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

DEMO PROJECT 2

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1 Manukau Road, Auckland, New Zealand
Project Ref: 2014-2

Printed: 06 July 2016

DRAFT

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1000 CUSTOM

1 GENERAL

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1.2 MY CLAUSE 3 TITLE (MOVED UP)

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1.6 MY CLAUSE 3 TITLE (MOVED UP)

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1.9 MY CLAUSE 3 TITLE (MOVED UP)

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1.10 MY CLAUSE 4 TITLE

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1.11 Clause Name

clause content

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- fsd
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- fsda
- fsd

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2 PRODUCTS

2.1 Clause Name

clause content

3 EXECUTION

3.1 Clause Name

clause content

4 SELECTIONS

4.1 Clause Name

clause content

1000 CUSTOM2

1 GENERAL

1.1 FSSFSFDSFD

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2 PRODUCTS

2.1 Clause Name

clause content

3 EXECUTION

3.1 Clause Name

clause content

4 SELECTIONS

4.1 Clause Name

clause content

1013 DOCUMENT CONTROL

1 DOCUMENT CONTROL

1.1 MY CLAUSE 3 TITLE (MOVED UP)

My **Clause** 3 Content (moved up) My Clause 3 tcss(moved up)My Clause 3 Content (moved up)My Clause 3 Content (moved up)My Clause 3 Content (moved up)My Clause 3 Content (moved up)My Clause 3 Content (moved up)

Document Control

1.2 PREPARED BY

Company:	~
Postal Address:	~
Street Address:	~
City:	~
Telephone:	~
Email:	~

1.3 DOCUMENT DETAILS

Project Name:	~
Project Number:	~
File Reference:	~
Client:	~
Client Contact:	~
Version:	~

1.4 REVISION CONTROL

Issue:	Outline / Developed Design / Building Consent / Construction / As Built
Revision:	~
Amendment Details:	~
Issued to:	~
Date of Issue:	~
Reviewed by:	~
Approved by:	~

1.5 AUDIT CONTROL

Date:	~
Author:	~
Approved by:	~

1231 CONTRACT

1 GENERAL

This GENERAL section refers to contract related matters.

1.1 NOMINATED SUBCONTRACTORS

The contractor must appoint the following to carry out specific parts of the work.

1.2 SEPARATE CONTRACTORS

The principal is appointing the following people to carry out separate contract works concurrent with the works described in this specification.

1.3 PRINCIPAL SUPPLY ITEMS

The principal is supplying the following items for inclusion in the contract works.
~

1.4 ITEMS PROVIDED BY OTHERS

~

1.5 MONETARY ALLOWANCES

Monetary allowances are included for the following parts of the contract works.

Prime cost sums are included for the following:

Amount	Details
$~	~

Provisional sums are included for the following:

Amount	Details
$~	~

1232 INTERPRETATION & DEFINITIONS

1 GENERAL

1.1 DEFINITIONS

Required:	Required by the documents, the New Zealand Building Code or by a statutory authority.
Proprietary:	Identifiable by naming the manufacturer, supplier, installer, trade name, brand name, catalogue or reference number.
Provide and fix:	"Provide" or "fix" or "supply" or "fix" if used separately mean provide and fix unless explicitly stated otherwise.
Review:	Review by the contract administrator is for general compliance only. Review does not remove the need for the contractor to comply with the stated requirements, details and specifications of the manufacturers and suppliers of individual components, materials and finishes. Neither can the review be construed as authorising departures from the contract documents.
Working Day:	Working Day means a calendar day other than any Saturday, Sunday, public holiday or any day falling within the period from 24 December to 5 January, both days inclusive, irrespective of the days on which work is actually carried out.

1.2 PERSONNEL

Owner:	The person defined as "owner" in the New Zealand Building Code.
Principal:	The person defined as "principal" in the conditions of contract.
Contractor:	The person contracted by the principal to carry out the contract.

1.3 ABBREVIATIONS

The following abbreviations are used throughout the specification:

1.4 DEFINED WORDS

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

1.5 WORDS IMPORTING PLURAL AND SINGULAR

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

1235 SHOP DRAWINGS

1 GENERAL

This general section relates to common requirements for the preparation, submission and review of shop drawings. Detailed requirements for shop drawings for particular parts of the **work** are included in the specific work section.

1.1 PREPARE SHOP DRAWINGS

whre

1.2 SHOP DRAWINGS FORMAT

Prepare shop draBwings at appropriate scAales to enable good legibility. Unless othe rwise specified in a work section, submit shop drawings in the format as listed in SELECTIONS.

1.3 PROGRAMME FOR SHOP DRAWINGS

Allow time in the programme for the preparation, coordination and review of shop drawings. Allow also for such resubmission and further review as may be required prior to fabrication. No extension of time will be allowed for resubmission and further review.

1.4 COMMUNICATION WITH SHOP DRAWING DETAILER

Agree and **arrange for such** ***direct contact as is appropriate between detailer, consultant and others whose input may be required in the preparation of the shop drawings. Such direct communication does not relieve the contractor of the need to carry out their own coordination and check*** **of shop** drawings.m

1.5 CONTRACTOR COORDINATION OF SHOP DRAWINGS

Before submitting the shop drawings for review , carry out **coordination** to ensure that allowance has been made for all other parts of the work that relate to the work detailed in the shop drawings.

1.6 COORDINATION WITH SITE MEASURE

The contractor is solely responsible for coordination of shop drawing dimensions with site measurements. The reviewer's dimensional review is limited to visual/aesthetic matters only

1.7 SHOP DRAWINGS REVIEW

Submit shop drawings to the named reviewers for review, in due time to ensure conformance with the contract programme.

- Where no time is stated in a specific section allow 10 working days for review by the reviewer. Where a large number of drawings are involved more time will be necessary.
- Where no person is named as the reviewer, submit the shop drawings to the contract administrator.

Shop drawing review indicates only that the shop drawing interpretation of the design concept has been reviewed without the need for further modification, other than the corrections indicated by the reviewer.
The reviewer may advise that:

-
-
-
-

1.8 RESPONSIBILITY

Review of shop drawings does not relieve the contractor of responsibility for the correctness of the shop drawings, site dimensions, the overall design, coordination and performance, orfor ensuring the work is carried out in compliance with the contract documents. It does not remove the need for the contractor to comply with the stated requirements, details and specifications of the manufacturers and suppliers of individual components, materials and finishes. Review cannot be construedas authorising departures from the contract documents.

1.9 RESUBMISSION OF SHOP DRAWINGS

Reviewed drawings which are **required to be resu**bmitted to correct comments or notations indicating where the shop drawings are at variance with the contract documents, are to be modified and resubmitted to the reviewer for re-review. Allow 5 working days for re-review by the reviewer.

1.10 WORK MAY PROCEED

Before proceeding with any fabrication, installation or erection, **advice must** be obtained from the named reviewers that work may proceed. Where no named reviewer has been nominated advice must be obtained from the contract administrator.

1.11 BIM MODEL

BIM (Building Information Model) is being used for the construction of the works. Refer to SELECTIONS for details of the BIM model and the information required to be included.

2 SELECTIONS

2.1 SHOP DRAWING FORMAT

Submit the shop drawings in the following format

	Format/Size
Hardcopy	~
Electronic copy	PDF
CAD file	~

2.2 BIM (BUILDING INFORMATION MODEL) FORMAT

~

3 SCHEDULES

ASDasd

3.1 ASD

asd

3.2 SHOP DRAWINGS SCHEDULE

The following work sections have shop drawing requirements, refer to these sections for details:

3411	Structural steelwork
3411D	DHS purlins and girts

1237 WARRANTIES

1 GENERAL

Warranties

1.1 PROVIDE WARRANTIES

Provide executed warranties in favour of the principal in respect of, but not limited to, materials, components, service, application, installation and finishing called for in that specified section of work. The terms and conditions of the warranty in no case negate the minimum remedies available under common law as if no warranty had been offered. Failure to provide the warranty does not reduce liability under the terms of the warranty called for in that specified section of work.

1.2 WARRANTIES - INSTALLER/APPLICATOR

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

1.3 WARRANTIES - MANUFACTURER/SUPPLIER

Where warranties are offered covering materials, equipment, appliances or proprietary products, provide all such warranties to the contract administrator.

Submission

1.4 REVIEW BY CONTRACTOR

Obtain the warranties from the installers, applicators, manufacturers and suppliers at the earliest possible date and review to ensure that they are correctly filled out and executed. Where warranties are executed as a deed, ensure that a duplicate copy is provided for execution by the owner/principal. Keep safe and secure until required for submission.

1.5 WARRANTIES - REQUIRED BY BUILDING CONSENT AUTHORITY

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

1.6 WARRANTIES - REQUIRED BY CONTRACT

Obtain copies of warranties listed in the contract documents. Provide all warranties at the same time. If the project has an operations and maintenance documentation provision, present the warranties with the operations and maintenance information. If no operations and maintenance documentation provision exists, present the warranties to the contract administrator in a loose-leaf binder with a contents index suitably labelled and including the project name and details. Provide a title on the binder edge "Warranties for (project name)"

1.7 WARRANTIES - SUBMISSION NZIA SCC CONTRACT

Refer to the contract conditions for any requirement relating to the time for submission for warranties and guarantees. Submit all warranties to the architect no later than the date of the contractor's advice of achieving practical completion.

1.8 WARRANTIES - SUBMISSION NZS3910:2013 CONTRACT:

Refer to the contract conditions for any requirement relating to the time for submission of warranties and guarantees. Submit all warranties and guarantees to the engineer no later than the date that the contractor notifies that it believes the contract works qualify for practical completion.

1.9 WARRANTIES - SUBMISSION NZS3915:2005 CONTRACT

Refer to the contract conditionsfor any requirement relating to the time for submission for warranties and guarantees. Submit all warranties / guarantees to the principal before or at the time of the issue of the provisional defects liability certificate the end of the defects liability period.

1.10 WARRANTIES - SUBMISSION NZS3916:2013 CONTRACT

Refer to the contract conditions for any requirement relating to the time for submission for warranties and guarantees. Submit all warranties and guarantees to the engineer no later than the date that the contractor notifies that it believes the contract works qualify for practical completion.

2 SELECTIONS

Guarantees - Contractor - Master Build Services Ltd

2.1 MASTER BUILD SERVICES LTD - 10 YEAR KIWI GUARANTEE

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

2.2 MASTER BUILD SERVICES LTD - 10 YEAR STANDARD GUARANTEE

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

2.3 MASTER BUILD SERVICES LTD - 10 YEAR PREMIUM GUARANTEE

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

Guarantees - Contractor - Builtin NZ

2.4 HOMEFIRST BUILDERS GUARANTEE - NEW RESIDENTIAL BUILD

Provide a Homefirst Builders Guarantee (new Builds - full contract). Complete the guarantee application form, obtain all required signatures (builder and owner). Forward form to Builtin New Zealand Limited for approval, along with full payment, a copy of the building consent and payment schedule. Work must not start until a guarantee is in place.

2.5 HOMEFIRST BUILDERS GUARANTEE - RESIDENTIAL ALTERATION/ADDITION

Provide a Homefirst Builders Guarantee (alterations and additions - full contract). Complete the guarantee application form, obtain all required signatures (builder and owner). Forward form to Builtin New Zealand Limited for approval, along with full payment, a copy of the building consent and payment schedule. Work must not start until a guarantee is in place.

2.6 HOMEFIRST BUILDERS GUARANTEE - CARPENTRY LABOUR ONLY

Provide a Homefirst Builders Guarantee (carpentry labour only). Complete the guarantee application form, obtain all required signatures (builder and owner). Forward form to Builtin New Zealand Limited for approval, along with full payment, a copy of the building consent and payment schedule. Work must not start until a guarantee is in place.

2.7 HOMEFIRST BUILDERS GUARANTEE - KITSET LOSS OF DEPOSIT

Provide a Homefirst Builders Guarantee (kitset loss of deposit). Complete the guarantee application form, obtain all required signatures (builder and owner). Forward form to Builtin New Zealand Limited for approval, along with full payment, a copy of the building consent and payment schedule. Work must not start until a guarantee is in place.

Weathertightness and watertightness warranty

2.8 WEATHERTIGHTNESS AND WATERTIGHTNESS WARRANTY

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

3 SCHEDULES

3.1 SCHEDULE OF WORK SECTION WARRANTIES

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

4131WB	WPS Bitubond self-stick tanking
4171HR	James Hardie rigid air barriers
4231HS	James Hardie Stria cladding
4285SP	Sto Poren Brick Veneer System
4610VR	CSR Viridian residential glazing
6413A	Advance Rubber surfacing

1238 AS BUILT DOCUMENTATION

1 GENERAL

This general section relates to common requirements for the preparation, submission and review of as built documentation. Detailed requirements for as built documentation for particular parts of the work may be included in specific work sections.

1.1 MY CLAUSE 4 TITLE

My Clause 4 Content

1.2 MY CLAUSE 2 TITLE (UPDATED)

My Clause 2 Content (new content)

1.3 AS BUILT DOCUMENT REQUIREMENTS

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

As built drawings recording:

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

Records of:

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

1.4 MY CLAUSE 4 TITLE

My Clause 4 Content

1.5 SAMPLE CLAUSE TITLE

Sample Clause Content

1.6 MY CLAUSE 3 TITLE (MOVED UP)

My Clause 3 Content (moved up)

1.7 SFDSFDS

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1.8 AS BUILT DOCUMENTS SCHEDULE (updated)

There are no work section requirements.

1.9 PROVISIONAL AS BUILT DOCUMENTS

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

1.10 AS BUILT DOCUMENT REVIEW

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

1.11 COMPLETE AS BUILT DOCUMENTS

Prior to the end of the defects notification/liability period, provide complete as built documents reflecting any review requirements, with all Information of good quality and properly titled, numbered, cross-referenced and dated. Provide documents in sufficient detail to allow the principal to operate, maintain, adjust and re-assemble the contract works. Submit in hard copyand electronic form to the contract administrator.

1.12 AS BUILT DOCUMENTS - ELECTRONIC COPY

Provide an electronic copy of the as built documents in the following format:

Drawings:	PDF format (in addition provide DWG files if available)
Other documents:	PDF format

2 SCHEDULES

2.1 AS BUILT DOCUMENTS SCHEDULE

There are no work section requirements.

1239 OPERATION & MAINTENANCE

1 GENERAL

Operation and maintenance documents - Residential projects

1.1 OPERATION AND MAINTENANCE INFORMATION

Provide in writing the information and documentation prescribed by regulations made under the Building Act, to the owner/principal and the relevant territorial authority.

1.2 OPERATION AND MAINTENANCE INFORMATION

Provide in writing the information and documentation prescribed by regulations made under the Building Act, to the owner/principal and the relevant territorial authority.as

1.3 PERIODIC MAINTENANCE REQUIREMENTS

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- fsdsfdsfd
- fdsfdfd
- fsd

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

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1.5 SFD

fdsfdsfds

1.6 FSF

sfsfd

1.7 SHOP DRAWINGS SCHEDULE

The following work sections have shop drawing requirements, refer to these sections for details:

3411	Structural steelwork
3411D	DHS purlins and girts

1.8 SCHEDULE OF MAINTENANCE CONTRACT PROPOSALS

There are no work section requirements.

1.9 SCHEDULE OF INFORMATION FOR OPERATION AND MAINTENANCE

There are no work section requirements.

1.10 SCHEDULE OF OPERATION AND MAINTENANCE MANUALS

There are no work section requirements.

1.11 ROUTINE CLEANING

Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

1.12 SELECTIONS INFORMATION

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

1.13 SELECTIONS INFORMATION - SUBSTITUTIONS

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

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Operation and maintenance documents

Operation and maintenance documents

1.14 OPERATION AND MAINTENANCE INFORMATION

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- Provide operation and maintenance documentation necessary to operate and maintain the works. This documentation is to include:

dfssdasdf

1.15 PERIODIC MAINTENANCE REQUIREMENTS

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

1.16 PERIODIC MAINTENANCE REQUIREMENTS

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

1.17 EQUIPMENT AND APPLIANCE MANUALS AND OPERATING INSTRUCTIONS

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

1.18 SELECTIONS INFORMATION

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

1.19 SELECTIONS INFORMATION - SUBSTITUTIONS

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

Documentation format

1.20 O&M DOCUMENTATION FORMAT

Unless otherwise specified in a work section,

1.21 O&M DOCUMENTATION FORMAT

Unless otherwise specified in a work section,

Submission and review

1.22 NOT SPECIFIED

Final documentation

1.23 FINAL O&M DOCUMENTATION - HARDCOPY

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

1.24 FINAL O&M INFORMATION - ELECTRONIC COPY

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

1.25 FINAL O&M INFORMATION - ELECTRONIC COPY

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

1.26 REVIEW OF FINAL DOCUMENTATION

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

2 SELECTIONS

O&M Documentation

2.1 FINAL O&M DOCUMENTATION

Provide a complete electronic copy to the contract administrator.
Provide two hardcopy sets of completed O&M documentation to the contract administrator. One set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.
Provide any documentation (including required original documentation) as required to the relevant territorial authority.

2.2 FINAL DOCUMENTATION - INFORMATION FOR OPERATION AND MAINTENANCE

Provide a complete electronic copy to the contract administrator.
Provide two hardcopy sets of completed O&M documentation to the contract administrator. At least one set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.
Provide any documentation (including required original documentation) as required to the relevant territorial authority.

2.3 FINAL DOCUMENTATION - OPERATION AND MAINTENANCE MANUALS

Provide a complete electronic copy to the contract administrator.
Provide two hardcopy sets of completed maintenance manuals to the contract administrator. At least one set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.
Provide any documentation (including required original documentation) as required to the relevant territorial authority.

Maintenance contract proposals

2.4 MAINTENANCE CONTRACT PROPOSALS

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

3 SCHEDULES

Schedule of information for operation and maintenance

3.1 SCHEDULE OF INFORMATION FOR OPERATION AND MAINTENANCE

There are no work section requirements.

Schedule of operation and maintenance manuals

3.2 SCHEDULE OF OPERATION AND MAINTENANCE MANUALS

There are no work section requirements.

Schedule of maintenance contract proposals

3.3 SCHEDULE OF MAINTENANCE CONTRACT PROPOSALS

There are no work section requirements.

1239 OPERATION & MAINTENANCE

1 GENERAL

This general section relates to operation and maintenance (O&M) documentation required by the principal so that they can operate and maintain the contract works.

Operation and maintenance documents - Residential projects

1.1 OPERATION AND MAINTENANCE INFORMATION

Provide in writing the information and documentation prescribed by regulations made under the Building Act, to the owner/principal and the relevant territorial authority.

Provide operation and maintenance documentation necessary for the owner/principal to operate and maintain the works. This documentation is to include:

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

1.2 PERIODIC MAINTENANCE REQUIREMENTS

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

- Details of suggested building washing programme.
- Details of suggested re-painting programme.
- Location of flushing points for sub soil drainage systems.
- Location of surface water filter systems requiring periodic cleaning.
- Overflow relief gully location and means of keeping charged.
- Water filter systems filter type and recommended replacement interval.

1.3 APPLIANCE MANUALS AND OPERATING INSTRUCTIONS

Provide appliance manuals and operating information for all appliances including details of all isolating valves and switches including:

- Water supply isolating valve.
- Location of isolating valves for appliances including dishwasher, clothes washer and fridge with and icemaker connection.
- Gas supply isolating valve.
- Electrical main switch and all sub boards.
- Location of isolating switches for electrical appliances including cooker and cook top, kitchen extract system, electric under floor heating.
- Fire and heating device operating instructions.

1.4 SELECTIONS INFORMATION

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

- Tapware type and supplier details.
- Sanitary ware including accessories type and supplier details.
- Light fitting type and supplier details.
- Door hardware type and supplier details.
- Carpet type and colour including underlay and the supplier details.
- Vinyl flooring type and colour including supplier details.
- Overlay timber floor type and supplier details.
- Tile type and supplier details.
- Fire supplier details.

- Aluminium joinery system and finish.
- Paint type and colours used.

Include brochures and other information included with the items supplied.

1.5 SELECTIONS INFORMATION - SUBSTITUTIONS

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

Operation and maintenance documents

1.6 OPERATION AND MAINTENANCE INFORMATION

Provide operation and maintenance documentation necessary to operate and maintain the works. This documentation is to include:

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

1.7 PERIODIC MAINTENANCE REQUIREMENTS

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

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

1.8 EQUIPMENT AND APPLIANCE MANUALS AND OPERATING INSTRUCTIONS

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

1.9 SELECTIONS INFORMATION

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

- Tapware type and supplier details
- Sanitary ware including accessories type and supplier details
- Light fitting type and supplier details
- Door hardware type and supplier details
- Carpet type and colour including underlay and the supplier details
- Vinyl flooring type and colour including supplier details
- Overlay timber floor type and supplier details
- Tile type and supplier details
- Fire supplier details
- Aluminium joinery system and finish
- Paint type and colours used

Include brochures and other information included with the items supplied.

1.10 SELECTIONS INFORMATION - SUBSTITUTIONS

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

Documentation format

1.11 O&M DOCUMENTATION FORMAT

Unless otherwise specified in a work section,

- Provide O&M drawings at scales appropriate to the detail to enable good legibility.
- Provide manufacturers documentation at the original scale.
- Provide written text generally in A4 format using a font not less than 10 point.

