### Register of Detailed Design Document Issues

**Home of Compassion Creche**

**Job Ref:** 1902

#### SPA Detailed Design Document Register

Refer to attached DVD for document set.

<table>
<thead>
<tr>
<th>Dwg No.</th>
<th>Drawing Title</th>
<th>Method of Issue</th>
<th>Consent Issue</th>
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<tr>
<td>BRB-11-720</td>
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#### PLANS

- **Existing/Special/Cadastre/Pre-Move North and West Elevations**
  - C: 1:100
- **Existing/Special/Cadastre/Pre-Move South and East Elevations**
  - C: 1:100
- **Existing/Special/Cadastre/Post-Move Section AA and Section CC**
  - C: 1:120
- **Existing/Special/Cadastre/Post-Move Section BB and Section DD**
  - C: 1:120
- **Existing/Special/Cadastre/Post-Move Section BB and Section DD**
  - C: 1:120

#### DETAILS - EXTERNAL

- **Foundation Details**
  - C: 1:10
- **Roof Details**
  - C: 1:10
- **Window Details**
  - C: 1:10

#### DETAILS - INTERNAL

- **Wall and Floor Details**
  - C: 1:10
- **Wall Details**
  - B: 1:5

#### DRAWN SCHEDULES

- **Door Schedules**
  - C: 1:50

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1902.02 DD Drawing Register.xls

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Home of Compassion Creche

Consent Issue
11th November 2013
### 3 STRUCTURE

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<td>Steps to front entry, and to verandah.</td>
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<td>372B</td>
<td>STEPS</td>
<td>Height: 14 suitable for plaster</td>
<td>Steps to front entry, and to verandah.</td>
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5 INTERIOR

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6 FINISH

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BAKERS - NEW TO new

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7 SERVICES

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<td>INTERIOR DOORS</td>
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</table>

Note that the original paint systems may have contained lead, and these may remain.

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SITE PLAN GUIDANCE NOTES:

General Notes:
1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify Architect of any discrepancies from conditions or information shown in these drawings.
2. Drawings to be read in conjunction with all other Consultants and Engineers drawings and specification.
3. Memorial Park Alliance to provide all topographical survey information required for completion of works.
4. All work to be undertaken in accordance with the National War Memorial Park (Pukeahu) Empowering Act 2012
5. Building footprint shown only. Reference other drawings for curtilage beyond.
6. Refer to WALA landscape drawings for all external finishes, levels and site works.

Indicative location plan. Refer to MPA drawings for cut out details.

---

Note: All dimensions to be checked on site.

---

General Notes:
1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify Architect of any discrepancies from conditions or information shown in these drawings.
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Project Title: Home of Compassion Creche

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Site Plan Proposed

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Scale: 1:200

---

Job No.: 1902

---

C

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FOR CONSENT

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DUNNING THORNTON CONSULTANTS
LEVEL 9, 94 DIXON STREET
WELLINGTON 6030
Bay window roof corrugated iron (replaced earlier tray roof)

Canopy to door

Shingles or ventilating louvres as specification

Concrete foundation wall to timber floor as specified or concrete floor slab?

Original infill panel to balustrade

Non-original guttering

Non-original windows x3 in bay

Non-original paint finish to original brickwork

Non-original paint finish to palster

Non-original satellite dish

Possible original windows (addition)

Non-original door

Non-original lean-to

Non-original windows

Non-original panelling to cladding infill

Non-original cladding infill

Original flat iron panel infill

Non-original flat iron panel infill

Non-original guttering

Non-original windows

Possible original windows (addition)

Non-original door
Ground Floor Demolition

1. Existing high level wall vents to be retained. Not surveyed.
2. Door to be removed and stored for reuse.

North Room 1.05
- Existing high level wall vents to be retained.
- Door to be removed and stored for reuse.

Pantry 1.07
- Existing high level wall vents to be retained.
- Door to be removed and stored for reuse.

WC 1.08
- Existing high level wall vents to be retained.
- Door to be removed and stored for reuse.

Laundry 1.09
- Existing high level wall vents to be retained.
- Door to be removed and stored for reuse.

VERANDA 1.10
- Existing high level wall vents to be retained.
- Door to be removed and stored for reuse.

FOR EXTERNAL BUILDING EXISTING CONDITION REFER TO 90-01 AND 90-02

FOR DOOR AND WINDOW EXISTING CONDITION REFER TO 90-01 AND 90-01

EXTERIOR CONDITION REPORT

Porch 1.01
- Door to be removed and stored for reuse.

Walls:
- Painted plaster walls, uneven plaster throughout, visible efflorescence, discolouration and holing on east wall.
- Existing door to be removed and door frame to be stored.

Ceiling:
- Painted plaster ceiling, minor holing on north of east wall.
- Painted plaster ceiling, minor holing on north of east wall.
- Painted plaster ceiling, minor holing on north of east wall.

Floors:
- Painted ply stips flooring, cleaned, minor holing.
- Painted ply stips flooring, cleaned, minor holing.
- Painted ply stips flooring, cleaned, minor holing.

Roof:
- Painted ply stips flooring, cleaned, minor holing.
- Painted ply stips flooring, cleaned, minor holing.
- Painted ply stips flooring, cleaned, minor holing.

Painted timber match linings, carefully remove to allow for fixing of ply bracing sheets to internal face. Store for re-use.

Existing high level wall vents to be retained.

NOTES:
- Contractor to confirm all dimensions, and existing conditions before proceeding. Notify Structural Engineers of any concerns.
- Contractor to check all existing elements are to finished face.
- Existing elements are to finished face.
- Contractor to confirm all dimensions, and existing conditions before proceeding. Notify Structural Engineers of any concerns.
- Contractor to check all existing elements are to finished face.
**Foundation Demolition**

- Concrete floor slab in entry porch to be removed.
- Store for reuse as per Engineers advice.

- DIP to be disconnected and removed. Provide temporary storage during construction.
- Existing large hole in roof space, to be removed.
- Existing beams to roof retained.
- Existing soffit linings to be removed. Provide Original T&G underlay as requested.

**Reflected Ceiling Demolition**

- Painted timber matchboard ceiling to be removed to allow for structural upgrade to walls/store for reuse.
- Non-original Plasterboard Ceiling Linings to be removed.
- Original Pressed Metal Ceiling - Type 1 to 4.
- Approx. location of HWC in roof space, to be retained.
- Ceiling and jointing to be retained to allow for structural upgrade to walls.

**Plan Demolition Key**

- FOUNDATION AND RCP
  - Original Concrete Plinth Foundation.
  - Demolition, including area of proposed excavations for placement of 'sandwich beams'. Refer to Engineers drawings for details.

- CEILING PLAN KEY
  - Retain all ceiling linings including area of proposed excavations for placement of 'sandwich beams'. Refer to Engineers drawings for details.

- GENERAL NOTES:
  - 1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify Architect of any discrepancies from conditions or information shown in these drawings.
  - 2. All drawings to be read in conjunction with Specifications, not surveyed.
  - 3. Ensure all services to building are disconnected and disconnected.
  - 4. Existing site boundary to be removed to allow for structural upgrade to walls, store for reuse.
  - 5. Note conditions, forms, requirements in HMP for all work.
  - 6. Retain all ceiling linings including area of proposed excavations for placement of 'sandwich beams'. Refer to Engineers drawings for details.
  - 7.Cornice need to be removed to allow for wall movement. Store for reuse.

**For Consent**

- Mem. PARK ALLIANCE
- Home of Compassion Creche
- 6 Buckle Street, Wellington
- Memorial PARK Alliance
PANE: 1:100

Location of walls below

Roof Framing Demolition

PANELLING 1

Parapet wall extends above roof

Diagram sheet indicates area of non-original structure due to fire damage. Full extent of area, demolition and replacement to be assessed on site

140 x 45mm Battens at 600mm centres signifying internal gutter to allow access to top of walls for strengthening to Engineers details

Original brick chimney to be removed. Recess to be prepared as per engineers design

Existing 265 x 45mm eaves gutters and downpipe to be removed. Cut back to the full height of external wall, refer engineers details for propping of structure

Area of existing parapet wall to be retained & propped as per engineers design

Line of roof eave, manufactured soffit frieze to be retained

Parapet wall around roof, with external channel gutter backed. Channel gutter over to be retained. Cut back from wall for strengthening access to full height of external wall. New tray metal gutter to be fitted over old roof for strengthening to top of walls. Refer Engineers design

For all work, consult HMP and specifications.

Engineers and other consultants drawings and replacement to be assessed on site

1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
2. All drawings to be read in conjunction with engineers dwgs of wall, refer engineers for strengthening to top of walls for roofing to be removed. Allow access to top of walls for strengthening to Engineers details

Demolition

Corrugated Metal Roof

New Tray Metal Roof

Demolition, note items to store for reuse

Removal of original sarking

Engineers details for strengthening

Existing corrugated steel roofing to be removed. Allow access to top of walls for strengthening to Engineers details

New plywood ceiling diaphragm refer engineers design

New parapet wall capping to be retained

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

Area of non-original structure due to fire damage. Full extent of area, demolition and replacement to be assessed on site

Note conditions, forms, requirements in HMP and specifications.

Existing single slope parapet wall capping to be retained

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Gabled roof to be retained

Demolition, note items to store for reuse

For Consents

General Notes:

Existing: Demolition Roof Framing and Roof Plan

Scale: 1:100

Job No.: A-0000

View 2 11-727

11-727

02

for strengthening to

top of wall for

matchboard soffit lining

for reuse

Line of existing parapet wall to be retained & propped as per engineers design

New plywood ceiling diaphragm refer

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Location of walls below

Diagonal hatch indicates area of non-original structure due to fire damage. Full extent of area, demolition and replacement to be assessed on site

Demolition, note items to store for reuse

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

New plywood ceiling diaphragm refer engineers design

New parapet wall capping to be retained

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

Area of non-original structure due to fire damage. Full extent of area, demolition and replacement to be assessed on site

Note conditions, forms, requirements in HMP and specifications.

Existing single slope parapet wall capping to be retained

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Gabled roof to be retained

Demolition, note items to store for reuse

For Consents

General Notes:

Existing: Demolition Roof Framing and Roof Plan

Scale: 1:100

Job No.: A-0000

View 2 11-727

11-727

02

for strengthening to

top of wall for

matchboard soffit lining

for reuse

Line of existing parapet wall to be retained & propped as per engineers design

New plywood ceiling diaphragm refer

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Gabled roof to be retained

Demolition, note items to store for reuse

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

New plywood ceiling diaphragm refer engineers design

New parapet wall capping to be retained

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

Area of non-original structure due to fire damage. Full extent of area, demolition and replacement to be assessed on site

Note conditions, forms, requirements in HMP and specifications.

Existing single slope parapet wall capping to be retained

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Gabled roof to be retained

Demolition, note items to store for reuse

For Consents

General Notes:

Existing: Demolition Roof Framing and Roof Plan

Scale: 1:100

Job No.: A-0000

View 2 11-727

11-727

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New plywood ceiling diaphragm refer engineers design

New parapet wall capping to be retained

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

Area of non-original structure due to fire damage. Full extent of area, demolition and replacement to be assessed on site

Note conditions, forms, requirements in HMP and specifications.

Existing single slope parapet wall capping to be retained

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Gabled roof to be retained

Demolition, note items to store for reuse

For Consents

General Notes:

Existing: Demolition Roof Framing and Roof Plan

Scale: 1:100

Job No.: A-0000

View 2 11-727

11-727

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Demolition, note items to store for reuse

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

New plywood ceiling diaphragm refer engineers design

New parapet wall capping to be retained

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

Area of non-original structure due to fire damage. Full extent of area, demolition and replacement to be assessed on site

Note conditions, forms, requirements in HMP and specifications.

Existing single slope parapet wall capping to be retained

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Gabled roof to be retained

Demolition, note items to store for reuse

For Consents

General Notes:

Existing: Demolition Roof Framing and Roof Plan

Scale: 1:100

Job No.: A-0000

View 2 11-727

11-727

02

for strengthening to

top of wall for

matchboard soffit lining

for reuse

Line of existing parapet wall to be retained & propped as per engineers design

New plywood ceiling diaphragm refer

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Gabled roof to be retained

Demolition, note items to store for reuse

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

New plywood ceiling diaphragm refer engineers design

New parapet wall capping to be retained

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

Area of non-original structure due to fire damage. Full extent of area, demolition and replacement to be assessed on site

Note conditions, forms, requirements in HMP and specifications.

Existing single slope parapet wall capping to be retained

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Gabled roof to be retained

Demolition, note items to store for reuse

For Consents

General Notes:

Existing: Demolition Roof Framing and Roof Plan

Scale: 1:100

Job No.: A-0000

View 2 11-727

11-727

02

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Line of existing parapet wall to be retained & propped as per engineers design

New plywood ceiling diaphragm refer

Engineers design. Retain parapet wall capping to allow access to top of walls for strengthening to Engineers design

Gabled roof to be retained

Demolition, note items to store for reuse

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

New plywood ceiling diaphragm refer engineers design

New parapet wall capping to be retained

Verminator roof to be removed to prevent entry to roof. Retain fascia. Remove gutters and downpipes

Area of non-original structure due to fire damage. Full extent of area, demolition and replacement to be assessed on site

Note conditions, forms, requirements in HMP and specifications.
New concrete sandwich beams to each side of existing concrete foundation wall, refer engineers details

Existing concrete foundation wall to be retained

New concrete sandwich beams to each side of existing concrete foundation wall, refer engineers details

New concrete sandwich beams to each side of existing concrete foundation wall, refer engineers details

Existing concrete foundation wall to be retained

New 7411B dp recessed into top of new sandwich beams

New 7411B dp recessed into top of new sandwich beams

New 7411B dp recessed into top of new sandwich beams

New 7411B dp recessed into top of new sandwich beams

New 80 diam. bathroom waste through new sandwich beam

Refer Engineers documentation

Area of ceiling removed to allow wall strengthening at high level

Porch

Suite

Verandah 4221A timber soffit to be retained and refurbished, with 6711A finish

4221B existing timber soffit to be retained and refurbished, with 6711A finish

Original Pressed Metal Ceiling Type 1

Original Pressed Metal Ceiling Type 2

Original Pressed Metal Ceiling Type 3

Original Pressed Metal Ceiling Type 4

Original Painted T&G Timber Ceiling

Non-original Plasterboard Ceiling Lining

Original Pressed Metal Ceiling Type 1

Original Pressed Metal Ceiling Type 2

Original Pressed Metal Ceiling Type 3

Original Pressed Metal Ceiling Type 4

Original Painted T&G Timber Ceiling

Non-original Plasterboard Ceiling Lining

General Notes:
1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.

2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.

3. Ensure all services to building are disconnected and decommissioned.

4. Existing pile layout is taken from original drawings, not surveyed

5. Note conditions, forms, requirements in HMP for all work.

6. Cornices, picture rails and dados are not to be reinstated

For Consent: Home of Compassion Creche

Foundation and RCP Plan - Proposed (Pre-Move)

Scale: 1:100

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**General Notes:**

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2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.

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3. Note conditions, forms, requirements in HMP for all work.
EXISTING EXTERIOR CONDITION REPORT

Roof
- Corrugated steel, extensive leaning to interior, suggesting damaged or lifting; rusting; damaged flashings, blocked internal gutters
- Concrete steps to entry door to be removed
- Metal plaque to be removed
- Painted brickwork, retouched

South Elevation
- Painted brickwork, gutters and downpipes to be removed
- Painted cement render in fillments, cost of arched, string courses, architraves and sills, rotten northwest corner
- Brick foundations
- Marble plaque

East Elevation
- Painted and restored brickwork, concertina render to base, horizontal cracking to south, large tree growing very close to building, note growth at base, extensive cracking at window head height to southwest corner
- Painted lower windows, algae growth under timber planter
- Painted cast iron vents, rusting vents, revealing vents to south
- Painted cement render in architraves and sills
- Brick foundations, extreme damp by door

FOR INTERIOR BUILDING EXISTING CONDITION REFER TO 11-01
FOR DOOR AND WINDOW EXISTING CONDITION REFER TO 00-01 AND 01-01

For references:
- Door Number - Exterior Doors
- Window Number
- Assumed Existing Ground Level
- Assumed Original Ground Level
- Original site boundary

GENERAL NOTES:
1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify engineers of any non-original work or information shown in these drawings.
2. All drawings to be read in conjunction with specifications and information shown in these drawings.
3. Note conditions, forms, requirements in HMP and specifications.

FOR CONSENT

Home of Compassion Creche
18 Buckle Street, Wellington
Memorial Park Alliance

Architect: studiopacificarchitecture

Tel: 64 4 802 5446
Fax: 64 4 569 8025
Website: www.studiopacific.co.nz

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Scale: 1:100
Existing/ Demolition / Pre-Move Elevations

Revisions:
- 30% ISSUE                  DATE: 2013-09-02
- 90% ISSUE                   DATE: 2013-10-25
- FOR CONSENT                DATE: 2013-11-11

Job No.: 1902

ELEVATION PRE-MOVE KEY

- Original brick exterior walls, refer to notes on drawing for areas where non-original paint is to be removed
- Area of demolition as noted on design
- Area where paint is to be removed front brick walls

ELEVATION HATCH KEY

- Original roof to be replaced pre-move
- Original brick exterior walls
- Assumed ground level
- Assumed original paint

FOR DOOR AND WINDOW EXISTING CONDITION REFER TO 00-01 AND 01-01
Rebuild chimney in lightweight structure, cladding to match original chimney. Refer details 01 to 03/11-738

Reinstate original chimney pots

Remove protection from windows and make good

Rebuild verandah to match original. Reinstate and refurbish timber posts, lintels, beams and balustrade

New 7411B downpipes and drainage connected

New roof cladding completed pre-move

Assumed Original Ground Level

Original Brick exterior walls

General Notes:
1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.
3. New conditions, items, requirements in HMP for all work.

North Elevation Proposed (Post-Move)

West Elevation Proposed (Post-Move)
**General Notes:**

1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions shown in these drawings.

2. All drawings to be read in conjunction with Engineers and other consultants' drawings and specifications.

3. Note conditions, forms, requirements in HMP for all work.

---

### South Elevation Proposed (Post-Move)

- Reinstall original chimney pots.
- Rebuild chimney in lightweight structure, cladding to match original.
- Refer details 01 to 03/11-738
- Reinstate original chimney pots
- New 7411B downpipes:
  - New 7411B downpipes and drainage connected
  - 14,085 (FTL)
  - 14,455 Paved Level
- New concrete steps to match original, refer engineers' designs
- New roof cladding completed pre-move
- Remove non-original windows and replace with new to match original
- New roof cladding completed pre-move
- Assumed Original Ground Level
- Original brick exterior walls

---

### East Elevation Proposed (Post-Move)

- Reinstall original chimney pots.
- Rebuild chimney in lightweight structure, cladding to match original.
- Refer details 01 to 03/11-738
- New 7411B downpipes:
  - New 7411B downpipes and drainage connected
  - 14,085 (FTL)
  - 14,455 Paved Level
- New concrete steps to match original, refer engineers' designs
- New roof cladding completed pre-move
- Remove non-original windows and replace with new to match original
- New roof cladding completed pre-move
- Assumed Original Ground Level
- Original brick exterior walls

---

**Project Title:**

Home of Compassion Creche

**Design Firm:**

Studio Pacific Architecture

**Consultants:**

Memorial Park Alliance

**Scale:** 1:100

**For Consent**

Job No. 1902

Rev. C
SECTION PRE-MOVE KEY

SECTION A-A Demolition and Pre-Move

- New ceiling diaphragm on top of existing joists, refer engineers details
- Original t&g flooring to be removed & stored
- Triple skin brick wall to be strengthened. Ref. Engineers details
- Retain non-original smooth breeze block & cornice
- Strengthening to masonry walls, refer engineers details
- Fire breast & hearth to be removed and stored/salvaged. All dimensions recorded before demolition

SECTION C-C Demolition and Pre-Move

- New ceiling diaphragm on top of existing joists, refer engineers details
- Original t&g flooring to be removed & stored for re-use along with skirtings.
- Retain plasterboard ceiling & cornice
- Original pressed metal ceiling retained
- New ceiling diaphragm on top of existing joists, refer engineers details
- Original pressed metal ceiling retained
- New ceiling diaphragm on top of existing joists, refer engineers details
- Original ceiling diaphragm on top of existing joists, refer engineers details

GENERAL NOTES:

1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.
3. Note conditions, forms, requirements in HMP for all work
4. All internal plaster contains asbestos and us to be removed
5. All internal trims to be salvaged for re-use

FOR CONSENT

Home of Compassion Creche

Project Title: Home of Compassion Creche

Existing: Demolition / Pre-Move Sections A-C

Sections:
- Section A-A Demolition and Pre-Move
- Section C-C Demolition and Pre-Move

Scale: 1:100

Consultants:
- Pascall + Watson

Memorial Park Alliance

Address:

24 Buckle Street, Wellington

Contact:

Tel: 64 4 802 5444
Fax: 64 4 802 5446
Email: architects@studiopacific.co.nz

Studiopacific Architecture

Architects, Urban Designers, Interior Designers

Memorial Park Alliance

Home of Compassion Creche

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01
12
02
General Notes:
1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.
3. Note conditions, forms, requirements in HMP for all work.
4. Refer Structural Engineer's designs for location of strengthening.

Existing electrical wiring to be retained
Exposed brickwork
Existing pressed metal ceiling to be retained
FRP sheet bracing to both sides of wall, refer Engineers designs for details

Existing window to be retained
Exposed brickwork
FRP sheet bracing to wall, refer Engineers designs for details

15mm plywood on 20mm timber strapping locally behind basin to support basin
15mm plywood on 20mm timber strapping locally behind toilet to support toilet

Existing window to be retained
Existing electrical wiring to be retained
Exposed brickwork
FRP sheet bracing to both sides of wall, refer Engineers designs for details

FRP sheet bracing to wall, refer Engineers designs for details

Existing door to be reinstated
FRP sheet bracing to wall, refer Engineers designs for details

15mm plywood on 20mm timber strapping locally behind basin to support basin
15mm plywood on 20mm timber strapping locally behind toilet to support toilet

Existing door to be reinstated
FRP sheet bracing to both sides of wall, refer Engineers designs for details

FRP sheet bracing to wall, refer Engineers designs for details

15mm plywood on 20mm timber strapping locally behind basin to support basin
15mm plywood on 20mm timber strapping locally behind toilet to support toilet

Existing window to be retained
Exposed brickwork
FRP sheet bracing to wall, refer Engineers designs for details

Existing door to be reinstated
FRP sheet bracing to both sides of wall, refer Engineers designs for details

FRP sheet bracing to wall, refer Engineers designs for details

FRP sheet bracing to wall, refer Engineers designs for details

Existing window to be retained
Exposed brickwork
FRP sheet bracing to wall, refer Engineers designs for details

Existing door to be reinstated
FRP sheet bracing to both sides of wall, refer Engineers designs for details

FRP sheet bracing to wall, refer Engineers designs for details

Existing window to be retained
Exposed brickwork
FRP sheet bracing to wall, refer Engineers designs for details

Existing door to be reinstated
FRP sheet bracing to both sides of wall, refer Engineers designs for details

FRP sheet bracing to wall, refer Engineers designs for details

Existing window to be retained
Exposed brickwork
FRP sheet bracing to wall, refer Engineers designs for details

Existing door to be reinstated
FRP sheet bracing to both sides of wall, refer Engineers designs for details

FRP sheet bracing to wall, refer Engineers designs for details

Existing window to be retained
Exposed brickwork
FRP sheet bracing to wall, refer Engineers designs for details

Existing door to be reinstated
FRP sheet bracing to both sides of wall, refer Engineers designs for details

FRP sheet bracing to wall, refer Engineers designs for details
Line of existing coved starting removed and salvaged to enable fitting of floor.

Line of existing concrete slab removed, allow for depth of new slab & grout driveway.

Existing solid plaster skirt over foundation wall, allow to make repairs where required, to match existing, cast iron subfloor vents are to be retained where possible, paint finish.

New concrete steps formed with plaster finish to match original. Refer to Engineers drawings for details of reinforcing placement.

New concrete pavers, refer to landscape drawings and specification for site surface finishes detail.

Steel cover plate to rattle space laid over top of new sandwich beam, refer to Engineers drawings and specification for all subfloor and foundation details.

Sandwich beam to either side of existing concrete foundations, refer to Engineers drawings.

Line of original match board lining up to dado level removed and salvaged, new FRP strengthening and Tyfo strips applied to existing inner brick leaf, refer to Engineers drawings and specification for all strengthening details.

Line of existing coved skirting removed and salvaged to enable lifting of floor.

New concrete slab, refer to Engineers drawings for details.

Line of existing coved skirting removed and salvaged to enable lifting of floor.

New 4962A water bar set into epoxy grout to edge of tiled floor area, to full width of door opening.
General Notes:
1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.
3. Note conditions, forms, requirements in HMP for all work.

Studiopacific Architecture
Architects
Urban Designers
Interior Designers

Memorial Park Alliance
Home of Compassion Creche
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P.O. Box 11-517
Wellington, NZ
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email: architects@studiopacific.co.nz

TEL: 64 4
FAX: 64 4

FOR CONSENT

Scale: 1:10

Drawn by
S. Ainslie

A3
Orig. Size:
1:10

Job No.
BRB 11-736

Revision:
C

All dimensions to be checked on site. Surely the all drawings, specifications and other documents remain the property of Studio of Pacific Architecture Limited. © Studio of Pacific Architecture Limited 2012.

Letter Details:

Foundation Detail - WC

- New waste trap to WC taken through floor and around sandwich beam. Refer to Engineers drawings.
- Existing solid plaster skirt over foundation wall, allow to make repairs where required, to match existing, cast iron subfloor vents are to be retained where possible, 4911A clean face and 6711C paint finish.
- New concrete pavers, refer to landscape drawings and specification for site surface finish details.
- Steel cover plate to rattle space laid over top of new sandwich beam, refer to Engineers drawings and specification for all subfloor and foundation details.
- Refer to Engineers drawings for details of new steel beams to subfloor.
- Sandwich beam to either side of existing concrete foundations, refer to Engineers drawings.
New plywood diaphragms over existing ceiling joists. Refer to Engineers drawings for details.

Existing pressed metal ceiling retained.

New 6710A insulation

Line of original solid plaster finish removed. New FRP strengthening and Tyfo straps applied to existing inner brick leaf. Refer to Engineers drawings and specification for all strengthening details

New 4311B corrugated roofing over new 4161D underlay and existing roofing. New strengthened brick leaf to be re-pointed with mortar mix to match original.

Existing interior brick leaf, 4711A point finish to be removed where indicated on elevations, mortar joints to be raked out a min. 25mm and 6711A repaired with mortar mix to match original.

New 7411A gutter on concealed brackets on existing fascia, with 6711A point finish

Existing steel outflowing pipe 4211A repair and re-pointed with mortar mix to match original. New hingeless lockable vent, 4511A repair and 6711C repointing.

New corrugated roofing over new 4311B underlay on concealed brackets. Refer to Engineers drawings and specification for all strengthening details.

Revised:

List of all drawings to be read in conjunction with Engineers and other consultants drawings and specification for all strengthening details.

General Notes:
1. Contractor to confer all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
2. All drawings to be read in conjunction with Engineers and other consultants drawings and specification.
3. Note conditions, forms, requirements in HMP and specifications.

Job No.: A3
Orig. Size: A3
Drawing No.: 107
Scale: 1:10

FOR CONSENT

Home of Compassion Creche
18 Buckle Street, Wellington
Memorial Park Alliance

Scale: 1:10
Org. Size: A3
Job No.: 1902
Revision: C
New stainless chimney capping by others, to suit existing capping detail on site. 

Existing masonry chimney pots to be left in place, provide temporary lead flashing. 

S/S lug 60mm x 25mm, to be secured by

300mm wide to wall, 10mm square around base of chimney pot, bedded in bed of mastic to allow drainage. Use of all existing items to be retained. 

S/S sheeting over capping to match existing. 

External chimney detail to be in accordance with manufacturer's requirements on 4231A (RAB) 

Note: All dimensions of existing chimney to be checked on site.

Lightweight 4238A AAC shaped to match existing chimney. Direct fix to existing framing, profile to match existing. 

New 4311B correg. roofing over new 4161D underlay on existing existing lining.

New folded galv. steel barge flashing. 

Existing barge board retained, repair and repaint as required. 

Existing bird netting lining retained in place, strip back, prepare and repaint. 

Verify existing opening where original chimney passed through, to suit new timber framed and clad replica chimney.

Existing barge board retained, direct fix to existing braze, profile to match existing.

4261A fibrecement sheet fixed to cavity battens over 4231A (RAB) in accordance with manufacturer's requirements. 

Existing Barge board retained in place, strip back, prepare and repaint. 

Existing firebrick lining retained in place, provide temporary lead flashing. 

New folded galv. steel barge flashing. 

Existing barge board retained, repair and repaint as required. 

Existing bird netting lining retained in place, strip back, prepare and repay. 

Verify existing opening where original chimney passed through, to suit new timber framed and clad replica chimney.

Exristing firebrick lining retained in place, provide temporary lead flashing. 

New folded galv. steel barge flashing. 

Existing barge board retained, repair and repaint as required. 

Existing bird netting lining retained in place, strip back, prepare and repay. 

Verify existing opening where original chimney passed through, to suit new timber framed and clad replica chimney.

End of description. 

Note conditions, forms, requirements in HMP.

1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancy from candidates or information shown in these drawings. 

2. All drawings are to be read in conjunction with the contractor's drawings and specifications. 

3. Note conditions, forms, requirements in HMP for all work.
New sliding sash window with top light to match original, existing non-original window removed from opening.

Existing solid plaster reveal to opening allow to make repairs around all four side of opening where affected by window removal, PEF rod and sealant between timber and plaster stopping bead

New sliding sash window with top light to match original, existing non-original window removed from opening.

Sill on H3.2 packer on DPV
PEF rod and sealant between sill piece and plaster

Existing solid plaster sill to opening allow to make repairs around all four side of opening where affected by window removal

New sliding sash window with top light to match original, existing non-original window removed from opening.

Existing solid plaster reveal to opening allow to make repairs around all four side of opening where affected by window removal, PEF rod and sealant between timber and plaster stopping bead

Existing solid plaster reveal to opening allow to make repairs around all four side of opening where affected by window removal, PEF rod and sealant between timber and plaster stopping bead

Line of existing solid plaster removed from interior

New sliding sash window to match original, new hardware to be as per schedule

 Vertical line of sealant to jamb H3.2 packer on DPC

Existing solid plaster reveal to opening allow to make repairs around all four side of opening where affected by window removal, PEF rod and sealant between timber and plaster stopping bead

New sliding sash window with top light to match original, existing non-original window removed from opening.

Sill on H3.2 packer on DPV
PEF rod and sealant between sill piece and plaster

Existing solid plaster reveal to opening allow to make repairs around all four side of opening where affected by window removal, PEF rod and sealant between timber and plaster stopping bead

Existing solid plaster reveal to opening allow to make repairs around all four side of opening where affected by window removal, PEF rod and sealant between timber and plaster stopping bead

EXISTING SASH WEIGHTS TO BE FITTED WITH NEW CORDS, ENSURE ALL SLIDING SASHES ARE FULLY OPERABLE

GENERAL NOTES:
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2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.

3. Note conditions, forms, requirements in HMP for all work.

Revisions:

Consultants:

studiopacificarchitecture

Project Title:

Home of Compassion Creche

Internal Designers

studiopacificarchitecture

Urban Designers

For Consent

FOR CONSENT

DUNNING THORNTON CONSULTANTS
LEVEL 9, 94 DIXON STREET
WELLINGTON 6030

Scale: 1:5

Org. No: 1902

BRB 11-739

Memorial Park Alliance

02 Casement Window Sill

03 Casement Window Jamb

04 Double Hung Sash Window Jamb

05 Double Hung Sash Window Sill

01 Casement Window Head

06 Double Hung Sash Window Head

01 Casement Window Head

01 Casement Window Head

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2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.

3. Note conditions, forms, requirements in HMP for all work.

Existing door removed and salvaged.

New plywood bracing panel to existing framing, refer Engineers dwgs. Provide temporary packing over.

Temporary packing for fixing of protection.

5432A: original Matai t&g floor boards re-laid over new H3.2 plywood floor diaphragm over new H3.2 joists, refer to Engineers drawings for joist set out and fixing to new steel beams.

New in situ lightweight concrete hearth to fireplace to match existing, by others.

New 4711B insulation between floor joists.
Door ID: ED1 ED2
Handling: R R
Location: East North inside verandah
Quantity: 1 1
Leaf Dimensions: 900x2,145 900x2,150
Frame: Existing to be refurbished Existing to be refurbished
Glazing: n/a Existing timber flooring on timber frame and jamb below
Finish/Colour: New doorset (A) and mortice lock (B) New doorset (A) and mortice lock (B)
Security Requirements: Check all dimensions on site Check all dimensions on site

NEW DOOR AND WINDOW HARDWARE

A. Windsor 3006L Victorian Knob Lock, Polished Brass finish (PB)
B. Windsor Lever Lock 57mm Backset, 5 Lever, Black Iron finish (BLK)
C. Windsor 5018 350mm Casement Stay, Polished Brass finish (PB)
D. Windsor 5025 Round Sash Fastener, Polished Brass finish (PB)
E. Windsor 5056 Sash Lift Hook, Polished Brass finish (PB)
F. Windsor 5167 Window Pulley 122x25mm, Polished Brass finish (PB)
G. Windsor 5165 Flush Ring Elbow 25mm, Polished Brass finish (PB)

EXISTING DOOR CONDITION

Painted timber glazed and panelled door with Gothic traceried toplights, hardware and furniture, joints parting, glass peeling off all panes
Painted timber panelled and glazed with panelled and glazed sidelights and triple Gothic casement trefoil, loose and missing panels, furniture missing
Painted timber panelled door, missing panel, wear and damage
Painted timber glazed and panelled door with Gothic traceried toplights, hardware and furniture, joints parting, glass peeling off, all panes
Painted timber panelled door, loose and missing glass, hardware
Painted timber panelled door, loose door hardware
Painted timber panelled door, wear and damage
Painted timber panelled door, wear and damage
Painted timber panelled door, wear and damage

GENERAL NOTES:
1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.
3. Note conditions, forms, requirements in HMP for all work
4. Existing doors to be retained and refurbished inside and outside, made fully operable, hinges checked and replaced if inoperable.
5. Check all dimensions on site
## Window Schedule

<table>
<thead>
<tr>
<th>Window ID</th>
<th>Location</th>
<th>Width</th>
<th>Height</th>
<th>Frame</th>
<th>Finish/Colour</th>
<th>Hardware Set</th>
<th>Note/Remarks</th>
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</thead>
<tbody>
<tr>
<td>W1.01</td>
<td>South Wall</td>
<td>1,200</td>
<td>2,830</td>
<td>Existing to be refurbished</td>
<td>Painted timber fixed and casements, rotted frames</td>
<td>Windsor 5184 350mm Casement Stays, Black Iron finish (BLK)</td>
<td>New latch and stay to top (1 x C), new finger pulls (2 x E), cords and weight (bottom)</td>
</tr>
<tr>
<td>W1.02</td>
<td>Entry Porch</td>
<td>1,440</td>
<td>2,830</td>
<td>Existing to be refurbished</td>
<td>Painted timber double hung sash with fixed triple light toplight, missing sash cords, broken sash, missing weights, missing stays</td>
<td>Windsor 3002L Victorian Knob Lock, Polished Brass finish (PB)</td>
<td>New latch and stay to top (1 x C), new finger pulls (2 x E), cords and weight (bottom)</td>
</tr>
<tr>
<td>W1.03</td>
<td>East Wall</td>
<td>2,640</td>
<td>2,830</td>
<td>Existing to be refurbished</td>
<td>Painted timber double hung sash windows, leaning frames, heavily overpainted</td>
<td>Windsor 5025 Round Sash Fastener, Brass finish (PB)</td>
<td>New latch and stay to top (1 x C), new finger pulls (2 x E), cords and weight (bottom)</td>
</tr>
<tr>
<td>W1.04</td>
<td>East Wall</td>
<td>2,685</td>
<td>2,830</td>
<td>Existing to be refurbished</td>
<td>Painted timber fixed sash windows, missing stays</td>
<td>Windsor 5197 Window Pulley, Polished Brass finish (PB)</td>
<td>New latch and stay to top (1 x C), new finger pulls (2 x E), cords and weight (bottom)</td>
</tr>
<tr>
<td>W1.05</td>
<td>South Wall</td>
<td>1,200</td>
<td>2,830</td>
<td>Existing to be refurbished</td>
<td>Painted timber fixed and casements, rotted frames</td>
<td>Windsor 5184 350mm Casement Stays, Black Iron finish (BLK)</td>
<td>New latch and stay to top (1 x C), new finger pulls (2 x E), cords and weight (bottom)</td>
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<tr>
<td>W1.06</td>
<td>West Wall</td>
<td>2,685</td>
<td>2,830</td>
<td>Existing to be refurbished</td>
<td>Painted timber fixed sash windows, missing stays</td>
<td>Windsor 5197 Window Pulley, Polished Brass finish (PB)</td>
<td>New latch and stay to top (1 x C), new finger pulls (2 x E), cords and weight (bottom)</td>
</tr>
<tr>
<td>W1.07</td>
<td>South Wall</td>
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<td>2,830</td>
<td>Existing to be refurbished</td>
<td>Painted timber fixed and casements, rotted frames</td>
<td>Windsor 5184 350mm Casement Stays, Black Iron finish (BLK)</td>
<td>New latch and stay to top (1 x C), new finger pulls (2 x E), cords and weight (bottom)</td>
</tr>
</tbody>
</table>

### General Notes:

1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.
3. Note conditions, forms, requirements in HMP for all work.
4. All existing windows to be restored where possible. Frames to be assessed for suitability for staying in place. New latches to match original timber.

### Existing Window Condition

<table>
<thead>
<tr>
<th>Condition</th>
<th>Window ID</th>
<th>Condition</th>
<th>Window ID</th>
<th>Condition</th>
<th>Window ID</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painted timber fixed windows, leaning frames, heavily overpainted</td>
<td>W1.03</td>
<td>Painted timber fixed windows, missing stays</td>
<td>W1.04</td>
<td>Painted timber fixed sash windows, missing stays</td>
<td>W1.05</td>
<td></td>
</tr>
<tr>
<td>Painted timber double hung sash windows, triple light toplight, missing sash cords, broken sash, missing weights, missing stays</td>
<td>W1.02</td>
<td>Painted timber fixed sash windows, missing stays</td>
<td>W1.04</td>
<td>Painted timber fixed sash windows, missing stays</td>
<td>W1.05</td>
<td></td>
</tr>
<tr>
<td>Painted timber double hung sash with fixed triple light toplight, missing sash cords, leaning frames, heavily overpainted</td>
<td>W1.03</td>
<td>Painted timber fixed sash windows, missing stays</td>
<td>W1.04</td>
<td>Painted timber fixed sash windows, missing stays</td>
<td>W1.05</td>
<td></td>
</tr>
<tr>
<td>Painted timber fixed sash windows, missing stays</td>
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<td>W1.05</td>
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<td>Painted timber fixed sash windows, missing stays</td>
<td>W1.05</td>
<td></td>
</tr>
<tr>
<td>Painted timber fixed and casements, rotted frames</td>
<td>W1.06</td>
<td>Painted timber fixed sash windows, missing stays</td>
<td>W1.04</td>
<td>Painted timber fixed sash windows, missing stays</td>
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<td>W1.05</td>
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### Hardware Set

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<tbody>
<tr>
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<td>Painted timber fixed sash windows, crooked glass, very poor condition</td>
<td>Windsor 3002L Victorian Knob Lock, Polished Brass finish (PB)</td>
</tr>
<tr>
<td>BR11-746</td>
<td>Painted timber fixed sash windows, crooked glass, very poor condition</td>
<td>Windsor 5184 350mm Casement Stays, Polished Brass finish (PB)</td>
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<tr>
<td>BR11-746</td>
<td>Painted timber fixed sash windows, crooked glass, very poor condition</td>
<td>Windsor 5197 Window Pulley, Polished Brass finish (PB)</td>
</tr>
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<td>Windsor 5197 Window Pulley, Polished Brass finish (PB)</td>
</tr>
</tbody>
</table>

### Project Title

Home of Compassion Creche

Memorial Park Alliance

© Studio of Pacific Architecture Limited 2012
**Project Title:** Home of Compassion Creche

**General Notes:**
1. Contractor to prepare all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
2. 2 All details to be read in conjunction with Engineers and other consultants drawings and specifications.
3. Notes; conditions, requirements in A/M for all work.
4. All existing windows to be removed and outside made fully operable. Weights (sails) to be replaced if necessary, fixings new and special anchor bolts used for all windows. New windows in place.

**EXISTING WINDOW CONDITION**
- Painted timber double hung sash windows, casing and fanlights.
- Painted timber double hung sash windows, double glazed.
- Painted timber fixed and casements, retained frames.
- Painted timber fixed and casements, retained frames.
- New cords and weights
- New finger pulls
- New swivel latch (D)
- New sashes to match original
- New winder openers to toplight to be refurbished, retained and made operable. New swivel latch (D).
- New cords and weights
- New finger pulls
- New swivel latch (D)
- New sashes to match original
- New winder openers to toplight to be refurbished, retained and made operable.

**NEW DOOR AND WINDOW HARDWARE**

- Window 3025 Victorian Knob Lock, Polished Brass finish (PB)
- Window Lever Lock 5/8" Rose, Bright Nickel (BN)
- Windows 5184 350mm Casement Stays, Polished Brass finish (PB)
- Windsor 5026 Sash Lift Hook, Polished Brass finish (PB)
- Windsor 5025 Round Sash Fastener, Polished Brass finish (PB)
- Windsor 3002L Victorian Knob Lock, Black Iron finish (BLK)
- Windsor 5184 350mm Casement Stays, Polished Brass finish (PB)
- Window 5187 Window Pulley, 1025mm, Polished Brass finish (PB)
- Window 5185 Flush Ring 63mm, Polished Brass finish (PB)

**GENERAL NOTES:**
- Contractor to confirm all dimensions and existing conditions before proceeding. Notify architect of any discrepancies from conditions or information shown in these drawings.
- 2 All details to be read in conjunction with Engineers and other consultants drawings and specifications.
- 3 Notes; conditions, requirements in A/M for all work.
- 4 All existing windows to be removed and outside made fully operable. Weights (sails) to be replaced if necessary, fixings new and special anchor bolts used for all windows. New windows in place.
General Notes:
1. All dimensions to be checked on site.
2. All drawings to be read in conjunction with Engineers and other consultants drawings and specifications.
3. Note conditions, forms, requirements in HMP for all work.
4. All existing windows to be retained will be refurbished inside and outside, made fully operable, weights balanced, sash repaired if broken, hinges checked and replaced if inoperable. Security and reinforced if required.

### EXISTING WINDOW CONDITION

- **W1.11**: Clear coated timber double hung sash with triple light toplight, different coloured glazing.
- **W1.12**: Painted timber double hung sash windows, rusting fixings, heavily overpainted.
- **W1.13**: Clear coated timber double hung sash windows, rusting fixings, loose sash cords.
- **W1.14**: Clear coated timber double hung sash windows with triple light toplight, missing sash cords, missing rails, glazing varies between windows.
- **W1.15**: Clear coated timber double hung sash windows with triple light toplight, missing sash cords, missing rails, glazing varies between windows.

### NEW DOOR AND WINDOW HARDWARE

- **A**: Windsor 36KL Victorian Knob Lock, Polished Brass finish (PB)
- **B**: Windsor Lever Locks 57mm Backset, 5 Lever, Black Iron finish (BLK)
- **C**: Windsor 5184 35mm Casement Stops, Polished Brass finish (PB)
- **D**: Windsor 5025 Round Sash Fastener, Polished Brass finish (PB)
- **E**: Windsor 5184 350mm Casement Stay, Polished Brass finish (PB)
- **F**: Windsor 5155 Flush Rings 63x50mm, Polished Brass finish (PB)
- **G**: Windsor 5167 Window Pulley, 102x32mm, Polished Brass finish (PB)
- **H**: Windsor 5155 Flush Rings 43x32mm, Polished Brass finish (PB)

### GENERAL NOTES:
1. Contractor to confirm all dimensions and existing conditions before proceeding. Notify Architect of any discrepancies from conditions or information shown in these drawings.
2. All new windows to be fitted, sealed and made operable. Original finger pulls and sash stop to be fitted as required and made operable. New sash cords and weights.
3. All existing windows to be retained will be refurbished inside and outside, made fully operable, weights balanced, sash repaired if broken, hinges checked and replaced if inoperable. Security and reinforced if required.

### FOR CONSENT

**CONTRACTOR**: Dunning Thornton Consultants

**LEVEL 9, 94 DIXON STREET**

**WELLINGTON 6030**

**C 30% ISSUE**

**DATE: 2013-09-02**

**B 90% ISSUE**

**DATE: 2013-10-25**

**C FOR CONSENT**

**DATE: 2013-11-11**

**Scale: 1:50**

**Org. Size: A3**

**Project Title:** Home of Compassion Creche

**Consultants:** Studio Pacific Architecture

**Interior Designers:** Studio Pacific Architecture

**Memorial Park Alliance**
SPECIFICATION

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

Home of Compassion Creche (former)

Buckle St, Wellington

Memorial Park Alliance

Job Number: 1902

Date: 11-11-2013 : Rev A : For Consent
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</tbody>
</table>
1. GENERAL
This general section describes the project including:
- A description of the work
- Site description, features and restrictions
- Design parameters for design by contractor
- Archaeological discovery
- Heritage Significance
- Relocation/Heritage Management Plan

1.1 READ ALL SECTIONS TOGETHER
Read all general sections together with all other sections.

Description of the work

1.2 SCOPE OF THE WORK
The Home of Compassion Creche (former) is a Category 1 listed building. The building is being moved to an adjacent, higher location to make way for the Buckle St realignment. It is being structurally strengthened and externally refurbished.

1.3 RESTRICTED BUILDING WORK
This project includes Restricted Building Work.

Site

1.4 SITE
The site consists of: the existing location at 18 Buckle St, and new location immediately to the northwest. as shown on drawing no. indicatively on BRB-11-708. Refer to surveyors drawings, and Dunning Thornton drawings for further details.

The building is on the southern street boundary, and the site falls from southwest to northeast.

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

1.6 EXISTING BUILDINGS
Existing buildings consist of: The Home of Compassion Creche (former). Refer to drawing(s) no(s): The original drawings are shown on BRB-11-707.

Existing drawings are: BRB-11-713, BRB-11-714, BRB-11-715, BRB-11-722, BRB-11-723, BRB11-726, BRB11-727

1.7 EXISTING SERVICES
The following are the network utility services:
Electrical: ~
Telecommunication: ~
Water: ~
Stormwater: ~
Foul water: ~

The services are also shown on drawing(s) no(s) ~.

