i>
AS 2159	Piling - Design and installation.
AS 3660	Termite management.
AS 3798	Guidelines on earthworks for commercial and residential developments.
AS/NZS 4200	Pliable building membranes and underlays.
AS 4687	Temporary fencing and hoardings.

Comply with particular specifications in building regulations and/or local council publications.

B. Definitions

Rock: natural or artificial material encountered in the excavation which cannot be removed until broken up by mechanical means such as rippers, jack-hammers or percussion drills.

Rippable rock: rock which can be removed by a single tyne, "D9" ripper.

Non-Rippable rock: all other rock.

Other than rock: other material encountered in excavation.

Sub-grade: the natural ground below the excavations.

Filling: a general term for material spread and compacted over the sub-grade to make up finished levels or levels to the under-side of the base.

Sub-base: selected filling spread and compacted over the sub-grade to make up levels to the underside of the base.

Base: a selected filling layer spread and compacted to form an acceptable working surface directly under the building.

104 Approval for Variations

Before starting excavation work which may involve a variation (whether addition or deduction) because of the nature of the material to be excavated, obtain a determination as to the nature from the Superintendent. The variation is derived from the determination. If no prior determination has been obtained, the variation, if any, is to be made only at the Superintendent's discretion.

105 Use of Explosives

Explosives shall not be used.

106 Site Investigation

A site investigation was made and a copy of the report is included in the contract documents. The site investigation information given in the report, or shown on the drawings, or both, is information on the nature of the ground at each tested part. It is not a complete description of conditions existing below the surface. The accuracy of the information is not guaranteed and will not be a basis for cost variation. If unnatural or unhealthy material (potentially destructive) is found, notify the Superintendent and arrange for an inspection by a building surveyor and or health inspector.

107 Provisional Depths

The footing or strip depths shown on the drawings are provisional.

Approval of the relevant building surveyor and engineer is required for actual depths on the site.

If there have been variations to the contract levels or dimensions of excavations, do not commence back-filling or place permanent work in excavations until the Superintendent has made measurements and approved them.

108 Site Management

Inspection: give the Superintendent at least 1 working day's notice that the following are ready for inspection:

- rock encountered in the excavations;
- excavation completed to contract levels;
- filling completed to contract levels;
- completed placement of waterproof membrane.

109 Excess Excavation

Excess excavation not authorised by the Superintendent, and consequent additional back-filling, compacting or testing, shall not justify a contract variation or extension of time.

PART II MATERIALS**201 Termite Control**

All ground areas under and adjacent to the new works are to be treated against termites in accordance with the requirements of AS 3660 using approved mechanical termite shields (Granit-Gard, Termi-Mesh or equal approved) or natural ethical substances in accordance with supplier's recommendation. Organo Chlorine termiticides are not to be used. The Contractor is to ensure that the treatment is carried out at the correct stage of the Works with adequate time allowed for the process. A written warranty is to be provided to the Proprietor stating the extent and period of effectiveness of the treatment. Provide certificate in accordance with AS 3660 stating method of application and certificate of completion.

202 Filling

Bring filling on to the site unless it can be provided from spoil recovered from the site. Filling is to be sound material, free of perishable material, or material that will form stable fill, but subject always to engineer's approval.

Fill generally as required or as shown on the drawings, and as follows:

Under concrete floor slabs cast on ground:

First 50mm below slab: sand blinding.

Remainder: 100mm crushed rock for non-suspended slab.

Remainder: approved excavated material for suspended slabs.

Back-fill: approved excavated material unless otherwise specified.

To retaining walls or walls below grade: free draining granular material.

The filling types are as follows:

- A. Approved excavated material: clean inorganic material, approved by the engineer.
- B. Hardcore: clean hard filling such as broken brick or stone rubble, consolidated in position.
- C. Porous filling: hard core graded from 40mm to 15mm.
 - Sand: salt free, loam free, packing quality.
 - Fine crushed rock: 15 to 5mm clean crushed rock.

203 Polymeric Waterproof Membrane

Provide and install under concrete slabs on ground 'Fortecon Super' flexible polymeric film 0.3mm thick. Deliver underlays to the site in suitable protective packaging, bearing the name of the manufacturer. Handle and store the underlay so that it is not punctured, torn or otherwise damaged.

Note : No substitute to Fortecon shall be accepted.

Comply with AS/NZS 4200.

PART III EXECUTION**301 Examine Conditions**

Start of work means total acceptance of conditions.

302 Excavations Generally

- A. Suspend ground works during inclement weather which would result in unsatisfactory work.
- B. Excavate accurately to shape and profile and keep free from loose earth and stones.
- C. Excavate generally as required or as shown on the drawings, including but not necessarily limited to the following:
 - Removal of footings and unnatural items to 900mm below grade.
 - Preparation of sub-grade as necessary. Refer clause 107.
- D. Trim the sub-grade surface evenly to the profiles shown on the drawings.
- E. Make allowance for settlement and compaction.
- F. Allow for falls in slabs on grade to streets, lanes and outlets.
- G. Prepare for underground services, referred to in other trade sections of the specification.
- H. Prepare for strip footings, footing beams, pad footings, ducts and pits, to depths shown.
- I. Carry out additional excavation where necessary to permit full use of suitable mechanical equipment (eg. rippers) and back-fill with appropriate material as specified in this trade section.
- J. Where excavation exceeds the required depth, fill back to correct depth with material as follows:
 - below slabs on ground: hardcore.
 - below footings, beams and other structural elements: concrete of strength equal to the structural element, minimum 15MPa.
 - in service trenches : approved compacted pipe bedding material.

303 Bad Ground

Should unsuitable material be encountered at the prescribed depths of excavation, or soft, wet and unstable areas develop during excavation, obtain instructions from the Superintendent before carrying out additional excavations. Back-fill and compact to the correct levels as directed.
If the Contractor has not caused or contributed to the above conditions and if the occurrence could not have been anticipated at the date of the Contractor's tender, the Contractor may claim for a variation.

304 Existing Services

Remove existing services and seal beyond the site boundaries.
Before demolishing and removing parts of building having electrical wiring, gas and water pipes, conduit or similar items embedded in them, notify the Superintendent, authorities having jurisdiction, and make sure that these items are out of service so that they can be removed without danger.

305 De-Watering

Maintain excavations, levelled and filled areas free of water by temporary catch drains, sumps, pumping, bailing or whatever means are suitable and effective.
Immediately before placing concrete or masonry on ground, remove free water and foreign matter.
Prevent water flow over freshly laid work.

306 Shoring

Provide shoring, planking and strutting necessary to retain the sides of the excavations and to ensure safe working. Provide safety covers over holes. Provide necessary needling, shoring and strutting to adjacent buildings.
If in the opinion of the Superintendent support provided is insufficient he/she may order the provision of additional support.
No instruction relieves the contractor of sole responsibility for the sufficient support of the excavation.
Guard against the formation of voids outside sheeting or sheet piling (if used), and should voids form, fill and consolidate them to approval.

307 Filling Schedule

Refer clause 202 above.

308 Bearing Surfaces in Rock

Where structural loads bear on rock, unless otherwise specified, scabble the rock face to give even plane bearing surfaces. Level unless required to be sloping or stepped.
Bored pier holes are to be taken a minimum of 150mm below the rock surface and the bottoms cleaned of loose matter.

- 309 Compaction**
Place filling in layers not exceeding 150mm deep when measured loose.
Bring filling to optimum water content by watering, and compact each layer thoroughly and uniformly with a vibrating roller where practicable.
Hand tamp against ground or perimeter beams or walls.
Compact each layer of filling to obtain a uniform density of not less than 95% of the maximum density at optimum moisture content as determined by the dry density/moisture content tests set out in AS 1289.
Finish the base to the following tolerances:
Variation from designed level: 5mm
Variation from 3000mm straight edge: 5mm
- 310 Polymeric Waterproof Membrane**
Lay on approved sand blinding - Refer clause 203. Where necessary, cut sheets to maximum practical width, to suit the layout, and arrange laps to face away from the direction of the pour.
Provide laps as recommended by the manufacturer, but not less than 200mm. Seal laps with pressure adhesives or tapes as recommended by the manufacturer of the underlay and ensure that the adhered surface of the underlay is dry and clean.
Take the underlay up walls to level of top of future concrete slab or as otherwise instructed. Seal service pipes and similar elements when they penetrate the underlay. Allow ample slack to avoid pulling at tape junctions.
Cover vertical or inclined surfaces in an unbroken sheet where possible. Otherwise arrange laps vertically to avoid pulling at joints. Fix at the top with tape or other recommended fixing.
Inspect membrane after laying and before concrete is poured. Patch and seal punctures.
- 311 Maintenance of Membranes And Underlays**
Maintain the membrane or underlays in their best possible condition throughout the construction period.
Repair immediately, to the approval of the Superintendent, damage which does occur.
- 312 Clean Up**
On completion of work specified above, remove from site all surplus materials imported to the site, or any surplus excavated material.
Where noted or agreed with the Superintendent, topsoil may be stockpiled on the site where directed for use in landscaping, refer Section 02900 Siteworks & Landscaping.
- 313 Completion**
Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

SECTION 02630 STORMWATER DRAINAGE**PART I GENERAL****101 Scope**

The work of this trade section includes but is not limited to, supplying and laying a complete system of pipes, pits, covers, Foundation drainage piping, Agricultural drains, Water retention systems etc., as specified below and as detailed on Civil & / or Hydraulic drawings.

102 Related Work

Co-ordinate and co-operate with the following trades:

Site preparation – Excavation	Bituminous concrete pavement
Concrete pavement	Masonry unit pavers
Concrete	Landscaping trades

103 Quality Assurance

Perform the work of this trade section using tradesmen whose experience and skills meet the requirements of controlling statutory authority.

The architect and engineer will make random inspections during the execution of the work. All work not in accordance with the Specification and/or regulations shall be removed and replaced to the satisfaction of the Engineer at the Contractor's expense.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS/NZS 1254	PVC pipes and fittings for storm and surface water applications.
AS/NZS 1260	PVC-U pipes and fittings for drain, waste and vent application.
AS 1379	Specification and supply of concrete. <i>Plus Supplement 1-2008</i>
AS/NZS 2032	Installation of PVC pipe systems
AS 2033	Installation of polyethylene pipe systems.
AS/NZS 3500	Plumbing and drainage.
	3500.3 Stormwater drainage
	3500.3.1 Stormwater drainage - Performance requirements.
	<i>There are several other parts to this Standard.</i>
AS 3600	Concrete structures. <i>Plus 2 Supplements (1994) and 4 Amdts 1996 - 2004.</i>
AS 4058	Precast concrete pipes (pressure and non - pressure).
AS/NZS 4129	Fittings for polyethylene (PE) pipes for pressure applications.
AS/NZS 4130	Polyethylene (PE) pipes for pressure applications.
AS 4139	Fibre reinforced concrete pipes and fittings.

Comply with requirements of any statutory authority having jurisdiction.

105 Authorities, Approvals and Fees

Comply with requirements of any Statutory Authority having jurisdiction for this section of the Works, including Local Municipal Authority and Local Water Authority.

Refer Section 00800 - Clause 6 for which Party is to be responsible to pay those Authority fees and charges as described there-in.

106 Warranty

Provide to the proprietor a warranty covering:

- A. Materials: in the form supplied by manufacturers of specified components.
- B. Installation for 5 years from the date of Practical Completion: the complete drainage installation.

107 As-Built Drawings

Comply with clause 41 of DOCUMENT 00800 SUPPLEMENTARY CONDITIONS OF CONTRACT.

108 Existing Services

The Contractor shall ascertain the location of existing services before commencing work. Any damage to existing services shall be made good by the Contractor without delay or cost to the Proprietor and with a minimum of inconvenience to the Proprietor.

Alterations : Deal with existing services as necessary to complete the work specified in this Section.

Interruption : Obtain approval before interrupting an existing service, and perform the work in accordance with an approved program, so that the duration and number of interruptions is reduced to a minimum.

Supporting Existing Work : If an existing service or structure, which is to be retained, crosses a new trench, provide sufficient permanent support, either by a plug of compacted granular material, or if that is impracticable, by concrete of 15 MPa minimum strength.

PART II MATERIALS**201 Materials Generally**

- A Pipe Bedding Material
Granular material: clean unweathered hard basaltic or sedimentary crushed rock, free of salt, clay or organic contaminants.
- B UPVC Pipework
UPVC Sewer Pipes and Fittings (unplasticized poly vinyl chloride): To AS 1260, suitable for the jointing method specified.
Pipe class: SH unless otherwise specified.
UPVC Stormwater Pipes and Fittings: To AS 1260 as above.
Jointing Methods: Solvent-cement joints: To AS 2032, Clause 3.2.1.
Pipeline Construction: To AS 2032, Part 7.
- C HDPE Pipework
HDPE laboratory drains and wastes (high density polyethylene): To AS 4130, suitable for electrofusion welded joints in accordance with Australian Standards.

202 Downpipe Connections

Jointing of in-ground stormwater lines to downpipes is specified in Section 05300 Metal Roofing under Downpipes. Use 'Y' branch junctions to connect downpipe line into main stormwater drain.

PART III EXECUTION**301 Examination**

Visit site and inspect conditions, comparing conditions to drawings before delivery of materials to site. Start of work means total acceptance of conditions.

302 Trenching

Form straight and true trenches, maintain sides, and keep free from water.
Form trenches and bedding to provide constant falls as approved by the local authorities. Arrange for inspection by relevant authority before back-filling.
Trenches shall be neatly saw cut through existing pavements and lawns shall be carefully cut into sods.

303 Pipe Laying

Lay pipes 600mm clear of walls.
Connect with materials appropriate to the pipes in accordance with manufacturer's instructions.
Provide inspection openings, bends and junctions required by authorities.

304 Pipes Below Structures

Where drain pipes are laid below or under structures, comply with requirements of local authority.

305 Connections to Other Services

Seal thoroughly with water-tight material as recommended by component manufacturer.
Connect new lines to road or street drainage to the requirements of the relevant authority.

306 Testing

Cover no pipes, joints or connections until approved by the architect and tested and passed by the relevant authority.

307 Backfill

After inspection (and testing) where required, back-fill with approved material.
Such material requires approval from authority engineer, civil engineer and architect.
Materials not conforming to such requirements or not approved will be removed without cost to the proprietor.
Surfaces shall be reinstated after construction to the equal of the original surface.

308 Protection

Protect completed work from damage until Practical Completion. Make good damage if it occurs.

309 Cleaning

Remove debris and clean areas where work has been performed by this trade, to the satisfaction of the engineer or Superintendent.

310 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

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SECTION 02740 BITUMINOUS CONCRETE PAVEMENT**PART I GENERAL****101 Scope**

Supply and install a complete installation of bituminous concrete paving including but not limited to:
Excavation.

Preparation of sub-grade.

Base courses, laying and compaction.

Concrete kerbing.

Bituminous concrete surfacing.

Lane marking.

102 Related Work

Co-ordinate and co-operate with the following trades:

Site preparation – Excavation Sanitary sewerage

Storm drainage Concrete pavement

Lawns and grasses Exterior plants

103 Quality Assurance

The Sub-Contractor shall be experienced in this class of work. The Foreman shall be appropriately qualified to supervise requirements.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS 2150 Hot mix asphalt – A guide to good practice.

AS 2758 Aggregates and rock for engineering purposes.

There are several parts to this Standard.

AS 2876 Concrete kerbs and channels (gutters) - Manually or machine placed.

AS 4049 Paints and related materials - Pavement marking materials.

There are 5 parts to this Standard.

Where relevant, comply with standards of pavement construction as available from your state road construction authority.

PART II MATERIALS**201 Pavement Construction Materials**

Comply with the material specification of the appropriate state road construction authority. Such specifications define materials required for various classes of load capacity.

Refer to Civil Engineer's Documents for Pavement Construction. In the absence of these Documents adopt the Pavement Construction shown below:

A. Pedestrian pavements shall be constructed falling to stormwater drains with:

- Prepared subgrade, with CBR greater than 5%.
- Nom. 130mm Class 2 fine crushed rock (20mm nom. Aggregate) compacted to 98% MDD (Modified Dry Density).
- Nom. 20mm topping of 7mm hot mix asphalt.

B. Carpark pavements shall be constructed falling to concrete kerb and channel with:

- Remove existing subgrade to a depth of 300mm
- Proof roll sub-grade, with CBR greater than 5%
- Nom. 300mm Class 2 fine crushed rock (20mm nom. Aggregate) laid in two 150mm layers compacted to 98% MDD (Modified Dry Density)
- Nom. 50mm topping of 7mm hot mix asphalt.

202 Line Marking

Refer Appendix - Materials Schedule, Section 09900 Painting.

203 Equipment

Provide and employ equipment required for satisfactory completion of the work.

PART III EXECUTION**301 Examination**

Inspect the site. Determine conditions and ensure that suitable conditions exist at the time of start of work. Prevent delay in job schedule. Ensure that the other trades will not be adversely affected by the work of this trade.

Commencement of Installation shall be taken as unqualified acceptance of site conditions as suitable for the work of this section.

302 Preparation

Remove surface material to required depth. Test compaction capacity of natural material. Fill soft spots with crushed rock to required compaction. Shape to specified falls.

Allow for installation by other trades of drainage and other items.

Install concrete kerbing as specified in clause 201 above. Allow concrete to cure before installing basecourse.

On completion of excavation to subgrade levels and prior to pavement works proceeding, this Contractor shall notify the Civil Engineer who will determine whether improvement of the pavement base is required. No pavement construction shall proceed beyond this point without the approval of the Civil Engineer.

303 Installation of Base Course

Spread base course material in layers between 100 and 150mm thick.

Compact to 95% modified density at optimum moisture content with minimum 10 tonne roller.

Employ a vibrating roller as necessary. Maintain damp condition of material until seal is applied. Employ 15 tonne roller for final compaction.

304 Testing

Allow for 3 separate compaction density tests to be conducted in random locations by a NATA approved testing organisation. Should tests prove unsatisfactory, repair the work and repeat tests to a satisfactory result without cost to the proprietor.

305 Pavement Courses

Finish pavement courses consisting of layers of wet-mix crushed rock to reasonably smooth and uniform surfaces and conform to the lines, grades and cross sections shown on the drawings, within the following limits:

- A. Level: the top of each pavement course: within 10 mm of level shown on drawing.
- B. Thickness: of the top course of the wet mix pavement: within the tolerance of +5, -10mm.
- C. Shape: finished surface of the pavement course: within 10mm either way from a 3 metre straight-edge laid parallel to the centre line of the pavement or from a template placed at right angles to the centre-line.

306 Prime Coat

Prime with cut back bitumen suitable for the surface of base material and prevailing weather conditions. Apply in compliance with state authority specification.

307 Tack Coat

If required, apply tack coat to clean dry surface. Consulting engineer will determine necessity for this item. Apply in compliance with state authority specification.

308 Bituminous Concrete

Prepare adjacent surfaces such as longitudinal joints, kerbs, channels, headers, manholes, etc. with a thin uniform tack coat. Install bituminous concrete with approved equipment in suitable climatic conditions. Form straight and waterproof joints with even texture and density.

Compact without delay, and finish smooth and true to established grades.

Thoroughly compact areas around kerbs, channels, manholes to same density as other surfaces.

Thickness of bituminous concrete is not to vary more than 7mm from that indicated on drawings.

Replace low or defective areas immediately by cutting out and replacing with fresh hot mix and compacting to conform to surrounding areas. Entire area is to be free draining on completion.

The finished work is not to be less than 97% of laboratory tested specified density.

309 Lane Marking

Comply with local authority requirements regarding sizes of parking bays and traffic control.

Mark pavement surface as instructed. Comply with AS 4049.

310 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

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SECTION 02900 SITE WORKS AND LANDSCAPING

PART I GENERAL

101 Scope

The work of this section comprises but is not limited to excavation, shaping and preparation of soil material, landscaping works, pavement works, and supply and installation of siteworks items.

The work involved in this Section shall comply in general with the requirements of Section 02100 and Section 03000.

102 Related Work

Co-ordinate and co-operate with the following trade sections:

Site preparation – Excavation	Bituminous concrete pavement
Concrete pavements	Concrete
Painting	

103 Quality Assurance

Work of this trade section will be performed by experienced tradesmen familiar with the quality required in this class of work.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS 1428.4	Design for access and mobility – Tactile indicators.
AS 1725	Chain-link fabric security fencing and gates.
AS 2423	Coated steel wire fencing products for terrestrial, aquatic & general use.
AS/NZS 4455	Masonry units and segmental pavers.
AS/NZS 4586	Slip resistance classification of new pedestrian surface materials. <i>Plus 1 Amdt 2005.</i>
AS/NZS 4792	Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or a specialized process.

Comply with requirements of statutory and local authorities.

105 Delivery, Handling and Storage

Arrange with contractor for dates of delivery and installation of specified materials. Co-ordinate with other installations.

Where possible, install materials directly in place. Store other materials in a secure location on site as directed by contractor.

106 Warranty

Provide a warranty for materials and workmanship for the Tactile Indicators, for a period of 5 years from the date of Practical Completion.

PART II MATERIALS

201 Scheduled Items

Refer to Appendix - Materials Schedule.

PART III EXECUTION

301 Examination

Inspect site conditions, comparing conditions to drawings and advise Superintendent of any unsuitable conditions.

Start of work means total acceptance of relevant conditions.

302 Preparation for Pavement Works

Remove surface material to required depth. Test compaction capacity of natural material. Fill soft spots with crushed rock to required compaction. Shape to specified falls.

Allow for installation by other trades of drainage and other items.

303 Placement and Compaction of Filling

Filling shall be spread in horizontal layers not exceeding 150mm loose thickness and shall be compacted to the satisfaction of the Engineer by approved power driven mechanical tampers or rollers.

Use only sandy clay material for fill under paved areas.

Soft, wet or unstable areas which may exist or which may develop during construction shall be removed by the Contractor and replaced with stable compacted material at the Contractor's expense. Construction equipment shall not be allowed on the formation while it is in a wet condition. Material which has become excessively wet shall be allowed to dry or removed and replaced by material of suitable moisture content for compaction at the Contractor's expense.

Note : Contractor's attention is drawn to Soil Investigation Report attached to this Specification.

304 Pavement Works

A Excavation - All excavation and backfill shall be in accordance with Section 02100.

B Concrete Work - All concrete shall be in accordance with Section 03000.

C Concrete Kerbs, Channels and Spoon Drains

Construct in accordance with Architect's and Civil Engineer's drawings and as follows (Civil Engineer's Details take precedence):

All concrete kerbs, channels and spoon drains shall be laid on minimum 75mm thick consolidated fine crushed rock base.

Kerbs, kerb and channels shall be formed and poured where shown on drawing to detailed profile.

Form vertical construction joints at maximum 2500mm centres.

All exposed surfaces, including exposed backs shall be steel trowelled to a smooth even finish.

Edges, joints and grooved shall be neatly finished with edging tools.

Irregularities in top surface shall be no greater than 3 when measured with a 3000mm straight edge.

Cure by covering with polythene for a period of seven days.

Refer to Civil Engineer's drawings for profile of kerbs, grating trenches and pits.

Location: Drains where indicated on Civil Drawings.

D Concrete Pedestrian Pavements

Where scheduled or shown on drawings, construct concrete pavements in accordance with Architect's and Civil Engineer's drawings and as follows (Civil Engineer's Details take precedence):

All external paving shall be graded to fall away from building.

Pavements shall be laid on minimum 75mm thick consolidated fine crushed rock base.

Pour 100mm or 75mm thick concrete reinforced with SL62 (SL82 for 100mm paving) fabric.

Concrete shall be finished into bays with ruled joints/sawcuts at max. 2500 crs and as shown on drawings.

Mix as for normal concrete of F'c 25 MPa. Edge and woodfloat to non-slip surface.

Construct with construction joints right through slab, and setdowns formed in surface for feature paving areas where shown on drawing.

Cure by covering with polythene and keep moist for a period of seven (7) days.

Form locally ramped area to doors with non-slip surface with thresholds formed to rear door of shops.

Where shown, entry floor levels to be level with pavements without a step.

Finish neatly against walls and around columns with 10mm thick compressible material.

Extend surface finish down side of raised paving where exposed above ground level.

Provide deeper pad footing or locally thicken concrete at handrail / balustrade stanchions, for fixing via epoxy grout into 200mm deep cored holes in paving.

Coloured concrete where scheduled to be formed by adding 'Ability Chemicals' or equal approved oxide pigments to concrete mix.

Location: Concrete Pedestrian Pavements where indicated on Drawings.

Refer also to Civil Drawings for extent and construction details.

E Unit Paving

Where scheduled, construct Unit Paving over paving slab as specified for Concrete Pedestrian Pavements and in accordance with Engineer's Drawings. Allow to set-down paving slab where small areas of unit paving are within larger pavement areas.

Supply and install Paving Units, refer Materials Schedule, with:

- Pavers laid to falls away from buildings on nom. 30mm mortar bed.
- Pavers laid with nom. 8mm joints, filled with integrally coloured non-shrink grout.
- Installation to be in accordance with manufacturer's installation instructions for Rigid Pavements.
- Install control joint in pavements aligning with design control joint locations in base concrete slab.

305 Preparation Generally

Co-ordination with work of others: provide to each relevant trade foreman anchorages and drawings, diagrams, templates and instructions for installation of items having integral anchors which are to be embedded in concrete or masonry construction. Co-ordinate delivery of such items to the project site.

306 Earthworks Generally

The site shall be formed, graded, trimmed, drained and consolidated as necessary, to bring the sub-grade of all formed areas true to lines, levels and gradients as shown on the drawings and in accordance with the Specification.

307 Rocks and Soils

All rock or boulders encountered shall be excavated at least down to the finished surface of the sub-grade. Any resulting depressions shall be backfilled with approved granular material properly compacted and drained to suitable outfalls, or in the case of isolated boulder or stump removal, with properly compacted approved material.

308 Retention of Top Soil

Where necessitated by reforming of landscape profile, and where landscape design will accommodate the excess material, all surface soil and loamy material shall first be excavated and then may be stockpiled for later reuse in garden areas. Permission to reuse existing topsoil and approval of material as satisfactory for reuse is to be sought from the Superintendent. If approved, top soil to be stockpiled on site where directed by Superintendent, for later use.

Where stockpiled topsoil is to be reused, spread evenly over surface.

When stockpile is to be used with imported material, rough mix mechanically before spreading.

Spread topsoil:

for garden areas 100mm deep.

for lawn areas 50mm deep.

309 Drainage

All excavations and embankments shall be graded to shed water readily at all times without undue scouring. Where necessary earth drains shall be constructed to prevent water flowing onto the Works and to take away water from the Works. These drains shall discharge into a permanent outfall. Where necessary the Contractor shall provide adequate pumps to dewater excavations at the Contractor's expense.

310 Construction of Batters

Construct batters in cut or filled areas as indicated on the drawings. Wherever possible batters shall be "rounded" to form gentle transitions from one level to another ready for finishing with top soil by nominated sub-contractor.

311 Final Grading

Finish garden beds to a gentle crowned appearance or conform with levels where indicated.

Finish flush with kerbs as plinths and minimum 100mm below weepholes and damp-proof courses in masonry walls.

Grade evenly to grated pits and other drainage structures.

Grade grassed areas evenly to levels shown on drawing.

Grade embankments with even rolling appearance at bottom and top without sharp angled profiles.

The final stages of producing a formation level after compaction of the basic earthwork shall be by accurate shaping using a power grader or hand trimming as appropriate.

312 Landscaping Works

Following earthworks, forming of batters and grades etc a qualified landscaping contractor shall be engaged by the Contractor to execute formation of beds, grassing, mulching and planting in accordance with the Landscape Architect's design drawings.

Variation from planting schedule will not be permitted without approval of the Architect and the Local Government Authority.

Completed works will have an automatic drip watering system with timer, plants will be staked and the garden maintained for a six-month period replacing any lost plants.

Stake evergreen trees with 2 No. 1800 x 38 x 38mm HW stakes driven 600mm into the ground.

Stake deciduous trees with 2 No. 2400 x 50 x 50mm HW stakes driven 600mm into the ground.

Tie trees to stake using "figure eight" ties of flexible rubber or canvas or approved equivalent.

Refer to Landscape Plan for further details.

313 Installations

Cause minimum disturbance to existing conditions and make good any damage caused by work of this Section.

- 314 Cleaning**
Remove all debris and clean all new and existing areas disturbed or affected by the work, to the satisfaction of the Superintendent.
Remove temporary protective coatings where applicable.
- 315 Completion**
Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

SECTION 03300 CONCRETE**PART I GENERAL****101 Scope**

Supply and install a complete installation of concrete including but not limited to reinforcement, damp-proof membrane, formwork and other items for: footings, slabs, thickening beams, ramps, stairs, pedestrian paving, and as detailed herein and on drawings, and other incidental or consequential work which is or may become necessary to complete the work, including waterstops and other jointing devices.

102 Related Work

Co-ordinate and co-operate with the following trades:

Site preparation – Excavation	Structural steel
Precast Concrete	Concrete screeds and finishes
Waterproofing and tanking	

103 Quality Assurance

Supply and install required materials in compliance with drawings and specifications which form part of this contract and with further details and/or instructions issued during the currency of the contract. The concreter is to be experienced in this class of work with an appropriately qualified foreman to supervise requirements.