Submit O&M documentation in both hard copy and as electronic portable document format (PDF) files.

Submission and review

1.12 O&M DOCUMENTATION SUBMISSION & REVIEW

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

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

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

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

The reviewer may advise that:

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

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

Final documentation

1.13 SUBMISSION OF FINAL DOCUMENTATION

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

1.14 FINAL O&M DOCUMENTATION - HARDCOPY

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

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

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

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

1.15 FINAL O&M INFORMATION - ELECTRONIC COPY

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

1.16 REVIEW OF FINAL DOCUMENTATION

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

2 SELECTIONS

O&M Documentation

2.1 FINAL O&M DOCUMENTATION

Provide a complete electronic copy to the contract administrator.
Provide two hardcopy sets of completed O&M documentation to the contract administrator. One set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.
Provide any documentation (including required original documentation) as required to the relevant territorial authority.

2.2 FINAL DOCUMENTATION - INFORMATION FOR OPERATION AND MAINTENANCE

Provide a complete electronic copy to the contract administrator.
Provide two hardcopy sets of completed O&M documentation to the contract administrator. At least one set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.
Provide any documentation (including required original documentation) as required to the relevant territorial authority.

2.3 FINAL DOCUMENTATION - OPERATION AND MAINTENANCE MANUALS

Provide a complete electronic copy to the contract administrator.
Provide two hardcopy sets of completed maintenance manuals to the contract administrator. At least one set is to contain all available original documentation. The contractor is to retain a third hardcopy set for their records.
Provide any documentation (including required original documentation) as required to the relevant territorial authority.

Maintenance contract proposals

2.4 MAINTENANCE CONTRACT PROPOSALS

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

3 SCHEDULES

Schedule of information for operation and maintenance

3.1 SCHEDULE OF INFORMATION FOR OPERATION AND MAINTENANCE

There are no work section requirements.

Schedule of operation and maintenance manuals

3.2 SCHEDULE OF OPERATION AND MAINTENANCE MANUALS

There are no work section requirements.

Schedule of maintenance contract proposals

3.3 SCHEDULE OF MAINTENANCE CONTRACT PROPOSALS

There are no work section requirements.

3411 STRUCTURAL STEELWORK

1 GENERAL

This section relates to the fabrication and erection of structural steel framing and steel framed buildings of a general nature.

1.1 RELATED WORK

Refer to ~ for ~.

Documents

1.2 DOCUMENTS

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

NZBC F5/AS1	Construction and demolition hazards
AS/NZS 1252	High strength steel bolts with associated nuts and washers for structural engineering
AS/NZS 1554.1	Structural steel welding - Welding of steel structures
AS/NZS 1554.2	Structural steel welding - Stud welding (steel studs to steel)
AS 1627.4	Metal finishing - Preparation and pre-treatment of surfaces - Abrasive blast cleaning
AS 1627.9	Metal finishing - Preparation and pre-treatment of surfaces - Pictorial surface preparation standards for painting steel surfaces
AS/NZS 2980	Qualification of welders for fusion welding of steel
NZS 3404.1:1997	Steel Structures Standard
NZS 4781	Code of practice for safety in welding and cutting
AS/NZS ISO 9001	Quality systems - Requirements
AS 1111.1	ISO metric hexagon bolts and screws - Product grade C - Bolts
AS 1111.2	ISO metric hexagon bolts and screws - Product grade C - Screws
AS 1112.1	ISO metric hexagon nuts - Style 1 - Product grades A and B
AS 1897	Electroplated coatings on threaded components (metric coarse series)
AS 3828	Guidelines for the erection of building steelwork
HERA R4-99	Specification for the fabrication, erection and surface treatment of structural steelwork
WorkSafe NZ	Guidelines for the provision of facilities and general safety in the construction industry

1.3 MANUFACTURER'S DOCUMENTS

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

Copies of the above literature are available from ~

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

1.4 CO-ORDINATION

Refer to architectural, electrical and services drawings to ensure details and fixings required are provided for in the structural steel work.

1.5 VERIFY DIMENSIONS

Verify dimensions against site measurements prior to fabrication. For existing structures, verify grade of steel and dimensions against site measurement.

Requirements

1.6 QUALIFICATIONS

Welding operators to be experienced, competent workers, qualified to AS/NZS 2980, familiar with the materials and techniques specified. Comply with NZS 3404.1 and AS/NZS 1554.1. Welding operators to have passed the qualifications tests covering those welding positions required to complete the work as set out in NZS 4781. Provide evidence of qualifications on request.

Riggers to be experienced and competent workers, familiar with the materials and techniques required.

1.7 SHOP DRAWINGS

Provide shop drawings to show, but not be limited to:

- Design calculations
- Fully dimensioned elevations of all elements (minimum scale 1:20)
- Complete details of construction, connections and all support systems (minimum scale 1:10)
- Dimensions of all typical elements
- Jointing details and method of fixing between individual elements and between this installation and adjacent work
- Provision for thermal movement
- Provision for seismic movement and movement under prevailing wind loads
- Sequence of installation
- Co-ordination requirements with other work
- A full schedule of materials and finishes.

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

Performance

1.8 QUALITY ASSURANCE

Maintain quality assurance programmes to AS/NZS ISO 9001 for both fabrication and erection as necessary to assure that work is performed in accordance with this specification and the qualifying requirements of the contract documents.

1.9 INSPECTION

Inspect fabrication and construction of the structure to NZS 3404.1.

1.10 MATERIAL CERTIFICATES

Supply mill test certificates relating to mill sections, bolts and nuts or welding consumables. High strength steel to be marked accordingly by the supplier before delivery.

1.11 TEST WELDING

Non-destructive weld examination with method, extent and standards of acceptance to AS/NZS 1554.1, Section 7 and NZS 3404.1, Appendix D.

2 PRODUCTS

Materials

2.1 STRUCTURAL STEEL

Comply with Australian, British and Japanese Standards for steel as required by NZS 3404.1, part 1. Test and stress relieve for brittle fracture as required by NZS 3404.1, section 17.

Grade 300, except RHS sections Grade 350, unless noted otherwise on the drawings.

2.2 STEEL PURLINS AND GIRTS

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Components

2.3 BOLTS, NUTS AND WASHERS

Grade 4.6, screws AS 1111.2 and bolts to AS 1111.1. Grade 4.6 nuts to comply with AS 1112.1. Grade 8.8 bolts, nuts and washers (high strength structural quality only) to comply with AS/NZS 1252. Hot-dip galvanize to AS/NZS 4680, bolts, nuts and washers forming a permanent part of a structure subject to a protective coating. Alternatively electrogalvanize to AS 1897.

Accessories

2.4 ELECTRODES

To comply with and be selected for grade of steel being welded as required by AS/NZS 1554.1.

2.5 WELDING WIRE

Welding wire as required by the manufacturer for materials to be joined and the welding position.

2.6 FLUX

Welding flux to be dry and from sealed containers.

2.7 STEEL STUDS

Material for arc stud welding to comply with AS/NZS 1554.1 and AS/NZS 1554.2.

3 EXECUTION

Conditions

3.1 GENERALLY

Construct to NZS 3404.1, section 14 (fabrication) and section 15 (erection). Identify steel to NZS 3404.1.

3.2 DEFECTS

Discard any material or fabricated items showing defects affecting its structural integrity.

3.3 SURFACE FINISH

Grind off burrs and sharp arrises.

3.4 TOLERANCES

Comply with the tolerances laid down for holding down bolts, columns, beams and other members in HERA R4-99 and NZS 3404.1. Comply with NZS 3404.1 for level and alignment of beams and alignment and plumbing of struts.
Structural elements to comply for straightness, length, full contact splices and struts not prepared for full contact with NZS 3404.1.

3.5 CARRY OUT ERECTION

Carry out the erection of structural steel to the requirements of NZS 3404.1, section 15 Erection. Comply with NZBC F5/AS1: Construction and demolition hazards, and the WorkSafe NZ publication: Guidelines for the provision of facilities and general safety in the construction industry.

3.6 START ERECTION

Start erection only when the holding down bolts and anchorages have been cast-in-place long enough to achieve sufficient strength.

3.7 SAFETY DURING ERECTION

Erection practices to comply with AS 3828. During erection make structure safe against erection loading including loading due to erection equipment or its operation, and wind.

3.8 TEMPORARY BRACING

Provide temporary bracing and restraint as required to make structure safe. Leave temporary bracing and restraint in place until the erection is sufficiently advanced to allow safe removal of temporary bracing.

3.9 TEMPORARY MEMBERS FOR GALVANIZED ELEMENTS

Provide temporary members, as required, to strengthen prefabricated elements likely to be distorted by the subsequent hot dip galvanizing process. Co-ordinate, with the galvanizer, the details of any temporary members required.

Assembly

3.10 CUTTING

Hand cut only where machine cutting is not possible. Cutting to comply with NZS 3404.1. Site cutting and welding are forbidden.

Application

3.11 WELD FAILURE

Comply with AS/NZS 1554.1 for detailed guidance on welding inspection and quality control.

3.12 WELDING

Carry out welding in accordance with AS/NZS 1554.1 and the additional requirements of NZS 3404.1. Equipment to comply with AS/NZS 1554.1, clause 1.8.2.

3.13 WELDING SYMBOLS

Welding symbols have not been used on the drawings. Unless denoted otherwise on the drawings, shop weld touching or near-touching steelwork together all round with 6mm continuous fillet welds.

3.14 HOLING

Comply with NZS 3404.1 for sizes, alignment, finishing, punching and flame cutting of holes.

3.15 BOLTING

Bolting, including high strength bolting to comply with NZS 3404.1, section 14.3.6. Ensure that at least one clear thread shows above the nut and at least one thread run out is clear beneath the thread after tightening

3.16 BOLTING NOTATION

Notation of bolting categories:

Bolting category	Bolt standard	Bolt grade	Tension method	Tensioned joint type
4.6/S	AS 1111.1	4.6	Snug tight	
8.8/S	AS/NZS 1252	8.8	Snug tight	
8.8/TB	AS/NZS 1252	8.8	Full tension	Bearing
8.8/TF	AS/NZS 1252	8.8	Full tension	Friction

In bearing type connections where the thread position relative to the shear plane is to be controlled.
N - threads included in shear plane
X - threads excluded from shear plane
F - friction type joints - prepare faying surfaces

3.17 THREADS EXCLUDED FROM SHEAR PLANE

Select length of bolts such that the threaded portion does not occur within the shear plane between joined parts.

3.18 BASE PLATES

Enlargement or site cutting of holes is not permitted. Bending or displacement of holding down bolts is not permitted.

3.19 INSTALLATION OF COLUMNS

Plumb columns using sawn steel packs and wedges not larger than necessary for the purpose. Obtain written instructions when any column base needs to be raised by more than 25mm. Fill the space beneath the base plate with cement-sand grout, containing an approved non-shrink additive, having a minimum compressive strength of 30MPa at 28 days, or by the use of a dry pack of 1:2 cement:sand mortar hammered in tight to ensure complete filling of space.

3.20 INSTALLATION OF PURLINS AND GIRTS

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Finishing

3.21 BRUSHING AND POWER TOOL CLEANING

Remove oil and grease by the use of solvents. Scrape and power wire brush to a minimum St2 finish to AS 1627.9. Clean to bright metal, but avoid producing a polished surface. Check that no burrs or sharp arrises remain which may prevent the full coating thickness being attained.

3.22 ABRASIVE BLASTING

Remove oil and grease by the use of solvents. Abrasive blast clean to a Sa21/2 finish to AS 1627.4. Clean to bright metal, but avoid producing a polished surface. Select grit type and equipment such that the cleaned surface profile between peaks and valleys does not exceed one third of the dry film thickness. Check that no burrs or sharp arrises remain which may prevent the full coating thickness being attained.

3.23 UNPAINTED SURFACES

Do not paint:

- Faying face of high strength friction grip (HSFG) bolted joints
- Areas for site welding keeping 75mm clear all round
- Surfaces for embedding in concrete.

Where steel is only partly encased, then extend priming 30mm minimum into the concrete encasement area.

4 SELECTIONS

4.1 SHOP DRAWINGS

Shop drawings: Required

3411D DHS PURLINS AND GIRTS

1 GENERAL

This section relates to the fabrication, erection and finishing of the Dimond Hi-Span (DHS) cold formed, galvanized steel purlin and girt system; incorporating Dimond fastBRACE lock-in bracing.

1.1 RELATED WORK

Refer to ~ for ~.

Documents

1.2 DOCUMENTS

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

NZBC F5/AS1	Construction and demolition hazards
AS/NZS 1252	High strength steel bolts with associated nuts and washers for structural engineering
NZS 3404.1:1997	Steel Structures Standard
AS/NZS 4680	Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
AS/NZS ISO 9001	Quality management systems - requirements
AS 1111.1	ISO metric hexagon bolts and screws - Product grade C - Bolts
AS 1112.1	ISO metric hexagon nuts - Style 1 - Product grades A and B
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 1897	Electroplated coatings on threaded components (metric coarse series)
AS 3828	Guidelines for the erection of building steelwork
WorkSafe NZ	Guidelines for the provision of facilities and general safety in the construction industry

1.3 MANUFACTURER'S DOCUMENTS

Dimond Structural Systems Manual (web based Manual with dated update pages)
Dimond Installation Guide - Purlin Systems

Copies of the above literature are available from:

Web:	www.dimond.co.nz
Freephone:	0800 346 663.

Requirements

1.4 NO SUBSTITUTIONS

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

1.5 SHOP DRAWINGS

Provide shop drawings.

Refer to the GENERAL sections for the requirements for submission and review and the provision of final shop drawings.

1.6 CO-ORDINATION

Refer to architectural, electrical and services drawings to ensure details and fixings required are provided for in the structural steel work.

1.7 VERIFY DIMENSIONS

Verify dimensions against site measurements prior to fabrication.

Performance

1.8 QUALITY ASSURANCE

Maintain quality assurance programmes to AS/NZS ISO 9001 for both fabrication and erection as necessary to ensure that work is performed in accordance with this specification and the qualifying requirements of the contract documents.

1.9 INSPECTION

Inspect stages of fabrication and construction of the structure to NZS 3404.1.

2 PRODUCTS

Materials

2.1 PURLINS AND GIRTS

Dimond Hi-Span (DHS) roll formed purlins and girts, pre-punched for installation of bracing channels and for connection to the purlin cleats. Manufactured from G450-500, Z275 galvanized steel to AS 1397. Size and thickness for the various locations as scheduled/as detailed on the drawings.

2.2 DIMOND FASTBRACE BRACING SYSTEM

Dimond fastBRACE roll formed channels complete with end cleats and locking tabs. Manufacture from G250, Z275 galvanized steel to AS 1397. Channel length for the various locations as scheduled/as detailed on the drawings.

Components

2.3 BOLTS, NUTS AND WASHERS

Grade 4.6 bolts to comply with AS 1111.1. Grade 4.6 nuts to comply with AS 1112.1. Grade 8.8 bolts, nuts and washers (high strength structural quality only) to comply with AS/NZS 1252. Hot-dip galvanized to AS/NZS 4680, bolts, nuts and washers forming a permanent part of a structure subject to a protective coating. Alternatively electrogalvanize to AS 1897.

3 EXECUTION

Conditions

3.1 GENERALLY

Construct to NZS 3404.1, section 14, Fabrication and NZS 3404.1, section 15, Erection. Identify steel to NZS 3404.1.

3.2 DEFECTS

Discard material showing visual defects affecting its structural integrity and/or appearance.

3.3 DELIVERY, STORAGE AND HANDLING

Keep components dry in transit. Store on a level firm base, clear of the ground, protected from weather, contamination and damage and away from current work areas. Prevent water and condensation from being trapped between adjacent surfaces.

Do not drag components across each other and other materials. Protect edges and surfaces from damage and ensure that section shape is not damaged during handling, storage or installation.

3.4 ERECTION GENERALLY

Carry out the erection of DHS purlins, girts or associated bracing to the requirements of AS 3828. Comply with NZBC F5 1: Construction and demolition hazards, NZS 3404.1 and the WorkSafe NZ publication: Guidelines for the provision of facilities and general safety in the construction industry.

3.5 NO GAS CUTTING OR WELDING

Gas cutting of holes or welding of DHS purlins and girts is not permitted.

3.6 NO PREMATURE LOADING

Correctly position and complete bracing and connections to primary structure before any loads are applied.

Do not rely on bracing to perform structurally during craneage or pre-assembly. Provide additional temporary bracing as required.

Application

3.7 BOLTING

Bolting to NZS 3404: section 14.3.6.

3.8 INSTALLATION OF DHS PURLINS

Install and bolt into position as detailed on the drawings.

3.9 INSTALLATION OF DHS GIRTS

Install and bolt into position as detailed on the drawings.

3.10 INSTALLATION OF DIMOND FASTBRACE SYSTEM

Install tie rods to ridge purlins as detailed.

4 SELECTIONS

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

4.1 DIMOND DHS PURLINS

Size:	DHS ~
Coating:	Z275

4.2 DIMOND DHS GIRTS

Size:	DHS ~
Coating:	Z275

4.3 DIMOND BRACING

Type:	~
Coating:	Z275

4.4 BOLTS, NUTS AND WASHERS

Grade:	~
Coating:	Galvanized
Size:	~mm

3421AX AXXIS STEEL FOR FRAMING

1 GENERAL

This section relates to the supply and erection of light steel framing using New Zealand Steel **AXXIS® Steel For Framing**, roll formed and fabricated as a framed structure, or as part of a flush-lined partitioning system;

- for load bearing structures
- and non-load bearing partitioning

1.1 RELATED WORK

Refer to ~ for ~.

1.2 ABBREVIATIONS AND DEFINITIONS

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

NASH	National Association of Steel-framed Housing Inc. Web site www.nashnz.org.nz.

Documents

1.3 DOCUMENTS

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

AS/NZS 1170.0	Structural design actions - General principles
AS/NZS 1170.2	Structural design actions - Wind actions
AS 1397	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
NZS 2295	Pliable, permeable building underlays
NZS 3604	Timber-framed buildings
AS/NZS 4600	Cold formed steel structures
NZ NASH Standard	Residential and low-rise steel framing Part 1: Design Criteria
NASH N-11	House Insulation Guide
NASH 3405	An alternative solution for steel framed buildings

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

AXXIS® Steel For Framing	A better way to build

Durability statement for Galvsteel™ (galvanised steel) and AXXIS® steel manufactured by New Zealand Steel Limited and used for structural building elements.
Steel frame Fabricators documents:

Manufacturer/supplier contact details

Company:	**AXXIS® Steel For Framing**
Web:	www.axxis.co.nz
Email:	info@nzsteel.co.nz
Telephone:	09 375 8999
Facsimile:	09 375 8213

Requirements

1.5 QUALIFICATIONS

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

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to the **AXXIS®Steel** material selection, the specified steel framing fabricators associated components and accessories, and associated products listed in this section.

1.7 CO-ORDINATION

Ensure details and fixings required are provided for in the steel fabricators framing system. Refer to all drawings and calculations.

1.8 INSTALLATION

Install **AXXIS®** roll formed framing to any technical recommendations or instructions given by the steel frame fabricator.

1.9 SEPARATION

Ensure DPC between the bottom plate and concrete slab in residential construction. Ensure separation between any treated timber and **AXXIS®Steel** with DPC. Refer to the Durability statement.

1.10 DISSIMILAR METALS

Avoid contact with dissimilar metals (e.g. between copper and **AXXIS®Steel**). Refer to NZ NASH 3405 for information on the use of stainless steel fixings, and NASH Handbook, 6 **Connectors**. Ensure plumbers take care to isolate copper piping from steel framing by inserting specialised plumbing grommets into the pre punched surface holes in the studs.

1.11 THERMAL BREAKS AND CAVITY CONSTRUCTION

Install suitable thermal break and/or cavity thermal battens. Refer to NASH Handbook, 10.7 **Condensation and Thermal Break** and NASH N-10 **House Insulation Guide,** for information on the selection and installation methods for thermal break and/or cavity thermal battens.

1.12 PROVIDE INFORMATION

Provide a building consent approved producer statement (design) and supplementary drawings showing dimensions, bracing and assembly.

1.13 STEEL SECTION TOLERANCES

Web thickness:	0.50 to 1.00mm: ± 0.06mm
	1.15 to 3.00mm: ± 0.07mm
Flange thickness:	0.50 to 1.00mm: ± 0.06 mm
	1.15 to 3.00mm: ± 0.07 mm

1.14 STRAIGHTNESS

Hold within L/600. (Approximately 5mm in 3 metres).

1.15 LOAD-CARRYING MEMBERS

Using the specified steel frame fabricatorsdesign data, NASH 3405 and NZ NASH Standard Residential and low-rise steel framing Part 1: Design Criteria, select sections that will satisfy the transverse, dead and live load requirements.

Compliance information

1.16 DURABILITY

The work covered by this part of the specification has been designed and constructed to achieve a durability of 50 years. Refer to the following:
NASH Handbook, **8 Durability**.