1.8 SITE FEATURES
Refer to Relocation/Heritage Management Plan for an overview of archaeological features of sites.

Site environment - Wind

1.9 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN
The design wind pressures are to NZS 3604, Table 5.4 Determination of wind zone, up to and including Extra High Wind Zone.
Building wind zone 3 (high) (refer to NZS 3604, table 5.4)

**Site environment - Durability**

1.10 EXPOSURE ZONE
The exposure zone is to NZS 3604, Section 4 Durability, 4.2 Exposure zones and NZBC E2/AS1.
The site zone is: D marine environment

**Site environment - Seismic**

1.11 EARTHQUAKE - SPECIFIC DESIGN
Refer to Dunning Thornton documentation for all details of earthquake design.

**Archaeological discovery**

1.12 SITE PROTOCOLS FOR ACCIDENTAL DISCOVERY
Refer to Relocation/Heritage Management Plan for details of site protocols for Archaeological Discovery. The Plan also contains maps showing areas where archaeological exploration has been carried out.
1. GENERAL

This general section provides a list of the parties who are involved with the project. Communications to these personnel are to be sent to them at the address as listed. Refer to the construction contract for:
- the roles that they have under the contract; and
- address details for notices being given under the contract.

Principal

1.1 PRINCIPAL
Name: Memorial Park Alliance
Postal: 
Street: 175 Taranaki Street, Wellington
Telephone: 
Represented by: Stephen Wright
Mobile: 0272 829 029
Email: Stephen.wright@memorialpark.co.nz

Contractor

1.2 COMPANY
Name: 
Postal: 
Street: 
Telephone: 
Represented by: 
Mobile: 
Email: 

1.3 CONTRACT MANAGER
Person: 
Mobile: 
Telephone: 
Email: 

1.4 SITE FOREMAN
Person: 
Mobile: 
Telephone: 
Email: 

Consultants

1.5 ARCHITECT
Practice: Studio Pacific Architects
Postal: PO Box 11 517, Wellington 6142
Street: 74 Cuba St, Wellington
Telephone: 8025444
Represented by: Jon Fraser
Mobile: 
Email: jonfraser@studiopacific.co.nz

1.6 LANDSCAPE ARCHITECT
Practice: WALA
Postal: PO Box 19212, Wellington 6149
Street: 282 Wakefield Street, Wellington 6011
Telephone: 381 3355
Represented by: Nicole Thompson
Mobile: 

1.7 STRUCTURAL ENGINEER
Practice: Dunning Thornton Consultants
Postal: PO Box 27153, Wellington 6141
Street: 94 Dixon Street, Wellington 6141
Telephone: 385 0019
Represented by: Adam Thornton
Mobile: ~
Email: adam.thornton@dunningthornton.co.nz

1.8 ELECTRICAL ENGINEER
Practice: MPA

1.9 HYDRAULIC ENGINEER
Practice: MPA

1.10 CIVIL ENGINEER
Practice: MPA

Territorial Authority

1.11 BUILDING CONSENT AUTHORITY
Name: Wellington City Council
Postal: ~
Street: ~
Telephone: ~
Mobile: ~
Email: ~
1222L   PROJECT PERSONNEL - LBP'S – Rev A

1.  TO

BCA: Wellington City Counsel
Address: PO Box 2199
Wellington 6140

Copy to Contractor administrator

Name: Stephen Wright
Company/address: Memorial Park Alliance
Email: stephen.wright@memorialpark.co.nz

Project details

Project: Home of Compassion Creche Siesmic Strengthening and Relocation
Location: Buckle Street, Wellington
Building Consent:

Person giving advice

Name: ~
Position: Contractor
Telephone: ~
Date advised: ~

2.  GENERAL

Provide to the Building Consent Authority the names of the Licensed Building Practitioners who are carrying out Restricted Building Work on this project. In compliance with s87 of the Building Act, the names of LBP's who will be carrying out Restricted Building Work must be provided to the BCA before that work commences. Provide a copy to the Contract Administrator.

2.1  SITE

Name: ~
LBP number: ~
Area of practice: Category ~
Details of RBW: ~
Address: ~
Telephone: ~
Mobile: ~
Email: ~

2.2  CARPENTRY

Name: ~
LBP number: ~
Area of practice: Category ~
Details of RBW: ~
Address: ~
Telephone: ~
Mobile: ~
Email: ~

2.3  INTERNAL AND EXTERNAL SOLID PLASTERING (not modified plastering)

Name: ~
LBP number: ~
Area of practice: Category
Details of RBW: ~
Address: ~
Telephone: ~
Mobile: ~
Email: ~

2.4 ROOFING
Name: ~
LBP number: ~
Area of practice: Category ~
Details of RBW: ~
Address: ~
Telephone: ~
Mobile: ~
Email: ~
1231 CONTRACT – Rev A

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.

Arnold Murphy Plastering – all plastering.
A&D Decorators – paint stripping (assuming that they do the sample areas for Equus).
1232 INTERPRETATION & DEFINITIONS – Rev A

1. GENERAL

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

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.

Contract Administrator: The person appointed by the principal to administer the contract on the principal's behalf. Where no person has been appointed by the Principal, it means the Principal or the Principal's representative.

1.3 ABBREVIATIONS

The following abbreviations are used throughout the specification:

AAMA American Architectural Manufacturers Association

AS Australian Standard

AS/NZS Joint Australian/New Zealand Standard

ASTM American Society for Testing and Materials

AWCINZ Association of Wall and Ceiling Industries of New Zealand Inc

BCA Building Consent Authority

BRANZ Building Research Association of New Zealand

BS British Standard

CSIRO Commonwealth Scientific and Industrial Research Organisation

HERA Heavy Engineering Research Association

LBP Licensed Building Practitioner

MoBIE Ministry of Business, Innovation and Employment (includes the old DBH)

MPNZA Master Painters New Zealand Association Inc

NZBC New Zealand Building Code

NZS New Zealand Standard

NZS/AS Joint New Zealand/Australian Standard

NZTA New Zealand Transport Agency (previously TNZ)

NUO Network Utility Operator

PS1 Producer Statement – Design

PS2 Producer Statement – Design Review

PS3 Producer Statement - Construction

PS4 Producer Statement – Construction Review

RBW Restricted Building Work

SARNZ Scaffolding and Rigging Association New Zealand Inc

SED Specific Engineering Design
TA Territorial Authority
TNZ Transit New Zealand (Transit New Zealand is now New Zealand Transport Agency NZTA, some specifications are still prefixed TNZ)

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

1.5 WORDS IMPORTING PLURAL AND SINGULAR
Where the context requires, words importing singular only, also include plural and vice versa.
1233 REFERENCED DOCUMENTS – Rev A

1. GENERAL

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

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

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

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

1.2 DOCUMENTS
Documents referred to in the GENERAL sections are:

- NZBC F4/AS1 Safety from falling
- NZBC F5/AS1 Construction and demolition hazards
- AS/NZS 1170.2 Structural design actions - Wind loads
- AS/NZS 3012 Electrical installations - Construction and demolition sites
- NZS 3109 Concrete construction
- NZS 3114 Specification for concrete surface finishes
- NZS 3404:1997 Steel structures standard
- NZS 3602 Timber and wood-based products for use in building
- NZS 3604 Timber-framed buildings
- NZS 4210 Masonry construction: Materials and workmanship
- NZS 6803 Acoustics - Construction Noise
- National War Memorial Park (Pukeahu) Empowering Act 2012
- Building Act 2004
- Building Regulations 1992
- Health and Safety in Employment Act 1992
- Health and Safety in Employment Regulations 1995
- New Zealand Building Code
- Historic Places Act 1993
- Resource Management Act 1991
- Smoke-free Environments Act 1990
- OSH Guidelines for the provision of facilities and general safety in the construction industry
- SARNZ Best practice guideline for scaffolding in New Zealand
1234 DOCUMENTATION – Rev A

1. GENERAL

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

Building Consent Authority documentation

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

1.2 BUILDING CONSENT COMPLIANCE
It is an offence under the Building Act 2004
- to carry out any work not in accordance with the building consent.
- to carry out Restricted Building Work by anyone other than a Licensed Building Practitioner licensed for that type of work.

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

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

1.3 PROJECT PERSONNEL
Provide names and contact detail of the contractor’s key personnel and tradespersons who are involved with the project. Provide the names in the form required in the general section of the specification. Review the list once a month and reissue it if changes have been made.

Licensed Building Practitioner documentation

1.4 LICENSED BUILDING PRACTITIONERS
On behalf of the Owner, provide details of LBP’s to carry out or supervise Restricted Building Work. Provide names, LBP numbers, areas of practice and other required information. Provide this to the BCA and the Contract Administrator before commencing work on the Restricted Building Work. Provide the information in the form required in the general section 1222L PROJECT PERSONNEL LBP’S. Review the list once a month and reissue it if changes have been made.

Include the following which are considered applicable to this project:
- Site LBP
- Carpenter
- Foundations 1 Concrete foundation walls and concrete slab-on-ground constructor
- Roofing 2 Profiled metal roofer and/or wall cladding installer
- Roofing 4 Membrane roofer
- Roofing 5 Torch on membrane roofer
- External plastering 1 Solid plasterer
- External plastering 2 Proprietary Plaster Cladding Systems (PPCS) plasterer

Also provide names and contact details of the following
- Registered drainlayer
- Registered plumber
- Registered electrician
1.5 NOTIFICATION OF BREACHES OF BUILDING CONSENT
Provide to the Contract Administrator and the Contractor a copy of any advice given to
the BCA under s.89 of the Building Act. Provide this advice no later than the time the
advice is given to the BCA.

1.6 RECORD OF BUILDING WORK
Where Restricted Building Work is carried out by a LBP, on completion of the RBW
provide a Record of Building Work for inclusion with the documentation required for Code
Compliance. Provide copies to both the BCA and the Contract Administrator.

Compliance information

1.7 DOCUMENTATION REQUIRED FOR CODE COMPLIANCE
Information may be required either as a condition of the contract documents or as a
condition of the building consent may include the following:
- Applicators approval certificate from the manufacturer / importer / distributor
- Manufacturer's, importer's or distributors warranty
- Installer / applicator's warranty
- LBP Record of Work
- Producer Statement - Construction from the applicator / installer
Producer Statement - Construction review from an acceptable suitably qualified person
Refer to the general sections for the requirements for compliance information to be
provided by the contractor.

Refer to the National War Memorial Park (Pukeahu) Empowering Act 2012 for the
requirements for compliance information to be provided by the contractor.

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

Substitutions

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

1.9 NO SUBSTITUTIONS
Where specifically stated in a section, substitutions are not permitted to any of the
specified systems, components and associated products listed in that section.

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

1.11 NOTIFICATION OF SUBSTITUTIONS
Notify proposed substitution of specified products. Notification to include but not be
limited to:
- Product identification
- Manufacturer's name, address, telephone and facsimile numbers, website and email
  address
- Detailed comparison between the properties and characteristics of the specified product
  and the proposed substitution
- Statement of NZBC compliance including durability
- Details of manufacturer warranties
plus an assessment of
- Any changes required to the programme including any extension of time required
- Any consequential effects of the proposed substitution
- Allowance for time and cost for re-design and documentation (if applicable)
- Allowance for time and cost for obtaining an amendment to the Building Consent (if applicable)
- Any change in cost associated with the proposed substitution

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

1.12 ACCEPTANCE OF SUBSTITUTIONS
The Contract administrator must advise of acceptance of substitutions in writing.

Amendment to issued Building Consent

1.13 CONTRACTOR AMENDMENTS TO BUILDING CONSENT
Where the contractor has sought acceptance of a substitution or a variation which is for the contractor's own convenience and the substitution or variation requires an amendment to the Building Consent, the contractor must apply for and obtain the required amendment.

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

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

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

Manufacturer's documents

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

1.16 CROSS REFERENCED WORK SECTIONS
If any related work is cross referenced to a generic work section, but only the equivalent branded section is included in the specification, use that branded section. Confirm with the Contract administrator if there is any doubt.

1.17 MANUFACTURER'S AND SUPPLIER'S REQUIREMENTS
Manufacturers and supplier's requirements, instructions, specifications or details mean those issued by them for their particular material, product or component and are the latest edition.

1.18 MANUFACTURER'S AND SUPPLIER'S DOCUMENTS
Refer to individual sections for a detailed list of manufacturer's and supplier's documents relating to work on this project. Retain current copies of the documents listed, and all
other relevant manufacturer's technical literature, on site. Make this information available to all personnel and ensure they are familiar with requirements for handling, storing, preparing for, fixing and finishing all products before commencing work. Provide a copy of all listed manufacturer's literature to the Contract administrator.

1.19 ONGOING MAINTENANCE REQUIREMENTS
Refer to individual sections for details of manufacturer's and supplier's requirements for ongoing maintenance necessary to ensure continuing compliance with the durability requirements of the NZBC. Provide a copy of literature detailing ongoing maintenance and inspection requirements to the Contract administrator.

Shop drawings

1.20 PROVIDE SHOP DRAWINGS FOR REVIEW
Where specified in the work sections provide shop drawings for review by the contract administrator. Allow in the program for the shop drawing and review process. Do not proceed with manufacture of the items until the Contract administrator gives a direction to proceed.
1235  SHOP DRAWINGS - Rev A

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
Where specified in the work sections prepare shop drawings and submit for review. Make due allowance in the contract programme for the preparation, review and subsequent correction and re-review of shop drawings, prior to the time required for ordering materials/equipment and commencing fabrication.

1.2 SHOP DRAWINGS REVIEW
Submit shop drawings to the named reviewer(s) for review. Proposed shop drawings to be submitted to the reviewer, 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 in a specific section as the reviewer, submit the shop drawings to the contract administrator.

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

Review of shop drawings does not relieve the contractor of responsibility for the correctness of the shop drawings, site dimensions, the overall design and performance, or for ensuring the work is carried out in compliance with the contract documents. Nor does it remove the need for the contractor to comply with the stated requirements, details and specifications of the manufacturer's and suppliers of individual components, materials and finishes. Neither can the review be construed as authorising departures from the contract documents.

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

1.3 PROVIDE FINAL SHOP DRAWINGS
Provide final shop drawings, including required modifications, before proceeding with any fabrication, installation or erection.

1.4 SHOP DRAWING REVIEWER(S)
Submit the following shop drawings for review to the named reviewer(s) identified in this clause or the specific work section, if no reviewer(s) are identified submit to the contract administrator:

<table>
<thead>
<tr>
<th>Item</th>
<th>Reviewer(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timber windows &amp; doors</td>
<td>Studio Pacific Architecture</td>
</tr>
</tbody>
</table>

1.5 SCHEDULE OF SHOP DRAWINGS
The following work sections have shop drawing requirements, refer to these sections for details:
4511 Timber windows and doors
1237 WARRANTIES – Rev A

1. GENERAL

This general section refers to the requirements for warranties as listed, either in this work section and/or in specific work sections. It includes:
- Warranties for parts of the work required by the Principal in a required form
- Installer/applicator warranties for parts of the work in the installer/applicator’s standard form
- Manufacturer/supplier warranties provided with products, appliances and the like in the supplier’s standard form
- Guarantees/Warranties provided by contractors in the contractor’s standard form

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.

- Conform to the 1237WA WARRANTY AGREEMENT form included in the specification/conditions of contract.
- Commence warranties from the date of practical completion of the contract works (unless otherwise stated).
- Maintain their effectiveness for the times stated.
- Provide executed warranties prior to practical completion.

1.2 WEATHERTIGHTNESS AND WATERTIGHTNESS WARRANTY

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

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

- Conform to the standard form 1237WA WARRANTY AGREEMENT included in the contract documents.
- Commence the warranty from the date of Practical Completion.
- Maintain its effectiveness for the time stated.

1.3 WARRANTIES - INSTALLER/APPLICATOR

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

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

- Conform to the installer/applicator standard form. Where the installer/applicator does not have a standard form, use the 1237WA WARRANTY AGREEMENT included in the contract documents.
- Commence the warranties from the date normally applicable for the work.
- Maintain their effectiveness for the times stated.

1.4 WARRANTIES - MANUFACTURER/SUPPLIER
Where warranties are offered covering materials, equipment, appliances or proprietary products, provide all such warranties to the contract administrator.

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

- Conform to the manufacturer/suppliers standard form.
- Commence the warranties from the date normally applicable.
- Maintain their effectiveness for the times stated.

Submissions

1.5 REVIEW BY CONTRACTOR
Obtain the warranties from the installers 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 Principal/Owner. Keep safe and secure until required for submission.

1.6 WARRANTIES - REQUIRED BY CONTRACT
Obtain copies of warranties listed in the contract documents for submission to the Contract Administrator/Owner. Provide all warranties at the same time. Present the warranties to the Contract Administrator in a "clear view" document book suitably labelled with the project name and details. If the project has an operations and maintenance documentation provision, present the warranties with the operations and maintenance information.

1.7 TIME FOR SUBMISSION
Refer to the contract conditions for any requirement relating to the time for submission for warranties

NZS 3910 Contracts Submit all warranties before the end of the defects liability period.

Warranties schedule

1.8 SCHEDULE OF WARRANTIES
Provide the Warranties and Guarantees listed in this section:

- 2 years Weathertightness and watertightness
- 5 years Profiled metal roofing
- 5 years Torch-on membrane roofing
- 1 year Timber strip, block & plank flooring
- 2 years Painting

Additionally the following work sections have Warranty requirements, refer to these sections for details:

~
1. WARRANTY AGREEMENT

Contract for: Home of Compassion Creche Strengthening and Relocation (the contract works)

Contractor: ~ (the contractor)

Principal: Memorial Park Alliance (the principal)

Warrantor: (name of contractor, subcontractor or materials supplier)

Warranted works: (the warranted works)

Warranted materials: (the warranted materials)

Warranty period: years from the date of practical completion of the contract works.

The principal has entered into a contract (the contract) with the contractor for carrying out the contract works. The warranted works / materials are part of the contract works.

The contractor has agreed to arrange for the provision of a warranty in respect of the warranted works / materials for the warranty period on the terms set out in this warranty.

The warrantor has agreed to provide a warranty in respect of the warranted works / materials for the warranty period on the terms set out in this warranty.

2. IT IS HEREBY AGREED

The warrantor warrants to the principal that the warranted work performed /materials supplied shall be as required in the contract. If not specified the work shall be of good trade practice with materials and fittings of merchantable quality.

This warranty shall be in addition to and shall not derogate from any manufacturer's warranty or any warranty implied by law, attaching to any part of the warranted works.

2.1 WARRANTOR'S OBLIGATIONS

The warrantor agrees that if the warrantor is advised by the principal in writing of any defect in the warranted works / materials within the warranty period for which the warrantor is liable under the terms of this warranty, the warrantor will promptly take steps to remedy the defect / replace defective materials.

2.2 REMEDIAL WORK / REPLACEMENT OF DEFECTIVE MATERIALS

Any remedial work / replacement of defective materials which the warrantor is liable to undertake / provide under this warranty shall be carried out:
- to the standard required by the contract; and
- in a prompt and timely manner; and
- without unnecessary inconvenience to any occupants; and
- at the warrantor’s cost; and
- subject to reasonable access being provided to the warrantor for the purpose of carrying out the remedial work.

2.3 REPAIR, REPLACEMENT AND/OR COMPENSATION

Where the cost of replacement of work and/or materials is out of all proportion to the consequences of the defect, or where the defect may not be reasonably capable of
rectification without substantial expense which is out of all proportion to the cost of the contract works, the warrantor may:
- where the defect or defective material is reasonably rectified by repair rather than by replacement, the warrantor's obligation under this warranty shall be only to repair or otherwise make good the defect or
- propose reasonable monetary compensation in lieu of remedying the defect or
- propose a combination of both repair and compensation.

The principal must consider the warrantor's reasonable proposals and the parties must endeavour in good faith to reach agreement. Where agreement cannot be reached the dispute shall be resolved in accordance with the disputes clause in this warranty.

2.4 FAILURE BY WARRANTOR TO PERFORM REMEDIAL WORK
If the warrantor fails to promptly, adequately and satisfactorily carry out the remedial work or to propose acceptable repair/compensation, the principal may then arrange for the remedial work to be carried out by others.

If the warrantor fails to promptly, adequately and satisfactorily provide replacement materials or to propose acceptable repair/compensation, the principal may then arrange for the replacement materials to be supplied by others.

The principal must first give the warrantor 10 working days notice to carry out and complete the remedial work / supply replacement materials. If the warrantor does not complete this work / supply replacement materials within the time, the principal must then advise the warrantor in writing that the work will be carried out / materials will be supplied by others.

In such event the warrantor is not released from obligations under this warranty, which continues in full force and effect, except in respect of the defect remedied / materials supplied by the principal or by another person contracted by the principal. The reasonable cost of the remedial work carried out / materials supplied by such other persons including all reasonable costs of the principal is to be paid to the principal by the warrantor on demand.

2.5 EXCLUSIONS
The principal agrees that the warrantor is not liable for any defect or damage caused by:
- wilful act or negligence of the principal or any person other than the warrantor; or
- fire, explosion, earthquake, war, subsidence, slips, faulty materials or workmanship other than caused by the defect in the warranted work; or
- any force of nature which the warrantor could not reasonably foresee; or
- any neglect or unnecessary delay by the principal in giving notice to the warrantor of a defect in the warranted works becoming apparent; or
- design faults, errors or discrepancies, unless the warrantor undertook the design of the part of the warranted works the subject of the defect; or
- unintended use of the warranted works by the principal or any occupant thereof; or
- failure by the principal or any occupant thereof to maintain the warranted works in accordance with good practice and any manufacturer's stated or recommended instructions or requirements.

2.6 ASSIGNMENT
The principal may assign the benefit of this warranty to any person.

2.7 DISPUTES
Any dispute or difference between the principal and the warrantor arising out of or in connection with this warranty, or the subject matter of this warranty, including any question about its existence or validity, will be referred to arbitration by a sole arbitrator to be agreed upon by the parties. If the parties are unable to agree upon the identity of an arbitrator within 10 working days from the date upon which notice of the dispute is given, then the arbitrator will be appointed by the Registrar of the Building Disputes Tribunal (NZ) Ltd upon the application of either party.

2.8 NOTICES
Notices given to the warrantor are deemed to have been effectively served on the
warrantor if given in accordance with the contract.

3. **EXECUTED BY**

   **Signed by the warrantor:** ..............................................................

   on this: ..............................day of .............................................20......
            (day)            (month)            (year)

   (And where required to be executed as a deed) signed in the presence of:

   **Witness signature** ..............................................................

   **Name:** ..............................................................
   (print)

   **Address:** ..............................................................
   (print)

   **Occupation:** ..............................................................
   (print)

   **Signed by the principal:** ..............................................................

   on this: ..............................day of .............................................20......
            (day)            (month)            (year)

   (And where required to be executed as a deed) signed in the presence of:

   **Witness signature** ..............................................................

   **Name:** ..............................................................
   (print)

   **Address:** ..............................................................
   (print)

   **Occupation:** ..............................................................
   (print)

**NOTE**: Where the warrantor is not the contractor the warranty agreement must be executed by the warrantor and the principal in the manner required for execution of a deed.

Any of these parties which are a company must execute the warranty by having it signed, under the name of the company, by two or more directors. If there is only one director, it is sufficient if the warranty agreement is signed under the name of the company by that director, but the signature must be witnessed by another person. The witness must not only sign but must also add his or her occupation and address. Alternatively, companies may execute under power of attorney. Any party which is a body corporate (other than a company) must execute by affixing its seal, which must be attested in the manner provided for in the rules of, or applicable to, the body corporate.

In the case of a party who is an individual, the party must sign and the signature must be witnessed by another person. The witness must not only sign but must also add his or her occupation and address.
1240 ESTABLISHMENT - Rev A

1. GENERAL

This general section relates to site establishment including:
- Notices and approvals
- Inspections
- Site preparation
- Signage
- Temporary construction

Notices and approvals

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

1.2 BUILDING CONSENT AUTHORITY AND NETWORK UTILITY APPROVALS
Attend on Building Consent Authority officers, statutory and network utility inspectors, as necessary to obtain approvals (in addition to building consent approval) for and the satisfactory completion of, the works.

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

Inspections

1.4 CARRY OUT INSPECTIONS
The contractor is to undertake a full inspection of the existing building, interior and exterior conditions along any work undertaken by previous contractors. Any areas of concern are to be raised with the clients representative before any work proceeds.

Site preparation

1.5 SITE ACCESS
Access to the site is limited to: MPA to advise

1.6 WORKING AREA
Limited to the following designated working areas on the site:
MPA to advise

Existing buildings

1.7 ALTERATIONS
Control access and working areas within the existing building.

Signage

1.8 SITE SIGN
Obtain approval for, provide and erect a timber framed sign board 2400mm x 1200mm fully painted and displaying:
- Title of contract
- Principal's name
- Contractor's name
- Consultants as listed in general section 1222 PROJECT PERSONNEL
- If the contractor wishes, names of contractor and subcontractors.

Temporary construction
1.9 HOARDINGS, GANTRIES, LIGHTING
Provide temporary fencing, hoardings, planked footways, guard rails, gantries and lighting as necessary to protect the public and others, for the proper execution of the works and to meet the requirements of territorial or other authority.
1250 TEMPORARY WORKS & SERVICES – Rev A

1. GENERAL

This general section relates to temporary works and services required for the construction of the contract works. It includes:
- Temporary works and services including temporary fencing and hoardings
- Scaffolding and shoring
- General care and protection

Temporary works

1.1 COMPLY WITH NEW ZEALAND BUILDING CODE

Refer to New Zealand Building Code clauses and approved document paragraphs for the criteria and/or methods that must be used in this section to establish compliance with the code.

1.2 COSTS RELATING TO TEMPORARY WORKS

Pay all rates/fees in respect of temporary works.

1.3 MAINTENANCE OF TEMPORARY WORKS

Maintain alter, adapt and move temporary works and services as necessary. Clear away when no longer required and make good.

1.4 SAFEGUARD THE SITE, THE WORKS AND MATERIALS

Take all precautions to prevent unauthorised access, including access outside working hours, to the site, the works and adjoining property. Safeguard the site, the works, materials and plant from damage and theft. Co-ordinate with MPA security.

1.5 SITE FENCING

Provide and maintain a site fence, 2 metres high from ground level on the side accessible to the public. Construct to comply with NZBC F5/AS1 Construction and demolition hazards. Construct as required for public areas and as shown on the drawings. Construct the fence with:
- galvanized chain link netting with a 50mm x 50mm maximum grid size
- posts at 2.5 metre centres maximum
- gap at the bottom of the fence no greater than 100mm

1.7 SITE FENCING - NON PUBLIC AREAS

Provide and maintain a 1 metre high site fence to non public areas. Construct using:
- warratah stakes at 1.5 metre centres fitted with safety caps
- plastic safety mesh

1.8 PROVIDE SEDIMENT AND SILT RUN OFF PROTECTION

Provide appropriate measures to prevent or minimise sediment generation and silt run off. Comply with territorial and other authority requirements relating to carrying out earthworks. Prevent silt run off by:
- exposing only as much ground as required at any time
- providing run off channels, contour drains or earth bunds to divert clean water away from the site on to stable sealed or grassed ground
- capture silt by the use of silt fences, vegetation buffer strips, sediment ponds or earth bunds.

Provide sediment control by:
- earth bunds constructed across the slope to control and detain run off
- silt fences constructed using filter fabric stretched between posts at a maximum of 1 metre spacing.

Pump water from trenches and other areas of the site using methods to prevent sediment entering any drain or watercourse. Filter dirty water before discharging into drainage.
system.

1.9 PROVIDE CONCRETE WASHWATER RUN OFF PROTECTION

Provide appropriate measures to prevent cement/concrete washwater or slurry run off to; drains or waterways, landscaped areas new or remaining and adjoining public or private properties. Comply with territorial and other authority requirements relating to cement/concrete washwater.

Control run off from:
- Cement/concrete based material production, placing and finishing.
- Hosing down and cleaning of, tools and equipment, fresh material, and spilt or surplus material, pumps and mixers etc.
- Wet cutting or grinding.
- Slab watering etc.
- Water cleaning of new concrete elements, fresh used formwork etc.

Large project and those without suitable ground area - prevent run off by:
- plan and implement washwater control measures based on the expected volumes, allow for the timely removal and safe disposal of liquids and solids.
- control the volumes of water used for washing down, the more water used the bigger the problem.
- Control the flow of washwater so that it is directed to proper catchments.
- providing watertight bunds, pits or tanks, filtered washwater is not to be discharged to drains.

Spilt or surplus material:
- if possible allow to set and either use or dispose of as hardfill.
- pre-made concrete items, either use or dispose of as hardfill.

Pump washwater away from drains, waterways and adjoining property.

Temporary services

1.10 WATER

Provide clean, fresh water for the works and make arrangements for distributing about the site.

1.11 ELECTRICITY

To AS/NZS 3012.
Nominate the person to install and be responsible for the complete temporary electrical installation. The name and designation of the person responsible is to be displayed prominently and close to the main switch or circuit breaker.

Inspect and overhaul the installation at such intervals as are prescribed by the network utility operator but not exceeding three monthly intervals.

1.12 TELEPHONE

Provide on site temporary telephone facilities.

1.13 COMPUTER

Provide on-site temporary computer facilities complete with an email and internet connection capable of sending, receiving and printing site communications.

Scaffolding and shoring

1.14 GENERAL SCAFFOLDING

Provide as necessary general scaffolding for the efficient execution of the works. Placement, erection and structure to be by certified suppliers/erectors and approved by the Labour Department OSH inspectors before being used. Comply with the SARNZ publication: "Best practice guidelines for scaffolding in New Zealand."

Care and protection
1.15 PROTECT EXISTING SERVICES
Protect existing services and parts of service systems that are to remain in place during the execution of the works. Provide temporary caps or covers to prevent the ingress of dust and other contaminants into the systems, ducts, pipes etc.

1.16 MAKE GOOD EXISTING SERVICES
Make good all damage to existing roads, footpaths, grounds, sewers or other services, caused in carrying out the contract works.

1.17 CONSTRUCTION KEYING AND SECURITY
Provide locksets with temporary keying, or install with the cylinders removed.

1.18 TEMPORARY STORAGE
Provide temporary storage areas and protective covers and screens to approval of architect. Refer to Schedule of Items for Removal and Storage, or Protection for details of storage and stacking requirements. Fillet stack and protect all framing and structural members from moisture and contamination. Completely protect finishing materials from the weather and damage and store in accordance with the manufacturer's requirements. Protect fabricated elements from the weather and damage, and store in accordance with suppliers' requirements.

1.19 SPECIAL PROTECTION
Refer to Schedule of Items for Removal and Storage, or Protection for details of storage and stacking requirements.

1.20 PERIODIC SITE CLEANING
Carry out periodic site cleaning during the contract period. Place waste material in appropriate storage pending removal from the site.

1.21 PERIODIC RUBBISH REMOVAL
Maintain on site appropriate means for the storage and removal of construction waste material. Where required or appropriate provide for the separate storage of recyclable waste and other materials requiring special disposal. Keep food waste separate from construction waste.
1256 WASTE MANAGEMENT – Rev A

1. GENERAL

This general section relates to the implementation of a site waste management plan.

1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:
REBRI Resource Guides
Website: www.rebri.org.nz/

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

1.2 ABBREVIATIONS

The following abbreviations are used in this specification:
REBRI Resource Efficiency in the Building and Related Industries

Requirements

1.3 WASTE MANAGEMENT PLAN

Prepare and submit a waste management plan in line with the guidelines provided in the REBRI Guides. www.rebri.org.nz/

The submitted plan to include the following factors:
- site planning and material storage
- waste management
- purchasing
- recycling
- salvage.

1.4 RECORD KEEPING

Maintain a record of waste materials, recycled, reused and disposed of by the project using the REBRI Waste Management Plan and REBRI C&D Waste Transfer Form or a form generated by the contractor containing the same information.

- For each material recycled from the project, include the amount (in cubic metres or tonnes), or in the case of reuse, state quantities by number, type and size of items, and the destination (i.e. recycling facility, used building materials yard).
- For each material land filled, include the amount (in cubic metres or tonnes) of material and the identity of the landfill, clean fill and/or transfer station.

If requested, submit to the Contract Administrator the REBRI Waste Management Plan, REBRI C&D Waste Transfer Forms or bills, invoices and other documentation confirming that all materials have been received at the required locations.

1.5 ENSURE

Ensure all site management and staff, subcontractors, material and product suppliers and waste disposal companies are made aware that this is a REBRI project and provide access to or copies of the waste management plan.

Equipment

1.6 CONTAINERS

Provide appropriately sized and sited containers for the storage of reusable, recyclable and waste products. Clearly label each container.

Conditions

1.7 STORAGE

Store all materials so they are not damaged prior to use.

1.8 PLANNING

Plan the measurement and ordering of materials and components to minimise waste.
Application

1.9 DEMOLITION
- Sort concrete and concrete block waste for recycling as aggregate, sub-base material or fill.
- Sort brick waste for reuse as whole bricks, or re-use as crushed brick for landscape cover, sub-base material or fill.
- Sort asphalt material by type for milling and recycling.

1.10 DISMANTLING/REUSE
- Dismantle, store and protect items, elements and components for reuse on site.
- Dismantle, store and protect items, elements and components for recycling off site.
- Dismantle store and protect items, elements and components for return to the owner.

1.11 SITE CLEARING
- Sort asphalt material by type for milling and recycling.
- Grind, chip or shred vegetation for mulching and composting on site.
- Grind, chip or shred vegetation for off site mulching and composting.
- Separate and recycle steel reinforcing and other metals.
- Provide suitable on-site locations for the disposal of excavated rock, soil and vegetation.

1.12 CONCRETE
- Plan for maximum re-use of concrete formwork.
- Separate and recycle concrete.
- Provide a suitable on-site location for the disposal of excess concrete.

1.13 WOOD
- Separate and recycle wood offcuts and waste.
- Separate timber for reuse
- Provide a suitable storage area for sizeable off-cuts for use as spacers or blocking.
- Separate CCA treated timber from untreated timber.
- Chip untreated timber for mulching and composting on site.
- Chip untreated timber for off site mulching and composting.

1.14 PLUMBING
- Select plumbing materials with a high recycled content.
- Ensure that reusable packaging materials are returned to the vendors.
- Retain PVC off-cuts for use as stubs.
- Separate and recycle plastics.

1.15 ELECTRICAL
- Select electrical materials with a high recycled content.
- Ensure that reusable packaging materials are returned to the vendors.
- Separate and recycle metals and wire.
- Separate and recycle plastics.

1.16 MECHANICAL
- Select mechanical materials with a high recycled content.
- Ensure that reusable packaging materials are returned to the vendors.
- Separate and recycle metals and wire.
- Separate and recycle plastics.

Completion

1.17 CLEANING
All cleaning materials used on the project to be biodegradable and non-toxic.
1. GENERAL

This general section relates to project management requirements including:
- Meetings
- Cost control
- Communicating and recording
- Programming
- Health and safety

Site Meetings

1.1 SITE MEETINGS
Meetings to normally be held: Fortnightly

The following persons to attend:
- Principal
- Contract administrator
- Project manager
- Contractor
- Architect
- Designer
- Engineer
- Services consultants when needed
- Subcontractors when needed (contractor to inform them).

Meeting place: TBC
Time: TBC
Day: TBC

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

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

Reporting

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

1.9 QUANTITY SURVEYORS DETAILED STATUS REPORT
Where required a quantity surveyors detailed status report is to address the following:
- A report on actual cash flow compared with planned cash flow
- Variation costing and the adjusted contract price
- Monetary allowance review of sums not yet directed for expenditure by the contractor
- An assessment of the cost of known and potential variations
- An updated project budget including known and projected costs plus an allowance for contingent and unknown costs.

1.10 CONSULTANTS DETAILED STATUS REPORT
Where required a consultants detailed status report is to address the following:
- A report on construction quality compared to specification and other performance requirements.
- Identification of items or parts of the work where there are or may be quality compliance issues with respect to the issued Building Consent
- Identification of items or parts of the work where there are or may be quality compliance issues with respect to the ability of the consultant to issue any required producer statement.

Communicating and recording

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

1.12 DELIVERY OF COMMUNICATIONS
Communications must be:
- delivered to the addressee by hand; or
- posted to the postal address stated in the Project Directory; or
- delivered to the street address as stated in the Project Directory; or
- sent by email to the email address stated in the Project Directory; or

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

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

1.14 PROGRESS PHOTOGRAPHS
Take digital photographs from positions agreed with the contract administrator at specified frequency and provide copies to the contract administrator. Refer to Location/Heritage Management Plan for details of recording required.

Health and safety

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

Identify any significant hazards.

Maintain proper procedures for dealing with any emergencies that may arise. Immediately investigate accidents, identify their cause and maintain a register of accidents and serious harm. Provide a copy of any report which the contractor is required to make to a public authority on any accident which is associated with carrying out the contract works and results in serious harm to any person.

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

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

1.17 SITE SAFETY PERSON
Appoint a suitably qualified site safety person to co-ordinate site safety and to attend all site meetings.

1.18 HEALTH AND SAFETY PLAN
Prepare and submit to the contract administrator before commencing work on site a health and safety plan. Include in that plan all people on site and the general public, as well as the following items and any other necessary item:
- identification of existing and potential construction hazards and risks
- safety procedures to eliminate, isolate or minimise construction hazards
- the equipment to be used to minimise the hazards
- the maintenance of a register of hazards for the site
- the name and qualifications of the site safety person
- emergency procedures
- first aid facilities and safety equipment
- the methodology for notifying, recording and investigating accidents and injuries.

Keep a copy of the plan in the site office

1.19 COMPLY WITH SITE SAFETY PLAN
Carry out all construction operations in accordance with the submitted health and safety plan.

1.20 INFORM EMPLOYEES OF HAZARDS
Inform employees and others on the site of:
- hazards they may be exposed to while working
- hazards they may create while working which could harm others
- how these hazards may be minimised
- emergency procedures
- the location of first aid facilities and safety equipment.

1.21 HEALTH AND SAFETY REGULATIONS, CODES AND GUIDES
Comply with:
- Relevant New Zealand safety legislation including "Health and Safety in Employment Regulations 1995".
- OSH publications including "Guidelines for the provision of facilities for general safety in the construction industry".
- Relevant codes of practice, guides, guidelines and standards.

Until further regulations are made under the Health and Safety in Employment Act 1992 to cover them, the enactments repealed by the Act continue in force until revoked.
1.22 EXPLOSIVES
Do not use explosives except with the written approval of the territorial authority/office of
OSH. Comply with their safety requirements and use construction blasters holding a
current certificate of competence issued under the Health and Safety in Employment
Regulations 1995.

1.23 POWDER-ACTUATED FASTENING TOOLS
Powder-actuated fastening tools to be used only by workers holding current certificates of
competence in their name, issued under the requirements of the Health and Safety in

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

1.25 RESTRICTIONS
Do not:
- light rubbish fires on the site
- bring dogs on to or near the site
- bring radios/audio players on to the site.
1. GENERAL
This GENERAL section relates to common requirements for construction issues including:
- Quality assurance
- Noise and nuisance
- Set out
- Common execution requirements
- Common materials requirements
- Supply of spare materials
- Common requirements for samples and tests
- Final presentation and cleaning
- Commissioning

Quality control and assurance

1.1 QUALITY ASSURANCE
Carry out and record regular checks of material quality and accuracy, including:
- Concrete quality and finish.
- Dimensional accuracy of structural column locations (following completion of foundations).
- All perimeter columns and frames for plumb.
- Levels of all floors relative to the site datum.
- Framing timber moisture content.

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

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

Noise and nuisance

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

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

Set-out and tolerances

1.4 USE OF SET-OUT INSTRUMENTS
Permit without charge, the use of instruments already on site for checking, setting out and levels.

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

1.6 TOLERANCES
All work to be level, plumb, and true to line and face. Unless otherwise specified in specific work sections of this specification, tolerances for structural work shall comply with the following:
Concrete construction: To NZS 3109 Concrete construction
Clause 3.9 Tolerances for reinforcement
Table 5.1 Tolerance for precast components
Table 5.2 Tolerance for in situ construction
To NZS 3114 Concrete surface finishes

Masonry construction: To NZS 4210 Masonry construction: Materials and workmanship
Clause 2.6.5 Tolerances
Table 2.2 Maximum tolerances

Structural steelwork: To NZS 3404:1997 Steel structures standard
Section 14.4 Tolerances (after fabrication)
Section 15.3 Tolerances (erection)

Timber framing: To NZS 3604 Timber-framed buildings
Clause 2.2 Tolerances
Table 2.1 Timber framing tolerances

Refer to Structural Engineers Specification for specific design tolerance requirements
Refer to work sections for tolerance requirements for finishes.

Execution

1.7 EXAMINE PREVIOUS WORK
Before commencing any part of the work carefully examine the previous work on which it may depend. Report in writing to the contract administrator defects that may affect the quality of the proposed work and obtain instructions. Commencing work on any part means that previous work is accepted as being satisfactory for work of the required standard.

1.8 WORKER QUALIFICATIONS
All work to be level, plumb, and true to line and face. Employ only experienced workers familiar with the materials and techniques specified.

Materials

1.9 NEW PRODUCTS AND MATERIALS
Materials and products to be new unless stated otherwise, of the specified, and complying with all cited documents.

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

1.11 STORING PRODUCTS AND MATERIALS
Take delivery of and store products, materials and components in accordance with codes of practice and the product manufacturer's or supplier's stated requirements. Maintain the proper condition of any protective packaging, wrappings or supports during delivery, unloading and storage.

1.12 HANDLING PRODUCTS AND MATERIALS
Handle products, materials and components in accordance with codes of practice and the manufacturer's or supplier's stated guidelines. Avoid distortion and any contact with potentially damaging surfaces or conditions.

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

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

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

1.16 CONDITION OF MATERIALS AND COMPONENTS
To be in perfect condition when incorporated into the work.

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

Samples and tests

1.18 SAMPLES AND PROTOTYPES
Where specified in the work sections, submit samples, prepare sample panels, and construct prototypes for review as to appearance, form and conformance with the drawings and specifications. Submit all information required to assist the review process, including technical data, manufacturer's literature, independent appraisals and producer statements.

Timing for the provision and review of samples, sample panels and prototypes to be included in the contract programme. Allow a minimum of 10 working days for each review. Proceed only after instructions to proceed have been issued in writing by the contract administrator.

In situ work may be incorporated in the finished work if so confirmed, otherwise allow to remove completely and replace.

1.19 CONTROL STANDARD
Obtain the contract administrator's confirmation of material, component and work samples which then become the quality control standard. Remove from the site any rejected samples. Retain confirmed samples with care on site for comparison throughout the contract. Remove from the site when no longer required.

Spares

1.20 SPARES
Collect, protect and store safely all spare materials required under the contract. Give the contract administrator an inventory of all spares.

Final presentation and cleaning

1.21 REMOVE TEMPORARY PROTECTION
Remove all temporary markings, coverings, labels and protective wrappings unless instructed otherwise.

1.22 REPLACE DAMAGED MATERIALS
Replace all materials or component damaged during the works to the standard of and integral with the original.

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

1.24 CLEANING BY CONTRACTOR
Clear the contract works of all construction materials, waste, dirt and debris. Clean the contract works including:
- Wipe all surfaces to remove construction dust
- Clean out service ducts and accessible concealed spaces
- Clean out all gutters and rainwater heads
- Wipe dust from both sides of glass. Take particular care when removing paint or cementitious materials to not damage the glass.
- Remove adhesive residue left by labels and other temporary protection/markings
- Wash down external concrete including driveways and concrete masonry. Take care when waterblasting to not cause damage to the surface or allow water to enter the building.
- Remove rubbish and building material from the area immediately adjacent to the contract works

**Commissioning**

1.25 SECURITY AT COMPLETION
Remove any temporary lock cylinders and complete final keying prior to handing over keys to the principal on completion of the works. Leave the works secure with all accesses locked. Account for all keys/cards/codes and hand to the principal along with an itemised schedule, retaining a duplicate schedule signed by the principal as a receipt.
1. GENERAL
This section relates to the requirement for the contractor to follow building conservation principles in the approach to, care of and physical work to the building.

Refer also to:
- 1902.25 Relocation/Heritage Management Plan
- 1902.23 Schedule of Work to Original Fabric
- 1902.23 Indicative Scope of Work: Initial and Demolition
- 1902.23 Indicative Scope of Work: Refurbishment
- 1902.23 Site Specific Induction Sheet

All above documents are issued separately – refer to document register.

1.1 HERITAGE STATEMENT
The building is registered category 1 with the New Zealand Historic Places Trust register number 3599.

Category I status is given to places of ‘special or outstanding historical or cultural heritage significance or value’; Category II status to places of ‘historical or cultural heritage significance or value’.

Places may be significant because they possess aesthetic, archaeological, architectural, cultural, historical, scientific, social, spiritual, technological or traditional significance or value.

It is listed in the Wellington City District Plan.

Overall, the Home of Compassion Creche is of considerable value and significance to the community, Wellington, and New Zealand. The potential beatification would make it unique in New Zealand and potentially a place of pilgrimage for Catholics.

1.2 SIGNIFICANCE OF FABRIC
All original, or suspected original, fabric is valuable and increases the authenticity of the building. Later fabric can also have significance for a particular period or use, and assist in telling the story of the building.

Retain all fabric in situ unless expressly shown to be removed or demolished.

1.3 STANDARDS
The reference standard to be used for all conservation work is the ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value Revised 2010.

1.4 DEFINITIONS OF HERITAGE TERMS
The definitions of conservation given in the ICOMOS NZ Charter apply to this project. They include, but are not limited to:

- **Adaptation** means the process(es) of modifying a place for a compatible use while retaining its cultural heritage value. Adaptation processes include alteration and addition.

- **Authenticity** means the credibility or truthfulness of the surviving evidence and knowledge of the cultural heritage value of a place. Relevant evidence includes form and design, substance and fabric, technology and craftsmanship, location and surroundings, context and setting, use and function, traditions, spiritual essence, and sense of place, and includes tangible and intangible values. Assessment of authenticity is based on identification and analysis of relevant evidence and knowledge, and respect for its cultural context.

- **Conservation** means all the processes of understanding and caring for a place so as to safeguard its cultural heritage value. Conservation is based on respect for the existing fabric, associations, meanings, and use of the place. It requires a cautious approach of doing as much work as necessary but as little as possible, and retaining authenticity and integrity, to ensure that the place and its values are passed on to future generations.

- **Conservation plan** means an objective report which documents the history, fabric, and cultural heritage value of a place, assesses its cultural heritage significance, describes the condition of the place, outlines conservation policies for managing the place, and makes recommendations for the conservation of the place.

- **Contents** means moveable objects, collections, chattels, documents, works of art,
and ephemera that are not fixed or fitted to a place, and which have been assessed as being integral to its cultural heritage value.

- **Cultural heritage significance** means the cultural heritage value of a place relative to other similar or comparable places, recognising the particular cultural context of the place.
- **Cultural heritage value/s** means possessing aesthetic, archaeological, architectural, commemorative, functional, historical, landscape, monumental, scientific, social, spiritual, symbolic, technological, traditional, or other tangible or intangible values, associated with human activity.
- **Fabric** means all the physical material of a place, including subsurface material, structures, and interior and exterior surfaces including the patina of age; and including fixtures and fittings, and gardens and plantings.
- **Intervention** means any activity that causes disturbance of or alteration to a place or its fabric. Intervention includes archaeological excavation, invasive investigation of built structures, and any intervention for conservation purposes.
- **Maintenance** means regular and on-going protective care of a place to prevent deterioration and to retain its cultural heritage value.
- **Non-intervention** means to choose not to undertake any activity that causes disturbance of or alteration to a place or its fabric.
- **Preservation** means to maintain a place with as little change as possible.
- **Reassembly** means to put existing but disarticulated parts of a structure back together.
- **Reconstruction** means to build again as closely as possible to a documented earlier form, using new materials.
- **Recording** means the process of capturing information and creating an archival record of the fabric and setting of a place, including its configuration, condition, use, and change over time.
- **Reinstatement** means to put material components of a place, including the products of reassembly, back in position.
- **Repair** means to make good decayed or damaged fabric using identical, closely similar, or otherwise appropriate material.
- **Restoration** means to return a place to a known earlier form, by reassembly and reinstatement, and/or by removal of elements that detract from its cultural heritage value.