104 References Comply with the requirements of the current edition of the following Australian Standards and maintain the ones marked with * on site during construction:

AS 1379*	Specification and supply of concrete. <i>Plus Supplement 1-2008</i>
AS/NZS 1554	Structural steel welding.
	1554.2:2003 Stud welding (steel studs to steel) <i>Plus 1 Amdt 2003</i>
	1554.3:2008 Welding of reinforcing steel
	1554.4:2004 Welding of high strength quenched and tempered steels
	1554.5:2004 Welding of steel structures subject to high levels of fatigue loading
	1554.6:1994 Welding stainless steels for structural purposes
	1554.7:2006 Welding of sheet steel structures
AS 2550.15	Cranes - Safe use - Concrete placing equipment.
AS 2870*	Residential slabs and footings – Construction <i>There are 4 Amdts to this Standard, 1997 – 2003. There is 1 Supplement to this Standard, 1996.</i>
AS 3600	Concrete structures. <i>Plus 2 Supplements (1994) and 4 Amdts 1996 - 2004.</i>
AS 3610	Formwork for concrete. <i>There are 2 Supplements to this Standard, 1995 – 1996 and 4 Amdts 1995-2004..</i>
AS 3799	Liquid membrane-forming curing compounds for concrete.
AS 3972	Portland and blended cements <i>Plus 1Amdt to this Standard, 2007.</i>
AS/NZS 4200	Pliable building membranes and underlays.
	4200.1 1994 Materials. <i>Plus 1 Amdt 1994.</i>
	4200.2 1994 Installation requirements.
AS 4072.1	Components for the protection of openings in fire-resistant separating elements – Service penetrations and control joints.
AS 4671	Steel reinforcing materials. <i>Plus 1 Amdt to this Standard, 2003.</i>
CIA Z6	Reinforcement detailing handbook for reinforced and prestressed concrete
SAA HB 71	Reinforced concrete design in accordance with AS 3600.
SAA HB 84	Guide to concrete repair and protection

105 Submissions

Not Used.

106 Delivery and Handling

Deliver materials in the same sequence as they are installed. Avoid double handling at the site. Co-ordinate delivery and fixing schedules to reduce use of plant and equipment.

107 Project Conditions

- A. Measurements and Dimensions.
1. Measurements: before ordering material or doing work, verify measurements and be responsible for the correctness of same. Submit differences found to the architect in writing for consideration before proceeding with the work. No extra charge or compensation will be allowed on account of difference between actual dimensions and the dimensions indicated on the drawings.
 2. Where dimensions are given and marked "verify" or "verify in field", correct before submitting Shop Drawings. Where field conditions do not yet exist for taking or confirming of field dimensions, note Shop Drawings with "dimensions will be verified in field", before submitting.
- B. Be wholly responsible for protecting the work and the materials stored on the site. Take required measures to protect the work at times against fire, storm, theft, vandalism and other losses.

108 Warranty

Forward to the architect a statement guaranteeing that the concrete complies with the approved mix design and attains the stated guaranteed strengths in 28 days. Provide copies of test reports to the Superintendent, as required in Clause 312 - Testing.

PART II MATERIALS**201 Formwork**

- A. Formwork classes: comply with AS 3610, Formwork for concrete and as follows:
1. Class 2 formwork for concrete with uniform quality and texture over large areas. Built to close tolerances. Consistently good quality of edge and joint details.
 2. Class 3 formwork for concrete surfaces to be painted and concrete surfaces not otherwise specified or shown on the drawings.
 3. Class 4 formwork for concrete surfaces to be rendered, tiled or concealed by other finishes and concrete surfaces permanently concealed in ducts, shafts and above false ceilings.
 4. Class 5 formwork for footings, concrete surfaces in the ground and rear surfaces of retaining walls, piers, etc.
- B. Formwork materials: approved timber, plywood, precast concrete, prefabricated GRC or preformed metal sheet.

202 Reinforcement

- A. General
All reinforcement: supplied, fabricated and fixed in accordance with the drawings and this specification.
Refer discrepancies to the engineer for decision before proceeding with the work.
Be solely responsible for the supply, fabrication and placing of reinforcing steel.
Remove reinforcement which does not comply with the requirements of this specification and replace to the satisfaction of the engineer.
Comply with Australian Standards as follows: AS 3600 and AS 4671.
- B. Surface condition
Ensure that reinforcing is free from loose mill scale, rust, mud, oil, grease or other non-metallic coatings which would reduce the bond between the concrete and steel and is free from kinks or other defects, at the time of placing concrete.
When there is a delay between placing the reinforcement and pouring the concrete, the engineer may require the contractor to restore the reinforcement to a condition satisfactory to receive concrete.

203 Concrete

- A. Cement: comply with AS 3972. Provide cement of 1 brand which has passed the standard tests not more than 3 months prior to use.
- B. Aggregate: Maximum size of coarse aggregate: comply with AS 3600 and drawings.
- C. Water: water is to comply with AS 3600.
- D. Admixtures: Xypex waterproofing additive where scheduled (refer materials schedule) or shown on drawings. Prior approval of the engineer in writing must be obtained for use of any other admixture. If admixtures are used, comply with AS 3600.
- E. Ready-mixed concrete: grey ready-mixed concrete except areas as specified below, supplied by an approved manufacturer and mixed and delivered in accordance with the requirements of AS 1379. Site-mixed concrete: subject to prior written approval of the engineer.
- F. Concrete strength: comply with stated compressive strengths at 28 days as noted or scheduled on structural drawings for various locations.
If not scheduled, query with Structural Engineer.
- G. Waterproofing: admixture. Refer Appendix - Materials Schedule.

204 Steel Welded Fitments in Concrete

Comply with engineer's requirements. Provide Shop Drawings. Comply in all respects with appropriate Australian Standards.

In addition, fabricated samples of each element may be required to be delivered to site and approved by the engineer before proceeding to fabricate the various production runs of the elements.

205 Fabrication of Reinforcement

- A. Fabricate, bend and weld in accordance with the standards laid down in AS 3600, the drawings, the requirements of this specification and to the satisfaction of the engineer.
1. Where possible, bend steel prior to delivery, and always bend under heat.
- B. Do not bend or straighten in a manner which will damage the steel.
- C. Do not bend again a deformed bar of structural grade steel or cold work steel which has been bent and subsequently straightened or bent in the reverse direction within 20 bar diameters of the previous bend.
- D. Supply necessary support and spacer bar, though not necessarily shown on the drawings, to the satisfaction of the engineer.
1. Unless otherwise shown, support top reinforcement with 12mm diameter support bars at 300mm centres on bar chairs at 1000mm centres.
- E. Paint ends of bars which are to be left projecting for longer than 3 days with a heavy coat of neat cement grout.
- F. Cover concrete reinforcement as shown on the drawings to tolerances in accordance with AS 3600.
- G. Tie wire: annealed iron wire not less than No. 16 gauge, or other approved fasteners, unless shown otherwise on the drawings. With the approval of the engineer, spot welding by the electric arc process may be used in lieu of the wire for selected locations.
- H. Welding (including spot welding) of hard grade bars is not permitted.
- I. At the time concrete is placed, reinforcement shall be accurately fixed in accordance with the contract drawings.
- Cutting of reinforcement for other trades shall not be permitted except by special arrangement of the Superintendent in which case, additional reinforcing bars shall be inserted as directed.
- Contractor shall give at least forty-eight hours notice to the Superintendent of his intention to place concrete to allow time for inspections if deemed necessary by the Engineer.
- Reinforcing bars may be tack welded in locations noted on the structural drawings engineers' approval.
- Such welding shall be carried out by qualified and experienced operators and will be subject to testing at the Contractor's expense by an approved Authority such as VWS (Victorian Welding Services).
- Welding electrodes used shall be such that the yield strength of the reinforcing bar is not reduced or its ductility impaired.

206 Ready Mixed Concrete

- A. Ready mixed concrete to be in accordance with AS1379, by the batch production process and delivered in agitating trucks.
- The addition of water prior to commencement of discharge shall be in accordance with AS1379.
- B. Concrete is liable to be rejected if the elapsed time between the wetting of the mix and the discharge of the mix at the site exceeds the following criteria:

Concrete temperature at time of discharge:	Maximum elapsed time:
Less than 24°C	2.00 Hours
24 - 27°C	1.50 Hours
27 - 30°C	1.00 Hours
Exceeding 30°C	0.75 Hours

- For each batch supply a docket listing the information required by AS 1379.
- C. Where a maximum water to cement ratio has been specified include the following additional information:
1. The total amount of water added at the plant and the maximum amount permitted to be added at the site.
 2. The amount of water, if any, added at the site.

207 Bolts, Waterstops, etc.

Submit selected items to engineer for approval before ordering.

208 Polymeric Waterproof Membrane

The supply and installation of the polymeric membrane for slabs on ground is described in trade section 02315 SITE PREPARATION.

209 Waterproofing / Tanking

Refer Appendix - Materials Schedule.

210 Granolithic Concrete Screeds and Toppings - Components

- A. Cement: Portland Cement, comply with AS 3972.
- B. Stone (granolithic screeds): clean granite screenings of maximum size 6mm.
- C. Stone dust (protective screeds): clean bluestone fines of maximum size 4mm.
- D. Sand: washed, sieved, sharp sand, passing a No 16 (1.19mm) sieve.
- E. Aggregate for screeds: dense aggregate graded as follows:
 - Passing 4.75 mm sieve 80%
 - Passing 6.00 mm sieve 90%
- F. Water: clean drinking quality
- G. Mesh: galvanised welded wire fabric, minimum 2.5mm diameter wires at 100mm each way.

211 Granolithic Concrete Screeds and Toppings - Mixes

- A. Mix screeds with minimum water to produce screed material that is workable and will consolidate uniformly. The proportion will depend on the sand in use and is found by practical trial. Minimise random variations once the proportions are established. Carefully control water quantity.
- B. Granolithic finish mix: 1:2:1 cement: stone: sand.
- C. Protective screed mix: 20 MPa concrete with maximum aggregate size of 6mm.
- D. Batching by shovelful is not allowed. Batch by weight only.

PART III EXECUTION**301 Inspections**

- A. Examine ground condition upon which form props are placed. Be responsible for prop placement.
- B. The concrete works will be particularly inspected by the engineer at the stages as follows:
 - 1. After erection of formwork and before placing reinforcement.
 - 2. After cores and embedments have been placed in the formwork.
 - 3. Immediately before each pour of concrete is commenced.
- C. Be responsible for the formwork and the quality of the stripped concrete.
- D. Keep records of each pour of concrete showing the following:
 - 1. Details and types of reinforcing steel.
 - 2. Date of pouring concrete.
 - 3. Area of structure where concrete placed.
 - 4. Area of structure where tests taken.
 - 5. Test results when available.
 - 6. Make these records available for inspection by the engineer.
- E. Start of work means total acceptance of conditions.

302 Formwork Generally

- A. Conform to the shape, lines, grades and dimensions of concrete as required by the drawing and construct of approved pre-cast concrete, timber or metal, in which bolts and screws in contact with concrete are countersunk. Provide sufficient strength to the structure to carry the concrete without deflection. Tolerances of the concrete when stripped: in accordance with the appropriate clause of AS 3610.
- B. Be responsible for complete installation of formwork and for the condition of concrete after stripping.

303 Fixing Reinforcement

- A. Unless otherwise shown on the drawings or directed by the engineer, measurements made in placing the reinforcement are to be to the centre-lines of the reinforcement.
- B. Support and wire together reinforcement with a 0.5mm soft wire ties or clips, or tack weld in accordance with AS/NZS 1554, to prevent displacement by construction loads.
- C. Use plastic-tipped metal chairs, metal hangers, metal spacers and other plastic, metal or concrete accessories as required for supporting reinforcement in accordance with the following:
Where the concrete surface is off form and exposed to view, internally or externally, provide accessories in which the portions in contact with the formwork are of plastic matching in colour the concrete paste.
- D. Weld, tie, clip or otherwise secure mesh reinforcement together by approved means at alternate intersections and at such other points as may be required.
- E. If necessary, support footing reinforcement on concrete blocks of adequate strength and size not to split under the loads they are required to carry.
Take particular care to ensure that wall and column steel is properly fixed in position by the use of plastic chairs clipped on to the steel and by steel spacers for wall reinforcement. Place such spacers in position prior to erecting the last shutter.
- F. Splices on reinforcement: splice only at locations approved by the engineer, with minimum lap lengths as shown on the drawings or welded to develop the full strength of the small bar in accordance with AS/NZS 1554.3
- G. Cover to reinforcement: allow clear minimum cover to reinforcing as shown on the drawings. Maintain this cover during concreting.

304 Construction Joints

Periods of stoppage in concrete of 3/4 hour or more are deemed to be construction joints. When the location and type of construction joints are not shown on the drawings, submit proposed location and detail of construction joints to the engineer for his approval prior to the start of formwork placement. Site engineer will direct treatment before depositing the new concrete against a construction joint.

305 Bonding Fresh and Hardened Concrete

Before depositing new concrete on or against concrete which has set, re-tighten forms, roughen the set concrete surface, clean off all loose or soft material, all foreign matter, laitance and any oily substances, curing compounds, or substances likely to affect adhesion, and thoroughly wet to engineer's approval. Remove excess water, cover the cleaned and wetted surfaces with a coating of 1:2 cement/mortar. Place the new concrete against this before the mortar has attained its initial set. Prior to placing concrete, submit a sample of concrete showing the degree of roughened and laitance removal proposed. The following procedures for preparation of construction joint faces are approved:
Vertical joints: paint face of form with an approved retarder. Strip form the following day and remove retarded concrete with air-water jet to bare exposed aggregate face.
Horizontal joints: spread 6mm bluestone chips on surface of freshly screeded concrete and blow off excess the following day with air-water jet.
Comply with instructions on engineer's drawings.

306 Building In

Include all work necessary to allow for the building into the work of various fittings and services.

- A. Conduits and piping: place conduits and piping in concrete floors above the bottom steel and below the top steel. Do not dislodge reinforcement.
Where conduits and piping cross control joints, make provision for clip joints or some other means of absorbing movement without fracturing.
Where electrical conduits or other services and associated junction boxes, etc., are to be cast into concrete the Contractor shall allow for necessary attendance on this work and for protecting the cast-in services from damage during concreting.
- B. Cores to facilitate the installation of services shall not be cut in hardened concrete without approval of the engineer and under no circumstance shall reinforcement be cut or displaced.
- C. Built-in bolts, etc.: accurately build in bolts, lugs and other fittings, provide holes and pockets as shown on the drawings. Prevent movement of these items during concrete pour.
Clear screwed or machined portions of fittings of mortar and grease.
Temporarily fill voids in sleeves, inserts and anchor slots and readily removable materials to prevent the entry of concrete into the voids.
- D. Waterstop: cast in waterstop as shown on the drawings, located in vertical wall joints or floor joints by the use of split shuttering or other means.
Use waterstop in the maximum possible lengths, mitre at corners and shop weld and seal at joints. Make joints other than at changes of direction, in location approved by the engineer.
Adequately secure and support in the correct position during placing concrete.
- E. Grouting: Refer to the 05100 STRUCTURAL STEEL section of this specification.

307 Preparation for Placing of Concrete

- A. Do not place any concrete in any section of the work until the formwork or foundation material for that section has been inspected and approved by the Engineer.
- B. Immediately before placing concrete in excavation, ensure that the excavation is free from water and fallen materials and that the sides of excavations are such that no material will fall into freshly placed concrete.
- C. Ensure that formwork ready for the placing of concrete is complete, with surfaces smooth and clean, immediately before placing, remove excess water, mud and debris and secure reinforcement in place, remove surplus end of tie-twines, surplus nails and other extraneous metal objects in contact with the forms, make sure that expansion joint material, anchors, and other embedded items are in position. Give the engineer 2 working day's notice of the intention to pour so that approval may be given in time.
Keep excavations free from water, mud and other loose or soft material before placing concrete in footings and other ground work and during the placing of concrete and compaction or concrete by vibration.

308 Construction Tolerances

The work shall be accurately set out, true to the positions, levels, shapes and dimensions shown on the drawings.

The tolerances noted below may, however, be allowed in the finished structural concrete:

- A. Cover to reinforcement where the nominal cover is 25mm or more to be +6mm.
- B. Cover to reinforcement where the nominal cover is less than 25mm to be -3mm / +6mm.
- C. Top surfaces of floor slab to be within -0mm / +3mm of the levels shown on the drawing and in addition the maximum grade of any section of the surface with the actual level tolerance shall not exceed 3mm in 1500mm.
- D. Thickness of any slab on ground to be within -0mm / +10mm of the thickness nominated on drawings.
- E. Thickness of any suspended slab to be within -0mm / +5mm of the thickness nominated on drawings.

If the tolerances listed above are exceeded, the Contractor may be required, at the discretion of the Superintendent, to remove and replace, or modify the placed concrete before acceptance.

309 Transporting of Concrete

Convey concrete from the mixer to the place of final position without delay and by means that will prevent segregation and loss of materials. Concrete shall be conveyed to its final position within 20 minutes of its first wetting.

310 Placing of Concrete

Place concrete in compliance with AS 3600.

- A. Concrete shall be so placed as to avoid segregation.
The placing of concrete in a section shall be carried on continuously until that section is completed, provided that when unforeseen circumstances prevent this a construction joint, as specified, shall be made and care shall be taken that concrete which is partially set in the form is not subsequently displaced.
- B. During the placing operation the concrete shall be thoroughly compacted and shall be worked around any reinforcement and embedded fixtures into the corners of the formwork.
- C. Immersion type vibrators shall be used to assist in the compaction of the concrete.
Immersion vibrators shall not be held against forms or reinforcing steel, nor shall they be used for flowing or spreading concrete across a horizontal surface.
The forms shall be designed to withstand the action of the vibrators.
- D. Temperature: No concrete is to be placed when the mean temperature of the air exceeds or is likely to exceed 30°C, or is less or is likely to be less than 5°C.
Concrete is not to be placed during periods of excessive heat, or expected excessive rain.

311 Concrete Testing

- A. Generally: perform concrete tests in accordance with AS 1012 or subsequent amendment. Allow for the cost of making test specimens and for the supply of testing equipment and suitable personnel to carry out tests.
- B. Materials testing: submit in writing, test certificates from an independent laboratory registered with the NATA as evidence that materials used comply with the requirements specified. Allow the costs of such tests as required.
- C. Slump tests: provide slump tests reports on the first batch of concrete to be placed and at least once for every 20 cubic metres of concrete placed thereafter on that day.
If, in the opinion of the engineer, other batch of concrete appears to have an incorrect slump, conduct slump tests as directed by the engineer.
Slump tests are to be conducted by, and at the expense of the contractor. Concrete will be considered as complying with the specified slump tests when it complies with AS 3600.
- D. Compression tests: the methods and frequency of sampling and the identification and testing of cylinders are to be in accordance with project control testing AS 3600.
- E. Acceptance and rejection of concrete: acceptance and rejection of compressive strength of concrete by the engineer will be in accordance with AS 3600.

312 Compaction of Concrete

- A. Compact concrete by mechanical vibration to the maximum practicable density, free of air or stone pockets. Concrete not vibrated will be rejected.
- B. Have on site sufficient vibrators of an approved pattern and keep 1 spare vibrator to every 2 active vibrators.
- C. To avoid segregation, place concrete in position and then vibrate. "Travelling" concrete by use of vibrators is likely to produce segregation and is not permitted.
Operate immersion type vibrators in a near-vertical position and insert and withdraw them slowly. Allow them to penetrate and revibrate the concrete in the upper portion of the underlying layer.
- D. Do not leave vibrators, when in action, lying unattended on formwork, reinforcing or in concrete. Keep vibrator heads clean and free of mud or other deleterious matter when inserted into the concrete.
- E. Vibrate concrete in layers not exceeding 450mm in thickness and avoid contact of the vibrating head with surfaces of the forms.

313 Floor Finishes

Generally, unless otherwise shown or noted, monolithic floors with floor wastes are not to be graded but locally 'dished' around the area of the waste.

- A. Floors to be covered with carpet, floating floors or resilient finishes, or concrete floors with applied finishes, or concrete floors left exposed, shall be monolithic steel trowel or machine floated finish. Generally, unless otherwise noted, no set-down is required between these different floor finishes. The finished surface shall be free of any trowel marks, smooth and uniform in texture and appearance and shall be finished to a Class A tolerance without cracking or crazing. Areas scheduled as applied finish or exposed concrete are to be first class steel trowel finish. Concrete floor hardener where scheduled shall be added to the slab during finishing to manufacturer's instructions.
- B. Floors to be covered with ceramic tiles shall be monolithic woodfloat finish.
- C. Floors to be covered with screeds/ toppings shall have surface left rough to form a key.
- D. External concrete paving shall be monolithic woodfloat non-slip finish complying with AS 3661. Refer Site Works and Landscaping - Concrete Pedestrian Pavements.

314 Curing and Protecting Concrete

- A. Protect freshly cast concrete from premature drying and excessively hot or cold temperatures. Erect windbreaks to shield the concrete surface during and after placing. Maintain the concrete at a reasonably constant temperature with minimum moisture loss for the curing period, refer AS 3600. Take responsibility for the curing and protection of the concrete.
- B. Cure as soon as the surface of the concrete has hardened sufficiently to prevent damage but in no case later than 2 hours after the finishing operation has been completed.
Cure by the following means:
1. The use of waterproof paper, or
 2. The use of an approved polyethylene building film.
 3. The use of other approved moisture retaining covering.
- If a method other than polyethylene film is adopted, secure the covering material against the concrete for the full length of edges and laps and at frequent intervals between so that no air circulation at the concrete surfaces occurs.
- C. Period of curing: continue final curing for 7 days for normal Portland Cement concrete. For high early strength concrete, continue the final curing for 3 days. Prevent rapid drying out at the end of the curing period. Keep wet steel forms heated by the sun and wood forms in contact with the concrete during the final curing period.
- D. Temperature: when the mean temperature of the air during curing is less than 5°C, maintain the temperature of the concrete between 10°C and 20°C for the required curing period. Where necessary, make arrangements to maintain this temperature in advance of concreting adequate for the purpose. When the mean temperature of the air is in excess of 30°C during curing and moist curing is not employed, cover the surface with an approved heat reflecting plastic membrane. Apply this treatment for the whole of the curing period.
- E. Curing off-form concrete: take special care with curing off-form concrete to avoid differences in colour. Prevent rapid or localised drying-out during the first 7 days after pouring. Maintain the form face in contact with the concrete up to the moment of striking. Programme stripping times to ensure that surfaces throughout the job are exposed at similar ages, differing by not more than 4 and preferably 2 or less hours. Ponding is preferable for horizontal surfaces. Use heavyweight covers, well secured and in continuous contact. Apply curing compounds generously if used, to prevent local moisture loss.

315 Stripping of Formwork

Strip formwork in accordance with the recommendations of AS 3610, Table: "Recommended Minimum Stripping Times". Construction loads are not to exceed the live load shown on the Drawings without the prior written approval of the Engineer.

316 Granolithic Concrete Floor Screeds

Provide setdowns in floor slabs where shown or scheduled, to suit falls to floor wastes/ trenches and/or thermal insulation, and granolithic concrete screeds and toppings. Insulation and vapour barrier to coolrooms are to be supplied and installed by refrigeration sub-contractor. Refer to Materials Schedule – Concrete for which party is to provide concrete screed over the insulation. Granolithic mix shall be 1 part cement, 2.5 parts aggregate, mixed with water to make a workable mixture of driest consistency. Wet base slab just prior to placing the finish. A thin coat of wet cement slurry shall be broomed into the surface of the slab and the granolithic finish applied to a 19mm min. finish within fifteen (15) minutes of application of the slurry coat. Finished surfaces shall be clean and level of uniform texture and shall not crack or craze or become loose or drummy. Screeds to receive selected applied finish where scheduled, refer to Materials Schedule – Applied Finishes to Concrete Floors.

317 Cleaning

Remove debris and form work from each area after stripping concrete as work sections are completed. Leave each area clean to the satisfaction of the Superintendent/engineer.

318 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

SECTION 03300 CONCRETE

SECTION 03450 PRE-CAST CONCRETE**PART I GENERAL****101 Scope**

Provide and install a complete installation of pre-cast concrete work including but not limited to panels, inserts, panel erection, joint sealers and accessories.

Provide related services including transport, hoisting and equipment.

102 Related Work

Co-ordinate and co-operate with the following trades:

Concrete finishes	Structural steel
Concrete	Waterproofing and tanking

103 Quality Assurance

A. Quality is to be monitored by:

1. The contractor.
2. The architect and structural engineer.
3. Approved samples.
4. Approved installation sample.
Be fully responsible for the complete installation and the quality of:
 1. Concrete mix.
 2. Formwork dimensional control.
 3. Reinforcement including maintenance of cover.
 4. Colour matching.
 5. Handling, loading and shipping.
 6. Site handling, hoisting and storage.
 7. Erection.
 8. Sealants.

B. The engineer will provide an appropriate level of monitoring of the Quality Control Programme, which may include periodic or random (unscheduled) plant visits.

Inspections by the engineer will not relieve the contractor of his responsibility to carry out his own inspection to ensure compliance with the specification and drawings.

Design of Panel Anchorage: ensure that the panels meet the requirements of fabrication, transport, unloading, handling or stacking of the panels.

Details of anchorage for lifting and fixing ferrules are to be approved by the Department of Labour and Industry.

C. The selected sub-contractor is to have a minimum of five years experience in the application of the specified or similar material, and is to be known for reliability, performance and quality of work. Obtain approval for colour from the architect if applicable.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS 1012	Methods of testing concrete. <i>There are 27 parts to this Standard, 1991 – 2000.</i>
AS 1379	Specification and supply of concrete. <i>Plus Supplement 1-2008</i>
AS 1418	Cranes (including hoists and winches). 1418.15 Concrete placing equipment. <i>There are 18 other parts to this Standard.</i>
AS 1478.1	Chemical admixtures for concrete, mortar and grout – Admixtures for concrete.
AS/NZS 1554	Structural steel welding.
AS 2550	Cranes, hoists and winches - Safe use.
AS 3600	Concrete structures.
AS 3610	Formwork for concrete.
AS 3799	Liquid membrane-forming curing compounds for concrete.
AS 3850	Tilt-up concrete construction.
AS 3972	Portland and blended cements.
AS 4671	Steel reinforcing materials. <i>Plus 1 Amdt to this Standard, 2003.</i>
CIA Z48-2002	Precast Concrete Handbook
CIA Z6 2007	Reinforcement detailing handbook for reinforced and prestressed concrete
NP 002-2006	Precast Industrial Buildings Detailing Manual

Comply with the recommendations of applicable parts of the following documents:

“Design for Galvanizing Manual” from the Industrial Galvanizers Corporation.

105 Shop Drawings

- A. Comply with DOCUMENT 00800, clause 24.
- B. Show on the drawings, details that are necessary for manufacture, assembly, transport and installation of pre-cast members, including: sizes, dimensions and markings, reinforcement, full details of connections and inserts, concrete mix and type of cement, formwork type, project title and manufacturer's name, lifting attachments.
- C. Draw to a scale nominated by the consulting engineers.
- D. Show dimensions in mm which define the shape of the panel. Where corbels are required, show the levels of the underside of the slabs to be supported.
- E. Detail the location of adjacent ground levels, foundation heights, penetrations and door openings.
- F. Nominate lifting method and type with the drawings. Any re-design due to a nominated change by the contractor will be charged for by the consulting engineer at an hourly rate plus disbursements.

106 Delivery, Handling And Storage

Co-ordinate delivery schedule closely with contractor. Except as otherwise directed, deliver fabrications in the same sequence as they are to be installed. Avoid double handling at the site if possible, to minimise chance of damage to finishes. Co-ordinate delivery and fixing schedules with contractor to reduce use of cranes.

107 Project Conditions

- A. General: refer to appropriate sections of the contract conditions.
- B. Measurements: before ordering material or doing work, verify measurements and be responsible for the correctness of same. No extra charge or compensation will be allowed on account of difference between actual dimensions and the dimensions indicated on the drawings. Submit differences which may be found to the Superintendent in writing for consideration before proceeding with the work. Dimensions: where Shop drawings are prepared by sub-contractors or suppliers, and indicate field dimensions which have not been taken, take such field dimensions before submitting shop drawings. Where dimensions are given and marked "verify" or "verify in field", correct before submitting shop drawings. Where field conditions do not yet exist for taking or confirming of field dimensions, note shop drawings with "dimensions will be verified in field", before submitting.
- C. Be wholly responsible for protecting the work from damage. Take required measures to protect the work at times against fire, storm, theft, vandalism and other losses.

108 Warranty

Forward to the architect a statement guaranteeing that the concrete conforms with the approved mix design and that concrete has attained the required guaranteed strength in 28 days.

PART II MATERIALS**201 Manufacturing Criteria**

- A. Tolerances:
Form pre-cast concrete within the general concrete tolerances specified for "Off Form" finishes as follows :
Width/length thickness - dimensions up to 3,000mm +/- 3mm
Dimensions over 3,000mm +/- 0.1% dimension.
Plane of face and wind - dimensions up to 3,000mm +/- 6mm
Dimensions over 3,000mm +/- 0.2% dimension.
- B. Limit cumulative error to the following criteria :
Panel joints: minimum 10mm maximum 20mm
Adjacent panel alignment:
On external faces - a maximum error of 2mm
Vertical plumb - a maximum out of plumb of 5mm
- C. Formwork
Conform generally to the requirements of the relevant formwork sub-sections of AS 3610.