Performance

1.17 LOADING CODE REQUIREMENT

To NZBC B1/VM1, AS/NZS 1170.0, AS/NZS 1170.1, AS/NZS 1170.2, AS/NZS 1170.3, NZS .1170.5, AS/NZS 4600.

1.18 SECTION TOLERANCES

To NASH Standard D1 Manufacturing and Assembly Tolerances.

Performance - Wind (design by contractor)

1.19 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Design the installation to the wind zone parameters of NZS 3604, table 5.1.
Refer to general section 1220 PROJECT for details.

1.20 DESIGN PARAMETERS - SPECIFIC DESIGN

Design the installation to the wind pressure parameters of AS/NZS 1170.2.
Refer to general section 1220 PROJECT for details.

Performance - Seismic (design by contractor)

1.21 SEISMIC - NON SPECIFIC DESIGN

Design the system and its anchorages/fixings to resist the earthquake loads of the earthquake zone in accordance with NZS 3604, 5.3 **Earthquake bracing demand**.
Refer to general section 1220 PROJECT for details.

1.22 SEISMIC - SPECIFIC DESIGN

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

2 PRODUCTS

Materials

2.1 STEEL STRIP

NZ Steel AXXIS® coil,
Galvanized AS 1397: 275g/m² (Z 275)
Steel thickness range: 0.50 to 2.25mm (Galvanised)
Steel grade range: G550 for BMT < 1.00mm, G500 for BMT >1.0 < 1.5mm,
G450 for BMT>1.5mm

2.2 STEEL SECTIONS

Cold roll-formed steel sections to AS/NZS 4600, NZ NASH Standard: Residential and low-rise steel framing, Part 1: Design Criteria. To consist of all members required to complete the framing and all to dimensions that satisfy AS/NZS 1170.0.

2.3 CAVITY BATTENS

Battens to suit application. Refer to SELECTIONS for options.

2.4 TIMBER NOGS

Nogs required for fixing fittings and fixtures that are beyond the scope of the steel nogs shall be timber, SG6 radiata pine, H1.2, kiln dried to 14% moisture content and dimensioned to fit the light steel framing and the application.

2.5 DAMP-PROOF COURSE

Heavy kraft strip laminate saturated and coated with bitumen. Refer to 4161 UNDERLAYS, FOIL AND DPC.

2.6 UNDERLAYS

Breather type, waterproof to NZS 2295. Refer to 4161 UNDERLAYS, FOIL AND DPC.

Components

2.7 SCREWS

Self-drilling class to suit member, connection method and location and to NASH Handbook, and the fabricators stated requirements.
Screw corrosion protection to NASH Handbook, **6 Connectors**.

3 EXECUTION

Conditions

3.1 CONCRETE SLAB

Screed the concrete surface by straight edge or vibrating screed immediately after compaction and to tolerances in NZS 3109: table 5.2, **Tolerances for in situ construction**.

3.2 HANDLE AND STORE

Handle and store channels and accessories to avoid damage. Keep dry in transit, store clear of the ground allowing full circulation.

3.3 PREFABRICATED FRAMES AND TRUSSES

Do not bring on to site until the subfloor is complete and members can be temporarily stacked on it and from there immediately erected and fixed.

3.4 SUBSTRATE

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

3.5 COMMENCING THIS WORK

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

Fabrication

3.6 FABRICATION GENERALLY

To NASH Standard and Nash Handbook.

Installation - steel framing

3.7 INSTALLATION GENERALLY

To Nash Handbook and Axxis requirements.

3.8 INSTALL WALL FRAMING

From one corner erect the first two panels, Tek screwing the corner studs together. Continue each panel to complete the longer external wall with another return panel and screw together. Check dimensions and fit and bolt or screw the first corner to the subfloor. Continue with the erection from out of the first corner, Tek screwing studs together and checking dimensions before bolt or screw fixing to the subfloor. Leave all this work plumb, square and true to line and face.

3.9 INSTALL UPPER FLOOR FRAMING

Erect and fix floor joists to form upper floors all level and true to line. Fit and screw fix ceiling battens, lapped and cut to length.

3.10 ERECT UPPER WALLS

Erect wall frames, bolting or screwing bottom plates to steel frame and/or floor joists and corner studs to each other, all plumb and square and true to line and face.

3.11 ERECT ROOF

Erect trusses and rafters screwing them to framing to leave them square and true to line and plane. Fit and screw fix purlins and ceiling battens lapped and cut to length.

3.12 PROVIDE TIMBER NOGS

Provide nogs and fixings required for the fixing of the claddings, linings, fittings and other accessories, all to the manufacturer's requirements. Cut timber square to fit the steel framing and Tek screw firmly in place true to line and face.

3.13 INSTALL THERMAL BREAKS

Install thermal breaks to Nash Handbook and to Axxis requirements.

Completion

3.14 LEAVE

Leave work to the standard required by following procedures.

3.15 REMOVE

Remove all debris, unused materials and elements from the site.

4 SELECTIONS

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

4.1 AXXIS® SYSTEM

Type: **AXXIS® Steel For Framing**
System: ~

4.2 AXXIS® STEEL SECTION - EXTERIOR

Member	Dimensions	Centres
Bottom plates	~ x ~ x ~ mm thick	~ mm
Top plates	~ x ~ x ~ mm thick	~ mm
Studs	~ x ~ x ~ mm thick	~ mm
Nogs	~ x ~ x ~ mm thick	~ mm

4.3 AXXIS® STEEL SECTION - INTERIOR

Member	Dimensions	Centres
Bottom plates	~ x ~ x ~ mm thick	~ mm
Top plates	~ x ~ x ~ mm thick	~ mm
Studs	~ x ~ x ~ mm thick	~ mm
Nogs	~ x ~ x ~ mm thick	~ mm

4.4 AXXIS® TRUSS

Member	Dimensions	Centres
Cords	~ x ~ x ~ mm thick	~ mm
Web	~ x ~ x ~ mm thick	~ mm

4.5 AXXIS® CEILING BATTENS

Member	Dimensions	Centres
Type	~ x ~ x ~ mm thick	~ mm

4.6 AXXIS® ROOF BATTENS

Member	Dimensions	Centres
Type	~ x ~ x ~ mm thick	~ mm

4.7 EXTERIOR THERMAL BREAK

Studs and plates: ~

4.8 CAVITY BATTENS

Type: ~

4131WB WPS BITUBOND® SELF-STICK TANKING

1 GENERAL

1.1 RELATED WORK

Refer to ~ for ~

Documents

1.2 DOCUMENTS

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

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Warranties

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a materials warranty in the suppliers standard form.

1.5 WARRANTY - INSTALLER/APPLICATOR

Installer's warranty for the system under normal environmental and use conditions against failure.

Requirements

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Waterproofing Systems Ltd system, or associated components and products.

Performance

1.7 PRE INSTALLATION MEETING

Convene a meeting between the applicator, contractor, all associated consultants and Waterproofing Systems Ltd to ensure all parties know what is required for effective performance of the system.

1.8 SPECIAL DETAILS

Where a standard detail does not exist, or if a standard detail cannot be applied, an approved alternative must be obtained from Waterproofing Systems Ltd before proceeding with the installation.

1.9 PRESSURE RATING

Obtain a written assurance from Waterproofing Systems Ltd that the waterproofing system, comprising membrane and jointing methods, is capable of sustaining the designated water pressure head. Refer to SELECTIONS for the designated water pressure head.

1.10 QUALITY ASSURANCE

Maintain quality necessary to assure that work is performed in accordance with this specification and the qualifying requirements of Waterproofing Systems Ltd.

2 PRODUCTS

Materials

2.1 SELF ADHESIVE TANKING MEMBRANE

bituBOND® SBS modified self adhesive membrane 1.5mm thick x 1m wide x 20m long rolls with cross laminated polyethylene carrier to the top side and an **adhesive** layer protected by siliconised release plastic to the underside all marked with the manufacturer's mark.

Accessories

2.2 BITUBOND PRIMER

BituPRIME solvent primer is a quick drying primer in 20 litre pails marked with the manufacturer's mark, and used in accordance with Waterproofing Systems Ltd technical literature.

2.3 BITUBOND PRIMER ADHESIVE

BituBOND primer adhesive, a water borne pressure sensitive primer adhesive in 10 litre pails all marked with the manufacturer's mark, and used in accordance with Waterproofing Systems Ltd technical literature.

2.4 BITUBOND SEALANT

bituBOND® Sealant, a bituminous sealant available in 310ml cartridge, specially formulated to be compatible with bituBOND® membrane.

2.5 BITUBOND TERMINATION BAR

bituBOND® aluminium Termination Bar.

2.6 NON RIGID PROTECTION SHEET

3mm plastic coreflute protection boards.

2.7 BITUBOND DRAINAGE PROTECTION SHEET

bituBOND® DrainV, comprised of a layer of geo-textile polypropylene fabric and a dimpled high density polyethylene (HDPE) membrane. Available in rolls 6mm thick, 2m wide x 20m long.

3 EXECUTION

Conditions

3.1 GENERALLY

Comply with the requirements and instructions of Waterproofing Systems Ltd.

3.2 LAYOUT

If not detailed on the drawings, confirm the layout to suit site conditions and Waterproofing Systems Ltd specifications. Pre-plan the work to keep the number of membrane laps to an absolute minimum.

3.3 DE-WATERING

Maintain water level minimum 300mm below the level of the work area during the progress of the tanking work and until protective loading coats and walls are complete and fully set.

3.4 DRAINAGE

Install certified drainage system to remove water from foundations. Ensure drain is protected with a geotextile cloth to prevent clogging with fines, and that it is correctly located 150mm from the membrane and 200mm below the foundation/wall construction joint in accordance with Waterproofing Systems Ltd requirements.

3.5 CHECK SUBSTRATE

Check that the substrate will allow work of the required standard. Complete any remedial work identified before commencing any work. Substrate to comply with performance requirements of the NZBC.

Preparation

3.6 STORAGE

Take delivery of rolls undamaged and include for site handling facilities where required. Stack on end, off the ground on a level surface, out of sunlight and above 5°C and with accessories. Do not allow rolls to become flat or to be crushed.

3.7 SUBSTRATE CONDITION

Ensure that the substrate is in a suitable condition to allow work of the required standard. Ensure all surfaces are smooth, clean, dry and free from dust and dirt with no projections of sharp materials that will cause damage to the membrane or allow water to track behind the membrane. On concrete masonry and polystyrene substrates check that masonry mortar joints are pointed flush with the front face of the substrate.

3.8 SUBSTRATE PREPARATION

Bolster off any projections. Remove debris and leave the surface dust-free, oil-free and clean, with nothing that could diminish the adhesion of primers. Fill tie holes flush and smooth with mortar. Grind off steps or sharp protrusions caused by formwork joints.

3.9 CORNERS AND UPSTANDS

Use only masonry fillets.

3.10 CONSTRUCTION JOINTS

Underflash construction/movement joints to Waterproofing Systems Ltd installation specifications.

3.11 PRIME CONCRETE

Prime concrete and concrete masonry substrates thoroughly with bituPRIME or bituBOND® ensuring a good even coverage and penetration as recommended by Waterproofing Systems Ltd. Ensure substrate is sufficiently cured and dry to permit the intended performance of the primer.

3.12 PRIME POLYSTYRENE

Prime polystyrene substrates thoroughly with bituBOND® ensuring a good even coverage and penetration as recommended by Waterproofing Systems Ltd.

3.13 ALLOW PRIMER TO DRY

Allow the primer to dry as recommended by Waterproofing Systems Ltd. Do not prime more than can be covered in one working day. Prevent contamination of the primed surface prior to application of the membrane.

Installation

3.14 WEATHER CONDITIONS

Install bituBOND® membranes only in fair weather with air temperature above 5°C. Do not lay membrane in wet or misty conditions. In cooler temperatures use a hot air gun to warm the back of the rolls during installation.

3.15 LAYING OUT BITUBOND®

Lay out and allow the bituBOND® membrane to relax for 30 minutes prior to laying.

3.16 INSTALL BITUBOND®

Fully adhere bituBOND® membrane to the substrate to Waterproofing Systems Ltd installation specifications. Install bituBOND® by progressively peeling off the release plastic and firmly placing the membrane onto the substrate. Roll to ensure good adhesion.

3.17 BITUBOND® LAP JOINTS

Remove the selvedge release paper from the lap and lap the next roll 100mm over the last sheet. All side lap joints to be 100mm wide and end laps 150mm wide. To ensure full bonding ensure the lap area is kept free of foreign matter. Apply pressure to membrane and particularly lap areas.

3.18 BITUBOND® FLOOR TO WALL JUNCTION

Protrude the under slab membrane 150mm beyond the perimeter of the footing and protect this edge from damage. When wall is struck, install a 150mm wide underflashing across the floor -to - wall junction mortar fillet. Install the wall membrane down over the underflashing and dress out on to the perimeter footing membrane. Ensure the 150mm flap is adequately protected from damage during construction of the walls and that foreign matter is not able to contaminate this critical lap area.

3.19 PENETRATIONS

Dress penetrations in a tight cove to Waterproofing Systems Ltd specifications. Ensure penetrations are underflashed and overflashed to specification.

3.20 TERMINATION

Terminate bituBOND® membrane perimeter edges with bituBOND® bitumen sealant and bituBOND® Termination Bar centralized over the membrane, cut edge and sealant, then mechanically fix to provide a compression seal.

3.21 BITUBOND® PROTECTION

bituBOND® to be fully protected by 3mm Coreflute protection system prior to backfilling against the walls.

3.22 BACKFILL

Place the backfill once the vertical membrane is in place and adequately protected. Ensure the drainage system has been installed at the footing and the backfill is placed as recommended by Waterproofing Systems Ltd. Ensure the backfill is free of sharp objects that could damage the membrane.

Protection

3.23 PROTECT HORIZONTAL SURFACES

After laying is complete the membrane can be protected until the floor slab is poured by covering the tanking with DPC sheets. This situation arises when there is an extended delay between the membrane installation and the placement of the floor slab or where vehicles and other construction machinery is being taken over the membrane.

3.24 INSTALL PROTECTION SHEETS - COREFLUTE BOARD

Neatly fit Coreflute sheets, spot adhered to the vertical bituBOND tanking overlapped 50mm with joints taped to Waterproofing Systems Ltd requirements.

3.25 INSTALL PROTECTION SHEETS - DRAIN V

Install bituBOND® Drain V in accordance with manufacturer's instructions.

Completion

3.26 SECTIONAL COMPLETION

As sections of the tanking are completed, arrange for inspection of the work before covering with protective sheets, walls, or slabs. Complete the applicator's Quality Control Sheets, and provide to them for issuing the Materials Warranty.

3.27 ACCEPTANCE

- Arrange for an inspection of the completed work.
- Complete the applicator's Quality Control sheets and provide to them for the issuing of the Materials Warranty.
- Protect the membrane until completion of the contract works.

3.28 CLEAN UP

Clean up as the work proceeds.

3.29 LEAVE

Leave this work in a sound condition, free of any defect.

3.30 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.waterproofing.co.nz.

4.1 PRESSURE RATING

Designated water pressure head: ~ metres

Membrane system

4.2 BITUBOND® SELF ADHESIVE DAMP-PROOFING MEMBRANE

Location:	~
Manufacturer:	Waterproofing Systems Ltd
Brand:	bituBOND®

4.3 BITUBOND® SELF ADHESIVE DAMP-PROOFING MEMBRANE

Location:	~
Manufacturer:	Waterproofing Systems Ltd
Brand:	bituBOND®

Accessories - protection

4.4 COREFLUTE PROTECTION SHEET

Location:	~
Supplier:	Waterproofing Systems Ltd
Type/brand:	Coreflute
Thickness:	3mm

4.5 BITUBOND DRAINAGE PROTECTION SHEET

Location:	~
Supplier:	Waterproofing Systems Ltd
Type/brand:	Drain V
Thickness:	6mm

4161 UNDERLAYS, FOIL AND DPC

1 GENERAL

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONBBREVIATIONS AND DEFINITIONS USED THROUGHOUT THE SPECIFICATION.S

Refer to the general section 1**232 INT*ERPRET*ATION** & DEFINITIONS for a

Documents

1.3 DOCUMENTS

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

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Requirements

1.5 INSTALLATION SKILL LEVELS

Installers to be familiar with the manufacturer's technical literature and the NZMRM CoP NZ metal roof and wall cladding Code of Practice.

2 PRODUCTS

Materials

DPC

2.1 POLYETHYLENE DPC

Polyethylene film to AS/NZS 2904 and to the appropriate test methods set out in AS/NZS 4347.0. Thickness 500 microns minimum, manufactured for use as a damp-proof course and concealed flashings to doors and windows.

2.2 BITUMINOUS IMPREGNATED DPC

Heavy Kraft impregnated with high grade bitumen and coated with higher heat resistant bitumen to AS/NZS 2904 and to the appropriate test methods set out in AS/NZS 4347.0.

DPM

2.3 DAMP PROOF MEMBRANE - CONCRETE FLOOR

Polyethylene sheet with minimum thickness of 0.25mm to NZS 3604, 7.5.6, **Polyethelene (polythene) sheet damp-proof membranes**.

2.4 DAMP PROOF MEMBRANE - GROUND COVER TO SUSPENDED TIMBER FLOORS

Polyethylene sheet with minimum thickness of 0.25mm and a minimum vapour flow resistance of 50MNs/g to NZS 3604, 7.5.6, **Polyethelene (polythene) sheet damp-proof membranes**.

Underfloor Reflective Insulation

2.5 SYNTHETIC PERFORATED ALUMINIUM FOIL

Light weight fire retardant perforated underfloor aluminium foil insulation to AS/NZS 4200.1, consists of a layer of highly burnished aluminium foil bonded with fire retardant adhesive to a white woven polymeric mesh.

2.6 STANDARD WEIGHT PERFORATED ALUMINIUM FOIL

Standard weight perforated double sided reinforced reflective aluminium foil to AS/NZS 4200.1, consists of two layers of aluminium foil bonded to quality high strength Kraft and reinforced.

2.7 HEAVY WEIGHT PERFORATED ALUMINIUM FOIL

Heavy weight perforated double sided reinforced reflective aluminium foil to AS/NZS 4200.1, consists of two layers of aluminium foil bonded to quality high strength Kraft and reinforced lengthwise through the membrane.

2.8 LIGHT WEIGHT FIRE RETARDANT ALUMINIUM FOIL

Light weight fire retardant perforated underfloor aluminium foil insulation to AS/NZS 4200.1, consists of two layers of aluminium foil laminated to a central core of Kraft underlay with flame-retardant adhesive and reinforced with fibreglass yarn.

Wall Underlays

2.9 BITUMINOUS STANDARD WEIGHT WALL UNDERLAY

Wall underlay tested to NZS 2295.

2.10 BITUMINOUS HEAVY WEIGHT WALL UNDERLAY

Wall underlay tested to NZS 2295.

2.11 ABSORBENT SYNTHETIC WALL UNDERLAY - POLYPROPYLENE - FIRE

Absorbent, breathable, fire retardant, non-woven, white soft spun-bonded polypropylene membrane. Designed for use as fire retardant membrane, with Flammability Index of 1, when tested to NZS/AS 1530.2.

2.12 ABSORBENT SYNTHETIC WALL UNDERLAY - POLYOLEFIN - FIRE

Absorbent, breathable, fire retardant polyolefin (polyethylene) woven into sheet form with micro sized pores that allow the membrane to breathe with a fire retardant flammability index of 1, tested to NZS/AS 1530.2.

2.13 ABSORBENT SYNTHETIC WALL UNDERLAY - POLYPROPYLENE

Absorbent, breathable spun bonded polypropylene type building membrane, coated with a breathable water resistant film.

2.14 NON-ABSORBENT SYNTHETIC WALL UNDERLAY - POLYOLEFIN

Non-absorbent, breathable very fine high density white polyolefin fibres bonded with heat and pressure to form a wide sheet.

Rigid Wall Underlays

2.15 RIGID WALL UNDERLAYS

Plywood or fibre cement sheet over-fixed with flexible wall underlay to E2/AS1 9.1.7.2. Refer to the appropriate section.

Rigid Air Barriers

2.16 RIGID AIR BARRIERS

For rigid air barriers refer to the appropriate section.

Roofing Underlay

2.17 BITUMINOUS HEAVY WEIGHT ROOFING UNDERLAY

Roofing underlay tested to NZS 2295.

2.18 BITUMINOUS SELF-SUPPORTING ROOFING UNDERLAY

Self supporting roofing underlay tested to NZS 2295.

2.19 BITUMINOUS FIRE RETARDANT SELF-SUPPORTING TWO WAY REINFORCED

Self supporting roofing underlay consisting of two layers of heavy weight Kraft underlay, surfaced coated with water repellence formula which is solvent free, two-way reinforced, and then laminated using a fire retardant adhesive tested to NZS/AS 1530.2.

2.20 SYNTHETIC NON-WOVEN SELF SUPPORTING ROOFING UNDERLAY

A non-woven self supporting roofing underlay, consisting of two spun-bonded polyolefin fabric layers bonded to a micro porous inner layer, designed for use as a water absorbent, breathable, water resistant roofing underlay for sloped roofs; with flammability index tested to NZS/AS 1530.2, AS/NZS 2295.

