CONDITIONS OF TENDERING

VERSION: MW21 SEPTEMBER 2014

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CONTENTS

1 GENERAL 2
1.1 Contact Person 2
1.2 NSW Government Code of Practice for Procurement and Implementation Guidelines 2
1.3 Legal Relationship during the Contractor Selection Process 3
1.4 Departure from Conditions 3
1.5 Process may be Cancelled 3
2 TENDERER ELIGIBILITY 3
2.1 Acceptable Legal Entities 3
2.2 Licence Requirements 4
2.3 Related Companies 4
2.4 Workers Compensation Insurance 4
2.5 Conflict of Interest 4
2.6 Improper Assistance 4
2.7 Media releases and enquiries 5
2.8 Financial Assessment 5
3.0 CONTRACT DETAILS 5
3.1 The Site 5
3.2 General Conditions of Contract & Special Conditions of Contract 6
3.3 Provisional Sums 6
3.4 Cost Adjustment 6
3.5 Insurance 6
3.6 Preferred Subcontractors 6
3.7 Design Development and Documentation Resources 6
3.8 Development Consent 6
4.0 CURRENT POLICIES 6
4.1 Quality Management 6
4.2 Work Health and Safety Management 6
4.3 Environmental Management 7
4.4 Workplace Relations Management 7
4.5 NOT USED 7
4.6 Aboriginal Participation in Construction 7
4.7 Waste Management 7
4.8 Disclosure of Tender and Contract Information 8
4.9 Exchange of Information Between Government Agencies 8
4.10 Security of Documents 8
4.11 Unconditional Undertakings – Approved Institutions 8
5.0 FURTHER INFORMATION 8
5.1 Addenda to Tender Documents 8
5.2 Credentials 8
5.3 Site Access Restrictions 9

5.4 Pre-tender Meeting 9
6.0 PREPARATION OF TENDERS 9
6.1 Alternative Tenders 9
6.2 Bulk Tenders 9
6.3 Technical Data 9
6.4 Construction Program 9
6.5 Tender Concept /Design 9
7.0 SUBMISSION OF TENDERS 9
7.1 Documents to be Submitted 9
7.2 Submission Procedure 10
7.3 Legal Status 10
7.4 Electronic format for submissions 10
7.5 File Compression 10
7.6 Change of Tender Form Text 10
7.7 Late Tenders 10
7.8 Goods and Services Tax 11
8.0 PROCEDURES AFTER CLOSING OF TENDERS 11
8.1 Tender Assessment 11
8.2 Evaluation of Tenders 11
8.3 Acceptance of Tenders 11
8.4 Protection of Privacy 11
CONDITIONS OF TENDERING ANNEXURE - Refer to a separate document 12

These 'Conditions of Tendering' do not form part of the Contract.

The Principal for the purpose of these Conditions of Tendering is the New South Wales Land and Housing Corporation.

1 GENERAL

1.1 Contact Person

Refer to tender documents.

Amended Mar 2014

1.2 NSW Government Code of Practice for Procurement and Implementation Guidelines

Terminology

1.2.1 The New South Wales Government's Code of Practice for Procurement (NSW Code) and the New South Wales Government's Implementation Guidelines to the New South Wales Code of Practice (NSW Guidelines) apply to the project the subject of this procurement process.

1.2.2 Terms used in this section 1 of this procurement process (under the heading NSW Code and Implementation Guidelines) have the same meaning as is attributed to them in the NSW Guidelines (as published by the NSW Treasury in July 2013).

Primary obligation

1.2.3 By submitting a response to this procurement process, the tenderer acknowledges and agrees that it:

- is aware that the NSW Code and NSW Guidelines apply to the project;
- is taken to have read and understood the NSW Code and NSW Guidelines and the obligations they impose;
- will comply with the NSW Code and NSW Guidelines on this project, which includes, but is not limited to giving access to authorised personnel to inspect any work, material, or machinery, inspect and copy any record relevant to the project, and interview any person;
- will agree, if successful in this procurement process, to contractual terms that give effect to the NSW Code and NSW Guidelines and mechanisms to ensure their compliance and enforcement; and
- will comply with, and ensure all of its related entities (as defined in the NSW Guidelines) comply with, the NSW Code and NSW Guidelines in respect of any of their building and construction work (including any subsequent privately funded work), on and from the date of submitting a response to this procurement process.

Cost, efficiency, productivity and workplace safety

1.2.4 The tenderer agrees that it must include in its response:

- for projects where the NSW Government or public sector body contribution is $10million or more or is at least $5million and represents at least 50 percent of the total construction project value, a Workplace Relations Management Plan and any other documents and information necessary to meet the requirements of section 6.1 of the NSW Guidelines;
- a Work Health Safety (WHS) Management Plan or Site Specific Safety Management Plan and any other documents and information necessary to meet the requirements of section 9 of the NSW Guidelines; and
- the Schedule of Compliance that is attached to this procurement process, properly executed by or on behalf of the tenderer.

Disclosure of information

1.2.6 Notwithstanding any other provision of the procurement process, the tenderer agrees and consents to the disclosure of information concerning the tenderer's, and the tenderer's related entities', compliance with the NSW Code and NSW Guidelines, including the disclosure of details of past and present compliance to the NSW Code and NSW Guidelines, the National Code of Practice for the Construction Industry, and the Australian Government Implementation Guidelines for the National Code of Practice for the Construction Industry as varied from time to time, including whether or not sanctions have been imposed on a tenderer or any of its related entities by the Commonwealth or any State or any government agency. This consent is given to the State of New South Wales, including its agencies (including the Client Agency), Ministers and the CCU (and its authorised personnel) for purposes including monitoring and investigating compliance and ensuring, facilitating and promoting compliance with the NSW Code and NSW Guidelines.

Subcontractors etc

1.2.7 Where the tenderer proposes to subcontract the works, the tenderer agrees that it will ensure, through contract, that each subcontractor or consultant agrees to:

- the contractual promises in clauses paragraph.3 of this clause (Primary obligation) and paragraph .6 of this clause (Disclosure of information) in respect of the relevant subcontractor or consultant;
- comply with the applicable plans and policies on the project referred to in clause paragraph.4 of this clause (Cost, efficiency, productivity and workplace safety); and
- where a subcontractor or consultant is nominated in procurement process documents, that the nominated party cooperates with authorised personnel during the procurement process for the purposes outlined in paragraph 5 of this clause.

1.3 Legal Relationship during the Contractor Selection Process

These Conditions of Tendering will not form part of any Contract entered into between the Principal and the Tenderer.

The Principal does not intend these conditions to have any contractual or other legal significance under which the Principal has any obligation to the Tenderer to administer the tender process, evaluate the Tender, select contractors or award contracts in any particular manner. There is no intention or offer to create a legal relationship with the Tenderer prior to entering into a contract by way of letter of award and formal instrument of agreement.

1.4 Departure from Conditions

The Principal may depart from these Conditions of Tendering in the interest of efficient contract management practice. Tenderers shall be advised of such departures and may adjust their Tender accordingly.

1.5 Process may be Cancelled

The Principal may, in its absolute discretion, choose to cancel the tender process and shall not be liable to the Tenderer on any basis if it does so.

2 TENDERER ELIGIBILITY

2.1 Acceptable Legal Entities

The Principal contracts only with recognised and acceptable legal entities. Tenders submitted by an unincorporated business such as a sole trader or partnership must identify the legal entity that proposes to enter the Contract.

The Principal does not contract with companies under any form of external administration.

The Principal reserves the right in its absolute discretion to reject any Tender submitted by a trust or company trading under trust arrangements having less than five years experience trading under those arrangements.

Before accepting a Tender submitted by a trust or company trading under trust arrangement, the Principal may require that a trust or company trading under trust arrangements gives an undertaking that it will not change its financial structure without the knowledge of the Principal.

Where the Tenderer is a trust or a company trading under trust arrangements, the Principal may require further security, in the form of an unconditional undertaking, in addition to that required pursuant to the General Conditions of Contract. Whether additional security is required will be determined by the Principal, based upon the information provided by the Tenderer about its financial capacity.

If the Principal requires additional security to be provided, then the Tenderer shall provide before award of contract, a signed written statement to the Principal stating "Should (insert the name of the trust or company trading under trust arrangements) be awarded (insert the contract number and description) by the Principal, then the (insert the name of the trust or company trading under trust arrangements) will provide additional security in the amount of (insert the security amount)". Failure of the Tenderer to provide the signed written statement may result in the Tender being passed over.

2.2 Licence Requirements

Tenderers are required to be licensed for residential building work in accordance with the *Home Building Act, 1989 (NSW)* with the Office of Fair Trading. Tenderers are to show current licence number/s on the tender form.

Where the Tenderer is a partnership the licence must be in the name of all partners and one of the partners or a staff member must hold an individual licence or a qualified supervisor's certificate.

Where the Tenderer is a company, the licence must be in the name of the company and one of the directors or a staff member must hold an individual licence or a qualified supervisor's certificate.

If the Tenderer is required to take out Home Warranty Insurance, it shall have a licence that is unconditional concerning the performance of Works. The licence shall not include any conditions concerning Home Warranty Insurance.

2.3 Related Companies

Where separate Tenders are submitted by related companies, the Principal may seek assurances that the integrity of the tendering process has not been jeopardised.

In this context, a related company is a company which has one or more common controlling shareholders, directors or any other body that has the capacity to influence or control the outcome or direction of a Tender.

If so requested by the Principal, during Tender evaluation, the Tenderer shall, where it is a related company, demonstrate the competitive nature of its organisation and describe the internal process implemented to ensure tendering integrity.

2.4 Workers Compensation Insurance

Tenderers employing employees must provide, prior to signing any contract documents, evidence of a current policy of workers compensation insurance by way of certificate of currency in the name of the Tenderer.

2.5 Conflict of Interest

The Tenderer warrants that no conflict of interest which might affect its performance of the Contract exists as at the date of the Tender. The Tenderer shall immediately inform the Contact Officer upon it becoming aware, during the tender process or during the currency of any Contract, of circumstances which give rise to an actual or potential conflict of interest in connection with its performance of the Contract. The Tenderer shall comply with any direction given by the Principal for the purpose of eliminating, avoiding or reducing such conflict of interest.

2.6 Improper Assistance

Tenders, or any part of them, that, in the opinion of the Principal, have been compiled:

a. with the improper assistance of employees of the State or former employees

of the State, including the States agencies, Housing NSW, the New South Wales Land and Housing Corporation, or contractors, or former contractors or consultants of the State;

b. with the utilisation of information unlawfully obtained from the State;

c. in breach of an obligation of confidentiality to the State; or

d. contrary to these conditions of tendering,

may be excluded from further consideration by the Principal.

Without limiting the operation of paragraph (a), a Tenderer must not, in the absence of written approval from the State, permit a person to contribute to, or participate in, any process relating to the preparation of the Tenderer's response or the tender process, if the person:

a. at any time during the 6 months immediately preceding the date of issue of this tender, was a former State employee; or

b. at any time during the 12 months immediately preceding the date of issue of this tender, was a former State employee involved in the planning or performance of the project or activity to which the tender relates, or in the preparation of this tender or management of the tender process, as determined by the Principal in its absolute discretion.

2.7 Media releases and enquiries

The Tenderer must obtain the Principal's prior written consent to:

a. any press release or advertisement it wishes to make or place concerning the Tender, the Principal or the Contract; or

b. the release for publication in any media of any information, publication, document or article concerning the Tender, the Principal or Contract.

The Tenderer must refer any media enquires concerning the Tender, the Principal or the Contract to the Principal, for the Principal's prior written consent to the response, which consent may be given or withheld at the Principal's absolute discretion

2.8 Financial Assessment

Tenderers are required to provide to Land and Housing Corporation(LAHC), or its nominated agent, upon request all such information as LAHC reasonably requires to satisfy itself that Tenderers are financially viable and have the financial capability to provide the Services for which they are tendering and meet their obligations under the proposed Contract. LAHC reserves the right to engage, at its own cost, an independent Financial Assessor as a nominated agent to conduct financial assessments under conditions of confidentiality. For this assessment to be completed, a representative from the nominated agent may contact the tenderers concerning the financial information that the tenderers are required to provide.

The financial assessment information is specifically for use by LAHC or another NSW Government Agency authorised to use the Financial Assessment Scheme for the purpose of assessing Tenderers and will be treated as confidential.

Tenderers must agree to assist in the assessment process and to co-operate with an independent Financial Assessor during the conduct of financial assessments.

Tender Schedules

Financial assessments may also be carried out by the Principal during the term of the Contract.

The Tenderer must submit, when requested by the Financial Assessor or the Principal, the required Financial Assessment information, including but not limited to that shown in *Tender Schedules* - **Schedule of Financial Capacity Information.**

The Principal may elect to pass over a tender from a tenderer if the financial assessment obtained is below a threshold acceptable to the Principal.

3.0 CONTRACT DETAILS

3.1 The Site

Annexure

Refer to the *Annexure* to these Conditions of Tendering for details of investigations carried out or reports obtained, if any.

3.2 General Conditions of Contract & Special Conditions of Contract

The Tender documents include a copy of the General Conditions of Contract and the Special Conditions of Contract.

3.3 Provisional Sums

Annexure

Refer to the *Annexure* to these Conditions of Tendering for details of work subject to provisional sums, if any.

3.4 Cost Adjustment

The work is not subject to Cost Adjustment for labour and materials.

3.5 Insurance

The Special Conditions of Contract provide details of insurance arranged by the Principal where the Contractor shall pay the premium. A copy of the policies can be provided by the Principal upon request (Director, Risk 02 8753 8082).

3.6 Preferred Subcontractors

Annexure

Refer to the *Annexure* to these Conditions of Tendering for details of any work required to be carried out by preferred subcontractors.

3.7 Design Development and Documentation Resources

Where the Tenderer proposes to use internal resources for design development and documentation in any discipline not subject to Preferred Subcontractors, the Tenderer must, when requested, provide full details to establish that each of the key staff have the proven competence, qualifications and experience on similar tasks to satisfactorily perform the proposed functions in accordance with *Tender Schedules* - **Schedule of Internal Designers**.

Tender Schedules

Where the Tenderer proposes to use other than internal resources for design development and documentation, in any discipline which is not subject to Preferred Subcontractors, the Tenderer must, when requested, provide full details and references to show their proven competence, qualifications and experience on similar tasks to satisfactorily perform the proposed functions in accordance with *Tender Schedules* - **Schedule of External Designers**.

Tender Schedules

3.8 Development Consent

The successful tenderer will be required to comply with Development Consent Conditions, if any.

If the Tenderer is required to complete and lodge a Development Application, refer to the *Annexure* to these Conditions of Tendering clause – **Development Application.**

Annexure

4.0 CURRENT POLICIES

4.1 Quality Management

The Principal may elect to pass over a tender from a tenderer that does not demonstrate the capacity to systematically plan and manage the quality of its work in accordance with the NSW Government Quality Management Systems Guidelines, which are available at:

http://www.nswprocurement.com.au/psc/nsw_government_guidelines/qms_guidelines.aspx

4.2 Work Health and Safety Management

Amended Mar 2014

Tenderers must demonstrate their capacity to manage work health and safety (WHS) in accordance with the Work Health and Safety Regulation 2011 (NSW) and the NSW Government *Work Health and Safety Management Systems and Auditing Guidelines 5th Edition (WHSMS&A Guidelines).* The *WHSMS&A* Guidelines are available from ProcurePoint website.

Tender Schedules

The Tenderer is to submit with the Tender the information identified in *Tender Schedules* **- Schedule of Work Health and Safety Management Information**.

Amended Mar 2014

For all contracts of $1 million or more in value a tender will only be accepted from a tenderer that has a corporate WHS Management System acceptable to the Principal in accordance with *WHSMS&A Guidelines*

4.3 Environmental Management

Tenderers must demonstrate their capacity to manage environmental matters n accordance with the NSW Government *Environmental Management Systems Guidelines* (EMS Guidelines) which are available at:

http://www.nswprocurement.com.au/Procurement-System-for-Construction/Reference-material/Procurement-Guideline-Documents.aspx

Amended Mar 2014

4.4 Workplace Relations Management

Tenderers must demonstrate their capacity to plan and manage workplace relations and implement effective workplace relations plans in accordance with the NSW Government *Industrial Relations Management Guidelines* and the *NSW Government Implementation Guidelines to the NSW Code of Practice*.

Amended Sep 2014

For Contracts valued more than $0.5M (and less than $10M) submit when requested:

- Copies of any enterprise, workplace or other enforceable industrial relations agreements to which the Tenderer is bound*; and*

Tender Schedules

- Tender Schedules - **Schedule of Workplace Relations Information**.

Amended Mar 2014

4.5 NOT USED

4.6 Aboriginal Participation in Construction

Tenderers must demonstrate their commitment and capacity to create and extend opportunities for Aboriginal people and enterprises through the Contract, in accordance with the NSW Government Aboriginal Participation in Construction Guidelines and any additional requirements imposed by the Principal.

Tenderers are required to submit the following:

- Management Statement of Support for Aboriginal Participation (MSSAP);
- Statement of Opportunities for Aboriginal Participation (SOAP)**;**
- Undertaking to employment of Aboriginal people on the job in accordance with the Contract if successful in being awarded the Contract.
- Undertaking to submit Aboriginal Participation Plan (APP) in accordance with the NSW Government *Aboriginal Participation in Construction Guidelines* if successful in being awarded the Contract.

The Guidelines and templates for MSSAP, SOAP, APP are available at:

http://www.nswprocurement.com.au/Procurement-System-for-Construction/Reference-material/Procurement-Guideline-Documents.aspx

Tender Schedules

Tenderers are required to submit with their Tender the information and undertakings identified in the *Tender Schedules* – **Schedule of Aboriginal Participation Information**.

4.7 Waste Management

The Tenderer's attention is drawn to the Principal's requirements concerning waste management.

The Waste Reduction and Purchasing Policy (WRAPP) of the NSW Government requires NSW State Government Agencies to adopt environmentally responsible waste reduction and purchasing practices. The objectives of the policy are to:

a. encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecologically sustainable development;

b. provide for the continual reduction in waste generation;

c. minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste; and

d. encourage the use of recycling and materials recovery facilities.

The WRAPP requires the Principal to report its waste avoidance and resource recovery performance to the Environment Protection Authority. Accordingly a successful Tenderer is required to recycle suitable materials in order to reduce the volume of waste being placed in landfill sites.

Successful Tenderers must prepare and implement a Site Specific Waste Management Plan in respect of any work involving the complete demolition of buildings.

The Tenderer must submit the Site Specific Waste Management Plan to the Principal no later than seven days before commencing any demolition work.

4.8 Disclosure of Tender and Contract Information

The Principal will publish details of tender and any contract awarded as a result of this tender process in accordance with *Government Information (Public Access) Act 2009* (NSW), Premier's Memorandum 2007.

4.9 Exchange of Information Between Government Agencies

By submitting a tender, the Tenderer authorises the Principal to gather, monitor, assess, and communicate, to other NSW Government agencies or local government authorities, information about the Tenderer's financial position and its performance in respect of any contract awarded as a result of the tender process. Such information may be used by those agencies or authorities in considering whether to offer the Tenderer future opportunities for work.

4.10 Security of Documents

All Tender documents marked as "restricted" are classified maximum security documents. No copies are to be made by Tenderers, their agents or anyone else other than for tendering purposes. All such documents and copies are to be returned to the Principal on completion of the tendering process.

4.11 Unconditional Undertakings – Approved Institutions

For the purpose of giving unconditional undertakings, the Principal has approved banks, building societies, credit unions and insurance companies listed by the Australian Prudential Regulation Authority (APRA) as being regulated by the APRA. Lists appear at the APRA website at:

http://www.apra.gov.au/

5.0 FURTHER INFORMATION

5.1 Addenda to Tender Documents

The Principal reserves the right to amend any document forming part of this invitation to tender at any time during the tender submission period.

Tenderers who wish to have any aspect of the documents, as issued for tendering or the evaluation process, clarified, should direct the inquiry in writing to the Contact Person nominated within the Tender Documents and must not rely on any information provided by any other officer of the Principal.

If, as a result of a request for clarification from a tenderer or for any other reason, the Principal issues an instruction amending the tender documents, the instruction will be issued in writing to all tenderers in the form of an Addendum, which becomes part of the tender documents. Written Addenda issued by the Principal are the only recognised explanations of, or amendments to, the tender documents.

5.2 Credentials

The Principal may investigate the financial and technical capacity of Tenderers during the tender assessment period. Within a time stated by the Principal, the Tenderer

shall supply any requested information concerning the financial and technical capacity of the Tenderer or any associated person or entity.

All information will be treated as confidential. Failure to supply the information requested may result in a tender not being considered by the Principal.

5.3 Site Access Restrictions

Annexure

Tenderers may request an appointment for a site inspection from the Client Representative nominated in the *Annexure* to these Conditions of Tendering. Tenderers must obtain permission from the Client Representative at least 48 hours before access to the Site is required and must, upon arrival at the pre-arranged time, introduce themselves at the Client representative's office prior to undertaking the site inspection. Tenderers should contact the Contact Person if they experience difficulty in securing an appointment with the Client Representative for a site inspection.

5.4 Pre-tender Meeting

Annexure

A pre-tender meeting may be held on the date, at the time and at the place nominated in the advertisement or in the *Annexure* to these Conditions of Tendering.

If a pre-tender meeting is required the Contact Person will be available at that time to answer any tenderer's queries regarding the tender.

6.0 PREPARATION OF TENDERS

6.1 Alternative Tenders

The Principal may consider alternative tenders, provided the alternative tender meets the scope, functional intent and design concept expressed in the Tender document. Where an alternative tender is proposed, the Tenderer must submit a detailed description of the alternative stating clearly the manner in which it differs from the detailed requirements of the Tender documents and including separate tender schedules applicable to the alternative.

Alternative Tenders will not be considered unless the Tenderer has submitted a conforming Tender.

Annexure

Refer to the *Annexure* to these Conditions of Tendering for any additional requirements.

6.2 Bulk Tenders

Tenderers may submit one contract price encompassing more than one building project (i.e. more than one contract) provided that Tenders for the projects in question all close on the same day and time and a conforming Tender is also provided for each contract included in the bulk tender.

6.3 Technical Data

Tender Schedules

The Tenderer must submit, when requested, the details shown in *Tender Schedules* - **Schedule of Technical Data.**

6.4 Construction Program

The Tenderer may be requested to submit a Construction Program as part of Tender Evaluation.

The Construction program shall be in the form of a bar chart or network diagram.
The Program shall show how Scheduled Progress will be achieved including allowance for holidays; restraints imposed by the Principal's Documents; any Milestones; any external dependencies including provision of access and work by others. This program may form part of the Contract and will be required under Special Condition of Contract clause Construction Program.

6.5 Tender Concept /Design

Annexure

Refer to the *Annexure* to these Conditions of Tendering for tender concept/design requirements, if any.

7.0 SUBMISSION OF TENDERS

7.1 Documents to be Submitted

The following documents must be completed and submitted by the Tenderer:

- Tender Form and Tender Schedules
- Confirmation that the Tender allows for the instructions given in the Addend*um/a*.

Amended Jun 2014

Statutory Declaration

Electronically/digitally signed Statutory Declaration is NOT acceptable to New South Wales Land and Housing Corporation.

7.2 Submission Procedure

Unless the Tenderer is advised otherwise by the Principal, the Tenderer must submit the Tender Form, Tender Schedules marked 'Submit with the Tender Form' and other required documents or information by the date and time given in the advertisement or invitation, electronically through NSW Government online eTendering at:

https://tenders.nsw.gov.au

Exceptions to this shall only apply where the Principal has provided written permission to a Tenderer to lodge a Tender or part thereof by hardcopy or some other physical form. Such permission will only be granted in circumstances deemed exceptional by the Principal in its absolute discretion.

If more than one Tender submission is made, the Tenderer must mark each submission clearly as to whether it is a copy, an alternative Tender, or whether the submission supersedes another submission.

7.3 Legal Status

Tenders submitted electronically will be treated in accordance with the *Electronic Transactions Act 2000 (NSW)*, and given no lesser level of confidentiality, probity and attention than Tenders submitted by other means.

Tenderers, by electronically submitting a tender, are taken to have accepted any conditions shown on the NSW Government eTendering web site.

The Principal may decline to consider for acceptance, Tenders that cannot be effectively evaluated because they are incomplete or corrupt.

7.4 Electronic format for submissions

Electronically lodged tenders must be lodged in a file format that can be formatted, read, displayed and printed. The acceptable file formats are **Word (.doc), Excel (.xls), Adobe Acrobat (.pdf), JPEG (.jpg)** or any other formats specifically required by the RFT.

Tenderers must not submit executable files, as the website may treat them as viruses and not allow the files to be uploaded.

7.5 File Compression

Tenderers may compress electronic tenders in any acceptable format that can be decompressed by WinZip. Tenderers must not submit self-extracting (*.exe) zip files.

7.6 Change of Tender Form Text

Tenderers must not change existing text in electronic tender forms other than to insert required information.

7.7 Late Tenders

In accordance with the *NSW Government Code of Practice for Procurement*, late tenders will not be accepted, except where the integrity and competitiveness of the tendering process will not be compromised.

The tests of integrity and competitiveness may include:

(a) Was the late tender received prior to the completion of the tender opening and recording process?

(b) Was it clear that the cause of lateness was beyond the tenderer's control?

(c) Is the late tender so significantly different that no information from other tenders could have assisted in the preparation the late tender?

(d) Is the late tender the only conforming tender received?

Any decision to accept a late tender shall be at the absolute discretion of the Principal.

7.8 Goods and Services Tax

All prices and rates tendered must be inclusive of GST. Tenderers must quote their Australian Business Number (ABN) on the Tender Form. Any tender submitted without an ABN may not be considered.

8.0 PROCEDURES AFTER CLOSING OF TENDERS

8.1 Tender Assessment

Tenderers may be required to supply the Principal with details of their Tender price on a trade by trade or similar basis. Such information must be provided within 48 hours of it being requested and will be treated as confidential. Failure to comply with this requirement may affect consideration of the Tender by the Principal.

8.2 Evaluation of Tenders

Annexure

Tenders will be evaluated on the basis of the criteria specified in the *Annexure* to these Conditions of Tendering, the information provided by the Tenderer in the Tender Schedules and any other information requested during the tender assessment process. Tenderers should not place any significance on the order in which the evaluation criteria are listed nor should it be assumed the criteria have equal weight or significance.

In addition, the Tenderer may be invited by the Principal to attend an interview, at the Principal's premises, covering the Tender. There is no obligation on the Principal, legal or otherwise, to invite the Tenderer to attend an interview.

The Principal may treat any detail required by the tender documents which is left out, illegible or unintelligible as failing to fulfil the relevant requirement.

8.3 Acceptance of Tenders

The Principal may accept Tenders that do not conform strictly with all requirements of the tender documents.

The Principal is not bound to accept the lowest or any Tender. Tenders which do not comply with any requirement of, or which contain conditions or qualifications not required or allowed by, the tender documents may be passed over.

No Tender, or qualification or departure from a contract condition or specification, is accepted unless the Principal gives an acceptance or formal agreement in writing.

Annexure

If specified in the *Annexure* to these Conditions of Tendering, separate contracts may be awarded for specific sections to different tenderers.

8.4 Protection of Privacy

The Tenderer warrants, in respect of any personal information provided in this Tender or any contract arising from this Tender, that the information is accurate, up to date and complete, and that nominated individuals authorise its collection and are aware:

- that the information is being collected for the purpose of evaluating tenders and administering any contracts arising from those tenders and may be made available to other NSW government agencies or local government authorities for those purposes;
- whether the supply of the information by the individual is required by law or is voluntary, and any consequences for the individual if the information (or any part of it) is not provided; and
- of the existence of any right of access to, and correction of, the information.

CONDITIONS OF TENDERING ANNEXURE - Refer to a separate document

GENERAL CONDITIONS OF CONTRACT

MW21

(Excluding Contract Information and Schedules)

VERSION: MAY 2014

(LAST AMENDED MAR 2014)

Prepared by:

Contracts & Quality
LAND AND HOUSING CORPORATION
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1. MW21 General Conditions of Contract

Table of Contents

MW21 General Conditions of Contract 3

1. Definitions 3
1A NSW Code of Practice for Procurement and Implementation Guidelines 5
2. The Contract 7
3. Design and Construction 8
4. Care of People, Property and the Environment 9
5. Insurance 10
6. Site Access 12
7. Site Conditions 13
8. Materials and Work 14
9. Variations 15
10. Suspension 17
11. Completion 18
12. Delay to Completion 19
13. Payment and Retention 20
14. After Completion 22
15. Claims 23
16. Disputes 24
17. Contractor's Default and Insolvency 26
18. Termination for the Principal's Convenience 28
19. Termination for the Principal's Default 29

1. Definitions

1.1 Authorised Person

The person stated in Contract Information - **Item 1** who is appointed by the Principal to act with its full authority in all matters relating to the Contract.

1.2 Business Day

Any day other than a Saturday, Sunday, Public Holiday in NSW or 27, 28, 29, 30 or 31 December.

1.3 Completion

The state of the work under the Contract or any Milestone when:

(a) it is capable of use for the purpose stated in the Contract Information;

(b) it has passed all required tests and is free from any known Defects;

(c) the Contractor has provided all the required documents; and

(d) the Contractor has made good the Site and surroundings.

1.4 Contract

The agreement between the parties for the carrying out of the work under the Contract, as set out in the Contract Documents and accepted in writing by the Principal.

1.5 Contractor

The entity that is to carry out the work under the Contract.

1.6 Contract Documents

(a) the documents prepared by the Principal for the Contract and provided to the Contractor;

(b) the tender submitted by the Contractor as accepted by the Principal; and

(c) any variations to the documents in (a) and (b) agreed to by the parties in writing or made under the Contract.

1.7 Contract Price

(a) where the Principal accepted only a lump sum, the lump sum; or

(b) where the Principal accepted rates, the sum of the products of the quantity and the relevant rate for each item in the Schedule of Rates, plus any lump sums in the Schedule of Rates.

as adjusted in accordance with the Contract.

1.8 Day

A calendar day.

1.9 Defect

Any aspect of the work under the Contract that does not conform with the Contract.

1.10 Direct Costs

Costs incurred by the Contractor excluding costs of supervision, site establishment, general tools, administration, overheads, fees, delay, disruption and profit.

1.11 Milestone

A part of the work under the Contract that is specified as a Milestone in **Contract Information -Item 3**.

1.12 Parties

The Principal and the Contractor.

1.13 Post Completion Period(s)

The period(s) stated in Contract Information - **Item 4**.

1.14 Principal

The entity stated in Contract Information - **Item 5**.

1.15 Provisional Allowance

An amount included in the Contract Price for work for which payment will be made as a Provisional Sum or a Provisional Rate Amount.

1.16 Provisional Sum

An amount included in the Contract Price, which is identified as a provision for the work specified in the Contract against that Provisional Sum.

1.17 Provisional Rate Amount

An amount included in the Contract Price, based on a rate tendered for a provisional item of work.

1.18 Senior Executive

The person stated in Contract Information - **Item 6**.

1.19 Site

The lands and other places made available to the Contractor by the Principal for the purpose of the Contract.

1.20 Site Conditions

The physical conditions on, about or below the Site, excluding conditions resulting from weather.

1.21 Subcontractor's Statement

The Subcontractor's Statement in the form available from the WorkCover website at: www.workcover.nsw.gov.au

To access, enter the form title in the Search bar on the Home page.

1.22 Variation

Any change to the character, form, quality and extent of the work under the Contract instructed or accepted in writing by the Principal. A Variation shall not invalidate the Contract.

1.23 Works

The works to be designed and constructed under the Contract.

1A NSW Code of Practice for Procurement and Implementation Guidelines

Terminology

1A.1 In addition to terms defined in this document, terms used in this clause have the same meaning as is attributed to them in the New South Wales Government's Implementation Guidelines to the NSW Code of Practice for the Building and Construction Industry (NSW Guidelines) (as published by the NSW Treasury July 2013). The NSW Code and NSW Guidelines are available at www.industrialrelations.nsw.gov.au.

Primary Obligation

1A.2 The parties must comply with and meet any obligations imposed by the NSW Government Code of Practice for Procurement (NSW Code) and the NSW Guidelines.

1A.3 The Contractor must notify the CCU and the Principal of any possible non-compliance with the NSW Code and NSW Guidelines and of remedial action taken, within 24 hours of becoming aware of the possible non-compliance.

1A.4 Where the Contractor engages a Subcontractor or Consultant, the Contractor must ensure that that contract imposes on the Subcontractor or Consultant equivalent obligations to those in this section (under the heading NSW Code and NSW Guidelines), including that the Subcontractor or Consultant must at all times comply with, and meet any obligations imposed by, the NSW Code and the NSW Guidelines.

1A.5 The Contractor must not appoint or engage another party in relation to the project where that appointment or engagement would breach a sanction imposed on the other party in relation to the NSW Code or NSW Guidelines.

Access and information

1A.6 The Contractor must maintain adequate records of compliance with the NSW Code and NSW Guidelines by it, its Subcontractors, Consultants and related entities.

1A.7 The Contractor must allow, and take reasonable steps to facilitate, authorised personnel (including personnel of the CCU) to:

.1 enter and have access to sites and premises controlled by the Contractor, including but not limited to the project site;

.2 inspect any work, material, machinery, appliance, article or facility;

.3 access information and documents;

.4 inspect and copy any record relevant to the project;

.5 have access to personnel; and

.6 interview any person;

as is necessary for the authorised personnel to monitor and investigate compliance with the NSW Code and NSW Guidelines, by the Contractor, its Subcontractors, Consultants, and related entities.

1A.8 The Contractor, and its related entities, must agree to, and comply with, a request from authorised personnel (including personnel of the CCU) for the production of specified documents by a certain date, whether in person, by post or electronic means.

Sanctions

1A.9 The Contractor warrants that at the time of entering into this contract, neither it, nor any of its related entities, are subject to a sanction in connection with the NSW Code or NSW Guidelines that would have precluded it from responding to a procurement process for work to which the NSW Code and NSW Guidelines apply.

1A.10 If the Contractor does not comply with, or fails to meet any obligation imposed by, the NSW Code or NSW Guidelines, a sanction may be imposed against it in connection with the NSW Code or NSW Guidelines.

1A.11 Where a sanction is imposed:

.1 it is without prejudice to any rights that would otherwise accrue to the parties; and

.2 the State of NSW (through its agencies, Ministers and the CCU) is entitled to:

.1 record and disclose details of noncompliance with the NSW Code or NSW Guidelines and the sanction; and

.2take them into account in the evaluation of future procurement processes and responses that may be submitted by the Contractor, or its related entities, in respect of work to which the NSW Code and NSW Guidelines apply.

Compliance

1A.12 The Contractor bears the cost of ensuring its compliance with the NSW Code and NSW Guidelines, including in respect of any positive steps it is obliged to take to meet its obligations under the NSW Guidelines. The Contractor is not entitled to make a claim for reimbursement or an extension of time from the Principal or the State of NSW for such costs.

1A.13 Compliance with the NSW Code and NSW Guidelines does not relieve the Contractor from responsibility to perform the works and any other obligation under the contract, or from liability for any defect in the works or from any other legal liability, whether or not arising from its compliance with the NSW Code and NSW Guidelines.

1A.14 Where a change in the contract or works is proposed, and that change may, or may be likely to, affect compliance with the NSW Code and NSW Guidelines, the Contractor must immediately notify the Principal (or nominee) of the change, or likely change and specify:

.1 the circumstances of the proposed change;

.2 the extent to which compliance with the NSW Code and NSW Guidelines will be, or is likely to be, affected by the change; and

.3 what steps the Contractor proposes to take to mitigate any adverse impact of the change (including any amendments it proposes to a Workplace Relations Management Plan or Work Health and Safety Management Plan); and

the Principal will direct the Contractor as to the course it must adopt within 10 Business Days of receiving notice.

2. The Contract

2.1 The Contract Documents are mutually explanatory and anything contained in one document but not in another shall be treated as if contained in all.

Headings, arrows and guidance notes are for convenience only and do not affect interpretation.

2.2 If the Contractor finds any error, discrepancy or ambiguity in the Contract Documents, then the Contractor is to inform the Principal before commencing the affected work and follow any instructions given by the Principal.

2.3 The Principal may give an instruction in relation to the Contract. The Contractor is to comply with the instruction within the time stated in the instruction or, if no time is stated, within a reasonable time.

2.4 The Contractor must not:

(a) subcontract all the work under the Contract; or

(b) enter into a single subcontract for the majority of the work under the Contract without first obtaining the Principal's written consent.

2.5 The Contractor is solely responsible for all subcontractors and for their acts and omissions.

2.6 During claim and dispute resolution procedures undertaken under **Clauses 15** and **16**, the parties must continue to perform their obligations under the Contract.

2.7 This Contract is governed by the laws of New South Wales.

3. Design and Construction

3.1 The Contractor is to complete the Principal's design to the extent stated in Contract Information -**Item 7**.

3.2 The Contractor is not to depart from the Principal's design unless instructed by the Principal. The Principal retains responsibility for the design carried out by the Principal.

3.3 The Contractor has sole responsibility for the Contractor's design. The Principal relies on the Contractor's care, knowledge and skill in carrying out this responsibility.

3.4 The completed design is to conform with the Contract and be fit for the purpose of the Works stated in Contract Information - **Item 2**.

3.5 The Contractor is to progressively submit the completed design, comprising drawings, specifications, calculations and any statutory certificates required, to the Principal in accordance with Contract Information - **Item 8**.

3.6 The Principal is not bound to check the completed design for errors, omissions or conformance with the Contract. No comment made by the Principal relieves the Contractor of the Contractor's obligations and liabilities under the Contract.

The Principal is not liable to the Contractor for any claim whatsoever that relates to the Principal not detecting or notifying the Contractor of any error, omission or non-conformance with the Contract in the completed design.

3.7 All intellectual property and moral rights in any design created specifically for the Contract shall vest in the Principal upon their creation.

The Contractor grants to the Principal an unconditional and irrevocable licence to use any other design provided by or for the Contractor, to the extent necessary for the Works, including any subsequent repairs, maintenance or servicing (including the supply of replacement parts) or additions or alterations to the Works.

3.8 The Contractor is to construct the Works in accordance with the completed design, and make good the Site and surroundings.

3.9 The Contractor is to provide minor items not included in the design that are needed to satisfactorily complete the Works.

3.10 The Contractor is to carry out work that is the subject of a Provisional Allowance only as instructed by the Principal and under the terms specified in the instruction.

If the Principal requests the Contractor to submit a price for work that is the subject of a Provisional Sum, then the Contractor is to comply within 14 days after the request.

4. Care of People, Property and the Environment

4.1 From the time access to any part of the Site is given to the Contractor until the date of Completion of the Works, the Contractor is responsible for the care of, and is to make good, at the Contractor's expense, any loss or damage which occurs to:

(a) the Works;

(b) construction plant; and

(c) things entrusted to the Contractor by the Principal for the purpose of carrying out the work under the Contract.

In carrying out the work under the Contract, the Contractor is to minimise inconvenience to others.

The Contractor is liable for any loss or damage caused by the Contractor whilst making good Defects.

4.2 The Contractor indemnifies the Principal against any:

(a) legal liability for injury, death or harm to the environment;

(b) breach of intellectual property rights in relation to material provided by or for the Contractor; and

(c) loss of, or damage to, property of the Principal, or others,

arising out of the carrying out of the work under the Contract.

The Contractor's liability to indemnify the Principal is reduced to the extent that an act or omission of the Principal has contributed to the injury, loss or damage.

Part 4 of the *Civil Liability Act* 2002 (NSW) does not apply to this Contract.

4.3 The Contractor is to set reasonable standards of conduct and ensure they are met by persons engaged in carrying out the work under the Contract.

4.4 The Principal may instruct the Contractor to remove a person from the Site and surroundings for failing to meet reasonable standards of conduct.

4.5 Nothing in **Clause 4** relieves the Principal of liability for acts and omissions of the Principal.

4.6 If:

(a) action is required to avoid injury, death, harm to the environment or loss of, or damage to, property, and the Contractor does not take the necessary action when instructed by the Principal; or

(b) urgent action is required,

then the Principal may take the action, without relieving the Contractor of its obligations or liabilities.

The Principal's costs in relation to any such action, as certified by the Principal, are a debt due and payable by the Contractor to the Principal.

5. Insurance

5.1 Before commencing any work in connection with the Contract, the Contractor is to hold workers compensation insurance as required by law. The Contractor is also to ensure that every subcontractor, before commencing any work in connection with the Contract, holds equivalent insurance where applicable.

Is the insurance of the Works and public liability insurance to be arranged by the Contractor or the Principal?

Principal

5.2 If Contract Information - **Item 9** states that the Principal has arranged, or is to arrange, insurance of the Works and public liability insurance, then a policy of insurance for the Works and public liability covering the Contractor, Principal and subcontractors will come into effect on acceptance of the tender. The Principal is to pay the insurance premium.

The Principal is to make a copy of the policy available to the Contractor.

Contractor

5.3 If Contract Information - **Item 9** states that the Contractor is to arrange insurance of the Works and public liability insurance then, before commencing work on the Site, the Contractor is to hold policies of insurance covering the Contractor, Principal and subcontractors as insured entities for:

(a) public liability to an amount of not less than $10,000,000 for any single occurrence; and

(b) loss of, or damage to, the Works, any temporary works and all materials, construction plant and other things that are brought onto the Site by or on behalf of the Contractor or are entrusted to the Contractor by the Principal. The amount insured for any single occurrence is to be not less than the Contract Price at the date the Principal accepted the tender.

The policies are to include cross liability and waiver of subrogation clauses under which the insurer, in respect of liability, agrees that the term 'insured' applies to each of the entities covered as if a separate insurance policy had been issued to each of them, and generally agrees to waive all rights of subrogation or action against any of the entities covered.

The required policies are to be with insurers and in terms approved by the Principal. Approvals will not be unreasonably withheld.

5.4 The Contractor or relevant subcontractor is to hold the following additional insurance policies:

(a) marine liability insurance, if the work under the Contract involves the use of water-borne craft in excess of 8 metres in length; and

(b) professional indemnity insurance, if stated in Contract Information - **Item 10**.

The policies are to be in place before commencing the relevant work.

The policy under (a) is to be:

(i) in the name of the Contractor and cover the Contractor, Principal and subcontractors, as insured entities, for their respective rights, interests and liabilities to third parties; and

(ii) for an amount not less than $5,000,000 for any single occurrence and include cross-liability and waiver of subrogation clauses under which the insurer, in respect of liability, agrees that the term 'insured' applies to each of the entities covered as if a separate insurance policy had been issued to each of them, and generally agrees to waive all rights of subrogation or action against any of the entities covered.

The policy under (b) is to cover the Contractor for liability to the Principal for an amount not less than $500,000 for loss (whether economic loss or any other loss) for any single occurrence arising from errors or omissions in the design of the Works carried out by or on behalf of the Contractor. The insurance is to be held for a period of at least one year after the work under the Contract reaches Completion.

5.5 For any insurance the Contractor is required to hold under the Contract, the Contractor is:

(a) responsible for the payment of premiums;

(b) to maintain all the policies, other than professional indemnity insurance, until the work under the Contract reaches Completion or the end of the Post Completion Period, whichever is later; and

(c) to provide evidence of the currency of the policies and copies of the Works, public liability and marine liability insurance policies to the Principal before commencing the relevant work.

5.6 If the Contractor fails, within 7 days after a written request from the Principal, to provide satisfactory evidence of having paid insurance premiums and compliance with other insurance obligations under the Contract, then the Principal may effect or maintain the insurance and pay any premiums. The Contractor is to pay the Principal the amount of any premiums or deductibles paid by the Principal plus, in each and every case, $500 to cover the Principal's costs. These amounts, once notified, are a debt due and payable by the Contractor to the Principal.

5.7 The Contractor is responsible for making and managing any claims and meeting the costs of any deductibles.

6. Site Access

6.1 The Principal is to give the Contractor access to sufficient of the Site to allow the Contractor to start the work under the Contract, by the time(s) stated in Contract Information - **Item 11**.

6.2 The Principal is to act reasonably for the purposes of **Clause 6.1** but is not required to give the Contractor sole or uninterrupted possession of, or access, to the Site.

6.3 The Contractor is to start work on the Site as soon as practicable after being given access to sufficient of the Site, but not before satisfying all necessary requirements.

6.4 The Contractor is to give the Principal, and any third party authorised by the Principal, reasonable access to the Site for any purpose.

7. Site Conditions

7.1 If the Contractor encounters Site Conditions that differ materially and adversely from what should reasonably have been expected at close of tenders, then the Contractor is to notify the Principal forthwith in writing and in any event within 7 days after encountering them.

The notification is to include details of the materially adverse Site Conditions and the additional time and cost the Contractor estimates will be required to deal with them.

7.2 The Contractor is solely responsible for dealing with Site Conditions and is to minimise any additional time and cost.

7.3 From the time the Principal receives notification complying with **Clause 7.1**, the Contractor is entitled to:

(a) payment of the Contractor's reasonable additional Direct Costs plus a margin of 15%; and

(b) an extension of time for delays in reaching Completion,

where the additional cost or delay are necessarily incurred as a result of the materially adverse Site Conditions.

This entitlement is reduced to the extent that the Contractor has not minimised additional time and costs.

The Contractor has no entitlement to additional payment or an extension of time in relation to the period prior to the date of receipt of notification under **Clause 7.1**.

The Contractor has no other entitlements due to materially adverse site conditions except under Clause 7.5.

7.4 The Contractor is to claim any additional Direct Costs and extensions of time to which it is entitled under **Clause 7.3** within 28 days after completing the relevant work.

The claim is to be made in accordance with **Clause 15.2**.

7.5 If a Variation is instructed as a result of materially adverse Site Conditions, the Contractor's entitlements under **Clause 7.3** cease from the time of the instruction and **Clause 9** applies to the Variation.

8. Materials and Work

8.1 The Contractor is to:

(a) supply materials which are new (unless otherwise specified), free from defects and fit for purpose; and

(b) use standards of workmanship (including design) and work methods,

which conform with the Contract, the Building Code of Australia, relevant Australian Standards and codes of practice, and the lawful requirements of any authority.

8.2 When instructed by the Principal, the Contractor is to:

(a) uncover and re-cover work; and/or

(b) carry out additional testing.

8.3 The Contractor is not entitled to additional payment or an extension of time in respect of an instruction under **Clause 8.2** unless the work uncovered or tested conforms with the Contract, in which case the instruction will be dealt with as an instruction under **Clause 9**.

8.4 The Contractor is to make good any Defect when it becomes apparent.

The Principal may, in its absolute discretion, propose to accept work under the Contract with any specified Defect not made good, on specified terms.

If the Contractor does not accept the Principal's proposal, then the Contractor is to make good the Defect.

8.5 Nothing in **Clause 8** relieves the Contractor of any obligations or liabilities under the Contract.

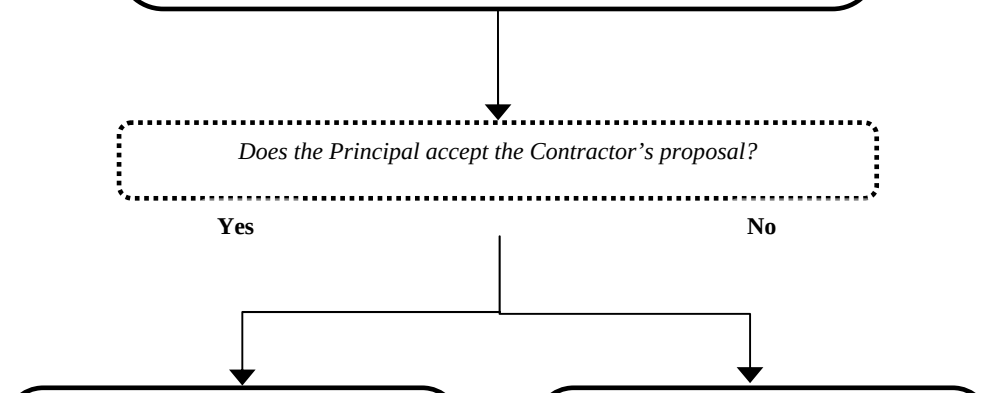
9. Variations

9.1 The Contractor is not to change the Works without an instruction from the Principal or written acceptance by the Principal of a proposal from the Contractor.

9.2 The Contractor is to take all reasonable steps to carry out any Variation concurrently with other work and to otherwise minimise any delays.

9.3 If the Contractor proposes a Variation for the Contractor's convenience the Principal may, in its absolute discretion, accept the proposal on specified terms.

9.4 If, in respect of a possible Variation, the Principal requests the Contractor to submit a proposal, including the effect on the Contract Price, the time required to reach Completion and any other implications for the Contract, the Contractor is to comply with the request within 14 days. If the Variation will involve additional work, the proposal should include a margin of no more than 15% on Direct Costs. If the Variation will involve less work, the proposal should include a margin of no less than 5% on the reduction in Direct Costs.



9.5 If the Principal accepts a proposal submitted under **Clause 9.4**, then within 14 days after receiving the proposal, the Principal is to notify the Contractor in writing that the proposal is accepted as a Variation.

9.6 If the Principal does not accept a proposal submitted under **Clause 9.4**, then within 14 days after receiving the proposal, the Principal is to notify the Contractor in writing that the proposal is not accepted.

9.7 Nothing in **Clause 9.4** or **Clause 9.6** prevents the Principal from instructing a Variation under **Clause 9.8**.

9.8 If the Principal instructs the Contractor to carry out a Variation, the Contractor is to comply in accordance with **Clause 2.3** and within 14 days after the instruction, notify the Principal in writing of the price for the Variation (including for any delay), how the amount is calculated and any effect on the time required to reach Completion.

Does the Principal accept the price and effect on the time required to reach Completion?

Yes

9.9 If the Principal accepts the price and effect on the time required to reach Completion, if any, notified under **Clause 9.8**, then within 14 days after receiving the notification, the Principal is to advise the Contractor in writing of the acceptance.

No

9.10 If the Principal does not accept the price or effect on the time required to reach Completion, if any, notified under **Clause 9.8** then, within 14 days after receiving the notification, the Principal is to assess the Contractor's entitlements arising from the Variation and notify the Contractor in writing of the assessment.

If the Variation delays the Contractor in reaching Completion, then to the extent that the delay is not concurrent with delay caused by the Contractor, the Contractor is entitled to an extension of time.

If the Variation causes the Contractor to incur additional cost, then the Contractor is entitled to payment of the reasonable net Direct Costs of the Variation work plus a margin of 15%, whether or not there is an entitlement to an extension of time.

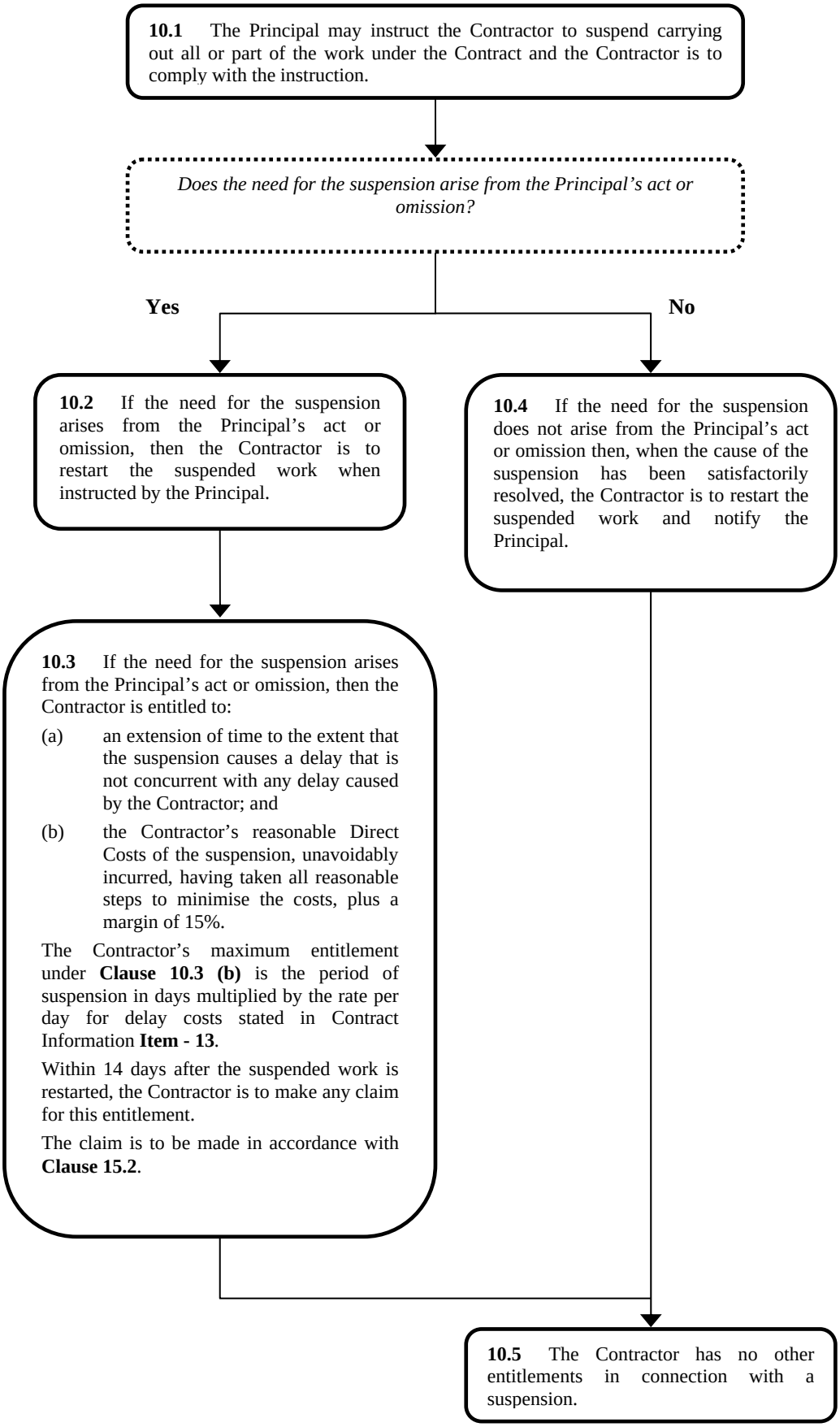
If the Variation causes the Contractor to incur less cost, then the Contract Price is to be reduced by 105% of the reasonable net reduction in Direct Costs arising from the Variation.

The parties agree that the provisions of this **Clause 9.10** fully compensate the parties for all costs and losses arising from supervision, overheads, delay, disruption and interference resulting from the Variation.

The Contractor has no other entitlements in relation to the Variation.

9.11 If the Contractor does not accept the net Direct Cost or extension of time assessed under **Clause 9.10**, then the Contractor is to make a claim in accordance with **Clause 15.2**.

10. Suspension



11. Completion

11.1 The Contractor is to bring the work under the Contract and any Milestones to Completion within the time(s) stated in Contract Information - **Item 12**, as extended under the Contract.

11.2 The Contractor is to notify the Principal when, in the Contractor's opinion, the work under the Contract or any Milestone has reached Completion. When the Contract includes Milestones, the work under the Contract will have reached Completion when all Milestones have reached Completion.

11.3 Upon receipt of notification under **Clause 11.2**, the Principal is to:

(a) determine if the work under the Contract or Milestone has reached Completion and, if so, the date Completion was reached; and

(b) promptly give the Contractor written notice of the determination.

11.4 Before Completion, the Principal may use or occupy any part of the Works which is sufficiently complete, and then:

(a) the Contractor's responsibilities are not affected, except to the extent that the Principal causes the Contractor's work to be hindered; and

(b) the Principal becomes responsible for any additional insurance required.

The Principal is to give the Contractor not less than 7 days notice in writing that the Principal (or a third party authorised by the Principal) will be using or occupying a part of the Works and is to specify the part(s) to be used or occupied.

The Contractor is to provide to the Principal, no more than 14 days after receiving the Principal's notice, all documents and other things relevant to the part(s) of the Works specified in the notice. The Contractor is to provide full assistance and cooperation to the Principal in the use and occupation of the parts specified in the notice.

11.5 The Principal may, in its absolute discretion, notify the Contractor that the work under the Contract or any Milestone has reached Completion.

12. Delay to Completion

12.1 If the Contractor anticipates being delayed in reaching Completion, the Contractor is to promptly notify the Principal.

12.2 If the Contractor is delayed in reaching Completion, the Contractor is to immediately notify the Principal and, within 7 days after the delay starts, advise the Principal in writing of the cause, relevant facts and actual or expected delay.

12.3 If a delay in reaching Completion is not concurrent with delay caused by the Contractor, and is caused by:

(a) an instruction given by the Principal, except under **Clauses 8, 9 or 10**;

(b) a breach of the Contract by the Principal; or

(c) any event beyond the control of the Contractor to the extent the Contractor has not contributed to the delay,

then the Contractor is entitled to an extension of the time for Completion, under this **Clause 12.3,** to the extent that the instruction, breach or event caused delay.

The Contractor may also have an entitlement to an extension of the time for Completion under **Clauses 8, 9 or 10.**

If an entitlement to an extension of the time for Completion arises under **Clause 12.3 (a)** or **(b)** and the Contractor is delayed in reaching Completion of the work under the Contract then the Contractor is entitled to delay costs at the rate per day stated in Contract Information - **Item 13**.

The Contractor has no entitlement to costs arising from delays due to causes that are beyond the control of the Principal.

The Contractor has no other entitlement for costs in relation to delays.

12.4 Within 14 days after a delay ends, the Contractor is to make a claim in accordance with **Clause 15.2**.

The Principal is to assess the Contractor's entitlements and notify the Contractor in writing of the assessment.

If the Principal does not notify the Contractor of the assessed entitlements within 28 days after the claim is received, then the assessed entitlements will be nil.

12.5 If the Contractor does not accept the assessed entitlements, the Contractor is to proceed in accordance with **Clause 15.3.**

12.6 If the Contractor does not complete a Milestone or the work under the Contract in accordance with **Clause 11.1**, then:

(a) if a rate is stated in Contract Information - **Item 14**, the Contractor is to pay to the Principal liquidated damages at that rate from the date immediately after the date for Completion to, and including, the date Completion is reached; or

(b) if no rate is stated in Contract Information - **Item 14**, then common law damages will apply.

The damages, once notified, are a debt due and payable by the Contractor to the Principal.

12.7 The Principal may for any reason and at any time extend any time for Completion by written notice.

13. Payment and Retention

13.1 The Contractor is to give a written payment claim to the Principal at the times specified in Contract Information - **Item 15**. The claim is to identify the work carried out, the amount claimed and how the amount is calculated.

The amount the Contractor is entitled to claim is the sum of:

(a) for work for which the Principal accepted rates, an amount calculated by applying the rates to the relevant quantities of work carried out;

(b) for work for which the Principal accepted a lump sum, the percentage of the lump sum that reflects the value of the work carried out;

(c) for completed work for which the Contract Price includes a Provisional Allowance, the amount calculated in accordance with **Clause 13.7**; and

(d) for any extra entitlement claimed for which the Principal has agreed or assessed an amount in writing, or for which an amount has been finally determined by an expert under **Clause 16**, the percentage of that amount which reflects the value of the entitlement,

at the date of the payment claim, less amounts previously paid, amounts payable by the Contractor to the Principal and any amounts the Principal is entitled to deduct, including retentions, set-offs and liquidated damages.

With each payment claim, the Contractor is to give to the Principal:

(i) the conformance records and other information required under the Contract; and

(ii) a completed and true Combined Subcontractor's Statement and Supporting Statement in the form of the Schedule to these General Conditions; executed on the date of the payment claim.

13.2 Within 10 Business Days after receipt of the Contractor's payment claim, the Principal is to give to the Contractor a payment schedule identifying the payment claim to which it relates and stating the payment, if any, which the Principal will be making. If the payment is to be less than the amount claimed, the payment schedule is to state the reasons why it is less.

13.3 Payment by the Principal of the scheduled amount shown in the payment schedule is to be made within 15 Business Days after receipt of the Contractor's payment claim;

In accordance with the relevant legislation identified in the Combined Subcontractor's Statement and Supporting Statement, the Principal may withhold any payment to the Contractor until this Statement is provided

13.4 Unless otherwise stated, all payments by the Principal to the Contractor are to be made by Electronic Funds Transfer to a bank, building society or credit union account nominated by the Contractor. No payment is due to the Contractor until sufficient details of the nominated account are notified in writing to the Principal. The Contractor is to give the Principal a minimum of 7 days written notice of any changes to the nominated account. The Principal is otherwise not responsible for any payments made into a previously nominated account.

13.5 Payment is not evidence of the value of work or that the work is satisfactory or an admission of liability, but is payment on account only.

13.6 The Principal is entitled to withhold, deduct or set-off from any payment due to the Contractor, under or arising out of the Contract or any other contract between the parties, a sum equivalent to any debt due from the Contractor to the Principal.

13.7 If the Principal instructs the Contractor to carry out work that is the subject of a Provisional Allowance, then the Contract Price is to be adjusted as follows:

(a) the amount of the Provisional Allowance is to be deducted from the Contract Price; and

(b) where the Provisional Allowance is a Provisional Sum, the reasonable Direct Costs to the Contractor of work carried out in relation to the Provisional Sum plus 10%, is to be added to the Contract Price; or

(c) where the Provisional Allowance is a Provisional Rate Amount, the amount calculated by applying the tendered rate to the measured quantity of work carried out, up to the specified limit, is to be added to the Contract Price.

If the Principal does not instruct the Contractor to carry out work which is subject to any Provisional Allowance, then the Provisional Allowance is to be deducted from the Contract Price.

13.8 The Principal is to retain 4% of the Contract Price when the amount the Contractor is entitled to be paid exceeds 50% of the Contract Price.

The Contractor may, instead of the retention, provide an undertaking in the amount of the retention in the form detailed in Schedule 1 – **Unconditional Undertaking**.

All undertakings are to be provided by a bank, building society, credit union or insurance company acceptable to the Principal.

The Principal may make a demand against an undertaking in payment of any debt due from the Contractor to the Principal.

13.9 Within 60 Business Days after:

(a) the work under the Contract reaches Completion;

(b) the rectification or resolution of all Defects identified prior to the end of the final Post Completion Period (if any); or

(c) the resolution of all claims made under **Clause 15**,

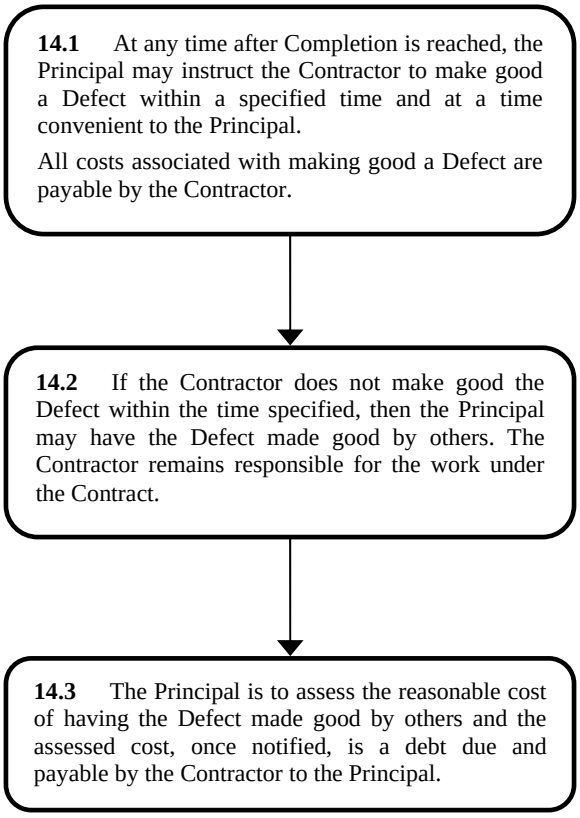
whichever is the later, the Principal is to issue a final payment schedule accounting for the payment of any retention held under **Clause 13.8** and any amounts the Principal demands from the Contractor, and stating the amount payable by one party to the other.

If payment is due to the Contractor then, within the later of 20 Business Days after the date of issue of the final payment schedule or 5 Business Days after receiving the original of a current Subcontractor's Statement, the Principal is to pay the Contractor any money due in accordance with the final payment schedule and release the balance of any undertakings.

If payment is due to the Principal from the Contractor then the payment is a debt due and payable by the Contractor to the Principal. Within 20 Business Days after the date of issue of the final payment schedule, the Contractor is to pay the Principal any money due in accordance with the final payment schedule. The Principal is to release the balance of any undertakings within 5 Business Days after receiving payment from the Contractor.

If no payment is due from either party to the other then, within 20 Business Days after the date of issue of the final payment schedule, the Principal is to release the balance of any undertakings.

14. After Completion



15. Claims

15.1 Any claim, other than a claim made under **Clause 13**, is to be made in accordance with this **Clause 15**.

15.2 A claim by the Contractor on the Principal is to be in writing and contain sufficient information for the Principal to assess the claim, including:

(a) the legal and factual basis of the claim;

(b) how the quantum of the claim is calculated; and

(c) evidence supporting the claim, including applicable subcontractor documentation.

15.3 Within 14 days after receiving a claim that meets the requirements of **Clause 15.2**, the Authorised Person is to assess the Contractor's entitlement and notify the Contractor.

If the Contractor does not accept the Authorised Person's assessment, then the Contractor and Authorised Person are to confer to try to reach agreement.

If agreement is not reached within 28 days after the Contractor receives the Authorised Person's assessment, **Clause 16** will apply.

15.4 Unless otherwise provided for in the Contract, any claim by the Contractor on the Principal, in relation to events that occurred before the work under the Contract reached Completion, is to be received by the Principal within 28 days after the Contractor receives the Principal's written notice of Completion of the work under the Contract under **Clause 11.3**. Otherwise the claim is barred.

If the Contract includes a Post Completion Period, then any claim by the Contractor on the Principal, in relation to events that occurred during a Post Completion Period, is to be made within 28 days after the end of the final Post Completion Period. Otherwise the claim is barred.

16. Disputes

16.1 If the Contractor is dissatisfied with an act or omission of the Principal in connection with the Contract, including an instruction, assessment of a claim or failure to agree then, unless otherwise required by the Contract, within 14 days after the act or omission, the Contractor is to notify the Authorised Person and the Senior Executive in writing of a dispute. The notification is to include the information required under **Clause 15.2**.

If the Contractor notifies a dispute, but not within the time provided by this **Clause 16.1**, then the Contractor is not entitled to interest, in respect of that matter, prior to notification.

16.2 If the Principal is dissatisfied with an act or omission of the Contractor in connection with the Contract, including performance, compliance with an instruction or failure to agree, then within 14 days after the act or omission, the Authorised Person may notify the Senior Executive and the Contractor in writing of a dispute. The notification is to include the legal and factual basis of the dispute.

16.3 Within 14 days after notification is received under **Clause 16.1** or **16.2**, the Contractor and the Senior Executive are to confer to try to resolve the dispute.

16.4 If the dispute is not resolved within 42 days after notification is received under **Clause 16.1** or **16.2**, then the parties are to agree upon an independent expert to determine the dispute.

16.5 If the parties fail to agree upon an expert within 28 days, then either may request the Chief Executive Officer of the Australian Commercial Disputes Centre Ltd Sydney to nominate an expert. The independent expert is not to be:

(a) an employee of the Principal or the Contractor;

(b) a person who has been connected with the Contract; or

(c) a person upon whose appointment the Principal and the Contractor have previously failed to agree.

16.6 Once the expert has been agreed under **Clause 16.4** or nominated under **Clause 16.5**, the Principal, on behalf of both parties, is to appoint the expert in writing, with a copy to the Contractor, setting out:

(a) the dispute being referred to the expert for determination;

(b) the expert's fees;

(c) the procedures detailed in this **Clause 16**;

(d) the arrangements for each party to lodge $10,000 as initial security for the expert's fees; and

(e) any other matters relevant to the appointment.

16.7 The parties are to share equally the cost of appointing the expert, and the expert's fees and out-of-pocket expenses, including any security required for the expert's fees. Each party is to otherwise bear its own costs in relation to the determination process.

16.8 If a party defaults in providing the initial security within 28 days after the appointment of the expert, then the other party may provide the security in full and the defaulting party's share is a debt due and payable to the paying party.

16.9 Any dispute for which:

(a) an expert has not been agreed upon under **Clause 16.4**, or nominated under **Clause 16.5** within 90 days after notification is received under **Clause 16.1** or **16.2**; or

(b) the initial security has not been lodged in full within 56 days after the expert has been appointed,

is deemed to be abandoned.

16.10 Each party is to make written submissions to the expert and provide a copy to the other party as follows:

(a) Within 21 days after the appointment of the expert, the notifying party is to make its submission on the matter in dispute.

(b) Within 14 days after receiving a copy of that submission, the other party is to make its submission in response, if any, which may include cross-claims.

(c) If a cross-claim is made, the notifying party is to make its submission on the cross claim within 14 days after receiving a copy of the submission from the other party.

(d) The expert may request further information from either party and that party must respond within 14 days after receiving the request.

(e) The expert must ignore any submission not made within the times given in this **Clause 16.10** and make a determination on the submissions or information provided within time, unless the parties agree otherwise in writing.

16.11 The expert must determine whether the claimed event, act or omission did occur and, if so:

(a) when it occurred;

(b) what term of the Contract or other obligation in law, if any, requires one party to pay the other money or otherwise act in respect of it; and

(c) the merits in law of any defence or cross-claim raised by the other party.

The expert is then to determine the amount, if any, which one party is legally bound to pay the other on account of the event, act or omission.

The expert must also determine any other question(s) referred by the parties under **Clause 16.6**.

16.12 In making the determination, the expert acts as an expert and not as an arbitrator and is:

(a) not liable for acts, omissions or negligence;

(b) to make the determination on the basis of the Contract and written submissions from the parties without formalities such as a hearing;

(c) not to incur costs until the initial security has been lodged in full; and

(d) required to give the determination in writing, with brief reasons, to each party within 28 days after the submissions from the parties have been received or the initial security has been lodged in full, whichever is the later.

16.13 If the expert determines that one party is to pay the other an amount exceeding $250,000 (excluding interest) and within 14 days after receiving the determination, either party gives written notice to the other that it is dissatisfied, then the determination is of no effect and either party may commence litigation.