### 1.5 ARCHAEOLOGY

This area is subject to a Archaeological Management Plan which contains requirements for reporting finds, and stand down periods.

### 1.6 SITE SPECIFIC INDUCTION

A site specific induction page has been provided to introduce workers to the history, significance, and special requirements of working on this building.

### 1.7 EXPERIENCE

The structure is of considerable heritage value, and warrants a high level of conservation skill in all associated supervising personnel.

### 1.8 CONSERVATION PRINCIPLES

General principles of conservation shall be followed. These include:

- Minimum intervention
- Ensuring reversibility of repair and new work wherever possible.
- Maintaining as much of the original fabric as possible.
- Work to be undertaken by people/firms with appropriate conservation experience and understanding.
- Using new materials and techniques as close as possible to original
- Work to consider and facilitate future maintenance.

### 1.9 REPAIR VERSUS REPLACEMENT

Conservation practice prefers repairs of deteriorated elements rather than replacement. All practical methods of repair must be considered and evaluated before replacement is considered.

### 1.10 PROTECT
Protect all areas/features as nominated by the architect throughout the building project. Contractor shall inspect protection at minimum monthly intervals to ensure function is fulfilled. The preference is for items to remain in situ, however, where necessary, and only by agreement with the project architect, shall material be removed and stored for reinstatement.

1.11 CONCEALED ITEMS
The contractor is to be aware of the potential for hidden items to become visible during the work. These may be discrete items, interesting construction detailing, historic construction marks etc. In the event that such features, materials or similar are uncovered or discovered during the execution of the work, inform the architect and do not disturb any further until assessed. The owner reserves the right to document, or have documented by a professional the location, surrounding conditions etc, and to retain possession and ownership of concealed.

1.12 IDENTIFICATION OF NEW WORK
Significant areas of new work should have a date stamp showing the year and month of the repair. Letters shall be approximately 10 millimetres high and located discretely, per Architect’s approval.

Health and Safety

1.13 HAZARDOUS BUILDING MATERIALS
Refer also to standard H&S sections and requirements. Heritage buildings can contain dangerous building materials such as asbestos, and lead paint. Ensure these are tested for, and a plan developed for their removal or isolation.

1.14 OTHER HAZARDS
The building shall be checked (including subfloor, and roof) for other hazards such as:
- broken glass
- rot or mould
- building fabric compromised by rot, decay or missing fixings
- remains of animals, or animal faeces
- stagnant water

Hazards shall be eliminated, isolated or minimised in decreasing order of preference. Ensure all people working on site are aware of danger areas/items.
1282 PROTECTION / REMOVAL OF HERITAGE FABRIC – REV A

1 GENERAL
This section details the requirements to protect heritage fabric, especially that defined in the Conservation Plan, and on the architectural drawings. Protection can include combinations of the following:
- physical protection of in-situ items or isolation of areas with controlled access
- removal of items for storage and reinstatement, and labelling for reinstatement.

1.1 EXECUTION
Protection shall be designed and constructed to protect heritage fabric, and Refer to ‘1902.23 Schedule of Work to Original Fabric’ for specific details of the work to be carried out.

Physical Protection

2.1 COMPATIBILITY OF PROTECTION
Ensure that materials, equipment and techniques are designed so that they minimise potential damage to historic fabric, for example, hard surfaces damaging softer items; chemical reactions; reversibility of protection etc.

2.2 PRODUCTS
Refer to drawings for details of specific protection types and details.

2.3 NO FIXINGS/SUPPORT
There shall be no fixings for any reason into heritage fabric; for example, nailing into timber handrails, wall panelling, door frames or drilling into floor tiles etc. Where supporting weight on floors with original finishes (timber, tiles etc), ensure that the floor is protected with a soft layer, then rigid protection sufficient to spread the load and avoid damage.

2.4 CARE OF MATERIALS REMAINING ON SITE
All materials, which are to remain undisturbed during the works, shall be protected at all times to the satisfaction of the Project Architect.

Isolation

2.5 RESTRICTED ACCESS
Restricting access to certain special areas is a valid method of protecting items that remain in situ. In this scenario the area is locked and segregated from the main area with access controlled and monitored by the main contractor. Access is limited to relevant skilled workers/tradespeople.

2.6 SPECIAL AREAS CRECHE
The front entry of the Creche has an original tiled floor. Access to this area is restricted while the floor is in situ.

Removal and Storage

3.1 REUSE
The reuse of original material is preferable to the introduction of new material. Original material that is removed or demolished, but otherwise viable and potentially required, shall be stored for use elsewhere in the project as detailed in the ‘1902.23 Schedule of Work to Existing Fabric’.

3.2 DISMANTLING
Exercise extreme care in removing historic elements and material of any kind attached to historic elements that are indicated to remain. Refer to ‘Schedule of Work to Original Fabric’ for details of extent, techniques and storage for individual items.
In general:
- Remove items in ways that minimise damage to the fabric.
- Remove all nails, screws or fixings that are dangerous for handling, could damage adjacent material or will be replaced when reinstated.
- Hinges, latches, handles to remain on door leaves unless noted otherwise.
- Store flat, filleted, supported in dry secure area of similar climatic conditions to original location.
- Use the ‘Schedule of Stored Items’ to record items in storage, and control removal.
- Monitor items periodically for new damage, rot etc.
- Remove balustrade rails and balusters sections as single components and treat as single item.
- Tiles to be removed by careful cutting of under tile grout by a horizontal blade. Specialist mason required as there are no spares in case of breakage.

3.3 STORAGE OF MATERIALS BEING REMOVED
Materials to be removed shall be stored, protected, and an inventory of all materials stored shall be given to the Project Architect. The area shall be locked and protected from unauthorised removal.

3.4 STORAGE AREA
A storage area shall be provided to contain all fabric removed from the building. This shall be similar in condition to the original, dry and secure, with access controlled by the Owner or delegated representative.

Labelling

3.5 PRINCIPLES
Items nominated on the ‘Schedule of Work to Original Fabric’ shall have sufficient information recorded, and marked on it, to allow replacement in the exact location from which it was removed.

3.6 TIMING
Labelling shall occur concurrently with the removal process. This is particularly important as items will go through a decontamination process before being stored.

3.7 LABEL (FLOORING, SKIRTING, DADO RAIL, PICTURE RAIL, CEILING, CORNICE
These items have a reverse face that is concealed. Write with felt pen on the reverse of the item. This method is chosen rather than a stick on label because of the need for decontamination, the unknown period before reinstatement, and the likely hood that it will be another party doing the reinstatement. It is felt that a stick on label, although potentially not marking the fabric, also comes with unacceptable risks of becoming unattached, indecipherable, or ultimately proving to be unremoveable.

3.8 LABEL (DOOR LEAVES, VERANDAH ITEMS)
These items have a minimal concealed face. Write on concealed face, but also use a sturdy tie on label.

Label Information

3.8 SKIRTINGS, DADOS AND PICTURE RAILS
Label with room number per plans; type S (skirting), D (dado), P (picture); and then with sequential number by piece starting from main entry to space and working clockwise. This allows separate curved corner blocks to be easily described. Mark numbers on plan in approximate locations.

3.9 DOOR TRIMS
Label with door number, the number of the room they are actually in, and the location on the wall (ie LHS, TOP, RHS).

3.10 CEILINGS
Label with room number and sequential number. Mark up on ceiling plan.
3.11 CORNICES
Label with room number, and sequential number. Mark up on ceiling plan.

3.12 FLOORING
Label with room number and sequential number across boards, and use a, b, c etc to indicate boards on same line working from north to south. Mark up start point on plan.

3.13 DOOR LEAVES
Label with door number.

3.14 FLOOR TILES
Divide floor into numbered squares and mark on plan. Tiles to be placed on boards labelled with square number and orientation to adjacent squares.

3.15 VERANDAH ITEMS
Label posts sequentially, and mark up on plan.
Label balustrade sections sequentially and mark up on plan.

Re Installation

3.16 ACCEPTABLE INSTALLERS
Tradespeople to reinstate material shall be fully informed, provide proof of appropriate training and experience to the Heritage Architect’s approval.
Refer to trade sections for details of reinstallation.
2112  PARTIAL DEMOLITION – Rev A

1. GENERAL

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

1.1 RELATED WORK

Refer to 1256 WASTE MANAGEMENT for recycling or controlled waste disposal.
Refer to 2133 TEMPORARY SUPPORT TO EXISTING STRUCTURES for lifting and temporary support of existing structures
Refer to 2123 ASBESTOS REMOVAL for asbestos removal

Documents

1.2 DOCUMENTS REFERRED TO

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

- NZBC F5/AS1 Construction and demolition hazards
- NZDAA Best practice guidelines for demolition in New Zealand
- Health and Safety in Employment Act 1992
- Health and Safety in Employment Regulations 1995

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

Requirements

1.3 QUALIFICATIONS

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

1.4 HEALTH AND SAFETY

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

1.5 SURVEY OF EXISTING ITEMS

1.6 Contractor is to undertake a detailed measured survey of the existing chimney exterior details, capping and pots prior to demolition, so that a true replication can be achieved in new lightweight construction.

1.7 DEMOLITION WORKING TIMES

Times during which demolition may be carried out is not restricted. MPA to confirm.

Comply with territorial authority consent conditions and noise and nuisance controls.

1.8 DEMOLITION TIME RESTRICTIONS

Times during which demolition work may be carried out is restricted. MPA to confirm

1.9 DEMOLITION WASTE REMOVAL RESTRICTIONS

The removal of demolition waste material is restricted. MPA to confirm

2. PRODUCTS

Materials
2.1 ELEMENTS FOR SALVAGE/REUSE
Refer to ‘Schedule of Items for Removal and Storage, or Protection’.

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

2.3 MATERIAL AND ELEMENTS FOR DISPOSAL
Remove demolished material and elements continually from the site through the period of the demolition.

3. EXECUTION

Conditions

3.1 EXISTING SERVICES
Disconnect and seal off services before work commences. Protect services adjacent to the area being demolished.

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

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

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

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

3.6 SAFETY DURING DEMOLITION
Refer to NZBC F5/AS1 and NZDAA Best practice guidelines for demolition in New Zealand. Carry out the requirements laid down in Section 5 Demolition safety in respect of:
- instability
- supervision
- plant, tools and equipment
- personal protective equipment
- protection of the public
- unauthorised access to site.

3.7 DEMOLITION PROCEDURES
Refer to the NZDAA Best practice guidelines for demolition in New Zealand. Carry out the requirements laid down in section 6 Methods of demolition including:
- scaffolding
- health
- disposal of debris and waste material
- fire protection.

Application

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

Completion
3.9 MAKE GOOD
Make good damage to adjoining buildings or property caused by demolition work.

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

3.11 LEAVE
Leave work to the standard required by following procedures.

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

4. SELECTIONS
Refer to ‘Schedule of Items for Removal and Storage, or Protection’.
2123 ASBESTOS REMOVAL – Rev A

1. GENERAL

This section relates to the removal of asbestos prior to other demolition work, to the extent necessary to carry out the contract works.

1.1 RELATED WORK

Refer to 2112 PARTIAL DEMOLITION for items to be salvaged.
Refer to 1256 WASTE MANAGEMENT for recycling or controlled waste disposal.

1.2 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:
NZDAA New Zealand Demolition and Asbestos Association

Documents

1.3 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
NZS 6803 Acoustics - Construction noise
NZDAA New Zealand guidelines for the management and removal of asbestos
Health and Safety in Employment Act 1992
Health and Safety in Employment Regulations 1995

Requirements

1.4 QUALIFICATIONS

Carry out asbestos removal only under the supervision of a suitably experienced person, using only workers trained for this work.

1.5 NOTIFIABLE WORK

Notify the appropriate OSH office of work that is notifiable under the Health and Safety in Employment Regulations 1995, 24 hours before starting the work.

1.6 HEALTH AND SAFETY

Comply with the Health and Safety in Employment Act in general, NZBC F5/AS1 and NZDAA New Zealand guidelines for the management and removal of asbestos.

2. PRODUCTS

2.1 EQUIPMENT

Protective clothing, respirators, vacuum cleaners, decontamination facilities, isolation facilities, etc as appropriate and as required by the NZDAA. Equipment shall be cleaned or disposed of as directed by the NZDAA New Zealand guidelines for the management and removal of asbestos.

2.2 ELEMENTS FOR RE-USE

Building elements that need to be temporarily removed to allow the removal of asbestos, dismantle carefully, remove, clean and store on site where directed. Protect from damage and weather until required.

Refer to ‘Schedule of Items for Removal and Storage, or Protection’.

3. EXECUTION

Conditions

3.1 SAFETY DURING ASBESTOS REMOVAL

Refer to NZBC F5/AS1 and the NZDAA New Zealand guidelines for the management and removal of asbestos and carry out the requirements laid down in section 7: Safe Removal of Friable Asbestos in respect of:
- instability
- supervision
- plant, tools and equipment
- personal protective equipment
- protection of the public
- unauthorised access to site.

Application

3.2 GENERAL
Provide protection to timber flooring.
Avoid damage to timber window frames and door frames.

3.3 CARRY OUT ASBESTOS REMOVAL
Carry out asbestos removal to the requirements of the NZDAA New Zealand guidelines
for the management and removal of asbestos.

3.4 REMOVE PLASTER FROM BRICK WALLS
Remove plaster while minimising damage to brick substrate.

3.5 REMOVE PLASTER FROM TIMBER FRAMED WALLS
The lath will be contaminated and must be removed along with the plaster.

Completion

3.6 LEAVE
Leave work to the standard required by following procedures.

3.7 DISPOSAL OF ASBESTOS
Store, label and dispose of asbestos to the requirements of NZDAA New Zealand
guidelines for the management and removal of asbestos, Section 11: Storage, labelling
and Disposal of Asbestos.

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

4. SELECTIONS

4.1 DECORATIVE COATINGS CONTAINING ASBESTOS FOR REMOVAL
Location: All internal plaster, including laths.
Type: Solid plaster on brick, or on timber lath with non-rigid backing
3124      FINISHES TO WET CONCRETE – Rev A

1.      GENERAL

This section relates to the standard of concrete finishes to the front porch slab and steps, and the verandah slab and steps.

1.1      RELATED WORK

Refer to landscaping for all landscaping finishes.
Refer to structural drawings for all structural concrete.

Documents

1.2      DOCUMENTS

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

- NZBC D1/AS1 Access routes
- NZBC D1/VM1 Access routes
- NZS 3114 Specification for concrete surface finishes
- NZS 3121 Specification for water and aggregate for concrete
- AS/NZS 3661.1 Slip resistance of pedestrian surfaces - Requirements

Requirements

1.3      QUALIFICATIONS

Workers to be experienced, competent and familiar with the materials and techniques specified.

1.4      PROVIDE SAMPLE PANEL

Provide a sample panel of the following specified finishes before commencing work. Panels to be of similar thickness to the proposed construction. Refer to SELECTIONS for type of sample panel required.

1.5      CAST SAMPLE PANELS

Cast sample panels to the requirements of NZS 3114: clause 104.4, Sample reference panels in respect of casting, formwork, mix, compaction, curing, striking and including rebates. Supply also the information required by that same clause.

1.6      COLOUR VARIATION

Keep inherent shade variations within the range of the grey scale in NZS 3114. Obtain written instructions regarding the colour established in the sample reference panel for matching.

1.7      TECHNIQUE DISCUSSION

Before casting the sample panel arrange a meeting to confirm the method of preparing the sample. After agreement that the sample panel is truly representative of the finish specified and can be produced on site, it then becomes the standard for that finish.

2.      PRODUCTS

2.1      PAINT

Proprietary paint system. Refer to 6711 Resene External Painting.

3.      EXECUTION

Conditions

3.1      RESPONSIBILITY

Take responsibility for determining the method of producing the specified finished surface.
3.2 PROTECTION
Protect and maintain the specified finish where necessary during any handling, erection or subsequent construction operation to ensure a clean undamaged surface at completion of the contract works.

3.3 GENERAL
Except where noted otherwise on the drawings or in the specification, tolerances in regard to colour and surface to the requirements of NZS 3114 for each finish specified.

3.4 SURFACE TOLERANCES
Variations from a plane surface are defined as follows:
Abrupt: Steps or irregularities caused by displacement of form joints and measured between peak and hollow over a 200mm straight edge.
Gradual: Undulations over the surface and measured between rise and hollow over a 1500mm straight edge.

3.5 RISKS OF CRACKS FORMING
Ensure substrate is free of cracks. Follow correct procedures for curing to minimise cracks forming that may mar the finish quality.

Finishing

3.6 GENERAL
Achieve the standard of the specified finish required, direct from the formwork with a minimum of attention to the stripped surface.

3.7 FILL TIE HOLES
Fill tie holes to finishes F1, F2 and F3 with mortar 1:1½ to 2, cement: sand. Colour match the parent concrete in finish F3.

3.8 MINOR SURFACE DEFECTS
Repair minor surface defects to match the shade and texture of the surrounding concrete.

4. SELECTIONS
Refer to ‘Schedule of Selections’ in drawing set.
3821 TIMBER FRAMING - Rev A

1. GENERAL

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

1.1 RELATED WORK
Refer to 4161 UNDERLAYS, FOIL AND DPC for underlays, foils and DPC.

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:
SG Structural grade to NZS 3604, 1.3 Definitions

Documents

1.3 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:
- NZBC B2/AS1 Durability
- AS/NZS 2904 Damp-proof courses and flashings
- NZS 3602 Timber and wood-based products for use in building
- NZS 3603 Timber structures standard
- NZS 3604 Timber-framed buildings
- NZS 3622 Verification of timber properties
- NZS 3631 New Zealand timber grading rules
- NZS 3640 Chemical preservation of round and sawn timber
- OSH Guidelines for the provision of facilities and general safety in the construction industry.
- BRANZ BU 475 Structurally fixed cavity battens

*A copy of NZS 3604 Timber-framed building, must be held on site.

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

2. PRODUCTS

Materials

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

2.2 TIMBER FRAMING, CHEMICAL FREE
Species, grade and moisture content in service as set out in NZS 3602, NZBC B2/AS1.

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

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

2.5 EXTERIOR CAVITY WALL BATTENS - TIMBER - STRUCTURAL
Suitable for horizontal weatherboards only, to BRANZ BU 475.
H3.1 Radiata pine battens, minimum 20mm thickness, 40mm minimum width, and height to match timber framing studs. Permanently fix battens onto the framing using 60x2.8mm jolt head hot-dip galvanised nails, or 64x2.8mm power driven stainless steel annular grooved nails at 300mm centres maximum, and staggered 12mm either side of the batten centreline. To NZS 3602, table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.

2.6 DPC
Refer to 4161 UNDERLAYS, FOIL AND DPC section

Components

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

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

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

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

2.11 BRACING STRAPS
Nail-on type to the requirements of NZS 3604, section 4, Durability, and of the number and form required for each particular application to NZS 3604, sections 6-10.

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

2.13 CORROSION RISKS
For exterior timber, timber in damp areas and timber subject to occasional wetting, use stainless steel (or equivalent) fixings, connectors, etc, in all zones, with the timber treatments CuAz (Preservative code 58) and ACQ (Preservative code 90).

3. EXECUTION

Conditions

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

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

3.3 SEPARATION
Separate all timber framing timbers from concrete, masonry and brick by:
- a full length polyethylene damp-proof membrane overlapping timber by at least 6mm; or
- a 12mm minimum free draining air space
3.4 FRAMING MOISTURE CONTENT
Maximum allowable equilibrium moisture content (EMC) for non air-conditioned or centrally heated buildings, for framing to which linings are attached.
- At erection: 24% EMC maximum
- At enclosure: 20% EMC maximum
- At lining: 16% EMC maximum

3.5 TOLERANCES
Permissible deviations from established lines, grades and dimensions equal to or less than the following. Multiples of given limits are not cumulative.
- Deviation in plan, up to 10 metres, 5mm
- Deviation in plan, over 10 metres, 10mm total
- Deviation from horizontal, up to 10 metres, 5mm
- Deviation from horizontal, over 10 metres, 10mm total
- Deviation from vertical position per 3 metres, 3mm
- Deviation from horizontal and vertical, within openings, 3mm.

Application

3.6 SET-OUT
Set-out framing generally in accordance with the requirements of NZS 3604, to carry superimposed loads and as required to support sheet linings and claddings. Set back nogs 12.5mm from face of studs where required for back-blocking of plasterboard non-tapered ends or edges.

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

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

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

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

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

3.12 EXPOSED TIMBER CONNECTORS AND FIXINGS
Do not use steel timber connectors and fixings on any structural framing exposed to view unless detailed on the drawings.

3.13 POWDER ACTUATED AND MECHANICALLY POWERED FIXING
Comply with the OSH: Guidelines for the provision of facilities and general safety in the construction industry, part 5, section 5.7. To be operated by a licensed applicator.

3.14 ADDITIONAL FRAMING
Position and fix all necessary members for the fixing of all services, fittings, fixtures, edges of linings or claddings, and to provide lateral support to load carrying framing.
3.15 **FORM NAILED JOINTS**
Fully drive nails in all structural joints with the number and location for each particular joint, to the requirements of the nailing schedules of *NZS 3604*. Where splitting could occur, pre-drill to 80% of nail diameter.

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

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

3.18 **FIT CAVITY BATTENS**
Fit and fix 20mm cavity battens over wall underlay or rigid air barrier, fully nail to timber studs to the requirements of the manufacturer or to *NZS 3604*. Fit and fix related flashings. Fit and fix cavity closers to base of walls, open horizontal (or raking) junctions and over openings (windows, meters etc).

3.19 **FIT BRACING**
Fit and fix subfloor, wall and roof bracing elements to the requirements of the manufacturer or to *NZS 3604*, to develop the full number of bracing units required. Refer to Structural Engineers drawings and specification for specific design bracing elements.

3.20 **DPC TO LOSP TREATED TIMBER**
Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.21 **DPC TO TIMBER**
Refer to 4161 UNDERLAYS, FOIL AND DPC section

**Completion**

3.22 **CLEAN UP**
Clean up timber framing as the work proceeds so no offcuts, chips, sawdust or any other matter or items remain behind the claddings or linings.

3.23 **LEAVE**
Leave work to the standard required by following procedures.

3.24 **REMOVE**
Remove debris, unused materials and elements from the site.

**4. SELECTIONS**
Refer to ‘Schedule of Selections’ in drawing set.
4161T THERMAKRAFT UNDERLAYS, FOILS AND DPC – Rev A

1. GENERAL

This section relates to the application of Thermakraft Industries (NZ) Ltd, DPC, and roofing underlay.

1.1 RELATED WORK

Refer to 4311 PROFILED METAL ROOFING and 4311C for metal roofing

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:

NZMRM New Zealand Metal Roofing Manufacturers Inc.

The following definitions apply specifically to this section:

Wall underlay the same meaning as defined in NZBC E2/AS1, covering kraft based and synthetic wall underlays, sometimes called, wall wraps, building wraps or building papers.

Documents

1.3 DOCUMENTS

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

NZBC C/AS1-AS7 Protection from fire
NZBC E2/AS1 External moisture
AS 1530.2 Methods for fire tests on building materials, components and structures - Test for flammability of materials
NZS 2295 Pliable, permeable building underlays
AS/NZS 2904 Damp-proof courses and flashings
NZS 3604 Timber-framed buildings
AS/NZS 4534 Zinc and zinc/aluminium-alloy coatings on steel wire
NZMRM NZ Metal Roof and Wall Cladding - Code of Practice

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Thermakraft documents relating to this part of the work:

Thermakraft product manual and technical data sheets.
BRANZ Appraisal 329 - Supercourse 500 Damp-Proof Course and Concealed Flashing
BRANZ Appraisal 651 - Thermakraft Covertek 407 Fire Retardant Self-Supporting Roof Underlay

Manufacturer/supplier contact details
Web: www.thermakraft.co.nz
Telephone: 0800 806 595

1.5 MANUFACTURER'S WARRANTY

Warrant this work under normal environmental and use conditions against failure of materials and execution. Thermakraft Industries Ltd warrant performance of products if design and installation complies with relevant technical literature, NZBC, and recognised industry Codes of Practice. Copy of Thermakraft Product Warranty available on request.

Requirements

1.6 NO SUBSTITUTIONS

Substitutions are not permitted to any specified materials, or associated products, components or accessories.

1.7 INSTALLATION SKILL LEVELS

Installers to be experienced in the installation of Thermakraft products and familiar with
2. PRODUCTS

Materials

DPC

2.1 EMBOSSED POLYETHYLENE

Supercourse 500, hi-impact polyethylene film to AS/NZS 2904 and embossed on both sides. Thickness 500 microns minimum, manufactured for use as a damp-proof course and concealed flashings around doors and windows and to BRANZ Appraisal 329.

Roofing underlay

2.2 SYNTHETIC NON-WOVEN HEAVYWEIGHT ROOFING UNDERLAY

CoverTek™ 403, 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. CoverTek™ 403 has a flammability Index of ≤5, tested to NZS/AS 1530.2, and does not meet the requirements of NZBC C/AS2-AS7, 4.17.8.(b) for suspended flexible fabrics.

Accessories

2.3 AIR SEAL BACKING ROD

P.E.F. Thermakraft WindowWorm Backing Rod, a cylindrical flexible closed cell polyethylene material available in various diameters and used in conjunction with foam sealants.

3. EXECUTION

Conditions

3.1 GENERAL REQUIREMENTS

Design application and installation of Thermakraft Building products to NZBC E2/AS1, BRANZ Appraisals, Thermakraft Technical Literature and Industry Codes of Practice.

3.2 STORAGE

Store building 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 building construction phase will allow work of the required standard. Carry out remedial work identified before laying underlay.

Application - DPC / DPM

3.4 DPC TO LOSP TREATED TIMBER

Lay Supercourse 500 / MirraBlack DPC under LOSP or CCA treated bottom plate of all timber framed walls on concrete, in a single layer with 50mm overlaps at joints to provide a waterproof barrier.

Application - Roofing underlay

3.5 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 underlays. Do not lay vertically on roof pitches under 10°.

Lay horizontally across the rafter/trusses starting at the gutter line with succeeding sheets in true alignment and lapping 150mm. Scribe around and fit neatly to all penetrations.
Avoid prolong exposure by installing the roof immediately. Installation to comply with **NZBC E2/AS1 8.1.5.1, Underlay support** and NZMRM Code of Practice.

**Completion**

3.6 CLEAN UP
Clean up as the work proceeds.

3.7 LEAVE
Leave work to the standard required by following procedures.

3.8 REMOVE
Remove debris, unused materials and elements from the site.

4. **SELECTIONS**
Refer to ‘Schedule of Selections’ in drawing set.
FIRE RETARDANT SELF SUPPORTING ABSORBENT BREATHEABLE SYNTHETIC NON-WOVEN ROOF UNDERLAY
ABSORBENT BREATHABLE SYNTHETIC NON-WOVEN ROOF UNDERLAY

APPLICATION AND INSTALLATION

**Product Description**

COVERTEK 407 is a five layer polymer structure that is designed to prevent water penetration without impeding the passage of water vapour.

COVERTEK 407 consists of a microporous water resistant film, sandwiched between two layers of mould and shrink resistant spun-bonded polyolefin.

COVERTEK 407 is manufactured with an upper layer of tear resistant synthetic spun-bond, and a lower layer of tear resistant synthetic spun-bond facing down. Both layers are designed to protect the inner water resistant microporous membrane.

**Flammability**

COVERTEK 407 has a flammability index ≤5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS1 Part 6 Table 6.2 for surface finish requirements for suspended flexible fabric, and therefore it may be used without restrictions in all buildings.

**Product Advantages**

COVERTEK 407 is a unique five layer membrane with these important features:

- can be used in direct fix or cavity fix for roof and wall construction
- is more stable and more shrink resistant than kraft based products
- may be installed during adverse conditions (rain) without affecting its durability and performance
- will not increase risk of condensation as compared with comparable kraft underlays
- has an edge tear greater than 300N
- has a 150mm lap line printed on each edge.

**Application**

**LONG-RUN METAL ROOFING / VERTICAL OR HORIZONTAL INSTALLATION METHOD**

COVERTEK 407 can be direct fix or cavity fix and must be installed in a manner that prevents ponding of water, and span no more than 1200mm.

COVERTEK 407 can be laid vertically or horizontally on roof slopes of 10 degrees or more without support.
APPLICATION AND INSTALLATION . . . contd

**LONG-RUN METAL ROOFING . . . contd**

**COVERTEK 407** Fix using stainless steel 8-12mm staples or 20mm flat head clouts, or appropriate proprietary fastenings. Between 3° and 5° pitched roofs, **Thermakraft** recommends supporting **COVERTEK 407** on **Thermakraft Safety Mesh** 300mm x 150m, or hexagonal netting 50mm or 75mm, and or **Thermakraft Arctic White Thermastrap 203**, or **Thermakraft 201**. Fix horizontally at 300mm centres. If required to achieve a lap seal (refer to NZ Metal Roofing Code of Practice 4.3.8 and 4.3.9), use **Thermakraft Window Sealing Tape** **Aluband**.

**COVERTEK 407** may be unwound to the full length from the gutter to the ridge. However, when ridge ventilation is required, must be terminated at the ridge purlin to allow a free passage of air.

Flue penetrations must have a minimum distance of 50mm from the **COVERTEK 407** (refer to NZ Metal Roof and Wall Cladding Code of Practice 4.3.8).

**COVERTEK 407** must be free of tears and punctures, fit tightly and be lap taped around all penetrations (except flue penetrations), to provide drainage for any condensation, or surface water from leaks.

**NOTE:** Do not use **Aluband** on penetrations where Polybutene water pipes have been installed. Refer Pipe Manufacturers for instructions on sealing penetrations.

**NOTE:** Commercial Buildings may require the use of **Thermakraft Safety Mesh** under **COVERTEK 407**.

**COVERTEK 407** can be installed above the battens or purlins for profiled metal roof claddings and otherwise in accordance with NZBC E2/AS1.

**LONG-RUN METAL ROOFING**

*Wooden Construction*

- Profile Roofing
- Fastenings as per Roofing Manufacturer
- Rafter or Truss
- MAX 25mm drape
- Purlin

**LONG-RUN METAL ROOFING**

*Steel Construction*

- Thermastrap Safety Mesh
- Thermastrap 203
- Thermastrap 201
- 150mm Lap Lines
- COVERTEK 407

**Horizontal Fix** **COVERTEK 407** upper sheet lapped over lower sheets (shiplap) to ensure water is shed to the outer face.

**NOTE:** **COVERTEK 407** can move downwards. To prevent this it must be “Captured” by the fastenings at each purlin.

Horizontal fix must not be used on purlin distance greater than 1100mm to allow for 150mm laps.

E. & O. E.
CONCRETE / METAL TILE ROOFING

COVERTEK 407

must be laid over rafters prior to fixing the tile battens. The maximum span between rafters for
is 1200mm. Masonry tile roofs with pitches less than 17 degrees must have antiponding boards in
accordance with E2/AS1 Paragraph 8.2.5.

Installed COVERTEK 407 may be laid over the top of the antiponding boards and draped into the gutter by no more than 25mm. Antiponding boards must be treated in accordance with NZS 3604.

NOTE: Where overlap occurs under Tile Battens, minimum overlap may be reduced to 75mm.

CONCRETE / METAL TILE ROOFING

METAL TILE INSTALLATION

Fastening as per roof manufacturers recommendation

For more information regarding Thermakraft IntroBand Window Sealing System (BRANZ No.614 [2008]) refer to the “APPLICATION and INSTALLATION GUIDELINES” or contact Thermakraft Customer Services on 0800 806 595.
Product Specifications

Installation must always be carried out in accordance with:

- Thermakraft “Application and Installation Guidelines”
- Installed by or under the direct supervision of a licensed Building Practitioner or qualified Roofer
- NZBC Acceptable Solution E2/AS1 Paragraph 8.0 - 8.4
- NZ Metal Roofing Manufacturers Roof and Wall Cladding - Code of Practice
- Metal Roof / Tile Manufacturers specifications

The design application and installation of the roofing must follow sound condensation management principles, making use of ventilation and vapour control layers where necessary.

Durability Requirements

Will meet the Performance Requirements of NZBC:

- Clauses B2 Durability B2.3.1 (a) not less than 50 years, B2.3.1 (b) 15 years and B2.3.2
- Clause C Part 6 Table 6.2: Flammability Index ≤5
- Clause E2 External Moisture: Performance E2.3.2 when used as part of the Roof Cladding System
- Clause F2 Hazardous Building Materials: Performance F2.3.1 will not present a health hazard to people.

<table>
<thead>
<tr>
<th>TABLE 1: NZBC E2/AS1 ALTERNATIVE SOLUTION TO TABLE 23 AS A ROOFING UNDERLAY REQUIREMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NZBC E2/AS1 TABLE 23 ROOF UNDERLAY PROPERTIES</strong></td>
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<tr>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Absorbency</td>
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<tr>
<td>Vapour Resistance</td>
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<td>pH of Extract</td>
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<td>Shrinkage</td>
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<tr>
<td>Water Resistance</td>
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</tbody>
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Storage

Should be stood on end in dry conditions. Protect from the weather and direct sunlight.

Roll Dimensions

1250mm x 40.0m = 50m² • 1250mm x 20.0m = 25m²
Control Of Condensation

In climatic regions where condensation risks are high, such as cold or high humidity areas, care needs to be taken in specifying the correct design and installation to prevent moisture build-up in the roof cavities.

Factors which adversely affect the condensation risk in roofing systems include:

- Humid, and/or cold climatic regions
- Warm/Skillion roof construction
- Low roof cavity air volume and restricted air movement
- Omitting Vapour Control Layers
- Ceiling penetrations and entry of warm air into roof cavities
- Occupancy activities which have high moisture loading on conditioned spaces
- Low pitched roof
- Bulk insulation
- Building structures ability to naturally dry Construction Moisture

Skillion and Warm Roof Construction are particularly sensitive to moisture accumulation and the design and installation of roof construction needs to take into account the higher condensation risks. Refer MRM Code of Practice for details.

The recommendations contained in Thermakraft’s literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to any conditions contained in the Warranty. All product dimensions and performance claims are subject to any variation caused by normal manufacturing process and tolerances. Furthermore, as the successful performance of the relevant system depends on numerous factors outside the control of Thermakraft (for example quality of workmanship and design), Thermakraft shall not be liable for the recommendations in that literature and the performance of the Product, including its suitability for any purpose or ability to satisfy the relevant provisions of the Building Code, regulations and standards.
1. GENERAL

This section relates to the supply and fixing of timber cladding:
- weatherboard screen in gablet ends
- soffits
- vertical cladding on verandah

1.1 RELATED WORK
Refer to 4161 UNDERLAYS, FOIL AND DPC for underlays, foils and DPC.

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
- NZS 3602 Timber and wood-based products for use in building
- NZS 3604 Timber-framed buildings
- NZS 3617 Profiles of weatherboards, fascia boards and flooring
- NZS 3631 New Zealand timber grading rules

Performance

1.3 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.

1.4 PERFORMANCE
Accept responsibility for the weather-tight performance of the completed cladding items, including all penetrations.

2. PRODUCTS

Materials

2.1 UNDERLAYS
Refer to 4161 UNDERLAYS, FOIL AND DPC section

Components

2.2 NAISLS, GALVANIZED
60mm x 2.8mm and 75mm x 3.15mm galvanized steel.

2.3 NAISLS, STAINLESS STEEL
60mm x 2.8mm and 75mm x 3.15mm stainless steel.

2.4 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 adjacent materials and fixings and cladding materials and fixings.

Finishes

2.5 PRIMER
Water borne acrylic or solvent borne oil-alkyd primer to suit the timber and proposed painting system.
3. **EXECUTION**

**Conditions**

3.1 **GENERALLY**
Execution to NZBC E2/AS1: 3.0 Weathertightness risk factors, and 9.0 Wall claddings.

3.2 **STORAGE**
Take delivery of timber, dry, unmarked and undamaged. Store on site, laid flat and true under cover.

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.

3.4 **MOISTURE CONTENT**
Immediately before starting fixing, test the moisture content of the boards. Use an electrical moisture meter to test 5% of boards, but not less than 10 boards in the centre of the length. Do not start fixing until 90% of the values obtained are within the range in NZS 3602 table 4. Allowable moisture content (%) at time of installation or in the case of framing timber at time of enclosure.

**Application - preparation**

3.5 **PRIMING AND SEALING**
If not pre-finished before delivery, coat all faces and edges immediately the block stack is opened. Then fillet stack, laid flat and true, until fixed. Keep dry and undamaged. Coat to suit the paint system specified in painting sections. Allow to re-coat if exposed for more than one month before the final coating is applied.

3.6 **FIX UNDERLAYS**
Refer to 4161 UNDERLAYS, FOIL AND DPC section

3.7 **SET-OUT**
Using laser or mechanical devices set-out the overlap boards to ensure dimension to exposed face in line of weather is constant and that boards remain horizontal/vertical. Use a string line to set out all nailing that will be visible in the finished work. Align all nailing accurately in straight lines.

**Application - fixing**

3.8 **FIXING, PAINT FINISH**
Prime all cut ends before fixing. Drill all fixings located within 25mm of board ends. Punch all fixings.

3.9 **INSTALL FLASHINGS**
Install flashings, covers and soakers as detailed on the drawings and to NZBC E2/AS1

3.10 **COMPLETE**
Ensure the work is complete with all flashings, finishings and trim properly installed so the cladding items are completely weathertight.

**Completion**

3.11 **REPLACE**
Replace all damaged or marked elements.

3.12 **LEAVE**
Leave work to the standard required for following procedures.

3.13 **REMOVE**
Remove all debris, unused materials and elements from the site.
4. **SELECTIONS**
   Refer to ‘Schedule of Selections’ in drawing set.
1. GENERAL

This section relates to lengths of timber fixed on site, either associated with timber cladding, or used as isolated trim with other wall cladding or soffit materials:
- trim
- window surrounds
- fascia boards

Related work

1.1 RELATED SECTIONS
Refer to 4221 TIMBER BOARD CLADDING

Documents

1.2 DOCUMENTS REFERRED TO
Documents referred to in this section are:
NZS 3602 Timber and wood-based products for use in building
NZS 3604 Timber-framed buildings

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

2. PRODUCTS

Materials

2.1 TIMBER TRIM
To NZS 3602, treated H3.1 unless durable heart wood, to profiles detailed/scheduled.

Components

2.2 NAILS, GALVANIZED
60mm x 2.8mm galvanized steel wire jolt/flat/raised head generally. Use other sizes to suit profiles being fixed.

2.3 NAILS, STAINLESS STEEL
60mm x 2.8mm stainless steel wire jolt/flat/raised head generally. Use other sizes to suit profiles being fixed.

Finishes

2.4 PRIMER
Water borne acrylic or solvent borne oil-alkyd primer to suit the timber and proposed painting system.

3. EXECUTION

Conditions

3.1 STORAGE
Take delivery of trims undamaged and unmarked and store on site flat and true, under cover, and clear of areas where work is in progress, to ensure materials are of the required standard when fixed in place.

3.2 SUBSTRATE
Ensure that the substrate to trims will allow work of the required standard. If it does not, do not proceed until the substrate has been rectified.
Application - preparation

3.3 PRIMING AND SEALING
If not pre-finished before delivery, coat all faces and edges immediately. Then fillet stack trim until fixed. Keep dry and undamaged. Coat to suit the paint system specified in painting section/s. Allow to re-coat if exposed for more than one month before the final coating is applied.

Application

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

3.5 TIMBER TRIM
Using full lengths, scribe internal joints and mitre external and running joints. Fully support all joints and fix securely, plumb, level and true to line and face, fully nailed. For paint finish prime joint edges before fixing, otherwise seal them without runs onto any exposed face.

3.6 NAILING, PAINT FINISH
Punch nails and patch prime external trim being painted, before stopping as specified under painting preparation.

Completion

3.7 LEAVE
Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following procedures.

3.8 PROTECTION
Protect the completed work and make good before any surface finish is applied.

3.9 REPLACE
Replace all damaged or marked elements.

3.10 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
Refer to ‘Schedule of Selections’ in drawing set.
4231V   PBS VENTCLAD PLASTERED FINISH CLADDING – Rev A

1. GENERAL

This section relates to the supply, fixing and jointing of fibre cement cladding with a
drained cavity, bracing panels, and solid backing for solid plaster and brick slip veneer.
To achieve the required durability the plaster is coated with a paint system with a light
reflectance value of not less than 40%.

1.1 RELATED WORK

Refer to 4272 BRICK SLIP VENEER section for the required veneer and finish.
Refer the 4282 SOLID PLASTER section for the required plaster system and painting.

1.2 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following
documents are specifically referred to in this section:
- NZBC B2/AS1 Durability
- 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
- BRANZ Appraisal 705 - Bostik SAFETECH SAFE Seal Sealant

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

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents related to this section are:
- VentClad Quality Assurance checklist
- VentClad Maintenance schedule
- VentClad Installation Guide
- VentClad Deed of Warranty in the form of a site specific Producer Statement
- BRANZ Opinion BDO 98/3 Durability of Eterpan
- BRANZ Appraisal 457 - VentClad Ventilated Cavity System

Copies of the above literature are available at
Web: www.pbs.co.nz
Telephone: 0800 22 55 727 PBS Distributors Ltd

Warranties

1.4 WARRANTY

PBS Distributors Ltd warrant the VentClad cladding system under normal
environmental and use conditions against failure of materials and execution.
15 years: Warranty period

Provide the completed and signed VentClad quality assurance check sheet to PBS
Distributors Ltd in order for the VentClad warranty to be issued. Provide the warranty in
the VentClad standard form "Producer Statement" site specific.

Refer to the general section 1237 WARRANTIES for details of when completed warranty
must be submitted.

Requirements

1.5 NO SUBSTITUTIONS

Substitutions are not permitted to any specified PBS Distributors Ltd system, or
associated components and products.
1.6 QUALIFICATIONS
Carry out the cladding work with experienced, competent installers who have attended the VentClad Cladding Systems training programme or as approved by PBS Distributors Ltd.

1.7 ON GOING MAINTENANCE INSTRUCTIONS
Provide ongoing maintenance instructions required to meet the performance requirements of the NZBC B2/AS1 Durability.

Compliance information

1.8 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

1.9 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.

1.10 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. Refer to WEC report 1373 for verification method. 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 or Eterpan Base Sealed 4.5mm thick.
Contact PBS Distributors Ltd for specific design information where wind pressures exceed 2700Pa.

2. PRODUCTS

Materials

2.1 WALL UNDERLAY
Synthetic wall underlays to NZBC E2/AS1, table 23: Properties of roof underlays and wall underlays.

2.2 RIGID AIR BARRIER
12mm treated structural plywood.
Suitable for residential buildings to NZBC E2/AS1, 9.1.4 Barriers to Airflow.

2.3 BATTENS
VentClad 50 x 20mm and 70 x 20mm timber battens with 20 x 5mm machined grooves at 100mm centres on both faces to NZS 3602, Table 1 and treated H3.2.

2.4 MEDIUM DENSITY SHEETS
To AS/NZS 2908.2. Eterpan Base medium density, fibre cement autoclaved sheet produced on a “flow on” process, with specified edge details and surface finishes.
Plaster coated: Eterpan Base 9mm x 1200mm wide x 2400mm/ 2700mm/ 3000mm long.

Components

2.5 NAILS, STAINLESS STEEL
304 / 316 stainless steel 60mm and 40mm x 2.8mm flathead minimum head diameter 6.8mm. Refer to the Eterpan technical literature for selection and use requirements.
2.6 SCREWS, STAINLESS STEEL
304 / 316 stainless steel 63mm x 10 gauge. Refer to the Eterpan technical literature for selection and use requirements.

2.7 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.

2.8 FLASHINGS
- VentClad proprietary uPVC window flashings and vermin barrier.

2.9 JOINTERS, HORIZONTAL AND VERTICAL
- VentClad one piece uPVC jointer.

2.10 POLYPROPYLENE TAPE
10mm wide polypropylene tape to support non rigid air barriers.

Accessories

2.11 TAPES
- Mapeiband

2.12 SEALANT
Bostik SAFETECH SAFE Seal Sealant to BRANZ Appraisal 705. Sikaflex AT-Facade.

3. EXECUTION

Conditions

3.1 STORAGE
Take delivery of sheets 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. 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 by the sheet manufacturer for the specified finish; plumb, level and in true alignment. Moisture content of timber framing to NZS 3602 moisture content maximums, to minimise shrinkage and movement after sheets are fixed.

Application - particular installations

3.4 BRACING SYSTEM
Fix 12mm plywood to engineer’s details.

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
Butt all sheet joints including internal and external corners, seal to 100mm wide with butyl primer and tape joints with 80mm wide butyl tape.
AND
Fix to studs and nogs to engineers details, in conjunction with the outer rain screen fixings. Provide continuous perimeter air seal with Bostik SAFETECH SAFE Sealant.

3.7 PENETRATIONS
Confirm that exterior wall openings have been prepared ready for the installation of all penetrations through the cladding. Required preparatory work includes the following:
- wall underlay taped to openings, finished and dressed off ready for the installation of penetrations. Refer to guidelines for preparation of openings.
- claddings neatly finished off to all sides of openings.
- installation of flashings (those required to be installed prior to installation of penetrating elements).

3.8 BATTENS
Install horizontal battens to top and bottom plates, penetration heads and sills. Cut and fit vertical battens at 600mm centres and at all sheet joints. Cut and fit horizontal battens over nogs. Tack with 40mm clouts. Fit jamb and sill battens 10mm back from the finished opening.

**Application - plaster and brick slip**

3.9 INSTALL FLUSH CLADDING SHEETS
Cut sheets dry, form holes and work sheets to the sheet manufacturer's requirements. Fit control joints at 5.4 metre maximum centres to limit flush areas to 25 m² and vertical structural expansion joints at 10.8 metre centres. Finalise location and form of control and expansion joints on site before commencing cladding work.

3.10 APPLY SOLID PLASTER AND VENEER
- Seal the surface of the Eterpan Base sheet with primer and waterproofing. Apply in accordance with manufacturers specification.
  - Refer to 4272 BRICK SLIP VENEER
  - Refer to 4282 SOLID PLASTER

Completion

3.11 CLEANING
Remove debris, unused materials and elements from the site relating to the plaster system application. Replace damaged, cracked or marked elements. Leave the whole of this work to the required standard.

4. SELECTIONS
Refer to ‘Schedule of Selections’ in drawing set.
ETERPAN is a medium density fibre cement sheet that is used for external cladding, plastered finish, base for stone and brick slips, rigid air barrier, weatherboards, soffits, louvres, decks, internal linings, ceilings, flooring, tile and slate underlay.

1. Product composition

ETERPAN sheets consist of the following:
- Portland cement
- Mineral fillers
- Organic reinforcing fibres
- Functional additives

2. Production method

ETERPAN sheets are manufactured on a FLOW-ON machine and are autoclaved at high temperature and pressure. ETERPAN is produced by Etex Group, the most global manufacturer of fibre cement with production facilities in 40 different countries.

The FLOW-ON production process is different from the more traditional Hatschek process as it produces fibre cement in a more monolithic core and has superior water, frost and delamination resistance.