2.21 SYNTHETIC NON-WOVEN ROOFING UNDERLAY

A non-woven roofing underlay, consisting of two spun-bonded polyolefin fabric layers bonded to a micro porous inner layer, designed for use as a water absorbent, breathable, water resistant roofing underlay for sloped roofs; with flammability index tested to NZS/AS 1530.2, AS/NZS 2295

Commercial Roofing Foils

2.22 FIRE RETARDANT MEDIUM WEIGHT ALUMINIUM FOIL

Two layers of aluminium foil and paper laminates, bonded with flame retardant adhesive and reinforced with fibreglass yarn in a tri-directional pattern tested to AS/NZS 4200.1 and NZS/AS 1530.2. Refer to NZMRM CoP for recommendations.

2.23 FIRE RETARDANT LIGHT WEIGHT ALUMINIUM FOIL

Two layers of aluminium foil laminated to a central core of Kraft paper with flame retardant adhesive and reinforced with fibreglass yarn in a tri-directional pattern tested to AS/NZS 4200.1 and NZS/AS 1530.2. Refer to NZMRM CoP for recommendations.

2.24 FIRE RETARDANT MEDIUM WEIGHT LIGHT DIFFUSER

Medium weight reflective underlay consisting of aluminium foil and Kraft paper laminate, bonded to a white polymeric film with flame retardant adhesive and reinforced with fibreglass yarn in a unidirectional pattern tested to AS/NZS 4200.1 and NZS/AS 1530.2.

Vapour Barriers

2.25 MOISTURE VAPOUR BARRIER

Moisture vapour barrier film to AS/NZS 4200.1, complete with adhesive pressure-sensitive tape required by the film manufacturer, used for the prevention of moisture damage.

Accessories

2.26 WINDOW DOOR SEALING SYSTEM

Proprietary window and door flashing tape and accessories to E2/AS1, paragraph 4.3.11, **Flexible flashing tape**, paragraph 9.1.5, **Wall underlays to wall openings**.

2.27 STUD STRAPS

19mm wide polyethylene straps, for cavity construction with framing centres greater than 450mm.

2.28 WIRE NETTING

75mm galvanized hexagonal wire netting to AS/NZS 4534.

2.29 SAFETY MESH

Galvanized safety mesh AS/NZS 4389.

2.30 GUTTER AND UNDER FLASHINGS

Bituminous breather type underlay cut to width by manufacturer for use under valley, apron flashing and internal gutters. Soffit liner cut to width from bituminous breather type underlay.

2.31 ADHESIVE TAPE

Adhesive tapes to compliment the underlay. Pressure sensitive tapes for joining foil insulation and vapour barriers.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZBC E2/AS1 Table 23 Properties of Roof Underlays and Wall Underlays; and manufacturers technical literature.

3.2 STORAGE

Store wall and roofing underlays and accessory materials, under conditions that ensure no deterioration or damage. Store rolls in an upright position on a smooth floor and protected from sunlight, UV radiation and moisture.

3.3 INSPECTION

Before starting work, check that the framing will allow work of the required standard. Carry out remedial work identified before laying underlay.

Application - DPC

3.4 POLYETHYLENE DPC TO TIMBER

Lay polyethylene DPC under treated and untreated timber, including LOSP treated timber, of all timber framed walls on concrete and concrete masonry, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.5 BITUMINOUS DPC TO TIMBER

Lay bituminous DPC under timber of all timber framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

3.6 DPC TO MASONRY AND BRICK VENEER

Lay DPC along base of cavity and fix top edge to studs with galvanized clouts. Turn DPC out over concrete rebate under bottom course of veneer.

3.7 DPC BETWEEN DISSIMILAR MATERIALS

Lay DPC between dissimilar materials where required.

Application - DPM

3.8 DPM TO CONCRETE FLOOR

Lay DPM under concrete floor substrate over sand binding, in a single layer with 150mm overlaps at joints to provide a waterproof barrier.

3.9 DPM TO GROUND UNDER SUSPENDED TIMBER FLOOR

Lay DPM on ground under enclosed subfloor suspended timber floor in accordance with NZS 3604, 6.14.3, **Ground cover**, and as follows.

Application - Underfloor Insulation

3.10 PERFORATED FOIL FLOOR INSULATION

Lay across the substrate members in true alignment, lapped 150mm with sag of 100mm between and laps in full contact. Cut over nogs and ensure a tight, neat fit of all foil edges to the adjacent member. Keep foil clean and dry and free of any sawdust and shavings until flooring is laid.

Application - Wall Underlay

3.11 WALL UNDERLAY

Fix horizontally to outside face of substrate in true alignment, with succeeding sheets overlapping 150mm to NZBC E2/AS1, clause 9.1.7, **Wall underlay** and refer to manufacturer for requirement for fastenings. Fix tomanufacturers requirements. Scribe neatly around penetrations and openings to leave no gaps. Tape all penetrations. Keep clean, undamaged and without visible weather deterioration until closed in.

3.12 INSTALL STUD STRAPS

Over underlay, install 19mm wide polyethylene straps horizontally at 300mm centres, draw taut and fix to studs with stainless steel staples.

3.13 METAL CLADDING ON TIMBER CAVITY BATTENS

Fix strip of underlay to face of batten before fixing the metal cladding.

Application - Roofing Underlay

3.14 WIRE NETTING

Lay 75mm galvanized wire netting at right angles across the purlins and drawn taunt before fixing. Tie edges of netting together with galvanized wire clips.

3.15 SAFETY MESH

Lay safety mesh over exposed roof areas securely fixed in place.

3.16 ROOF UNDERLAY

Lay vertically over purlins on wire netting with a 150mm side lap. Fix securely to purlins with galvanized fixing clips. Lay underlay to avoid excessive dishing between purlins. When used vertically limit individual runs to 10 metres for bituminous based roofing underlays, 7 metres for fire retardant underlays and 20 metres for synthetic roofing underlays. Do not lay vertically on roof pitches under 10°.

3.17 GUTTER AND UNDER FLASHINGS

Lay bituminous breather type underlay cut to width by manufacturer for use as an underlay to valley, apron flashings, internal gutters and soffit liner. Lap under flashings with adjoining underlays. Fix soffit liner from top plate down 150mm past ribbon plate.

Application - Commercial Roofing Foils

3.18 FOIL ROOF UNDERLAY

Lay vertically over purlins with a 150mm side lap. Fix securely to purlins with galvanized fixing clips. Lay underlay to avoid excessive dishing between purlins.

3.19 FOIL ROOF/WALL UNDERLAY AS LIGHT DIFFUSER (WHITE FACED FOIL)

Lay horizontally or vertically on safety mesh for roof application. Lay vertically for wall application. Start at the gutter and work towards the ridge with a minimum lap of 150mm. Tape joints with appropriate fire retardant white tape 48mm wide to manufactures specifications.

3.20 ROOF/WALL UNDERLAY INSTALLATION (DOUBLE SIDED FOIL)

Apply from the lowest point to allow laps to shed water. All edge and end laps must be overlapped by a minimum of 150mm. Ensure that the underlay is properly fixed to the surface at perimeters or around penetrations.

Application - Vapour Barrier

3.21 FIX VAPOUR BARRIER

Fit and fix between insulation and lining with joints lapped and sealed with pressure-sensitive tape.

3.22 FOIL ROOF UNDERLAY AS VAPOUR BARRIER

Lay horizontally or vertically on 75mm galvanized wire netting. Start at the gutter and work towards the ridge with a minimum lap of 150mm. Tape joints using foil reinforced tape x 50mm.

Completion

3.23 CLEAN UP

Clean up as the work proceeds.

3.24 LEAVE

Leave work to the standard required by following procedures.

3.25 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 DPC

Location: ~
Brand / type: ~ / ~

4.2 DPM - CONCRETE FLOOR

Location: ~
Brand / type: ~ / polyethylene DPM
Thickness: ~
Jointing tape: ~

4.3 DPM - GROUND UNDER SUSPENDED TIMBER FLOOR

Location: ~
Brand / type: ~ / polyethylene DPM
Thickness: ~
Jointing tape: ~

4.4 UNDERFLOOR INSULATION

Location: ~
Brand / type: ~ / perforated double sided aluminium foil
Jointing tape: ~

4.5 WALL UNDERLAY

Location: ~
Brand / type: ~ / ~
Jointing tape: ~

4.6 ROOFING UNDERLAY

Location: ~
Brand / type: ~ / ~
Jointing tape: ~

4.7 COMMERCIAL ROOFING FOIL

Location: ~
Brand / type: ~ / ~
Jointing tape: ~

4.8 VAPOUR BARRIER

Location: ~
Brand / type: ~ / moisture vapour barrier

Accessories

4.9 WINDOW/DOOR SEALING SYSTEM

Brand / type: ~ / flashing tape

4.10 AIR SEAL BACKING ROD

Location: ~
Brand / type: ~ / ~
Size: ~ mm

4.11 STUD STRAPS

Location: ~
Brand / type: ~ / 19mm wide polyethylene strap

4.12 WIRE NETTING

Location: ~
Brand / type: ~ / ~

4.13 SAFETY MESH

Brand / type: ~ / ~

4.14 GUTTER AND UNDER FLASHINGS

Location: ~
Brand / type: ~ / ~

4171HR JAMES HARDIE RIGID AIR BARRIERS

1 GENERAL

This section relates to the supply and fixing of James Hardie rigid air barrier products;

- **HomeRAB® Pre-Cladding**
- **RAB® Board**

1.1 RELATED WORK

Refer to ~ for ~.

Documents

1.2 DOCUMENTS

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

NZBC E2/AS1	External moisture
AS/NZS 1170.2	Structural design actions - Wind actions
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber-framed buildings

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
James Hardie Rigid Air Barriers Installation Manual
BRANZ Appraisal 611 - James Hardie Rigid Air Barriers

Manufacturer/supplier contact details

Company:	James Hardie New Zealand
Web:	www.jameshardie.co.nz
Email:	info@jameshardie.co.nz
Telephone:	Ask James Hardie™ on 0800 808 868.

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years:	For **HomeRAB® Pre-Cladding and RAB® Board** (refer to James Hardie™ product warranty)
15 years:	For accessories supplied by James Hardie (refer to James Hardie™ product warranty)
From:	Date of purchase

- Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 NO SUBSTITUTIONS

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

Performance

1.6 PERFORMANCE, WIND

The design wind pressures are to NZS 3604, up to and including Very High Wind Zone. James Hardie **HomeRAB® Pre-Cladding** is suitable for these conditions.

1.7 EXTRA HIGH OR SPECIFIC DESIGN WIND ZONE

The design wind pressures are to AS/NZS 1170.2, for specific design wind zone (beyond Very High Wind Zone). Only James Hardie **RAB® Board** is suitable for these conditions.

2 PRODUCTS

Materials

2.1 HOMERAB PRE-CLADDING

James Hardie **HomeRAB® Pre-Cladding**, 3.5mm thick, manufactured from treated cellulose fibre, Portland cement, sand and water, cured by high pressure autoclaving manufactured to AS/NZS 2908.2 and, face and edge sealed. Suitable for residential buildings within the scope of NZS 3604 and up to VH wind zone.

2.2 RAB BOARD

James Hardie **RAB® Board**, 6mm thick, manufactured from treated cellulose fibre, Portland cement, sand and water, cured by high pressure autoclaving manufactured to AS/NZS 2908.2 and, face sealed. Suitable for residential and commercial buildings outside the scope of NZS 3604.

Components

2.3 FASTENER TYPE

Fasteners to minimum durability requirements of the NZBC. Refer to NZS 3604, section 4 Durability, for requirements for fixing's material to be used in relation to the exposure conditions.

Refer to NZBC E2/AS1, Table 20, Material selection, and NZBC E2/AS1, Table 21, Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

Zone	Fixings Material
Zone D, Zone E / Microclimates (incl. Geothermal)	Grade 316 Stainless
Zone B, Zone C	Hot-dipped galvanized
Bracing - outside Zone D	Hot-dipped galvanized

Check against SED (specific engineering design) requirements for microclimate conditions.

2.4 GALVANIZED NAILS

HomeRAB® Pre-Cladding

- Hot-dip galvanized 40 x 2.8mm HardieFlex™ nails or 50 x 2.8mm RounDrive nails for nail guns.

RAB® Board

- Hot-dip galvanized 40 x 2.8mm HardieFlex™ nails or 50 x 2.8mm RounDrive nails for nail guns.

2.5 STAINLESS STEEL NAILS

HomeRAB® Pre-Cladding

- 316 Stainless Steel 40 x 2.8mm HardieFlex™ nails or 50 x 2.8mm RounDrive nails for nail guns.

RAB® Board

- 316 Stainless Steel 40 x 2.8mm HardieFlex™ nails or 50 x 2.8mm RounDrive nails for nail guns.

Accessories

2.6 SEALING STRIP

Inseal® 3259, 1.5mm thick x 50mm wide black compressible medium density closed cell foam tape for vertical joints. Battens must be installed within 24hrs of the Inseal tape installation.
Inseal® 3259, 1.5mm thick x 80mm wide black compressible medium density closed cell foam tape for corner joints. Battens must be installed within 24hrs of the Inseal tape installation.

2.7 JOINT SEALING TAPE

Protecto or 3M joint sealing tape. Refer to James Hardie's technical literature for selection and use requirements.

2.8 WINDOW FLASHING TAPE

Protecto sill tape or Super Stick tape. Refer to James Hardie's installation manual for selection and installation requirements.

2.9 HORIZONTAL FLASHING

HomeRAB® 4.5 horizontal flashing.
RAB® Board horizontal flashing.

3 EXECUTION

Conditions

3.1 STORAGE

Take delivery of products dry and undamaged on pallets, and keep on pallet. Protect edges and corners from damage and covered to keep dry until fixed.

3.2 HANDLING

Avoid distortion and contact with potentially damaging surfaces. Do not drag sheets across each other, or across other materials. Protect edges, corner and surface finish from damage.

3.3 SUBSTRATE

Do not commence work until the substrate is of the standard required for the specified finish; plumb, level and in true alignment. Moisture content of timber framing must not exceed the requirements specified by NZS 3602 to minimise shrinkage and movement after sheets are fixed.

3.4 FRAMING

Provided in accordance with NZS 3604 or to SED (specific engineering design) requirements. Stud spacing and nog spacing must not exceed 600mm or 1,200mm respectively. Minimum 45mm wide stud required where vertical jointing on studs.

Application - particular installations

3.5 FIRE RESISTANCE RATING, FIBRE CEMENT

Install mineral fibre insulation or glass fibre insulation fitted tightly in the timber framing cavity. Fix RAB® Board to the exterior face of the framing, direct or on cavity. Fix lining sheets. Refer to project drawing for FRR system construction details and James Hardie Fire and Acoustic Design Manual for further information.

3.6 BRACING SYSTEM HOMERAB PRE-CLADDING

Fix sheets in accordance with the Bracing Design Manual. Refer to the bracing manual bracing table for specific requirements.

3.7 BRACING SYSTEM RAB BOARD

Fix sheets in accordance with the Bracing Design Manual. Refer to the bracing manual bracing table for specific requirements.

Application - generally

3.8 PENETRATIONS AND FLASHINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- Openings formed in accordance with the James Hardie Rigid Air Barriers installation manual.
- Materials lapped in a way that water tracks down to the exterior face of the Rigid Air Barrier.
- Underlay to openings finished and dressed off ready for the installation of window

and door frames and other penetrations

Install Rigid Air Barriers

3.9 SHEET LAYOUT

Refer to the James Hardie Rigid Air Barriers installation manual for sheet layouts to suit general installations and where used to achieve structural bracing. For bracing applications all edges must be supported on framing.

3.10 VERTICAL JOINTS

Join sheets to the James Hardie Rigid Air Barriers installation manual.

3.11 HORIZONTAL JOINTS

Join sheets to the James Hardie Rigid Air Barriers installation manual.

3.12 EXTERNAL AND INTERNAL CORNERS

Form in accordance with the James Hardie Rigid Air Barriers installation manual using a 75mm minimum wide sealing tape.

3.13 FIXING SHEETS

Fix in accordance with the James Hardie Rigid Air Barriers installation manual for either general or bracing applications. Sheets can either be gun nailed or hand nailed using the nails specified. Gun nailing is recommended to reduce installation time.

3.14 SEALANTS

Application and use of sealants to manufacturer's instructions.

3.15 PENETRATIONS

Form in accordance with the James Hardie Rigid Air Barriers installation manual.

3.16 OPENINGS

Form in accordance with the James Hardie Rigid Air Barriers installation manual. Exposed timber framing around window, door, meter box and other penetrations must be covered with a 150mm wide minimum flashing tape or sealing tape. Flashing tapes must be lapped over the HomeRAB® Pre-Cladding or RAB® Board by 50mm minimum.

3.17 FLASHINGS AND JUNCTIONS

Form in accordance with the James Hardie Rigid Air Barriers installation manual. Install flashing tape over any flashings and at all junctions with other materials or building elements.

3.18 AT SOFFITS

Form in accordance with the James Hardie Rigid Air Barriers installation manual.

3.19 BASE CLEARANCES

Form in accordance with the James Hardie Rigid Air Barriers installation manual. Lining is required to extend below the bottom plate by 15mm minimum to form a drip edge and must finish a minimum 100mm clear of finished ground. Where base of sheets are cut to suit site requirements seal the bottom edge using Dulux® Acraprime 501/1 primer or Dulux® Primacryl primer.

Completion

3.20 REPLACE

Replace all damaged or marked elements.

3.21 LEAVE

Leave work to the standard required for following procedures.

3.22 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

4.1 NEW SECTION

kdkdkd

4.2 JAMES HARDIE HOMERAB® PRE-CLADDING - RIGID AIR BARRIER

Brand/type:	James Hardie **HomeRAB® Pre-Cladding**
Flashing tape:	~
Nail finish:	~
Nails:	~ or ~

4.3 JAMES HARDIE RAB® BOARD - RIGID AIR BARRIER

Brand/type:	James Hardie RAB® Board
Flashing tape:	~
Nail finish:	~
Nails:	~ or ~

4221CV CEDARSCREEN VERTICAL ROSENFELD KIDSON WEATHERBOARD CLADDING

1 GENERAL

section relates to the **supply and fixing of *Rosenfeld* Kidson & Co. Ltd Cedarscreen** Vertical weatherboard

1.1 DSF

fdsaaaass

1.2 dfsdfsd

1.3 SCHEDULE OF WORK SECTION WARRANTIES (updated)

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

4131WB	WPS Bitubond self-stick tanking
4171HR	James Hardie rigid air barriers
4231HS	James Hardie Stria cladding
4285SP	Sto Poren Brick Veneer System
4610VR	CSR Viridian residential glazing
6413A	Advance Rubber surfacing

1.4 RELATED WORK

Refer to 6734D Dryden WoodOil for **transparent *finish* or painting sections** for finishes to weatherboardcladding.

1.5 DOCUMENTS

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

Documents

1.6 PERFORMANCE

Accept responsibility for the weather-tight performance of the completed **cla*dd*ing** system, including all penetrations. To NZBC B2/AS1 Durability and NZBC E2/AS1 External Moisture and NZS 4284 Testing of Building Facades.

Requirements

1.7 SAMPLES AND PROFILE DRAWINGS

Samples as listed to be provided to the designer prior to the commencement of the contract. Refer to www.rosenfeldkidson.co.nz for sample request form.

Product Profile:	Product Finish:	Colour:	Number samples required:
~	~	~	~

1.8 MAINTENANCE INSTRUCTIONS

Provide two copies of all relevant Dryden WoodOil maintenance information on completion of the work. Refer to www.rosenfeldkidson.co.nz or www.dryden.co.nz.

NOTE: Re-apply Dryden WoodOil up to two years after second coat, to the areas where the surface exhibits signs of losing capability to 'bead water' or colour tone is faded principally on northern exposed faces. This coat may be extended in areas that experience better quality environmental conditions, such as shading, e.g. soffits. Do not exceed a 36 month period between additional maintenance coats. Timber facades require annual cleaning; this should be carried out in conjunction with Dryden maintenance guidelines.

1.9 MANUFACTURER/SUPPLIER DOCUMENTS

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

Performance

1.10 FIXINGS, WIND

Design and use the fixings appropriate for the wind zone (R) and topographical classification (T) of this site and building height; as required by NZS 3604. Refer to Rosenfeld Kidson for fixing details and technical specification.

2 PRODUCTS

Materials

2.1 TIMBER SPECIES

Western Red Cedar (Thuja Pilcata), harvested from well managed forests of British Columbia, Canada. It carries certification under one or more of the independent third party certification systems (PEFC, CSA, SFI or FSC).

2.2 WEATHERBOARDS

Western Red Cedar weatherboards to Rosenfeld Kidson profiles as detailed. General design to NZS 3617 and or BRANZ BU 411, species and grading to NZS 3602, table 2, reference 2A.1, **Requirements for wood-based building components to achieve a 15-year durability performance**. Weatherboards in lengths relevant to profile selection and application, with all unsound and open split knots excluded by cross cut removal prior to fixing into position.