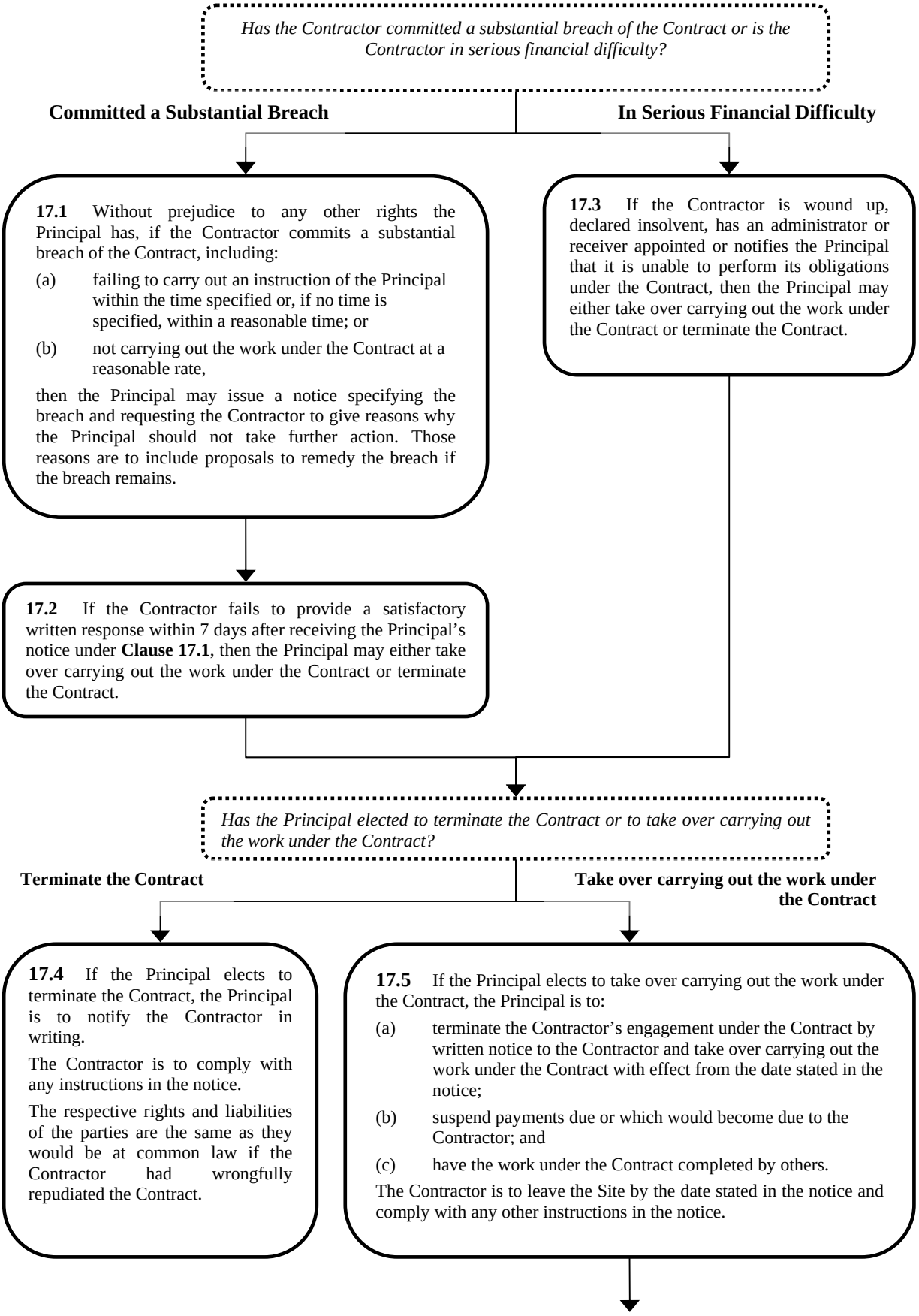
16.14 Unless a party has a right to commence litigation under **Clause 16.13**:

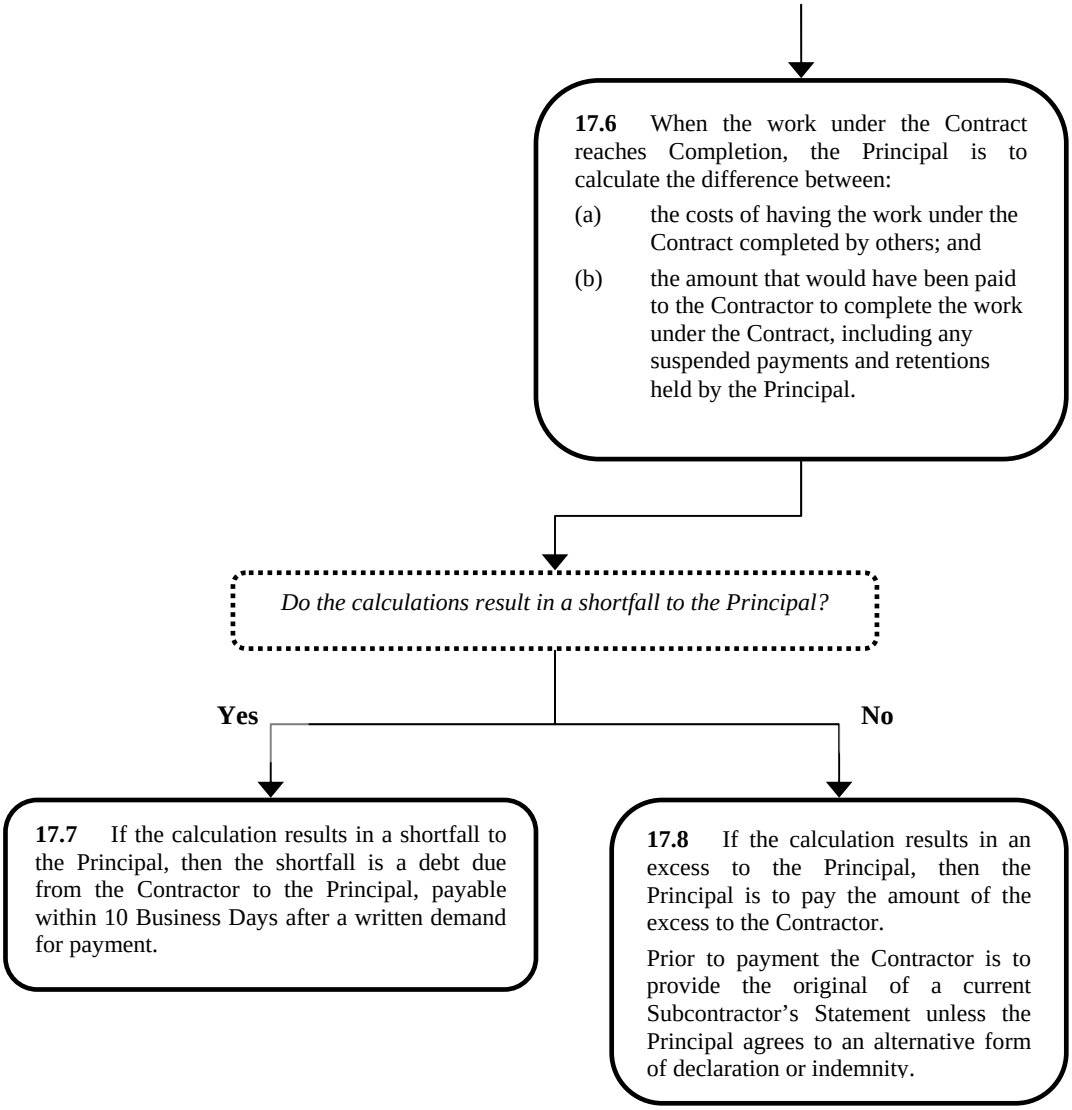
(a) the parties are to treat each determination of the expert as final and binding and give effect to it; and

(b) if the expert determines that the Contractor owes money to the Principal, the amount determined is a debt due and payable by the Contractor to the Principal and the Contractor is to pay the money within 20 Business Days after receiving the determination; or

(c) if the expert determines that the Principal owes money to the Contractor, the Principal is to pay the money within 20 Business Days after receiving the expert determination, or 5 Business Days after receiving the original of a current Subcontractor's Statement, whichever is the later.

17. Contractor's Default and Insolvency




17.6 When the work under the Contract reaches Completion, the Principal is to calculate the difference between:
(a) the costs of having the work under the Contract completed by others; and
(b) the amount that would have been paid to the Contractor to complete the work under the Contract, including any suspended payments and retentions held by the Principal.
Do the calculations result in a shortfall to the Principal?
Yes
No
17.7 If the calculation results in a shortfall to the Principal, then the shortfall is a debt due from the Contractor to the Principal, payable within 10 Business Days after a written demand for payment.
17.8 If the calculation results in an excess to the Principal, then the Principal is to pay the amount of the excess to the Contractor.
Prior to payment the Contractor is to provide the original of a current Subcontractor's Statement unless the Principal agrees to an alternative form of declaration or indemnity.

18. Termination for the Principal's Convenience

18.1 The Principal may terminate the Contract for convenience and without giving reasons by giving written notice to the Contractor, with effect from the date stated in the notice. The Contractor is to leave the Site by the date stated and comply with any other instructions in the notice.

If the Contract is terminated for the Principal's convenience, then the Contractor's total entitlement in respect of the Contract is the sum of:

(a) the value of all work carried out up to the date stated in the notice, determined in accordance with **Clauses 13** and **16**; plus

(b) 2% of the difference between the Contract Price and the total of all amounts paid and payable to the Contractor under (a).

The payments referred to in this **Clause 18** are full compensation for termination under this **Clause 18**, and the Contractor has no claim for damages or other entitlement whether under the Contract or otherwise.

18.2 Wherever possible, the Contractor is to include a provision equivalent to this **Clause 18** in all subcontracts, including supply agreements.

19. Termination for the Principal's Default

19.1 If the Principal fails to pay the Contractor any amount that is in accordance with the Contract, and not in dispute, or commits a fundamental breach of the Contract, then the Contractor may give notice requiring the Principal to remedy the default within 28 days after receiving the notice.

19.2 If, within 28 days after receiving the Contractor's notice under **Clause 19.1**, the Principal fails to remedy the default, or fails to propose steps reasonably acceptable to the Contractor to do so, the Contractor may issue a notice terminating the Contract.

19.3 The Contractor's total entitlement in respect of the Contract is the sum of:

(a) the value of all work carried out up to the date of the termination notice, determined in accordance with **Clauses 13** and **16**; plus

(b) 4% of the difference between the Contract Price and the total of all amounts paid and payable to the Contractor under (a).

The payments referred to in this **Clause 19** are full compensation for termination under this **Clause 19**, and the Contractor has no claim for damages or other entitlements whether under the Contract or otherwise.

19.4 The Contractor has no other right to terminate the Contract, under common law or otherwise.

19.5 Wherever possible, the Contractor is to include a provision equivalent to this **Clause 19** in all subcontracts, including supply agreements.

SPECIAL CONDITIONS OF CONTRACT

MW21

VERSION: JULY 2016

Prepared by:

Contracts & Quality
LAND AND HOUSING CORPORATION
Locked Bag 4009, Ashfield BC NSW 1800

CONTENTS

SPECIAL CONDITIONS OF CONTRACT 4
1 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS 4
2 SCHEDULES 4
2.1 Amendments To Special Conditions of Contract 4
2.2 Amendments To Reference Specification 4
2.3 Demolition Schedule 4
2.4 Contract Drawings List 4
3 LICENCES AND APPROVALS 4
3.1 Licences 4
3.2 Development Consent 5
3.3 Certification of Compliance with Building and Fire Regulations 5
4 DOCUMENTS 5
4.1 Work as Executed Drawings 5
4.2 Layout and Services Plan 5
4.3 Plans – Consolidation/Subdivision 6
4.3.1 Plans of Consolidation 6
4.3.2 Plans of Subdivision 6
4.4 Plans/ Dealings/ Other Documents Requirements 6
4.5 Documentation Provisions 7
5 STATUTORY REQUIREMENTS AND GUIDELINES 7
5.1 Home Warranty Insurance 7
5.2 Demolition 7
5.3 Work Health & Safety Management 8
5.3.1 Specification and Statutory Requirements 8
5.3.2 Engagement as Principal Contractor 8
5.3.3 Work Health and Safety (WHS) Management Plan 8
5.3.4 Site Safety Rules 8
5.3.5 WHS Management Monthly Report 10
5.3.6 Notifiable Incident Report 11
5.3.7 Prohibition, Improvement, Non-disturbance and Penalty Notices 11
5.3.8 Electrical work on energised electrical equipment 12
5.3.9 Independent Certification of Formwork 12
5.3.10 Asbestos Removal 12
5.3.11 Hazardous substances 13
5.3.12 Working on Roofs 14
5.3.13 Construction Work Site Checklist 14
5.3.14 Induction Training 15
5.3.15 Audit 15
5.3.16 Failure to Comply 15
5.4 Quality Management Requirements 15
5.4.1 Inspection and Test Plans 15
5.4.2 Design Plan 16
5.4.3 Conformance records 16
5.4.4 Failure to Comply 17
5.5 Industrial Relations Management 17
5.5.1 Verification of Compliance with Industrial Relations Obligations 17
5.5.2 Project IR Management Details 17
5.5.3 Failure to comply 17
5.6 Environmental Management 18
5.6.1 Requirement 18
5.6.2 Project Environmental Management Plan 18
5.6.3 Incident Reports 18
5.6.4 Failure to comply 18
5.7 Ecologically Sustainable Development 18
5.7.1 Restricted Timbers 18
5.8 Waste Management 19
5.8.1 Requirement 19
5.8.2 Monitoring 19
5.9 Pest Control 19
5.10 Aboriginal Participation in Construction 19
5.10.1 Specification and Statutory Requirements 19
5.10.2 Aboriginal Training and Employment Requirement 20
5.10.3 Failure to Comply 21
5.11 Long Service Levy 21
6 GENERAL 21
6.1 Insurance 21
6.2 Asbestos Disease Liability Insurance 22

6.3 Electronic Communication....23
6.4 Use of Qualified Designers....23
6.5 Contractor's Conduct....23
6.6 Protection of Children and other Vulnerable People....23
6.7 REC Certificate....24
6.8 Additional Financial Checks....24
6.9 Contractor Performance Reporting....24
6.10 Exchange of Information between Government Agencies....24
6.11 Confidentiality....25
6.12 Disclosure of Information....25
6.13 Audit Review....25
6.14 Corrupt Gifts and Payment of Commission....26
6.15 Construction Program....26
6.16 Completion Commitment....26
6.17 Existing Services....26
6.17.1 Locating Existing Services....26
6.17.2 Isolation of Existing Services....27
6.17.3 Dealing with Existing Services....27
6.17.4 Cost and Delay....28
6.18 Variations – Omitted Work....28
6.19 Exclusion of Part 4 of Civil Liability Act 2002 (NSW)....28
6.20 Selection of Alternate Products or Materials....28
6.21 Security....28
6.22 Schedule of Rates....29
6.23 Use of Qualified Tradepersons....29
6.24 Collusive Arrangements....29
6.25 Goods and Services Tax....29
6.26 Work Method....29
6.27 Working Hours and Working Days....30
6.28 Standards....30
6.29 Cleaning up....30
6.30 Samples....30
6.31 Testing - Independent Testing Authority....30
6.32 Variations....30
7.1 APPENDIX A: CONTRACTOR'S WHS MANAGEMENT PLAN (WHSMP) CHECKLIST....1
7.2 APPENDIX B: ENVIRONMENTAL MANAGEMENT PLAN CHECKLIST....1
7.3 APPENDIX C: PROJECT ENVIRONMENTAL MANAGEMENT PLAN....1

SPECIAL CONDITIONS OF CONTRACT

1 ORDER OF PRECEDENCE OF CONTRACT DOCUMENTS

The following documents shall constitute the Contract and, in the event of any discrepancy or inconsistency between the Contract Documents, the following order of precedence of Contract Documents shall apply to resolve the same:

(a) Formal Instrument of Agreement.

(b) Letter of Award

(c) Addendum or addenda if issued.

(d) Contract Information and Schedules, included in General Conditions of Contract.

(e) Project drawings, including schedules (larger details have precedence over smaller scaled drawings.

(f) Special Conditions of Contract.

(g) General Conditions of Contract MW21.

(h) Reference Specification

Amended Aug 2014

(i) Schedule of Rates, if any

(j) Any other documents supplied by the Principal prior to the date of acceptance of tender and certified to be a document forming part of the Contract.

2 SCHEDULES

2.1 Amendments To Special Conditions of Contract

Schedule 10 - Amendments to Special Conditions of Contract, forming part of the General Conditions of Contract MW21, includes amendments and/or additions to Special Conditions of Contract.

2.2 Amendments To Reference Specification

Schedule 11 - Amendments to Reference Specification, forming part of the General Conditions of Contract MW21, includes amendments and/or additions to Reference Specification.

2.3 Demolition Schedule

Schedule 12 – Demolition Schedule, forming part of the General Conditions of Contract MW21, generally include list of structures and associated items requiring demolition.

2.4 Contract Drawings List

Schedule 13 - Contract Drawings List, forming part of the General Conditions of Contract MW21, include list of drawings forming part of the Contract Documents.

3 LICENCES AND APPROVALS

The Principal has obtained the following licences, approvals and consents for the Site and the Works:

The Contractor must provide the Principal with a copy of all other licences and approvals required, and pay all associated fees prior to commencing the affected work.

3.1 Licences

3.1.1 The Contractor is required to have a licence for residential building work issued by the Office of Fair Trading in accordance with the Home Building Act 1989 (NSW) and to show the correct licence numbers on all relevant documents. Reliance on the licence of a subcontractor is not acceptable.

3.1.2 Where the Contractor is a partnership, the licence must be in the name of all partners and one of the partners or a staff member must hold an individual licence or a qualified supervisor's certificate.

3.1.3 Where the Contractor is a corporation, the licence must be in the name of the corporation and one of the directors or a staff member must hold an individual licence or a qualified supervisor's certificate.

3.1.4 If the Contractor is required to take out Home Warranty Insurance, it shall hold a licence that is unconditional concerning the performance of the Works. The licence must not include any conditions concerning Home Warranty Insurance.

3.1.5 All supervising staff of the Contractor must hold a relevant supervisor's licence in accordance with the *Home Building Act, 1989 (NSW*). The licence must be carried at all times whilst acting in a supervisory capacity.

3.1.6 Details of certificates or individual licences must be provided within seven days of being requested to do so by the Authorised Person.

3.1.7 The Contractor must not employ any sub-contractor on the Works who does not hold a current licence for the class of work to be sublet in accordance with the requirements of the Home Building Act, 1989 (NSW).

3.2 Development Consent

The Development Consent Conditions for this project where included in the Tender Documents form part of the Contract.

Unless specified otherwise in **Schedule 10 - Amendments to Special Conditions of Contract**, forming part of the General Conditions of Contract MW21, the Contractor shall comply with all the Development Consent Conditions and meet all costs associated with such compliance. Within the Development Consent Conditions, any reference to the “Applicant”, “Developer” or the “Owner” is a reference to the Contractor.

3.3 Certification of Compliance with Building and Fire Regulations

Refer to **Schedule 10 - Amendments to Special Conditions of Contract.**

4 DOCUMENTS

4.1 Work as Executed Drawings

The Contractor shall be responsible for the progressive production of accurate work as executed drawings. The Contractor shall supply to the Authorised Person by the day of Completion a complete set of work as executed drawings in respect of the Works. The Contractor shall endorse each drawing to certify its accuracy and completeness.

4.2 Layout and Services Plan

The Contractor shall supply to the Authorised Person by the day of Completion a completed Site Layout and Services Plan prepared in accordance with the Principal’s current Survey Drafting and CAD Standards documentation.
The plan must be prepared to quality standards to minimise the risk of rejection.
Subject to the availability of information, the plan must show the following:
building footprint, unit number/s, lot number/s, Deposited Plan number, cadastral boundaries, easements, ground floor levels, unit bedroom numbers, street address, utility services locations (water with meter location, sewer, electricity, Telstra, Optus, gas, stormwater drainage), house numbers, garbage bays, letterbox and clothes hoist locations, relationship of dwellings to boundaries, benchmark locations and datum information.
Should clarification of the above be required, in the first instance the Contractor shall contact the Authorised Person.

Amended Sep 2013

4.3 Plans – Consolidation/Subdivision

The Contractor shall, at their own cost, prepare and supply to the Authorised Person plans specified in Schedule 10 – Amendments to Special Conditions of Contract.
These plans shall be submitted by the day of Completion or as agreed by the Authorised Person.

4.3.1 Plans of Consolidation

The Contractor shall prepare a Plan of Consolidation for the site where it is a condition of the Development Consent or where the project involves more than one existing lot and does not require a plan of subdivision (excluding construction of detached or dual occupancy dwelling houses on existing lots).

4.3.2 Plans of Subdivision

4.3.2.1 The Contractor shall prepare a Strata Title subdivision plan for apartments, villas, town houses and dual occupancy dwelling houses where permitted by Council.

4.3.2.2 The Contractor shall prepare a Torrens Title/ Community Title subdivision plan for cluster housing, integrated housing, detached dwelling houses and dual occupancy houses where permitted by Council.

4.3.2.3 The Principal has a preference for Torrens Title subdivision where permitted.

4.3.2.4 Plans of Subdivision are not required for:-

4.3.2.4.1 Housing for the aged/disabled [SEPP (Housing for Seniors or People with a Disability) 2004].

4.3.2.4.2 Housing comprising detached dwellings on and within existing lots.

4.3.2.4.3 Housing comprising dual occupancy where Council does not permit subdivision.

Amended Sep 2013

4.4 Plans/ Dealings/ Other Documents Requirements

Plans shall be prepared in a form suitable for registration at Land & Property Information (LPI) and must be signed by a registered surveyor and subdivision certificate issued by Council / Consent Authority where required.
Where Easements/ Covenants/ Restrictions are required to be created a Section 88B Instrument or 88E Dealing shall be prepared and executed by all affected parties (including private owners and their mortgagees).

The Contractor shall submit the draft plans/ dealings/ other documents, "the documents", to the Authorised Person for review.

(The Authorised Person forwards "the documents" to LAHC Manager Survey & Titling Infrastructure for review and preparation of LAHC's letter of authorisation for Contractor to lodge "the documents" with Council.)

The Authorised Person shall forward the LAHC letter of authorisation to the Contractor for lodgement with the Council.

When "the documents" are acceptable to the Principal the Contractor shall lodge "the documents" (together with Principal's letter of authorisation) with Council to obtain Council approval.

The Contractor shall submit "the documents" approved by Council to Authorised Person for registration by the Principal with the LPI.

The Contractor shall pay all costs associated with preparation and Council approval of all "the documents" required.

Amended Sep 2013

4.5 Documentation Provisions

By the day of Completion or as agreed by the Authorised Person the Contractor shall supply to the Authorised Person the following documentation:

By the day of Completion the Contractor shall supply to the Authorised Person the following documentation:

4.5.1 Subdivision/Consolidation Plan where required by Development Consent conditions

4.5.2 Work as executed drawings in respect of the Works

4.5.3 Layout and Services Plan

4.5.4 Certificates, Guarantees and Warranties

4.5.5 For each of the documents listed above in paragraphs 4.5.1 to 4.5.3, the Contractor must provide two (2) sets of each in the same scale as contract drawings, two (2) sets of the drawings in a reduced A3 format in labelled A3 size flexible plastic folders and on CD/DVD (electronic formats in Microstation DGN and PDF).

4.5.6 For the documents listed above in paragraph 4.5.4, the Contractor must provide two copies of each in A4 size flexible plastic folders.

5 STATUTORY REQUIREMENTS AND GUIDELINES

5.1 Home Warranty Insurance

Amended May 2014

Amended Aug 2014

5.1.1 For land identified as NOT being owned by New South Wales Land and Housing Corporation or Aboriginal Housing Office, or otherwise exempt under the Home Building Act 1989 (NSW):

5.1.1.1 The Contractor shall take out a policy of Insurance that complies with the Home Building Act 1989 (NSW) (as amended) (Home Warranty Insurance). In addition the Contractor shall have a licence that is unrestricted concerning the performance of Works.

5.1.1.2 The licence shall not contain any restrictions concerning Home Warranty Insurance. Within 14 days of the Date of Contract the Contractor shall provide to the Principal evidence of insurance and licensing in accordance with this clause.

5.1.1.3 Prior to the Works reaching Completion the Contractor shall issue to the Authorised Person an original *'Certificate of Insurance to do Residential Building Work'* under the Home Building Act 1989 (NSW) (as amended) for each dwelling/unit forming part of the Works identified as not being in the ownership of New South Wales Land and Housing Corporation or Aboriginal Housing Office, or otherwise exempt under the Home Building Act 1989 (NSW).

5.2 Demolition

There are no provisions under the new Work Health and Safety Regulation 2011 (WHS Regulation) for licensing of demolition work as demolition work will in future be licensed as an occupational licence under the National Occupational Licensing System (NOLS).

WorkCover continues to licence demolition work under existing arrangement until demolition licensing under NOLS commences, most likely in 2014.

The transitional arrangements for demolition work can be found under the following link:

http://www.workcover.nsw.gov.au/newlegislation2012/whstransitionalarrangements/demolition-transitional-arrangements/Pages/default.aspx

5.3 Work Health & Safety Management

Amended Mar 2014

5.3.1 Specification and Statutory Requirements

The Contractor must comply with all statutory requirements including, but not limited to, the *Work Health and Safety Act 2011* (NSW) *(WHS Act)*, the *Work Health and Safety Regulations 2011* (NSW) *(WHS Regulations)* and the NSW Government *Work Health and Safety Management Systems and Auditing Guidelines 5th Edition (WHSMSA Guidelines).* The *WHSMSA Guidelines* are available on the ProcurePoint website.

In the event of any inconsistency, the Contractor must comply with the statutory provisions.

5.3.2 Engagement as Principal Contractor

The Contractor is responsible for the construction work at all times until the work is completed under the Contract and is engaged as **principal contractor** and manager and controller of the premises for the construction work under Clauses 293 and 298 of the *Work Health and Safety Regulation 2011 (NSW) (WHS Regulation).* The Contractor is authorised to exercise such authority of the person conducting a business or undertaking that is commissioning the construction project as is necessary to enable it to discharge the responsibilities of principal contractor and manager and controller of premises imposed by the *Work Health and Safety Act 2011 (NSW) (WHS Act)* and Chapter 6 of the WHS Regulations.

Amended Mar 2014

5.3.3 Work Health and Safety (WHS) Management Plan

The Contractor must document and implement a WHS Management Plan that complies with the WHSMSA Guidelines. The plan must include Safe Work Method Statements for all work activities assessed as having safety risks.

The Contractor must submit the Site-specific Safety Management Plan, together with the completed checklist included in Appendix A to these Special Conditions of Contract, to the Authorised Person no later than 14 days before commencing any work on site.

5.3.4 Site Safety Rules

The Contractor must develop site safety rules that are equal to or better than the following minimum set of site safety rules. Include them in the WHS Management Plan and ensure implementation. Notwithstanding the development of site safety rules, the rules listed below form part of the Contract.

Site safety rules must make it a condition of entry to the applicable worksite that all employees and visitors comply with their provisions, including:

- **Construction WHS Induction** - All persons must display evidence of completing WHS Induction training before being inducted to start work on the Site.
- **Site Induction** - All persons working on the Site must attend a site induction before entering it. Visitors may enter a worksite if, either, they first attend a site induction, or if they are accompanied by a person who has attended a site induction. Each day, all persons must sign in and out on the site register.
- **Safe Work Method Statements** - Safe Work Method Statements must be prepared and used for all high risk construction work activities.

- **Toolbox Talks** - Weekly or more regular discussions must be held with workers to consult on site safety matters.
- **Safety Helmets, Safety Footwear and Safety Vests** - Safety helmets and steel-capped safety footwear must be worn by all supervisors, employees, and visitors in the construction areas at all times. The footwear must comply with AS 2210. Safety vests must be worn when moving plant is present or work is undertaken near traffic.
- **Personal Protective Equipment** (PPE) - PPE, such as safety eye protection, hearing protection, safety gloves and masks and the like, must be worn when welding, drilling and with all other tasks with similar risks.
- **Accidents and Incidents** - Accidents, incidents and injuries must be reported immediately to the Contractor's and applicable subcontractor's site representative in charge.
- **Alcohol and Drugs** - The consumption of, or being under the influence of, alcohol and illegal drugs on the Site is prohibited.
- **Amenities** - Access to clean toilets and meal facilities, cool, clean drinking water, and the other requirements of the WorkCover *Code of Practice: Amenities for Construction Work* must be provided for all persons.
- **Electrical** - All electrical work and electrical plant must comply with AS/NZS 3012:2010 *Electrical Installations – Construction and demolition sites.*
- **Emergency and Evacuation Plan** - Arrangements must be included in the Site Induction and clearly identified. Consult with any occupier of the Site to coordinate the principal contractor's emergency and evacuation plan with the emergency and evacuation plan of the occupier of the Site.
- **Excavations** - Barricading and signage for all excavations must be provided, with excavations 1.5 metres or more deep also to be benched, battered or shored unless a geotechnical report has been **provided** which determines this support is not required.
- **Fire Prevention** - Fire prevention must be used by all persons on the Site. An appropriate fire extinguisher must be on hand for all welding sets and oxy acetylene work.
- **First Aid** - All persons requiring first aid treatment must contact the first aid officer who will administer the treatment and record the injury in the WorkCover Register of Injuries, including the person's name and the nature of the injury.
- **Hazardous Substances** - Chemicals and hazardous substances must be used and stored in compliance with up to date Safety Data Sheets (SDS) and details recorded in the Register of Hazardous Substances.
- **Housekeeping -** Work areas must be kept clean and tidy, with rubbish and other safety hazards cleaned up promptly. All protruding nails must be removed immediately from timber.
- **Leads and Power Tools -** All leads, power tools and electrical equipment must be inspected and tagged by a qualified person prior to their use and then at three monthly intervals.

	· **Mobile Plant** - Every owner of plant must ensure plant is registered with WorkCover when required and operators are appropriately qualified. Plant must be fitted with working hazard lights/reversing lights and beepers. See the WorkCover *Code of Practice: Moving Plant on Construction Sites*. · **Overhead Power Lines -** The requirements of the WorkCover *Code of Practice: Work near Overhead Power Lines* must be complied with. · **Site Security and Public Access** - Security measures, including perimeter fencing, must be used to prevent unauthorised access to construction areas and ensure safe access and passage for all those on and adjacent to the Site.
	· **Underground Services** – Refer to Preliminaries **– Locating Existing Services.** · **Working at Heights** - Working at heights must be in accordance with WorkCover requirements, including certification of formwork and scaffolding. See the WorkCover *Guide: Safe Working at Heights*. Relevant Codes and Guides can be accessed from the WorkCover website.
	5.3.5 WHS Management Monthly Report Submit, no later than the seventh (7th) day of each month, an WHS Management Monthly Report, detailing Inspection, testing and servicing activities, Internal reviews and Incident management and corrective action, and including the information listed below, as evidence of the implementation of the Project WHS Management Plan during the previous month. As a minimum, the WHS Management Monthly Report must include the following information:
	5.3.5.1 Contract Details · Contract · Contractor · Contractor's representative · Signature and Date · Period Covered
	5.3.5.2 Implementation of Inspection, testing and servicing procedures (*OHSM Guidelines* Section 4, element 8) Summary of WHS inspections and tests carried out for: · plant and equipment · incoming products · work site conditions
	· adherence to and completeness of Risk Assessments, Safe Work Method Statements and Site Safety Rules · work site access and exits · personal protective equipment

5.3.5.3 Implementation of Incident management and corrective action procedures

Details of:

- any WHS incidents or WHS issues, including non-compliance with WHS processes and procedures and near misses
- implementation of incident management
- implementation of corrective action
- WHS statistics for entire the Contract including:

	This Month	Total Cumulative
Number of Lost Time Injuries		
Number of Hours Worked		
Number of Hours Lost Due to Injury		
Lost Time Injury Frequency Rate (LTIFR)		
Number of WHS Management Audits		
Number of WHS Inspections		

5.3.5.4 Implementation of Internal Reviews

Details of internal reviews, including audits and inspections, undertaken to verify that on-site WHS processes and practices conform with the Project WHS Management Plan including:

- System element(s) and activities audited and/or reviewed
- Non-conformance(s), improvement(s) identified and corrective action(s) taken
- Details of auditors and reviewers and dates and durations of audits and reviews
- Copies of third party audit reports and details of the Contractor's responses to the reports

5.3.6 Notifiable Incident Report

Ensure compliance with the notification and other requirements of the WHS Act 2011 Sections 35-39 for any notifiable incident including immediate notification of WorkCover.

Immediately notify the Principal of any notifiable incident.

Provide a written report to the Principal within twenty-four hours after the incident, giving details of the incident and evidence that notification requirements have been met.

When requested, provide an incident investigation report, including identification of the cause of the incident and corrective actions taken, in the form directed.

5.3.7 Prohibition, Improvement, Non-disturbance and Penalty Notices

Immediately notify the Principal of any Prohibition, Improvement, Non-disturbance or Penalty Notice issued by WorkCover for any work under the Contract. Provide the Principal with a copy of the Notice and written details of the corrective action taken by the Contractor and/or the applicable subcontractor to rectify the breach and to prevent recurrence.

	5.3.8	Electrical work on energised electrical equipment In compliance with sections 154-156 of the WHS Regulation 2011, ensure that electrical work is not carried out on electrical equipment while the equipment is energised, except when, in accordance with sections 157–163 of the WHS Regulation, it is necessary in the interests of health and safety that the electrical work be carried out on the equipment while the equipment is energised.
	5.3.9	Independent Certification of Formwork Ensure that formwork complies with AS 3610-1995 *Formwork for Concrete* and is designed, constructed and maintained so as to support safely all loads that are to be placed on it. The Contractor must ensure that, before a concrete pour where the deck of formwork: · is 3 metres or higher above the lowest surrounding; or · the area of the formwork deck is 16 square metres or greater and is designed to hold 2.5 cubic metres or 6 tonnes of wet concrete, an independent qualified engineer inspects and certifies that the formwork complies with AS 3610–1995 *Formwork for Concrete.*
		'Qualified engineer' means a person qualified for member grade of the Australian Institution of Engineers, having not less than 4 years post-qualification professional engineering experience in formwork. The qualified engineer must not be a proprietor, director, officer, or employee either of the entity carrying out the formwork erection or a related entity. If the Contractor carries out the design of the formwork, then the qualified engineer must not be a proprietor, director, officer or employee either of the Contractor or a related entity to the Contractor. The Contractor and any subcontractors involved must include the inspection and certification as actions in Safe Work Method Statements for the erection and use of formwork, and they must be hold points in the Contractor's and subcontractors' Inspection and Test Plans. Submit formwork certification before commencing the use of the formwork. Do not use the formwork before this certification is submitted.
	5.3.10	Asbestos Removal For any Works on existing dwellings constructed prior to 1987, the Contractor must assume that the dwellings have asbestos present and for the purposes of this Contract must allow for asbestos work.
		5.3.10.1 Requirement Where the Contractor is responsible for asbestos removal work, comply with the relevant statutory requirements, standards, codes and guidelines, including but not limited to the: · WorkCover Authority of NSW requirements · Safe Work Australia Code of Practice *How to manage and control asbestos in the workplace* · Safe Work Australia Code of Practice How to safely remove asbestos · Environmentally Hazardous Chemicals Act 1985 (NSW) · Waste Avoidance and Resource Recovery Act 2001 (NSW)

5.3.10.2 Notification and Permit

Not less than seven days prior to commencing any asbestos removal work, notify the local office of WorkCover and the Principal of the intention to carry out that work.

Where the regulations require a licence for asbestos removal work, before the work commences, submit a copy of the current licence held by the entity that will undertake the work and a copy of any WorkCover permit required for the work.

5.3.10.3 Monitoring

Provide air monitoring by an independent testing authority on each day during asbestos removal and on completion of each area where removal has been undertaken.

5.3.10.4 Clearance Certificate

Submit to the Principal a clearance certificate from an independent testing authority at the completion of the asbestos removal work.

5.3.11 Hazardous substances

5.3.11.1 Definition

5.3.11.1.1 "Hazardous Substance" means a substance that is listed in the document entitled List of Designated Hazardous Substances published by Worksafe Australia or a substance that fits the criteria for a hazardous substance set out in the document entitled *Approved Criteria for Classifying Hazardous Substances* published by Worksafe Australia.

5.3.11.1.2 Asbestos, material containing asbestos, polychlorinated biphenyl (PCB) and lead based paints are recognised as Hazardous Substances. Other substances in certain situations are also considered hazardous and therefore require controlled handling. Examples are glues, solvents, cleaning agents, paints, and water treatment chemicals.

5.3.11.1.3 Work involving stone, rock, concrete, masonry and such materials containing silica, is part of the Works whether explicitly identified in the Specification or not. The Contractor is responsible for the control of any hazard which may arise from the presence of silica.

5.3.11.2 Response to Unexpected Discovery

5.3.11.2.1 If any Hazardous Substance not specified in the Works is discovered on the Site the Contractor must suspend all work which may result in exposure to such Hazardous Substance and notify the Principal immediately of the type of substance and its location.

5.3.11.2.2 With the initial notification, or as soon as practicable thereafter, the Contractor shall submit details, including:

5.3.11.2.2.1 the additional work and additional resources the Contractor estimates to be necessary to deal with the substance so that work and subsequent use of the Works may proceed safely and without risk to health.

	5.3.11.2.2.2 the Contractor's estimate of the cost of the measures necessary to deal with the substance; and 5.3.11.2.2.3 other details reasonably required by the Principal. 5.3.11.2.3 The Contractor must, in planning and carrying out any work dealing with the substance take all reasonable steps: 5.3.11.2.3.1 to carry out the work concurrently with other work wherever possible; and 5.3.11.2.3.2 to otherwise minimise effects of the work on the Completion Date. **5.3.11.3 Responsibility for Decontamination** Control and decontamination of any hazardous substances is the responsibility of:
	5.3.11.3.1 the Principal, in respect of any such substances not identified in the Contract Documents, which are discovered on the Site; and 5.3.11.3.2 the Contractor, in respect of any such substances identified in the Contract Documents.
	5.3.11.4 Decontamination by Principal Where the Principal is responsible for the control and decontamination of any Hazardous Substances, the Principal may suspend the whole or any part of the Works until the Hazardous Substances are isolated or removed. Should such suspension occur, the provisions of clause 57 of the General Conditions of Contract - **Principal's Suspension** must apply.
	5.3.11.5 Decontamination by Contractor Where the Contractor is responsible for the control and decontamination of the Site following the discovery of Hazardous Substances, the Contractor must handle, use, isolate, remove and dispose of such substances in accordance with statutory requirements. The Environment Protection Authority or Waste Service NSW may advise of suitable disposal sites
	5.3.11.6 Working Hours When the Contractor is required to decontaminate hazardous substances on occupied Sites, all such decontamination shall be carried out outside normal hours of occupation, unless otherwise approved in writing by the Principal.
	5.3.12 Working on Roofs All work on roofs must be carried out in accordance with the WorkCover Code of Practice titled "Safe Work on Roofs - Part 2, Residential Buildings".
	5.3.13 Construction Work Site Checklist The Contractor must supply to the Authorised Person at each regular site meeting or as directed by the Authorised Person a completed copy of a construction work site checklist confirming that reasonable health, safety and injury precautions have been taken.

5.3.14 Induction Training

The Contractor must ensure that it, and each of its subcontractors, complies with the *Work Health and Safety Regulation 2011 (NSW)* and the WorkCover Code of Practice titled "*Occupational, Health and Safety Induction Training for Construction*" and that all persons entering the Site have been adequately trained and inducted in accordance with the *Work Health and Safety Regulation 2011 (NSW)* and the WorkCover Code of Practice titled "Occupational, Health and Safety Induction Training for Construction".

The Contractor must maintain records for the period prescribed in the *Work Health and Safety Regulation 2011 (NSW)* and the WorkCover Code of Practice titled "*Occupational, Health and Safety Induction Training for Construction"*.

5.3.15 Audit

The Contractor acknowledges that the Principal may at any time audit or arrange to have audited the Contractor's compliance with the Contactor's work health and safety obligations under the Contract. Without limiting the Contractor's obligations under the Contract, the Contractor must make available, on request, all relevant work health and safety records and reports, including those of subcontractors and suppliers, for the purpose of audit. The Contractor must provide all reasonable assistance and must attend as required during audits.

5.3.16 Failure to Comply

If at any time the Contractor has not carried out its obligations under the Contract in relation to work health and safety management, then notwithstanding any other provisions of the Contract, no payment will be due to the Contractor until the 7th day after the required action has been carried out.

5.4 Quality Management Requirements

The Contractor shall have a quality system in accordance with the NSW Government Quality Management Systems Guidelines (QMS Guidelines) and the following requirements. The QMS Guidelines are available at:

http://www.nswprocurement.com.au/Procurement-System-for-Construction/Reference-material/Procurement-Guideline-Documents.aspx

5.4.1 Inspection and Test Plans

Prepare and implement Inspection and Test Plans (ITPs), complying with the *QMS Guidelines*, for work under the Contract. A separate ITP with associated checklists is required for each construction activity, i.e. an element of work or work carried out as a trade.

Not less than 7 days before starting the work to which they apply, submit the following documents:

- copies of proposed ITPs and checklists; and
- certification that the relevant quality management plans and ITPs of subcontractors and consultants meet the requirements of the *QMS Guidelines*.

Do not start construction work before supplying the above documents.

Give at least 24 hours notice before reaching a Hold or Witness point. Do not proceed beyond a Hold point without authorisation from the Principal. The Principal, at its discretion, may inspect the work at a Witness point, but the work may proceed without authorisation. Endorsement by the Principal at a Hold or Witness point does not relieve the Contractor of its obligations under the Contract.

The Principal, at its discretion, may undertake surveillance (monitoring) of all work under the Contract.

5.4.2 Design Plan

Where design work forms part of the Contract, prior to commencing design work, the Contractor shall prepare and implement a Design Plan complying with the QMS Guidelines, covering each phase of Design and addressing the key activities.

The Contractor shall give at least 24 hours notice prior to reaching a Hold or Witness point.

The Contractor must not proceed beyond a Hold point without endorsement by the Principal or its authorised representative.

The Principal, at its discretion, may inspect the work at a Witness point, but work may proceed without endorsement.

Endorsement by the Principal at a Hold or Witness point does not release the Contractor from its obligations to achieve the specified requirements of the Contract.

Surveillance (monitoring) by the Principal will apply to all work associated with the Contract.

Generally an Inspection and Test Plan shall:

5.4.2.1 detail the inspections and tests required including Hold and Witness Points;

5.4.2.2 identify acceptance criteria, sampling and testing methods and frequency of sampling/testing;

5.4.2.3 identify responsibilities for inspection and testing and product/service approval; and

5.4.2.4 detail the records to be provided including those required for identification and traceability.

5.4.3 Conformance records

The Contractor shall submit copies of conformance records as specified, including:

Conformance records	Time when records are required
Completed Inspection & Test Plans and associated checklists	With each Payment Claim
Contractor's certification of quality conformity and performance	Completion
Quality or test records obtained from manufacturers and suppliers	Completion
Structural Compliance certificates	Prior to Occupation or completion whichever is earlier.
Operation and maintenance manuals	Completion
Commissioning procedures	28 days prior to commencement of commissioning

5.4.4 Failure to Comply

If the Contractor fails to comply with the requirements of this clause, the Principal may implement such inspections and tests as the Principal determines and the cost incurred by the Principal shall be a debt due from the Contractor.

5.5 Industrial Relations Management

5.5.1 Verification of Compliance with Industrial Relations Obligations

The Contractor must submit before beginning works on the Site, a statement on the Contractor's letterhead, signed by an authorised person, attesting to the Contractor's compliance, in the preceding twelve months, with all employment and legal obligations including, but not limited to:

- payment of remuneration to employees
- annual leave
- Long Service Leave Payment Scheme registration
- workers' compensation insurance, including self- insurance arrangements
- superannuation fund membership and contributions
- over-award payments such as redundancy fund contributions

If the Contractor engages an independent industry or employer association or other specialist organisation to provide an auditing service to verify compliance with employment and legal obligations, a statement or declaration from that organisation may be submitted instead of the statement by the Contractor.

5.5.2 Project IR Management Details

Submit, before beginning work on the Site, a statement detailing:

- the location of time and wage records and other documents that are required to be kept to verify ongoing compliance with all employment and legal obligations; and
- the names of Federal or NSW awards that are likely to cover subcontractors and other contractors on the project.
- the names of those responsible for coordinating industrial relations on the project;
- an outline of:
  - the Contractor's consultation and communication mechanisms with workers, unions, and employer or industry associations
  - the measures to be implemented to coordinate the interface on the project with subcontractors, unions and other contractors.

5.5.3 Failure to comply

If at any time the Contractor has not carried out its obligations under this clause then notwithstanding any other provision of the Contract, no payment is due to the Contractor until the 7th day after the required action has been carried out.

5.6 Environmental Management

5.6.1 Requirement

The Contractor must comply with the NSW Government *Environmental Management Systems Guidelines (EMS Guidelines),* available in the Procurement System for Construction/ Reference material/ Procurement guideline documents section of the website

at: **www.procurement.nsw.gov.au**

5.6.2 Project Environmental Management Plan

Develop and implement a Project Environmental Management Plan (Project EMP) that complies with the *EMS Guidelines.*
Refer to Appendix B - **Environmental Management Plan Checklist**

The Contractor may elect to complete Appendix C – **Environmental Management Plan,** adding objectives and actions as required to suit the risks/hazards associated with the work under the Contract, and implement the completed version as the Project EMP.

Submit the Project EMP no later than 7 days before construction work starts. Do not start construction work before a complying Project EMP has been submitted.

5.6.3 Incident Reports

Ensure compliance with the notification and other requirements of the *Protection of the Environment Operations Act 1997 (NSW) (POEO Act).*

Immediately notify the Principal of any pollution incident that may cause material harm to the environment, providing evidence that notification requirements of the *POEO Act* have been met, where applicable.

Report immediately the details of any waste removed from the Site and not disposed of at a lawful facility.

When requested, provide an incident investigation report, including identification of the cause of the incident and corrective actions taken, in the form directed.

5.6.4 Failure to comply

If at any time the Contractor has not carried out its environmental management obligations under the Contract, then notwithstanding any other provisions of the Contract, no payment is due to the Contractor until the 5th business day after the required action has been carried out.

5.7 Ecologically Sustainable Development

5.7.1 Restricted Timbers

The Contractor shall not use the following timbers or their products for work under the Contract:

5.7.1.1 rainforest timbers, unless certification is provided that they are plantation grown;

5.7.1.2 timber from Australian high conservation forests.

5.8 Waste Management

5.8.1 Requirement

The Contractor shall implement waste minimisation and management measures, including:

5.8.1.1 recycling and diverting from landfill surplus soil, rock, and other excavated or demolition materials, wherever practical;

5.8.1.2 separately collecting and streaming quantities of waste concrete, bricks, blocks, timber, metals, plasterboard, paper and packaging, glass and plastics, and offering them for recycling where practical.

The Contractor shall ensure that no waste from the site is conveyed to or deposited at any place that cannot lawfully be used as a waste facility for that waste.

5.8.2 Monitoring

The Contractor shall monitor and record the volumes of waste and the methods and locations of disposal.

The Contractor shall submit a progress report every two months, and a summary report before Completion, on the implementation of waste management measures, including the total quantity of material purchased, the quantity purchased with recycled content, the total quantity of waste generated, the total quantity recycled, the total quantity disposed of and the method and location of disposal in the form of a Waste Recycling and Purchasing Report, which is available at:

http://www.nswprocurement.com.au/psc/contract_management/cm_sf_waste_recycling_and_purchasing_report-(1).aspx

With the Waste Recycling and Purchasing Report, the Contractor shall submit waste disposal dockets and/or company certification confirming appropriate, lawful disposal of waste.

5.9 Pest Control

The Contractor shall not use any chemical pesticides or termicides for new construction work. The Contractor shall use preventive treatment by physical means to minimise the risk of pest infestations. Refer to the Project Supplement – Selection Schedules.

Chemical treatments may be used in existing buildings only as a last resort for the eradication of pest and termite infestations. Chemical pesticides used for this purpose must be registered by the National Registration Authority for Agricultural and Veterinary Chemicals and applied by a Pest Control Operator licensed by WorkCover.

Pest preventive methods must comply with AS 3660.1-2000 Protection of Buildings from Subterranean Termites (except for references to chemical soil barriers), as well as supplementary standards for existing buildings.

5.10 Aboriginal Participation in Construction

5.10.1 Specification and Statutory Requirements

5.10.1.1 The Contractor must comply with the NSW Government Aboriginal Participation in Construction Guidelines and any additional requirements imposed by the Principal. The Guidelines are available at:

www.nswprocurement.com.au/Procurement-System-for-Construction/Reference-material/Procurement-Guideline-Documents.aspx

5.10.1.2 As part of the tender submission the tenderer has to submit Management Statement of Support for Aboriginal Participation and Statement of Opportunities for Aboriginal Participation. If successful in being awarded the Contract, within 4 weeks from the issue of the Letter of Acceptance, the Contractor shall document and submit to the Authorised Person for review their Aboriginal Participation Plan. If acceptable, the Contractor must implement the Aboriginal Participation Plan.

5.10.2 Aboriginal Training and Employment Requirement

5.10.2.1 One of the objectives of Aboriginal Participation is to assist Aboriginal people in obtaining future employment, apprenticeships and work opportunities in the construction industry by providing individuals with work experience and training opportunities. "Aboriginal" means both Aboriginal and Torres Strait Islander.

It is a requirement of this Contract that Aboriginal people are employed under this Contract. The minimum number of Aboriginal people required to be employed under this Contract, unless otherwise agreed to by the Principal, are specified in the Amendments to Special Conditions of Contract. Aboriginal people may be employed directly by the Contractor and /or its subcontractors.

5.10.2.2 Aboriginal people shall be employed for the duration of the construction phase of the Contract. As a minimum, the employment period shall be from no later than 25% into the contract to 90% of Contract completion.

5.10.2.3 To assist the Contractor to achieve compliance with Aboriginal Participation requirements, the Authorised Person will facilitate contact with the local Aboriginal Community to help the Contractor and its subcontractors to identify potential, suitable applicants and to provide ongoing support of the employees during the Contract.

5.10.2.4 Whilst Authorised Person and Aboriginal Community will be involved in the process, the Contractor and/ or its subcontractors remain responsible for selection and employment of the Aboriginal people.

5.10.2.5 The Contractor and /or its subcontractors shall liaise directly with the employees to arrange employment conditions under the relevant award, timeframes and associated training.

The Contractor shall liaise with the Authorised Person and the local Aboriginal community prior to any action concerning termination of employment of Aboriginal employees considered as unsuitable, including those of the subcontractors.

The employee shall be given sufficient opportunities (minimum 3 opportunities) to improve or make good. Should the employment be terminated, the Contractor and/or its subcontractor shall employ another Aboriginal person for the remaining period.

5.10.2.6 It is the Contractor's responsibility to plan and monitor the employment experience so that it is beneficial to the Aboriginal employees and as far as possible go beyond labouring duties and covers various trades during the Contract.

To monitor the progress and performance of the Aboriginal person's employment experience, the Contractor is required to submit to the Authorised Person a monthly progress report on the tasks undertaken from commencement through to completion. A pro-forma progress report document will be made available to the Contractor by the Authorised Person.

5.10.2.7 The Tenderer is required to include in the Returnable Schedule (Tender Break-up) the sum allowed in the tender for training and employment of Aboriginal people. The Contractor can include compliance with Aboriginal Participation clause and compliance with any additional Aboriginal employment and training in meeting its Apprentice (if the person is undertaking a trade course) or Training targets under Training Management requirements. Refer to Training Management clause.

5.10.3 Failure to Comply

If at any time the Contractor has not carried out its obligations under this clause, then not withstanding any other provisions of the Contract, no payment shall be made to the Contractor until the seventh day after the required action has been carried out as per the Contract requirements.

5.11 Long Service Levy

Before commencing Design or construction work or within 14 days of the Date of Contract, whichever is the earlier, the Contractor must:

1 pay to the Building and Construction Industry Long Service Payments Corporation or the Corporation's agent the amount of the long service levy payable in respect of the building and/or construction work under the Building and Construction Industry Long Service Payments Act, 1986; and .

2 produce to the Principal the documentary evidence of payment of the levy.

6 GENERAL

6.1 Insurance

Delete Clauses 5.2 and 5.3 of General Conditions of Contract and insert in substitution the following:

Insurance and Indemnities

Amended Jul 2015

Change in the indemnity limit

5.2 Insurance of the Works / Third Party (Public) Liability

5.2.1 The Contractor acknowledges that the Principal has effected an Insurance Policy with an indemnity limit of:

- twenty million dollars ($20,000,000) for damage to the Works; and
- twenty million dollars ($20,000,000) for third party liability;

in respect of any one occurrence, in the name of itself, the Contractor and its Sub-contractors;

Amended Jul 2016

Change to the premium percentage

5.2.2 **The Contractor shall pay the premium. The Principal shall deduct from the first Progress Payment to be made to the Contractor the amount of 0.13294% (the premium percentage) of the Contract Sum (inclusive of GST).** The premium deducted may be adjusted by the Principal to reflect any change in the actual cost of the premium as a result of changes to the Contract Price resulting from approved variations and any difference in the amount owing as a result of the adjustment will be deducted from or added to the final payment due to the Contractor.

5.2.3 This policy specifies that the insurer shall not be liable for the first:

- § $10,000 of each and every claim in respect of damage to the Works;
- § $100,000 of each and every claim in respect of personal injury to contractors, subcontractors and their employees; and
- § $50,000 for each and every claim in respect of all other losses.
- § ("the Excess")

5.2.4 The Contractor shall be liable to pay the Excess in all circumstances where a claim is required to be made or as required by the insurer in respect of the Works insurance policy and the third party liability insurance policy.

5.2.5 It will be the responsibility of the Contractor or Sub-Contractors to effect any additional insurance cover which the Contractor or Sub-Contractors may consider necessary or which may be required to be effected pursuant to the provisions of the Contract. The insurance requirements of the Contract do no limit the liability of the Contractor under the Contract.

5.2.6 A copy of the insurance policy wording will be provided by the Principal to the Contractor upon request.

6.2 Asbestos Disease Liability Insurance

6.2.1 If the works involve asbestos removal or abatement:

6.2.2 The Contractor must determine at its own expense, using its best endeavours, skills and experience, if it is necessary for it to effect an asbestos disease liability insurance policy. In the event the Contractor determines it will affect an asbestos disease liability insurance policy then it must affect one with an indemnity limit of not less than ten million dollars ($10,000,000.00) in respect of any one occurrence and be in the name of the Principal and the Contractor. If this policy is on a "claims occurring" basis it must be maintained during the currency of the Contract and any defects liability period. If the policy is on a "claims made" basis, similar coverage must be maintained for a period of not less than 6 (six) years after the completion of the Contract, with a retroactive date no later than the commencement date of the Contract.

6.2.3 In the event that the Contractor uses Sub-Contractors to carry out asbestos removal or abatement, then the Sub-Contractor(s) must comply with the provisions of the paragraph above. The use of such Sub-Contractors does not derogate from the Contractor's obligation to adequately insure itself against relevant claims concerning asbestos removal and abatement.

6.2.4 The Contractor warrants that it and any relevant Sub-Contractors are licensed under the relevant statute or statutes to remove or engage in asbestos removal activities and that asbestos shall be removed in accordance with all statutory requirements. The Contractor shall procure a similar warranty from any relevant Sub-Contractors in favour of the Principal.

6.2.5 The obtaining of asbestos disease liability insurance, or not, as the case may be, shall not derogate from the Contractor's obligations concerning the management and removal of asbestos, including, without limitation, the obligations contained in the Work Health and Safety Act and its Regulations, any WorkCover Guidelines and the obligations of this Contract.

6.2.6 The Contractor shall indemnify and keep indemnified the Principal and shall procure a similar indemnity from its Sub-Contractors in favour of the Principal against liability for all loss or damage resulting from the breach of the warranty contained in this subclause.

6.2.7 When requested by the Principal, the Contractor shall provide to the Principal a copy of a certificate of currency evidencing any asbestos disease liability insurance the Contractor has affected, so the Principal may ensure it meets the requirements of paragraph 1 above.

6.3 Electronic Communication

The parties agree and consent that notices and communications may be by electronic communication in accordance with the Electronic Transactions Act 2000 (NSW).

6.4 Use of Qualified Designers

The Contractor must use persons professionally qualified in the relevant disciplines when completing the Design of the Works.

The use of such persons shall not relieve the Contractor of liability for the fitness of the Works for the purposes required by the Contract.

6.5 Contractor's Conduct

6.5.1 Contractor's Code of Conduct

Where the Works involve working in and upon Principal's properties occupied and used by tenants all persons must, at all times during the performance of the contract, comply with the Principal's conduct requirements which are contained in the document called Contractor's Code of Conduct.

6.6 Protection of Children and other Vulnerable People

6.6.1 Employees

Where the Works involve working in and upon Principal's properties occupied and used by tenants:

6.6.1.1 The Contractor must not employ or permit to be employed on the Contract a person where the Principal advises the Contractor that, in the opinion of the Principal, that person poses unacceptable risks to children or other vulnerable people cared for at that Site.

6.6.1.2 The Contractor must not employ or permit to be employed on the Contract a person who has been convicted of a serious sex offence and is a prohibited person under the Child Protection (Prohibited Employment) Act 1998 (NSW).

6.7 REC Certificate

For all systems and appliances which form part of the Works and which are eligible under the Small-scale Renewable Energy Scheme or the Large-scale Renewable Energy Target implemented by the Renewable Energy (Electricity) Act 2000 (Cth) and Renewable Energy (Electricity) Regulations 2001 for Small-scale Technology Certificates (STCs) or Large-scale Generation Certificates (LGCs) to be created – previously known as Renewable Energy Certificates (RECs) – the Contractor must supply to the Principal all paperwork necessary to enable the STCs or LGCs to be created, registered, traded, surrendered or assigned.

The said paperwork must be supplied within the time limit required to enable the Principal to create, register, trade, surrender or assign the STCs or LGCs or upon Completion, whichever is the earlier.

6.8 Additional Financial Checks

The Contractor agrees that the Principal may engage NSW Government approved private sector consultants to assess the Contractor's financial position during the term of the Contract.

The financial assessment will be carried out at any time to any contract where the Principal in its sole discretion considers it necessary. Under the terms of their contract with the Principal, financial assessors are required to keep contractors' financial details obtained confidential and not to disclose such details, either in whole or in part, to any party other than other NSW Government departments or agencies without the express written permission of the Contractor. Where a financial assessment is requested by the Principal, the Contractor shall provide to the external financial assessor, for assessment, all requested financial information as soon as practicable.

6.9 Contractor Performance Reporting

To facilitate continuous improvement by the Contractor and enable the Principal to monitor the Contractor's performance, the Authorised Person will conduct regular contractor performance reviews during the course of the Contract.

These reviews will be generally in accordance with the NSW Government "Contractor Performance Reporting and Exchange of Reports between Government Agencies Guidelines".

6.10 Exchange of Information between Government Agencies

The Contractor authorises the Principal and its employees and agents to make information concerning the Contractor and its performance available to other NSW government agencies and local government authorities, which may take such information into account in considering whether to offer the Contractor future opportunities for work.

The Principal regards the provision of information about the Contractor to any NSW government agency or local government authority as privileged under the Defamation Act 2005 (NSW).

The Contractor agrees that it will have no entitlement to make any claim against the Principal in respect of any matter arising out of the provision or receipt of such information.

6.11 Confidentiality

The Contractor must treat all information relating to the Contract as private and confidential pursuant to the Housing Act 2001 (NSW).

The disclosure of information to the Contractor by the Principal is a valid disclosure pursuant to sub-sections 71(b), (c) and (e) of the Housing Act 2001 (NSW). The Contractor must ensure that the duty of confidentiality is imposed on its employees, its subcontractors and the employees of its subcontractors. The obligations of confidentiality shall survive the termination of the Contract.

6.12 Disclosure of Information

6.12.1 In accordance with NSW Government Policy to publicly disclose details of its contracts, the Principal may publish or otherwise disclose the following information about the Contract:

6.12.2 a description of the project to be completed or goods and/or services to be provided or property transferred;

6.12.3 commencement of the Contract;

6.12.4 the period of the Contract;

6.12.5 the full identity of the Contractor including details of cross ownership of relevant companies;

6.12.6 the price payable by the Principal and the basis for any future changes in the price;

6.12.7 the significant evaluation criteria, where applicable, and the weightings used in tender assessment; and

6.12.8 provisions for re-negotiation, where applicable.

6.12.9 The Principal will not disclose the following information about the Contract unless the Contractor agrees, or its release is in accordance with the Government Information (Public Access) Act 2009 (NSW) or is otherwise legally required:

6.12.9.1 the Contractor's financing arrangements;

6.12.9.2 the Contractor's cost structure or profit margins;

6.12.9.3 items of the Contractor having an intellectual property characteristic (e.g. non-tangible property that is the result of creativity, such as patentable ideas or inventions, trademarks, copyrights, etc).

6.12.10 The Contractor may request that the Principal not disclose particular information included in its tender but must give reasons for requesting this. The Principal will advise the Contractor what information it agrees not to disclose. If the Principal and the Contractor cannot agree about what should be disclosed, the Principal will seek the advice of the Chair of the State Contracts Control Board. However, the Principal's decision is final and is at the Principal's absolute discretion. Neither a decision by the Principal, nor a recommendation by the Chair of the State Contracts Control Board under this paragraph is a decision which falls within any dispute resolution procedures in the Contract.

6.13 Audit Review

The Contractor shall make available, on request, all records, including those of or relating to Subcontractors or suppliers, relevant to compliance with requirements of the Contract, for the purposes of audit, review or surveillance.

The Contractor shall provide all reasonable assistance during the audits or reviews including attendance by the Contractor. The Contractor shall promptly implement effective corrective action on matters disclosed by audit or review.

6.14 Corrupt Gifts and Payment of Commission

The Contractor must not offer or give or agree to give to any employee or representative of the Principal any gift or consideration of any kind as an inducement or reward for doing or refraining from or for having done any act in relation to the obtaining or execution of this or any other contract with the Principal or for showing or refraining from showing favour or disfavour to any person in relation to this or any other contract with the Principal.

No gifts, benefits or privileges or secondary employment opportunities are to be extended to the Principal's employees by the Contractor or any other person on behalf of the Contractor.

6.15 Construction Program

Within 14 days of Letter of Award the Contractor shall submit to the Authorised Person a construction program in a form of bar chart or network diagram.

The construction program shall show how Scheduled Progress will be achieved, show all trades, workforce, plant resources, allowance for holidays, and time necessary to complete the works and specific actions required to correct or address deviations from the program, if required.

At regular meetings and within 7 days after a request, submit an updated program incorporating any changes required to achieve Completion in accordance with the Contract

The Authorised Person will monitor the construction program and progress of the works.

6.16 Completion Commitment

Eight weeks in advance of the anticipated Completion date the Contractor shall submit to the Authorised Person an up to date construction program with a commitment date for Completion. Any extensions of time to the commitment date for Completion shall be assessed in accordance with clause 12.3 of the General Conditions of Contract.

The availability and access to additional resources to meet the commitment date shall be clearly shown on the program submitted to the Authorised Person.

6.17 Existing Services

6.17.1 Locating Existing Services

The Contractor is appointed as the person with management and control of the workplace and is responsible for locating services, including underground essential services, and in doing so, must comply with the WorkCover *Work Near Underground Assets Guideline and Safe Work Australia Code of Practice Managing Risks in Construction.*

Before starting construction work, establish the precise locations of all underground and other existing services at the Site and in areas adjacent to the Site that may be affected by the work under the Contract, and:

- obtain advice from Dial Before You Dig and the owners of the services;
- engage a services locator;
- examine the Site and surrounding areas for indications of services;

- where any service is underground, use pot-holing (or equivalent non-destructive techniques); and
- verify the location of all identified services.

Mark prominently on the Site the locations of all services. Document the locations of services on a site plan and provide a copy of the plan to each subcontractor before the subcontractor starts work on the Site.

6.17.2 Isolation of Existing Services

Before undertaking any work involving cutting into, penetrating, or otherwise breaking into the building fabric (floor, walls or ceiling), ensure the services are isolated in the relevant work area.

Wherever reasonably practical and with the prior approval of the Authorised Person, isolate electrical and gas services for the whole building where work is being carried out, before starting work on existing building services.

Notify the Authorised Person and the appropriate persons within the facility of any proposed disruption of services in sufficient time to enable affected staff to be informed and any changes to operations to be made. Wherever possible, consult with the Authorised Person prior to issuing the notification.

Include in the notification:

- details of the service to be disrupted;
- the date and time that the disruption will commence;
- the estimated duration of the disruption and when the service will resume operation;
- the possible impact of the disruption (eg. loss of power, loss of gas); and
- any other relevant information.

On completion of the work and the resumption of the service, check all penetrations for live or damaged services and give the following to the Authorised Person:

- a clearance certificate that affected utilities (eg. heaters, boilers, equipment) have been tested and are functioning appropriately; and
- the name and phone of a responsible person who can be contacted if problems are experienced with any of the affected utilities.

6.17.3 Dealing with Existing Services

Notify the Principal immediately upon discovering services that obstruct the Works and are not shown in the Principal's Documents.

Existing services (such as drains, watercourses, public utilities, telecommunications and other services) obstructing the Works or if damaged in the course of the Contract, must be dealt with as follows:

- if the service is to be continued: repair, divert, relocate as required;
- if the service is to be abandoned: cut and seal or disconnect and make safe as required;

6.17.4 Cost and Delay

Where an existing service obstructs the Works and requires diversion or relocation, the Contractor must bear all resulting costs and delays except to the extent that the Contractor is entitled to an adjustment of the Contract Price or payment for a Variation in accordance with General Conditions of Contract clause - Site Conditions.

Where an existing service is damaged by the Contractor for any reason whatsoever, the Contractor shall bear all costs and any delays for repairing or disconnecting the service.

6.18 Variations – Omitted Work

The Principal may carry out or engage others to carry out any part of the Works which has been omitted pursuant to clause 52 of the General Conditions of Contract and the Contractor shall have no claim in respect thereto.

6.19 Exclusion of Part 4 of Civil Liability Act 2002 (NSW)

To the extent permitted by law, the parties agree that Part 4 of the Civil Liability Act 2002 (NSW) does not apply in relation to any claims for loss or damage arising under or in connection with this Contract.

6.20 Selection of Alternate Products or Materials

Refer to Reference Specification Preliminaries clause 8.12 Substitution of Products and Materials and clause 8.13 Pre-order of Materials.

In the event that a specified product is not available the Contractor may recommend alternate product or material.

1. Select alternative product or material, if available, from Land and Housing Corporation *Deemed to Comply Product Register* available from:

   http://www.housing.nsw.gov.au/social-housing/building-design-and-product-requirements

2. In the event that the product or material is not included in the Deemed to Comply Product Register the Contractor shall recommend selection meeting the Reference Specification for Housing Construction requirements and good industry standards applicable to the Works.

The Contractor shall give sufficient notice and obtain Authorised Person's approval.

6.21 Security

Amended Aug 2014

Delete clause 13.8 of the General Conditions of Contract and insert the following.

13.8 The Contractor shall, unless the Principal otherwise agrees, provide by way of security an unconditional undertaking in an amount of:

FOR LUMP SUM CONTRACTS:

Amended May 2015

Completion Undertaking: 2.5% of the Contract Price

Post-Completion Undertaking: 2.5% of the Contract Price

FOR SCHEDULE OF RATES CONTRACTS OR FOR CONTRACTS INVOLVING BOTH LUMP SUM AND SCHEDULE OF RATES:

The amount nominated in Schedule 10 - Amendments to Special Conditions of Contract.

The Undertaking(s) shall be the form as detailed in **Schedule 1 of Contract Information and Schedules – Unconditional Undertaking.** The unconditional undertaking shall be by banks, building societies and credit unions listed by the Australian Prudential Regulation Authority (APRA) as being regulated by APRA are acceptable to the Principal.

Amended Mar 2015

Notwithstanding anything else in the Contract, the Contractor acknowledges and agrees that unless the Principal has made or intends to make a demand against the security, the Principal will return the security to the Contractor as follows:

(a) Completion Undertaking: within 14 days after the completion of all the Works; or

Amended Mar 2015

(b) If there are Milestones Completion Undertaking: within 14 days after the completion of Milestone 1, unless noted otherwise in Schedule 10 - Amendments to Special Conditions of Contract

and

(c) Post-Completion Undertaking: at the end of the Post-Completion Period (or 12 months after completion of the Works if no period is specified there) provided all defects then known have been remedied, otherwise when all defects then known are remedied.

Institutions regulated by APRA are listed on the APRA website:

www.apra.gov.au

The security must be lodged by the Contractor with the Principal within 14 days after the date of the Letter of Award.

The Principal may make a demand against an undertaking in payment of any debt due from the Contractor to the Principal.

New clause Aug 2014

(Previous clause deleted)

6.22 Schedule of Rates

Where the Principal has accepted rates, the schedule of rates shall be used in the administration of the Contract for the purposes of:

6.22.1 identifying those parts of work which will be subject to a further direction by the Authorised Person during the Contract period and which may result in their deletion or a variation to the estimated quantity;

6.22.2 assessing progress certificates and payments; and

6.22.3 assessing the value of variations under clause 9 of the general Conditions of Contract – MW21.

The Contractor hereby agrees that there will be no payment due to loss of profit or overheads recovery should any part of the works be deleted or varied.

6.23 Use of Qualified Tradepersons

The Contractor shall use qualified tradepersons to carry out the Works. The use of such persons shall not relieve the Contractor of liability for the fitness of the works for the purposes required by the Contract.