202 Materials

- A. Concrete and Reinforcement: comply with the requirements of the concrete specification. The concrete strengths and reinforcement properties: as noted on the drawings and/or as specified elsewhere in this specification.
- B. Jointing material to pre-cast panels: seal joints between pre-cast panels against water penetration and fire. Certify that the detail adopted is in accordance with the building regulations. Test results are to be submitted for approval by the council and consulting engineer.
Materials:

1. External walls, fire-rated as determined by Building Surveyor. Applied in accordance with fire-rating requirements, over closed cell polyethylene foam backer.
 2. External walls, not fire-rated: sealant applied over closed cell polyethylene foam backer rod.
 3. Internal joints: sealant applied over closed cell polyethylene foam backer rod.
Installation of sealants: apply materials in accordance with manufacturer's instructions and to the satisfaction of council inspector and architect.
- C. Concrete admixtures: comply with AS 1478.1. Obtain written approval from the consulting engineer for the use of admixture.
- D. Embedments: recess lifting attachments such as ferrules or other types of cast-in fixings and provide with an approved plug for sealing.
1. Lifting attachments, clear holes and other temporary fixings for handling purposes are not to occur on visible faces of units unless approved as to size and position.
 2. Any fittings or cast-in fixings which will be exposed before or after erection: brass or hot dipped heavy duty galvanised after fabrication and drilling operations on them have been completed.
- E. Bond-breaker: use a coloured bond-breaker which will provide no suction and also no residual effects to the application of surface finishes.
- F. Waterproofing: admixture. Refer Appendix - Materials Schedule.

203 Finish

Unless noted otherwise, the finish of the pre-cast units are to comply with the requirements for Formwork in AS 3610 and as follows:

- (a) Class 3 Finish, colour not critical but built to close tolerance.
Location: Precast concrete panels not readily visible or scheduled to receive applied finish, refer Plans, Elevations.
- (b) First quality steel trowelled finish.
Location: Precast concrete panels readily visible or exposed, refer Plans, Elevations.

204 Form Liners

Refer Appendix - Materials Schedule.

205 Curing

Cure pre-cast in accordance with applicable portions of AS 3600. Steam curing is not permitted.

206 Protection and Identification

Protect pre-cast units from damage in accordance with the concrete specification from the time of removal from the mould until the completion of the project. In particular, protect units against damage from the local crushing and chafing effects of lifting and transporting equipment.

Provide additional protection which is required where concrete will be poured at levels above units which have been erected.

Clearly and permanently identify each pre-cast unit and relate to the units shown on the Shop drawings. Place the identifying mark on a surface of no visual significance and include the date of casting. Do not give the same number to more than one unit.

207 Defective Panels

Panels may be rejected by the consulting engineer or the architect if they do not meet the specification or if they are damaged during erection.

Produce a standard of finish and general appearance of the panel commensurate with its use, location and also final surface coating. Rough finishing of surfaces, edges and arrises will not be accepted. Corbels will be finished to an off-form standard.

Rejected panel will be replaced with another panel within 7 days of notification of rejection.

208 Repairs

If the pre-cast units fail to comply with the performance requirements of the specification as applicable, and are thereby liable to rejection, the engineer may permit the units to be retained subject to approved remedial works.

209 Inspections

Give a minimum of 24 hours notice to the consulting engineer during manufacture of the units at the following stages:

- A. The formwork being completed and ready for inspection.
- B. The completion of fixing of the reinforcement. Allow sufficient time for the carrying out of the inspection (not less than 2 working hours).
- C. The provision and fixing of cores and embedments. Allow sufficient time for inspection.
- D. The placing of concrete.

210 Testing of Concrete

Conform generally to the requirements of AS 1012.

211 Pre-Delivery Handling

- A. Store and handle units in a manner approved by the engineer.
- B. Store units in a similar manner to final support conditions. Handle and support only from designed lifting points and ensure that no over-stress or permanent deformation will occur during handling. Adequately brace slender units to prevent lateral deformation.
- C. Keep units in storage clear of the ground, in positions where they cannot be walked on and clear of materials capable of staining or marking.
- D. Separations of packs used in storage are to be on inert non-absorbent materials such as polyurethane foam or PVC. Stack units so that they support their own weight only and not that of other units.
- E. Cover surfaces during storage or transport with non-staining waterproof paper or polyethylene sheet.
- F. Stresses in the units during handling and erection is not to exceed allowable stresses for concrete as set out in AS 3600.

PART III EXECUTION**301 Examination**

Inspect site before delivery of pre-cast panels.

Ensure that conditions at site are entirely satisfactory and ready to receive the work of this trade section.

Rectify base if situation found unsatisfactory.

Start of work means total acceptance of conditions.

302 Installation

- A. Supply grout, temporary fixings, shims, braces, mortar, fire-proofing, protection, sealant, joining strips and flashings required for erection of units on the site.
- B. Erect pre-cast elements into their final positions with the specified tolerances and connect and joint in accordance with the requirements of the contract.
- C. Be responsible for the erection and method of erection, design and installation of bracing and shoring of the panels during construction, until the structure has been sufficiently completed to enable the panel to carry its own loads.
- D. No bracing is to be removed until approved in writing by the consulting engineer.
- E. A design of the braces intended to be used is to be submitted together with a plan detailing their use locations.
- F. Where cranes are used, comply with AS 1418.
- G. Installation of Sealants: install required sealants and jointing materials in accordance with manufacturer's instructions and to the satisfaction of the building surveyor, consulting engineer and architect.

303 Adjustment

Adjust panels to correct positions in relation to support structure and each panel in relation to its neighbour.

Tighten bolts only after achieving optimum relationships.

304 Packing and Grout

- A. Where necessary, or specified, provide packers of the following materials: compressed fibre cement, galvanised steel, rigid high-impact plastic (where approved by the consulting engineer).
- B. Place packers so that no face is closer than 25mm to face of the panel. Size packers at least 150mm long in the direction of length of the panel.
- C. Provide "under" and "over" dowel pins as specified.
Grout pins after the panels are erected by injecting grouting using grout tubes.
- D. Fill the gap between the panel and its supporting base completely with a non-shrink inert, non-staining grout of a type to be approved by the consulting engineer. The method of application of this grout and the person applying it is to be approved prior to work commencing.
- E. Take care to ensure that the grout does not interfere with the waterproofing methods.

305 Cleaning

Thoroughly clean visible panel surfaces with brushes and approved material detergents. Achieve uniform finish throughout. Arrange for inspection by engineer and Superintendent on completion.

306 Protection

Protect exposed vulnerable surfaces, edges, covers, etc. for the duration of the contract. Use materials and methods which will not harm pre-cast materials.

307 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

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SECTION 04220 BLOCKWORK**PART I GENERAL****101 Scope**

General: supply and build the blockwork shown on the drawings or needed to complete the blockwork including, but not limited to the following:

Labour and materials.

Building in of miscellaneous items provided by others.

Staging and scaffolding.

Cleaning.

102 Related Work

Co-ordinate and co-operate with the following trades:

Window Trades

Doors and door frames

Carpentry

Structural steel

Concrete

103 Quality Assurance

Work of this section will be performed by experienced sub-contractors familiar with the quality required in this class of work.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS 1316 2003 Masonry cement.

AS/NZS 1576 Scaffolding.

There are 6 parts to this Standard, 1991 – 2000 and 2 Amdts, 1992.

AS 1672.1 Limes and limestones – Limes for building.

AS/NZS 2699 Built-in components for masonry construction.

There are 3 parts to this Standard, 2000 – 2002.

AS 2701 Methods of sampling and testing mortar for masonry constructions.

AS/NZS 2904 Damp-proof courses and flashings. *Plus 1 Amdt, 1998.*

AS 3700 Masonry structures *Plus 3 Amdts to this Standard, 2002-2007.*

SAA HB 124 – 2007 Design of concrete masonry buildings on CD

105 Delivery, Handling and Storage

Co-ordination: reach agreement with the Superintendent about site provisions for storage of sand, cement and other materials and for the mixing of mortar.

Deliver, handle and store products in accordance with manufacturer's recommendations and prevent damage, deterioration or loss.

PART II MATERIALS**201 Blocks**Generally:

Machine made pre-cast concrete units with sharp arrises, free from distortion, cracks and other defects, uniform in colour and texture.

Supply hollow blocks except where otherwise specified or required.

Supply solid blocks where core holes would otherwise be visible or where required for fire-rating or other purposes. Match colour and texture of solid and hollow blocks in facework.

Supply matching half-blocks, half-height blocks, closers and lintel and bond beam blocks as required.

Low-pressure steam cured blocks are not acceptable.

Refer Structural Drawings for structural requirements, core filling, reinforcing and bond beam locations if applicable.

Sub-floor Vents

For areas of timber subfloor, supply and build into blockwork proprietary galvanised steel subfloor vents, as required to comply with the BCA.

Scheduled Items

Refer to Appendix - Materials Schedule.

202 Mortar and Grout Materials and Types

- A. Materials: comply with AS 3700 as follows:
1. Mortar: restrict the amount of fine aggregate passing a 75 micron test sieve to 5% maximum.
 2. Grout:
 3. Pigment: powdered metallic oxides used in accordance with the manufacturer's instructions.
- B. Types: comply with AS 3700, providing materials in the proportions described below:
1. Mortar:

Classification	Mix Proportions (by volume) Type A Portland Cement	Building Lime	Sand
M1	0	1	3
M2	1	2	9
	1	2	8
M3	1	1	6
	1	0	5
M4	1	0.5	4.5

Mortar for load bearing blockwork: M3

Mortar for grouted and reinforced blockwork: M3

Mortar for non-load bearing blockwork: M3

2. Grout: F'c not less than 12 MPa (AS 3700).

203 Miscellaneous Materials

Comply with AS 3700 as follows:

- A. Wall ties and accessories:
Where building is to be located within 10 kilometres of the coast, wall ties: Stainless Steel Or Plastic.
- B. Reinforcement: Comply with AS 3700.
- C. Lintels and other steel in blockwork:
Extend lintels 230mm minimum past each jamb of openings.
- D. Caulking: elastomeric sealing compound, coloured to match mortar; for general caulking including movement control joints:
Liquid polysulphide polymer equal to Thioseal 5000.
- E. Damp-proof courses: Add integral waterproofing to mortar (Master clear or other equal approved) mixed in strict accordance with the manufacturer's instructions.
Comply with AS 2904.
Location: 2 no. courses, one at floor level and one two courses above floor level.
- F. Flashings: Build in standard 'Alcor' flashings to window sills and door jambs as blockwork proceeds.
Build in flashing to head of windows where not protected by roof overhangs.
Build in cavity wall flashing between damp proof courses as shown on Drawings.
Comply with AS 2904.

204 Steel Lintels

A. Where blockwork is to be supported over openings and no special lintels are detailed, build in mild steel lintels, in accordance with the Building Code of Australia.

1. To each 90mm thickness of blockwork, supported over external wall openings not otherwise specified:

Up to 950mm wide	1 no. (one) 75 x 10mm	MS flat
Above 950mm up to 1200mm wide	1 no. (one) 75 x 75 x 10mm	MS angle
Above 1200mm up to 1650mm wide	1 no. (one) 100 x 75 x 10mm	MS angle
Above 1650mm up to 2400mm wide	1 no. (one) 125 x 75 x 10mm	MS angle
Above 2400mm up to 3000mm wide	1 no. (one) 150 x 90 x 10mm	MS angle

2. To each 90mm thickness of blockwork, supported over internal openings not otherwise specified:

Up to 950mm wide	1 no. (one) 75 x 10mm	MS flat
Above 950mm up to 1050mm wide	1 no. (one) 75 x 12mm	MS flat
Above 1050mm up to 1200mm wide	1 no. (one) 75 x 75 x 10mm	MS angle
Above 1200mm up to 3000mm wide	As specified in (1.) above.	

3. To each 140mm thickness of blockwork, As specified in (1.) and (2.) above but with horizontal leg of angle or flat to be 125mm.

B. Set angles with the first dimension vertical. Extend 230mm min. past each jamb of openings.

C. Hot dip galvanise steel lintels in exterior openings.

D. Fix angles to concrete columns or beams with the bearing leg cut and bent to the height of the vertical leg and bolted to concrete with 2 no. 16mm masonry anchors.

205 Concrete Filling to Cavity Walls

Where applicable, fill cavities between block skin of veneer walls and concrete slab, from top of footing to finished external ground level and/or to underside of cavity flashing with waterproof 20 MPa concrete.

PART III EXECUTION**301 Mortar Mixing**

Measure materials to ensure that the specified mix proportions are maintained as per AS 3700.

Mix in a suitable mixing machine until a uniform blending of the components is achieved.

Add water to create a mix that is as wet as can be conveniently used by the blocklayer.

Except for the previously specified methyl cellulose water thickener, use no chemical to affect the plastic or other properties of mortar or as a substitute for lime without the architect's permission.

Mortar to be of colour to match in with existing mortar, where applicable, unless scheduled otherwise, or as approved by Superintendent.

302 Mortar Life

Re-tempering to replace water lost by evaporation is encouraged until initial set begins. Reject mortar which has begun its initial set and do not re-temper.

303 Preparation

Review the project with other trades in relation to ducts, piping, conduits, thimbles, sleeves, etc. or other item penetrating or to be built into blockwork and co-ordinate their installation.

Obtain built-in items from their suppliers prior to starting blockwork.

Clean the surface of concrete before laying blocks thereon.

Set up pressed metal door frames plumb and level and brace as required. Maintain bracing until walls are at least 1000mm high and frame grouting has set.

304 Laying

General: comply with applicable provisions of AS 3700. Set out blockwork so as to reduce cutting to a minimum and, in facework, to avoid irregular or broken bond.

Make cuts in facework with a masonry saw.

Carefully position openings for other trades to eliminate cutting.

Build in accordance with the dimensions, thicknesses and heights shown on drawings, plumb, level and in the designated position within the tolerances of AS 3700.

Allow no part to rise more than 1000mm above adjacent unfinished work. Rake back advanced work, build blockwork in bond and avoid toothing wherever possible.

Build in as necessary reinforcements, arch bars, lintels, frames, straps, bolts, lugs, wall ties, metalwork, damp-proof courses and flashings, etc.

Build in 'Krimplock' or equal approved, reinforcing mesh to every second block course in height where required by code.

Re-lay, in fresh mortar, blocks moved after initial laying.

Keep mortar stains to a minimum and protect horizontal ledges, finished sills and the like from mortar droppings as work proceeds.

Before mortar sets hard remove excess mortar. Scrub blockwork within 24 hours of laying using a bristle brush plus detergent if necessary.

Protect new and incomplete blockwork with coverings, temporary bracing or the like - AS 3700.

305 Jointing and Finishing

Joint thickness: 10mm within the tolerances given in AS 3700:

Joint finish blockwork for plaster: cut off flush.

Face blockwork: All joints to be ruled with round tool.

Bagged finish where scheduled: spread the mortar on exposed external/internal surfaces with a brush, sponge float, rough cloth or other suitable device and then rub to achieve a uniform texture approved by the architect.

Protect adjacent surfaces as necessary and promptly remove bagging mortar spilt, splashed or otherwise lodged on them.

Carry out bagging as the work proceeds, or Carry out bagging as a separate operation after bricklaying has been completed.

306 Bond Beams

Provide bond beams to block walls where shown on drawings.

Where possible, form bond beams continuous with lintels. Reinforce with mild steel rods bent as required to follow wall pattern. Lap a minimum of 400mm at joints and corners and tie with 18 swg wire.

Provide clear space between rods and block shell and fill block with concrete as specified, compacted into the block and finished flush at top. Where block cavity leaves insufficient space for concrete infilling, grout with 1:2.5 cement: sand mortar.

307 Lintels, General

Refer to AS 3700.

Lintels may be of steel or reinforced masonry units, subject to approval of architect.

Build in steel lintels: Refer to PART II, Clause 203 and 204.

308 Lintels, Concrete Masonry

Build block lintels occurring to heads of openings in block walls. Form with standard bond beam blocks of a thickness to suit the leaf and extend a minimum of 1 full block on either side of jamb or further as required to suit bonding. Allow for cutting of blocks needed to suit height of openings.

Reinforcement: reinforce with structural grade mild steel bar in accordance with the following schedule:

Width of Bond Beam/Lintel	Span Reinforcing
90mm	Maximum 1000mm 1/12mm bar
140mm	Maximum 1800mm 1/16mm bar
Other:	

Bond beam grout: fill with 30MPa concrete.

Where block lintels abut walls or columns, support on mild steel angle bracket, welded or bolted to wall or column.

309 Bonding and Tying

Build work in stretcher bond unless shown or noted otherwise on drawings or in Schedule.

Space wall ties in accordance with AS 3700.

Keep cavities clean and free from mortar droppings.

Fix to concrete or steel columns and at junction with concrete walls with frame ties built at least 250mm into block joint and fix to the structure as close as possible to the course line.

310 Door Frames

Build in door frames as the work proceeds. Generally allow for lugs at 400 to 450mm centres except FU door frames which have lugs to sizes and centres required by the fire test report pertaining to the particular type of door. Grout solid cavities behind frames.

311 Incidental Work

Chases: refer to AS 3700, and, as far as possible, provide for chases to be made as the work rises. No horizontal chase may exceed 1200mm in length and no vertical chase may be closer than 600mm to an element providing lateral support. No chase may be more than 1/3 of the thickness of the wall.

Perform miscellaneous incidental blockwork as required throughout and for other trades. Make good after other trades.

312 Field Quality Control

Not used.

313 Cleaning of Facework

Take care to keep walls clean constantly. Should further cleaning be necessary, use hydrochloric acid not stronger than 5%, treating only a small area at one time. Wet the wall prior to applying the acid, work from the top down and thoroughly wash off after brushing. Do not leave acid solution on wall at stoppage of work.

314 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

On completion clean up mortar droppings, debris, etc, remove scaffolding, make good put-log holes and blemishes and leave work in a first class condition.

Protect facework surfaces where necessary to avoid damage during other building operations.

END OF SECTION

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SECTION 05100 STRUCTURAL STEEL

PART I GENERAL

101 Scope

Supply, fabricate and install a complete structural steel system including but not limited to:

A Steelwork shown on the Architect / Engineer's Drawings specified herein, or as described in his instructions issued during the currency of the work.

Including surface treatment, storage, delivery to the site, steel to steel connections and their fastenings, steel to concrete connections and their fastenings, miscellaneous attachments and anchor bolts.

Whilst the structural drawings generally provide for major structural steelwork and connections shop drawings shall be prepared by the Contractor for all steelwork and steelwork connections.

B Non-structural items such as trimmers, cleats and other steelwork items such as steel handrails, balustrades, sunscreens, pergolas and the like, which may be shown on Architectural drawings, but not shown on Structural drawings, shall be allowed for by the Contractor in the tender price and detailed at the shop drawing stage.

Provide for all cleats and drilling for fixing of timber framing, flashings, supports for wall and roof sheeting at junctions where applicable and other architectural elements.

C Erection of the steelwork shown on the Architect / Engineer's Drawings including off-loading, erection, field welding, making steel to steel connections, connection to anchor bolts, permanent grouting and repairs to surface treatment.

D Arrange for and pay all costs for testing and inspection of connections as specified.
Engage and pay all costs for independent Structural Certification of the erected steelwork and engage and pay all costs for a Licensed Surveyor to certify that the steelwork has been erected within the tolerances specified.

102 Related Work

Co-ordinate and co-operate with the following trades:

Concrete	Metal Roofing, Metal Cladding and Roof Plumbing
Metalwork	

103 Quality Assurance

Do work in accordance with the drawings and specifications which form part of this contract, and further details and/or instructions issued by the architect/engineer during the currency of the works.

Submit evidence of experience appropriate to the class of work required. Install under the direct supervision of a capable foreman, experienced in the class of work under construction.

104 References

Conform with applicable portions of the current edition, including amendments, of the following Australian Standards (except where varied by this specification or the contract drawings):

AS/NZS 1554	Structural steel welding. 1554.1 2004 Welding of steel structures. <i>Plus 1 Amdt 2005.</i> 1554.2 2003 Stud welding (steel studs to steel) <i>Plus 1 Amdt 2003</i> 1554.3 2008 Welding of reinforcing steel 1554.4 2004 Welding of high strength quenched and tempered steels 1554.5 2004 Welding of steel structures subject to high levels of fatigue loading 1554.6 1994 Welding stainless steels for structural purposes 1554.7 2006 Welding of sheet steel structures
AS 1627	Metal finishing - Preparation and pre-treatment of surfaces. <i>There are 7 parts to this Standard, 1997 – 2005.</i>
AS/NZS 3678	Structural steel - Hot rolled plates, floorplates and slabs. <i>There is 1 Amdt to this Standard, 1999.</i>
AS/NZS 3679	Structural steel <i>There are 2 parts to this Standard, 1996 and 3 Amdts 1997-2000.</i>
AS/NZS 3750	Paints for steel structures. <i>There are 24 parts to this Standard, 1994 – 2008.</i>
AS 3784.1	Coatings for fire protection of building elements – Guide to selection and installation of sprayed mineral coatings.
AS 4100	Steel structures <i>Plus 1 Supplement 1999.</i>
AS/NZS 4600	Cold-formed steel structures. <i>There is 1 Supplement to this Standard, 1998.</i>
AS/NZS 4673	Cold-formed stainless steel structures.
AS/NZS 4680	Hot dip galvanised (zinc) coatings on fabricated ferrous articles.
SAA HB 48 1999	Steel structures design handbook.

105 Shop Drawings

Comply with DOCUMENT 00800, clause 24.

Provide a complete set of shop drawings for required components.

106 Delivery, Handling And Storage

Handle and store materials by methods and appliances that will not over-stress or deform the members. Separate materials on site from surface of ground.

Members bent or buckled from handling or storing will be liable to rejection.

Supply bolts, nuts and washers in grit-free containers and stored in water-tight premises. Reject burred, damaged, corroded or otherwise unserviceable bolts.

PART II MATERIALS**201 Materials**

General:

Supply materials required to complete the works under this trade section in accordance with the contract documents and within the tolerances specified. Materials which do not comply will be rejected.

The quality of materials used for or associated with the structural steelwork shall comply with the requirements of the current Australian Standard Specification for the particular material.

Steel supply:

Unless otherwise shown on the drawings, comply with AS/NZS 3678 and AS/NZS 3679. Do not use other types and grades of steel without written approval.

Purlins and Girts are to be Bluescope Steel, Lysaght or Stramit Industries, with a minimum galvanising coat of Z200 (350g/sqm) unless otherwise noted.

Cleat connections are to be in accordance with AISC Standard Connections or manufacturer's recommendations unless otherwise noted.

Bolting and bridging to be in accordance with manufacturer's recommendations.

202 Alternate Sources of Materials

Materials other than those of Australian Manufacture shall not be used unless they are approved in writing by the Superintendent and all applications for the use of alternate source materials shall be accompanied by Australian Standard Certification of the grade of such materials.

203 Testing

Test pieces may be required to be cut from any or all of the materials used and should the test prove the materials unsatisfactory the cost of test and replacement of materials shall be borne by the Contractor.

204 Substitutions

Whilst the structural steel sections, plates, purlins, connectors and all other steel members noted on the structural drawings have been checked for availability at the time of design, there is no guarantee that all such steel members will be available at the time of fabrication.

Should substitutions be necessary due to unavailability of such steel members the substitutions shall be checked and approved by the Superintendent prior to the commencement of shop drawings and the costs of such substitution will be deemed to be included in the Contract amount.

205 Fabrication

Fabricate finish in accordance with AS 4100.

Do not exceed the end clearances shown on the drawings. Where these are not shown, ascertain the clearances used in the design of the connections.

206 Connections

A. General

Supply end cleats, brackets and other connections, not specifically detailed on the drawings, to suit the location and forces shown thereon with gauge and edge distances in accordance with AS 4100.

B. Bolting General

Supply bolts in bearing of such lengths that no threaded portion crosses the interface of the parts joined. Place at least one washer under the bolt head or nut, whichever is to be rotated. Provide taper washers where the part under the bolt head or nut is not perpendicular to the centre-line of the bolt.

C. Welding

Do manual welding in accordance with AS/NZS 1554.

Do semi-automatic welding in accordance with AS/NZS 1554.

D. Miscellaneous Attachments

Allow for the drillings, cleat and other fitments indicated on the contract drawings or shown on other relevant drawings and required by other trades.

Be entirely responsible for supply of necessary information to the steel fabricator.

207 Inspection Before Delivery

Material and work is subject to inspection before painting and delivery. Provide the necessary access and facilities.

Where steel has been inspected at the shop before being delivered to the site, such inspection does not relieve the contractor of his responsibility to carry out the work in accordance with the drawings and this specification.

PART III EXECUTION

301 Standards

Fabrication of steelwork shall comply with the requirements of AS 4100 Steel Structures and latest amendments thereto.

302 Straightening

Rolled sections shall be straight, free from twist and other distortions and of the full sections shown on the drawings subject to the manufacturer's usual rolling margins and shall be cold straightened if necessary before being assembled unless required to be of curvilinear form.

303 Cutting and Holing

All members, plates, brackets, etc., shall be neatly and accurately sheared, sawn or profiled to the required shape as shown on the drawings.

Where steel is oxy-cut to shape, care shall be taken to preserve the full finished sizes required.

Flame cut edges shall be substantially as smooth and regular as those produced by edge planing and shall be ground smooth if required by the Superintendent.

Plates thicker than 20mm and any plate edge that is to be welded shall not be sheared and after cutting all rough edges shall be ground off.

All holes may be punched or drilled. Holes shall have parallel sides with the hole axis perpendicular to the surface.

Badly formed holes are to be reamed to accept oversize bolts.

SECTION 05100 STRUCTURAL STEEL

304 Splices and Joints

Structural members shall be in single lengths unless otherwise shown on drawings.
 Any splices and joints that may be required in addition to that shown shall be submitted to the Superintendent for approval before any fabrication commences.
 Such additional splices and joints, if permitted, shall develop the full strength of the section so joined.
 Full strength butt welding shall be independently tested and inspected as specified Clause 406 hereafter.

305 Inspection

After assembly and before dispatch to site, facilities shall be provided by the Contractor for inspection by the Superintendent.
 The steelwork shall be laid out in the shop yard so all parts are accessible for inspection.
 The Superintendent shall be given 48 hours notice to make this inspection.

306 Delivery

Delivery shall be carried out in such a manner so as not to cause damage of any kind to any steelwork delivered to the site as if, in the opinion of the Superintendent, any steelwork is bent or otherwise damaged it shall be liable to rejection.

307 Marking

Each separate member shall be distinctly marked before delivery in accordance with a marking diagram provided by the Contractor.
 Members shall also bear such other marks as will facilitate erection.

308 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

PART IV ERECTION OF STEELWORK**401 Standards**

Erection of steelwork shall comply with the applicable portions of the current edition of the following Australian Standards:

AS 4100	Steel Structures and latest amendments thereto.
AS 3828	Guidelines for erection of building steelwork.

All erection shall be carried out by competent and experienced riggers under the supervision of a skilled foreman rigger and to the satisfaction of the Superintendent.

Provide and leave in place such temporary bracing, erection cleats, etc., as are necessary to stabilise the structure during erection and until permanent bracing elements are constructed or brickwork is erected and remove on completion.

All gear shall be of adequate strength and shall comply with all regulations current at the time.

No permanent bolting or welding shall be carried out until the proper alignment is obtained.

All steelwork shall be erected in accordance with the levels shown on the drawings.

Any member which has become bent or distorted during erection shall be removed from the structure and straightened to the satisfaction of the Superintendent.

402 Bolting

Bolts and bolting shall conform to the details given on the drawing and generally to the requirements of AS 4100.

Unless specified otherwise, all bolts used shall be of such length that at least one full thread is exposed beyond the nut after the nut has been tightened.

Where a nut or bolt head would bear on an inclined surface, a bevelled washer of the correct shape shall be interposed between the two surfaces.

Bevelled washers shall not be allowed to get out of position during the fabrication and erection.

403 Mortar Packing

Mortar packing of base plates shall be carried out by the Contractor with non-shrink cement grout such as 'Conbextra GP' or equivalent.

Water shall be added to give the mix a stiff workable consistency.

The mortar shall be rammed solidly into position and all edges trowelled to a smooth splayed finish.

Immediately before packing, the space under the steel shall be thoroughly cleaned and left free of excessive moisture.

The mortar packing shall NOT be carried out until the steelwork has been finally levelled and plumbed and approval received from the Superintendent.

404 Electric Welding

All welding shall be by metallic arc and shall conform to AS/NZS 1554.1-2004 for manual metallic arc welding and shall be carried out in such a sequence as to minimise distortion.

Electrodes for manual welding shall conform to AS/NZS 1553.

All welding shall be category SP and shall use pre-qualified consumables and preparation.

All welding shall be carried out by a qualified welding operator under a welding supervisor as required by AS/NZS 1554.1-2004.

The Superintendent may appoint a welding supervisor who will be responsible for the approval of all welding techniques, preparations, electrodes and sequences of operation.

Where full strength butt welded splices are permitted in a member, the preparation prior to welding is to be inspected and approved.

405 Field Welding

No field welds shall be made unless all parts are dry and at a temperature in excess of 4.5 degrees Celsius.

Welding exposed to the weather shall not be done during rain. Should rain occur during welding, the welding shall cease and heat shall be applied to the work to prevent rapid cooling.