2.3 MOULDINGS

Western Red Cedar mouldings to Rosenfeld Kidson profiles as detailed, with species and grading to NZS 3602, but with all unsound and open split knots excluded by cross cut removal prior to fixing into position. To NZS 3602, table 2, reference 2A.3, **Requirements for wood-based building components to achieve a 15-year durability performance.** Mouldings in lengths relevant to profile selection and application, with all unsound and open split knots excluded by cross cut removal prior to fixing into position.

2.4 FASCIA BOARDS

Western Red Cedar fascia to Rosenfeld Kidson profiles as detailed, with species and grading to NZS 3602, but with all unsound and open split knots excluded by cross cut removal prior to fixing into position. To NZS 3602, table 2, reference 2A.3, **Requirements for wood-based building components to achieve a 15-year durability performance.** Fascia in lengths relevant to profile selection and application, with all unsound and open split knots excluded by cross cut removal prior to fixing into position.

2.5 WALL UNDERLAYS

For flexible wall underlays, rigid wall underlays and rigid air barriers, refer to the appropriate separate section(s).

Components

2.6 ROSENFELD KIDSON PLUG NAILS, SILICON BRONZE

Fixings to NZBC E2/AS1 Table 24. Refer to Rosenfeld Kidson construction details for fixing details and to SELECTIONS for fixing sizes.

2.7 ROSENFELD KIDSON PLUG NAILS, STAINLESS STEEL

Fixings to NZBC E2/AS1 Table 24. Refer to Rosenfeld Kidson construction details for fixing details and to SELECTIONS for fixing sizes.

2.8 FLASHINGS

To NZBC E2/AS1, 4.0 **Flashings**. Material, grade and colour as detailed and scheduled and to NZBC E2/AS1; Table 21: **Compatibility of materials in contact** and Table 22: **Compatibility of materials subject to run-off**. Ensure that materials used for flashings are compatible with the window frame materials, cladding materials and fixings. Refer: Les Boulton & Associates Reports for durability and compatibility of materials.

Finishes

2.9 FACTORY FINISH

Factory applied application of Dryden WoodOil on all faces of the weatherboards, prior to installation.
Note: Dressed faced profiles are to be face sanded prior to factory oiling.

2.10 SITE FINISH

Use Dryden WoodOil for sealing cut or exposed edges on site and for applying the finishing coat. Site applications to manufacturer's specifications. Refer to SELECTIONS.

3 EXECUTION

Conditions

3.1 GENERALLY

Execution to NZBC E2/AS1: 3.0 **Weathertightness risk factors**, and 9.0 **Wall claddings**, 9.1.7, **Wall underlays**, 9.1.8 **Drained cavities** and 9.4 **Timber weatherboards**.

3.2 STORAGE

Take delivery of Rosenfeld Kidson timber products, dry, unmarked and undamaged from freight and handling (grade characteristics excluded). Store on site, laid flat and true under cover in a cool and dry place, free from sub trade contamination and elevated on bearers approx. 100mm from the ground.

3.3 SUBSTRATE

Before starting fixing ensure that the substrate conforms with NZS 3604, section 2, table 2.1, **Timber framing tolerances** and the requirements of NZS 3604, section 6, **Foundation and subfloor framing** and NZBC E2/AS1, governing support for timber board cladding.

Application - preparation

3.4 FACTORY OIL COATING - OILED TIMBER

Dryden WoodOil spray factory applied on all faces of Rosenfeld Kidson weatherboard profiles. Ensure a pre-order of Dryden WoodOil has been ordered for sealing cut or exposed edges.

Application - fixing nails

3.5 FIXING - OILED / STAINED TIMBER FINISH

Install level, true to line and face, to NZBC E2/AS1: 9.4 **Timber weatherboards**. Coat all cut ends with Dryden WoodOil before fixing. Pilot drill all fixings slightly smaller than gauge of fixing to ensure a snug fit and to minimise risk of moisture entry. Finish the heads of Rosenfeld Kidson pentagon head plug nails flush onto and not into the board surface. Do not 'over drive' the nail head and crush the timber surface beneath and surrounding the nail.

Refer to E2/AS1, Table 24, **Fixing selection for wall claddings**, for dimensions and fixing details.

Application - weatherboards

3.6 FIXING CEDARSCREEN VERTICAL SHIPLAP WEATHERBOARDS

Ensure Cedarscreen Vertical weatherboards are installed by a registered LBP (Licensed Building Practitioner). Cedarscreen QA documents to be completed and signed by the LBP prior to completion.

Application - Ancillary

3.7 WINDOW FIXING DIRECT AND CAVITY

Fix to Rosenfeld Kidson fixing detail.

3.8 ALUMINIUM WINDOWS

To comply with NZBC 4211.

3.9 INSTALL FLASHINGS

Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1. Refer to Rosenfeld Kidson fixing details and technical specification. Material compatibility to NZBC E2/AS1 table 21.

3.10 INSTALL SCRIBERS

Ensure RK 12 scribers are nailed, wet sealed in place and fixed in accordance with Rosenfeld Kidson fixing details.

3.11 COMPLETE

Ensure the work is complete with all flashings, finishings and trim properly installed to ensure the cladding system is completely weathertight. In addition ensure all associated QA check sheets have been signed off by the main contractor.

Completion

3.12 REPLACE

Replace all damaged or marked elements.

3.13 LEAVE

Leave work to the standard required for following procedures.

3.14 REMOVE

Remove all debris, unused materials and elements from the site.

4 SELECTIONS

4.1 CEDARSCREEN VERTICAL SHIPLAP WEATHERBOARDS

Species:	Rosenfeld Kidson Western Red Cedar
Grade:	PC1
System:	**Cedarscreen Vertical Shiplap**
Profile type/number:	RK 55
Dimensions:	140mm x 18.5mm
Surface finish:	BSF
Moisture content:	16 - 18 % at fixing
Fixing system:	Cedarscreen Vertical (structural or non structural)
External corner battens:	RK40, RK42, RK93, RK94, RK95 corner mould
Internal corner battens:	RK41 and RK 96 shiplap internal corner

4.2 CEDARSCREEN ASSOCIATED MOULDINGS

Species:	Rosenfeld Kidson Western Red Cedar
Grade:	~
Cover board dimensions:	RK 102, 103, 104
Eaves mould:	RK32 40mm x 27mm
Cornice:	RK7, 30mm x 18mm x 10mm
Scriber:	RK12, 40mm x 17mm and RK13 40mm x 10mm
Surface finish:	Band Sawn Face (BSF)
Moisture content:	16 -18% at fixing

4.3 CEDARSCREEN FASCIA

Species:	Rosenfeld Kidson Western Red Cedar
Grade:	~
Profile:	~
Surface finish:	Band Sawn Face (BSF)

4.4 FASTENINGS, RK PLUG NAILS

Nails:	~
Size:	~

4.5 ROSENFELD KIDSON CAVITY CLOSER / VERMIN-PROOFING

Brand/type:	Vermin closure to E2/AS1 9.1.8.3 Vermin -proofing
Material:	Rosenfeld Kidson cavity closure, aluminium powder coated finish

4.6 ROSENFELD KIDSON INTERNAL AND EXTERNAL CORNER BACK FLASHINGS

Material:	Rosenfeld Kidson flashings, aluminium powder coated finish
Size:	~

4.7 ROSENFELD KIDSON - FACTORY FINISH COAT - COLOUR TONED OIL

Type:	Rosenfeld Kidson Factory Oil
Coating process:	Factory applied
On-site manual coats:	Dryden WoodOil™

4.8 DRYDEN WOODOIL - SITE COATING - OIL STAIN

Brand:	Dryden WoodOil™
Number of onsite coats:	1 additional coat of Dryden WoodOil 6 - 12 weeks after the initial factory coat
Execution:	Use a PAL Speedbrush (Commercial size) for an even distribution apply WoodOil™ at the manufacturer's recommended coverage rates, note this will vary between (BSF) and (DFS)

4231ED PACIFIC BUILD ETERPAN SIDING WEATHERBOARDS - DIRECT FIX

1 GENERAL

1.1 RELATED WORK

Refer to DULUX or RESENE painting sections for the required paint system for Eterpan Siding.

Documents

1.2 SAMPLE CLAUSE TITLE

Sample Clause Content

Requirements

1.3 NO SUBSTITUTIONS

Substitutions are not permitted to any specified Pacific Build Supply Ltd system, or associated components and products.

1.4 QUALIFICATIONS

Carry out the cladding work with experienced, competent installers who have attended the Eterpan Siding cladding systems training programme or as approved by Pacific Build Supply Ltd.

1.5 ON GOING MAINTENANCE INSTRUCTIONS

Provide ongoing maintenance instructions required to meet the performance requirements of the NZBC B2/AS1 Durability.

Compliance information

1.6 DURABILITY

The work covered by this part of the specification has been designed and constructed to achieve a durability of 15 years when un-coated and which may be extended to 50 years when coated with a continuous waterproof coating system maintained over the service lifetime so that it remains impervious to water.
Refer to the following; BRANZ Opinion BDO 98/3.

Performance

1.7 FIXINGS, WIND

Design and use the fixings appropriate for the wind zone (R) and topographical classification (T) of this site and building height; as required by NZS 3604 and the wind loads on various wall areas as given by AS/NZS 1170.2.

1.8 EXTERNAL MOISTURE

No water penetration beyond the inner surface of the framing at the calculated test pressures. The total system to comply with an ULS wind pressure of ±1550 Pa. A wall underlay may be used as a non rigid air barrier where the ULS is up to ± 1550 Pa. Where wind pressures exceed ± 1550 Pa and are less than ±2700 Pa use a rigid air seal of Eterpan Base 4.5mm thick.

2 PRODUCTS

Materials

2.1 WALL UNDERLAY

Synthetic wall underlay to NZBC E2/AS1, Table 23: Properties of roof underlays and wall underlays.

2.2 RIGID AIR BARRIER

To AS/NZS 2908.2. Eterpan Base medium density fibre cement autoclaved sheet, 4.5mm or 6.0mm thick produced on a "flow on" process. Suitable for residential buildings to NZBC E2/AS1, 9.1.4 **Barriers to Airflow**.

2.3 MEDIUM DENSITY WEATHERBOARDS

Eterpan Siding weatherboards, 15mm thick medium density fibre cement autoclaved sheet, produced on an advanced flow on process. Manufactured to AS/NZS 2908.2 and complying with the NZBC. Sanded top face only and clear sealed face and edges.

2.4 MEDIUM DENSITY TRIM

EterTrim100 and EterTrim85, 15mm thick medium density fibre cement autoclaved sheet, produced on an advanced flow on process. Manufactured to AS/NZS 2908.2.

Components

2.5 FASTENER TYPE

Refer to NZS 3604 section 4, **Durability**, for requirements for fixings material to be used in relation to the exposure conditions.

2.6 SCREWS FOR STEEL FRAMING

For steel framing, countersunk class 3.0 self drilling, self tapping, gauged to suit thickness of steel. Refer to the Eterpan technical literature for the use requirements of the cladding system and the steel frame supplier recommendations on screw fixings.

2.7 STAINLESS STEEL GUN NAILS (NLS CTD)

75mm x 3.06mm diameter Impulse D head nails for secret fixing at 600mm centres maximum.

2.8 STAINLESS STEEL ANGLE BRADS

32mm or 38mm for face nailing and fixing scribers.

2.9 STAINLESS STEEL NAILS

60mm x 3mm diameter jolt head 316 grade for face fixing at 1200mm centres maximum. Pre-drill holes with 3mm masonry bit and punch nails below surface.

2.10 UPVC JOINTER

Eterpan Siding uPVC jointer 2.75mm x 8mm.

2.11 RIGID AIR BARRIER FIXINGS

40mm stainless steel clout fixing for Eterpan rigid air barrier to timber framing.

2.12 FLASHINGS

Flashings to comply with NZBC E2/AS1, 4.0 **Flashings**.

2.13 SCRIBERS

Timber scribers H3.2 cut to suit the finished weatherboard profile.

2.14 SOFFIT JOINTERS AND CAPPING MOULDS

Extruded PVC jointer, capping and scotia mould.

Accessories

2.15 DRILL BIT

Titanium coated drill bit 3mm diameter for drilling pilot holes for weatherboard fixings.

2.16 SEALANT

Bostik SAFETECH SAFE Seal building sealant to BRANZ Appraisal 705.

2.17 POLYPROPYLENE TAPE

19mm wide polypropylene tape to support non rigid air barriers between studs.

2.18 PRIMER

All cut ends on Eterpan Siding to be sealed on site with proprietary primer. Refer to DULUX PAINTING or RESENE PAINTING sections for recommended primer.

2.19 PAINT FINISHING SYSTEM

Refer to DULUX PAINTING or RESENE PAINTING sections for the required painting system for Eterpan Siding.

3 EXECUTION

Conditions

3.1 STORAGE

Take delivery of weatherboards dry and undamaged in pallets and lay horizontally on a smooth level surface. Protect edges and corners from damage and cover to keep dry until fixed.

3.2 HANDLING

Avoid distortion and contact with potentially damaging surfaces. Carry weatherboards in vertical position. Do not drag weatherboards across each other, or across other materials. Protect edges, corner and surface finish from damage.

Application - particular installations

3.3 BRACING SYSTEM

Fix 4.5mm or 6mm Eterpan Base bracing to Pacific Build Supply Ltd technical specification.

3.4 THERMAL BREAK

Install installation strips to steel framing to comply with the manufacturers technical information.

Application - generally

3.5 FIX WALL UNDERLAY

Run and fix wall underlay in full height rolls to wall framing, with fixing and end laps to NZS 3604 and the wall underlay manufacturer's requirements. Repair all tears and cuts with duct tape or replace with new wall underlay. To retain the wall insulation from bulging the wall underlay into the cavity staple 19mm polypropylene tape vertically between the studs or horizontally between the nogs.

3.6 FIX RIGID AIR BARRIER

Fix rigid air barrier as follows:

3.7 PENETRATIONS AND FLASHINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

Application - Eterpan Siding

3.8 INSTALL ETERPAN SIDING WEATHERBOARDS

Framing requirements for the fixing of Eterpan Siding, vertical wall framing to NZS 3604 section 8, **Walls** and studs at 600mm centres maximum. Cut weatherboards to required lengths and join off-stud 100mm minimum using uPVC jointer. Fit horizontal cant strip to bottom of battens to first weatherboard. Lap weatherboards 30mm +/- 3mm. Secret fix using either hand or gun nailed 60mm stainless steel clouts at 600mm centres maximum. Pre-drilling with 3mm diameter drill bit is required when face fixing with 60mm stainless steel jolts or direct nail using 32mm or 38mm stainless steel angle brads. All fixing details to comply with Eterpan Siding WE 9 series detail manual.

3.9 EXTERNAL CORNERS

External corners to comply with NZBC E2/AS1 Fig 88 for corner soakers and boxed corners (refer to Fig 78 a & c for details of cover boards). Also refer to Eterpan Siding WE 9 series detail manual, and make weatherproof by one of the following methods:

3.10 INTERNAL CORNERS

Internal corners to comply with NZBC E2/AS1 Fig 89 (internal corner detail) and Eterpan Siding WE 9 series detail manual, and made weatherproof by one of the following methods:

3.11 INSTALL FLASHINGS

Install flashings at all wall openings, penetrations, junctions, connections, window sills, heads and jambs to NZBC E2/AS1, 4.0 **Flashings** and to comply with Eterpan Siding WE 9 detail manual.

Completion

3.12 REPLACE

Replace all damaged or marked elements.

3.13 LEAVE

Leave work to the standard required for following procedures.

3.14 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

For further details on selections go to www.pbs.co.nz.

Materials

4.1 WALL UNDERLAY

Brand:	Tekton (or other approved by E2/AS1 Table 23)
Flashing tape:	3M 8067 All Weather Flashing tape Pro Clima Extoseal / Extora Flashing tape

4.2 ETERPAN BASE RIGID AIR BARRIER

Brand/type:	Eterpan Base 4.5mm or 6mm

4.3 EXTERNAL CORNERS

Type:	~
Soaker type:	Mill Aluminium

4.4 INTERNAL CORNERS

Type:	~
Soaker type:	~

4.5 SEALANT

Make/type:	Bostik SAFETECH SAFE Seal Sealant or Sikaflex® AT-Façade Sealant.

Finishing

4.6 PAINTING

Paint system:	~

4231HS JAMES HARDIE STRIA® CLADDING

1 GENERAL

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONS

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

Documents

1.3 DOCUMENTS

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

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

James Hardie documents relating to this part of the work:

Warranties

1.5 WARRANTEE - MANUFACTURER/SUPPLIER

Provide a material manufacturer's warranty:

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

Requirements

1.6 QUALIFICATIONS

Installers to be experienced, competent trades people.

1.7 NO SUBSTITUTIONS

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

1.8 MAINTENANCE REQUIREMENTS

Provide relevant James Hardie maintenance requirements at completion of the work.

Performance - Wind

1.9 PERFORMANCE - WIND

The design wind pressures are to NZS 3604, up to and including Extra High Wind Zone. This is within the scope of James Hardie literature and details.

2 PRODUCTS

Materials

2.1 STRIA CLADDING

James *Hardie Stria® Cladding, low density autoclaved panel,4200mm long x 405mm wide x 14mm thick, manufactured from treated cellulose fibre, Portland cement, sand and water. Cured by high pressure autoclaving and manufactured to AS/NZS 2908.2. Both faces and all edges* pre-sealed.

2.2 RIGID AIR BARRIERS

Refer to section 4171HR JAMES HARDIE RIGID AIR BARRIERS.

2.3 CLD STRUCTURAL CAVITY BATTENS

James Hardie CLD® Structural Cavity Batten, 2450mm **long x 70mm *wide* x 19mm thick, m*anufac*tured** from treated cellulose fibre, Portland cement, sand and water. Cured by high pressure autoclaving and manufactured to AS/NZS 2908.2. Both faces and all edges pre-sealed.

2.4 EXTERIOR CAVITY CLOSER

Stria® moulded aluminium cavity closer.

2.5 FLUSH JOINTED SOFFIT LINING

James Hardie Villaboard® Lining 6mm and 9mm thick manufactured from treated cellulose fibre, Portland cement, sand and water, cured by high pressure autoclaving and manufactured to AS/NZS 2908.2.

Components

2.6 NAIL/SCREWS FOR CLD STRUCTURAL CAVITY BATTEN FIXING

Hot dipped galvanized **65mm x 2.87mm Roun*Drive ring shank nail or stainless steel 65mm x 2.87mm RounDrive ring shank nail for fixing to timber framing. 40mm x 10g self embedding wing tek g*alvanized steel screw for fixi**ng to steel framing.

2.7 NAILS FOR STRIA CLADDING FIXING TO CLD STRUCTURAL CAVITY BATTEN

Paslode 30mm 304 stainless steel Trim Master Angle Brad nails.

2.8 ADHESIVE FOR STRIA CLADDING FIXING TO CLD STRUCTURAL CAVITY BATTEN

Bostik 'Seal n Flex 1' or Sika Sikaflex 11FC.

2.9 VERTICAL JOINT FLASHING

Stria® aluminium extrusion available in 3.0m lengths. Refer to SELECTIONS.

2.10 INTERNAL AND EXTERNAL CORNER FLASHINGS

Stria® purpose made anodised aluminium extrusion, available in 3.0m lengths. Refer to SELECTIONS.

2.11 ALUMINIUM WINDOW JAMB FLASHING

Stria® aluminium moulding used beside window opening to end butt the Stria® Cladding, available in 3.0m lengths.

Accessories

2.12 FLEXIBLE SEALANT

One component moisture curing elastomeric sealant Sikaflex® AT-Façade to BRANZ Appraisal 613, or Sikaflex MS.

2.13 PAINT FOR SEALING CUT EDGES OF CLD STRUCTURAL CAVITY BATTENS

Dulux Acraprime 501/1 or Resene Quick Dry.

3 EXECUTION

Conditions

3.1 DELIVERY/STORAGE AND HANDLING

Take delivery of materials **and goods and store on site and protect from damage. Store Stria® Cladding flat on a smooth level surface, keep dry prior to fixing. *Protect surfaces, edges and corners from damage.***

3.2 PRE-INSTALLATION REQUIREMENTS

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

3.3 PRE-CLADDING REQUIREMENTS

Check work previously carried out and confirm it is of the required standard for specified finish. Do not commence work until the substrate is of the standard required by James Hardie for the specified finish; plumb, level and in true alignment. Carry out such additional preparatory work as required to bring the substrate to suitable condition.

3.4 TIMBER FRAMING REQUIREMENTS

Check timber framing stud and nog spacing is in accordance with NZS 3604 and framing complies with NZS 3602. For projects with specific engineering design check compliance with AS/NZS 1170 and NZS 3603.

3.5 CLADDING CLEARANCES

Bottom edge clearance of cladding, ground clearances and overhang to bottom plate to comply with the requirements of NZBC E2/AS1.

3.6 SITE REQUIREMENTS

Building site to comply with NZBC E1/AS1.

Installation

3.7 STANDARDS AND TOLERANCES

Refer to the general section 1270 CONSTRUCTION for general requirements.

Installation - fire rated walls

3.8 INSTALL FIRE RATED WALLS WARRANTY

Install fire rated walls in accordance with James Hardie Stria® Cladding Technical Specification and James Hardie Fire and Acoustic Design Manual.