There are 3 distinctive ETERPAN products available
- Eterpan REFINED with a sanded surface
- Eterpan BASE with an unsanded surface
- Eterpan Siding, the weatherboard range produced with ETERPAN technology

3. Dimensions and tolerances

Standard thickness: 4.5, 6.0, 7.5, 9.0, 12.0, 15.0, 20.0 mm

<table>
<thead>
<tr>
<th>Code</th>
<th>Surface</th>
<th>Edges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>PBS0209/1</td>
<td>2400 x 1200 mm</td>
<td>No</td>
</tr>
<tr>
<td>PBS0210</td>
<td>2700 x 1200 mm</td>
<td>No</td>
</tr>
<tr>
<td>PBS0211</td>
<td>3000 x 1200 mm</td>
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</tr>
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</table>

ETERPAN SEALED for use as Rigid Air Barrier

<table>
<thead>
<tr>
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<tr>
<td>PBS0209/1S</td>
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</tr>
<tr>
<td>PBS0210/S</td>
<td>2700 x 1200 mm</td>
<td>No</td>
</tr>
<tr>
<td>PBS0211/S</td>
<td>3000 x 1200 mm</td>
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</table>
### ETERPAN BASE 4.5 mm (for soffits)

<table>
<thead>
<tr>
<th>Code</th>
<th>Surface</th>
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<tr>
<td>PBS0203</td>
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<td>PBS0205</td>
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<td>PBS0206</td>
<td>2400 x 600 mm</td>
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<td>X</td>
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<tr>
<td>PBS0207</td>
<td>2400 x 750 mm</td>
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<td>X</td>
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<td></td>
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<tr>
<td>PBS0204</td>
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<td>X</td>
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<tr>
<td>PBS0209</td>
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<td>X</td>
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</tbody>
</table>

### ETERPAN BASE 6.0 mm (for Rigid Air Barrier, Wall and floor underlay for tiling, plastered finish over 10 m high)

<table>
<thead>
<tr>
<th>Code</th>
<th>Surface</th>
<th>Trimmer</th>
<th>Unsanded</th>
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<th>Tapered</th>
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<tbody>
<tr>
<td>PBS0217</td>
<td>1800 x 900 mm</td>
<td>YES</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBS0218</td>
<td>1800 x 1200 mm</td>
<td>YES</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBS0220</td>
<td>2400 x 1200 mm</td>
<td>YES</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBS0221</td>
<td>2700 x 1200 mm</td>
<td>YES</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBS0222</td>
<td>3000 x 1200 mm</td>
<td>YES</td>
<td>X</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### ETERPAN SEALED for use as Rigid Air Barrier

<table>
<thead>
<tr>
<th>Code</th>
<th>Surface</th>
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<th>Square</th>
<th>Tapered</th>
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</thead>
<tbody>
<tr>
<td>PBS0220/S</td>
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<tr>
<td>PBS0221/S</td>
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<tr>
<td>PBS0222/S</td>
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<td>X</td>
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### ETERPAN REFINED 6.0 mm (for internal linings, soffits, ceilings)

<table>
<thead>
<tr>
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<th>Surface</th>
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<th>Unsanded</th>
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<tbody>
<tr>
<td>PBS0225</td>
<td>2400 x 1200 mm</td>
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<td></td>
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<tr>
<td>PBS0226</td>
<td>2700 x 1200 mm</td>
<td>YES</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBS0227</td>
<td>3000 x 1200 mm</td>
<td>YES</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBS0220/1</td>
<td>2400 x 1200 mm</td>
<td>YES</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ETERPAN BASE 7.5 mm (for Rigid Air Barrier) is not a standard stock product.

### ETERPAN REFINED 7.5 mm (for soffits, fencing, ceilings)

<table>
<thead>
<tr>
<th>Code</th>
<th>Surface</th>
<th>Trimmed</th>
<th>Grooved</th>
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<tr>
<td>PBS0235</td>
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<tr>
<td>PBS0236</td>
<td>2700 x 1200 mm</td>
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<td></td>
<td>X</td>
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<td>PBS0237</td>
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<td>YES</td>
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<td>X</td>
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<tr>
<td>PBS0270</td>
<td>2400 x 1200 mm</td>
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### ETERPAN BASE 9.0 mm (for plastered finish, base for stone slips, fencing, underlay wall tiling)

<table>
<thead>
<tr>
<th>Code</th>
<th>Surface</th>
<th>Trimmed</th>
<th>Unsanded</th>
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<th>Tapered</th>
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<tr>
<td>PBS0240</td>
<td>2400 x 1200 mm</td>
<td>YES</td>
<td>X</td>
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<tr>
<td>PBS0241</td>
<td>2700 x 1200 mm</td>
<td>YES</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBS0242</td>
<td>3000 x 1200 mm</td>
<td>YES</td>
<td>X</td>
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### ETERPAN SEALED for use as Rigid Air Barrier

<table>
<thead>
<tr>
<th>Code</th>
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<th>Square</th>
<th>Tapered</th>
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</thead>
<tbody>
<tr>
<td>PBS0240/S</td>
<td>2400 x 1200 mm</td>
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<tr>
<td>PBS0241/S</td>
<td>2700 x 1200 mm</td>
<td>YES</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PBS0242/S</td>
<td>3000 x 1200 mm</td>
<td>YES</td>
<td>X</td>
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<td></td>
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</tbody>
</table>
ETERPAN REFINED 9.0 mm (for cladding negative detail, soffits, internal linings, ceilings, fencing)

<table>
<thead>
<tr>
<th>Code</th>
<th>Surface</th>
<th>Edges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>PBS0240/1</td>
<td>2400 x 1190 mm</td>
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</tr>
<tr>
<td>PBS0241/1</td>
<td>2700 x 1190 mm</td>
<td>YES</td>
</tr>
<tr>
<td>PBS0242/1</td>
<td>3000 x 1190 mm</td>
<td>YES</td>
</tr>
<tr>
<td>PBS0245/1</td>
<td>2400 x 1200 mm</td>
<td>YES</td>
</tr>
<tr>
<td>PBS0246/1</td>
<td>2700 x 1200 mm</td>
<td>YES</td>
</tr>
<tr>
<td>PBS0247/1</td>
<td>3000 x 1200 mm</td>
<td>YES</td>
</tr>
</tbody>
</table>

ETERPAN BASE 12.0 mm (for handrails)

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
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<tr>
<td>PBS0250</td>
<td>2400 x 1200 mm</td>
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</tr>
<tr>
<td>PBS0252</td>
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</tr>
</tbody>
</table>

ETERPAN REFINED 15.0 mm (for trims, handrails)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trimmer</td>
<td>Unsanded</td>
</tr>
<tr>
<td>PBS0257</td>
<td>3000 x 1200 mm</td>
<td>Yes</td>
</tr>
</tbody>
</table>

ETERPAN BASE 20.0 mm (for decks)

<table>
<thead>
<tr>
<th>Code</th>
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<th>Edges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trimmer</td>
<td>Unsanded</td>
</tr>
<tr>
<td>PBS0260</td>
<td>2400 x 1200 mm</td>
<td>Yes</td>
</tr>
</tbody>
</table>

ETERPAN SIDING150 and SIDING180 - thickness 15.0 mm

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trimmer</td>
<td>Unsanded</td>
</tr>
<tr>
<td>PBS0606</td>
<td>3000 x 150mm</td>
<td>Yes</td>
</tr>
<tr>
<td>PBS0600</td>
<td>3000 x 180 mm</td>
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</table>

ETERPAN SIDING CEDAR – thickness 7.5 mm

<table>
<thead>
<tr>
<th>Code</th>
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<th>Edges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trimmer</td>
<td>Unsanded</td>
</tr>
<tr>
<td>PBS0391</td>
<td>3000 x 190 mm</td>
<td>Yes</td>
</tr>
</tbody>
</table>

ETERPAN SIDING SMOOTH – thickness 7.5 mm

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td></td>
<td>Trimmer</td>
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</tr>
<tr>
<td>PBS0437</td>
<td>3000 x 190 mm</td>
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</tbody>
</table>

Tolerances

<table>
<thead>
<tr>
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<th>Untrimmed</th>
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</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>+/- 0.5 mm</td>
<td>+/- 0.5 mm</td>
</tr>
<tr>
<td>Length and width</td>
<td>+/- 5.0 mm</td>
<td>+/- 1.5 mm</td>
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<tr>
<td>Squareness</td>
<td>3.0 mm / m</td>
<td>1.0 mm / m</td>
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4. Weight (average values, including average moisture content)

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<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>4.5 mm</td>
<td>6.5 kg/m²</td>
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<tr>
<td>6 mm</td>
<td>8.6 kg/m²</td>
</tr>
<tr>
<td>7.5 mm</td>
<td>10.8 kg/m²</td>
</tr>
<tr>
<td>9 mm</td>
<td>13.0 kg/m²</td>
</tr>
<tr>
<td>12 mm</td>
<td>17.3 kg/m²</td>
</tr>
<tr>
<td>15 mm</td>
<td>21.6 kg/m²</td>
</tr>
<tr>
<td>20 mm</td>
<td>28.8 kg/m²</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Eterpan Siding</th>
<th>Thickness</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Siding 150</td>
<td>15.0 mm</td>
<td>9.1 kg/piece</td>
</tr>
<tr>
<td>Siding 180</td>
<td>15.0 mm</td>
<td>10.9 kg/piece</td>
</tr>
<tr>
<td>Cedar</td>
<td>7.5 mm</td>
<td>5.8 kg/piece</td>
</tr>
<tr>
<td>Cedar Smooth</td>
<td>7.5 mm</td>
<td>5.8 kg/piece</td>
</tr>
</tbody>
</table>

5. Colours

ETERPAN comes in a light beige colour. No other colours are available.

6. Testing and technical properties (average values)

Eterpan sheets are classified Type A under the requirements of AS 2908.2-1992 Cellulose Cement Products, Part 2 Flat sheets.

Eterpan has been tested by BRANZ and reported in MTR 1083 to AS 2908.2 which defines standards of performance for flat sheets of cellulose-cement products. The results are summarised as follows:-

(i) **Determination of Flexural Strength – Modulus of Rupture**: results gave Eterpan a category 2 for a type A board (external use) in AS 2908.2, section 6.

(ii) **Determination of Water tightness**: requirements for a type A (external) sheet in AS 2908.2 met (i.e no water droplets on the reverse side of the sheet were evident).

(iii) **Determination of Resistance to Hot Water Soaking**: after hot water soaking the test samples did not show any visible cracks, structural alteration, or delamination as required in AS 2908.2 for type A (external sheets). The 95% confidence limit of the ratio of mean hot water MOR to mean control MOR was above 0.8 as also required.

(iv) **Determination of Resistance to Heat/Rain**: after heat/rain exposure, the test samples did not show any visible cracks, structural alteration, or delamination as required in AS 2908.2 for type A (external sheets).

(v) **Determination of Resistance to Freeze/Thaw**: after freeze/thaw exposure, the test samples did not show any visible cracks, structural alteration, or delamination as required in AS 2908.2 for type A (external sheets).

**Code Compliance**

Eterpan has a BRANZ 50 year durability opinion, ref BDO 98/3 and meets the following performance criteria of the N.Z.B.C.

1. Durability:
   a. When as a non structural part of the building envelope Eterpan meets the N.Z.B.C durability requirement of 15 years according to clause B2.3.1(b).
   b. When as a structural part of the building envelope Eterpan meets the N.Z.B.C durability requirement of 50 years according to clause B2.3.1(a), when coated with a water impermeable treatment, maintained over the life of the product.
   c. Eterpan is producer guaranteed against physical or mechanical deterioration for 50 years.
2. Hazardous Building Materials:

Eterpan is a non hazardous product according to N.Z.B.C Performance F2.

Density
Bending strength (24h immersed in water) // T
Frost resistance
Reaction to fire according to ISO 1182
Heat and total heat release rates AS/NZS 3837
Smoke development
Ignition
Surface Spread of Flame
Heat Evolved

7. Advantages

- No flame spread, no fume development, no toxic gasses
- Resistant to high temperatures
- Water resistant
- Truly monolithic core
- Resistant to fungae, bacteria, insects, vermin, etc.
- Resistant to many chemicals
- Environmentally friendly, no harmful gas emissions
- Frost resistant
- High dimensional stability
- Strong and rigid sheet
- Versatile and easy to install

8. Working guidelines

Cutting:
- Pacific Build Supply Ltd operates a CNC waterjet cutting machine in Auckland that facilitates the cutting of intricate designs with minute tolerances. Please contact Pacific Build Supply Ltd for more information.

For on site cutting:
- With a stationary saw, slow rotation with tungsten carbide-tipped blade or fast rotation with a fluted diamond cutting blade.
- With a hand circular saw (with rail), slow rotation with tungsten carbide-tipped blade or fast rotation with a fluted diamond cutting blade.
- With a jigsaw with tungsten carbide-tipped tooth cutting blade
- Conventional woodworking equipment can be used but in general wear faster and have lower quality edges.

Edge finish:
- Use a fine emery cloth or sanding block
- Edges to be sealed as part of the specified architectural finish. No other requirements for edge sealing.

Drilling:
- For holes: carbide tipped twist drill with a 60° nose angle
- For round apertures: cup drill or circular cutter, carbide-tipped

The sheet should be supported around the hole to be drilled (e.g. by a wooden surface).
- Cutting and drilling must take place in a dry environment. All residual dust must be removed immediately from the sheet with a dry towel to avoid permanent stains.
Fixing:

The method and choice of the fixings (e.g. stainless steel, aluminium ...) is dependent on the application and the environment.

1) Structural adhesive (concealed fixing):
ETERPAN can be fixed with a structural adhesive. The back of the sheet must be sanded (sand paper P80) and sealed at the area where the adhesive is applied. The only adhesive to be used is specified by Pacific Build Supply Ltd in accordance with the Pacific Build Supply Ltd application guidelines. Further information is available from Pacific Build Supply Ltd.

2) Screwing:
Use screws as specified by Pacific Build Supply Ltd. On XpressClad aluminium rails the screws are 19 mm long stainless steel self-tapping countersunk screws or 25 mm long stainless steel self tapping screws in combination with 10g stainless steel cup washers. To fix Eterpan on VentClad timber battens use 63 mm long stainless steel countersunk screws (for flushed finish) or 70 mm long stainless steel with sq drive head and stainless steel cup washers for featured fixings.
Sheets need to be predrilled with the appropriate diameter.
Respect the fixing patterns as specified by Pacific Build Supply Ltd. Min distance to the edge of the sheet is 15 mm and 100 and 50 mm to the edges at the corner of the sheets.

3) Nailing:
In some applications, it is possible to nail Eterpan sheets. Specifications of the nails as well as fixing patterns depend on the application and can be found on the Pacific Build Supply website or by contacting Pacific Build Supply Ltd directly. Min distance to the edge of the sheet is 15 mm and 100 and 50 mm to the edges at the corner of the sheets.

Caulking:
Only use products recommended by Pacific Build Supply Ltd. Non-neutral silicones or thiokols can result in staining.

Health and safety aspects:
While the sheets are being processed, dust will be released which may irritate airways and eyes. It is recommended that a minimum P2 dust mask and safety goggles be worn. Appropriate dust extraction or proper ventilation should be used depending on the room in which the work is being carried out or the equipment being used. Long-term exposure to dust may be harmful to health.

9. Handling
The sheets are packed on pallets. They must be kept dry during transport. The sheets must be horizontally stacked on a flat surface. The sheets must always be sufficiently supported so that they do not sag. The sheets must be stored in a dry ventilated space. If the sheets are stored outside, they must always be protected against rain by a tarpaulin or plastic sheet. If the sheets do become wet in the packing, all packaging must be removed and the sheets must be wiped dry and placed in a way that they can dry completely. A sheet must always be lifted from a stack by two people and then be carried on edge.

10. Guarantee
The guarantee and the guarantee conditions are available on request from Pacific Build Supply Ltd,
4238CB CELCRETE BLOCK – Rev A

1. GENERAL

This section relates to the laying and reinforcing of Celcrete AAC concrete blocks on a rigid backing over lightweight timber framing construction as shaped veneer substrate for solid plaster.

1.1 RELATED WORK
Refer to 4231V PBS VENTCLAD PLASTERED FINISH CLADDING for substrate
Refer to 4272 BRICK SLIP VENNER ofr waterproofing & adhesive
Refer to 4280SOLID PLASTER for plastering

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

The following abbreviations apply specifically to this section:
AAC Autoclaved Aerated Concrete

Documents

1.3 DOCUMENTS REFERRED TO
Documents referred to in this section are:
NZBC H1/AS1 Energy efficiency
AS/NZS 1170.2 Structural design actions - Wind actions
NZS 1170.5 Structural design actions - Earthquake actions - New Zealand
AS/NZS 2904 Damp proof courses and flashings
NZS 3101.1 & 2 Concrete structures standard - The design of concrete structures
NZS 4210 Masonry construction - Materials and workmanship
AS/NZS 4347.0 Damp-proof courses and flashings - method of test - General introduction, list of methods and test specimen requirements
AS/NZS 4671 Steel reinforcing materials

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

1.4 MANUFACTURER'S DOCUMENTS
Manufacturer’s documents related to this section are;

Manufacturer/supplier contact details;
Company: CELCRETE International Limited
Web: www.celcrete.net
Telephone: (07) 579 5277
Fax: (07) 579 5299
Email: celcrete@xtra.co.nz

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
25 years: For materials

- Provide this warranty on the manufacturer/supplier standard form.
- the warranty from the date of practical completion of the contract works.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - INSTALLER/APPLICATOR
Provide an installer/applicator warranty:
15 years: For Application

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 NO SUBSTITUTIONS
Substitutions are not permitted to any specified Celcrete concrete masonry or associated products.

1.8 QUALIFICATIONS
Blocklayers to be experienced competent builders familiar with the required Celcrete type of block laying.

1.9 CONSTRUCTION OBSERVATION BY ENGINEER
Inspection to be carried out at critical stages, including set out, reinforcing, and prior to and during grouting. Where inspection is required as a condition of the building consent, advise the engineer when inspections are required.

Obtain the producer statements required from the engineer relating to the masonry construction and keep with the building consent documentation.

1.10 QUALITY RECORDS
Keep accurate records relating to the construction, and make the information available to the Building Consent Authority inspector on request.

Performance

1.11 WIND ZONE
The design wind pressures are to NZS 3604, up to and including Extra High Wind Zone. The details and information contained in the Celcrete technical manual are suitable for these conditions.

1.12 INSTALLATION PERFORMANCE
The Celcrete installer must accept responsibility for the installation of the block forms.

Quality control and assurance

1.13 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. Permit representatives from Celcrete to inspect the work in progress and to take samples of their products from site.

2. PRODUCTS

Materials

2.1 CELCRETE AAC BLOCKS
AAC, a solid inert, lightweight masonry building material.
Width: 300mm, 250mm, 200mm, 150mm 125mm & 100mm
Height: 200mm and 300mm
Length: 600mm

2.2 FACING/VENEER BLOCKS
Block size to be suited to form of final shape required.
Cut to match details and forms of original chimney on off-site from full blocks; refer to Celcrete Block Building System manual.
2.3 SCREWS
12g x 125mm stainless steel purlin fixing screws, countersunk minimum 10mm into block, to AS 3566 and NZBC E2/AS1 Table 20.

Components

2.4 THick BED mortar
Refer to 4272 BRICK SLIP VENEER for waterproofing and adhesive of veneer to substrate.
All other joints are glued with Celcrete mortar glue, supplied with the Celcrete Block.

2.5 SEALANT
Protectosil WS 205. A silane based emulsion.

Plaster system
Refer to 4282 SOLID PLASTER

3. EXECUTION

Conditions

3.1 DELIVERY AND STORAGE
Keep products dry in transit. Take delivery of products dry and undamaged. Reject all damaged materials.

3.2 STORAGE
Deliver all materials on pallets provided. Provide dry, covered well ventilated storage on site, clear of ground. Stack materials carefully, and protect from mechanical damage. Keep bagged materials off concrete surfaces on a timber pallet or timber dunnage.

3.3 CONFIRM LAYOUT
Confirm the layout before commencing work.

3.4 TOLERANCES
Construct within the tolerances set out in NZS 4210: clause 2.6.5, Tolerances and clause 2.7, Laying the units, unless specified otherwise on the drawings or in this specification. Lay blocks with jointing of consistent thickness throughout.
Lay masonry to an even, plane surface with no deviation exceeding 3mm in 3 metres on any surface in view in the finished work.

3.5 CHECK SUBSTRATE
Check that the fibre cement substrate on which masonry is being built is true to line and plumb, to ensure that work can be taken up true and plumb.

3.6 MOISTURE CONTENT
Ensure that blocks are air-dry prior to laying.

3.7 PROTECTION
Keep fair face block walls clean of mortar glue splashes, or stains of any kind as the work proceeds and before any droppings set, and protected from weathering prior to sealing to avoid instances of damage and staining.

3.8 WEATHER PRECAUTIONS
When extreme temperatures prevail, either below 4°C or above 27°C, make adjustments to construction as listed in NZS 4210: clause 2.18, Cold weather construction, and clause 2.19, Hot weather construction. Do not use expansive grout in temperatures below 5°C.

Application

3.9 SELECTION
For fair face walls select blocks for consistent colour, texture and lack of imperfections. Refer to clause PROTECTION.
3.10 CUTTING
Cut using carbide tipped saw to provide clean, accurate cuts.

3.11 CONSTRUCTION
Where shown on the drawings or where nominated below, construct veneer using Celcrete block. Build the veneer by gluing the blocks with Celcrete mortar glue in a running bond pattern, joints not exceeding 1-2mm thick. The teeth of the trowel will spread the mortar glue to the appropriate depth. Note that all edges should be glued. Refer to Celcrete technical manual March. 2009.

3.12 CLEANING JOINTS
After each block is placed, run the trowel across the joint to remove any mortar glue that has overspilled or been squeezed out. At the end of each day scrape the wall down to remove any further spillages.

3.13 TOOLS
Use the tools listed in the Celcrete Block Building System technical manual.

3.14 BRACING
If in a high wind area provide sufficient temporary lateral bracing to ensure stability until the final supporting construction is in place.

3.15 ADHERE ON COMPONENTS
Use Celcrete mortar glue to attach any Celcrete components such as sills, parapet capping, window surrounds and decorative feature work. Sills are cut at an angle of 20 degrees.

Application - finishing systems

3.16 INSPECTION
The Applicator shall inspect the Celcrete surface to be coated and report to the main contractor if the applicator believes that work cannot be completed to the required standard due to the condition of the block surface.

3.17 PROTECTION
All adjoining surfaces and areas susceptible to damage from coating or paint over-spill must be covered and protected accordingly by the applicator.

3.18 EXTERNAL ENVIRONMENTAL CONDITIONS
Ensure that work is conducted within the acceptable temperature range of each product as per the applicator and Celcrete technical data sheets.

3.19 PREPARATION OF SUBSTRATES & CORRESPONDING SURFACES
Prepare all surfaces to be coated to the requirements of the coating systems’ per Celcrete technical manual.

Completion

3.20 PROGRESSIVE CLEANING
Clean off mortar splashes and grout spills as they occur.

3.21 FINAL CLEANING
At completion, clean down block work, remove efflorescence and remove waste materials from adjoining surfaces and floors.

3.22 REPLACE
Replace damaged, cracked or marked elements.

3.23 REMOVE
Remove debris, unused materials and elements from the site.
4. **SELECTIONS**
   Refer to ‘Schedule of Selections’ in drawing set.
4272 BRICK SLIP VENEER – Rev A

1. GENERAL

This section relates to the supply, laying and fixing of non-load bearing brick;
- as a non-structural decorative veneer
- adhered directly to an approved substrate with a mortar based adhesive
- for exterior applications
- as pointed brick veneer

1.1 RELATED WORK

Refer to 4231V PBS VENTCLAD PLASTERED FINISH CLADDING for substrate

Appended project specific Mapei specification

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
NZS 3604 Timber-framed buildings

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

1.3 MANUFACTURER/SUPPLIER DOCUMENTS

Manufacturer's and supplier's documents relating to this part of the work:
Mapei Primer G technical data sheets
Mapelastic Smart technical data sheets
Mapei Kerabond technical data sheets
Mapei Isolastic technical data sheets

Refer to appended job specific Mapei Specification.

Manufacturer/supplier contact details
Company: Mapei
Web: www.mapei.co.nz
Telephone: 09 921 1994

Warranties

1.4 WARRANTY

Provide warranty for:
5 years: For materials and application
- 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.

1.5 WARRANTY - MANUFACTURER/SUPPLIER

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

Refer to the general section 1237 WARRANTIES for additional requirements.

1.6 WARRANTY - INSTALLER/APPLICATOR

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.7 QUALIFICATIONS
Work to be carried out by tradesmen experienced, competent and familiar with the materials and techniques specified.

1.8 SALVAGE OF EXISTING BRICKS
The existing bricks from the demolished chimney are to be salvage for re-use, bricks to be cleaned of all original mortar and paint.
Contractor is to undertake a detailed measured survey of the existing chimney exterior details, capping and pots so that a true replication can be achieved.

2. PRODUCTS

Materials – Brick slips

2.1 INDIVIDUAL BRICK SLIPS
Salvaged existing bricks from chimney, cut existing brick with a wet masonry bench saw to a thickness of 20mm, exterior face of brick is to be retained as slip.
Brick slips to be dry and free from all dust
Refer to SCHEDULE OF SELECTIONS for type.

Materials - primer

2.2 SUBSTRATE PRIMER
Proprietary waterproofing membrane primer to be:
Mapei ‘Primer G’

2.3 WATERPROOFING
Proprietary waterproofing membrane to be:
Mapei ‘Mapelastic Smart.’

Materials - adhesive

2.4 ADHESIVE – BRICK SLIPS
Masonry Mortar Mix sand and cementitious adhesive.
Mapei ‘Kerabond Plus with Isolastic additive at 100%’
Refer to SELECTIONS.

Materials - sealer for brick slip

2.5 SEALER
When required use a long life penetrating masonry sealer suitable for brick products after installation.

Accessories

2.6 CAPSTONES
CapStones to be AAC formed to profiles detailed in drawings and to match existing original chimney.
Refer to SCHEDULE OF SELECTIONS.

2.7 SILLS/DADO DETAILS
Sills/dado details to be AAC formed to profiles detailed in drawings and to match existing original chimney.
Refer to SCHEDULE OF SELECTIONS.
3. EXECUTION

Conditions

3.1 WET WEATHER
Keep brick slips and AAC forms dry at all times prior to laying. Protect the top row of uncompleted stone walls. Protect freshly laid stonework during interruption through rain and at completion of each day's work.

3.2 KEEP FACE WORK CLEAN
Keep clean during erection and until completion of the contract works. Turn back scaffold boards at night and during heavy rain. Do not rub face work to remove stains.

3.3 COLOUR MIXING
Check all bricks delivered to site for colour variation, prior to commencing work. Ensure veneers are thoroughly blended from several cartons to ensure an even colour spread throughout the work.

Substrate

3.4 SUBSTRATE - GENERAL
Confirm the substrate is suitable for the veneer application, installed to the manufacturer's installation requirements, as required by NZBC B1/AS1 and to meet stone cladding manufacturers requirements.

Preparation

3.5 SURFACE PREPARATION
Ensure the substrate is dry and free of all dust, paint or other surface contaminants before commencing the veneer installation.

3.6 WATERPROOFING / SUBSTRATE PRIMER
When a primer or waterproofing membrane is required ensure product is compatible with the chosen adhesive and complies with manufacturer's instructions.

Installation – brick slip veneer

3.7 PRIOR TO LAYING
Ensure a random mix by opening at least three boxes to select brick slips. Achieve running bond look by using slips in straight coarses, smooth surfaces to face outward, cut face adhered. Do not lay dis-similar modules together.

3.8 BONDING TO SUBSTRATE
Use flexible adhesive mortar as recommended by the supplier to bond the veneer to the substrate and comply with manufacturer's requirements. Press and bond brick slip firmly to the substrate by giving it a firm wriggle. The mortar will squash up around the brick slip and can be either brushed or scratched back after 30 to 60 minutes, or pointed out to suit the required look.

3.9 INSTALL TO A POINTED FINISH
Install brick slips to allow for a pointed finish, form a 10mm perpend between all bricks suitable for pointing to match existing.

3.10 INSTALL CORNER PIECES
Apply the corner brick pieces first. Use a chalk line at approximately 300mm centres to keep the levels straight and to give a guideline. Apply sufficient mortar to the back of the brick veneer piece with a 6mm to 8mm notched trowel and press firmly onto the wall.

3.11 EXCESS MORTAR ADHESIVE
Avoid getting adhesive onto the surface of the brick veneer. Ensure any excess mortar adhesive is cleared off regularly using a sponge or brush.
3.12 CONTROL JOINTS
Where manufactured individual brick types cross a control joint, apply mortar to the longest side of the veneer only and avoid mortar crossing the join in the sheet.

Completion

3.13 PROGRESSIVE CLEANING
Clean off all contaminants from the face work immediately after they occur.

3.14 LEAVE
Leave work to the standard required by following procedures.

3.15 REMOVE
Remove any temporary structures, all debris, unused materials and elements from the site.

4. SELECTIONS
Refer to ‘Schedule of Selections’ in drawing set.
Isolastic is a type of latex mixed into Kerabond, Kerabond T, Kerafloor and Adesilex P10, either as is or diluted 1:1 with water, in order to meet the requirements defined in EN 12004 for the following classifications:

<table>
<thead>
<tr>
<th>Product</th>
<th>Classification according to EN 12004</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerabond + Isolastic</td>
<td>C2ES1</td>
<td>Improved, deformable cementitious adhesive with extended open time</td>
</tr>
<tr>
<td>Kerabond + Isolastic diluted 1:1 with water</td>
<td>C2ES1</td>
<td>Improved, deformable cementitious adhesive with extended open time</td>
</tr>
<tr>
<td>Kerabond T + Isolastic</td>
<td>C2ES2</td>
<td>Improved, highly deformable cementitious adhesive with extended open time</td>
</tr>
<tr>
<td>Kerabond T + Isolastic diluted 1:1 with water</td>
<td>C2ES2</td>
<td>Improved, highly deformable cementitious adhesive with extended open time</td>
</tr>
<tr>
<td>Kerafloor + Isolastic</td>
<td>C2ES1</td>
<td>Improved, deformable cementitious adhesive with extended open time</td>
</tr>
<tr>
<td>Kerafloor + Isolastic diluted 1:1 with water</td>
<td>C2ES1</td>
<td>Improved, deformable cementitious adhesive with extended open time</td>
</tr>
<tr>
<td>Adesilex P10 + Isolastic diluted 1:1 with water</td>
<td>C2ES1</td>
<td>Improved, deformable cementitious adhesive with extended open time</td>
</tr>
</tbody>
</table>

WHERE TO USE

**ISOLASTIC + KERABOND, KERABOND T and KERAFLOOR**

For interior and exterior bonding of:
- Ceramic tiles of every type (double fired, single fired, grès, klinker, glass mosaic, porcelain tiles etc.);
- Stone material and large-size tiles.

**ISOLASTIC DILUTED WITH WATER AT A RATIO OF 1:1 + ADESILEX P10**

Bonding on internal and external floors or vertical surfaces of glass or ceramic mosaic on paper or mesh backings, even heavy ones.

Some application examples

**ISOLASTIC + KERABOND or KERABOND T**

- Ceramic tiles over underfloor heating installations.
- Ceramic tiles over underfloor heating installations, swimming pools, balconies, terraces.
- All types of ceramic tiles, including slim tiles on façades.
- Ceramic tiles on precast concrete walls (load-bearing panels, precast bathrooms, walls in "tunnel" systems, etc.).
- Ceramic tiles on old flooring (ceramic, marble, terrazzo, wood etc.).
- Ceramic tiles on asphalt screeds or substrates.
- Ceramic tiles on deformable substrates (gypsum-board panels, reinforced concrete, fibre-cement board, etc.).

**ISOLASTIC-KERAFLOOR**

For interior and exterior bonding of:
- Large-size ceramic tiles (over 30x30 cm);
- Ribbed klinker tiles, cotto toscano, stone slabs, etc., needing layers of adhesive thicker than 5 mm;
- Ceramic tiles on substrates with irregularities up to 15 mm.

**ISOLASTIC DILUTED 1:1 WITH WATER + ADESILEX P10**

- Laying glass or ceramic mosaic on non-absorbent surfaces (Mapelastic, Mapegum WPS, tiles, etc.).
- Laying glass or ceramic mosaic in swimming pools, storage tanks, etc., or even on absorbent surfaces.
- Laying glass or ceramic mosaic on flexible surfaces (plasterboard panels, reinforced cement, cement fibre, wood or derived materials, provided they are well fastened).
TECHNICAL CHARACTERISTICS
Isolastic is a very fluid, pinkish-white liquid composed of a water dispersion of an extremely
elastic polymer which, when mixed with cement
based adhesives, improves adhesion to all
substrates, deformability and impermeability,
onece hydration has taken place.

RECOMMENDATIONS
Kerabond, Kerabond T, Kerafloor or
Adesilex P10 mixed with Isolastic must never be used for:
• Installing stone slabs subject to moisture
movement;
• Installing marble or natural stone subject to
efflorescence or staining from moisture;
• Installing tiles in reservoirs, swimming pools
or refrigerationrooms that need to be put into
service quickly;
• Installing on metal, rubber, PVC, and linoleum
surfaces.
• at temperatures lower than +5°C or higher
than +40°C.

In dry, hot climates, the open time of adhesive
made by mixing Isolastic into Kerabond,
Kerabond T, Kerafloor or Adesilex P10 is
lower and a skin forms on the surface, which
must then be removed by trowelling the
adhesive.

APPLICATION PROCEDURE
Preparing the substrates
All substrates receiving Kerabond, Kerabond T, Kerafloor or Adesilex P10 + Isolastic must be
flat, mechanically strong, free from loose parts,
grease, oil, paint, wax, etc. Precast concrete
elements or in situ concrete must be cured for at
least 3 months in favourable weather conditions.
Cementitious substrates must not be subject
to shrinkage once the tiles have been installed,
therefore in warm weather render should
be cured at least one week per centimetre of
thickness. Cementitious screeds must have an
overall cure of at least 28 days unless they have
been made with the special Mapei binders for
screeds such as Mapescre, Mapescrem Pronto,
Topcem or Topcem Pronto.

Surfaces that are too hot due to exposure to
direct sunlight should be cooled by dampening
them with water.

Gypsum substrates and anhydrite screeds must
be perfectly dry (maximum residual moisture
0.5%), sufficiently hard and free from dust.
They must always be treated with Primer G
or Eco Prim T. Areas subject to extreme damp
must be primed with Primer S.

As a general rule, refer to the relative MAPEI
technical documentation about substrate
preparation before repairing cracks in
substrates, consolidating rapid-drying screeds
and levelling off installation surfaces.

Mixing ratio
The mixing ratio is determined by the degree
of deformability required of the adhesive: use
Isolastic as a complete substitute for water
when a highly deformable adhesive (class S2
according to EN 12004) is required, e.g. for
substrates subject to strong size variations such
as concrete structures with less than 6 months
curing, for large size tiles or slabs or for those
subject to considerable sudden temperature
changes.

Isolastic diluted 1:1 with water may be used
when a deformable adhesive is required
(class S1 according to EN 12004), for example
on moderately unstable substrates, cured
concrete substrates, etc.

Mixing ratios:

<table>
<thead>
<tr>
<th>Product</th>
<th>Mixing ratio</th>
<th>Parts in weight</th>
<th>Kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kerabond + Isolastic</td>
<td>Kerabond : Isolastic = 1:2:3</td>
<td>8.5 kg of Isolastic + 25 kg bag of Kerabond</td>
<td></td>
</tr>
<tr>
<td>Kerabond + Isolastic diluted 1:1 with water</td>
<td>Kerabond : Isolastic : water = 1:1:6</td>
<td>8.6 kg of Isolastic + 1 kg of water per 25 kg bag of Kerabond</td>
<td></td>
</tr>
<tr>
<td>Kerabond T + Isolastic</td>
<td>Kerabond T : Isolastic = 100:20</td>
<td>8.5 kg of Isolastic per 25 kg bag of Kerabond</td>
<td></td>
</tr>
<tr>
<td>Kerabond T + Isolastic diluted 1:1 with water</td>
<td>Kerabond T : Isolastic : water = 1:1:6</td>
<td>8.6 kg of Isolastic + 1 kg of water per 25 kg bag of Kerabond</td>
<td></td>
</tr>
<tr>
<td>Kerafloor + Isolastic</td>
<td>Kerafloor : Isolastic = 100:30</td>
<td>7.5 kg of Isolastic per 25 kg bag of Kerabond</td>
<td></td>
</tr>
<tr>
<td>Kerafloor + Isolastic diluted 1:1 with water</td>
<td>Kerafloor : Isolastic : water = 1:1:4</td>
<td>7.6 kg of Isolastic + 4 kg of water per 25 kg bag of Kerabond</td>
<td></td>
</tr>
<tr>
<td>Adesilex P10 + Isolastic diluted 1:1 with water</td>
<td>Adesilex P10 : Isolastic : water = 1:1:6</td>
<td>4.5 kg of Isolastic + 4.5 kg of water per 25 kg bag of Adesilex P10</td>
<td></td>
</tr>
</tbody>
</table>

Preparing the mix
When Isolastic is used in dilution with water,
thermally blend part of the Isolastic with a
small amount of clean water first.
Pour the powder into the liquid and continuously
stir the mix with a slow speed mechanical stirrer
until it becomes a smooth paste free of lumps.
Let the mix stand for a few minutes and, after
further stirring, proceed with the application.

Spreading the mix
Apply the adhesive on the substrate using a
notched trowel. Use a trowel with a notch size
which guarantees adequate buttering.
To get good adhesion, spread an initial thin
## TECHNICAL DATA (typical values)

Comply with the following conditions:

- European U/L 1990 Class B2 S1 d0 Kombond
- European A1 S1 d0 Kombond
- German DIN 4102:1997-03, Kombond
- American ASTMF 454-86 and 4-89, Kombond
- ASTM C984:1993, Kombond

### PRODUCT IDENTITY

<table>
<thead>
<tr>
<th>Type</th>
<th>fluid liquid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>cement white</td>
</tr>
<tr>
<td>Density (g/cm³)</td>
<td>1.6</td>
</tr>
<tr>
<td>pH</td>
<td>7</td>
</tr>
<tr>
<td>Dry solid content (%)</td>
<td>30</td>
</tr>
<tr>
<td>Specific gravity (specific gravity)</td>
<td>42</td>
</tr>
</tbody>
</table>

### APPLICATION DATA (at 20°C / 68°F, full)

<table>
<thead>
<tr>
<th></th>
<th>Kombond or Kombond T + Isolastic</th>
<th>Kombasr + Isolastic</th>
<th>Additive P10 + Isolastic diluted 1/1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixing ratio</td>
<td>100 : 98 ([14 parts of water and 10 parts of Isolastic]</td>
<td>100 : 90</td>
<td>100 : 88</td>
</tr>
<tr>
<td>Consistency of mix</td>
<td>very pasty</td>
<td>very pasty</td>
<td>very creamy</td>
</tr>
<tr>
<td>Colour</td>
<td>grey/white</td>
<td>grey</td>
<td>white</td>
</tr>
<tr>
<td>Density of the mix (kg/m³)</td>
<td>1,000</td>
<td>1,500</td>
<td>1,400</td>
</tr>
<tr>
<td>unit of use</td>
<td>50 kg</td>
<td>50 kg</td>
<td>50 kg</td>
</tr>
<tr>
<td>Pot life</td>
<td>8 hours</td>
<td>8 hours</td>
<td>8 hours</td>
</tr>
<tr>
<td>Application temperature range</td>
<td>from -10°C to +40°C</td>
<td>from -10°C to +40°C</td>
<td>from -10°C to +40°C</td>
</tr>
<tr>
<td>Open time (according to DIN 18146)</td>
<td>30–90 minutes</td>
<td>30–90 minutes</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Adhesivity (min)</td>
<td>45 minutes</td>
<td>45 minutes</td>
<td>45 minutes</td>
</tr>
<tr>
<td>Gelling time (min)</td>
<td>after 4–8 hours</td>
<td>after 6–8 hours</td>
<td>after 4–8 hours</td>
</tr>
<tr>
<td>Unsetting time (h)</td>
<td>after 24 hours</td>
<td>after 24–36 hours</td>
<td>after 24 hours</td>
</tr>
<tr>
<td>Net to light foot traffic</td>
<td>24 hours</td>
<td>24–36 hours</td>
<td>24 hours</td>
</tr>
<tr>
<td>Ready to use</td>
<td>14 days</td>
<td>14 days</td>
<td>14 days</td>
</tr>
</tbody>
</table>

### PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th></th>
<th>Kombond or Kombond T + Isolastic</th>
<th>Kombasr + Isolastic</th>
<th>Additive P10 + Isolastic diluted 1/1</th>
</tr>
</thead>
<tbody>
<tr>
<td>tensile adhesion strength [according to DIN 53159-3/9 (mm/h)]</td>
<td>3.4</td>
<td>3.6</td>
<td>5.1</td>
</tr>
<tr>
<td>after 58 days</td>
<td>3.4</td>
<td>3.6</td>
<td>5.1</td>
</tr>
<tr>
<td>after testing</td>
<td>2.4</td>
<td>2.4</td>
<td>3.0</td>
</tr>
<tr>
<td>after water immersion</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>after freeze-thaw cycle</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Resistance to mildew</td>
<td>excellent</td>
<td>excellent</td>
<td>excellent</td>
</tr>
<tr>
<td>Resistance to salt</td>
<td>excellent (pores to vegetable oil)</td>
<td>excellent</td>
<td>excellent</td>
</tr>
<tr>
<td>Temperature of use</td>
<td>from -10°C to +40°C</td>
<td>from -10°C to +40°C</td>
<td>from -10°C to +40°C</td>
</tr>
<tr>
<td>Dampness according to DIN 18004</td>
<td>&gt; 8 mm</td>
<td>&gt; 8 mm</td>
<td>&gt; 2 mm</td>
</tr>
<tr>
<td>resistant to</td>
<td>82 higher</td>
<td>82 higher</td>
<td>21 deformable</td>
</tr>
<tr>
<td>deformability</td>
<td>deformable</td>
<td>deformable</td>
<td>deformable</td>
</tr>
</tbody>
</table>
layer of the adhesive mix on the substrate using the smooth side of the trowel, then immediately apply another layer of adhesive to the thickness required using the notched part of the trowel. Use a trowel suitable for the type and format of the tiles to guarantee that the backs of the tiles are adequately buttered.

**Installing the tiles**

The same recommendations apply as set out for the adhesive with which the Isolastic is mixed. However, greater attention should be paid to the open time which, in the equivalent relative temperature and humidity conditions, will be slightly shorter than the open time of the basic product.

**N.B.**

**GROUTING AND SEALING**

Wall joints can be grouted after 4-8 hours and floor joints after 24-36 hours with the special MAPEI cementitious or epoxy grouts, available in different colours. Expansion joints must be sealed with the special MAPEI sealants.

**SET TO LIGHT FOOT TRAFFIC**

Floors are set to light foot traffic after 24-36 hours.

**READY FOR USE**

Surfaces are ready for use after approximately 14 days. Basins and swimming pools can be filled after 4 weeks.

**Cleaning**

Tools can be cleaned using plenty of water before the adhesive begins to set. After setting, cleaning becomes very difficult, but can be helped with a solvent such as white spirit.

**CONSUMPTION (kg/m²)**

<table>
<thead>
<tr>
<th>Product</th>
<th>Consumption (kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product powder</td>
<td>Isolastic</td>
</tr>
<tr>
<td>Kerabond/Kerabond T + Isolastic</td>
<td>5-3</td>
</tr>
<tr>
<td>Kerabond/Kerabond T + Adhesive P19 + Isolastic diluted 1:1 with water</td>
<td>2-3</td>
</tr>
<tr>
<td>Kerabond/Kerabond T + Kerallier + Isolastic</td>
<td>4-5</td>
</tr>
<tr>
<td>Kerabond/Kerabond T + Adhesive P19 + Isolastic diluted 1:1 with water</td>
<td>4-5</td>
</tr>
<tr>
<td>Large tiles</td>
<td>&gt; 6</td>
</tr>
<tr>
<td>Kerabond/Kerabond T + Adhesive P19 + Isolastic diluted 1:1 with water</td>
<td>&gt; 6</td>
</tr>
</tbody>
</table>

**PACKAGING**

25, 10 and 5 kg drums and 1 kg packs.

**STORAGE**

Isolastic can be stored for 24 months in the original packing. Protect from frost.

**SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION**

Isolastic is not hazardous according to the regulation standards on the classification of mixtures. It is recommended to wear protective gloves and goggles and to take the usual precautions for handling chemical products. For further and complete information about the safe use of our product please refer to our latest version of the Material Safety Data Sheet.

**PRODUCT FOR PROFESSIONAL USE.**

**WARNING**

Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

All relevant references for the product are available upon request and from www.mapei.com
CLASSIFICATION IN COMPLIANCE WITH EN 12004

Kerabond is a normal (1) cementitious (C) adhesive of class C1.

Conformity of Kerabond is declared in ITT certificate n° 25070080/GI (TUM) and 25080025/GI (TUM) issued by the Technische Universität München laboratory (Germany).

WHERE TO USE
- Indoor and outdoor fixing of ceramic tiles and mosaics of all types on floors, walls and ceilings;
- Spot bonding of insulating materials such as expanded polystyrene, expanded polyurethane, rock and glass wool, wood-cement and sound-deadening panels etc.

Some application examples
Paper-faced or mesh-backed and all types of ceramic tiles (quarry tiles, single fired and klinker tiles, etc.), on:
- conventional renders or cement mortar walls;
- ordinary concrete slabs or reinforced floating slabs, provided they are sufficiently well aged and dry;
- gypsum supports and anhydrite screeds as long as they are first treated with a primer.

TECHNICAL CHARACTERISTICS
Kerabond is a grey or white powder composed of cement, fine-grade, synthetic resins and special additives formulated in the MAPEI Research and Development Laboratories.
Mixed with water, Kerabond becomes an easily trowellable mortar with good bonding strength, low slump and high grab so that it can be applied vertically without sagging, even holding heavy tiles.

Kerabond hardens without noticeable shrinkage to become extremely resistant, adhering perfectly to all the conventional materials used in construction.

N.B.: Mixing Kerabond with Isolastic in place of water improves the characteristics to meet the requirements of class C2ES2 (improved highly deformable cementitious adhesive with extended open time) according to EN 12004.

RECOMMENDATIONS
Use Kerabond mixed with Isolastic in the following cases:
- on foamed concrete walls;
- on pre-cast or cast-concrete structures;
- over underfloor heating installations;
- with large-size tiles;
- for the installation of glass mosaics;
- for the installation of stone materials as long as they are stable and moisture proof.

Do not use Kerabond in the following cases:
- on wooden substrates;
- on gypsum board walls;
- on metal, rubber, PVC and linoleum surfaces;
- for laying tiles which require a layer of adhesive more than 5 mm thick;
- where the surface must be set to light foot traffic rapidly;
- for the installation of non-absorbent tiles (quarry tiles, single-fired tiles, klinker tiles, etc.) on other non-absorbent wall and floor substrates.

APPLICATION PROCEDURE
Preparing the substrate
The substrates must be cured, mechanically strong, free
from loose particles, grease, oils, paint, wax and sufficiently dry. Cement substrates must not be subject to shrinkage after the installation of the tiles. During spring and summer, renders must be cured for at least one week for every centimetre of thickness and cement screeds must be cured for at least 28 days, unless they have been made with MAPEI special binders for screeds such as Mapcem, Mapcem Pronto, Topcem or with Topcem Pronto.

Dampen with water to cool surfaces which have been heated by exposure to sunlight. Gypsum substrates and anhydrite screeds must be perfectly dry (max. residual moisture 0.5%), sufficiently hard and free of dust. They must be treated with Primer G or Eco Prim T, while areas subject to high humidity must be treated with Primer S. In general, refer to the relative MAPEI technical documentation regarding substrate preparation before repairing cracks in substrates, consolidating rapid-drying screeds and levelling installation surfaces.

Preparing the mix
Kerabond must be mixed with clean water to obtain an homogenous paste free of lumps; after 5-10 minutes resting, it must be re-mixed. The paste is then ready for use.

The quantity of water to be used is 25-28 parts per 100 parts (by weight) of Kerabond grey (equal to 6.25-7 litres of water for 25 kg of powder).

The mix, produced in this way, is workable for at least 8 hours.

Applying the mix
Kerabond is applied with a notched trowel onto the substrate. Choose a trowel that will give a coverage to the back of the tiles of at least 65-70% for walls or for indoor light foot traffic. For heavy traffic and for outdoor application, the coverage must be 100%.

To obtain good adhesion to the substrate the following system is recommended: first apply a thin coat of Kerabond using the smooth side of the trowel and immediately after apply the desired thickness of Kerabond using the toothed side of the trowel. In particular:
- for mosaics up to 5x5 cm, the MAPEI No. 4 square-notched trowel is recommended;
- for normal ceramic wall tiles, the MAPEI No. 5 V-notched trowel (consumption 2.5-3 kg/m²) is recommended;
- for floors, very irregular surfaces and tiles with high ribs or lugs, the MAPEI No. 6 V-notched trowel (consumption approx. 5 kg/m²) is recommended;
- in the case of outdoor ceramic floor and wall coverings subject to freezing, or in the case of other special uses such as swimming pools reservoirs, sizes larger than 9 dm², floors to be polished after installation or subject to heavy loads, Kerabond should be applied evenly to the back of the tile (back-buttering).

Installing the tiles
It is not necessary to wet the tiles before installation; if, however, the backs are very dusty, they should be wiped in clean water.

The tiles are installed under a firm pressure to ensure good contact with the adhesive.

Kerabond's open time in normal temperature and humidity is 20-30 minutes; unfavourable weather conditions (strong sun, drying wind, high temperature), or a highly absorbent substrate may shorten this open time, sometimes quite drastically, to just a few minutes.

For this reason, there must be constant checks to see whether the adhesive has formed a surface skin or is still fresh to the touch.

Should a surface skin have formed, the adhesive should be retrowelled. It is advisable to wet the adhesive when it has formed a skin because, instead of dissolving the skin, a non-adhesive film will be formed.

Adjustment of the tiles, if necessary, should be carried out within 60 minutes following installation, after which time, adjustment will become problematic.

Tiling installed with Kerabond must not be subject to washout or rain for at least 24 hours and must be protected from freezing and direct sun for at least 5-7 days after application.

Spot bonding insulating materials
Spot bonding of sound-deadening or insulating panels should be applied using a float or trowel. The required number and thickness determined by the flatness of the surface and weight of the panels.

In these cases too, the open time must be observed, bearing in mind that a few spots of adhesive on heavy panels may require temporary sharing which should then only be removed after the Kerabond has begun to set.

GROUTING AND SEALING
Wall joints between ceramic tiles can be grouted after 4-8 hours and floor joints can be grouted after 24 hours with the specific MAPEI cementitious or epoxy grouts, available in different colours. Expansion joints must be sealed with the specific MAPEI sealants.

SET TO LIGHT FOOT TRAFFIC
Floors are set to light foot traffic after approximately 24 hours.

READY FOR USE
Floors are ready for use after approx. 14 days.

Cleaning
Tools and hands can be cleaned with plenty of water, while surfaces should be cleaned with a damp cloth; water should be used only in moderate quantities and after a few hours.

CONSUMPTION
Ceramic tiling
Mosaics and small size tiles (trowel No. 4/5): 2.3 kg/m²
Normal size tiles (trowel No. 5/6): 4.5 kg/m²
Large sizes, floors, exteriors (trowel No. 6/10): > 6 kg/m² and over
**TECHNICAL DATA** (typical values)

In compliance with:
- European EN 13826 at C1
- European EN 13826 at C5665 if mixed with
  - Isolastic
- ISO 11600 at C1
- ISO 11600 at C5665 if mixed with Isolastic
- American ANSI A114.1:1988
- Canadian C280-04 type 3

<table>
<thead>
<tr>
<th>PRODUCT IDENTIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
</tr>
<tr>
<td><strong>Colour</strong></td>
</tr>
<tr>
<td><strong>Unit density [kg/m³]</strong></td>
</tr>
<tr>
<td><strong>Dry adhes cent (%)</strong></td>
</tr>
<tr>
<td><strong>RECORD</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>APPLICATION DATA (at ISO 11600 and 1160.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mix ratio</strong></td>
</tr>
<tr>
<td><strong>Consistency of mix</strong></td>
</tr>
<tr>
<td><strong>Density of mix [kg/m³]</strong></td>
</tr>
<tr>
<td><strong>pH of mix</strong></td>
</tr>
<tr>
<td><strong>Pour time</strong></td>
</tr>
<tr>
<td><strong>Application temperature</strong></td>
</tr>
<tr>
<td><strong>Open time (according to EN-1160.1)</strong></td>
</tr>
<tr>
<td><strong>Adhesivity time</strong></td>
</tr>
<tr>
<td><strong>Wall grouting</strong></td>
</tr>
<tr>
<td><strong>Floor grouting</strong></td>
</tr>
<tr>
<td><strong>Set weight foot traffic</strong></td>
</tr>
<tr>
<td><strong>Ready for use</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FINAL PERFORMANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adhesive strength according to EN 1160.1 (kN/m²)</strong></td>
</tr>
<tr>
<td>- initial adhesive strength after 24 hours</td>
</tr>
<tr>
<td>- initial adhesive strength after 56 days</td>
</tr>
<tr>
<td>- adhesive strength after water immersion</td>
</tr>
<tr>
<td>- cohesive strength after freeze-thaw cycles</td>
</tr>
<tr>
<td><strong>Resistance to frost</strong></td>
</tr>
<tr>
<td><strong>Resistance to salt</strong></td>
</tr>
<tr>
<td><strong>Resistance to solvent</strong></td>
</tr>
<tr>
<td><strong>Temperature resistance after thawed</strong></td>
</tr>
</tbody>
</table>

**N.B.** The technical data of Kerabond mixed with Isolastic are on the latter's technical data sheet.
Spot-bonding insulating materials
Foam materials, etc.: approx. 0.5-0.8 kg/m²
Gypsum wallboard, foamed concrete: approx. 1.5 kg/m²

PACKAGING
Kerabond is supplied in white and grey in:
25 kg paper bags;
4x5 kg carton boxes.

STORAGE
12 months when stored in a normal
environment and original packaging.
The product complies with the conditions of
(REACH), item 47.

SAFETY INSTRUCTION FOR
PREPARATION AND INSTALLATION
Kerabond is instant; contains cement that,
when in contact with sweat or other bodily
fluids, produces an irritant alkaline reaction
and allergic reactions in those predisposed.
Wear protective clothing, gloves and eye/face
protection. Avoid contact to the eyes and
skin.
For further and complete information about
the safe use of our product please refer to
our latest version of the Material Safety
Data Sheet.

PRODUCT FOR PROFESSIONAL USE.

WARNING
Although the technical details and
recommendations contained in this product
data sheet correspond to the best of our
knowledge and experience, all the above
information must, in every case, be taken as
merely indicative and subject to confirmation
after long-term practical application; for
this reason, anyone who intends to use the
product must ensure beforehand that it is
suitable for the envisaged application. In
every case, the user alone is fully responsible
for any consequences deriving from the use
of the product.

Please refer to the current version of the
Technical Data Sheet, available from our
website www.mapei.com

This symbol is used to identify Mapei products
which give off a low level of volatile organic
compounds (VOC) as certified by GEV (Gemein-
schaft Empfehlungen und Richtlinien Verlagswerke/GEV),
Klebstoffe und Bauprodukte e.V., an international
organisation for controlling the level of emissions
from products used for floors.

Our Commitment To The Environment
MAPEI products assist Project Designers
and Contractors create innovative LEED
(The Leadership in Energy and Environmental
Design) certified projects.
In compliance with the U.S. Green
Building Council.

All relevant references
for the product are available
upon request and from
www.mapei.com
WHERE TO USE
- For treating gypsum surfaces prior to fixing ceramic tiles.
- As an anchoring coat for gypsum-based sprayable plasters.
- To improve the bonding of smoothing compounds on cement, gypsum, asphalt, ceramic and marble surfaces cement based and calcium sulphate-based screeds and asphalt.
- To provide uniform absorption in cementitious or gypsum surfaces.

Some application examples
- Preparing cement-based surfaces prior to smoothing with self-levelling or thixotropic smoothing compounds.
- Between layers of smoothing compounds once the first coat is perfectly dry.
- On gypsum plasters prior to smoothing with cementitious products.
- On anhydrite surfaces prior to applying cement based products.
- On cementitious renders prior to smoothing with gypsum based products.
- On gypsum walls as a fixative for wallpaper adhesives.

- Before installing ceramic tiles with cementitious adhesives on:
  - gypsum plasters and sprayed gypsum;
  - prefabricated gypsum panels;
  - fibrous-gypsum panels;
  - anhydrite screeds.
- Treating gypsum walls, chipboard, cement fibre boards, foamed concrete, renders etc. prior to papering or painting.

TECHNICAL CHARACTERISTICS
Primer G is a water dispersion of special synthetic resins which, once applied to any surface, dry to form a flexible, compact, shiny coating which consolidates the surface, where needed. Primer G also improves the adhesion of smoothing compounds, paint, adhesive for wall paper, adhesive for tiles and mortar for renders.

The film of Primer G on the surface of gypsum or cement, prevents any chemical reaction between sulphates and the cement alluminates of the tile adhesives which, in the presence of moisture, leads to the formation of the salt “ettringite” which is the cause of tiles breaking away from gypsum substrates.

Primer G makes wallpaper stripping far easier and decreases the amount of glue used for paperhanging.

When used before applying sprayable plasters, Primer G prevents over-rapid absorption of water by the substrate, prolongs finishing time and helps prevent shrinkage cracks.
# TECHNICAL DATA (typical values)

## PRODUCT IDENTIFICATION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consistency</td>
<td>low viscosity liquid</td>
</tr>
<tr>
<td>Colour</td>
<td>light blue</td>
</tr>
<tr>
<td>Density (punch)</td>
<td>1.21</td>
</tr>
<tr>
<td>pH</td>
<td>9</td>
</tr>
<tr>
<td>Dry solids content (%)</td>
<td>18</td>
</tr>
<tr>
<td>Yielding viscosity (mPa·s)</td>
<td>20</td>
</tr>
</tbody>
</table>

## Storage

24 months in original unopened packing. Protect from frost.

## Hazard classification according to EG 1272/2008

None.

Before using refer to the "Handling instructions for preparation and application" paragraph and the information on the packaging and Safety Data Sheet.

## ENCODE

501 - very low emission

## Maximum VOC according to 2004/42/EC

0 g/l

## Guide class

2003 20 02

## APPLICATION DATA at 23°C ± 5°C

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application temperature range</td>
<td>from +5°C to +35°C</td>
</tr>
<tr>
<td>Minimum drying time</td>
<td>2 hours</td>
</tr>
</tbody>
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## FINAL PERFORMANCE

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance to moisture</td>
<td>good</td>
</tr>
<tr>
<td>Resistance to ageing</td>
<td>excellent</td>
</tr>
<tr>
<td>Resistance to solvents and oils</td>
<td>fair</td>
</tr>
<tr>
<td>Resistance to acids and alkalis</td>
<td>fair</td>
</tr>
<tr>
<td>Flexibility</td>
<td>yes</td>
</tr>
</tbody>
</table>
When used before the application of self-leveling compounds, Primer G reduces the formation of air bubbles and helps prevent over-rapid drying making self-leveling easier.

Primer G is not inflammable and can therefore also be used in closed, unventilated environments without any precautions having to be taken.

RECOMMENDATIONS

• Primer G does not waterproof gypsum substrates even though it considerably reduces their porosity and absorption.

• Do not apply onto magnesium substrates.

• Primer G is not recommended for external applications or where rising damp is present.

• Do not apply Primer G in such a quantity that it forms a surface film; dilute with water as appropriate for the absorption of the substrate.

APPLICATION PROCEDURE

Preparing the substrate

The substrate must be clean, dry and free from oils, grease, laitance, residual paint and other loose material.

In each case, the manufacturer's recommendations for gypsum-plaster must be followed, particularly as far as moisture content and level of surface finishing are concerned.

Cracks in concrete surfaces must be repaired with Eporip or Epojet. Anhydrite surfaces must be mechanically abraded.

Application

a) As a treatment for ceramic tiles installed on gypsum.

Stir the Primer G just before use, spread it uniformly on the surface with a flat brush without diluting it. If the gypsum plaster surface is especially smooth and glossy, it is recommended to abrade it beforehand. Once it has dried fix the tiles.

b) As an anchoring coat for gypsum plasters.

Dilute Primer G 1:2 with water and stir well; spread the mix on the surface with a flat brush or spray pump. Apply the sprayable gypsum as soon as Primer G is dry.

c) As a primer before applying self-leveling compounds and thixotropic smoothing compounds from the MAPEI range on:

• cementitious substrates: dilute Primer G 1:1 or 1:3 with water (depending on the absorption of the substrate);

• ceramic, marble and non absorbent substrates: dilute Primer G 1:1 with water;

• gypsum based substrate: use Primer G neat;

d) As a primer for wallpaper adhesives: dilute Primer G 1:3 with water.

e) As a primer between smoothing layers: dilute Primer G 1:3 with water.

Cleaning

Tools and containers should be washed at once with clean water. Any remaining residues once dry have to be removed mechanically or with Pulicol.

CONSUMPTION

The consumption of Primer G depends on the porosity and absorption of the surface. Normal consumption is between 0.1 and 0.2 kg/m².

PACKAGING

Primer G is available in 25, 10 and 5 kg plastic drums and in 1 kg bottles.

STORAGE

Primer G, in its original unopened packaging, can be stored 24 months. Protect from frost.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Primer G is not hazardous according to the regulations on the classification of mixtures. It is recommended to take the usual precautions for handling chemical products.

The Safety Data Sheet is available on request.

PRODUCT FOR PROFESSIONAL USE.

WARNING

Although the technical details and recommendations contained in this data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application; for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application; in every case, the user alone, is fully responsible for any consequences deriving from the use of the product.
Mapelastic Smart is used to protect concrete structures, renders with hairline cracks and cementitious surfaces in general which, being subject to vibrations, may suffer from cracking, and for waterproofing hydraulic projects such as channels, faces of dams and swimming pools, basins, storage tanks, balconies and terraces. Particularly suitable for waterproofing irregular surfaces.

Some application examples:
- Waterproofing hydraulic channels, faces of dams and basins.
- Waterproofing bathrooms, showers, balconies, terraces, swimming pools etc. before laying ceramic tiles.
- Waterproofing plasterboard, render or cementitious surfaces, lightweight cement blocks and marine-grade plywood.
- Flexible protection layer of new concrete structures or repaired structures subject to minor deformation under load.
- Protection of cementitious renders or concrete with cracks due to shrinkage, minor movement caused by thermal gradients or dynamic stresses due to the passage of vehicles, against infiltration of water and aggressive elements from the atmosphere.
- Protection of concrete pillars and joists and road and railway viaducts repaired with products from the Mapegrout or Plantop ranges against the penetration of carbon dioxide.

- Protection of structures with an inadequate layer of concrete over the reinforcement rods against the penetration of aggressive elements.
- Protection of concrete surfaces which may come into contact with sea water, de-icing salts, such as sodium or calcium chloride, and sulphates.

ADVANTAGES:
- High performance: a 2 mm thick film can cover cracks up to 2 mm wide.
- Excellent mechanical characteristics thanks to the use of Mapetex Sel reinforcement.
- CE-certified product in compliance with EN 1504-2.
- Excellent elongation at failure (120%).
- Fluid consistency for easy application.
- Resistant to UV rays.
- May also be applied on existing coverings.
- Compatible with ceramic, mosaic and natural stone coverings.

TECHNICAL CHARACTERISTICS:
Mapelastic Smart is a two-component mortar based on cementitious binders, fine-grained selected aggregates, special additives and synthetic polymers in water dispersion, blended according to a formula developed in MAPEI's own research laboratories. When the two components are mixed, a blend with a plastic consistency is obtained. It may be applied by brush, by roller or by spraying with a worm screw rendering machine on both horizontal and vertical surfaces at a thickness of approximately 2 mm. Thanks to the content and high quality of the synthetic resins, the hardened layer of Mapelastic Smart remains
Mapelastic Smart is waterproof and resistant to the penetration of aggressive substances which are present in the atmosphere, such as carbon dioxide, sulphur dioxide and sulphuric anhydride, and soluble salts such as chlorides and sulphates, which are present in seawater or in the ground. Mapelastic Smart has excellent bonding properties on all cementitious, ceramic and marble surfaces as long as they are sound and sufficiently clean. This property, together with its resistance to the deteriorating effect of UV rays, a characteristic of this product, ensures that structures protected and waterproofed with Mapelastic Smart have a long service life, even if they are located in areas with particularly rigid climatic conditions, in coastal areas with a saline-rich atmosphere or in industrial areas where the air is particularly polluted.

Mapelastic Smart meets the requirements defined by EN 1504-9 ("Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity - General principles for the use of products and systems") and the requirements claimed by EN 1504-2 coating (C) according to the PI, MC and IR principles ("Protection systems for concrete surfaces").

RECOMMENDATIONS

- Do not apply Mapelastic Smart at temperatures lower than +8°C.
- Do not add cement, aggregates or water to Mapelastic Smart.
- Protect from rain and water spillages for the first 24 hours after application.
- When Mapelastic Smart is used on large terraces or flat roofs that will not be covered with tiles, vapour vents must be appropriately positioned according to the level of moisture in the substrate (generally every 20-25 m²).
- Do not leave Mapelastic Smart exposed in swimming pools.

APPLICATION PROCEDURE

Preparation of the substrate

A) Protection and waterproofing of concrete structures and elements

The surface to be treated must be sound and perfectly clean. Remove all cement laitance, flaky parts and traces of powder, grease, oil and removing compounds by sand-blasting or washing down with high-pressure water. If the structure to be waterproofed and protected with Mapelastic Smart is in a poor condition, remove the damaged parts by hand or mechanical means, or by using a water jet blasting which uses high pressure water and is particularly recommended, because the reinforcement rods are not damaged and the structures are not subject to vibration which could cause hairline cracks to form in adjacent concrete. Once the rust has been completely removed by sandblasting, carry out the repair with a ready-mixed mortar from the Mapegrount or Planitop range.

B) Waterproofing of terraces, balconies and swimming pools

- CEMENTITIOUS SCRREDS:
  - settlement cracks caused by plastic or hygroscopic shrinkage must be sealed beforehand with Eporit;
  - if thicknesses of up to 20 mm have to be levelled out (to create slopes, fill out dips, etc.) use Adesilex P4 or Planitop Fast 330.

- EXISTING FLOORS:
  - existing floors and coverings in ceramic, gres, klinker or terracotta etc. must be well bonded to the substrate and free from substances which could compromise the quality of the bond, such as grease, oil, wax, paint, etc.

To remove all traces of material that could affect the adhesion of Mapelastic Smart, clean existing floors with a mixture of water and 30% caustic soda and thoroughly rinse the floor with water to eliminate all traces of caustic soda.

- RENDERS:
  - new, cementitious-based renders or lime-cement renders must be well cured (in good weather, we recommend at least 7 days per mm of thickness applied), bonded to the substrate, resistant and free of powder or all kinds of paint;
  - dampen absorbent surfaces to be treated beforehand with water.

Close up of the waterproofing layer

In the waterproofing sector, more than in any other sector, it is essential that particular attention is paid to details, which alone are capable of making a difference. This is why Mapeband TPE, Mapeband and other special accessories are indispensable and a determining factor.

Mapeband TPE is used to seal structural joints and joints subject to high dynamic stress, Mapeband is used to waterproof construction joints, joints between horizontal and vertical elements and special kits from the Drain range are used to seal drain holes. It is absolutely imperative that special care is taken in these critical areas after levelling out and cleaning the substrate before applying the cementsitious waterproofing mortar.

Preparation of the mortar

Pour component B (liquid) into a suitable, clean container. Then slowly add...
<table>
<thead>
<tr>
<th>TECHNICAL DATA (typical values)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mapeleastic Smart</strong></td>
<td></td>
</tr>
<tr>
<td>Two-component flexible cementitious membrane for waterproofing applications</td>
<td></td>
</tr>
<tr>
<td>Waterproofing, bituminous, and non-bituminous materials</td>
<td></td>
</tr>
<tr>
<td>For surfaces in contact with water and other liquids</td>
<td></td>
</tr>
<tr>
<td><strong>General information</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Component A</strong></td>
<td><strong>Component B</strong></td>
</tr>
<tr>
<td><strong>Characteristics</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>Gray</td>
</tr>
<tr>
<td><strong>Viscosity</strong></td>
<td>1,6</td>
</tr>
<tr>
<td><strong>Solids content (max)</strong></td>
<td>31%</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>120°C</td>
</tr>
<tr>
<td><strong>Application temperature range</strong></td>
<td>From -5°C to +60°C</td>
</tr>
<tr>
<td><strong>Working time</strong></td>
<td>1 hour</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Physical and mechanical properties</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solid strength at 92°C</strong></td>
<td>1.2 MPa</td>
</tr>
<tr>
<td><strong>Solid strength at 18°C</strong></td>
<td>0.9 MPa</td>
</tr>
<tr>
<td><strong>Solids in liquid</strong></td>
<td>100%</td>
</tr>
<tr>
<td><strong>Additives</strong></td>
<td>0%</td>
</tr>
<tr>
<td><strong>Solids content</strong></td>
<td>30%</td>
</tr>
<tr>
<td><strong>Flash Point</strong></td>
<td>120°C</td>
</tr>
<tr>
<td><strong>Application temperature range</strong></td>
<td>From -5°C to +60°C</td>
</tr>
<tr>
<td><strong>Working time</strong></td>
<td>1 hour</td>
</tr>
</tbody>
</table>

Bond values according to EN 14891 measured using Mapeleastic Smart and a C2-type cementitious adhesive according to EN 12004.
component A (powder) while stirring with a mechanical mixer.

Carefully mix Mapelastic Smart for a few minutes, making sure that no powder remains stuck to the sides or the bottom of the container.

Keep stirring until a perfectly homogenous mix is obtained.

Use a low-speed mechanical mixer for this operation to avoid too much air entering the mix.

Do not prepare the mix by hand.

Preparation of Mapelastic Smart may also be carried out with a mortar mixer, which is usually supplied with mortar sprayers.

If this technique is used, make sure that the mix is homogenous and has no lumps before it is poured into the hopper of the pump.

**Manual application of the mortar**

Mapelastic Smart must be applied in at least two coats by trowel or with a roller within 60 minutes of it being mixed, to give a final thickness of at least 2 mm. When used for waterproofing terraces, balconies, basins and swimming pools, and for protecting substrates which have hairline cracks or elements which are particularly stressed, we recommend to embed Mapenet 150 alkali-resistant glass fibre mesh in the first layer of fresh Mapelastic Smart, to act as a reinforcement.

After the mesh has been laid, finish the surface with a flat trowel and apply a second layer of Mapelastic Smart when the first one has set (after 4-5 hours). To further improve elongation at failure and crack-bridging of Mapelastic Smart on horizontal surfaces, we recommend inserting Mapetex Sel non-woven macro-holed polypropylene fabric. The first layer of Mapelastic Smart must be at least 1 mm thick. While it is still fresh, carefully lay the Mapetex Sel on the surface, and press it in using a flat-bladed trowel to make sure that it is perfectly buttered. Then apply the second coat of Mapelastic Smart to completely cover the fabric, and smooth over the surface using a flat-bladed trowel.

After applying Mapelastic Smart, wait at least 5 days for curing before laying ceramic tiles.

This waiting time can be longer in cold climatic conditions.

In good weather and at normal temperatures, on the other hand, this time may be reduced to 24 hours for dry substrates.

**Laying ceramic tiles on Mapelastic Smart**

- BALCONIES AND TERRACES:
  - Bond in place with a C2 class cementitious adhesive such as Keraflex or Keraflex Maxi S1 or, for more rapid interventions, a C2F class adhesive such as Granirapid or Ultralite S1 Quick;
  - Grout all joints with a CG2 class cementitious product such as Keracolor FF or Keracolor GG mixed with Fugolastic or Ultracolor Plus;
  - Seal all expansion joints with a specific MAPEI flexible sealant (such as Mapeflex PU45, Mapeflex AC or Mapesil LM). Other types of sealant may be recommended, depending on specific service conditions. Please contact MAPEI Technical Services.

- SWIMMING POOLS:
  - Bond ceramic tiles with a C2 class cementitious adhesive (Keraflex or Keraflex Maxi S1) or a C2F class rapid adhesive (Granirapid or Ultralite S1 Quick). For mosaic use Adesilex P10-Isolastic mixed with 50% water (class C2TE);
  - Grout all joints with a CG2 class cementitious product (Keracolor FF/Keracolor GG mixed with Fugolastic or Ultracolor Plus) or with an RG class epoxy product (from the Kerapoxy range);
  - Seal all joints with Mapesil AC silicone sealant.

**Application of the mortar by spraying**

After preparing the surface (refer to "Preparation of the substrate" section) spray on at least two layers of Mapelastic Smart at a thickness of at least 1 mm per layer with a rendering machine fitted with a spraying lance for smoothing and levelling compound in order to form a final layer at least 2 mm thick.

Successive coats must only be applied when the previous one is dry (after 4-5 hours).

In areas with hairline cracks or which are highly stressed, insertion of Mapenet 150 in the first layer of fresh Mapelastic Smart is recommended.

Immediately after laying the mesh, Mapelastic Smart must be smoothed with a flat trowel.

To ensure the mesh is totally encapsulated, a further layer of Mapelastic Smart may be applied with a spray gun.

To further improve elongation at failure and crack-bridging of Mapelastic Smart on horizontal surfaces, we recommend inserting Mapetex Sel non-woven macro-holed polypropylene fabric. The first layer of Mapelastic Smart must be at least 1 mm thick. While it is still fresh, carefully lay the Mapetex Sel on the surface, and press it in using a flat-bladed trowel to make sure that it is perfectly buttered. Then apply the second coat of Mapelastic Smart to completely cover the fabric, and smooth over the surface using a flat-bladed trowel.

If Mapelastic Smart is used, for protecting bridge piers and joists, railway
underpasses or façades on buildings etc., the product may be painted over using products from the Elastocolour range, acrylic resin-based paint in water dispersion available in a wide array of colours obtained using the ColorMap® automatic colouring system. If Mapelastic Smart is used for protecting horizontal concrete surfaces not for pedestrian use such as on flat roofs, the product may be painted over with Elastocolour Waterproof flexible acrylic resin-based paint in water dispersion. Elastocolour Waterproof is available in a wide range of colours obtained using the ColorMap® automatic colouring system and must be applied at least 20 days after applying Mapelastic Smart.

**PRECAUTIONS TO BE TAKEN DURING AND AFTER APPLICATION**

- No special precautions need to be taken when the temperature is around +20°C.
- During hot weather, it is advisable to keep the product out of direct sunlight before use (powder and liquid).
- After application, and in particularly dry, hot or windy weather, we recommend that the surface is protected from rapid evaporation with sheets.

**Cleaning**

Due to the high bonding strength of Mapelastic Smart, even on metals, we recommend that work tools are washed with water before the mortar sets. Once it has set, cleaning may only be carried out by mechanical means.

**CONSUMPTION**

Application by trowel or roller:
Approx. 1.6 kg/m² per mm of thickness.
Spray gun application:
Approx. 2.2 kg/m² per mm of thickness.

**N.B.:** the consumption figures indicated are for a seamless film on a flat surface and are higher if applied on uneven substrates.

**PACKAGING**

Units of 30 kg:
component A: 20 kg bags;
component B: 10 kg drums.

**STORAGE**

Mapelastic Smart component A may be stored for up to 12 months when contained in its original sealed packaging. The product complies with the conditions of Annex XVII to Regulation (EC) No 1907/2006 (REACH), item 47.

Mapelastic Smart component B may be stored for up to 24 months.

Store Mapelastic Smart in a dry place and at a temperature of at least 5°C.

**SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION**

Mapelastic Smart component A irritant, it contains cement that when in contact with sweat or other body fluids causes irritant alkaline reaction and allergic reactions to those predisposed. It can cause damage to eyes.

In case of contact with the eyes or skin wash immediately with plenty of water and consult a doctor.

Mapelastic Smart component B is not considered hazardous according to current standards and regulations regarding the classification of mixtures. It is however recommended to use gloves, eye protection and to take the usual precaution when handling chemical products.

For further and complete information about a safe use of our product please refer to our latest version of the Material Safety Data Sheet.

**PRODUCT FOR PROFESSIONAL USE.**

**WARNING**

Although the technical details and recommendations contained in this product data sheet correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical application; for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application. In every case, the user alone is fully responsible for any consequences deriving from the use of the product.

Please refer to the current version of the Technical Data Sheet, available from our website www.mapei.com

All relevant references for the product are available upon request and from www.mapei.com
4282 SOLID PLASTER – Rev A

1. GENERAL

This section relates to the repair of existing coatings of cement plasters, and new skim coats, applied by hand to external backgrounds, over:
- brick
- concrete substrates

The original specification for the external plaster is given as:

OUTSIDE WORK. The base, window and door dressings, reveals, sills, bands, inside of parapets, and all work not shown to be pressed brick, shall be flanked in with a coat of Portland cement stucco, of parts by even measure, one of best English Portland cement to three of fine sand: the work shall then be finished in a coat of similar stucco of uniform tint, of parts by even measure, one of cement to two of white sand.

Repair and recoating work shall match materials, mixes, colours to the fullest extent possible. The exact mix will be determined on site with reference to the existing, and by sample panels.

Related work

1.1 RELATED SECTIONS
Refer to 4231 PBS VENTCLAD PLASTERED FINISH CLADDING for substrate
Refer to 4272 BRICK SLIP VENEER for adjacent cladding on substrate

Documents

1.2 DOCUMENTS REFERRED TO
Documents referred to in this section are:
- AS 2592 Gypsum plaster for building purposes
- NZS 3103 Sands for mortars and plasters
- NZS 3113 Chemical admixtures for concrete
- NZS 3121 Water and aggregate for concrete
- NZS 3122 Portland and blended cements (General and special purpose)
- NZS 4251.1 Solid plastering: Cement plasters for walls, ceilings and soffits
- BS 890 Building limes

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

Requirements

1.3 FINISH PANEL
Provide sample panels of each mix and finish specified. Include example of specified trim and junction details. Obtain approval of colour and texture before starting work.
Sample panel size: 500mm x 500mm cement board.
Allow for six sample boards to develop render to match existing.

1.4 MATERIALS AND EXECUTION
Plastering work to NZS 4251.1 Solid plastering.
2. **PRODUCTS**

**Materials**

2.1 **BONDING AGENT**
Use to form gauging liquid with water:
- Bond coat: 1:1
- Flanking and finish coats: 1:2
Use in accordance with the bonding agent manufacturer's requirements, maintaining the approved dosage throughout the work.

2.2 **ADMIXTURES**
To NZS 3113. Use in accordance with the admixture manufacturer's requirements, maintaining the approved dosage throughout the work.

2.3 **SAND**
To NZS 3103, the grading limits of NZS 4251.1 clause 2.2.2.4 Sand, and suitable for the nominated plaster mix. Obtain from a single source, uniform in composition and colour. Chloride levels to not exceed 0.04% by dry weight of sand.
Submit service records of sands proposed in accordance with NZS 3103, clause 8.1 and confirm that they comply. Prevent contamination or segregation of sand in storage. Do not allow it to become more than slightly damp.

2.4 **CEMENT**
Portland Cement to NZS 4251.1 clause 2.2.2.3 Cement.

2.5 **WATER**
To NZS 3121, or local town supply.

**Finishes - plaster systems**

2.6 **PLASTER MIXES**
To NZS 4251.1 table 3 Mixes for plaster (by volume), or as determined by test panels.

3. **EXECUTION**

**Conditions**

3.1 **STORE MATERIALS**
Store materials in conditions ensuring adequate protection from contamination or deterioration.

3.2 **PLASTERING CONDITIONS**
To NZS 4251.1 clause 2.1.7 Air temperature. Carry out plastering under conditions (not too sunny, windy or freezing) which will not adversely affect the finished work. Complete in sufficient time to enable subsequent finishes to be applied under the proper conditions.

3.3 **DO NOT BEGIN**
Do not begin laying up until:
- Work that could damage the plaster is complete.

3.4 **SOURCE OF MATERIALS**
Supply materials from the same source.

3.5 **PROTECT**
Protect existing and adjoining work and surrounds, with boards and dust sheets. Clean off immediately droppings and mortar splashes on finished work.

3.6 **PLANT AND TOOLS**
Clean plant and tools to ensure they are free of previous mixes (especially gypsum).

3.7 **PROPRIETARY PLASTERS**
Proprietary plaster mixes are not to be used.

3.8 WORKING TIME
Do not use mixes after initial set has occurred. Do not retemper mixes.

3.9 JOINING UP
If joining up is unavoidable in large areas of work, make junctions so that they are concealed in the finished work.

3.10 SURFACE TOLERANCES
Gradual undulations over the surface and measured between rise and hollow as follows:
- Trowelled wall surfaces: Not exceeding 3mm over a 1200mm straight edge
- Textured wall surfaces: Not exceeding 3mm over a 900mm straight edge
No abrupt deviations permitted.
Take particular care where the surface has light hitting it at an acute angle.

3.11 THICKNESS OF PLASTER
Use the plaster coat thicknesses for the different backgrounds to NZS 4251.1, unless dimensioned otherwise on the drawings.

3.12 ALIGNMENT
Finish surfaces evenly to line or level, with angles and corners correct and walls and reveals plumb and square.

Conditions - background

3.13 CHECK BACKGROUND
Ensure that backgrounds and adjoining surfaces are, after the preparation called for in this section, of the required standard.
Check all existing plaster for soundness, and make all repairs deemed necessary by the architect.

3.14 PREPARE SURFACE
Before plastering is commenced, eliminate surface contaminants, remove dust and debris and make good any defects in the background which may adversely affect the quality of the plaster coating.

3.15 IRREGULARITIES
Hack off excessive projections. Fill voids, hollows and honeycomb with a mix not stronger than the background or weaker than the first coat.

3.16 ACCEPTANCE OF BACKGROUNDS
Do not commence work until the background is of the required standard.

Application - preparing the surface

3.17 CLEAN SURFACE
Remove oils, greases, retarders and loose material and leave the surface dust free and clean. Remove paint from already painted surfaces.

3.18 EMBEDDED ITEMS
Sheath or wrap water pipes and wastes passing through walls, with strip material, to permit thermal movement.

3.19 BONDING AND KEY FOR DENSE CONCRETE
Roughen dense concrete to provide a mechanical key by removing 3mm of the surface to expose the aggregate. Apply the bond coat containing the specified bonding agent thrown onto the concrete face.

3.20 BONDING AND KEY FOR BRICKWORK
Rake out joints to a depth of 15mm if not already rough jointed. Apply the bond coat containing the specified bonding agent thrown onto the face.
3.21 CONTROL SUCTION
Control suction by dampening if necessary but without over-wetting. Allow the surface to dry back to a surface-dry condition before plastering.

**Application - joints and junctions**

3.23 CONTROL JOINTS
Provide movement control joints in the plaster to coincide with movement joints in the background and/or junctions between dissimilar backgrounds in the same plane and/or where shown on the drawings. Galvanized mesh or lath shall not be continuous across control joints.

3.24 SECRET CONTROL JOINTS
Form cut joints 3mm wide through the flanking coat plaster to the background. Fill the cut with sealant, following the sealant manufacturer’s requirements for primer and masking, before applying the finish coat to provide a secret joint.

**Application - trim**

3.26 FIX CORNER SECTIONS
Fix specified corner sections to external angles, as required by the manufacturer for the appropriate background.

3.27 FIX CASING BEADS
Fix specified casing beads at edge terminations of plaster not covered by other trim, as required by the manufacturer for the appropriate background.

3.28 FORM ARRISES
Where sections or beads are not specified:
- form arrises with 6mm pencil rounds
- soften down severe arrises by rubbing with a wet trowel when finishing.

3.29 CHECK FLASHINGS
Ensure that flashings, including flashings to recessed sills are in place before, or are fitted as the coating proceeds so the completed work is completely watertight.

3.30 KEYING
Press plaster through the apertures of metal lath, wings of casing beads and corner sections.

**Application - plaster systems**

3.31 PROPORTION AND MIXES
Refer to SELECTIONS for plaster thickness and finish.

3.32 WATERPROOF RENDERING
Include waterproofing admixture as specified and as required by the manufacturer. Do not plug or puncture the waterproof render.

3.33 FLANKING COAT AND FINISHING COAT, SOLID BACKGROUNDS
Apply in 2 coats over the bond coat to achieve a true surface in any direction with not more than 3mm deviation from a straight edge 1200mm long and a total thickness of 18mm maximum.

**Application - curing**

3.34 CURING
Confirm the curing and protection systems to be applied to fresh plaster coats. Plastering not to begin until systems are confirmed.

3.35 PROTECT ADJOINING WORK
Protect existing and adjoining work from damage during plastering. Mask adjacent windows and provide temporary covering if necessary. Remove droppings and mortar...
splashes as the work proceeds.

3.36 MOIST CURING, CEMENT BASED WORK
Cure by preventing rapid or uneven drying out for a suitable period to NZS 4251.1 clause 2.5 Application and curing of plaster coats, and appendix D Plaster on curing.
Bond Coat: Minimum 48 hours moist curing and 24 hours drying
Flanking Coat: Minimum 48 hours moist curing and 72 hours drying
Finish Coat: Minimum 72 hours moist curing depending on ambient temperatures

Do not alter the above curing times.

Completion

3.37 PROTECT FINISHED WORK
Protect finished work from sun, wind, frost, rain and hail and from damage by building operations or other causes. Provide temporary coverings if necessary.

3.38 REINSTATE
Reinstall damaged or marked areas.

3.39 LEAVE
Leave adjacent materials, fittings and finishes clean and to the standard required by following procedures.

3.40 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
Refer to ‘Schedule of Selections’ in drawing set.
4311  PROFILED METAL ROOFING – Rev A

1. GENERAL

This section relates to the supply and fixing of proprietary overlap rigid sheet metal profiled roofing complete with accessories.

1.1 RELATED WORK
Refer to 4311C CALDER STEWART EUROTRAY for tray roofing
Refer to 7411C RAINWATER SPOUTING SYSTEMS for rainwater disposal

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

The following abbreviations apply specifically to this section:

- BMT Base metal thickness
- NZMRM New Zealand Metal Roofing Manufacturers Inc
- MS Modified silyl

Documents

1.3 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 1397 Steel sheet and strip - hot-dipped, zinc-coated or aluminium/zinc-coated
- NZS 2295 Pliable, permeable building underlays
- AS 3566 Self-drilling screws for the building and construction industries
- NZS 3604 Timber-framed buildings
- AS/NZS 4200.1 Pliable building membranes and underlays - Materials
- AS/NZS 4534 Zinc and zinc/aluminium-alloy coatings on steel wire
- AS/NZS 4389 Safety Mesh
- NZMRM - CoP NZ Metal roof and wall cladding - Code of practice (CoP)

1.4 MANUFACTURER’S DOCUMENTS
Manufacturer's and supplier's documents relating to work in this section are:

New Zealand Steel

Copies of the above literature are available from New Zealand Steel
Web: www.nzsteel.co.nz
Email: ~
Telephone: 09 375 8999

Warranties

1.5 WARRANTY - INSTALLER/APPLICATOR
Warrant this work under normal environmental and use conditions against weatherproofing failure.

5 years: from the date of completion of the roof
Form: Roofing installers standard form

Include a copy of the roofing manufacturers’ maintenance requirements with the warranty. Refer to the general section 1237 WARRANTIES - INSTALLER/APPLICATOR for additional requirements.

1.6 WARRANTY - MANUFACTURER/SUPPLIER
Warrant this work under normal environmental and use conditions against materials failure.
15 years For failure of coating adhesion
15 years For weatherproofing by material penetration
Form: Roofing manufacturers standard form

Requirements

1.7 QUALIFICATIONS
Carry out work with experienced, competent installers familiar with the products being used and with appropriate qualifications such as the National Certificate in Metal Roofing and Cladding.

Performance

1.8 CO-ORDINATE
Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof. Ensure that all necessary members are positioned so that flashings can be fastened at both edges through the roof profile or cladding to the primary structure.

1.9 PERFORMANCE
Accept responsibility for the weather-tight performance of the completed roofing system, including penetrations through the roof and junctions with walls and parapets.

1.10 FIXINGS, WIND
Design and use the fixings appropriate for the design loads of this site; refer to general section 1220 PROJECT for details of wind zone. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply.

Performance - Wind (design by contractor)

1.11 DESIGN PARAMETERS - NON SPECIFIC DESIGN
Design the installation to the wind zone parameters of NZS 3604, table 5.4. Refer to general section 1220 PROJECT for details.

2. PRODUCTS

Materials

2.1 UNDERLAY
Breather type kraft paper laminates to NZS 2295.

2.2 HOT-DIPPED ALUMINIUM/ZINC COATED STEEL, UNPAINTED
Formability G550 steel sheet coated to AS 1397.

2.3 FLASHINGS GENERALLY
To E2/AS1, 4.0 Flashings. Formable grade 0.55mm BMT for galvanized, aluminium/zinc-coated and pre-painted steel, and 0.9mm for aluminium (or 0.7mm for small aluminium flashings) to the same standards as the profiled sheets, notched where across profile or provided with a soft edge.

Components

2.4 FASTENERS GENERALLY
Minimum Class 4 and durability not less than the roofing material being fixed. Screw fasteners to be head stamped identifying the manufacturer and class.

2.5 FIXING CLIPS
Galvanized steel (powder coated for aluminium) to suit the material and profile of the rigid sheet and location as required by the roofing manufacturer. Fix to steel with 16mm x 10 gauge galvanized wafer head self-drilling screws and to timber with 30mm x 10 gauge galvanized wafer head screws to NZBC E2/AS1, 8.4.9.
2.6 FIXING SCREWS
To AS 3566. Screws appropriate to the roofing material and the supporting structure, as required by the roofing manufacturer and with a minimum Class 4 durability and not less than the material being fixed. Screws into timber to penetrate by minimum 30mm.

2.7 RIVETS
Sealed aluminium, minimum diameter 4mm, for use with zinc coated, zinc/aluminium coated or aluminium roofing.

Accessories

2.8 SEALANT
Neutral Curing silicone or MS polymer sealant as required by the roofing manufacturer and used as directed.

2.9 CLOSURE STRIPS
Compressible, closed cell profiled foam strips to fit the sheet profile.

2.10 LAP SEALING TAPE
Closed cell self adhesive nitrile tape.

3. EXECUTION

Conditions

3.1 INSPECTION
Inspect the roof framing and supporting structure to ensure that it is complete and fully braced ready for roofing and free from any misalignments or protrusions that could adversely affect the roofing.

3.2 FRAMING TIMBER MOISTURE
When continuous metal cladding etc. Runs along a long continuous timber member and is directly fixed to it, the timbers equilibrium moisture content (EMC) to be 18% or less. For flashings in this situation (sometimes called transverse flashings) the framing EMC to be maximum 16%, and preferably as low as 12%. Transverse flashings can be temporarily tacked in place and final fixing done when moisture content is acceptable.

3.3 STORAGE
Take delivery of and accept packs of roofing undamaged on delivery. Reject all damaged material. Store on a level firm base with packs well ventilated and completely protected from weather and damage. Do not allow moisture to build up between sheets. If sheet packs become wet, fillet or cross stack to allow air movement between sheets.

3.4 HANDLING
Avoid distortion and contact with damaging substances, including cement. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage. Use soft, flat soled shoes when fixing and for all other work on the roof.

3.5 SEPARATION
Place isolators between dissimilar metals, also separate roofing from treated timber and cement based materials. Do not use unpainted lead sheet or copper in contact with or allow water run-off onto galvanized or Zincalume® materials.

Application

3.6 LAY ROOF UNDERLAY
Fit and lap roofing underlay over the existing sarking. Lay underlay horizontally or vertically with a 150mm side lap, oversailing the spouting and/or gutters by 10mm.

3.7 SET-OUT
Carefully set out with consideration of the position of side laps to take account of the line of sight. Ensure all sheets are square and oversailing the gutter true to line. Check during fixing to eliminate creep or spread and string lines along purlin centres to keep
fastenings in line.

3.8 END LAPS
End laps are not permitted, except where specifically detailed.

3.9 MOVEMENT JOINTS
Fixing and jointing to conform with the roofing manufacturer’s requirements for thermal movement.
Over timber framing, transverse flashings (those running long continuous framing members) to have expansion joints at maximum 12 centres.

3.10 FIXING GENERALLY
Install and fix in accordance with the NZMRM - CoP requirements, and to roofing manufacturer’s recommendations. Paint colour matched fixings and accessories before installation.

3.11 MARKING AND CUTTING
Cut only by shearing tools. Do not use black lead pencils for marking aluminium/zinc coated products.

3.12 FIX SHEETS
Fix sheets in place using the fastening system required by the roofing manufacturer for specified profiles, making due allowance for dynamic local wind pressures on the building and thermal movement in the sheet.

3.13 STOP ENDS AND DOWNTURNS
Form stop-ends at the upper end of sheets. Form downturns at the gutter line where the roof pitch is less than 8 degrees. Form using purpose made tools.

3.14 FLASHINGS
Flash roof to parapets, walls and penetrations to detail. Where no detail is provided flash to NZMRM - CoP recommendations and the roofing manufacturer’s requirements. Cut accurately and fix using sealant and rivets to detail and to the roofing manufacturer’s requirements to form a weatherproof cover. For highly visible flashings, plan joints/junction to take account of the aesthetic requirements.

3.15 USE OF SEALANTS
Select and use sealants only as recommended by the roofing manufacturer. Apply sealant in two narrow beads transversely across flashing intersections, close to the two edges. Avoid exposing sealant on outside surfaces.

3.16 FLASHING PENETRATIONS
Flash all penetrations through the roof. Fit pipe flashings with a proprietary collar flashing to manufacturer’s requirements, with other penetrations flashed as detailed and to provide a weathertight installation. Ensure that flashings are set to avoid any ponding of water.

3.17 INSTALL RIDGING
Install ridging by fastening to the purlins through the leading edge of the roofing to manufacturer’s requirements.

Completion

3.18 REPLACE
Replace damaged or marked elements.

3.19 LEAVE
Leave this work complete with all necessary flashings, undercloaks, valleys, ridges and hips all properly installed as the work proceeds so the finished roof is completely weathertight.

3.20 REMOVE
Remove trade rubbish and unused materials from the roof and surrounds daily during the
work. Sweep down at the end of each day, and clean out spoutings, gutters and rainwater pipes on completion of the roof. Remove debris, unused materials and elements from the site.

4. **SELECTIONS**
Refer to ‘Schedule of Selections’ in drawing set.
1. GENERAL

This section deals with the supply and fixing of Calder Stewart Roofing Ltd Eurotray® complete with accessories.
It includes:
- Overlap rigid sheet metal profiled roofing to match original design as shown in heritage photos.

1.1 RELATED WORK
Refer to 7411 RAINWATER SPOUTING SYSTEMS for rainwater disposal
Refer to 4337 PLYWOOD ROOFING for substrate
Refer to 4821 FLASHINGS

1.2 ABBREVIATIONS
The following abbreviations are used throughout this part of the specification:
BMT Base metal thickness
NZMRM New Zealand Metal Roofing Manufacturers Inc

Documents

1.3 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:
- NZBC E2/AS1 External moisture
- NZBC E2/VM1 External moisture
- AS/NZS 1170.2 Structural design actions - Wind actions
- NZS 3604 Timber-framed buildings
- AS 1397 Steel sheet and strip - hot-dipped, zinc-coated or aluminium/zinc-coated
- AS/NZS 2269.0 Plywood - Structural - Specifications
- AS 4040.0 Methods of Testing Sheet Roofing and Wall Cladding
- AS 4040.1 Resistance to Concentrated Loads
- AS 4040.2 Resistance to Wind Pressure for non-Cyclonic Regions
- EN 988 Specification for zinc alloy sheet and strip
- NZMRM NZ Metal roof and wall cladding - Code of practice

1.4 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer's and supplier's documents relating to this part of the work:
Calder Stewart Roofing Technical Literature

Manufacturer/supplier contact details
Company: Calder Stewart Roofing Ltd
Web: www.roofer.co.nz
Email: info@calstewart.co.nz
Telephone: 0800 438 768
Warranties

1.5 WARRANTY
Warrant this work under normal environmental and use conditions against failure of weatherproofing and materials
Perforate: 15 years
Coatings: 15 years
Workmanship: 5 years
From: Date of practical completion

Provide warranties on Calder Stewart Eurotray® Products standard Warranty Form.

Requirements

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any specified Calder Stewart Eurotray® system, or associated components and products.

1.7 QUALIFICATIONS
Roofers to be Calder Stewart Eurotray® Products’ Approved Installers. A list of approved installers can be obtained from the Calder Stewart Eurotray® Products website, by telephone or from the local Calder Stewart Eurotray® Products branch.
Web: www.roofer.co.nz
Telephone: Freephone 0800 438 768

1.8 HERITAGE IMAGE
Contractor is to sight the photographic image in the drawing set of the original bay window roof area, the standing seam pattern is to be replicated in the new roof.

Compliance information

1.8 PRODUCER STATEMENTS
On completion of work Calder Stewart Roofing Ltd will arrange inspection and issue a Site Specific Producer Statement to confirm that the system has been installed in accordance with Calder Stewart's recommendations and good trade practice.

Performance

1.9 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. Allow for specific loadings at corners and the periphery of the roof, where localised pressure factors apply. Do not use angle seam in very high wind zones without specific design acceptance.

1.10 CO-ORDINATE
Co-ordinate to ensure substrate and preparatory work is complete and other work programmed in the order required for access and completion of the roof.

1.11 PERFORMANCE
Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets.

2. PRODUCTS

Materials

2.1 PLYWOOD SUBSTRATE
Plywood thickness 12.5mm minimum, H3 treated, CPD grade.

2.2 UNDERLAY
Breather type kraft paper laminates to NZS 2295.
2.3 HOT-DIPPED ALUMINIUM/ZINC COATED STEEL, UNPAINTED
Formability G300 steel sheet coated to AS 1397.

2.4 EUROTRAY® PROFILES
Eurotray® profiles are tested to AS4040 and NZBC E2/VM1. Standard tray rib centres to
be between 517mm and 528mm wide for Angle and Double Standing Seam, 565mm for
Roll Cap and Roll Seam.

2.5 FLASHINGS GENERALLY
To NZBC E2/AS1, 4.0 Flashings. Formable grade flashings, material to match selected
roofing or cladding, to the same standards as the profiled sheets, notched where across
profile. Refer to SELECTIONS for details.

2.6 FLASHINGS TO VERGE, RIDGE AND HIP
Supplied by the roofing manufacturer to match or to suit the roofing.

Components

2.7 FASTENERS GENERALLY
Durability of all fasteners not less than the roofing material being fixed.

2.8 FIXING CLIPS
Clips shall comply with NZBC E2/AS1: 8.4.9 Fixings: trough profile. Clips to suit the
material and profile of the Eurotray® sheet to be installed prior to installation of the trays.

Fix clips at no more than 600mm spacing through plywood with selected fasteners. For
high and very high wind load areas reduce clip spacing to 400mm.

2.9 FIXING SCREWS
Each clip will be fixed with a 10 gauge by 30mm counter sunk screw (minimum). Screws
to be manufactured from material appropriate to the roofing material and the supporting
structure, as required by Calder Stewart Roofing and with durability no less than the
material fixed.

2.10 RIVETS
Minimum diameter 4.0mm sealed rivets. For both Stainless steel and Titanium Zinc
roofing materials, use stainless steel rivets. Copper roofing material, use copper rivets.
Aluminium/Zinc coated steel and aluminium roofing materials, use aluminium rivets.

Accessories

2.11 SEALANT
Neutral curing silicone or polymer sealant.

3. EXECUTION

Conditions

3.1 INSPECTION
Inspect the roof framing and supporting structure to ensure that it is complete and fully
braced ready for plywood substrate and roofing.

3.2 FRAMING TIMBER MOISTURE
When continuous metal cladding etc. Runs along a long continuous timber member and
is directly fixed to it, the timbers equilibrium moisture content (EMC) to be 18% or less.
For flashings in this situation (sometimes called transverse flashings) the framing EMC to
be maximum 16%, and preferably as low as 12%. Transverse flashings can be
temporarily tacked in place and final fixing done when moisture content is acceptable.

3.3 PLYWOOD SUBSTRATE
Plywood to be a minimum of 12.5mm thick and complying with AS/NZS 2269.0, minimum
CPD grade with the sanded side upwards. Treated H3 with waterborne CCA treatment.
and kiln dried after treatment. Lay with the face grain at right angles to the supports, staggered joints (brick bond) with all edges of the sheets fully supported. Fix with 10 gauge x 50mm stainless steel countersunk head screws, with a 3mm gap between all sheets. Fix at 150mm centres on edges and 200mm in the body of the sheets.

3.4 STORAGE
Take delivery of and accept packs of roofing dry and undamaged on delivery. Reject all damaged material. Store on a level firm base with packs well ventilated and completely protected from weather and damage. Do not allow moisture to build up between sheets.

3.5 HANDLING
Avoid distortion and contact with damaging substances, including cement. Do not drag sheets across each other and other materials. Protect edges and surface finishes from damage. Use soft, flat sole shoes when fixing and for all other work on the roof.

3.6 SEPARATION
Isolate dissimilar materials in close proximity as necessary by painting the surfaces or fitting separator strips of compatible materials. Place isolators between metals and treated timber and cement based materials. Do not use lead sheet in contact with or allow water run-off onto galvanized or aluminium/zinc coated steel.

Application

3.7 SET-OUT
Carefully set out with side laps away from the prevailing wind, with the widths of end sheets the same, all sheets square and oversailing the gutter true to line. Check during fixing to eliminate creep or spread and string lines along purlin centres to keep fastenings in line.

3.8 FORMING
Form stop-ends and downturns to the roofing manufacturer's details and techniques using the required tools.

3.9 SEAL CUT EDGES
In very severe marine environments seal cut edges of pre-coated steel sheet with edge protection lacquer before fixing to the roofing manufacturer's requirements.

3.10 END LAPS
End laps are not permitted, except where specifically detailed and prior agreement given by Calder Stewart Roofing.

3.11 THERMAL MOVEMENT
Roof fixing and jointing to conform with Calder Stewart Roofing requirements for thermal movement. NZBC E2/AS1: 8.4.10 Allowance for expansion, notes specific design is required for lengths exceeding 18 metres. Sliding clips to be used where roofing material exceeds 4 metres in length.

3.12 FIXING GENERALLY
Install and fix in accordance with the NZMRM NZ Metal roof and wall cladding - Code of practice recommendations, and to the roofing manufacturer's required fixing patterns and details for each area of the building roofing. Use only screws as required by the roofing manufacturer. Paint colour matched fixings and accessories before installation.

3.13 FIX UNDERLAY
Fit a 200mm wide strip of underlay between the plywood substrate and any drip edge flashing with a 15mm over-sail into gutter. Once drip edge flashings are installed fit and lap roofing underlay over the plywood substrate and the drip edge flashing to the underlay manufacturer's requirements.

3.14 MARKING AND CUTTING
Cut only by shearing tools. Do not use black lead pencils for marking aluminium/zinc coated products.
3.15 **FIX SHEETS**
Fix sheets in place using the clips as previously set out. For Roll Cap and Roll Seam, fit cap flashings once sheets have been fitted.

3.16 **FLASH**
Flash roof to parapets, walls and penetrations to detail, to the NZMRM NZ Metal roof and wall cladding - Code of practice recommendations and the roofing manufacturer's requirements. Cut accurately and fix using sealant and rivets to detail and to the roofing manufacturer's requirements to form a weatherproof cover.

3.17 **FIX RIDGES AND HIPS**
Cut accurately and fix using primary fasteners to the purlins. Join using sealant and rivets to detail and to the NZMRM NZ Metal roof & wall cladding - Code of practice. All laps 150mm minimum.

3.18 **FIX VERGE AND CAP FLASHINGS**
Cut accurately and fix using primary fasteners to the purlins. Join using sealant and rivets to detail and to the NZMRM NZ Metal roof & wall cladding - Code of practice. All laps 150mm minimum.

3.19 **PENETRATIONS**
Flash and overflash all penetrations through the roof.

3.20 **PENETRATIONS AND JUNCTIONS**
Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof. Required work includes the following:
- underlay turned up at wall and parapet lines
- underlay finished and dressed off to all openings, ready for the installation of skylights and other penetrations
- roofing installation neatly finished to all sides of openings and to all wall and parapet junctions
- installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).

**Completion**

3.21 **REPLACE**
Replace damaged or marked elements.

3.22 **LEAVE**
Leave this work complete with all necessary flashings, undercloaks, valleys, ridges and hips all properly installed as the work proceeds so the finished roof is completely weathertight.

3.23 **REMOVE**
Remove trade rubbish and unused materials from the roof and surrounds daily during the work. Sweep down at the end of each day, and clean out spoutings, gutters and rainwater pipes on completion of the roof. Remove debris, unused materials and elements from the site.

4. **SELECTIONS**
For further details on selections go to [www.roofer.co.nz](http://www.roofer.co.nz)
Substitutions are not permitted to the following, unless stated otherwise. Refer to ‘Schedule of Selections’ in drawing set.
1. GENERAL

This section relates to the use of plywood sheets for:
- membrane gutters
- substrate for roofing

1.1 RELATED WORK
Refer to 4422D DE BOER DUO ROOFING.
Refer to 4311C CALDER STEWART EUROTRAY

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 E2/AS1 External moisture
- AS/NZS 1170.2 Structural design actions - Wind actions
- NZS 1170.5 Structural design actions - Earthquake actions - New Zealand
- AS/NZS 1604.3 Specification for preservative treatment - Plywood
- AS/NZS 2269.0 Plywood - Structural - Specifications
- NZS 3604 Timber-framed buildings

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

1.3 MANUFACTURER'S DOCUMENTS
CHH Woodproducts documents relating to work in this section are:
- Ecply® Structural plywood properties and application manual
- Ecply® Specification and installation guide December 2011

Copies of the current product literature are available from Carter Holt Harvey Woodproducts Ltd
Web: www.chhwoodproducts.co.nz
Telephone: 0800 326 759

1.4 NO SUBSTITUTIONS
Substitutions are not permitted to any specified system, or associated components and products.

1.5 WIND DESIGN PARAMETERS - NON SPECIFIC DESIGN
Design the installation to the wind zone parameters of NZS 3604, table 5.4.
Refer to general section 1220 PROJECT for details.

1.6 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.
Refer to Structural Engineers details and specification

2. PRODUCTS

Materials

2.1 ECOPLY® STRUCTURAL (SQUARE EDGE) F8 GRADE
Radiata pine veneer ply to AS/NZS 2269.0, face sanded, grade as scheduled and H3.2
CCA treated to AS/NZS 1604.3 if required.

**Components**

### 2.2 NAILS

Galvanized flat head, annular grooved or twisted shank. Stainless steel nails annular grooved. Refer to CHH Woodproducts requirements for size and use.

- 7 - 9mm plywood: 40mm x 2.5mm
- 12 - 15mm plywood: 50mm x 2.8mm
- 17 - 21mm plywood: 60mm x 2.8mm
- 25mm plywood: 75mm x 3.15mm

### 2.3 SCREWS IN TIMBER

Stainless steel, counter-sunk. Refer to CHH Woodproducts requirements for size and use.

**General:**

- 7 - 9mm plywood: No. 8 x 30mm
- 12 - 15mm plywood: No. 8 x 40mm
- 17mm plywood: No. 10 x 40mm
- 19 - 21mm plywood: No. 10 x 45mm
- 25mm plywood: No. 10 x 50mm

**Under membranes:**

- 17 - 25mm plywood: No. 10 x 50mm (to E2/AS1, 8.5.5.1)

### 2.4 SCREWS IN STEEL

Self tapping, self countersinking. Refer to CHH Woodproducts requirements for size and use.

### 2.5 ADHESIVE

Single pack waterproof general purpose construction adhesive.

### 2.6 TIMBER FILLETS

20mm H3.2 CCA treated triangular timber internal corner fillets, for membrane installations.

### 3. EXECUTION

#### Conditions

**3.1 HANDLE**

Handle sheets carefully and reject those with damaged faces or edges.

**3.2 STORE**

Store sheets in stacks clear of the ground, supported without sagging on evenly spaced horizontal bearers. Protect from damage and weather.

**3.3 SUPPORT FRAMING**

Ensure support framing is completed to CHH Woodproducts stated requirements for laying plywood sheets.

#### Application

**3.4 SUPPORT EDGES AND JOINTS**

Fully support edges and joints on square edged sheets.

**3.5 FIXINGS**

150mm centres along edges, minimum 7mm, maximum 15mm from the edge and, 300mm maximum centres on intermediate supports, or 200mm centres under membranes

**3.6 FIXING ECOPLY® PLYWOOD SHEETS**

Fix sheets to CHH Woodproducts requirements. Lay sheets in a staggered layout, face-grain of sheet at right-angles to support and with sheets in square, true alignment and
plane with a 3mm expansion gap for square edge sheets. Nail fix to CHH Woodproducts requirements.

3.7 UNDER MEMBRANE ROOFING
To NZBC E2/AS1, 8.5 Membrane roofs and decks. Screw and adhesive fix sheets with stainless steel screws for membrane type roofing to CHH Woodproducts and membrane manufacturers’ requirements. CD grade plywood with the C face up (or better). Provide a 5mm radius chamfer to external edges where the membrane is to be wrapped over. Fix internal corner fillets.
Provide whichever is the greater falls:
- as shown on the drawings
- to the membrane manufacturer’s requirements
- minimum to NZBC E2/AS1, 8.5.1, - 1:30 for roofs, 1:40 for decks and 1:100 for gutters

Completion

3.8 PROTECTION
Protect work from the weather until it is covered, coated or sealed.

3.9 REPLACE
Replace damaged or marked elements.

3.10 LEAVE
Leave work to the standard required by following procedures.

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

4. SELECTIONS
Refer to Schedule of Selections in drawing set.
4421 BITUMEN BASED SHEET ROOFING – Rev A

1. GENERAL

This section relates to bitumen based sheet membranes as external waterproof coverings, bonded to:
- plywood, including all underlays and accessories

Related work

1.1 RELATED SECTIONS
Refer to 4422D for De Boer Duo specific specification prepared by Equus.
Refer to 4337E ECOPLY ROOFING AND DECKING for substrate

Documents

1.2 DOCUMENTS
Documents referred to in this section are:
MGNZ Code of Practice for Torch-on Membrane Systems for Roofs and Decks

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

1.3 MANUFACTURER’S DOCUMENTS
Manufacturer’s and supplier’s documents relating to work in this section are:
- refer to section 422D De Boer Duo.

Copies of the above literature are available from ~
Web: www.equus.co.nz
Email: Hamish@equus.co.nz
Telephone: 576 0333
Facsimile: ~

Requirements

1.4 QUALIFICATIONS
Roofing to be carried out by competent workers licensed by the mineral fibre asphalt system manufacturer and experienced with the materials and in the techniques specified.

Warranties

1.5 WARRANTY - INSTALLER
Warrant this work under normal environmental and use conditions against failure.
5 years: Warranty period
From: Date of completion of installation

Refer to the general section 1237WA WARRANTY AGREEMENT for the required format and details of when completed warranty must be submitted.

1.6 WARRANTY - MANUFACTURER
Warrant this material under normal environmental and use conditions against failure.
15 years: Warranty period
From: Date of completion of installation

Provide this warranty in the manufacturers' standard form.
Refer to the general section for details of when completed warranty must be submitted.

Performance

1.7 TEST
Flood test horizontal applications with a minimum 50mm depth of water for 24 hours. Make good any lack of watertightness when the surface is completely dry.

1.8 PERFORMANCE
Accept responsibility for the weather-tight performance of the completed roofing system, including all penetrations through the roof and junctions with walls and parapets.

2. PRODUCTS

Materials

2.1 BASE SHEET
Proprietary bitumen based, waterproofing membrane.

2.2 CAP SHEET
Proprietary bitumen based, waterproofing membrane.

Components

2.3 EDGE TRIM
Metal to the roofing manufacturer's details and to suit the specific location.

2.4 OUTLETS
As required and supplied by the roofing manufacturer.

Accessories

2.5 ACCESSORIES
Accessories and materials that are compatible to the membrane and are part of the system required by the roofing manufacturer for each specific location including.
- Adhesives
- Primer
- Sealants

Finishes

2.6 PAINT
Compatible system approved by the roofing manufacturer.

3. EXECUTION

Conditions

3.1 GENERALLY
Work and materials to MGNZ Code of Practice.

3.2 STORAGE
Take delivery of rolls undamaged and include for site handling facilities where required. Stack on end, off the ground on a level surface and with accessories.

3.3 LAYOUT
If not detailed on the drawings, confirm the layout to suit site conditions.

Application - preparation

3.4 PRELIMINARY WORK
Ensure that preliminary work, including formation of falls, flashing rebates, grooves, ducts, provision of battens and fillets and fixing of vents and outlets to levels, is complete and properly constructed to enable the system to work as intended. This work and the substrate to be smooth, clean and dry.

3.5 ACCEPTANCE OF SUBSTRATE
Confirm that the substrate, including fillets, sumps, outlets and projections, will ensure
work of the required standard.

3.6 PLYWOOD SUBSTRATE
Ensure that sheets have been stack bond laid, are rigid, with joints flush, no lumps or hollows, smooth, clean, dry and free of debris.

Application - laying sheet membrane roofing

3.7 LAYING AND JOINTING
Lay membrane using torch applied bonding unless the location will not allow the application of heat, when cold applied under-surface adhesive may be used. Lay in order from sumps, through gutters, valleys, eaves, verges, main roof and upstands to cover flashings. Lap joints 100mm down edge of roll and 150mm across the end of the roll, to the roofing manufacturer’s requirements.

3.8 WELD JOINTS
Weld joints using heat and welding compound to the roofing manufacturer’s requirements.

3.9 PENETRATIONS
Form, or mould by torching, with required upstands and downturns and all penetrations to the roofing manufacturer’s details.

3.10 MOVEMENT JOINTS
Form movement joints to the roofing manufacturer’s details.

3.11 PENETRATIONS AND JUNCTIONS
Check that adjoining walls and parapets are prepared ready for the installation of the roofing. Confirm that openings have been prepared ready for the installation of skylights and other penetrations through the roof. Required work includes the following:
- roofing installation neatly finished to all sides of openings and to all wall and parapet junctions
- installation of flashings (those required to be installed prior to installation of penetrating elements and/or wall linings).

3.12 COATINGS, TOPPINGS
Ensure the specified coating or topping system is placed within 5 days of completing laying.

Finishing

3.13 APPLY PAINT
Apply paint to the paint manufacturer’s required system.

3.14 FOOT TRAFFIC
Foot traffic is not allowed on the covering after laying.

3.15 ACCESS BOARDS
Provide access boards for later operations and remove when no longer needed.

3.16 ACCEPTANCE
Arrange for an inspection of the completed work. Protect and maintain roofing until completion of the contract works.

3.17 SUBSEQUENT WORK
Make good any covering cut or deformed by later work. Making good to take the form of inserting a new whole or part infill sheet to maintain the appearance of the covering as originally laid.

Completion

3.18 CLEAN UP
Clean up as the work proceeds.
3.19 LEAVE
Leave work to the standard required by following procedures.

3.20 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
Refer to Schedule of Selections in drawing set.
Standard specification for the application of De Boer Duo HT 4 Slates/F C180 Two-Layer waterproof roofing membrane to plywood surfaces.

1.0 PREAMBLE:

This specification is for the application of a De Boer Duo HT 4 Slates/F C180 roll-roofing membrane system, in a two-layer configuration.

The two layer system consists of a basesheet of 2.5mm thick polyester reinforced De Boer DeboPlast 2.5mm T/F K180 torched to the pre-primed substrate, with the 4mm thick De Boer Duo HT 4 Slates/F C180 capsheet torched over the basesheet to form a 6.5mm thick total system.

Duo roofing membrane provides a hard UV-resistant but flexible coating on the upper side and an elastic adhesive mass on the underside, both are then supported by a polyester and glass fibre combination carrier to act as a shrink-free and strong reinforcing agent.

A two-layer system as detailed has a particular advantage over a single layer system apart from being thicker and stronger. The basesheet can be laid overall to provide temporary waterproofing and protection, while other trades carry out their tasks over the surface. Upon completion of other trade access the basesheet is checked, repaired as required, and then the mineral capsheet is applied as the final installation on the roof surface. This reduces the likelihood of presenting a patched new roof as can occur with single layer systems.

De Boer Duo waterproofing membrane system has been assessed for the use on roofs, decks and gutters installed on treated plywood or concrete substrate on buildings within the following scope:

Buildings where the supporting structure and associated elements is designed and constructed within the scope of New Zealand Building Code E2/AS1 clause 1.1. Specifically designed buildings constructed to comply with the New Zealand Building Code.

2.0 SURFACE PREPARATION:

2.1 General - Responsibility:

Unless expressly agreed otherwise at time of contract pricing, all work in this section shall be the responsibility of the main contractor, whether carried out by his own staff, other sub-trades or the roofing membrane sub-contractor.
2.2 Plywood:

2.2.1 Plywood Grade and Thickness – Standard:

Plywood shall be minimum 17mm C-D structural plywood complying with AS/NZS 2269, with the sanded C face upwards. plywood shall be treated to a minimum grade of H3 CCA treated. The moisture content prior to installation of the membrane system must not exceed 20%. LOSP treated plywood must not be used.

When applying to existing substrates and structures, they must be thoroughly inspected to ensure that they will not affect the performance of the membrane when applied.

Closed-in construction spaces under membrane roofs and decks shall have adequate ventilation to prevent the accumulation of moisture under the membrane. There should be a minimum gap of 20 mm between the underside of the substrate and any insulation.

2.2.2 Sheet Layout:

All sheets shall be laid out so as to maximise the use of whole sheets. All sheet joints shall be laid over framing members, in a staggered brick-bond pattern, running across the fall in the roof in accordance with E2/AS1.

2.2.3 Sheet Spacing:

Sheets shall be laid tight butt jointed, i.e. with sheets butted but not cramped up, except where tongue and grooved joints are used in accordance with E2/AS1.

In areas where condensation is likely, prepare sheet edges and underside with Chevaprime PBT.

2.2.4 Sheet Fixing:

Plywood must be fixed in accordance with the Manufacturers instructions taking into account wind loading, frame spacing and ply thickness.

Screw-fix using countersunk stainless steel screws, gauge 10 and a length 3 times the thickness of the plywood in accordance with E2/AS1.

All sheets should be laid in a bead of construction adhesive along all framing members. Where two-layer plywood surfaces are installed, the first layer may be power-nailed, but the second layer must be screw-fixed with all joints offset from the first layer. All fastener heads shall be recessed below the level of the sheet face. Screws shall be fixed at 150mm centres on sheet perimeter and 200mm through the body of the sheet.

Substrate framing must support the plywood at a minimum 400mm centres each way. All sheet joints must be fully supported.

The substrate preparation may change to meet “specific design” requirements or engineering requirements. Confirmation will be required prior to application.
.5 Falls:
Seams should be constructed parallel with the fall, minimising ponding and flow
restriction whenever possible.

Roof, deck and gutter falls must be laid in accordance with E2/AS1 of the New
Zealand Building Code.

.6 Corners
All leading edges of plywood shall be chamfered with a 5mm radius corner. All
internal corners shall have min. 20x20 H3.2 treated timber fillets installed.

.7 Outlet Types:
Roof and deck outlets shall be installed as per clause 8.5.6 of E2 External
Moisture of the New Zealand Building Code.

Outlets shall be sized in accordance with E1 Surface Water of the New
Zealand Building Code.

3.0 MEMBRANE APPLICATION:

3.1 Primer:
To the dried and prepared surface apply one (1) full coat of De Boer Duo Primer
by brush/roller at a spreading rate of 5sqm/litre. Allow to dry for 4-24 hours
depending upon prevailing weather conditions.

3.2 De Boer Deboplast 2.5mm T/F K180 Base Sheet:
Decide the most suitable direction to follow then unroll and align the first roll, cut to
length as required, re-roll both ends to the middle then torch evenly overall to both
basesheet and primer as this is unrolled. Ensure even heat application. Repeat
in sequence with all rolls, maintaining laps of minimum 80mm. This lap
automatically closes during the torching process. Offset end laps in adjacent runs.

3.3 De Boer HT4 C180 Slate Cap Sheet:
This is applied in the same manner as
the basesheet. All laps shall be offset to
prevent coincidence with the base-sheet laps. Following application of the cap
sheet all joints are back sealed separately to ensure they are neatly and correctly
closed.

If required, during the back-sealing operation, Duo Mineral Chip may be carefully
scattered over the joint to provide a uniform appearance. This may also be carried
out on areas of detailing to provide protection and uniformity of finish.

3.4 Detailing:
This shall include all outlets, pipe penetrations, gutter stop ends, parapet
upstands, machinery plinths and anything above or below the roof surface. This is
carried out before, during or in some cases after laying of the membrane
depending on the detail type. All detailing shall be done in accordance with the
manufacturer's technical literature, Duo Application Manual current at the time of
design, use, installation and maintenance.
3.5 Completion:

Upon completion of the system it shall be inspected and left for a short period (up to 2-3 weeks) to stabilise. At this time the entire installation shall be rechecked prior to any warranties being issued. Where possible, particularly on deck areas a pond test (24 hours) should be carried out.

Note: Any damage caused to the completed installation by other trades working over the membrane after the initial inspection shall be the responsibility of the Main Contractor, who shall arrange appropriate protection as required.

4.0 MAINTENANCE AND WARRANTY:

4.1 Maintenance:

Equus Industries Limited recommends as normal maintenance, the finished roof areas are inspected every six months for cleaning and annually by a Certified Installer to ensure weather tightness and durability.

Ensure the roof and all outlets are free of blockages and clear of unwanted debris, all associated flashings and cappings are sound, the general condition of the membrane, the membrane is free from surface moss, mould or lichen.

Check all associated building elements that can impact on the durability of the membrane.

Higher risk areas such as sheet joints, substrate movement, edging, gutters, penetrations, corners, upstands, outlets and overflows require a thorough weather tight inspection on an annual basis.

4.2 Warranty:

The De Boer Duo Two-Layer Roofing System described in this specification may be warranted as to sheet integrity and to be waterproof for a period of up to twenty (20) years providing that:

1. All work is carried out by a Certified Equus Applicator.
2. De Boer Duo must be installed in accordance with the manufacturer's technical literature, Duo Application Manual current at the time of design, use, installation and maintenance
3. The Warranty is issued in conjunction with an appropriate Maintenance Statement.

The period of warranty is determined by the situation of the installation; e.g. old or new, substrate, plain roof or open plant roof etc. The warranty period shall be determined for any contract in consultation with the Manufacturer or their representative.

The warranty is provided to the client by the Equus Applicator carrying out the work and is backed by the Manufacturer as to the fitness for the purpose of the materials supplied for the contract.
1. GENERAL
This section relates to the supply and installation of:
- new exterior timber windows
- exterior door frames and doors

1.1 RELATED WORK
Refer to glazing sections for glazing
Refer to painting sections for finishes

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
- NZBC F4/AS1 Safety from falling
- AS/NZS 1170.2 Structural design actions - Wind loads
- NZS 3602 Timber and wood-based products for use in building
- NZS 3604 Timber-framed buildings
- NZS 4223.3 Glazing in buildings - Human impact safety requirements

1.3 ABBREVIATIONS AND TERMS
- SLS Serviceability limit state
- ULS Ultimate limit state

1.4 WARRANTY
Provide warranty for:
- 5 years for materials
Warrantor: Manufacturer

Provide the warranty in the standard form in the general section 1237WA WARRANTY AGREEMENT.

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 PERFORMANCE - WIND
Construct windows, exterior doors and frames to withstand design wind pressures to NZS 3604.

1.6 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS
The structural and weather-tight performance of the completed window installation, the glazing and infill panels is the responsibility of the window manufacturer.

2. PRODUCTS

2.1 EXTERIOR TIMBER
Solid timber to NZS 3602 to profiles detailed. Moisture content 16% ex factory.
Timber to be heart Totara to match original in size, profile and finish.

2.2 SASHES
Solid timber to profiles detailed and complete with weather-seals and weather hoods as necessary.
2.3 EXTERIOR FACINGS AND SCRIBERS
Treated H3.1 unless durable heart wood, to profiles detailed/scheduled.

2.4 GLASS
Refer to glazing sections for glass type and thickness. To NZS 4223.3 Glazing in buildings - Human impact safety requirements.

2.5 PANELS
Refer to SELECTIONS for type.

2.6 INTERIOR TIMBER
To NZS 3602. Moisture content 10-14%.

Components

2.7 FLASHINGS GENERALLY
Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

2.8 WINDOW AND DOOR FURNITURE
Refer to 5521 HARDWARE for type.

2.9 METAL FASTENINGS
Galvanized steel or non-corrodible metal.

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

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

2.12 SASH STAYS
Refer window schedule. Size and gauge to suit sash size and weight.

2.13 HINGES
Size and gauge to carry door size and weight. Refer window schedule for type, size and material.

3. EXECUTION

Conditions

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

3.2 DO NOT DELIVER
Do not deliver any elements which cannot be unloaded immediately into suitable storage conditions.

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

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

CHECK ALL OPENINGS
Check all openings on site for size and standard of execution before installing window or door frames.

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

Required preparatory work includes the following:
- wall plastering to openings finished ready for the installation of window and door frames.
- installation of flashings (those which are required to be installed prior to frames).

Assembly

3.6 FABRICATION GENERALLY
Manufacture and fabricate frames, doors and sashes as detailed. Install hinges, stays and running gear as scheduled.

3.7 FABRICATION SASHES
Solid/finger-jointed timber to profiles detailed, complete with weather seals and weather hoods as necessary and as detailed.

3.8 HINGES
Fit hinges to doors to support the door size and weight
3 hinges  Doors up to 2.2 metres
4 hinges  Doors 2.2 - 2.6 metres

Fit minimum 2 hinges per window sash

3.9 FACTORY FINISHING
Before delivery to site:
- Prime assemblies scheduled for paint finish with an alkyd wood primer.
- Prime rebates and concealed faces of beads of assemblies scheduled for clear finish with an alkyd wood primer.
- Brace square and provide protection to assemblies during delivery to site. Where factory glazed, indicate the presence of transparent glasses with whiting, tape or signs compatible with the glass type.

3.10 ON SITE FINISHING
Before installation:
- Prime assemblies scheduled for paint finish not already primed with an alkyd wood primer.
- Prime all rebates and concealed faces of beads of assemblies scheduled for clear finish with an alkyd wood primer.
- Re-prime/seal any subsequently cut edge.
- Refer to painting section/s for finishing.

Installation - frames

3.11 FIXING FRAMES
Fit flashings to frame and framing as required. Fix and assemble frames rigidly in place, plumb, level and true to line and face without distortion and with all opening sashes fully and easily operating. Fit facings, scribes, draught-stopping and sealants.

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

3.13 FIXINGS
Fix frames so that nail heads are covered by applied stops and beads. Punch all nail heads below timber surfaces which will be visible in completed work. Ensure that at least one frame fixing is adjacent to each hanging point.
3.14 EXTERNAL DOOR AND WINDOW FRAMES AND SASHES
Fabricate as detailed. Jamb, head and sill liners as detailed. Wedge and rigidly fix in place without distortion, plumb, and true to line and face, complete with full length sill tray, jamb and cap flashings and with all doors and sashes operating freely. Fit hardware.

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

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

Except where window/door frames are recessed, ensure that head flashings over-sail jamb facings by 15mm at each end. Refer to 4821 FLASHINGS section for supply and installation.

3.16 COMPLETE AIR SEAL
To NZBC E2/AS1:9.1.6 Air seals. Form an air-tight seal by means of proprietary expanding foam, compressible foam strips, or sealants used with backing rods. Ensure that in combination with the internal linings a complete air seal is created.

3.17 FIX HARDWARE
Fix all sash hardware and furniture as scheduled.

3.18 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.

Completion

3.19 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.

3.20 DEFECTIVE OR DAMAGED WORK
Repair damaged or marked elements. Replace damaged or marked elements where repair is not possible or will not be acceptable. Adjust operation of equipment and moving parts not working correctly. Leave work to the standard required for following procedures.

3.21 PROTECTION
Provide the following temporary protection of the finished work during the building relocation:
Plywood hordings over the exterior of all openings as indicated on the drawings
Carpet wrapped around door jambs to full height
Tape all glass across

4. SELECTIONS
Refer to Schedule of Selections in drawing set.
4512  REPAIRS TO EXISTING TIMBER WINDOWS

1  GENERAL
This section relates to the repair of existing timber joinery. All sound existing timber is to be retained in situ or put back to its original position, unless otherwise scheduled. All timber fixings are to be retained as much as possible. Where new fixings are required for timber, they should be stainless steel.

1.1  RELATED WORK
Refer to glazing sections for glass types.
Refer to Painting sections for finishes.

1.2  ABBREVIATIONS AND TERMS SLS
Serviceability limit state  ULS Ultimate limit state  WANZ Windows Association of Zealand
Refer general section 1232 INTERPRETATION & DEFINITIONS for abbreviations 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:

NZBC E2/AS1 External moisture
NZBC F4/AS1 Safety from falling
NZBC H1/VM1 Energy efficiency
NZBC H1/AS1 Energy efficiency
AS/NZS 1170.2 Structural design actions - Wind loads
NZS 3604 Timber-framed buildings
NZS 4211 Performance of windows
NZS 4223.3 Glazing in buildings - Human impact safety requirements
BRANZ BU 337 Protecting Window Glass from Surface Damage
NZS 3602 Timber and wood-based products for use in building
NZS 3640 Chemical preservation of round and sawn timber
AS/NZS 4347 Damp-proof courses and flashings

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

1.4  WARRANTY - WORKMANSHIP
Provide a workmanship warranty:
2 years: For repairs
-Provide this warranty in the standard form.
Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.5  APPROVAL
Complete initial repairs, and obtain architect approval before continuing.

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

Performance

1.7  PERFORMANCE - WINDOWS AND DOORS
The aim is that repaired joinery performance is not less than would be expected for an equivalent original window that had not needed repair for:
- Deflection
- Structural
- weathertightness
- air tightness

1.8 PERFORMANCE - STRUCTURAL/WEATHER-TIGHTNESS
The structural and weather-tight performance of the completed joinery, the glazing and infill panels is the responsibility of the window repairer.

1.9 WIND - SPECIFIC DESIGN
Design and evaluate the installation to the wind pressure parameters of AS/NZS 1170.2 Refer to SELECTIONS for ULS and SLS. Advise architect if installation is unlikely to achieve this.

2. Materials

2.1 TIMBER TO BE MECHANICALLY JOINTED TO EXISTING TIMBER
New timber shall be the same species as the existing timber, be close grained, and be 100% heartwood. Timber adjacent to, but not joined to existing timber. To be pinus radiata per timber framing section

2.2 GLASS
Refer to the glazing section for glass types and installation.

Flashings
To NZBC E2/AS1, 9.1.10 Windows and Doors.

2.3 METAL FLASHINGS
Evaluate any existing flashings and replace as required with material, grade and colour as agreed with architect. Ensure that materials used for head, jamb and sill flashings are compatible with the window frame materials and fixings and cladding materials.

2.4 DPC
Polyethylene film to AS/NZS2904 and embossed on both sides. Thickness 500 microns minimum manufactured for use as a damp-proof course and concealed flashings to doors and windows.

Fixings

2.5 NAILS
Type to NZS 3604, section 4: Durability (note that this is a sea spray zone, and 304 stainless steel is required), and of the size and number for each particular types of joint as laid down in the nailing schedules of NZS 3604, sections 6-10.

2.6 BOLTS AND SCREWS
Of engineering and/or coach type complete with washers, to the requirements of NZS 3604, section 4: Durability, and of the number and form required for each particular junction to NZS 3604, sections 6-10. In addition, where fixing into treated timber than may be damp (i.e. piles, bearer), use a powder-coated bolt. No self tapping screws.

2.7 TIMBER CONNECTORS, BRACING STRAPS
Supply as required for stiffening to existing joinery. Stainless steel. Powder actuated fasteners Not permitted

2.8 HARDWARE AND FURNITURE
Hinges, stays, catches, fasteners, latches, locks and furniture per window schedule. manufacturer. Refer to SELECTIONS for type and finish. Key alike all lockable window hardware able to be keyed alike.

Sealants
1.9 WEATHERING/INSTALLATION SEALANT
Building sealant used in accordance with manufacturer’s instructions for weather sealing frames to the cladding where shown in details.

1.10 FOAM TAPE
Foam tape to NZBC E2/AS1, 9.1.10.7 Closed cell foam tape. If required in details.

Finishes

1.11 PAINT
Refer to SELECTIONS for systems.

3. EXECUTION
Conditions – generally

3.1 DIMENSIONS
All timber sizes for replacement or repair work shall match the member being removed

3.2 GENERAL PRINCIPLES FOR GLUES AND FIXING
A principle of all connections in materials is that the connecting material should be weaker than the material it is joining. This will allow the stresses to be accommodated within the joint, which should be designed to take them, rather than transferring stresses to the body of the material and causing it to fail. Thus Epoxy is only a good solution where it is used to reinstate the damaged portion of a single structural element.
Where two structural elements join at a corner, e.g. a head and jamb lining of a door; the stile and rail of a door leaf; stile and rail of a window sash; traditional glue such as PVA should be employed, which will allow future repairs.
Glue nails and self-tapping screws should be avoided for the same reason. Should these elements require repair in the future, their removal will almost certainly destroy them. Nails on the other hand are easily withdrawn with minimal damage.

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

3.4 AVOID DISTORTION
Avoid distortion of elements during transit, storage and handling.

3.5 PREVENT DAMAGE
Prevent prefinished surfaces rubbing together, and contact with mud, plaiters and cement. Keep paper and cardboard wrappings dry.

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
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 FIXING
To NZBC E2/AS1, 9.1.10.8,
Where required by details, or off site. Ensure fixings do not penetrate metal flashings. Install packers between reveals and framing at fixing points, except at the head.
3.10 PROTECT
Protect all new and existing timber joinery against damage and from inclement weather. Ensure that any variation in moisture content is kept to a minimum, before and after erection and before enclosure. Where entire window assemblies are removed, they shall be worked on and stored in an enclosed space.

3.11 STORE
All windows and doors removed from the wall opening shall be stored flat, and filleted. Execution to comply with NZS 3604, except as varied in this specification.

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

3.13 FRAMING MOISTURE CONTENT
Timber for repairs shall be air seasoned in an enclosed environment for at least two years. At use: 16% EMC maximum.

3.14 TOLERANCES.
Profile new timbers to match exactly the existing. Repaired sashes, or frames should be square, except where required to be adjusted to suit the opening

Assembly

3.15 REPAIR
Repair frames as detailed and agreed on site. Install glazing, hinges, stays and running gear as scheduled. Provide temporary bracing and protection.

3.16 HARDWARE GENERALLY
Fit all required and scheduled hardware. Account for all keys and deliver separately to the site manager.

3.17 SAFETY STAYS
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 (where required)

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

3.19 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.

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

3.21 INSTALL FLASHINGS
Install flashings to heads, jambs and sills of frames as detailed on the drawings. Place all flashings so that the head flashing weathers the jamb flashings, which in turn weathers over the upstand of the sill flashing. Ensure that sill flashings drain to the outside air.
Except where window/door frames are recessed, ensure that head flashings over-sail unit by 20mm minimum plus any jamb scribe width at each end. Ensure that flashings are fully detailed, preferably as 3-dimensional diagrams, to ensure that they are fabricated and installed in a manner that will avoid the ingress of moisture.

3.21 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. Formation of an air seal around all penetrations in the building envelope will greatly
reduce the likelihood of water ingress occurring; especially when employed in
combination with well designed joinery frames and appropriately detailed and installed
flashings.

3.22 FIX HARDWARE
Fix all sash and door hardware and furniture as scheduled.
Application — Joinery

3.23 REPAIR TECHNIQUES
Timber failures in windows are identified in the report. Always ensure decayed timber is
completely removed, as any remaining rot ill continue to decay behind the newly indented
timber. Any timber spliced into sash or frame shall be pinned and glued into place.
Cuts made in old wood should, wherever possible, be angled to direct moisture away
from the site of the repair. Timber for splicing shall be radially cut with the radial cut
inserted parallel to the widest dimension of the repair object. Metal reinforcing/stiffening
straps may be allowed in specific cases – refer to architect.

3.24 SETOUT
Set timbers true to required lines and levels with mitres, butt joints, laps and housings cut
accurately to provide full and even contact over the whole of the bearing surface. 1.5.4
5.4 Selections Wood working glue shall be waterproof. Nails, screws etc to be stainless
Application - jointing and sealing

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 basis as 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
Provide protective coverings and coatings where required to prevent marking of surfaces
visible in the completed work and to protect joinery from following trades, especially
internal and external plastering and painting.

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.
This clause does not refer to the NZS 4223.3 requirement for “manifestations” required for post-construction building use where a glass door or panel could be mistaken for an unimpeded path of travel.

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

3.33 MANIFESTATIONS
Apply manifestations to comply with NZS 4223.3, 303.1 Manifestations.
Note NZS 4223.3, sets minimum standards for delineating glass "capable of being mistaken for an unimpeded path of travel". While this issue is best resolved in the basic design of the installation, in some cases applied signs, decals, sandblasting or attached rails are necessary. Consider and specify accordingly.

4. SELECTIONS
Refer to Schedule
4611 GLAZING EXTERIOR

1. GENERAL

This section relates to the supply and fixing of glass products for external joinery in complex residential and commercial buildings, including:
- window and doors

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:
- PVB Polyvinyl Butyral
- CIP Cast in place

1.3 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
- NZS 3604 Timber-framed buildings
- NZS 4211 Performance of windows
- NZS 4218 Thermal insulation - Housing and Small Buildings
- NZS 4223.1 Glazing in buildings - Glass selection and glazing
- 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 2208 Safety glazing materials in buildings
- AS/NZS 4666 Insulating glass units
- BRANZ BU 337 Protecting window glass from damage

Warranties

1.4 MANUFACTURERS WARRANTY
Warrant glass under normal environmental and use conditions against failure of materials

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

2. PRODUCTS

Materials

2.1 CLEAR FLOAT GLASS
Clear ordinary annealed transparent float glass for general window glazing. Thickness to NZS 4223.1 and NZS 4223. Supp 1.

Components, general
2.2 JOINTING, PUTTY AND SEALING MATERIALS
Ensure jointing, putty and sealing materials are compatible with glass substrates.
Confirm compatibility with laminated glass, IGU’s and coatings.

Components, timber glazing

2.3 PUTTY, TIMBER FRAME
Linseed oil base glazing putty.

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

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 to have 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 4223.4 Supp 1.
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.

Assembly

3.6 WORKING OF GLASS
All working of glass as required in NZS 4223.1.

3.7 EDGE WORK AND BEVELLING
Edgework other than a clean cut. Refer to SELECTIONS/drawings for type.

3.8 SURFACE TREATMENT
Refer to SELECTIONS/drawings for finish.

Application - timber glazing

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

3.10 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.

3.11 PREPARE TIMBER BEADS
Before fixing ensure that timber beads are sealed and painted to match the timber surround.
3.12 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.

3.13 INSTALL PUTTY FRONTING
Back putty to give a bedding of not less than 1 to 2mm 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 460mm 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 1-2mm 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.

Finishing

3.14 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.

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

Completion

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

3.17 REPLACE
Replace damaged, cracked or marked glass.

3.18 LEAVE
Leave work to the standard required by following procedures.

3.19 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
Refer to Schedule of Selections in drawing set.
4711A Autex GreenStuf® Thermal Insulation – Rev A

1. GENERAL

This section relates to Autex GreenStuf® polyester fibre insulation installed, laid, hung or fitted as thermal insulation.

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:

BIB Building Insulation Blanket

Documents

1.3 DOCUMENTS

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

- NZBC E2 External moisture
- NZBC H1/AS1 Energy efficiency
- AS/NZS 3000 Electrical installations
- NZS 4218:2004 Energy Efficiency - Small building envelope
- NZS 4220 Code of Practice for energy conservation in non-residential buildings
- NZS 4243.1 Energy Efficiency - Large buildings - Building thermal envelope
- NZS 4246 Energy Efficiency - Installing insulation in residential buildings
- AS/NZS 4534 Zinc and zinc/aluminium-alloy coatings on steel wire
- AS/NZS 60598.2.2 Luminaires - Particular Requirements - Recessed luminaires
- AS/NZS 60695.11.5 Fire hazard testing - Test flames - Needle-flame test method - Apparatus, conformity test arrangement and guidance
- AS/NZS ISO 9001 Quality management systems - requirements

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

Autex Insulation documents related to this section are:

- Autex Insulation Product Manual, including:
  - Data sheet GreenStuf® Thermal Insulation - Pad Form
  - Data sheet GreenStuf® Underfloor
- Installation Instructions - GreenStuf® Thermal Insulation
- Installation Instructions - GreenStuf® Underfloor Insulation
- Autex Insulation Warranty Certificate
- BRANZ Appraisal 380 - Autex GreenStuf® Polyester Thermal Insulation
- BRANZ Appraisal 734 GreenStuf® Underfloor Insulation
- Environmental Choice NZ (Licence No. 2508037) Autex GreenStuf® polyester thermal (resistive-type) insulation

Manufacturer/supplier contact details

Company: Autex Industries Limited
Web: www.autex.co.nz
Telephone: 0800 428 839

Autex Insulation documents are also available on EBOSS
Web: www.eboss.co.nz

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

- For Autex polyester thermal and acoustic insulation products.
- Provide this warranty on the Autex Insulation Certificate of Warranty standard form.
Requirements

1.6 QUALIFICATIONS
Work to be carried out by tradesmen experienced, competent and familiar with Autex Insulation materials and techniques specified.

1.7 NO SUBSTITUTIONS
This work section relates to NZBC compliant systems and under the building consent process substitutions are not permitted to any specified insulation, associated products, components or accessories.

Autex GreenStuf® products have been selected on specific performance criteria and their reduced environmental impact. Substitution of specified insulation materials will not be accepted.

2. PRODUCTS

Materials

2.1 POLYESTER FIBRE THERMAL INSULATING PADS
Autex GreenStuf® Pad Form - 100% polyester fibres thermally bonded to form a rectangular insulation pad. Manufactured in NZ under AS/NZS ISO 9001 and ISO 14001 quality and environmental management systems. Refer to SELECTIONS for details.

NOTE: All GreenStuf® Polyester insulation is compliant with AS/NZS 60695.11.5 and can safely be installed abutted to downlights classified CA 80, CA 135 and can be safely installed covering downlights classified IC and IC-F.

2.2 POLYESTER FIBRE THERMAL UNDERFLOOR INSULATION
Autex GreenStuf® Underfloor - 100% polyester fibres thermally bonded to form a flexible insulation roll for insulating the underside of exposed joist floors. Manufactured in NZ under AS/NZS ISO 9001 and ISO 14001 quality and environmental management systems. Refer to SELECTIONS for details.

Components

2.3.STAPLES / GUN STAPLER
Gun stapler and staples (standard or stainless steel as appropriate) for fixing GreenStuf® Masonry Wall Blanket and GreenStuf® Underfloor in place.

3. EXECUTION

Conditions

3.1 STORAGE
Accept materials undamaged and dry and store in a location that protects them from the weather and damage. Avoid distortion, stretching, puncturing and damage to insulation and packaging. Do not use damaged materials.

3.2 HANDLING
Avoid distortion of rectangular pad form. Maintain full thickness of the insulation unless compression is an installation system requirement.

3.3 INSPECTION
Before starting installation of Autex GreenStuf® blankets, pads and rolls, check that the location and framing are free from moisture, that the cavities are not interconnected and that mesh, underlays and vapour barriers are in place.

Application

3.4 INSTALL INSULATION - GENERAL
Lay, install, fit and fix to NZBC H1/AS1: Energy efficiency, 2.0 Building thermal envelope, and to manufacturer's requirements. Install in housing to NZS 4218 and NZS 4246.
Install in large buildings to NZS 4243.1 and NZS 4220. Allow insulation to re-loft/relax prior to installation. Do not cover vents. Allow a clear gap around metal flues as recommended by the fireplace manufacturer. Lift up electrical wires, lighting transformers/controllers and lay the insulation underneath.

3.5 CHECK FOILS
Ensure foils are dry, clean, bright, undamaged and free of debris before installing insulation.

3.6 FIT POLYESTER FIBRE THERMAL INSULATION PADS
Friction fit GreenStuf® insulation pads in place to completely fill the whole of the cavities. Slightly oversize length for friction fit and tear by hand across pad and fill cavity. Tear to smaller pieces for smaller spaces and around penetrations. Leave no gaps and maintain full thickness over the whole of the installation. Do not cover vents and cut around metal flues to the safety requirement of the fireplace manufacturer. Fix in place with plastic tape as necessary to hold the insulation until the wall and or ceiling linings are in place. Refer to GreenStuf® Pads and Roll Form installation instructions.

3.7 FIT POLYESTER FIBRE THERMAL UNDERFLOOR INSULATION
Friction fit GreenStuf® Underfloor insulation rolls between the floor joists to completely fill the space between each. Slightly oversize length for friction fit and tear by hand across the width of the roll. Tear to smaller pieces for smaller spaces and around penetrations. Leave no gaps and maintain full thickness over the whole of the installation. Insulation should be stapled into place using a staple gun to each side of the joist. In coastal areas use stainless steel staples to avoid corrosion. Refer to GreenStuf® Underfloor installation instructions.

Completion

3.8 CLEAN UP
Clean up as the work proceeds so no spare off-cuts or any other matter or item remain behind claddings or linings.

3.9 LEAVE
Leave work to the standard required by following procedures.

3.10 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
Refer to Schedule of Selections in drawing set.
4811S  SIIKA SEALANTS – Rev A

1. GENERAL

This section relates to the selection of sealants and application methods for sealants nominated in other work sections.

Related work

1.1 RELATED SECTIONS
Refer to 4224 TIMBER EXTERIOR TRIM
Refer to 4511 EXTERIOR TIMBER WINDOWS AND DOORS

Documents

1.2 DOCUMENTS
Documents referred to in this section are:
ISO11600 Building construction - Jointing products - Classification and requirements for sealants

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

1.3 MANUFACTURER'S DOCUMENTS
Sika (NZ) Ltd product data sheets relating to work in this section are:
Sika Primer Table Sikaflex / Sikabond. Version no: 02/08
Sikaflex® AT-Facade. Version no: 03/08
Sikaflex® Construction. Version no: 05/11
Sikasil® Roofing and Plumbing. Version no: 06/10
Sikasil ® NG. Version no: 17/08/08
Sika® Primer MB Version no 08.05

Independent VOC test certificates for quantity of VOC in grams per litre in accordance with SCAQMD Rule 1168 to Green Star Office design V2 IEQ-13/ IEQ-03

Copies of the above literature are available from Sika (NZ) Ltd
Web: www.sika.co.nz
Email: info@nz.sika.com
Telephone: 0800 SIKA NZ, 0800 745 269
Facsimile: 0800 SIKA FAX, 0800 745 232

1.4 ABBREVIATIONS AND TERMS
The following abbreviations and terms are used throughout this part of the specification:
VOC Volatile Organic Compound

Requirements

1.5 SEALANT SELECTION
Refer to the Sika (NZ) Ltd current Technical Data Sheet before commencing sealant installation. Ensure that the correct sealant has been selected for the intended application and substrates. Check that the joint design allows for movement and or substrate thermal expansion and contraction, and is within the sealants range of service.

1.6 SAMPLE JOINT
Produce a sample joint for substrates or coatings not detailed in Sika (NZ) Ltd current Technical Data Sheet. Upon full cure of the selected Sika sealant the test sample is to be used to assess sealant adhesion and compatibility with the substrate or coating. Following review and confirmation that work may proceed, the sample joint becomes the quality control standard for subsequent work of each type. Sample joints may be retained as part of the completed work.
1.7 QUALIFICATIONS
Sealant work, including preparation, to be carried out by competent and experienced sealant applicators, approved by Sika. Provide evidence of technical competence and experience for review before commencing work.

1.8 MANUFACTURER’S TECHNICAL SERVICES
Sika (NZ) Ltd provides local testing and research and development assistance for non standard applications. Use the research and development, and the technical information provided by Sika throughout the design, development, prototype testing and installation stages of sealant work.

Warranties

1.9 WARRANTY - MANUFACTURER/SUPPLIER
Provide Sika (NZ) Ltd warranty for:
10 years: For material
- Provide the warranty in the Sika form.
- Commence the warranty from the date of practical completion of the contract works.
- Sika (NZ) Ltd will warrant that Sika sealant products will perform in accordance with the information stated in Sika (NZ) Ltd current Technical Data Sheets.
- Refer to Sika (NZ) Ltd for further information on warranty.

2. PRODUCTS

Materials

Silicone sealants

2.1 SIKASIL® ROOFING AND PLUMBING
Sikasil® Roofing and Plumbing, a one component Alcoxy (neutral curing) silicone sealant suitable for roofing and plumbing applications.

2.2 SIKASIL® NG
Sikasil ® NG, a one part fast cure neutral silicone sealant to provide a permanent watertight seal to various substrates including plastics, ceramics and some powder coated surfaces.

3. EXECUTION

Conditions

3.1 COMPATIBILITY
Ensure compatibility by using only Sika branded sealants with Sika supplied joint fillers, primers, backing rods, bond breaker tape and cleaning solutions.

3.2 NON SLUMP SEALANTS
Use only thixotropic sealants capable of supporting their own weight (non slump) in vertical applications.

3.3 SELF LEVELLING SEALANTS
Use only self levelling sealants in contained horizontal applications.

3.4 SUBSTRATE STAINING
Note that some silicon sealants can cause silicon oil staining on porous substrates such as concrete and masonry.

3.5 SEALANT PAINTABILITY
Ensure that a paintable sealant is selected when the sealant joint requires painting. NOTE: This excludes silicon based sealants which are not paintable.

3.6 COLOURS
Refer to SELECTIONS for colour option/s. Where colour is not specified, choose sealant colours from the Sika standard/special colour ranges.

3.7 VISIT THE SITE
Arrange for the Sika representative to visit the site to examine the site conditions, to inspect the surfaces and joints and to discuss the installation procedures, before any sealing work proceeds.

Preparatory work

3.8 ENSURE
Ensure that joints to receive sealants are suitable for the proposed application. Ensure that surfaces are sound, dry, free from dust, dirt, scale, laitance, corrosion or other loose material, oil, grease, paint, release agents or other contaminants which may affect the bond, or the performance of the sealing material.

Ensure that joints and spaces receiving sealant are within the specified width to depth ratio in accordance with Sika sealant product data sheet. Ensure that the joint design allows for movement and/or substrate thermal expansion and contraction that are within the sealants range of service.

3.9 TEST SUBSTRATES
Test substrates for indications of staining or poor adhesion. If poor adhesion is evident from initial tests, consult Sika about the application of a suitable primer. Only use combinations of sealants and substrates for which favourable adhesion and compatibility have been confirmed.

Do not apply sealant to concrete or concrete block until concrete and/or mortar has cured.

3.10 CLEAN JOINTS
Clean joints as detailed in application instructions contained in Sika (NZ) Ltd product data sheet to achieve acceptable joint surfaces for the application of sealant. Protect adjacent surfaces from abrasion or other damage.

3.11 CLEAN METAL SURFACES
Clean metal surfaces with approved Sika (NZ) Ltd cleaners to remove any grease deposits.

3.12 GRIND CONCRETE SURFACES
Grind concrete surfaces to remove concrete laitance and other surface contaminates prior to applying Sika Primers

3.13 MASK
Mask adjacent surfaces alongside joints to prevent contamination. Mask off any surfaces which would be difficult to clean if smeared with sealant, or where excess sealant could not be neatly trimmed off or removed.

3.14 VENTILATION
Ensure adequate ventilation for sealant applicators during the preparation and application of sealant work.

Application

3.15 FINAL PREPARATION
Prepare joints in accordance with approved Sika (NZ) Ltd cleaning methods.

3.16 BACKING
Insert Sika PEF backing rod or bond breaker tape to avoid three sided adhesion. Sika PEF backing rod diameter is be 25% larger than the gap size. Use only blunt instruments to install backing rods to avoid puncturing or damage. Do not twist rods when installing. When using backup material do not leave gaps and do not reduce the depth of the sealant joint to less than the minimum required by Sika.
3.17 PRIMING
Use Sika supplied/recommended primers. Allow to cure for Sika recommended time (minimum and maximum). Refer to Sika for instructions if maximum cure time is exceeded before sealant is applied. Do not contaminate bond breakers with primer.

Allow primer to dry as recommended by the manufacturer. Do not prime more than can be completed in one day. Prevent contamination of the primed surfaces prior to applying sealant.

3.18 JOINT FILLING
Fill joint cavity with sealant in accordance with Sika requirements and quality control programmes. Use a pressure gun with a nozzle cut to suit the required joint width. Ensure sealant is deposited in a uniform, continuous bead, without gaps or air pockets and with clean, neat edges.

3.19 TOOLING
Tool sealant to form a smooth, flat bead, or a smooth convex fillet, with a profile as required by Sika. Complete tooling before the sealant surface starts to form a skin.

3.20 FINISHING
Remove masking immediately after tooling and before sealant surface starts to skin. Remove excess sealant from adjoining surfaces before the sealant has set, using the cleaning materials and methods required by Sika, leaving surfaces clean and the sealant runs undamaged.

3.21 SURROUNDING WORK
Leave surrounding surfaces in a neat, clean condition with no evidence of spill over.

Completion

3.22 CLEAN UP
Clean up as the work proceeds.

3.23 LEAVE
Leave work to the standard required by following procedures.

3.24 REMOVE
Remove masking tape, used packaging and waste products from the site.

4. SELECTIONS
Refer to Schedule of Selections in drawing set.
4821 FLASHINGS – Rev A

1. GENERAL

This section relates to the fabrication and installation of flashing systems not forming part of a proprietary system.

1.1 RELATED WORK
Refer to 4311 PROFILED METAL ROOFING
Refer to 4311C CALDER STEWART EUROTRAY

Documents

1.2 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:
- NZBC B2/AS1 Durability
- NZBC E2/AS1 External moisture
- AS/NZS 2728 Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
- AS 3566 Self-drilling screws for the building and construction industries - General requirements and mechanical properties
- NZS 3604 Timber-framed buildings
- NZMRM - CoP NZ Metal roof and wall cladding - Code of practice (CoP)

Requirements

1.3 QUALIFICATIONS
Work to be carried out by tradesmen experienced, competent and familiar with the materials and techniques specified.

1.4 VERIFY DIMENSIONS
Verify dimensions against site measurements prior to fabrication.

Standards of performance

1.5 DURABILITY REQUIREMENTS
Design and install the flashings appropriate for the durability applications in accordance with NZBC B2/AS1. The Building Code B2, 3.2 requires that all hidden elements have at least the same durability as that of the element that covers it. Refer to NZBC B2/AS1 Table 1: Durability Requirements of Nominated Building Elements and NZBC E2/AS1 Table 20 Material selection.

1.6 COMPATIBILITY REQUIREMENTS
Each flashing material shall be selected in accordance with NZBC E2/AS1 Table 20 to minimise corrosion. Refer to either NZS 3604 Clause 4.2 or AS/NZS 2728 for the relevant exposure conditions. For compatibility of materials in contact and subject to runoff, refer to NZBC E2/AS1 table 21 and NZBC E2/AS1 table 22.

1.7 DESIGN
For flashings where there are no specific details or drawings, provide a full size mock up of the flashing to integrate components into the weathertight system. Co-ordinate with the trades affected by the installation.

2. PRODUCTS

2.1 FLASHING MATERIALS
Acceptable materials for flashings are described in NZBC E2/AS1, 4.0. Material, grade and colour as detailed and scheduled. Ensure that materials used for flashings are compatible with the building and cladding materials and their fixings.

2.2 FLASHING FABRICATION
Fabricate flashings generally to NZBC E2/AS1, 4.0, from a ductile grade of metal designed for lateral strength by folding, stiffening or ribbing on external edges, having a maximum un-stiffened width of 300mm. Provide all hooks, hems, kick outs, bird's beaks, stop ends, soft edges and turn downs etc. to NZBC E2/AS1, 4.0, or as shown on the drawings.

2.3 FIXINGS
Rivets, screws, nails and cleats to be compatible with the materials being fastened. Fasteners complying with the corrosion requirements of AS 3566 are suitable for use with ZINCALUME® steel products. Use only low carbon non-conductive sealing washers.

2.4 JOINTS - SEALANTS
Neutral Curing silicone or MS polymer sealant as required, with low resistance to compression and be-able to withstand large temperature variations. MS polymer sealant to be used where the sealant is exposed and the surrounding surfaces are to be subsequently painted or coated.

2.5 JOINTS - SOLDER
Eutectic solder of 60% tin/40% lead using a suitable proprietary flux.

3. EXECUTION

Conditions

3.1 DELIVERY
Keep flashings dry in transit. Take delivery of flashings in an undamaged condition. Reject all damaged materials.

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

3.3 HANDLING
Avoid distortion and contact with potentially damaging surfaces/substances. Do not drag flashings across each other, or across other surfaces. Protect edges, corners and surfaces from damage.

3.4 SUBSTRATE
Do not commence work until the substrate is of the standard required by the installer for the specified flashings, level and in true alignment.

3.5 PROTECT
Protect surfaces, window and door joinery, and finishes already in place, from the possibility of damage during the installation process.

3.6 CONFIRM LAYOUT
Before commencing work confirm the proposed installation of the flashings and expansion joints and other visual considerations of the finished work.

3.7 CO-ORDINATE INSTALLATION
Co-ordinate installation of flashings with associated trades.

Application

3.8 INSTALLATION
Install flashings in accordance with NZMRM - CoP and in compliance with NZBC E2/AS1, 4.0 Flashings. For very high wind zones and where the pitch of the roof is below 15° the flashing joint laps shall be sealed with sealant at each end of the lap to prevent the ingress of water.

Refer to NZBC E2/AS1 Table 7 for general dimensions of flashings.
3.9 FIXINGS
Fix flashings with fasteners appropriate to the situation. For fixing flashings with proprietary brackets or clips ensure they are aligned to allow for movement and are compatible with the flashing material.

Fix screws with the shank perpendicular to the surface of the flashing with the washer fitted firmly against the flashing. Screws to be compatible with the flashing material.

Rivets 'blind' or 'pop' are to be sealed when used. Aluminium rivets are compatible with zinc or AZ coated steel. Monel and stainless steel rivets can be used to fix galvanized steel flashings. Minimum diameter of rivet to be used is 4.0mm. Drill hole 1mm larger than the rivet size. Seal head of rivet with neutral cured silicone.

3.10 JOINTING - SEALANTS
Clean surfaces to be lapped using a solvent ensuring all traces of the solvent are removed with a clean rag. Apply sealant by gun in a continuous bead of approximately 5mm diameter. Width of sealant when compressed should not exceed 25mm. Sealant joints shall be mechanically fixed for strength. Refer to NZMRM - CoP for details.

3.11 JOINTING - SOLDER
Solder joints in galvanized steel and non-ferrous metals when specified with lead/tin solder. Clean joint ensuring it is dry and free of grease immediately prior to applying a proprietary flux. Lap the flashing 25mm in the direction of the water flow and fasten the lap with rivets or screws at 50mm centres. Completely sweat the joint to avoid leaving any flux residue. Wash down the joint to remove any trace of flux.

3.12 FINAL INSPECTION
A final inspection by the installer to take place after completion of the flashing work. Any defects or subsequent damage to be made good.

Completion

3.13 PROTECT
Protect new work from damage.

3.14 REPLACE
Replace all damaged or marked elements.

3.15 LEAVE
Leave work to the standard required for following procedures.

3.16 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
Refer to ‘Schedule of Selections’ in drawing set.
1. GENERAL

This section relates to the fabrication and installation of steel items, including:
- vents
- fabricated brackets
- screens

1.1 RELATED WORK

Refer to ~ for ~

Documents

1.2 DOCUMENTS REFERRED TO

Documents referred to in this section are:

- AS 1397 Sheet steel and strip - hot-dipped zinc-coated or aluminium/zinc-coated
- AS/NZS 1554.1 Structural steel welding - Welding of steel structures
- AS 1594 Hot-rolled steel flat products
- AS 1627.4 Metal finishing - Preparation and pretreatment of surfaces - Method selection guide - Abrasive blast cleaning
- AS 1627.9 Metal finishing - Preparation and pretreatment of surfaces - Method selection guide - Pictorial surface preparation standards for painting steel surfaces
- AS/NZS 4680 Hot-dip galvanized (zinc) coatings on fabricated ferrous articles
- AS/NZS 4792 Hot-dip galvanized (zinc) coatings on ferrous hollow sections, applied by a continuous or special process
- NZS/BS 1387 Screwed and socketed steel tubes and tubulars and for plain end steel tubes suitable for welding or for screwing to BS 21 pipe threads
- NZS/BS 4848.2 Hot-rolled structural steel sections - Hollow sections
- NZS/BS 4848.4 Hot-rolled structural steel sections - Equal and unequal angles
- BS 4-1 Structural steel sections - Hot-rolled sections
- BS 2630 Resistance projection welding of uncoated low carbon steel sheet and strip using embossed projections
- BS 6265 Resistance seam welding of uncoated and coated low carbon steel
- BS 6497 Powder organic coatings for application and stoving to hot-dip galvanized hot-rolled steel sections and pre-formed steel sheet
- BRANZ BU 467 Principles of flashing design

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

Requirements

1.3 SAMPLES OF FINISH

Submit samples on request of finish offered.

1.4 QUALIFICATIONS

Metalworkers to be qualified as welders and experienced in working with steel and the techniques specified.

2. PRODUCTS

Materials

2.1 STEEL FLAT

Hot-rolled sheet and/or strip to AS 1594.

Components
2.2 SCREWS
Self-tapping metal with similar composition and mechanical properties to the parent metal and with the type of head, length, gauge and thread to suit the work and its location.

2.3 BOLTS
Similar composition and mechanical properties to the parent metal, selecting type and size to suit the work and its location.

2.4 THREADED STUDS
Mild steel with similar composition and mechanical properties to the parent metal. Select stud and nut threads to suit the base material and the nut being used.

2.5 CLIPS
Form clips to detail of the same metal as the metal sheet to be fixed/secured.

2.6 SCREWS
Hexagonal head, self-drilling, with similar composition and mechanical properties to the parent metal. Select type of head, length, gauge and thread to suit the work and its location.

Finishes

2.7 EXTERNAL ORGANIC COATINGS
Polyester exterior grade coatings to BS 6497.

3. EXECUTION

Conditions

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

3.2 AVOID DISTORTION
Avoid distortion of elements during transit, storage and handling.

3.3 PREVENT SURFACE DAMAGE
Prevent pre-finished surfaces rubbing together, and any contact with mud, plaster or cement. Keep protective coverings dry.

3.4 PREPARATION
Ensure location and substrate is ready to receive the elements and will allow work of the required standard.

3.5 FLASHINGS
Select and use sheet metals suited to the element, process or finish specified, jointing them as necessary to allow full development of their expected durability with a minimising of corrosion and to BRANZ BU 467.

Assembly

3.6 PROTECTION
During fabrication protect all surfaces which will be visible in completed work.

3.7 COLD FORMING
Cold formed work to be free from warping, buckling and fractures. Form bends with a brake press or by cold rolling.

3.8 CORNERS
Unless specified otherwise, mitre junctions of identical sections.

3.9 HOLES
Form without distortion of surrounding metal.
3.10 MOVING PARTS
When assembled, all moving parts must move freely and without binding.

3.11 CLEANING
Remove all burrs and sharp arrises which would be visible after fixing, or a hazard to the user.

3.12 MECHANICAL JOINTS
Ensure mechanical joints are tight with no visible gaps.

3.13 MECHANICAL JOINTS, ELEMENTS
Bed in mastic all mechanical joints of elements which will be located externally, including all mating surfaces, cleats and other fixings.

3.14 MECHANICAL JOINTS, CLEATS
Unless specified otherwise connect cleats to frames with countersunk screws where they will be visible after the component has been fixed and where raised heads would interfere with any moving part.

Application

3.15 INSTALLATION
Locate plugs accurately and use in accordance with the manufacturer's requirements. Fix plumb, level and true to line. Comply with the specified standards, the reviewed shop drawings and installation details, including brackets, bolts, fixings, grout, bedding compounds and sealants.

3.16 LOADING
Elements must not carry any structural load unless designed to do so. Do not use as strutting or support when in place.

Finishing

3.17 PREPARATION FOR COATINGS
Before applying coatings remove all welding slag, weld spatter, anti-splatter compounds, paints, grease, flux, rust, burrs and sharp arrises. Make good all defects which would show after application of coating. Finish surfaces smooth.

3.18 GALVANIZING
After fabrication completely remove all surface contaminants and hot-dip galvanize to AS/NZS 4680 and AS/NZS 4792.

3.19 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 full coating thickness being attained.

3.20 APPLY COATINGS
Prepare surfaces and apply the coating system strictly in accordance with the coating manufacturer's technical information.

Completion

3.21 ENSURE
Ensure all elements are free of marks or blemishes, with all moving parts working fully and freely.

3.22 REPLACE
Replace damaged, cracked or marked elements.
3.23    LEAVE
Leave work to the standard required by following procedures.

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

4.    SELECTIONS
Refer to ‘Schedule of Selections’ in drawing set.
1. GENERAL

This section relates to the re-use and fixing of salvaged tongue and grooved narrow boards as a floor, nailed, secret nailed, or adhesive fixed.

Related work

1.1 RELATED SECTIONS
Refer to ~ for ~.

Documents

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

- NZS 3602 Timber and wood-based products for use in building
- NZS 3604 Timber-framed buildings
- NZS 3617 Profiles of weatherboards, fascia boards and flooring

Warranties

1.3 WARRANTY
Warrant this work under normal environmental and use conditions against failure by shrinkage and/or swelling.

Warranty period: 1 year

Refer to the general section for the required form of 1237WA WARRANTY AGREEMENT and details of when completed warranty must be submitted.

Requirements

1.4 SAMPLES
Submit on request samples of new salvaged flooring specified sufficient to show the pattern and the range of colour finish and match to existing salvaged boards.

1.5 QUALIFICATIONS
Floor layers to be experienced competent workers, familiar with the materials and the techniques specified.

2. PRODUCTS

Materials

2.1 FLOORING
To NZS 3617, tongue and groove profile (unless detailed or selected otherwise) with species and grade to NZS 3602. Moisture content: 10 - 12% at laying.

Refer to NZS 3602; table 4: Allowable moisture content (%) at time of installation for different requirements.

Existing floor boards are Heart Matai, any new salvaged boards to be the same in material and section.

Components

2.2 FLOORING NAILS
35mm x 2.4mm steel wire floor brads.

2.3 CLEATS
L or T type, minimum length 45mm.
3. EXECUTION

Conditions

3.1 STORAGE
Take delivery of flooring dry and undamaged and store on site under cover to keep in that condition. Allow timbers to acclimatise to interior building conditions on site (2-3 weeks) prior to commencing laying.

3.2 SUBSTRATE
Ensure that the substrate conforms to NZS 3604 and that the relative humidity is suitable to receive flooring.

3.3 MOISTURE CONTENT, FLOORING
Use a moisture meter to the flooring supplier's stated requirements, testing 5% of not less than 10 boards in the centre of the length. Do not commence laying if 90% of values obtained are not within the range specified.

3.4 ENVIRONMENTAL CONDITIONS
Ensure that all existing salvaged and new salvaged floor boards are fully acclimatised to the buildings internal environment prior to laying.

3.5 DO NOT START
Do not start cutting down and laying and fixing flooring before the building is enclosed, external moisture is excluded from the area and all wet work is complete.

Application

3.6 EXPANSION SPACE
Provide 6 - 10mm expansion space between walls, columns and pipes to NZS 3604; clause 7.2.1: Flooring installation.

3.7 LAY FLOORING - TOP NAILED
Lay flooring strips at right angles to floor joists, over plywood substrate, in straight parallel lines, tongues fitted into grooves and tightly cramped together. Slightly undercut end joints square, fitted tight and random staggered across adjacent boards. Drill for nails at end joints. New nails to utilise existing nail holes where ever possible, well punched and all in a straight line, where not pre-drill board to form new.

Finishing

3.8 SAND FLOORING
No sanding or finishing to be undertaken.

Completion

3.9 LEAVE
Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following work.

3.10 PROTECTION
Protect laid floor from moisture and spilled liquids at all times, and from long exposure to direct sunlight. Protect the completed work.

3.11 PROTECT SURFACE
Ensure that the completed surface is not used for traffic. Continue to protect the surface until completion of the contract works.

3.12 REPLACE
Replace damaged or marked elements.

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

4. **SELECTIONS**
5. Refer to ‘Schedule of Selections’ in drawing set.
5521 HARDWARE – Rev A

1. GENERAL

This section covers the salvage and restoration of existing door and window hardware and furniture, and the installation of new door and window hardware and furniture.

1.1 RELATED WORK

Refer to 4511 EXTERIOR TIMBER WINDOWS AND DOORS for hardware and furniture for exterior timber windows and doors.

Documents

1.2 DOCUMENTS

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

Requirements

1.3 SUPPLIER

A specialist in the supply of hardware, employing an experienced architectural hardware representative available to assist during the course of the hardware installation.

1.4 SALVAGE

An experienced installer of architectural hardware undertake the removal of the existing hardware for salvage and restoration.

1.5 SAMPLES

Submit samples on request of nominated hardware elements, along with the relevant manufacturers' technical literature for review.

Provide samples of restored hardware items for approval by architect

2. PRODUCTS

2.1 DOOR HARDWARE

Refer to DRAWN SCHEDULE for product selection.

2.2 WINDOW HARDWARE

Refer to DRAWN SCHEDULE for product selection.

Components

2.3 FIXINGS

Provide matching fixings, including screws, clips, bolts and brackets for hardware supplied.

3. EXECUTION

Conditions

3.1 SALVAGE

Salvage all existing door and window furniture, label with original location prior to restoration.

3.2 RESTORATION

Clean back all metal work of paint to expose bare metal, ensure all moving parts are free of binding and fit with new to match where required, refinish furniture to retain original appearance and patina, ensure all furniture is operational as originally intended.

3.2 RETAIN

Retain hardware in the manufacturer's original packaging. Ensure that units are complete
with fixings and installation instructions. Label each unit separately with its hardware number and door/window number to match the submitted and approved schedule.

3.3 PACKAGE
Package required hardware units in clear plastic and label each package with its hardware and door/window number and location to match the drawings and the submitted and approved schedule. Place packages in cartons selected for "level", "location", and/or "sector" and label the packages and the cartons similarly.

3.4 STORE
Store hardware packages in a shelved, dry and securely locked area. Provide supervision when the secure area is unlocked and packages and cartons are being distributed; signing off each package from the schedule as released.

Installation

3.5 INSPECTION
Before starting the hardware installation, check frames, doors, sashes and adjacent finishes are ready for the proper installation of the hardware.

3.6 LOCATE
Locate hardware units at heights and/or locations shown on the drawings, or as required to comply with relevant Codes and Standards. Before proceeding, confirm any dimension not shown or known.

3.7 CUTTING AND FITTING
Carry out cutting and fitting of the substrate necessary for installing any hardware unit before painting or finishing of that surface. Remove hardware when required for painting, placing it in the packaging or carton originally supplied and returning it to the secure store until ready for re-installation.

3.8 INSTALL HARDWARE
Install each hardware unit in accordance with the hardware manufacturer's requirements using templates and tools supplied or recommended by them. Set units level, plumb and true to line and required location, with all moving parts and actions freely and easily operating. Do not make any modifications to supplied units.

Completion

3.9 ADJUST
Adjust and check each operating hardware unit for correct and smooth functioning. Replace those units that cannot be adjusted if they do not function correctly. Clean units and adjoining surfaces upon completing their installation. Only use lubricant if and when recommended by the hardware manufacturer/supplier.

3.10 REPLACE
Replace damaged or marked elements.

3.11 LEAVE
Leave work with parts fully and freely working and to the standard required by following procedures.

3.12 REMOVE
Remove debris, unused materials and elements from the site.

3.13 PROTECT
Protect hardware units from damage or marking.

3.14 FINAL ADJUSTMENT
Where hardware is installed more than a month prior to project completion, return and make a final check and adjustment of hardware units to ensure they are operating correctly, fitted properly and are undamaged.
4. **SELECTIONS**
   Refer to ‘Schedule of Selections’ in drawing set.
Victorian Knob Lock

152 x 43mm Plate

> Sprung 1 side only
> Smooth positive handle action
> Designed to fit your hand
> Made from solid brass

Related items:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3002</td>
<td>Victorian knob latch</td>
</tr>
<tr>
<td>3002-E48</td>
<td>Victorian knob lock - euro 48mm</td>
</tr>
</tbody>
</table>
### Lever Locks 57mm Backset, 5 Lever

<table>
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<th>Code</th>
<th>Description</th>
<th>Finishes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1104</td>
<td>57mm 5 lever mortice lock (78mm case)</td>
<td>AB BLK</td>
</tr>
<tr>
<td>1104K</td>
<td>57mm 5 lever mortice lock (78mm case) ka</td>
<td>NB OF PC PVD SS</td>
</tr>
</tbody>
</table>
Stays 350mm Casement

Available in 12 finishes:
- AB
- AF
- BLK
- BN
- CP
- NB
- OF
- PB
- PC
- SB
- SC
- UB

Windsor 5184 Casement Stay Shown

350mm Casement Stay

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>5184</td>
<td>Casement stay 350mm</td>
</tr>
</tbody>
</table>
Fasteners Round Sash

Available in 12 finishes:
- AB
- AF
- BLK
- BN
- CP
- NB
- OF
- PB
- PC
- SB
- SC
- UB

Windsor 5025 Sash Fastener Shown

New style narrow profile keeper suits narrow profile windows

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<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5025</td>
<td>Sash fastener</td>
</tr>
</tbody>
</table>
Sash Lifts Hook

Available in 12 finishes:

- AB
- AF
- BLK
- BN
- CP
- NB
- OF
- PB
- PC
- SB
- SC
- UB

Windsor 5026 Sash Lift Shown

<table>
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<th>Code</th>
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<tr>
<td>5026</td>
<td>Sash lift</td>
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</table>
Pulleys 122x25mm

Available in 12 finishes

122 x 25mm

<table>
<thead>
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<th>Code</th>
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</thead>
<tbody>
<tr>
<td>5197</td>
<td>Sash pulley</td>
</tr>
</tbody>
</table>
Flush Rings 63x50mm

Available in 12 finishes:
AB AF BLK BN CP NB OF PB PC SB SC UB

Windsor 5155 Flush Ring Shown

63 x 50mm

<table>
<thead>
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<th>Code</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>5155</td>
<td>Flush ring 63 x 50mm</td>
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</table>
6700R RESENE PAINTING GENERAL – Rev A

1. GENERAL

This section relates to the general matters related to Resene painting work.

1.1 RELATED WORK
Refer to 6721R RESENE PAINTING INTERIOR
Refer to 6711R RESENE PAINTING EXTERIOR

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:
MPNZA Master Painters New Zealand Association Inc.

Documents

1.3 DOCUMENTS
Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:
Health and Safety in Employment Act 1992
MPNZA Specification manual

1.4 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer’s and supplier’s documents related to this section are:
Resene One-Line specifications and product data manual
(res hard copy or at www.resene.co.nz)
Resene Putting your safety first

Copies of the above literature are available from Resene
Telephone: 0800 RESENE (0800 737 363)

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER
Warrant this work under normal conditions of use against failure referring to the Resene Promise of Quality in the Resene One-Line specifications and product data manual.

Requirements
This painting specification is written based on information available at the time of writing.

1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any specified Resene coating system, or associated components and products. Do not combine paints from different manufacturers in a paint system.

If in the applicator’s own expertise and judgement an amendment to this specification is required, or where a substrate preparation, or required painting system is not covered in this specification, this shall be brought to the attention of the contract administrator and any amendment agreed before work proceeds any further.

1.7 QUALIFICATIONS
Painters to be experienced competent workers, familiar with the materials and the techniques specified and with the Resene coating systems and be members of the Master Painters New Zealand Association Inc.

The applicator is to have the necessary skill, experience and equipment to undertake the work. The applicator remains responsible for ensuring proper completion of the work.
Painters to be selected from the Resene Eco.Decorator programme. The Resene Eco.Decorator programme is designed to recognise a nationwide network of environmentally responsible, quality focussed painting contractors. Refer to www.resene.co.nz/ecodecorator.htm for a list of Eco.Decorators in your area.

1.8 HEALTH AND SAFETY
Refer to and comply with the requirements of the Health and Safety in Employment Act 1992 including the obligation to:

- Eliminate hazards and if hazards cannot be eliminated or isolated, then minimise the hazards in this work by using the proper equipment and techniques as required by the MPNZA Painters hazard handbook and Resene Putting your safety first handbook.
- Supply protective clothing and equipment.
- Inform the contractor as well as the employees and others on site of those hazards and put in place procedures for dealing with emergencies.

1.9 SAFETY DATA SHEETS
Obtain from Resene (phone 0800 RESENE, or www.resene.co.nz) the safety data sheet for each product used and comply with the required safety procedures. Keep sheets on site.

Performance

1.10 RESENE INSPECTION
Permit representatives of Resene to inspect the work in progress and to take samples of their products from site if requested. Resene will take care when inspecting the work, but does not accept any responsibility for the proper completion of the work before or after such inspection.

1.11 INSPECTION OF THE WORK
Inspection of the whole of the work at each of the stages set out in SELECTIONS may be made. Agree on a programme that will facilitate such inspection, including notification when each part and stage of the work is ready for inspection.

2. PRODUCTS

Materials

2.1 MATERIALS GENERALLY
Do not combine paints from different manufacturer’s in a paint system.

Use only Resene products (which are guaranteed for consistency and performance under AS/NZS ISO 9001 and APAS) prepared, mixed and applied as directed in the Resene One-Line Specifications and Product Data Manual. This specification has been written using where practical and available both low/no VOC and Environmental Choice approved products.

2.2 EXPOSED DARK COLOURS
Darker colours in areas of high sun exposure place significant stress on the coating and substrate. Resene ‘CoolColour’ technology reduces heat absorption of a wide range of colours. Contact your local Resene Representative or visit www.resene.co.nz for more information or visit www.resene.co.nz/coolcolour. View a list of Resene colours that can be made using Resene CoolColour technology at www.resene.co.nz/colourlibrary.

2.3 THINNERS/ADDITIVES
Use only if and when expressly directed by Resene for their particular product in a particular application. Always wear gloves when handling any solvents including turpentine as harmful chemicals may be absorbed into the body through the skin.

Accessories

2.4 ACCESSORIES
Contact your local Resene ColorShop for a full range of accessories and usage advice.
3. **EXECUTION**

Conditions

3.1 **EXECUTION**
To conform to required trade practice, which shall be deemed to include those methods, practices and techniques contained in the Master Painters New Zealand Association Inc. Specification manual.

3.2 **TREATED SURFACES**
Where surfaces have been treated with preservatives or fire retardants, check with the treatment manufacturer that coating materials are compatible with the treatment and do not inhibit its performance. If they are not compatible, obtain instructions before proceeding.

3.3 **ANCILLARY SURFACES**
The descriptions of areas in schedules and elsewhere are of necessity simplified. Coat ancillary exposed surfaces to match similar or adjacent materials or areas, except where a fair-faced natural finish is required or items are completely prefinished. In cases of doubt obtain written instructions before proceeding.

3.4 **HARDWARE**
Do not paint hinges or hardware that cannot be removed. Before commencing work carefully remove hardware, fixtures and fittings, set aside where they cannot be damaged or misplaced and replace on completion. Refer to SELECTIONS for hardware, fixtures and fittings for removal.

3.5 **PROTECTION**
Supply, lay and fix dropsheets, coverings and masking necessary to protect adjoining, fixtures, fittings and spaces from paint drops, spots, spray and damage.

**Application - preparatory work**

3.6 **SURFACE PREPARATION**
Refer to the Resene One-Line specifications and product data manual for surface preparation sheets (or obtain them by phoning 0800 RESENE, or at www.resene.co.nz) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

3.7 **LEAD-BASED PAINT, ASBESTOS**
Handle cautiously lead-based paint and asbestos, if present, as outlined in the preamble of the Resene One-Line specifications and product data manual and the Putting your safety first brochure.

3.8 **SHARP EDGES, CRACKS AND HOLES**
Remove and/or repair sharp edges, cracks and holes if present, as outlined in the preamble of the Resene One-Line specifications and product data manual.

Elastomeric sealants, if used, should not be painted. The paint film will not match the flexibility of the sealant and may severely limit its effectiveness.

3.9 **REMEDIAL WORK**
If any substrate or surface, that even with the preparation work called for in this section, cannot be brought up to a standard that will allow painting or clear finishing of the required standard then do not proceed until remedial work is carried out.

3.10 **GAP FILLING**
Make good cracks, holes, indented and damaged surfaces. Use suitable gap fillers to match the surface being prepared. Any special priming requirements of the fillers must be satisfied. Allow to dry or set before sanding back level with the surface. Prime or seal timber before using putty.
Exterior and wet areas: Use only Portland cement base or water-insoluble organic base gap fillers.

3.11 OFF-SITE WORK
Carry out this work under cover in a suitable environment with suitable lighting. Store items, both before and after coating, in a clean, dry area protected from the weather and mechanical damage, properly stacked and spaced to allow air circulation and to prevent sticking.

3.12 PRIMING JOINERY
Pre-treat any cut surfaces of preservative treated timber before priming. Ensure L.O.S.P. treated joinery has dried sufficiently to lose solvent odour. Pre-treat bare timber with Resene TimberLock (see Data Sheet D48) to improve the durability of subsequent coats.

Liberally coat end grain, allow to soak in and then recoat.

3.13 CONCEALED JOINERY SURFACES
Where off-site coatings are specified they must be applied to surfaces including those concealed when incorporated into the building.

3.14 CONCEALED METAL SURFACES
Apply primer to suit the coating system to surfaces which will be concealed when incorporated into the building.

3.15 EXTERNAL DOORS
Prime or seal and paint bottom edges before hanging.

3.16 BEAD GLAZING
Stained, varnished, or painted joinery to have the first two coats, or the primer and one undercoat, applied to rebates and beads before glazing.

3.17 PUTTY FRONTING
According to the putty manufacturer’s instructions allow putty to set, then prime with Resene Wood Primer (see Data Sheet D40). Fully protect the putty by completing the Resene coating system as soon as it is sufficiently firm.

Application - generally

3.18 PAINTING GENERALLY
Comply with the Resene One-Line specifications and product data manual data sheets and the additional requirements of this work section. Ensure large wall areas that require more than one container of paint per coat, have enough paint boxed (mixed) together to complete the final coat. This will not apply if a single factory batch of paint, rather than shop tinted paint, is applied.

3.19 MIXING
Although generally supplied ready-mixed, thoroughly mix paints. Lift any settled pigment and ensure the paint is homogenous.

3.20 ENVIRONMENT
Defer painting of exterior surfaces until weather conditions are favourable - warm dry days without frost or heavy dews. Avoid painting in direct sunlight any surfaces that absorb heat excessively. As far as possible apply paint in the temperature range 15°C to 25°C. If temperatures fall outside the range of 10°C and 35°C do not paint unless paints with the necessary temperature tolerance have been specified. Do not apply solvent borne paint if moisture is present on the surface.

3.21 SEQUENCE OF OPERATIONS
Painting work to generally follow the following sequences:
- Complete surface preparation before commencing painting.
- Apply primers, sealers, stains, undercoats, paints and clear coatings in the sequences laid down by Resene.
- Allow the full drying time between coats laid down by Resene.
- Do not expose primers, undercoats and intermediate coats beyond Resene's recommendations before applying the next coat.
- Finish broad areas before painting trim.
- Ensure batch numbers of tins are matched for whole areas.
- Internally, paint ceilings before walls and walls before joinery, trim and other items.

3.22 APPLICATION
Select brush, roller, or pad and apply coatings to the requirements of Resene to obtain a smooth, even coating of the specified thickness, uniform gloss and colour.

3.23 LIGHTLY SAND
Lightly sand primers, sealers, undercoats and intermediate coats to remove dust pick-up, protruding fibres and coarse particles. Complete by removing dust immediately before applying the next coat.

3.24 DEFECTIVE WORK
Correct defective work immediately and recoat as required, following precisely the Resene system being applied.

3.25 EACH COAT
Each coat of paint and the completed paint system to have the following qualities and properties:
- Uniform finish, colour, texture, sheen and hiding power and the proper number of coats applied.
- No blemishes such as runs, sags, crinkling, fat edges, entrained paint skins, hairs, dust, bare or starved patches, cracks, brush marks, ladder marks and blistering.
- Proper covering of corners, crannies, thin edges, cracks, end grain and other difficult places of application.

Completion

3.26 CLEAN
Clean adjoining surfaces, glass and fittings of any paint contamination. Clean off glass indicators at the completion of the building works. Clean glass inside and out to a shining finish. Use the Resene Washwise on site ‘paint equipment clean-up water’ reclamation system to minimise the environmental impact of cleaning paint application tools.

3.27 LEAVE
Leave the whole of this work uniform in gloss and colour, of correct thickness, free from painting defects, clean and unmarked and to the standard required by following procedures.

3.28 REMOVE
Remove dropsheets, coverings and masking to leave surrounding surfaces and areas clean, tidy and undamaged. Remove debris, unused materials and elements from the site.

3.29 REPLACE
Replace hardware without damage to it or the adjoining surface and leave hardware properly fitted and in working order.

3.30 DISPOSAL OF PAINTS AND THINNERS
Note: The use and disposal of paint and thinners represents a significant environmental hazard.
Ensure all paint and thinners are disposed of in the following manner:
- When requested hand over part used paint containers to client for maintenance touch ups.
- Recycle leftover paint at a Resene ColorShop as part of the Resene "Paintwise programme". Contact your local Resene ColorShop for details or view information online at www.resene.co.nz/paintwise.htm.
- Donate left over paint to local community groups.
- Solvent based paints, paint thinners, turpentine, mineral spirits and solvents require special disposal procedures. Do not pour down sewer or storm water drains, sinks or
into the ground. If they cannot be recycled they must be disposed of in a refuse dump licensed to take toxic waste.

3.31 MAINTENANCE
Good maintenance of coating systems involves a routine of regular cleaning as well as regular inspections. Regular inspections of the coating systems are recommended to identify breakdown, accidental damage to or undesirable deterioration of the paint. Refer the Resene Caring for your paint finish brochure and the Resene website, www.resene.co.nz/comn/services/maintenance.htm.

4. SELECTIONS

4.1 SELECTIONS
Refer to 6711R RESENE PAINTING EXTERIOR and 6721R RESENE PAINTING INTERIOR for selections.
6711R RESENE PAINTING EXTERIOR – Rev A

1. GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing exterior substrates using Resene architectural and decorative coating systems.

1.1 RELATED WORK
Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.
Refer to 6721R RESENE PAINTING INTERIOR for interior paint systems.

2. PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES
Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3. EXECUTION

Conditions

3.1 EXECUTION
Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4. SELECTIONS

Refer to appended project specific RESENE PAINTING SPECIFICATION.
6721R RESENE PAINTING INTERIOR – Rev A

1. GENERAL

This section relates to the surface preparation, painting and clear finishing of new and existing interior substrates using Resene architectural and decorative coating systems.

1.1 RELATED WORK
Refer to 6700R RESENE PAINTING GENERAL for general matters related to painting work.
Refer to 6711R RESENE PAINTING EXTERIOR for exterior paint systems.
Refer to 6711RE RESENE ENVIRONMENTAL PAINTING EXTERIOR for exterior paint systems.

2. PRODUCTS

Materials

2.1 PAINT TYPES GENERALLY/ THINNERS AND ADDITIVES
Refer to 6700R RESENE PAINTING GENERAL for product clauses.

3. EXECUTION

Conditions

3.1 EXECUTION
Refer to 6700R RESENE PAINTING GENERAL for execution clauses.

4. SELECTIONS
Refer to appended project specific RESENE PAINTING SPECIFICATION.
1. GENERAL

This section relates to the preparation and painting of structural and miscellaneous steelwork items using Resene coating systems.

This painting specification is written based on information available at the time of writing.

This painting specification assumes that the applicator has the necessary skill, experience and equipment to undertake the work. The applicator remains responsible for ensuring proper completion of the work.

If in the applicator’s own expertise and judgement an amendment to this specification is required, or where a substrate preparation or required painting system is not covered in this specification, this shall be brought to the attention of the principal and any amendment agreed before work proceeds any further.

1.1 RELATED WORK
Refer to the Resene painting sections for painting.

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

- **AS 1627** Metal finishing - Preparation and pre-treatment of surfaces, Parts 1-10
- **AS/NZS ISO 9001** Quality management systems - requirements
- **OSH** Guidelines for the provision of facilities and general safety in the construction industry
- **MPNZA** Painters hazards handbook

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

1.3 MANUFACTURER/SUPPLIER DOCUMENTS
Manufacturer’s and supplier’s documents related to this section are:

- **Resene** One-Line specifications and product data manual
  (hard copy or at www.resene.co.nz)
- **Resene** Putting your safety first

Copies of the above literature are available from Resene
Telephone: 0800 RESENE (0800 737 363)

1.4 WARRANTY - MANUFACTURER/SUPPLIER
Provide a material manufacturer/supplier warranty:
Materials: To 1(v) Resene Promise of quality - expected system life in the
Resene One-Line specifications and product data manual

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

Refer to the general section 1237 WARRANTIES for additional requirements.

1.5 WARRANTY - INSTALLER/APPLICATOR
Provide an installer/applicator warranty:
3 years: For execution

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

Refer to the general section 1237 WARRANTIES for additional requirements.

Requirements

1.6 QUALIFICATIONS
Painters to be experienced competent workers, familiar with the materials and the techniques specified.

1.7 NO SUBSTITUTIONS
Substitutions are not permitted to any specified Resene system, or associated components and products.

Performance

1.8 QUALITY ASSURANCE
Maintain quality assurance programmes to AS/NZS ISO 9001 for both preparation and painting/coating, as necessary to assure that work is performed in accordance with this specification and the qualifying requirements of the contract documents.

1.9 GENERAL INSPECTIONS
Inspection of the work to take place at each of the stages as scheduled. Refer to SELECTIONS. Confirm a written programme to facilitate these inspections, including notification when each stage of the work is ready for inspection.

1.10 MANUFACTURER'S INSPECTIONS
Permit the paint manufacturer to inspect the work in progress and to take samples of their products from site as requested.

1.11 HEALTH AND SAFETY
Refer to and comply with the requirements of the Health and Safety in Employment Act 1992 including the obligation to:
- Eliminate hazards and if hazards cannot be eliminated or isolated, then minimise the hazards in this work by using the proper equipment and techniques as required by the MPNZ Painters hazard handbook and Resene Putting your safety first handbook.
- Supply protective clothing and equipment.
- Inform the contractor as well as the employees and others on site of those hazards and put in place procedures for dealing with emergencies.

1.12 MATERIAL SAFETY DATA SHEETS
Obtain from Resene (phone 0800 RESENE, or www.resene.co.nz) the material safety data sheet for each product used and comply with the required safety procedures. Keep sheets on site.

2. PRODUCTS

Materials

2.1 COATING SYSTEMS
Refer to SELECTIONS. Use only Resene products which are guaranteed for consistency and performance under AS/NZS ISO 9001 prepared, mixed and applied as directed in the Resene Engineered Coatings Systems Manual.

2.2 PRIMER
Refer to SELECTIONS for type.

2.3 THINNERS/ADDITIVES
Use only if and when expressly directed by Resene for their particular product in a particular application.

Accessories
2.4 ACCESSORIES
Contact your local Resene ColorShop, if required, for a full range of accessories and usage advice.

3. EXECUTION

Conditions

3.1 CONDITIONS FOR PAINTING
Coat steelwork in conditions approved for the application of the specified coatings. Carry out off-site preparation and coating application under cover, in a suitable environment, with adequate lighting and with the air temperature between 10°C and 25°C.

Ensure prepared and painted surfaces are clean and dry. Do not carry out preparation or painting when the ambient relative humidity exceeds 85%. The temperature of the substrate to be 3°C above Dew Point.

3.2 COATING APPLICATION
Apply coatings strictly in accordance with the manufacturer's stated requirements. Ensure that the manufacturer's latest product data sheets are available for reference during preparation and painting.

3.3 COMPATIBILITY
Ensure that materials are as required by their manufacturers for the particular surface and conditions of exposure, and that materials used within each painting system are compatible with each other and are from the same manufacturer.

3.4 SEQUENCE OF OPERATIONS
Complete surface preparation before commencing painting. Apply paint in the specified sequence using the specified paint. Allow full drying time between coats to the manufacturer's stated requirements. Do not expose primers, undercoats and intermediate coats beyond a few days before applying the next coat.

3.5 DRYING TIME
Before handling or applying the next coat of paint, give each coat the required drying time required by the manufacturer. Ensure that surfaces being painted are dry and that ambient conditions are such that condensation does not occur before the paint reaches surface-dry condition.

Application - surface preparation

3.6 SURFACE PREPARATION
Refer to the Resene One-Line specifications and product data manual for surface preparation sheets (or obtain them by phoning 0800 RESENE, or at www.resene.co.nz) listed in the materials systems schedule clauses. Carry out the preparatory work required by them for each of the substrates.

3.7 LEAD-BASED PAINT
Handle cautiously lead-based paint, if present, as outlined in the preamble of the Resene One-Line specifications and product data manual.

3.8 ABRASIVE BLASTING
Remove oil and grease in accordance with AS 1627.1. Water blast to remove salt deposits. Abrasive blast clean to a class 2½ finish to AS 1627.4. 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.

Application - general

3.9 EACH COAT
Each coat of paint and the completed paint system to have the following qualities and properties:
- Uniform finish, colour, texture, sheen and hiding power.
- The proper number of coats applied, specified dry film thicknesses of each coat are achieved.
- Free of defects such as pinholing, alligatoring, blistering, staining, overspray, peeling, runs, sags, wrinkling and imbedded dirt or dust.

**Completion**

3.10 **LEAVE**

Leave the whole of this work uniform in gloss, texture and colour, free from painting defects, clean and unmarked, and to the standard required by following procedures.

4. **SELECTIONS**

Refer to appended project specific RESENE PAINTING SPECIFICATION.
SCOPE
The work involved and intended in this Contract to be carried out at the location detailed above comprises the following:

Prepare surfaces and apply Resene paint in accordance with this specification.

GUARANTEE
The Contractor guarantees this work under normal conditions of use against failure of:

The Contractor is to guarantee their work against all defects that may occur within three months from the completion of the contract and will be required to make good such defects at their own cost. Such defects specifically exclude damage, or consequential damage, caused by third parties which are the responsibility of the main contractor.

INSURANCE
The Contractor shall provide adequate Public Liability insurance.


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Important Note:
This page is numbered “9” because Resene preamble and special information pages 2-8 must be included to make this a fully complete Resene specification. If pages 2-8 are missing or have been removed please contact your local Resene representative.

1.0 EXTERIOR PAINTED PLASTERED CONCRETE COLUMNS AND ARCHITECTURAL FEATURES / LEDGES

Condition: Previously painted in acrylic and in poor condition with loose and flaking paint moss and mould etc

Note: The painter should ensure all remaining paint is tightly adhered before repainting. Any suspect paint should be removed back to a sound base – preferably to bare substrate

PREPARATION FOR PAINTING:

1.1 If any areas of moss or mould infestation exist then treat them with Resene Moss & Mould Killer, diluted at the rate of 200 grams to 1 litre of clean water. Leave for up to 48 hours to achieve full kill. For heavy infestations more applications may be needed. Data Sheet D80

1.2 Thoroughly scrub down with a 25 % solution of Resene Paint Prep and Housewash and water to remove all dirt, dust, grease, moss and mould residue, chalk, cobwebs and other contaminants. Rinse clean with fresh water Data Sheet D812

1.3 All paint that is flaking or unsound must be removed by using mechanical methods, chemical stripper or high pressure water-blasting taking care not to damage either the substrate or the surrounding areas.

1.4 Cracks greater than 1 millimetre wide, and any damaged areas should be thoroughly raked out to remove all loosely bound material and any contaminants. These areas should then be primed with Resene Concrete Primer prior to filling as outlined in the next clause. Data Sheet D405

1.5 Cracks and holes less than 3mm deep can be filled using Selley’s Permafill or similar product in accordance with the label directions. Allow 24 hours dry before coating. Otherwise mix Resene Rockcote Multistop FRP bedding compound powder with water at the rate of 125 mls of water per kg of powder. Mixing is best achieved by mechanical drill mixer. Use minimal quantities of water to obtain a workable paste. Trowel the filling compound into the ‘prepared cracks’ and finish flush to surrounding concrete.

1.6 Seal all repairs as soon as practicable with Resene Limelock. Data Sheet D809

1.7 Prime repaired areas and any other bare concrete with Resene Concrete Primer.
1.8 Any construction joints requiring repair should be thoroughly raked out and cleaned then filled with a suitable sealant as per sealant manufacturer’s directions. If a sealant is painted over the paint may crack with movement and any cracks may transmit into the sealant with the risk of creating a leaking joint. Some sealants may also exude plasticiser into paint and create a tacky surface. Ensure all edges around windows, doors etc., are thoroughly weather tight. Ensure flashings and cappings have been installed where needed, are of adequate size, suitably primed and well fixed.

1.9 Cracks measuring less than 1mm should have Resene Brushable Crack Filler brushed into them. Allow 3 hours before recoating.  

PAINTING:

1.10 Apply a full coat of Resene AquaShield at the spreading rate of 12-13 square metres per litre.  

1.11 Apply a second coat of Resene AquaShield at the spreading rate of 12-13 square metres per litre.  

2.0 PAINTED EXTERIOR PLASTERED CONCRETE COLUMNS AND ARCHITECTURAL FEATURE / LEDGES
Condition: Previously unpainted and in poor condition with cracks to plaster and moss and mould to be prepared and painted in Resene AquaShield.

PREPARATION FOR PAINTING:

2.1 If any areas of moss or mould infestation exist then treat them with Resene Moss & Mould Killer, diluted at the rate of 200 grams to 1 litre of clean water. Leave for up to 48 hours to achieve full kill. For heavy infestations more applications may be needed.  
Data Sheet D80

2.2 Thoroughly wash down with a 25 % solution of Resene Paint Prep and Housewash and water to remove all dirt, dust, grease, moss and mould residue, cobwebs and other contaminants.  
Data Sheet D812

2.3 Water blast at pressures up to 3000psi (as appropriate for each area) to remove all dirt, grease, moss and mould residue, dust, and any other contaminants. Allow the surface to dry thoroughly.

2.4 Spot prime any areas of powdery concrete with Resene Sureseal.  
Data Sheet D42

2.5 Cracks greater than 1 millimetre wide, bugholes, and any damaged areas should be thoroughly raked out to remove all loosely bound material and any contaminants. These areas should then be primed with Resene Concrete Primer prior to filling as outlined in the next clause.  
Data Sheet D405

2.6 Cracks & holes less than 3mm deep can be filled using Selley's Permafill or similar product in accordance with the label directions. Allow 24 hours dry before coating. Otherwise mix Resene Rockcote Multistop FRP bedding compound powder with water at the rate of 125 mls of water per kg of powder. Mixing is best achieved by mechanical drill mixer. Use minimal quantities of water to obtain a workable paste. Trowel the filling compound into the ‘prepared cracks’ and finish flush to surrounding concrete.

2.7 Seal all repairs as soon as practicable with Resene Limelock.  
Data Sheet D809

2.8 Any construction joints requiring repair should be thoroughly raked out and cleaned then filled with a suitable sealant as per sealant manufacturer’s directions. If a sealant is painted over the paint may crack with movement and any cracks may transmit into the sealant with the risk of creating a leaking joint. Some sealants may also exude plasticiser into paint and create a tacky surface. Ensure all edges around windows, doors etc., are thoroughly weather tight. Ensure flashings and cappings have been installed where needed, are of adequate size, suitably primed and well fixed.

2.9 Cracks measuring less than 1mm should have Resene Brushable Crack Filler brushed into them. Allow 3 hours before recoating.  
Data Sheet D811

PAINTING:
2.10 Apply a full coat of Resene X-200 by brush or roller at the spreading rate of 5 square metres per litre. Allow 3 hours dry time.

2.11 Apply a full coat of Resene AquaShield at the spreading rate of 12-13 square metres per litre. 

Data Sheet D601

2.12 Apply a second coat of Resene AquaShield at the spreading rate of 12-13 square metres per litre.

N.B Good access to the surface must be provided. The use of rollers with extension handles longer than 1.3 metres is not an adequate means of application for X-200. A Lambswool Roller sleeve is recommended for X-200 application.

3.0 PAINTED EXTERIOR BRICK WALL

Condition: Previously painted in acrylic and in average condition
**Preparation for Painting:**

3.1 Thoroughly scrape to remove as much old paint as is practicable. To areas of remaining paint, apply a full coat of Resene Strip-Off Paint Stripper and leave for 1-2 hours to soften the paint. Taking care not to damage the substrate, remove as much of the softened old paint as possible using a suitable scraper. Repeat the process if any paint remains.

*Note 1:* Alternatively, all old paint may be carefully removed by use of Sea to Sky Stripper, hot air guns, mechanical sanders or other appropriate means that will not damage the timber or allow the uncontrolled release of lead containing paint or debris into the environment.

3.2 Thoroughly scrub down with a 25% solution of Resene Paint Prep and Housewash in water to remove all residue from paint strippers and any other contaminants. Thoroughly rinse clean with fresh water to remove all cleaning residue.

3.3 Low pressure water-blast or thoroughly hose down to remove all residue from the Paint Prep and Housewash cleaning process, all salts and any other contaminants.

*Note:* The substrate must be allowed to dry out thoroughly before painting.

3.4 Remove any efflorescence from brickwork prior to the application of the Aquapel. Employ careful wire-brushing /scraping /wet sanding or power-tools as appropriate.

**Water Repellency Treatment:**

3.5 Apply a saturation coat of Resene Solventborne Aquapel at the spreading rate of 8-10 square metres per litre. Allow 24 hours dry.

*Note:* Applicators should be requested to contact the local specification writer within Resene with the surface area to be treated so that quantities can be advised and followed up on.

4.0 **Exterior Brick Wall**

Condition: Unpainted brick work which is generally dirty with areas of moss and mould etc
Note: Resene recommend painting brickwork for best results.

PREPARATION FOR PAINTING:

4.1 All surfaces should be clean and free from dirt, grease, mould and any other contaminants. Ensure flashings and cappings have been installed where needed, are of adequate size, suitably primed and well fixed.

4.2 Remove any efflorescence from brickwork prior to the application of the Aquapel. Employ careful wire-brushing/scraping/wet sanding or power-tools as appropriate.

WATER REPELLENCY TREATMENT:

4.3 Apply a saturation coat of Resene Solventborne Aquapel at the spreading rate of 8-10 square metres per litre. Allow 24 hours dry. Data Sheet D65

Note: Applicators should be requested to contact the local specification writer within Resene with the surface area to be treated so that quantities can be advised and followed up on.

5.0 PAINTED EXTERIOR PLASTERED PARAPETS, BATTLEMENTS AND CRENNELLATIONS

Condition: Previously painted in acrylic and in poor condition with loose and flaking paint, with moss, mould and lichen.

PREPARATION FOR PAINTING:
5.1 If any areas of moss or mould infestation exist then treat them with Resene Moss & Mould Killer, diluted at the rate of 200 grams to 1 litre of clean water. Leave for up to 48 hours to achieve full kill. For heavy infestations more applications may be needed. Data Sheet D80

5.2 Thoroughly scrub down with a 25 % solution of Resene Paint Prep and Housewash and water to remove all dirt, dust, grease, moss and mould residue, chalk, cobwebs and other contaminants. Rinse clean with fresh water Data Sheet D812

5.3 All paint that is flaking or unsound must be removed by using mechanical methods, chemical stripper or high pressure water-blasting taking care not to damage either the substrate or the surrounding areas.

5.4 Cracks greater than 1 millimetre wide, and any damaged areas should be thoroughly raked out to remove all loosely bound material and any contaminants. These areas should then be primed with Resene Concrete Primer prior to filling as outlined in the next clause. Data Sheet D405

5.5 Cracks and holes less than 5mm deep can be filled using Selley’s Permafill or similar product in accordance with the label directions. Allow 24 hours dry before coating. Otherwise mix Resene Rockcote Multistop FRP bedding compound powder with water at the rate of 125 mls of water per kg of powder. Mixing is best achieved by mechanical drill mixer. Use minimal quantities of water to obtain a workable paste. Trowel the filling compound into the ‘prepared cracks’ and finish flush to surrounding concrete.

5.6 Seal all repairs as soon as practicable with Resene Limelock. Data Sheet D809

5.7 Prime repaired areas and any other bare concrete with Resene Concrete Primer.

5.8 Any construction joints requiring repair should be thoroughly raked out and cleaned then filled with a suitable sealant as per sealant manufacturers directions. If a sealant is painted over the paint may crack with movement and any cracks may transmit into the sealant with the risk of creating a leaking joint. Some sealants may also exude plasticiser into paint and create a tacky surface. Ensure all edges around windows, doors etc., are thoroughly weather tight. Ensure flashings and cappings have been installed where needed, are of adequate size, suitably primed and well fixed.

5.9 Cracks measuring less than 1mm should have Resene Brushable Crack Filler brushed into them. Allow 3 hours before recoating. Data Sheet D811

5.10 Where necessary restore an even surface appearance by careful application of Resene X-200 to repaired areas.

PAINTING:

5.11 Apply a full coat of Resene X-200 by brush, roller or spray at the spreading rate of 5 square metres per litre. Data Sheet D62

5.12 Apply a full coat of Resene AquaShield at the spreading rate of 12-13 square metres per litre. Data Sheet D601
5.13 Apply a second coat of Resene AquaShield at the spreading rate of 12-13 square metres per litre.

**N.B** Good access to the surface must be provided. The use of rollers with extension handles longer than 1.3 metres is not an adequate means of application for X-200. A Lambswool Roller sleeve is recommended for X-200 application.

6.0 **UNPAINTED EXTERIOR TIMBER FASCIAS**

Condition: Unpainted weathered and cracked possibly Matai or Totara timber fascias,

**Special Notes**

Painting over old weathered unpainted timber is likely to have limited success because backs of boards and timber end grains may not have been sealed properly during erection of the building.
The installation of soakers over all joint areas will assist the performance of the new
paint system. Total removal of all mould and dirt and restoration of weathered timber
fibres is essential.

SURFACE PREPARATION

6.1 If any areas of moss or mould infestation exist then treat them with Resene Moss &
Mould Killer, diluted at the rate of 200 grams to 1 litre of clean water. Leave for up to
48 hours to achieve full kill. For heavy infestations more applications may be needed.
Data Sheet D80

6.2 Thoroughly scrub down with a 25 % solution of Resene Paint Prep and Housewash
and water to remove all dirt, dust, grease, any moss and mould residue, chalk,
cobwebs and other contaminants. Data Sheet D812

6.3 Thoroughly hose down to remove all dirt, grease, moss and mould residue, surface
chalk, dust, and other cleaning residues.

Note: The timber must be allowed to dry out thoroughly before painting commences.

6.4 Remove or punch in any rusty nails and replace with stainless steel nails or
equivalent. Thoroughly sand to remove any grey, weathered timber and to produce a
smooth sound surface for painting. If timber is roughsawn then brushing with a stiff
nylon brush can be carefully employed for this purpose. Ensure any sharp arrisses
are sanded to a rounded profile.

6.5 Apply a saturation coat of Resene TimberLock at about 5 square metres per litre.
Allow 24 hours dry then wipe off any still tacky material with a turps wet rag.
Data Sheet D48

6.6 Apply a full primer coat of Resene Quick Dry Acrylic Primer Undercoat at the
spreading rate of 12 square metres per litre. Apply finishing coats as soon as
possible to ensure the best performance of the new paint system. Data Sheet D45

6.7 Fill all nail holes, damaged or split timber with Selley’s Ready Mixed Permafill applied
in accordance with manufacturers instructions. Spot prime filler (after a 24 hour dry)
with Resene Quick Dry Acrylic Primer Undercoat

PAINTING:

6.8 Apply a full coat of Resene Sonyx 101 at the spreading rate of 12 square metres
per litre. A legend 63-88mm brush is recommended. Data Sheet D30

6.9 Apply a second coat of Resene Sonyx 101 at the spreading rate of 12 square
metres per litre.

7.0 PAINTED EXTERIOR TIMBER FASCIAS

Condition: Previously painted possibly Matai or Totara timber fascias in very poor
condition with numerous cracks and peeling paint to be completely stripped before
being repainted in Sonyx 101 semi-gloss acrylic.

WARNING! LEAD BASED PAINTS MAY BE PRESENT
Before stripping off old paint tests should be done to ensure the old paint does not contain lead. Paint flakes with layers older than 1970 are likely to have lead in them. If lead based paints are identified on this job then the OSH Guidelines for the Management of Lead-based Paint must be read and followed. Where these guidelines are in conflict with any part of this specification, the guidelines must take precedence. Flakes of lead paints and any sanding dust need to be carefully contained and disposed of.

**PREPARATION FOR PAINTING:**

7.1 Thoroughly scrape to remove as much old paint as is practicable. To areas of remaining paint, apply a full coat of Resene Strip-Off Paint Stripper and leave for 1-2 hours to soften the paint. Taking care not to damage the substrate, remove as much of the softened old paint as possible using a suitable scraper. Repeat the process if any paint remains.  
**Note 1:** Alternatively, all old paint may be carefully removed by use of Sea to Sky Stripper, hot air guns, mechanical sanders or other appropriate means that will not damage the timber or allow the uncontrolled release of lead containing paint or debris into the environment.

7.2 Thoroughly scrub down with a 25% solution of Resene Paint Prep and Housewash in water to remove all residue from paint strippers and any other contaminants. Thoroughly rinse clean with fresh water to remove all cleaning residue.

7.3 Thoroughly sand to remove any grey, weathered timber and to produce a smooth, sound surface for painting. Ensure any sharp edges are sanded to give a rounded profile. Remove or punch in any rusty nails and replace with galvanised or stainless steel nails as is appropriate. Scrape out all cracks and splits in timber to obtain a sound surface for filling.

7.4 Treat all cracks and splits in timber and any other areas of suspected mould infestation with Resene Moss & Mould Killer, diluted at the rate of 200 grams to 1 litre of clean water. Leave for up to 48 hours to achieve full kill. For heavy infestations, more applications may be needed. Thoroughly scrub down with fresh water to remove all moss and mould residue. Rinse thoroughly with clean water. Allow to dry.

7.5 Apply a saturation coat of Resene TimberLock Preserver/Conditioner at an approximate spreading rate of 5-10 square metres per litre. Allow 24 hours to dry. Wipe off any tacky material with a Turps wet rag. Timber Lock will help reconstitute weathered timber fibres and also provide good fungal resistance.

7.6 Fill all cracks, splits and holes in timber with Resene Epox-O-Bond Epoxy Filler as per directions on label. We recommend holes are over filled then power sanded back to a smooth finish when the filler has cured for 24 hours.

**PAINTING:**

7.7 Apply a full primer coat of Resene Quick Dry Acrylic Primer Undercoat at the spreading rate of 12-13 square metres per litre.

**Note 2** If the timber is Cedar or Redwood then the stain blocking primer, Resene Wood Primer should be used.
7.8 Apply a full coat of Resene Sonyx 101 at the spreading rate of 12 square metres per litre. A legend 63-88mm brush is recommended.  

Data Sheet D30

7.9 Apply a second coat of Resene Sonyx 101 at the spreading rate of 12 square metres per litre.

8.0 PAINTED EXTERIOR TIMBER WINDOWS

Condition: Previously painted native timber windows in poor condition with loose and peeling paint, rusting nails and cracked or loose putty, to be stripped.

WARNING! LEAD BASED PAINTS MAY BE PRESENT

Before stripping off old paint tests should be done to ensure the old paint does not contain lead. Paint flakes with layers older than 1970 are likely to have lead in them. If lead based paints are identified on this job then the OSH Guidelines for the Management of Lead-based Paint must be read and followed. Where these guidelines are in conflict with any part of this specification, the guidelines must take precedence. Flakes of lead paints and any sanding dust need to be carefully contained and disposed of.

PREPARATION FOR PAINTING:

8.1 Thoroughly scrape to remove as much old paint as is practicable. To areas of remaining paint, apply a full coat of Resene Strip-Off Paint Stripper and leave for 1-2 hours to soften the paint. Taking care not to damage the substrate, remove as much of the softened old paint as possible using a suitable scraper. Repeat the process if any paint remains.  

Note 1: Alternatively, all old paint may be carefully removed by use of Sea to Sky Stripper, hot air guns, mechanical sanders or other appropriate means that will not damage the timber or allow the uncontrolled release of lead containing paint or debris into the environment.

8.2 If any areas of moss or mould infestation exist then treat them with Resene Moss & Mould Killer, diluted at the rate of 200 grams to 1 litre of clean water. Leave for up to 48 hours to achieve full kill. For heavy infestations more applications may be needed.

8.3 Thoroughly scrub down with a 25% solution of Resene Paint Prep and Housewash in water to remove all moss and mould residue and any other contaminants. Thoroughly rinse clean with fresh water to remove all cleaning residue. Allow timber to dry out thoroughly before painting.

Note 2: Alt   atively, all old paint may be carefully removed by use of Sea to Sky Stripper, hot air guns, mechanical sanders or other appropriate means that will not damage the timber or allow the uncontrolled release of lead containing paint or debris into the environment.

8.4 Thoroughly sand to remove any grey, weathered timber and to produce a smooth, sound surface for painting. Ensure any sharp edges are sanded to give a rounded profile. Remove or punch in any rusty nails and replace with galvanised or stainless steel nails as is appropriate.

8.5 Apply a saturation coat of Resene TimberLock Preserver/Conditioner at an approximate spreading rate of 5-10 square metres per litre. Allow 24 hours to dry. Wipe off any tacky material with a Turps wet rag. Timber Lock will help reconstitute weathered timber fibres and also provide good fungal resistance.

Data Sheet D48
8.6 Any cracking putty on windows should be scraped out and a clean substrate prepared as per previous clauses. Spot prime any bare timber with Resene Wood Primer then reglaze after 24 hours dry with Red Devil Glazing Compound or Bostik Synthetic Putty or equivalent product in accordance with manufacturers application instructions New putty should be allowed to harden up for 24 hours before priming with Resene Wood Primer.  

**Data Sheet D40**

**Note 2:** If Totara or Matai timber is present then spot prime bare timber to be reglazed with Resene Quick Dry Acrylic Primer Undercoat. Allow 4 hour dry prior to reglazing.  

**Data Sheet D45**

8.7 Apply a full primer coat of Resene Quick Dry Acrylic Primer Undercoat at the spreading rate of 12-13 square metres per litre.  

**Note 3:** If Cedar or Redwood timber is present then the stain blocking primer Resene Wood Primer should be used.

8.8 Fill all nail holes, damaged or split timber with Selleys Ready Mixed Permafill applied in accordance with manufacturers instructions. Spot prime filler (after a 24 hour dry) with Resene Quick Dry Acrylic Primer Undercoat.

**PAINTING:**

8.9 Apply a full coat of Resene Lustacryl at the spreading rate of 12 square metres per litre.  

**Data Sheet D310**

8.10 Apply a second full coat of Resene Lustacryl at the spreading rate of 12 square metres per litre.

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**9.0 NEW EXTERIOR TIMBER WINDOWS**

**Condition:** New timber windows to be painted in Resene Lustacryl waterborne enamel semi-gloss.

**Special Notes**

The performance of paint systems on exterior doors and windows is dependent on careful surface preparation and painting. Top and bottom surfaces must have the full coating system applied. Best done before hanging. Particular attention is needed to ensure there are proper flashings above doors and windows and that the sides of joinery are properly weatherproofed by use of adequate scribes or sealants.
All edges of the joinery and future hidden surfaces should be primed before assembly with particular attention to priming the end grains properly. Attention is needed to ensure all sharp edges on joinery are sanded to a rounded profile before painting. Newly primed timber should not be left to weather but topcoated as soon as practicable. If timber is LOSP Preservative treated then it must not be painted if solvents from the LOSP treatment are still in the timber. Many problems may be encountered with the new paint system if timber is painted while these solvents are still in the timber. Any bare timber that has been left to weather should be thoroughly sanded back to a sound timber surface, treated for mould (use a 20% solution of Resene Moss & Mould Killer and leave 48 hours) and then thoroughly washed clean (use 25% solution of Resene Paint Prep and Housewash in water).

Any factory primed timber must be thoroughly sanded back and then given a full coat of Resene Wood Primer. For any bare weathered timber or bare Cedar Resene strongly recommend additional treatment with Resene TimberLock. Timber Lock will help reconstitute weathered timber fibres and also provide good fungal resistance. For Redwood or Cedar use Resene Wood Primer in place of Quick Dry Acrylic Primer Undercoat to prevent stain bleeding. This specification assumes all glazing is in sound condition.

PREPARATION FOR PAINTING:

9.1 Sand any sharp arrisses on timber profiles to a rounded corner.

9.2 Ensure all surfaces are clean and free from contamination before painting.

9.3 Apply a full coat of Resene Quick Dry Acrylic Primer Undercoat at the spreading rate of 12 square metres per litre. Brush well into punched nail holes or other areas requiring filling.

Note: If Cedar or Redwood timber has been used, then Resene Wood Primer should be used as the primer

9.4 Fill all primed nail holes or areas of damaged timber with Selley's Ready Mixed Permafill applied in accordance with manufacturers instructions. Sand smooth and spot prime filler (after 24 hours dry) with the same Resene primer as was used for the bare timber.

9.5 Any fresh putty should be allowed to harden up before priming with Resene Wood Primer. How long depends on the type of glazing compound used.

PAINTING:

9.6 Apply a full coat of Resene Lustacryl at the spreading rate of 12 square metres per litre.

9.7 Apply a second full coat of Resene Lustacryl at the spreading rate of 12 square metres per litre.
10.0 EXTERIOR, PAINTED, RUSTY CAST IRON VENTS

Condition: Previously painted in enamel paint and showing signs of rusting. Only hand tool cleaning is possible.

PREPARATION FOR PAINTING:

10.1 If any areas of moss or mould infestation exist then treat them with Resene Moss & Mould Killer, diluted at the rate of 200 grams to 1 litre of clean water. Leave for up to 48 hours to achieve full kill. For heavy infestations more applications may be needed. Data Sheet D80

10.2 Mix one part of Resene Roof Wash & Paint Cleaner with three parts of fresh water. Apply a liberal wash of this mixture to the surface with a nylon bristle brush or broom. Thoroughly scrub the surface to ensure complete removal of all dirt, dust, grease,
any moss and mould residue, chalk, cobwebs and other contaminants.  

**Data Sheet D88**

10.3 Waterblast or wash down with copious quantities of fresh water to remove all salts and Roof Wash residue. Waterblast or scrape to remove as much flaking paint and rust as is practicable.

10.4 Thoroughly wire brush to remove as much rust as possible. Power tools may be used if available. In areas where there is underfilm corrosion the surface paint should be scraped away to allow better access to the rust. At this stage any unsound old paint should also be removed.

**Note 1:** The performance of the subsequent paint system will be dependent on the thoroughness of this preparation stage.

**Note 2:** For best results abrasive blast cleaning of rust areas back to shiny metal is the only really effective preparation. This specification must be considered as a compromise arrived at because of time, cost or access difficulties.

10.5 Thoroughly abrade all old paint to provide a good key for adhesion.

10.6 Thoroughly sand all old paint to provide a good key for adhesion. Sand areas of flaking paint back to a feathered edge. Remove sanding dust and immediately spot prime bare steel with Resene Armourcote 221 to give a dry film build of 50 microns.  

**Data Sheet RA36**

**PAINTING:**

10.7 Apply a full coat of Resene Uracryl 403 by brush or roller at the spreading rate of 10 square metres per litre.  

**Data Sheet RA56**

10.8 Apply a second coat of Resene Uracryl 403 by brush or roller at the spreading rate of 10 square metres per litre.

**11.1 NEW ZINC SPRAYED STEEL VENTS**

**Condition:** New steel work that has been appropriately prepared and given a metal spray coating of zinc. Arc spray zinc must have been applied to achieve a film thickness of 150 microns as per ANSI/AWS C2.18-93 and SSPC CS-Guide23,00 standards.

**PREPARATION FOR PAINTING:**

11.2 Mix one part of Resene Roof Wash & Paint Cleaner with three parts of fresh water. Apply a liberal wash of this mixture to the surface with a nylon bristle brush or broom. Thoroughly scrub the surface to ensure complete removal of all grease and other contaminants. Rinse thoroughly with fresh water and allow to dry. Test the surface is degreased by wiping with clean cotton wool. 

**Data Sheet D88**
11.3 Thoroughly sand the arc spray zinc to remove any spikes and excessive surface roughness that may protrude through the subsequent paint system. Then thoroughly vacuum the surface to remove all sanding dust.

**PAINTING:**

11.4 Apply a uniform sealer coat of Resene Armourcote 220 thinned 15-30% to seal off any surface porosity. This is to penetrate into the zinc substrate and to provide a sealed surface.  

*Data Sheet RA34*

**Note 1:** Any edges and welds shall have a stripe coat of each specified coating applied to them, to ensure correct film build is achieved, and to maximise the potential of the paint system.

11.5 Apply a build coat of Resene Armourcote 220 to achieve a dry film thickness of 100 microns.

11.6 Apply Resene Uracryl 403 to achieve a dry film thickness of 50 – 75 microns.  

*Data Sheet RA56*

**Note 2:** On completion of painting, all crevices shall have a suitable type silicon or mastic sealant applied into the as per manufacturer’s instruction to aid in corrosion prevention.

**ATTENTION - ISOCYANATES**

The OSH ‘Approved Code of Practice for the Safe Use of Isocyanates’ should be read and followed if Uracryl 403 is to be spray applied.
**Interior**

**12.0 PAINTED INTERIOR TIMBER WINDOWS – CLEAR FINISH**

**Condition:** Previously painted in enamel native timber in poor condition to be completely stripped

**PREPARATION FOR PAINTING:**

12.1 Thoroughly scrape to remove as much old paint as is practicable. To areas of remaining paint, apply a full coat of Resene Strip-Off Paint Stripper and leave for 1-2 hours to soften the paint. Taking care not to damage the substrate, remove as much of the softened old paint as possible using a suitable scraper. Repeat the process if any paint remains. Scrub with fresh water to remove any remaining stripper. [Data Sheet D81]

12.2 If any areas of moss or mould infestation exist then treat them with Resene Moss & Mould Killer, diluted at the rate of 200 grams to 1 litre of clean water. Leave for up to 48 hours to achieve full kill. For heavy infestations more applications may be needed. [Data Sheet D80]

12.3 Thoroughly wash down with a 2% solution of Resene Interior Paintwork Cleaner Concentrate and water to remove all dirt, grease, stains, dust and other contaminants. Rinse thoroughly with clean water. Allow to dry.

12.4 Thoroughly sand to a smooth, clean surface. Sand any sharp arrisses to a rounded profile. Wipe surface with a damp rag to remove dust.

**Note:** Resene strongly recommend a saturation coat of Resene Timberlock at the spreading rate of 5 square metres per litre. Allow 24 hours dry then wipe off any material that is still tacky with a Turps dampened rag. [Data Sheet D48]

12.5 Apply a full sealer coat of Resene Aquaclear Satin at the spreading rate of 12 square metres per litre. [Data Sheet D59]

12.6 Fill all cracks and nail holes etc. with Red Enz Wood Filler or equivalent product applied according to manufacturers directions. Carefully remove excess filler. Allow at least 60 minutes dry.

**PAINTING:**

12.7 Apply a full coat of Resene Qristal Poly Satin at the spreading rate of 16 square metres per litre.

12.8 Lightly sand to remove all nibs etc. Dust down.

12.9 Apply another coat of Resene Qristal Poly Satin at the spreading rate of 16 square metres per litre.
13.0 NEW INTERIOR TIMBER WINDOWS – CLEAR FINISH

Condition: New timber to be clear finished in Resene Qristal Poly-Satin Urethane

PREPARATION FOR CLEAR FINISHING

13.1 Thoroughly sand to a smooth, clean surface. Sand any sharp arrisses to a rounded profile. Wipe surface with a damp rag to remove dust.

Note: Resene strongly recommend a saturation coat of Resene Timberlock at the spreading rate of 5 square metres per litre. Allow 24 hours dry then wipe off any material that is still tacky with a Turps dampened rag. Data Sheet D48

13.2 Apply a full sealer coat of Resene Aquaclear Satin at the spreading rate of 12 square metres per litre. Data Sheet D59

13.3 Fill all cracks and nail holes etc. with Red Enz Wood Filler or equivalent product applied according to manufacturers directions. Carefully remove excess filler. Allow at least 60 minutes dry.

CLEAR FINISHING

13.4 Apply a full coat of Resene Qristal Poly Satin at the spreading rate of 16 square metres per litre.

13.5 Lightly sand to remove all nibs etc. Dust down.

13.6 Apply another coat of Resene Qristal Poly Satin at the spreading rate of 16 square metres per litre.
Surface texture and abnormal surface porosity will affect either the spreading rate or the coverage achieved. Allowance for this should be made in the quotation.

This specification should be read in conjunction with the manufacturers recommendations contained in the relevant technical data sheets.

Site Assistance

Resene Representatives will visit specific job sites as required to assist with advice on adequacy of preparation; special mixing requirements; standard of application etc. However this should not be regarded as ‘supervision’, but simply ‘site assistance’.

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7151 SANITARY FIXTURES, TAPWARE & ACCESSORIES – Rev A

1. GENERAL

This section relates to the supply and installation of sanitary fixtures, tapware and sanitary accessories.

1.1 RELATED WORK

Refer to glazing section/s for frameless shower and bath screens not included in this section.

Refer to the electrical section/s for electrical connection of accessories.

Refer to 7421 SANITARY SYSTEMS for the supply and fitting of waste disposal pipework.

Documents

1.2 DOCUMENTS

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

- NZBC E3/AS1 Internal moisture
- NZBC F2/AS1 Hazardous building materials
- NZBC G1/AS1 Personal hygiene
- NZBC G12/VM1 Water supplies
- NZBC G12/AS1 Water supplies
- NZBC G13/AS1 Foul water
- AS/NZS 1730 Washbasins
- AS/NZS 3500.1 Plumbing and drainage - water services
- AS/NZS 3500.2 Plumbing and drainage - sanitary plumbing and drainage
- Plumbers, Gasfitters and Drainlayers Act 2006

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

Requirements

1.3 QUALIFICATIONS

Plumbers to be experienced competent workers, familiar with the materials and the techniques specified. Carry out all work under the direct supervision of a Certifying Plumber under the Plumbers, Gasfitters and Drainlayers Act 2006.

1.4 SAMPLES

Submit samples on request of nominated tapware, along with the relevant manufacturers’ technical literature for review.

1.5 SUPPLIER

A specialist in the supply of tapware, and employing experienced architectural representatives available to assist during the course of the installation.

2. PRODUCTS

2.1 SANITARY FIXTURES

Refer to SCHEDULE OF SELECTIONS for product selection.

2.2 TAPWARE

Refer to SCHEDULE OF SELECTIONS for product selection.

3. EXECUTION

Conditions - sanitary fixtures
3.1 DELIVERY
Only deliver to the site fixtures or fittings that can be immediately unloaded into suitable storage or be placed for direct installation.

3.2 STORAGE AND HANDLING
Take delivery of and store components complete with protective casings and coverings in areas that are enclosed, clean and dry and where no work is being done. Remove protection only to the extent that will allow installation.

3.3 QUALITY STANDARDS
Installation work to comply with NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC G13/AS1 and the fixture manufacturer's requirements.

3.4 SUBSTRATE
Ensure substrate and fixings will allow work of the specified standard.

3.5 CO-ORDINATION
Do not proceed if the points of supply and drainage services do not match the points of the fixtures without force or distortion.

3.6 INSTALLATION REQUIREMENTS
Install to NZBC G1/AS1, NZBC G12/VM1, NZBC G12/AS1, NZBC G13/AS1 and NZBC E3/AS1 and to the fixture manufacturer's installation requirements for each component.

3.7 PROVIDE SUPPORT
Confirm fixing points needed for each unit and provide solid blocking at each fixing bracket location.

Installation - sanitary fixtures

3.8 INSTALLING VITREOUS CHINA FIXTURES
Install to NZBC G1/AS1: Part 3, G12/AS1, G13/AS1 and AS/NZS 3500.2. Carry out preparatory and assembly work, including connections to supply and drainage services and the application of slurries and sealants in sequence. Fit the toilet pan in position, plumb, level, flush and rigid without stressing the attachment points of the component. Connect through trap to the drainage system.

3.9 INSTALLING CISTERNs
Fit firmly in place and connect the specified cisterns from the supply services through the flush pipes to the relative fixtures in the positions as detailed all plumb and level.

Installation - Basins

3.10 INSTALLING WASHBASINS
Install to NZBC G1/AS1, AS/NZS 1730. Set basins firmly to walls or vanities as detailed and to comply with NZBC E3/AS1. Connect through trap to the drainage system.

Completion

3.11 REPLACE
Replace damaged or marked elements.

3.12 PROTECTIVE COVERINGS
Leave fixtures, fittings and accessories clean and unblemished with stickers and protective coverings removed, with supply and drainage connections and all parts fully operating and working. Leave the whole of this work free of blemishes, undamaged and to the standard of finish required for following work.

3.13 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
Refer to 'Schedule of Selections' in drawing set.
7411C  CONTINUOUS SPOUTING RAINWATER SYSTEMS – Rev A

1. GENERAL

This section deals with Continuous Spouting NZ Ltd rainwater disposal systems including spouting and downpipes, in various metal substrates.

1.1 RELATED WORK

Refer to 4311 PROFILED METAL ROOFING for roofing
Refer  4421 BITUMEN BASED SHEET ROOFING for membrane/gutter roofing
Refer to 4224 TIMBER EXTERIOR TRIM for fascia

1.2 ABBREVIATIONS

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

- BMT: Base metal thickness
- NZMRM: New Zealand Metal Roofing Manufacturers Association

Documents

1.3 DOCUMENTS

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

- NZBC E1/AS1 Surface Water
- NZBC E2/AS1 External moisture
- BS EN 988 Zinc and zinc alloys. Specification for rolled flat products for building
- AS 1566 Copper and copper alloys - Rolled flat products
- AS/NZS 2728 Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
- NZMRM NZ Metal roof and wall cladding - Code of practice

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

1.4 MANUFACTURER'S DOCUMENTS

Continuous Spouting New Zealand Ltd documents relating to work in this section are:
Continuous Spouting, Fascia, Spouting, Downpipes.

Copies of the above literature are available from Continuous Spouting NZ Ltd:

Web:  www.continuous.co.nz
Email: sales@continuous.co.nz
Telephone: 0800 50 1993

Area Contact  E-mail
Wellington wellington@continuous.co.nz

Warranties

1.5 MANUFACTURER'S WARRANTY

Provide Continuous Spouting NZ Ltd warranty covering material and installation in the standard form.

Product performance, life expectancy and warranty are dependent upon environment, maintenance and material selection. Refer to Continuous Spouting NZ Ltd for the appropriate warranty terms, conditions and environmental considerations based on performance requirements to AS/NZS 2728.

Refer to the general section 1237 WARRANTIES for details of when completed warranty must be submitted.

Requirements
1.6 NO SUBSTITUTIONS
Substitutions are not permitted to any specified system, or associated components and products.

1.7 QUALIFICATIONS
**Continuous Spouting** NZ Ltd installers and local agents to be experienced competent tradesmen, familiar with the materials and the techniques specified.

Performance

1.8 TEST
Test the completed rainwater disposal system with water to ensure spoutings are laid to correct falls, that both spouting and downpipes are unobstructed and that no ponding occurs in spoutings.

1.9 DESIGN
Layout, falls and capacity of spouting to falls and the size and position of downpipes to comply with NZBC E1/AS1. Refer to NZMRM NZ Metal roof and wall cladding - Code of practice recommendations, sections 8.4 Gutters and 8.5 Downpipes.

2. PRODUCTS

Materials

2.1 ZINCALUME™
Zincalume™ AZ150 coated steel, to AS/NZS 2728.

Products

2.2 SPOUTING
Manufactured by **Continuous Spouting** NZ Ltd using onsite plant to provide made to measure continuous lengths of spouting. Complete with matching brackets and screws. Spouting to be sized to comply with NZBC E1/AS1 and installed to NZBC E2/AS1 8.1.6. Refer to SELECTIONS for type.

2.3 DOWNPIPES
Material to match spouting complete with Munzing stand-off brackets, screw fixed.

Components

2.4 DOWNPIPE SPREADERS
To comply with E2/AS1 figure 20

2.5 RAINWATER HEADS
Material to match the spouting.

2.6 DROPPERS
Material to match spouting, sized to fit inside the downpipe.

2.7 BRACKETS
Galvanised steel Munzing type, srew fixed to wall.

2.8 SEALANT
Neutral cure silicone or Fixall Hitack MS Polymer sealant.

3. EXECUTION

Conditions

3.1 HANDLE AND STORE
Handle and store downpipes, spouting and accessories to avoid damage. Store on site under cover, on a clean level area, stacked to eliminate movement and away from work in
progress. Avoid exposure to sunlight if strippable film is still on the product.

3.2 SUBSTRATE
Check that fascias, barges or cladding are level and true to line and face and will allow work of the required standard without distortion to the product alignment. Do not proceed until they are up to standard.

3.3 THERMAL MOVEMENT
Make adequate provision in the fixing and jointing of the spouting for thermal movement in the length of the spouting.

3.4 CORROSION
Separate metals subject to electrolytic action from each other and from treated timber, concrete and other lime substances by space, painting of surfaces, taping, or separator strips.

Check compatibility of metals used for rainwater goods, against the materials being used for roofing and flashings.

Application - metal

3.5 INSTALL METAL SPOUTING
Establish minimum falls necessary (minimum 1:500) to outlets to prevent ponding and screw fix brackets true-to-line between 800mm to 900mm centres maximum. In areas where snow fall is possible the centres should be reduced to 600mm and snow strap fitted. Cut out neatly for and fit the pre-formed downpipe dropper and seal and rivet around the joint. All installation to NZMRM NZ Metal roof and wall cladding - Code of practice recommendations section 8.4 Gutters.

3.6 INSTALL METAL DOWNPIPES
Form downpipes complete with offsets and shoes as needed with all joints lapped and sealed as required. Screw fix with matching pipe clips to rigidly stand plumb to the wall, and discharging into the stormwater gully or pipe inlet. All installation to NZMRM NZ Metal roof and wall cladding - Code of practice recommendations section 8.5 Downpipes.

Application - general

3.7 INSTALLATION GENERALLY
Install to NZMRM NZ Metal roof and wall cladding - Code of practice recommendations where not otherwise specified.

3.8 INSTALL DOWNPIPE SPREADERS
Install downpipe spreaders where required to NZMRM NZ Metal roof and wall cladding - Code of practice, clause 8.5.1 Downpipe spreaders. Proved spreaders to downpipes that discharge on to a lower roof. Ensure spreaders do not discharge directly over fasteners or laps. Spreaders to have holes equalling twice the diameter of the downpipe.

3.9 INSTALL RAINWATER HEADS
Install rainwater heads where required to NZMRM NZ Metal roof and wall cladding - Code of practice, clause 8.6.1 Rainwater heads.

3.10 INSTALL OUTLETS AND OVERFLOWS
Install outlets and overflows where required to NZMRM NZ Metal roof and wall cladding - Code of practice, clause 8.6.2 Outlets and overflows

Completion

3.11 REPLACE
Replace damaged or marked elements.

3.12 LEAVE
Leave the whole of this work discharging completely and freely into the stormwater system and free of all debris. Leave work to the standard required by following
procedures.

3.13 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS
5. Refer to ‘Schedule of Selections’ in drawing set.