6.24 Collusive Arrangements

The Contractor shall comply with the NSW Government Code of Practice for Procurement and Implementation Guidelines available in the Government Procurement Frameworks/ Procurement Policy Overview section of the website at:

www.procurement.nsw.gov.au

6.25 Goods and Services Tax

The Contract Price, any associated amount and other amounts specified in the contract are GST inclusive.

GST Law has the meaning in the *A New Tax System (Goods and Services Tax) Act 1999 (Cth)*.

6.26 Work Method

If the Contract prescribes a particular work method or the Principal directs that a particular work method must be used to the exclusion of other work methods, then using that work method is a requirement of the Contract.

Otherwise, the Contractor is free to use any work method and is responsible for its suitability.

6.27 Working Hours and Working Days

Unless the Contract provides otherwise, the Site is available to the Contractor to carry out the Works between 7am and 5pm, Monday to Friday, inclusive, but excluding public holidays.

The Authorised Person may approve additional working hours or working days, subject to conditions.

6.28 Standards

Where the Contract requires compliance with a standard or code, unless otherwise specified that standard or code shall be the one current at close of tenders, except for the Building Code of Australia, which shall be the one current at Completion.

Where the Contract refers to an Australian Standard it does not preclude the adoption of a relevant international standard.

6.29 Cleaning up

Prior to Completion, remove unwanted materials and dispose of any vermin. Remove all marks, dirt and dust from visible surfaces, including fittings, fixtures and equipment.

6.30 Samples

Match any approved samples throughout the Works. Unless samples have been approved, give notice before starting work requiring approval of samples. Keep approved samples in good condition on the Site until Completion of the Works is reached.

6.31 Testing - Independent Testing Authority

Any testing required to be by an independent authority shall be carried out by an authority registered with the National Association of Testing Authorities Australia (NATA) to perform the specified testing.

6.32 Variations

Delete content of clause 9.4 of General Conditions of Contract MW21 and replace with the following:

If, in respect of a possible Variation, the Principal requests the Contractor to submit a proposal, including the effect on the Contract Price, the time required to reach Completion and any other implications for the Contract, the Contractor is to comply with the request within 14 days.

The percentage for Contractor's Margin on Variations shall be:

For additions to the Contract Sum	10%
For deductions from the Contract Sum	5%

If the variation involves both an addition to the Contract Sum and a deduction from the Contract Sum the value of the variation shall be the net amount that would result in either addition to or deduction from the Contract Sum

7.1 APPENDIX A: CONTRACTOR'S WHS MANAGEMENT PLAN (WHSMP) CHECKLIST

The following checklist indicates my organisation's compliance with the NSW Government Work Health and Safety Management Systems and Auditing Guidelines (5th Edition)

PRINCIPAL CONTRACTOR:		
PROJECT:		
JOB NO:		
TELEPHONE:		
Overall, the WHS Management Plan:		**YES/NO**
1	Is an easily understood document	
2	Describes the work to be undertaken	
3	Identifies the hazards associated with the work	
4	Describes the risk assessment processes that will be used	
5	Describes the risk control measures that will be used	
CONTRACTOR'S REPRESENTATIVE COMPLETING THIS FORM		
NAME:		
SIGNATURE:		
DATE:	____ / ____ / _____	

1. RISK MANAGEMENT

		PAGE NO/ SECTION	COMMENTS
1.1	The hazards associated with each work activity have been identified		
1.2	The associated risks with hazards have been assessed		
1.3	Measures for eliminating or minimising and monitoring the risk controls have been developed and documented for implementation		
Findings			

2. STATEMENT OF RESPONSIBILITIES

		PAGE NO/ SECTION	RESPONSIBLE PERSON
	The statement of responsibilities defines who will be responsible for:		
2.1	Identifying hazards and assessing the risks associated with the Works and documenting the risk control measures to be taken		
2.2	Managing compliance with WHS, workplace injury management and workers compensation legislation, regulations, standards and codes, Safe Work Method Statements and the Site Safety Rules		
2.3	Assessing and monitoring the capability of your service providers in the supply chain, and verifying that they meet WHS requirements		
2.4	Making sure that the Site Safety Rules are displayed and available on the work site and provided to people who work on, or visit, the work site		
2.5	Providing your service providers in the contract chain with your WHS Management Plan and any updates		
2.6	Managing WHS communication and consultation provisions in accordance with the regulatory and other requirements		
2.7	Conducting site-specific induction, specific work activity safety training and refresher training		
2.8	Making sure that before starting work on site, all personnel attend an WHS induction training course covering general construction work as well as the particular site and specific work activity		
2.9	Preparing, maintaining and making available the register of hazardous substances		

2.10	Managing workplace injury management processes to suit procedures		
2.11	Maintaining first aid stocks and providing first aid		
2.12	Managing illness/injury and emergency processes to suit procedures		
2.13	Keeping WHS records		
Findings			

3. COMMUNICATION AND CONSULTATION

		PAGE NO/ SECTION	COMMENTS
	The Plan clearly describes how the Contractor plans to:		
3.1	Facilitate the establishment of WHS Committee or HSR or WHS Representative or other arrangements for WHS consultation agreed by management, workers and service providers.		
3.2	Review site consultation arrangements with workers and service providers.		
3.3	Ensure that all workgroups will be represented by either the WHS Committee or Representative or are involved in the site specific other agreed arrangements		
3.4	Elect the WHS Committee or HSR or WHS Representative, if applicable to the agreed site communication and consultation arrangements		
3.5	Ensure that each member of the WHS Committee, HSR or WHS Representative undertakes WHS consultation training		
3.6	Record, publicise and encourage workers representatives to participate in the work on a regular basis		
3.7	Consult on the job through daily communication between site managers, workers and service providers		
3.8	Provide access to relevant WHS information through notice boards, toolbox meetings, circulars and safety alerts		
3.9	Liaise with their service providers to coordinate WHS consultation and communication on work sites, and regularly communicate with unions		
Findings			

4. INCIDENT MANAGEMENT

		PAGE NO/ SECTION	COMMENTS
	The Plan defines:		
4.1	Who will be available (both during and outside normal working hours) to prevent, prepare for, respond to and recover from illness/injury and incidents		
4.2	Your procedures for detecting and documenting issues and incidents of non compliance and non-conformance		
4.3	Your procedures for quarantining and disposal of non-conforming materials and substances		
4.4	Your procedures for communicating information about issues and corrective action		
4.5	Your procedures for incident/ illness/ injury reporting and investigation and implementation of corrective, implementation of injury management and return to work plans.		
Findings			

5. SITE SAFETY RULES

	Site Safety Rules must be prepared, implemented and displayed on notice boards and other suitable locations on the work site, and be provided to all personnel on, and visitors to the work site.		
		PAGE NO/ SECTION	**COMMENTS**
	As a minimum, Site Safety Rules covers and includes the following:		
	Induction and safety training		
5.1	Before starting work on site, all personnel must attend induction training in health and safety aspects of general construction work		
5.2	Before starting work on site, all personnel must attend adequate site-specific training and induction training for the particular work activity being undertaken		
5.3	All personnel on the work site must attend appropriate refresher training and be involved in regular discussion of work site WHS matters		
5.4	All visitors when on the work site, must be accompanied by a person who has received the above training		
	Personal protective equipment		
5.5	All personnel and visitors must wear appropriate personal		

	protective equipment (PPE) when on the work site		
	Site access and security		
5.6	All entry to, movement on, passage adjacent to, and exit from the work site of persons, vehicles and equipment, will be controlled in accordance with required procedures		
	Illness/injury and emergency procedures		
5.7	All first aid facilities and illness/injury and emergency procedures will be clearly identified and used, including reporting illness/injury and incidents		
	Protection of all workers and the public		
5.8	Effective barricades, fencing and overhead protection will be used where applicable		
	Elevated work		
5.9	All work at heights will be done in accordance with the relevant legislation, regulations, standards, codes and procedures		
5.10	Electrical work, overhead wiring, installations and equipment		
5.11	All electrical work, plant and equipment must comply with WHS and electrical safety legislation, regulations, standards, codes and procedures, including inspection and tagging of leads and power tools		
5.12	The presence and location of all electrical cables will be identified before commencing adjacent work		
	Demolition, excavation, scaffolding, formwork and other structural frames		
5.13	All demolition, excavation, scaffolding, formwork, and work with other structural frames will be done in accordance with the relevant legislation, regulations, standards, codes and procedures		
	Hazardous materials and dangerous goods		
5.14	A register of hazardous substances must be kept and maintained for all hazardous substances brought onto the work site		
5.15	All hazardous substances and dangerous goods must be used, handled and stored in accordance with requirements		
	Safe working		
5.16	All requirements identified will be followed, including fire prevention and housekeeping procedures		
5.17	The consumption of alcohol and illegal drugs is prohibited on the work site		
Findings			

6. WORK HEALTH AND SAFETY TRAINING

		PAGE NO/ SECTION	COMMENTS
	The Plan defines how your organisation will:		
	Identify the WHS training needs of management, supervisors and other personnel for the Contract		
6.2	Conduct general construction work induction training, specific work activity and work site training, and refresher training in WHS for everyone working on the work site		
6.3	Make sure that all personnel attend a general construction work WHS induction training course before starting that work		
6.4	Make sure that all personnel attend adequate site-specific induction, work activity and refresher safety training		
6.5	Make sure WHS committee personnel and WHS representatives attend consultation training		
6.6	Keep appropriate records of WHS training		
Findings			

7. SAFE WORK METHOD STATEMENTS

	All work activities assessed as having WHS risks require the preparation and implementation of Safe Work Method Statements. When preparing such Statements, it is important to consult with and involve the personnel who will be doing the work.		
		PAGE NO/ SECTION	**COMMENTS**
	Your Safe Work Method Statements:		
7.1	Is on your organisation's letterhead and show the name and registered office address of the organization		
7.2	Is signed and dated by a senior management representative of your organization, and the authors		
	Your Safe work Method Statements must at least include the following:		
7.3	A description of the work to be undertaken		
7.4	The step-by-step sequence of activities and tasks involved in doing the work		
7.5	The potential hazards and risks associated with each step of the work		
7.6	The safety controls that will be put in place to minimise the risks		

7.7	All precautions to be taken to protect health and safety		
7.8	All health and safety instructions to be given to persons involved with the work		
7.9	Identification of the parts of WHS, workplace injury management and workers compensation legislation, regulations, codes, standards and procedures applicable to the work, and where these documents are kept		
7.10	The names and qualifications of those who will - Supervise the work - Inspect and approve work area conditions, work methods, protective measures, plant, equipment and power tools for use		
7.11	A description of what training is given to people involved with the work		
7.12	The names of those who will be, or have been, trained for the work activities described in the Statements, and the names and qualifications of the people responsible for training them		
7.13	Identification of the resources, plant and equipment that is most likely to be used on the work site, such as ladders, scaffolds, grinders, electrical leads, welding machines, fire extinguisher, tools and materials		
7.14	Details of any WorkCover permits and licences required to complete the work and where they are kept		
7.15	Details of the inspection and maintenance checks that will be, or have been, carried out on the plant and equipment listed for use		
Findings			

END OF WHSMP CHECKLIST

Family & Community Services
Land & Housing Corporation

7.2 APPENDIX B: ENVIRONMENTAL MANAGEMENT PLAN CHECKLIST

The following checklist indicates my compliance with the CCC document entitled *Environmental Management Systems Guidelines*

CONTRACTOR:		**TELEPHONE:**	
PROJECT:		**JOB NO:**	
ISSUE		**PAGE NO**	**SECTION**
1.	Cover sheet identifying key person and contacts		
2.	Project Description		
3.	Site Layout Plan		
4.	Specific Local Government Consent Conditions or other specific Environmental requirements.		
5.	Monthly Report Form		
6.	Action Plan (see attached)		
7.	Contractor/Subcontractor commitment Forms to EMP implementation		
CONTRACTOR'S REPRESENTATIVE COMPLETING THIS FORM (Name):		**SIGNATURE:**	
DATE: _____ / _____ / _____			

STATEMENT OF RESPONSIBILITIES

The contract (as a minimum) requires that the Contractor document and nominate persons (in a management position) with responsibilities for the following:

	PAGE NO	RESPONSIBLE PERSON
1.		
2.		
3.		
4.		
5.		
6.		
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11.		
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14.		
15.		
16.		
17.		
18.		
19.		

1. GENERAL SITE MANAGEMENT

ACTIONS	APPLICABLE Y/N	RESPONSIBLE PERSON
· Implement the Soil and Water Management Plan for the site		
· Sweep roads free of dirt each day		
· Regularly check and clean silt from behind silt fences and barriers if required		
· All vehicles to remain on clean all weather surface within the site		
· Minimise water use for cleaning		
· Install appropriate silt fences and other sediment control structures		
· Ensure sediment control measures are in place before starting clearing and excavation activities		
· Install a fence at the site boundary to limit site access from footpath		
· Minimise clearing of vegetation		
· Fence off no-go areas to minimise disturbance		
· Stockpile materials only in designated areas behind sediment fences		
· Limit vehicle entry points and lay geotextile and blue metal to stabilise vehicle access ways		
· Do not disturb the nature strip between the site and the roadway		
· Implement the site Construction Waste Management Plan (see attached)		
· Order only the required quantities of materials		
· Separate recyclable from non-recyclable waste		
· Other:		
· Ensure the correct waste containers are used by all site personnel		
· Minimise chemicals stored on site		
· Make staff aware of emergency phone numbers (such as the Fire Brigade) to use in the case of a large spill		
· Keep Material Safety Data Sheets (MSDSs) on site at all times		
· Keep clearly marked booms and/or absorbent material on site to contain spills if they occur		
· If a spill occurs, stop the source, contain it, clean up in accordance with MSDSs and notify relevant authorities		
· Damp down dusty areas as required		
· Do not burn off any waste products or off cuts		
· Identify site access with minimal impacts on residents and instruct trucks to use this access		
· Avoid parking site vehicles where they will unduly impact local use of the street		
· Do not place waste containers, skip bins or building materials on road or footpath – store all materials within the work site		
· Limit hours of operations to suit council requirements listed in consent conditions		
· Use noise suppressors on machinery		
· Do not use loud radios where neighbours can be disturbed		
· Take appropriate care when using construction equipment adjacent to buildings		
· Advise the adjoining neighbours of the work at least one week prior to commencement, including hours of work		
· Protect trees during construction		
· Do not stockpile soil or other materials under the canopy of a protected tree as designated by the Principal or the local council		
· Ensure site amenities such as sheds and material storage areas are not sited underneath tree canopies or in a position to disturb neighbours		

· Identify and protect heritage items present on site.		

2. DEMOLITION

ACTIONS	APPLICABLE Y/N	RESPONSIBLE PERSON
· Stockpile materials only in designated areas behind sediment fences		
· Cover stockpiled materials with plastic to prevent erosion by wind and rain		
· Install a fence around the site with a cloth barrier to act as a wind break if dust is a problem		
· Damp down surfaces such as stockpiles as required to reduce wind blown dust		
· Implement the site Demolition Waste Management Plan (attached)		
· Do not bury or burn demolished materials on site		
· Ensure hazardous materials such as asbestos are handled and disposed of correctly by licensed contractors, following Environment Protection Authority requirements		
· Do not mix hazardous materials with other demolition materials		
· Identify and protect heritage items present on site		

3. CONCRETING

ACTIONS	APPLICABLE Y/N	RESPONSIBLE PERSON
· Wash out trucks at supplier's depot		
· Wash out in an area where water cannot enter waterways, stormwater drains, footpaths or roads up slope from a sediment control device		
· Collect wash water in plastic container carried by delivery truck and return with the truck to the supplier for recycling or proper disposal		
· Collect wash water in an on-site container to allow solids to settle		
· Irrigate a flat grassy area with diluted wash out water, ensuring that it does not enter waterways or stormwater		
· Other:		
· Implement the site Construction Waste Management Plan (attached)		
· Order and supply only sufficient quantities of concrete		
· Return excess concrete with delivery truck to supplier for recycling or proper disposal		
· Use excess concrete as fence post footings or place on areas to be used for paths or driveways		
· Store excess concrete in a lined bin or pit for eventual recycling or disposal		

4. BRICKLAYING

ACTIONS	APPLICABLE Y/N	RESPONSIBLE PERSON
· Wash out in an area where water cannot enter driveways, stormwater drains, footpaths or roads, preferable up slope from a sediment control device		
· Collect wash water in an on-site container to allow solids to settle		
· Irrigate a flat grassy area with diluted wash out water, ensuring that it does not enter waterways or stormwater		
· Ensure brick cutting is undertaken where waste water will not run onto footpaths or roads		
· Implement the site Construction Waste Management Plan		

· Store excess mortar with waste concrete in a lined bin or pit for eventual recycling or disposal		

5. PAINTING

ACTIONS	APPLICABLE Y/N	RESPONSIBLE PERSON
· Wash out in an area where water cannot enter waterways, stormwater drains, footpaths or roads, preferably up slope from a sediment control device		
· Transfer as much paint as possible back to the tin		
· Spin brushes and roller sleeves in a waste paint drum		
· Irrigate a flat grassy area with diluted wash out water, ensuring that it does not enter waterways or stormwater		
· For solvent based paints, return solvent to a solvent recycling depot		
· Dispose of solid paint waste with other solid waste		
· Determine if lead is present in surfaces to be painted		
· Seal the area with plastic sheeting to prevent escape of dust		
· To prevent lead fumes, do not use open flame torches on lead paint		
· Use a high efficiency particulate air (HEPA) vacuum cleaner to clean up lead dust		
· Wash surfaces with a small amount of high phosphate detergent		
· Minimise paints and chemicals on site by ordering the minimum quantities		
· Store paints and chemicals in a bounded area where they can be contained if spills occur		
· Keep Material Safety Data Sheets (MSDSs) on site at all times		
· Keep clearly marked booms and/or absorbent material on site to contain spills if they occur		
· Other:		
· If a spill occurs, stop the source, contain it, clean up in accordance with the MSDSs and notify relevant authorities		

6. BUILDING SERVICES

ACTIONS	APPLICABLE Y/N	RESPONSIBLE PERSON
· Fill in service trenches as soon as work is completed to minimise erosion		
· Cover service trenches with plastic sheeting or another suitable cover if filling cannot be immediately completed		
· Connect guttering and downpipes to the stormwater system as soon as the roof is completed		
· Other:		
· Ensure there are no cross connections made between the stormwater and public sewerage system		

7. LANDSCAPING

ACTIONS	APPLICABLE	RESPONSIBLE

	Y/N	PERSON
· Once no longer required, reinstate ground level around the works, fill spoon drains and sediment basins, level banks and remove surplus soil		
· Complete landscaping and revegetation as soon as possible following building activities		
· Ensure sediment control measures are in place until all vegetation is established		
· Regularly check all sediment control structures to ensure they are working effectively		
· Ensure that no disturbance of the nature strip occurs between the site and the roadway		
· Do not locate stockpiles within 2 metres of hazard areas such as spoon drains or areas of high flow		
· Ensure stockpiles and open dusty areas are damped down as required		
· Cover stockpiles as needed to minimise dust		
· Ensure that soils and fill used in landscaping area are free from weeds and weed seeds		
· Ensure appropriate trees are chosen for the site and location relative to building and services considering their eventual height and root system		

DEMOLITION WASTE MANAGEMENT

Waste Materials	**Estimated quantity**		**Planned Actions**		
(1)	**Vol(m^3)** (2)	**Mass (t)** (3)	**On site reuse** (specify proposed reuse or recycling methods) (4)	**Off site recycling/ reuse** (specify recycler and recycling outlet) (5)	**Disposal** (specify contractor and landfill site) (6)
Cardboard packaging					
Bricks					
Timber					
Tree waste					
Tiles					
Pavers					
Concrete					
Metal waste					
Rubble					
Mixed waste					
Plastic					
Asbestos					
Synthetic fibre					
Other (specify)					

CONSTRUCTION WASTE MANAGEMENT

Waste Materials	**Estimated quantity**		**Planned Actions**		
(1)	**Vol(m^3)** (2)	**Mass (t)** (3)	**On site reuse** (specify proposed reuse or recycling methods) (4)	**Off site recycling/ reuse** (specify recycler and recycling outlet) (5)	**Disposal** (specify contractor and landfill site) (6)
Excavation material					
Topsoil					
Cardboard packaging					
Bricks					
Timber					
Tree waste					
Tiles					
Pavers					
Concrete					
Metal waste					
Rubble					
Mixed waste					
Plastic wrapping					
Other (specify)					

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (EMP)
DOCUMENT CONTROL AND CONTACTS

Copies of this plan are to be kept on site at all times and available to all staff

Project and Site Location		
Project No		
Prepared for: **Land & Housing Corporation**	Contractor:	Prepared by:

Contacts	Name	Phone Number (s)	Out of hours number/Mobile
Contractor Manager			
Land & Housing Corporation Project Manager			
Land and Housing Corporation Authorised Person			
Local Council			
Environment Protection Authority	Pollution Line	131 555	
Fire Brigade		000	

Approval	Name	Signature	Date
Contractor Manager			
Land and Housing Corporation Authorised Person			

EMP Audits	Date	Auditor	Audit Report Number and Location
1			
2			

Amendments to this EMP	Approved	Date

ENVIRONMENTAL MANAGEMENT PLAN
MONTHLY REPORT

This report will be completed at the end of each month and provided to Principal's inspectors during routine inspections.

	ISSUE	YES	NO
1.	Are all sediment control structures in place, cleaned out and operating? If no, provide details.		
2.	Have there been any (verbal or written) complaints from nearby residents, local council or the Environment Protection Authority in relation to site activities such as noise, dust, traffic, dirt trucked on roads or stormwater pollution? If yes, detail complaints and response to the complaints.		
3.	Have there been any incidents on the site such as spills of chemicals or fuel? If yes, describe what happened and what was done to clean up the spill.		
4.	Are there any areas of the EMP that have not been complied with? If so, detail.		
5.	Have any further strategies been employed to reduce waste going to landfill?		
6.	Other comments: list any other environmentally related issues		

Manager: _____ Signed: _____

Project Foreman: _____ Signed: _____

7.3 APPENDIX C: PROJECT ENVIRONMENTAL MANAGEMENT PLAN

WHERE REQUIRED, ADD TO THE FOLLOWING ENVIRONMENTAL MANAGEMENT PLAN SO THAT IT IDENTIFIES THE SIGNIFICANT KNOWN ENVIRONMENTAL RISKS AND OPPORTUNITIES INVOLVED IN CARRYING OUT THE WORKS, AND THE ACTIONS REQUIRED TO MANAGE THEM. CONSIDER, FOR EXAMPLE:

- **SPECIFIC UNDERTAKINGS ARISING FROM THE ENVIRONMENTAL IMPACT ASSESSMENT;**
- **CONSENT CONDITIONS;**
- **POLLUTION CONTROL APPROVALS AND ANY CONDITIONS ATTACHED TO THE APPROVALS; AND**
- **STATUTORY OBLIGATIONS.**

Refer to Special Conditions clause Clause – **Environmental Management** if the Contractor elects to adopt this Plan as a template for the Project Environmental Management Plan (Project EMP). Complete the Project EMP by inserting contract-related requirements as appropriate, or 'NA' where a particular item is not applicable.

ENVIRONMENTAL OBJECTIVES	ACTION TO BE TAKEN	WHEN ACTION WILL BE TAKEN	PERSON RESPONSIBLE	ACTION COMPLETED
1. CONSERVATION OF PLANTS & WILDLIFE				
1.1 Protect flora and fauna	Protect existing trees and plants at and around the Site from damage unless approved by the Principal			
	Do not remove trees and plants without approval from the Principal			
	Control weeds on the Site			
	Protect birds, fish and animals at and around the Site from harm			
	Do not remove birds, fish and animals from the Site without the written agreement of the Principal			
	Do not bring birds, fish, animals and plants onto the Site without written agreement from the Principal			
	Minimise the use of pesticides and herbicides for minimal impact on the environment			
1.2 Control movement of pedestrians, materials, vehicles and plant to minimise damage to the environment	Use only designated routes for access to the Site			
	Use designated site roads and access routes for all movements on and adjacent to the Site			
	Locate compounds, and park all vehicles and plant, in designated areas on the Site			

ENVIRONMENTAL OBJECTIVES	ACTION TO BE TAKEN	WHEN ACTION WILL BE TAKEN	PERSON RESPONSIBLE	ACTION COMPLETED
2. CONSERVATION OF RESOURCES				
2.1 Design for energy efficiency 2.2 Select materials to minimise: - resource use and waste - ozone depleting effects - detrimental effects on air, water, and land quality 2.3 Conserve heritage items and other physical attributes of the Site	Adopt energy efficiency, environmental enhancement and waste minimisation as design criteria			
	Use low energy usage construction, fittings and appliances (including heating/cooling and lighting)			
	Incorporate conservation of resources obligations into subcontracts			
	Reuse all topsoil on the Site and minimise the use of imported topsoil			
	Mulch and chip cleared vegetation as appropriate			
	Maximise use of materials that are recyclable or from a sustainable source			
	Use timber from sustainable managed sources only			
	Implement a strategy to reduce the quantity of waste, including minimising and recycling packaging			
	Use low water demand fittings & appliances (dual flush toilets, water conserving shower roses & taps)			
	Minimise the use of solvents, glues, paints and other materials which release odours or vapour			
	Comply with statutory requirements for conservation of heritage items			
	Manage the conservation of physical attributes of the Site, including (LIST THE ATTRIBUTES): 1.			
3. POLLUTION CONTROL				
3.1 Control discharges and emissions from vehicles and plant to minimise damage	Do not use vehicles, plant or equipment that produce excessive emissions			
	Monitor emissions from vehicles and plant			
	Do not bring vehicles or plant and equipment with hydraulic fluid, fuel or oil leaks to the Site			

ENVIRONMENTAL OBJECTIVES	ACTION TO BE TAKEN	WHEN ACTION WILL BE TAKEN	PERSON RESPONSIBLE	ACTION COMPLETED
to the environment	Wash down vehicles, plant and equipment only in controlled areas acceptable to the Principal			
	Prevent and clean up any spills from transport vehicles			
3.2 Prevent pollution of stormwater and adverse effects on land and vegetation by control of cleaning activities and discharges	Use only water based, non-toxic paints and use only water to clear point brushes and rollers			
	Control all run-off from cleaning activities			
	Discharge only non-toxic cleaning products generally			
3.3 Control soil erosion	Identify the existing drainage paths on the Site and protect them against siltation			
	Protect vulnerable and exposed surfaces and stockpiles against scouring			
	Install the following sediment control devices before starting construction (LIST THE DEVICES): 1.			
	Monitor and manage the effectiveness of sediment control devices			
	Remove sediment control devices when no longer required			
3.4 Prevent release of soil contamination to the environment	Establish, before starting work on the Site, in consultation with the Principal, if contaminated soil is present at the Site			
	If contaminated soil is present, manage the work to prevent release to the environment			
3.5 Manage refrigerants and other dangerous goods to meet statutory	Ensure the procedures used for the charging and disposal of refrigerants and use of dangerous goods meet statutory obligations			
	Use appropriately trained employees			
	Obtain the licences required			

ENVIRONMENTAL OBJECTIVES	ACTION TO BE TAKEN	WHEN ACTION WILL BE TAKEN	PERSON RESPONSIBLE	ACTION COMPLETED
requirements	Document dangerous goods identification, disposal and management, and retain the documentation			
3.6 Minimise noise and vibration impacts on neighbours, occupants and users of any facility	Comply with noise limits and conditions prescribed by the EPA, Department of Environment and Conservation and Council (as applicable)			
	Use equipment in good repair and condition			
	Use noise suppression equipment (e.g. silencers on compressors) and acoustic barriers as required			
	Do not expose workers, neighbours or visitors to excessive noise, and cooperate and coordinate with operators of any neighbouring facility			
	Do not expose people or property to excessive vibrations			
3.7 Comply with Trade Waste Licence conditions applicable to the facility	Implement procedures to avoid breaches of the Trade Waste Licence conditions (may apply to discharges from cooling water systems, condenser water systems, heating water systems, cooking facilities, engine discharges, water treated with chemicals or where large sediment loads exist)			
3.8 Minimise air pollution from dust and emissions	Minimise areas of exposed earth and stockpiles			
	Cover and secure materials in open transport			
	Use water sprays and/or other means to control dust			
	Keep emissions within statutory or other required limits			
	Minimise fire risks, and prevent and control fires			
3.9 Dispose of waste in accordance with statutory	Implement appropriate disposal procedures for all waste items, including using lawful places for disposal, recording and reporting on the method and location of disposal and any non-conformances			

ENVIRONMENTAL OBJECTIVES	ACTION TO BE TAKEN	WHEN ACTION WILL BE TAKEN	PERSON RESPONSIBLE	ACTION COMPLETED
requirements	**EITHER** Provide valid disposal certificates for each applicable item **OR** Provide company certification of appropriate disposal of the following (LIST THE ITEMS):			
	1. Packaging materials 2. Replaced or redundant materials 3. Chemicals 4. Oils and greases from machinery, cooking and other processes 5. Paints and solvents, including those used to clean equipment, tools and brushes 6. Cleaning materials and rags 7. Materials unsuitable for re-use, including hazardous materials such as asbestos			
3.10 Minimise damage to the environment from emergencies	Document emergency procedures to manage all reasonably foreseeable harm, including spills and other environmental emergencies			
	Ensure emergency procedures are followed			
	Obtain the agreement of the Principal to procedures for handling oil, chemicals and other dangerous goods before placing them on the Site, including secure storage arrangements			
	Re-instate and clean damaged areas and features, including work areas			
	Re-instate damaged eco-systems and features to their previous condition			
	Identify key contacts: (LIST NAMES and ROLES) 1.			
3.11 Comply with environmental requirements and rectify breaches	Inspect the Site daily to ensure appropriate environmental controls are in place and operating effectively, and that all environmental management requirements are being met			
	Cooperate with environmental audits by others			
	Rectify any environmental breaches identified within the time specified in an audit or by the Principal			

ENVIRONMENTAL OBJECTIVES	ACTION TO BE TAKEN	WHEN ACTION WILL BE TAKEN	PERSON RESPONSIBLE	ACTION COMPLETED
4. RECORDS AND REPORTING				
4.1 Provide sufficient documentation to demonstrate appropriate environmental management, including:	Prepare, submit and update the Environmental Management Plan			
	Maintain and submit records of environmental training			
	Report on implementation of the Environmental Management Plan			
	Submit applicable waste disposal certificates and/or company certification of appropriate disposal			
	Submit to the Principal copies of correspondence with regulators, including incident reports and notification of non-compliances or fines			
	Submit documentation evidencing that the causes of non-compliances have been corrected			
	Keep records for inspection securely filed using an effective document retrieval system			
4.2 Report environmental incidents	Immediately report all environmental incidents to the Principal			
	Immediately report environmental incidents as otherwise required			

REFERENCE SPECIFICATION FOR HOUSING CONSTRUCTION

January 2015

Prepared by:
Contracts & Quality
LAND & HOUSING CORPORATION
Locked Bag 4009, Ashfield BC NSW 1800

DISCLAIMER

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Revised January 2015

PREFACE

This reference specification is a standard specification to be used for all residential building works except high-rise construction. It is used together with drawings, General Conditions of Contract and other documents forming part of this contract.

The reference specification has been designed with a structure and format consisting of:

1. Preliminaries
2. Specification text, sections 1 to 20 incorporating:
   - the main text requirements to the right of the page
   - a left side column identifying additional compliance requirements
3. Schedules

Items referenced in the left sided column include:

- Australian Standards and other Codes
- All required Superintendent/Authorised Person approvals and inspections
- All required certificates, warranties and guarantees

Basically the reference specification provides a simple, concise, plain English, flexible, part-performance and part-prescriptive document designed to meet the needs and capabilities of the NSW housing industry.

Contents

		Page
PRELIMINARIES		**1**
P1	GENERAL	1
P2	DOCUMENTATION	2
P3	CONTRACTING	2
P4	ADMINISTRATION	3
P5	SITE	3
P6	ENVIRONMENTAL PROTECTION	6
P7	PLANT	7
P8	MATERIALS & WORKMANSHIP	8
P9	COMPLETION	10
P10	PROJECT HANDOVER	10
01: DEMOLITION		**11**
1.1	GENERAL	11
1.2	INSPECTIONS	11
1.3	MATERIALS AND COMPONENTS	11
1.4	DEMOLITION	11
02: GROUNDWORKS		**12**
2.1	GENERAL	12
2.2	INSPECTIONS	12
2.3	PROTECTION OF EXISTING TREES	12
2.4	CONTAMINANTS OR HAZARDOUS MATERIALS	13
2.5	SITE CLEARING	13
2.6	SITE EXCAVATIONS	13
2.7	FILLING MATERIALS	14
2.8	SITE PREPARATION AND BULK FILLING	15
2.9	COMPACTION	15
2.10	RESTORATION OF ROAD OPENINGS	16
2.11	BITUMINOUS PAVINGS	16
2.12	RETAINING WALLS	16
2.13	COMPLETION	16
03: CONCRETE WORKS		**17**
3.1	GENERAL	17
3.2	INSPECTIONS	17
3.3	QUALITY AND WORK PRACTICES	17
3.4	FORMWORK	17
3.5	REINFORCEMENT	18
3.6	CONCRETE	18
3.7	EMBEDMENTS, CORES AND FIXINGS	19
3.8	TERMITE BARRIERS	20
3.9	JOINTS	20
3.10	CONCRETE ELEMENTS	21
3.11	SUB BASE	21
3.12	UNDERLAY AND MEMBRANES	21
3.13	CONCRETE PATHS, PAVINGS, STEPS AND MISCELLANEOUS ITEMS	21
3.14	PARKING AREA AND DRIVEWAY	22
3.15	VEHICULAR FOOTPATH CROSSING	22
3.16	WATERPROOFING SYSTEM	23
3.17	FINISHES	23
04: MASONRY		**27**
4.1	GENERAL	27
4.2	INSPECTIONS	27
4.3	QUALITY AND WORK PRACTICES	27
4.4	MATERIALS	28
4.5	ACCESSORIES	29
4.6	MASONRY ELEMENTS	30
4.7	VENTILATION AND OPENINGS	31
4.8	DAMP-PROOF COURSE	32
4.9	FLASHINGS	32
4.10	TERMITE CONTROL AND VERMIN PROOFING	33
4.11	TRIM AND FIXTURES	33
4.12	CONTROL JOINTS	33
4.13	COMPLETION	34
05: METALWORK		**35**
5.1	GENERAL	35
5.2	QUALITY AND WORK PRACTICES	35
5.3	STRUCTURAL MEMBERS	36
5.4	BALUSTRADES AND HANDRAILS	36
5.5	SUNHOODS, AWNINGS & PRIVACY SCREENS	36
5.6	FINISHES	37
5.7	FIXTURES AND FITTINGS	37
5.8	FURNITURE	40
5.9	SIGNAGE	40
06: CARPENTRY AND JOINERY		**43**
6.1	GENERAL	43
6.2	INSPECTIONS	43
6.3	QUALITY AND WORK PRACTICES	43
6.4	MATERIALS	44
6.5	STRUCTURAL ELEMENTS	45
6.6	FLOORING	46
6.7	TRIMS	47
6.8	CUPBOARDS	48
6.9	TIMBER STAIRS	51
6.10	INSULATION	51
6.11	FINISHES	51
6.12	SCHEDULE OF TIMBER SPECIES & DURABILITY RATINGS	51
07: DOORS, WINDOWS AND HARDWARE		**54**
7.1	GENERAL	54
7.2	DOOR FRAMES	54
7.3	DOORS	55
7.4	ALUMINIUM DOORSETS	57
7.5	WINDOWS	57
7.6	FIXTURES AND FITTINGS	59
08: ROOFING AND ROOF PLUMBING		**66**
8.1	GENERAL	66
8.2	QUALITY AND WORK PRACTICES	66
8.3	SARKING, INSULATION AND VAPOUR BARRIER	66
8.4	TILE ROOFING	67
8.5	SHEET ROOFING	68
8.6	ROOF LIGHTS / SKYLIGHTS	69
8.7	ROOF PLUMBING	69
8.8	VENTILATION OF ROOF SPACE	70
8.9	SAFETY ANCHORS/BRACKETS	71
8.10	ROOF FINISHES SCHEDULE	71
09: INTERNAL LININGS		**72**
9.1	GENERAL	72
9.2	QUALITY AND WORK PRACTICES	72
9.3	MATERIALS	72
9.4	WALL/CEILING TRIM	73

Contents

Page

9.5 SOUND RATED WALLS/CEILINGS 74
9.6 FIRE RATED CEILINGS/WALLS 74
9.7 INSULATION 74

10: PLUMBING AND SANITARY PLUMBING 77
10.1 GENERAL 77
10.2 INSPECTIONS 77
10.3 QUALITY AND WORK PRACTICES 77
10.4 MATERIALS 79
10.5 FIXTURES AND FITTINGS 79
10.6 ACCESSORIES - WATER SERVICE 83
10.7 HEATING SYSTEMS 86
10.8 SOIL AND WASTE SYSTEM 89
10.9 FINISHES **ERROR! BOOKMARK NOT DEFINED.**
10.10 FIRE PREVENTION 90
10.11 RAINWATER TANKS 92
10.12 LANDSCAPE IRRIGATION 94

11: DRAINAGE 95
11.1 GENERAL 95
11.2 INSPECTIONS 95
11.3 QUALITY AND WORK PRACTICES 95
11.4 MATERIALS 96
11.5 SUMPS, PITS 96

12: ELECTRICAL WORKS 97
12.1 GENERAL 97
12.2 INSPECTIONS 97
12.3 QUALITY AND WORK PRACTICES 97
12.4 UNDERGROUND SERVICES 97
12.5 MATERIALS 97
12.6 ELECTRICAL DISTRIBUTION 98
12.7 WIRING INSTALLATION 98
12.8 ACCESSORIES 99
12.9 LIGHT FITTINGS 102
12.10 MASTER ANTENNA TELEVISION SYSTEM, DATA CABLING AND TELEPHONY 108
12.11 SMOKE ALARMS 110
12.12 APPLIANCES AND OTHER INSTALLATIONS 112
12.13 TELEVISION SYSTEM 115
12.14 MECHANICAL VENTILATION 118
12.15 SOLAR PHOTOVOLTAIC GRID SYSTEM 120
12.16 LIFT 120

13: GAS SERVICE 122
13.1 GENERAL 122
13.2 INSPECTIONS 122
13.3 QUALITY AND WORK PRACTICES 122
13.4 MATERIALS 123
13.5 GAS SUPPLY 123
13.6 FINISHES 123
13.7 FIXTURES AND FITTINGS 124

14: PLASTERING 125
14.1 GENERAL 125
14.2 QUALITY AND WORK PRACTICES 125
14.3 MATERIALS 126
14.4 JUNCTIONS AND TRIMS 127
14.5 SCHEDULE OF PLASTER/RENDER FINISHES 128

Page

15: TILING & WET AREA WATERPROOFING 130
15.1 GENERAL 130
15.2 INSPECTIONS 130
15.3 QUALITY AND WORK PRACTICES 130
15.4 MATERIALS 131
15.5 WATERPROOFING WET AREAS 131
15.6 TILES 132
15.7 JUNCTIONS 133
15.8 FIXTURES AND FITTINGS 133
15.9 SCHEDULE OF INTERNAL TILING FINISHES 134

16: RESILIENT FINISHES AND CARPETS 136
16.1 GENERAL 136
16.2 INSPECTIONS 136
16.3 QUALITY AND WORK PRACTICES 136
16.4 MATERIALS 138

17: GLAZING 141
17.1 GENERAL 141
17.2 QUALITY AND WORK PRACTICES 141
17.3 MATERIALS 141
17.4 GLASS TYPES LOCATION 142
17.5 FIXTURES AND FITTINGS 142

18: PAINTING 144
18.1 GENERAL 144
18.2 INSPECTIONS 144
18.3 QUALITY AND WORK PRACTICES 144
18.4 MATERIALS 145
18.5 SURFACE PREPARATION TYPES 146
18.6 SCHEDULE OF PAINTING 148

19: FENCING 149
19.1 GENERAL 149
19.2 QUALITY AND WORK PRACTICES 149
19.3 MATERIALS (TIMBER FENCING) 149
19.4 FENCE TYPES 150
19.5 GATES 151
19.6 SCHEDULE OF TIMBER SPECIES & DURABILITY RATINGS 151
19.7 SCHEDULE OF FENCES 151

20: LANDSCAPE WORKS 153
20.1 GENERAL 153
20.2 INSPECTIONS 153
20.3 MATERIALS 153
20.4 PREPARATION 155
20.5 PLANTING OF TREES, SHRUBS, GROUNDCOVERS & TURF 156
20.6 MAINTENANCE 157
20.7 EDGING 157
20.8 PAVING 158
20.9 EQUIPMENT, FIXTURES AND FURNITURE 158

21: SCHEDULES 160

Preliminaries

P1 GENERAL

DEMOLITION LICENSING

Contractors are required to be properly licensed to carry out demolition work in accordance with the Work Health and Safety Regulation 2011. Generally the Regulation applies to demolition work done to a building, structure or installation that is 4 metres or more in height, being work involving mechanical felling.

1.1 INTERPRETATIONS

The following words and expressions have the meanings assigned to them except where the context otherwise requires:

- "Approval" means approval by Superintendent or Authorised Person
- "Building" means any roofed structure enclosing space and recognised as complete and distinct entity.
- "Block" means a partially separated, recognisable entity within a structure (building) containing one or more dwelling units.
- "Unit" means a self-contained dwelling within a multi-storey building, one above the other. Usually, units share a common entrance and stairway (or lift), and common open space.
- "provide" means supply and fix or supply and install as applicable.
- "Liveable Housing" (previously known as Universal) is the design of housing and environments to be useable by all people, to the greatest extent possible, without the need for expensive modifications or specialised design.
- "General Housing" means Housing supply not targeted to special needs tenants.
- "Easy Access" means barrier free excess to space and outdoor areas.
- "SEPP HSPD – Housing for Seniors and People with a Disability" means Housing which meets the needs of seniors or people with disabilities
- "Superintendent/Authorised Person" means Contract Administrator appointed by the Principal as defined in the General Conditions of the Contract.
- "selection" means details of product, fixture or fitting including manufacturer, model number, type, material, finish, colour, etc

1.2 ABBREVIATIONS

ACA	Australian Communications Authority	kV	kilovolt
AG	Australian gas codes	kW	kilowatt
AGA	Australian gas association	LPG	liquefied petroleum gas
ALPG	Australian liquefied petroleum gas association	m	metre
amp	ampere	m²	square metres
APAS	Australian Paint Approval Scheme	mm	millimetres
AS	Australian standards	MPa	megapascal
BCA	Building Code of Australia	MR	moisture resistant
BASIX	NSW Building Sustainability Index	MS	mild steel
°C	degrees celsius	NASH	National Association of Steel Framed Housing Inc.
CP	chrome plated	NATA	National Association of Testing Authorities
cts	centres	WHS	Work Health and Safety
cu m	cubic metres	OIR	Office of Industrial Relations
DAR	dressed all round	OT	Occupational Therapist
DEEWR	Department of Education, Employment and Workplace Relations	PVA	polyvinyl acetate
DPC	damp proof coursing	PVC	polyvinyl chloride

		RC	reinforced concrete
FC	fibre cement	RHS	rectangular hollow section
g/m²	grams per square metre	UPVC	unplasticised polyvinyl chloride
GPO	general purpose outlet/ socket outlet	W	watt
HMR	high moisture resistant	WC	water closet
kg	kilogram	WERS	Window Energy Rating Scheme
kPa	kilopascal		

P2 DOCUMENTATION

2.1 SITE INFORMATION

The Principal accepts no responsibility for the accuracy or comprehensiveness of information supplied by it in respect of existing site conditions. The Principal must not be held responsible for any interpretation or deduction made or conclusion drawn by the Contractor from that information and the Contractor must be fully responsible for any such interpretation, deduction or conclusion. All costs resulting from interpretations, deductions and conclusions by the Contractor from the information supplied by the Principal must be born by the Contractor.

2.2 SHOP DRAWINGS

Shop drawings are to fully explain the object and matter being considered for approval. Supply in sufficient time for examination, and revision, if necessary before the documents are required for use. Manufacture is not to start until receipt of signed approval of the drawings:

Approval

- submit copies in triplicate to the Superintendent/Authorised Person for examination. Where necessary include additional copies for consultants.
- examination and endorsement of shop drawings by the Superintendent/Authorised Person does not diminish the Contractor's responsibility for preparing and coordinating shop drawings and for ensuring that they are in agreement with the contract documents and correct as to all relevant information
- the Superintendent/Authorised Person may endorse shop drawings to indicate general or design approval, amendments, correction, and the like, but no such endorsement constitutes a Superintendent/Authorised Person's instruction under the contract, unless expressly stated to the contrary
- shop drawings which are unsatisfactory are to be corrected and resubmitted by the Contractor without variation to the contract
- the Contractor is to issue one copy of the original shop drawings and of any amendments to all interested parties, including the Superintendent/Authorised Person, with a notification drawing attention to the amendments. Current copies are to be kept in a binder on the site and superseded copies destroyed
- submission of 'mark-ups' and 'cover notes' on construction drawings will not be accepted as shop drawings
- components must be noted, application to building noted with key diagrams as applicable. Technical explanations must be appended as necessary. Drawings must carry sufficient dimensions for manufacture and application to the building

2.3 WORK-AS-EXECUTED DRAWINGS

By Completion/ Practical Completion provide work-as-executed drawings and PDF files to the same scales as the contract drawings to the Superintendent/Authorised Person. Refer to the trade sections for requirements.

P3 CONTRACTING

3.1 STANDARDS AND CODES

The Contractor must comply with all statutory requirements as amended.

The contract requires compliance with all relevant standards, codes including the Building Code of Australia (and NSW variations), Australian Standards as specified and the Land and Housing Corporation's Component Requirements and Deemed to Comply Product Register. The editions current as at three months before the date of the contract.

3.2 APPROVALS AND FEES

The Contractor must obtain from public or other authorities all approvals and permits, arrange all inspections, give all notices necessary and pay all fees and charges in connection with the work under the Contract.

Supply Authorities: Allow for connecting all services. Refer to Trade Sections for further requirements.

3.3 ROAD OPENINGS

Approval

No road openings for services are to be made unless permission is first obtained either from the relevant local or state Authority having jurisdiction, or, in the case of undedicated roads, from the Superintendent/Authorised Person.
Refer to GROUNDWORKS: Restoration of Road Openings.

WHS Regulation 2011

3.4 NOTICE OF INTENTION TO COMMENCE

The Contractor must issue "NOTICE OF INTENTION TO COMMENCE CONSTRUCTION WORK", to the WorkCover Authority as per the WHS Regulation before starting Building Work.

P4 ADMINISTRATION

4.1 SITE MEETINGS

Throughout the duration of the contract the Contractor must arrange and provide facilities for site meetings to be attended by him, appropriate sub-contractors and by the Superintendent/Authorised Person at a frequency determined by the Superintendent/Authorised Person. The Superintendent/Authorised Person will issue a record of the meeting to the Contractor.

P5 SITE

Inspection Required

5.1 ADJOINING PROPERTIES

Joint inspection: The Contractor must arrange with the Superintendent/ Authorised Person a joint inspection of any properties affected by the Building Work prior to the commencement of the Building Work:

- prepare two (2) identical reports recording the conditions existing within the adjoining properties including site structures, surfaces, existing fittings and equipment, and especially structural defects and other damage or defacement.
- the reports must include drawings, written descriptions and photographs.
- Obtain written agreement of the contents of the report from affected adjoining owners of property prior to commencement of any excavation or demolition work
- within 28 days of the inspection provide one report to the Superintendent/Authorised Person and keep the other report on site.

5.2 CONSULTATION WITH NEIGHBOURS

The Contractor shall allow in their tender price for consultation with the adjoining owners and residents. This consultation shall include but shall not be limited to the following:

- At least one week prior to commencement of any work on site inform the adjoining owners and residents of the proposed work commencement, including hours of work.

- Prior to commencement of any work that will affect adjoining owners, such as fences, easements, sewer and drainage connections etc, give at least one week notice to the adjoining owner/s.

- All work that affects the adjoining owners, including making good items, shall be to the satisfaction of the adjoining owner/s and the Superintendent/Authorised Person.
- Refer any disputes with the adjoining owners or residents to the Superintendent/Authorised Person.

5.3 CONTRACTOR'S SITE AREAS

The Contractor's access onto and around the site, and use of the site for temporary works and constructional plant, including working and storage areas, location of offices, workshops, sheds, roads, parking, and the like, must be restricted to those areas shown on the drawings as being the project site.

5.4 SITE SECURITY

Provide security as required to prevent unauthorised entry. The Contractor is responsible for security of the Works and must comply with all relevant legislation.

5.5 TEMPORARY SECURITY FENCE

Provide a temporary security fence with adequate gates as follows:

height:	1800mm
type:	chain wire
support cable	12 gauge top, central and bottom wire
backstays:	to corner posts and gate
protective coating:	galvanised

Remove on completion and make good.

5.6 COUNCIL PROPERTY

Inspection: Arrange for an inspection by a Council Officer before beginning any activity on the site, to record the condition of street footpaths, kerb and gutter and road surface.

Certificate Required

Clearance certificate: On completion obtain a written clearance certificate from the Council indicating it has no claims against the Contractor or the Principal for damage to the street footpath, kerb and gutter or road surface. Final payment on the project will not be made until the certificate is submitted to the Superintendent/Authorised Person.

5.7 OCCUPIED PREMISES

The Principal or persons authorised by the Principal must continue in possession and occupancy of the parts of the site and/or existing buildings as shown on the drawings, and/or specified, or both. Comply with the following:

Notice of commencement of work: The Contractor on commencement of work will give the Superintendent/Authorised Person a minimum of 1 week's written notice to inform affected tenants.
Tenant amenity: Tenant amenity will not be downgraded unless agreement is reached between the Occupants and the prior to removal of any amenity or service.
Access: secure and maintain safe access by approved means to occupied premises for the Principal and such authorised persons as are notified to the Contractor by the Superintendent/Authorised Person, and prevent unauthorised access.

Tenant's rights: The tenant's rights and feelings will be respected by all tradespersons entering the site and at no time will any involvement other than building works be tolerated. All tradespersons and employees will carry personal identification at all times.
Security: The Contractor must maintain the existing security that is present in each unit during work.

Comfort and safety: arrange work in occupied or partially occupied premises to minimise nuisance to the occupants and ensure their safety.
Protection: protect the occupants against weather, dust, dirt, water or other nuisance by means of temporary screens or the like.

Site Cleaning: Work areas must be left clean, tidy and safe at the end of each workday. Pedestrian hazards shall be removed from accessible areas at the end of each workday.
Common areas are to be cleaned at the end of each day.

5.8 EXISTING SERVICES

Generally: Work on existing services (such as sewer, stormwater, gas, electricity) must be carried out to the satisfaction of the relevant Authority.
The Contractor must take all reasonable precautions to determine the location of and protect existing services before commencing the Building Work.
If a service is required to be discontinued in order to accommodate the Building Work, the Contractor must, at his cost, disconnect the service and render it safe to the satisfaction of the relevant Supply Authority. If a service is required to be relocated in order to accommodate the Building Work, the Contractor must, unless the obstruction constitutes a latent condition, bear all costs relating to the relocation of the service and must not be entitled to make a claim upon the Principal for delay costs arising out of such relocation.

Contact authorities: Where existing sewer mains and other services cross the site, contact the relevant Supply Authority before starting any Building Work and arrange for centre-line pegging of the sewer mains and other services. Pay all fees and charges associated with this work. Carry out the work without interruption of services to adjacent properties.

Damage: Where an existing service is damaged by the Contractor for any reason whatsoever the Contractor must bear all costs for repairing the service.

Notification: Notify the Superintendent/Authorised Person immediately upon the discovery of services or obstructions not shown in the Contract Documents.
Disconnected meters**:** Return to the appropriate Supply Authority

5.9 NEW SERVICES

Connection of Services and Metering

Where permitted by local authority, provide separate connection of services to each dwelling including water, gas, electricity, sewer and stormwater.

Where permitted by local authority, provided separate metering to each dwelling for water, gas and electricity.

Where separate meters are not permitted for water supply, make plumbing provisions for future metering.

5.10 APPROVALS AND FEES

Unless otherwise set out in the contract:

- A Construction Certificate is not required by the Crown**.**
- Do not pay Development Application fees
- Pay all other application fees associated with construction works.
- For Water, Sewer, Electricity, Stormwater Drainage and Gas Services: Pay all charges related to extension, modification, diversion, amplification, augmentation of authorities service mains required for the satisfactory completion of the project.
- Pay any contributions required under Section 94 of the EPA Act
- For Contributions under Section 73 of *Sydney Water Act 1994 No 88* (formerly *Water Board (Corporatisation) Act 1994*). Do not allow for in Tender. The contractor is to pay all fees, development charges, stamp duty, administration, security etc as appropriate **and these will be reimbursed by the Principal**.

- The Contractor is to provide Council's 149D Building Certificate on completion or as soon as it is practical but in any case within 6 weeks of Completion.

5.11 BASIX REQUIREMENTS

Meet all requirements identified in the project BASIX report for the project. The building construction shall meet the BASIX requirements and achieve minimum 6 stars under NatHERS/Accurate requirements

AS 1170.2
AS 4055

5.12 TERRAIN CATEGORY

Structure to be designed in accordance with the terrain category of the project location as set out in AS 4055.

5.13 SETTING OUT

Refer to General Conditions of Contract.

Approval

Setting out the Building Work: Setting out must be certified by a registered Surveyor prior to the commencement of the Building Work. The certificate must be submitted to the Superintendent/Authorised Person prior to the commencement of the Building Work.

Certificates Required

Check of setout: As each building is constructed to ground floor height, obtain a certificate from a registered Surveyor indicating setout and ground floor levels.
Fees: All fees payable to the registered Surveyor are to be met by the Contractor.

5.14 STORAGE ON-SITE

Store materials and equipment so as not to impede the provision of services and work by others.
Do not use for storage or otherwise obstruct roadways including kerbs and gutters, driveways or paths during the progress of the Works.

5.15 GUTTERS, LAYBACKS AND FOOTPATH CROSSINGS

Arrange with the local Authority and pay all fees and costs for the provision and/or removal of gutters, laybacks and footpath crossings.

5.16 TEMPORARY FOOTPATH CLOSURE

Where necessary, seek approval of the appropriate authorities for the temporary, partial or total closing of footpaths.

Code of Practice for Control of Workplace Hazardous Substances

5.17 POISONS AND OTHER HAZARDOUS SUBSTANCES

Poisons and hazardous substances are to be stored, handled and managed to meet the requirements of WorkCover Authority. (This includes provision of Safety Data Sheets for hazardous substances on-site).

5.18 PROJECT SIGNAGE

Refer to project drawings. Provide and install where indicated on drawings or by Superintendent/Authorised Person

P6 ENVIRONMENTAL PROTECTION

DISPOSAL OF CONTAMINANTS AND HAZARDOUS MATERIALS

The management and disposal of contaminants and hazardous materials, including asbestos, chemicals, oils, shall be in accordance with the current relevant legislation including:

Work Health and Safety Act 2011
Work Health and Safety Regulation 2011
Protection of Environment Operations Act 1997
Protection of Environment Operations (Waste) Regulation 1997
Environmentally Hazardous Chemicals Act 1985

To AS 4361.2

LEAD BASED PAINT MANAGEMENT

The contractor shall assume, until confirmed otherwise, that all properties constructed prior to 1970 are potentially affected by lead paint contamination.

Lead paint assessment, preparation of surfaces, paint removal or repainting, clean up and clearance testing upon completion of work will be undertaken using lead safe practices in accordance with Australian Standard AS4361.2 Guide to Lead Paint Management ; Part 2: Residential and Commercial Buildings.

Painting contractors who undertake work where there is potential lead paint hazards shall be appropriately trained in accordance with lead safe practices.'

The Contractor shall have in place Site Specific Safety Management Plan that includes Safe Work Method Statements for lead paint management, including disposal of all waste products. Disposal of lead paint waste shall be in accordance with the requirements of Federal, State and local regulatory authorities including Work Health & Safety Act 2011, Work Health and Safety Regulation 2011 and The Protection of the Environmental Operations Act 1997, as amended.

The Contractor shall also be responsible for the preparation and implementation of the Environmental Management Plan, if required under the Contract that shall include appropriate handling, storage, transport and disposal of the lead waste generated.

SEDIMENT AND EROSION CONTROL

Carry out work indicated on the drawings to avoid erosion, contamination and sedimentation of the site, surrounding areas, and drainage systems.

DEWATERING

Keep groundworks free of water. Prevent water flow over freshly laid work.

FIRE RESTRICTIONS

Lighting of fires is prohibited unless permission has first been obtained from the Superintendent/Authorised Person.

P7 PLANT

7.1 TEMPORARY SERVICES

Generally: Provide and maintain temporary services necessary for the execution of the Works under the contract. Install such services in accordance with the requirements of the relevant Authorities. Pay charges in connection with the installation and use of such services.

Give two days notice to the regulatory Authority for inspections before connecting into Authorities water and sewer mains. On completion, disconnect temporary services and make good.

Code of Practice for Electrical Practices for Construction Work

Temporary electrical power: Temporary electrical power service must meet the requirements of the WorkCover Authority for power and lighting.

Temporary water supply: Provide temporary water supply with not less than one 25mm outlet for water.

Temporary sewer: Provide temporary sewer connection to the sewer main where available.

7.2 SITE OFFICE – SUPERINTENDENT/AUTHORISED PERSON

For major projects (where contract value exceeds $20m), provide an office and toilet before any major site operations are started for use by the Superintendent/Authorised Person:

- provide a minimum office floor area of 10m²
- provide adequate air-conditioning and lighting
- service and maintain the office in good order and keep clean for the duration of the Works
- re-locate during the Works if necessary with minimum inconvenience
- provide a table (900mm x 1200mm minimum) and four (4) chairs.

P8 MATERIALS & WORKMANSHIP

Site copies: Refer to SCHEDULES FOR STANDARDS AND CODES that are required to be kept on site.

8.1 SAMPLES

Approval

Provide samples where specified to the Superintendent/Authorised Person for approval. Items supplied must be in accordance with the approved samples, or within a range defined by approved samples, as determined by the Superintendent/Authorised Person. Keep approved samples in good condition on the site until Completion/ PracticalCompletion.

8.2 TESTING

Unless otherwise specified, any testing required by the Contract must be by an independent Authority and approved member of the National Association of Testing Authorities Australia (NATA).

The full cost of testing to be met by the Contractor.

8.3 CERTIFICATES, GUARANTEES AND WARRANTIES

Generally: Unless otherwise specified or agreed, warranties or guarantees specified in the contract must name the Principal as warrantee and are to be obtained by the Contractor from the warrantor and submitted to the Superintendent/Authorised Person.

By Completion/ Practical Completion, supply the documentation listed in SCHEDULE S2 (Schedule of Certificates, Guarantees and Warranties) to the Superintendent/Authorised Person.

Refer to the trade sections of the specification for requirements.

Submit two (2) sets of the documentation (original and copy) in labelled A4 size binders suitable for filing and 1 CD with PDF files of the documents.

8.4 PROPRIETARY ITEMS

A proprietary item must be any item identified by graphic representation on the Drawings or by naming one or more of the following: manufacturer, supplier, installer, trade-name, brand-name, catalogue or reference number and the like.

8.5 SEALED CONTAINERS

Materials and products supplied by the manufacturer in closed or sealed containers or packages are to be brought to the site for use in the Works in the original unbroken container or package. Broken containers & packages may be rejected.

8.6 JOINING UP

Approval

Carry out the joining of new work to existing work and any consequent cutting away, in a manner approved by the Superintendent/Authorised Person, and make good to match existing adjacent work in all respects.

8.7 MAKING GOOD

Make good where items are removed, or affected by removals, demolition, and the like.

8.8 SALVAGED ITEMS

Subject to the provisions of the General Conditions of Contract, materials, plant, equipment or other things salvaged from the Works becomes the property of the Contractor and are to be removed from the site.

8.9 PROHIBITED MATERIALS

The following materials must be prohibited from use:

- Products containing Urea-formaldehyde

- Loose mineral wool insulation
- Products containing asbestos.

8.10 TIMBER INSPECTION CERTIFICATION

Certificate Required

Upon installation of the timber materials and components, the Contractor shall provide Quality Assurance Timber Certification stating that:

- All structural timbers meet the required durability classifications specified in the Schedule of Timber Species and Durability Ratings.
- All joinery timbers, floor boards, weatherboard linings and fencing meet the required standards of durability, quality and finish specified in the Schedule of Timber Species and Durability Ratings.
- All engineered timbers and components, including roof trusses have been certified by suitably qualified structural engineers.

8.11 ALTERNATIVE METHODS, MATERIALS AND EQUIPMENT

Where the contract documents include more than one method, material or brand of equipment for a particular item, the Contractor may choose any alternative of those specified. The contract will not be varied for the actual method, material or brand of equipment chosen from those specified.

8.12 SUBSTITUTION OF PRODUCTS OR MATERIALS

The Contractor may recommend alternate products or materials to those specified in the contract documents, provided the product/ material proposed meets the same performance criteria, colour and quality specified. The Contractor must obtain written approval from the Superintendent/Authorised Person for the proposed substitution. The contract will not be varied as a result of the substitution.

8.13 PRE-ORDER OF MATERIALS

At the commencement of the contract the Contractor is to check and confirm availability of specified materials and finishes.
If the specified materials and finishes or acceptable alternatives are not available the Contractor must advise the Superintendent/Authorised Person accordingly.
The Contractor must place orders for materials and finishes at reasonable time (that will normally be sufficient time for supplier to meet the order) prior to fixing and retain records of placing these orders.

8.14 MATERIALS

All materials and products for use in this contract must be new and of first quality.

Recycled materials may be used if they meet their performance and finishes requirements and Superintendent/Authorised Person's approval is obtained in writing.

8.15 ALTERNATIVE BUILDING SYSTEMS

Alternative building systems may be used subject to Principal's written agreement prior to contract signing and as a consequence the building system saves expenditure which otherwise would have occurred.

Each submission to the Superintendent/Authorised Person for approval of an alternative building system is to include:

- fully detailed structural design by the manufacturer to be certified by a practising qualified structural engineer
- two (2) sets of manufacturer's instructions to the Superintendent/Authorised Person including warranty
- installation to manufacturer's instructions and certified by a practising qualified structural engineer.

8.16 DEEMED TO COMPLY PRODUCT REGISTER

The Deemed to Comply Product Register, referred to in this specification, is available from the following link:

http://www.housing.nsw.gov.au/changes+to+social+housing/building+design+and+product+requirements/

P9 COMPLETION

The Contractor shall, prior to the work reaching a state of Completion/ Practical Completion:

1. Clean all floors, windows, gutters, external areas, paved areas and thoroughfares.
2. Ease and lubricate locks and similar working parts.
3. Remove all stains and droppings of paint and mortar.
4. Label and hand over the keys.
5. Clear sewer and stormwater lines and pits.
6. Test all services, fixtures and equipment in the presence of the Superintendent/Authorised Person.
7. Remove and dispose of debris, spoil and surplus building materials from the site.
8. Leave the works clean, tidy and fit for use or occupancy by the Principal.
9. Provide all instructions for maintenance and services. (Instruction books to be left in kitchen cupboard).
10. Provide all warranty details, certificates and work-as-executed drawings.

P10 PROJECT HANDOVER

Unless otherwise agreed with the Superintendent/Authorised Person, handover of this project will only be accepted on Monday, Tuesday or Wednesday of any week (excluding public holiday).

Handover of any project will not be accepted the week before Christmas/New Year period and handovers will recommence the second week of January.

The construction program has to consider these requirements accordingly.

01: Demolition

To AS 2601

1.1 GENERAL

Refer to PRELIMINARIES: Contracting – Notice of intention to commence
- Demolition Licensing

EXPLOSIVES

Do not use explosives.

1.2 INSPECTIONS

Inspection Required

Give 48 hours notice before starting demolition.

1.3 MATERIALS AND COMPONENTS

Hazardous Materials or Wastes:
Hazardous materials or wastes include those defined by the NSW Office of Environment & Heritage:

Approval

- notify the Superintendent/Authorised Person immediately if any hazardous materials or wastes are found
- dispose of hazardous materials or wastes as specified in PRELIMINARIES: Environmental Protection – Disposal of contaminants and refuse.

ASBESTOS MATERIALS
Any dwelling constructed before 1984 may have some form of asbestos present, e.g. wall and/or roof cladding, eaves sheeting, vinyl tiles and vermiculite surfaces.

Where the age of the dwelling falls into this category the contractor shall assume that the dwelling may have asbestos content and, where the presence of asbestos is encountered, it must be treated with the following requirements:

Roofing and cladding materials must be checked for the presence of asbestos before any such material is disturbed or replaced. All work, which involves the removal of products containing asbestos or brings persons into contact with asbestos, must only be performed by persons licensed by and holding a permit issued by WorkCover Authority under Work Health and Safety Regulation 2011. A copy of licence must be submitted to the Superintendent/Authorised Person prior to commencement of this work. If asbestos materials are encountered (i.e. in the ground) during construction works, the Contractor must immediately notify the Superintendent/Authorised Person and seek further directions.

Demolished Materials: Except for materials to be salvaged or re-used, demolished materials are the property of the contractor and must be removed from the site. Do not burn or bury demolished materials on the site.

1.4 DEMOLITION

Support: Provide temporary support for sections of existing building to be retained where affected by demolition.

Weather Protection: Provide temporary covers as required to prevent water penetrations into building.

Security: Refer to PRELIMINARIES: Site – Site Security

Existing services: Refer to PRELIMINARIES: Site – Existing services.

Existing trees: Refer to GROUNDWORKS: Protection of Existing Trees.

Existing footings, paving, and underground structures: Refer to GROUNDWORKS: Site clearing.

Demolition schedule:
Refer to Drawings.

02: Groundworks

2.1 GENERAL

BENCHMARK

Relate all levels to the survey benchmark.

FOUNDATION TEST PITS/BORE LOGS

Where foundation test pits/bore logs have been carried out:
- re-excavate pits found under footings, slabs or pavements or within the "zone of influence"
- angle of zone of influence below horizontal:
  300 for sand foundation material
  450 for clay foundation material
- replace the backfill material in compacted layers. See COMPACTION.

2.2 INSPECTIONS

Inspection Required

Give 48 hours notice so that inspection may be made of the following:
- excavated material for use as site filling
- all finished excavations.

2.3 PROTECTION OF EXISTING TREES

GENERAL

Protect all trees identified to be retained before starting on-site work or moving equipment or materials on to the site. Remove the protective barriers only after completing all the work.
Tree identification: mark the trees to be retained using suitable means without damage and remove on completion.

ENGAGEMENT OF ARBORIST

Engage the nominated arborist (or arborist who has prepared the original arborist's report for the project) to inspect and provide a written assessment on the compliance with the recommendations contained in the arborists report.

ARMOURING AND/OR FENCING

Provide to detail or if not shown:
Armouring: wrap individual trees with hessian, wire 100 x 50 x 1500mm long planks vertically around their trunks at maximum 50mm spacing between planks, and wire to hold them in place.
Fencing: protect groups of trees with a 1200mm high welded mesh fence.

WORK UNDER TREES

To AS 4970

Preserve root systems from damage by manual methods.
Open up excavations under tree canopies for as short a period as possible.

Approval

Cutting roots: do not cut tree roots exceeding 50mm diameter without the Superintendent/Authorised Person's authority:
- use a chain saw or similar
- apply an approved bituminous fungicidal sealant to the cut surface immediately to prevent rot or disease.

Backfilling: backfill to excavations around tree roots in layers:
- 300mm maximum depth, compacted to a dry density similar to that of the original or surrounding soil
- Backfill final 300mm with soil mix. Refer to LANDSCAPE WORKS: Materials
- do not backfill around tree trunks more than 100mm above the original ground surface
- immediately after backfilling, thoroughly water the root zone surrounding the tree.

LOPPING

Approval

Do not remove, lop or prune any branches from trees:
- engage a qualified arborist (tree surgeon) at no variation to the contract.
- ask for a list of approved arborists from the Superintendent.

DAMAGE

Repair any damage to tree crowns or root systems immediately:
- all work by a qualified arborist at no contract variation
- remove damaged trees as directed and replace these with mature specimens of an approved species at no contract variation.

HARMFUL ACTIVITIES

Approval

Do not carry out the following activities within 3 metres of trees without Superintendent/Authorised Person's approval beforehand:
- mixing of concrete, parking of trucks and other vehicles
- lighting fires, storage of materials, location of offices and sheds
- prevent wind-blown materials coating trees and plants (eg, cement).

2.4 CONTAMINANTS OR HAZARDOUS MATERIALS

If contaminants or hazardous material are found on site the Contractor must immediately notify the Superintendent/Authorised person and seek further instructions.

2.5 SITE CLEARING

GENERAL

- clear and remove all stumps and other impediments, and retain good ground cover where possible.
- remove old pavings, footings, rubbish and debris from the whole of the site.

Noxious plants:
- eradicate from whole of the site blackberries, onion and oxalis weeds, nut grass and manage any other plant declared noxious by the *Noxious Weeds Act 1993.* Contact local council for advice on noxious weeds and their management". Remove by grubbing out roots and/or by poison spray if such treatment is approved as effective.

Removal of trees and stumps: remove trees only as noted on drawings, and grub all stumps, including those of trees previously removed.

TOPSOIL, STORAGE AND REMOVAL

- remove topsoil from those areas of the site to be built upon and/or excavated including buildings, carparks, driveways, drying areas, paving and stockpile on the site ready for re-spreading. Protect stockpile from contamination.
- remove 100mm minimum depth of the surface layer of the natural ground
- remove from site and replace any contaminated, hazardous topsoil. Refer to PRELIMINARIES: Environmental Protection – Disposal of Contaminants and Hazardous Materials.

2.6 SITE EXCAVATIONS

GENERAL

Excavate in material "as found".
- backfill excavations taken below contract depth with concrete of equivalent strength to work immediately above at no variation to the contract
- remove surplus excavated material from site
- provide a minimum clearance of 400mm to underside timber/steel floor structures.
- remove from site any contaminated, hazardous material. Refer to PRELIMINARIES: Environmental Protection – Disposal of Contaminants

and Hazardous Materials.

Rock excavation:
Where rock or shale is encountered scabble surface to level and solid bearing. Remove loose boulders and treat holes as above in backfilling.

To AS 2870

trenches:
provide and maintain all necessary planking and strutting to excavations in sand or any other loose formation:

- where the bearing capacity is affected by the removal of tree stumps, fence posts, rock floaters, etc., excavate to solid bearing and backfill with concrete.

To AS 2159

FOOTING SYSTEMS

Inspection Required

Excavate as required for footings in accordance with structural engineering drawings and to solid and level bearing.
All footings to be founded on uniform material with minimum bearing capacity as specified in Structural Engineer's drawings.

Piering:
bored piers:
Provide bored piers to footing system where detailed on the drawings. All pier holes to be dewatered, loose material removed and pier liners installed if required prior to concreting. Contractor to keep log of all piers and verify bearing capacity and depth.

SERVICE TRENCHES

Excavate trenches to required depths to allow regulation cover over service lines:

- maintain sides of excavations vertical
- generally maintain straight runs between access manholes, inspection points, and the like
- grade bottoms of trenches to provide uniform bearing. Dig bell holes after grading the trench bottom
- Keep trench widths to the minimum consistent with the laying and bedding of the relevant service and construction of manholes and pits.
- keep trench base free of objects greater than 75mm
- keep main runs 600mm minimum clear of footings and concrete paths.

Sewer and stormwater drainage: Refer to PLUMBING AND SANITARY PLUMBING and DRAINAGE.

Underground electrical mains: Refer to ELECTRICAL WORKS.

Underground water mains and gas lines: Refer to DRAINAGE and GAS SERVICE.

EXCAVATIONS FOR EXTERNAL CONSTRUCTIONS

- excavate and/or fill as required for external area slabs and footings
- consolidate ground under all paths, pads or paved areas.

EXISTING FOOTINGS

Maintain support to existing footings as required to ensure integrity of existing buildings.

CERTIFICATE

Certificate Required

Provide a practising structural Engineer's Certificate for bearing pressure of foundation material.

2.7 FILLING MATERIALS

GENERAL

Approval

Provide filling free from organic matter, from soil recovered from the site excavations or imported onto the site from an approved source.
Filling must be in accordance with Engineer's drawings.

FILLING TYPES

hardcore fill:
Fill with hardcore, made up of broken brick or stone, not larger than 75mm gauge.

Crushed rock fill:
Fill with crushed igneous rock, not larger than 40mm gauge with minimum clay content.

Granular fill:
Fill with loose granular fill with minimum clay content.

2.8 SITE PREPARATION AND BULK FILLING

AREAS UNDER CONSTRUCTION WORKS

Where cut and fill is required under the building areas, carparks, driveways and pavings:
- carry out filling to comply with Engineer's drawings and Local Council requirements
- grade area to solid and undisturbed bearing before filling

Fill in layers not exceeding 200mm loose thickness and each layer compacted.

AREAS OTHER THAN THOSE UNDER CONSTRUCTION WORKS

Filling is to be clean sand/loam fill taken from site excavations, and clean imported fill.

Imported fill:
- is to be a friable, sandy loam
- comprise not less than 65% sand and not more than 15% silt and clay
- to have a pH between 5.5 to 6.5.

GRADES AND FALLS

Carry out grading and filling of site to finished levels on drawings:
- grade site to fall from buildings and paths, having a fall of 1:100 out at least one metre from the building
- maximum slope for grassed areas is 1:4 (25%) and mowable.

Backfilling: backfill as required and consolidate to level of surrounding area.

Batters: cut and fill as required to banks and retaining walls to form batter.

FINISHED TOPSOIL AREAS

Fill in with approved topsoil. Refer to LANDSCAPE WORKS – Materials.

FINISH LEVELS

Grade site so that grassed and planting areas finish flush with paths and paving, or as detailed.

2.9 COMPACTION

To AS 1289, AS 2870

GENERAL
- provide compaction to filled areas in accordance with Engineer's drawings
- under buildings, carparks, driveways and paving and within zone of influence of footings (except for loose granular filling used as formwork) to 98% minimum dry density ratio
- over other areas including loose granular filling used as formwork to 85% minimum dry density ratio.

SUPERVISION AND TESTING

Arrange and pay all costs for the site filling and compacting to be supervised by a qualified geotechnical engineer:
- tests to be undertaken by a NATA registered laboratory
- provide 2 copies of test results to the Superintendent/Authorised Person.

Rejection:
if compacting is not up to the standard specified:

- carry out further compacting uniformly over the whole area until the specified standard is achieved
- provide a further series of tests at the Contractor's expense.

Certificate Required

CERTIFICATE

Provide certificate from practising structural engineer for compaction of fill.

2.10 RESTORATION OF ROAD OPENINGS

DEDICATED ROADS

No road pavement, shoulder or footpath must be opened until the written permission of the relevant local or state Authority controlling the road has been obtained:

- comply with the requirements of the Authority in all respects
- pay all fees and charges made by and due to the Authority.

Approval

PRIVATE ROADS

No road openings are to be made without written approval.

To AS 3727
AS 2150

2.11 BITUMINOUS PAVINGS

Where bituminous pavings are required, all work must be carried out in accordance with AS 3727

2.12 RETAINING WALLS

Certificate Required

All retaining walls over 600mm high must be designed by a practicing structural engineer and certified as structurally adequate on completion by that engineer.

2.13 COMPLETION

When building works and landscaping are completed:

- remove all building debris, excess fill and other waste matter
- clean underfloor areas
- clean street frontage paths
- clean nature strips and kerb.

03: Concrete works

3.1 GENERAL

3.2 INSPECTIONS

Inspection Required

Give 48 hours notice for the Sydney Metropolitan Area and 96 hours for jobs elsewhere so that inspection can be made of the following:

- film underlay or membrane installed on base
- completed formwork
- reinforcement fixed in place. For reinforcement inspection all embedded items, cores, etc., must be in place
- placing of concrete
- stripping of formwork.

3.3 QUALITY AND WORK PRACTICES

To AS 3600

SAMPLING AND TESTING

Certificate Required

For all structural concrete, carry out assessment by sampling, slump and compression tests. The full cost of testing to be met by Contractor:

- prepare specimens using standard cylinders
- arrange testing by an NATA registered laboratory.

Marking:

- date and mark each sample and keep a record of the location and slump test results
- cure samples and then forward to an approved testing laboratory with instructions to crush test at 28 days.

To AS 3600

Rejection of concrete:

- remove rejected concrete from the site
- rejection costs must be at the Contractor's expense.

Certificate Required

CERTIFICATE

Provide a practicing Structural Engineer's certificate to the Superintendent/Authorised Person for reinforcement of all structural elements.

3.4 FORMWORK

To AS 3610,

AS 3610.1

AS 2327.1

Approval

GENERAL

- all formwork is to be approved and approval does not relieve the Contractor for its sufficiency
- design and construct formwork so that concrete when cast in the forms, has the dimensions, shape, location and surface finish required by the specification
- provide temporary openings at the base of column and wall forms to make cleaning and inspection before placing the concrete.

To AS 3610,

AS 3610.1 Table 3.3.2

To AS 3600

DIMENSIONAL TOLERANCES

Formed surfaces
Strength

To AS 3610,

AS 3610.1

To AS 3610

FORMED SURFACE FINISH

- Class 2 for all external and internal off-form concrete
- Class 4 for surfaces to have thick applied finishes after preparation
- Class 5 for totally concealed areas (eg. Footings)
- evaluation and/or repair.

DISPLACEMENT BEFORE STRIPPING

If formwork is displaced during concreting or within the period specified for the retention of formwork:

- remove concrete between such limits as directed

- form construction joints and reconstruct the section of work after the formwork has been strengthened and adjusted.

To AS 3600, AS 3610, AS 3610.1

STRIPPING OF FORMWORK

Remove all timber formwork.

Vertical forms:

- Remove formwork that does not support the weight of concrete from faces of beams, walls and columns not less than accumulative 24 hours after placing concrete.

PREMATURE LOADING

Do not erect any permanent building component or applied load while the structure is supported by formwork.

Do not erect masonry walls or other brittle elements on beams and slabs while they are still supported on formwork.

3.5 REINFORCEMENT

Certificate Required

To AS/NZS 4671

GENERAL

Provide Mill Certificates.

To be certified by Australian Certification Authority for Reinforcing Steel (ACRS)

Ductility grade: Refer to Structural Engineer's drawings

Surface condition: Free of loose mill scale, rust, oil, grease, mud or other materials which would reduce the bond between reinforcement and concrete.

REJECTION

Reinforcements not readily identifiable as to grade and location will be rejected and removed immediately from the site.

POSITIONS AND FIXING

Accurately position and secure reinforcement against displacement:

- supported at correct height on approved steel chairs
- provide metal or plastic plates under each support to prevent damage to waterproofing membranes, vapour barrier, etc.

To AS 3600, AS 2870

REINFORCEMENT COVER

Maintain clear concrete cover.

WELDING

If welding of reinforcement is proposed, provide details to Structural Engineer for approval.

3.6 CONCRETE

GENERAL

To AS 3600

To AS 1379

Provide concrete with the properties specified and/or indicated on structural engineering drawings:

Approval

- order concrete
- obtain approval of ready-mixed concrete source
- completely discharge, place and compact ready-mixed concrete in its final position in the forms within 90 minutes of the introduction of the cement to either the water, the aggregate, or the mixer
- do not drop concrete from a height of more than 1200mm, or throw into position
- a copy of all dockets for concrete must be marked with compressive strength and slump and given to the Superintendent/Authorised Person.

Characteristic strength of concrete:
Refer to structural engineering drawings

TEMPERATURE OF MIX

The temperature of concrete on delivery is to be between the following limits:

Outdoor shade temperature	Concrete temperature
less than 5^{o}	18^{o}C – 32^{o}C
5^{o}C – 32^{o}C	10^{o}C – 32^{o}C
32^{o}C – 38^{o}C	maximum 35^{o}C
over 38^{o}C	concrete not to be poured

- do not use calcium chloride, salts, chemicals, or other materials to lower the freezing point of concrete
- do not allow frozen materials or ice to enter the mix.

To AS 3600

PLACING OF CONCRETE

Do not place concrete until all reinforcement, conduits, outlet boxes anchors, hangers, sleeves, bolts, and other embedded materials are securely and properly fastened in their proper place and positions.

Clean formwork:
before placing concrete:
- remove all debris, dust, stains and the like from the forms and
- the forms are to be thoroughly wetted, oiled or treated with a suitable form-releasing agent.

Continuity of supply: in no circumstances is partly hardened concrete to be placed in the work.

Continuity of placement: place concrete continuously so that each layer is blended into the proceeding one by the compaction process.
Compaction: compact all concrete with mechanical vibrators of the immersion type:
- avoid over-vibration which can cause segregation
- do not rest active vibrator against reinforcement or formwork.

Times of laying: place all concrete during daylight and the work is not to be started unless it can be completed in daylight.

Approval

PUMPING OF CONCRETE

Pumping equipment is to be approved.
Slump: pumped concrete is to be 75mm slump at the nozzle.

CURING

To AS 3600
AS 3799

Keep the concrete in a damp condition, at a reasonably constant temperature for at least the first seven (7) days by:
- covering with an impermeable membrane held down with sand kept thoroughly wet

Approval

- ponding or continuous sprinkling with water (moist-curing)
- use of curing compound is to be approved.

WET AREA FLOORS

Unless otherwise detailed, set down the concrete slab to all bathroom/laundry/WC areas. Evenly grade the surfaces of these areas to achieve minimum 15mm set down below the general concrete floor slab level at the perimeter and provide a minimum fall 1:80 from the set down perimeter to the main shower floor waste outlet. Prepare surface to a trowelled finish as required for waterproofing system. Refer to TILING AND WET AREA WATERPROOFING – Waterproofing wet areas.

3.7 EMBEDMENTS, CORES AND FIXINGS

GENERAL

To AS 3600

Installation of pipes, conduits, fittings, core holes, and the like:
- provide cases or sleeves as required for various trades
- leave holes or pockets for pipe balustrading and other fixtures
- other embedments including anchor bolts, fixings and the like.

STRUCTURAL INTEGRITY

Do not cut or displace reinforcement or cut hardened concrete to permit the installation of embedded items.

PROTECTION OF FIXINGS

All fixings for embedment or insertion into concrete:
- are to be galvanised
- grease threads for protection during concreting.

3.8 TERMITE BARRIERS

GENERAL

Provide termite barriers to:
- perimeters of concrete slabs on ground or suspended concrete floors in proximity to ground
- all penetrations through slabs and to all concrete joints in slab
- use termite shielding (ant capping) for all accessible suspended floors. Refer to MASONRY: Termite control and vermin proofing for termite shielding.

Installation:
- installation to details and manufacturer's further recommendations
- installed by accredited NSW installers
- provide system and product warranty.

Warranty Required

Termite Barriers

The following systems are approved for use:

Stainless Steel Mesh Barrier	- Termi-Mesh Aust P/L
Graded Stone Barrier	- Granitgard P/L
ARMOUR-THOR Aluminium	- Ensystex Australasia P/L
Combined physical barrier with chemically treated internal core	- Kordon Termite Barrier (Bayer - CropScience Pty Ltd) - The White Ant Company - FMC Australasia P/L

Termite Barrier Notice

To AS 3660.1

Provide a durable notice, permanently fixed in a prominent location to BCA Volume 1 Part B1.4(i)(ii) and AS 3660.1 Appendix A.

3.9 JOINTS

To AS 3600

CONSTRUCTION JOINTS

- construction joints not indicated on drawings must not be made
- joints in columns are to be made at the underside of the floor
- joints in slabs are to be made in areas of minimum stress, which is at a distance of one-quarter to one-third of span
- all construction joints must be truly horizontal or vertical.
- Do not relocate or eliminate construction joints

Joint preparation:
- roughen and clean the hardened concrete joint surface
- remove loose of soft material, free water, foreign matter
- dampen the surface just before placing the fresh concrete and coat with a bonding agent.

CONTROL JOINTS

Form control joints in slabs where shown on drawings:

CONTACT JOINTS

Provide contact joints in positions shown on drawings and where slabs abut masonry:

SLIP JOINTS

Provide slip joints between concrete slabs and load bearing masonry using separation strip as specified in Structural Engineer's drawing.

3.10 CONCRETE ELEMENTS

To AS 2870

GENERAL

For concrete elements not detailed.

FOOTINGS FOR AREA LIGHTS

Provide for type of light as scheduled.
- allow for conduit within concrete.

CONCRETE BASES

Bitumen coat base of any metal support post. Set each post in concrete 125mm minimum thick all-round pipe pedestal, full depth and extending 100mm above ground and neatly splayed off.

- **Water heater:** flush with adjoining ground level
- **Stand pipes:** finish flush with adjoining ground level

3.11 SUB BASE

RAFT SLABS

(Slabs with haunched perimeter beams and internal ribs as footings). Fill to 50mm minimum thickness with compacted crushed rock fill. Blind over with 50mm thickness of sand.
- Wet sand before laying underlay/membrane.

SLABS

(Slabs supported by brick perimeter and intermediate walls). Fill with loose granular fill and blind over with 50mm sand where height of slab soffit above prepared site level does not exceed 600mm.

SLAB INSULATION

Provide where shown on the drawings.

CARPARKS AND DRIVEWAYS

Provide 50mm minimum thickness of compacted crushed rock fill immediately under concrete carpark and driveway slabs.

3.12 UNDERLAY AND MEMBRANES

To AS 2870

GENERAL

- lap joints 200mm and seal with pressure sensitive tape
- minimum thickness of 0.2mm
- extend underlay under internal beams, channel drains, etc.
- lap over damp-proof course of internal walls, and carry up face of slab edges
- turn up around columns, pedestals, pipes, and the like
- provide under control joints an additional layer of underlay extending 300mm beyond control joint on each side.

3.13 CONCRETE PATHS, PAVINGS, STEPS AND MISCELLANEOUS ITEMS

GENERAL

Approval

Conform with street alignment and levels of Council footpaths as determined by Local Council:

Paving grades: maximum gradient for paths 1:20 and 1:14 for ramps.

To AS1428.1

AS 3727

Paths:
- paths to be minimum 75mm thickness (where ground is classified as reactive – highly reactive provide 100mm thickness).
- lay in sections 900mm long and provide control joints between sections
- run clean tooled joint at all junctions and round off all outer free edges
- If width between boundary and dwelling is less than 1500mm provide full width paving.
- Where new paths are joining existing or new paths, driveways etc – provide a dowelled reinforcement joint to reduce differential settlement.

steps:
- treads pitched forward at 1% to drain surface water
- provide vertically splayed risers with non-projecting bevelled nosings
- provide 25mm rounding to nosings of all treads
- provide two (2) 25mm wide carborundum strips to all steps in common areas. Provide strips for the full length of treads cast in-situ and fixed to manufactures instructions.

Tactile Surface Indicators:
Where indicated on the drawings provide - tactile surface indicators to comply with BCA (volume 1) D3.8 and AS 1428.1 Preference is for these indicators to be purpose made precast concrete or tile set flush in the pathway.

CONCRETE PAVERS, EDGING AND THE LIKE

Refer to LANDSCAPE WORKS.

3.14 PARKING AREA AND DRIVEWAY

GENERAL

Construct parking areas and driveways to the extent indicated on drawings:
- design for vehicles up to 3 tonne gross or as shown on Structural Engineer's Drawings.
- finish joints and edges as for paths
- all vehicular pavement to be concrete kerbed unless otherwise indicated
- open carparking spaces to be line marked, identified and numbered
- provide minimum 1:100 fall away from building to drainage outlets with no ponding.

3.15 VEHICULAR FOOTPATH CROSSING

DEDICATED ROADS

Arrange with local Council to construct, or allow to construct to Council requirements, the whole of vehicular footpath crossings (including layback gutter crossing where same is required) and making good of adjoining work disturbed by laying of crossing.

Local Council to construct: where the Contractor arranges with local Council to construct, the Contractor is responsible for:
- ascertaining the price levied by the relevant Council to carry out and to complete the whole of this work, and to include that cost together with required on-cost, profit margin and all fees and charges required by Council
- paying all costs for the above work and, upon completion
- submitting evidence to the Superintendent/Authorised Person that these works have been paid for in full
- irrespective of the work being carried out by Council, the Contractor is nevertheless responsible for the safekeeping and maintenance in a damage-free condition of such crossing until Completion/ Practical Completion.

Contractor to construct to Council's requirements: the Contractor is responsible for:
- paying all necessary costs and fees, and obtaining all necessary Council requirements. No variation cost will be allowed
- submitting evidence to the Superintendent/Authorised Person on

completion that the works have been completed to the satisfaction of the Council.

PRIVATE ROADS

Construct concrete vehicular crossing including layback gutter crossing where required, across full width of footpath of same thickness as carpark.
Finish: finish to a non-slip floated finish and tool edges as specified for paths.

Approval

3.16 WATERPROOFING SYSTEM

GENERAL

Refer to drawings.
Provide a proprietary waterproofing system to below ground areas:

To AS 3500.3.1

- retaining walls, and basement parking areas of a type to suit the situation
- dryness test to substrate
- prepare wall surface by removing projections and loose material, fill gaps/cracks and void areas with a compatible filler or concrete mix, clean surface free of dust and contaminants
- protect the membrane after installation with a laminated/extruded polystyrene foam protection board with shiplapped edges adhered to the membrane
- provide 30mm thick drainage cell panels wrapped in geo-fabric to whole of wall surface finishing 75mm below finished ground level.
- provide subsoil drainage to collect ground water seepage and prevent water build up behind walls and under floor connected to the stormwater drainage system
- backfill with 20mm normal size screen washings to the underside of the bases of slabs and pavements or to within 75mm of the finished surface of unpaved areas.

To AS 4654.1, AS 4654.2

Provide a proprietary waterproof system to above ground external areas:

- planters, decks, balconies, external opening doors, roofs and parapets

installation:

Guarantee Required

- installation in accordance with manufacturer's recommendations
- installed by applicators accredited by manufacturer
- provide a 20 year guarantee for materials and quality of workmanship.

3.17 FINISHES

TOLERANCES

Tolerance classes

Determine tolerance classes using a straight edge placed anywhere on the surface in any direction.

Tolerances class table

Class	**Measurement**	**Maximum deviation (mm)**
A	3 m straight edge	3
B	3m straight edge	6
C	600mm straight edge	6

Screeding

Finish slab surfaces by approved means to finished levels, to tolerance Class B.

FINISHING METHODS

Non-slip floated finish

After screeding and as soon as the surface water has disappeared, consolidate and float with a wood or cork faced float to a uniform, smooth granular texture free of high or low spots, and to even falls indicated or directed.

Machine-floated finish

Finish the screeded surface with approved power-driven equipment to a uniform smooth texture. Hand-float in locations inaccessible to the machine-float.

Trowelled finish

Prepare surface as for "Non-slip floated finish":

- after floating, trowel to a smooth surface free of trowel marks. When surface has hardened sufficiently carry out final trowelling
- the finished surface is to be free of any trowel marks, and is to be uniform in texture and appearance
- on surfaces intended to support floor coverings, any defects of sufficient magnitude to show through floor coverings are to be removed by grinding.

Non-slip trowelled finish

Prepare as for "Trowelled finish":
as surface "goes-off", sprinkle on Grade 60 carborundum grains at the rate of 1kg per square metre evenly distributed over all surfaces
lightly trowel carborundum into topping
at completion all non-slip surfaces must have an even visual finish with carborundum being evident.

Steel trowel finish

After machine-floated finish when surface has hardened sufficiently produce the final consolidated finish free of trowel marks and uniform texture and appearance using steel hand trowels.

Wood float finish

Produce the final finish using a wood float.

Broom finish

As per trowelled finish. Use boom finish in lieu of final trowelling.

Sponge finish

After machine floating, obtain an even textured sand finish by wiping the surface using a damp sponge

Exposed aggregate finish

Remove the vertical face forms while the concrete is green. Wet the

surface and scrub using stiff fibre or wire brushes, using clean water freely, until the surface film of mortar is mechanically removed, and the aggregate uniformly exposed. Do not use acid etching. Rinse

Polished finish

After trowel finish, grind the cured surface of the concrete to expose course aggregate.

COLOURED CONCRETE

- colour to be added to concrete for the full thickness of the slab
- material is to be an approved synthetic inorganic oxide, mixed in the proportion of 2kg of oxide to each 43kg of cement
- finished colour is to be uniform for all sections of the work.

STENCIL PATTERNED CONCRETE

Proprietary treatment providing integral coloured and stencil patterned surface to in situ paving and ground slabs where shown on the drawings or scheduled.

Stencil: Apply proprietary stencil design to the concrete surface and align all areas of the pattern correctly.

Colour and Pattern:

Colour hardener: to be added to the surface of the concrete

- Application Rate - 3.0kg/m^2

- Compressive Strength - 80 Mpa to top coat

Completion: remove the stencil so as not to damage the surface and remove left over debris with a mechanical blower

TOPPINGS

- clean substrate, remove projections, fill voids, roughen hardened concrete by scabbling to expose aggregate.
- wash area, keep wet for 2 hours prior to laying topping
- place topping on wet slurry
- lay topping mix in 2 equal layers if over 50mm thick
- prevent uneven drying out and protect from sun and wind
- keep topping moist by covering with polythene film for minimum of 7 days

JOINTS

- Provide movement joints over joints in structure, at junctions between substrates, to divide large areas and at perimeter of the floor
- Joints to be right through topping to substrate
- Seal joint to a depth of 6mm

SCHEDULE OF CONCRETE FINISHES

The following shall apply unless otherwise shown on drawings

ITEMS	MATERIAL/FINISH/ REQUIREMENT	SELECTION/TYPE
Vehicle Crossing	To Local Authority Requirements	Concrete
Kerb & Gutter	To Local Authority Requirements	Concrete
Public Footpath	To Local Authority Requirements	Concrete
Road Shoulder	To Local Authority Requirements	If required – refer to drawings
½ Width Road	To Local Authority Requirements	If required – refer to drawings
Road Reconstruction	To Local Authority Requirements	If required – refer to drawings
Driveway	Reinforced concrete (broom finish)	Darker coloured concrete
Parking Areas	Reinforced concrete (broom finish)	Darker coloured concrete (alternate colour to driveway)
Paths	Reinforced concrete (broom finish) If width between boundary and dwelling is less than 1500mm provide full width paving.	Light coloured concrete
Drying Areas	Reinforced concrete (broom finish)	Coloured concrete
Letterboxes	Reinforced concrete (broom finish)	Coloured concrete
Recycle Areas	Reinforced concrete (steel trowel finish)	Coloured concrete
External stairs	Reinforced concrete (broom finish) Provide carborundum strips to stair treads	Coloured concrete
Basement floor	Reinforced concrete (machine -floated finish)	Natural
Ground floor	Reinforced concrete (trowelled finish)	Natural
Upper level floors	Reinforced concrete	Natural

	(trowelled finish)	
Verandah and ground level covered walkways	Reinforced concrete (trowelled finish)	Natural
Ground level uncovered paved areas	Reinforced concrete (non-slip trowelled finish)	Natural
Upper level balconies and walkways	Reinforced concrete (non-slip trowelled finish)	Natural
Stairs	Reinforced concrete (steel trowel finish) Provide carborundum strips to stair treads	Natural
Store Rooms	Reinforced concrete (non-slip trowelled finish)	Natural
Garages	Reinforced concrete (steel trowelled finish)	Natural

TACTILE GROUND SURFACE INDICATORS

Provide tactile ground surface indicators to common areas where shown on the drawings.

CONCRETE FLOOR TREATMENT REQUIREMENT

- Concrete paths, driveways, parking areas, stairs, floors, porches, verandah's etc to have a slip resistance to current Australian Standards
- Slip rating of R10 and pendulum test score of X for Wet areas and external areas
- Slip rating of R9 for all other areas

WARRANTY: Provide minimum 5 years written warranty

04: Masonry

To AS 3700

4.1 GENERAL

MATERIALS & WORKMANSHIP

4.2 INSPECTIONS

Inspection Required

Give 48 hours notice so that inspection may be made at the following stages:
- damp-proof courses
- bottoms of cavities after cleaning out
- bottoms of core holes before grouting
- control joints ready for insertion of joint filler

4.3 QUALITY AND WORK PRACTICES

TO AS 4773.1
AS4773.2

AS/NZS 4455.1,
AS/NZS 4455.2,
AS/NZS 4455.3

GENERAL
- do not mix or change masonry type laid up from course to course
- lay bricks on a full bed of mortar and ensure joints are completely full
- joints must be 8mm minimum to 10mm maximum thick
- for brickwork 230mm thick and over, grout each course

Aging of Bricks and Concrete:
- Minimum age of clay bricks: 42 days
- Minimum age of concrete supports: 28 days

Wetting:
Clay bricks - wet well before laying. Soak well in dry and arid regions before laying.
Calcium silicate, and concrete bricks and blocks - keep dry before laying.

Brick Rod:

76mm high units	7 courses to 600mm
90mm high units	6 courses to 600mm
190mm high units	3 courses to 600mm

Bond Pattern:
Single leaf walls - build in stretcher bond.
Retaining walls - build in “English” bond or as detailed.

Setout

Cutting and set-out: Set out masonry with joints of uniform width and the minimum cutting of masonry units.

Perpends

General: Keep perpends in alternate courses vertically aligned and fill them completely with mortar.

Wall chasing

Make holes and chases required in masonry walls so that the structural integrity of the wall is maintained. Do not chase walls nominated as fire rated or acoustic.

To AS 3700

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

FACE WORK
- distribute the colour range of bricks evenly to prevent colour concentrations
- keep perpends in alternate courses vertically aligned
- provide face work one full course below finished ground level

CLEANING

Cleaning of masonry shall be carried out prior to installation of roof cladding, fascias and guttering.
Clean masonry progressively to prevent damage as the work proceeds. Clean facework to remove mortar smears, stains, discolouration, and the like.

- do not use excessive water pressure that will damage joint finish or brickwork.

SAMPLE PANEL

Approval

Construct a sample panel 1200 x 600mm of each type of facework. An approved panel can be incorporated into the works if suitably located. Otherwise remove before completion of the works.

FINISHING JOINTS

Joints

Externally: Tool to give a dense water-shedding finish.

Mortar joints are normally tooled, weatherstruck or raked. Mortar joints which are not completely filled and tooled may not provide adequate weatherproofing. A flush joint which is cut with the trowel without compacting the mortar should not be used externally unless agreed.

Internally: If wall is to be plastered, do not rake more than 10 mm to give a key.

Ironed Joints: Use a 15mm jointer to iron joints 5mm maximum deep.
- where exposure class bricks are nominated use only ironed joints.

Raked Joints: Rake joints 5mm deep and iron smooth. Use a wheel type, rolling, raking tool. Re-pack joint where required.

Flush Joints: Cut mortar to finish flush with face of masonry and compact surface where exposed externally.

Cut And Struck Joints: Cut joints flush to the bottom of the joint and 2mm behind the face at the top of the joint.

Concealed Work: As for flush joints.

BAGGING

Cut joints flush and apply mortar to the facework with a hessian bag or similar. Fill irregularities but leave the minimum possible amount of mortar on the masonry face.

4.4 MATERIALS

MASONRY UNITS

To AS/NZS4455.1
AS/NZS4455.3

Clay Bricks: Hard, sound, well burnt, standard bricks of even size and shape with true arrises.

Calcium Silicate Bricks: "Special Face" grade for facework and "Render Grade" for non-face work.

Concrete Masonry Bricks:

Concrete Masonry Blocks: Grade 123.

Alternative Systems: Submit design by a practising Structural Engineer for approval.

To AS/NZS4455.1

Approval

Exposure class bricks: use exposure class bricks in areas subject to salt exposure and below damp course level.
Obtain Superintendent/Authorised Person's approval for type of brick.

MORTAR MATERIALS

To AS 3700 Sect. 2

Grey Cement: Type GP, general purpose Portland cement.

To AS 3972

White Cement: Type GP, with iron salt content not exceeding 1%.

Sand: Fine aggregate with low clay content and free from efflorescing salts.

Approval

Additives: Do not use additives unless approved. Use strictly in accordance with manufacturer's instructions.

To AS3700

MORTAR MIXES

Class	Application	Cement:Lime:Sand mix
M1	internal protected walls, mortar in fireplaces	0:1:3 (lime mortar)
M2	general purpose work above damp proof course	1:2:9 or 1:3:12
M3	footings and masonry below damp-proof courses; dwarf and fender walls; sills; piers: steps; calcium-lime and concrete masonry units; reinforced masonry; general purpose work in or near coastal areas	1:1:6 or 1:0:5 plus water thickener (methyl cellulose)
M4	retaining walls; 75mm masonry; all masonry fences on boundary alignments	from 1:0:3 to 1:0.25:3 or 1:0.5:4.5 or 1:0:4 plus water thickener (methyl cellulose)

Mixing: Machine-mix mortar and use immediately. Do not re-temper mortar.

Approval

Coloured Mortar: Colour mortar by adding approved oxide to manufacturer's recommendations.

4.5 ACCESSORIES

To AS 3700, AS 2699.1

WALL TIES

Wall ties are to be spaced at 600mm centres (max.) both vertically and horizontally in wall panels without openings.
Around openings in the wall space ties at an average of 300mm centres (max.) and at 300mm centres between brickwork and bearers or floor joists running parallel to the brick veneer wall (to resist wind uplifting of framing).
Set ties to slope downwards towards the external leaf and embedded a minimum of 50mm into the mortar joint, with the other end secured to the frame.

To AS 2699.1

Wall Tie Category:

- Use medium duty galvanised steel with R2 corrosion resistance rating for E2 exposure
- Use medium duty 316 stainless steel with R3 corrosion resistance rating for E3 exposure
- Note: Light duty wall ties are not permitted"

FLEXIBLE TIES

Ties or anchors required to extend across control joints shall transfer the forces necessary to maintain the stability of the masonry without impairing the effectiveness of the joint.

To AS 1684

PLATE FIXING

Fix timber wall plates to masonry by either straps or bolts.

BED JOINT REINFORCEMENT

Provide galvanised woven wire mesh or welded wire:

- reinforcement width equal to wall leaf, except less 15mm cover from external exposed surface of mortar joints
- lap 450mm at splices, fold and bend at corners (so that the longitudinal wires are continuous), and stop 200mm short of control joints.

Placement:

- in the third bed joint above floor level
- at vertical spacings not exceeding 500mm
- in the second bed joint from the top of the wall
- in the first two bed joints above and below openings, or above and below head and sill flashings to openings.

To AS 3700 Sect. 6

REINFORCED MASONRY

Designation: Masonry required to be strengthened with embedded steel reinforcement (other than bed joint reinforcement) is designated reinforced masonry.

Cleaning Core Holes: In blockwork use purpose-made cleanout blocks or machine cut a cleaning hole at the base of each reinforced core, located on the side of the wall which is to be rendered or otherwise concealed. After cleaning out has been inspected and approved, cover the hole with formwork and grout the core.

Bond Beams: Use bond beams made from purpose-made hollow concrete blocks with reinforcement grouted in place.

LINTELS

Galvanized Mild Steel Lintels: Provide Galvanized MS flat bar and angle lintels over openings:

To AS/NZS 2699.3

- to be hot-dip galvanised to class Z600 after fabrication
- maintain 6mm clearance from heads and frames
- maximum 20mm allowable opening tolerance
- prop lintels at mid-span for openings 1800mm wide and over until mortar sets
- pack mortar between the angle upstand and supported masonry units
- where span of opening exceeds 3000mm provide lintel to engineer's certification.

To AS/NZS 4600

Cold-formed lintels: Proprietary cold-formed flat-based type designed to AS/NZS 4600.

Certificate Required

Steel flats and angles: Sizes to BCA Figure 3.3.3.5. and Structural Engineer's Drawings

Certificate Required

Precast, Fire rated Lintels: Where required provide precast fire rated lintels, sizes and installation to manufacturer's recommendations. Where span of opening exceeds limitation of precast lintel system provide in situ concrete lintel to engineer's certification.

Prestressed Brick Lintels: Must be branded with the manufacturer's name and installed to manufacturer's instructions.

4.6 MASONRY ELEMENTS

GENERAL

Build-up walls as shown on drawings. Carry up plumb and level in even courses.

Bonding at Intersections:

To AS 3700

Masonry bonding - Provide by means of header units.

To AS 3700

Tie bonding - Provide where headers are not permitted in facework.

Clearance for Timber Frame Shrinkage:

For seasoned timber provide clearance to the window frames and brick sill and between roof frames and the brick veneer.
Single storey and ground floor windows - 10mm
Two storey frames and upper floor windows - 20mm
For seasoned timber additional clearance is to be provided to accommodate the additional shrinkage.

FOUNDATION WALLS

Brickwork: Refer to Engineer's Drawings

- up to 1500mm high: 110mm thick with engaged piers
- 1500 to 2700 high: 230mm thick.

BEARER PIERS TABLE

Provide engaged or free standing unreinforced masonry piers as follows to support bearers at 1800mm maximum centres:

Type	Minimum Size (mm)	
	Brickwork	Blockwork
Engaged - bonded to walls	350 x 110	390 x 90
Freestanding up to 1500mm high	230 x 230	390 x 190
Freestanding 1501mm to 2700mm high	350 x 350	390 x 390

CAVITY WALLS

To AS 3700
Clauses 3.2.2 and 8.10
Refer to details in ASDC.

Masonry Wall Cavities: 50mm minimum.

Masonry Veneer Wall Cavities: 40mm minimum (between the masonry leaf and the load-bearing frame).

Cavities:

- fill cavities with mortar up to 1 course above external ground level with fall to outer leaf
- do not close cavities at the joints of external openings, except where detailed
- leave loose bricks at 1800mm centres for cleaning-out purposes
- wash out cavities daily.

Certificate Required

Insulation in Wall Cavities

where shown on the drawings provide:

- Rigid cellular extruded polystyrene sheets.
- Apply to inner brick skin or brick veneer framing.
- Fix with Proprietary plastic clips on pre installed wall ties.
- Install horizontally with the tongue to the top edge and firmly against the inner masonry skin or wall framing. Keep sheets clean and dry and free from mortar and grout. Do not bridge the cavity.
- Install flashings prior to installing insulation sheets. Prevent entry of water behind the insulation.
- Fixing with No. 12-14 x 45 mm hi teks screws.
- Installation to manufacturer's recommendations and details

COMMON WALLS BETWEEN UNITS

Build-up common walls between units and between common areas and units to the required fire rating and sound requirements extended to the underside of roof material including boxed-in eaves to fully compartmentalise roof space.

Certificate Required

- provide certificate of compliance for fire-rated and sound-rated common wall.

FOR TIMBER FRAMED COMMON WALLS refer to CARPENTRY AND JOINERY - Insulation, for fire-resistant compressible mineral wool seal.

4.7 VENTILATION AND OPENINGS

To AS 3660.1

AIR VENTS

Provide air vents around the building perimeter to the space under all suspended ground floors, having a minimum unobstructed opening area of 8400mm^2 per metre run of external wall. In cavity walls provide ventilation through both masonry leaves.

VENT TYPES

- Terracotta: Perforated, 230 x 160mm
- Cut brick: Two cut bricks laid vertically and evenly spread in a 230mm wide x 2 course high opening, backed with bronze wire mesh built in.

SLAB-ON-GROUND CONSTRUCTION

Provide adequate cavity ventilation at damp-course level, so that all ventilation holes and open perpend joints are a minimum or 150mm above finished adjacent ground level, and between 600mm to 1000mm centres horizontally.

To AS 3700
Clause 4.7.2

WEEPHOLES

Space at 1200mm maximum centres generally, in the form of open perpends to external leaves of cavity walls:

- provide in the course above damp-proof courses or cavity mortar, and at the bottom of unfilled cavities
- to flashings at 460mm max. centres
- to each horizontal section of stepped flashing
- weephole inserts to be non-combustible material

ACCESS OPENINGS

Leave foundation access openings of door-width and full height in external and internal walls below suspended ground floors.

To 3700

4.8 DAMP-PROOF COURSE

Provide as a continuous membrane for the full length of walls. Lap full width of angles and intersections and 150mm at joints with maximum 2 vertical courses per step in the following locations:

Walls Adjoining Infill Floor Slabs on Membranes: In the course above the underside of the slab in internal walls and inner leaves of cavity walls. Project 40mm and dress down over the slab membrane turned up against the wall.

Cavity Walls Built off Slabs on Ground: In the bottom course of the outer leaf, continuous across the cavity and up the inner face, turned 30mm into the first course of the inner leaf above the slab; or, in masonry veneer construction, fastened to the inner frame above floor level. Project 10mm beyond the external slab edge and dress down.

Masonry veneer construction: In the bottom course of the outer leaf continuous horizontally across the cavity. Fastened to the inner frame 75 mm above floor level.

Internal Walls Built off Slabs on Ground: In the first course above floor level.

At Timber Floors: In the first course below the level of the underside of ground floor timbers in internal walls and inner leaves of cavity walls.

To AS 3700
To AS/NZS2904

4.9 FLASHINGS

Provide flashings into the following locations where applicable.

Certificate Required

Under Sills: 30mm into the first joint below the sill, extending up across the cavity and under the sill in the inner leaf or the frame. Extend at least 150mm beyond the reveals on each side of the opening.

Over Lintels To Openings: Full width of outer leaf immediately above the lintel, continuous across cavity, 50mm into the inner leaf two courses above; or, in masonry veneer construction, turned up against the inner frame and fastened to it. Extend at least 150mm beyond the ends of the lintels.

At Window and Door Jambs: To full height of jamb, continuous extending into cavity min 150mm; or, in masonry veneer construction, turned back against the inner frame and fastened to it.

Over Roofs: Full width of external masonry, stepped to roof slope. Turn down not less than 75mm over base flashing. Turn up within cavity, sloping inward across the cavity and fixed to or built in to the inner leaf at least 75mm above.

At Abutments With Structural Frames Or Supports: Vertical flashing in the cavity from 150mm wide material, wedged and grouted into a groove in the frame opposite the cavity.

At Stiles Where Cavities Are Closed: Full height flashing extending 75mm

beyond the closure into the cavity, interleaved with the sill and head flashing at each end. Fix to frame stiles.

#

4.10 TERMITE CONTROL AND VERMIN PROOFING

To AS 3660.1

Termite Control:

Suspended floors - Provide cap and strip shields:
- provide continuously over full length of all perimeter, curtain and support walls, openings, engaged and free-standing piers
- project 40mm and turndown at 45 degrees with joints and corners
- lapped 12mm and soldered or folded and welted
- damp-proof course material is to be laid under ant capping to prevent corrosion of metal.

To AS3660.1 and AS/NZS 2904
- Galvanised Steel, min 0.5mm thick, coating class Z275 to AS1650
- Stainless steel mesh max aperture 0.66mm x 0.45mm, diameter of wire 0.18mm min grade 304 or 316

Combined termite shielding and DPC
- Bitumen coated aluminium minimum 0.5mm core base thickness

Concrete slabs - Refer to CONCRETE WORKS: Termite Barriers.

Vermin-proofing: Provide continuous 12mm aperture galvanised mesh to brick veneer walls across space between brickwork and timber framing level with top of ground floor joists:
- secure to sides of wall plates and extend across cavity to the first available bed joint below wall plate
- lap minimum 25mm into brickwork
- lap and lace longitudinal joints together.

4.11 TRIM AND FIXTURES

Sills and Thresholds: Solidly bed masonry sills and threshold and lay them so that the top surfaces drain away from the building.

Meter box: Build meter box into brickwork as work proceeds.

Subfloor Access Door: Build into brickwork as work proceeds where applicable.

4.12 CONTROL JOINTS

To AS 3700 Clause 3.5

EXPANSION JOINTS

Approval

Form from footing level to top of wall and infill with a strip of an approved compressible material the full depth of the joint.

Location for Clay Brickwork:
- Maximum length of continuous wall - 10m*
- Maximum distance from corner - 5m*
- Minimum width of joint - 15mm

*or as specified by Structural Engineer

Location For Concrete Masonry:
- Maximum length of continuous wall - 8m*
- Maximum distance from corner - 4m*
- Minimum width of joint - 10mm

*or as specified by Structural Engineer

ARTICULATION JOINTS

Where detailed form from footing level to top of wall:
- provide sliding joint wall ties that prevent lateral movement but allow wall to move along the centre line of the ties
- provide compressible filler strip and finish with sealant bead to match mortar colour.

4.13 COMPLETION

Replace defective masonry units. Point up faulty joints, holes and chasings. Point up all storm moulds of frames to render waterproof.

SCHEDULE OF MASONRY ELEMENTS & FINISHES

The following shall apply unless otherwise shown on drawings

ITEMS	MATERIAL/FINISH/ REQUIREMENT	SELECTION/TYPE
Masonry – face brick		Refer to drawings
Masonry – face block		Refer to drawings
Masonry – commons		
Joint Type	Ironed	
Mortar colour		Off-White
Masonry vents	Cut brick to AS 3600	
Wall separating *sole-occupancy units* in Class 1 & 2 buildings	Cavity masonry construction with sound insulation rating to BCA requirements	Acceptable Solutions **1** 2 x 110mm cavity clay brick masonry with 50mm glass wool or polyester insulation to required density; **2** 2 x 110mm cavity clay brick masonry with 13mm cement render to both sides
Wall separating *sole-occupancy units* from common areas such as public lobby, public corridor, stairway, lift shaft, plant room or the like.	Masonry construction with sound insulation rating to BCA requirements	Acceptable Solutions **1** Single leaf of 220 mm brick masonry with 13 mm cement render on each face. **2** 150 mm thick plain off form concrete. **3** 200 mm thick concrete panel with one layer of 13 mm plasterboard or 13 mm cement render on each face.
Wall separating *sole-occupancy* units in Class 1b & Class 3 buildings (example Group Home)	Masonry construction with sound insulation rating to BCA requirements	Acceptable Solutions **1** Single leaf of 220 mm brick masonry with 13 mm cement render on each face. **2** 150 mm thick plain off form concrete. 200 mm thick concrete panel with one layer of 13 mm plasterboard or 13 mm cement render on each face.

05: Metalwork

To AS 4100, AS/NZS4600

5.1 GENERAL

MATERIALS

All ferrous and non-ferrous metal and the like are to be first quality Australian-made metals. Use metals suited to their required function, finish and method of fabrication and in sections of suitable strength and stiffness for their purpose.

Provide mill certificates for all structural hot rolled sections, hollow tube sections and cold formed sections.

To AS3623

NASH.1

Approval

Warranty Required

METAL FRAMING

Metal floor, wall, ceiling and roof framing systems can be used for single-storey buildings with written approval:

- provide a set of manufacturer's printed instructions to the Superintendent/Authorised Person including warranty, and carry out all work strictly in accordance with such instructions.

Residential and low-rise steel framing: To NASH.1.

Metal separation

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

Protection

General: Damaged metal coatings are not to be restored on site. (No on site welding allowed). Thoroughly clean affected areas to base metal and coat with zinc rich organic primer.
Grommets: Provide grommets to isolate piping and wiring from cold-formed steel framing.
Swarf: Remove swarf and other debris from cold-formed steel framing immediately.

Earthing

Permanent earthing: Required.
Temporary earthing: Provide temporary earthing during erection until the permanent earthing is installed.

To AS/NZS4680
AS 1397
AS 1214

HOT DIP GALVANISING

Unless shown otherwise on structural engineer's drawings - all steelwork items exposed externally to be hot dip galvanized, eg. Steel stanchions, post shoes, arch bars, angles, balustrades, gates and all other fabricated steelwork.

5.2 QUALITY AND WORK PRACTICES

GENERAL

- keep all members true, free from twist and other distortion
- all holes are to be drilled
- cut all edges. Do not shear or plane edges. Remove all burrs and ragged edges
- form bends in tubes without deforming the true cross-section
- fabricate and assemble all metalwork in the workshop wherever practicable. Fit all mitred joints accurately to a fine hairline. Evenly match all butt edges and face welds.

Approval

SAMPLES

- provide samples of the coated finished materials
- samples are to be representative of the materials to be delivered to site.

5.3 STRUCTURAL MEMBERS

To AS 4100

GENERAL

Provide all structural steel to detail and extent indicated, complete with bearing plates, flanges, bolts, nuts, washers and other accessories required to complete the work.

Fastenings:
Use fastenings of a type appropriate to the work, capable of transmitting the loads and stresses imposed, and sufficient to ensure the rigidity of the assembly.

Masonry attachments:
Use proprietary types comprising corrosive resistant screws or bolts in self-expanding sockets.

To AS 1554.1

WELDING

All structural welding to Structural Engineer's details:
- the deposited metal thickness on fillet welds on non-structural members are to not be less than 70% of the thickness of the material welded
- on completion thoroughly grind-off, and smooth all welds
- remove slag from welds.

To AS 1665

aluminium welding: Buff finish all aluminium face welds.

SUBMISSIONS

Shop drawings:

Submit 3 hard copies and 1 pdf electronic copy of Shop drawings showing:
- Identification
- Steel type and grade
- Dimensions of items
- Required camber, where applicable
- Connection details
- Orientation of members
- Location of and parameter for site welds

Do not commence fabrication until reviewed by Superintendent/Authorised Person. Allow 10 working days for review of shop drawings.

5.4 BALUSTRADES AND HANDRAILS

To AS/NZS 1170.1

GENERAL

Provide balustrades and handrails where shown and detailed on drawings otherwise where the distance from any formed surface above the finished ground level exceeds 600mm (eg, porches, steps, elevated paving, ramps etc.):
- install balustrades at 1000mm minimum above the finished floor level
- install handrails at 865mm minimum above the nosings of stair treads or the floor of ramps
- do all necessary drilling and fabrication for fixing methods detailed
- pre-assemble and fit as many components as possible before delivery to the site
- where metal sections are to be site-joined, pre-drill and pre-tap holes in readiness for threaded connections.
- balustrades to comply with BCA Vol 2 Part 3.9.2

To AS 1428.1

- Where shown on the drawings for stairs and provide handrails and tactile surface indicators..

5.5 SUNHOODS, AWNINGS & PRIVACY SCREENS

GENERAL

- Provide galvanised steel frame for sunhoods/ awnings screens and privacy screens - powdercoat finish
- Refer to detail drawings

5.6 FINISHES

METALWORK FINISHES

To AS/NZS4680

GALVANISING

- work showing faulty galvanising is to be rejected
- no drilling, tapping, cutting or welding will be permitted after galvanising.

Coating requirements: provide an unbroken covering of zinc, uniform in appearance and in thickness at the rate of:

- steel thickness 5mm and greater - 600 g/m^2
- steel thickness 2mm to less than 5mm - 450 g/m^2
- steel thickness less than 2mm - 350 g/m^2

PAINTING

All metalwork must be primed before delivery to the works. Prepare and finish surfaces for painting. Refer to PAINTING.

To AS 1231

ANODISING

Anodised coatings to aluminium to have an Anodic film thickness of 20 microns.

Protective coating:
provide a temporary protective coating to the anodised surfaces. The protective coating is to be removed at the completion of the works.

POWDER COATING

Prepare surfaces as follows:

To AS 1627.4

Unprotected steel:
remove rust by abrasive blast cleaning to AS 1627.4 Class 3, clean by immersing in trichlorethylene or an alkaline solution, and apply a coat of iron phosphate.

AS/NZS4506

Galvanised steel:
clean by immersing in a suitable alkaline or acid solution, apply a chromate or zinc phosphate chemical conversion coating, rinse and de-grease.

AS/NZS3715

Aluminium:

- clean by immersing in a suitable alkaline solution, caustic etch and apply a chromate conversion coating
- after application, bake the film in an oven accurately controlled to the temperature recommended by the coating manufacturer.

5.7 FIXTURES AND FITTINGS

GENERAL

- Provide fixtures and fittings. Refer to drawings and schedules for item, number, selection and location of fixtures and fittings.
- If selection of fixture/s or fitting/s is included in the Contract but location is not shown on drawings refer to Superintendent/Authorised Person for approval.
- In the event that fixture or fitting selection is not included in the Contract select fixture/s and fitting/s to meet the specification and Land and Housing Corporation Deemed to Comply Product Register.
- In the event that fixture or fitting selection is not included in the Contract and there is no specification for the fixture or fitting or the fixture or fitting is not included in the Land and Housing Corporation Deemed to Comply Product Register recommend selection meeting relevant standards and obtain Superintendent/Authorised Person's approval.
- Install to manufacturer's instructions.

ITEMS	REQUIREMENT
Shower Curtain Rail	Provide to each: - Shower recess - Combined shower and bath Provide to each disabled shower recess Locate where shown on drawings
Shower Seat	Provide in housing identified for disabled persons. Locate where shown on drawings
Toilet Paper Holder	Provide 1 per toilet Locate adjacent to toilet pan
Bath Towel Rail	Provide 1 per bathroom Locate where shown on drawings
Soap Holder	Provide (Ceramic preferred): 1 per shower 1 per bath Locate where shown on drawings
Robe Hook	Provide: - 1 per each bathroom for 0-1 bedroom dwellings. - 2 per bathroom for all other dwellings Locate where shown on drawings
Grab Rails	Provide in SEPP HSPD units. 1 per shower recess 1 per WC Locate where shown on drawings
Tea Towel Rail	Provide 1 x 3 arm fixed to inside of kitchen cupboard door.
Picture Hooks	Provide: - 3 per bedroom - 3 per living room brass utility hooks crew fixed to wall at 1800mm height Confirm location with Superintendent/Authorised Person's Representative prior to fixing

BATHROOM FITTINGS REQUIREMENT

Toilet Paper Holder

- ·Chrome plated brass/polished stainless steel frame, min. 150mm x 150mm with aluminium roller

Bath Towel Rail

- ·760mm overall length x 16mm-diameter chrome plated brass or stainless steel tube with stainless steel end brackets, for wall screw fixing

Robe Hooks

- ·52mm x 53mm chrome plated brass

WARRANTY: Provide minimum 1 year written warranty

GRAB RAILS REQUIREMENT

DISABILITY MODIFICATIONS AND DISABLED HOUSING

- Only where scoped or directed
- To current Australian Standard
- 32mm diameter x 1.2mm thick 304 Stainless Steel or powder coated aluminium x 450mm min. overall length, secured to wall with round head C.P. brass or stainless steel screws, minimum 50mm long
- Hygienic seal Flange Covers
- Fixings of Grab rail to support appropriate static load

WARRANTY: Provide minimum 1 year written warranty

SHOWER SEAT REQUIREMENT

Disabled Housing only

- To current Australian Standards
- Rounded edged foldable seats (with anti drop tension hinges)
- Self draining and non slip
- Frame grade 304 stainless steel

- Seat HDPE (high density polyethylene)
- Ensuring stability up to 160 kg
- Installer to ensure wall construction and fixings support Shower Seat

WARRANTY: Provide minimum 5 year written warranty

CLOTHES LINE REQUIREMENT

Provide clothes line where shown on drawings:

Provide test report certifying hoist can withstand a load of 150 kg (min. 2kg point loads evenly distributed per all lines/ at max. 300mm centre spacings) without deformation or damage, issued by a registered Testing Laboratory based on current Australian Standards

- Anodised aluminium or min. 1.0mm thick. galvanised steel framing to current Australian Standards
- Min. 20 micron anodised or 50 micron polyester powder coat finish to current Australian Standards
- Min. 4 mm dia. galvanised wire or UV stabilised plastic sheathed cord or wire lines
- All bolts & fittings zinc plated
- Locking mechanism on frame
- Installed to manufacturers written specification

Retractable

- Min. 4 line (2 BR or less) Max line extension 6m
- Min 5 line Max extension 6m

Awning

- Min. 14 m line (for 1 BR or less)
- Min. 20 m line (for 2/3 BR dwellings)
- Min. 35m line (for 4/5 BR dwellings)
- Ground or wall mounted
- With tensioning mechanism

Fixed Rotary Type Adjustable (wind-up fixed head hoists)

- Min. 39m line/4m dia. (for 2/3 BR dwelling)
- Min. 48m line /5m dia. (for 4/5 BR dwelling)

WARRANTY: Provide min. 10 year frame warranty & 1 year line & components

LETTERBOX REQUIREMENT

Provide letterboxes where shown on drawings:

To AS/NZS 4253

General (all models)

- Painted zinc/aluminium alloy coated steel OR G2 zinc coated steel (Z450) with min. 50 micron polyester powder coat finish
- Aluminium (min. 20 micron anodised or 50 micron powder coat)
- Weatherhood (for weather exposed areas)

Freestanding

- A4 envelope size Min 230mm x 330mm and min, 160mm high
- Min. 25mm high letterbox slot
- Elevated between 900mm to 1200mm above ground on a coated steel post
- Padlock or key operated camlock

Built-in (brickwork or Aluminium Letter box Banks)

- Materials as per "General "
- Aluminium/G2 zinc coated steel/zinc-aluminium coated steel sleeve.
- Min. A4 envelope size, Min 230mm x 330mm and Min 160mm high
- Min. 25mm high letterbox slot
- Elevated between 500mm to 1500mm above ground
- Access door pivot hinged on min. 5mm dia. galvanised steel/SS rod
- Key operated camlock/padlock style lock
- Max. letterbox bank of 75 boxes (15 wide x 5 high)

WARRANTY: Provide minimum 1 year warranty

5.8 FURNITURE

COMMON ROOM FURNITURE

In HSPD provide in common room:

- 1 x stackable polypropylene armchair per dwelling unit. Equal to Sebel 'integra' Colour white or beige.
- 3 x stackable polypropylene side chairs. Equal to Sebel 'integra' Colour white or beige.
- 2 x 750mm x 750mm x 710mm high tables. Equal to Sebel 'Fold a Bye' Colour white or beige.
- 1 x 1800mm x 750mm x 710mm high table. Equal to Sebel 'Lock-n-fold' Colour white or beige.

5.9 SIGNAGE

SIGNAGE REQUIREMENTS

ACCESSIBLE SIGNAGE

Where required by BCA (volume 1) provide signage to comply with parts D3.6 and Specification D3.6 (Braille and Tactile Ground Indicators)

PARKING SIGNAGE

Provide signage for visitor and disabled parking to comply with local authority requirements.

STREET / UNIT NUMBERING

Provide street/unit numbering:

- External street numerals and building block numerals to be 150mm minimum high 1.6mm thick plain brass (secured with brass screws) or polished cast aluminium (secured with stainless steel screws) fixed to building/structure.
- Unit numerals to be 50mm minimum high x 1.6mm thick plain brass or polished cast aluminium or moulded plastic, screw fixed to door.
- Letterbox numerals to be 50mm minimum high x 1.6mm thick brass/aluminium/plastic, screw fixed to front of letterbox.
- Community room WC doors as for unit numerals
- Project name and numerals (if required) as for external street numerals

WARRANTY
Provide minimum 1 year warranty

PROHIBITION SIGNAGE OR ADVISORY / INFORMATION

Provide as shown on drawings:

- Prohibition signs (No Smoking, Electrical hazard etc) to comply with AS1319
- Either 225x300 mm (approx A4) or 300x450 mm (approx A3) – where viewing is required at a distance of greater than 10m away
- Signs and numbers to be non reflective
- **Low Density Polyethylene and/or Polypropylene and/or co-mingled plastic/wood (Recycled product)**
- UV stabilised – to reduce surface whitening;
- fading and crack resistant for indoor and outdoor use;
- Min 90% recycled product
- Non-toxic hazard;
- Minimum thickness 1.5 mm.
- life expectancy 5-8 years;
- Rounded corners with four corner mounting holes (screw or adhesive fixed).
- **Colorbond steel (metal)**
- Suitable for outdoor use;

- Life expectancy 5-8 years;
- Min BMT 0.5 mm thick;
- Rounded corners with four corner mounting holes (screw or adhesive fixed)

WARRANTY: Provide minimum 1 year warranty

NON-SMOKING SIGNS IN COMMON AREAS

Non-Smoking Areas
Non-smoking areas in Principal's properties include internal common areas such as common rooms, shared laundries, stairwells, hallways, entranceways, lift areas and other enclosed common areas.
Location: The minimum number of signs installed per building by a contractor is two. The first sign 'design option 2' is to be installed at the entrance of a building. The second sign 'design option 1' is to be installed in the buildings enclosed common area (for example foyer). Additional signage can be scoped depending on building layout and whether more than one ingress or egress exists. The number of signs shall be such that at least one sign is visible from any position within the area where smoking is prohibited. Contractors are required to scope a building, determine the number of signs to be installed in accordance with the Specification. Contractors shall install the signs as scoped and as approved by the Superintendent/Authorised Person.

General requirements:
- The signs used to identify non-smoking areas in Principal's properties should comply with *AS 1319-1994: Safety Signs for Occupational Environment*.
- The symbolic shapes, colour and enclosure coding shall be as shown in Table 2.1 and the symbolic sign shall be sign No.401 in Table B1 in AS1319.
- The signs used shall be word/symbol combinations.

WARRANTY: Minimum 5 years warranty.

Signage design options:

Below are the Principal's preferred designs, size and material.

1. 

2. 

Sign size: Signs shown above can be in two sizes, 225x300 mm (approximately A4) and 300x450 mm (approximately A3). These sizes cater for a viewing distance of about 10 m.
Letter size: Minimum letter size shall be: for uppercase 50 mm, for lowercase 40 mm.
Sign material: Acceptable materials are as follows:
- Polypropylene – For Indoor use, UV stabilised; fading and crack resistant for outdoor use; non-toxic; minimum thickness 1.2 mm, rounded corners with four corner mounting holes, life expectancy 5-8 years, 100% recyclable.
- Metal – For Outdoor use, Colorbond steel; minimum thickness 0.6 mm, rounded corners with four corner mounting holes, life expectancy 5-8 years.
- Sign face material shall be non-retro-reflective (diffuse) and conform to colours specified in Table 3.2 AS1319. Signs must be coated with a "Non Sacrificial" anti graffiti coating.

Siting and installation:
- Signs should be located where the message is legible, clearly visible and attracts attention. Natural and artificial light conditions should be considered

when locating signage.
- Signs should not be mounted at locations where stacked material, open doors or other obstructions will obscure signs.
- Signs shall be mounted at eye level. The preferred fixing height of sign (bottom edge) shall be 1.5 m above floor level.
- Signs shall be mounted using four screws (indoor and outdoor) or heavy duty adhesive (indoor only).

EVACUATION SIGNAGE

Provide:
- Low Density Polyethylene and/or Polypropylene and/or co-mingled plastic/wood (Recycled product) or other durable recycled plastic sheet.
- Printed in Colour on A4
- UV stabilised – to reduce surface whitening;
- fading and crack resistant for indoor and outdoor use;
- Min 90% recycled product
- Non-toxic hazard;
- Fixed to back of door behind clear recyclable polycarbonate or other impact and scratch resistant plastic using anti-tamper, vandal resistant fixings

WARRANTY: Provide minimum 1 year warranty

06: Carpentry and joinery

6.1 GENERAL

Only AS 1684
AS 1684.1
AS 1684.2
AS 1684.3
AS 1684.4
AS 1720.1

TIMBER FRAMING
Residential timber framed construction: To AS 1684.2, AS 1684.3 or AS 1684.4 as appropriate.
Design: To AS 1720.1.

To AS 1720.1
AS/NZS 1170.2

HIGH WIND AREAS

6.2 INSPECTIONS

NOTICE

Inspection Required

Give 48 hours notice so that inspection may be made at the following stages:
- completion of framing
- before fixing internal linings

QUALITY ASSURANCE TIMBER CERTIFICATION: Refer to PRELIMINARIES: Materials and Workmanship. Certificate required.

6.3 QUALITY AND WORK PRACTICES

GENERAL

Perform the operations and provide the accessories necessary for the completion of woodwork items. Ease and adjust moving parts, lubricate hardware, and leave the completed work in a sound, clean, working condition.

JOINERY

- mortice and tenon joints in doors, frames, sashes and other parts
- mitre joints in mouldings, skirting, etc., but scribe internal angles
- dress joinery stock and mouldings, hand finish exposed surfaces and remove arrises to provide smooth surface for painting
- all moulding runs of up to 800mm must be in single lengths.

Certificate Required

CERTIFICATES

Provide certificates from the suppliers showing that the timber used complies with the specification requirements.

SEASONED TIMBER

For dressed products including mouldings, flooring and weatherboards:
- milled timber to be conditioned to within 3% of the equilibrium moisture content (emc) appropriate to the timber and its intended conditions of use
- seasoned to an even moisture content between 10% and 15% with no more than 3% difference between any two pieces in any one group
- seasoned timbers must not be less than the stated sizes.

UNSEASONED TIMBER

Where unseasoned timber is used, make allowance for shrinkage, swelling and differential movement.

TOLERANCES

To AS 1684

Maximum permissible tolerance for dressing to be 3mm per face and for:
framing timbers:
"gauged" hardwood: tolerance +2mm - 0.
"planer gauged" radiata pine: +3mm - 0.

VISIBLE WORK

All visible faces, edges and corners must be clean and free of visible blemishes (eg, marks caused by branding, crayon, machinery, etc.).

SURFACE FINISH

To AS 2796.1 Table B1 Hardwood:

To AS 4785.1 Table B1 Softwood:

PAINTING

Refer to PAINTING.

Prime paint and/or stain all faces of joinery and mouldings (including joints) specified to be painted before delivery to the works:

- unsatisfactory priming will be rejected by Superintendent/Authorised Person.

To AS 1604.1 **WATER-REPELLENT TREATMENT**

Apply protection before delivery to the site.

6.4 MATERIALS

GENERAL

All timbers must comply with the NSW Timber Marketing Regulation 2010.

TIMBER SPECIES

Do not use imported tropical rainforest timber. Refer to SCHEDULES - "Schedule of Timber Species and Durability Ratings" for species of timber to be used in specific applications.

To AS/NZS 1748 **timber stress grades:**

To AS/NZS 1148
AS/NZS 4491 **TIMBER TERMINOLOGY**

individual timbers: 'Standard trade common names'

groups of timbers: terms employed for that purpose in relevant Australian standards.

Plywood:

To AS 1604 **PRESERVATIVE TREATMENT**

Approval

- all Lyctus susceptible sapwood in local rainforest timbers
- all Lyctus susceptible sapwood in hardwoods other than milled products, exceeding 20% of the perimeter of the piece
- all Lyctus susceptible sapwood in milled hardwood products
- radiata pine exposed to weather for bearers and joists
- provide timber treatment details to the Superintendent/Authorised Person.

PANEL AND SHEET PRODUCTS

Plywood and blockboard:

AS/NZS 2270 Interior use
AS/NZS 2271 Exterior use

To AS/NZS 1859.1 **Particle board:**
Interior type: interior use in dry locations only.
High moisture resistant (HMR): for other uses except flooring.
Flooring grade: for flooring generally.
Wet area flooring grade: for flooring above damp subfloors.

Melamine surfaced particleboard: particleboard finished with melamine, surface-bonded to all faces.

To AS/NZS 1859.2
To AS/NZS 1859.4 **Fibre building boards:**
Hardboard.
Interior use generally: standard hardboard Type GP.
Exterior cladding: exterior hardboard.
Hardboard planks:

To AS/NZS 2908.2

Fibre cement products:
Flat Sheets and Planks.

Compressed sheets: for flooring

To AS/NZS 2924.1

Laminated plastic sheet: General-purpose or post-forming as applicable:
Thickness:
- for horizontal surfaces fixed to a continuous background: 1.2mm
- for vertical surfaces fixed to a continuous background: 0.8mm
- for vertical surfaces fixed intermittently (eg, to studs): 3.0mm.

Fixing: fix to backgrounds with contact adhesive cement containing a heat resistant additive in accordance with the manufacturer's instructions.

Metal Cladding:
Preformed sheet and purpose-made accessories forming part of an approved proprietary metal wall cladding system.
Corrosion protection: To BCA Table 3.5.1.1.a.

- Zincalume - min. AZ150 coating or COLORBOND coated steel - min. base thickness 0.48mm (for standard conditions and straight roof lines)

Battens: If required 75 x 38mm hardwood at centres as recommended by the sheeting manufacturer.

Installation: to the manufacturer's printed instructions
- fixing should cater for extreme weather conditions
- troughs of corrugations or ribbed profiles must not be pierced or drilled for fixing
- where factory-prefinished colour coating is specified exposed fixings are to be of matching colour

6.5 STRUCTURAL ELEMENTS

GENERAL

Provide additional timber members as required to support lining, cladding, hardware, fixtures and fittings.

To AS 1684.2

TIMBER FLOOR FRAMING

If floor framing is for ground floor construction, ensure that it is protected from moisture with DPC strip between timber and support or as shown on drawings. If construction loading exceeds design loading, provide additional support so as to avoid overstressing of members.

To AS 1684.2

TIMBER WALL FRAMING

top wall plates: to be 75mm thick minimum.

bottom wall plates: provide separation strips between bottom wall plates and concrete floors of DPC material.

studs: provide studs (450mm centres maximum)

To AS 4299

reinforcement: provide min 12mm thick plywood panels in locations as shown on drawings to bathroom areas for future grab rail support. Plywood to be recessed flush with wall frame.

To AS 1684.2

ROOF AND CEILING FRAMING

Refer to drawings.

To AS 1684.2

FIXINGS

Provide fastenings of types appropriate to their purposes, sufficient to transmit the loads and stresses imposed and to ensure the rigidity of the assembly, and install them without splitting or otherwise damaging the timber.

To AS 1720.1
AS 4440

ROOF TRUSSES

Provide prefabricated roof trusses of accredited manufacture, made in controlled factory conditions and clearly branded with the following information:

- name of manufacturer
- pitch of roof
- span of truss
- timber species and grade

clearance for internal walls: Over internal walls provide not less than 10mm vertical clearance and use bracing methods that allow for vertical movements.

Approval

approval: Written approval required before manufacture of trusses.

Certificate Required

shop drawings: provide 2 sets of shop drawings certified by a qualified Structural Engineer for each truss type to be used in each building to show the following information:

- outline of each truss type showing size and stress grade of each member
- number of each truss type required
- fixing requirements
- permanent bracing.

Strengthening:

camber: construct trusses with 12mm upward camber in bottom chords.

Loading: do all trimmings for ancillary ceiling works after the roof has been loaded with tiles.

Additional support

Design structure and trusses to provide additional support to structural engineer's detail for:

- Solar hot water heaters and panels
- Solar voltaic cell panels
- Roof access walkway to AS 1657
- ceiling hoists
- services or equipment located in roof space

6.6 FLOORING

GENERAL

Refer to SCHEDULES: Schedule of Timber Species and durability ratings for material specification:

- do not fix internal hardwood flooring until the building is completely weatherproofed (ie, completed roofing and external wall sheeting)
- for other flooring, fix completed roofing within 2 weeks of starting

CLASSIFICATION OF FLOORING

fitted: applies to flooring laid and cut to fit between the wall plates of each room after external walls and roof have been covered and made weatherproof. "Fitted" flooring may be either sheet or strip

platform: applies to flooring laid continuously over whole of floor area of each storey of the dwelling and extending to finish flush with the external edge of perimeter wall plates. Wall framing must rest upon platform

wet area: applies to flooring in utility rooms where flooding and the expectation of dampness is a major consideration. The term will apply to bathrooms, laundries, water closets and the like.

To AS 1684

FITTED FLOORING

Drill nail holes at ends of boards to avoid splitting

To AS 2796

Tongue and Groove Board

Hardwood

To AS 1810	Seasoned Cyprus Pine
To AS 4785	Softwood
	PLATFORM (SHEET) FLOORING
To AS 2269, AS 1684 To AS 1860.1, To AS 1860.2	**structural plywood:** **particleboard:** use moisture resistant (MR) particleboard.
	SANDING
	Sand strip and sheet flooring as follows: **strip flooring:** use with an approved power machine. **Sheet flooring:** lightly sand joints in flush.
	WET AREA PLATFORM (SHEET) FLOORING
	compressed fibre cement sheeting: a minimum thickness of 15mm for 450mm joist spacing, or 18mm thickness for 600mm joist spacing: - fix sheets to floor joists with countersunk screws in accordance with manufacturer's instructions - seal all joints and screw heads with an epoxy resin adhesive - flash at wall and floor junctions and seal floor surface as specified under TILING AND WET AREA WATERPROOFING: Waterproofing Wet Areas.
	6.7 TRIMS
	GENERAL
	Do not use Medium Density Fibreboard (MDF) for skirtings, window and door architraves for wet area applications (ie bathrooms, laundries, kitchens and separate toilets).
	ROOF TRIMS
	Fascia, barge and eaves boards
AS 2796.1 AS 1810	Seasoned hardwood Cypress pine Australian grown conifers, other than radiata pine and cypress pine.
	Metal fascias/Barges: proprietary metal roofing accessories
	SOFFIT LINING
	eaves: - 4.5mm fibre-cement sheeting for 450mm centres support spacings - 6.0mm fibre-cement sheeting for 600mm centres support spacings - set 10mm into groove of fascia - cover sheet junctions with aluminium or plastic 'H' type mouldings.
	fascias and barge boards: as for eaves.
	anti ponding boards: 6mm FC or hardboard under sarking from lowest roofing batten to the top of the fascia.
	WINDOW LININGS
	Provide nom. 25mm minimum linings to reveals of aluminium windows in framed walls, to finish flush with finished wall surface. - Pre-primed
	SKIRTINGS
	Provide 90 x 20mm minimum skirting with pencil round edge to all rooms Provide 90 x 20mm minimum skirting with pencil round edge to all rooms except where tiled floor is provided. Accurately mitre corners. - Pre-primed

ARCHITRAVES

Except where detailed otherwise on the drawings - Provide 40 x 20mm minimum architraves with pencil round edges to all door frames and all windows except where reveals are rendered. Accurately mitre corners.

- Pre-primed

CURTAIN BOARDS

Where no architraves are provided in rendered walls provide a continuous 70 x 20 mm minimum DAR curtain board above head to each window and sliding door extending 150mm beyond the opening at each side.

- Pre-primed

NOTICE BOARD

To common room – refer to drawings.

FRAMING TO FALSE CEILINGS AND BULKHEADS

Provide nom. 75 x 50mm timber framing at 400mm centres. Secure to brickwork or concrete, where occurring, with 10mm diameter zinc plated anchor bolts at 900mm centres.

To AS/NZS 2785

Alternatively, provide a proprietary cold-formed zinc coated steel suspended ceiling system.

6.8 CUPBOARDS

To AS/NZS 4386.1,

To AS/NZS 4386.2

KITCHEN UNITS/CUPBOARDS

Refer to drawings otherwise the following requirements shall apply:

Installation:

- floor cupboards and benches to be constructed at 900mm high for general housing units and 850mm high for SEPP HSPD housing units.
- provide covering in above kitchen wall units where ceiling is below 2400mm high.
- one wall cupboard unit (medicine cabinet) must have a childproof door catch
- benchtop to be continuous over units without joints between units
- round off/chamfer exposed right angle benches

Benchtops and servery tops,

- min 32mm thick high moisture resistant (HMR) particleboard laminated with high pressure decorative laminate
- laminate shall have high resistance to surface wear, impact and scratching
- provide cutouts for sink

Doors, Drawer fronts, Open shelves, Open panels,

- min 16mm thick high moisture resistant (HMR) particleboard or high moisture resistant medium density fibreboard (MDF) laminated with high pressure decorative laminate having medium resistance to surface wear, impact and scratching
- all doors and drawers shall have 2 mm Bio-plastic equal to PBS (Poly butylene succinate) edge strip.

Drawers:

- sides – 13mm
- bottom – 16mm
- thick HMR particleboard or HMR MDF, white melamine finish
- Integrated drawer slide system comprising a high quality epoxy coated white steel self closing feature runner, 30kg load capacity.
- provide 1 cutlery tray in drawer unit

Carcass

- min 16mm thick HMR particleboard,
- white melamine finish to all internal surfaces including edge of frame, carcass and shelves.

Kickboard

- min 16mm thick HMR particleboard,
- 2mm black vinyl or high pressure and high resistance laminate finish, including any edges
- Use concealed side wall-mounted hinges with 170^{o} swing
- Use piano hinges for split of bi-fold door on corner units
- Install to manufacturers written specification

WARRANTY: Provide a minimum 5 year written warranty

BATHROOM VANITY

Carcass

- Min 750w x 450d on nominal 150h tubular legs
- Min 16mm thick high moisture resistant (HMR) MDF/particleboard with white melamine finish to all internal surfaces, including edge of frame, carcass and shelves
- min 16mm thick HMR particleboard, melamine finish to all internal surfaces including edge of frame, carcass and shelves.

Bench top

- min 32mm thick HMR particleboard laminated with high pressure decorative laminate
- laminate shall have high resistance to surface wear, impact and scratching, or natural stone, engineered stone

Doors, Drawer fronts, External panels

- min 16mm thick HMR particleboard or HMR MDF
- laminated with high pressure decorative laminate having medium resistance to surface wear, impact and scratching
- all doors and drawers shall have 2mm PVC plastic edge strip min 16mm thick HMR MDF polyurethane paint finish

Bowl or Bowl and bench top

- vitreous china

WARRANTY: Provide minimum 5 years written warranty

BATHROOM CABINETS REQUIREMENT

General and Liveable Housing

- To current Australian Standards
- Cabinet fabricated in 1 mm zinc coated steel (white Acrylic baked Solvent-bourne finish) OR 16 mm HMR high pressure decorative laminated board OR heavy duty plastic (Plastic cabinet body minimal thickness of 5mm)
- Adjustable shelving
- Silver float mirror glass to current Australian Standards
- Inside of cabinet (or door) to be branded with manufacturers name

Single Door Cabinet

- Min. 375 mm high x 405 mm wide x 115 mm deep
- 3 mm mirror fixed to self closing hinged door or sliding door
- Min. 1 shelf

Double Door Cabinet
- Min. 415 mm high x 700 mm wide x 130 mm deep
- 2 x 4 mm sliding mirror doors with finger slots set in recessed safety tracks (extruded PVC or aluminium tracks fitted to HMR laminated board) OR 2 x 3 mm mirrors fixed to self closing hinged doors
- Min. 2 shelves

For People with Disability
- Single door cabinet and mirror (fixed to wall)
- Cabinet 975mm high x 300 mm wide x 200 mm deep, with min. 3 shelves (beside mirror)
- Mirror 975 mm high x 500 mm wide (above basin)

WARRANTY: Provide minimum 5 years written warranty

MIRRORED CABINET
- 1 per bathroom above vanity.
- Refer to GLAZING

LAUNDRY BENCH
- min 32mm thick HMR particleboard laminated with high pressure decorative laminate
- bench with tub set flush shall be min 1400mm long and 700mm deep
- bench min 800mm long x 600mm deep (where tub is separate)
- laminate shall have high resistance to surface wear, impact and scratching

LAUNDRY OPEN SHELVES ABOVE TUB

For SEPP HSPD dwellings:
- nom 450mm wide x 250 deep
- min 18mm thick HMR particleboard laminated with high pressure decorative laminate having medium resistance to surface wear, impact and scratching

BUILT –IN LINEN AND/OR BROOM CUPBOARDS

Not built in between walls
- min 16mm thick HMR particleboard or HMR MDF laminated both sides with high pressure decorative laminate having medium resistance to surface wear, impact and scratching
- all doors shall have 2 mm PVC plastic edge strip//
- 35mm flush hollow or cell cored/painted
- 100% acrylic paint, full gloss finish
- Sliding doors only for SEPP HSPD
- Carcass- min 16mm thick HMR particleboard,
- melamine finish to all internal surfaces including edge of frame, carcass and shelves.

Built in between walls

Unless otherwise shown on drawings:
- line ceiling and wall with 4.8mm standard hardboard or 10mm plasterboard
- shelves and partitions to be 16mm thick laminated particle board or medium density fibreboard with white melamine finish
- construct 50 x 25mm vertical ladder supports for shelving plug fixed to brick walls and screw fixed to partition wall
- five (5) shelves to linen cupboard and one (1) shelf to broom cupboard

doors and hardware: Refer to DOORS, WINDOWS AND HARDWARE:
- linen cupboard doors to be flush as specified for internal doors to suit frames
- provide door frames to match other internal door frames
- provide ‘D’ handles and roller catches.

BUILT IN WARDROBES REQUIREMENT

To current Australian Standards for HMR, MDF, Laminate, Melamine and Fibreglass finishes

Doors

- min. 16mm thick high moisture resistant (HMR) particleboard or moisture resistant medium density fibreboard (MDF), laminated (both sides) with high pressure decorative laminate having medium resistance to surface wear, impact and scratching or with vinyl film applied, or painted 35mm flush, hollow or cell cored door
- 2 mm PVC plastic edge strip to doors

Carcass

- min. 16mm thick high moisture resistant (HMR) particleboard with white melamine finish to all internal surfaces, including edge of frame, carcass and shelves
- Concealed side wall-mounted hinges with 170^{o} swing or sliding doors
- Hanging/shelf unit to be removable/height adjustable.
- Install to manufacturers written specification
- All assemblies to carry a compliance label to current Australian Standards

WARRANTY: Provide minimum 5 year written warranty

6.9 TIMBER STAIRS

Where shown on drawings, provide closed flight timber stairs, newels, & handrails. Refer to SCHEDULES: Schedule of Timber Species and Durability Ratings for applicable timbers:

- set out stair rod to give uniform treads and risers in each flight
- all work must be smooth, fine sanded, slightly arrised and prepared for finish as scheduled
- provide beads and mouldings as necessary
- exposed fittings are to be brass unless otherwise detailed.
- Stair design to comply with BCA requirements (see BCA vol 2 part 3.9.1 and BCA vol 1 part D2)

6.10 INSULATION

Refer to INTERNAL LININGS for wall, ceiling, and floor insulation. See drawings for insulation ratings.

COMMON WALLS BETWEEN UNITS

Finish the area between the top of the wall and roof cladding with fire-resistant compressible mineral wool seal.

6.11 FINISHES

6.12 SCHEDULE OF TIMBER SPECIES & DURABILITY RATINGS

Application	Timber species or minimum durability class	Timber finish	Australian Standard (AS)	Preservative treatment rating for softwood
Structural timbers exposed to weather	Class 1 or 2 (NB Where softwoods meet durability class 1 or 2 preservative treatment is not required)	Sawn		H3
Sub-floor framing exposed to ground	Class 3 or better	Sawn		H3

Structural timbers not exposed to weather	Class 4 or better	Sawn		N/A
Fascias, barges	Oregon Ash type eucalypts (immunised and reconditioned)	Select dressing Select	4785.1 2796.1	N/A
Weatherboards	Radiata Pine Cypress Pine Western Red Cedar Hardwood Brush Box	Select “ “ “ “	4785.1 1810 - 2796.1 “	H3
Application	Timber species or minimum durability class	Timber finish	Australian Standard (AS)	Preservative treatment rating for softwood
Mouldings	Sitka Spruce (softwood) Oregon Western Red Cedar Radiata Pine Hoop Pine Slash Pine	Select dressing “ Select “	4785.1 4785.1 - 4785.1	 H1 (int) H3 (ext)
Sills	Tallowwood Blackbutt Red Mahogany Crows Ash Western Red Cedar	Select “ “ “ “	2796.1 “ “ “	N/A
Window and door frames	Western Red Cedar Oregon Ash type eucalypts (immunised and reconditioned)	Select Select dressing Select	- 2047 2796.1	N/A
Strip flooring	Radiata Pine Mixed Hardwood Cypress Pine Murray Red Gum	Standard “ “ “	4785.1 2796.1 1810 2796.1	H3
Internal joinery, cupboard framing	Oregon Ash type eucalypts (immunised and reconditioned) Sitka spruce Radiata pine MR Particleboard MR Medium density fibreboard	Select dressing Select Select dressing Select	4785.1 2796.1 2796.1 4785.1	N/A

Paling fenceposts Other fence posts Fence rails and palings	Class 2 or better Class 1 Eastern Australian hardwoods Radiata pine (treated) Cypress pine	Struct. Grade 1 Struct. Grade 1 Struct. Grade 3	2082 2082 2082	H4 or 5) See H4 or 5) Note H3
NOTE: Where H4 or H5 is specified as an alternative, the required hazard rating will depend on specific site conditions that exist.				

07: Doors, windows and hardware

7.1 GENERAL

Refer to METALWORK and CARPENTRY AND JOINERY for general information regarding metalwork and woodwork items including quality and work practices, materials etc.

To AS 1905.1

FIRE RATED DOORSETS

GUARANTEES

Guarantee Required

All doors must be branded by stamping or burning external exposed edges of top and bottom rails with an indented stamp, bearing name of manufacturer and a guarantee of manufacturer that door is in accordance to specification and is guaranteed against warp.

Approval

SHOP DRAWINGS: Refer to PRELIMINARIES

Provide for aluminium framed windows and doors.

HIGH WIND AREAS

Windows and doors to be of design suitable for particular site conditions and designated wind terrain category.

7.2 DOOR FRAMES

GENERAL

All door frames to have a 100% acrylic paint, full gloss finish

STEEL DOOR FRAMES (NEW CONSTRUCTION AND MAINTENANCE)

Unless otherwise shown on the drawings provide steel door frames.

- Continuously welded, min 18 gauge hot dipped Zinc coated steel with internal architrave and 3 hinges finished flushed with internal wall
- grind the welds smooth, cold galvanize the welded joints and shop prime the whole before delivery
- build frames as work proceeds and secure in opening with minimum 5 frame ties per jamb
- pack hollow jambs and head with cement mortar
- use galvanised rod ties for building into masonry
- use galvanised brackets clipped to frame stiles for fixing to stud frame.

Non- fire-rated door frames:

- provide rebated jambs and head
- in stud walls profile frame to incorporate integral architraves on both sides of wall.

Fire-rated doorsets:

Certificate Required

- supply and install approved fire-rated doorset assembly doors and frames to comply with BCA requirements
- provide double rebated stiles and head of dimensions to suit fire doors.

To AS 2796.1

AS 4785.1

TIMBER DOOR FRAMES (MAINTENANCE ONLY)

Hardwood: Select Grade.
Softwood: Select Grade

. Bare faced tenons on jambs. Full let-in jambs

General: Do not use Medium Density Fibreboard (MDF) for door jambs.

External door openings: out of 50mm thick solid rebated stock.

Internal door opening: out of 38mm thick with planted stop (hinged doors) generally and out of 38mm thick solid rebated stock for wet areas such as bathrooms, shower rooms, WC, laundry and kitchen.

Installation:

Trim: provide timber architraves internally to match frames and jamb linings and other trim moulds as shown.
Opening linings: Where opening has no door, finish reveals with linings out of 25mm timber, and back mould.

Internal sliding door frames: Unless detailed otherwise:
- provide frame out of 32mm thick, one side with architraves and the other with wide lining and back mould
- provide pelmet to conceal sliding track and carriages.

Accessories

Face mounted: Provide overhead track supports and head and jamb linings appropriate to the arrangement of the door, and removable pelmets at the head to allow access to the wheel carriages for adjustment.
Wheel carriages: Fully adjustable precision ball race type providing smooth, quiet operation.

7.3 DOORS

GENERAL

- To current Australian Standards
- Do not use imported rainforest timber veneers
- Warranty: minimum 5 years written warranty

EXTERNAL DOORS

Glazed Entry Common Lobbies:

Aluminium framed, commercial grade glazed door sets and frame.

Glazed Entry Common Lobbies (SEPP HSPD and Blocks of units):

- Aluminium framed, commercial grade glazed door sets and frame.

Aluminium framed, commercial grade , side lights (if applicable). Finish Anodised Aluminium (see METALWORK: Finishes)

Standard Front Entry Door
- Standard 920mm leaf for min 850mm clearance, 40mm thick flush type solid core particleboard or blockboard cored (Type B bonded plywood/hardwood face).
- Door closer where nominated
- Fire rated security viewer to all front entry doors
- 1 doorstop fixed to door/wall or floor.
- Smoke seal where required
- 100% acrylic paint, semi gloss finish.

Fire rated front door:
- 45mm thick -/60/30 FRL rated flush type, (Type D bonded plywood/hardwood face). *Fire rated doors to comply with BCA requirements*.
- Door closer with appropriate FRL
- 100% acrylic paint, semi gloss finish.
- 1 doorstop fixed to door/wall or floor.

Rear entry, external laundry and/ or WC door:
- min 920mm leaf, 40mm solid core faced with waterproof hardboard
- Stormproof door seal
- Stormproof door seal
- 100% acrylic paint, full gloss finish.
- lever handle and door stop

Under Floor Access Door

- - min 600mm leaf, Galv steel, door and frame paint finish.

INTERNAL DOORS

Internal Door Generally:

- min 920mm door leaf, semi solid core for min 850mm clearance/ painted
- 35 mm thick flush lightweight solid block-board pine core door, solid particle-board, MDF core to current Australian Standards
- type B bonded plywood/hardboard face
- 100% acrylic paint, full gloss finish.
- lever handle and door stop

Common Room Internal Doors:

- min 920mm door leaf, semi solid core for min 850mm clearance/ painted
- 40 mm lightweight solid core pine door with plywood face
- 100% acrylic paint, full gloss finish.
- lever handle and door stop

Wet areas Internal Door:

- min 920mm door leaf, 40mm light weight solid core faced with waterproof hardboard
- 100% acrylic paint, full gloss finish.
- lever handle and door stop

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Linen Cupboard Door (Built-in):

- semi solid core to suit width of cupboard.
- 100% acrylic paint, full gloss finish.
- 'D' handle

Broom Cupboard Door (Built-in):

- semi solid core to suit width of cupboard.
- 100% acrylic paint, full gloss finish.
- 'D' handle

Tolerance:

Doors to comply with the following:
Squareness: The difference between the lengths of diagonals of a door: ≤ 3 mm.
Twist: The difference between perpendicular measurements taken from diagonal corners: ≤ 3 mm.
Nominal size (mm):
Height: +0, -2.
Width: +0, -2.

To AS 3959.

Bushfire screens and seals

Protection: Protect glazed windows and doors from the ingress of embers.

installation:

- provide 3mm maximum clearance between door leaf and frame
- hang doors with loose pin electro galvanised steel but hinges:
  three (3) 100 x 75mm x 2.5mm thick for external doors
  three (3) 85 x 60mm x 2.5mm for internal doors.

FACING

Doors are to be faced with pre-primed hardboard or type B bonded plywood and facing is to be the same on both sides of the door.

Do not use imported rainforest timber veneers

FRAMED DOORS

Construct framed doors as shown on drawings if required.

WEATHER MOULD

Provide to all external inward opening doors. Make joint between door and mould with non-hardening waterproof putty, and fix in position with four 45 x 3mm minimum diameter countersunk head screws. Where doors are hung over concrete floors adjust height of mould to provide maximum 5mm clearance from floor.

SLIDING DOOR UNITS

Where shown on drawings provide sliding door units to detail and install to manufactures instructions.

FIRE RATED DOORS

To AS 1905.1

Internal materials: Inert mineral materials containing no asbestos products.

Framing: Increase the width of door leaf members or provide additional members to accommodate hardware and grooves so that items of furniture are contained within framing members and do not encroach on the core materials.

Frames: Steel.

Timber facings: Timber face veneers and edge strips.

Metal facings: Flush faces and edges pressed from metal sheet, welded at joints.

Installation: Standard

SEALING

Seal top and bottom of doors after fitting and before hanging with:

- two (2) coats of paint.
- keep all traces of such sealing off faces of doors

7.4 ALUMINIUM DOORSETS

GENERAL

Proprietary doorset system comprising of a commercial grade aluminium framed glazed door or doors, hung to or otherwise supported by a fixed aluminium doorframe, inclusive of the necessary hardware and accessories.

To AS 2047

INSTALLATION

In accordance with the system fabrication details issued by the system manufacturer.

DOORS

Where required to be sliding, install on a recessed floor track system, flush with internal floor finish together with guides, heavy-duty rollers, seals and brush sweeps.

Thresholds:

Where tiled threshold is not detailed or specified, provide Aluminium Door Threshold.

7.5 WINDOWS

To AS 1288

AS 2047

AS 4055

GENERAL

Glass

Selection and installation: To AS 1288.

BCA 3.12.2 sets out thermal performance of external glazing.

Windows including louvres

Selection and installation: To AS 2047

Provide proprietary window and sliding door sets inclusive of the necessary hardware and accessories.

External glazing systems

Certificate Required

Energy ratings:
Refer to drawings for required energy ratings for window performance. Provide certificate from window manufacturer showing compliance with required ratings.

Weatherproofing

Flashings and weatherings: Install flashings, weather bars, drips, storm moulds, caulking and pointing so that water is prevented from penetrating the building between frames and the building structure under prevailing service conditions, including normal structural movement of the building.

Fixing

Packing: Pack behind fixing points with durable full width packing.
Prepared masonry openings: If fixing of timber windows to prepared anchorages is by fastening from the frame face, conceal the fasteners by sinking the heads below the surface and filling the sinking flush with a material compatible with the surface finish.

See BCA 3.12.3 for sealing of windows and doors.

Trim

General: Provide mouldings, architraves, reveal linings, and other internal trim using materials and finishes matching the window frames. Install to make neat and clean junctions between frames and the adjoining building surfaces.

WINDOW REQUIREMENT

- Window and Door Locks refer to Locks and Latches
- Window & door assemblies manufactured to comply with current Australian Standards and to carry testing authorities endorsement mark.
- All window types & sliding doors tested to AS 2047 for deflection (positive/negative), air infiltration, water penetration, operating force and proof tests by NATA approved laboratory
- Window tests to qualify min. 700 Pa
- Each window/door branded in an upper channel/stile with a permanent label indicating NATA Testing Certification, structural and water performance, and manufacturers name eg. AWA labelling scheme
- Installed to current Australian Standards and to manufacturers written specification
- Doors toughened/laminated glass to current Australian Standards
- Glass type and thickness to current Australian Standards except lower edge of all glass in windows within 500mm from floor to be only ‘A’ safety grade laminated or toughened glass in accordance with current Australian Standards
- Issue window shop drawings with NATA testing authorities endorsement mark to the Superintendent/Authorised Person if manufacturers do not qualify for AWA labelling scheme
- **Acid etch anodising**
- Minimum 20 micron anodised film, 25 micron for coastal areas
- Semi-commercial frame min overall frame width of 70mm
- Achieve required WERS star rating for aggregate solar heat gain for building type and climate
- **Flyscreen Mesh**
- All Flyscreen Mesh to include AWA safety warning message stating that the “Screen will not stop children falling out of windows.”
- Powder coated Aluminium woven mesh (standard areas - wire diameter min 0.23mm woven Aluminium)
- Powder Coated Stainless Steel (316 marine Grade woven mesh for coastal and bushfire areas min wire diameter 0.18mm woven stainless steel).

- Mosquito proof with average aperture of 1.5mm x 1.5mm
- Wire diameter—min 0.23mm woven Aluminium or min 0.18min woven stainless steel
- Ground Floor to include Aluminium Heavy Duty grille (Min 7.0mm sectional thickness) pop riveted into screen frame
- Ground Floor hinged fixed with quick release lock for escape
- Flyscreen with Aluminium Grille (only when Directed)
- As per Flyscreen Mesh Above
- Ground Floor and all accessible windows to include Aluminium Heavy Duty grille (Min 7.0mm sectional thickness) pop riveted into screen frame with quick release (install only as directed to AS5039)
- Complies AS5039 for Class 1 Type B Screens
- First floor and above secured to prevent unintentional openings

WARRANTY:

Minimum. 7 year written warranty to cover all materials, structural integrity and defects subject to installation to manufacturers written specification and regular maintenance program to relevant current Australian Standards

To AS 2047

WINDOW INSTALLATION

In accordance with the system fabrication details issued by the system manufacturer.

Refer to architectural drawings for specific requirements.

7.6 FIXTURES AND FITTINGS

GENERAL

- Number and location as shown on drawings and/or scheduled.
- install to manufacture's instructions.
- spindle height for locks and latches to be 1000mm above floor, unless otherwise identified.

To AS 4145.2

DOOR LOCKS & LATCHES

LOCKS & LATCHES SCHEDULE

- Provide locks and latches. Refer to drawings and schedules for item, number, selection and location of locks and latches.
- If selection of lock or latch is included in the Contract but location is not shown on drawings refer to Superintendent/Authorised Person for approval.
- In the event that lock or latch selection is not included in the Contract select lock/s or latch/es to meet the specification and Land and Housing Corporation Deemed to Comply Product Register.
- In the event that lock or latch selection is not included in the Contract and there is no specification for the lock or latch or the lock or latch is not included in the Land and Housing Corporation Deemed to Comply Product Register recommend selection meeting relevant standards and obtain Superintendent/Authorised Person's approval.
- Install to manufacturer's requirements.

ITEM	REQUIREMENT
Front and rear entry doors Front entry doors to buildings	1 lock & lever set Door closer for fire rated doors
Internal Doors	1 Lever passage latchset. Privacy locksets to bathroom/WC
Aluminium sliding Porch/Balcony doors	Deadlock

Common area entrance doors	Deadlatch Door closer
Common room doors	Deadlatch Door closer
Heavy duty screen doors	Deadlock and lever
Electric meter cabinet	Nightlatch and lever to authority requirements
Electric meter cupboard	Nightlatch and “D” handle
Store room and toilets	Nightlatch and lever
Stormproof door seals	To each external hinged door
Door stops	For each hinged door
Security viewer	1 on front entry door
Keyed window locks (key alike for each dwelling)	1 per openable window factory fitted at the bottom of windows to allow window to be locked in fully closed position.

DOOR LOCKS & LATCHES REQUIREMENT

General

- To current Australian Standards
- Quality management to current Australian Standards
- For fire resistant door sets doors, lock sets must form part of an approved tested doorset assembly
- Door locks to be a minimum 5 pin cylinder
- Door lock finish: satin chrome / chrome plated/stainless steel
- Keyed alike
- To all aluminium sliding doors supply and insert aluminium blocks into the upper track of door in closed position leaving clearance for door to slide

Front and rear entry doors

cottages, villas & townhouses:

- double cylinder automatic lever handle dead-latch, and a lever latch set
- Coloured lock alert function on deadlatch
- Keyless opening from inside unless intentionally dead locked
- Automatic release of dead latch when opened with a key from outside

apartments 2 storeys and over (additional):

- must form part of an approved -/60/30 fire resistant doorset assembly
- double cylinder automatic lever handle dead-latch and a lever latch set
- Coloured lock alert function on deadlatch
- door closer (rack and pinion type)

Common area entrance doors

general & SEPP HSPD **housing & community rooms:**

- exterior escape dead latch (keyed lever latch from outside with quick release from the inside)
- Coloured lock alert function on deadlatch
- door closer (cam operated)

Balcony/porch doors

aluminium sliding – general and SEPP HSPD **housing:**

- keyed double deadlocks

Internal doors

- Lever passage latchset. Privacy locksets to bathroom/WC

Heavy duty screen doors

- short backset mortice deadlock and lever

Storeroom & toilets

- nightlatch and ‘D’ handle (EA Master key system)

Electric meter cupboard
- nightlatch (fire rated) and 'D' handle (EA Master key system)
- Electric meter cabinet

WARRANTY:
Provide minimum 5 year warranty paint and tarnish, 10 year mechanical

To AS 4145.3

WINDOW LOCKSETS

WINDOW LOCKS REQUIREMENT

All OPENABLE WINDOWS MUST BE CAPABLE OF BEING LOCKED IN A PARTIAL OPEN (safe ventilation) AND CLOSED POSITION

General and Liveable Housing
- Fit keyed window locks to all openable windows
- All windows must be capable of being locked in a closed position, and provide safe ventilating locking points at 50mm and 100mm from closed position.
- For awning windows opening shall be restricted to 100mm.
- Do NOT install window locks to be installed on a consecutive code number basis but for security purposes are to be installed on a random basis, with minimum allowance for repetition of codings 1 per 100 dwellings
- Locks to be minimum 4 disc cylinder type keyed alike to 5 pin front door key.
- Fixings appropriate to window and door frame
- Independently tested for load bearing capacity to be able to hold window leaf or sash in a closed and restricted position for 60 sec when a min of 350N applied in the most unfavourable direction to the sash/leaf (test similar to EN14351-1 Windows and Doors - test for load bearing capacity of safety devices).

Window and Door Restrictors
- Window and door opening restrictor (capable of connection to all opening types) opening at 100mm and also completely opened when restrictor is released
- Fixings appropriate to window and door frame
- If restrictor involves steel rope or steel chain must have a minimum breaking strength of 3 KN
- Approved Child proof locking device or 4 disc cylinder key lockable restrictor—keyed alike to 5 pin front door key
- Independently tested for load bearing capacity to be able to hold window leaf or sash in a closed and restricted position for 60 sec when a min of 350N applied in the most unfavourable direction to the sash/leaf (test similar to EN14351-1 Windows and Doors - test for load bearing capacity of safety devices).

WARRANTY: Provide minimum 2 year written warranty

Approval

KEYED ALIKE LOCKS:

Provide a separate keyed alike system for:
- all external dwelling/unit entry doors
- windows, sliding doors, flyscreen doors and letterbox doors
- each unit is to be keyed differently to all other units on the site
- confirm requirements with the Superintendent/Authorised Person before placing orders.

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INTERCOM & ACCESS CONTROL

Where shown on drawings provide:
- Vandal Resistant Intercoms
- Min 2mm Stainless Steel front with toughened Min 4mm Polycarbonate Surround
- Impact resistant and fixed with anti-vandal fixings
- Front plate to allow a min of six buttons with audio, Modular set up to allow more front plates to suit building configuration

- Space for shatterproof camera shielded by Min 4mm clear polycarbonate
- Stainless steel buttons, tamperproof and shaped to prevent foreign bodies being inserted underneath
- Linked to door release switch in units and internal intercom Door Release System.
- Steel reinforced recessed entry panel with buttons flush to outer surface and anti-removal device. Must operate independently and not be reliant on other communication devices.

WARRANTY: Provide minimum 1 year written warranty

To AS 5039

To AS 5040

HEAVY DUTY SCREEN DOORS AND WINDOW GRILLES

Where indicated on the drawings provide:
Heavy Duty screen doors:
Heavy Duty screen door grilles installation:

To all ground, first and second floor of all external hinged and sliding doors including dwelling/unit entries where permitted by building regulations (in lieu of insect screen doors).

- Anodised aluminium frame colour to match windows
- provide door closers to all hinged screen doors

FINISHES SCHEDULE

The following shall apply unless otherwise shown on the drawings:
Refer to drawings and schedules for selection and finishes

ITEM	FINISH
Windows and sliding doors	Aluminium - acid etched anodised
Heavy duty screen doors	Aluminium - Powder coat finish to match windows
Flyscreens	Aluminium - Powder coat finish to match windows
Garage Doors	Galvanised steel – colorbond
Window Awnings	Galvanised steel – powder coat
Attenuating Screens	Stainless Steel mesh

HEAVY DUTY SCREEN DOORS REQUIREMENT

Provide Heavy Duty Screen Doors to front and rear entry doors to dwellings and units:

Aluminium Door Framing

- Installation to current Australian Standards
- Min 69mm x 18mm x 1.2mm wall thickness extruded aluminium frame with 10mm wide x 13.5mm deep insert frame for grille
- Extruded PVC insert to bed heavy duty grille
- Joints to be mitred, staked and riveted
- Reinforcing corner stakes fixed to frames with SS 4mm diameter x 9.5mm rivets (min 4 per corner)
- Door to be permanently branded on top rail with name of manufacturer

Tested to AS5039 for Dynamic impact, Jemmy, Pull, Probe and Shear

Aluminium Heavy duty Grille

- To current Australian Standards for Type 1 doors
- Min 7.0mm sectional thickness
- Grill secured to door by pop rivets (Adequate Pop Rivets to satisfy AS5039 tests)

Where indicated on drawings provide:

Aluminium Door Framing & Heavy duty Grille Finish

Standard exposure Conditions

- Clear anodised to current Australian Standards (20 microns thick for all regions)

  OR
- Thermoset powder coatings to current Australian Standards (50 microns thick)

Severe Coastal or Industrial Exposure Conditions

- Thermoset powder coatings to current Australian Standards (80 microns thick)

Screen Mesh

- Powder coated Aluminium woven mesh (standard conditions)
- Powder coated Stainless Steel (316 marine grade) woven mesh for coastal and bushfire areas.
- Mosquito proof mesh— with average aperture 1.5mm x 1.5mm
- Wire diameter—min 0.23 woven Aluminium and min 0.18mm woven stainless steel
- Secured to door to prevent easy removal

Hardware

- Three 75 x 30 mm hinges to current Australian Standards fixed with pop rivets
- Locks, refer DOORWAYS “locks & latches” (Non fire-rated heavy duty screen door)
- Fully adjustable dampened type door closer

WARRANTY: Provide minimum 10 year written warranty

FLYSCREEN

To all windows and doors not fitted with security screens or heavy duty flyscreens.

0.25mm yarn thickness and max 1.2mm aperture mesh size.

Screens

Aluminium framed flyscreens: Provide aluminium extruded or folded box frame sections with mesh fixing channel, mitred, staked and screwed at corners. Provide an extended frame section where necessary to adapt to window opening gear.

Mesh: Bead the mesh into the frame channel with a continuous resilient gasket, so that the mesh is taut and without distortion.

Fixed screens: Provide fixed screens to the window frames with a clipping device which permits removal for cleaning.

Hinged screens: Hinge at the top to give access to opening sash.

Sliding screens: Provide a matching aluminium head guide, sill runner, and frame stile sections for screens not part of the window frame.

Hardware: Nylon slide runners and finger pull handle. Provide pile strip closers against sash where necessary to close gaps.

- Anodised aluminium frame colour to match windows

SECURITY VIEWER

- Fire rated one way inside angle optical lens viewing greater than 160^0 housed in a CP on brass adjustable body to suit door thickness
- mount on centre line of door 1440mm high from floor.

DOOR CLOSERS

Provide:

- to Fire Resistant door sets a closer with appropriate FRL
- to entry doors

AS1530.7

STORMPROOF DOOR SEAL or SMOKE SEAL

Provide to entry doors:
- Storm seal fixed to base of door leaf
- Smoke seals fixed to door frame or base of door leaf as appropriate
- Seals to be independently tested with proprietary fire doors and solid core doors
- Tested in accordance with AS1530.7 and capable of limiting smoke to 200ºC for 30 minutes
- Independently tested to demonstrate that the product does not suffer from significant wear and tear for up to and exceeding 10,000 open and close cycles

WARRANTY: Provide minimum 2 year warranty

DOOR STOPS

Provide wall mounted door stops for each hinged door comprising:
- a screw fixed based plate of nylon, cast brass or diecast material and a close wound spiral wire with plastic tip
- total length approximately 75mm
- screw fix to wall 30mm from floor.

To AS/NZS 4505

GARAGE DOORS

Provide where shown on the drawings garage doors:

Roller Doors (Domestic) Single and double doors
- Design to current Australian Standards for wind loading
- Tested to qualify to min. 1500 cycles of operation per year (where one cycle = closed to open to closed position)
- Withstand min. dynamic pressure of 550N/m2 applied externally/internally normal to door
- Rolled-T / box section / single or double angled bottom rail, steel or aluminium channel guides, interlocking slatted curtain
- Counterbalance roller deflection not to exceed 0.3% of span
- Galvanised/prime painted/polyurethane/colorbond finish to all metal components
- Branded with manufacturers name.

Panel Lift Door (Domestic) Single doors only up to 2400mm wide
- Design to current Australian Standards for wind loading
- Tested to qualify to min. 1500 cycles of operation per year (where one cycle = closed to open to closed position)
- Withstand min. dynamic pressure of 550N/m2 applied externally/internally normal to door
- Galvanised/prime painted/polyurethane/colorbond finish to all metal components
- Branded with manufacturers name.

Provide Remote Control Operation for Garage Doors for SEPP HSPD projects, liveable housing units and housing for the disabled units.
Garage door clear opening height to comply with AS 1428.1

WARRANTY: Provide minimum 7 year written warranty

WINDOW AWNINGS REQUIREMENT

Provide where shown on drawings to protect windows and door openings from sun and rain:

- Able to be fixed securely to wall
- Provides effective shading
- Sheds water away from window/door
- Made of non combustible material
- Achieves and certified to AS1350.4 Fire Attenuation Test
- Achieve required window star rating for aggregate solar heat gain

Provide where shown on drawings to protect windows from radiant heat:
Radiant Heat Attenuating Screens

- Manufactured from stainless steel mesh
- Wire diameter for screen not less than 0.8mm
- Weave characteristic

WARRANTY: Provide minimum 5 year written warranty

08: Roofing and roof plumbing

8.1 GENERAL

Check the product for compliance particularly spark arrestor mesh.

See BCA 3.12.1.3 for thermal performance requirements of roof lights serving a habitable room.

See BCA clause for construction requirements for buildings in bushfire prone areas.

ROOF CLADDING

To AS/NZS 1170.2

TERRAIN CATEGORY

In designated cyclonic areas carry out roof fixing in accordance with manufacturer's instructions for cyclonic conditions.

8.2 QUALITY AND WORK PRACTICES

GUARANTEES

Refer to PRELIMINARIES - Materials and Workmanship.

CUT TILES

Adjust to allow for full tiles between gutter and main or longest ridge. Cut tiles will not be accepted.

COMMON WALLS BETWEEN UNITS

Finish tile battens 38mm clear of masonry common wall where extended to underside of roofing and provide 25 x 1.2mm thick galvanised hoop strap lapping 120mm on each side of battens.

VERMIN-SEALING AND BIRD-PROOFING

All roofs and eaves are to be made secure against the entry of birds and vermin.

To AS 1562.1

METAL SEPARATION

Prevent direct contact between incompatible metals. The following Systems are compatible and will prevent galvanic corrosion (do not mix the Systems):

System 1:	System 2:
Drainage flow from higher to a lower surface:	**Drainage flow from higher to a lower surface:**
Flashing Colorbond/Zincalume, Zinc, Alum, Alcor, Galvanised Steel	**Flashing** *Lead, Galvanised steel
Roofing Colorbond/Zincalume, Tiles, Glass	**Roofing** Galvanised steel, Unglazed tiles
Guttering and downpipes Colorbond/Zincalume	**Guttering and downpipes** Galvanised steel

* Whist drainage between lead and galvanised steel is acceptable, direct material contact should be avoided.

CLEANING OFF

Completely remove exuded sealant from face of surfaces to be painted by neatly cutting off at joints. Do not wipe or smear sealant over any surfaces required to be painted.

8.3 SARKING, INSULATION AND VAPOUR BARRIER

GENERAL

Ceiling Insulation – Refer to Internal Linings

To AS/NZS 4200.1	**SARKING**
To AS/NZS 4200.2 AS/NZS4859.1	Manufactured in accordance with AS 4200.1 and installed to AS4200.2 Provides required Thermal Performance in accordance with AS4859 and ICANZ
	Vapour Barrier—rated Medium to High (<2 ng/Ns)
To AS/NZS 4200	Water Barrier—rated high AS4200 or better than 0.5 MNs/g
To AS/NZS 4040.4	Fall Arrest to meet AS4040.4
	High tear resistance (Machine direction and Lateral direction greater than 850N
	WARRANTY: Minimum 7 year written warranty
To AS1530.2 To AS/NZS 4200.2	**Tiled roofs:** - Low flammability and Heat Factor of 5 or less AS 1530.2 - High Tensile Strength greater than 18 kN/M in both directions - UL2218-1998 (impact resistance)pass - Provide sarking to the whole roof - Lay at 90^{o} to run of rafters with 150mm side lap, turn down 40mm into gutter and secure to rafters with roof battens - Keep sarking 38mm clear of ridges to permit ventilation
	Anti-ponding boards: Refer to CARPENTRY AND JOINERY: Trims.
	Metal Decked Roofs:
To AS/NZS1530.3	When bulk insulation is laminated directly to sarking membrane the composite product must achieve a fire hazard rating (AS 1530.3) of - Ignitability Index 0 - Spread of Flame 0 - Heat Evolved 0 - Smoke Developed 0-1 - Tensile Strength > 12kN/M in both directions
	NOTE Foil Laminates and Bubble Foil cannot be laid on top of the ceiling to cover joists, rafters and any services. Can only be installed as sarking on top of the roof trusses underneath the roofing Sarking is installed in the roof with roofing wire underneath to ensure that sarking remains in place Check appropriate separation is maintained between electrical services and installed Foil Laminates and Bubble Foil Sarking in roofs and external walls
To AS 2423	**SOUND INSULATION AND VAPOUR BARRIER** **sheet roofing:** cover whole of roof with 45 x 1mm galvanised wire netting, stretched taut and stapled to top face of battens. Lay over netting 50mm thick mineral wool insulation in long lengths from rolls with fire-retardant reflective foil adhered to lower face. Close butt all joints. Seal laps and penetrations to form a continuous air tight seal and seal to the walls
	8.4 TILE ROOFING
To AS 2049	**GENERAL**
	CONCRETE TILES Interlocking concrete roofing tiles with single or double underchecks.
	TERRACOTTA TILES All tiles must bear the impressed name or registered trade- mark of the manufacturer.

To AS 1684

TILE BATTENS

SIZES

Rafters up to 600mm centres		
	Depth	Width
softwood F4 min.	38mm	38mm
hardwood F8 min.	25mm	38mm

To AS 2050

TILE FIXING

Install roof tiles to manufacturer's written recommendation for the particular situation:

- lay tiles in straight horizontal rows having side joints staggered with adjoining rows
- provide 75mm minimum end laps to single and double checked tiles.

Bedding and pointing: bed and point accessories in coloured mortar to match the accessories.

Pointed verge: bed and point over proprietary zincalume flashing and fibre cement bedding strip.

Dry verge: lay tiles into preformed proprietary colorbond flashing strip to tile manufacturer's details.

ADDITIONAL TILES

Provide tiles for future breakages on the basis of 1 tile per 10m^2 of roofing and store where directed by Superintendent/Authorised Person.

WARRANTY FOR ROOF TILES

Provide minimum 25year written warranty for roof tiles.

8.5 SHEET ROOFING

GENERAL

Design and installation to current Australian Standards and manufacturer's written Specification.

To AS 1562.1

METAL ROOFING

Preformed sheet and purpose-made accessories (including fascias, ridge and barge cappings) forming part of an approved proprietary metal roofing system.
Corrosion protection: To BCA Table 3.5.1.1.a. (Volume 2)

- Zincalume ® - min. AZ150 coating or Colobond ® steel roofing - min. base thickness 0.48mm (for standard conditions and straight roof lines)

Battens: 75 x 38mm hardwood at centres as recommended by the roof sheeting manufacturer.

To AS 1562.1

Installation: to the manufacturer's printed instructions

- fixing should cater for extreme weather conditions
- troughs of corrugations or ribbed profiles must not be pierced or drilled for fixing
- where factory-prefinished colour coating is specified exposed fixings are to be of matching colour
- roof sheets to project 50mm into gutter.
- Profile rib closers at end and top of roof sheeting, and turn up pans.

WARRANTY FOR METAL ROOFING

Provide minimum 15year written warranty for metal roofing.

GLAZED ROOFING

To AS 1288.

Glass selection and installation
Certification: Required.

PLASTIC SHEET ROOFING

To AS 4256.2. Unplasticised polyvinyl chloride (PVC-u) sheet
AS 4256.3. Glass fibre reinforced polyester (GRP) sheet
AS 4256.5. Polycarbonate

WARRANTY FOR PLASTIC SHEET ROOFING

Provide minimum 5year written warranty.

8.6 ROOF LIGHTS / SKYLIGHTS

To AS 4285

GENERAL

Provide roof lights / skylights where shown on drawings:
- provide a proprietary roof lighting system including framing, fixing, trim accessories and flashings
- fix in accordance with the manufacturer's instructions.
- Colour to match roof colour

To AS 3959 In bushfire prone areas provide roof lights / skylights to comply with AS 3959

SKYLIGHTS TUBULAR REQUIREMENT

To AS4285
- As AS4285 and achieve a test report certifying assembly can withstand wind forces to AS4055 and resist impact to AS4256 •
- Roof Flashings an integral part of skylight to AS2904
- Certification of greater than 95% specular reflectance from shaft
- Min. 250mm internal diameter
- Achieve a WERS rating better than 5 star for heat and cooling transfer
- Diffuser to reduce glare and to throw light over a broad area
- Internal Fire Damper with FRL60/60/60 when directed for buildings in Bushfire areas or where required to achieve a 60 min fire rating
- Complete with necessary framing, fixing, brackets, trims, flashings & ceiling diffusers
- Indelible marking with manufacturer's name/ trademark

WARRANTY: Minimum 7 year written warranty.

8.7 ROOF PLUMBING

GENERAL

To AS/NZS 2179.1, AS/NZS 3500.3.
Designed to meet the Plumbing Code
Installation to current Australian Standards, Plumbing Code and manufacturer's specification.

Ensure that cleaning of masonry has been carried out prior to installation of roof cladding, fascias and guttering.
Provide gutters, capping, outlets, downpipes, flashings and other accessories necessary to complete the roofing system and:
- provide continuous length guttering where possible
- do not join gutters less than 3m in length along the same wall
- gutters to have a minimum fall of 1:200 to outlets
- design gutters to allow for overflow
- provide gutter brackets at 1200mm maximum spacing
- valleys to be 450mm minimum wide
- downpipes to be a minimum 100mm x 50mm or 75mm round Downpipes 0.5mm BMT (G300) or 0.42 BMT (G550) gauge Zincalume factory pre-painted in Colorbond colours. Prefabricate downpipes to the required section and shape where possible. Connect heads to gutter outlets
- and, if applicable, connect feet to rainwater drains. Provide a removable watertight access cover at the foot of each downpipe stack. Provide supports and fixings for downpipes. Mitre at bend near gutter and have straight vertical connection to ground.

- 115mm Zincalume Quad gutter or half round gutter 0.5mm BMT (G300) or 0.42mm BMT (G550) gauge factory pre-painted in Colorbond colours

- Fascia system 185 mm compatible with 115 Quad or half round gutters 0.5 mm BMT (G300) or 0.42 BMT (G550) Zincalume factory pre-painted in Colorbond colours

WARRANTY FOR GUTTERS DOWNPIPES AND FASCIAS

Provide minimum 20 year written warranty.

OVERSTRAPS

Overstrap all gutters with 25 x 1.6mm thick metal overstrap compatible with the guttering, bolt fix to each alternate gutter bracket, extend under roof covering and fix to rafter with galvanised nails.

CHARGED DOWNPIPES

Provide PVC pipes and fittings where required for charged downpipes. Paint finish.

FLASHINGS

To AS/NZS 2904

Refer to 8.2 METAL SEPERATION table
Tiled roofs: Soft Zinc flashings - System 1
20 kg/m^2 lead flashings - System 2

8.8 VENTILATION OF ROOF SPACE

To AS 4200.2

Provide adequate means of cross-ventilation, irrespective of the type of roof construction or the type of covering used.

For low-pitched and flat roof construction, provide additional eaves ventilation to create a free air-flow through the roof cavity. Timber blocking of rafters or purlins should allow free air-flow through roof cavity.

For hotter climates, use additional gable or roof vents to reduce heat and humidity build-up in the roof space.

For climates with cold winters, provide adjustable ventilators to reduce air-flow in winter and therefore heat loss.

Under Eave Vents

- White high tensile plastic
- Curved air inlet holes to restrict insect entry
- Polypropylene or equivalent durable plastic
- Minimum size 400 x 200 mm

WARRANTY: Minimum 1 year warranty

Slotted Eaves Lining

– 100mm x 10mm slots at 50mm spacing with stainless steel insect mesh lining to internal face.

Ridge Line Roof Ventilators

Roof mounted heat exhaust vents
Proprietary roof mounted ventilators or smoke/heat ventilating systems
Finish: Match adjacent roofing.

- Made from Aluminium or heavy duty high strength Polymer
- Lubricated steel bearings
- Reinforced hail resistant dome
- Withstand wind velocities in excess of 200 km/hr
- Withstand rain penetration
- Painted or manufactured in Colorbond colour to match roof colour, or clear plastic dome
- Fixed using corrosion resistant self drilling screws or fasteners (appropriate to environment) and finished to match roofing materials

To AS 2427
AS 2665.

– Flashed and fitted correctly above and through the roof with two part flashings

WARRANTY: Minimum 15 year warranty including bearings

8.9 SAFETY ANCHORS/BRACKETS

For buildings of Class 2 under BCA make structural provision for future installation of safety anchors/brackets to meet Work Health and Safety (WHS) Regulation 2011 including "Code of Practice, Safe Work on Roofs - Part 2 - Residential" issued by NSW WorkCover

Install to manufacturer's recommendations.

to AS 1657

Roof access walkways, catchers, platforms, ladders and guardrails

Provide compliant walkways and access to roof mounted services to AS 1657

8.10 ROOF FINISHES SCHEDULE

- The following shall apply unless otherwise shown on the drawings:
- Refer to drawings and schedules for selection and finish of roof element (item).
- In the event that roof element and/or finish selection is not included in the Contract select roof element to meet the specification and Land and Housing Corporation Deemed to Comply Product Register and obtain Superintendent/Authorised Person's approval for the recommended finish.
- In the event that roof element and/or finish selection is not included in the Contract and there is no specification for the roof element or the roof element is not included in the Land and Housing Corporation Deemed to Comply Product Register recommend selection and obtain Superintendent/Authorised Person's approval, including approval of the finish.
- Install to manufacturer's requirements.

ITEMS	MATERIAL / REQUIREMENT
Roof cladding	Refer to drawings
Roof Valleys	To match Roof (where metal roofing is selected)
Roof flashing	Colorbond for metal roofs. To match roof colour Lead flashing for tile roofs paint finish. To match roof colour
Anti-ponding boards	Fibre cement sheet
Fascias	Metal - colorbond Refer to drawings
Barges	Metal - colorbond Refer to drawings
Eaves/ soffits	Fibre cement sheet/painted
Gutters	Metal - colorbond
Downpipes	Metal - colorbond
Charged Downpipes	PVC – Painted
Leaf guards	- Fitted to all gutters and valleys within 10m from tree canopies above the gutter level. (confirm with client) Select to meet the following criteria: - Provide where there are trees near the building and the tree canopy is within 5m the edge of roof gutter - For "Ogee" profile gutters fit perforated metal (zincalume or aluminium) leaf guards. - For all other gutter profiles fit metal (stainless steel or aluminium) mesh leaf screens. The mesh shall be fastened to front lip of the gutter and secured to the roof (for tiled roof under second row of tiles and for metal roof held down with clips to the roof end).

09: Internal linings

9.1 GENERAL

EXTENT

Plasterboard linings: All framed ceilings, walls and direct adhesive fixing to masonry walls except where otherwise specified and/or shown on drawings.

Fibre cement sheet linings: Wall linings in bathrooms, shower rooms, WCs, laundries and other "wet areas" and ceiling linings in bathrooms and separate laundries.

9.2 QUALITY AND WORK PRACTICES

To AS/NZS 2589

GENERAL

To manufacturer's recommendations.

STABILISING OF FRAMING

Wait for a period of 14 days after roof covering has been fixed before fixing internal linings.

PREPARATION

Check and fix all noggings, furring, trimmings; straighten and pack studs, joists.

JOINTS

Flush joints: Provide recessed edge and setting compound and finish flush with perforated reinforcing tape

External corner joints: Make joints over zinc-coated steel corner beads.
Control joints: Install purpose-made zinc-coated control joint beads at not more than 12 m centres and to coincide with structural movement joints.
Wet areas: Install additional supports, flashings, trim and sealants as required.
Joints in tiled areas: Do not apply a topping coat after bedding perforated paper tape in bedding compound.
Butt Joints
Use maximum length sheets to minimise butt joints. Butt joints are permitted in ceiling sheets only where sheet length exceeds 4800mm.

FLASHINGS

Ensure that all wet area flashings are installed before fixing wall linings.

SEALS

Form watertight seal between wall sheeting and bath/shower base flange with a continuous bead of approved non-hardening silicon sealant.

MOVEMENT JOINTS

As recommended by manufacturer.

9.3 MATERIALS

GENERAL

To AS 2588, 2589

Approval

Gypsum plasterboard:
To approved manufacture branded, with recessed edges:

To AS/NZS 2908.2

- Install to Manufacturers specification and AS 2589
- Min 13mm thick sheeting for walls
- Paper weight ≥220 gsm
- Density ≥1000kg/m³
- Tested to BCA requirements 'Specification C1.8 Structural Tests for Lightweight Construction' and to achieve the following results:

- resistance to impact BCA test method 5(c) of ≤150mm
- resistance to indentation BCA test method 5(d) of ≤ 4.8mm
- Achieve fire rating

100% recyclable

Warranty: minimum 10 year written warranty

Masonry walls:

Glue fixed to masonry. 100% acrylic paint, semi gloss finish. Kitchen to have anti mould agent

Stud framed walls:

Install timber battens or proprietary cold-formed galvanized steel furring channels, if direct fixing of the sheeting is not possible due to the arrangement or alignment of the framing or substrate.

Ceilings:

- Minimum 10mm thick for ceiling joists at 450 c/s and 13mm for 600c/s.

fibre cement sheet:

Wet area lining:

- To approved manufacture branded. minimum 6mm thick with recessed edges

Do not use adhesive fixing alone

- - fibre cement lining glue fixed to masonry
- - fibre cement lining fixed to close spaced stud walls

Accessories:

Provide and install to manufacturer's instructions the following:

- adhesives
- nail and clouts
- perforated angles
- jointing tape
- jointing cement

Edge Trim: Provide purpose made zinc coated steel corner beads, casing beads, stop beads and the like.

9.4 WALL/CEILING TRIM

VENTS

Provide minimum of two (2) wall vents to wet areas (eg, bathroom/ laundry) in location show on drawings or as directed by Superintendent/Authorised Person.

CEILING ACCESS HOLE (NON FIRE RATED)

Provision:

Trim for access hole 550 x 600mm minimum and fit with a framed cover sheet with same material as ceiling. Opening must comply with requirements of any authority having jurisdiction. Finish around opening with 50 x 20mm batten to support access hole cover, so that cover is flush with ceiling.

Location:

Ceiling access panels are to be located as follows:

- Access from each individual unit to the roof space over
- To each First Floor and single storey unit located in the hall and stair halls as required to gain access to the roof space
- Access to the sub floor plumbing in 2 storey dwellings from the lower floor tenancy
- To each First Floor and single storey unit located in the hall and stair halls as required to gain access to the roof space.

CORNICES

- Shadow set edge or recessed edge plasterboard cornice or fibrous plaster, to all lined ceilings.

WALL/DOOR & WINDOW FRAME

- Finish plasterboard flush with window or door frame using purpose made metal stopping angle to edge of plasterboard, fixed in accordance with manufacturers details.
- Where detailed on drawings provide recessed stopping angle.

9.5 SOUND RATED WALLS/CEILINGS

GENERAL

Construct sound rated ceilings, bulkheads and/or walls with sound insulation rating to BCA requirements.

Certificate Required

CERTIFICATION

On completion of sound-rated ceilings and/or walls the Contractor is to certify that materials and installation comply with tested systems that meet code requirements for sound-rated systems.

9.6 FIRE RATED CEILINGS/WALLS

GENERAL

To AS1530.4

Construct fire rated ceilings, bulkheads and/or walls to the required fire rating requirements.

- Where required by BCA, ceiling to have resistance to incipient spread of fire for a minimum FRL of 60min and enable the ceiling system to achieve an FRL of 60/60/60
- Tested to AS1530.4 WET AREA LINING
- Fibre Cement Sheeting - Type B Category 2 to AS2908.2

To AS2908.2

- Min 6mm thick

Warranty: minimum 10 year written warranty

Certificate Required

CERTIFICATION

On completion of fire-rated ceilings and/or walls the Contractor is to certify that materials and installation comply with tested systems that meet code requirements for fire-rated systems.

FIRE-RATED ACCESS HOLES

Minimum 450 x 600mm with recessed cover in accordance with the manufacturer's details for the approved system.

WIRING PENETRATIONS

As required by ceiling system.

9.7 INSULATION

GENERAL

Provide wall and ceiling insulation as shown on the drawings.

WALL INSULATION

perforated foil:

- provide to all external brick veneer walls
- provide to all cavity faces of brick veneer studs
- provide to all external timber framed walls
- fix to manufacturer's instructions.

To AS 3999

Bulk insulation:

- provide to all external brick veneer walls
- provide to all external timber framed walls
- fix to manufacturer's instructions.

Cavity brick wall insulation

Refer 4.6 MASONRY ELEMENTS Insulation in wall cavities

Polystyrene insulation

- Provide to external walls where shown on drawings.

To AS/NZS 4859.1
AS 1530.1

CEILING INSULATION

- insulate all ceilings with bulk thermal insulation
- extend over plates and prevent spilling into cavities by use of edge boards. Trim around ceiling vents, exhaust fans etc.
- fixing to manufacturer's instructions.

Acceptable insulation:

Warranty Required

Glass fibre (batts)

Made of melted glass spun onto a mat of fine fibres

- Pre-cut to width of ceiling rafters
- Sound absorption properties - achieve Noise reduction co-efficient of 0.8 or better
- Product to contain at least 70% recycled content (glass)
- To achieve a fire hazard rating (AS 1530.3) of

Ignitability Index	0
Spread of Flame	0
Heat Evolved	0
Smoke Developed	0 - 1

- Rated Non Combustible on AS1530.1
- Indoor Air Quality – formaldehyde release less than 0.01 mg/m²/24 hours.
- Fibreglass batts thermal insulation shall comply with the Building Regulations and relevant Standard (AS/NZs 4859.1), and shall consist of not less than 95% the weight glass wool (inorganic oxides or minerals rock slag or glass) and binders

Glass Fibre (Blankets)

Properties same as for Glass fibre batts above

- Blanket insulation with Sarking only to be installed with metal roofing and installed in strict accordance with manufacturer's specification (installed between top of the trusses and metal roofing or between raked cathedral ceiling and roofing
- Glass fibre blankets shall not be installed on top of the flat ceiling to cover rafters, joists or services

Rockwool (Batts)

Made from melted volcanic rock and recycled mineral slag spun into a mat of fine fibres

To AS/NZS 4859.1

- Pre-cut to width of ceiling rafters
- To AS/NZS 4859.1: Materials for the thermal insulation of buildings
- Sound absorption properties - achieve a Noise reduction co-efficient of 0.8 or better
- Product to contain at least 20% recycled content (mineral slag)
- To achieve a fire hazard rating (AS 1530.3) of

Ignitability Index	0
Spread of Flame	0
Heat Evolved	0
Smoke Developed	0 - 1

To AS 1530.1

- Rated Non Combustible on AS1530.1
- Low VOC emissions less than 0.01mg/m²/24 hours
- Rockwool batts thermal insulation shall comply with the Building Regulations and relevant Standards (AS/NZS 4859.1), and shall consist of not less than 95% the weight mineral wool (inorganic oxides or minerals, rock slag or glass) and binders

Glass fibre, rockwool (blankets). Blankets shall be installed between the top of the trusses and metal roofing only or between raked cathedral ceiling and roofing.

Note that cellulose fibre, polyester and wool batts are <u>not</u> approved for use.

Rockwool (Blankets)

Properties same at for Rockwool Batts above

To AS 1530.1	Rockwool blankets cannot be installed on top of the flat ceiling to cover rafters, joists or services NOTES Insulation shall be installed appropriately to avoid interference with electrical and other services and appliance and do not compromise safety Install Fire rated covers inside ceiling as required or ensure appropriate separation Bulk insulation that does not achieve a Non Combustible rating as per AS1530.1 is not approved. **WARRANTY CEILING INSULATION: FOR THE LIFE OF THE DWELLING** **ROOF INSULATION** Refer to ROOFING AND ROOF PLUMBING: Insulation, sarking and vapour barrier.

10: Plumbing and sanitary plumbing

Plumbing & Drainage Code of Practice (NSW)
AS 3500.1, AS 3500 1.1
AS 3500.2, AS 3500.2.1
AS 3500.3, AS 3500.3.1
AS 3500.4, AS 3500.4.1
AS 3500.5
MP 52 , MP 78
Plumbing Code of Australia (PCA)

10.1 GENERAL

AUTHORITIES AND APPROVALS

Submit documents and obtain all regulatory Authority approvals in connection with the work and:

- pay all fees and charges for work carried out and materials supplied by the regulatory Authority
- submit evidence of regulatory Authority approval to the Superintendent/Authorised Person before Completion/ Practical Completion.

Certificate Required

CERTIFICATE

Refer to PRELIMINARIES: Materials and Workmanship.
At the completion of the works, the contractor is to certify that the materials and installation comply with the code requirements.

WORK OUTSIDE SITE

Make necessary arrangements with adjoining property-owners and the relevant Authorities, for all work beyond the site boundaries.

EXISTING SERVICES

Refer to PRELIMINARIES: Site.

WORK-AS-EXECUTED DRAWINGS

Provide at Completion/ Practical Completion work-as-executed drawings to the same scales as the contract drawings, showing the locations and depths of all pipes and fittings.

10.2 INSPECTIONS

Inspection Required

Give 48 hours notice to the Superintendent/Authorised Person and the regulatory Authority so that inspections can be made of the following:

- service trenches
- works ready for tapping and/or cutting into regulatory Authorities water, sewer or drainage mains
- works ready for testing
- work prior to covering
- completed work
- any other inspections required by the regulatory Authority.

10.3 QUALITY AND WORK PRACTICES

GENERAL

water service:

To AS 3500.1
To AS.35001.1
To AS 3500.4
To AS 3500.4.1

Water service pipes shall not be embedded or cast into concrete structures
If the pipes have to be embedded or cast into concrete structures then they shall be within conduits or sleaves.

sanitary plumbing:

To AS 3500.2
To AS 3500.2.1
To AS 2032

dissimilar metals:
do not install copper in contact with steel, zinc, or other materials likely to generate electrolytic or galvanic corrosive action. Make junctions with fittings manufactured in suitable compatible material.

Expansion and contraction:
install the pipework with sufficient bends, expansion loops or expansion devices to absorb its own expansion and contraction without developing excessive stresses in the pipework connected equipment, or the supporting structure.

Fixing to masonry:
use galvanised steel or non-ferrous metal bolts or screws into expanding metal masonry anchors.

TESTING

Test installation as required by regulatory Authority:
- leave work exposed until inspected and tested

rejection: pipework will be rejected if the water loss exceeds the limit permitted by the relevant test and must be immediately rectified to the satisfaction of the relevant Authority.

CLEANING

Provide temporary covers to openings and keep the system free of debris during construction.

COMMISSIONING

After satisfactory completion, turn on control and isolating valves and leave the service in full operational condition.

To AS 3500.1.1
To AS/NZS 3500.5

FLUSHING OUT OF LINES

ACCESSIBILITY

Approval

Install pipework so that it is accessible within ducts or non-habitable enclosed spaces such as roof spaces, subfloor spaces:
- obtain approval for the location of any exposed pipework
- do not run pipework in cavities
- obtain approval for the location of inaccessible pipe runs and fittings, and record on work-as-executed drawings.

BUILDING PENETRATIONS

sleeves: provide purpose-made metal or plastic sleeves (in fire-rated elements, metal sleeves only) formed from pipe sections:
- prime paint ferrous surfaces
- maintain fire and acoustic ratings

chases:

Approval

- cut with a power saw
- do not chase reinforced concrete without approval
- do not chase pipework into masonry or concrete across any movement joint
- insulate or cover chased-in pipework with a suitable flexible material to allow for expansion and contraction without damage to the pipework or surrounding element and surface finish.

To AS 3500.1.1
AS/NZS3500.5

UNDERGROUND INSTALLATIONS

minimum cover over pipe:
pipework under slabs: protect copper pipework laid in the ground beneath a concrete floor slab by:
- encasing in continuous UPVC pipework sleeves
- encasing in PVC-coated tube sealed to prevent ingress of moisture.

PIPEWORK SUPPORTS

Provide supports including hangars, saddles, bolted clips, and the like, suitable to secure above ground pipework to adjacent surfaces and to support it at joints, at changes of direction, and at intervals necessary to prevent sagging of the pipework.
Pipe support materials to be the same as the piping, or galvanized or non-ferrous metals, with bonded PVC-U or glass fibre woven tape sleeves where needed to separate dissimilar metals.

Make provision for adjustment of gradient as required and for thermal movements in the pipeline.

PROTECTION

Protect all pipework where exposed to vehicular impact.

WET AREA WATERPROOFING

Refer to TILING AND WET AREA WATERPROOFING

10.4 MATERIALS

WATER SERVICES

To AS 1432 **copper tubes:** Type B
identification: Install the tube so that the marking is visible for inspection.

To AS/NZS 2492 **PE-X pipes –** Only systems approved by LAHC (Deemed to Comply Products Register.)

fittings: dezincification-resistant
capillary fittings: Use with silver brazed joints. Do not use soft solder or solder insert capillary fittings.

To AS 3688 compression fittings:
To AS 3688 screwed fittings:
To AS 3688 flanges:

SANITARY PLUMBING

To AS/NZS 1260 Class SWV **UPVC pipes and fittings:**

To AS/NZS 2032 installation:
To AS/NZS 3879 solvent cement:
To AS 2887 waste traps:

To AS 3500.4.1 **INSULATION MATERIALS**

Insulate all hot water pipework.

STORMWATER

Refer to *Roofing and roof plumbing*.
Rainwater tank:
Location of pump controls: for communal tanks within a common open space in a vandal proof encloser
Detention tank:
Underground tank:

During construction, use temporary covers to openings and keep the system free of debris. On completion, flush the system using water and leave it clean**.**

10.5 FIXTURES AND FITTINGS

GENERAL

- Provide fixtures and fittings. Refer to drawings and schedules for item, number, selection and location of fixtures and fittings.
- If selection of fixture/s or fitting/s is included in the Contract but location is not shown on drawings refer to Superintendent/Authorised Person for approval.

- In the event that a fixture or fitting selection is not included in the Contract select fixture/s and fitting/s to meet the specification and Land and Housing Corporation Deemed to Comply Product Register.
- In the event that a fixture or fitting selection is not included in the Contract and there is no specification for the fixture or fitting or the fixture or fitting is not included in the Land and Housing Corporation Deemed to Comply Product Register recommend selection meeting relevant standards and obtain Superintendent/Authorised Person's approval.
- Install to manufacturer's requirements.
- Provide proprietary bench fixing and water sealing accessories.
- Chromium plated brass or stainless steel fixings where visible.
- Hot dip galvanised steel fixings where not visible.

PLUMBING FIXTURES & FITTINGS SCHEDULE

ITEM	REQUIREMENT
Garden Taps (standpipes)	Copper Alloy 1 each to front and rear of each dwelling/unit
Garden Taps	In multi-unit developments. Located in common areas
Water heater (gas, electric)	1 per dwelling
Tempering valves	All dwellings other than designated as disabled To comply with National Plumbing Code To achieve 50 ^{o} C outlet temperature
Tempering valves and plumbing breaching piece, for future fitting of TMVs, if required	For all dwellings designated as "liveable" and SEPP HSPD provide plumbing breaching piece in accessible box for future thermostatic mixing valve (TMV)
Rainwater tanks	As required. Connect with fittings and fixtures as required by BASIX
Sink	1 per kitchen
Taps and spout (sink)	1 per kitchen sink
Toilet pan, seats and cover	1 per bathroom For all SEPP HSPD provide higher toilet seat to AS 1428.1 and lever type flushing controls preferred.
Basin	- for SEPP HSPD - 1 per bathroom - wall mounted on manufacturer's brackets
Vanity	1 per bathroom Bowl or Bowl and benchtop
Bath	1 per bathroom - in 3, 4, 5, & 6 bedroom dwellings -in 2 bedroom General Housing dwellings only
Shower rose	1 per shower area
Taps (basin, bath, shower)	- 1 set and spout per vanity unit or basin - 1 set per shower recess -1 set per bath - capstan or quarter turn lever handles with ceramic disc or "Aqualoc" washers

Laundry Tub	- 1 per dwelling - 45 litres for 0 to 2 bedroom - 68 litres for 3 to 6 bedroom - for separate laundry tub set flush into a bench is preferred
Taps and spout (Laundry)	- 1 set per tub hot and cold water with laundry spout - 1 set, quarter turn, for washing machine connection of hot and cold water
SEPARATE TOILET	
Toilet pan, seats and cover	1 per separate toilet If required - disabled toilet pan for: SEPP HSPD, disabled housing 1 per bathroom /separate toilet Vitreous China pan with S-trap Equal to Caroma Care Pan – Trident Disabled Pan”
Basin	- 1 per bathroom - vitreous china 400mm x 400mm min - wall mounted on manufacturer’s brackets
Taps and spout	- 1 set and single spout per basin Capstan or quarter turn lever handles with ceramic disc or “Aqualoc” washers
COMMON ROOM	
KITCHEN/ KITCHENETTE	
Sink	1 per bench-top
Taps and spout	1 set per sink
TOILET	
Toilet pan, seats and cover	1 per separate toilet If required - disabled toilet pan for: SEPP HSPD, disabled housing 1 per bathroom /separate toilet Vitreous China pan with S-trap Equal to Caroma Care Pan – Trident Disabled Pan”
Urinal	(If required for male only bathroom)
Basin	- 1 per bathroom - vitreous china 400mm x 400mm min - wall mounted on manufacturer’s brackets
Taps and spout	- 1 set and single spout per basin Capstan or quarter turn lever handles with ceramic disc or “Aqualoc” washers

KITCHEN SINK REQUIREMENT

- Number and location as shown on drawings and/or scheduled.
- To current Australian Standards
- Standards Mark/Water Mark/certificate of approval
- All kitchen sinks to be supplied with plug and waste
- Min. 302 polish finished stainless steel only
- Indelibly marked with manufacturers trademark
- Sinks to suit 3 tap set configurations (lever handle hot tap, level handle cold tap and spout)

Bed-sitters/studio

- Single Bowl sink. Sink and single bowl drainer to suit min 930mm long and min 13.5L sink
- Sink to suit narrow 450mm bench tops

1 to 2 bedroom dwellings

- One and a half bowl sink. Sink to be minimum of 1200mm long, width to suit narrow 450mm or 600mm bench tops
- Main sink to be min 20L

3 or more bedroom dwellings

- One and a half (1 ½) bowl sink with double drainers. Sink to be min 1400mm long x 450mm wide.
- Both sink bowls to be min 20L.

Disabled modifications/fit-out

- Dor disabled modifications/fit-out maximum bowl depth 155mm.

WARRANTY: Provide a minimum 25 year written warranty

BASIN REQUIREMENT

- To current Australian Standards
- Standard Mark/Water Mark/Sydney Water certificate of approval
- White (min. bowl size 500x400mm) vitreous china 2/3 hole version
- Wall mounted on manufacturers metal brackets with ring connector to waste outlet
- Installed to manufacturers written specification
- All Basins to be supplied with plug and waste

WARRANTY: Provide a minimum 2 year written warranty

TOILET REQUIREMENT

General and Liveable Housing

- To current Australian Standards
- Standard Mark/Water Mark/Water Authority certificate of approval
- Pedestal pan to be white vitreous china
- Cisterns to be vitreous china or heavy duty grade PVC with internal overflow
- 4.5/3L dual flush toilet suites (min 4 Star WELS rating)
- Toilet and Cisterns to be vandal resistant or fitted with a 'Vandal Resistant Conversion kit'
- Installed to manufacturers written specification

Provide disabled toilet pan for:

- Disabled dwelling

1 per bathroom/separate toilet
Vitreous China pan with S-trap

Equal to Caroma: Care Pan – Trident Disabled Pan

WARRANTY: Provide a minimum 1 year written warranty

TOILET SEAT AND COVERS REQUIREMENT

- To current Australian Standards.
- Constructed of solid plastic – Vandal Resistant with vandal resistant fittings
- Installed to manufacturers written specification

WARRANTY: Provide a minimum 1 year written warranty

BATH REQUIREMENT

All Housing Types

- To current Australian Standards
- Standard Mark (optional) /WaterMark/ Water Authority certificate of approval.
- Installed to manufacturers written specification
- Indelibly marked with manufacturers name/Trademark (visible in the installed position)
- Rectangular - Min. 1500x750mm wide x 380mm deep
- Sanitary grade Acrylic (Waterborne) moulded from min. 3.5mm thick sheet, glass reinforced with 10mm dia. steel rod rim reinforcement
- Pressed metal manufactured from min. 1.6mm thick steel drawn seamless from one sheet of metal, grip coated all over and finished internally with white vitreous Solvent-bourne (non skid base)
- Min. 10mm high tiling bead to all baths built into adjacent walls
- Fitted with plug & waste

Retrofit Acrylic (Waterbourne) Bath Linings to Existing Bath
(For upgrading works only where specified on drawings)

- Sanitary grade Acrylic (Waterborne) moulded from min. 3.5mm thick sheet reinforced with a fibreglass backing
- Dimensions to fit over existing bath size
- Grate and adaptor to suit existing waste drain
- Fitted with plug and waste

WARRANTY: Provide a minimum 10 years written warranty for Acrylic (Waterborne) baths and 30 years written warranty for pressed metal baths

LAUNDRY TUB REQUIREMENT

- To current Australian Standards.
- Standards Mark/Water Mark/Water Authority certificate of approval
- Detachable PVC or polyolefin bypass connected at top to current Australian Standard

Tub

- Min. 30 litre capacity (bed sit)
- Min. 45 litre capacity (1 to 2 bedroom)
- Min. 68 litre capacity (3 to 6 bedroom)
- Min. 302 stainless steel
- Indelibly marked with manufacturers name/trademark
- Fitted with plug and waste

Cabinet

- White enamel/Colorbond finish to steel

WARRANTY: Provide 25 years warranty for stainless steel & 10 years warranty for the cabinet

10.6 ACCESSORIES - WATER SERVICE

GENERAL

Provide each fixture with accessories, such as taps, valves and outlets as required to complete the works

POTABLE WATER REQUIREMENT

Written approval of the Principal's Representative is required to use alternate to copper piping material in new construction.

Alternate piping shall meet the following requirements.

- To current Australian Standards
- Water Mark certificate of approval
- Recyclable at end of life
- Satisfies tests for contaminants to comply with AS4020 including:
- VOC's (Volatile Organic Compounds).
- Semi-Volatile Organic Compounds
- Regulated heavy metals (Cadmium, lead, arsenic, barium, beryllium, Chromium, mercury, selenium, thallium etc.
- Any other contaminant lifecycle tests
- Able to be joined using standard (non-exclusive) connectors which can withstand required pressure levels
- Heat Resistance able to withstand temperatures up to 85 degree Celsius without failure
- Potable water delivered through the system contains no tainting affecting taste or odour after accelerated tests representing 20 years use – complying to AS/NZS 4020 and AS 2492

WARRANTY: Provide 25 years warranty

MAIN CONNECTION

Connect to the supply authority's main through a stop valve to the building and provide a meter to each dwelling unit, in accordance with the Supply Authority's requirements and using components supplied or approved by the Authority.

TAPS

copper alloy taps: dezincification-resistant.

Quarter turn lever handles with ceramic disc or "Aqualoc" washers
Locate hot tap to the left of, or above, the cold water tap.

TAPS REQUIREMENT

Bib tap/Pillar tap/ Hob mounted sink set/Wall sink set - General

- Materials, dimensions, finishes and performance tests to current Australian Standards
- Water supply metal bodied taps to current Australian Standards
- Standard Mark/. Water Mark/ Certificate of Approval
- Hot and cold water taps to be vandal resistant
- Basin and kitchen sink taps – 4 star WELS rating,
- Other than basin or kitchen sink taps- 3 star WELS rating
- Taps incorporating an in tap flow regulator valve equivalent to "Aqualoc" or pressure compensating flow control
- Vandal proof aerator
- Set complete with outlet, shower rose, spout or arm, and handles. Handles to meet adaptable requirements and be easily changed from minimum 65mm lever for separate hot and cold taps to longer levers
- All components made of brass base material, chrome plated or satin chrome or powder coated finishes,
- Dezincification resistant

Liveable Housing

- Lever handles lever length 65mm to 80mm handles
- Quarter turn taps with ceramic discs or "Aqualoc" fitted to taps for kitchen sink, bath, shower and basin. Laundry tub spout fitted with "Aqaualoc"

Disabled Housing

- Long Lever tap handles lever length 90mm to 150 mm (surgeon type) subject to approval or OT's recommendation
- Quarter turn taps with ceramic discs or "Aqualoc" fitted to bath, shower and basin taps. Laundry tub taps fitted with "Aqualoc"
- NO Capstan handle Taps or Flick Mixer Taps without approval from the Superintendent/Authorised Person.

WARRANTY: Provide a minimum 3 year written warranty

SHOWER ROSES REQUIREMENT

General and Liveable Housing

- Water saving '3 STAR WELS' rated not more than 9L/min.
- Brass base arm and shower rose, with brass ball joint. Chrome plated or satin chrome or powder coated finish
- Tamper proof shower head

Disabled Housing

- Handheld Shower Rose mounted on vertical grab rail
- Min 600 mm - 32mm stainless steel grade 304 grab rail
- Adjustable handheld shower rose cradle
- Hygienic seal Flange Covers
- Fixings of Grab rail to support appropriate static load
- Brass wall flange with dual check non return valve
- Shower hose - elastic inner, supported by polyester cords and nylon wrapped in a chrome metallic spiral band
- Achieve a 3 star WELS rating

WARRANTY: Provide a minimum 5 year written warranty

VALVES

valve spindles: non-rising type. Install valves with spindles in a vertical position where practicable.
isolating valves: provide to each block of units and each individual unit to isolate all connected equipment, including hot water heaters, tanks, and cisterns, and elsewhere as shown on the drawings.

To AS 1357.2
AS 4032.2

tempering valves:

- to all dwellings
- to achieve 50 ^{o} C outlet temperature

AS4032.1

pressure control valves: Pressure-reducing, pressure limiting, and pressure-ratio valves.
Finish valves to match connected piping.

To comply with NSW Code of Practice - Plumbing and Drainage

Strainers: low resistance, Y-form, bronze body brass screen-type. Screen perforations 0.8mm.
material: the same material as the pipe, or galvanised or non-ferrous metals, with bonded PVC, nylon, or fibreglass woven tape sleeves to separate dissimilar metals. Provide fixings of suitable compatible material.

TEMPERING AND THERMOSTATIC MIXING VALVE REQUIREMENT

- Tempering Valves set to Plumbing Code standards to all BCA Class 1, 2 and 3 buildings
- Thermostatic Mixing Valve
  - only for nominated dwellings for disabled
  - to achieve 43.5 ^{o} C outlet temperature

To AS 1357.1

- All dwellings designated as "Liveable" and SEPP HSPD provide **plumbing breaching piece** in accessible box for future thermostatic mixing valve (TMV) to all hot water outlets
- To current Australian Standard
- Standard Mark/Water Mark/Sydney Water certificate of approval
- Installed to manufacturers written specification

WARRANTY: Provide a minimum 5 year written warranty

SCHEDULE OF APPROVED TEMPERING AND THERMOSTATIC MIXING VALVES (updated August 2014)

MANUFACTURER/ SUPPLIER	PRODUCT/MODEL
All Valves Industries Pty Ltd	CALEFFI Tempering Valves 5213 and 2522 Series only

Austworld Commodities P/L	TV15 Tempering Valve TV15/20 HP (High Performance) Tempering Valve
AVG Australian Valve Group P/L	AVG Tempering Valves and AVG thermostatic Mixing Valves
Enware Australia Pty Ltd	Aqua Blend
Methven Australia P/L	NEFA Tempering Valves TTV15C TTV15CHP TTV20C TTV20CHP
Reliance World Wide	RMC Heat Guard Ultra - Tempering Valve
Saveur Pacific	Reflex Tempering Valves RMTV15 RMTV15S RTV15 RTV15S RTV20RTV20S
ThornwaiteTechnologies Pty Ltd	Rada Model No 215, 320, 32 rmx

COVER PLATES

Provide where pipework emerges from finished surfaces.
Type: ornamental non-ferrous metal or stainless steel, finished to match the piping, nominal diameter 50mm greater than the diameter of the pipe inclusive of insulation.

STANDPIPE POSTS

Where standpipes are located without support, provide 100mm x 50mm 1000mm high creosote treated hardwood post set 500mm into ground.

10.7 HEATING SYSTEMS

WATER HEATERS

Generally: provide a water heater or water heating system complete with all necessary valves, thermostats, cutouts and the like in location shown on drawings and/or scheduled.

WATER HEATER SCHEDULE

ITEM	REQUIREMENT
Solar (gas Boosted)	1 per dwelling 1 per Common Room Provide a proprietary automatic water heater comprising solar collector/s and storage container including connections, controls and necessary fittings for all.
Electric Heat Pump	1 per dwelling 1 per Common Room
Instantaneous Gas	1 per dwelling 1 per Common Room
Solar (electric) Boosted	1 per dwelling 1 per Common Room

- connect water heaters in accordance with manufacturer's instructions
- where installed internally (in bathroom or laundry) to be placed on a 100mm high tiled concrete plinth and drained to outlet.

To AS 3500.4.1	- Where installed internally (eg in cupboard) to be placed on copper safe tray and drained to an outlet. - where installed externally to be placed on a 100mm thick concrete base. - reticulation: supply hot water piping to connect heater to the supply and to the draw off points and fixtures shown on drawings and/or scheduled. - delivered hot water outlet temperature:
	pressure control valve: Provide a pressure control valve as required by the manufacturer.
To AS 3500.4.1	**relief line/waste pipe:**
	tariff: confirm the installation qualifies for the tariff concession or subsidy offered by the Supply Authority.
	SOLAR WATER HEATERS REQUIREMENT
	General and Liveable Housing - To current Australian Standards - Water Mark / Authority Certificate of Approval including all valves - Installation to current Australian Standards and to manufacturers written specification - High energy efficiency – generate more than 25 renewable energy credits - Suitable for all NSW climate zones, except alpine. - All solar hot water units , Valves and Piping to be frost protected to minus 10 - Natural gas or electricity boosted - Solar Panels (hail resistant) appropriate to zone area and size of tank - Solar Panels to be aligned between north east to north west - Tank on ground preferred, unless ground space is limited then close coupled thermo siphon systems are allowed
	Gas Boost - Min. 170L with 5 star Gas Boost (all bedroom categories) **Electric Boost** - Min 160L for (1 Bed) – close coupled for new construction - Min 250L for (2 Bed) - Min 300L for (3 to 4 or more Bed) - Min 400L with 3 panels for households with 5 or more residents - Electric Boost solar only from off peak electricity supply operation - Capable of recovery of more than 50% of the tank capacity through boost
	WARRANTY: Provide 10 years written warranty on Cylinder, Panels and Heat Exchanger
	HEAT PUMP HEATERS REQUIREMENT
	To be used only with written approval of the Principal
	General and Liveable Housing - To current Australian Standards - Water Mark / Authority Certification of approval including all valves - Installation to current Australian Standards and to manufacturers written specification - High energy efficiency—generate more than 25 REC - Suitable for all NSW climate zones, except Alpine - All Units, Valves and Piping to be frost protected to minus 10 degrees - Capable of operation on Off Peak electric boost, - Capable of recover of more than 60% of the tank capacity - Low Noise levels (less than 45 dba) - Capacity Min 250 L (2 bed) Min 300L (3 bed or more)
	WARRANTY: Provide 10 years written warranty on Cylinder

GAS WATER HEATERS REQUIREMENT

General and Liveable Housing

- To current Australian Standards
- Standards Mark/WaterMark/Water Authority Certificate of Approval
- AGA approval
- minimum 5 star energy rating
- All Units, Valves and Piping to be frost protected

Storage

- Mains pressure: Floor Model (outdoor only)
- (1 bedroom min 90L)
- (2 bedroom min 110L)
- (3 bedroom and over min 135L

Instantaneous (External Gas Instantaneous only)

- Factory Pre-Set not to exceed 50ºC in accordance with AS3489. No further mechanical tempering device required
- Electronic ignition
- Frost protected
- All gas continuous flow water heaters shall be recessed into the brickwork either on the balcony or on the ground floor.
- All gas continuous flow water heaters shall be fitted with security “cage” enclosure fixed into the external wall with concealed fixing and supplied with a padlock and keys.

  The enclosure shall:
  - have dimensions of approx 500mm wide x 700mm high and depth to suit heater and heater location (heater recessed into external brickwork)
  - be constructed out of 20mm OD 3mm thick hollow mild steel tubes at maximum 150mm grid spacing
  - have a pivot hinge on LHS or RHS, fitted top and bottom through a U shaped 8mm thick plate and the “cage” shall be fixed to the wall through that plate through 4 x pre-drilled holes.
  - include on the opposite side to the hinge 8mm thick plate (with a hole in it) to close over L-shaped padlock plate (that includes a hole for the padlock) to be fixed to the wall
  - include “cage” component fabricated as one unit and L-shaped padlock fixing plate, all with pre-drilled holes for fixing to the wall; all hot dipped galvanised,
  - Submit shop drawings prior to fabrication.
- The builder to supply and install gas authorities padlock with three keys and a key box onsite inside one of the garages.

1 bathroom dwellings:

BCA Climate zone 6 to 8 - 16L to 26L
BCA Climate zone 2 to 5 - 16L to 20L

2 bathroom dwellings:

BCA Climate zone 6 to 8 - 26L to 32L
BCA Climate zone 2 to 5 - 20L to 26L

WARRANTY:

Storage

1 year warranty (parts/labour) 10 year warranty (cylinder)

Instantaneous
3 years parts and labour warranty, 10 year warranty on heat exchanger

ELECTRIC WATER HEATERS REQUIREMENT

General and Liveable Housing
- To current Australian Standards
- Standards Mark/WaterMark/Water Authority Certificate of Approval
- Off-peak mains pressure storage:
- All water heater units, valves and piping must be frost protected

Storage
- Mains Pressure: Floor Model (indoor/outdoor)
- (1 bedroom/ SEPP HSPD - 125L)
- (2 bedrooms - 250L)
- (3 bedrooms and over - 315L

Roof Model
- (2 bedrooms - 250L)
- (3 bedrooms and over - 315L)

Instantaneous
- 3 phase Electric
- Electrical cut-off
- Manufactured with inbuilt Pressure/Temperature relief valve
- Min. 4.5 L// min

WARRANTY:

Storage- 1 year warranty (parts/labour) 10 year warranty (cylinder)

Instantaneous- 3 years parts and labour

10.8 SOIL AND WASTE SYSTEM

To AS 3500.2.1

GENERAL

DRAINAGE Refer to Drainage

FLOOR WASTES

Provide floor waste outlets to all bathrooms, separate WCs and separate laundries:
- floor wastes in bathrooms shall be near the shower and away from bathroom doors.
- finish to be chrome plate brass.

SHOWER PERIMETER GRATE AND DRAIN

Provide Shower perimeter grate and drain
Install to manufacturer's recommendations - Stainless Steel.
- When cutting grate to required size, cut by hand using 32 teeth per inch hacksaw. Ensure the cut is square. File back rough edges for safety.
- Equal to "Stormtech" 65DG

SEPTIC TANK

Provide septic tanks (sized for min. 10 people) if required

10.9 FINISHES

To AS 1192

PIPEWORK FINISHES

exposed internally:
chrome plate all copper and brass pipework including fittings, traps, supports and the like. Paint as specified in PAINTING, all internal exposed UPVC and cast iron pipes including fittings, traps, supports and the like.

In concealed but accessible spaces (including cupboards and non-habitable enclosed spaces): Leave copper and plastic unpainted except for required identification marking. Prime steel piping and iron fittings.

Exposed externally:
paint as specified in PAINTING, all external exposed pipes including fittings, traps, supports, and the like.

10.10 FIRE PREVENTION

Certificate Required

GENERAL

Provide for the following where required:
sprinkler service:
hose reels:

To AS 2118.1
To AS/NZS 1221
AS 2441

fire extinguishers:
fire collars:
fire hydrants:

To AS 2444
To AS 1530.4
To AS 2419.1

FIRE BLANKET REQUIREMENT

- To provide fire blanket to common area rooms to contain the fire in a vessel
- To current Australian Standards AS/NZS 3504
- To current BCA including independent Certification of compliance to BCA.
- Size to be 1.2mx1.2m for class F fires.
- Fixed permanently into the **common area room kitchen wall only**

WARRANTY: Provide 5 year written warranty

FIRE COLLAR REQUIREMENT

- Independently tested in accordance with AS1530.4 or BS476 part 20 to seal both PVC, PP, Poly-butylenes, PE-X all sizes up to 200mm in penetrations through fire rates floor and wall components up to 90 minutes
- Product to be tested as a retrofit and new install fire stop collar
- Maximum temperature resistance (fire stop collar shall begin to activate) shall not exceed 120º C
- Installation to manufacturer's specification

WARRANTY: Provide 2 year written warranty

FIRE DAMPERS REQUIREMENT

- To current relevant Australian Standards AS/NZS
- To current BCA including independent Certification of compliance to BCA.
- Installed to manufacturers written specification manual.
- Dampers materials including, flanges, casing, blades, springs and linkages shall be stainless steel or equivalent materials.
- Fire resistant level to comply with the Standards.
- Sizes shapes as required.
- Dampers product to be tested and certified by CSIRO or NATA registered equivalent.
- Dampers to be treated with an intumescent coating and achieve required FRL of a minimum 60/60/60 when tested in accordance with AS1530.4
- Meet the requirements for air leakage test specified in Clause 5.3 of AS1682.1
- If activated by a thermally released link, it shall be tested to comply with AS1890.

WARRANTY: Provide 2 years written warranty

FIRE EXTINGUISHERS REQUIREMENT

Portable fire extinguisher with rechargeable cylinder all types

- To provide portable fire extinguishers for type A fires to control small fires within residential complexes
- To current Australian Standards AS/NZS 1841.
- To current BCA including independent Certification of compliance to BCA.
- The actual cylinder to be made of a corrosion resistant metal type component, quick pin release, pressure gauge and heavy duty metal brackets.
- The portable fire extinguishers shall be fitted with anti-discharge device.

Capacity:

- · Water Type - 9 litres
- · Wet Chemical - 2 litres and 3.5 litres
- · Carbon Dioxide CO2 - 2litres and 3.5 litres

WARRANTY: Provide 10 years written warranty on the cylinder and 1 year written warranty on the pressure holdings

FIRE HOSE REEL REQUIREMENT

- To provide Fire Hose Reel and Fire Hose to common areas to control any fire within residential complexes
- To current Australian Standards AS/NZS 1221 and 2792
- To current BCA including independent Certification of compliance to BCA.
- Fire Hose Reel (FHR) type should be fixed permanently to a structure (with or without cabinet)
- FHR made off corrosion resistant material and vandal resistant fixings.
- Centre Drum spindle shall not exceed 360mm from the mounting surface
- Hose Reel
- Hose material should be non percolating hose class H (high)
- Hose reel to be 19mm in diameter and 36m long.
- All fittings to be brass and to comply with the standards and water marked.

WARRANTY: Provide 5 year written warranty on all materials and 1 year on all valves

FIRE HYDRANT SYSTEM REQUIREMENT

- To current Australian Standards AS/NZS2419 and all other associated standards
- To current BCA including independent Certification of compliance to BCA.
- Installed to manufacturers written specification.
- Vandal proof
- Location signposted for emergency services

WARRANTY: Provide 5 year written warranty on hydrant and 1 year written warranty on all valves and pumps

FIRE PANEL REQUIREMENT

Fire Control and Indicating Equipment

- Provide early warning control system to common area residential units
- To current Australian Standards AS7240 & AS4428.
- To current BCA including independent Certification of compliance to BCA.
- All installation to comply with the manufacturer's installation manual and specification details.
- To control minimum limit to 18 alarms and heat detectors per zone.

- PC Software to create, edit, download, upload and back up. Uses advanced algorithms to reduce nuisance alarms and detect smouldering fires
- Capable of connecting to addressable smoke and heat detectors, call points, short circuit isolators, sirens, sounders, I/O units with monitored voltage outputs, power supplies and conventional detectors.
- Capable of linking with fire door closing system
- Lockable door to fire panel.
- Vandal Resistant.
- Independent zone operation system.

WARRANTY: Provide 5 year written warranty

FIRE STOPPING MATERIAL (SEALANTS AND MASTIC) REQUIREMENT

- All material must comply with the nominated properties or replicate a system tested in accordance with AS4072.1 and AS1530.1
- Achieve an FRL of not less than that specified in the FRMPIM for the penetrated floor/wall or ceiling assembly.
- Penetrations protected by a system tested in accordance with AS4072.1 and AS1530.1
- Independent test certificates to be provided

WARRANTY: Provide 2 year written warranty

FIRE SPRINKLER SYSTEM REQUIREMENT

- To provide an important level of fire protection to the residential unit occupants and to the building structure
- To current Australian Standards AS/NZS2118.1 and all associated standards.
- To current BCA including independent Certification of compliance to BCA.
- All installation to comply with the manufacturer's installation manual and specification details.
- Fire Sprinkler System material and equipment to meet appropriate standards.
- Pipe sizes shall be determined by full hydraulic calculation methods.
- Hydraulic /wet system
- Fast and quick response system.
- High velocity sprayers.
- Fault monitoring system.
- Corrosion resistant system

WARRANTY: Provide 10 year written warranty

10.11 RAINWATER TANKS

Supply and Install above and or below ground rainwater tanks as indicated on drawings and in accordance with the **Rainwater Tank Design and Installation Handbook.**
Provide accessories needed to complete the installation and constructed from corrosion resistant material compatible with the tank material. Include the following:

- Inlet and outlet connections.
- Floating outlet to draw water from the upper part of the tank.
- Tight fitting lids or insect proof screens at all openings.
- Flap valves at every opening to the tank.
- Calmed inlet to the tank to prevent stirring sediment.

- Flywire screened overflow siphon to skim surface contaminants.
- Vermin proof, child proof access hole.
- Easily cleanable filter prior to the entry to the tank. Mesh size ≤ 1 mm.

Provide a lockable control box, containing the mains diversion device, which is mounted to an existing structure such as a wall. The control box shall be separated from the tank, located away from vehicle access, allow for required clearances to fences and be located in public access areas to facilitate access for maintenance.

All rainwater inflows shall be pre-treated to remove leaf litter, debris and sediment prior to entering the tank.

Underground tanks:
Access and/ or inspection caps, first flush devices and filter pits for underground tanks shall be installed flush to the ground. Install submersible pump in inground tanks to minimise potential noise and amenity issues.

Coated steel tanks: Metallic-coated steel with polymer film to AS 2070 on the inside and prepainted on the outside.

First flush diverter

General: Provide first flush diverters arranged to drain completely and selected for ≥ 20L/100 m^2 rainwater catchment area. Construct from corrosion resistant and compatible with the rainwater plumbing and tank. Discharge waste water from the first flush diverter either: (if permitted by the local authority) onto grassed areas away from tank and building footings, away from private open space or vehicles ; if possible to the stormwater installation.

Installation

Provide structural support to withstand the mass of the tank when full without deformation or excessive settling. Support connecting piping independently of the tank. Provide a 300 mm long section of reinforced flexible hose to prevent piping exerting a load on the tank. Pipe overflow to discharge away from the tank. Prevent the entry of sunlight to the interior of the tank.

Above ground tanks: Restrain the tank to prevent movement, when empty, caused by wind and other loads. Provide a level base with gaps not exceeding 10 mm, free of sharp projections and projecting beyond the edge of the tank at all points.

Coated steel tanks: Fully support the tank on a self draining concrete base. Prevent contact with dissimilar metals. Arrange so that no part of the tank is below ground level and so that adjacent ground surfaces fall away from the tank. Do not use sharp objects inside the tank. Remove swarf with a magnet if drilling or cutting.
Cleaning: Flush the rainwater system. Wash and flush tanks to remove manufacturing and other contaminants.

Mains Water:
- Provide, in accessible location for reading separate mains potable water meters to each dwelling.
-In addition to non potable rainwater supply tap for the washing machine for each dwelling provide next to this tap a capped/(i.e. no tap) single mains potable (colds) water outlet. This outlet is for future use in the event that non-potable water quality is deemed to be inadequate (i.e. discoloured) for its intended use (clothes washing)

RAIN WATER TANK REQUIREMENT

All Rainwater Tanks—Above and below Ground

- All downpipes connected to the rainwater tank must have a screened downpipe rainhead
- First Flush devices installed to suit system (above or below ground)
- Vermin and insect screens provided on all inlets and outlets. Aluminium mesh mosquito screen
- All rainwater and stormwater pipes installed to eliminate ponding and stagnation of water
- All pumps, electrical, and plumbing must be located either adjacent to a building or not to cause trip hazards. Located in a vandal resistant enclosure.
- In accordance with the Rainwater Tank Design and Installation Handbook available at:

  http://www.nwc.gov.au/__data/assets/pdf_file/0016/10753/RAINWATER_handbooknwc_logo.pdf

Above Ground Rainwater tanks

- Slimline rain water tanks
- Steel factory pre-painted with a food grade approved polymer
- Walls single sided AQUAPLATE Steel 0.6mm, External walls galvanised or Colorbond pre-painted steel
- Base double sided Aquaplate steel 0.6mm with 200um polymer film
- Installed with first flush device, strainer, overflow and hose tap

Tank stand or concrete base certified by structural engineer as able to support the water filled tank at full capacity

Below Ground Rainwater tanks

- All below ground tanks installation must have engineering certification for design loadings and hydro-static lift
- Below ground tanks cannot be installed underneath or as part of a dwellings foundations. Preferred location underneath driveway or lawn.
- Manufactured using food grade polymers, and independently certified not to leach chemicals into the water

- Single seam free tanks with no joins of leakage points, self supporting
- Inlet covers/lids to eliminate sunlight/algae/mosquitos and marked Rainwater

WARRANTY: Provide 20 year warranty Above Ground, 15 year warranty Below Ground

10.12 LANDSCAPE IRRIGATION

GENERAL

To AS/NZS 3500.1.1
To AS/NZS 3500.1.2

Where indicated on the drawings provide automatically controlled fixed drip-irrigation system to garden beds and newly turfed areas to:

- Achieve the documented flow rates over the area to be irrigated.
- Meet statutory requirements for backflow prevention.

Inspection Required

INSPECTION

Inspection required before pipes are concealed or trenches backfilled.

SHOP DRAWINGS

General: Prior to installation of the irrigation system submit drawings to scale and schedules showing the layout and details of the system.

11: Drainage

Plumbing & Drainage Code of Practice (NSW)
To AS 3500.2.1
To AS 3500.3.1
MP 52 , MP 78
Plumbing Code of Australia (PCA)

11.1 GENERAL

AUTHORITIES AND APPROVALS

Submit documents and obtain all regulatory Authority approvals in connection with the work and:

- pay all fees and charges for work carried out and materials supplied by the regulatory Authority
- submit evidence of all regulatory Authority approvals to the Superintendent/Authorised Person before Completion/ Practical Completion.

Certificate Required

CERTIFICATE

Refer to PRELIMINARIES: Materials and Workmanship.
On completion the Contractor is to certify that the materials and installation comply with the code requirements.

WORK OUTSIDE SITE

Make necessary arrangements with adjoining property-owners and the relevant Authorities, for all work beyond the site boundaries.

EXISTING SERVICES

Refer to PRELIMINARIES: Site.

WORK-AS-EXECUTED DRAWINGS

Provide at Completion/ Practical Completion, work as executed drawings to the same scales as the contract drawings, showing the dimensioned locations and depths of all pipes and fittings.

11.2 INSPECTIONS

Inspection Required

Give 48 hours notice so that inspections can be made of the following:

- trenches excavated and ready for pipe laying
- works ready for tapping and/or cutting into regulatory Authorities water, sewer or drainage mains
- work ready for testing
- enclosed work ready to be covered or concealed
- completed work
- any other inspections required by the regulatory Authority.

11.3 QUALITY AND WORK PRACTICES

GENERAL

Do not locate grates, pits and other drainage structures across walkways.

TESTING

Test installation as required by the regulatory Authority:

- leave work exposed until inspected and tested
- check pipe joints, valve seats, tap washers, strainers, and the like. Replace if damaged, and retest.

Rejection: pipework which fails a test, or which airlocks, vibrates or is noisy because of insufficient support or loose fixings, will be rejected and must be immediately rectified to the satisfaction of the relevant Authority.

CLEANING

Provide temporary covers to openings and keep the system free of debris during construction.

To AS 3500.2.1

EXCAVATION, BEDDING AND BACKFILLING

To AS 3500.3.1}
To AS 3500.3.1}
To AS/NZS 3725
To AS/NZS 4058

sanitary drains:
stormwater drains:
subsoil drains:
RCP pipes (pipes 300mm dia. And above)

PIPE LAYING

To AS 3500.2.1
To AS 3500.3.1

sanitary drains:
stormwater drains:

11.4 MATERIALS

To AS 3500.2.1

SANITARY DRAINS

To AS 3500.3.1

STORMWATER DRAINS

In all cases, including under carparks, driveways or across footpaths, pipes shall be of minimum 100mm sewer grade UPVC.

To AS 3500.3.1

SUBSOIL DRAINS

11.5 SUMPS, PITS

GENERAL

Construct pits, sumps, access holes, tanks, wells, and the like where shown on the drawings to the levels indicated:

- use minimum 225mm diameter size stormwater lines from stormwater sumps unless otherwise shown on drawings.
- use precast concrete or in-situ concrete pits in driveways, pathways, landscaped and turfed areas.
- installation requires approval.

Approval

In-situ concrete pits:

- to be 150mm thick x 20 Mpa at 28 days concrete base and walls with one layer F72 mesh over entire area.
- all concrete to be mechanically vibrated and a maximum aggregate size of 20mm.

To AS 3600

Precast concrete pits:

Approval

- use proprietary precast concrete pits
- to be 75mm thick x 20 Mpa at 28 days
- provide core holes as required.

To AS 3996

Covers and grates:

- secure all covers and grates to pits to prevent easy access
- use class ‘C’ covers and grates in driveways
- use class ‘B’ covers and grates in pathways
- use class ‘A’ covers and grates in landscaped or turfed areas.

Locate the top of covers or gratings, including frames as follows:
In paved areas: Flush with the paving surface.

In landscaped areas: 25 mm above finished surface.

Gratings taking surface water runoff: Set to receive the runoff without ponding.

12: Electrical works

12.1 GENERAL

To AS/NZS 3000
AS 3006

STANDARD

To the requirements of Supply and regulatory Authorities.

Certificate Required

CERTIFICATE

Refer to PRELIMINARIES: Materials and Workmanship.
On completion the Contractor is to certify that the materials and installation comply with the code requirements.

WORK-AS-EXECUTED DRAWINGS

Provide at Completion/ Practical Completion work-as-executed drawings showing:

- location and depth of underground wiring and cable pits, if any
- switchboard schematic showing layout of equipment, busbars and connections, type and rating of equipment
- telecom Block Cabling Installation
- Master Antenna Television System.

12.2 INSPECTIONS

Inspection Required

Give 48 hours notice for inspections at the following stages:

- trench excavation before installing cables
- underground and concealed conduits before concealment
- testing of Master Antenna Television System.

12.3 QUALITY AND WORK PRACTICES

TESTING

Test installation, including Television and Telecom services before starting the Defects Liability Period.

COMMISSIONING

On finishing clean faceplates, luminaries reflectors and diffusers, and the like, replace faulty lamps, reinstate ground surfaces and finishes disturbed by trenching, and hand over the completed installation in working order.

BALANCING OF LOAD

Balance the load as evenly as possible over all phases at Completion/ Practical Completion, and again at the end of the Defects Liability Period.

To AS/NZS 3000

12.4 UNDERGROUND SERVICES

GENERAL

- provide PVC marker tape over all lengths of underground conduit
- provide 600mm minimum cover for connecting wiring (in conduit) between buildings.
- Exact routes of all underground cables and conduit to be coordinated on site with other services.

12.5 MATERIALS

To AS/NZS 5000.1
AS/NZS 3008.1.1

TPI AND TPS CABLES

Provide 0.6/1 kV range, 75^{o}C temperature-rated cable delivered to site in the original packages and obtained from one manufacturer whenever possible.

Conductors: provide stranded copper conductors throughout a minimum 1.5 sq.mm for lighting, 2.5 sq.mm for power sub-circuits. Determine final size by voltage drop and actual rating of equipment and appliances selected.

SINGLE INSULATED CABLES

Use only where enclosed in PVC conduit.

CONDUITS

To AS/NZS 3000
AS/NZS 2053.1

Provide rigid metallic conduit, galvanised steel water pipe, rigid or flexible non-metallic conduits:

- minimum size 20mm generally, 25mm in floor slabs
- conceal all conduits chased into masonry walls or cast in concrete slabs
- in concrete slabs locate entirely within the slab. Space 75mm apart. Do not run conduits in concrete toppings.

To AS/NZS 2053.2

RIGID NON-METALLIC CONDUITS AND FITTINGS

Heavy-duty type.
Flexible couplings: provide where crossing structural expansion or contraction joints.

12.6 ELECTRICAL DISTRIBUTION

GENERAL

Supply electricity underground to medium and high density unit developments.
Point of attachment: as required by the Supply Authority.
Service pole: heavy galvanised steel minimum 150mm diameter to Authorities' requirements. Paint finish only where required by local Council or supply authority.
Service fuses: Provide all service fuses and facilities for incoming supply as required by the local electricity supply authority.

To AS/NZS 3439.3
AS/NZS 3439.5

SWITCHBOARDS AND METERING

switchboard enclosure: unless otherwise detailed provide a recessed, weatherproof, galvanised painted steel meter cupboard enclosing all the switchboard and metering equipment as required by the Supply Authority.
Enclosure locking: provide authority broached lock to meter cupboards/boxes. Obtain locks from the appropriate Supply Authority and supply keys to Superintendent/Authorised Person.
Common area metering: provide separate metering for common area house services, lighting and power.

CONSUMER DISTRIBUTION BOARDS (CDBS)

Recessed moulded PVC-type enclosures with see-through hinged cover or door:

- to be flush wall mounted
- locate CDBs within their own discreet cupboards. If not possible, CDBs should be fully recessed, located in a discreet position such as a corridor. Do not locate CDB in lounge room.

RESIDUAL CURRENT DEVICE (SAFETY SWITCHES)

To AS/NZS 3190
AS/NZS 60898.1
AS/NZS 60898.2

- to be current operated earth leakage circuit breakers.
- rated Residual Current not to exceed 30mA.
- provide RCDs to each final sub-circuit containing socket outlets and/or lighting, including refrigerator/freezer.
- optional: combination RCD/circuit breaker
- main switch current rating 50% greater than maximum demand of installation it controls
- install switchboards, distribution boards or consumer distribution boards as applicable.

12.7 WIRING INSTALLATION

To AS/NZS 3000

GENERAL

Conceal cables and conduits, including underground cable or conduit entering the building, in a manner that will allow wiring replacement without removal of cladding or lining:

- Install conduits and cables before the installation of wall and ceiling linings, and before any external landscaping works.
- Arrange wiring such that it does not bridge the cavity in external masonry
- do not penetrate damp-proof courses
- install, terminate and join cables in accordance with the manufacturer's recommendations
- do not join cables unless permitted by the Superintendent/Authorised Person. Locate all joints in accessible location, when unavoidable.

To AS/NZS 3000

Submains: size and type or as shown on the drawings. Enclose submains in conduit.

CABLE ROUTES

Routes shown on drawings are diagrammatic only. Determine the final route of run to the approval of the Supply Authority:

- do not run cables or conduit in cavities
- run circuits originating at different distribution boards in separate conduits
- run all circuit cabling in approved PVC conduit.

PENETRATIONS

Approval

Do not penetrate firewalls and structural members without approval.
Sealing: seal cable or conduit penetrations through external building members to prevent the ingress of moisture.

POWER AND LIGHTING CIRCUITS

socket outlets: arrange socket outlets within each dwelling unit over a maximum of 2 circuits. Equally divide outlets to each circuit.
Hot water services: Provide separate circuit to off peak hot water unit, rating to suit hot water unit's electrical element. Provide all facilities for off-peak metering and load controls as per supply authority's rules and regulations.
Unit garages: light and power to be connected to each garage and wired to respective unit.
Common areas: internal/external including communal basement garages - lighting shall be wired on a separate circuit to socket outlets.

LABELLING

To AS 3439.1
AS/NZS 3000

switchboard labelling: Labels for each switchboard control, circuit designation and rating, warning notices for operational and maintenance personnel.
Schedule cards: provide for each switchboard and each distribution board mounted in holder with hard plastic cover fixed inside the enclosure door with text typewritten to show:

- sub-main designation and rating
- light and power circuit number, type and area supplied.

12.8 ACCESSORIES

GENERAL

Provide accessories necessary for a complete installation including but not limited to switches, socket outlets, and telecommunications outlets.

Install flush-mounted accessories, in wall boxes in masonry and in mounting brackets in stud walls, located as specified and/or shown on drawings.

Wet areas: Position accessories in locations containing baths showers or other fixed water containers to comply with the requirements of AS/NZS 3000.

All accessories located in close proximity shall be of the same manufacture, size and material.

To AS/NZS 3133

SWITCHES

Provide number and in location shown on drawings and/or as scheduled.

To AS/NZS 3112
AS/NZS 3133

SOCKET OUTLETS (POWER POINTS)

- Provide socket outlets. Refer to drawings and schedules for number, selection and location of socket outlets.
- Where socket outlets are not shown on drawings provide socket outlets as per the following schedule
- Items requiring power which do not require a socket outlet shall be hard wired and made operational.

SOCKET OUTLETS SCHEDULE

ITEM	REQUIREMENT	APPLICATION – DWELLING/ROOM
Socket outlet plates	Replaceable, with colour contrast to walls	All dwellings
Height of socket outlets above the floor level – excluding laundry, bathroom and kitchen	450 to 600mm	To living (including family, dining room) and bedroom areas for <u>all dwellings</u> including: ▪ General housing ▪ Liveable, disabled dwellings ▪ SEPP HSPD
Height of socket outlets above the floor level – excluding living and bedroom areas	1000mm to 1500mm ***** ***** Refer to criteria for location below	To kitchen, bathroom, laundry areas for: All dwellings liveable, SEPP HSPD, disabled, general housing)
Large rocker action switches		To all rooms for: ▪ Liveable and disabled dwellings ▪ SEPP HSPD
ROOM/AREA NAME	**REQUIREMENT** **SOCKET OUTLETS**	**CRITERIA FOR LOCATION OF POWER POINTS (SOCKET OUTLETS)**
Enclosed hallway, corridor	*Min 1 double per length of hallway, corridor*	• *easily reached for vacuum cleaning, centrally located.*
Living	Min 3 x double 1 x single Note for SEPP HSPD dwellings alternatively in the dining area	• *2 on the wall where the TV, entertainment area is likely to be;* • *1 on the opposite wall (near where reading lamp, etc is likely to be).* • *Add 1 x double extra to ensure to ensure min 1 for each length of wall.* • *1 near a telephone outlet*
Dining	2 x double and 1 x single for 3 to 6-bedroom dwellings only Note for SEPP HSPD dwellings alternatively in the living area	• *on a dining room wall, where it can be easily reached.* • *1 near a telephone outlet*

Kitchen	1 x single (refrigerator)	• *adjacent to refrigerator position –* • *Locate 1500mm above floor level* • *(locate so easily reached when the refrigerator is in place, if possible).*
	2 x double (above bench)	• *above kitchen bench, but not close to sink or stove.* • *300mm above bench*
	1 x single for range hood	• *adjacent to rangehood (within kitchen cupboard).*
	1 x single for microwave oven	• *adjacent to microwave oven space (within wall cupboard above)*
	1 x single for cooktop	• *position outlet as required*
	1 x single for oven	• *position outlet as required*
Main bedroom or only bedroom Unit	3 x double	• *1 on the wall where the TV is likely to be (opposite the bed head);* • *2 on the wall where the bedhead is likely to be (ie on opposite walls, not near each other).one of which is near telephone outlet next to the bed on the side closest to the door*
Each Other Bedroom	2 x double	• *1 on the wall where the bedhead and telephone outlet is likely to be;* • *1 on opposite wall.*
Bathroom	1 x double Wet areas power outlets to include in built RCD Protection and Re-set	• *adjacent to mirrored cabinet, suggested 1500mm above floor level, to comply with AS 3000* • *waterproof or within mirrored cabinet*
Combined Bathroom/Laundry	1 x double 1 x double Wet areas power outlets to include in built RCD Protection and Re-set	• *adjacent to mirrored cabinet, suggested 1500mm above floor level, to comply with AS 3000* • *waterproof or within mirrored cabinet* • *above washing machine, 1300mm above floor level (to allow for dryer above WM)* •
Separate laundry	1 x double	• *above washing machine, 1300mm above floor level (to allow for dryer above WM)*
Common area corridors, lobbies and stairs	*1 x double per floor*, *lockable type*	• *centrally located, easily reached for vacuum cleaning,*
Attached Carport/ Garage	1 x double	• *within storage cupboard in a carport* • *on back or side wall of a garage*

Common room	Min 3 x double in general space 1 x double-kitchen area 2 x double kitchen area	• *located where it can be easily reached, on a common room wall (for vacuum cleaning, TV, radio etc)* • *1 adjacent to refrigerator position* • *1 above the kitchen bench*

To AS/NZS 3000

Shower Rose with Flexible Hose
For bathrooms with showers that include flexible shower hose and no fixed shower partition the socket outlet (GPO) shall be located minimum 1.2m radius from the from the fixed plumbing connection from the end of extended shower hose outlet and shall be protected by residual current device (RCD) of maximum rating of 30mA. (Within Zone 3 in accordance with AS/NZS 3000).

For socket outlets within 0.6 to 1.2m from the end of extended shower hose (Within Zone 2 in accordance with AS/NZS 3000) in addition the outlet shall be within an enclosed cupboard that needs to be maintained in an enclosed position during the operation of the connected equipment. A flush mounted weatherproof enclosure with a clear door equal to HPM Cat. WS44 may be used for this purpose.

PHOTO-ELECTRIC SWITCHES

- photo-electric type "daylight switches" relay-operated and capable of switching a discharge lamp load of 700W at low power factor
- where inductive load exceeds the maker's requirements provide 4kW AC3 contactors for the switching of the load.

Rating: provide 20 Amp lighting contactors to control the load where the total load exceeds the contact rating of the photo-electric switch.

ISOLATING SWITCHES

Provide wall-mounted isolating switches to fixed cooking appliances and other equipment where required by the Supply Authority and/or shown on the drawings.
Switches to be mounted in an accessible position and within 2m of appliance/equipment.

12.9 LIGHT FITTINGS

GENERAL

- provide energy fluorescent Lamps/globes to all batten/ lamp holders in locations shown on drawings. Comply with BCA section J requirements.
- supply complete with lamps, control gear and diffusers
- in bathrooms provide water-resistant lights where flexible shower fittings are installed.

To AS/NZS 3000

Wet Areas Luminaires
Locate luminaries within wet areas generally outside of zone classifications 0, 1 and 2 as defined in AS/NZS 3000. However, if luminaries cannot be located outside these zones they shall meet the required degree of protection in accordance with AS/NZS 3000.

LIGHT SWITCHES

Locate grouped dimmers and control devices for future access.
Provide ventilation and acoustic treatment to suit the device characteristics.

SWITCHES SCHEDULE

- Provide switches. Refer to drawings and schedules for number, selection and location of switches.
- Where switches are not shown or specified on drawings provide switches for each light fitting, exhaust fan, ceiling fan and other fittings as per the following schedule.

ITEM	REQUIREMENT	APPLICATION - DWELLING/ROOM
Light switches	• Not architrave type • Switch plates to be replaceable with colour contrast to walls	• All dwellings
Height of light switches above the floor level	1000mm	• All dwellings
Wet areas light switches	Switches to comply with requirements for installation in Zone 1	• Bathrooms/Laundries of dwellings
Large rocker action switches	Min dimension 30 x 30mm or pad switches min 25mm diameter	• SEPP HSPD Liveable dwellings/ units
Lamps/globes	Low energy fluorescent	• Provide to all batten/ lamp holders

LIGHT FITTINGS SCHEDULE

- Provide light fittings. Refer to drawings and schedules for number, selection and location of light fittings.

-.Where light fittings, ceiling fans and other fittings are not shown on drawings and/or where drawings are missing some information provide fittings as per the following schedule.

- In the event that light fittings, ceiling fans and other fittings selection is not included in the Contract select fitting to meet the specification and Land and Housing Corporation Deemed to Comply Product Register.
- In the event that light fittings, ceiling fans and other fittings selection is not included in the Contract and there is no specification for the fitting or the fitting is not included in the Land and Housing Corporation Deemed to Comply Product Register recommend selection meeting relevant standards and obtain Superintendent/Authorised Person's approval.
- Provide low energy fluorescent lamps/globes to all batten/lamp holders.

ROOM/AREA NAME	REQUIREMENT Light outlets
INDIVIDUAL DWELLINGS – INTERNAL LIGHT FITINGS	
Internal dwelling entry	1 per entry
Enclosed hallway, corridor	Min 1 per length of hallway, corridor
Living	Min 1 per room For SEPP HSPD potential illumination level of 300 lux . This may require more than 1 light outlet **Ceiling fan with integral light:** - for climatic zones 2, 4 and 5 - 1 per living room - min 2400mm clearance required to under side of fan

Kitchen/Dining	Min 1 per kitchen Min 1 per dining For SEPP HSPD potential illumination level of 300 lux. This may require more than 1 light outlet
Main bedroom or only bedroom Unit	Min 1 per room For SEPP HSPD potential illumination level of 300 lux This may require more than 1 light outlet
Each other bedroom	Min 1 per room SEPP HSPD potential illumination level of 300 lux
Bathroom	1 per room Where possible, located within Zone 3 (AS/NZS 3000). Combine switch with mechanical ventilation.
Bathroom/laundry	1 per room Where possible, located within Zone 3 (AS/NZS 3000). Combine switch with mechanical ventilation.
Separate laundry	1 per room. Combine switch with mechanical ventilation.
Separate toilet	1 per room. Combine switch with mechanical ventilation.
Garage	1 per single garage 2 per double garage
INDIVIDUAL DWELLINGS – EXTERNAL LIGHT FITTINGS	
Exterior Doorways	1 per doorway of each front dwelling entry, rear dwelling entry, laundry, patio entry, balcony entry, etc.)
Attached carport	1 per carport
COMMON AREA – INTERNAL LIGHT FITTINGS	
Common room	To achieve appropriate lighting levels for reading, dining, consultations to meet Australian standards
Entry and stair lobby	1 on each floor easily accessible for maintenance, locate on soffit above each floor landing (including ground floor) or wall mount.
Emergency Lighting	To BCA requirements
Cleaner's toilet	1 per toilet
COMMON AREA – EXTERNAL LIGHT FITTINGS	
Exterior Doorways – front and rear lobby entries	1 per doorway
Building wall mounted fittings	Vandal proof
Garden/ carpark area	Pole fittings
Entry gatehouse	1 per gatehouse vandal proof

BATTEN HOLDERS/LAMP HOLDERS

- Bayonet "electric white" heat-resistant type with polycarbonate body which cannot be extracted without first removing the base securing screws
- Able to accept bayonet fitting energy efficient globes
- adjustable type where fixed to sloping ceilings. White flexible pendant drop where height exceeds 2400mm
- fix at not less than 4 points
- safety device to prevent power contact to surface until globe is inserted.

Fluorescent Tube Type
- Accepts energy efficient tubes
- One piece injection moulded white polycarbonate body and gear cover complete with lamp holder and caps
- "Snap in" internally frosted polycarbonate diffuser
- Modular electronic gear tray assembly
- Takes 8 watt or 13 watt T5 tubes

INTERIOR COMMON AREA LIGHTS

- To provide Common Area lighting to all common areas egresses and access ways within residential complexes (entranceways, stairways, corridors, common rooms, plant rooms etc)
- To current Australian Standards AS1680 and relevant access standards
- To current BCA including independent Certification of compliance to BCA
- Installed to manufacturers written specification
- Luminaires must be U.V. stabilised and IP65 rated with die cast Aluminium (min 20 to 25 Micron powder coated) or ≥3mm polycarbonate housing
- Product must have a recognised Australian Certificate of Approval under the Electricity Consumer Safety Act 2004
- All fixtures and components to be vandal proof, weather, hose proof and impact resistant
- Energy efficient lamps (globes/tubes)
- Colour temperature: 4000—5000K
- Colour rendering index: 80+
- Power Factor 90+
- Light sources / lamp preference based on luminous efficacy i.e. highest lumens per watt to be given preference. Luminous efficiacy of light source/lamp must be greater than 60 Lumens/Watt
- Rated lamp average life ≥20,000 hours
- Lumen maintenance" Lumen output of light source / lamps must be 70% or greater of original output at the end of the rated lifetime
- Fitting light Output Ratio (LOR) greater than 0.7
- Luminaires must be securely fixed to the surface No hanging fittings
- Luminaires with no hanging points as directed by the Superintendent/Authorised Person to meet building criteria

WARRANTY: Provide minimum 2 years written warranty

LED LAMPS/ LUMINAIRES

- All luminaires must be vandal-resistant LED luminaires with occupancy sensors that maintain a low level of lighting when areas are unoccupied.
- All luminaire models must have previously been used by an Accredited Certificate Provider to successfully create Energy Savings Certificates under the NSW Energy Savings Scheme
- All components of the light fitting including lamps, batteries, covers etc. must be able to be purchased and replaced individually
- LED rated lamp life ≥50,000 hours
- LED luminous efficacy ≥70 Lumens/Watt at full light output
- LED colour temperature 4000-5000K
- LED colour rendering index ≥80+
- Luminaire power factor ≥0.9+
- Lumen output of LED lamps ≥70% of original output at end of the rated lamp life
- Luminaire Light Output Ratio (LOR) ≥0.7

- All exposed equipment (luminaires, motion sensors, photocells, diffusers etc.) must be vandal resistant IP65 rated, with ≥3mm thick impact-resistant polycarbonate covers or equivalent
- All motion sensors or other parts are to be securely contained within the luminaire, or fixed to the ceiling or luminaire using vandal resistant security/specialty screws and contained within IP65 rated ≥3mm thick impact-resistant polycarbonate covers or equivalent
- No equipment is to have leverage or hanging points
- Security/specialty screws are required for all fixings
- Luminaires must be fixed to ceilings using a drilling method – no adhesive methods will be accepted
- Emergency luminaires must be self-contained with a self static inverter. System including battery and battery charger to be non-corrosive.
- Emergency luminaire battery to be heavy duty long life type and duration of emergency power ≥90 minutes
- Any battery compartments must be either inaccessible or accessible only via vandal resistant security/specialty screws

EXTERNAL AND COMMON AREA (LANDLORD) LIGHTING

Provide in positions indicated on drawings.

AS/NZS 1158.3.1

External lighting to comply with the following requirements:

- Modular carriage tray with electronic starter
- Weather proof
- Lights to reduce light spill and sited to illuminate pedestrian and mixed traffic areas to improve safety and reduce shadow and potential hiding locations.
- Performance to type 3 or 4 Luminaire classification to AS1158.3
- Lights mounted high on posts or buildings and sited not to spill into windows or neighbouring buildings. Bollard lighting is not approved
- Meet current Australian Standard 1158 and achieve a 'P1' for High levels of vandalism or 'P2' for Medium levels of vandalism in accordance with AS1158.3

All External lighting

- Vandal proof moulded base
- Impact resistant moulded housing
- Vandal proof opalescent cover—U.V. stabilised diffuser
- Replaceable carriage tray with electronic starter

- No hanging point as directed by the Superintendent/Authorised Person — Light to be securely fixed with all cables secure and vandal resistant to prevent access
- Energy efficient Tri-phosphor globes and tubes
  Installed to manufacturers written specification
- Performance to Type 3 or 4 Luminaire classification in accordance with AS1158.3

Building and Car-Park Lighting

- Housing casing glass reinforced polyester or Nylon moulded plastic
- Vandal resistant moulded Polycarbonate diffuser
- Vandal resistant stainless steel clips
- Where possible all lights are to be fixed to buildings or other structures at a preferred height of 2m to 3.4m

Pole Top Lighting

- All Pole top lighting to be 2m to 3.4m around pedestrian paths
- All Pole top lighting to be 3.4 to 4.5m around roadways
- Poles to suite 76 dia or 100 dia spigots
- Poles min 3.6mm thick x 75mm dia. Min 60 micron hot dipped galvanised M.S. post

Bollard and up-lighting

- Lighting type is **not approved**. If found refer back to Superintendent/Authorised Person for direction.

WARRANTY: Provide minimum 2 years written warranty

To AS/NZS 2293.1

EMERGENCY LIGHTING

To BCA requirements and as shown on the drawings.

EMERGENCY LIGHTS REQUIREMENT

- To provide Emergency Lights into required common area and egress path within residential complexes
- To current relevant Australian Standards AS/NZS.
- To current BCA including independent Certification of compliance to BCA.
- Installed to manufacturers written specification manual.
- Vandal resistant material and fixings.
- Ceiling or wall mounted.
- Diffused or Wire Guard type powder-coat finish
- Non corrosive system including battery and battery charger
- Self contained emergency luminaires
- Battery to be heavy duty long life type.
- Emergency light should contain a self static inverter
- Duration of emergency power shall not be less than 90minutes

WARRANTY Provide 2 year written warranty on all parts including battery

EXIT LIGHTS REQUIREMENT

- To provide Exit Lights to all common area egresses within residential complexes
- To current Australian Standards AS/NZS2293.1.
- To current BCA including independent Certification of compliance to BCA
- Installed to manufacturers written specification.
- Vandal resistant material and fixings.
- Ceiling or wall mounted.

LED

- LED Lamp average lamp life 60000hours
- LED globes equivalent to 2watts
- Acrylic diffuser with vinyl decals – U.V. stabilised diffuser
- Vandal Resistant housing
- 3 pins flex and plug
- Long life battery.

4W to 8W

- Lamp average lamp life 15000 hours
- Energy efficient cold cathode fluorescent or T5 fluorescent lighting.
- Electronic ballast
- Acrylic diffuser with vinyl decals – U.V. stabilised diffuser.
- Vandal resistant housing
- Long life battery.

10W to 12W
- Lamp average lamp life 5000 hours
- Energy efficient fluorescent lighting
- Electronic ballast
- Acrylic diffuser with vinyl decals – U.V. stabilised diffuser
- Vandal resistant housing
- Long life battery

12w to 18w
- External weatherproof exit lights
- Energy efficient fluorescent lighting
- Die cast Aluminium/steel or injected moulded housing
- Electronic Ballast
- U.V. stabilised diffuser
- Vandal Resistant
- Long Life battery

WARRANTY: Provide 2 year written warranty on all parts including battery

12.10 MASTER ANTENNA TELEVISION SYSTEM, DATA CABLING AND TELEPHONY

The completed work must achieve a performance based outcome of ensuring that each Building has a system capable of receiving and distributing:

- free to Air Television digital transmission for the Master Antenna TV system (MATVS) to each installed wall plate in the building containing multiple units;
- telephone services; and
- high speed data to an installed wall plate in the building, up to 1000mb/s;

The work required is for the complete delivery of telephone services and data to the main distribution frame / Premises Connection Device (PCD) to first telephone / data socket, including pits, conduits and draw wires.
Any Broadband cabling installed must comply with NBN Co specifications. The work is for data and broadband internet services to the Network Termination Unit (NTU) including to first RJ45 wall plate including conduits and draw wires.

NBN-TE-CTO-194
NBN-TE-CTO-284
NBN-NO-GDE-0011

Make provision for National Broadband Network Service:

Installation shall meet NBN Co requirements and include the following:

- Installation of the Service Drop Conduit and draw string
- Installation of the NBN communication cabinet
- Installation of the earthing to the fibre communication cabinet
- Installation of the power to the Power Supply Unit (PSU) Location
- Installation of customer wiring conduits, min 25mm dia, with draw wire from the location of the NTD to each telephone/data outlet within the dwelling.

TELEPHONE SERVICE

To AS/ACIF S009.

In areas where NBN is not available and is not likely to be rolled out in the near future one of the two outlets where required to be provided shall be for a telephone (with copper line connection).
In these instance the Contractor is required to install and connect to each dwelling operational/ live telephone service as per the following requirements:

At the commencement of the project the Contractor shall apply to Telstra and pay any fees and charges for the operational/ live telephone service to be installed and connected to each dwelling unit. The Contractor shall provide documentary evidence of the date the application for connection has been made to Telstra. The service shall not include the provision of the handset.

Prior to the handover inspection the Contractor shall provide to the Superintendent/Authorised Person a list of telephone numbers obtained from Telstra for each telephone serviced dwelling.

Following provision of the telephone numbers the Contractor shall arrange with Telstra for the disconnection of the service from the Contractor's account ready for tenant's application for connection.

Certificate Required

Certificate of Acceptance: provide the Superintendent/Authorised Person with a Telstra "Notification of Completion Certificate" for each telephone serviced dwelling unit.

Test to AS/NZS 3017

TESTING

Test each pair in every cable for:

- continuity
- correct sequence
- reversed pairs
- transpositions and split pairs
- test the insulation resistance of each pair in the outer layer of every cable, and of one pair to earth
- provide copies of the test results to the Superintendent/Authorised Person.

TELEPHONE OUTLETS

The service shall not include the provision of a handset.

TELEPHONE OUTLETS SCHEDULE

- Provide telephone outlets. Refer to drawings and schedules for number and location of telephone outlets.
- Where telephone outlets are not shown or specified on drawings provide telephone outlets as per the following schedule. Confirm location with the Superintendent/Authorised Person.
- Where NBN is available in the area or is being actively rolled out in the area and will be available by the time of schedule project completion only one NBN Ready outlet shall be provided in locations as specified.
- Where NBN is not available and is not likely to be rolled out in the near future two outlets shall be provided in locations as specified - one for data and one for telephone (copper line).

ROOM LOCATION	NUMBER OF OUTLETS REQUIRED		CRITERIA FOR LOCATING TELEPHONE OUTLETS
	NBN AVAILABLE	NBN NOT AVAILABLE	
Living Room *All dwellings* *OR*	1 (DATA)	2 (TELEPHONE AND DATA)	away from likely T.V. position, easily reached, near a likely chair & table position, next to a GPO.
Dining In 3 to 6 bedroom dwellings only As an alternative to locating in Living Room			away from likely T.V. position, easily reached, near a likely chair & table position, next to a GPO.

Main bedroom All dwellings	**1** **(TELEPHONE)**	**1** **(TELEPHONE)**	near likely bedhead position and away from T.V. on the side close to the door, next to a GPO.

Data Cabling: To be minimum Cat 6 (capable of supporting data speeds of up to 1,000 Mbps). Cat 6 cable lengths must be limited to a maximum run of 500m per cable run. Cables are to be terminated at an RJ45 type wall plate.

12.11 SMOKE ALARMS

SMOKE ALARMS

To AS 3786

General

- Provide smoke detectors to the requirements of the BCA:
  Volume 1 **Part E2** *Smoke Hazard Management*
  Volume 2 **Part 3.7.2** *Smoke Alarms*
- provide a minimum of 1 smoke detector in each dwelling/unit with additional detectors at each level of multi-level dwellings/units
- interconnect detectors within each multi-level dwelling/unit
- interconnect detectors in common areas and stairwells of multi-storey buildings.

- For dwellings for the disabled provide alarm silencing (automatic reset) switches located at the level of the light switches unless otherwise specified or detailed.

Class 1b, class 3 and existing buildings:

To AS 1670.6, AS/NZS 3000

Installation:

- within each sole occupancy unit connect smoke detectors to lighting circuit
- install line filters to circuits containing fluorescent light fittings
- install to manufacturer's instructions.

SMOKE ALARMS LOCATION SCHEDULE:

- Provide smoke alarms. Refer to drawings and schedules for number, selection and location of smoke alarms.
- If selection of smoke alarm/s is included in the Contract but location is not shown on drawings provide smoke alarm/s as per the following schedule. Confirm location with the Superintendent/Authorised Person.
- In the event that smoke alarm/s selection is not included in the Contract select smoke alarms to meet the specification and Land and Housing Corporation Deemed to Comply Product Register.

BUILDING TYPE	CEILING LOCATION	TYPE/ COMMENTS
▪ single storey detached cottages ▪ villas ▪ single storey attached dual occupancy	in each hallway serving the bedrooms	stand alone **ionisation type**
	if there is no hallway locate between the living area and bedrooms, away from kitchen,	stand alone **photo-electric type**
▪ townhouses ▪ two storey detached cottages ▪ two storey attached dual occupancy	if there are bedrooms downstairs locate in a hallway between the living area and the bedrooms	stand alone **ionisation type**

	if there are no bedrooms downstairs locate in the living area away from kitchen, close to the stairwell	stand alone **photo-electric type**
	on first floor in a hallway outside the bedrooms	stand alone **ionisation type**
▪ 1 bedroom units	in a hallway outside bedroom if the same hallway serves a bedroom and a bathroom if there is no hallway locate in the living area	stand alone **photo-electric type** stand alone **ionisation type** stand alone **photo-electric type**
	in each internal common area level	interconnected **ionisation type** on separate common area circuit. If the common area links to the carpark the closest alarm to the carpark shall be **photo-electric type** (interconnected to ionisation type on separate common area circuit)
▪ walk-up apartment units (other than 1 bedroom)	in each hallway outside bedrooms	**ionisation type**
	in each internal common area level	interconnected **ionisation type** on separate common area circuit. if the common area links to the carpark the closest alarm to the carpark shall be **photo-electric type** (interconnected to ionisation type on separate common area circuit)
▪ dwellings or units with gas space heaters	as above for dwelling type	**photo-electric type** for dwelling or unit
▪ other (class 1(b) and class 3 buildings e.g. group homes, boarding houses, hostels)	To BCA requirements, Australian Standards and as specified for class 1(b) or class 3 buildings	

SMOKE ALARMS REQUIREMENT

All dwellings

- Certificate of compliance by SSL (Scientific Services Laboratory) for testing to current Australian Standards
- Ionisation or photoelectric model or Heat Technology
- Test button
- Alarm pause ('hush') button to silence alarm (ionisation model)
- Mains operated (hard-wired) 240 volt unit with fixed rechargeable (Lithium) battery backup (10 years battery life expectancy) – with Min 2 months battery standby
- Inter-linkable features
- Low power warning
- Installed to manufacturers written specification
- Branded with manufacturers trademark to AS 3786

- Energy Efficient smoke alarm
- Interlink with Isolators / hush button for disabled housing
- Interlink with Strobe lights for hearing impaired

WARRANTY: Provide minimum 10 year written warranty including rechargeable battery

12.12 APPLIANCES AND OTHER INSTALLATIONS

- Provide appliances and other installations. Refer to drawings and schedules for item, number, selection and location.
- In the event that appliances and other installations selection is not included in the Contract select appliances and other installations to meet the specification and Land and Housing Corporation Deemed to Comply Product Register.
- In the event that appliances and other installations selection is not included in the Contract and there is no specification for appliances and other installations or the appliance or other installation is not included in the Land and Housing Corporation Deemed to Comply Product Register recommend selection meeting relevant standards and obtain Superintendent/Authorised Person's approval.

ITEM	REQUIREMENT
Cooktop (gas or electric))	1 per dwelling
Oven (electric)	1 per dwelling
Rangehood	1 per kitchen wall/roof ducted to outside
Electric Space/Panel heater	1 per dwelling within living room for climatic zones 7 & 8 where gas is not available provide tiled hearth where carpet is provided for climatic zones 7 & 8.

RANGEHOOD REQUIREMENT

- To current Australian Standards, Australian Gas Association/ Energy Australia /Office of Energy.
- Min. air delivery rate 40L/s at max. sound power level 55dB(A) to current Australian Standards
- Min. 2 speed convertible fan & automatic thermostat cut-off electricity or impedance protected motor (withstand "locked rotor" conditions for 72 hours without burning out)
- Min. 55 watt motor
- Min. 3 blade plastic/metal propeller
- Min. 10 layer aluminium mesh grease filters
- Wiring encased in plastic conduits, within unit
- Unit for wall/roof ducting to outside. (Ducting to be minimum of 0.5mm galvanised steel ducting or 'Flexi-duct' similar fire or heat resistant material)
- Min. 50 micron powder coating to galvanised steel casing
- Width to match and align with cook top or stove
- AS marking, brand name, serial no. date code, rated air delivery, sound power level in dB(A) at rated air delivery and wattage branded on unit

Ducting
- Exhaust to outside
- To be minimum of 0.5mm galvanised steel or “flexi-duct” (Similar fire or heat resistant material)

WARRANTY:
Minimum 2 years written warranty - parts/labour
Minimum 2 years written warranty - filters

UPRIGHT STOVE REQUIREMENT

Note: In all new construction, separate oven and cooktop only.
Upright Electric (for maintenance work only)
- To current Australian Standards
- Oven capacity 75L min
- 60 minute timer (optional)
- Separate griller and oven compartments
- Fan Forced or conventional oven – Removable oven door with cool to touch window
- 4 hot plate (solid elements for electric stove)
- Upright or elevated cooker
- Front control or side control buttons only
- Splashback to upright
- AGA approval where appropriate
- Splashback to upright

Wall Oven - Electric
- To current Australian Standards
- Capacity Min 80 litre gross capacity
- Combined or separate griller and oven compartments
- Fan Forced or conventional oven – Removable oven door with cool to touch window
- 60 minutes timer

Wall Oven – Liveable Housing (General Housing)
- Bottom hinged, -side hinged or slide under oven door

Wall Oven –Disabled Housing
- Side hinged or slide under oven door
- Splashback

Cook Top
- Square white enamel finish hob
- 4 burner hot plate (solid elements for electric cooktop)
- Gas – electric or battery ignition, push to turn safety control, enamelled trivets.
- Gas — Flame failure cut off for emergency

WARRANTY: Provide minimum 2 years written warranty

CLOTHES DRYERS REQUIREMENT

Common Area Laundries and Disabled Housing only

- To current Australian Standards
- Min 3.5kg or 5kg capacity
- Auto cool down
- 2.5 hour timer – 3 heat settings
- Easy clean filter
- Safety door switch, Safety thermostat reset switch
- 2 directional air outlet and optional venting kit
- wall mountable
- Min 2 star Energy Rating

WARRANTY: Provide minimum 2 years written warranty

WASHING MACHINE REQUIREMENT

Common Area Laundries and Disabled Housing only

- To current Australian Standards
- Standards Mark/Type Test Mark to NPADPS/Water Authority certificate of approval
- Automatic washing machine, with rotary or push button control
- Stainless steel drum

Disabled Housing, BCA Class 3 and Class 9

- Min 7 kg Load Capacity
- Front loading
- 4 Star WELS rating
- 4 Star Energy rating

Common Area Laundries

- Min.5.5 kg or 6kg load capacity
- Top loading
- 4 Star WELS rating
- 3 Star Energy rating

WARRANTY: Provide minimum 2 years written warranty

DOOR CHIMES

Provide door chime to entry of each unit/dwelling

- chime must be “two-note” type
- connect to the living room 240 Volt power circuit complete with 240/8 Volt transformer + batteries
- activate chime by a lighted push button
- install at 1200mm above finished floor
- mount chime and transformer above main entrance door on interior side
- all chimes and push buttons must be white.

ELECTRIC SPACE / ELECTRIC PANEL HEATERS

Provide Electric Heaters where shown on drawings:

- To current Australian Standards
- Only space/panel heaters approved under the Certificate of Approval Scheme administered by the Office of Fair Trading NSW.

To AS/NZS 3000

- Installation in accordance to Australia/New Zealand Wiring Rules (AS/NZS 3000) to current Australian Standards and to local supply authority regulations
- Fixed (including wall mounted or recessed or floor mounted) panel or fan assisted heaters
- Min. 2 heat settings, (LO/HI) Thermostat control on high setting
- Min. 2kW (heat up to 55 m³) to Max. 7kW (heat up to 160 m³) consumption capacity
- Minimum efficiency of greater than 95%
- Automatic reset thermal cut-out safety feature and fusible link. Branded with manufacturers name to AS 3103, supplier licensed under Standards Assoc. Certification Trademark
- Child safe to touch cabinet
- Refer to CR Schedule & DCPR
- 1 electric heater socket outlet
- 1 heater per dwelling
- tiled hearth where carpet is provided for climatic zones 7 & and 8- for climatic zones 7 and 8
- where gas is not available
- 1 per living room

WARRANTY: Provide a minimum 2 year written warranty

12.13 TELEVISION SYSTEM

To AS/NZS 1367
AS 1417.1

GENERAL

System Type:

- Provide an analogue and digital television distribution system to AS/NZS 1367 and conforming to the recommendations of Digital Broadcasting Australia.
- Provide and locate antennas to receive all locally available free-to-air television stations.
- Individual antenna, UHF and VHF,- installed outside roof of each dwelling.

Master Antenna Television System (MATV).

Provide and install an MATV antenna system that gives adequate gain, directional characteristics and polarisation for the nominated services.

System performance: provide tuners to detect all local UHF and VHF and free to air digital television channels, and to provide good reception throughout.

Picture quality: at each outlet, the picture received on a domestic TV receiver must not be noticeably different from the picture received when the receiver is connected directly to the antenna, and is to be free from discernible cross-modulation, intermodulation, ringing, noise or other distortion.

Capable of receiving Digital TV.

ANTENNA REQUIREMENT

- To current Australian Standards
- Standards Mark / Certified Digital Ready
- Achieve the following minimum readings at the antenna when installed as part of a MATV system of:
  - Signal level of between 50db to 80db
  - Modulated Error Ratio (MER) of 25db or higher

- Post Viterbi Bit Error Rate (post Viterbi BER) of less than of equal to 2X10-4
- Noise Margin (NM) of greater than 0dB

- Galvanised steel boom construction
  2 kg loading on boom end (furthest from mount (tested over 100 cycles)
- Clam shell insulators and flat sided boom to provide element alignment
- 12mm extruded aluminium elements to withstand weather and wildlife
  Tested to wind speed of 100 km/hr
  1 kg loading at unsupported end of any element (tested over 100 cycles)
- UV and corrosion resistant tested in coastal area and western NSW
- 'F' Type connectors
- Able to easily connect Quad Shielded cable and/or Mast head amplifier

WARRANTY: Provide 2 years warranty

MASTER ANTENNA TELEVISION SYSTEM

MASTS STAYS BOOMS REQUIREMENT

- To current Australian Standards
- Galvanised steel - galvanising Galvabond Z275 to at least 19 microns of galvanising (zinc) on these items.
- Booms should be powder-coated with polyester through an automated electrostatic multistage pre-treatment process.
- Samples tested and verified by an 800 hour neutral salt spray test
- Able to withstand wind of 100km/hr

WARRANTY: Provide 2 years warranty

MASTER ANTENNA TELEVISION SYSTEM - AMPLIFIER REQUIREMENT

Mast head Amplifiers, Channelised Amplifiers, Wide Band Amplifiers

- To current Australian Standards
- Standards Mark / Certified Digital Ready
- Achieve the following minimum readings after the amplifier when installed as part of a digital ready MATV system of:
  Signal level of between 50db to 80db
  Modulated Error Ratio (MER) of 25db or higher
  Post Viterbi Bit Error Rate (post Viterbi BER) of less than of equal to 2X10-4
  Noise Margin (NM) of greater than 0dB
- UV stable, weatherproof housing capable of mast attachment or surface mount
- Adjustable gain for VHF and UHF bands
- Built in lightning / static protection

WARRANTY: Provide minimum 2 years written warranty

MASTER ANTENNA TELEVISION SYSTEM - CABLE REQUIREMENT

Flexible cables RG6 and RG11 shall have a continuous dielectric such that the centre conductor is in full contact with the dielectric along the entire length of the coaxial cable

RG 11 Low Loss Quad Shield Cable

- 1.63mm/14 AWG solid copper covered steel conductor
- Enclosed in polyethylene insulation
- 2 layers of Foil tape
- 60% Aluminium braid and 40% Aluminium braid
- Black PVC outer casing
- DC requirements – current carrying capacity 5A for RG11

RG 6 Quad Shield Cable

- 1.02mm/18 AWG solid copper covered steel conductor
- Enclosed in polyethylene insulation
- 2 layers of Foil tape
- 60% Aluminium braid
- Black PVC outer casing
- DC requirements – current carrying capacity 3A for RG6

All cable connections to be crimped or compression with appropriate F type connectors
Use RG6 quad core for runs of less than 50m and RG11 quad core for runs more than 50m and for backbone cabling.

WARRANTY: Provide minimum 2 years written warranty

TESTING AND COMMISSIONING

Carry out tests at each outlet to demonstrate compliance with the specification.

Certificate Required

Electrical installations: Test to AS/NZS 3017. Provide a certificate showing test results and certifying compliance with AS/NZS 3000
Telecommunications cabling: To AS/NZS ISO/IEC 15018 and the recommendations of SAA HB 29. Test the cable link performance in accordance with the recommendations of SAA HB 29 at the maximum frequency and data rate for the cable class, and the cable category. Provide a certificate showing test results and certifying compliance with AS/NZS ISO/IEC 15018.
Television and audio systems: To AS/NZS 1367. Test the complete television and audio system. Provide a certificate showing test results and certifying compliance.

Certificate: provide a certificate of guarantee of signal strength for Newcastle, Sydney, and Wollongong etc., as applicable. Issue to Superintendent/Authorised Person.
Rectification: correct the system, and replace components without extra cost, as necessary to achieve compliance.

To AS 1367
To AS 1417.1

CABLING

Coaxial cable: single core with a nominal impedance of 75ohms.
Cabling between buildings: run underground in conduit with 600mm cover.
Lightning protection:

To AS/NZS 1367

AMPLIFIERS -

Power supply: connect to landlord supply

OUTLETS

Coaxial cable sockets flush-mounted on high impact plastic plate.

MATV /TELEVISION ANTENNA SYSTEM OUTLET LOCATIONS

- Provide MATV/ television antenna outlets. Refer to drawings and schedules for number and location of outlets.
- Where TV outlets are not shown on drawings provide TV outlets as per the following schedule. Confirm location with the Superintendent/Authorised Person.

ROOM LOCATION	ANTENNA/ SYSTEM OUTLET REQUIRED	CRITERIA FOR LOCATING ANTENNA/ SYSTEM OUTLET
Living room *All dwellings*	1	adjacent to likely T.V. position and power point, not near a window, away from the telephone outlet
Main bedroom	1	adjacent to likely T.V. position and power point, away from likely bedhead position and not near window, opposite wall to telephone outlet.
Common room *(SEPP HSPD only)*	1	adjacent to likely T.V. position and power point, not near window

12.14 MECHANICAL VENTILATION

Certificate Required

To AS/NZS 1668.1
To AS 1668.2

MECHANICAL VENTILATION

Provide mechanical ventilation/exhaust fans to:
- Bathroom
- Laundry
- Toilet/WC
- Plant room
- Other rooms/locations as shown on drawings

To AS 4254

Comply with To AS/NZS 1668.1 and AS 1668.2 and as required by the BCA
- Duct to outside
- Conceal ductwork in wall/ceiling/roof

EXHAUST FANS >1KW REQUIREMENT

ONLY installed to provide adequate ventilation and airflow to an enclosed plant room or shafts and stair pressurisation etc.
- To current Australian Standards AS/NZS.
- To current BCA including independent Certification of compliance to BCA.
- Installed to manufacturers written specification.
- Vandal resistant material and fixings.
- Ceiling or wall mounted.
- Non corrosive system.
- Heavy duty type product including long life bull bearing motor
- Airflow >500m³/hour
- Quiet operation
- Turbo Fan
- Duct outlet shall be made of non combustible materials.
- Removable grill
- Installed with appropriate Dampers
- Interconnectable to control mechanisms

WARRANTY: Provide 2 year written warranty

CEILING FANS

Provide ceiling fans and integral Light and fan units as shown on the drawings:
- Install to manufacturers specification and details
- Provide control switching integrated with light switches.

WARRANTY: Provide 2 year written warranty

AIR CONDITIONING UNITS

Provide, install, commission, test Air Conditioning system as shown on the drawings. To manufacturers requirements.
Ducted airconditioners: To AS/NZS 3823.1.2.
Non-ducted airconditioners: To AS/NZS 3823.1.1.

Equipment

Performance: Supply equipment as follows:

- Is made by a manufacturer with a demonstrated ability to provide spare parts and service promptly to the site.
- That will operate within the specified range of outdoor design conditions under the calculated loads without excessive head pressure or icing.
- Is labelled to AS/NZS 3823.2.
- Reverse cycle units: Provide effective outdoor coil defrost facility that prevents room temperature dropping more than 2°C during defrost.

Cabinet: Aluminium, powder coated steel or moulded acrylonitrile-butadiene-styrene (ABS) plastic with zinc - coated steel or stainless steel fasteners. Insulate and vapour seal cabinet and drain trays to prevent external condensation under all operating conditions.

Drain trays: Aluminium, stainless steel or plastic to collect all moisture inside indoor and outdoor units.
Filters: Washable panel type. ≥ 85% of arrestance when tested to AS 1324.2, Test Dust No.4.
Coils: Copper tube with aluminium plate fins.

Controls

General: Provide the following functions:

- Temperature control for each zone located to accurately sense zone temperature.
- Fan speed selection for multi and variable speed fans.
- Day/night zone changeover if scheduled.
- Time switch for each system with ≥ 6 temperature programs per day, separate programs for each day of the week, manual set point over ride and 'Vacation' temperature set back.

Unit Installation

General

- Outdoor equipment: Provide clearance around units for condenser air flow and maintenance access. Ensure discharge air does not short-circuit to condenser intake.

Vibration isolation

- Suspended units: Provide 4 metal spring or rubber-in - shear isolation mountings with 25 mm static deflection and 98% isolation efficiency.
- Floor mounted units: Provide neoprene waffle pads. Bolt in place.

Completion

Commissioning

General: Commission the systems to manufacturer's recommendations using in the last 12 months calibrated instruments. Check list: Submit signed commissioning check list on completion.

Cleaning

General: Clean filters, outdoor coils, grilles and diffusers on completion.

Operating and maintenance instructions

Provide written operating and maintenance instructions containing:

- Contractor's contact details for service calls.
- Manufacturers' maintenance and operation literature.
- Description of day to day operation.
- Setting of time switches.
- Schedule of recommended maintenance.
- Record drawing: Provide a drawing of the system as installed.

Maintenance

General

Maintenance period: 12 months from the date of commissioning of the system.
Preventative maintenance: Provide preventative maintenance recommended by the equipment manufacturer. Provide all materials including consumable items and refrigerant.
Maintenance reports: Provide a signed maintenance report setting out the work done and any measured values after each visit.

WARRANTY: Provide 5 year written warranty

12.15 SOLAR PHOTOVOLTAIC GRID SYSTEM

To AS 3000
AS 3008
AS/NZS 5033

Refer to project drawings
Design, supply, install and commission a complete solar electric photovoltaic system. The system shall be from an approved Clean Energy Council accredited installers

AS 4777

The photovoltaic system shall consist of:

- Photovoltaic panels arrays
- Grid connected inverter/s to suit
- DC power cabling reticulation and safety devices from the photovoltaic module array to inverter/s
- Control cabling as required
- Metering, cabling and hardware required for grid connection to a dual element Supply Authority meter

Ensure that the DC and AC voltage drop does not exceed 1%
The Trade Contractor shall provide all necessary mounting and support on the roof for the PV panels.
Refer to architectural roof layouts for photovoltaic panel position(s). Final numbers and exact mounting method to be determined to suit site conditions and selected manufacturer's requirements.

The Contractor shall provide:

- Testing and commissioning
- As-built drawings and operational and maintenance manuals
- Warranty of the works
- Comprehensive maintenance for the duration of the defects and liability period
- 2 hrs training for persons nominated by Project Manager

12.16 LIFT

GENERAL

To AS 1735.1

Where shown on the drawings provide a Motor Room-Less (MRL) Electric traction lift:

Up to 3 floors Standard Lift
- 13 persons 884 kg
- Door opening 900 x 2100
- Clear car size 1400 wide x 1600 deep
- Well size 2100mm wide x 2100mm deep
- Pit depth 1400mm
- Overhead 3800mm (measured top landing level to the top of the shaft)

Over 3 floors (more than 12m stretcher lift
- 14 persons 852 kg
- Door opening 900 x 2100mm
- Clear car size 1100mm wide x 2100mm deep
- Well size 2000mm wide x 2500mm deep
- Pit depth 1400mm
- Overhead 4000mm (measured top landing level to the top of the shaft)

General Fit out for all lifts
- Vandal resistant surfaces (paint and scratch resistive
- Lighting—vandal resistant, low energy consumption and long life LED lighting
- Lift buttons and controls to meet access requirements of AS1735.12
- Voice annunciation as a minimum of floor levels, door position and lift direction
- Provide for future CCTV installation with voice facilities to lift car. CCTV to be activated when lift call is activated and turned off when lift goes into standby

- Lift phones with auto dial facilities
- Ventilation fans
- Lift shaft FRL of not less than 120/120/120
- Provide warning signs in accordance with BCA clause E3.3 warning against use of lifts in case of fire
- Lift shaft FRL of not less than 120/120/120

WARRANTY: Provide a 15 year warranty

MAINTENANCE: Provide initial 12 months maintenance and servicing period

FINISHES: Refer to drawings

13: Gas service

13.1 GENERAL

\#

GAS SUPPLY

Provide and install individual metering to each unit.

Certificate Required

CERTIFICATE

Refer to PRELIMINARIES: Materials and Workmanship.
On completion the Contractor is to certify that the materials and installation comply with the code requirements.

WORK-AS-EXECUTED DRAWINGS

Provide at Completion/ Practical Completion drawings showing the locations of pipes and fittings, depths of underground pipework, positions of control valves, and the like.

13.2 INSPECTIONS

Inspection Required

Give 48 hours notice so that inspection may be made at the following stages:
- trenches excavated and ready for pipe laying
- work ready for specified testing
- enclosed work ready to be covered up or concealed
- any other inspections required by the Supply Authority.

13.3 QUALITY AND WORK PRACTICES

To AS/NZ 5601.1

GENERAL

TESTING

Test the installation as required by the Supply Authority.

GUARANTEES

Provide the Superintendent/Authorised Person with manufacturer's warranties and guarantees of the appliances and accessories used in the works.

COMMISSIONING

On satisfactory completion and testing, turn on isolating and control valves, purge and charge the installation, and hand over fully charged with gas.

ACCESSIBILITY

Install components of the installation, such as pipework fittings, so that they are removable without damage either to themselves or to the building structure or finishes:
- Do not run pipework in cavities.

Approval

enclosed pipework:
- obtain approval for the location of inaccessible pipe runs and pipe fittings, and record on 'work-as-executed' drawings.

To AS/NZS 5601.1,

EMBEDDED PIPEWORK

Install in continuous lengths, without fittings, and not crossing any movement joint or joint between two (2) adjoining sections of reinforced concrete through which the reinforcement does not extend.

Sleeves: at building penetrations provide purpose made metal or plastic sleeves (in fire-rated elements, metal only) formed from pipe sections:
- prime paint ferrous surfaces
- maintain fire and acoustic ratings.

To AS 1599

sheathing: wrap the pipe in 250 micrometre polyethylene, high impact resistant, secured by an approved 55mm wide pressure sensitive adhesive polyethylene tape at 1 metre intervals.

To AS/NZS 5601.1,

To AS 1345

UNDERGROUND INSTALLATIONS

location marking: during backfilling lay warning tape 300 mm above, and for the full length of, buried natural gas pipes.

- minimum 100mm width of durable plastic material, coloured, with 'GAS PIPE UNDER' marked continuously.

CORROSION PROTECTION

Protect underground ferrous pipe and other pipework liable to external corrosion by either sheathing or sleeves.

13.4 MATERIALS

To AS/NZS 5601.1, AS 4645

GENERAL

marker plates: provide at ground level at each change of direction engraved to show the direction of the line and the name of the service. Inset the marker in a 150 x 150 x 150mm concrete block, with top set flush with the finished ground or surface level.

Valves: do not install valves below ground level unless they are in underground control boxes.

To AS/NZS 5601.1,

To AS/NZS 1596

REGULATORS

Install regulators in gas lines to regulate pressure:

natural gas: to approval list 205 of AGA and ALGPA 'Approved Appliances and Components'.

LP Gas: Install diaphragm.

Venting: LP Gas.

To AS4617

To AS/NZS 1596

VALVES

natural gas: install valves to control and cut off gas flow in gas lines, and to approval list of AGA and ALPGA 'Approved Appliances and Components'.

LP Gas: install valves to control and cut off gas flow in gas line and to approved list of AGA and ALPHA 'Approved Appliances and Components'.

13.5 GAS SUPPLY

CONNECTION TO MAIN SUPPLY

The Contractor is responsible for making arrangements and paying all fees for connection to the main supply, including the provision of the main meter:

To AS/NZS 5601.1

- provide gas meter assembly complete with meter, control valve, inlet and outlet meter risers, service governor and all other necessary fittings
- install meter.

To AS/NZS 1596
AS 2030.1

LPG CYLINDER INSTALLATION

- provide gas regulators, change over valves and all necessary fittings to comply with the Authority's requirements.

13.6 FINISHES

PIPE FINISHES

Finish exposed pipework, including fittings, supports and the like as follows:

copper and copper alloys: internal locations - chrome plate. External locations - natural finish.

Galvanised steel: full gloss solvent borne paint system as specified in PAINTING.

To AS/NZS 5601.1

pipework identification

13.7 FIXTURES AND FITTINGS

To AS/NZS 5601.1

GENERAL

- provide number and in locations as shown on drawings and/or as scheduled.
- install in accordance with the requirements of the regulatory Authorities.
- install brass control cocks and unions for gas ranges and water heaters.

GAS BAYONET

- Provide gas bayonet to dwelling/unit living areas and common rooms in SEPP HSPD projects.
- Provide for climatic zones 4, 5 and 6 against external wall that is suitable for a future gas appliance flue

GAS BAYONET AND GAS SPACE HEATER

Provide gas bayonet fitting and space heater for climatic zones 7 and 8 and Principal identified cold towns

- where gas is available
- flued to the outside
- tiled hearth where carpet is provided

GAS HOT WATER HEATERS

- Refer to PLUMBING AND SANITARY PLUMBING,
- GAS WATER HEATERS REQUIREMENT

GAS SPACE HEATERS

Where shown on the drawings provide:

- Natural Gas/Town LPG/Bottled LPG/Town Propane
- Wall mounted convection heater, Thermostat heat control automatic electronic ignition, timer, regulated gas flow and flued combustion gases
- Child safe to touch cabinet
- Min. 4.3 efficiency stars and 6.0 emissions star rating
- Double lined flue within ceiling space
- Heaters with flues
- Gas input - Min. size : 5 MJ/hr
- Gas input - Max. size : 23 MJ/hr
- Labelling of appliances, specifying min. allowable room volume and capacity of heater in MJ/hr
- Installation to AGA requirements
- AGA certificate of approval
- 1 heater per dwelling located in living room

WARRANTY
Provide a minimum 10 years written warranty for burner, 2 years for fan and min. 1 year for other parts.

GAS STOVE

Refer to ELECTRICAL Appliances and other installations :STOVE

APPLIANCES

Include warranties: refer to PRELIMINARIES.

COLD WATER CONNECTIONS

Connect the cold water supply to storage and instantaneous water heaters as specified in PLUMBING AND SANITARY PLUMBING: Water services.

To AS/NZS 5601.1,

FLUES

Provide flued heating exhaust.

14: Plastering

14.1 GENERAL

EXTENT

Prepare surfaces and finish as itemised in SCHEDULES: Schedule of Plaster/Render Finishes.

DEFINITIONS

For the purposes of this Section the terms “plaster”, “plastering”, and the like includes the terms “render” and “rendering”, and the like except where the context otherwise requires.

14.2 QUALITY AND WORK PRACTICES

To AS CA 27

To HB 161

GENERAL

- clean, de-grease and make good any defects in the background which might adversely affect the quality of plasterwork
- apply each coat to the whole of each undivided plane area in one continuous operation.
- **Thickness limits**
- One coat work: 12 – 15 mm
- Multi-coat work:
  - First coat: 9 – 15 mm
  - Floating coat (if any): 6 – 9 mm
  - Finishing coat (except setting coats): 6 – 9 mm
  - Setting coat: 2 – 3 mm

Tolerances: finish plane surfaces within a tolerance of 3mm in 3 metres anywhere in any direction. Make true corners, angles and edges, and curved or radiused surfaces, within equivalent tolerances.

Waterproof render: provide for all external renderings an approved waterproofing compound to manufacturer’s recommendations:

- avoid puncturing or plugging waterproof render
- where it is necessary to drill through waterproof render restore the barrier by sealing around the penetrations.

Finish:

- make finished surfaces even, free from defects, and true to the required surface
- make vertical surfaces plumb and horizontal surfaces level
- make re-entrant corners and salient angles straight and true.

PREPARATION

Provide substrates as follows:

- Clean and free from any deposit or finish which may impair adhesion of plaster.

Approval

- If framed or discontinuous, support members in full lengths without splicing.
- If solid or continuous, remove excessive projections and fill voids and hollows with plaster stronger than the first coat and not weaker than the substrate.
- Ensure that items to be concealed behind plasterwork, such as pipes, conduits and the like, are chased and fixed in position:
- cover chases over 50mm wide, with strips of expanded metal lath to 75mm beyond each side of the recess
- all pipework is to be fully tested before plasterwork is commenced.

Bonding agents:
- coat concrete surfaces to be rendered with an approved PVA bonding agent
- do not use bonding agents on background surfaces other than concrete without approval.

Dense concrete: where not sufficiently rough to provide a mechanical key, roughen by hacking, bush hammering, or abrasive blasting to a depth of 3mm to expose the aggregate and then apply a dash coat.
- coat with proprietary bonding agent.

Absorbent substrates:
- If suction is excessive, control it by dampening but avoid over-wetting and do not plaster substrates showing surface moisture.

Painted surfaces:
- Remove paint and hack the surface at close intervals.

Untrue substrates:
If the substrate is not sufficiently true to ensure conformity with the thickness limits for the plaster system, or has excessively uneven suction resulting from variations in the composition of the substrate, apply additional coats without exceeding the thickness limits for the substrate or system

Brickwork: where not rough-jointed, rake out joints 5mm deep.

Concrete blockwork: apply a dash coat.

Dash coat: mix 1 part cement and 2 parts coarse sand to the consistency of a thick slurry and forcibly dash it on to the background to give a rough cast coating 3 - 5mm thick. Cure under damp conditions and allow to harden. Protect from drying out before applying subsequent coats.

Wall plates: provide background support for render by fixing a 150mm wide expanded metal lath to edge of wall plates and over face of brickwork below.

Arch bars: wrap exposed arch bars with galvanised wire mesh.

PROTECTION AND CURING
- protect finished work from the elements of sun, wind and rain and from damage by building operations and any other causes
- provide temporary coverings as required and protect windows and doors
- remove mortar splashes as the work proceeds.

Keeping moist: If a proprietary curing agent is not used, keep the plaster moist as follows:

Base coats and single coat systems: Keep continuously moist for 2 days and allow to dry for 5 days before applying further plaster coats.

Finish coats*:* Keep continuously moist for 2 days.

Cement based work: cure by preventing rapid or uneven drying out.

Gypsum based work: do not subject gypsum-based work to persistent dampness after it has set.

14.3 MATERIALS

GENERAL

To AS CA27
To AS 3972
To AS 1672.1
To AS/NZS 2589

sand: fine, sharp, well graded sand with low clay content and free from efflorescing salts.

Cement: general purpose cement type GP delivered to site in branded and sealed bags.

To AS CA27

Lime: branded hydrated lime delivered to site in sealed bags.

To AS 1397

Gypsum plaster: Provide a proprietary product containing calcium sulfate hemihydrate with additives to modify setting.

Admixtures: use admixtures of approved type in accordance with manufacturer's instructions.

Lime putty: Prepare lime putty as follows: Stand dry hydrate of lime to AS/NZS 1672.1 and water for 24 hours or more without drying out.

water: clean fresh drinking water, free of impurities.

Metal lath: sheet steel expanded mesh, galvanised, coating class Z200.

Beads:

Location: Fix beads as follows:
Angle beads: At all external corners.

Drip beads: At all lower terminations of external plaster.

Movement control beads: At all movement control joints.

Stop beads: At all terminations of plaster and junctions with other materials or plaster systems.

Joints in beads: Provide dowels to maintain alignment.
Mechanical fixing to substrate: ≤ 300 mm centres.
Material:
Internal location: Metallic coated sheet AZ 150.

External location: Stainless steel or PVC

MORTAR MIXES FOR PLASTERING

Type	Application	Cement:Lime:Sand Mix
1	for clay brick and/or concrete background (external work)	1:0:3, + waterproofing agent and mortar plasticiser
2	for clay brick and/or concrete background (internal work and wet areas)	2:1:10
3	for concrete brick or block work (internal only)	1:0:6
4	for concrete ceiling skim coat	gypsum plaster: washed sand mix 2:5
5	for concrete ceilings-setting coat over skim coat	hardwall/plaster: lime putty mix 3:1

mixing: machine-mix and maintain uniform proportion, colour and consistency from batch to batch:

- do not re-temper mortar
- use mixes containing cement within 2 hours
- use mixes containing gypsum plaster within 30 minutes
- let lime putty stand for 24 hours before use.

14.4 JUNCTIONS AND TRIMS

JOINTS

Flush joints: Provide recessed edge and setting compound and finish flush with perforated reinforcing tape.
External corner joints: Make joints over zinc-coated steel corner beads.
Wet areas: Install additional supports, flashings, trim and sealants as required.
Joints in tiled areas: Do not apply a topping coat after bedding perforated paper tape in bedding compound.

Decorative joints: Apply decorative joints in the second coat of two coat work as required.

CONTROL JOINTS

Provide joints in the finish to coincide with control joints in the substrate. Make sure that the joint in the substrate is not bridged during plastering.
Depth: Extend the joint right through the plaster and reinforcement to the substrate.

Width: 3 mm, or the same width as the substrate joint, whichever is greater.

Damp-proof courses: Do not continue plaster across damp-proof courses

MOVEMENT JOINTS

Provide purpose-made zinc-coated control joint beads at not more than 12 m centres and to coincide with movement joints in the background:

- ensure that the background joint is not bridged during plastering
- extend the joint right through the plaster to the background.
-

V JOINTS

Provide v joints, cut right through the plaster to the background, in the following locations:

- at junctions between different background materials, except where metal lath is specified
- at abutments with other finishes, eg, set surfaces.
- at abutments with metal door frames.

TRIM

Finish plaster to a 5mm radius for salient angles.

14.5 SCHEDULE OF PLASTER/RENDER FINISHES

Element	Finish	Mortar type & coats
Concrete ceiling.	Smooth trowel finish.	i - PVA bonding coat ii - Type 5, skim coat iii - Type 6, setting coat
Internal clay brick walls (not walls in wet areas or background to tiling).	Wood float and finish with a plastic foam float to a fine sand texture finish.	i - Type 2 one coat cement render
Internal concrete walls.	As for internal clay brick walls.	i - One dash coat ii - Type 3 one coat cement render
Internal cement brick walls.	As for internal clay brick walls.	i - Type 4, one coat cement render
Internal wet area walls (shower, bathroom, WC, laundry) incl. background to tiled walls.	As for internal clay brick walls. When wall is set rubdown area not to be tiled with a carborundum stone to an approved smooth finish.	i - Type 2, one coat cement render
External clay brick or concrete background.	As for internal clay brick walls.	i - Type 1, one coat waterproof cement render
External WCs, meter, cupboards, storerooms.	As for internal brick walls.	i - Type 1, one coat waterproof cement render

Element	Finish	Mortar type & coats
Concrete soffits of verandahs, external/internal stair flights and landings, etc (not where off-form concrete is specified).	Wood float to a fine sand textured finish.	i - PVA bonding coat ii - Type 1, one coat waterproofed cement render to 10mm max. thickness
Top of concrete elements (ie. hoods, roofs etc.	Wood float to a fine sand textured finish.	i - Type 1, 20mm nominal thickness, one coat waterproof cement render
Note: For mortar types see 14.3 - Materials		

15: Tiling & wet area waterproofing

15.1 GENERAL

15.2 INSPECTIONS

Inspection Required

Give 48 hours notice to the Superintendent/Authorised Person so that the following can be inspected:

- flashing and waterproofing of wet area floors and walls before covering
- background immediately before starting tiling
- initial or trial set-out
- control joints before sealing and grouting
- completion of tiling.

15.3 QUALITY AND WORK PRACTICES

To AS 3958.1

To AS/NZS 4586

GENERAL

- floor tiles to concrete floors to be laid on bedding mortar.
- fix wall tiles generally before floor tiles.
- set out tiles to give joints of uniform widths.
- Joint alignment: Set out tiling with joints accurately aligned in both directions and wall tiling joints level and plumb.
- Joint position: Set out tiles from the centre of the floor or wall to be tiled and, if possible, ensure cut tiles are a half tile or larger.
- Fixtures: If possible, position tiles so that holes for fixtures and other penetrations occur at the intersection of horizontal and vertical joints or in the centre of tiles.
- grade floor to even and correct falls from all walls to floor wastes and elsewhere as required..
- Change of finish: Maintain finished floor level across changes of floor finish including carpet.
- suitably prepare the substrates to receive the bedded finish.

Drying and shrinkage

Before tiling, allow at least the following times to elapse (for initial drying out and shrinkage) for these substrates:
Concrete slabs: 42 days.

Concrete blockwork: 28 days.

Toppings on slabs and rendering on brick or blockwork: A further 21 days.

- Check all cartons of tiles are from the same batch
- Monitor shade variation as tile are laid to minimise excessive contrasting and maintain a balanced tone
- Installation only by a licensed tiler

CUTTING AND LAYING

Cut tiles neatly to fit around fixtures and fittings and at margins where necessary. Drill holes without damaging tile faces. Rub edges smooth without chipping. Return tiles into sills, reveals and openings. Butt up to returns, frames, fittings and other finishes. Strike and point up beds where exposed. Cut recesses where necessary for soap holders and the like.

Bath ventilation

Ventilate the space below fully enclosed baths with at least 2 vermin proofed ventilating tiles.

Sealed joints

Fill joints with silicone sealant and finish flush with the tile surface where tiling joins sanitary fixtures and at corners of walls in showers.

TILING AROUND WINDOWS - BRICK CONSTRUCTION

Tile window reveals to the height of wall tiles. Provide tiled sill with 1:20 fall.

GROUTING

Fill the joints solid and tool flush. Clean off the surplus grout. Wash down when grout has set. When grout is dry polish the tile surface with a clean cloth.

COMPLETION

Clean the tiles surface with the appropriate tile cleaning agent, and polish.

15.4 MATERIALS

GENERAL

To AS 2758.1 **sand:** washed sand.
To AS 3972 **Cement:**Type GP - general purpose Portland cement.
To AS 3972 **White cement:** Type GP, with iron salts content not exceeding 1%.
To AS 1672.1 **Lime:**
To AS CA 27 **water:**
TO AS 4586 **Floor Tiles**: Fully vitrified tiles or porcelain
Wall Tiles: Glazed ceramic tiles, vitrified tiles

To AS 2358 and AS 4992.1.

ADHESIVES

In accordance with the adhesive manufacturer's recommendations for the conditions of use.

To AS CA 27

BEDDING MORTAR

mixing: from cement and sand with minimum water.
Proportioning: select proportions from the range 1:3 to 1:4 cement:sand to obtain satisfactory adhesion.

To AS 3958.1

GROUT

pigments for coloured grout: colourfast fillers compatible with the grout material. For cement-based grouts, lime-proof natural or synthetic metallic oxides in accordance with manufacturer's instructions compatible with cement.

To AS 3958.1

SEALANTS

15.5 WATERPROOFING WET AREAS

To AS 3740

GENERAL

Comply with requirements in BCA 3.8.1.2.

- water based (no solvent release)
- waterproof all wet area floors with membrane falls to floor waste outlets
- provide leak control flanges around floor wastes to all wet area floors. Installation to manufacturer's instructions
- provide screed, to all base materials with steel trowel finish to minimum 1:80 screed falls to leak control flange prior the installation of the membrane. Minimum screed thickness 10mm. Allow minimum two (2) days curing
- provide membrane on screed including hobs and extend membrane minimum 300mm up wall at floor/wall and bath/wall junctions, and 1800mm high to walls where showers are located
- provide to walls of splashbacks
- installation only by accredited applicators registered with the NSW Waterproofing Industry Association

Membrane terminations

Edge protection: Provide > 150 mm upturns.
Anchoring: Secure sheet membranes along the top edge.
Edge protection: Protect edges of the membrane.
Waterproofing above terminations: Waterproof the structure above the

termination to prevent moisture entry behind the membrane using tiler's angle and finish overlaps.

Certificate Required

Showers Waterproofing Guarantee
Provide ten years guarantee for materials and quality of work undertaken for shower waterproofing system. The guarantee shall cover removal of floor and wall tiles, removal of shower screens and associated shower fittings, repairing and replacing of waterproofing system, reinstallation of floor and wall tiles, shower fittings and shower screens and any making good.

leach mat: prior to laying the floor tiles place a lightweight net material over the waterproofing membrane to provide an irrigation system. Turn down the net material into the floor waste outlet to assist underfloor drainage.

Guarantee: Refer to Preliminaries: Materials & Workmanship

15.6 TILES

Approval

SAMPLES
Submit samples of tiles intended to be used for approval.

FLOOR TILES REQUIREMENT

Ceramic Floor Tiles
- First Quality to ISO 13006
- Products in compliance to AS 4586
- Vitrified or porcelain
- Colours as appropriate and directed
- Warpage not exceeding 0.5mm for any tile batch
- Surface Hardness to MOHS Min 6—Test Method EN101
- Water absorption to ISO10545-3/EN99
- Chemical resistance to ISO10545-13/EN16
- Slip resistance to current Australian Standards AS4586
- Slip rating of R10 or Pendulum test score of 'X' for Wet areas Common areas and External areas,
- Slip rating of R9 or a Pendulum test score 'Z' for all other areas
- Minimum tile thickness 7.0 mm (+/-1.0mm)
- Tile trims on step and hob exposed edges

WARRANTY: Provide minimum 10 years written warranty

WALL TILES REQUIREMENT

Ceramic Wall tiles

To ISO 13006
To AS 4586

- First Quality to ISO 13006
- Products in compliance to AS 4586
- Vitrified or Porcelain
- Tile thickness ≥ Min. 5.5mm (+/- 0.5mm)
- Full glaze over face ceramic tile
- Ceramic Biscuit (Bisque) must be engobed
- Surface Hardness min MOHS Min 3 - Test Method EN101
- Extruded PVC or Aluminium tile Trim on exposed edges
- Silicon seal to cupboard boundaries
- Wall tiles to extend to floor behind upright stoves

WARRANTY: Provide minimum 10 years written warranty

SPARE TILES
Provide spare matching tiles of each type and store in works as directed.

ACCESSORIES

Provide round edge tiles at extremities - sills, bath vents and the like to match surrounding tiles as to composition, colour and finish.

Provide step treads and nosings to stairs, landings, and thresholds,- contrasting colour for SEPP HSPD

15.7 JUNCTIONS

To AS 3958.1

MOVEMENT JOINTS

Provide, as follows:

- over structural movement joints
- at junctions between different background materials
- to divide large tiled areas into bays, maximum 5m wide
- extend joints through bed to the background.

CAULKED JOINTS

Provide caulked joints, as follows:

- where tiling is specified to be cut around sanitary fixtures
- around fixtures interrupting the tile surface, for example pipes, brackets, bolts, nibs, and the like
- at junctions with window and door frames, built-in cupboards, and the like
- caulking compound must be non-hardening, mould resistant.

FLOOR FINISH DIVIDERS

- finish junctions with differing floor finishes with a non-corrosive metal dividing strip suitably fixed to the substrate, with top edge flush with the finished floor
- where changes of floor finish occur at doorways make the junction directly below the closed door
- threshold tiles to be maintained at same level as finish in the adjoining room.

HOBS

- provide tiled hobs in locations and to dimensions indicated
- build up hobs with masonry units.

SHOWER NOSING TILE

- provide to perimeter of shower recess to allow for set down of shower area to the thickness of the nosing tile.
- nosing tile must have tread profile with radiused free edge in colour to match floor tiles.

DOOR THRESHOLDS

- provide quarry/ceramic tiles to door thresholds to meet fire safety regulations, sliding door step free access. Finish flush with adjacent finishes.

15.8 FIXTURES AND FITTINGS

GENERAL

- Number and location as shown on drawings and/or scheduled.
- install to manufacturer's instructions.

SHOWER BASE REQUIREMENT

Liveable Housing

- Hob less shower bases—with stainless steel shower grate and trough–designed to ensure efficient draining
- Drainer Min 75mm wide
- Install with min 2 degree fall
- Slip rating of minimum R10 and pendulum test score of X.(moderate)

General Housing only

- To current Australian Standard, including installation
- Standard Mark/Water Authority certificate of approval and tested to current Australian Standard
- 900mm x 900mm x 70mm high hob

- Pressed metal (vitreous Solvent-borne finish) OR moulded plastic (non slip finish)
- Installed to manufacturers written specification
- Indelibly marked with manufacturers name/trademark

WARRANTY
Provide minimum 10 year written warranty for Latex (Waterborne) & 30 years written warranty for pressed metal

15.9 SCHEDULE OF INTERNAL TILING FINISHES

- Provide tiling. Refer to drawings and schedules for tiles selection and location.
- In the event that tiles selection is not included in the Contract refer to Superintendent/Authorised Person.

Element/Location	Requirement
FLOOR Internal Dwelling entries, corridors, circulation spaces, stairs and storage , Living Room Kitchen & Dining Room	Ceramic tiles, fully vitrified, R9 slip resistant *150mm high skirting to match floor tiles* Tiles with nosing on internal stairs For Climatic Zones 7 and 8 Carpet on underlay except for dwelling entry areas and kitchens where provide ceramic tiles, fully vitrified, R9 slip resistant.
FLOOR Bathroom Bathroom / Laundry Separate Laundry Separate WC	Ceramic tiles, fully vitrified unglazed R10, non-slip. Provide setdowns and falls to floor wastes and grated drains
FLOOR COMMON ROOM Entry Main room Kitchenette Storage Cupboard WC	Ceramic tiles, fully vitrified unglazed R10, non-slip, *150mm high skirting to match floor tiles*
FLOOR COMMON AREAS Entry foyer Common entry lobby Common stairs	Ceramic/ quarry tiles R10 (non slip) Including 100mm min. high skirting Provide step tread edging profile tiles to stair treads
FLOOR (External) Entry porches Balconies Verandas Thresholds (if required)	Ceramic/ quarry tiles R10 (non slip) Provide falls to floor wastes.
WALLS Bathroom Bathroom / Laundry	Full height ceramic tiles to walls:

WALLS Separate Laundry Separate WC	150mm min. single tile height skirting Ceramic tiles min 300mm above laundry tub including returns at corner locations
WALLS Kitchen & Kitchenette Splashbacks	ceramic tile splashback from benchtop to underside of overhead cupboards or shelves Tile wall behind stove

16: Resilient finishes and carpets

16.1 GENERAL

All floor covering must be firm and even, and feature a level transition between abutting surfaces (Maximum vertical tolerance of 3mm between abutting surfaces is allowable provide the lip is rounded or bevelled).

EXTENT

Refer to drawings
Provide carpet to bedroom floors and other areas where shown on drawings.

Approval

SAMPLES

Submit samples of the floor coverings for approval.

16.2 INSPECTIONS

Inspection Required

Give 48 hours notice so that the following may be inspected:
- background immediately before fixing sheets or tiles and laying of carpets
- completion of laying of underlay if any
- completed installation.

16.3 QUALITY AND WORK PRACTICES

To AS 1884

VINYL FLOOR COVERING

Approval

- obtain approval of trial set-out before fixing
- form tight neat joints showing no visual open seam
- finish flush with adjoining surfaces
- Run sheet joints parallel with the long sides of floor areas
- set out to give the minimum number of joints
- roll in both directions with a 75kg roller, 30 minutes after tile laying.

Joints

Non-welded: Butt edges together to form tight neat joints showing no visible open seam.
Cold welding: Apply seaming compound 100 mm wide to the substrate centrally under the seam. Roll the seam until the compound is forced up into the joint. Clean off flush using a damp cloth.
Epoxy jointing to slip resistant vinyl sheet: Join seams with epoxy adhesive.

Junctions

General: Scribe neatly up to returns, edges, fixtures and fittings. Finish flush with adjoining surfaces.

Protection

General: Keep traffic off floors until bonding has set or for 24 hours after laying, whichever period is the longer. Do not allow water in contact with the finish for 7 days.
Reinstatement: repair or replace any faulty or damaged work. Where work cannot be repaired satisfactorily, replace the whole area affected.
Cleaning and polishing: after curing period recommended by adhesive manufacturer and not less than 48 hours after laying:
- thoroughly clean floors with tile cleaner and then
- apply one (1) coat of vinyl seal in accordance with manufacturer's instructions
- polish using two (2) coats of approved vinyl polish, machine finishing to an approved dense polish.

CARPET

To AS/NZS 2455.1

INSTALLATION:

To AS 4288

Setting out

General: Lay the carpet in continuous lengths without cross joins in the body of the area. Where unavoidable cross joins at doorways, create the joins directly below the closed doors.

Joints in underlay: Make sure joints in underlay do not coincide with carpet joints. Do not carry underlay over carpet grippers or edge strips.

Fixing

Gripper strip: Provide preformed gripper strip and tackless edge strip. Space fixings at 150 mm maximum centres.
Immediately after laying, and again one hour later, roll the carpet from the centre diagonally towards each edge using a 65 kg multi - wheeled roller. Do not roll foam-backed carpet.

Permanent stick method. As shown on the drawings. Use water based adhesive

To AS 4288

SOFT CARPET UNDERLAY

- Make sure joints in underlay do not coincide with carpet joints. Do not carry underlay over carpet grippers or edge strips.

Hot-melt adhesives tapes

Commercial grade glass fibre and cotton thermoplastic adhesive coated tape 60mm wide on a 90mm wide metal foil base and backed with silicon-coated release paper.

Edge strips

Type: Heavy-duty edge strip appropriate to the floor covering type (tackless or adhesive fixed), capable where necessary of accommodating different levels of adjacent floor finishes.
Form: Metal moulding or extrusion, with vinyl inserts.
Location: At exposed edges of the carpet, and at junctions with differing floor finishes or finishes of a different thickness. Where edge strips occur at doorways, locate the junctions directly below the closed door.

Cleaning and protection:

- Progressively clean the work and when the installation is complete, clean as necessary to remove extraneous matter, marks, soiling and the like and to lift the pile where appropriate
- Leave selected off cuts of carpet for each unit as directed by Superintendent/Authorised Person.

SUBSTRATE

Remove loose materials and projections and fill any depressions so as not to affect adhesion or produce undulations in the finished surface.

Prepare the substrate including the following:

Stripping and cleaning: Remove deleterious and loose material, including existing floor coverings and any surface treatment which could adversely affect adhesion.

Repairs: Make good to the surface finish as necessary. Fill depressions with a suitable filler, and remove high spots and projections. If necessary lay a steel-trowelled underlay to concrete substrate.

Fixtures and fittings: Remove door stops and other fixtures, and refix in position undamaged on completion of the installation.

Basic sanding: Provide an even plane sanded surface on strip flooring to be covered. Lightly sand the junctions of sheet flooring

Moisture content

General: Do not commence installation of flooring unless:
Concrete substrate: The moisture content of the concrete has been tested to AS/NZS 2455.1 Appendix B and values in clause 2.4.2(c) have been obtained.

Plywood and timber: The moisture content of battens/joists or plywood background has been tested to AS/NZS 1080.1

16.4 MATERIALS

To AS/NZS 1859.4.

To AS 1884

VINYL TILES AND SHEET

vinyl underlay (hardboard and fibre cement):

Wet processed fibreboard (hardboard) underlay

Classification: General purpose medium board, manufactured specifically as flooring underlay.
Thickness: 5.5 mm.

ADHESIVES

vinyl adhesives:

carpet adhesives:

As recommended by the carpet and accessory manufacturers, compatible with the floor covering material, and suitable for bonding it to the subfloor.

RESILIENT FINISHES AND TILES REQUIREMENT

Note: These provisions apply only to upgrading projects.

- Manufacture, Installation and Maintenance to current Australian Standards
- Use water based adhesives
- All sheet, flooring seams shall be welded (either chemical or thermal) to manufacturers specification
- Initial care of all installed materials shall be carried out to manufacturers specification
- Floor-coverings shall conform to the physical characteristics of approved samples and shall be within the limits of any sample range or variation in colour and pattern
- Products containing recycled materials are preferred
-

Class 1 dwellings – Vinyl Composition tiles (EN654) (Kitchens, Dining Rooms and Hallways etc)

- (Concrete floors laid on suitable levelling compound; Timber floors laid on Hardboard, FC sheet underlay or other approved underlay)
- Thickness: 3mm (EN428)
- Wear Resistance: <10mm³ (EN660)
- Min. 3db sound reduction
- R9 slip resistance
- Fire rating ISO9239.1 >11kW/m²

Class 1 dwellings – Homogenous Sheet (EN649 Kitchens, Dining Areas and Hallways etc)

- Thickness: Min. 2mm – Max. 3mm sheet vinyl (Concrete floors laid on suitable levelling compound, Timber floors laid on Hardboard, FC sheet underlay or other approved underlay)
- Polyurethane Reinforced
- Wear Resistance: Group P (EN660-2)
- R9 Slip Resistance
- Min. 3db sound reduction
- Fire rating ISO9239.1 >9kW/ m²

Class 2 and 3 dwellings – Cushioned Backed Heterogenous sheet (EN651)

- Thickness: Min. 3mm sheet vinyl (Concrete floors laid on suitable levelling compound, Timber floors laid on Hardboard, MDF or FC sheet underlay)
- Polyurethane Reinforced
- R10 slip resistance

- Wear Resistance: Group T (EN660-1)
- Min. 14db sound reduction
- Easy Clean top layer
- Fire rating ISO9239.1 >8kW/m²
-

Wet Area (Floors) – use only if approved by the Principal

- Homogenous Slip Retardant Vinyl sheet (EN649)
- Thickness: Min. 2mm sheet vinyl (EN428)
- Wear Resistance: Group M (EN660-2)
- Fire Rating: (ISO9239.1 > 9kW/m²)
- Slip resistance: AS4586 (B Wet/Barefoot and R10 Oil/wet ramp)
- Integral 150mm high coved skirting in all wet areas, Cove skirting to be installed with capping strip to prevent water penetration
- 32mm ø cove fillet to be used where vinyl is coved
- Products containing abrasive material in order to comply will not be considered
- Gatic Floor drain assembly to be used in all wet areas

Wet Area (Walls) – use only if approved by the Principal

- Homogenous Vinyl sheet (EN649)
- Thickness: Min. 1.25mm (EN428)
- Polyurethane Reinforced
- Wear Resistance: Group M (EN660-2)
- Fire Rating (AS3837) Group 2

WARRANTY: Provide minimum 7 years written warranty

To AS/NZS 2455.1

To AS 4288

CARPET REQUIREMENT

Fire Rating to BCA (for all Building Class Types)
Treated with Anti-Bacterial and Anti-Microbial

For Common Areas (class 2 dwellings), SEPP HSPD **Housing, Modified Dwellings & class 3 dwellings:**

- 100% wool carpet or wool blend (min 80% wool)
- Loop pile tufted carpet
- Level pile surface or with slight modulation
- 31.5 tufts/10cm (1/8) gauge
- 1356 g/m2 (40oz/yd2) total pile mass
- 6mm maximum pile height
- “Actionbac” or Jute backing
- ACCS (Australian Carpet Classification Scheme) rating for Residential Extra Heavy Duty including stairs
- Colour as approved by the Principal
- Carpet range and quality as approved by Principal
- A.C.C.S. Registration number to appear on back at regular intervals

For Class 1 and 2 Dwellings

- 100% bulked continuous filament (bcf), solution dyed Nylon or Nylon/Wool blend (min 50% nylon)
- Loop pile tufted carpet
- Level pile surface or with slight modulation
- 31.5 tufts/10cm (1/8) gauge
- Min 678 g/m2 (20oz/yd2) total pile mass
- 5mm maximum pile height
- “Actionbac” or Jute backing

- A.C.C.S. rating for Residential Extra Heavy Duty (Stairs)
- A.C.C.S. Registration number to appear on back at regular intervals
- Colour as approved by Principal
- Carpet range and quality as approved by Principal

WARRANTY: Provide minimum 10 years written warranty

To AS 4288

UNDERLAY REQUIREMENT

To ISO 9239.1

Underlay
- Meets current BCA and ISO 9239.1
- Recyclable and or made from recycled material
- Min grading "Residential" as per AS 4288
- Underlays to be marked at regular intervals with manufacturer's name/brand and AS 4288 compliance

Class 1 and 2 dwellings – Synthetic foam
- Rebonded polyurethane foam with stabilising laminate on top surface (or similar product)
- 7 mm min thickness
- 120 kg/m^3 minimum foam density or rebounded polyurethane foam

Class 1 and 2 dwellings – Vulcanised rubber
- Fire rated to BCA (treated with anti bacterial and flame retardant)
- Heavy duty vulcanised rubber, waffle pattern
- Reinforcing fabric: either Hessian, spun Nylon, or Polyester
- Min sheet thickness: 7.5mm (+0.5)
- 2.1kg/m^2 minimum product mass

Common Areas (class 2 dwellings), SEPP HSPD **Housing, & class 3 dwellings - Synthetic foam**
- Fire rated to BCA (treated with anti bacterial and flame retardant)
- Rebonded polyurethane foam with stabilising laminate on top surface (or similar product)
- Recyclable and/or made from recycled materials
- 7 mm min thickness
- 120kg/m^3 minimum foam density or rebounded polyurethane foam

Common Areas (class 2 dwellings), SEPP HSPD **Housing, & class 3 dwellings – Vulcanised rubber**
- Fire rated to BCA (treated with anti bacterial and flame retardant)
- Heavy duty vulcanised rubber, waffle pattern
- Reinforcing fabric: either Hessian, spun Nylon, or Polyester
- Min sheet thickness: 8mm (+0.5)
- 3kg/m^2 minimum product mass

WARRANTY: Provide minimum 10 years written warranty

17: Glazing

17.1 GENERAL

To AS 4055

TERRAIN CATEGORY refer to preliminaries 5.12 Terrain Category

17.2 QUALITY AND WORK PRACTICES

To AS 1288

GENERAL

- perform the required cutting, obscuring, silvering, and the like processes on glass
- form necessary holes for fixings, equipment, and the like
- grind and arris exposed glass edges
- free from defects that detract from appearance or interfere with performance under normal conditions of use.

Installation: use methods such that:

- each piece of glass is held firmly in place by permanent means which enable it to withstand the normal loadings and ambient conditions applicable to its location without damage to or failure of glass and glazing materials
- building movements are not transferred to the glass
- external glazing is watertight or prevents the entry of rainwater into building
- external glazing is airtight within specified limits.

ALUMINIUM WORK

- shop glaze all aluminium frames
- set glazing in approved plastic glazing channel and secure with aluminium or PVC beads
- support glass on approved neoprene setting blocks in frames and sashes.

17.3 MATERIALS

CLEAR GLASS

Clear float glass.

OBSCURED GLASS

Either “Spotswood” or “Pinhead” or as shown on drawings. Use the one pattern consistently throughout works.

To AS/NZS 2208

SAFETY GLASS

Provide permanently branded, of the following grades:

- clear toughened safety glass grade ‘A’, or
- clear laminated safety glass grade ‘B’.

MIRRORS

Silvering quality clear float glass, silvered, and electrolytic copper-coated not less than 5 micrometers thick, with back and edges sealed with two (2) coats of mirror-backing paint with a total dry film thickness of not less than 50 micrometers.

LOUVRE BLADES

6mm safety glass, having ground and arrised edges.

Glass to current Australian Standards except lower edge of all glass in windows within 500mm from floor to be only ‘A’ safety grade laminated or toughened glass.

Certificate Required

GLASS BALUSTRADES

Glass: Obscure (Unless otherwise shown on the drawings) Grade A safety glass to AS 1288 Section 7.
Frame: Proprietary system to BCA 3.9.2.

Structural engineer designed or proprietary certified by a structural engineer

SHOWER SCREENS

Proprietary system comprising frames of extruded aluminium, stainless steel, or PVC, assembled around safety glass to form fixed panels and sliding, hinged or pivoted doors. Screen and swing doors to be removable without damaging tiles and waterproofing.

Water shedding

General: Provide an assembly which sheds water to the inside without retaining it on the frame surfaces. Seal the edge of the frame to adjoining surfaces with a resilient strip.

Sliding assemblies

Hanging: Hang the sliding sash on stainless steel or nylon sheaves on overhead channel track formed in the frame head, and fit nylon or equivalent bottom guides.

Hardware

Handles: Pull handles on both sides of sash, or of leading sash in multiple sash arrangements.

GLASS BLOCKWORK

Provide glass blockwork where shown on the drawings.

Fire Rated Glass Blockwork

To AS 1530.4

- Provide samples of blocks, frame, fasteners, reinforcing and sealants.
- Blockwork and frame to be installed to manufacturers written instructions.
- Submit type-test certificates to AS 1530.4
- Provide manufacturers' written warranties.

GLAZING ACCESSORIES

Provide glazing materials including putty, glazing compounds, sealants, gaskets, glazing tapes, spacing strips, spacing tapes, spacers, setting blocks, compression wedges, and the like.
Materials to be appropriate for the conditions of application and the required performance, and complying with the recommendations of the manufacturer of the glass or glazing system.

17.4 GLASS TYPES LOCATION

Generally
Comply with BASIX or BCA Vol 1 Section J requirements
Unless otherwise specified or shown on the drawings, provide:
Clear Glass - to all windows and door assemblies.

Obscured Glass - to bathroom and WC windows.

Grade 'A' Safety Glass - all mirrors.

17.5 FIXTURES AND FITTINGS

GENERAL

- Item, number and location as shown on drawings and/or scheduled.
- Install to manufacturer's instructions.

MIRRORED CABINET

- 1 per bathroom above vanity.

MIRROR OVER BASINS

- To separate toilets provide mirror over basin
- Nom 450mm high x 300mm wide.
- White powdercoated aluminium frame.

18: Painting

18.1 GENERAL

EXTENT

- colour schemes
- prepare surfaces and finish as specified in SCHEDULES: Schedule of Painting.

paint system: a paint or clear finish system referred to only by its final coat comprises the appropriate stains, primers, sealers and undercoats recommended by the manufacturer of the selected final coat as suitable for the substrate and the final coat.

18.2 INSPECTIONS

Inspection Required

Give 48 hours notice at the following stages:

- when all surfaces have been cleaned and prepared for painting
- before proceeding with the application of any undercoat or subsequent coat
- before external primed work is undercoated.

18.3 QUALITY AND WORK PRACTICES

To AS/NZS 2311 Protection of steelwork: To AS/NZS 2312 Sections 4.

GENERAL

Workmanship to current Australian Standards

Apply paint to manufacturer's instructions.

Apply the first coat immediately after substrate preparation and before contamination of the substrate can occur. Apply subsequent coats after the manufacturer's recommended drying period has elapsed.
Make sure each coat of paint or clear finish is uniform in colour, gloss, thickness and texture, and free of runs, sags, blisters, or other discontinuities

To AS 4361.2

LEAD BASED PAINT MANAGEMENT

Refer to PRELIMINARIES P6: Environmental Protection

TESTING

The Superintendent/Authorised Person may take samples for testing by a NATA registered laboratory. Should samples fail to meet test requirements the Contractor will reimburse the Principal for the testing fees, and completely strip and re-paint, at no variation, all work considered to have been coated with defective materials.

APAS SPECIFICATION NUMBERS

Use paints conforming to the Australian Paint Approval Scheme (APAS) specification 0215 for low VOC Interior paints. The APAS was formerly known as the Government Paint Committee.

Approval

PAINT RECORD

Provide a paint record comprising the brand of paint to be used internally and externally and the name and address of the painting Sub-Contractor, and return to Superintendent/Authorised Person for approval before starting to paint.

On completion provide a PDF file copy of paint systems, paint brands and colours used on the project to the Superintendent/Authorised Person.

PROTECTION

- use dust sheets and drop sheets and masking to protect finished work, surfaces or fixtures. Remove over spray, paint spots and splashes immediately and restore any surfaces damaged
- mask adjacent surfaces
- remove door furniture, switches, GPO plates, fittings, and the like, before painting and replace on completion.

METHOD OF APPLICATION

- by licensed applicators only
- do not use paint rollers for priming or finishing coats on steelwork, gutters or timber mouldings.

COMBINATIONS

Use only materials compatible with the finishing coat specified, with each other, and in any one system from the same manufacturer:

- each coating is to be a noticeably different tint from the preceding coat.

SANDING

Where recommended by the manufacturer, sand between coats from top to bottom and dust down before recoating.

PRIMING BEFORE FIXING

General: Apply one coat of wood primer (2 coats to end grain) to the back of the following before fixing in position:

- External fascia boards.
- Timber door and window frames.
- Bottoms of external doors.
- Associated trims and glazing beads.
- Timber board cladding.

REPAIR OF GALVANIZING

General: For galvanized surfaces which have been subsequently welded, or which have been welded, prime the affected area.
Primer: Organic zinc rich coating for the protection of steel to AS/NZS 3750.9 Type 2.

SERVICES

General: If not embedded, paint new services and equipment, except chromium, anodised aluminium, GRP, UPVC, stainless steel, non-metallic flexible materials and normally lubricated machined surfaces. Repaint proprietary items only if damaged.

18.4 MATERIALS

PAINTS, UNDERCOATS, PRIMERS

- Colours to approved samples to current Australian Standards
- Paints, primers, undercoats conforming to appropriate APAS (Australian Paint Approval Scheme)
- Paint Specification number as per APAS Paint Speciffication
- Deliver to the site paints, primers, undercoats in sealed containers branded with the manufacturer's name, type of content and APAS approval number

Exterior paint

- 100% premium Acrylic (waterborne or Solvent borne) paint
- Low surface emitting product complying with APAS for low VOC

Anti-Graffiti Treatments

- Registered with APAS—cope with Xylene based and solvent based graffiti
- Fire rating to AS1530.3
- Tests to ASTM D968-51

Interior paint

- 100% premium Acrylic (Waterborne) paint or Alkyd base Solvent borne or Polyurethane paint
- Comply to APAS specification 0215 for low VOC Interior paints
- Tinted and untinted undercoats, enamels and topcoats to achieve low surface emitting product complying with APAS for VOC emissions

Tinting: pigments, tints and stains as recommended by the paint manufacturer.

WARRANTY: Provide minimum 10 years written warranty

THINNERS

Type and quantity recommended by the paint manufacturer.

PUTTY

Use a polymeric-based putty, stained to match the colour of the substrate for clear finishes.

INTUMESCENT PAINT

To AS 1530.4

- Fire rated to achieve a FRL of 60/60/60 when applied to plasterboards and/or pressed metal ceilings in accordance with AS1530.4
- Fire rated to achieve a FRL of 70/60/60 when applied to sheetrock and lath and plaster in both wall and ceiling assemblies in accordance with AS1530.4
- Fire rates to achieve a 1 hour fire endurance test in wall and or ceiling assemblies constructed of gypsum, fibreglass, aluminium, particle board, fibrous cement, pressed metal, plywood panels and timber in accordance with AS1530.4
- Intumescent paint to begin to expand at a temperature not exceeding 190ºC.
- Independent test results to be provided that indicates drying time of a single coat of intumescent paint not less than 450 microns (without mechanical aids) does not exceed 4 hours in any season assuming weather conditions are appropriate to apply to the product.
- Independent test detailing shall be provided that the product is non toxic
- Independent test shall be provided that the product can be applied over existing non fire retardant paint
- The product shall not contain a flashpoint

WARRANTY: Provide minimum 10 years written warranty

To AS/NZS 2311

EQUIPMENT

TOXIC INGREDIENTS

Do not use Schedule 1 paint of the Uniform Paint Standard in specified human contact areas, published by the National Health and Medical Research Council (NHMRC).

To AS/NZS 2312

18.5 SURFACE PREPARATION TYPES

GENERAL

Read the following surface preparation types with SCHEDULES: ‘Schedule of Painting’.

TIMBER (TYPE A)

- scrape off any resin or gum exudations and treat these areas with mineral turpentine or white spirit
- remove all traces of dirt, grease, oil and grime with solvents and sandpaper smooth. Remove all excessive roughness, loose edges splinters and slivers with glass paper
- seal off all resinous veins and knots as follows:
- Internal Acrylic Painted: use shellac.
- External Painted: use a high grade Alkyd based enamel conforming to

CEMENT RENDER, FIBROUS PLASTER, ASBESTOS CEMENT, GYPSUM PLASTERBOARDS, BRICK, BLOCKWORK AND CONCRETE (TYPE B)

- fill holes, joints and other imperfections with an approved filler, sand smooth, dust off then apply specified coating system. Grind or abrasive blast to form a suitable key for off-form concrete and very smooth brickwork.

GALVANISED STEEL AND ZINCALUME SURFACES (TYPE C)

- solvent wash surfaces with mineral turps or other approved solvent and dry with a clean cloth to remove all traces of residual solvent
- remove all loose oxide film by dry scuffing with fine abrasive paper
- apply one coat of Latex primer and finish as scheduled.

FERROUS (BARE) METAL SURFACES (TYPE D)

- water wash and then solvent wash surfaces as for galvanised steel. Remove all loose rust, mill scale and the like by scraping or wire brushing. Dust off, and supply immediately an approved rust inhibitor. Time lag between rust inhibitor and primer must be as recommended by the rust inhibitor manufacturer.

18.6 SCHEDULE OF PAINTING

Refer to drawings for finishes and colour schedules.

SURFACE OR SUBSTRATE	SURF PREP. TYPE	SYSTEM	1ST COAT	2ND COAT	3RD (and 4TH) COAT
1. TIMBER - PAINT FINISH					
INTERNAL	A	System 1	Undercoat – solvent-borne	Solvent-borne: **Full Gloss**	Solvent-borne: **Full Gloss**
EXTERNAL	A	System 1	Wood primer – solvent-borne	Solvent–borne: **Full Gloss**	Solvent–borne: **Full Gloss**
	A	System 2	Wood primer – latex or solvent-borne	Latex paint: **Gloss**	Latex paint: **Gloss**
2. TIMBER - STAIN FINISH	A	System 1	Semi-transparent or opaque stain – solvent-borne	Semi-transparent or opaque stain – solvent-borne	Semi-transparent or opaque stain – solvent-borne
	A	System 2	Semi-transparent exterior latex stain	Semi-transparent exterior latex stain	
3. EXTERNAL - FIBROUS CEMENT SHEETING, CONCRETE MASONRY, OFF FORM CONCRETE, PLASTER, CEMMENT RENDER, EXTERNAL BRICKWORK (PAINTED)	B	System 1	Latex sealer	Latex paint: **Semi -gloss**	Latex paint: **Semi -gloss**
4. EXTERNAL – HARDBOARD CLADDING	B	System 1	Wood primer, latex or solvent-borne	Latex paint: **Gloss**	Latex paint: **Gloss**
	B	System 2	Wood primer – solvent-borne	Solvent-borne paint: **Full gloss**	Solvent-borne paint: **Full gloss**
5. INTERNAL WALLS, CORNICES, CEILING					
PLASTERBOARD, CEMENT RENDERED WALLS, FIBROUS CEMENT SHEETING	B	System 1	Latex sealer	Latex paint: **Semi-gloss**	Latex paint: **Semi-gloss**
SET PLASTER CEILINGS	B	System 1	Solvent-borne sealer	Latex paint: **Semi-gloss**	Latex paint: **Semi-gloss**
6. IRON AND STEEL					
INTERNAL	C	System 1	Solvent-borne metal primer	Solvent-borne paint: **Full gloss**	Solvent-borne paint: **Full gloss**
EXTERNAL (EXTENDED CORROSIVE RESISTANCE)	D	System 1	Zinc-rich metal primer	Zinc-rich metal primer	2 coats of solvent-borne paint: **Full gloss**
EXTERNAL	D	System 1	Metal primer	Metal primer	2 coats of latex paint -**Gloss**
7. GALVANISED IRON OR ZINCALUME					
INTERNAL	C	System 1	Galvanised iron metal primer, Latex	Latex paint: **Gloss**	Latex paint: **Gloss**
EXTERNAL	C	System 1	Galvanised iron metal primer, Latex	Latex paint: **Gloss**	Latex paint: **Gloss**
	C	System 2	Galvanised iron metal primer, Solvent-borne	Solvent-borne paint: **Full gloss**	Solvent-borne paint: **Full gloss**

NOTE: For detailed provisions refer to AS/NZS 2311: Guide to the painting of buildings

19: Fencing

19.1 GENERAL

Approval

APPROVALS

Do not erect boundary fencing without earlier written approval of the Superintendent/Authorised Person:

- if fencing is erected on adjoining owners' boundaries without their approval the Contractor may be liable for half the total cost of fencing erected, by way of deduction from the contract sum
- conform to levels as determined by the local Council and / or as indicated by the Superintendent/Authorised Person.

EXTENT

- Refer to drawings
- To demarcate and secure the property boundaries enclose the rear and side boundary of the property. Provide cut off fencing to enclose the side boundary from the front. Fences and gates must be suitable to maintain privacy, be a safe area for children, and confine domestic animals, and
- To act as a lockable, secure and functional ingress and egress between the front and rear yard and to enclose front and rear private open areas.
- Provide pedestrian and vehicular gates where shown and as detailed.

19.2 QUALITY AND WORK PRACTICES

GENERAL

Erect posts vertically to follow the contours of natural ground.

PRESERVING

To AS 1604.1

Coat all timber fencing and gate posts with Type A creosote to 100mm above finished ground level. Creosote is not required where timber has been preservative-impregnated to Hazard 4 or 5.

19.3 MATERIALS (TIMBER FENCING)

TIMBER SPECIES AND DURABILITY RATINGS

Refer to SCHEDULES: Schedule of Timber Species and Durability Ratings, for species and grade of timber.

STEEL POSTS

To AS/NZS 4680

Use galvanised steel RHS posts capped off with welded steel plate, for closed paling and lapped timber fence set in 20MPa concrete footing 250mm diameter x 750mm deep.

- Hot dip galvanised finish.

Nails

Use flathead galvanised or electro-galvanised nails for all fencing work:

- nails to penetrate into post or rail at least 30mm
- to fix palings, use nails of 2.8mm diameter for nails up under 75mm long and 3.6mm diameter for nails longer than 75mm
- fix palings using two nails per paling at each rail.

ACCESSORIES

Hinges: hinges, brackets, etc - to be galvanised
Latches: refer to DOOR/HARDWARE

PAINTING

Refer to PAINTING:

- where palings are lapped, paint or stain full width of lapped face of palings before fixing overlapping palings.

19.4 FENCE TYPES

HEIGHTS

Refer to heights shown on drawings. Generally heights to be:

- Front Fencing 900mm to 1200mm
- Cut off fencing 1200 to 1500mm
- Side and Rear fencing 1800mm
- Gate to match fence cladding and height where specified

DECORATIVE FENCES REQUIREMENT

- Steel or Aluminium Tubular non climbable panels—flat or looped top finish only. NO Spears or protruding rods
- Min 16mm x0.9mm tubes - spacings approx 100mm centres
- Rails Min 39 x 25 x 1.2mm rectangular tubing or Min 25mm round
- Posts Min 50 x 50mm –450mm round Min 1.2mm thick
- Powder Coating to AS4506
- Safety compliance to AS1926.1 for gates, hinges and locks

WARRANTY: Provide a minimum 3 year written warranty

METAL FENCES REQUIREMENT

- Steel pre-rolled sheet—Colorbond double sided steel
- Pre-painted steel complying with AS/NZS 2728: Type 3, testing compliance to meet performance requirements within an exposed environment for humidity, scratch resistance, impact, adhesion, cracking and corrosion. Made from zinc-aluminium alloy coated steel complying with AS1397-2011, G550 (550MPa minimum yield stress), AZ150 (150g/m^2 minimum coating mass) (fence panels), or zinc alloy coated steel complying with AS1397-2011, G500 (500MPa minimum yield stress), Z275 (275g/m^2 minimum coating mass) (posts and rails)
- The fence panel base metal thickness is 0.35mm
- Posts - Standard Channel posts 84 x 43mm, Square Corner, junction and single gate posts 60x60x1.6, Double gate posts 65x65x2.5 installed with caps
- Rails 60x53 with base metal thickness of 0.8mm
- Installation to manufacturer's specification

WARRANTY: Provide a minimum 10 year written warranty

TIMBER FENCES REQUIREMENT

- End Post/Gate post/Corner Post either Hardwood/Treated pine 125x125mm or Galvanised steel 75x75x2.5mm
- Intermediate posts either Hardwood 125x50mm or treated pine 125x75mm
- Rails Hardwood /Treated pine 75x50mm
- Palings Hardwood/ Treated pine 100x15mm either lap palings by 15mm or close butted.
- All timber measurements ± 2mm

WARRANTY: Provide a minimum 1 year written warranty

PALING FENCES

Item	Cypress pine & treated radiata pine	Hardwood	Steel
corner posts		125 x 125	75 x 75 x 3.5mm
intermediate Post		125 x 50	50 x 50 x 3.5mm
rails to max. 2.4m use 3 rails for 1800mm high treated pine fence.	75 x 50mm	75 x 50mm	N/A
palings	100 x 15mm thick	100 x 15mm thick	N/A
walings	150 x 25 x 600mm long	150 x 25 x 600mm long	N/A

construction:
- set posts into post holes minimum 300mm diameter x 600mm deep
- surround corner, end and gate posts (except for bottom face) to ground level with 20mPa concrete and splay off at top around post
- provide waling pieces to narrow face of intermediate posts and backfill with rammed soil
- taper splice rails together and nail in mortices, spaced 200mm from top and bottom of palings
- For 1800mm high treated pine closed paling fence and for all timber fencing over 1800mm high provide 3 rails (including intermediate rail)
- chamfer top corners of palings before fixing
- fix palings closely butted.

raking panel: rake terminating panel of paling fences to a height of 1000mm minimum.

lapped and/or lapped and capped fences: as specified for paling fences and:
- provide 3 rails with the top rail located to receive capping if required
- lap 20mm minimum cover of each side
- capping out of 125 x 38mm minimum.

OTHER FENCES

Provide other as shown and detailed on drawings or as scheduled.

19.5 GATES

Provide gates as shown on drawings or schedules.

Timber Gates: shall be supported on a steel frame - hot dipped galvanised.

19.6 SCHEDULE OF TIMBER SPECIES & DURABILITY RATINGS

Application	Timber species or minimum durability class	Timber finish	Aust Standard (AS)	Preservative treatment rating for softwood
Paling fence posts	Class 2 or better	Struct. Grade 1	2082	H4 or 5) See
Other fence posts	Class 1	Struct. Grade 1	2082	H4 or 5) Note
Fence rails and palings	Eastern Australian hardwoods	Struct. Grade 3	2082	
	Radiata pine (treated)			H3
	Cypress pine			

NOTE: Where H4 or H5 is specified as an alternative, the required hazard rating will depend on specific site conditions that exist.

19.7 SCHEDULE OF FENCES

Provide fencing. Refer to drawings and schedules for fence/s selection and location.

Side and rear boundaries	1800mm high
Private rear yards	Gate cladding to match fence Gate on galvanised steel frame
Private front yards	Gate cladding to match fence

Front boundary and returns to building line	900mm to 1000mm high No 'spear points' Gate cladding to match fence Masonry piers and steel/timber infill
Drying Yards	Gate cladding to match fence Gate on galvanised steel frame
Cut off between buildings	Gate cladding to match fence Min 2700mm wide vehicular gate where required Gate on galvanised steel frame

20: Landscape works

20.1 GENERAL

NOTICE

Give seven (7) days notice before starting Landscape work.

Approval

APPROVED SUB-CONTRACTORS

Work is to be carried out by a qualified Horticulturalist/Landscaper and/or current member of the Landscape Contractors Association of NSW.

Approval

APPROVED SUPPLIERS

Submit, before placing orders, the proposed list of suppliers for the following materials:

- plant material
- imported soil mixes and conditioners - supplier details

Approval

PLANTS

- advise the Superintendent/Authorised Person immediately if any supply difficulties are encountered including specified container sizes
- where specified plants or grasses are not available, submit details of alternatives to the Superintendent/Authorised Person for written approval
- refer to SCHEDULES: Schedule of Australian Standards and Codes for applicable guidelines
- provide substitute plants with landscape design criteria qualities similar to the specified plants
- do not use variegated varieties (unless shown on the drawings).

SAMPLES

Submit representative samples of each of the following for approval, pack to prevent contamination and label to indicate source:

imported soil mixes:	10kg
mulch:	1 litre
compost:	1kg.

ADVERSE CONDITIONS

Notify Superintendent/Authorised Person and confirm instruction for planting operations during drought, when sub-grade levels/soil is wet or waterlogged, and during frost and snow.

RETAINING WALLS

Where ground slopes 1:6 or more, provide retaining walls. Use masonry for all external work. Refer to schedules. Refer to GROUNDWORKS: Retaining Walls.

Inspection Required

20.2 INSPECTIONS

Give 48 hours notice so that inspection can be made of the following:

- Prior to commencement of the landscape work, inspection involving landscape subcontractor, contractor and Superintendent/Authorised Person to review the extent of work and any site issues
- On completion of landscaping to identify defects and rectification work
- Further inspections as required to approve rectification work.

20.3 MATERIALS

Approval

SITE TOPSOIL

To be approved for re-use from soil excavated from the site containing organic matter, supports plant life, and is free from unwanted matter such as:

- stones over 25mm diameter
- clay lumps
- building spoil/contaminants

- weeds and tree roots
- sticks and rubbish
- material toxic to plants.

Refer to GROUNDWORKS: Topsoil, storage and removal.

To AS 4419

IMPORTED SOIL MIXES

Approval

From an approved off-site source.

To AS 4419

TOPDRESSING SOIL

A sandy loam or coarser textured sand.

MULCH

Shredded pine flake (25 x 4 x 2mm) free of soil, weed growth and other foreign matter:

- spread evenly to a depth, after settlement, of 75mm
- finish flush with surrounding adjacent finished surfaces.

COMPOST

Approval

To AS 4454

- spent mushroom compost, free from grass or weed growth of any kind, uniform and evenly graded, inert, and with a pH in the range from 5 to 7.
- Where mushroom compost is unavailable, approved alternative composted materials may be used.

SITE TOP SOIL MIXTURE

Site topsoil to be thoroughly mixed with mushroom compost or approved equivalent soil conditioner, in the ratio of:

- 3 (topsoil) :1 (compost) in planting areas
- 5 (topsoil) :1 (compost) in turfed.

FERTILISER

Concentrated organic fertilisers delivered to site in sealed bags marked to show type, NPK ratio, recommended uses and application rates:

- use in accordance with the manufacturer's recommendations.

PLANT MATERIAL

- to be true form to species and proportional form and canopy size relevant
- in good condition for successful growth and with plants in appropriate for plant size containers
- viro-cell/tube stock plants well developed and actively growing
- unsatisfactory material including that allowed to dry out or damaged is to be replaced at no variation to the contract.

TURF

- cultivated quality, freshly cut and moist, with vigorous well-matted root system, healthy green-colour grass shoots of even thickness not less than 25mm, having been regularly mown
- certified disease free and weed free
- shade and drought tolerant where required
- deliver to the site within 24 hours of cutting and lay within 36 hours of cutting
- prevent from drying out and/or becoming waterlogged between cutting and laying.

STAKES AND TIES

Location	Stake size
Viro-cell/tubestock marker stakes	25 x 25 x 600mm
150mm diam. to 5 litre pots in planting areas	25 x 25 x 1500mm
150mm diam. to 5 litre pots in grass	38 x 38 x 1800mm
25-35 litre pot sizes 45 Litre or greater	2 x 38 x 38 x 1800mm 3 x 50 x 50 x 1800-2400mm
tie material	50mm wide jute webbing

- use sound, straight durable hardwood, pointed at one end
- position stakes outside the root ball and drive vertically into the ground, to maintain plant stability

- tie each plant in figure-of-eight form at a height to give effective support to plant, tied to the main leader on firm wood, and stapled to stake.

20.4 PREPARATION

PLANTING AREAS

- eliminate weeds and grass at least 7 days prior to cultivation
- rip to 300mm depth where ground is compacted, or where necessary to achieve a good tilth. Spread compost evenly at the rate of one (1) cubic metre per ten (10) square metres (100mm depth) and general fertiliser at the rate of three (3) kg per ten (10) square metres.

cultivate: rotary hoe or cultivate the compost and fertiliser evenly into the top 200mm depth of the planting area and rake to an even surface finish.

mulch: supply and spread mulch over the surface to a depth of 75mm. Ensure that mulch is tapered down to each plant collar to prevent collar rot

stockpiled and/or imported topsoil/soil mixes: where stockpiled or imported topsoil is to be placed:
- excavate to 300mm below finished levels generally
- rip or cultivate subgrade to minimum depth of 100mm
- backfill with topsoil mixture, firm lightly and water thoroughly.

drainage: where indicated on the drawings provide to contained planting areas:
- 100mm depth of 25mm gauge aggregate drainage layer with 65mm diameter flexible polythene agricultural drainage laid through layer connected to stormwater system
- Cover with filter fabric.

finished levels: Finish planting areas flush with adjoining finished surfaces after application of mulch, taking into account settlement of soil and mulch.

SUBSOIL DRAINS

- provide where indicated on the drawings. Refer to DRAINAGE: Materials
- extend 1:100 minimum fall and connect to stormwater system.

TURFED AREAS

- provide min. 50mm turf underlay beneath turf
- extend beyond property boundary to the street kerb
- finish grass surfaces flush with adjoining finished surfaces, or as detailed
- ensure that turf rolls are tightly butted together and laid parallel along contours to reduce erosion or storm damage
- fall surfaces to drainage inlets.

existing topsoil:
- remove perennial and annual weeds, stones over 50mm in diameter, building rubble and other extraneous material
- cultivate the area to a minimum depth of 250mm, incorporating compost at the rate of one (1) cubic metre compost per 30 square metres.

imported and/or stockpiled topsoil:
- grade areas, and cultivate the subgrade to a minimum depth of 150mm
- remove perennial and annual weeds and rubbish
- provide 100mm depth of topsoil mixture. Spread evenly over the prepared sub-grade.

lawn fertiliser: apply lawn fertiliser raked evenly into the topsoil not more than 48 hours before the turf is laid.

20.5 PLANTING OF TREES, SHRUBS, GROUNDCOVERS & TURF

GENERAL

- provide trees, shrubs, groundcover and turf to the extent indicated on drawings
- soak the plant, remove from container and put it in centre of the planting hole
- backfill applying slow release plant fertiliser and firm about the root ball. Do not disturb root ball
- immediately after planting apply the quantity of water indicated on the details for the size of the plant, or as necessary to thoroughly soak each planting hole
- remove all spoil and containers from the site.

INDIVIDUAL TREES AND SHRUBS IN GRASS AREAS

- form holes with depth equal to container height plus 225mm, and width equal to that of the container plus 600mm
- in clay soils increase the width to form a saucer-shaped hole
- break up the sub-base to a minimum depth of 100mm and remove rocks and debris
- put fertiliser in base of hole
- backfill with topsoil mixture to 150mm depth. Place plant in position and backfill with topsoil mixture
- dish the soil 75mm below adjoining surface lawn level around the plant stem to facilitate watering
- stake and tie trees.

TREES, SHRUBS, GROUNDCOVERS AND CLIMBERS IN PLANTING AREAS

- form holes with depth of hole equal to the container height plus 100mm and width equal to twice the container width
- where compacted, break up the sub-base and sides as necessary
- backfill the planting hole with excavated material plus slow release plant fertiliser to a depth of 100mm
- backfill with excavated material and firm about the root ball
- dish soil around the plant to facilitate watering.

Approval

LAYING TURF

- obtain Superintendent/Authorised Person's approval of grading before laying turf
- "dummy rake" to an even surface to required finished grades and levels.
- Install 50mm of turf underlay soil beneath turf rolls
- Lay turf over 100mm loose, friable topsoil
- lay with well-bonded, broken joints, and tamp down to give an homogeneous completed surface
- lay parallel with the contours
- finish grass surfaces flush with adjoining finished surfaces
- fall surface to drainage inlets. Allow for drainage
- thoroughly water the finished work immediately after laying
- roll lightly with a 135kg roller to ensure good contact with the topsoil.

topdressing:

- top dress turfed areas with topsoil min 65% sand and max. 15% clay immediately after laying.
- spread evenly and rub in with a "dummy rake", allowing the stems to project just above the topdressing
- finish surface free from bumps and depressions, and shed surface water.

protection:

- protect new turf from damage until well established with suitable barriers.
- suitably identify the protective barrier, particularly along street frontages.

20.6 MAINTENANCE

MAINTENANCE

Provide routine maintenance of the standard specified for 26 weeks from the date of Completion/ Practical Completion:

watering:

- adequately water all plants and lawn areas. The minimum acceptable watering required is equal to 25mm of natural rainfall or its applied equivalent during each period of one (1) week
- around individual plants, maintain a completely weed and grass free watering saucer of a minimum diameter of one (1) metre.

disease and pest control: Control pathological diseases or insect pests by physical removal. Where physical removal is not possible use registered non-toxic sprays, applied in accordance with manufacturer's instructions.

pruning and tying plants:

- prune plants to repair mechanical damage, or to improve plant shape and form or to clear footpaths and driveways
- adjust ties to give adequate support to the plants
- replace broken or damaged ties as necessary and remove when directed by the Superintendent/Authorised Person
- straighten stakes.

replacement: replace without delay, damaged or stolen plants. Replace with identical species of similar size and of original specified quality.

fertilising: Apply follow up concentrated organic fertiliser to all turfed areas once during the maintenance period 10 weeks after Completion/ Practical Completion.

lawns:

- mow at 10-day intervals, trimming all edges
- remove all weed growth or grass around base of all plants in turf or by hand in grass areas within the isolated planting area edging and within one (1) metre diameter area in grass
- do not use nylon line type edge trimmers around base of trees
- replace or repair failed turf and bare patches.

making good: make good soil erosion or subsidence with topsoil mix as before specified.

20.7 EDGING

GENERAL

Provide edging to the extent and type shown on the drawings and/or as scheduled.

CONCRETE EDGING

- use 20 MPa in-situ concrete
- place in trench between timber formwork. Strip, protect and cure
- trowel finish exposed surfaces and edge tool all exposed corners
- provide 10mm thick, preformed, bituminous felt expansion joints spaced evenly at maximum 4500mm centres and at junctions.

BRICK EDGING

- form in-situ mortar haunch of 3 (sand) :1 (cement) and plasticiser to manufacturer's instructions
- finish joints flush struck on exposed surfaces.

bricks:

- approved standard clay face bricks, hard and well burnt, and free from through holes, chips and callows
- clean brick faces on completion.

TIMBER EDGING

To AS 1604.1

- use 25 x 150mm deep timber edge boards neatly butted against adjoining edges
- timber edge boards and pegs to be select grade sawn hardwood
- treat all surfaces with preservative prior to installation. Treatment is not to be carried out where spills can effect soils or other finishes
- secure edge boards by nailing with 13-gauge, flat head nails to 75 x 50 x 350mm minimum long tapered surveyors pegs at 1500mm maximum centres
- finish top of boards flush with adjoining surfaces
- finish pegs 25mm below top of edge boards.

20.8 PAVING

GENERAL

Provide paving to the extent shown on drawings/schedules.

To AS/NZS 4455.1

BRICK PAVING

Dry press clay bricks, well burnt, of even dimensions, free of callows, flinting, chipping, and other defects.

brick on sand bedding:

- base course, of 150mm thick compacted road base, with a 25mm layer of coarse sand screeded over the base course. A stable bed for the paving, free of depressions, and with an even fall to shed surface water
- lay bricks close-butted in the pattern detailed
- provide paving edge of concrete, or concealed concrete haunching to the underside of the outside brick to a minimum 150 x 150mm trench
- finish haunching a minimum depth of 50mm below finished surfaces adjacent to the edge brick
- sweep dry, washed river sand over the paved surface to fill all joints.

brick on concrete base:

- concrete base as detailed to standard specified in CONCRETE WORKS
- lay bricks close-butted to pattern detailed, over 12mm thick mortar bed of 1:3, cement to sand
- finish areas free of depressions with even fall to shed surface water
- clean before drying upon completion.

To AS/NZS 4455.2

PRECAST CONCRETE PAVERS

- lay non-slip precast concrete pavers, minimum 25 Mpa strength, on a 50mm thick compacted road-base and sand bed
- lay level and flush finish with adjacent finished surfaces
- space at maximum 150mm apart.

PERMEABLE PAVING

Provide where shown and specified on the drawings

20.9 EQUIPMENT, FIXTURES AND FURNITURE

FIXTURES AND FURNITURE

Provide garden hose, garden seats, planter boxes, bollards, compost bins, and other external area furniture items, of the types and finishes detailed and/or as scheduled.

GARDEN SHEDS

Where shown and detailed on drawings provide garden.shed.
Provide concrete base. Top of concrete floor shall be set minimum 50mm above surrounding ground level.

STREET FURNITURE – TABLES & SEATS

Provide furniture shown on the drawings and comply with:
- Vandal proof and durable street furniture and tables for common areas
- 98% recycled wood/plastic composite
- Recycled co-mingled wood/plastic independently tested not to crack, splinter, rot, rust or warp
- CCA and Toxin free
- UV stabilised and Non permeable
- Fixed with vandal proof galvanised or stainless steel fixings
- Frame galvanised steel or other vandal proof material

WARRANTY: Minimum 1 year written warranty

GARDEN HOSE

Provide for each dwelling and ground floor unit:
- 18 metres long 12mm diameter reinforced plastic hose
- 12 x 12mm brass tailpiece for connection to hose cock
- 12 x 12mm brass nut and tailpiece for nozzle connection
- brass adjustable hand spray nozzle and brass fixed sprinkler jet
- assembled for immediate use

21: Schedules

S1 Schedule of Superintendent/Authorised Person Approvals and Inspections

PRELIMINARIES

Shop Drawings	❑	Examination and endorsement of shop drawings.
Fire restrictions	❑	Approval required for lighting of fires.
Site office Superintendent/Authorised Person	❑	Approval for removal of site office.
Samples	❑	Approve samples.
Proprietary items - Alternatives	❑	Adopt or reject alternative items.
Joining up	❑	Approve manner.

SECTION 01 : Demolition

Inspections	❑	Approval to commence demolition.
Materials and Components	❑	Notify of hazardous materials or wastes.

SECTION 02 : Groundworks

Inspections	❑	Excavated material for use as site filling.
	❑	All finished excavations.
Protection of existing trees		
- Work under trees	❑	Authorise cutting of roots.
- Lopping	❑	Direct engagement of arborist. Furnish list of qualified arborists.
- Damage	❑	Approve removal of trees.
- Harmful activities	❑	Approval of Harmful activities near trees.
Filling materials	❑	Approve filling material.
Restoration of road openings		
- Private roads	❑	Approve opening of undedicated roads in writing.

SECTION 03 : Concrete works

Inspections	❑	Footings
	❑	Piling
	❑	Piering
	❑	Film underlay or membrane installed on base.
	❑	Completed formwork.

	❑	Reinforcement fixed in place.
	❑	Placing of concrete.
	❑	Stripping of formwork.
Formwork	❑	Approve formwork prior to pour.
Concrete		
- General	❑	Approve ready-mixed concrete source.
- Pumping	❑	Approve pumping of concrete.
- Curing	❑	Approve curing compound.
Concrete paths, paving, steps, & misc. items	❑	Approve grades.
Waterproofing		
- System	❑	Approve waterproofing system.
- Application	❑	Approve application

SECTION 04 : Masonry

Inspections	❑	Damp-proof courses.
	❑	Bottoms of cavities after cleaning out.
	❑	Bottoms of core holes before grouting.
	❑	Control joints ready for insertion of joint filler.
Sample Panel	❑	Approval of panel
Materials		
- Exposure class bricks	❑	Approve type of brick.
- Additives	❑	Approval
- Coloured mortar	❑	Approve oxides
- Expansion joints	❑	Approve compressible material

SECTION 05 : Metalwork

General		
- Metal Framing	❑	Approve use of metal framing systems in writing.

SECTION 06 : Carpentry and joinery

Inspections	❑	Completion of Framing.
	❑	Before fixing internal linings.
General	❑	Approve framing.
Materials		
- Preservative Treatment	❑	Approve timber treatment details.
Structural Elements		
- Roof Trusses	❑	Written approval required before manufacture.

SECTION 07 : Doors, Windows and Hardware

Fixtures and fittings		
- Keyed alike locks	❑	Confirm requirements before placing orders.

SECTION 08 : Roofing and Roof Plumbing

Fixtures and fittings

- Safety anchors
  - ❑ Approve anchor brackets

SECTION 09 : Internal Linings

Materials

- General
  - ❑ Approve manufacturer of plasterboard.
  - ❑ Approve manufacturer of fibre cement

SECTION 10 : Plumbing & sanitary plumbing

Inspections

- ❑ Service trenches.
- ❑ Works ready for tapping and/or cutting into regulatory Authorities water, sewer or drainage mains.
- ❑ Works ready for testing.
- ❑ Work prior to covering.
- ❑ Completed work.
- ❑ Any other inspections required by the regulatory authority.

Quality and work practices

- Accessibility
  - ❑ Approve exposure and inaccessible pipework.
- Building penetrations
  - ❑ Approve chassy in reinforced concrete.

SECTION 11 : Drainage

Inspections

- ❑ Trenches excavated and ready for pipe laying.
- ❑ Works ready for tapping and/or cutting into regulatory Authorities water, sewer or drainage mains.
- ❑ Works ready for testing.
- ❑ Enclosed work ready to be covered or concealed.
- ❑ Completed work.
- ❑ Any other inspections required by the regulatory authority.

Sumps, Pits

- General
  - ❑ Approve installation of pits.
  - ❑ Approve proprietary precast concrete pits.

SECTION 12 : Electrical works

Inspections

- ❑ Trench excavation before installing cables.
- ❑ Underground and concealed conduits before concealment.
- ❑ Testing of individual and/or Master Antenna Television System.

Wiring installation

- Penetrations
  - ❑ Approve penetrations of firewalls and structural members.

SECTION 13 : Gas service

Inspections

- ❑ Trenches excavated and ready for pipe laying.
- ❑ Work ready for specified testing.

	❑	Enclosed work ready to be covered up or concealed.
	❑	Any other inspections required by the Supply Authority.
Quality and work practices		
- Accessibility	❑	Approve location of inaccessible pipework.

SECTION 14 : Plastering

Quality and work practices	❑	Approval of waterproof render
	❑	Approval of bonding agents
	❑	Approval of admixtures

SECTION 15 : Tiling & wet area waterproofing

Inspections	❑	Flashing and waterproofing of wet area floors and walls before covering.
	❑	Background immediately before starting tiling.
	❑	Initial or trial setout.
	❑	Control joints before sealing and grouting.
	❑	Completion of tiling.
Quality and work practices		
- Samples	❑	Approve samples

SECTION 16 : Resilient finishes and carpets

Inspections	❑	Background immediately before fixing sheets or tiles and laying of carpets.
	❑	Completion of laying of underlay if any.
	❑	Completed installation.
General		
- Samples	❑	Approve samples.
Quality and work practices		
- Vinyl floor covering	❑	Approve trial set out before fixing.

SECTION 18 : Painting

Inspections	❑	When all surfaces have been cleaned and prepared for painting.
	❑	Samples of colours to be used.
	❑	Before proceeding with the application of any undercoat or subsequent coat.
	❑	Before external primed work is undercoated.
Quality and work practices		
- Paint record	❑	Obtain paint record and approve Sub-Contractor.

SECTION 19 : Fencing

Quality and work practices		
- Approvals	❑	Advise in writing that boundary fences may proceed

SECTION 20 : Landscape works

Inspections	❑	Approve completed landscape works in accordance with contract documents.
General		
- Approved subcontractors	❑	Approve landscape subcontractor.
- Approved suppliers	❑	Approve plant material before placing order.
	❑	Approve imported topsoil before placing order.
- Plants	❑	Approve alternative plants if required.
- Samples	❑	Approve imported topsoil, mulch and compost.
Materials		
- Site topsoil	❑	Approve site-excavated topsoil.
- Imported **topsoil**	❑	Approve off-site source.
Planting of trees, shrubs, ground covers and turf		
- Laying turf	❑	Approve grading of surface.
Brick Edging	❑	Approve brick.

S2 Schedule of Certificates, Guarantees and Warranties

CERTIFICATES, GUARANTEES AND WARRANTIES

Generally: Unless otherwise specified or agreed, warranties or guarantees specified in the contract must name the Principal as warrantee and are to be obtained by the Contractor from the warrantor and submitted to the Superintendent/Authorised Person.

By Completion/ Practical Completion, supply the following documentation to the Superintendent/Authorised Person:

Preliminaries

5.6 Council Property	❑	Clearance Certificate from Council
5.13 Setting Out	❑	Survey Identification Certificate
8.10 Timber Inspection	❑	Quality Assurance Timber Certificate

SECTION 02 : Groundworks

2.6 Site Excavations	❑	Bearing pressure of foundation – Structural Engineers Certificate
2.8 Compaction	❑	Compaction of fill – Structural Engineers Certificate
2.11 Retaining Walls	❑	Retaining walls – Structural Engineers Certificate

SECTION 03 : Concrete Works

3.3 Concrete Sampling	❑	Sampling and testing results of concrete slump and strength testing from NATA laboratory
3.3 Reinforcement of structural elements	❑	All reinforced structural concrete structural elements including piers (footings) – Structural Engineers Certificate
3.5 Reinforcement	❑	Certificate from Australian Certification Authority for reinforcing steel
3.8 Termite Barriers	❑	Termite Barrier System and product Warranty
3.16 Waterproofing System	❑	Installation of waterproofing – 20 year Guarantee
3.17 Finishes – Concrete Floor Treatment	❑	Slip resistance – 5 year Warranty

SECTION 04 : Masonry

4.5 Accessories - Steel Lintels	❑	Steel lintels – Structural Engineers Certificate
4.5 Accessories - Precast Lintels	❑	Precast, Fire rated Lintels – Structural Engineers Certificate
4.5 Accessories - Insulation in cavity walls	❑	Insulation in cavity walls – manufacturers Warranty for materials and installation
4.5 Accessories - common walls	❑	Fire-rated common walls – Certificate of Compliance
4.5 Accessories - common walls	❑	Sound-rated common walls – Certificate of Compliance
4.9 Flashings	❑	Cavity drainage and flashing Certicate of Installation Complying with BCA
4.9 Flashings	❑	Sill and head flashing Certificate of Installation Complying with BCA
4.9 Flashings	❑	Flashing at roof abutting a wall Certificate of Installation Complying with BCA

SECTION 05 : Metalwork

5.1 Metal Framing	❑ Metal Frame – manufacturers warranty
5.7 Fixtures & Fittings	❑ Bathroom Fittings – 1 year Warranty
	❑ Grab Rails – 1 year Warranty
	❑ Shower Seat – 5 year Warranty
	❑ Clothes Line – 10 year Warranty for frame & 1 Year Warranty for line & components
	❑ Letterbox – 1 year Warranty
5.9 Signage	❑ Street / Unit Numbering – 1 year Warranty
	❑ Prohibition Signage or Advisory / Information – 1 year Warranty
	❑ Non-Smoking Signs In Common Areas – 5 year Warranty
	❑ Evacuation Signage – 1 year Warranty

SECTION 06 : Carpentry and Joinery

6.3 Quality and Work Practices	❑ Timber suppliers - Certificate
6.5 Structural Elements	❑ Roof Trusses design – Structural Engineers Certificate
6.8 Cupboards	❑ Kitchen Units/Cupboards – 5 year Warranty
	❑ Bathroom Cabinets – 5 year Warranty
	❑ Built in Wardrobes – 5 year Warranty

SECTION 07 : Doors, Windows and Hardware

7.1 Doors	❑ Doors – Manufacturer's Guarantees
7.2 Door Frames	❑ Fire-rated Doorsets – Manufacturer's Certification
7.5 Windows	❑ Window Energy Rating – Manufacturer's Certificate
	❑ Windows- all materials & structural integrity & compliance with standards – 7 year manufacturer's Warranty
7.6 Fixtures and Fittings	❑ Door Locks & Latches - 5 year Warranty paint and tarnish, 10 year Warranty mechanical
	❑ Window Locks – 2 year Warranty
	❑ Intercom and Access control – 1 year Warranty
	❑ Heavy Duty Screen Doors – 10 year Warranty
	❑ Stormproof Door Seal or Smoke Seal – 2 year Warranty
	❑ Garage Doors – 7 year Warranty
	❑ Window Awnings – 5 year Warranty

SECTION 08 : Roofing and Roof Plumbing

8.3 Sarking Insulation and Vapour Barrier	❑ Sarking – Manufacturer's Lifetime Warranty
8.4 Tile Roofing	❑ Roof Tiles – Manufacturer's 25 year (min) Warranty
8.5 Sheet Roofing	❑ Metal Roofing – Manufacturer's 15 year Warranty
	❑ Glazed Roofing – Certificate of compliance with AS 1288
	❑ Plastic Sheet Roofing – 5 year Warranty

8.6 Roof Lights / Skylights	❑	Skytube – 5 year Warranty for weather breakage & 10 year Warranty for discolouration
8.7 Roof Plumbing	❑	Gutters Downpipes and Fascia – 20 year Warranty
8.8 Ventilation of Roof Space	❑	Under Eave Vents – minimum 1 year Warranty
	❑	Roof Ventilators – minimum 15 year Warranty

SECTION 09 : Internal Linings

9.5 Sound Rated Walls/Ceilings	❑	Sound rated walls/ceilings – Certificate of Compliance
9.6 Fire Rated Ceilings/Walls	❑	Fire-rated ceilings/walls – Certificate of Compliance
9.7 Insulation	❑	Ceiling insulation – Lifetime of the dwelling Warranty

SECTION 10: Plumbing and Sanitary Plumbing

10.1 General	❑	Materials and Workmanship – Certificate of Compliance with Plumbing Code of Australia
10.5 Fixtures and Fittings:	❑	Kitchen Sink – 25 year Warranty
	❑	Basin – 2 year Warranty
	❑	Toilet - 1 year Warranty
	❑	Toilet Seat and Covers – 1 year Warranty
	❑	Bath - 10 years warranty for Acrylic and 30 years Warranty for pressed metal baths
	❑	Laundry Tub - 25 years Warranty for stainless steel & 10 years Warranty for the cabinet
10.6 Accessories	❑	Water service, Potable water – 25 year Warranty
	❑	Taps – 3 years Warranty
	❑	Shower Roses – 5 years Warranty
	❑	Tempering and Thermostatic Mixing Valve - 5 years Warranty
10.7 Heating Systems	❑	Solar Water Heaters – 10 year Warranty
	❑	Heat Pump Heaters – 10 Year Warranty on Cylinder
	❑	Gas Water Heaters – **Storage**
		1 year warranty (parts/labour) 10 year warranty (cylinder)
		Instantaneous
		3 years parts and labour warranty, 10 year warranty on heat exchanger
	❑	Electric Water Heaters – **Storage**
		1 year warranty (parts/labour) 10 year warranty (cylinder)
		Instantaneous
		3 years parts and labour
10.10 Fire Prevention	❑	Fire Prevention Services – Certificate of Compliance with Standards and BCA requirements
	❑	Fire Blanket – 5 year Warranty
	❑	Fire Collar – 2 year Warranty
	❑	Fire Dampers – 2 year Warranty
	❑	Fire Extinguishers - 10 years written Warranty on the cylinder and 1 year written Warranty on the pressure holdings
	❑	Fire Hose Reel - 5 year written warranty on all materials and 1

		year on all valves
	❑	Fire Hydrant System - 5 year Warranty on hydrant and 1 year Warranty on all valves and pumps
	❑	Fire Panel - 5 year Warranty
	❑	Fire Stopping Material – 2 year Warranty
	❑	Fire Sprinkler System – 10 year Warranty
10.11 Rainwater Tank:	❑	Rainwater Tank - 20 year Warranty Above Ground, 15 year Warranty Below Ground
	❑	Above Ground Tank Stand or Concrete Base – Structural Engineer's Certificate

SECTION 11 : Drainage

Certification	❑	Materials and Workmanship – Certificate of Compliance with Plumbing Code of Australia

SECTION 12 : Electrical Works

12.1 General	❑	Electrical materials and installation – Certificate of Compliance with Standards
12.9 Light Fittings	❑	Interior Common Area Lights – 2 year Warranty
	❑	External & Common Area Lights – 2 year Warranty
	❑	Emergency Lights – 2 year Warranty
	❑	Exit Lights – 2 year Warranty
12.10 Telephone and Broadband Cabling and Service	❑	Telephone Service – Notification of Completion Certificate from Telstra
12.11 Smoke Alarms	❑	Smoke Alarms - 10 year Warranty
12.12 Appliance and other installations	❑	Rangehood – 2 year Warranty
	❑	Upright Stove – 2 year Warranty
	❑	Clothes Dryer – 2 year Warranty
	❑	Washing Machine – 2 year Warranty
	❑	Electric Space / Electric Panel Heaters – 2 year Warranty
12.13 Television System	❑	Antenna – 2 year Warranty
	❑	Master Antenna Television System - Masts Stays Booms- 2 year Warranty
	❑	Master Antenna Television System – Amplifier - 2 year Warranty
	❑	Master Antenna Television System - Cables- 2 year Warranty
	❑	Testing and Commissioning – Certificate of Compliance
12.14 Mechanical Ventilation	❑	Mechanical Ventilation – Certificate of Compliance with BCA requirements and Australian Standards
	❑	Exhaust Fans > 1KW – 2 year Warranty
	❑	Ceiling Fans – 2 year Warranty
	❑	Air Conditioning System – 5 year Warranty
12.16 Lift	❑	Lift – 15 year Warranty

SECTION 13 : Gas Service

13.1 General	❑	Gas Service Materials and Installation - Certificate of Compliance with BCA and Australian Standards
13.7 Fixtures and Appliances	❑	Gas Space Heaters - 10 year Warranty for burner, 2 year for fan

	and min. 1 year for other parts.

SECTION 14 : Plastering N/A

SECTION 15 : Tiling and Wet Area Waterproofing

15.5 Waterproofing Wet Areas	❑ Showers Waterproofing Guarantee – 10 year Guaranty for shower waterproofing system.
15.6 Tiles	❑ Floor Tiles – 10 year Warranty
	❑ Wall Tiles 10 year Warranty
15.8 Shower Base	❑ Shower Base - 10 year Warranty for Latex (Waterborne) & 30 year Warranty for pressed metal

SECTION 16 : Resilient Finishes and Carpets

16.4 Materials	❑ Resilient Finishes and Tiles – 7 year Warranty
	❑ Carpet – 10 year Warranty
	❑ Underlay – 10 year Warranty

SECTION 17 : Glazing

17.3 Materials	❑ Glass Balustrades – Structural Engineer's Certificate of Compliance with BCA & AS 1288.7
	❑ Fire Rated Glass Blockwork – Certificate of Compliance with drawings, BCA & AS 1530.4

SECTION 18 : Painting

18.4 Materials	❑ Paints – Certificate of Compliance with APAS paint approvals scheme
	❑ Intumescent Paint – 20 year Warranty

SECTION 19 : Fencing

19.4 Fence Types	❑ Decorative Fences – 3 year Warranty
	❑ Metal Fences – 10 year Warranty
	❑ Timber Fences - 1 year Warranty

SECTION 20 : Landscape Works

20.9 Equipment, Fixtures and Furniture	❑ Street Furniture – 1 year Warranty

Refer to the trade sections of the specification for requirements.

Submit two (2) sets of the documentation (original and copy) in labelled A4 size binders suitable for filing.

S3 Schedule of Australian Standards & Codes

1: STANDARDS REQUIRED TO BE KEPT ON SITE (Access to Printed Copy on site)

	2011	National Construction Code – Building Code of Australia
AS 1288	2006	Glass in buildings - Selection and installation
AS 1428.1	2009	Design for access and mobility - General requirements for access – New building work
AS 1684.1	1999	Residential timber-framed construction – Design criteria
AS 1684.2	2010	Residential timber-framed construction – Non-cyclonic areas
AS 1684.3	2010	Residential timber-framed construction – Cyclonic areas
AS 2870	2011	Residential slabs and footings
AS/NZS3000	2007	Electrical installations (known as the Australian/New Zealand Wiring Rules)
AS 3500.1	2003	Plumbing and drainage – Water services
AS 3500.1.1	1998	National plumbing and drainage - Water supply – Performance requirements
AS 3500.2	2003	Plumbing and drainage – Sanitary plumbing and drainage
AS 3500.2.1	1996	National plumbing and drainage – Sanitary plumbing and drainage – Performance requirements
AS 3500.3	2003	Plumbing and drainage – Stormwater drainage
AS 3500.3.1	1998	National plumbing and drainage - Stormwater drainage – Performance requirements
AS 3500.4	2003	Plumbing and Drainage - Heated water services
AS 3500.4.1	1997	National Plumbing and Drainage – Hot water supply systems – Performance requirements
AS/NZS 3500.5	2012	National Plumbing and Drainage – Housing installations
AS 3600	2009	Concrete structures
AS 3660.1	2014	Termite Management - New Building Work
AS 3700	2011	Masonry Structures
AS 4100	1998	Steel structures
AS 4654.2	2012	Waterproofing membrane systems for exterior use – Above ground level - Design and installation
AS 4299	1995	Adaptable Housing

2: STANDARDS RELATED TO WORKMANSHIP/QUALITY REFERRED TO IN THE SPECIFICATION

AS/NZS 1158.3.1	2005	Lighting for roads and public spaces- Pedestrian area (Category P) lighting- Performance and design requirements
AS/NZS 1170.1	2002	Structural design actions – Permanent, imposed and other actions
AS/NZS 1170.2	2011	Structural design actions – Wind actions
AS 1192	2004	Electroplated coatings – Nickel and chromium
AS 1214	1983	Hot-dip galvanised coatings on threaded fasteners (ISO metric coarse thread series)
AS 1289	2000	Methods of testing soils for engineering purposes
AS 1428.1	2009	Design for access and mobility - General requirements for access – New building work
AS/NZS 1554.1	2014	Structural steel welding – Welding of steel structures
AS 1562.1	1992	Design and installation of sheet roof and wall cladding – Metal
AS 1627.4	2005	Metal finishing - Preparation & pretreatment of surfaces - Abrasive blast cleaning
AS 1665	2004	Welding of aluminium structures
AS 1720.1	2010	Timber structures - Design methods

AS 1735.1	2003	Lifts, escalators and moving walls – General requirements
AS/NZS 1748	2011	Timber - Solid - Stress-graded for structural purposes – General requirements
AS 1860.2	2006	Particleboard flooring Part 2: Installation
AS 1884	2012	Floor Coverings – Resilient sheet and tiles – installation practices
AS 2047	2014	Windows and external glazed doors
AS 2050	2002	Installation of roof tiles
AS 2082	2007	Timber–Hardwood–Visually stress-graded for structural purposes
AS/NZS 2311	2009	Guide to the painting of buildings
AS/NZS 2312.1	2014	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings.- Paint Coatings
AS/NZS 2312.2	2014	Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings -Hot dip galvanizing
AS 2327.1	2003	Composite structures – Simply supported beams
AS 2423	2002	Coastal steel wire fencing products for terrestrial, aquatic and general use
To AS/NZS 2492	2007	Crosslinked polyethylene (PE-X) pipes for pressure applications
AS 2436	2010	Guide to noise and vibration control on construction, demolition and maintenance sites
AS/NZS 2455.1	2007	Textile floor coverings – installation practice – General
AS/NZS 2455.2	2007	Textile floor coverings – Installation practice – Carpet tiles
AS/NZS 2589	2007	Gypsum linings – Application and finishing
AS 2601	2001	The demolition of structures
AS/NZS2904	1995	Damp-proof courses and flashings
AS 3553	1988	Adhesives for floor and wall applications – Resilient vinyl, linoleum and rubber sheet and tiles – Interior and exterior use (Withdrawn)
AS 3610	1995	Formwork for concrete Supplement 2-1996 Formwork for concrete-Commentary
AS 3610.1	2010	Formwork for concrete - Documentation and surface finish
AS 3715	2002	Metal finishing – Thermoset powder coatings for architectural applications of aluminium and aluminium alloys
AS 3727	1993	Guide to residential pavements
AS 3740	2010	Waterproofing of domestic wet areas
AS 3958.1	2007	Ceramic tiles: Guide to the installation of ceramic tiles
AS 3959	2009	Construction of buildings in bushfire-prone areas
AS 4253	1994	Mailboxes
AS 4285	2007	Skylights
AS/NZS 4680	2006	Hot-dip galvanised (zinc) coatings on fabricated ferrous articles
AS 4773.1	2010	Masonry in small buildings - Design
AS 4773.2	2010	Masonry in small buildings - Construction
AS 4777.1	2005	Grid connection of energy systems via inverters
AS/NZS 4859.1	2002	Materials for the thermal insulation of buildings Part 1: General criteria and technical provisions
AS 4970	2009	Protection of trees on development sites
AS/NZS 5033	2014	Installation and safety requirements for ~~of~~ photovoltaic (PV) arrays
AS 5039	2008	Security screen doors and security window grilles
AS 5040	2003	Installation of security screen doors and window grilles
AS CA27	1959	Code of recommended practice for internal plastering on solid backgrounds (Withdrawn)
NASH	2005	NASH (National Association of Steel-Framed Housing) Standard for Residential and Low-rise Steel Framing, Part1: Design Criteria (Amendments A, B, C)

3: OTHER STANDARDS REQUIRED BY SERVICES CONTRACTORS OR RELATED TO MANUFACTURED ELEMENTS

AS/NZS 1148	2001	Timber – Nomenclature – Aust/NZ & Imported Species
AS 1192	2004	Electroplated coatings – Nickel and chromium
AS/NZS 1221	1997	Fire hose reels
AS 1231	2000	Aluminium and aluminium alloys – Anodic oxidation coatings
AS/NZS 1260	2009	PVC-U pipes and fittings for drain, waste and vent application
AS 1345	1995	Identification of the contents of pipes conduit and ducts
AS 1357.1	2009	Water Supply – Valves primarily for use in heated water systems – Protection valves
AS 1357.2	2005	Water Supply – Valves primarily for use in heated water systems—Control valves
AS/NZS 1367	2007	Coaxial cable and optical fibre systems for the RF distribution of analog and digital television and sound signals in single and multiple dwelling installations
AS 1379	2007	Specification and supply of concrete
AS 1397	2011	Continuous hot-dip metallic coated steel sheet and strip – Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 1417.1	1987	Receiving antennas for radio and television in the frequency range 30 MHz to 1 GHz - Construction and installation
AS 1417.2	1991	Receiving antennas for radio and television in the frequency range 30 MHz to 1 GHz Part 2: Performance (Available Superseded)
AS 1432	2004	Copper tubes for plumbing, gasfitting & drainage applications
AS 1530.3	1999	Methods for fire tests on building materials, components and structures Simultaneous determination of ignitability, flame propagation, heat release and smoke release
AS 1530.4	2014	Methods for fire tests on building materials, components and structures Part 4: Fire-resistance tests of elements of building construction
AS 1530.7	2007	Methods for fire tests on building materials, components and structures – Smoke control door and shutter assemblies – Ambient and medium temperature leakage test procedure
AS/NZS 1596	2014	The storage and handling of LP Gas
AS 1604.1	2012	Specification for preservative treatment – Sawn and round timber
AS 1668.2	2012	Mechanical ventilation in buildings
AS 1670.6	1997	Fire Detection, Warning Control System – Smoke Alarms
AS 1672.1	1997	Limes and limestones for building
AS/NZS 1748.1	2011	Timber – Solid - Stress graded for structural purposes – General requirements
AS/NZS 1748.2	2011	Timber – Solid - Stress graded for structural purposes – Qualifications of grading method
AS 1810	1995	Timber – Seasoned cypress pine – Milled products
AS/NZS 1859.1	2004	Reconstituted Wood-based Panels – Particleboard
AS/NZS 1859.2	2004	Reconstituted wood-based panels – Dry processed fibreboard
AS/NZS 1859.4	2004	Wet processed fibreboard
AS/NZS 1860.1	2002	Particleboard Flooring Specification
AS/NZS 1905.1	2005	Components for the protection of openings in fire-resistant walls – Fire resistant doorsets
AS 2030.1	2009	Gas cylinders - General requirements
AS/NZS 2032	2006	Installation of PVC pipe systems

AS 2049	2002	Roof Tiles
AS/NZS 2053.1	2001	Conduits and fittings for electrical installations – General requirements
AS/NZS 2053.2	2001	Conduits and fittings for electrical installations – Rigid plain conduits and fittings of insulating material
AS 2118.1	2006	Automatic fire sprinkler systems – General systems
AS 2118.4	2012	Automatic fire sprinkler systems – Sprinkler protection for accommodation buildings not exceeding four storeys in height
AS 2129	2000	Flanges for pipes, valves and fittings
AS 2150	2005	Hot mix asphalt – A guide to good practice
AS/NZS 2208	1996	Safety glazing materials in buildings
AS/NZS 2269.0	2012	Plywood Structural Specification
AS/NZS 2270	2006	Plywood and blockboard for interior use
AS/NZS 2271	2004	Plywood and blockboard for exterior use
ASNZS 2293.1	2005	Emergency evacuation lighting in buildings – System design, installation and operation.
AS 2419.1	2005	Fire Hydrant Installations – System design, installation and commissioning
AS 2427	2004	Smoke/heat release vents
AS 2441	2005	Installation of fire hose reels
AS 2444	2001	Portable fire extinguishers and fire blankets – Selection and location
AS 2588	1998	Gypsum plasterboard
AS 2887	1993	Plastic waste fittings
AS/NZS 2908.2	2000	Cellulose-cement products - Flat sheets
AS/NZS 2924.1	1998	High Pressure Decorative Laminates – Classification and specification
AS 3006	1982	Adequate electrical installations in domestic premises (Withdrawn)
AS/NZS 3008.1.1	2009	Electrical installations – Selection of cables – Cables for alternating voltages up to and including 0.6/1 Kv - Typical Australian installation conditions
AS/NZS 3112	2011	Approval and test specification – Plugs and socket-outlets
AS/NZS 3133	2013	Approval and test specification – Air break switches
AS/NZS 3190	2011	Approval and test specification – Residual current devices (current operated earth leakage devices)
AS 3439.1	2002	Low voltage switchgear and control gear assemblies – Type-tested and partially type-tested assemblies
AS 3688	2005	Water supply - metallic fittings and end connectors
AS 3799	1998	Liquid membrane-forming curing compounds for concrete
AS/NZS 3879	2011	Solvent cements and priming fluids for PVC (PVC-U and PVC-M) and ABS pipes and fittings
AS 3972	2010	General purpose and blended cements
AS 4055	2012	Wind loads for housing
AS 4145.2	2008	Locksets and hardware for doors and windows – Mechanical locksets for doors and windows in buildings
AS 4145.3	2001	Locksets – Mechanical locksets for windows in buildings
AS 4256.2	2006	Plastic roof and wall cladding materials – Unplasticized polyvinyl chloride
AS 4256.3	2006	Plastic roof and wall cladding materials – Glass fibre reinforced polyester (GRP)
AS 4256.5	2006	Plastic roof and wall cladding materials – Polycarbonate
AS/NZS 4491	1997	Timber – Glossary of terms in timber related Standards
AS 4617	2004	Manual shut off gas valves

AS 4621	2004	Regulators for use with liquefied petroleum - Vapour phase
AS4645.1	2008	Gas distribution networks - Network management
AS/NZS 4671	2001	Steel reinforcing materials
AS/NZS 5000.1	2005	Electric Cables – Polymeric Insulated – For working voltages of 0.6/1 (1.2) kV
AS/NZS 5601.1	2013	Gas installations –General installations
AS/NZS 60898.1	2004	Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Circuit-breakers for ac operation
AS/NZS 60898.2	2004	Circuit-breakers for overcurrent protection for household and similar installations – Circuit-breakers for ac and dc operation
HB 125	2007	The glass and glazing handbook
AS/CA S008	2010	Requirements for customer cabling products
AS/CA S009	2013	Installation requirements for customer cabling (Wiring Rules)

4: ADDITIONAL STANDARDS REFERRED TO IN SPECIFICATIONS

AS 1599	2006	Pressure-sensitive and water activated adhesive tape for packaging and office applications
AS 1657	2013	Fixed platforms, walkways, stairways and ladders - Design, construction and installation
AS 2179.1	2014	Specifications for rainwater goods ….. Metal shape or sheet rainwater goods and metal accessories and fasteners
AS 2159	2009	Piling – Design and installation
AS 2358	1990	Adhesives – for fixing ceramic tiles (Withdrawn)
AS /NZ 2588	1998	Gypsum plasterboard
AS/NZS 2699.1	2000	Built-in components for masonry construction – wall ties
AS/NZS 2699.3	2002	Built-in components for masonry construction – lintels and shelf angles (durability requirements)
AS/NZS 2728	2013	Prefinished/prepainted sheet metal products for interior/exterior building applications – Performance requirements
AS/NZS 2785	2000	Suspended ceilings – design and installation
AS 2758.1	2014	Aggregates and rock for engineering purposes -Concrete aggregates
AS 2796.1	1999	Timber – Hardwood – Sawn and milled products - Product specification
AS2796.2	2006	Timber – Hardwood – Sawn and milled products Grade description
AS/NZS 2908.2	2000	Cellulose cement products – flat sheets
AS 3018	2001	Electrical installations – domestic installations (Withdrawn)
AS/NZS 2904	1995	Damp proof courses and flashings
AS/NZS 3439.3	2002	Low voltage switch gear and controlgear assemblies – Part 3: Particular requirements for low-voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access for their use – Distribution boards
AS/NZS 3439.5	2009	Low voltage switchgear and controlgear assemblies – Part 5: Particular requirements for assemblies for power distribution in public networks
AS 3553	1988	Adhesives for floor and wall applications – Resilient vinyl, linoleum and rubber sheet and tiles – interior and exterior use (Withdrawn)
AS 3623	1993	Domestic metal framing
AS/NZS 3715	2002	Metal finishing - thermoset powder coatings for architectural applications of aluminium and aluminium alloys
AS/NZS 3725	2007	Design for installation of buried concrete pipes
AS 3786	1993	Smoke Alarms (Amendments 1,2,3,4 -1995 -2004)
As 3996	2006	Access covers and grates
AS 3999	1992	Thermal insulation of dwellings - Bulk insulation – Installation

		requirements
AS 4032.1	2005	Water Supply - Valves for the control of heated water supply temperatures - Thermostatic Mixing Valves- Material design and performance requirements
AS 4032.2	2005	Water Supply - Valves for control of hot water supply temperatures - Tempering valves and end of line temperature actuated devices
AS/NZS 4058	2007	Precast concrete pipes (pressure and non-pressure)
AS 4145.2	2008	Locksets and hardware for doors and windows – Mechanical locksets for doors and windows in buildings
AS 4145.3	2001	Locksets - Mechanical locksets for windows in buildings
AS/NZS 4200.1	1994	Pliable building membranes and underlays - Materials
AS/NZS 4200.2	1994	Pliable building membranes and underlays - Installation requirements
AS 4288	2003	Soft underlays for textile floor coverings
AS 4361.2	1998	Guide to lead paint management - Residential and commercial buildings
AS/NZS 4386.1	1996	Domestic kitchen assemblies - Kitchen units
AS/NZS 4386.2	1996	Domestic kitchen assemblies - Installation
AS 4419	2003	Soils for landscaping and garden use
AS 4454	2012	Composts, soil conditioners and mulches
AS/NZS 4455.1	2008	Masonry units, pavers, flags and segmental retaining wall units Part 1: Masonry units
AS/NZS 4455.2	2010	Masonry units, pavers, flags and segmental retaining wall units Part 2: Pavers and flags
AS/NZS 4455.3	2008	Masonry units, pavers, flags and segmental retaining wall units Part 3: Segmental retaining wall units
AS/NZS 4505	2012	Garage doors and other large access doors
AS/NZS 4506	2005	Metal finishing – Thermoset powder coatings
AS/NZS 4586	2013	Slip resistance classification of new pedestrian surface materials
AS/NZS 4600	2005	Cold formed steel structures
AS 4654.1	2012	Waterproofing membranes for external above ground use - Materials
AS/NZS 4667	2000	Quality requirements for cut to size and processed glass
AS 4785.1	2002	Timber – Softwood – Sawn and milled products – Product specification
AS 4785.2	2002	Timber – Softwood – Sawn and milled products – Grade description
AS ISO 13007.1	2013	Ceramic tiles – Grouts and adhesives – Terms, definitions and specifications for adhesives
AS 5039	2008	Security screen doors and security window grilles
AS5040	2003	Installation of security screen doors and window grilles
AS 5041	2003	Methods of test – Security screen doors and window grilles
MP 52	2005	Manual of authorisation procedures for plumbing and drainage products
HB 63	1994	Home insulation in Australia – Recommended insulation levels for all States as per Australian Standard 2627.1
MP 78	1999	Manual for the assessment of risks of plumbing products

Family & Community Services
Land & Housing Corporation

NSW LAND AND HOUSING CORPORATION

STATEMENT OF BUSINESS ETHICS

And

CONTRACTOR'S CODE OF CONDUCT

FOR
New Construction,
Major Upgrading and Engineering Works

NOVEMBER 2013

1. Statement of Business Ethics

Land and Housing Corporation (LAHC) is part of NSW Department of Family and Community Services (FACS).

LAHC has a major role in the delivery of NSW Government procurement, construction and maintenance services. To do our job well we rely on business partners and suppliers.

Just as LAHC expects its staff to behave ethically and comply with FACS Code of Ethical Conduct we expect high standards of behaviour from firms and individuals that do business with us.

The LAHC Statement of Business Ethics and Contractor's Code of Conduct for new construction, major upgrading and engineering works gives clear guidelines on how we expect our business partners and suppliers to behave and it tells them what to expect of us.

All individuals and organisations that deal with LAHC must adopt these standards of ethical behaviour. LAHC is committed to promoting integrity, ethical conduct and accountability in all areas of public administration.

1.1 Our Key Business Principles

LAHC exists to make doing business in NSW simple and fair and to get the best value for the NSW Government. Our key business principles are to achieve best value for money in the expenditure of public funds while being fair, ethical and transparent.

Best value for money: does not automatically mean 'the lowest price'. It is determined by considering a number of factors such as costs, quality, reliability, service, and benefits.

Fairness: being unbiased, reasonable and even-handed. Being fair does not mean satisfying everyone or not reasonably pursuing one's legitimate interests. A fair decision may still adversely affect parties.

Ethical: being honest and applying required standards of behaviour and conduct in our business dealings and relationships.

Transparent: business dealings, activities and decisions will be fully and clearly documented to allow effective scrutiny and enable performance review of contracts.

LAHC is committed to the NSW Government Procurement Policy and associated Code of Practice.

1.2 What you can Expect from LAHC Staff

'Staff' includes Senior Executive Service, permanent, temporary and casual employees, as well as consultants, contractors (excluding contractors employed for new construction, upgrading and engineering works) and agency employees engaged to perform work for or on behalf of LAHC.

Our staff are bound by FACS's Code of Ethical Conduct and values and are expected to:

- Ensure that decisions and actions are reasonable, fair and appropriate to the circumstances, based on consideration of all the relevant facts and supported by relevant legislation, policies and procedures
- Accept responsibility and be accountable for their own actions in accordance with delegated functions, accountabilities and the requirements of the Code of Ethical Conduct

- Actively promote the integrity and reputation of the public sector by always acting in the public interest; and not engage in any activities that would bring the public sector into disrepute
- Achieve the highest standards of ethics by treating Government, stakeholders, clients, suppliers and each other fairly and professionally
- Provide relevant and responsive service to clients and customers, with all necessary and appropriate assistance in accordance with agreed service standards
- Always act with care and diligence, utilising departmental resources in a proper manner.

1.3 What We Ask of Our Business Partners and Suppliers

We require all of our private sector partners and providers of goods and services to observe the following principles when doing business with LAHC:

- Comply with applicable NSW Government Code of Practice and LAHC's procurement policies and procedures
- Provide accurate and reliable advice and information when required
- Declare actual or perceived conflicts of interest as soon as you become aware of the conflict
- Act ethically, fairly and honestly in all dealings with LAHC
- Take all reasonable measures to prevent the disclosure of confidential LAHC information
- Not engage in any form of collusive or unethical practices, including offering LAHC staff inducements or incentives designed to improperly influence the conduct of their duties
- Not discuss LAHC business or information in the media
- Assist LAHC to prevent unethical practices in our business relationships.

1.4 Why Our Business Partners and Suppliers Should Comply

By complying with NSW Government Code of Practice and our Business Ethics Statement, you will be able to advance your business objectives and interests in a fair and ethical manner. As all LAHC partners and suppliers of goods and services must comply with these statements, there is no disadvantage to any participant.

You should also be aware of the consequences of not complying with these ethical requirements when doing business with LAHC. Demonstrated corrupt or unethical conduct could lead to:

- Termination of contracts
- Loss of future work
- Loss of reputation
- Investigation for corruption
- Matters being referred for criminal investigation.

1.5 Some Practical Guidelines - Incentives, Gifts, Benefits and Hospitality

Suppliers should not give gifts to LAHC staff and there should be no expectation that any gifts will be provided. LAHC business partners and suppliers should not pay for any form of entertainment for LAHC staff. LAHC staff are generally not entitled to use public funds to pay for entertainment. LAHC discourages external parties from providing LAHC staff with benefits such as social meals, travel or accommodation. LAHC meets all such business costs for its staff. Staff participation in some minor

forms of hospitality is permitted where it is received in the normal course of business and relates to the work of the Department and has a public benefit.

1.6 Conflicts of interest

All LAHC staff are required to disclose any potential conflicts of interest. LAHC extends this requirement to all our business partners, contractors and suppliers.

1.7 Sponsorship

LAHC will not ask for, entertain or enter into any sponsorship or similar arrangement that is not open and transparent or where such activity creates a perception that it could be part of an attempt to improperly influence any organisational decision-making process. Where applicable, specific policies and processes developed within LAHC for sponsorship arrangements are to be adhered to.

1.8 Confidentiality and Intellectual Property

Confidential information (in whatever form – hardcopy, electronic, etc.) should be treated as such and protected as appropriate. Confidential and sensitive information should only be used or disclosed by authorised staff. Personal information is subject to specific legislation, policy and procedures for its handling, storage and protection. In business relationships with LAHC, parties will respect each other's intellectual property rights and will formally negotiate any access, license or use of intellectual property.

1.9 Communication and Cooperation

In line with the NSW Government Code of Practice for Procurement, LAHC and its business partners, contractors and suppliers will maintain business relationships based on open and effective communication, respect and trust, and adopt a non-adversarial approach to dispute resolution.

1.10 Private Employment and Post-separation Employment

LAHC requires staff to obtain the approval of the Director General prior to entering into any secondary / private employment arrangement. This will not be approved if it has the potential to create a real or perceived conflict of interest between the staff's public official role and their private interests. LAHC staff are not to use either their position, government information, or intellectual property developed while serving government to secure private employment.

1.11 Expectations Regarding Contractors

All contractors and sub-contractors are expected to comply with the LAHC business ethics statement. If you employ sub-contractors in your work for LAHC you must make them aware of this statement.

2. Contractor's Code of Conduct

2.1 Introduction

This Contractor's Code of Conduct (Code) supports the Principal's policy toward its clients. The Principal's clients are tenants of its residential properties.

The Principal, its officers and its representatives have a duty to tenants and their families to maintain high ethical standards, honour agreements and undertakings, act in good faith, and be courteous at all times.

The Contractor has a similar duty to adopt high ethical standards, honour agreements and undertakings, and be courteous at all times. The Contractor must therefore ensure that its **employees, its sub-contractors and the employees of its sub-contractors** are familiar with the contents of the Code and observe its requirements at all times whilst working in and upon the Principal's properties.

2.2 Ethical Conduct

You must act with integrity, openness, honesty and in manner consistent with the public interest. You may not engage in behaviour which could undermine the integrity or credibility of the Principal. See the *Statement of Business Ethics.*

2.3 When First Arriving at a Tenant's Home

When first arriving at a tenant's home, you should seek out the Tenant, show your Identification Card, and, in a friendly and courteous manner, ask if it is convenient to commence work.

In order to minimise noise and inconvenience to the tenant avoid, where practicable, driving any vehicle into the driveway of a property without first seeking the permission of the tenant to park on the premises.

2.4 Courtesy and General Appearance

The Principal's tenants include a wide range of people, some of whom have special and complex needs and should be treated with understanding and sensitivity. Such people include elderly, Indigenous, those from other diverse cultural backgrounds and persons having disabilities, suffering terminal illness or who have experienced trauma.

When visiting or working at a tenant's home or other areas such as grounds and neighbourhood precincts, employees must:

- show all occupants full courtesy and respect
- be of neat and tidy personal appearance and suitably attired in a reasonable standard of dress
- ensure footwear and clothing are cleaned of mud, wet paint, grease, etc. before entering tenant's home
- treat the tenant's home and personal property with due care and respect at all times
- give full consideration to the tenant's comfort, well being, health, welfare, safety, and security. Any disruptions to the occupants must be kept to a minimum.

2.5 Tenants not From an English Speaking Background

The Principal is committed to providing equal service to all tenants, including those with a language background other than English.

If communication with a tenant proves difficult, you may request the Principal's Representative to arrange for an interpreter service. The interpreter service is provided at the Principal's expense.

The Principal will make prior arrangements for an interpreter where the requirement is already known.

2.6 Language and General Behaviour

But language must not be used in the presence or hearing of any tenant, visitor, guest or employee of the Principal.

Loud and boisterous behaviour (without bad language) can be threatening and offensive to others, especially the elderly and infirm, and those suffering an illness.

Ensure that personal behaviour does not interrupt nor threaten the general enjoyment by tenants of their home and surrounding environment.

Do not be judgemental nor belittle a tenant for any reason by attitude, tone of voice or action.

Do not make any derogatory or non essential comments on the work of others who may have serviced a tenant's home or on faults or problems you have been engaged to rectify.

2.7 Noise

Take care to minimise noise. Tenant request to limit noise must be respected.

Such request may come from tenants who are shift workers, have young families, are ill or have suffered bereavement.

If agreement cannot be reached, the matter must be referred to the Principal's Representative for resolution.

The use of radios and other sound equipment in occupied properties and common areas (e.g., hallways, stairways, entrance areas in apartments etc.), is only permitted with the approval of the tenant of the property or tenants using common areas in apartment buildings.

2.8 Health and Safety

All possible safety precautions must be taken to ensure the health and safety of all persons in and around the property in which the work is being carried out. Ensure that clear and timely warnings are given of any hazards.

The possible presence of children must be kept in mind when manoeuvering vehicles or large equipment and mechanical devices.

Tools, especially power tools, must not be left unattended as they present a safety risk to children.

Holes and trenches must be made safe and covered with strong material when left unattended.

2.9 Smoking, Alcohol and Prohibited Substances

Do not smoke in any property of the Principal.

You must not be under the influence of alcohol or a prohibited substance whilst performing work under the Contract. Alcohol and prohibited substances must not be consumed on or prior to entering any property of the Principal.

2.10 Protection of Tenants Property

Take all reasonable precautions to protect the tenant's property from theft or damage. Immediately advise the Principal's Representative of any damage or loss that occurs to the property of the Contractor or the property of the tenant.

2.11 Use of a Tenant's Services and Facilities

Do not use a tenant's power, gas, or water, without prior permission.
Tenants must be reimbursed for all costs incurred where practicable and where permission is given.

Do not use the tenant's toilet, wash basins or cooking facilities without prior permission.

Do not prepare or eat food in the tenant's home without prior permission.

If permission is not given in these situations the tenant's wishes must be accepted with good grace and alternate arrangements made.

2.12 Tenant's Telephone

Do not use a tenant's telephone to make or receive call except in case of emergency.

Calls must not be diverted to a tenant's telephone from mobile telephones or other communication services.

2.13 Parking and Storage

Do not store any materials or equipment on the Site without permission of the tenant. Anything stored on the Site is stored entirely at the Contractor's risk and no responsibility for its security or safety will be accepted by the tenant or others. Permission must be obtained fro the tenant before parking or placing any vehicle, site office, storage container or other facility in the grounds of their home, or on any verge. Do not obstruct any driveway, footpath crossing, roads, pathways or any other access in the grounds of apartments or neighbourhood precincts.

2.14 Working During Absence of Tenant

Remaining at a tenant's home during the tenant's absence is not desirable and should be avoided where practicable.

Written permission must be obtained from the tenant before working in a tenant's home during the absence of the tenant.

Do not work in a tenant's premises where children, not supervised by adults, are present. Seek advice from the Principal before undertaking work at a property where there are unsupervised children.

The property must be left in a secure state when unattended.

2.15 Cleaning Up

Regularly remove all rubbish resulting from the work, and leave the property in a clean and tidy state at the end of each day.

2.16 Visitors

Your personal visitors are not permitted to enter the premises of a tenant, including font and backyards, neighbourhood precinct areas and apartment common areas.

2.17 Animals

No animals or pets owned by an employee of the Contractor are allowed in or upon any property of the Principal.

Animals and pets owned by tenants must not be antagonised or mistreated.

2.18 Gifts and Benefits

As a general rule offers of gifts or other benefits by tenants or any other party/person, other than modest refreshments, are to be politely refused.

2.19 Respecting Confidential and Private Information

You must respect the privacy of tenants and not disclose or abuse confidential information about the Principal or tenants.

2.20 Illegal Acts

If any person sees an illegal act or a crime in progress they must immediately inform the Police.

2.21 Corrupt Conduct

You must report any suspected corrupt conduct (see *Statement of Business Ethics, Reporting Corrupt Conduct*).

You may also report suspected corruption to the Independent Commission Against Corruption (ICAC) on 1800 436 909 or via its website at http://www.icac.nsw.gov.au.

2.22 Emergencies

If there is any immediate danger to life or property, the appropriate emergency service must be called immediately. Also notify the Principal's Representative.

2.23 Difficulties Encountered on Site

The Contractor, employees of the Contractor or a sub-contractor, if concerned for their health or safety, or the safety of their materials, tools or equipment, may leave the Site providing they have been acting reasonably. The Contractor's representative is responsible for immediately advising the Principal's Representative.

It is not possible to define every event where it might be considered inadvisable to enter in or upon property, or advisable to leave a property after entering one. The following instances are examples where decisions of this nature might reasonably be made.

- Where persons appear affected by alcohol or other substances and entering or remaining in or upon the property may provoke an undesirable situation
- Where there are groups of people at or near the property and their demeanour and general attitude is one of menace
- Where persons are agitated or displaying erratic or other inappropriate behaviour which may be a threat to a personal safety
- Any display of aggression by persons or animals
- Any instance where personal safety, the safety of others or the safety of machinery, equipment, and other property, is either in danger or under threat of danger, or where an unsafe situation has developed

In these or similar circumstances you should not enter the property or should withdraw from the property immediately.

You should also leave a property if a situation becomes unmanageable or if a dispute arises with an occupant which will significantly affect progress of the work. You should politely decline to engage in non-essential discussion.

You must not respond or argue. You should collect your tools and equipment, leave the premises and immediately inform the Principal's Representative.

2.24 DOS AND DON'TS WHEN CONDUCTING MAINTENANCE RELATED WORK

2.24.1 Things You Must Do

- Act with integrity and honesty.
- Treat the tenants, the tenant's visitor and member of the public with respect and courtesy at all times.
- When you first arrive at the tenant's home, seek out the tenant and introduce yourself. Produce your identification card.
- If you encounter a tenant from a non-English speaking background and you are having difficulty communicating with this person, request the Principal arrange for an interpreter.
- Take all possible precautions to ensure the safety of tenants.
- Advise the Principal's Representative if you become aware of any circumstances or hazards that may affect the safety of a tenant.
- If you see an illegal act or crime in progress, immediately inform the police.
- Be of neat and tidy appearance and suitably attired in a reasonable standard of dress.
- Ensure that footwear is clean and will not leave marks on floor coverings.
- Treat the tenant's homes and personal property with due care and respect at all times.
- Obtain permission from the tenant before parking or placing any vehicle, site office or other facility on the premises.
- Move tenant's furniture and belongings where necessary to avoid damage.
- Take all precautions to prevent damage when moving the tenant's furniture and belongings.
- Take all reasonable precautions for security protection of the tenant's property against theft, breakage or damage.
- Immediately advise the Principal's Representative of any damage or loss that occurs to your property or the property of the tenant.
- Remove all rubbish resulting from work, and leave the property in a tidy, clean and livable state at the end of each working day.
- Contact emergency services "000" in the event of an accident or where danger to life or property arises. As soon as practicable advise the Principal's Representative.
- Protect the privacy of the tenants and confidentiality of information about the Principal and tenants.
- Report any suspected corrupt or fraudulent behaviour.

2.24.2 Things You Must Avoid

- Do not take bribes or do anything which is, or could be perceived to be, corrupt, fraudulent or otherwise dishonest.
- Do not do anything that could undermine the integrity or reputation of the Principal.
- Do not make sexual remarks to anyone.
- Do not make remarks, jokes, innuendoes or taunting about a person's body, attire, religious practice or sexual preference.
- Do not respond or argue with the tenant. If a situation becomes unmanageable or if a dispute arises, collect your equipment, leave the premises and immediately inform your supervisor or the Principal's Representative.
- Where possible do not drive into the driveway of a property on your first visit.
- Do not use bad language or engage in loud and boisterous behaviour.

- Do not be judgemental or belittle a tenant for any reason by your attitude, tone of voice or action.
- Do not make any derogatory comments on previous work carried out by others.
- Do not smoke or consume or be under the influence of alcohol or any prohibited substance.
- Do not request the tenant to move, or assist with the moving of, any furniture or fitting that has to be moved to gain access to a work area.
- Do not store any materials or equipment on the premises without first obtaining the permission of the tenant.
- Do not use any of the tenant's facilities, including power, gas, water, toilet, wash basin, stove, TV or radio, without the tenant's permission.
- Do not prepare or eat food in the tenant's home without the tenant's permission.
- Do not use radios or other sound equipment without the prior approval of the tenant.
- Do not make excessive noise. If a tenant request reasonable noise limits then these should be adhered to.
- Do not use a tenant's telephone except in the case of emergency.
- Do not work in a tenant's premises in the absence of the tenant without the prior written approval of the tenant.
- Do not work in a tenant's premises where children, not supervised by adults, are present. Seek advice from the Principal before undertaking work at a property where there are unsupervised children.
- Do not allow personal visitors to enter the premises of a tenant.
- Do not take any animal or pet into the premises of a tenant.
- Do not antagonize or mistreat any animal or pet owned by a tenant.
- Do not, under any circumstances, comment on any matters relating to the contract, or the operations of the Principal.
- Do not comment to the tenant or others on matters of a personal nature about the tenant nor the condition of the premises.
- Do not tip paint, cleaning fluid or any other toxic substance down drains or toilets.

2.25 Breaches of Code of Conduct

Any breach of the Code should be communicated to the Principal by the Contractor. The Contractor must ensure all sub-contractors, suppliers and agents report breaches of the Code to it. The Contractor must ensure all sub-contractors contain a Clause to this effect. For allegations of fraud and/or corruption, please see the contract details provided above in the section titled ***Corrupt Conduct***.

Any complaint submitted to the Principal in writing will be investigated by the Principal's Representative.

3. Further Assistance

For inquiries about the Statement of Business Ethics and Contractor's Code of Conduct and LAHC expectations of its Contractors and Suppliers please contact Projects Executive Group at ProjectsExecutive.Group@facs.nsw.gov.au

To report misconduct by LAHC/ FACS Employees please contact the Professional Conduct, Ethics and Performance Unit at PCEP@facs.nsw.gov.au