Installation - braced walls

3.9 INSTALL BRACED WALLS

Install braced walls using RAB® Board in accordance with James Hardie Bracing Design Manual. Install Stria® Cladding in accordance with James Hardie Stria® Cladding Technical Specification.

Installation - general

3.10 INSTALL CAVITY CLOSURE/VENT STRIP

Install cavity closure/vent strip in accordance with James Hardie Stria® Cladding Technical Specification. Install cavity closer at base of walls, on horizontal (or raking) open junctions and over openings (windows, meter boards, etc).

3.11 INSTALL CLD STRUCTURAL CAVITY BATTENS

Install battens in accordance with James Hardie Stria® Cladding Technical Specification. Fix to studs over wall underlay or James Hardie Rigid Air Barrier, run battens continuously over studs and provide a gap at first floor joist level to allow for shrinkage and deflection in joists. Alternatively, batten can be scarf-jointed over the studs within the floor height. Join battens with ends cut at 20° to 45° to deflect moisture to the exterior. Prime all site cut ends of battens with Dulux Acraprime 501/1 sealer or Resene Quick Dry before installation. Seal ends using an adhesive sealant in the joint.

3.12 FIXINGS BATTENS TO TIMBER

Fix battens with 65 x 2.8mm RounDrive ring shank nails at 250mm centres for timber studs at 400 or 600mm centres maximum where wind pressures of up to 1.5 kPa apply (50m/s VH wind speed), and fix at 200mm centres with studs spaced at 400mm centres maximum where wind pressures of above 1.5 and up to 2.5 kPa apply (above VH 50m/s to 64.55m/s wind speed). Refer to SELECTIONS for centres.

3.13 PENETRATIONS AND FLASHINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

3.14 INSTALL STRIA CLADDING

Install cladding in accordance with James Hardie Stria® Cladding Technical Specification. Fix panels using combination nailing and adhesive method, comprised of Paslode 30mm 304 stainless steel Brad Nails, a minimum of three nails per stud for each panel. Apply a 6mm thick continuous bead of adhesive sealant to the face of the batten, panel by panel, prior to fixing Stria® Cladding. Finish nail heads flush with panel surface.

3.15 INSTALL JOINTING SYSTEMS

Install vertical, horizontal, internal and external corner joints in accordance with James Hardie Stria® Cladding Technical Specification.

3.16 INSTALL FLASHINGS

Install flashings at all wall openings, penetrations, junctions, connections, window sills, heads and jambs to NZBC E2/AS1.

Installation - soffit

3.17 INSTALL FLUSH JOINTED SOFFIT SHEETS

Cut sheets dry and ensure all edges and joints are fully supported. Fit expansion joints to limit finished areas to 7.2 metres x 4.8 metres for large soffits or 7.2 metres for narrow soffits. Flush joints with James Hardie Base Coat, paper reinforcing tape and James Hardie Top Coat to flush width of 180mm. Refer to Eaves and Soffit Linings Installation Manual.

Completion

3.18 ROUTINE CLEANING

Carry out routine trade cleaning of this part of the work including periodic removal all debris, unused and temporary materials and elements from the site.

3.19 DEFECTIVE OR DAMAGED WORK

Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Leave work to the standard required for following procedures.

3.20 PROTECTION

Provide the following temporary protection of the finished work:

4 SELECTIONS

For further details on selections go to www.jameshardie.co.nz

Materials

4.1 JAMES HARDIE CLD® STRUCTURAL CAVITY BATTENS

Brand/type:	James Hardie CLD® Structural Cavity Batten
Size:	19mm thick x 2450mm long x 70mm wide
Batten spacing:	~
Fastener type:	~
Fastener finish:	~
Fixing centres:	~

4.2 JAMES HARDIE STRIA® CLADDING

Location:	~
Brand/type:	James Hardie Stria® Cladding
Size:	14mm thick x 4200mm long x 405mm wide
Fastener type:	Paslode 30mm 304 stainless steel brad nails (fixed to CLD structural cavity battens)
Fastener spacing:	Minimum of three nails per stud for each panel

4.3 JAMES HARDIE STRIA CLADDING EXTERNAL CORNERS

Type: ~

4.4 JAMES HARDIE STRIA CLADDING INTERNAL CORNERS

Type: ~

4.5 JAMES HARDIE STRIA CLADDING VERTICAL JOINTS

Type: ~

4.6 JAMES HARDIE VILLABOARD® FLUSH JOINTED SOFFIT SHEETS

Brand/type: James Hardie Villaboard® Lining soffit system
Thickness: ~mm
Nails: 40 x 2.8mm HardieFlex™ Nails

Finishing

4.7 PAINTING

Refer to painting section/s for details.

4285SP STO POREN BRICK VENEER SYSTEM

1 GENERAL

1.1 RELATED WORK

Refer to ~ for ~

1.2 ABBREVIATIONS AND DEFINITIONS

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

Documents

1.3 DOCUMENTS

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

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

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

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

1.6 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

Requirements

1.7 QUALIFICATIONS

The contractor is to be registered by Sto and experienced in the installation and application of the Sto Poren Brick Veneer System.

1.8 NO SUBSTITUTIONS

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

1.9 PROTECTION OF NEW PLASTER

Provide protection systems as required by the manufacturer to protect fresh plaster from adverse weather conditions.

1.10 INSPECTIONS

Allow to inspect the whole of the work at each stage. Determine a programme for inspections including notification when each part and stage of the work is ready for inspection prior to the work commencing.

1.11 FINISH SAMPLE

If requested submit one 600mm x 200mm Poren brick with the selected finish texture and colour for approval. Obtain signature of acceptance on sample and return to the approved applicator.

1.12 MAINTENANCE INSTRUCTIONS

Provide Sto Poren Maintenance Schedule with Sto Warranty documents on practical completion for issuing to the building owner and Building Consent Authority.

1.13 HEALTH AND SAFETY

Refer to the requirements of the Health and Safety in Employment Act and WorkSafe NZ:

Compliance information

1.14 DURABILITY

The work covered by this part of the specification has been designed and constructed to meet the NZBC durability requirement of 15 years with a serviceability life in excess of 30 years when maintained. Refer to the following:

1.15 ON GOING MAINTENANCE INSTRUCTIONS

Provide details of ongoing maintenance required to satisfy the performance requirements of the NZBC B2/AS1.

1.16 INFORMATION REQUIRED FOR CODE COMPLIANCE

Provide the following compliance documentation: -

Performance - wind

1.17 DESIGN PARAMETERS - NON SPECIFIC DESIGN

Design the framing to the wind zone parameters of NZS 3604, table 5.4.

1.18 DESIGN PARAMETERS - SPECIFIC DESIGN

Design the framing to the wind pressure parameters of AS/NZS 1170.2.

1.19 DESIGN PARAMETERS - STO PORENBRICK VENEER

The Sto Poren Brick Veneer when fixed in accordance with the Sto Poren manual and specifications has been accessed by BRANZ to differential design ULS wind pressure of extra high (2.13 kPa or 55 m/s)

Tests

1.20 TESTS

Refer to the following:

2 PRODUCTS

Materials

2.1 PORENBRICK

Poren Brick, manufactured from aerated lightweight concrete with an approximate density of 52kg/m², supplied 600mm x 200mm x 75mm thick.

2.2 PORENLINTEL

Poren steel reinforced lintels, manufactured from aerated lightweight concrete, and supplied 2400mm x 200mm x 75 mm thick. Note lintels require a minimum 200mm brick seat.

Components

2.3 PORENLINTEL SHELF BRACKET

Hot dipped galvanized steel angle 75mm high x 100mm deep x 310mm wide, to join Poren Lintels when openings exceed 2m. Shelf brackets are fixed to the timber lintel behind with M10 hot dipped galvanized coach bolts for flitch beams or minimum 75mm coach screws for timber beams.

2.4 SHELF ANGLE ON PARALLEL SLOPING ROOF LINE

Hot dipped galvanized continuous steel angle 75mm high x 100mm deep to support Poren Bricks on a gabled (sloping parallel) roof line. Shelf angle fixed to timber studs behind with M10 x 75mm hot dipped galvanized coach screws at maximum 600mm centres.

2.5 PORENBRICK TIES

To AS/NZS 2699.1, veneer ties minimum grade EM screw fixed to framing.

2.6 FLASHINGS

Head, jamb, sill and any other required flashings made from powder coated aluminium, stainless steel or uPVC supplied by main contractor for timber, aluminium and uPVC joinery to NZBC E2/AS1 and specific construction requirements.

2.7 STO FLASHINGS AND COMPONENTS

Sto uPVC flashings, finishing edges, trays, etc to be used for weatherproofing exterior plaster at joinery transitions, junctions, terminations, cavities and for forming corners and drip edges.

2.8 STO CONTROL JOINTS

Sto uPVC 8mm or 12mm uPVC control joints.

Accessories

2.9 STO POREN MORTAR

Sto Poren Mortar, a polymer modified, cement-based adhesive mortar formulated for Poren Brick construction. Supplied in 25kg bags and mixed on site with clean water and applied in a 10mm +/- 2mm continuous bedding to bond the bricks and encase brick ties.

2.10 ARCHITECTURAL MOULDINGS

AAC or polystyrene shapes used to create decorative detailing, fixed using AAC construction adhesive or GlueCoat mortar applied to the shape prior to placing over the plaster mesh coat.

2.11 STO JOINT SEAL TAPE

An expanding polyurethane foam waterproof impregnated inseal tape for weatherproofing joints. Use within sizes 15mm wide - 2mm/6mm or 5mm/12mm joints.

2.12 WATER

Clean, fresh and free from excess alkali, salt, silt and organic materials.

Waterproofing plaster

2.13 STOFLEXYL WATERPROOFING PLASTER

StoFlexyl, a cementitious dispersion leveller containing additives and binders mixed 1/1 with Portland Cement.

StoPoren plaster system

2.14 S-PROTECT WS205 SILANE

S-Protect WS205 Silane, a European silane sealer with water repelling properties.

2.15 STOPOREN PLASTER

StoPoren Plaster 4/5mm, a European designed fibre reinforced AAC mineral plaster with good adhesion properties, water retention agents and machine application properties, 4mm to 5mm thick.

2.16 STO EUROPEAN REINFORCING MESH

Alkali-resistant fibreglass woven reinforcing mesh with a nominal mesh size of approximately 4mm x 4mm or 6mm x 6mm and an approximate weight of 165g/m².

2.17 STOPLEX W SEALER

StoPlex W Sealer, a consolidating primer with siloxane additives. Deep penetration for consolidation with absorbency regulating and water repelling properties.

2.18 STOLIT K & MP COLOURED FINISHING RENDERS

European fibre reinforced coloured finishing renders in a pail. Organic bound, strong, hardwearing, impact resistant coloured finishing render, available in 6 finishes. Refer to SELECTIONS for texture and colour range.

2.19 STOCOLOR MAXICRYL FACADE PAINT

Matt coloured pure acrylate facade paint. Natural looking matt, hard, durable, coating with excellent resistance to weathering. Refer to SELECTIONS for colour.

2.20 S-PROTECT SC STAY CLEAN

Clear, invisible Silane sealer for added protection against staining of coloured sponge finishes.

StoArmat Miral plaster system

2.21 S-PROTECT WS205 SILANE

S-Protect WS205 Silane, a European silane sealer with water repelling properties.

2.22 STOPOREN BASECOAT PLASTER

StoPoren Plaster 4/5mm, a European designed fibre reinforced AAC mineral plaster with good adhesion properties, water retention agents and machine application properties, 4mm to 5mm thick.

2.23 STOARMAT CLASSIC REINFORCEMENT PLASTER

StoArmat Classic Reinforcement Plaster, a European manufactured, fibre reinforced, strong, flexible, impact resistant, white reinforcing plaster containing a calibration grain to ensure correct mesh plaster thickness.

2.24 STO EUROPEAN REINFORCING MESH

Alkali-resistant fibreglass woven reinforcing mesh with a nominal size of 4mm x 4mm or 6mm x 6mm square and a weight of 160 g/m².

2.25 STOLIT K & MP COLOURED FINISHING RENDERS

European fibre reinforced coloured finishing renders in a pail. Organic bound, strong, hardwearing, impact resistant coloured finishing render, available in 6 finishes. Refer to SELECTIONS for texture and colour range.

2.26 STOCOLOR MAXICRYL FACADE PAINT

Matt coloured pure acrylate facade paint. Natural looking matt, hard, durable, coating with excellent resistance to weathering. Refer to SELECTIONS for colour.

2.27 S-PROTECT SC STAY CLEAN

Clear, invisible Silane sealer for added protection against staining of coloured sponge finishes.

3 EXECUTION

Conditions

3.1 SUBSTRATE - TIMBER FRAMING

Check framing to NZS 3604 for Non Specific Design or to NZS 3603 and AS/NZS 1170 for Specific Design.
Do not commence work until the framing is of the standard required for the specified finish; plumb, level and in true alignment. Moisture content of timber framing must not exceed the requirements specified by NZS 3602 to minimise shrinkage and movement after the bricks are fixed. Studs are not to exceed 600mm centres and nogs fitted flush at a maximum of 800mm centres. In Extra High Wind Zones and where Specific Design applies studs shall be at a maximum of 400mm centres. Wall underlay to comply with NZBC E2/AS1 including Table 23.

3.2 SUBSTRATE - STEEL FRAMING

Check framing to NZ NASH Standard Residential and low-rise steel framing Part 1: Design Criteria and AS/NZS 4600.

3.3 STO POREN BRICK SUBSTRATE

Do not commence work until openings and apertures have been cut, pipes, fixtures, fixing bricks have been fixed and underlay flashings and other preparations are complete. Rectify all defects in substrate prior to application of plaster coatings. Ensure that backgrounds and adjoining surfaces are, after the preparation called for in this section, is of the required standard for the Sto Poren Brick Veneer System.

3.4 FLASHING AND DETAILING

Comply with NZBC E2/AS1, 4.0 Flashings and Sto Poren penetration flashing guidelines. Carry out to the required standard of execution to ensure water does not penetrate.

3.5 STANDARDS AND TOLERANCES

Comply with the tolerances laid down in NZS 4210 Table 2.2. To have no deviation more than 3mm from a straight edge 1200mm long. Abrupt deviations will not be accepted.

3.6 CONFIRM LAYOUT

Before commencing work confirm the layout of control joints and other visual detailing of the finished work.

3.7 FOUNDATION REQUIREMENTS

Confirm concrete on slab-on-ground to NZS 3604 or NZBC E2/AS1 for brick veneer or Specific Design. A minimum 50mm rebate is required in the concrete foundation/slab with a depth to allow a 40mm to 75mm cavity. The minimum distance from the rebate to unpaved ground is 100mm or 25mm to paved ground.

3.8 VENEER HEIGHT

Ensure maximum height of veneer is a maximum of 7.5m above its foundation support, except that at gable ends and some piers this height may be at 10m. Where veneer is above roofs, maximum permitted height is 4m above the veneer roof line support, or 7.5m above an adjacent building foundation, whichever is the lesser.

Installation - preparatory work

3.9 PENETRATIONS - PREPARATORY WORK

Confirm that exterior wall openings have been prepared correctly for all window and door joinery and other penetrations through the veneer. Required preparatory work includes the following:

3.10 FLASHING AND ACCESSORIES

Fit Sto jambs and sills flashings to joinery and check contractor supplied head flashings.

Installation - Poren bricks

3.11 INSTALL POREN BRICKS

Install Poren Bricks in accordance with the Sto Manual specifications and CAD details requirements:

3.12 INSTALL POREN STEEL REINFORCED LINTELS

Install Poren Steel Reinforced Lintels in accordance with Sto Manual specifications and CAD details requirements:

3.13 INSTALL POREN STEEL REINFORCED LINTELS

Install Poren Lintels in accordance with Sto Manual specifications and CAD details requirements:

3.14 INSTALL CONTROL JOINTS

Provide control joints in the plaster system to Sto Manual specifications and CAD details requirements. Locate control joints at 6m centres to coincide with the substrate and/or junctions between dissimilar materials or where shown on the drawings. Reinforce control joint with brick ties placed a maximum of 150mm from the joint at a maximum 400mm horizontal centres. Insert Sto flexible uPVC 8mm or 12mm control joints in the StoArmat mesh coat ensuring the mesh coat does not overlay the V joint. Either coat the V joint in the paint system for a negative detail or fill with MS sealant, concave tooled.

3.15 BALUSTRADE AND PARAPET TOPS / FOUNDATION DETAIL

Provide a minimum slope of 10° on all horizontal surfaces. Where required Sto Poren 50mm Panel can be used apply StoFlexyl / meshed waterproofing correctly mixed with Portland cement extending 75mm up and down any adjacent vertical plaster surfaces. Allow to dry and apply the Sto Poren or StoArmat mesh coat. StoFlexyl waterproofing must attain a minimum thickness of 1.5mm to meet NZBC E2/AS1 and AS/NZS 4858. For concrete foundation details StoFlexyl is applied from 150mm above ground extending 100mm past the finished plaster system.

3.16 PROVIDE ARCHITECTURAL MOULDINGS

Fix architectural profiles, (normally AAC or pre-meshed poly mouldings) used to create detailing after the substrate has been mesh plastered or waterproofed. Attach using Gluecoat mortar applied to the back face. Mechanical fixings may be required for larger or heavy profiles. All plant on shapes are to be pre-meshed and to be meshed on to the base mesh plasterer before the finishing plastering commences.

3.17 INSTALL UPVC FLASHINGS

Install all Sto pre-meshed uPVC corner angles and finishing edges to external corners and terminations as required. Bed in StoPoren plaster set straight to line before commencing to install in mesh coat application.

3.18 IRREGULARITIES

Before commencing fill voids or damage in brick surfaces with StoPoren plaster to reinstate substrate.

3.19 PENETRATIONS - SERVICES

Install all penetrations such as waste pipes, electrical wiring in uPVC conduits and metal plumbing piping with a minimum 5° downward slope, through the StoPoren plaster system, and seal using a double application of MS sealant.

3.20 APPLY SEALANT

Seal all junctions between joinery / adjacent surfaces / dissimilar materials sections and the plaster mesh coat, and around penetrations with a BRANZ appraised MS sealant, in accordance with sealant manufacturer's requirements. Allow to cure before applying finishing plaster.

Waterproofing system

3.21 APPLY WATERPROOFING SYSTEM

Apply StoFlexyl waterproofing plaster in accordance with Sto Poren Specification and CAD drawings.

Conditions - plaster systems

3.22 DELIVERY

Keep StoPoren bagged plaster products dry in transit. Take delivery of StoPoren plaster products in good condition. Reject all damaged materials and immediately notify supplier in writing.

3.23 STORAGE

Deliver all materials in original unopened packaging with labels intact. Provide dry storage on site, stack carefully, protect from mechanical damage. Keep bagged render dry and off concrete surfaces.

3.24 PLASTERING CONDITIONS

Carry out plastering to Sto specification under conditions which will not adversely affect the finished work.

3.25 PROTECT

Before commencing, apply masking protection to all joinery, pipes, roofs and adjacent surfaces likely to be marked. Use covers to keep the working areas clean and remove any contamination of finished work immediately.

3.26 SUBSTRATE

Ensure the main contractor and the sub trades are aware of their responsibilities relating to the required provision of weather tight details at all dissimilar material overlays, junctions, penetrations, clearances and transitions including any blockings or back flashings required (refer to www.sto.co.nz for details).

3.27 FLASHING AND DETAILING

Install flashing in accordance with the Sto Poren Brick Veneer flashing details. Penetrations such as waste pipes and fixing brackets shall be adequately flashed and waterproofed prior to plaster application. Carry out to the required standard of execution to ensure water does not penetrate.

Plaster systems

StoPoren Plaster System - standard spec SS500

3.28 SURFACE PREPARATION AND PRE-TREATMENT OF POREN BRICKS

Rasp all surfaces where necessary to remove excess bonding, mortar or nibs to ensure that all brick joints are flush and true. Fix minor surface damage using plaster.

3.29 SEALER

To clean and seal surfaces apply one coat of S-Protect WS 205 Silane sealer by back pack sprayer and block brush to seal the surface.

3.30 CONTROL JOINTS

Mark out all control joints that have been installed in the substrate so that Sto uPVC control joints can be installed in the mesh coat.

3.31 BALUSTRADE AND PARAPET TOPS / BASE DETAIL

A minimum slope of 10° is required on all horizontal surfaces. To sealed surfaces apply StoFlexyl waterproofing correctly mixed with Portland cement extend 75mm up and down any adjacent vertical plaster surfaces and embed Sto mesh before applying a finishing coat. StoFlexyl waterproofing must attain a minimum thickness of 1.5mm to meet NZBC E2/AS1 and AS/NZS 4858. For concrete foundation details StoFlexyl is applied from 150mm above ground extending 100mm past the finished plaster system.

3.32 BASE MESH COAT PLASTER

To clean sealed Sto Poren Brick surfaces, apply one levelling/straightening coat of StoPoren base plaster at the 3mm - 4mm setting corner angles as required. While the plaster is still wet, lightly embed Sto mesh, ensuring adjacent drops of mesh are overlapped by a minimum of 75mm and the mesh is embedded onto the plaster. Allow to dry and apply one further coat of StoPoren plaster at 2mm to achieve a level plane surface free of hollows and deviations.