Field welding operations shall be carried out on platforms that provide adequate space for the welder, his equipment and a supervisor.

All welds shall have all slag chipped free and be wire brushed clean ready for painting.

The preparation and set up of any full strength butt welds shall be examined by the Superintendent prior to the commencement of welding.

406 Testing and Inspection of Connections

Testing and inspection of welded and bolted connections shall be carried out by VWS Staff Pty Ltd, or other independent testing authority approved by the Superintendent with all costs of this work deemed to be included in this contract.

The Contractor shall allow in his tender for the costs of visual inspection of all welds and appropriate non-destructive testing of 20% of welds and for inspection of all bolted connection and appropriate tension testing of 20% bolted connections where specified as 8.8TB or 8.8TF.

The Contractor shall provide a copy of all test reports to the Superintendent.

407 Tolerances of Erected Steelwork

The Tolerances if erected steelwork shall generally be in accordance with Clause 15.3 of AS4100 as amended by this clause. In the event of conflict this specification shall take precedence over AS4100.

A Column Base

- (i) The position in place of a steel column at its base shall be within $\pm 4\text{mm}$ of its correct position.
- (ii) The orientation of a column in plan shall be within $\pm 2^\circ$ of its correct orientation.
- (iii) The underside of a steel base plate or the underside of a steel column, where the column is to be site welded to a cast-in plate, shall be within $\pm 5\text{mm}$ of its correct position.

B Verticality of a Column, Vertical Member, Mullion and the Like

Where the member is shown as vertical of the drawings, the deviation of any point above the base of the member from the correct vertical alignment shall not exceed Height / 750 or 15mm, whichever is the lesser.

C Alignment of a Vertical Sloping Member

The deviation of any point above the base of the member from the correct position shall not exceed Height/500 or 15mm, whichever is the lesser

D Level and Alignment of a Beam

- (i) The position of the web of a beam (or vertical centreline of SHS and RHS members) shall be within $\pm 3\text{mm}$ horizontally of its correct position.
- (ii) The level of a beam shall be within $\pm 10\text{mm}$ of its correct level at the connections to other members.

E Sloping or Bracing Members

- (i) The position of a sloping or bracing member shall be within $\pm 5\text{mm}$ of its correct position at its ends of at the connection to other members.
- (ii) The level of a sloping or bracing member shall be within $\pm 10\text{mm}$ of its correct level at the connection to other member or at its connection to a base plate.

PART V PROTECTIVE COATINGS**501 Painting**

Prior to painting, all steelwork shall be thoroughly cleaned of all dirt and grease in accordance with AS 1627.1-2003 and have all loose rust and mill scale removed by power tool cleaning or hand tools in accordance with AS 1627.2.

Unless otherwise noted on the drawings or in Materials Schedule, all steelwork shall receive one coat of zinc phosphate primer of 70 microns dry film thickness (or two coats each of 35 microns) applied in the fabricator's shop prior to delivery.

Prepare steel surfaces by Abrasive blast cleaning to Class 2.5 in accordance with AS.1627.4.

Prime with Dulux 'Zincanode 320' to give a build-up minimum 70 microns and maximum 90 microns dry film thickness.

Application to be by either conventional or airless spray with a minimum re-coat time of 24 hours.

Contact and inaccessible surfaces shall be painted before assembly and all paint shall be applied by brush.

Steelwork to be cast into concrete shall not be painted.

502 Galvanising

All external steelwork (unless scheduled otherwise) and/or steelwork noted as Galvanised shall be hot-dipped galvanised in accordance with the requirements of AS/NZS 4680 2006 Hot dipped galvanised (zinc) coatings on fabricated ferrous articles.

All steelwork shall be free of loose rust, mill scale, dirt soil and grease prior to galvanising.

Prepare steelwork with chemical cleaning in accordance with AS 1627.5-2003 and galvanise by the hot-dipped process, such that the zinc coating is metallurgically bonded to the base metal and provides a tough, durable and continuous coating.

The coating shall be of uniform thickness not less than 0.086mm corresponding to a coverage of 0.61kg of zinc per square metre of surface area and shall be subject to testing by the methods specified in AS/NZS 4680 2006 Hot dipped galvanised (zinc) coatings on fabricated ferrous articles.

Unless otherwise noted on the drawings, all welding shall be completed prior to galvanising.

Galvanising shall be carried out in such a manner so as to prevent undue distortion of the fabricated member or component.

All members and components which exhibit distortion or twist after galvanising, in excess of the tolerances set out in AS 4100, shall be straightened to the satisfaction of the Superintendent or shall be replaced.

Where galvanised steelwork is required to be field welded, the subsequent damage to the zinc coating shall be repaired by the application of Dulux Zincode 402 two pack inorganic zinc silicate applied by brush to clean surfaces, all to the satisfaction of the Superintendent and in strict accordance with the manufacturer's recommendations.

All galvanised steelwork shall be connected with galvanised nuts, bolts and washers galvanised in accordance with AS 1214.

PART VI CERTIFICATION

601 Structural Certification

The Contractor shall arrange for and pay all costs for an independent survey of completed structural steelwork by an approved and qualified authority to certify that the fabrication and erection of the steelwork including member sizes, bolt sizes and types etc. complies with the requirements of AS 4100 and the shop drawings.

It should be noted that the requirement for Testing and Inspection of Connections, as outlined in Clause 406 will form part of the documentation required for Structural Certification as outlined above.

Form 14 certificates of compliance in accordance with the BCA shall be submitted by the Contractor to the Superintendent prior to the issue of notice of Practical Completion.

602 Acceptance of Completed Work in respect of As-Constructed Tolerances

The contractor shall engage and pay all costs for a Licensed Land Surveyor to provide progressive (for progress claim purposes) and final "as-built" drawings verifying that the construction of the structural steelwork as shown on the contract and shop drawings and as specified herein is within the construction tolerances specified in Clause 407.

Levels to AHD shall be noted on the drawings.

All work constructed that may be within the specified tolerances still requires structural certification, as outlined in Clause 601 above, before the completed work can be accepted and payment recommendations made in accordance with the conditions of this contract.

603 Progress Claims and Verification Certificates

With each claim submitted covering sections of installed steelwork, a Certificate from a Licensed Land Surveyor, employed by the Contractor, shall be submitted verifying that the work is within the tolerances for As-Constructed work as specified in Clause 407.

Payment will not be recommended for installed work where a verification certificate, as outlined above, has not been submitted to the Superintendent.

END OF SECTION

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SECTION 05300 METAL ROOFING, METAL CLADDING AND ROOF PLUMBING**PART I GENERAL****101 Scope**

Supply and install a complete roofing and siding (external cladding) installation as shown on the drawings including but not limited to the following:

- A. Metal roofing, including accessories, fastening clips, apron flashings, gutters, parapet linings, copings, sumps, overflow pipes, downpipes.
- B. Roof insulation and wire mesh.
- C. Roof penetrations and sealing thereof.
- D. Metal cladding.

102 Related Work

Co-ordinate and co-operate with the following trades:

Structural steel	Metalwork
Doors and door frames	Roller shutter doors
Carpentry	Stormwater Drainage

103 Quality Assurance

Tradesmen are required to be experienced in and knowledgeable about the work to be performed and the various Standards to which the work is to comply. The architect will make random inspections during the execution of the work.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS/NZS 1170	Structural design actions. <i>There are 5 parts, 8 Supplements and 14 Amdts to this Standard, 1993 – 2009.</i>
AS 1460	Fittings for use with polyethylene pipes.
AS 1273 1991	Unplasticised PVC (UPVC) downpipe and fittings for rainwater.
AS/NZS 1562	Design and installation of sheet roof and wall cladding. 1562.1 Metal Plus 2 Amdts 1993-1995. <i>There is 2 other parts to this Standard.</i>
AS/NZS 2179.1	Specifications for rain water goods, accessories and fasteners - Metal shape or sheet rainwater goods and metal accessories and fasteners.
AS 3566	Self-drilling screws for the building and construction industries. <i>There are 2 parts to this Standard.</i>
AS 3999	Thermal insulation of dwellings - Bulk insulation - Installation requirements.
AS 4131	High Density Polyethylene HDPE piping
AS/NZS 4256	Plastic roof and wall cladding materials. <i>There are 5 parts to this Standard.</i>
AS/NZS 4389	Safety mesh.
SAA HB 39 1997	Installation code for metal roof and wall cladding.
SAA HB 63 1994	Home insulation in Australia.
SAA HB 114 1998	Guidelines for the design of eaves and box gutters.

105 Submissions

Not used.

106 Delivery, Handling and Storage

Deliver to site, unload and stack in a location away from potential damage, preferably directly on to installed roof framing. Take care in handling pre-finished sheets by keeping them dry and storing clear of ground under cover from weather. Avoid unnecessary handling and dragging over surfaces. Inspect on arrival and reject bent or damaged material.

107 Warranty

The Contractor and Roofing Sub-Contractor shall before Practical Completion execute a warranty to the Principal warranting that all materials and workmanship conform to the Specification and to detail to form a completely watertight roof installation. This will include all flashings, penetrations and roof sheeting, as well as any penetrations for pipes, flues, upstands etc. performed for mechanical sub-contractor. The warranty will also provide an undertaking to replace and re-instate as required all defective work or material, and any damage arising therefrom, for a period of 10 years from the date of Practical Completion.

Provide a warranty for materials and workmanship for the Roof Access / Fall Arrest System, for a period of 15 years from the date of Practical Completion.

PART II MATERIALS**201 Materials Generally:****A Insulation**

Supply and install Insulation as scheduled to roof and metal clad wall areas as follows:

- laid at right angles to purlins on top of safety mesh and trimmed with sharp knife and straight edge.
- adjacent edges to be butted firmly together and the 150mm wide foil overlap shall be sealed to the adjacent insulation with contact adhesive or vapour impermeable pressure sensitive tape
- trimmed neatly around flues, ducts, vents and other penetrations.

B Steel Roofing and Cladding Materials

Supply and install Steel Roofing and Cladding Materials where scheduled as follows:

- conform to AS 1397 - G550 - AZ150.
- be machine or tool cut but not sawn.
- pierced fix roofing and cladding is to be laid and fixed strictly in accordance with manufacturer's written instructions, using hex washer head self drilling and tapping screws with colour matched heads.
- concealed fix roofing and cladding is to be laid and fixed strictly in accordance with manufacturer's written instructions, using fixings supplied by manufacturer.
- roofing is to be laid in continuous lengths with falls indicated, folded, fixed, flashed and turned down into gutters and stop ended at high end for flashing. Extend sheets 50mm into gutters.
- roofing sheets fitted with neoprene infill strips between roof sheets and top of fascias.
- roofing sheets laid with all flashings, cappings, soakers, etc. pop riveted and sealed with silicone as recommended by the roofing material manufacturer.
- cladding sheets finished with folded corner and edge trims in matching finish as detailed.

C Fascias & Barges, Rainwater Goods

Fascias & Barges, Rainwater Goods generally are to be fabricated from 0.60mm BMT Colorbond coated steel sheet conforming to AS 1445 - G300 - AZ150.

E Box Gutters

Supply and install Box Gutters where shown on drawings to dimensions shown, 100mm minimum depth and shaped as required to provide fall to downpipes, as follows:

- Gutters to be 0.6mm colorbond coated sheet steel.
- Support full length x width on Stramit Industries Long Span decking, 0.47mm TCT zincalume coated steel sheet, carried on gutter brackets at 900mm max. centres. Grade brackets or provide packers under decking to provide fall as required.
- Gutter brackets formed with 40 x 40 x 3mm equal angle fixed to purlins and wall angles with 5mm threaded rod and nuts.
Trim box gutters and reinforce with additional gutter brackets each side of sumps and expansion joints.
- Supply & install 25mm polystyrene acoustic insulation on top of gutter support decking to all box gutters.

G Flood Pops

Supply and install Flood Pops where shown on drawings, to sizes indicated, as follows:

- Pops to be 0.6mm BMT colorbond coated sheet steel.
- Constructed as for downpipe thimbles with top standing 50mm high in gutter and with lower edge 20mm below soffit lining or clear of wall face.

H Sumps

Supply and install Sumps to dimensions shown on drawings, 50mm minimum depth and fixed to underside of gutter trap, as follows:

- Sumps to be 0.6mm BMT colorbond coated sheet steel.
- Construct with downpipe thimbles riveted and sealed into gutter and to downpipe connection.
- Fit loose fitting strainers of heavy gauge x 10mm galvanised wire mesh with 25 x 25mm galvanised sheet iron angle edges to locate strainer in sump flush with bottom of gutter and with central pop (matching size of downpipe) fitted in strainer and standing 75mm high.
- Sumps where shown on drawings, generally not adjacent to external walls, to be a sump/high capacity overflow device, with secondary sump connected to overflow downpipe, constructed in accordance with AS3500.3:2003 Part 3 and as shown on drawings.

I Rainwater Heads

Construct Rainwater Heads to details shown on drawings, as follows:

- 0.6mm BMT colorbond coated steel sheet
- Folded capping to top four sides of RWH.
- Overflow slot
- All joints to be riveted and silicone sealed.

J Downpipes

Supply and install Downpipes to dimensions shown on drawings / schedule, as follows:

- Trued vertically with no offsets except where shown on drawings.
- Fix downpipes at max. 1800mm centres and adjacent to gutters and drains, with downpipe brackets, refer Materials Schedule (proprietary: Roofing Section or custom made: Metalwork Section).

K Flashings & Cappings

Supply and install Flashings & Cappings as follows:

- Flashings and cappings in finish to match roofing and / or walling materials, 0.60mm BMT Colorbond coated steel sheet.
- Cappings to parapets and fascias generally to have 50mm turn down face of wall, double folded under to square profile to reinforce capping and provide true line. Follow profile of masonry as shown on drawings and finish into rainwater heads as detailed.
- Flash pipes and vents with small neat collars.
- Fix cappings with blind rivets, lap rivet and seal all joints in cappings and flashings.
- Flash and counter - flash all penetrations through roof.
- Flash and counter - flash exhaust fans and mechanical ductwork through roof.
- Take care that top surface of cappings slope towards roof to avoid ponding.
- Extend cappings over two ribs of roof decking and be consistent where cappings are visible.
- Where flashings to internal faces of parapets are greater than 600mm, use profiled metal cladding in lieu of flashing.
- Apron and soaker flashings to be neatly made with notches to match roof profile and ribs completely sealed.
- Supply and fix all other necessary flashings, cappings and soakers to form a complete weathertight roof.

L Roof Vents, Ducts and Cowls

Supply and install Roof Vents, Ducts and Cowls where scheduled as follows:

- Generally, form all penetrations including framings, up-stand flashings, over-flashings, dek-tite flashings etc. required for all roof penetrations.

M Rainwater Collection Tanks

Supply and install Rainwater Collection Tanks where scheduled as follows:

- fitted with secure inspection lid and over flow pop.
- Tanks to be mounted on concrete paving slab / plinth.
- Tanks to be connected to eave gutters with sealed drainpipes with strainer box set down in top corner.
- Interconnect tanks where applicable and provide outlet valves to pump installation as detailed, refer Hydraulic Drawings.
- Fit tanks with brass flushing valves with vandal proof hose bib fittings.

N Roof Access / Fall Arrest System

Supply and install Roof Access / Fall Arrest System to locations where scheduled.

For scope, submissions and certification details refer Appendix - Materials Schedule.

Refer to Structural Engineer for location of anchorage points as required, allow to fit 'Dek-tite' or equal approved flashings to all roof penetrations.

Note: Tenderers should obtain design proposal and quotation from:
Sayfa Systems
44 Kalman Drive BORONIA VIC 3155.
Tel: 8727 9000.

Tenderers are not obliged to accept this sub - contractor.

202 **Scheduled Items**

Refer to Appendix - Materials Schedule.

203 **Fabrication**

Form and fabricate components in accordance with AS/NZS 1562 and AS/NZS 2179.1, and other relevant Standards.

Self-drilling screws are to conform to Class 3 as described in AS 3566.

PART III EXECUTION

301 Examination

Inspect site conditions before installation. Ensure framing is entirely satisfactory. Request rectification by Contractor if necessary.
Ensure that delivery and installation will not be impeded by on-site conditions at time of delivery.
Commencement of installation shall be construed as unqualified acceptance of site conditions as suitable for the work of this Section.

302 Terrain Category

Adopt Terrain Category in accordance with the requirements of AS 1170.

303 Preparation

Prepare framing and surfaces for installation.

304 Installation

Install work in accordance with manufacturer's instructions and Australian Standards. Refer clause 104.

305 Flashing

Lap flashing at least 150mm at junctions, and over flashings neatly dressed and finished. Where necessary to follow a roof slope, step flashings in even overlapping widths. Finish top corners to a line parallel to the roof slope.
Fabricated flashings in materials which are compatible with, and same finish as, gutter and roofing materials. Complete work and leave an entirely watertight installation.

306 Penetrations

Form penetration flashings neatly with material matching roofing material. Form flanged tubular collars 0.70mm sheet zinc not less than 150mm high and 12mm wider than penetrating item, or use EPDM collars. Where the width of a penetration is wider than a roofing trough or extends across several troughs, form a back gutter, using sheet material similar to the roofing material, well lapped under the roofing, double riveted and sealed with silicone sealant. Close and seal ends of cut ribs. Form back gutters not less than 100mm wide with falls towards the sides of the penetration collars.
Form over-flashings of penetration collars neatly in material matching the roofing material but not less than 0.5mm thick, securely clipped and sealed to the penetrating items and dressed well down over the collars to finish at a straight line level with the tops of the ribs.
Do not use lead or copper for over-flashings.

307 Downpipes

Install in accordance with AS/NZS 2179.1 for metal.
Install in accordance with AS 1273 for PVC. Comply also with manufacturer's instructions.
Secure to building as described in Part II Materials General – 'Downpipes'.
Connect base of downpipes to in-ground stormwater drains as described in Part II Materials General – 'Downpipes'.

308 Insulation

Comply with manufacturer's current written recommendations, the BCA and the relevant Australian Standards.
Install bulk and reflective insulation as scheduled in Materials Schedule.
Thermal Insulation is to be installed to abut or overlap adjoining insulation and form a continuous barrier, closely fitted, to the envelope of the conditioned space.
Bulk insulation is to be installed so that it maintains its position and thickness, other than where it crosses roof battens, water pipes, electrical cabling or the like.
Reflective insulation must be installed with necessary airspace to achieve stated R value, closely fitted against any penetration, door or window opening, adequately supported by framing members, and with joints in the material overlapped or taped.

309 Cleaning

To prevent contamination and corrosion, keep clean metal roofing and rainwater goods at times during the progress of the works.
At the end of work each day, and immediately before each occurrence of rain, sweep the metal surfaces thoroughly to remove metal filing, swarf, off-cuts, dust, and other materials which could cause corrosion or blockages. Prevent waste materials from entering downpipes, rainwater heads, or drains.

Remove unsecured nails, rivets, screws, bolts and similar fixing devices, guttering, etc., at the end of work each day and at the completion of roofing installation.

310 Precautions Against Electrolytic Action

Take all necessary precautions against possibility of accelerated electrolytic action between dissimilar metals. Where dissimilar metals are adjoining, they shall not come in contact but shall be insulated by a full cover of approved brand proprietary non-rotting chromate insulating tape, or similar approved material.

311 Testing

On completion of the entire installation, the Roofing Contractor shall test for watertightness by thoroughly hosing down all roofing to ensure no leakage is evident.

312 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

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SECTION 05500 METALWORK**PART I GENERAL****101 Scope**

Supply, engineer and install required general and architectural metalwork items contained within this Section and required to complete the works.

102 Related Work

Co-ordinate and co-operate with the following trade sections:

Masonry Trades	Structural Steel
Carpentry	Joinery
Glass and Glazing	

103 Quality Assurance

Work of this section will be performed by experienced sub-contractors familiar with the quality required in this class of work.

Comply throughout with manufacturer's instructions.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS 1231	Aluminium and aluminium alloys - Anodic oxidation coatings.
AS 1428	Design for access and mobility.
AS 1450	Steel tubes for mechanical purposes.
AS/NZS 1554	Structural steel welding. <i>There are 7 parts to this Standard, 1994 – 2006.</i>
AS 1627	Metal finishing - Preparation and pre-treatment of surfaces. <i>There are 7 parts to this Standard, 1997 – 2005.</i>
AS 1657	Fixed platforms, walkways, stairways and ladders - Design, construction and installation.
AS/NZS 1664	Aluminium structures. <i>There are 2 parts, 4 Supplements and 4 Amdts to this Standard, 1997-1999.</i>
AS/NZS 1665	Welding of aluminium structures.
AS/NZS 1734	Aluminium and aluminium alloys - Flat sheet, coiled sheet and plate.
AS 1735	Lifts, escalators and moving walks <i>There is a variety of parts to this Standard.</i>
AS 1796	Certification of welders and welding supervisors. <i>This Standard has 1 Amdt, 2004.</i>
AS/NZS 1850	Portable fire extinguishers - Classification, rating and performance testing. <i>This Standard has 1 Amdt, 2004.</i>
AS/NZS 1866	Aluminium and aluminium alloys - Extruded rod, bar, solid and hollow shapes.
AS/NZS 1891.1	Industrial fall arrest systems and devices – Harnesses and ancillary equipment <i>There are 4 parts, 1 Supplement and 2 Amdts to this Standard 1997 – 2008.</i>
AS/NZS 1905	Components for the protection of openings in fire-resistant walls. 1905.1 Fire-resistant door sets.
AS 2047	Windows in buildings - Selection and installation. <i>Plus 2 Amdts 2001</i>
AS/NZS 2312	Guide to the protection of structural steel against exterior atmospheric corrosion by the use of protective coatings. <i>This Standard has 1 Amdt, 2004.</i>
AS 2423	Coated steel wire fencing products for terrestrial, aquatic and general use.
AS 2444	Portable fire extinguishers and fire blankets - Selection and location.
AS 2785	Suspended ceilings - Design and installation.
AS 2832	Cathodic protection of metals. <i>There are 5 parts to this Standard, 2003 – 2008.</i>
AS 2946	Suspended ceilings - Recessed luminaires and air diffusers - Interface requirements for physical compatibility.
AS 3623	Domestic metal framing.
AS 3715	Metal finishing - Thermoset powder coatings for architectural applications of aluminium and aluminium alloys.
AS/NZS 3750	Paints for steel structures <i>There are 19 parts to this Standard, 1994–2002.</i>

104 References (continued)

Comply with applicable portions of the current edition of the following Australian Standards:

AS 4100	Steel structures <i>Plus 1 Supplement 1999</i> .
AS 4285	Skylights.
AS/NZS 4600	Cold formed steel structures.
AS/NZS 4673	Cold-formed stainless steel structures.
AS/NZS 4680	Hot-dip galvanised (zinc) coatings on fabricated ferrous articles.
AS/NZS 4801	Occupational health and safety management systems - Specification with guidance for use. <i>There is 1 part to this Standard, 2001.</i>
AS 5007	Powered doors for pedestrian access and egress.
AS 6905	Smoke doors.

Comply with requirements of statutory and local authorities.

105 Shop Drawings

Comply with DOCUMENT 00800, clause 24.

Provide Shop Drawings for all window and door framing, specially manufactured items and where specified.

- A. Contract drawings and details provided are indicative as to general and minimum requirements, and do not show conditions.
Develop details not shown and in conformity with the indicative details shown.
- B. Take and confirm dimensions on site, before preparing Shop Drawings where possible.
- C. Submit detailed Shop Drawings for fabrication and installation of major metalwork. Show plans, elevations and detailed sections; indicate materials, finishes, types of joinery, fasteners, anchorages and accessory items. Provide setting diagrams and full-scale templates of blocking, anchorages, sleeves and bolts installed by others.

106 Delivery, Handling and Storage

Deliver to site, unload and stack in a location away from potential damage, preferably directly into position. Take care in handling pre-finished items by keeping them dry and storing clear of ground under cover from weather. Avoid unnecessary handling and dragging over surfaces. Inspect on arrival and reject bent or damaged material.

107 Warranty

Provide to the Proprietor a warranty covering materials and workmanship for the periods shown in the Warrantee Schedule, for the following items:

- A. Doors and door frames
- B. Suspended ceilings
- C. Metal finishes, shop-applied
- D. Operable Walls
- E. Automatic Door Operators
- F. Glass Balustrades
- G. Toilet Partitions

108 Acceptable Manufacturers – Aluminium Window Framing

Architectural Window Systems (AWS Commercial / Vantage)

Capral Aluminium

G James Glass & Aluminium

109 Samples

Not used.

PART II MATERIALS**201 Materials Generally****A. Aluminium Windows / Doors**

Supply and install aluminium window / door framing with:

- Frames to be selected colour powdercote or anodised finish (refer Materials Schedule).
- Fabrication and installation to be carried out by specialist firm approved by manufacturer and in accordance with AS2047.
Provide shop drawings for approval prior to manufacture.
- Frames incorporating doors to have heavy door jambs and head sections. Note: Hinges to be fixed to aluminium door jambs with 3mm aluminium flat bar backing plate.
- All sections shall be selected to suit design wind pressure.
- All frames shall be mechanically jointed with stainless steel spline screws, sealed before assembly with approved non-hardening sealant.
- Provide head and sill flashings generally, and as detailed.
- Provide weather seals to all opening sashes.
- Provide matching cover panels 1.2mm thick, machine folded where required, in window walls and highlight windows where required or as detailed, to cover columns and the like. Fixed to frame with pop rivets.
- Isolate aluminium from contact from other metals with 'Denso' tape.

B. Metal Door Frames

Supply and install Metal Door Frames where scheduled, with:

- Door frames 1.2mm pressed zinc anneal steel, complete with pair 100mm loose pin steel butt hinges slotted and welded to frame.
Note: Hinges to outward opening external doors to be fixed pin type.
- Frames to be dip primed and prepared for paint finish and back plated to receive striker plates and door closing mountings, suitable for hardware as scheduled.
- Frames to be compatible with wall thickness and situation, including double skin walls and to finish flush with finished surfaces.
- Manufacturer's shop drawings to be forwarded to the Superintendent for approval prior to fabrication.

C. Handrails / Balustrades

Fabricate and install custom made Handrails / Balustrades where scheduled, as follows:

- All welds to be ground smooth.
- Assemblies scheduled with galvanised finish to have complete assembly hot dipped galvanised.
- Assemblies scheduled with stainless steel finish to be satin polished. Assemblies exposed to weather shall in addition to being satin polished be also electro-polished.

D. Suspension Ceiling System

Supply and install Suspension Ceiling System where scheduled, with:

- Primary rails at 1200mm centres hung on 5mm soft galvanised rod, accurately levelled with suspension clips at 1200mm centres.
- Furring channels shall run at right angles to the primary rails at spacings recommended by building board manufacturer and be positively locked to the primary rails with locking keys.
- Additional hangers, primary rails and furring channels shall be provided for fittings supported by the ceiling grid system.
- Any section of the ceiling to be level within 6mm of any other section within 6 metres.
- External suspended ceilings are to be suspended on 6mm diameter, soft mild steel galvanised threaded rods fixed to thread-adjusted clips with nuts, friction type clips will not be accepted.
- Down bracing is to be incorporated in ceiling systems when used externally or adjacent to openings prone to sudden uplift caused by external wind forces.
- Installation shall conform in all details to AS 2785.

F. Fittings and Fixtures

Supply and install Fittings and Fixtures as nominated in Materials Schedule with:

- All items, components and fixings installed as recommended by the manufacturer.
- All fittings to Disabled Accessible Installations are to be installed in accordance with AS1428.

G. Signage

For scope, construction and fixing details refer Materials Schedule.

Supply and install Statutory signage in accordance with Authority requirements and Braille Signage in accordance with AS 1428.1.

H. Stainless Steel Benches (Refer also Joinery and separate Schedule by Kitchen Consultants)

202 Scheduled Items

Refer to Appendix - Materials Schedule.

203 Finish

Materials exposed to weather may be either:

Mild steel - hot dipped galvanised after fabrication or chromate pre-treated followed by polyester powder coating. Assemble on site with sleeves, couplings and fixings of appropriate compatible material.

Finish internal steel after fabrication with zinc-rich organic primer, or with inorganic zinc silicate paint.

Comply with relevant codes of practice or manufacturers' recommendations.

204 Welding Steel

General: details of joints, the techniques of welding employed, the appearance and quality of welds made and the methods used to correct defective work; conform to requirements of AS/NZS 1554.

Certification: only welders who have previously been qualified by tests may weld.

Welds exposed to view: grind smooth to architect's approval.

Concealed welds: grind smooth before galvanising.

Tack or skip welding: at regular intervals, very neat. Not permitted if material is to be hot dip galvanised.

Remove weld spatter.

Tack welding or skip welding will NOT be permitted where items are to be galvanised. Weld continuously to form joints and connections to exclude water and to permit draining during galvanising.

Stainless steel welding: refer AS/NZS 1554.

205 Connection Design

General: design fabricated items so that possible work is done before delivery. Fully protect for shipment. Take possible care to prevent damage.

- A. Welding external items: conform to the recommendations of AS/NZS 1554, noting particularly the design criteria.
- B. Flanges: concealed where possible. Sleeve connecting railings inside railing sections and secure with flush or set screws. Except where access is impossible, connection screws and bolts will be on the underside of joints.
- C. Fasteners on the top of railing sections will not be permitted.
- D. Weld shop connections for steel fabrications, and bolt field connections.
- E. Provide smooth finishes to exposed surfaces with sharp well-defined lines and arrises. Mill to a close fit machined joints. Design necessary lugs, brackets and similar items so that work can be assembled and installed in a neat, substantial manner.
- F. Provide ample strength and stiffness by using appropriate metal thickness of assembly and supports.
- G. Provide holes and connections as required to accommodate the work of other trades and for site assembly of metalwork. Drill or punch and ream in the shop.
- H. Joints and connections shall be formed to exclude water and to permit draining during galvanising.

206 Miscellaneous

Fasteners: provide required bolts, screws, inserts, fasteners, templates and other accessories required for a complete installation.

Co-ordinate with other trades as to the proper fastening systems suitable for the substrates to which the item is to be secured. Refer to architect if in doubt.

Fasten galvanised items with galvanised fasteners.

PART III EXECUTION**301 Examination**

Inspect site conditions before fabrication, where possible, and before delivery of materials. Ensure conditions are satisfactory for installation. Arrange for rectification required.

Start of work means total acceptance of relevant conditions.

302 Preparation

Field measurements: do not delay job progress. Allow for adjustments and fitting of the work in the field where taking of measurements might cause delay.

Co-ordination with work of others: furnish to each relevant trade foreman anchorages and setting drawings, diagrams, templates and instructions for installation of items having integral anchors which are to be embedded in concrete or masonry construction. Co-ordinate delivery of such items to the project site.

303 Inspection and Reinstatement

Check fabrications as they are unloaded at the project site for evidence of physical damage.

Treat damaged fabrications as follows:

- A. Damage through galvanising: perform immediate inorganic zinc silicate paint or cold-galvanising repair. Do not install until reinstated.
- B. Architectural metalwork: returned to shop for repair or replacement.

Verify anchors, bolts and other required anchorage items for proper size and accurate location prior to erection.

304 Installation

Anchorage: except for anchorages furnished herein but placed by other trades, set and secure necessary anchorages, including concrete and masonry inserts, bolts, wood screws and other connectors as needed. Perform cutting, drilling and fitting as needed, locating anchorages and holes to ensure proper positioning of completed work.

Fit: during installation and assembly, form tight joints with exposed connections accurately fitted, and reveals uniform. Finish work accurately, plumb, level, square and true in reference to adjacent construction. Make tolerances conform to Australian Standards.

Finish: do not cut or abrade shop finishes which cannot be completely restored in the field.

The use of gas-cutting torch in the field for correcting fabrication errors will not be permitted under conditions. Fabrications may be cut shorter with power hacksaws on site.

Isolate dissimilar metals likely to be subject to moisture with inert materials, not visible on completion of installation.

305 Field Quality Control

Where considered necessary by the architect, arrange for the manufacturer of products to instruct installers regarding correct installation.

306 Protection

Cover work: immediately following installation, wrap or cover architectural metalwork to avoid wear and tear of finish during subsequent construction.

307 Cleaning

Clean materials installed to the satisfaction of the Superintendent.

Remove temporary protective coatings.

308 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

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SECTION 06100 CARPENTRY**PART I GENERAL****101 Scope**

Provide materials and labour, equipment and services and perform operations necessary to complete the carpentry as indicated on the Drawings and as specified in this Section. Supply and install a complete system of carpentry items including, but not limited to: incidental framing, wall lining, soffit linings. Include all nailers, blocking, furring, grounds, hardware, framing, shoring, bracing, scaffolding and barriers required by the Drawings and necessary to complete the Works.

102 Related Work Co-operate and co-ordinate with the following trades:

Concrete	Structural steel
Insulation	Roof installation
Ceiling construction / finishes	Window trades
Electrical installations	Plumbing
Internal lining trades	

103 Quality Assurance The Sub-Contractor shall be experienced in this class of work. The Foreman shall be appropriately qualified to supervise requirements.**104 References**

Comply with applicable portions of the current edition of the following Australian Standards:

Materials

AS/NZS 1859	Reconstituted wood-based panels - Specifications
AS/NZS 2269	Plywood – Structural.
AS/NZS 2270	Plywood and blockboard for interior use.
AS/NZS 2271	Plywood and blockboard for exterior use.
AS 2329	Mastic adhesives for fixing wallboards.
AS 2334	Steel nails - Metric series.
AS 2754.2	Adhesives for timber and timber products – Polymer emulsion adhesives.
AS 2796	Timber - Hardwood - Sawn and milled products.
AS/NZS 2908	Cellulose-cement products.
AS/NZS 4200	Pliable building membranes and underlays.
AS/NZS 4364	Adhesives, phenolic and aminoplastic for load-bearing timber structures: Classification and performance requirements.
AS 4785	Timber - Softwood - Sawn and milled products
AS/NZS 4859	Materials for the thermal insulation of buildings.

Stress Grading

AS 1613	Timber - Colours for marking F-grades.
AS/NZS 1748	Timber – Mechanically stress-graded for structural purposes.
AS 2082	Timber - Hardwood - Visually stress-graded for structural purposes.
AS 2858	Timber - Softwood - Visually graded for structural purposes.
AS/NZS 2878	Timber - Classification into strength groups.

Design and Installation

AS 1684	Residential timber-framed construction. <i>There are many parts and Supplements to this Standard.</i>
AS 1720	Timber structures.
AS 1860.2	Particleboard flooring – Installation.
AS 3566	Self-drilling screws for the building and construction industries.
AS 3623	Domestic metal framing.
AS 3740	Waterproofing of wet areas within residential buildings.
AS 3999	Thermal insulation of dwellings - Bulk insulation - Installation requirements.
AS 4055	Wind loads for housing <i>Plus 1 Amdt 2008</i>
AS 4226	Guidelines for safe housing design
AS 4786.2	Sanding and finishing.
SAA HB 44 1993	Guide to AS 1684 1992, The National Timber Framing Code.
	Relevant Technical Bulletins and published instructions produced by manufacturers.

105 Environmental Considerations

- A All adhesives are to be low - VOC.
- B All composite wood products shall (preferably) not incorporate formaldehyde or shall incorporate low emission formaldehyde.
- C All particleboard shall be manufactured from E1 low emission plantation softwood.
- D All timber and composite timber products are to be sourced from post consumer re-used timber, recycled timber or plantation / regrowth timber with Forest Stewardship Council (FSC) or PFC certification.

106 Delivery, Handling and Storage

Deliver, handle and store products so that damage, deterioration and loss will be prevented. Control delivery schedules to minimise long-term storage at site.

Store timber on site indoors, or above ground and cover with secure impervious material.

PART II MATERIALS**201 Wall Framing Generally**

(Refer Also to 'Acoustic and Fire Rated Wall Types' in Materials Schedule)

Walls to be framed generally with members as scheduled below, with:

- 90mm stud framing generally, nogged for linings and fittings.
- 120, 140 or 150mm stud framing where shown, refer to Drawings for locations.
- Bottom plate set on malthoid strip, 100mm wide, and 'Ramset' pinned to concrete slab at 900 centres, where applicable.
- Additional framing or noggings as required to provide support to external wall cladding sheet edges, wall mounted fittings and installations where applicable.
- Walls scheduled as receiving acoustic insulation or as smoke containment walls are to be carried up to underside of floor slab or roof deck above to ensure acoustic / smoke separation is maintained.
- Walls scheduled in 'Acoustic and Fire Rated Wall Types' to be fabricated from steel framing where noted.

Material Group	Min. Size (mm)	Manufacture or Type (Strength Group) F
Timber:		
Plates	90 x 45	F5 RAD
Studs generally	90 x 35	F5 RAD
Studs at corners & openings	90 x 45	F5 RAD
Nogging	90 x 35, 2 rows (3 rows for walls above 2700)	F5 RAD

202 Steel Wall Framing Generally

Steel framing to comply with AS1397, zinc coating class Z275.

Internal non-loadbearing partitions, generally 0.75mm BMT minimum lipped steel studs, framed in accordance with manufacturer's instructions. Seek manufacturer's recommendations for gauge for walls over 3.0m in height for 92mm studs, or 2.5m in height for 64mm studs, or where supporting loads.

203 Materials Generally

- A Acoustic and Fire Rated Walls and Floors / Ceilings
Construct Acoustic and Fire Rated Walls and Floors /_Ceilings where scheduled, in strict accordance with relevant wall and ceiling types as detailed in current Manufacturer's Technical Manuals. Walls scheduled as receiving acoustic insulation to be carried up to underside of floor slab or roof deck above to ensure acoustic separation is maintained. Service penetrations through acoustic rated walls and floors / ceilings shall be fully sealed to linings. Fire and Acoustic Ratings of Walls and Ceilings are to be maintained at electrical services penetrations by the use of fire rated switch boxes for power outlets and switches, standard switches used within Gyprock Silencer, or standard switches used within a baffle in the wall cavity as detailed in current CSR Technical Manual. Fire and Acoustic Ratings of Walls and Ceilings are to be maintained at plumbing services penetrations by the use of Gyprock Silencer, or construction of a baffle in the wall cavity as detailed in current CSR Technical Manual, detail as selected to achieve Fire and Acoustic Ratings. All installations shall be in accordance with manufacturer's installation manuals.
Note : Inform service installers of this requirement and ensure full compliance.

- 204 Scheduled Items**
Refer to Appendix - Materials Schedule.

PART III EXECUTION

- 301 Examination**
Visit site and inspect conditions, comparing conditions to drawings before delivery of materials to site. Start of work means total acceptance of conditions.
- 302 Installation General**
Comply with: AS 1684 Residential timber-framed construction, and other relevant Standards.
- 303 Installation Particulars**
Perform operations including grooving, rebating, framing, housing, beading, mitring, scribing, nailing, screwing and gluing as necessary to carry out the works. Use timber in single lengths whenever possible. If joints are necessary, make them over supports unless otherwise shown or specified.
Arris visible edges in sawn work and in dressed work arris with sandpaper to 1.5mm radius unless otherwise shown or specified.
Back plough boards liable to warping (for example, if exposed on one face). Make the width, depth number and distribution of ploughs appropriate to the dimensions of the board and the degree of its exposure.
Provide necessary templates, linings, blocks, stops, ironwork and hardware, adhesives, screws, bolts, plugs and fixings generally.
Trim framing where necessary for openings, including those required by other trades.
Unless otherwise noted, construct framing so that floors are horizontal, i.e. no more than 3mm slope in 3000mm.
Construct wall framing vertical, so that no more than 3mm out of vertical in 3000mm of wall height.
Install proprietary cladding systems in strict accordance with manufacturer's requirements, including noggins / framing to support sheet edges. Set-out joints strictly to patterns shown on drawings and allow for wastage.
- 304 Insulation**
Comply with manufacturer's current written recommendations, the BCA and the relevant Australian Standards.
Install bulk and reflective insulation as scheduled in Materials Schedule.
Thermal Insulation is to be installed to abut or overlap adjoining insulation and form a continuous barrier, closely fitted, to the envelope of the conditioned space.
Bulk insulation is to be installed so that it maintains its position and thickness, other than where it crosses roof battens, water pipes, electrical cabling or the like.
Reflective insulation must be installed with necessary airspace to achieve stated R value, closely fitted against any penetration, door or window opening, adequately supported by framing members, and with joints in the material overlapped or taped.
- 305 Completion**
Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

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SECTION 06400 JOINERY**PART I GENERAL****101 Scope**

The work of this Section covers supply and installation of all joinery items. It includes, but is not limited to:

Timber windows and glazed screens
Internal and external door frames
Doors: flush panel, glazed, waterproof
Trim, architraves, skirtings, skirtings, beads, etc.
Cupboards, fabricated joinery, benches and shelving
Pinboards, Whiteboards.
Fasteners and adhesives
Hardware for Doors and Joinery

102 Related Work

Co-ordinate and co-operate with the following trades:

Floor construction / finishes	Wall construction / finishes
Ceiling construction / finishes	Window trades
Carpentry	Plaster trades
Electrical installations	Plumbing

103 Quality Assurance

Manufacturers and installers are required to be widely experienced in the relevant aspects and class of work required for this section.

104 References

Comply with applicable portions of the Australian Standards listed in SECTION 06100 CARPENTRY, plus those following, current edition:

AS 2688 1984	(obsolescent) Timber doors.
AS 2689 1984	(obsolescent) Timber doorsets.
AS/NZS 2924	High pressure decorative laminates – Sheets made from thermosetting resins. <i>There are 2 parts to this Standard, 1998.</i>
AS 4145.2	Locksets and hardware for doors and windows – Mechanical locksets for doors and windows in buildings.
AS/NZS 4386	Domestic kitchen assemblies.
	4386.1 Kitchen units.
	4386.2 Installation.

105 Environmental Considerations

A All adhesives are to be low - VOC.
B All composite wood products shall (preferably) not incorporate formaldehyde or shall incorporate low emission formaldehyde.
C All particleboard shall be manufactured from E1 low emission plantation softwood.
D All timber and composite timber products are to be sourced from post consumer re-used timber, recycled timber or plantation / regrowth timber with Forest Stewardship Council (FSC) or PFC certification.

106 Delivery, Handling and Storage

Do not deliver until completion of anything which could soil, damage or deteriorate joinery items. Prevent soiling, damage or deterioration during delivery, storage and handling.

Keep site storage to a minimum. Install shop manufactured units directly in place, but refer to clause 302. If circumstances make storage necessary in areas other than the final location, store only in those that meet the requirements specified for installation areas.

107 Warranty

Provide to the Proprietor a warranty covering faulty materials, installation, warping of materials and other faults which may occur within 2 years of Practical Completion.

PART II MATERIALS

201 Joinery Fittings

Note: Refer to specific schedules and drawings for job specific selections. Not all materials listed here may be present on a particular project.

A Materials

Timber throughout shall be dry and well seasoned, straight grained and free from sapwood, gumveins, large loose or dead knots, borer, or other defects.

Hardwood used for joinery work shall be select kiln dried Victorian Ash / Mountain Ash.

Particle Board will be smooth surfaced first quality composite board edged and faced as specified. All cabinet work with laminate finish and having plumbing fittings is to be high moisture resistant particle board (HMR Particleboard).

Plastic Laminate shall be high pressure decorative laminate to comply with AS 2924 of standard colour pattern range with a nominal thickness 1.2mm (or 0.8mm where scheduled post-formed) selected from Laminex, Formica, or Wilsonart. Fix laminated plastic to the fittings with a contact adhesive recommended by the Manufacturer. Allow to hand laminate items where drawings indicate 'boxed' elements, 3 way junctions in laminate, edges thicker than 18mm, or as scheduled.

Chemical Resistant Plastic Laminate shall be high pressure decorative laminate of standard colour pattern range with a nominal thickness of 1.2mm (or 0.8mm where scheduled post formed) selected from Laminex Chemical Resistant Premium Grade or Wilsonart Chemsurf ranges. Installation to conform with Manufacturer's requirements.

Craftwood or Customwood shall be a HMR medium density fibreboard for use in fitments.

Melamine Board shall be 16 or 18mm HMR fibreboard pre-finished both sides with low pressure melamine impregnated paper, selected from Laminex Lamiwood, Formica, Colorpanel or Wilsonart Panelart, in selected colour. All internal surfaces within fittings concealed by doors may be white.

B Workmanship

Framing shall be double-nailed, screwed, notched, halved and rebated, tenoned, housed, dovetailed, or otherwise framed together as necessary to produce a first class job.

Dressed Surfaces to all work. Remove sharp edges of arrises with sandpaper.

Beads, Casing, etc. Generally provide square or rectangular section of edged Melamine Board or KDHW stops, beads, fillets, facings, mouldings, trims and casing, to internal areas as required to give a neat and workmanlike finish. *Use of beads is to be kept to a minimum* to cover junctions only where different materials cannot be satisfactorily matched.

Edgings

- (i) Plastic laminated surfaces shall have plastic laminate self edging to exposed edges, fitted with minimal melamine thickness showing.
- (ii) Melamine Board shall have matching colour 2.0mm solid PVC or ABS edge strips to all exposed edges, doors and drawer fronts, and front edges of shelving.
- (iii) Timber veneered surfaces shall have matching natural timber edging.

C Construction

Generally

All fitments are to be supplied from a specialist joinery firm. Structure and workability of fittings is the responsibility of the Joiner and will be best practice. Measure on site and construct units for fitting with a minimum of cover beads.

Timber Framing

Where required skeleton framing shall be ex. 50 x 25 and 75 x 25mm unless otherwise specified. Solid framing to form the carcass shall have grounds, shelving, divisions, ends, bottoms, etc. generally of 18mm Melamine Board.

Hinged Doors

Hinged doors generally and matching fixed panels shall be 18mm Melamine Board.

Drawers

Drawers shall be Melamine Board of the depth as detailed with 18mm fronts, 13mm back and sides and 5mm bottom, all grooved, pinned and glued together. Drawers to be fitted with selected roller bearing guides and metal runners each side. Alternative drawer construction of equivalent durability will be considered by the Superintendents. Melamine board faced drawers to be fitted with PVC edge strips.

Shelves in cabinets and wall units shall be 18mm thick Melamine Board fitted with PVC edge strip to front edge.

Shelves spanning greater than 750mm shall have 38 x 25mm KDHW edge strip fitted on edge to front and rear of shelf.

Laminate Finish Bench Tops shall be 16mm particleboard glued to 16mm flat frame, or 32mm particleboard.

Joints in bench tops shall be tongued and grooved together.

Return 16mm particleboard upstand at back of bench top against wall.

Bench tops to be widths shown, sheeted with plastic laminate on top, and returned down face edge and wall upstand.

Plastic laminate is to be returned on face and top of upstands back to wall.

Laminate Finish Bench Tops with Plumbing Fixtures are to be HMR moisture resistant particleboard.

Reconstituted stone Benchtops to be EssaStone Quartz or similarly approved, velvet finish, refer to Interior finishes schedule for colour selection.

Stainless steel benchtops where shown, refer Metalwork and separate Specification by BTE

Cupboard Bases shall generally be constructed with false floor and 100mm high kickboard set back 50mm to form toe space.

Inset Stainless Steel Sinks and Basins to be fitted in bench tops with continuous seal of compound between metal surfaces and bench top. Refer to Separate Specification by BTE

Painting All work specified to be painted is to be treated as specified under Painter. This includes staining and clear plastic finishes.

Fix Fitments securely to floors and walls with all necessary bolts, masonry anchors, plugs, screws, brackets, etc.

Wall shelving units to be securely fixed to walls and floor.

202 Joinery Hardware

Refer to Appendix - Materials Schedule.

203 Joinery Schedule

Refer to Appendix – Joinery Schedule.

Refer to Appendix - Materials Schedule and Drawings for Joinery.

Refer to Drawings for Joinery.

204 Trim, Architraves, Skirting

Refer to Appendix - Materials Schedule.

205 Pinboards

A Supply and install Pinboard / Acoustic Wall Lining where scheduled with:

- Panelling sheets and tiles where scheduled are to be fixed to wall with adhesive recommended by the manufacturer.

206 Materials Generally / Scheduled Items

Refer to Appendix - Materials Schedule.

207 Fabrication

Construct by screwing and gluing or other approved method. A dry stapled assembly will not be approved.

Fabricate bench tops as indicated in a manner recommended by the material's manufacturer. Fabricate units without joints unless counter length exceeds maximum available length of materials.

Seal joints between counter and splash back with matching colour silicone. Wherever possible, pre-cut openings to receive hardware, appliances, plumbing fixtures, electrical work and similar items.

Locate openings accurately using templates or roughing-in diagrams for proper size and shape. Smooth edges of cut-outs and, where located in bench tops and similar exposures, seal edges of cut-outs with a water resistant coating.

Back prime all concealed solid timber surfaces prior to installation.

Install fasteners, hinges etc in accordance with manufacturer's instructions. When in doubt about suitability, consult with manufacturer of the items specified or selected.

208 Inspection Before Delivery

Not Used.

PART III EXECUTION

301 Examination

Visit the site and inspect conditions. Check dimensions and compare all aspects with the drawings and specification. Resolve differences before ordering materials or starting work.

Start of work means total acceptance of conditions.

302 Preparation for Joinery Installation

Prior to installing, condition joinery to the average humidity conditions prevailing in the installation areas.

Deliver anchoring devices and similar inserts required to be built into substrates well in advance of the fixing of fittings and provide full details when they are to be fixed by others.

Prior to installation, examine shop-fabricated work for completeness and remedy deficiencies. Include back priming and the removal of packing.

Thoroughly clean floors and walls that will be permanently concealed by joinery.

303 Installation of Joinery

Use concealed shims as required to install the work plumb, level, straight and distortion free within the following tolerances:

- 1mm in 800mm for plumb and level (including bench tops),
- 0.5mm maximum offsets in flush adjoining surfaces,
- 2mm maximum offsets in revealed adjoining surfaces.

Scribe and cut to fit adjoining work; refinish cut surfaces or repair damaged finishes at cuts.

Secure joinery with anchors or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required to complete the installation. Except where pre-finished matching fastener heads are required, use fine finishing nails, punched in and filled flush. Use a matching filler where a transparent finish is required.

Install casework without distortion so that doors will fit openings properly and be accurately aligned.

304 Hardware

Install all door and joinery hardware as scheduled, listed and required in full compliance with the manufacturer's recommendations.

Adjust as needed to centre doors in openings.

305 Adjustments, Cleaning, Finishing and Protection

- A. Finish the work specified in this trade section and remedy anything not finished at the shop or other stage prior to completion.
- B. Adjust joinery to achieve a uniform appearance.
- C. Lubricate and clean hardware, making final adjustments needed for proper operation.
Remove handling marks from visible joinery surfaces.
- D. Protection: do everything needed to ensure that work is without damage or deterioration at Practical Completion. Paper coverings or other approved protection shall be provided as necessary.

306 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

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SECTION 08800 GLASS AND GLAZING**PART I GENERAL****101 Scope**

The work of this Section covers all materials and labour required for the installation of a complete glazing system as specified below.

102 Related Work

Co-ordinate and co-operate with the following trades:

Concrete	Masonry
Structural steel	Roof flashings, etc.
Electrical	Security
Fireproofing and fire services	Window framing trades

103 Quality Assurance

- A. Manufacturer qualifications: not less than ten (10) years continuous experience in the manufacture of the product types specified.
- B. Installer qualifications: installer is to have not less than five (5) years continuous experience in the erection of specified material.
- C. Take responsibility for providing the trades of such Sections with complete information on the materials and equipment to be installed, the critical dimensions of such work, and other data affecting the work of the trades identified.
Ensure subcontractors and vendors co-operate in the proper sequence and fit of the work.
- D. Take care with tolerances and dimensional verifications.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS/NZS 1170	Structural design actions. 1170.0 General principles. 1170.1 Permanent imposed and other... 1170.2 Wind actions. <i>There are 2 other parts, 8 Supplements and 14 Amdts to this Standard 1993 – 2009.</i>
AS 1288	Glass in buildings - Selection and installation. <i>There is 1 Supplement (2006) and 1 Amendment (2008) to this Standard.</i>
AS 1526	One-part polysulphide based sealing compounds for the building industry.
AS 1527	Two-part polysulphide based sealing compounds for the building industry.
AS 1664	SAA Aluminium Structures Code
AS 2047	Windows in Buildings - Parts 1 and 2.
AS/NZS 2208	Safety glazing materials in buildings. <i>Plus 1 Amdt 1999.</i>
AS/NZS 2343	Bullet-resistant panels and elements.
AS 4145.2	Locksets and hardware for doors and windows – Mechanical locksets for doors and windows in buildings
SAA HB 125-2007	The glass and glazing Handbook

Comply with relevant authority's requirement for fire-rated installation.

105 Environmental Considerations

All adhesives and sealants are to be low - VOC.

106 Delivery, Handling and Storage

Handle materials with care. Do not store on site. Install directly in place. Store sealants as instructed by manufacturer.

107 Warranty

In addition to the warranty requirements of the General Conditions of Contract, provide the following:

- A. Warranty: provide glass manufacturer's written warranty, agreeing to, within specified warranty period, furnish freight paid to project site, replacement units for glass units which have defective hermetic seals (excluding that due to glass breakage), defined to include intrusion of moisture or dirt, internal condensation at temperatures above -2°C, deterioration of internal glass coatings, and other visual evidence of seal failure or performance failure; provided manufacturer's instructions for handling, installation, protection and maintenance have been adhered to during warranty period.
- B. Warranty period is 10 years after date of installation and not less than 9 years after date of Practical Completion.

PART II MATERIALS

201 Acceptable Manufacturers

The following manufacturers are acceptable for this project:

Glass, float : CSR Viridian

Glass, toughened and laminated : CSR Viridian, Glassform

Glass, coloured : CSR Viridian, Glassform

Glass, solar : CSR Viridian, Glassform

Glass, mirrors : CSR Viridian, Libby Owens Ford.

Sealants : Dow Corning, Selleys, Tremco (Pabco), Expandite, General Electrical, Unisil.

202 Structural Criteria

A. Adopt Terrain Category in accordance with the requirements of AS 1170.

B. Wind loading: design glazing and frame assemblies to suit the static and dynamic wind forces as indicated on the tables in the AS/NZS 1170. Structural members of glazed units: of such strength that they will not deflect by an amount greater than span/240 without causing permanent deflection when tested at the specified design wind values. Fix members so that the above loading is generated in the members without sufficient stress to cause failure or movement becoming evident at any joint.

C. Distortion: design the glazed assembly and erect to minimise visual distortion of reflected images.

203 Selection of Glass and Glazing Materials

Comply with the minimum requirements of AS 1288 and AS 2208 unless exceeded by the requirements of this Section.

Refer to detailed parts and sections of AS 1288.

Part 1 deals with the selection of type and thickness of glass.

Part 3 with unframed toughened glass assemblies.

Note particularly:

Part 1, Section 4, Human Impact Safety Requirements, AS/NZS 2208.

Part 1, Section 3, Non-Vertical Situations.

Part 2, Glazing techniques. Choose the method directly from the eight sections of this part of the Standard.

Undertake a thermal stress assessment, particularly for performance laminated glass.

204 Glass Schedule

Refer to Appendix - Materials Schedule.

Refer to Window Schedule drawings for locations of various types of glass.

205 Mirrors

Refer to Appendix - Materials Schedule.

206 Sealants and Accessory Materials

- A. Comply with AS 1288. Refer the appropriate section, and comply with requirements stated.
- B. For timber frames, Set glass in continuous neoprene gasket with timber bead fixed on rebated side to finish flush with face of screen or door.
- C. For metal frames:
 - 1. Non-structural external weatherproofing sealants: low modulus neutral curing silicone rubber compounds of approved manufacture.
 - 2. Generally comply with AS 1288. Spacer gaskets, glazing tapes and setting blocks: compatible with sealants, which do not contribute to sealant colour change or affect the sealants adhesion to substrates when exposed to ultraviolet light.
Evaluate prior to application, samples of materials receiving the silicone, including elastomeric sealants for compatibility and primer selection. Submit materials clearly identified as to manufacturer and product number.
Silicone sealants generally: clear in colour.
 - 3. Interior Sealers: acrylic-emulsion or latex-rubber-modified acrylic-emulsion sealant compound, permanently flexible, non-staining and non-bleeding; recommended by manufacturer for protected exterior exposure and general interior exposure.
 - 4. Joint Primer/Sealer: provide type of joint primer/sealer recommended by sealant manufacturer for joint surfaces to be primed or sealed.
 - 5. Bond Breaker Tape: polyethylene tape or other plastic as recommended by sealant manufacturer to be applied to sealant-contact surfaces where bond to substrate or joint filler is to be avoided for proper performance of sealant. Provide self-adhesive tape where applicable.
 - 6. Sealant Backer Rod: compressible rod stock of polyethylene foam, polyethylene jacketed polyurethane foam, butyl rubber foam, neoprene foam or other permanently flexible, durable non-absorptive material as recommended by sealant manufacturer for compatibility with sealant.
 - 7. Glazing Tape: polyisobutylene tape of type, thickness and width as recommended by glass manufacturer and architect.
 - 8. Exposed fixings: countersunk type, anodised aluminium or non-magnetic stainless steel evenly and neatly located in an approved manner. Exposed fasteners: finished to match aluminium. Show on shop drawings or discuss with the architect before fabrication and delivery of any fixings which will be exposed.

PART III EXECUTION**301 Examination**

Inspect site conditions before start of work on site, before delivery of materials. Ensure conditions are satisfactory for installation.

Arrange for rectification required before delivery of materials.

Start of work means total acceptance of conditions.

302 Preparation

Prepare surfaces affected by the installation in accordance with material manufacturer's instructions.

Protect all damageable surfaces before and during delivery and installation.

303 Preparation for Sealants

Joint preparation for sealants: clean joint surfaces immediately before installation of sealant or caulking compound. Remove dirt, insecure coatings, moisture and other substances which could interfere with bond of sealant or caulking compound. Etch concrete and masonry joint surfaces as recommended by sealant manufacturer. Roughen vitreous and glazed joint surfaces if recommended by sealant manufacturer and comply with his instructions.

Prime or seal joint surfaces where indicated, and where recommended by sealant manufacturer. Do not allow primer/sealer to spill or migrate on to adjoining surfaces.

304 Glazing

Secure glass in accordance with glass manufacturer's recommendations and AS 1288. Allow for thermal expansion of glass, the metal framing and spandrels. Certificate to show on each pane.

305 Installation of Sealants

- A. Install bond breaker tape where required by manufacturer's recommendations to ensure that elastomeric sealants will perform properly.
- B. Employ proven installation techniques, which will ensure that sealants are deposited in uniform continuous ribbons without gaps or air pockets, with complete "wetting" of joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface slightly below adjoining surfaces.
- C. Install sealant to depths as recommended by sealant manufacturer.
- D. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability.
Advise architect of procedures required for cure and protection of joint sealers during construction period, so that they will be without deterioration or damage (other than normal wear and weathering) at time of Practical Completion.
- E. Remove excess caulking compound and sealant and leave surfaces neat, smooth and clean, without smears on surrounding work. Tool joints where recommended by manufacturer or where required. Remove cartons and debris from site as the work progresses.

306 Field Quality Control

Not used.

307 Protection

- A. Framing system: protect metal surfaces as necessary during erection.
- B. Finish surfaces free from mechanical imperfections such as scratches, scrapes, dents, spots, stains and streaks.
- C. Glass: protect glass from breakage immediately upon installation until Practical Completion. Remove and replace glass and metal panels which are broken, cracked, abraded, chipped or damaged in other ways, before, during or after installation, at no additional cost to the Proprietor.
- D. Be responsible for breakage and damage to installation until Practical Completion.

308 Cleaning

- A. Remove labels, excess glazing compounds, stains, spots and other foreign matter from glass, frames, hardware and other finished surfaces immediately upon completion of each panel of glazing.
- B. Debris: remove rubbish and debris resulting from glazing operations, each day.

309 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

202 Materials Generally

Supply materials in accordance with material supplier's recommendations for each application.

A Acoustic and Fire Rated Walls and Ceilings

Construct Acoustic and Fire Rated Walls and Ceilings where scheduled, in strict accordance with relevant wall and ceiling types as detailed in current CSR Technical Manual.

Service penetrations through Fire and Acoustic Rated Walls shall be fully sealed to wall lining.

Fire and Acoustic Ratings of Walls and Ceilings are to be maintained at electrical services penetrations by the use of fire rated switch boxes for power outlets and switches, standard switches used within Gyprock Silencer, or standard switches used within a baffle in the wall cavity as detailed in current CSR Technical Manual.

Fire and Acoustic Ratings of Walls and Ceilings are to be maintained at plumbing services penetrations by the use of Gyprock Silencer, or construction of a baffle in the wall cavity as detailed in current CSR Technical Manual, detail as selected to achieve Fire and Acoustic Ratings.

All installations shall be in accordance with manufacturer's installation manuals.

Note : Inform service installers of this requirement and ensure full compliance.

203 Scheduled Items

Refer to Appendix - Materials Schedule.

PART III EXECUTION**301 Examination**

Acceptance: visit site and inspect conditions, comparing conditions to drawings before delivery of materials to site. Rectify any discrepancy or unsuitability of substrate.

Start of work means total acceptance of conditions.

302 Preparation

A. Co-ordinate with and ensure preparatory work by other trades is done prior to commencement of work; failure to do so will involve removal of linings and immediate rectification.

B. Arrange for provision of additional stud, nogging, trimmed openings, boxed studs, fixing grounds, etc., required for satisfactory execution of the work of this trade.

C. Penetrations through linings for services shall be provided under this Section. Co-operate in installation of frames, duct openings, etc.

D. Space enclosure: do not install materials until space is enclosed and weatherproof, and until wet-work in space is completed and nominally dry.

303 Installation - General

A. Comply with manufacturer's installation instructions. Anchor and fasten materials and components to comply with ratings and performance requirements, and to comply with governing local regulations. Comply with appropriate Australian Standard.

B. Take care of and protect surrounding work, including other finishes, equipment and components, during installation. Provide protective covering where necessary.

304 Finishing Details

All board linings with surface exposed to view (paint finish only) to be jointed using three coat system, level 4 finish.

General: apply treatment at board joints (both directions), flanges of trim accessories, penetration, fasteners, heads, surface defects and elsewhere as required to prepare work for decoration. Pre-fill open joints and rounded or bevelled edges, using type of compound recommended by manufacturer.

Apply fibreglass joint tape at joints between boards, where a trim accessory is indicated, or where extra strength is required.

305 Protection

Protect finished work. Make good damage in every respect at no additional cost to the proprietor, and without delay to job progress.

306 Cleaning

A. Adjust and clean: clean exposed surfaces including trim, edge moldings, and comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate damage.

B. Remove splatterings and droppings resulting from work. Remove daily surplus materials and rubbish from the work area.

C. Leave floors broom clean at completion.

307 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

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203 Underlay and Backing Boards

- A. Underlay over timber floors: Refer to Appendix - Materials Schedule – Carpentry.
- B. Waterproof membrane: Refer to Appendix - Materials Schedule – Ceramic Tile.

204 Grout

Prepared grout: inorganic Portland cement integrated, ready-to-use, dry-curing grout. Colours to architect's selection.

Supply waterproof grout for wet area tiling.

Supply epoxy grout for tiling to food preparation areas.

205 Expansion Joints

Silicone rubber, as recommended by manufacturer. Colour to architect's selection.

206 Scheduled Items – Selected Products

Refer to Appendix - Materials Schedule.

PART III EXECUTION

301 Examination

Visit site and inspect conditions, comparing conditions to drawings, before delivery of materials to site.

Rectify any discrepancy or unsuitability of substrate.

Start of work means total acceptance of conditions.

302 Conditions of Installation

- A. Install backing boards or panels in accordance with manufacturer's precise instructions.
- B. Rectify substrate so that when checked with a 2m straightedge, gap under the straightedge does not exceed 6mm.
- C. Allow new concrete to dry out for at least 4 weeks before rendering or direct fixing of tiles.
Wall screeds: uniform in plane and lightly combed. Floor screeds: broom finished.

303 Setting Out

- A. As far as possible, set out work so that no tile less than half size occurs. Align joints in floor tile at right angles to each other and straight with walls to conform to patterns selected. Verify locations of equipment before installing tile. Co-ordinate with plumbing and other trades. Fully tile surfaces under surface-mounted items.
- B. Expansion Joints:
Set out panels of tiling so that tiles may expand or contract to and from corners of tiled walls and floors. Allow for expansion in each corner of 5mm minimum. Fill expansion joints with silicone rubber.
- C. Control Joints: Provide:
 - 1. At junctions of dissimilar wall construction.
 - 2. In walls, no more than 2.5m apart.
 - 3. At junctions of wall and floor in multi-storey buildings.
- D. Form junctions of different materials (eg. tiles to carpet) so that they occur under the centre line of doors.

306 Installation - General

- A. Wall tiling: comply with the recommendations of AS 3958.1 and AS 3740.
- B. Floor tiling: comply with the recommendations of AS 3958.1 and AS/NZS 3661.2.
- C. Adhesives: comply with AS 2358 and recommendations of adhesive manufacturer.
- D. Sealing: where tiles are cut around penetrations for taps and outlets, seal thoroughly with silicone rubber to prevent water entry behind tiles.
- E. Membrane: install to manufacturer's instructions, with a 100% waterproof result.

307 Tolerances and Cleaning

- A. General: install tiles in true planes so that when checked with a 2m straightedge, gap under the straightedge does not exceed 3mm. In sloped floor tiling this tolerance does not apply across intersections of fall planes. Adjust tiles within 10 minutes of fixing.
- B. Cleaning: cleaned down using a damp cloth before cement smears and surplus mortar begin to harden on the surface or in the joint spaces, care being taken to avoid disturbance of the tiles during the setting of the bedding.
- C. Lighting: whenever possible the lighting at the time of applying the bedded finish is not to be appreciably different from the ultimate permanent lighting.

308 Grouting

- A. Except as otherwise required, do not commence grouting for at least 24 hours after placing of tile. Follow specific instructions of materials manufacturer.
- B. Grout mix:
 - 1. General use, except as noted below: Apply an approved pigmented prepared grout mix, 1 part Portland cement to 1 part fine dry sand by volume mixed to a paste consistency with the minimum of water; too wet a mix may result in the joint filling cracking or drying out.
 - 2. Floors: Prepared grout, acid resistive.
 - 3. Walls: Epoxy-based mortar grout, mildew resistant.
 - 4. Colours: as selected by the architect.
- C. Grouting and curing:
 - 1. Apply the grouting mix to as large an area as can be worked before hardening commences. Apply with a squeegee working back and forth over the area until the joints are completely filled. Remove surplus grout from the tiles with the aid of a damp, not wet, cloth and the joints then tooled. After the grouting has dried, final polish using a clean, dry cloth.
 - 2. Remove surplus grout from the floor surface; on no account use sawdust for this purpose, as there is a danger that sawdust entering moist joint surfaces may break down their strength, and cause them to become porous.
 - 3. In dry weather, grout joints after maintaining damp condition for 3 days by sponging down, fog-spraying or other methods. Allow floors to set 48 hours before permitting ordinary foot traffic.

309 Protection

Prevent walking on or contact with floor or wall tiles for a minimum of 7 days. During that period, cover floor tiles.

310 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

SECTION 09610 APPLIED FINISHES TO CONCRETE FLOORS

PART I GENERAL

101 Scope

The work of this section includes but is not limited to:
Preparation supply and execution of various finishes to concrete floors.

102 Related Work

Co-ordinate and co-operate with the following trades:
Concrete Concrete screeds
Waterproofing and tanking

103 Quality Assurance

The selected sub-contractor is to have a minimum of 5 years experience in the application of the specified or similar material, and is to be known for reliability, performance and quality of work.

104 References

Comply with applicable portions of the following Australian Standards:
AS 1379 Specification and supply of concrete. *Plus Supplement 1-2008*
AS/NZS 3661.2 Slip resistance of pedestrian surfaces – Guide to reduction of slip hazards.
AS 3799 Liquid membrane-forming curing compounds to concrete.
SAA HB 64 2002 Guide to concrete construction. Chapters 8 and 15.

105 Delivery, Handling and Storage

Deliver materials properly packaged to the site in original, unopened containers with grade, type and quality indicated on the labels.
Store and protect materials raised above floor and kept dry until ready for use.

106 Warranty

Provide a warranty to the proprietor covering cracking, peeling and fading, or other imperfections relating to the product, for a period of 5 years from the date of Practical Completion.

PART II MATERIALS

201 Scheduled Materials

Refer to Appendix - Materials Schedule.

PART III EXECUTION

301 Examination

Inspect surfaces to be treated and notify Superintendent of any discrepancy or unsuitability of substrate.
Comply with manufacturer's recommendations regarding environmental conditions.
Start of work means total acceptance of conditions.

302 Preparation Generally

Protect wood, metal, glass and other finished work during progress.
Make good damage in every respect at no additional cost to the proprietor.
Mask dissimilar materials adjacent to surfaces to be treated in order to avoid contact, eg. metal frames and cappings. Do not apply material over soft surfaces such as jointing material.

303 Preparation for Epoxy Coating

Epoxy Coating where scheduled shall be prepared / finished as follows:

New concrete surfaces must be at least 28 days old with moisture content not greater than 5.5%. New concrete surfaces to be finished with steel trowel or helicopter trowel.

Remove dust, dirt, scale, oil, grease, etc by detergent wash. All excess water is to be mopped up and the concrete allowed to thoroughly dry.

Any surfaces to be coated must be captive shot blasted to a profile similar to that of '80 grit' sandpaper (note: Diamond grinding is generally a suitable alternative to shot blasting except where concrete substrate is highly burnished). Care must be taken to ensure that all existing curing agents, loose or flaky material and laitance are completely removed. Captive diamond grind all areas that are inaccessible to the shot blast machine.

Any surface damage or holes in the concrete are to be repaired using a blend of 1 part Rhinofloor SF Premium to 1 part Dry Mortar mix by volume. Holes or patches must be clean, dry and free of loose material. Rhinofloor SF Premium is to be applied onto the repair site as a liberal coat prior to the application of the Rhinofloor SF Premium / Dry Mortar mix being trowelled into the damaged area. Damaged areas are to be brought level with surrounding surfaces. Repairing of damaged surfaces or holes must not be performed in excess of 24 hours prior to application of the first coat of Rhinofloor SF Premium.

All surfaces to be coated should be vacuum cleaned to remove dust and other loose particles immediately prior to application of the first coat of specified Rhinofloor coating system.

Apply coatings as scheduled in Materials Schedule.

304 Application of Sealer / Paint Finishes Generally

Test the finished concrete for moisture content. Refer to the material supplier for acceptable moisture content before applying material. Apply finishes to manufacturer's instructions and to architect's approval. Leave to cure and protect from traffic during curing periods.

305 Protection

Protect finished surfaces against damage until Practical Completion.

306 Cleaning

At completion of work remove debris, etc. and leave surfaces in a condition entirely satisfactory to the Superintendent.

307 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

303 Installation

- A. Delay installation of sheet until concrete has dried to the percentage established in Appendix A of AS 1884. Allow to apply moisture sealer approved by adhesive manufacturer to concrete floors if required due to high moisture content, to ensure building programme is maintained.
- B. Patch concrete to even surface with 'Vibro Products' or equal approved fleximer to eliminate surface blemishes.
- C. Clean floor surface to remove dust, grit, etc. prior to laying linoleum.
- D. Adhesives: comply with AS 1884, and manufacturer's instructions.
- E. Install material in accordance with AS 1884, including conditioning of both the materials and the sub-floor. Comply with manufacturer's instructions.
 - 1. Weld joints of sheet materials unless otherwise instructed by manufacturer.
- F. Skirting: sheet to be turned up walls generally 100mm to form skirting to wet areas, with pencil coving of tight radius. Cove sheet up toe spaces of joinery fitments and finish corners using 'butterfly flaps' method.
- G. Sheet wall lining to be welded to sheet flooring coved up wall. Top of wall lining sheet to be finished with 25mm PVC wall capping. Finish external corners of wall sheeting with 25 x 25mm PVC angle.
- H. Form junctions of different materials (eg. tiles to carpet) so that they occur under the centre line of doors.
- I. Linoleum Flooring: Remove all dust and debris, clean with neutral (P_H7) detergent and apply 1 coat 'Duopol' or equal approved polymer polish.

304 Cleaning

Remove excess adhesive and blemishes from the completed surfaces of flooring, walling and skirtings. On completion of all trades flooring shall be scrubbed clean and washed with neutral detergent to manufacturer's instructions. Confirm installation and maintenance with manufacturer's representative.

305 Protection

Apply suitable hardboard or plywood to completed floors and maintain in position until final cleaning prior to Practical Completion. Remove and replace work which cannot be successfully repaired or cleaned.

306 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

PART III EXECUTION**301 Examination**

Acceptance: visit site and inspect conditions, comparing conditions to drawings before delivery of materials to site. Notify Superintendent of discrepancy or unsuitability of substrate. Comply with appropriate portions of Australian Standards.

Start of work means total acceptance of conditions.

302 Preparation

Comply with referenced Standards and manufacturer's recommendations regarding environmental conditions.

Comply with AS/NZS 2455.1. Comply with Appendix B to ensure moisture content of concrete does not exceed the stated limit. Allow to apply moisture sealer approved by adhesive manufacturer to concrete floors if required due to high moisture content, to ensure building programme is maintained.

Space enclosure: do not install material until space is enclosed and weather-proof, until wet-work in space is completed and nominally dry, and until ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

Level floors with latex levelling compound approved by carpet manufacturer, Ardur K15 or equal approved, prior to installation.

Repair by approved means imperfection of the floor surface which might impair the finished carpeted surfaces.

Note that bitumen based substances are not compatible with 'Glasbac' modular carpet products.

Concrete floors must be primed with a primer approved by carpet manufacturer, Roberts 370 or equal, prior to installation.

Concrete floors under matting (IO carpet type) to be sealed with proprietary sealer.

All surfaces are to be swept clean, inspected and approved for carpet laying prior to commencement of laying the carpet.

303 Carpet Installation Generally

Carpet to be installed using selected method (refer Materials Schedule), in accordance with manufacturer's requirements. Utilise adhesive recommended by carpet manufacturer.

Natural anodised aluminium naplock bars shall be provided at all junctions between carpeted areas and other floor coverings or surfaces. Form junctions shown at doors so that they occur under the centre line of doors.

Carpet Fixings: Secure to the sub-floor in accordance with the manufacturer's instructions, and the recommendations of the Standard.

Stretching Carpet: Tightly stretch carpet between fixings, using power stretchers where necessary.

Broadloom carpet must, when laid and stretched in position, have the seams running parallel.

Maintain seams in straight lines. Comply with AS/NZS 2455.1.

Carpet Seams: Comply with AS/NZS 2455.1.

Installation on Stairs: Comply with AS/NZS 2455.1.

All waste to carpet occasioned by the cutting, making up, fitting and fixing operations must be measured and allowed for.

Install matting (IO carpet type) in accordance with manufacturer's instructions using 'Fiba bond' adhesive.

Seams to be made waterproof with 'Karndean 1718' two part epoxy on the joints.

304 Modular Carpet Installation

Setting Out

Before laying modular carpet tiles, accurately establish two starting chalk lines towards the centre of the room or area and at precisely 90° to each other.

Commencing only at the cross-over point of the chalk lines, complete one row of modules on each side of the centre line.

From this point proceed in accordance with the manufacturer's printed instructions.

Pressure "Sensitive" Non-slip Compounds

Prevent modular carpet tiles from slippage in service by method approved by the manufacturer.

Laying – General

Lay strictly in accordance with the manufacturer's printed directions.

Cut tiles from the back using a sharp knife and a cutting board.

Open boxes on site 24 hours before laying and mix up tiles of similar pattern and colour from different boxes.

Lay tiles hard up against each other and maintain tension on the tiles during laying by kneeling on the tiles as they are installed.

Use a knee kicker to ensure that tiles are laid hard up against each other.

Carefully scribe up to walls, columns, partitions and other fixed obstructions using techniques recommended by the manufacturer.

Stairs

Lay carpet tiles to treads with pile running into the step. Cut to tight fit between nosing trims and risers.

Provide tread nosing (specified earlier) to the nosings of treads and landings fixed down to the stair treads before laying the modular carpet tiles to the stair and in accordance with the manufacturer's printed instructions.

305 Cleaning and Protection

Comply with AS/NZS 2455.1.

On completion of laying each section of carpet, remove dirt, scraps of left-over carpet, etc., and vacuum the surface clean and free from dust, etc.

306 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

END OF SECTION

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SECTION 09900 PAINTING**PART I GENERAL****101 Scope**

Supply labour and materials, services and equipment necessary for the preparation, application and finishing of painting, texture coatings and staining as indicated on drawings, schedules and as specified herein, to internal and external surfaces of building, including but not limited to the following:

- exposed internal and external metalwork and steelwork unless scheduled otherwise.
- exposed internal and external timber.
- masonry and concrete surfaces.
- cement sheet linings, internal and external.
- plasterboard walls, ceilings, spandrels and bulkheads.
- anti-graffitti coatings.
- line marking.

102 Related Work

Co-ordinate and co-operate with the following trades:

Trades installing substrates to be painted

Cleaning and finishing

Scaffolding

103 Quality Assurance

A. Compatibility of shop and field paints:

Determine that the materials specified in the Schedules are compatible with shop coats. Failure to do so will be construed as accepting the paints specified. Contractor is to correct, at his own expense, defects in his work resulting from the use of such materials.

B. The paint used throughout this Contract shall from one of the manufacturers described in Clause 201, ready mixed paint of first quality supplied in sealed tins.

C. Test samples:

1. Prepare test samples for painting types and typical locations, where requested by the architect. Do not commence painting of the substrate type until the sample is approved by the architect. Apply samples in conditions approximating as closely as possible the lighting conditions of the finished work.
2. Test samples include the suitable preparation of substrates.
3. After approval, test samples are to be the standard for quality control of the completion of work of same type.

104 References

Comply with applicable portions of the current edition of the following Australian Standards:

AS/NZS 2311	Guide to the painting of buildings (NB: maintain this document at the project site by the contractor as a controlling general reference)
AS/NZS 2312	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings. <i>Plus 1 Amdt to this Standard, 2004.</i>
AS/NZS 3750	Paints for steel structures <i>There are 19 parts to this Standard, 1994 - 2002.</i>
AS 4089 1993	Priming paint for steel - Single component - General purpose.

105 Environmental Considerations

A Site applied internal architectural coatings are to come with an 'Environmental Choice Australia' label from the Australian Environmental Labelling Association (AELA) or shall be independently verified / audited as complying with the standards nominated by AELA in accordance with a Documented Quality Management System complying with ISO 14 000 Series.

B All coating products shall comply with the restrictions on dangerous materials within the product formulation as required by:

- OH & SC (Worksafe Australia) - Hazardous Substances including Carcinogens
- UPS (Uniform Paint Scheme) - Solvents and Heavy Metals
- APAS - Document 181

C Maximise use of water based paints or organic (citrus) based paints; as recommended in the BDP Environment Design Guide, Note 'PRO 6'.

D All sealants are to be low-VOC.

106 Delivery, Handling and Storage

Store materials in designated spaces in a secure manner which meets the requirements of applicable codes and fire regulations. When not in use, keep such spaces locked and inaccessible to those not employed under this section. Provide each space with a fire extinguisher of carbon dioxide or dry chemical type bearing a tag of recent inspection.

Bring materials to the building and store in manufacturer's original sealed containers, bearing the manufacturer's standard label, indicating type and colour. Deliver materials in sufficient quantities in advance of the time needed in order that work will not be delayed in any way.

107 Project Conditions

Temperature: comply with the requirements of AS/NZS 2311, and of paint manufacturers with regard to both ambient temperature and relative humidity.

108 Warranty

- A. Texture Coatings/ Finishes: Provide a written warranty stating that preparation of surfaces, materials and material application installed under this contract will show no deterioration and remain in good condition for a period of 10 years from date of Practical Completion.
- B. All other finishes: Provide a written warranty stating that preparation of surfaces, materials and material application installed under this contract will show no deterioration and remain in good condition for a period of 2 years from date of Practical Completion.

PART II MATERIALS**201 Materials**

General: where manufacturer makes more than one grade of any material specified, use the highest grade of each type, whether or not the material is mentioned by trade name in these specifications.

Paints and finishes used for the project may be manufactured under one or more of the following brands.

Taubmans / Bristol Paints

Dulux / Cabots / Intergrain

Wattyl

Quantum Timber Finishes

Sikkens

Other products may be approved by architect. Apply to architect for approval of alternatives.

Texture coatings are to be water and mould resistant, selected from manufacturer's system to suit application.

Provide materials necessary for preparation of surfaces, and for application of paint finishes.

202 Schedules

A Paint Schedule is included in this specification, refer to Appendix - Materials Schedule.

The architect will prepare a final Schedule of Finishes / Colours in sufficient time before commencement of work.

203 Priming Materials

Colours of priming coats (and body coats where specified) are to be lighter than those of finish coat.

PART III EXECUTION**301 Examination**

Inspect surfaces and determine that they are in proper condition to receive the work to be performed under this trade section. Refer 302 A, below.

The starting of work under this trade section will be taken to mean acceptance of such surfaces as being satisfactory and defects in work resulting from accepting poor surfaces are to be corrected at no cost to the proprietor.

Refer AS/NZS 2311 Appendix C.

302 Preparation

- A. General: prepared to a standard not less than that described under AS/NZS 2311, Section 3: Preparation of Un-Painted Surfaces inclusive, and other clauses of Australian Standards referenced therein.
This Standard is incorporated by reference as part of this specification and applies to the work below to the same extent as if written herein.
- B. Broom clean floor surfaces before painting. Remove dust, dirt, plaster, grease and other extraneous matter affecting the finish work.
- C. Putty-stop or plug nail holes and cracks on both exterior and interior work, as required. Natural or stained wood finishes are to have putty coloured to match. Putty wood after prime coat or sealer coat has been applied.
- D. Clean bare metal surfaces of mill scale, rust, grease, oil, dirt, or other foreign matter, then properly washed with spirit or other approved cleaning agents. After cleaning, etch, pickle, prime, or otherwise prepare, as recommended by the paint manufacturer.
- E. Remove blisters or other imperfections in previous coats caused by foreign substances or paint skins from painted surfaces before the subsequent coat is applied.
- F. Rub down wood and metal surfaces before finishing and between coats with No. 00 and finer sandpaper or steel wool, leaving a perfectly clean surface. Sand smooth-finished surfaces before finishing and between coats as required to smooth out rough areas and to assure a smooth, even finish. Surfaces to receive paint are to be smooth and free of sandpaper scratches, mill-marks, and other imperfections.
- G. Remove hardware, accessories, plates, lighting fixtures and similar items in place prior to painting and re-position upon completion of each space, or protect as otherwise directed by the architect.
- H. Thoroughly stir materials in containers before application, unless otherwise directed by the manufacturer of the paint used, to ensure uniformity of colour and mass. Strain out paint skins or other materials which would cause lumps or roughness. Thin only as recommended by the manufacturer.

303 Protection

Furnish and lay suitable drop cloths in areas where painting is being done to protect floors and other surfaces from damage during the work.

304 Application

- A. General: execute work of this trade section in strict compliance with paint manufacturer's recommendations, and with the provisions of AS/NZS 2311, Section 6: Paint Application, inclusive. This standard is incorporated by reference as part of this specification and applies to the work to the same extent as if written herein. In the event of conflict between manufacturer's recommendations and the provisions of AS/NZS 2311, manufacturer's recommendations govern.
- B. Maintenance or repainting:
Execute work of this trade section in strict compliance with paint manufacturer's recommendations, and with the provisions of AS/NZS 2311, Section 7: Maintenance of Painted Surfaces inclusive and Section 8: Maintenance Painting Systems. This standard is incorporated by reference as part of this specification and applies to the work to the same extent as if written herein. In the event of conflict between manufacturer's recommendations and the provisions of AS/NZS 2311, manufacturer's recommendations govern.
- C. Allow for one wall per room to be painted in feature / accent colour.

305 Cleaning

At completion of work in each area, remove paint spots, oil and stain from adjacent surfaces, including finish hardware.
Replace hardware previously removed.

306 Completion

Complete contracted work in accordance with contract documents and written variation orders issued by the Superintendent.

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APPENDIX 1
SCHEMATIC DOOR SCHEDULE

APPENDIX 1

NORTHPOINT BAR & BISTRO WARRNAMBOOL

SCHEMATIC DOOR SCHEDULE

CONSTRUCTION ISSUE 'C2'

Door Types

All doors to be obtained from an approved manufacturer and to carry a 2 (two) year Warranty against warping or distortion.

Type	Product / Material	Detail / Description	Indicative Location	Rev
A1	Flush panel door nom. 40mm thick	Solid frame of ex. 38mm KDHW. Solid MR particleboard core. Faced with 4mm exterior quality waterproof ply on both sides, ready for paint finish. KDHW strip to all edges. Aluminium 'T' Strip to leading edge of pair of doors (not rebated).	Refer Door Schedule.	
A2	Flush panel door nom. 40mm thick. 38mm thick doors to cavity sliding units.	Solid frame of ex. 38mm KDHW. Solid MR particleboard core. Faced with 4.8mm redicoat hardboard both sides, ready for paint finish. KDHW strip to latch edge. Aluminium 'T' Strip to leading edge of pair of doors (not rebated).	Refer Door Schedule.	
A6	Flush panel door nom. 35mm thick	Flush doors constructed with ex. 38mm solid timber frame. Honeycomb core consisting of cardboard labyrinth. 3.2mm thick craftwood or redicoat hardboard both sides. Ready for paint finish. Provide Door Grilles where shown	Refer Door Schedule.	
C2	Flush panel door nom. 40mm thick, with viewing panel.	Solid frame of ex. 38mm KDHW. Solid MR particleboard core. Faced with 4.8mm redicoat hardboard both sides, ready for paint finish. Glazed viewing panel 200mm wide x 950mm high, set back 200mm from latch edge with bottom 900mm above floor level. Viewing panel inset within thickness of door, rebated and glazed with 6.38mm laminated glass and 19 x 13mm square KDHW beads, to finish flush with face of door.		
D2	Full glazed aluminium door without midrail	refer Materials Schedule - Metalwork.	Refer Door Schedule.	
F2	Fire rated door, 120 minutes	Pyropanel 120 minute Fire rated door and frame to achieve FRL - / 120 / 30. Facing : MDF or hardboard Installation : in accordance with manufacturer's instructions.		
G	Frameless glass door	refer Materials Schedule - Glass & Glazing.	Refer Door Schedule	
G2	Frameless glass door	refer Materials Schedule - Glass & Glazing.	Refer Door Schedule	
J	Joinery Door	Door constructed as part of Joinery Package		

Refer Materials Schedule - Section 08800 Glass & Glazing for Glass Types in glazed doors.

Door Schedule

- All doors throughout the building are nominal width and height as listed in the Schedule.
- All external doors to be deadlocked, with escape function to escape doors.
- Check all furniture with hardware supplier representative including codes for left and right hand doors and co-ordination of scheduled hardware with final floor plan.
- Furniture is to be generally fitted with centre of lever handle 1000mm above floor, unless otherwise shown on drawings or specified in door schedule.
- Provide lift-off hinges to ensure doors are readily removable to all bathrooms/ ensuites unless there is a clear space of at least 1.2 metres between pan and nearest part of the doorway.

Door No.	Door Type	Nominal leaf width x height, check on site	Lock / Latch	Furniture	Closer	Pull / Push Plates, Panic Bolts	Door Frame / Comments
DG.01	D2	920 x 2340	3541	Back to Back Pulls	Yes	-	AL. Weather Seals.
DG.02	D2	920 x 2340	3541	Back to Back Pulls	Yes	-	AL. Weather Seals.
DG.03	D2	1200 x 2640	3541		No	-	AL. Auto Slider
DG.04	D2	920 x 2340	3541	Back to Back Pulls	Yes	-	AL. Weather Seals.
DG.05	D2	920 x 2340	3541	Back to Back Pulls	Yes	-	AL.
DG.06	D2	1100x 2340	3541	Back to Back Pulls	Yes	-	AL. Weather Seals.
DG.07		GENERALLY NOMINATED BY OTHERS					Cool Room Door, sandwich panel
DG.08		NOT USED					
DG.09	A1	920 x 2340	3570	Lever	Yes		S
DG.10	A1	920 x 2340	3570	Lever	Yes	-	S
DG.11	A6	820 x 2340		Lever	Yes	-	T
DG.12	A2	920 x 2640				Push Plate Only	S, Two way Swing Hinge with door grille
DG.13	A1	1000 x 2640	3570	Lever	Yes		S
DG.14	D2	2/900 x 2640	3541	-	No		AL. Auto Slider
DG.15	D2	2/920 x 2640	3541	Back to Back Pulls	Yes	Panic Bolts	AL.
DG.16	A2	920 x 2640	-	-	Yes	Push/Pull	Ezy-Jamb
DG.17	A6	820 x 2640	3570	Lever	No		Ezy-Jamb
DG.18	A6	870 x 2640	-	-	Yes	Push/Pull	Ezy-Jamb

Door No.	Door Type	Nominal leaf width x height, check on site	Lock / Latch	Furniture	Closer	Pull / Push Plates, Panic Bolts	Door Frame / Comments
DG.19	A6	870 x 2640	-	-	Yes	Push/Pull	Ezy-Jamb
DG.20	A6	920 x 2640	810	Lever	Yes	-	Ezy-Jamb
DG.21	G	1400 x 3000	-	-	-	-	Cavity Slider/Automated
DG.22	A6	1040 x 2940	-	-	No	Flush Pull	Cavity Slider
DG.23	A6	1040 x 2940	-	-	No	Flush Pull	Cavity Slider
DG.24	A6	870 x 2640	3570	Lever	Yes	-	Ezy-Jamb
DG.25	A2	870 x 2640	3570	Lever	Yes	-	Ezy-Jamb
DG.26	A2	1020 x 2640	3573	-	No	Flush Pull	Cavity Sider
DG.27	A2	1200 x 2340	3573		No	Flush Pull	Cavity Sider
DG.28		1200 x 2040			BY OTHERS		Cool Room Door, sandwich panel
DG.29		DELETED			DELETED		DELETED
DG.30	G2	5 / 1060 X 2000	BY OTHERS		No		Frameless Weather Seals
DG.31	G2	5 / 1060 X 2000	BY OTHERS		No		Frameless Weather Seals
DG.32	G	960 X 3000	BY OTHERS	Back to Back Pulls	Yes Floor Closer		Frameless Weather Seals
D1.01	A6	870 x 2340	810	Lever	Yes	-	T
D1.02	A6	870 x 2340	810	Lever	Yes	-	T
D1.03	A6	870 x 2340	-	Lever	Yes	-	T
D1.04	D2	870 x 2340	3541	Lever	Yes	-	AL
D1.05	D2	870 x 2340	3541	Lever	Yes	-	AL
D1.06		DELETED					DELETED

Door Hardware Legend

Supply and fit hardware and door furniture in accordance with the Door Schedule and generally as follows.
All furniture to be satin chrome finish unless noted otherwise.

Item	Product / Detail / Description	Rev
Door frames	AL = Aluminium ST = Steel T = Timber Ezy-Jamb Door Jamb Ezy-Jamb Cavity Slider to Cavity Sliders	
Hinges, External Doors	100x150mm stainless steel fixed pin butt hinges generally 3 No. per door leaf.	
Hinges, Internal Doors	100x75mm stainless steel loose pin butt hinges generally 3 No. per door leaf.	
Hinges, Aluminium Doors	McCallum A104CA 100mm aluminium fast fix hinges, generally 3 No. per door leaf.	
Sliding / Folding Door Tracks, Aluminium Doors	By Door Fabricator, refer Metalwork.	
Sliding Door Tracks, Cavity Sliding Doors	Comes with Cavity Sliding Door Unit, refer Joinery.	
Hinge screws	Screws for fixing hinges are to be adequate length and suitable gauge with holes being pre-drilled undersize for firm grip.	
Mortice Locks (3541, 3542, 3571, 3572, 3573)	Lockwood 3500 Series Status Six Mortice locksets with circular escutcheon, keyed to master key system. Lock type within this series shown indicatively in Door Schedule (3541, 3542, 3571, 3572, 3573). Actual type and functions to be selected by Lockwood to suit situation.	
Keys	Four (4) keys to be provided to each master keying level. Prior to placing order for lock cylinders, the Contractor is to check with the Architect / Superintendent regarding the keying schedule for the grand master key system, keyed to existing system.. A number of doors are to be keyed alike and/or maison keyed to other locks as shown on a future keying schedule.	
Latch	Lockwood tubular latch where required.	
Escape Lever	Lockwood Cylinder Escape Turn SP3540 to suit latch side to escape doors	
Lever / rose / escutcheon generally	Lockwood 'Lever 90' lever on '1220 Series' rose mortice latch furniture with circular escutcheon	
Indicator Bolt	Lockwood 810.	
Escutcheons	Lockwood 1220 Series to suit mortice lock cylinder	
Back to Back Pull	Lockwood Offset BTB 146 Entrance Pull. Code: 146X600SSS	
Ball Catch	Dalco 50mm double ball catch.	
Panic Bolts	Generally Lockwood '781 Series' top and bottom fixed panic bolts, (ensure that top bolt on door is correct length for regulation height above floor) complete with floor plate and top keeper as required. Where scheduled to aluminium doorframes, panic bolts to be offset type.	
Closers	Lockwood 'Series 2516' or '2514' surface mounted door closers, cam action type, satin stainless steel. Closers fitted internally to be hold-open type.	
Floor Closer	Lockwood 'Series 8800' Floor Closer with Glass Door Pivot Kit	
Patch Fittings	Dorma 'Universal' Patch Fittings. Items within this series shown indicatively in Door Schedule. Actual type and functions to be selected by Dorma to suit situation with pivot hinge/closer.	
Flush Pull	Lockwood Flush Pull 'L610', Satin Chrome, Dim: 145mmx40mm	
Push Plates / Pull Handles	Lockwood 'Artefact 208/209 Series' plain push plate/pull handle, stainless steel, with plate details selected to suit cylinders / turnknobs etc	
Kickplates	300mm high x full width of door x 1.0mm thick stainless steel kickplates each face of door, fixed with adhesive.	
Door Seals, weather	Raven 'RP8' fully concealed door seal in bottom rail of door and Raven 'RP78' door head and jamb weather seal or similar head/jamb seal to suit alum doors/frames by door manufacturer. Install aluminium 'T' weather strip to meeting stile of external double doors.	
Door threshold plates	Raven '77' aluminium threshold strip fixed into concrete slab to conceal junction between floor slab and external paving.	
Door Stops	Lockwood 'Model 350' wall mount (preferred) or 'Model 250' floor mount door stops, behind each leaf of all internal doors, and external doors opening inwards.	
Door Grilles	Refer to Mechanical drawings for door grille details.	
Drip strip	Raven 'RP67' aluminium drip strip fixed into concrete panel wall over head of door, with 50mm overhang over outside edge of door frame both sides.	

APPENDIX 2
MATERIALS & PRODUCTS SCHEDULE

APPENDIX 2

NORTHPOINT BAR AND BISTRO WARRNAMBOOL

MATERIALS & PRODUCTS SCHEDULE

CONSTRUCTION ISSUE 'C1'

Author: FYC

GENERAL NOTES:

This schedule is to be read in conjunction with Project Specification.

This schedule nominates selected products and materials for the Project. Further Requirements of a general nature for some of these items are detailed in the Project Specification, under Part II Materials or Part III Execution, of the relevant trade section.

Other Requirements including quality assurance, reference standards, installation, workmanship and execution are detailed in the Project Specification.

Indicative location is to be taken as a guide only, refer to Drawings for location / extent. Advise discrepancies to Architect within Tender Period and seek clarification.

All items may be read as 'or equal approved' unless noted otherwise.

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02530 – SANITARY PLUMBING / SANITARYWARE & TAPWARE**Sanitaryware, Fittings & Tapware**

Note: Confirm all Tapware selections with Superintendent prior to Ordering.

Code	Fixture	Location	Description	Rev
P	Toilet Suite	First Floor Toilet and Ground Floor Bottleshop Amenity	Caroma 'Leda 2000', close coupled vitreous china toilet suite, Smartflush 4.5 / 3L, with back entry inlet and 'Pedigree' dual flap seat. Colour: white. Caroma 'Quiet Flow' inlet valve, located within cistern.	
P	Toilet Suite	Ground Floor Male and Female Toilets	Caroma 'Leda Invisi II' Suite, 'Leda' wall faced box rim back inlet vitreous china pan, with 'Invisi II' Smartflush 4.5 / 3L plastic inwall cistern and 'Pedigree II' closed front double flap seat. Metal Rectangular Dual Flush Plate and Buttons (237020S), satin chrome finish. Cistern stop cock.	
P	Toilet Suite	Disabled Toilets	Caroma 'Leda Care Invisi II toilet suite', 'Concealed Trap Care' vitreous china pan with Caroma 'Leda Care Invisi II' Smartflush 4.5 / 3L vitreous china cistern with Caroma 'Care' dual flush button and 'Pedigree II Care' single flap seat. Colour: White. Cistern stop cock, chrome. Installation in accordance with AS 1428.1.	
UR	Urinal, wall hung	Ground Floor Male Toilet	Caroma 'Cube ³ 0.8L Electronic Activation Urinal Suite' white vitreous china wall hung boxed urinal with 'In Ceiling' Automatic urinal flush system and 'Flush Control Mechanism'. Colour: White Installation in accordance with AS3500	
BA	Basin, counter top	Male & Female Toilets	Caroma 'Carboni Seamless' inset vanity basin white vitreous china, one (1) tap hole. Dimension: 450mm x500mm. Caroma 'Liano' basin mixer, chrome (tempered hot water). Caroma 'Modina' bottle trap, Code No. 9687290	
BA	Basin, wall hung	Disabled Toilets	Caroma 'Concorde 500' white vitreous china wall basin with shroud, D200 fixing kit, one (1) tap hole. Caroma 'Opus' soft close basin mixer with disabled lever, chrome (tempered hot water).	
BA	Vanity Basin	Ground Floor Bottleshop Amenity	First Choice Warehouse 'Polilife PL600-A' wall hung vanity, with (1) Tap Hole. Colour: G.Oak. Dimensions: 600mm(W)x480mm(D)x515mm(H). Caroma 'Liano' basin mixer, chrome (tempered hot water).	
BA	Vanity Basin	First Floor Toilets	First Choice Warehouse 'Polilife PL460' wall hung vanity, with (1) Tap Hole. Colour: G.Oak. Dimensions: 460mm(W)x275mm(D)x635mm(H). Caroma 'Liano' basin mixer, chrome (tempered hot water).	
HFBA	Basin, wall hung hands-free	Kitchen and Bar Area	Refer to separate schedule by Kitchen Sub consultants	
HS	Hand Shower / Shower Base	First Floor Shower/Change	Posh Solus Rectangular Shower Base, 1200x900, White finish	
S	Sink	First Floor Staff Room	Clark 'Advance 930mm' Single End Bowl stainless steel sink, single RH bowl and drainer with one (1) tap hole, 930 x 480mm. For handling refer to drawings. Caroma 'Liano' Sink Mixer 220mm, chrome.	
CS	Cleaner's Sink	Cleaner's Room and Bottleshop Amenities	Clark 'Y5100' stainless steel cleaners sink with hinged grated and 'Y5914' stainless steel legs. Caroma 'Caravelle' hot and cold wall bib tap set with threaded outlets, chrome.	
			All other sinks and fixtures to Kitchen and Bar, refer to separate schedule by Sub Consultants	
FW	Floor waste		80mm CP brass drop-in type suitable for resilient flooring installation, chrome.	
DW	Dishwashers		15mm cold water stop cock with pressure reducing valve, chrome.	
	External hose cocks		20mm cold water Enware Vandal Proof bib tap with screwed outlet and vacuum breaker, brass. Pipe concealed in wall, 600mm above ground level.	

02900 - SITE WORKS AND LANDSCAPING**Bicycle Racks**

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	E.P. Draffin Pty Ltd (Tel: 9720 1033), 'Cat no. 176 I'	Stainless steel tube bike loop (950w x 810mm h), set in concrete footing. Cat No. 176 / I. 4 No. Racks (or similarly approved)	Site Plan	

PU – Paving (Unit)

Code	Product / Material	Detail / Description	Indicative Location	Rev
PU-A	Urbanstone Paving Units	600 x 300 40, shot-blast finish. Colour: Silver Grey Paving laid to falls away from buildings on nom. 30mm mortar bed over paving slab. Refer to Specification, Materials 'Pavement Works' for further requirements.	Site Plan	

PV – Paving, Concrete

Code	Product / Material	Detail / Description	Indicative Location	Rev
PV-1	Concrete paving, natural colour.	Natural coloured. Refer to Civil Drawings & Specification for Details.	Refer Site Plans.	

For asphalt paving refer Specification – Section 02740 Bituminous Concrete Pavement

Carpark Items (External Carpark)

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Bollards	Refer Metalwork		
-	Signage	Refer Metalwork		
-	Wheelstops: Repeat Products (Tel: 9770 8390) 'WS165' recycled rubber plastic	1650mm long, colour: Grey Fixed to concrete pavement with 150mm long fixings, 3 no. per wheel stop. Fixed to asphalt pavement with 300mm long fixings, 3 no. per wheel stop.	Carpark	

Soft fall mulch

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Pinebark mulch to conform with playground standards.	Fine graded pinebark, 40mm minus, complying with AS/NZS 4422. Sample to be approved prior to delivery. Spread mulch after installation of play equipment, where applicable, to a minimum depth of 250mm. Allow to top up playground mulch during defects liability period.	Refer Site Plans/ Landscape Plans	

TI – Tactile Indicators

Code	Product / Material	Detail / Description	Indicative Location	Rev
TI	Classic Architectural Products Indicator Tiles	"Tacalert" PVC Tiles installed in accordance with manufacturer's instructions and requirements of AS 1428.4. Colour: Black 2921	Step Ramp to Air Lock 2	
TI	Classic Architectural Products Indicator Individuals	"Tacalert" Stainless Steel Individuals Grooved without stud installed in accordance with manufacturer's instructions and requirements of AS 1428.4. Code: 2811	All internal steps and Airlock 3	

03300 - CONCRETE

CO – Concrete Floor Finishes - refer Section 09610 Applied Finishes to Concrete Floors.

Concrete Paving – refer Section 02900 Siteworks

Concrete Stairs

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Concrete stairs	Form concrete stairs, provide positive fall to treads to avoid ponding of water,	Air Lock 3, Stair 2 (between bottleshop and bar)	

Floor Setdowns

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Setdowns to concrete floor slabs	Set down floor slab 100mm, with surface left rough to form a key. For granolithic screed refer below.	Kitchen, Toilets, Bar Wet Areas. Refer to Architectural and Consultant Plans	
-	Setdowns to concrete floor slabs	Set down floor slab to depths required for installation of thermal insulation. For granolithic screed refer below.	Freezer Rooms Refer Floor Plans.	

Granolithic Concrete Screeds

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Granolithic concrete screed	Screed to form nom. 30mm fall to waste. Refer Specification – Section 03300 Concrete for further requirements.	Wet areas	
-	Granolithic concrete screed	Insulation and vapour barriers are to be supplied and installed by the refrigeration sub-contractor. Install approx. 150mm deep granolithic concrete of 25 MPa strength, reinforced with min SL62 mesh, over the insulation. Screed to receive sheet vinyl flooring, coved to walls, refer Section 09650 Resilient Finishes.	Freezer Rooms.	

03450 – PRECAST CONCRETE PANELS**Form Liners**

Code	Product / Material	Detail / Description	Indicative Location	Rev
PPA		Refer to Structural Drawings	Refer to Plans and Elevations	

04220 – BLOCKWORK**BL – Blockwork**

Code	Product / Material	Detail / Description (L x H x W)	Indicative Location	Rev
BL	Boral DesignerBlock or equally approved	390 x 190 x 90, honed, hollow, complete with capping block, or similarly approved	Elevations, Plans	
BL	Boral ash grey blocks or equally approved	390 x 190 x 190. For reinforcing / core-filling details, refer structural engineers drawings.	Refer Sections, Plans and Wall Types	
BL	Boral ash grey blocks or equally approved	390 x 190 x 90.	Refer Sections, Plans and Wall Types	

Tanking and Waterproofing

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Ardex WPM 240 Shelterbit Primer, Ardex WPM 186 Torch-On Shelterbit Garden Waterproofing Membrane (One Layer)	Clean surface and apply primer before membrane is laid. Fully bond membrane to prepared substrate with side laps of 10cm and end laps of 15cm, overlaps shall be sealed by torch. Fix Corflute Protection board over membrane. Full installation in accordance with manufacturer's instructions. Provide 10 year Warranty for membrane.	Planter Box in Main Entry	
-	Atlantis Flo-Cell drainage cell	20mm drainage cell, lay over protection board before laying of soil.	Planter Box in Main Entry	

05300 - METAL ROOFING, METAL CLADDING AND ROOF PLUMBING**Wire Safety Mesh**

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Galvanised Wire Safety Mesh	Ausmesh 300 or Waratah 'Roofsafe', installed in accordance with AS/NZS 4389.	All Roof Areas.	

Roof & Metal-Clad Wall Insulation / Spacers

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	CSR Bradford 'Anticon 75' Roofing Blanket incorporating Medium Duty Thermofoil 730. Blanket R value R1.3.	CSR 'Thermodeck' polymeric spacers 55mm installed over blanket. Ceiling cavity air space 100 - 600mm. Overall system including air gaps/ air films/ internal lining achieves R value of R3.3 in summer (refer ICANZ Handbook, System R1055S, Rm reduced by R0.5).	All Roof Areas with lined suspended ceilings below.	
-	CSR Bradford 'Anticon 100HP' Roofing Blanket incorporating Medium Duty Thermofoil 730. Blanket R value R2.5.	CSR 'Ashgrid' metal spacers 80mm installed over blanket. Overall system including air films achieves R value of R3.2 minimum in summer (refer ICANZ Handbook, System R0956S).	Roof Areas generally unless scheduled otherwise.	
-	CSR Bradford 'Anticon 75' Roofing Blanket incorporating Medium Duty Thermofoil 730. Blanket R value R1.8.	Thermofoil fully adhered to Blanket, installed over woven wire netting (50mm opening) or approved support mesh over girts. The edge of wires of adjacent runs shall be twitched together at approximately 450mm centres. Overall system including air films achieves R value of R2.1 minimum in summer (refer ICANZ Handbook, System W1312S with additional R0.5).	Spandrel cladding to Roof Areas OR Metal wall cladding on girts.	
-	Insulation to box gutters.	Install 25mm Polystyrene sheet under gutter, full width.	Underside of box gutters	

Note: Refer Section 06100 Carpentry for sarking and insulation to framed walls and ceilings.

Roofing

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Bluescope Lysaght	'Kliplok 700 Hi-strength', 0.48 BMT, Colorbond finish.	Roofs Generally	

05300 - METAL ROOFING, METAL CLADDING AND ROOF PLUMBING**Aluminium Composite Cladding**

Code	Product / Material	Detail / Description	Indicative Location	Rev
ALU-01	Alpolic/fr, supplier: CSP Architectural Ph. 9361 9988	Panels 4mm thick selected panel size to suit feature joint positions strictly as indicated on the drawings. Allow for wastage. Joints nominally 10mm, utilising 'Hanging Method' Installation details in accordance with Alpolic/fr (CSP Architectural) wall cladding details for selected system and manufacturer's recommendations. Provide shop drawings for approval. Surface finish to be selected from Alpolic standard range	Refer Elevations / Reflected Ceiling Plans	

DP – Downpipes

Code	Product / Material	Detail / Description	Indicative Location	Rev
DP	UPVC, painted.	Sizes as shown on drawings. Refer Specification for detail.		
-	Downpipe brackets	Proprietary steel brackets to suit downpipe size, colorbond finish, fixed with matching colorbond fixings.		

RWT – Rainwater Tanks

Code	Product / Material	Detail / Description	Indicative Location	Rev
RWT		Refer to Civil Drawings	Refer to Civil drawings	

Roof Access Items

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Roof Access / Fall Arrest System	Supply and install system to complete roof area to provide safe access, to current Occupational Health and Safety practice requirements for working at heights. System to include fixed ladders where required for access between roof levels. Sub-contractor to provide details of provision for approval prior to installation, and certification of the complete installation upon completion. Refer Specification for further requirements.	Full roof area of each Building within the Scope of Works.	

05500 - METALWORK**Aluminium Windows & Doors**

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Aluminium Framed Window Suite	AWS Commercial 'Series 407 Faceline' framing suite generally, with slotted sub-sill section fitted to all windows, and head channel fitted to all windows to allow for structural movement. Silicone butted Mullions/ or transoms Use 'Series 426 FrontGLAZE' framing suite to all windows scheduled as double glazed. Refer Specification for further requirements.	First Floor windows, Bottleshop windows, W.G16, Internal Glazed Screens	
-	Aluminium Framed Window Suite	AWS Commercial 'Series 607 Faceline' framing suite generally, with slotted sub-sill section fitted to all windows, and head channel fitted to all windows to allow for structural movement. Silicone butted Mullions/ or transoms Use 'Series 626 FrontGLAZE' framing suite to all windows scheduled as double glazed. Refer Specification for further requirements.	All external windows unless otherwise stated.	
(Door type G)	Movable Glass Doors - Frameless	Hufcor 'Series 3550' Movable frameless glass doors. Top supported, manually operated panels are moved into place and linked together to form a secure closure. 100mm top and bottom rails, powdercoat finish, fitted to frameless toughened glass to comply with Glazing Code. Panels individually lockable by a footbolt into recessed ferrule, with final closure to incorporate keyed floor lock. Weather seals to top and bottom rails and glass junctions.	(DG.30 - DG.32) Refer Door Schedule / Window Schedule	
(Door type D2)	Glazed doors	AWS Commercial 'Series 50'. With 125mm midrails where scheduled. Refer Door Schedule for hardware. Use 'Series 52' for all doors scheduled as double glazed.	Refer Door Schedule / Window Schedule	
-	Folding / Stacking Window Unit	AWS Commercial 'Series 411 Viewmaster' top hung bi-fold window. Framed fitted flush with wall finish internally with extended subsill externally.	(WG.12 – WG.14) Refer Door Schedule / Window Schedule	
-	Awning Sashes	AWS Commercial 'Series 466' adapted to framing. Lockable chain winders to closely match frame colour, keyed alike. 44mm jamb. Remote operated chain winders where scheduled and as specified below.	Refer Window Schedule	

Refer Section 08800 Glass & Glazing for Glass Types.

Metal Door Frames

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	United Doormakers Pty Ltd	1.2mm pressed zinc anneal steel. Frames to be compatible with wall thickness and situation, including double skin walls and to finish flush with finished surfaces.	Refer Door Schedule	
	EzyJamb	EzyJamb flush door system with Ezycap to suit cavity sliding doors	Refer Door Schedule	

Note: Frames to fire rated doors come with the door.

05500 - METALWORK**Suspended Ceiling Systems**

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Rondo 'Key Lock'	Suspension system for screw up ceilings.	Plasterboard Ceilings, Refer Reflected Ceiling Plans.	
-	Rondo direct fixing clips as selected.	Furring channels to be fixed off structure via direct fixing clips.	Plasterboard Ceilings to upper floors on timber structure, Refer Reflected Ceiling Plans / Sections.	

AP- Access Panels

Code	Product / Material	Detail / Description	Indicative Location	Rev
AP	Trafalgar	Shadowline surround for flush set installation and no visible frame, locks or hinges. Door lined with 13mm wallboard for reduced sound transmission. 600 x 600mm. OR Size and Quantity: as shown on drawings	Refer to Ceiling plan and Consultant drawings	

HR – Handrails, Balustrades

Code	Product / Material	Detail / Description	Indicative Location	Rev
HR	Stainless steel, single handrail - Stair	Single handrail 50mm OD pipe, ends returned into Wall. Wall fixing brackets 15mm stainless steel rod welded to handrails and 75mm fascia plates, fixed to studwork with countersunk head screws. Provide proprietary patch fixings to Glass balustrade	Internal Stairs (Stair 1), Main Entry Ramp, one side.	
HR	Stainless steel, single handrail - Ramp	Single handrails, kerb rail and vertical staunchions 50mm OD pipe, handrail ends extended beyond ends of ramp and turned through 180° in accordance with AS1428. Staunchions with tapered transition to handrail in accordance with AS1428, epoxy grouted into holes cored in concrete paving, or Wall fixing brackets 30 x 6.0mm stainless steel plate welded to handrails and loxined to masonry / fixed to studwork with countersunk head screws.	External Ramps, both sides, Internal Stairs (Stair 2)	

RD / RS – Roller Doors and Roller Shutters

Code	Product / Material	Detail / Description	Indicative Location	Rev
RD-01	Mirage Industries 'Series 2'	Curtain constructed with solid extruded aluminium slats. Heavy duty extruded aluminium bottom rail with rear cover plate with extruded aluminum guide channels. Motorised operation: Contact manufacturer for details. Finish: natural anodised aluminium.	Beer Stock Room & Stock Room	

Rooftop Condenser Deck

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Galvanised MS	Refer to Structural Drawings. All steelwork hot dipped galvanised. Provide Dek-tite flashings to all penetrations through roof decking.	Refer to Plans and Consultant Drwgs.	

05500 - METALWORK**SCR – Screens**

Code	Product / Material	Detail / Description	Indicative Location	Rev
SCR	Perforated Metal	Panels fabricated from perforated MS sheet and pop riveted to galvanised steel girt subframe with fixings designed for appropriate loadings by subcontractor. Corners of assembly to be finished with 25 x 25mm folded zincalume sheet steel angle trims. Panel Details: Locker Group slotted perforated stock pattern. Code: L19141 Code. Panels and trims to be powdercoat finish in selected colour.	Roof Platform Waste Area	

LV –Louvres

Code	Product / Material	Detail / Description	Indicative Location	Rev
-		Aluminium 150x40mm rectangular sections to match window framing system in powdercoat finish.	Abov G.06 Refer to Window Schedule	

Stormwater Grates

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Hot dipped galvanised steel	Heavy duty hot dipped galvanised stormwater trench grates.	Carpark, Refer to Civil Drawings and Floor Plans.	

05500 - METALWORK**Fabricated Metalwork (not scheduled elsewhere)**

Code	Product / Material	Detail / Description	Indicative Location	Rev
BOL	Bollards – LEDA Security Products	Steel bollard 'Major Bollard Range. Fixed with extra heavy duty galvanised pipe with steel outer shell. Product Code: AM Powdercote Colour: TBA	Refer to Site Plan	
	Louvre Roof	LouvreTec retractable glass roof complete with motor installation (By Others)	Outdoor Terrace	

Protection Items

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Corner Guards – folded Stainless steel.	75 x 75 x 1.6mm, to 1350mm AFL, fixed with construction adhesive. Seal all exposed edges with silicon.	All Roller door entrances and DG.10, DG.12, DG.13, DG.27	

Appliances, Whitegoods

Code	Product / Material	Detail / Description	Indicative Location	Rev
		All commercial appliances to Kitchen and Bar Areas, Refer to separate Specification		
DW	Dishwasher	Dishlex 'Code DX203SK', 60cm, stainless steel.	Staff Room	
FIRE	Gas Fire Place	Jetmaster 'Horizon Cantilever' Gas Fire Place	Bistro	
	Panasonic TV	Panasonic Viera 42" Plasma TV: TH942X20	1 No. Over Bistro Fire Place	
	Panasonic TV	Panasonic Viera 37" LCD TV: THL37S25A	2No. Bar Area 2No. Kids Play Room 1No. Staff Room	
	TAB Kiosk	TAB complete Easybet Terminal	2 No.	

05500 - METALWORK**Fittings, Fixtures**

Fittings as scheduled below to be located as shown on drawings, with noggings in walls as required to provide secure fixing.

Code	Product / Material	Detail / Description	Indicative Location	Rev
BC	Baby Change Table – Recessed Wall Mounted	RBA Group: Horizontal recessed mounted stainless steel baby change station 'KB110-SSRE', 939mm long x 584mm wide x 102mm deep, white.	Disabled Toilet (1 no.).	
CH-2	Clothes Hooks	Efco / Assa Abloy SSS296, satin stainless steel.	Disabled Toilet (1 no.).	
FE	Fire Extinguishers	in accordance with AS 2444.	Adjacent to each switchboard: Dry Chem 2A40B(E).	
GR	Disabled Grab Rails	Handrail Industries (Tel: 9466 3211) 'No. 136 / No. 137' combination grabrails to suit toilet installation, satin stainless steel.	Disabled Toilet (1 no.).	
		Handrail Industries (Tel: 9466 3211) 'No. 145 to suit toilet installation, satin stainless steel.	Male and Female Toilets ambulant toilets, First Floor Toilet	
HD	Hand Dryers	RBA Group 'B-715E', surface mounted automatic hand dryer, satin stainless steel	Disabled Toilet (1 no.) Bottleshop Amenities (1 no.)	
WU	Hand Dryer /Paper Towel Dispensers / Waste	RBA Group 'B-38033', recessed hand dryer, paper towel dispenser and waste receptacle. 3 in 1 Unit. Dimensions: 385mm(W) x 1415mm(H) x 145mm(D), satin stainless steel.	Male & Female Toilets (1 no. in each).	
SD	Soap Dispensers	RBA Group 'B-4112' surface mounted soap dispensers, satin stainless steel.	Male & Female Toilets (3 no. in each). Disabled Toilet (1 no.) Bottleshop Amenities (1 no.) First Floor Staff Amenities (1 no.).	
TP	Toilet Partitions	TPI partition system 'Pedestal Mounted & Overhead Braced PO', floor mounted, overhead braced. Panels: square edged 13mm compact laminate Head rail and other supports: natural anodised aluminium. Standard hardware: TPI Series 300 Refer to schedule for colour	Male & Female Toilets. Change Rooms.	
TRH	Toilet Roll Holders	RBA Group 'B2840' Surfaced Mounted Toilet Tissue Dispenser & Utility Shelf, stainless steel satin finish	1 no. per Toilet Suite.	
-	Towel Rails	600mm Keuco 'City', chrome finish. Generally one (1) double rail per bathroom, refer to Internal Elevations.	Shower	

Kitchen Equipment, Benching & Coolroom

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Kitchen Equipment & Benching.	Refer to separate Specification Note : Stainless steel benches to be installed after completion of resilient flooring.	Kitchen / Prep Kitchen / Bar/ Wash Area.	
-	Kitchen Coolroom & Freezer Room.	Allow for the supply and installation of complete coolroom & freezer room including refrigeration equipment, under a Nominated Sub-Contract. Refer to separate Specification	Kitchen / Prep Kitchen / Bar/ Wash Area.	

Expansion / Contraction Joint Covers – Refer Section 09680 Carpet / Modular Carpet & Miscellaneous Floor Items**Coolroom Panel Walls / Ceilings**

Code	Product / Material	Detail / Description	Indicative Location	Rev
-		Refer to separate Specification	Kitchen / Prep Kitchen / Bar/ Wash Area.	

05500 - METALWORK**Signage**

Code	Product / Material	Detail / Description	Indicative Location	Rev
	Statutory Signage	Brushed Aluminium Plate Signage panels with black recessed lettering / symbols, screw fixed to doors / walls. To include Statutory signage in accordance with Authority requirements and Braille Signage in accordance with AS 1428.1.	As required throughout subject works.	
-	External or Internal Signage	TBC		

Window Furnishings

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Blockout Blinds	TBC	TBA	

06100 - CARPENTRY**Wall Framing Generally - Refer Specification****Acoustic and Fire Rated Wall Types / Column Encasements**

Construct walls in strict accordance with relevant wall types as detailed in current CSR Technical Manual. To walls to wet areas, upgrade lining to MR variety of specified plasterboard. Comply with Flanking Path Details in Section Z of CSR Manual to maintain specified acoustic ratings.

Code	Product / Material	Detail / Description	Indicative Location	Rev
		REFER TO DRAWING A101 FOR ADDITIONAL WALL TYPES		
-	CSR System 194 OR 193 to achieve FRL of 60/-.	1 x 25mm Gyprock shaftliner panel OR 2 layers of 13mm Gyprock Fyrchek Plasterboard, installed in accordance with manufacturer's instructions	All internal steel columns supporting the load of the second floor are to be fire rated.	
-	Plasterboard lined stud wall to achieve FRL of 120/120/120 from both sides.	90mm timber stud wall, studs at 600mm maximum centres. 2 layers of 16mm Gyprock Fyrchek Plasterboard, both sides of wall.		
-	Plasterboard lined stud wall to achieve FRL of 120/120/120 from outside Storeroom.	90mm timber stud wall, studs at 600mm maximum centres. 2 layers of 16mm Gyprock Fyrchek Plasterboard, outer sides of wall, 1 layer of 13mm Plasterbd CD to storeroom side. Carry fire rated construction up to meet FR ceiling lining and provide fire-rated seal.		

Battens/ Furring/ Top Hats (Wall - Timber/Metal)

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Furring channels	Rondo No.129 / 308, 16 or 28mm according to selected system or to suit services, at 600mm centres.	Masonry or concrete panel walls lined with plasterboard internally, Refer Wall types schedule on drawings.	
-	Furring channels	At 600mm centres, fixed with 'Beta-Fix' proprietary brackets to suit wall insulation panels, with plastic packer shims for minor alignment to walls. Refer Carpentry – Insulation – Foilboard.	Masonry or concrete panel walls where shown, Refer Wall types schedule on drawings.	

Wall Lining – Architectural / Feature

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Weathertex Weathergroove Smooth	Ex factory pre-primed vertical panels, grooves are at 140mm apart. 9.5mm thick.	Feature wall lining in foyer entrance and joinery seat	

06100 - CARPENTRY**TC – Timber Cladding (Boards)**

Code	Product / Material	Detail / Description	Indicative Location	Rev
TC	Timber Cladding	Supplier : BioWood (Tel. 02 9644 6766) Range : 'WPO18033', Size 180 x 33 in a batten look profile. Finish: Linish. Colour : Spotted Gum. Installation : fix horizontal pine battens at max spacing allowed by Cladding manufacturer. Cladding conceal fixed to battens, with stainless steel screws and adhesive, all in accordance with manufacturer's instructions. Provide Corner trims in matching material	Walls, refer to Elevations for horizontal or vertical layouts.	

Battens – Architectural / Feature

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	SCREENWOOD	Screenwood Ceiling Tile, Code 4012T, Thickness 38mm. Fixed to suspended ceiling system.	Feature Bulkhead over Bar	
	Biowood Battens	40x32 Side 4 Side battens fixed to steel framing at 40mm spacings, Code: S4SI04032	Over glazing to Bottleshop Office, Kids Play room and Kitchen Store. Refer to Elevations.	

CFC – Compressed Fibre Cement Cladding

Code	Product / Material	Detail / Description	Indicative Location	Rev
CFC	James Hardie 'ExoTec' Façade Panel	9.0mm thick, joints set with 10mm gap, using proprietary top hat and gaskets as required. Sheets fixed to framing with galvanised screws, flushed over. Finish as specified in Section 09900 Painting.	Wall Cladding / Eaves Soffits	

Insulation (Thermal & Acoustic)

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Sarking	CSR Bradford 'Breatherfoil Antiglare' vapour permeable sarking.	External Stud Walls and spandrels	
-	Insulation, Thermal	CSR Bradford 'Gold – High Performance' wall batts, R2.7 (90mm thick). Overall system including air films/ internal lining achieves R value of R2.9 minimum (refer ICANZ Handbook, System W0211 with additional R0.2).	External Stud Walls and spandrels.	
-	Insulation, Thermal	Foilboard Insulation Panel installed in accordance with manufacturer's installation systems. R values shown on 150mm concrete panel wall with plasterboard lining. Fixing clips installed at 1200mm centres. Push insulation over clips, join insulation with sealing tape. Fit furring channels over foilboard. Line with Internal lining. Selected System: Foilboard 'Ultra 20' (20mm thick), and 28mm batten over 25mm airspace (extended betafix clip) to achieve 2 reflective airspaces and Total R Value of R2.8, Refer manufacturer's installation system No. 7.	External precast walls. Refer to plans	
-	Insulation, Acoustic	CSR Bradford 'Sound Screen' Partition Battis R2.0 (75mm thick, 32kg/m ³).	Walls shown on Floor Plans	

Note: Refer Section 05300 Metal Roofing for sarking / insulation to roof areas / areas of metal wall cladding.

Flooring (Timber / CFC) including Floating Floors & Underlays

Code	Product / Material	Detail / Description	Indicative Location	Rev
TF	Havwoods Timber Flooring, Europlank 180mm European Oak	14.5mm thick engineered strip flooring. Flooring to be adhesive fixed over particleboard platform floor, OR adhesive fixed to concrete. Allow	Floors scheduled as 'Timber'.	C1

	Castle Satin Lacquered, Rustic Grade, Square Edge	to acclimatise prior to installation, and install in accordance with manufacturer's instructions. Finish as specified under Section 09900 Painting.		
-	Structaflor 'Red Tongue' particleboard flooring	Floor framing, refer Structural Drawings. 22mm heavy duty particleboard flooring, ready to receive floor finish over.	Particleboard Flooring to Bottleshop platform and First Floor	
-	Cement sheet underlay, 6.0mm thick	Underlay to be nailed to acoustic underlay / particleboard floors in accordance with manufacturer's written instructions. Prepare underlay ready for membrane / tile adhesive over.	Areas of tile flooring on timber subfloor.	

Stairs (Timber)

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Proprietary Stair	Stair Lock proprietary MDF Stair	Stair 1 (internal).	

06400 - JOINERY**GS - Internal Glazed Screens, Aluminium (Refer to Metalwork)****Internal Door Frames, Timber**

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Cavity Sliding Door Unit	Ezy-Jamb Cavity Slider, Cavkit System Installed in accordance with manufacturer's instructions.	Refer Door Schedule.	

Cavity Sliding Door Units

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Spence Doors timber frame and pocket, commercial heavy duty	for size refer Door Schedule. 'Joey' track and carriers. Installed in accordance with manufacturer's instructions.	Refer Door Schedule.	
-	CS Cavity Sliders 'Timber Form Frameless Glass full height concealed rail detail'	Track and top rail concealed within ceiling space, heavy duty anodised aluminium. No closing jamb option. For size refer Door Schedule. Door to finish approx. 100mm proud of split jambs to allow for installation of pull handles. Door Installed in accordance with manufacturer's instructions.	Refer Door Schedule.	

Door Types / Door Hardware Schedule / Door Furniture - Refer Separate Specification Appendix.

Trim, Architraves, Skirtings

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Skirtings	115 x 19mm primed MDF with square sided with P50 shadowline stopping bead to plaster edge.	First Floor	
	Archskirt Aluminium Skirting	Aluminium skirting suite, ASK.E1501.6, 150mm high	Ground Floor	
-	Trim	Provide where necessary for fitting only 19 x 13mm KD vic ash beads, square sided. <i>Use of beads is to be kept to a minimum to cover junctions where different materials cannot be satisfactorily matched.</i>		
-	Window / Door Reveals	Flush plasterboard carried into reveals of openings.		

Joinery Fittings

Refer Specification for general details of Materials / Workmanship / Construction.

Allow to construct all Joinery shown on the Drawings unless noted otherwise.

06400 - JOINERY**Joinery Hardware**

	Product / Material	Detail / Description	Indicative Location	Rev
	Hinges	Generally hang each door on two (2 No.) heavy duty approved self-closing concealed hinges, 130 ⁰ opening. Cupboard doors from 900-1600mm high to be hung on 3 no. hinges as specified above. Cupboard doors from 1600-2100mm high to be hung on 4 no. hinges as specified above.		
	Adjustable Shelf Supports	Hafele 'No. 282.04.506' plug - in 4mm dia brass plated steel, spoon-shaped.		
	Locks	Lockwood 692 rim mounted cupboard and drawer locks, master keyed in nominated code.		

Feature Joinery

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Feature Seating: E0 MDF & Upholstery.	MDF Sheets cut and fixed together to create bench seat, refer to drawings. Provide fabric upholstery over expanded foam.		

Pinboards - Acoustic Wall Lining Type

Code	Product / Material	Detail / Description	Indicative Location	Rev
PBB	Autex	12mm Cube Panel 2410mm x 1205mm	Bar and Kids Play Room. Refer to elevations for format and size	

08800 - GLASS AND GLAZING**Glass**

Check scheduled glass sizes against code requirements and substitute alternatives where necessary.

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Laminated, clear.	Min. 6.38mm A grade safety glass. Whole of window U value in alum frame: 6.4 W/m ² .K, SHGC: 0.73.	All glazing unless noted otherwise.	
-	Toughened, clear.	Thickness as required by code.	Glass Balustrade. Frameless doors/ glazing.	
-	Laminated, Viridian 'Comfort Plus'	Min. 6.38mm, Colour 'Clear 82', A grade. Whole of window U value in alum frame: 4.59 W/m ² .K. SHGC:0.64.	Glazing where noted on Window Schedule.	

MI – Mirrors

Code	Product / Material	Detail / Description	Indicative Location	Rev
MI	First quality 6mm float glass mirrors.	Ground and polished bevelled edges and silver reflecting backs. (No frame) Apply neutral cure clear silicon to edge of all mirrors.	Refer to Internal Elevations	

08800 - GLASS AND GLAZING**Glazing Films / Graphic Films**

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Reflex Technology 'Reflex Etch 1017' (3M product)	Translucent window film installed in accordance with manufacturer's instructions.	GS. 1.01	
-	Glazing Films	Allow for glazing film to external & internal windows, both translucent type and graphic type.	Refer to Window Schedule	

09250 - INTERNAL LININGS**PB – Flush Plasterboard, Walls**

Code	Product / Material	Detail / Description	Indicative Location	Rev
PB	Gyprock	Plasterboard CD, 13mm	Internal walls unless scheduled otherwise.	
PB	Gyprock	Fyrchek, 13mm	Refer to Wall Types	
IRPB	Gyprock	'Impact-chek' Plasterboard, 13mm	Internal wall linings to Kids Play Room	
WPB	Gyprock	Aquachek, 13mm.	All plasterboard walls to wet areas.	

PB – Flush Plasterboard, Ceilings

Code	Product / Material	Detail / Description	Indicative Location	Rev
PB	Gyprock	Supaceil, 10mm	Ceilings where shown, refer Refl Ceiling Plans.	
WPB	Gyprock	Aquachek, 10mm.	Ceilings where shown, refer Refl Ceiling Plans.	
APB	Knauf	Tangent T3L4, 13mm.	Ceilings where shown, refer Refl Ceiling Plans.	

Timber Linings – refer Section 06100 Carpentry**FC– Fibre Cement Linings (internal) - for external refer Section 06100 Carpentry**

Code	Product / Material	Detail / Description	Indicative Location	Rev
FC-1	James Hardie 'Hardiflex II'	6.0mm thick, fixed to framing over plasterboard.	Wall Lining behind glass kitchen splashback.	
FC-	James Hardie	'Villaboard II', 9mm	Dry Store	

Cornice

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Plasterboard Junction Square Set	Supply and install 35 x 35mm galvanised metal angle, tape joint, flush and square set wall / ceiling junction.	Plasterboard Wall / ceiling junction generally.	

Casing Beads

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Rondo	Rondo Plasterlock Corner Bead P32.	External corners	
-	Rondo	Rondo P50 Shadowline stopping bead, combined with P25 bead as required to finish second sheet.	Junctions in same wall plane between plasterboard walls and FC sheet walls.	
-	Rondo	Rondo P50 Shadowline stopping bead.	Junctions between plasterboard walls and door / window frames, typical.	

09300 - CERAMIC TILES**Waterproofing Membrane System - Internal Tiles on FC underlay / Timber Floor**

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Ardex 'WPM 002 (Superflex Two Part)' liquid membrane system.	Installation in strict accordance with manufacturer's procedures manual.	Internal Tiled floors.	

Waterproofing Membrane System - Internal Tiles on Plasterboard / FC sheet

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Ardex 'WPM 001 (Superflex Premixed)' liquid membrane system.	Installation in strict accordance with manufacturer's procedures manual.	Waterproofing to walls of shower area.	

T – Tiling

Code	Product / Material	Detail / Description	Indicative Location	Rev
T	Floor Tiles	Refer to Interior Specifications		
WT	Wall Tiles	Refer to Interior Specifications		

09610 – APPLIED FINISHES TO CONCRETE FLOORS**CO – Applied Finishes to Concrete Floors**

Code	Product / Material	Detail / Description	Indicative Location	Rev
CO-1	Deflecta Stabiliser & Surface Binder (Anti-microbial).	Supplier: Deflecta Crete Seals (tel. 9318 9315). Installation to comply with manufacturer's written instructions.	Stock Room, Cool Room	
CO-2	Durafloor HD/ HD-S Concrete Hardener/ Sealer (supplier: Parchem)	Thoroughly clean surface of concrete with neutral cleaner, wash clean and allow to dry. Apply one (1) coat of Durafloor HD and two (2) coats of Durafloor HD-S. Installation to comply with manufacturer's written instructions.	Beer Stock Room	
CO-3		Floor finish by Kitchen / Coolroom Contractor	Freezer	

09650 - RESILIENT FINISHES**V –Vinyl, Sheet**

Code	Product / Material	Detail / Description	Indicative Location	Rev
V	Sheet Vinyl	Forbo 'Safestep R12', 2.0mm thick. Coved 100mm up walls.	Floors where shown, Refer Floor Plans	
V	Sheet Vinyl	Polyflor Standar XL 2.0mm thick.	Walls where shown, refer Internal Elevations.	

VS – Vinyl Skirting

Code	Product / Material	Detail / Description	Indicative Location	Rev
VS-1	Vinyl Skirting	Refer above		

Expansion / Contraction Joint Covers – Refer Section 09680 Carpet / Modular Carpet & Miscellaneous Floor Items

09680 – CARPET / MODULAR CARPET & MISCELLANEOUS FLOOR ITEMS**C – Carpet / Modular Carpet Tiles**

Code	Product / Material	Detail / Description	Indicative Location	Rev
C1	Carpet Plank Tiles	Interface Flor 'Nimbus Graphite' Installed using direct stick Herringbone pattern	Refer Floor Plans & Finishes Schedule for further details	C1
C2	Carpet Plank Tiles	Interface Flor 'Nimbus Slate' Installed using direct stick Herringbone pattern	Refer Floor Plans & Finishes Schedule for further details	C1

M – Matting

Code	Product / Material	Detail / Description	Indicative Location	Rev
M	Matting	Interface Flor 'Stand Alone Entry Level' Colour: Black	Refer Floor Plans.	C1

T – Tiling - Refer Section 09300.

TF – Timber Floor Finishes including Floating Flooring - Refer Section 06100.

Stair Tread Nosing

Code	Product / Material	Detail / Description	Indicative Location	Rev
-	Nosing	Provide 3 No. 10mm x 3mm aluminium strip cut into stair tread for width of stair at 20mm centres	Stair 1	
-	Nosing	Provide Tredsafe stair nosing code: "AA114", anodized aluminium with 'Charcoal Grey' insert.	Stair 2	

Expansion / Contraction Joint Covers

Code	Product / Material	Detail / Description	Indicative Location	Rev
	Latham or Miska brass joints and cover strips	Construction and expansion joints as indicated.		

09900 - PAINTING**Extent of Painting**

All new surfaces and finishes (except pre-finished items) are to be painted, unless noted otherwise in schedule.
 Refurbished Areas/ Existing Parts: all surfaces to areas affected by the works only, including all refurbished areas complete, are to be painted.







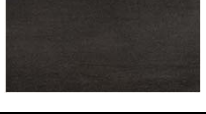
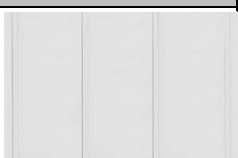




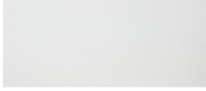
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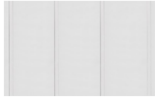
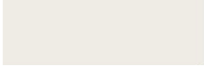
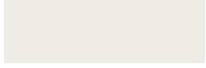
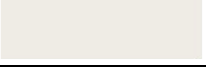



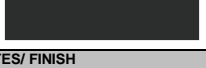





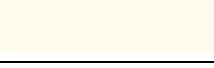



Item/code	Substrate	Preparation / Product / Description	Indicative Location	Rev
Exterior Concrete Panel, Paint Finish	Steel trowelled Concrete	Remove all surface contaminants. Scrape / Rub down, patching excessive pinholes, cracks, dents and blemishes. Wipe clean and dust free. Apply One (1) coat acrylic sealer undercoat, pigmented. Apply Two (2) coats semi-gloss washable acrylic.	Refer Elevations	
Exterior CFC sheet (paint finish) or FC sheet	CFC sheet / FC sheet	Rub down, scrape and fill joints, cracks and surface blemishes. wipe clean and dust free. Correct filing of blemishes after sealer undercoat where necessary. Apply One (1) coat acrylic sealer undercoat, pigmented. Apply Two (2) coats low sheen acrylic (walls) OR Apply Two (2) coats flat acrylic (soffits).	CFC. Sheet Wall Linings – Expressed Jointed. FC. Sheet Soffit Linings.	
Exterior / Interior Metalwork	Mild Steel, Shop- Primed Mild Steel or Galvanised Mild Steel.	Remove surface contaminants, rust and scale. Wipe clean. Apply One (1) coat red oxide metal primer, OR Touch up shop primed steelwork, OR Apply One (1) coat Galvanised Iron Primer to all galvanised surfaces. Apply Two (2) coats gloss enamel.	All structural steelwork and metalwork exposed to view. Do NOT paint galvanised steel purlins, 'Colorbond' or prefinished metalwork.	
Exterior / Interior Plastics	PVC, Acrylic. HDPE is not to be painted.	Remove surface contaminants. Abrade surface as required for key with wet and dry paper or steel wool. Apply Two (2) coats low sheen acrylic.	Exposed plumbing and pipework.	
Interior Painted Timber	Dressed Timber	Remove sap and gum with solvent cleaner. Fix split timber. Fill joints, blemishes and nailholes with acrylic wood filler. Sand smooth and wipe clean. Treat Flush panel doors with one (1) coat grain filler. Apply One (1) coat acrylic sealer undercoat. Apply Three (3) coats gloss or semi-gloss 'Aqua- namel'.	Interior Flush Panel & Glazed Timber Doors, reveal linings, architraves, skirtings & trim. All Timber not scheduled as clear finish or stained.	
Interior Clear Finish Timber - Flooring	Dressed Timber	Remove sap and gum with solvent cleaner. Fill as required with matching coloured filler. Sand smooth and wipe clean. Apply One (1) coat of Polycure 'Faster Seal 3030'. Apply Two (2) coats Polycure 'Durapol 1012' single pack moisture cured polyurethane semi-gloss clear.	Timber Strip Flooring.	
Interior Plaster- board / FC sheet	Plasterboard (various types) and internal FC sheet	Rub down, scrape and fill joints, cracks and surface blemishes with patching plaster or acrylic filler. Fill structural gaps with flexible filler. Sand and wipe clean. Correct filing of blemishes after sealer undercoat where necessary. Take care not to fill perforations to acoustic grade plasterboard. Apply One (1) coat acrylic sealer undercoat. Apply Two (2) coats low sheen acrylic (walls) OR Two (2) coats flat acrylic (ceilings).	Plasterboard walls, bulkheads & ceilings generally. Internal FC Sheet Linings.	


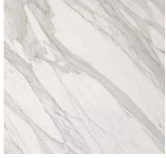




Line Marking




Item/code	Substrate	Preparation / Product / Description	Indicative Location	Rev
Line Marking	Asphalt / Concrete	Provide line marking in accordance with Vic Roads standards. All line marking to be applied to totally clean surfaces, using Dulux Roadmarking product or equal approved. Lines to be 75mm wide, white.	Carparks, Roads.	

END OF SCHEDULE

APPENDIX C					
FLOOR	LOCATION	SUPPLIER/ PRODUCT/ DESCRIPTION/ FINISH	CODE	NOTES/ FINISH	REVISION
Matting	Entry locations	Interface Flor Stand Alone Entry Level Black Matting	M		
Carpet Tiles	General Carpet	Interface Flor Nimbus Graphite 250mm x 1000mm Planks Installation: Herringbone method	C1		
	General Carpet	Interface Flor Nimbus Slate 250mm x 1000mm Planks Installation: Herringbone method	C2		
Vinyl	Safety Vinyl	Forbo Safestep R12 175032 Smoke	V1		
Timber	Entry Foyer	Havwoods Europlank European Oak Castle Satin Lacquered, Rustic Grade, Square Edge Code: HW671	TF		
Tile	Amenities	Classic Ceramics Basaltina Nera Natural 300mm x 600mm R10/ X/ P3 Slip ratings	T1		
	Outdoor Terrace	Classic Ceramics Basaltina Nera FM/ External 300mm x 600mm R11/ V/ P5 Slip ratings	T2		
WALLS					
		SUPPLIER/ PRODUCT/ DESCRIPTION/ FINISH	CODE	NOTES/ FINISH	
Wall Cladding	Foyer & Joinery Seat	Weathertex Smooth Architectural Panel 140mm Width	WLP		
Pinboard	Kids Play	Autex 'Cube 12mm' Colour: Savoye	PBA1		
		Autex 'Cube 12mm' Colour: Falling Water	PBA2		
Wall Vinyl	Entrance/ Toilet Air locks	Baresque 'Prairie Structures' Colour: 03A56	WV1		
		Baresque 'Reed' Colour: AZ51673 Baltic	WV2		
Wall Tiles	Toilets	National Tiles 'MB08002' 100 x 300 White Gloss	WT1		

		National Tiles 'MB08002' 75 x 150 White Gloss Installation: Herringbone method	WT2		
CEILING		SUPPLIER/ PRODUCT/ DESCRIPTION/ FINISH	CODE	NOTES/ FINISH	
Feature Timber Ceiling	Bar	Screenwood 4020 Profile, Hemlock - Clear	TL		
Feature Ceiling Cladding	Foyer	Weatherxert Smooth Architectural Panel 140mm Width	WLP		
PAINT		SUPPLIER/ PRODUCT/ DESCRIPTION/ FINISH	CODE	NOTES/ FINISH	
Ceilings	Generally unless stated	Dulux 'Natural White' PN1E1, Flat ceiling finish.	PT1		
Foyer Ceiling/ Walls		Dulux 'Natural White' PN1E1, High Gloss Acrylic	PT2		
General Walls		Dulux 'Natural White' PN1E1, Low sheen acrylic.	PT3		
Feature Walls	Joinery Seat Feature Wall Colour/ Fireplace	Dulux 'Paramount Design' PN2G2, Low sheen acrylic.	PT4		
	Foyer Entrance Feature Wall	Dulux 'Guild Grey' PG1A5, Low sheen acrylic.	PT5		
Doors/ Trims		Dulux 'Guild Grey' PG1A5, Semi Gloss	PT5		
Bottleshop Ceiling		Dulux 'Black' PN2A9	PT6		
UPHOLSTERY		SUPPLIER/ PRODUCT/ DESCRIPTION/ FINISH	CODE	NOTES/ FINISH	
Fabric	Joinery Seat	Baresque 'Storm' Colour: Seagreen	UP1		
	Upholstered Chairs/ Stools	Warwick Lustrell Canvas 'Pumice'	UP2		
		Warwick Lustrell Canvas 'Pyrite'	UP3		
		Warwick Macrosoft H/guard 'Aegean'	UP4		
JOINERY		SUPPLIER/ PRODUCT/ DESCRIPTION/ FINISH	CODE	NOTES/ FINISH	
Laminate		Laminex 'Sublime Teak' Natural Finish	LM1		
		Laminex 'Parchment' Diamond Gloss Finish	LM2		
		Laminex 'Fresh Spring' Natural Finish	LM3		
	Toilet Partition System	Wilson Art 894 XL	CLM1		
	Outdoor Compact Laminate Tabletops	Laminex 'Seasoned Oak' Compact Laminate	CLM2		

Recon. Stone	Bar	Smartstone 'Santorini'	BC/ ST		
Stone	Fireplace	CDK Stone Calacatta	ST2		
Bar Tiles	Bar	Classic Ceramics 'Mediterranean Oslo' 75 x 150	WT3		
		Classic Ceramics 'Mediterranean Aquamarine' 75 x 150	WT4		
		Classic Ceramics 'Mediterranean Tangier' 75 x 150	WT5		
Foot Rail	Bar	Delway Brass- Brass extrusion mounted with Sandle bracket to floor, 50mm Dia. foot rail. Positioned 100mm H. Polished Raw Brass.			

APPENDIX_D		SUMMARY OF INTERIOR FIXTURES & FITTINGS					
LIGHTING	LOCATION	SUPPLIER/ PRODUCT/ DESCRIPTION/ FINISH	CODE	QTY	NOTES/ FINISH	REVISION	
Pendant Lighting	Foyer Entrance	About Space Rise Pendant Large Gold 810mm Dia. x 400mm H 2000mm Drop	P1	1			
		About Space Rise Pendant Medium Gold 560mm Dia. x 560mm H 1600mm Drop	P2	1			
		About Space Rise Pendant Small Gold 230mm Dia. x 460mm H 1800mm Drop	P3	1			
	Joinery Seat	About Space Unit Lo Pendant Gold 200mm Dia x 110mmH 800mm Drop	P4	4			
	Bar	About Space Alana Pendant Smoke Glass 280mm Dia. x 160mmH 400mm Drop	P5	10			
Wall Lighting	Outdoor Lighting- Exterior Surround	About Space Conley LED Wall light Stainless Steel with frost glass Colour: Black 215mm H x 102mm W x 120mm L	W1	10			
	Outdoor Lighting- Smokers/ Terrace	Ligman Matrix 1 Series Up down Wall light No. 31392 Mounted on wall @ 1800mmH	W2	11			
	Foyer	About Space Ares 1 Wall Light 3000K White finish 220mm L x 185mm H x 105mm D Mounted on wall @ 3000mmH	W3	2			