3.33 SEALER

To clean dry plastered surfaces apply one coat of Stoplex W sealer by back pack sprayer and block brush to seal the surface.

3.34 COLOURED FINISHING RENDER

Apply selected Stolit K or MP coloured finishing render applied with a stainless steel trowel gauging to the thickness of the aggregate size and finished with a plastic float to the requisite pattern. Apply Stolit MP or MP Natural in two coats and finish with a float and judicial use of a damp sponge.

3.35 STOLIT K FAÇADE PAINT

Apply one coat of StoColor Maxicryl matt facade paint tinted to the selected colour on Stolit K render.

3.36 STOLIT MP SEALER COAT

Apply one coat S-Protect SC stay clean sealer on MP finishes.

StoArmat Miral Plaster System - standard spec SS501

3.37 SURFACE PREPARATION AND PRE-TREATMENT OF POREN BRICKS

Rasp all surfaces where necessary to remove excess bonding, mortar or nibs to ensure that all brick joints are flush and true. Fix minor surface damage using plaster.

3.38 PANEL SEALER

To clean dry panel surfaces apply one coat of S-Protect WS 205 Silane sealer by back pack sprayer and block brush to seal the surface.

3.39 CONTROL JOINTS

Mark out all control joints that have been installed in the Sto Poren Brick substrate so that Sto Poren uPVC control joints can be installed in the mesh coat.

3.40 BASECOAT PLASTER

To clean sealed surfaces, apply one levelling/straightening coat of StoPoren base plaster at approximate thickness of 4mm - 6mm setting corner angles and finishing edges as required to achieve a level plane surface free of hollows and deviations.

3.41 MESHED REINFORCEMENT PLASTER

To dry Sto Poren surfaces apply one even coat of StoArmat reinforcement plaster at approximate thickness 1.5mm / 2mm. While the plaster is still wet, lightly embed Sto European mesh, ensuring adjacent drops of mesh are overlapped by a minimum of 75mm and the mesh is embedded onto the plaster. Allow to dry and apply one further coat of StoArmat at approximate thickness of 1.5mm. Once dry remove any slight ridging with a Sto rasp.

3.42 BALUSTRADE AND PARAPET TOPS / BASE DETAIL

A minimum slope of 10° is required on all horizontal surfaces. To basecoat plastered surfaces apply StoFlexyl waterproofing correctly mixed with Portland cement extend 75mm up and down any adjacent vertical plaster surfaces and embed Sto mesh before applying a finishing coat. StoFlexyl waterproofing must attain a minimum thickness of 1.5mm to meet NZBC E2/AS1 and AS/NZS 4858. For concrete foundation details StoFlexyl is applied from 150mm above ground extending 100mm past the finished plaster system.

3.43 COLOURED FINISHING RENDER

Apply selected Stolit K or MP coloured finishing render applied with a stainless steel trowel gauging to the thickness of the aggregate size and finished with a plastic float to the requisite pattern. Apply Stolit MP or MP Natural in two coats and finish with a float and judicial use of a damp sponge.

3.44 STOLIT K FAÇADE PAINT

Apply one coat of StoColor Maxicryl matt facade paint tinted to the selected colour on Stolit K render.

3.45 STOLIT MP SEALER COAT

Apply one coat S-Protect SC stay clean sealer on MP finishes.

Completion

3.46 ROUTINE CLEANING

Regularly remove debris, unused materials and other elements from the site relating to the plaster system application. Replace damaged or marked elements leaving the whole of this work to the required standard.

3.47 FINAL INSPECTION

A final inspection by the contractor administrator and Sto contractor of the entire finished Sto Poren Brick Veneer System to take place immediately after completion of the work and any defects or subsequent damage made good immediately.

4 SELECTIONS

For further details on selections go to www.sto.co.nz

Materials

4.1 PORENBRICKS

Location:	~
Supplier:	Stoanz Ltd
Brand:	Poren Bricks
Size/thickness:	600mm x 200mm x 75mm thick

Waterproofing system

4.2 STOFLEXYL WATERPROOFING PLASTER

Location:	~
Supplier:	Stoanz Ltd
Brand:	StoFlexyl

Plaster systems

4.3 STOPOREN PLASTER SYSTEM - STANDARD SPEC SS500

Location:	~
Supplier:	Stoanz Ltd
Substrate:	~
Primer coat:	S-Protect WS 205 silane sealer
Base mesh coat:	StoPoren 4mm-5mm meshed basecoat plaster
Sealer:	Stoplex W sealer
Aggregate render:	Stolit K ~ finished in one coat of StoColor Maxicryl façade paint
Sponge render:	Stolit MP ~ sealed with one coat of S-Protect stay clean sealer
Colour:	~

4.4 STOARMAT MIRAL PLASTER SYSTEM - STANDARD SPEC SS501

Location:	~
Supplier:	Stoanz Ltd
Substrate:	~
Primer coat:	S-Protect WS 205 silane sealer
Levelling coat:	StoPoren 3mm-5mm basecoat plaster
Mesh coat:	StoArmat meshed reinforcement plaster
Aggregate render:	Stolit K ~ finished in one coat of StoColor Maxicryl façade paint
Sponge render:	Stolit MP ~ sealed with one coat of S-Protect stay clean sealer
Smooth render:	Stolit Milano finished in one coat of StoColor Maxicryl façade paint, or

4521 ALUMINIUM WINDOWS & DOORS

1 GENERAL

One two three four **five six seven eight nine ten** eleven twelve thirteen.

2 PRODUCTS

Materials

2.1 WINDOWS

Refer to SELECTIONS for type and finish.

2.2 DOORS

Refer to SELECTIONS for type and finish.

2.3 ALUMINIUM EXTRUSIONS

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

2.4 ALUMINIUM SHEET AND STRIP

Complying with AS/NZS 1734 of suitable thickness. Rolled for anodising or powder coating.

2.5 STAINLESS STEEL SHEET AND STRIP

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

2.6 GLASS

Refer to the glazing section for glass types and installation.

2.7 GLASS

Refer to the glazing section for glass types and installation.

2.8 REVEALS - TIMBER PAINTED

Timber reveals for paint finish with all sides primed grooved for wall linings or flush finished for architraves.

2.9 REVEALS - ALUMINIUM

Aluminium reveals fitted to frame via thermal break.

2.10 REVEALS - PVC

Prefinished PVC reveals grooved for wall linings.

2.11 FLASHINGS GENERALLY

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

Materials - overhead glazing

2.12 OVERHEAD GLAZING SYSTEM

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

Components - for direct fix systems

2.13 SILL PAN FLASHING

To NZBC E2/AS1, 9.1.10.5 Window and Door Sills. Flashing for direct fix claddings to collect and drain water that may penetrate through the window or door unit. Size to extend from the inner most point of the aluminium frame out over the external face of the cladding.

2.14 WANZ SUPPORT ANGLE

Support angle, for use below the sill pan, for deeper claddings to transfer the weight of the window back to the frame. Size to suit cladding thickness.

Components - for cavity systems

2.15 STANDARD CAVITY CLOSER

A perforated device constructed from either aluminium or PVC to close the cavity above the window or door unit, between the cladding and head flashing, to provide ventilation in accordance with NZBC E2/AS1 to the spaces above the window or door.

2.16 WANZ SUPPORT BAR

Extruded aluminium support bar with built in drainage and ventilation to NZBC E2/AS1, to provide continuous support to the window unit. Size to suit cladding type.

Components

2.17 GLAZING GASKETS

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

2.18 HARDWARE AND FURNITURE

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

2.19 SAFETY STAYS

Stainless steel non releasable restrictors to limit window opening to NZBC F4/AS1, Table 2, Acceptable opening sizes for barriers.

Sealants

2.20 STRUCTURAL SEALANT

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

2.21 WEATHERING/INSTALLATION SEALANT

Building sealant used in accordance with manufacturer's instructions for weather sealing aluminium frames to the cladding, complying with US Federal Specification TT S 0011534A, or a one-part polyurethane moisture curing, elastic joint sealant of medium modulus (± 25% movement) to US Federal Specification TT S 00230C.

2.22 FOAM TAPE

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

Finishes

2.23 ANODISED ALUMINIUM

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

2.24 POWDER COATED ALUMINIUM - EXTRA DURABLE

Polyester powder organic coating in accordance with WANZ PQAS and AS 3715.

2.25 POWDER COATED ALUMINIUM - HIGH DUTY

Polyester powder coating in accordance with WANZ PQAS and AAMA 2604.

2.26 POWDER COATED ALUMINIUM - SUPER DUTY

PVF² fluoropolymer powder coating in accordance with AAMA 2605 and WANZ PQAS.

3 EXECUTION

Conditions - generally

3.1 DO NOT DELIVER

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

3.2 UNLOAD WINDOW JOINERY

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

3.3 AVOID DISTORTION

Avoid distortion of elements during transit, storage and handling.

3.4 PREVENT DAMAGE

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

3.5 PROPRIETARY ELEMENTS

Fix in accordance with the window manufacturer's requirements.

3.6 PROTECTIVE COVERINGS

Retain protective coverings and coatings to BRANZ BU 337 and keep in place during the fixing process. Provide protective coverings and coatings where required to prevent marking of surfaces visible in the completed work and to protect aluminium joinery from following trades. Remove protection on completion.

3.7 ADDITIONAL PROTECTION

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

Conditions - fixings and fastenings

3.8 SUPPLY OF FIXINGS

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

3.9 INSTALLATION FIXING

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

Assembly

3.10 FABRICATION

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

3.11 TIMBER / PVC REVEALS

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

3.12 HARDWARE GENERALLY

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

3.13 SAFETY STAYS

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

Installation - windows and doors

3.14 CORROSION PROTECTION

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

3.15 CONFIRM PREPARATION OF EXTERIOR WALL OPENINGS

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

3.16 INSTALLATION

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

3.17 INSTALLATION DIRECT FIX

Install to window manufacturers details and drawings including sill pans to window and door units.

3.18 INSTALLATION CAVITY CONSTRUCTION

Install to WANZ Installation Guide details and drawings including WANZ sill support bars.

3.19 INSTALL FLASHINGS

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

3.20 COMPLETE AIR SEAL

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

3.21 FIX HARDWARE

Fix all sash and door hardware and furniture as scheduled.

Installation - overhead glazing system

3.22 INSTALL OVERHEAD GLAZING SYSTEM

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

3.23 INSTALL OVERHEAD GLAZING SYSTEM HARDWARE

Install selected accessories and hardware. Install and complete all operating systems.

Application - jointing and sealing

3.24 SEAL FRAMES ON SITE

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

3.25 PREPARE JOINTS

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

3.26 BACK UP

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

3.27 SEALANT FINISH

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

Completion - cleaning

3.28 REMOVE TRADE DEBRIS

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

3.29 TRADE CLEAN

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

Completion

3.30 PROTECTIVE COVERINGS

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

3.31 SAFETY

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

3.32 IN SITU TOUCH-UP TO POWDER COATED ALUMINIUM

In situ touch-up of polyester or fluoropolymer coated aluminium is only permitted only to minor surface scratching. Otherwise replace all damaged material.

3.33 REMOVE

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

3.34 REPLACE

Replace damaged, cracked or marked elements.

3.35 MANIFESTATIONS

Apply manifestations to comply with NZS 4223.3, 303.1 Manifestations.

4 SELECTIONS

Performance

4.1 THERMAL PERFORMANCE

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

4.2 AIR INFILTRATION

For NZS 4211, table 3 **Air infiltration**.

4.3 SEISMIC SUB-FRAMES

Windows No.: ~
Movement: ~mm

Performance - Wind (design by contractor)

4.4 WIND - NON SPECIFIC DESIGN

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

4.5 WIND - SPECIFIC DESIGN

The design wind pressures are to AS/NZS 1170.2.

Window and door system

4.6 ALUMINIUM WINDOWS

Manufacturer: ~
Type/location: ~

4.7 ALUMINIUM DOORS

Manufacturer: ~
Type/location: ~

4.8 VENTILATORS

Brand/type: ~

4.9 TIMBER REVEALS

Timber species: ~
Grade/treatment: ~
Thickness: ~mm
Reveals: ~
Finish: ~

4.10 ALUMINIUM REVEALS

Type: ~
Finish: ~

4.11 PVC REVEALS

Brand/type: ~
Thickness: 19mm
Reveals: Grooved for wall linings

Finishes

4.12 ORGANIC POWDER COATING FINISH

Type: Polyester organic powder coating ~
System integrity: ~
Thickness: Average of 80 microns with a minimum of 50 microns
Colour: ~

4.13 FLUOROPOLYMER POWDER COATING FINISH

Type: PVF2 fluoropolymer powder coating
System integrity: ~
Thickness: Average of 80 microns with a minimum of 50 microns
Colour: ~

4.14 ANODISED ALUMINIUM FINISH

Thickness grade: ~ microns
Colour/finish: ~

4.15 FLASHINGS

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

4.16 STRUCTURAL SEALANT

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

4.17 WEATHERING SEALANT

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

4.18 HARDWARE

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

4.19 OVERHEAD GLAZING SYSTEM

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

4.20 MANIFESTATIONS

Location: ~
Type/details: ~

4610VR CSR VIRIDIAN RESIDENTIAL GLAZING

1 GENERAL

This section relates to the supply and fixing of **Viridian** products for external and internal joinery in residential type buildings and includes:

- windows and doorsframeless shower and bath screens
- splashbacks, wall linings
- balustrade systems, pool fences
- mirrors and mirror frames
- shelving

1.1 RELATED WORK

Refer to ~ for ~

Documents

1.2 DOCUMENTS

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

NZBC B1/AS1	Structure
NZBC F2/AS1	Hazardous building materials
NZBC F4/AS1	Safety from falling
NZBC H1/AS1	Energy Efficiency
AS/NZS 2208	Safety glazing materials in buildings
NZS 3604	Timber-framed buildings
NZS 4211	Specification for performance of windows
NZS 4218	Thermal insulation - Housing and Small Buildings
NZS 4223.1	Glazing in buildings - Glass selection and glazing
NZS 4223.Supp1	Glazing in buildings - Supplement 1 to NZS 4223.1:2008 and NZS 4223.4:2008
NZS 4223.3	Glazing in buildings - Human impact safety requirements
NZS 4223.4	Glazing in buildings - Wind, dead, snow and live action
NZS 4243.1	Energy Efficiency - Large Buildings - Building thermal envelope
AS/NZS 4666	Insulating glass units
BRANZ BU 337	Protecting window glass from damage

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
Viridian Architectural Glass, Architectural Glass Guide

Manufacturer/supplier contact details

Company:	**CSR Viridian**
Web:	www.viridianglass.com
Email:	ahamilton@csr.com.au
Telephone:	0800 80 80 60

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

10 years:	For insulating glass units
5 years:	For laminated glass

- Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT.
- Commence the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5 SAMPLES

Submit 150 mm square samples of selected glasses for review.

Performance

1.6 THERMAL STRESS ANALYSIS

Obtain the glass manufacturer's thermal stress analysis for spandrel panels and for tinted, reflective and other solar control vision glasses for review before placing final order.

1.7 ENERGY EFFICIENCY

Provide glazing to meet the energy requirements of, NZS 4218 and NZBC H1/AS1 for housing and small buildings, or NZS 4243.1. Refer to SELECTIONS and schedules for location and type of glazing.

2 PRODUCTS

2.1 NO SUBSTITUTIONS

Substitutions are not permitted to any specified **Viridian** glass, products or systems.

Materials

2.2 CLEAR FLOAT GLASS

Clear ordinary annealed transparent float glass for general window glazing. Thickness as required by NZS 4223.1 and NZS 4223. Supp 1.

2.3 TEXTURED, PATTERNED OR OBSCURE GLASS

Translucent, annealed, rolled glass with a decorative pattern on one surface.

2.4 LAMINATED GLASS

Grade A safety glazing material to AS/NZS 2208 with PVB or CIP resin interlayer.

2.5 TOUGHENED GLASS

Grade A safety glazing material to AS/NZS 2208.

2.6 TINTED FLOAT GLASS

Body tinted float glass.

2.7 REFLECTIVE AND COATED FLOAT GLASS

Either coated float glass incorporating both solar and thermal insulation properties; or coated float glass with only the thermal insulation properties.

2.8 SEALED INSULATING GLASS UNITS (IGU'S)

To the performance requirements of NZS 4666 and the IGU Manufacturers Association (IGUMA) requirements.

Materials, mirrors

2.9 MIRROR GLASS

Clear silvering quality annealed mirror glass, including silver, activation, passivation and two protective coats.

2.10 SAFETY MIRROR GLASS

4 mm and 6 mm Float plate mirror with silver plating and vinyl coating, safety glazing material to AS/NZS 2208.

Materials, screens

2.11 GLASS SCREENS

Proprietary shower/bath screens, formed to shape before toughening, complete with matching hardware.

Components, general

2.12 JOINTING, PUTTY AND SEALING MATERIALS

Ensure jointing, putty and sealing materials compatible with glass substrates. Confirm compatibility with laminated glass, IGUs and coatings.

Components, timber glazing

2.13 PUTTY, TIMBER FRAME

Linseed oil based glazing putty, knife grade putty. Not to be used with laminated or IGUs.

2.14 SPRIGS

Diamond metal pieces to retain glass in timber sashes and frames.

2.15 GLAZING TAPE

Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes for bead glazing. For internal use only.

2.16 GASKETS

PVC or Santoprene to window manufacturers' requirements.

2.17 SETTING BLOCKS

Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes. Use with bead glazing and for IGU's.

Components, aluminium and uPVC glazing

2.18 GLAZING TAPE AND GASKETS

Single/double sided pressure sensitive self-adhesive low/medium/high density foam tapes/butyl tapes selected to suit the glazing detail to window manufacturers' requirements.

2.19 SETTING BLOCKS

Santoprene/Neoprene, 80-90 Shore A hardness, set at quarter points or to detail, to support the weight of glass panes.

Components, mirrors

2.20 MIRROR ADHESIVE

Adhesive mirror-mastic and double-sided adhesive tape.

2.21 MIRROR MOUNTING CHANNELS

Refer to SELECTIONS/drawings for type and finish.

2.22 MIRROR DE-MISTER

Refer to BATHROOM AND TOILET FIXTURES for type.

3 EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

To NZS 4223.1, NZS 4223.3, NZS 4223.4 and NZBC B1/AS1, 7.0 **Glazing**. All external glazing to be wind and watertight on completion.

3.2 DELIVERY

Keep glass dry and clean during delivery and bring on to site when ready to glaze directly into place. Comply also with the storage requirements set out in BRANZ BU 337.

3.3 GLASS CONDITION

All glass of accurate size with clean, undamaged edges and surfaces.

3.4 GLASS THICKNESS

If not specifically stated in the glazing schedule determine the minimum thickness of glass for each sheet as required by NZS 4223.1, NZS 4223.3, NZS 4223.4, and NZS 4223. Supp 1. For windows tested to NZS 4211, ensure glass meets the requirements of the window testing.

Determine the final glass thickness based on whether wind loading or human impact considerations govern.

3.5 REBATE DIMENSIONS

Provide rebates for glazing to the widths and depths necessary for each situation including minimum glass edge cover to NZS 4223.1, Section 4, **Glazing**.

Conditions - human impact safety requirements

3.6 SAFETY GLAZING, GENERAL REQUIREMENTS

Glazing of doors, side panels, low level and window seat glazing, shower doors and screens, bath enclosures, stairwell landings and similar locations, to NZS 4223.3 and NZBC B1/AS1, 7.0 **Glazing**, in respect of, thickness, maximum areas of panel and grade of safety glass for each particular location.

3.7 SAFETY GLAZING MATERIAL

Use only materials from NZS 4223.3, appendix 3.A, **Schedule of safety glazing materials** that also comply with the relevant requirements of AS/NZS 2208. Ensure material is legibly marked and if cut by the distributor or installer mark each piece to NZS 4223.3, clause 303.7, **Identification of safety glazing materials**.

3.8 CONTAINMENT

Edge cover to comply with NZS 4223.1, Section 4 **Glazing**, table 5. Otherwise to NZS 4223.3, clause 303.2, **Containment**.

Assembly

3.9 WORKING OF GLASS

All working of glass as required in NZS 4223.1.

3.10 EDGE WORK AND BEVELLING

Edgework other than a clean cut. Refer to SELECTIONS/drawings for type.

3.11 SURFACE TREATMENT

Refer to SELECTIONS/drawings for finish.

3.12 SURFACE CUTTING

Refer to SELECTIONS/drawings for finish.

Application - timber glazing

3.13 PREPARE REBATES

Ensure all rebates and grooves are clean, dry and unobstructed at time of priming, sealing and glazing.

3.14 PREPARE TIMBER SURROUNDS

Ensure that all rebates have been primed with a primer suitable for this purpose and applied to the requirements of the painting section/s.

3.15 PREPARE TIMBER BEADS

Before fixing ensure that timber beads are sealed and painted to match the timber surround.

3.16 LOCATE BLOCKS

Centralise the glass in the rebate opening using setting, location and spacer blocks as required in NZS 4223.1, Section 4 **Glazing**, to prevent movement of glass in the rebate and cushion the effect of wind loading on the sealing system.

3.17 INSTALL PUTTY FRONTING

Back putty to give a bedding of not less than 1 to 2 mm between the glass and the back of the rebate when the glass has been pressed back. Strip off squeezed out putty at a positive angle. Fix glass to wooden surrounds with diamond points or sprigs at maximum 460 mm centres. Fix glass to metal surrounds with spring clips or pins provided by the sash manufacturers. Apply putty to the face to form a triangular fillet stopping 2 mm below sight line. Finish putty smooth and true to line and face and with a light brushing.

Leave all windows and doors closed until putty has set sufficiently to prevent glass displacement.

Prime putty fronting once surface has skinned - normally within 10 - 15 days of completion of glazing, but this can be reduced with special XHP putty.

3.18 BEAD GLAZING, PREFORMED STRIPS

Apply the preformed tape to the rebate upstand with securely formed butt joints at corners. Place setting blocks, offer the glass and press back against the tape centralised in the opening and apply the second tape. Press the beads against and compressing the tapes and fix true to line and face sufficiently rigid to prevent flexing or movement. Trim off excess strip. Clean and prime the glass surface and when dry apply sealant capping between bead and glass, finishing to a smooth camber.

3.19 BEAD GLAZING, NON SETTING COMPOUNDS

Apply compound to the rebate. Push setting blocks into place with distance pieces against the rebate upstand before offering the glass to the surround on setting blocks, centralised in the opening and pushed back into the glazing compound. Fill all voids with compound and apply more compound before setting distance pieces in it opposite the distance pieces already in place. Bed the beads to the glass and rebate and fix true to line and face sufficiently rigid to prevent flexing or movement. Finish compound off at an angle both sides of the glass.

3.20 INSTALLING INSULATING GLASS UNITS

Refer to the glazing manufacturer's requirements and before glazing ensure that the materials forming the opening are strong enough to accept the weight, the rebates are the correct size and prepared to receive the units to NZS 4666. Fit setting and location blocks and bead glaze units using a compatible sealant to NZS 4666, section 3, Glazing, and to the glazing manufacturer's requirements.

3.21 INSTALLING REFLECTIVE AND COATED GLASS

In addition to the type of glazing specified refer to the requirements of the glass manufacturer and ensure that the rebate dimensions and glass cover are sufficient to allow for the movement created by the particular solar glass being used. Check thermal stability for the particular location and ensure any sealant or compound is compatible with the coating.

Application aluminium

3.22 INSTALL GLASS TO ALUMINIUM FRAMES

Install glass to NZS 4223.1.

- Bead glaze to Section 4, **Glazing**.
- Channel glaze to Section 4, **Glazing**, Section 5, **Framed**, **Unframed**, **Partly FramedGlass Assemblies**.

3.23 INSTALL SAFETY GLASS

To NZS 4223.3, as modified by NZBC F2/AS1 and NZBC B1/AS1, 7.0 **Glazing**.

Application uPVC

3.24 INSTALL GLASS TO UPVC FRAMES

Install glass to NZS 4223.1.

- Bead glaze to Section 4 **Glazing**.
- Channel glaze to Section 4 **Glazing**, and Section 5 for **Framed**, **Unframed**, **PartlyFramed Glass Assemblies**.

Application - mirrors

3.25 MIRRORS, SCREW FIXED

Fix with proprietary zinc-plated steel countersunk-head screws, fitted with black neoprene washers with fine-threaded upstands to receive chrome plated dome screw covers.

3.26 MIRRORS, CHANNEL MOUNTED

Fix with proprietary mounting channels, to the channel manufacturer's requirements.

3.27 MIRRORS, ADHESIVE FIXED

Fix with adhesive mirror-mastic and double-sided adhesive tape. Adhesive mastic area 0.25 m² per 1 m² of mirror.

Application miscellaneous

3.28 INSTALL GLASS BALUSTRADES

Confirm/design and carry out installation to
NZBC B1/AS1, Structure, 7.0 **Glazing**
NZBC F2/AS1, Hazardous building materials, 1.0 **Glazing**
NZBC F4/AS1: Safety from falling, 1.0 **Barriers in buildings**.

3.29 INSTALL GLASS SCREENS

Install shower and bath screens and doors to manufacturer's requirements. Fix wall channel with silicone sealant.

Finishing

3.30 SAFETY

Indicate the presence of transparent glass for the remainder of the construction period, with whiting, tape or signs compatible with the glass type. Indicators other than whiting must not be applied to the glass surface.

3.31 MANIFESTATIONS

To NZS 4223.3, clause 303.1 **Manifestation (making glass visible)**.

Completion

3.32 TRADE CLEAN

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

3.33 REPLACE

Replace damaged, cracked or marked elements.

3.34 LEAVE

Leave work to the standard required by following procedures.

3.35 REMOVE

Remove debris, unused materials and elements from the site.

4 SELECTIONS

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

Performance - wind

4.1 WIND ZONE - NON-SPECIFIC DESIGN

Building wind zone: ~ (as determined from NZS 3604, NZS 4223)

4.2 WIND - SPECIFIC DESIGN

The design wind pressures are to AS/NZS 1170.2.

SLS ~ Pa
ULS ~ Pa

Glass by type

4.3 CLEAR FLOAT GLASS

Location: ~
Brand/type: VIRIDIAN VFLOAT™ Clear
Thickness: ~mm

4.4 SUPERCLEAR FLOAT GLASS

Location: ~
Brand/type: VIRIDIAN SUPERCLEAR™
Thickness: ~mm

4.5 TINTED FLOAT GLASS

Location: ~
Brand/type: VIRIDIAN VFLOAT™ Tinted
Tint: ~
Thickness: ~ mm

4.6 HIGH PERFORMANCE TINTED FLOAT GLASS

Location: ~
Brand/type: VIRIDIAN VFLOAT™ High performance tints
Tint: ~
Thickness: ~ mm

4.7 TOUGHENED GLASS

Location: ~
Brand/pattern: VTOUGH™ safety glass
Thickness: ~ mm

4.8 HIGH PERFORMANCE THERMAL AND SOLAR GLASS

Location: ~
Brand/type: VIRIDIAN EVANTAGE™ Reflective
Thickness: 6 mm
Coated surface: Low E
Colour: ~

4.9 INSULATING GLASS UNITS (IGU'S)

Location: ~
Brand/type: VIRIDIAN THERMOTECH™ (Double glazing)
Outer glass type: ~
Coated surface: ~

Outer glass: ~ mm
Spacer width: ~ mm
Space gas: air

Inner glass type: ~
Coated surface: ~
Inner glass: ~ mm

4.10 PVB LAMINATED GLASS

Brand/type: VIRIDIAN VLAM™ PVB laminated
Colour: ~
Interlayer: 0.38mm Standard
Thickness: ~mm nominal overall

4.11 CAST IN PLACE LAMINATED GLASS

Brand/type: VIRIDIAN CIP laminated
Thickness: ~mm nominal overall
Resin interlayer: ~mm
Resin type: Resin pour or cast in place

4.12 ACOUSTIC CAST IN PLACE LAMINATED GLASS

Location: ~
Brand/type: VIRIDIAN VLAM HUSH™
Thickness: ~mm nominal overall
Resin interlayer: ~mm

4.13 INSULATING GLASS UNITS (IGU'S)

Location: ~
Brand/type: VIRIDIAN THERMOTECH™ (double glazing)
Outer glass type: ~
Thickness: ~mm
Coated surface: ~
Spacer width: 12mm (recommended)
Space gas: ~
Inner glass type: ~
Thickness: ~mm
Coated surface: ~

4.14 HIGH PERFORMANCE LOW E THERMAL AND SOLAR CONTROL GLASS

Location: ~
Brand/type: VIRIDIAN EVANTAGE™
Thickness: 6mm
Coated surface: Low E
Colour: ~

4.15 LOW EMISSIVITY (LOW E) COATED GLASS

Location: ~
Brand/type: VIRIDIAN ENERGYTECH™
Coating: Low E
Thickness: ~mm
Colour: ~

4.16 LOW EMISSIVITY (LOW E) COATED GLASS

Location: ~
Brand/type: VIRIDIAN COMFORTSAVE™
Coating: Low E
Thickness: 6 mm
Colour: Neutral (Light grey)

4.17 LOW EMISSIVITY (LOW E) COATED LAMINATED GLASS

Location: ~
Brand/type: VIRIDIAN COMFORTPLUS™ Laminate
Coating: Low E
Interlayer: PVB Laminate
Thickness: ~mm
Colour: Clear, Neutral, Grey, Green

4.18 TEXTURED, PATTERNED GLASS

Location: ~
Brand/pattern: VIRIDIAN DECORPATTERN™
Pattern: ~
Thickness: ~ mm

4.19 DECORATIVE OBSCURE FLOAT GLASS

Location: ~
Brand/type: VIRIDIAN DECORSATIN™
Tint: ~
Thickness: ~mm

4.20 SCREENPRINTED TOUGHENED GLASS

Location: ~
Brand/type: VIRIDIAN SERAPHIC™ Standard
Colour: ~

Brand/type: VIRIDIAN SERAPHIC™ Design
Colour: ~
Brand/type: VIRIDIAN SERAPHIC™ Custom
Thickness: ~ mm
Edgework: ~

4.21 SELF CLEANING COATED FLOAT GLASS

Location: ~
Brand/type: VIRIDIAN RENEW™
Thickness: ~mm

Glass balustrades / pool fences

4.22 GLASS BALUSTRADE / POOL FENCES

Location: ~
Brand/type: VIRIDIAN Adjustable Clamp
Type: ~
Glass: ~
Thickness: ~mm

4.23 GLASS BALUSTRADE / POOL FENCES

Location: ~
Brand/type: VIRIDIAN Heavyweight Post
Glass: ~
Thickness: ~mm

4.24 GLASS BALUSTRADE / POOL FENCES

Location: ~
Brand/type: VIRIDIAN Standard Post
Glass: ~
Thickness: ~mm

4.25 GLASS BALUSTRADE / POOL FENCES

Location: ~
Brand/type: VIRIDIAN Residential Post
Glass: ~mm
Thickness: ~mm

Mirrors

4.26 MIRROR, SELECTIONS

Location: ~
Brand/type: VIRIDIAN DECORMIRROR™
Dimensions: ~mm x ~mm
Thickness: ~mm
Fixing method: ~
Screw holes: ~ (number)
Edgework: ~

4.27 MIRROR MOUNTING CHANNELS

Brand/type: ~

Glass screens

4.28 FRAMELESS SHOWER SCREENS AND DOORS

Location: ~
Brand/type: VIRIDIAN toughened
Glass: ~
Thickness: ~mm
Hardware: ~
Accessories: ~

4.29 FRAMELESS BATH SCREENS

Location: ~
Brand/type: VIRIDIAN VTOUGH™
Thickness: ~mm
Hardware: ~
Accessories: ~

4.30 SPLASHBACKS

Location: ~
Brand: VIRIDIAN SERAPHIC™
Type: Seraphic Standard
Thickness: 6mm

6413A ADVANCE RUBBER SURFACING

1 GENERAL

This section rel**ates to the suppl**y and installation of**Advance**rubber ***surfacing*** complete with skirting, nosing, trims and edgings.

1.1 RELATED WORK

Refer to ~ for ~.

Documents

1.2 DOCUMENTS

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

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

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

Warranties

1.4 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

1.5 WARRANTY - INSTALLER/APPLICATOR

Provide an installer/applicator warranty:

Requirements

1.6 NO SUBSTITUTIONS

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

1.7 QUALIFICATIONS

Rubber surfacing to be carried out by competent, experienced layers familiar with the materials and techniques specified.

1.8 SAMPLES

When requested submit sufficient samples of sheet, tile and accessories offered, to show both pattern and range of colour finish.

1.9 SAMPLES

When requested submit sufficient samples of sheet, tile and accessories offered, to show both pattern and range of colour finish.

Performance

1.10 SURFACE FIRE PERFORMANCE

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

1.11 SLIP RESISTANCE FOR ACCESS ROUTES

Slip resistance for rubber surfacing to comply with NZBC D1/AS1: 2.0 Level access routes and 3.0, Ramps.

1.12 PROVIDE EVIDENCE

Provide evidence that the rubber surfacing complies with the standard of performance specified.

1.13 CERTIFY

Provide certificates and any other evidence at the time of selection/supply that the rubber surfacing complies with NZBC D1/VM1 and NZBC D1/AS1: Access routes.

2 PRODUCTS

Materials

2.1 THINLINE MDF UNDERLAY

Customwood medium density fibreboard. Refer to SELECTIONS for details.

2.2 RECYCLED RUBBER SHEETING

Recycled rubber sheeting manufactured from EPDM synthetic and **recycled***rubber* in varying proportions, depending on the product range. Available in rolls 20m long, 1.2m wide and 3mm -12mm thick. Refer to SELECTIONS for product range and colours.

2.3 ECOVAL TX RUBBER SHEETING

Ecoval TX, homogenous rubber flooring, 100% PVC free, available in rolls 12m long, 1120mm wide and 2mm thick. Refer to SELECTIONS for colour range.

2.4 GEO TX RUBBER SHEETING

Geo TX, homogenous rubber flooring, 100% PVC free, available in rolls 12m long, 1120mm wide and 2mm thick. Refer to SELECTIONS for colour range.

2.5 STUDDED RUBBER TILES

Studded rubber tiles, 100% PVC free, available in 500mm x 500mm x 3mm thick tiles. Refer to SELECTIONS for colour range.

2.6 PRE-FORMED COVINGS

Continuation of the floor sheet up the wall as detailed.

Accessories

2.7 COMBINED RUBBER STAIR TREAD AND NOSING

One piece proprietary system rubber nosing.

2.8 RUBBER STAIR TREAD NOSING

Slip retardant stair tread nosing.

2.9 TRIMS AND EDGINGS

Proprietary resilient rubber as required to complete the work.

2.10 ADHESIVE

Contact Advance for project specific recommendation. Refer to SELECTIONS.

2.11 JOINT SEALANT

To suit the sheet/tile material and to Advance requirements.

2.12 PRIMER AND SEALER

To the adhesive manufacturer's requirements for the particular substrate.

3 EXECUTION

Conditions

3.1 GENERALLY

To manufacturer's requirements and NZS/AS 1884.

3.2 STORAGE

Accept rolls of sheet, packages of tiles and accessories undamaged and dry. Store rolls upright horizontally with other material on level surfaces in non-traffic non-work areas that are enclosed, clean and dry.

3.3 HANDLING

Avoid distortion, stretching, marking and damage to edges while shifting, unrolling and handling sheet / tiles and accessories. Handle tiles "back to back" and "face to face" to avoid wax transfer.

3.4 PREPARATION

Check that each colour supplied is from the same batch. Follow Advance requirements for preparatory conditioning of rolls and working temperatures and conditions before, during and after laying. Protect work from solar heat gain. Switch off under-floor heating during and for 48 hours either side of the work period.

3.5 DO NOT START

Do not start work before the building is enclosed, all wet work is complete, doors are hung and lockable, finishes and trim complete and good lighting is available.

3.6 INSPECT

Inspect the substrate to ensure it is a suitable finish. Confirm moisture content is acceptable for laying.

3.7 PROTECTION

Protect adjoining work surfaces and finishes during the installation.

3.8 LAYING GENERALLY

Carry out the whole of this work to NZS/AS 1884, BRANZ BU 330 and Advance requirements.

3.9 TECHNIQUE

Before beginning installation confirm the proposed layout of material, location of seams and other visual considerations of the finished work.

Application - substrate preparation

3.10 NEW CONCRETE

Clear substrate of debris, clean off surface contamination and carry out surface repairs using Roberts levelling compounds. Carefully feather out at perimeters of repaired areas. Grind level, then vacuum to remove all dust. Check moisture content to NZS/AS 1884, Appendix A and do not commence laying until readings for the whole area show 75% relative humidity or less.

3.11 NEW TIMBER BOARD OR PARTICLEBOARD

Clear substrate of debris, clean off surface contamination and carry out surface repairs using Roberts levelling compounds. Carefully feather out at perimeters of repaired areas. Grind smooth, then vacuum to remove all dust. Check for moisture content to NZS/AS 1884, Appendix A, and do not commence final sanding or laying until readings for the whole area show a moisture content of:

3.12 EXISTING CONCRETE

Strip off existing floor coverings, adhesive and surface contaminants. Ensure concrete is dry. Check moisture content to NZS/AS 1884, Appendix A and do not commence laying until readings for the whole area show 75% relative humidity or less. Resurface concrete using Lanko 133 to required thickness to provide a sound and level base.

3.13 EXISTING TIMBER BOARD OR PARTICLEBOARD

Strip off existing floor coverings, machine sand to remove adhesive and surface contaminants. Then vacuum to remove all dust prior to installing underlay sheets.

3.14 TIMBER BOARD OR PARTICLEBOARD, LAYING THINLINE MDF UNDERLAY

Lay underlay sheets with joints staggered, with a 0.5mm gap between sheets and 2mm gap at all perimeters. Use 18mm divergent staples at 100mm centres throughout the whole sheet and 30mm apart, 18mm in from the edges of the sheets. Punch staples below the surface and sand joins level.

3.15 PRIMER AND SEALER

Prime/seal porous plaster, concrete and timber substrates to the adhesive manufacturer's requirements.

Application - laying

3.16 APPLICATION OF ADHESIVE

Apply approved adhesive by trowel and "wetted" roller as required by the adhesive manufacturer and without trowel marks after setting. Follow requirements for open time, taking note of the substrate porosity, ambient temperature and relative humidity. Remove excess adhesive as the work proceeds using required techniques.

3.17 LAY SHEET

Roll out, leave to condition and install to Advance requirements. Ensure there are no air bubbles or twisting and that the seams are kept clear of adhesive. Immediately sheet is adhered roll with a 100 kg roller to prevent air bubbles while curing. Then to ensure removal of air pockets from any dips in the substrate, use the roller covered with carpet off-cuts fixed with double sided tape.

3.18 JOINT SEAL

Joint seal in those locations required by Advance, using the cutting and sealing techniques required by Advance.

3.19 COVING RUBBER

Pencil cove or fillet cove flooring to the specified height and finish off as detailed.

3.20 LAY TILE

Set out from the centre of the area in two experimental runs and if required modify to suit. Lay tiles from the centre to Advance requirements ensuring air is expelled. As each section is completed immediately roll with a 100 kg roller and sandbag corners. Complete sections before scribing perimeter tiles.

3.21 LAY RUBBER TO STAIRCASES

Fit selected nosings to each tread and at the top of each stair flight, in accordance with the nosing manufacturer's requirements. Lay pre-cut rubber sheets to each tread and riser, pencil coved at the rear of each tread.

3.22 FIT ACCESSORIES

Scribe, fit, adhere or otherwise fix true to line and face to Advance requirements for each particular location.

Completion

3.23 REPLACE

Replace damaged or marked elements.

3.24 REPLACE

Replace damaged or marked elements.

3.25 CLEAN AND BUFF

Strip protective wax coating before cleaning and buffing according to Advance requirements to achieve the slip resistant properties. Vacuum off, damp mop with a low foam neutral detergent, allow to dry and finally buff with a rotary machine using suitable pads at 300 rpm. Leave surfaces free of adhesive, dirt and debris and to the standard required by following procedures.

3.26 REMOVE

Remove debris, unused materials and elements from the site.

3.27 PROTECT

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

3.28 PROTECT

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

3.29 PROTECT

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

3.30 PROTECT

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

4 SELECTIONS

For further details on selections go to www.advancefloors.co.nz.

Materials

4.1 MDF UNDERLAY

Type:	~
Thickness:	~mm

4.2 ADVANCE RECYCLED RUBBER SHEETING

Location:	~
Supplier:	Advance
Brand/range	~
Thickness:	3mm
Adhesive:	UZIN 2000S or PU88

4.3 ADVANCE EVOVAL TX RUBBER SHEETING

Location:	~
Supplier:	Advance
Brand/range	Ecoval TX
Thickness:	2mm
Adhesive:	UZIN KE 2000S
Colour:	~

4.4 ADVANCE GEO TX RUBBER SHEETING

Location:	~
Supplier:	Advance
Brand/range	Geo TX
Thickness:	2mm
Adhesive:	UZIN KE 2000S
Colour:	~

4.5 ADVANCE STUDDED RUBBER TILES

Location:	~
Supplier:	Advance
Brand/range	Clasica
Thickness:	2mm
Adhesive:	UZIN KE 66
Colour:	~

Accessories

4.6 ADVANCE SKIRTING

Supplier:	Advance
Brand:	~
Colour:	~

4.7 ADVANCE NOSING

Supplier: Advance
Material: ~
Colour/pattern: ~
Dimensions: ~mm

4.8 STAIR TREADS

Supplier: ~
Dimensions: ~mm
Colour: ~

4.9 TRIMS AND EDGING

Supplier: ~
Colour: ~
Profile: ~

4.10 JOINT SEALANT

Type: ~

Spares

4.11 SPARES AND MAINTENANCE MATERIALS

Provide the following spares and maintenance materials: