G.J. Gardner. HOMES

BUILDING SPECIFICATION

UNITS 17 - 18

for

Lot 17 caversham, SPRINGVAIL

Between

Loader Investments Ltd
(the Proprietor)

and

Castle Homes Wanganui Ltd
(the Builder)

Job Number: 270076

PROPRIETOR : Loader Investments Ltd
Consent No.
SITE ADDRESS : Lot Armstr, 28 caversham, SPRINGVAIL

TERRITORIAL AUTHORITY:

PLEASE READ CAREFULLY BEFORE COMPLETING THE SPECIFICATION

INTERPRETATION AND USE OF SPECIFICATION

1 This specification forms part of the contract for the proposed work when executed and initialed by both parties.

2 Where multiple choices are available, only one choice is permitted. If choice/s is/are not clarified by the Purchaser at the time of signing the choice/s is/are to be at the Builder's sole discretion.

3 All items are to be selected within the range as determined by the Builder as allowable for this style of building.

4 The Proprietor acknowledges that the Builder [Castle Homes Wanganui Ltd] is the independent owner and operator of a GJ Gardner Homes franchise and agrees this building contract is exclusively between the Proprietor and the Builder [Castle Homes Wanganui Ltd].

ITEM	DESCRIPTION	INITIAL ALTERATIONS

1. GENERAL

a) Unless otherwise specified, the works shall be constructed in accordance with the Building Act 2004 (as amended) in conjunction with the New Zealand Building Code.

b) Unless otherwise specified, the proprietor is responsible to provide a house site clear of any obstructions to building including removal of long grass, shrubs and trees where necessary.

c) It is acknowledged by the proprietor that it is the proprietor's responsibility to engage a licensed surveyor to peg the boundary corners of the allotment prior to commencement of site works if the survey pegs are not in place.

d) The Purchaser acknowledges that it is their responsibility to provide all weather access suitable to allow vehicles and machinery, as normally used in the building industry, to drive in and out of the property.

e) Unless otherwise specified, the contract price allows that town water supply will be available from an existing main of the Local Authority prior to commencement of construction. Where no such water supply exists, the proprietor is to arrange at their expense, a temporary fresh water supply for building purposes by means satisfactory to The Builder, and to be available prior to commencement of construction.

f) This contract allows for 240 Volt single phase power being available prior to and during the construction of the dwelling. Where no such power is available the proprietor is to arrange temporary power to the satisfaction of The Builder at the proprietor's expense.

g) (i) Complying with statutory obligations and any notices and obtaining relevant approvals is the responsibility of The Builder.

(ii) The Builder and the proprietor acknowledge that notwithstanding proper requests by the Builder the Local Authority does not on all occasions carry out final inspections in relation to the works. The proprietor further acknowledges and irrevocable agrees that they will not make any objection to the lack of provision of a final inspection report subsequent to practical completion and further will not withhold or cause to be withheld any progress payments due to The Builder, either directly or through their financier that are due to be paid to The Builder on practical completion of the works.

(iii) The proprietor acknowledges and agrees that should their financier refuse to advance all or any funds until the provision of a final inspection report from the Local Authority which may not be available, The Builder will at the proprietor's cost obtain a final inspection report suitable to the financier from a qualified engineer/registered Builder.

h) Unless otherwise specified, all council building fees are paid for by The Builder. Any Bonds called for or development application fees requested by any Local or Other Authority or statutory body are to be arranged and paid for by the proprietor.

(i) It is the responsibility of the Proprietor to obtain any necessary building consents from relevant developer or land corporation where a covenant applies.

i) An Engineer's soil report, footing and slab designs are to be provided by The Builder. The cost of which is taken from the initial deposit.

j) Should this Contract not proceed for any reason whatsoever all moneys expended by The Builder on Local Authority fees, obtaining soil reports and footing and slab designs, engineers fees and an administration fee of $250.00 for the costs of preparation of contracts and plans shall be deducted forthwith from any deposit paid by the proprietor. If the deposit paid by the proprietor is insufficient to cover such costs then the proprietor shall pay such extra costs to The Builder within fourteen days after receiving notification that the same are due and payable.

k) Colour selection must be completed before council approval has been received to enable the proprietor's home to be built within the construction period stated in this contract. The colour selection forms part of this contract and any item at a cost above standard allowance will be charged as an extra.

l) (i) Any valuations required by the lending body (other than Council final inspection) are to be the responsibility of the Proprietor to organise.

(ii) The Builder takes no responsibility for any colour variation in the roof tile, brick, ceramic wall and floor tile, between those shown in displays or brochures to those delivered by the manufacturer. These products may vary slightly in colour from time to time and any discrepancy is the responsibility of the manufacturer.

(iii) Electrical plan is to be completed and returned to this office within seven days from the date the proprietor signs the contract, failing which the standard electrical plan will apply.

(iv) The Proprietor and The Builder hereby agree that any extension of time claimed for practical completion due to wet or inclement weather shall be based on notification pursuant to the relevant clause of the Contract and shall be claimed as per the logged days by the nearest post office or weather bureau.

(v) The proprietor acknowledges that it is their responsibility to pay a deposit to the electrical authority to connect power. Any delay by the electrical authority in connecting power shall not on its own delay practical completion or final payment to The Builder.

(vii) Where due to soil conditions, Local or Other Authority requirements, pump out tanks, submersible pumps and irrigation systems are needed over and above the normal septic system, the proprietor agrees to bear the costs thereof and proceed by way of variation pursuant to the relevant clause of the Contract.

m) The Builder reserves the right to charge a $200.00 fee for each variation requested by the proprietor subsequent to execution of the contract. Variations are deemed to be changes, additions, deletions and alterations to contract, colour selection, allowances or prior variations. Each variation may add one week to the contract time.

n) The Builder accepts no responsibility to contact the owners of adjoining properties in relation to fencing. It is the Proprietor's responsibility to contact the adjoining neighbours to arrange rebates. Should the Proprietor not arrange rebates, The Builder will install the fence(s) as per the contract at the Builder's discretion.

Purchaser's Initials

Builder's Initials

o) The proprietor acknowledges that they have not relied upon any representations made by The Builder, its agents, employees or workmen in entering into this contract other than those representations as are included in and form part of this contract.

q) Provisional cost or prime sum items (to the value of items) in this contract will be adjusted with a margin of 20% for recovery of profit and administration as per the building contract. Adjustments will be made on receipt of final invoice and credited off the final progress claim. These allowances are non-transferable and will be subject to a 5% retention if deleted.

2. EXCAVATION

The Owner acknowledges that after breaking the surface of the ground, if variations are required by the Engineer, or Territorial or Other Authorities, or due to the nature of site access or due to extra excavations or footings required if rock or other obstacles are encountered, then the Builder will notify the Owner as provided for in Clause 4 of the contract and the cost of such variation together with a reasonable allowance for overheads and profits shall be adjusted against the contract sum.

a) Site scrape to house area only.

b) No compact and bulk fill is required.

c) Excavated material, spoil, etc., to be spread over site by Builder. No allowance has been made to remove any excavated material offsite.

d) Trees, etc. to be N\A. None to be removed.

3. CONCRETOR

a) Floor slab to be slab as per attached details with 20 mpa concrete floated off to a smoothe finish. Finished floor height to be approx 225mm above extisting ground level.

b) Extra piers, beams, steel etc., if required by Engineer or Territorial Authority after Territorial Authority approval are at the Owner's expense.

c) Concrete Pumping is included

d) Driveway is not included.

4. DRAINLAYER

a) Sewerage installation to be in accordance with the Territorial Authority Approved Plan

b) Water is on town supply.

c)

d) Stormwater is to be piped in accordance with the Territorial Approved plan.

5. BRICKLAYER

a) Builder to supply and lay all bricks. Sills to be bricks laid on edge.

b) Joints to be raked.

c) Mortar colour to be standard grey. Other colours are available for an additional cost.

6. CARPENTER/JOINER

a) Builder is to do all framing and fixing.

b) External frames are to be stress graded, Kiln dried with H3 bottom plates built to Manufacturers design or NZ3604
External frames are to be stress graded, Kiln dried built to Manufacturers design or NZ3604

c) Roof Trusses to be to manufacturer's design.

d) All ceiling batons to be Steel Rhondo at 400 crs

7. INTERNAL LININGS

a) All walls to be lined with 10mm Gib Board with the exception of the bathrooms which will be 10mm Aqualine finished off to a level 4

b) All ceilings to be lined with 10mm Gib Board with the exception of the bathrooms which will be 10mm Aqualine finished off to a level 4

c) Cornice to be standard cove pattern 55mm.

8. EXTERNAL WALL CLADDING

Rockcote eps40 and Linea weather boards as per plans

a) Soffits to be 4.5mm Fibre Cement sheeting.

9. DOORS (INCLUDING TYPE, FINISH, FURNITURE)

a) Front entrance door to be solid timber.

b)

c) Garage Doors are to be Pressed Panel Sectional Door(s) as per plan. Electric Opener with Remote Control is included.

d) Internal Doors to be Flush Hollow Core Paint Finish.

e) Internal Door Handles to be from Builder's selection.

f) External Door Handles to be from Builder's selection.

10. INTERNAL FINISHING TIMBERS

a) Architraves to be nominal 40 x 12mm MDF.

b) Skirting to be nominal 60 x 12mm MDF.

c) Jambs to be nominal 93 x 19mm FJ Pine.

d) Profile to be bevelled.

11. ENTRANCE DOOR FRAMES AND GLAZING

a) Front Door Side Lights are included.

Purchaser's Initials

Builder's Initials

12. ALUMINIUM WINDOWS AND DOORS

a) Frame finish to be powder coated aluminium (from standard range). Double glazed to NZS4223 pt3

b) Reveals to be pre-primed finger-jointed Pine.

c) Flashings for plaster finish to be PVC.

13. ROOF COVERING

a) Roof covering to be metal roof tiles from Gerard roofing selection and fixed to Manufacturer's specification.

b) Self Supporting Building Paper is included.

14. PLUMBER/STEEL FASCIA OPERATOR

a) Fascia and gutters to be pre-coated Steel.

b) Downpipes to be 80 mm round PVC.

c) The work will be a NZ Acceptable Solution to comply with the NZ Building Code.

d) The material to be installed will be :
- UPVC under slab - to have a minimum life of 50 years.
- Butaline in the walls - to have a minimum life of 25 years and 50 year durability
- Polyethylene in the ground outside building line, for water supply - to have a minimum life of 25 years.

15. FIXTURES AND FITTINGS

a) Bath to be Englefeild 1675 from Builder's selection.

b) Kitchen sink to be 1½ bowl, single drainer with single hole for mixer.

c) Laundry tub to be Robinhood 3500 Supertub.

d) Showers tiled wet floor with Athena glass shower door

e) Vanity basins to be Athena 900mm wall hung

f) W.C. to be Croma

g) One hose tap to front of house and one to rear as positioned by the Builder.

16. TAPS

a) Kitchen sink taps/mixer to be ideal laska from Builder's selection.

b) Bathroom, Ensuite, taps/mixer to be ideal laska from Builder's selection.

17. GAS SERVICE

a) Gas service is applicable.

b) Gas hot water system is included.

18. ELECTRICIAN

a) Smoke alarms to be within 3m of every bedroom Builder to supply & install all electrical wiring and fittings to New Zealand statutory requirements.

b) Single Phase Connection to be provided by Owner.

c) Two light point is allowed (Down light) to bedrooms and service rooms. Living areas supplied according to size, unless otherwise specified.

d) Two external lights are allowed, (bulk head and bulb) unless otherwise specified.

e) Two double power point is allowed to each room, except kitchen, W.C. and Hall Way, unless otherwise specified.

f) Three double power points are allowed to kitchen, unless otherwise specified.

g) Power point for Range Hood is included.

h) Power point for Dishwasher is included.

i) Power point for Garbage Disposal is not included.

j) Power point for Microwave is not included.

k) 2 telephone point(s) are included.

l) 2 T.V point(s) are included. T.V. Booster and antenna and associated power points are not included.

m) Exhaust fans are included to Bathroom, Ensuite and W.C.

n) Light Fittings are included.

19. WHITE GOODS

Owner to do nothing. Builder to supply and install all White Goods.

a) Wall Oven to be Fisher & Paykel 600R.

b) Hot plates to be Fisher & Paykel CT5F Ceramic Top.

c) Rangehood to be Fisher & Paykel RH600.

d) Dishwasher to be Fisher & Paykel DW820.

e) Microwave to be not included.

f) Garbage Disposal to be not included.

g) Upright Stove to be not included.

h) Fridge/Freezer to be Fisher & Paykel.

20. CABINETMAKER

Builder to supply and install all Kitchen and Bathroom cabinets.

a) Kitchen and vanity cupboards are generally 600mm wide with Plastic Laminate Benchtops. Layout as per kitchen plan.

21. PAINTER

Owner to do no painting. Builder to do all painting

a) Refer to Colour Scheme for Selections.

Purchaser's Initials

Builder's Initials

b) External painting by Builder.
1. External AC sheeting two coats of acrylic paint.
2. Any external metal one coat of primer one coat enamel.
3. Other external surfaces according to manufacturer's specifications.

c) External brick walls to be unpainted.

d) Internal Painting by Builder.
(Walls and ceilings to be of two colour.)
1. Ceilings to be one coat sealer and two coats of acrylic paint to Manufacturer's Specification (white base).
2. Walls to be one coat sealer and two coats acrylic paint to Manufacturer's Specification (white base).
3. Inside cupboards wall colour.
4. Wall-paper is not included.

e) Doors, door jambs, architraves, reveals and skirtings to be painted wall colour in low sheen enamel in one colour (skirtings to be acrylic).

Dated this.....day of.....200.....

SIGNED by the Owner.....	SIGNED by the Builder.....
In the presence of.....	in the presence of.....

APPROVED

10/0015

Wanganui District Council

23 DEC 2009

RECEIVED

Purchaser's Initials

Builder's Initials

G.J. Gardner. HOMES

BUILDING SPECIFICATION

for

Lot 18 caversham, SPRINGVAIL

Between

Loader Investments Ltd
(the Proprietor)

and

Castle Homes Wanganui Ltd
(the Builder)

Job Number: 270076

PROPRIETOR : Loader Investments Ltd

SITE ADDRESS : Lot Armstr, 28 caversham, SPRINGVAIL

TERRITORIAL AUTHORITY:

PLEASE READ CAREFULLY BEFORE COMPLETING THE SPECIFICATION

INTERPRETATION AND USE OF SPECIFICATION

1 This specification forms part of the contract for the proposed work when executed and initialed by both parties.

2 Where multiple choices are available, only one choice is permitted. If choice/s is/are not clarified by the Purchaser at the time of signing the choice/s is/are to be at the Builder's sole discretion.

3 All items are to be selected within the range as determined by the Builder as allowable for this style of building.

4 The Proprietor acknowledges that the Builder [Castle Homes Wanganui Ltd] is the independent owner and operator of a GJ Gardner Homes franchise and agrees this building contract is exclusively between the Proprietor and the Builder [Castle Homes Wanganui Ltd].

ITEM	DESCRIPTION	INITIAL ALTERATIONS

1. GENERAL

a) Unless otherwise specified, the works shall be constructed in accordance with the Building Act 2004 (as amended) in conjunction with the New Zealand Building Code.

b) Unless otherwise specified, the proprietor is responsible to provide a house site clear of any obstructions to building including removal of long grass, shrubs and trees where necessary.

c) It is acknowledged by the proprietor that it is the proprietor's responsibility to engage a licensed surveyor to peg the boundary corners of the allotment prior to commencement of site works if the survey pegs are not in place.

d) The Purchaser acknowledges that it is their responsibility to provide all weather access suitable to allow vehicles and machinery, as normally used in the building industry, to drive in and out of the property.

e) Unless otherwise specified, the contract price allows that town water supply will be available from an existing main of the Local Authority prior to commencement of construction. Where no such water supply exists, the proprietor is to arrange at their expense, a temporary fresh water supply for building purposes by means satisfactory to The Builder, and to be available prior to commencement of construction.

f) This contract allows for 240 Volt single phase power being available prior to and during the construction of the dwelling. Where no such power is available the proprietor is to arrange temporary power to the satisfaction of The Builder at the proprietor's expense.

g) (i) Complying with statutory obligations and any notices and obtaining relevant approvals is the responsibility of The Builder.

(ii) The Builder and the proprietor acknowledge that notwithstanding proper requests by the Builder the Local Authority does not on all occasions carry out final inspections in relation to the works. The proprietor further acknowledges and irrevocable agrees that they will not make any objection to the lack of provision of a final inspection report subsequent to practical completion and further will not withhold or cause to be withheld any progress payments due to The Builder, either directly or through their financier that are due to be paid to The Builder on practical completion of the works.

Purchaser's Initials

Builder's Initials

(iii) The proprietor acknowledges and agrees that should their financier refuse to advance all or any funds until the provision of a final inspection report from the Local Authority which may not be available, The Builder will at the proprietor's cost obtain a final inspection report suitable to the financier from a qualified engineer/registered Builder.

h) Unless otherwise specified, all council building fees are paid for by The Builder. Any Bonds called for or development application fees requested by any Local or Other Authority or statutory body are to be arranged and paid for by the proprietor.

(i) It is the responsibility of the Proprietor to obtain any necessary building consents from relevant developer or land corporation where a covenant applies.

i) An Engineer's soil report, footing and slab designs are to be provided by The Builder. The cost of which is taken from the initial deposit.

j) Should this Contract not proceed for any reason whatsoever all moneys expended by The Builder on Local Authority fees, obtaining soil reports and footing and slab designs, engineers fees and an administration fee of $250.00 for the costs of preparation of contracts and plans shall be deducted forthwith from any deposit paid by the proprietor. If the deposit paid by the proprietor is insufficient to cover such costs then the proprietor shall pay such extra costs to The Builder within fourteen days after receiving notification that the same are due and payable.

k) Colour selection must be completed before council approval has been received to enable the proprietor's home to be built within the construction period stated in this contract. The colour selection forms part of this contract and any item at a cost above standard allowance will be charged as an extra.

l) (i) Any valuations required by the lending body (other than Council final inspection) are to be the responsibility of the Proprietor to organise.

(ii) The Builder takes no responsibility for any colour variation in the roof tile, brick, ceramic wall and floor tile, between those shown in displays or brochures to those delivered by the manufacturer. These products may vary slightly in colour from time to time and any discrepancy is the responsibility of the manufacturer.

(iii) Electrical plan is to be completed and returned to this office within seven days from the date the proprietor signs the contract, failing which the standard electrical plan will apply.

(iv) The Proprietor and The Builder hereby agree that any extension of time claimed for practical completion due to wet or inclement weather shall be based on notification pursuant to the relevant clause of the Contract and shall be claimed as per the logged days by the nearest post office or weather bureau.

(v) The proprietor acknowledges that it is their responsibility to pay a deposit to the electrical authority to connect power. Any delay by the electrical authority in connecting power shall not on its own delay practical completion or final payment to The Builder.

(vii) Where due to soil conditions, Local or Other Authority requirements, pump out tanks, submersible pumps and irrigation systems are needed over and above the normal septic system, the proprietor agrees to bear the costs thereof and proceed by way of variation pursuant to the relevant clause of the Contract.

m) The Builder reserves the right to charge a $200.00 fee for each variation requested by the proprietor subsequent to execution of the contract. Variations are deemed to be changes, additions, deletions and alterations to contract, colour selection, allowances or prior variations. Each variation may add one week to the contract time.

n) The Builder accepts no responsibility to contact the owners of adjoining properties in relation to fencing. It is the Proprietor's responsibility to contact the adjoining neighbours to arrange rebates. Should the Proprietor not arrange rebates, The Builder will install the fence(s) as per the contract at the Builder's discretion.

o) The proprietor acknowledges that they have not relied upon any representations made by The Builder, its agents, employees or workmen in entering into this contract other than those representations as are included in and form part of this contract.

q) Provisional cost or prime sum items (to the value of items) in this contract will be adjusted with a margin of 20% for recovery of profit and administration as per the building contract. Adjustments will be made on receipt of final invoice and credited off the final progress claim. These allowances are non-transferable and will be subject to a 5% retention if deleted.

2. EXCAVATION

The Owner acknowledges that after breaking the surface of the ground, if variations are required by the Engineer, or Territorial or Other Authorities, or due to the nature of site access or due to extra excavations or footings required if rock or other obstacles are encountered, then the Builder will notify the Owner as provided for in Clause 4 of the contract and the cost of such variation together with a reasonable allowance for overheads and profits shall be adjusted against the contract sum.

a) Site scrape to house area only.

b) No compact and bulk fill is required.

c) Excavated material, spoil, etc., to be spread over site by Builder. No allowance has been made to remove any excavated material offsite.

d) Trees, etc. to be N\A. None to be removed.

3. CONCRETOR

a) Floor slab to be slab as per attached details with 20 mpa concrete floated off to a smoothe finish. Finished floor height to be approx 225mm above extisting ground level.

b) Extra piers, beams, steel etc., if required by Engineer or Territorial Authority after Territorial Authority approval are at the Owner's expense.

c) Concrete Pumping is included

d) Driveway is not included.

4. DRAINLAYER

a) Sewerage installation to be in accordance with the Territorial Authority Approved Plan

b) Water is on town supply.

c)

d) Stormwater is to be piped in accordance with the Territorial Approved plan.

5. BRICKLAYER

a) Builder to supply and lay all bricks. Sills to be bricks laid on edge.

b) Joints to be raked.

c) Mortar colour to be standard grey. Other colours are available for an additional cost.

Builder's Initials

6. CARPENTER/JOINER

a) Builder is to do all framing and fixing.

b) External frames are to be stress graded, Kiln dried with H3 bottom plates built to Manufacturers design or NZ3604
External frames are to be stress graded, Kiln dried built to Manufacturers design or NZ3604

c) Roof Trusses to be to manufacturer's design.

d) All ceiling batons to be Steel Rhondo at 400 crs

7. INTERNAL LININGS

a) All walls to be lined with 10mm Gib Board with the exception of the bathrooms which will be 10mm Aqualine finished off to a level 4

b) All ceilings to be lined with 10mm Gib Board with the exception of the bathrooms which will be 10mm Aqualine finished off to a level 4

c) Cornice to be standard cove pattern 55mm.

8. EXTERNAL WALL CLADDING

Rockcote eps40 and Linea weather boards as per plans

a) Soffits to be 4.5mm Fibre Cement sheeting.

9. DOORS (INCLUDING TYPE, FINISH, FURNITURE)

a) Front entrance door to be solid timber.

b)

c) Garage Doors are to be Pressed Panel Sectional Door(s) as per plan. Electric Opener with Remote Control is included.

d) Internal Doors to be Flush Hollow Core Paint Finish.

e) Internal Door Handles to be from Builder's selection.

f) External Door Handles to be from Builder's selection.

10. INTERNAL FINISHING TIMBERS

a) Architraves to be nominal 40 x 12mm MDF.

b) Skirting to be nominal 60 x 12mm MDF.

c) Jambs to be nominal 93 x 19mm FJ Pine.

d) Profile to be bevelled.

11. ENTRANCE DOOR FRAMES AND GLAZING

a) Front Door Side Lights are included.

7. ALUMINIUM WINDOWS AND DOORS

a) Frame finish to be powder coated aluminium (from standard range).

b) Reveals to be pre-primed finger-jointed Pine.

c) Flashings for plaster finish to be PVC.

8. ROOF COVERING

a) Roof covering to be metal roof tiles.

b) Self Supporting Building Paper is included.

9. PLUMBER/STEEL FASCIA OPERATOR

a) Fascia and gutters to be pre-coated Steel. Internal gutter with 17mm ply & butynol to back of block wall as per plan.

b) Downpipes to be 80 mm round PVC.

c) The work will be a NZ Acceptable Solution to comply with the NZ Building Code.

d) The material to be installed will be :
- UPVC under slab - to have a minimum life of 50 years.
- Butaline in the walls - to have a minimum life of 15 years.
- Polyethylene in the ground outside building line, for water supply - to have a minimum life of 15 years.

10. FIXTURES AND FITTINGS

a) No Allowance for Bath or associated fittings.

b) Kitchen sink to be Clarke Advance 2503.

c) Laundry tub to be Supertub ST3600

d) Showers to be Athena Charisma 1000 square or angle.

e) Vanity basins to be Athena Panache 1000mm wall hung or full height.

f) W.C. to be dual flush Coroma Velencia.

g) Hot water to be mains pressure Infinity

h) One hose tap to front of house and one to rear as positioned by the Builder.

11. TAPWARE

a) Kitchen sink taps/mixer to deal STD Laska kitchen mixer.

b) Bathroom, Ensuite, taps/mixer to be ideal STD basin/shower mixer.

12. GAS SERVICE

a) Gas service is applicable.

b) Gas hot water system is included.

c) Gas fire or air-conditioning is included.

18. ELECTRICIAN

a) Smoke alarms to be within 3m of every bedroom Builder to supply & install all electrical wiring and fittings to New Zealand statutory requirements.

b) Single Phase Connection to be provided by Owner.

c) Two light point is allowed (Down light) to bedrooms and service rooms. Living areas supplied according to size, unless otherwise specified.

d) Two external lights are allowed, (bulk head and bulb) unless otherwise specified.

e) Two double power point is allowed to each room, except kitchen, W.C. and Hall Way, unless otherwise specified.

f) Three double power points are allowed to kitchen, unless otherwise specified.

g) Power point for Range Hood is included.

h) Power point for Dishwasher is included.

i) Power point for Garbage Disposal is not included.

j) Power point for Microwave is not included.

k) 2 telephone point(s) are included.

l) 2 T.V point(s) are included. T.V. Booster and antenna and associated power points are not included.

m) Exhaust fans are included to Bathroom, Ensuite and W.C.

n) Light Fittings are included.

19. WHITE GOODS

Owner to do nothing. Builder to supply and install all White Goods.

a) Wall Oven to be Fisher & Paykel 600R.

b) Hot plates to be Fisher & Paykel CT5F Ceramic Top.

c) Rangehood to be Fisher & Paykel RH600.

d) Dishwasher to be Fisher & Paykel DW820.

e) Microwave to be not included.

f) Garbage Disposal to be not included.

g) Upright Stove to be not included.

h) Fridge/Freezer to be Fisher & Paykel.

20. CABINETMAKER

Builder to supply and install all Kitchen and Bathroom cabinets.

a) Kitchen and vanity cupboards are generally 600mm wide with Plastic Laminate Benchtops. Layout as per kitchen plan.

21. PAINTER

Owner to do no painting. Builder to do all painting

a) Refer to Colour Scheme for Selections.

Purchaser's Initials

Builder's Initials

b) External painting by Builder.
1. External AC sheeting two coats of acrylic paint.
2. Any external metal one coat of primer one coat enamel.
3. Other external surfaces according to manufacturer's specifications.

c) External brick walls to be unpainted.

d) Internal Painting by Builder.
(Walls and ceilings to be of two colour.)
1. Ceilings to be one coat sealer and two coats of acrylic paint to Manufacturer's Specification (white base).
2. Walls to be one coat sealer and two coats acrylic paint to Manufacturer's Specification (white base).
3. Inside cupboards wall colour.
4. Wall-paper is not included.

e) Doors, door jambs, architraves, reveals and skirtings to be painted wall colour in low sheen enamel in one colour (skirtings to be acrylic).

Dated this.....day of.....200.....

SIGNED by the Owner	SIGNED by the Builder .....
In the presence of	In the presence of .....

APPROVED
10/0015
Consent No.

Wanganui District Council
23 DEC 2009
RECEIVED

Purchaser's Initials

Builder's Initials

GIB® EzyBrace™ FP for GIB® EzyBrace™ Systems, 2009

GIB® Wall Bracing Calculation Sheet A — single storey — V03/09

Job Details

Name	Caversham Park	Units 17 & 18
Street and Number	Caversham Road	
Lot and DP Number		
City/Town/District	Wanganui	
Designer	P Harrison	
Company Name	McGowan & Harrison Ltd	
Date	14/12/2009	

BRANZ Appraised
Appraisal No.294 [2009]

Select GIB® Lining Option: 10 mm GIB® Plasterboard

Building Specification

		Single Floor	Complete Single Floor Column only
Number of storeys	single		
Floor Loading	2kPa		
Foundation Type	slab		
Cladding Weight		light	
Roof Weight		light	
Room in Roof Space		no	
Roof Pitch (degrees)		20	
Roof height above eaves (m)		2.8	
Building height to apex (m)		5.2	
Ground to lower floor level (m)		0.2	
Stud Height (m)		2.4	
Building Length (m)		22.0	
Building Width (m)		14.4	
Building Plan Area (m2)		317	

APPROVED
10/0015
Consent No.

Building Location

Wind Zone ***Medium***

Select by Building Consent Authority Map or Preference

Medium	
Region	Preference selected
Terrain	Preference selected
Exposure	Preference selected
Topography	Preference selected

Earthquake Zone: A

Consult GIB® EzyBrace™ Systems, 2009 for Wind Zone definitions

Bracing Units required for Wind

Demand W (BU)		Walls single
along	slab	708
across	slab	1155

Bracing Units required for Earthquake

Demand along / across E (BU)		Walls single
slab		1078

Caversham Park

GIB® EzyBrace™ FP for GIB® EzyBrace™ Systems 2009

GIB® Wall Bracing Calculation Sheet B — Single or Upper Walls Along

V03/09

Along

Bracing Line		*Bracing Elements provided*						*Wind*	*Earthq.*
1	2	3	4	6	5	7	8	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	BUs Achieved	BUs Achieved
A	enter	1	1.2			GS1(10)	GIB®	83	66
	not enough	2	2.2		2.4	GS1(10)	GIB®	152	121
line totals		3							
W	235	4							
EQ	187	5							
B	enter	1	2.4		2.4	GS1(10)	GIB®	166	132
	not enough	2	2.2		2.4	GS1(10)	GIB®	152	121
line totals		3	3.2		2.4	GS1(10)	GIB®	221	176
W	538	4							
EQ	429	5							
C	enter	1	2.5		2.4	GS1(10)	GIB®	173	138
	not enough	2	1.3		2.4	GS1(10)	GIB®	90	72
line totals		3							
W	262	4							
EQ	209	5							
D	enter	1	3.6		2.4	GS1(10)	GIB®	248	198
	not enough	2							
line totals		3							
W	248	4							
EQ	198	5							
E	enter	1	0.9		2.4	GS1(10)	GIB®	60	50
	not enough	2	0.9		2.4	GS1(10)	GIB®	60	50
line totals		3							
W	120	4							
EQ	99	5							
F	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
G	enter	1							
		2							
line totals		3							
W		4							
EQ		5							
H	enter	1							
		2							
line totals		3							
W		4							
EQ		5							

APPROVED
10/0015
Consent No.

						Wind	Earthq.
Totals Achieved	Achieved/Demand	W	198%	EQ	104%	1404	1122
Concrete Slab						*OK*	*OK*
Totals Required (from Demand)						708	1078

Caversham Park

P Harrison

GIB® EzyBrace™ FP for GIB® EzyBrace™ Systems, 2009

GIB

GIB® Wall Bracing Calculation Sheet B — Single or Upper Walls Across

V03/09

Across

Bracing Line		Bracing Elements provided						Wind	Earthq.
1	2	3	4	6	5	7	8	9W	10EQ
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Available Wall Length L (m)	Angle to Bracing line (degrees)	Element Height H (m)	Bracing Type	Supplier	BUs Achieved	BUs Achieved
M	enter	1	0.6		2.4	GS1(10)	GIB®	39	33
	not enough	2	3		2.4	GS1(10)	GIB®	207	165
line totals		3							
W	246	4							
EQ	198	5							
N	enter	1	2.4		2.4	GS1(10)	GIB®	166	132
	not enough	2							
line totals		3							
W	166	4							
EQ	132	5							
O	enter	1	4		2.4	GS1(10)	GIB®	276	220
	not enough	2							
line totals		3							
W	276	4							
EQ	220	5							
P	enter	1	3.6		2.4	GS1(10)	GIB®	248	198
	not enough	2							
line totals		3							
W	248	4							
EQ	198	5							
Q	enter	1	3		2.4	GS1(10)	GIB®	207	165
	not enough	2							
line totals		3							
W	207	4							
EQ	165	5							
R	enter	1	1		2.4	5.1	NZS4229	495	495
	not enough	2							
line totals		3							
W	495	4							
EQ	495	5							
S	enter	1	3		2.4	GS1(10)	GIB®	207	165
	not enough	2							
line totals		3							
W	207	4							
EQ	165	5							
T	enter	1	2.4		2.4	GS1(10)	GIB®	166	132
	not enough	2							
line totals		3							
W	166	4							
EQ	132	5							

Totals Achieved	Achieved/Demand	W	174%	EQ	158%	Wind	Earthq.
Concrete Slab						2010	1705
						OK	*OK*
Totals Required (from Demand)						1155	1078

Job: 10611

Client: Placemakers Wanganui
Phone:

Site:
Units 17 & 18
Caversham Ave
Wanganui

Phone:

Description: Caversham Units 17 & 18
Building Consent No.:

PRODUCER STATEMENT for MiTek 20/20™ TRUSS DESIGN

The MiTek 20/20™ truss design program has been developed by MiTek New Zealand Ltd for the design of GANG-NAIL® timber roof, floor and attic trusses in New Zealand. The truss designs computed by MiTek 20/20™ are prepared using sound and widely accepted engineering principles, and in accordance with compliance documents of the New Zealand Building Code and Verification Method B1/VM1; and internationally accepted standard ANSI/TPI 1 - 2002 as an alternative solution to satisfy the requirements of Clause B1 of the Building Code.

This producer statement covers the MiTek 20/20™ truss design and the structural performance of the GANG-NAIL plate.

On behalf of MiTek New Zealand Ltd, and subject to:

i) All proprietary products meeting their performance specification requirements
ii) The provision of adequate roof bracing and overall building stability
iii) Correct selection and placement of fixings
iv) Correct input of Truss Design Data below
v) The design being undertaken by suitably trained personnel
vi) The truss design being carried out in accordance with MiTek 20/20 User Terms and Conditions,

believe on reasonable grounds that the trusses, if constructed in accordance with the MiTek 20/20™ truss design and shop drawings, will comply with the relevant provisions of the Building Code.

Wanganui District Council
23 DEC 2009
RECEIVED

MiTek New Zealand Ltd holds a current policy of Professional Indemnity Insurance no less than $500,000.

On behalf of MiTek New Zealand Ltd,

n Ling Ng, BE (Hons), CPEng, IntPE, MIPENZ (ID: 146585)
TECHNICAL SERVICES MANAGER, MiTek New Zealand Ltd

MiTek 20/20™ TRUSS DESIGN DATA

The MiTek 20/20™ computer design for this job is based on the following design parameters entered into the program. The GANG-NAIL Fabricator shall ensure that these job details are current and relevant to the project for the design of the trusses.

Job Details

Roof Truss
Timber Group: MSG8 10 H1.2
Roof
Material: Light
Dead Load: 0.250 kPa
Restraints: 1200 mm centres
Live Load: Qur = 0.250 kPa
Qc = 1.100 kN

Importance Level : 2

Pitch: 20.000 deg
Ceiling
Material: Standard
Dead Load: 0.200 kPa
Restraints: 400 mm centres
Live Load: Qc = 1.400 kN

Design Working Life : 50 years

Std Overhang: 600 mm
Wind
Area: Medium (37.0 m/s)
Pressure Coeff: Cpe = Varies; Cpi = -0.30, (

APPROVED
10/0015
Consent No.

The timber for these trusses shall be standard gauged and treated to the requirements of NZS 3602:2003. Unless otherwise noted, this design assumes that the steel fixings and timber connectors proposed are located in a **"closed environment"**, as defined by NZS3604:1999 Section 4.

Truss List

Legend: * = detail only, ? = input only, ~~Txx~~ = failed design, Ø = non certified, Unmarked trusses = designed successfully, LB = lateral

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)	Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
EN1	1	3235	20.000	900	J3A	1	4583	20.000	900
EN2	1	3280	20.000	900	J3B	1	4583	20.000	900
EN3	1	4355	20.000	900	J3C	1	4583	20.000	900
ET1	1	6630	20.000	900	J4	2	3683	20.000	900
T3	1	6325	20.000	848	J4A	1	3683	20.000	900
T5	1	6325	20.000	864	J4B	1	3683	20.000	900
J1	1	8986	14.433	900 LB	J5	2	2783	20.000	900
J1A	1	8986	14.433	900 LB	J5A	2	2783	20.000	900
TG1	1	8225	20.000	900 LB	J6	2	1883	20.000	900
TG2	1	6630	20.000	900	J6A	2	1883	20.000	900
PTG3	1	8682	20.000	900 LB	J7	1	983	20.000	900
ET4	1	3532	-20.000	538	J7A	1	983	20.000	900
2	1	5483	20.000	900	T1	10	6370	20.000	900
2A	1	5483	20.000	900	T3	21	6325	20.000	900
J2B	1	5483	20.000	900	T5	1	3532	-20.000	900
J2C	1	5483	20.000	900	V1	1	5732	20.000	900
3	1	4583	20.000	900	V2	1	4832	20.000	900

Prenail Precision Ltd

Job: 10611

Client: Placemakers Wanganui
Phone:

Site:
Units 17 & 18
Caversham Ave
Wanganui

Description: Caversham Units 17 & 18
Building Consent No.:

Phone:

MiTek 20/20 Engineering 4.5.131

MiTek New Zealand Ltd.

Printed: 15:46:51 21 Dec 2

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
V3	1	3932	20.000	900
V4	1	3032	20.000	900
V6	1	2632	20.000	900
V7	1	1732	20.000	900
V8	1	832	20.000	900
*R1	1	1583	20.000	900
*R1A	1	1583	20.000	900
*R2	2	913	20.000	900

Truss	Qty	Span (mm)	Pitch (deg)	Spacing (mm)
*R2A	2	913	20.000	900

Total quantity : 79

Wanganui District Council
23 DEC 2009
RECEIVED

APPROVED
10/0015
Consent No.

The computer design input has been carried out by:

M.J. McCormick

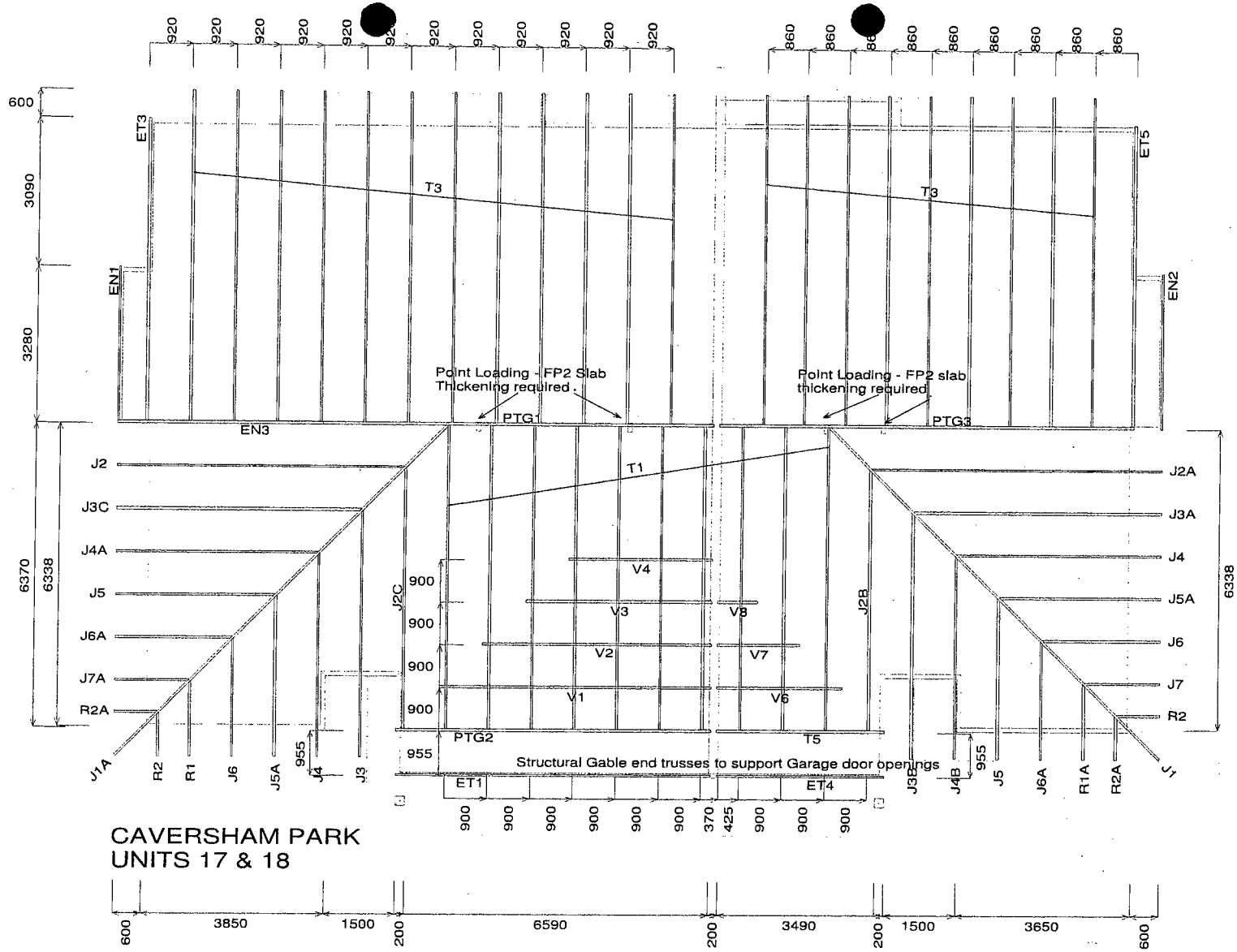
Signed: .....

Date: **21/12/2009**.....

Name of Computer Operator: .....**Mark McCormick**.....

Qualifications and Title: .....**Mitek Detailer**.....

Company: **Prenail Precision Ltd**



CAVERSHAM PARK
UNITS 17 & 18

APPROVED
10/0015
Consent No.

Wanganui District Council
23 DEC 2009
RECEIVED

Prenail Precision Ltd			Job Details:
8 Hinau St. Wanganui Ph: Mark McCormick 06 344 2100	Placemakers Wanganui Units 17 18 Caversham Ave Wanganui	Caversham Units 17 18 Job: 10611 Building Consent No.:	Snow Zone: 0.000 Wind Area: Medium TC Restraints: 1200 mm Roof Material: Light Roof Live Load: 0.250 kPa Snow Altitude: 0 m Design Wind Speed: 37.0 m/s BC Restraints: 400 mm Ceiling Material: Standard Snow Load: 0.000 kPa

Caversham
Bed 1 lintel

Specifier: Paul Harrison

MEMBER SIZE OPTIONS

1) Member Description Lintels - In single or upper storey load bearing walls

2) Design Inputs

Span	3.6 m
Roof load width 'RLW'	7.3 m
Roof type and mass	Light roof & ceiling - 40 kg/m²
Serviceability criteria	AS 1684.1-1999
Wind classification	MEDIUM

Member Size & grade	Maximum span (m)	Installation requirements
300 x 45 hySPAN	3.6	Provide at least 50 mm bearing at end supports
2/240 x 45 hySPAN	3.6	Provide at least 30 mm bearing at end supports Nail lamination required as per Detail H1 or as detailed in AS 1684.
300 x 63 hySPAN	3.9	Provide at least 35 mm bearing at end supports
300 x 90 hy90	3.9	Provide at least 30 mm bearing at end supports
360 x 45 hySPAN	4.1	Provide at least 50 mm bearing at end supports
2/300 x 45 hySPAN	4.3	Provide at least 30 mm bearing at end supports Nail lamination required as per Detail H1 or as detailed in AS 1684.

---End of output---

Wanganui District Council

23 DEC 2009

RECEIVED

Blank risk matrix forms

ELEVATION OR WALL: A	RISK SEVERITY				
Risk factor	Low	Medium	High	Very high	Subtotals for each risk factor
Wind zone	0	0	1	2	0
Number of storeys	0	1	2	4	0
Roof/wall intersection design	0	1	3	5	0
Eaves width	0	1	2	5	1
Envelope complexity	0	1	3	6	1
Deck design	0	2	4	6	0
				Total risk score:	2

APPROVED

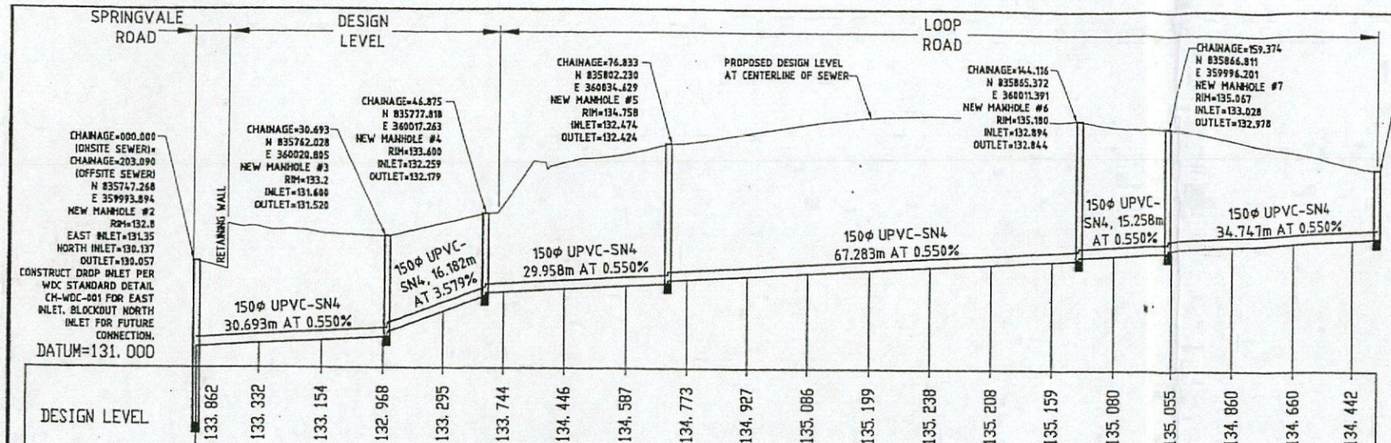
10/0015

Consent No.

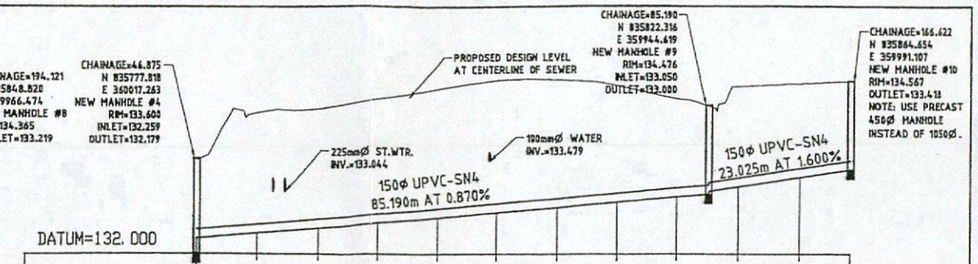
ELEVATION OR WALL: B	RISK SEVERITY				
Risk factor	Low	Medium	High	Very high	Subtotals for each risk factor
Wind zone	0	0	1	2	0
Number of storeys	0	1	2	4	0
Roof/wall intersection design	0	1	3	5	1
Eaves width	0	1	2	5	5
Envelope complexity	0	1	3	6	1
Deck design	0	2	4	6	0
				Total risk score:	7

ELEVATION OR WALL: C	RISK SEVERITY				
Risk factor	Low	Medium	High	Very high	Subtotals for each risk factor
Wind zone	0	0	1	2	0
Number of storeys	0	1	2	4	0
Roof/wall intersection design	0	1	3	5	1
Eaves width	0	1	2	5	1
Envelope complexity	0	1	3	6	1
Deck design	0	2	4	6	0
				Total risk score:	3

ELEVATION OR WALL: D	RISK SEVERITY				
Risk factor	Low	Medium	High	Very high	Subtotals for each risk factor
Wind zone	0	0	1	2	0
Number of storeys	0	1	2	4	0
Roof/wall intersection design	0	1	3	5	1
Eaves width	0	1	2	5	5
Envelope complexity	0	1	3	6	1
Deck design	0	2	4	6	0
				Total risk score:	7



DESIGN LEVEL	133.862	133.332	133.154	132.968	133.295	133.744	134.446	134.587	134.773	134.927	135.086	135.199	135.238	135.208	135.159	135.080	135.055	134.860	134.660	134.442
CUT TO PIPE INV.	-2.511	-1.925	-1.693	-1.451	-1.362	-1.469	-2.115	-2.201	-2.283	-2.382	-2.485	-2.542	-2.527	-2.442	-2.338	-2.153	-2.025	-1.773	-1.519	-1.245
PIPE INVERT	131.351	131.406	131.461	131.516	131.933	132.276	132.331	132.386	132.491	132.546	132.601	132.656	132.711	132.766	132.821	132.926	133.031	133.086	133.141	133.196
DISTANCE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	180.000	190.000



DESIGN LEVEL	133.572	134.360	134.435	134.594	134.757	134.905	134.917	134.817	134.594	134.804	134.855
CUT TO PIPE INV.	-1.312	-2.015	-2.003	-2.075	-2.150	-2.211	-2.136	-1.950	-1.640	-1.678	-1.568
PIPE INVERT	132.259	132.346	132.433	132.520	132.607	132.694	132.781	132.868	132.955	133.126	133.288
DISTANCE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000

APPROVED
10/0015
Consent No

DO NOT SCALE - IF IN DOUBT, ASK

ONSITE SEWER IS TO BE PRIVATE.

SEWER NOTES

NOTE: IT IS THE CONTRACTORS RESPONSIBILITY TO ADHERE TO, AT A MINIMUM, ALL STANDARDS, CODES, PRACTICES, AND SPECIFICATIONS AS SET FORTH IN NZS 4404:2004 (NEW ZEALAND STANDARD FOR LAND DEVELOPMENT AND SUBDIVISION ENGINEERING) AND THE COMPANION DOCUMENT TO NZS 4404 AS SET FORTH BY THE WANGANUI DISTRICT COUNCIL.

NOTE: CONNECTIONS SHALL BE LAID TO 1m BEHIND SHOULDERS FOR EASE OF FUTURE CONNECTION. EXTEND CONNECTIONS FOR UNITS 2-5, 11, AND 13-17 FOR 5m FROM SEWER MAIN/MANHOLE. EXTEND CONNECTION FOR UNIT 12 FOR 2m FROM SEWER MAIN.

NOTE: SEE CONNECTION LIST BELOW FOR LOCATION OF END OF CONNECTION AND INVERT AT THIS LOCATION.

NOTE: ALL CONNECTIONS ARE TO BE 100mm DIAMETER UPVC-SN9 PIPE.

NOTE: CONNECTIONS SHALL BE LAID AT A MINIMUM SLOPE OF 1.65%.

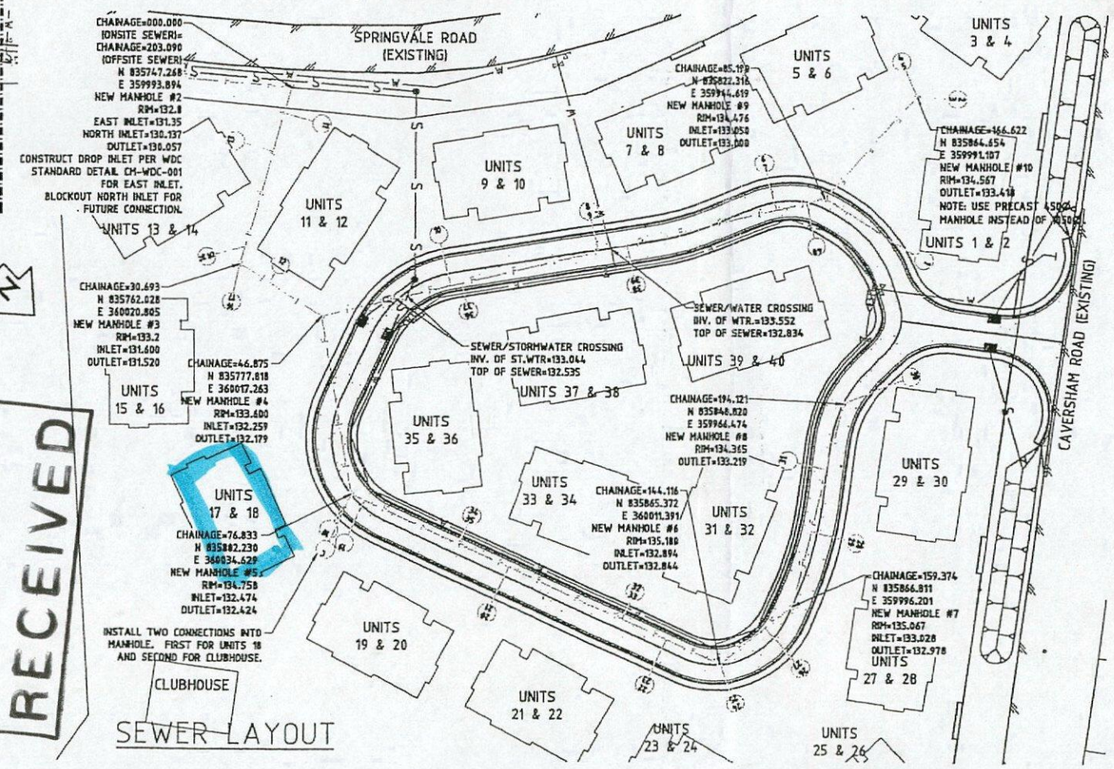
NOTE: FOR MANHOLE DETAILS, SEE: 3 / C07

NOTE: FOR PIPE BEDDING DETAILS, SEE: 4 / C07

CONNECTION LIST

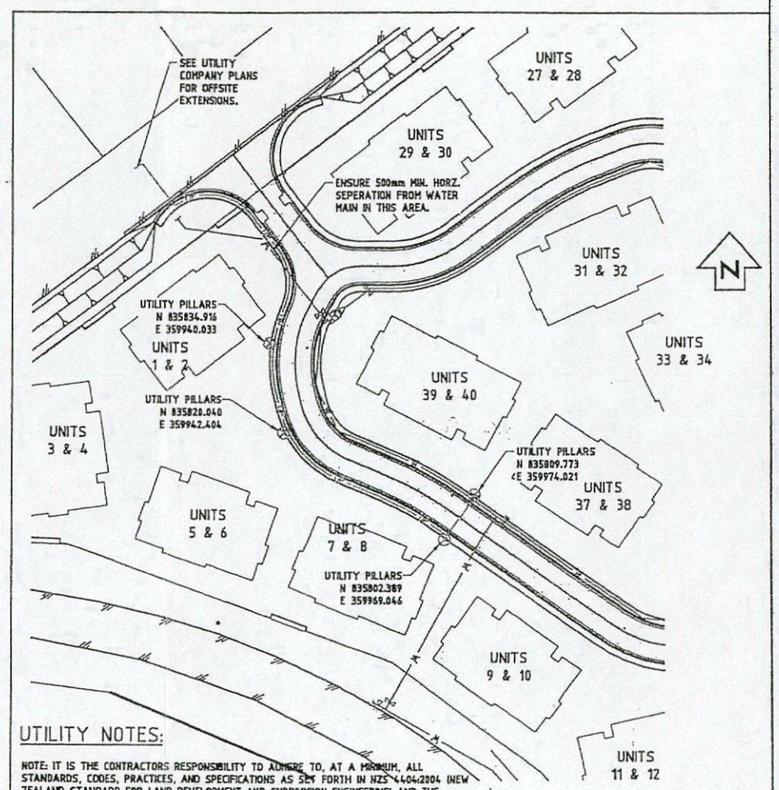
UNIT(S)	COORDINATE @ END	INV. @ END
1	N 835839.868 E 359948.425	133.35
2 & 3	N 835824.915 E 359918.249	133.50
4 & 5	N 835816.588 E 359919.742	133.50
6 & 7	N 835812.473 E 359948.114	133.63
8 & 9	N 835797.600 E 359974.438	134.35
10	N 835783.082 E 359994.747	134.10
11	N 835753.794 E 359995.395	133.13
12	N 835767.245 E 360011.585	133.19
13	N 835748.301 E 360006.175	131.70
14 & 15	N 835758.118 E 360022.523	131.75
16 & 17	N 835764.749 E 360025.000	131.70
18	N 835883.459 E 360039.930	133.01
CLUBHOUSE	N 835804.217 E 360039.938	132.80
19	N 835806.709 E 360039.761	133.95
20 & 21	N 835831.472 E 360031.166	134.09
22 & 23	N 835858.161 E 360821.344	134.15
24 & 25	N 835870.410 E 360013.370	133.50
26 & 27	N 835873.695 E 360002.344	133.50
28 & 29	N 835865.532 E 359981.961	133.67
30	N 835853.033 E 359956.508	133.398
31	N 835850.343 E 359978.831	133.257
32 & 33	N 835847.012 E 360014.365	134.12
34 & 35	N 835819.309 E 360024.404	134.20
36 & 37	N 835792.974 E 359998.741	134.00
38 & 39	N 835809.126 E 359976.211	133.65
40	N 835825.778 E 359950.525	133.22

SEE SHEET C08 FOR OFFSITE SEWER



SEWER LAYOUT

Wanganui District Council
23 DEC 2009
RECEIVED



UTILITY NOTES:

NOTE: IT IS THE CONTRACTORS RESPONSIBILITY TO ADHERE TO, AT A MINIMUM, ALL STANDARDS, CODES, PRACTICES, AND SPECIFICATIONS AS SET FORTH IN NZS 4404:2004 (NEW ZEALAND STANDARD FOR LAND DEVELOPMENT AND SUBDIVISION ENGINEERING) AND THE COMPANION DOCUMENT TO NZS 4404 AS SET FORTH BY THE WANGANUI DISTRICT COUNCIL.

NOTE: UNDERGROUND UTILITIES TO BE INSTALLED TO UNITS 1-8, 39, AND 40 ONLY AT THIS TIME.

NOTE: SEE SHEET C002 FOR LOCATION OF DUCTS TO PROVIDE NEW AND FUTURE UTILITY CONNECTIONS.

UTILITY LAYOUT

REV	REVISIONS	DRAWN	CHECKED	APPROVED	DATE

	Name	Date
SURVEYED		
DESIGNED	JH MILLER	JAN. 07
DESIGN CHECK	GW YOUNG	JAN. 07
DRAWN	JH MILLER	JAN. 07
DRAWING CHECK	GW YOUNG	JAN. 07
APPROVED	GW YOUNG	

MWH

CAVERSHAM PARK SUBDIVISION

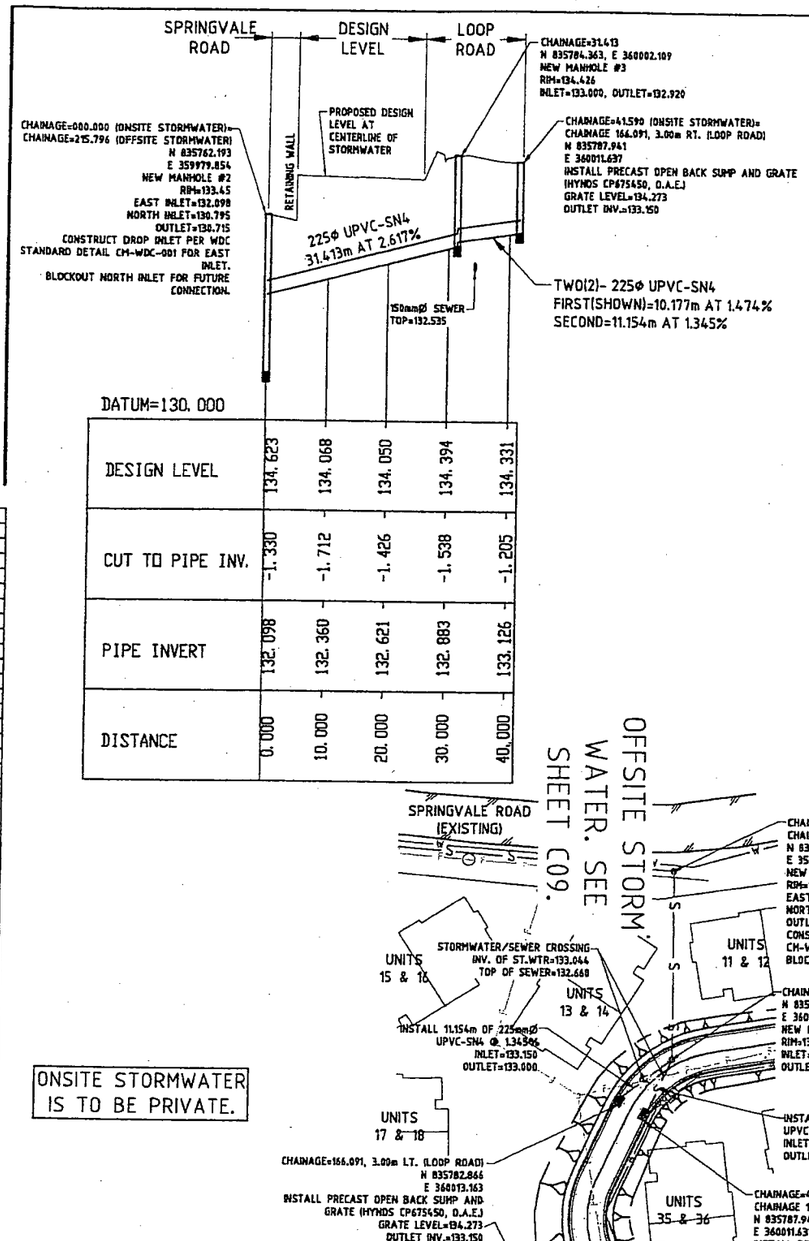
SEWER LAYOUT (ONSITE) - PLAN AND PROFILE
UTILITY LAYOUT

Status Stamp: FOR CONSTRUCTION
Date Stamp: 11/07/2007
SCALES (A1) 1:500 1:1000 A3
Drawing No.: Z1110300 | Sheet No.: C03 | Rev.: A

XREFS :

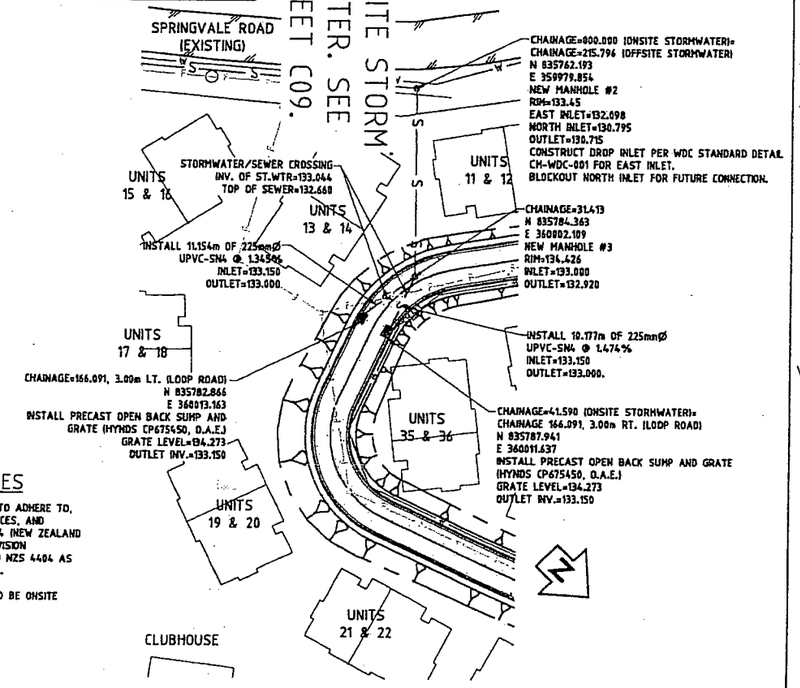
\\nzwan1s01\projects\011000\011103 Chan Springvale Rd Loaders_GWY\cad\BASE-subdivision4.dwg

ORIGINAL SIZE A1



DATUM=130.000

DESIGN LEVEL	134.623	134.068	134.050	134.394	134.331
CUT TO PIPE INV.	-1.330	-1.712	-1.426	-1.538	-1.205
PIPE INVERT	132.098	132.360	132.621	132.883	133.126
DISTANCE	0.000	10.000	20.000	30.000	40.000



ONSITE STORMWATER IS TO BE PRIVATE.

STORMWATER NOTES

NOTE: IT IS THE CONTRACTORS RESPONSIBILITY TO ADHERE TO, AT A MINIMUM, ALL STANDARDS, CODES, PRACTICES, AND SPECIFICATIONS AS SET FORTH IN NZS 4404:2004 (NEW ZEALAND STANDARD FOR LAND DEVELOPMENT AND SUBDIVISION ENGINEERING) AND THE COMPANION DOCUMENT TO NZS 4404 AS SET FORTH BY THE WANGANUI DISTRICT COUNCIL.

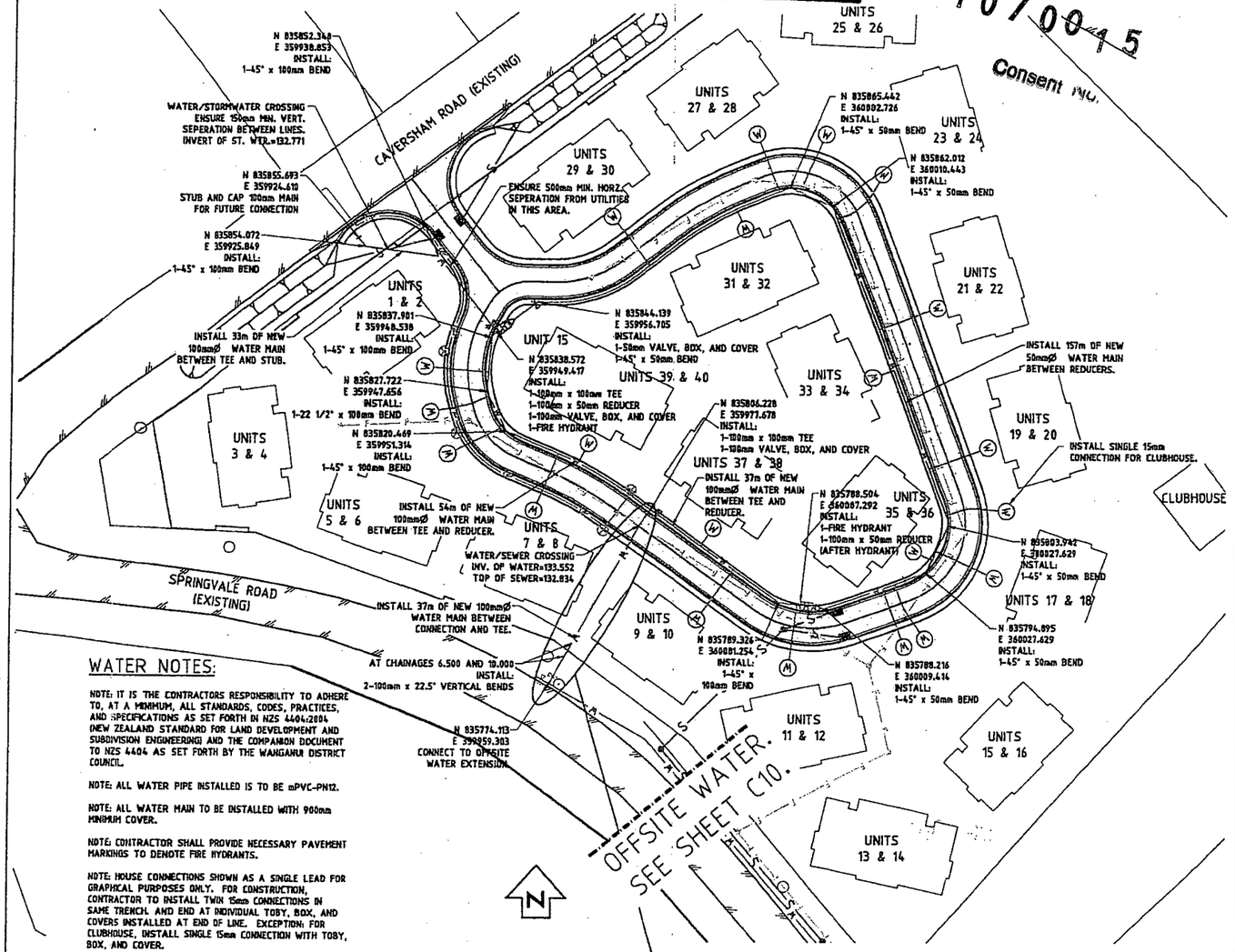
NOTE: STORMWATER DISPOSAL FROM UNITS IS TO BE ONSITE THROUGH INDIVIDUAL SOAK PITS.

NOTE: FOR MANHOLE DETAILS, SEE: 3 / C07

NOTE: FOR SUMP DETAILS, SEE: 5 / C07

NOTE: FOR PIPE BEDDING DETAILS, SEE: 4 / C07

STORMWATER LAYOUT



WATER NOTES:

NOTE: IT IS THE CONTRACTORS RESPONSIBILITY TO ADHERE TO, AT A MINIMUM, ALL STANDARDS, CODES, PRACTICES, AND SPECIFICATIONS AS SET FORTH IN NZS 4404:2004 (NEW ZEALAND STANDARD FOR LAND DEVELOPMENT AND SUBDIVISION ENGINEERING) AND THE COMPANION DOCUMENT TO NZS 4404 AS SET FORTH BY THE WANGANUI DISTRICT COUNCIL.

NOTE: ALL WATER PIPE INSTALLED IS TO BE mPVC-PN12.

NOTE: ALL WATER MAIN TO BE INSTALLED WITH 900mm MINIMUM COVER.

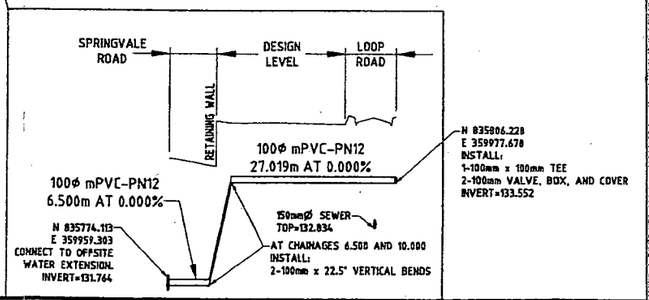
NOTE: CONTRACTOR SHALL PROVIDE NECESSARY PAVEMENT MARKINGS TO DENOTE FIRE HYDRANTS.

NOTE: HOUSE CONNECTIONS SHOWN AS A SINGLE LEAD FOR GRAPHICAL PURPOSES ONLY. FOR CONSTRUCTION, CONTRACTOR TO INSTALL TWIN 15mm CONNECTIONS IN SAME TRENCH, AND END AT INDIVIDUAL TOBY, BOX, AND COVERS INSTALLED AT END OF LINE. EXCEPTION: FOR CLUBHOUSE, INSTALL SINGLE 15mm CONNECTION WITH TOBY, BOX, AND COVER.

NOTE: HOUSE CONNECTIONS SHALL BE LAID TO 2m BEHIND SHOULDER FOR EASE OF FUTURE CONNECTION.

NOTE: ALL HOUSE CONNECTIONS ARE TO BE 15mm DIAMETER mPVC-PN9 PIPE.

NOTE: CONTRACTOR SHALL UTILIZE CARE TO AVOID STORMWATER AND SEWER MAINS, STORMWATER AND SEWER HOUSE CONNECTIONS, AND ALL OTHER UNDERGROUND UTILITIES.



WATER LAYOUT

	Name	Date
SURVEYED		
DESIGNED	JH MILLER	JAN. 07
DESIGN CHECK	GW YOUNG	JAN. 07
DRAWN	JH MILLER	JAN. 07
DRAWING CHECK	GW YOUNG	JAN. 07
APPROVED	GW YOUNG	

REV	REVISIONS	DRAWN	CHECKED	APPROVED	DATE

MWH

CAVERSHAM PARK SUBDIVISION

STORMWATER LAYOUT (ONSITE) – PLAN AND PROFILE
WATER (ONSITE) LAYOUT

Status Stamp: FOR CONSTRUCTION

Date Stamp: 11/07/2007

SCALES (A1) 1:500 1:1000 A3

Drawing No.	Sheet No.	Rev.
Z1110300	C04	A

XREFS:

\\nzwan1s01\projects\611000\611103 Chan Springvale Rd Loaders_GWY\cad\BASE-subdivision4.dwg

ORIGINAL SIZE A1

DO NOT SCALE - IF IN DOUBT, ASK

TRANSMITTAL NOTICE

MWH

MWH New Zealand Limited
8 Bates Street
P O Box 168
Wanganui 4540
New Zealand
Telephone: 64-6-349 1130
Facsimile: 64-6-349 1179
Website: www.mwhglobal.com/nz

Wanganui District Council
23 DEC 2009
RECEIVED

To: McGowan & Associates
18A Bell St
Wanganui

Attention: Paul Harrison

Project: Caversham Park

From: Rod Calder

Date: 23 March 2007

MWH Reference: Z1519800

Client Reference: 06-148

☑ We enclose
☐ We have sent you
☐ We acknowledge receipt of

☐ Prints
☐ Calculations
☐ Photocopies
☐ Drawings

☐ Reports
☐ Specifications
☐ Disks
☑ Other - Producer Statement & sketches

Quantity	Reference	Description
1	Z1519800	Producer Statement-Design
1	06-148	Annotated parts of McGowan & Associates drawings showing block wall reinforcing details and fly rafter details

These items are sent:
☑ At your request
☐ For your approval
☐ For your review

☐ For your action
☐ For your files
☐ For your information

☐ Other (specify)

General Remarks:

APPROVED
10/0015
Consent No.

PP MWH New Zealand Limited

☐ Acknowledgement of Receipt Required

Sent by:
☐ Mail
☐ Airfreight
☐ Courier
☑ Messenger

Copies to:
☑ Client
☐ Contractor
☐ Supplier
☐ Architect

TN 01 Design info_RPC

ISO 9001:2000 SGS

MWH

PROJECT

DESCRIPTION Concrete Block Firewall between units A+

COMPUTED/PREPARED BY _____ DATE _____ 20 _____

REVIEWED/CHECKED BY _____ DATE _____ 20 _____

REF/DWGS _____ SHEET 1 OF _____

Block wall, 2.4m high with fire-rated timber wall in roof space above

Consider wind and earthquake loads on bracing resisted by timber framed bracing walls.

Design block wall to resist earthquake effects from self-weight and firewall above + 10m wide roof area

Light roof - say 0.3 kPa × 10m = 3 kN/m

Timber wall + Fyreline both sides - say 0.35 kPa × 1.4 avg ht = 0.5 kN/m

Block wall, say 24 kN/m³ × 0.2 × 2.4 ⇒ 11.5 kN/m

APPROVED

10/00155

Consent No.

roof + timber wall EQ load will be applied @ top of block wall: 0.8 kN/m

block wall EQ load will be applied @ H/2 ≡ 1.2m above F.L.

for EQ coefficients: - treat wall as elastically responding ($\mu = 1.0$)

NZS 1170 Table 3

Subsoil Class C ⇒ $C_1(T) = 2.36$

Table 3

Hazard Factor Z = 0.25

Table 3

for annual probability of exceedance of 1/500 ⇒ $R_u = 1.0$

cl. 3.1.

$N(T,D) = 1.0$

$\therefore C_1(T_1) = 2.36 \times 0.25 \times 1 \times 1 = 0.59$

NZS 4203 Table

$S_p = 1.0$ for elastic structure

$$\therefore C_d = \frac{C(T_1)S_p}{R_u} = \frac{0.59 \times 1}{1} = 0.59$$

Seismic force on wall $V = C_d W_t$

$V_1 = 0.59 \times 0.5 \equiv 0.3$ kN/m @ top of wall

$V_2 = 0.59 \times 11.5 \equiv 6.8$ kN/m @ 1.6 above FL.

Hutt City Council

23 DEC 2009

RECEIVED

DESCRIPTION _____ PROJECT No. _____

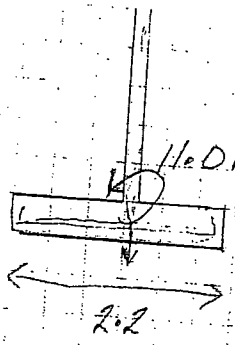
COMPUTED/PREPARED BY _____ DATE _____ 20 ____

REVIEWED/CHECKED BY _____ 20 ____

REF/DWGS _____ SHEET 3 OF ____

Check Stability

for 300 thick slab, extending 1m each side of wall



by moments about toe:

Restoring M = (15 × 1.1) + (24 × 0.3 × 2.2 × 1.1) 15.84 kN/m

= 33.9 kN-m/m

0.9M = 30.5 kN-m/m > 2 OK.

for 200mm thick base:

$M^R = 0.9 \times \{(15 \times 1.1) + (24 \times 0.2 \times 2.2 \times 1.1)\}$

= 25.3 kN-m/m

⇒ f.o.s > 2.3 - and OTM will be less than 11 kN-m/m

for 200 thick slab, reinforce to resist 11 kN-m/m

say f'_c = 20 MPa, A_s = 503 mm²/m (D16-400) 75 bottom cover

$a = \frac{503 \times 300}{85 \times 20 \times 1000} = 9\text{mm}$

d = 200 - 75 - 8 = 113

$\Rightarrow \phi M_n = 0.85 \times 503 \times 300 \left(113 - \frac{5.9}{2}\right)$

= 13.9 kN-m/m OK.

alternatively, use D12-200 ⇒ A_s = 565 mm²/m.

Wall : D16-400 Vert, centrally placed D12-400 Horiz

Slab : D12-200 E.W., 75 bottom cover

use 300 thick base to allow ends of transverse beams adequate height for hooks ⌐ ≠150 say

Fly Rafters to Garage Overhang – Overhang = 1.2m

Initially site may be Terrain Category 2 but within short time span there will be numerous units on site so will be Terrain Category 3.

NZS1170.1

Height $Z < 5m \Rightarrow M_{(z,cat)} = 0.83$ Table 4

$M_D = 1.0$ (any direction)

$M_t = 1.0$

Regional Wind Speed $V_{500} = 45 m/s$ Table 3

$V_{des} = 0.83 \times 45 = 37.4 m/s$

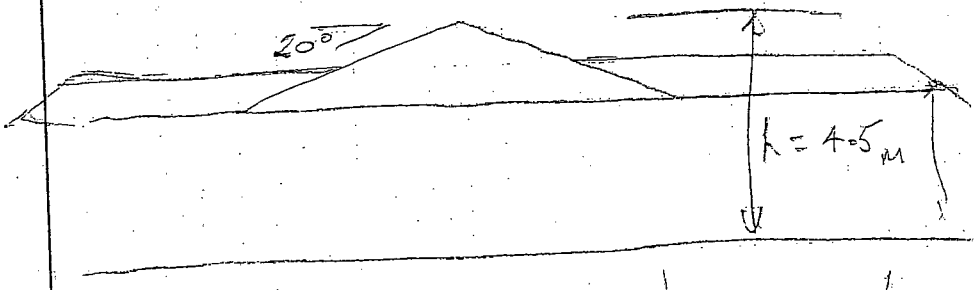
APPROVED

10/00015

Consent No.

$p = 0.5 \rho_{air} V_{des}^2 C_{pg} C_{dyn}$ $(C_{dyn} = 1.0)$

$\therefore p = 0.5 \times 1.2 \times 37.4^2 C_{pg} = 0.84 C_{pg}$ kPa.



$\frac{h}{d} = \frac{4.5}{10.3} = 0.44$

Crosswind

Table 5.3A $\Rightarrow C_{(p,e)} = -0.9, -0.4$

Upwind Table 5.3B $\Rightarrow C_{(p,e)} = -0.4, 0$ (20° pitch)

Downwind Table 5.3C $\Rightarrow C_{(p,e)} = -0.6$

Considering as a short attached Canopy – Appendix D

$h_c = 1.0$, $W_c = 1.2m$. $\max \frac{h_c}{W_c} = \frac{4.5}{1.2} = 3.75$

$\min \frac{h_c}{W_c} = \frac{2.4}{1.2} = 2.0$

Wanganui District Council
23 DEC 2009
RECEIVED

MWH

PROJECT _____ PROJECT No. _____

DESCRIPTION _____

COMPUTED/PREPARED BY RHL DATE 23/02 20 07

REVIEWED/CHECKED BY _____ DATE _____ 20 _____

REF/DWGS _____ SHEET 6 OF _____

Connection for end of rafter to truss:

Lumberlok Joist Hanger JH47x90

Characteristic load uplift 5.5kN, Down 12kN

ϕ = 0.8 for nails loaded laterally.

k_4 = 1.0

∴ Uplift capacity = 0.8 × 5.5 = 4.4kN OK

∴ Download capacity = 9.6 kN >> 1kN OK

Connection at outer support (uplift resistance)

Lumberlok Cyclone Tie

CT 300 Characteristic load = 4.0kN

× 0.8 ⇒ 3.2 kN

> 2.5kN ∴ OK

Check Rafter for temporary load - allow 1kN @ end of rafter ⇒ M^* = 1.2 kN-m

assume load shared to adjacent rafters - 25% each

⇒ only one rafter carry 50% max ⇒ 0.6 kN-m

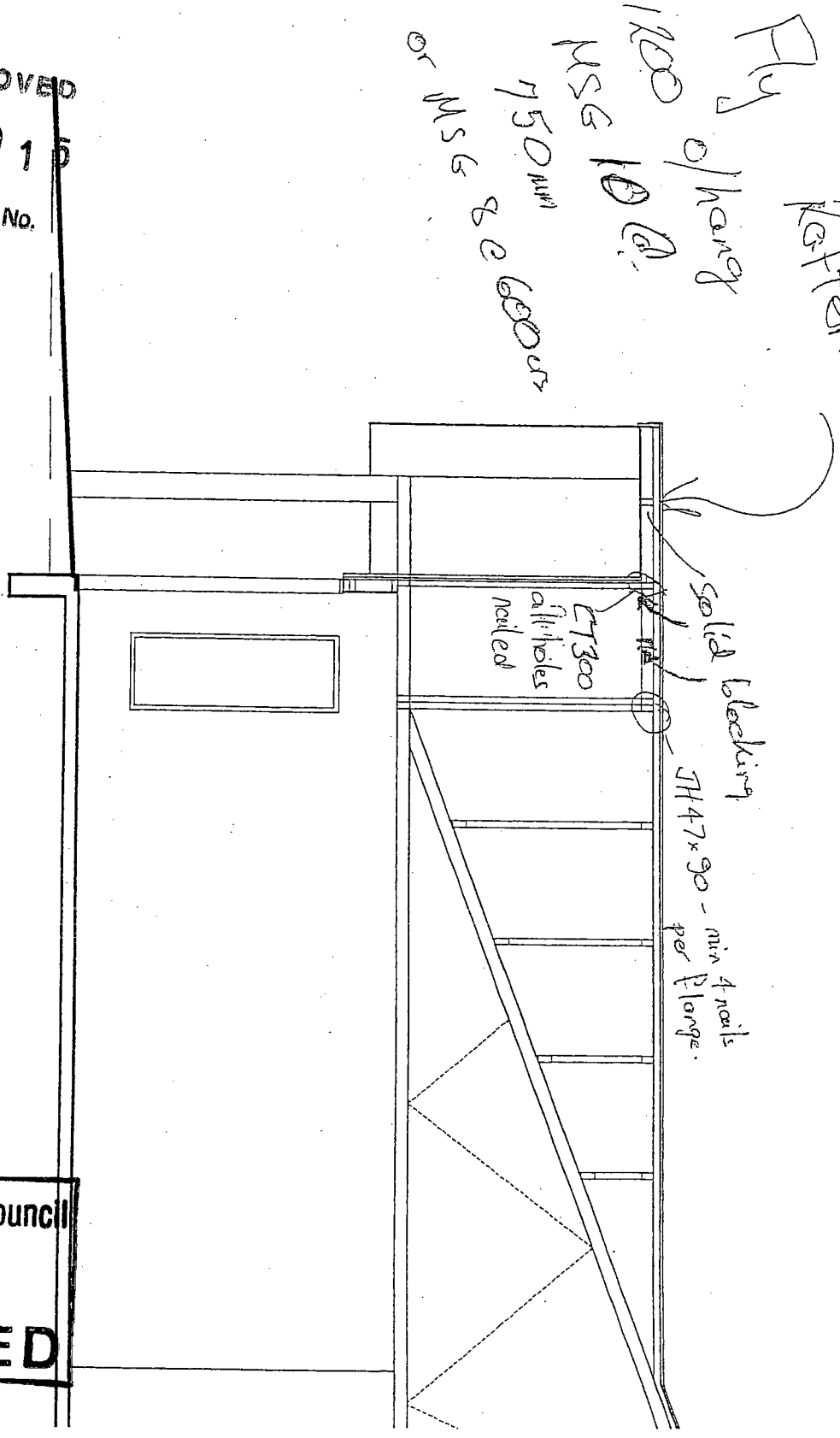
MSG 8 just adequate.

MSG 10: f_b = 20 MPa =

⇒ $\phi M_{n10} = \frac{20}{14} \times 0.68 = 0.97$ kN-m.

use MSG 10 rafters if available - @ 750 crs.

- discussed w Paul Harrison - MSG10 unlikely to be available
- use MSG 8 @ 600 crs.



P.I.M. No .....

Building Regulation Clause(s) .....

Job No. Z1519

Wanganui District Council
23 DEC 2009
RECEIVED

PRODUCER STATEMENT - PS1 - DESIGN

(Guidance notes on the use of this form are printed on the reverse side)

ISSUED BY: MWH NZ Ltd
(Suitably qualified Design Professional)

TO: McGOWAN & ASSOCIATES
(Owner)

TO BE SUPPLIED TO: WANGANUI DISTRICT COUNCIL
(Territorial Authority)

IN RESPECT OF: CAVERSHAM PARK
(Description of Building Work)

AT: CAVERSHAM RD, WANGANUI
(Address)

APPROVED
10/0015
Consent No.

LOT _____ **DP** _____ **SO** _____

MWH NZ Ltd *(Design Firm)* has been engaged by McGOWAN & ASSOCIATES *(Owner/Developer/Contractor)*

to provide Structural engineering *(Extent of Engagement)* services in respect of the requirements of Clause(s) B1 of the Building Regulations 1992 for

☐ All ☒ Part only as specified Concrete block fire wall and gable fly rafters

of the building work. The design has been prepared in accordance with AS/NZS1170.2; NZS1170.5; NZS4230; NZS3603 *(verification method(s)/acceptable solution(s))*

(respectively) of the approved documents issued by the Building Industry Authority and the work is described on McGowan & Associates *(Design Firm)* drawings titled Caversham Park - Sections

and numbered 06-148 sheet 4 and the specification and other documents according to which the building is proposed to be constructed.

As an independent design professional covered by a current policy of Professional Indemnity Insurance to a minimum value of $200,000, **I BELIEVE ON REASONABLE GROUNDS** that subject to:

(i) the site verification of the following design assumptions class B masonry construction; subsoil ultimate bearing capacity at least 300kPa

and (ii) all proprietary products meeting the performance specification requirements, the drawings, specifications, and other documents according to which the building is proposed to be constructed comply with the relevant provisions of the building code.

R P CALDER *(Signature suitably qualified Design Professional)* Date 23 March 2007

CPEng; BE; MIPENZ *(Professional Qualifications)* CPEng# 60397

PO Box 168, Wanganui *(Address)* Member ACENZ ☐

IPENZ ☒ ☐ NZIA

This form to accompany Form 3 of the Building Regulations 1992 for the application of a Building Consent.

MWH

PROJECT Lawrson Park PROJECT No. [illegible]

DESCRIPTION Concrete Block Firewall between units A+

COMPUTED/PREPARED BY _____ DATE _____ 20 _____

REVIEWED/CHECKED BY _____ DATE _____ 20 _____

REF/DWGS _____ SHEET 1 OF _____

Block wall, 2.4m high with fire-rated timber wall in roof space above

Consider wind and earthquake loads on house resisted by timber framed bracing walls.

Design block wall to resist earthquake effects from self-weight and firewall above + 10m wide roof area

APPROVED

10/0015

Consent No.

light roof - say 0.3 kPa x 10m = 3 kN/m

Timber wall + Fyreline both sides - say 0.35 kPa x 1.4 weight = 0.5 kN/m

Block wall, say 24 kN/m³ x 0.2 x 2.4 ⇒ 11.5 kN/m

roof + timber wall EQ load will be applied @ top of block wall = 0.8 kN/m

block wall EQ load will be applied @ 4/2 ≡ 1.2m above F.L.

For EQ coefficients :- treat wall as elastically responding ($\mu = 1.0$)

NZS 1170 Table 3.1

Subsoil Class C ⇒ $C_1(T) = 2.36$

Hazard Factor $Z = 0.25$

Table 3.3

For annual probability of exceedance of $\frac{1}{500}$ ⇒ $R_u = 1.0$

Table 3.5

$N(T,D) = 1.0$

cl. 3.1.6

$\therefore C_1(T) = 2.36 \times 0.25 \times 1 \times 1 = 0.59$

$S_p = 1.0$ for elastic structure

NZS 4203 Table 3.2

$$\therefore C_d = \frac{C(T_1) S_p}{k_\mu} = \frac{0.59 \times 1}{1} = 0.59$$

Seismic force on wall $V = C_d W_t$

$V_1 = 0.59 \times 0.5 \equiv 0.3$ kN/m @ top of wall

$V_2 = 0.59 \times 11.5 \equiv 6.8$ kN/m @ 1.6 above FL.

Hauraki District Council

23 DEC 2009

RECEIVED

∴ at base of wall $M_w^* = (0.3 \times 2.4) + (6.8 \times 1.2)$

$= 8.9$ kN-m/m

say 300 thick base slab, OTM $= (0.3 \times 2.7) + (6.8 \times 1.5)$

$= 11.0$ kN-m/m

Wall Design - Ref NZS 4230 : 2004

~~Design compressive strength, assume class C : $f'_m = 4$ MPa~~ Revised be

$\phi = 0.85$

For D16-400, $A_s = 503$ mm²/m, $f_y = 300$ MPa

$$a = \frac{A_s f_y}{.85 f'_m b} = \frac{503 \times 300}{.85 \times \frac{4}{12} \times 1000} = \frac{44}{15.} \text{ mm}$$

Say 16mm

for bars central in cells, take $d = 85$ mm $(+/- 10$ mm$)$

$\therefore \phi M_n = 0.85 \times 503 \times 300 \times (85 - \frac{16}{2})$ N-mm

$= 8.1$ kN-m/m

If use class B masonry $\Rightarrow f'_m = 12$ MPa $\Rightarrow a = 16$ mm ← Revision

and $\phi M_n = 9.9$ kN-m/m OK

Minimum horiz reinf $A_{sh} = 0.0014 \times 1000 \times 200 = 280$ mm²/m

D12-400 $\equiv A_s = 283$ mm²/m.

If use class C masonry, try D20-400 Vert $\Rightarrow A_s = 785$ mm²/m

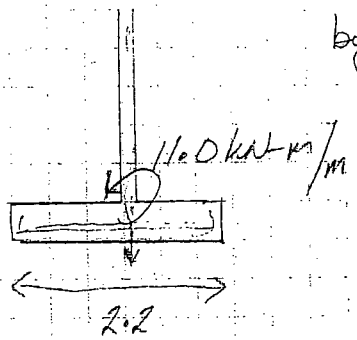
$\Rightarrow a = \frac{785}{503} \times 44 = 68$ mm

$\Rightarrow \phi M_n = 0.85 \times 785 \times 300 (85 - \frac{68}{2})$

$= 10.2$ kN-m/m OK

Check Stability

for 300 thick slab, extending 1m each side of wall



by moments about toe:

Restoring M = (15×1.1) + (24×0.3×2.2×1 15.8 kN/m

= 33.9 kN-m/m

0.9M = 30.5 kN-m/m

⇒ f.o.s > 2 OK

for 200mm thick base:

$M^R = 0.9 \times \{(15 \times 1.1) + (24 \times 0.2 \times 2.2 \times 1.1)\}$

= 25.3 kN-m/m

⇒ f.o.s > 2.3 – and OTM will be less than 11 kN-m/m.

for 200 thick slab, reinforce to resist 11 kN-m/m

say f'_c = 20 MPa, A_s = 503 mm²/m (D16-400) 75 bottom cover

$a = \frac{503 \times 300}{0.85 \times 20 \times 1000} = 9$ mm

d = 200 − 75 − 8 = 113

$\Rightarrow \phi M_n = 0.85 \times 503 \times 300 \left(113 - \frac{5.9}{2}\right)$

= 13.9 kN-m/m OK.

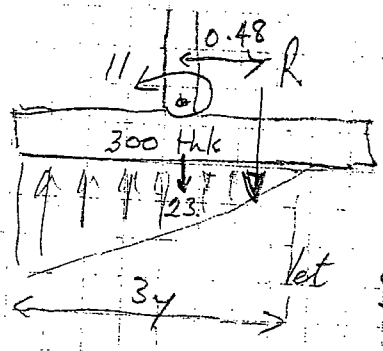
alternatively, use D12-200 ⇒ A_s = 565 mm²/m.

Wall : D16-400 Vert; D12-400 Horiz centrally placed

Slab : D12-200 E.W., 75 bottom cover.

use 300 thick base to allow ends of transverse beams adequate height for hooks ⌐ ≠ 150 say ¬

Check bearing pressure on subsoil - For 300 thick base



$e = \frac{M}{R} = \frac{11\ kN.m}{30.8} = 0.36\ m$

$L/3 = \frac{2.2}{3} = 0.7m$

ie R just outside middle 1/3

$y = \frac{L}{2} - e = 1.1 - 0.36$

$= 0.74m$

max edge pressure $p = \frac{2R}{3 \cdot B \cdot y}$

$= \frac{2 \times 30.8\ kN}{3 \cdot 1m \cdot 0.74m}$

$= 28\ kPa$

OK - subsoil will be at least 100 kPa

MWH

PROJECT _____ PROJECT No. _____

DESCRIPTION _____

COMPUTED/PREPARED BY _____ DATE _____ 20 _____

REVIEWED/CHECKED BY _____ DATE _____ 20 _____

REF/DWGS _____ SHEET 4 OF _____

Fly Rafters to Garage Overhang – Overhang = 1.2m

Initially site may be Terrain Category 2 but within short time span there will be numerous units on site so will be Terrain Category 3.

NZS 1170.2

Height $Z < 5m \Rightarrow M_{(z,cat)} = 0.83$ Table 4.1

$M_D = 1.0$ (any direction)

$M_t = 1.0$,

Regional Wind Speed $V_{500} = 45 m/s$ Table 3.1

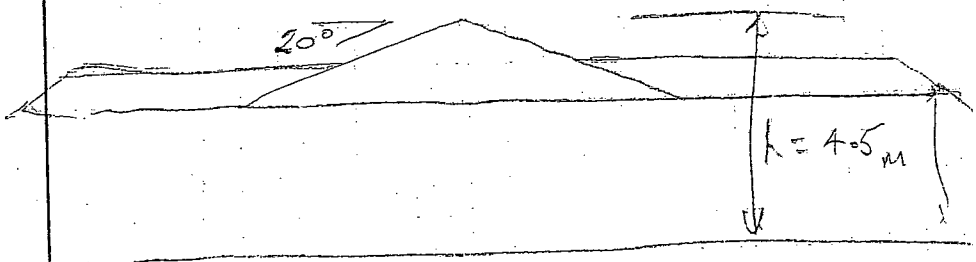
$V_{des} = 0.83 \times 45 = 37.4 m/s$

APPROVED $p = 0.5 \rho_{air} V_{des}^2 C_{fig} C_{dyn}$ $(C_{dyn} = 1.0)$

10/0015

Consent No.

$\therefore p = 0.5 \times 1.2 \times 37.4^2 C_{fig} = 0.84 C_{fig}$ kPa.



$d = 10.3m$ $\quad \frac{h}{d} = \frac{4.5}{10.3} = 0.44$

Crosswind

Table 5.3A $\Rightarrow C_{(p.e.)} = -0.9, -0.4$

Upwind Table 5.3B $\Rightarrow C_{(p.e.)} = -0.4, 0$ (20° pitch)

Downwind Table 5.3C $\Rightarrow C_{(p.e.)} = -0.6$

Considering as a short attached canopy – Appendix D

$\ldots 0$, $W_c = 1.2m$. $\max \frac{h_c}{W_c} = \frac{4.5}{1.2} = 3.75$

$\min h_c/W_c = \frac{2.4}{1.2} = 2.0$

Tasman District Council

23 DEC 2009

RECEIVED

MWH

PROJECT _____ PROJECT No. _____

DESCRIPTION _____

COMPUTED/PREPARED BY _____ DATE _____

REVIEWED/CHECKED BY _____ DATE _____ 20

REF/DWGS _____ SHEET _____ OF

Table D8

$C_{(p,n)} = 0.2, [-0.3 - 0.6(h_c/w)]$ or -1.5 whichever lower.

$\Rightarrow -0.3 - 0.6 \times 3.75 = -2.55$

$-0.3 - 0.6 \times 2.0 = -1.5$

i.e. use $C_{p,n} = 0.2, -1.5$.

∴ Maximum wind pressure on overhang is uplift

$P_{max} = -0.84 \times 1.5 = -1.26$ kPa.

for rafters @ 1m spacing, $W = 1.2 \times 1.26 = 1.51$ kN

∴ $M^* = 0.6 \times 1.51 = 0.91$ kN-m

For MSG 8 timber $f_b = 14.0$ MPa

$Z_{xx} = \frac{45 \times 90^2}{6} = 60.75 \times 10^3$ mm^3

$\phi = 0.8$, $k_1 = 1.0$ for Wind

$k_8 = 1.0$ for solid blocking between rafters at ends & midspan

∴ $\phi M_n = 0.8 \times 1 \times 1 \times 14 \times 60.75 \times 10^3$ N-mm

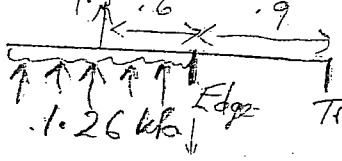
$= 0.68$ kN-m

APPROVED
10/0015
Consent No.

Max. spacing for MSG 8 timber $= \frac{0.68}{0.91} \times 1 = 0.75$m

i.e. could use MSG 8 rafters @ 750 spacing

check reaction @ supports.



By moments about Truss

$F = \frac{-1.5kN \times 1.5m}{0.9m} = -2.5$ kN

∴ Reaction @ Truss = 1 kN ↑

MWH

PROJECT

DESCRIPTION

COMPUTED/PREPARED BY RPC DATE 23/02 20 07

REVIEWED/CHECKED BY DATE 20

REF/DWGS SHEET 6 OF

Connection for end of rafter to truss:

Lumberlok Joist Hanger JH47x90

Characteristic load uplift 5.5kN, Down 12kN

$\phi = 0.8$ for nails loaded laterally.

$k_1 = 1.0$

∴ Uplift capacity = $0.8 \times 5.5 = 4.4$ kN OK

∴ Download capacity = 9.6 kN >> 1kN OK

Connection at outer support (Uplift resistance)

Lumberlok Cyclone Tie

Characteristic load = 4.0kN

$\times 0.8 \Rightarrow 3.2$ kN

> 2.5kN ∴ OK

Check Rafter for temporary load - allow 1kN @ end of rafter $\Rightarrow M^* = 1.2$ kN-m

assume load shared to adjacent rafters - 25% each

$\Rightarrow$ any one rafter carry 50% max $\Rightarrow 0.6$ kN-m

MSG 8 just adequate.

MSG 10: $f_b = 20$ MPa =

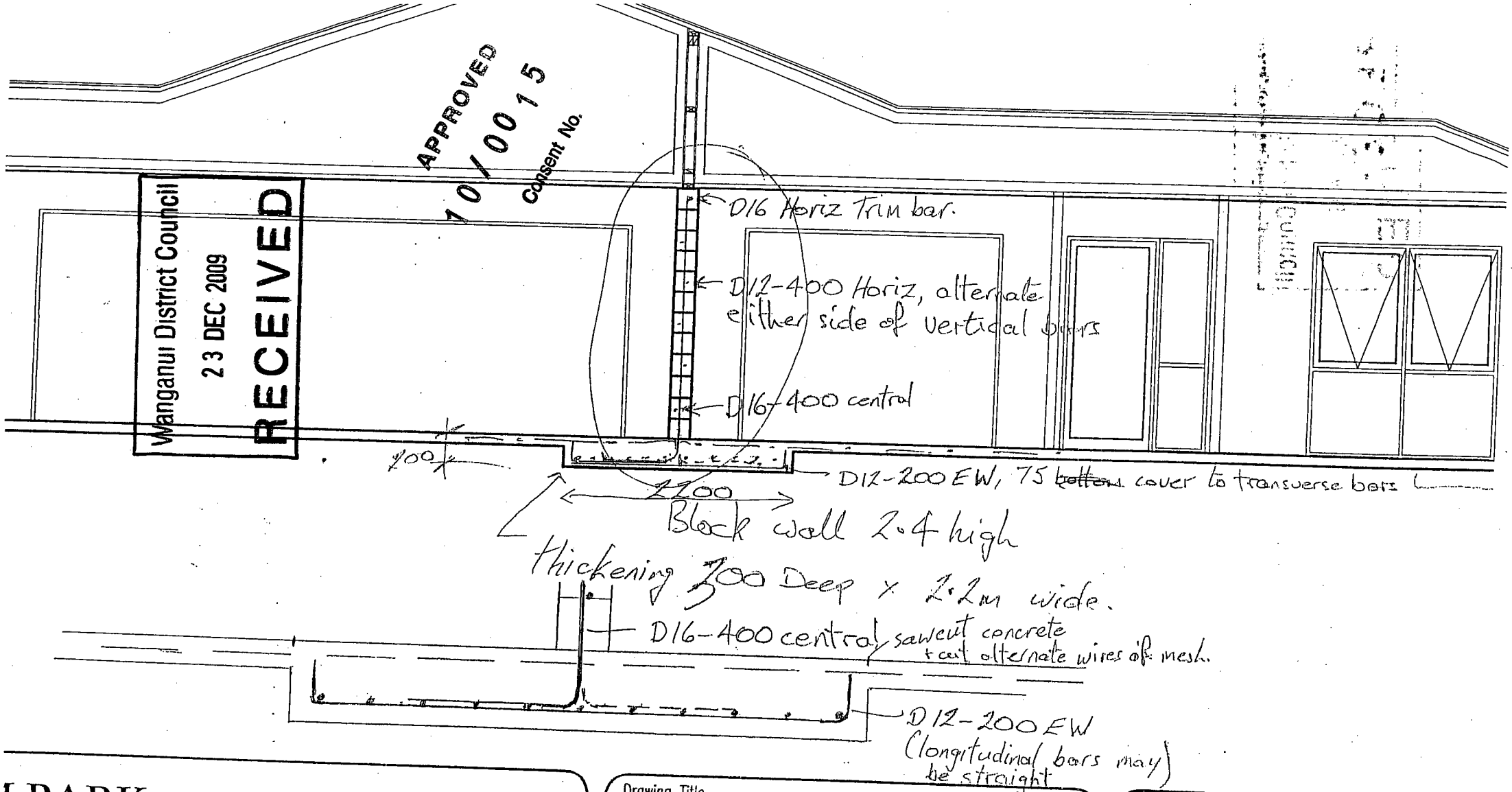
$\Rightarrow \phi M_{n10} = \frac{20}{14} \times 0.68 = 0.97$ kN-m.

use MSG 10 rafters if available - @ 750 crs.

discussed w Paul Harrison - MSG10 unlikely to be available - use MSG 8 @ 600 crs.

APPROVED
10/00155
Consent No.

Waimakariri District Council
23 DEC 2009
RECEIVED



I PARK

[RD - WANGANUI

Drawing Title

SECTIONS

Scale

1 : 50

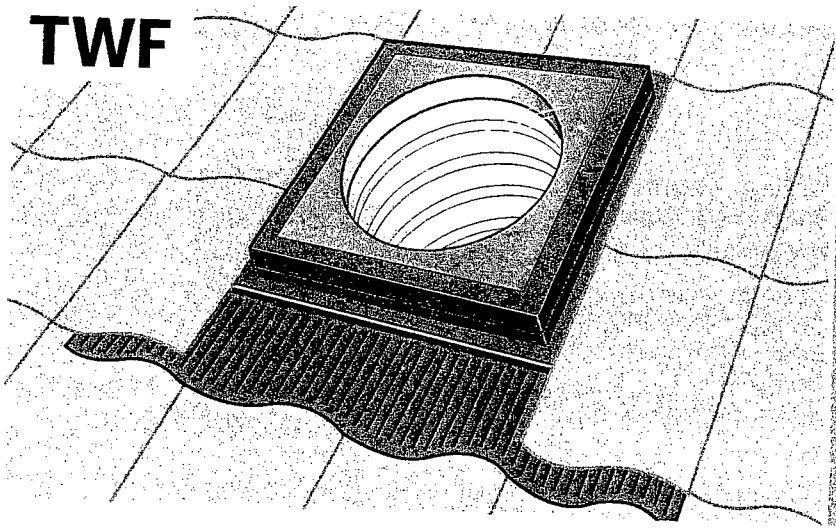
McGowan
Architectural Designers
PROJECT MANAGERS
ARBITRATORS
18A Bell Street Wanganui New Zealand
Phone (06) 349-6155 Fax (06) 345-8898

Re
Re
Iss
Iss
Iss

Fly Rafters
1200 o/hang
MSG 10 @
750 mm
or MSG 8 @ 600 crs

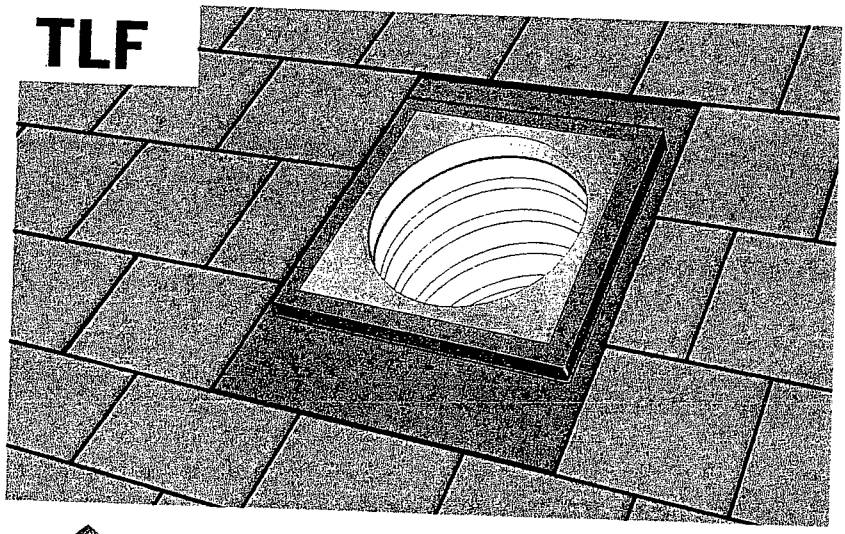
VELUX®

TWF



Pages 2-9

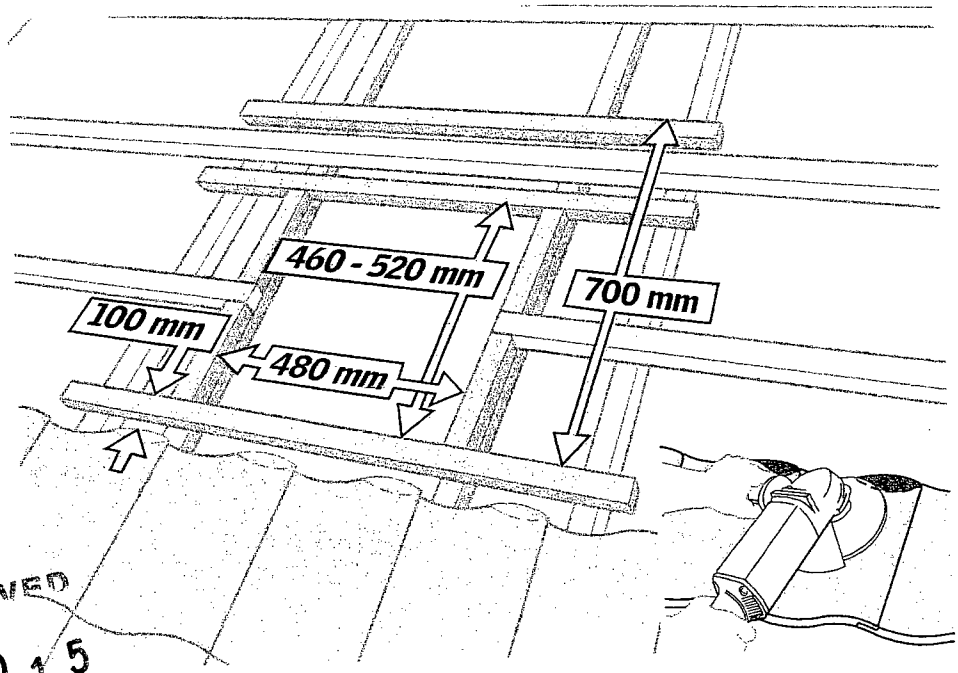
TLF

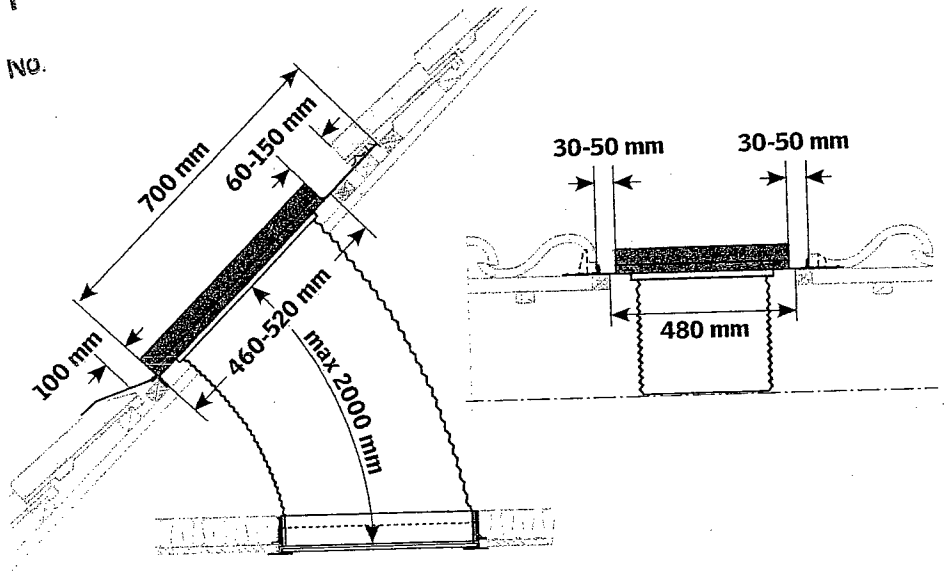


Pages 10-23

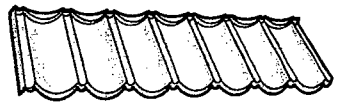
15°-60°

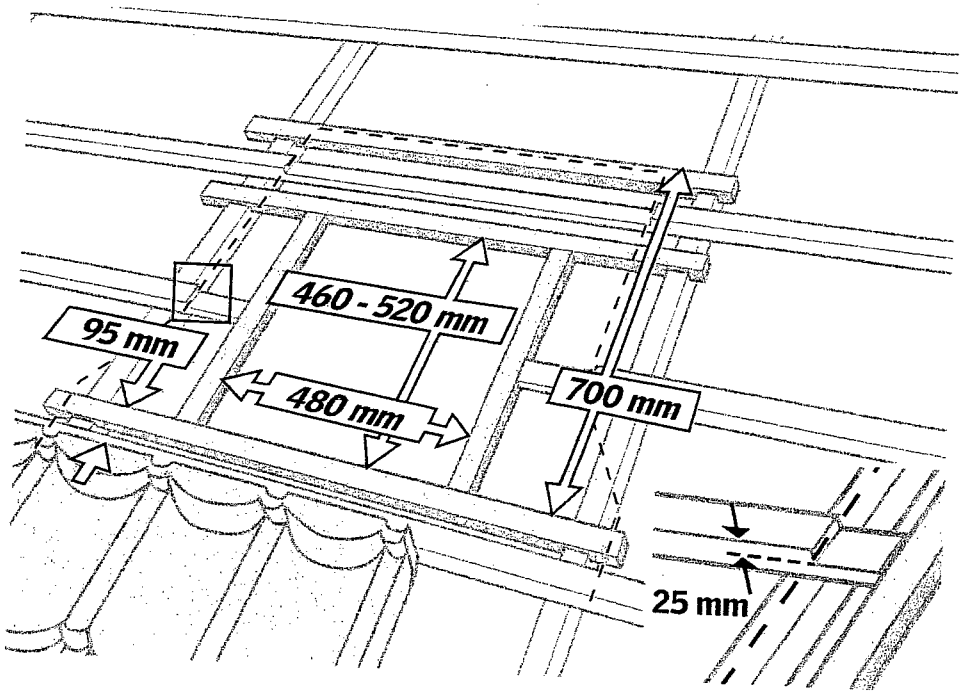
1a

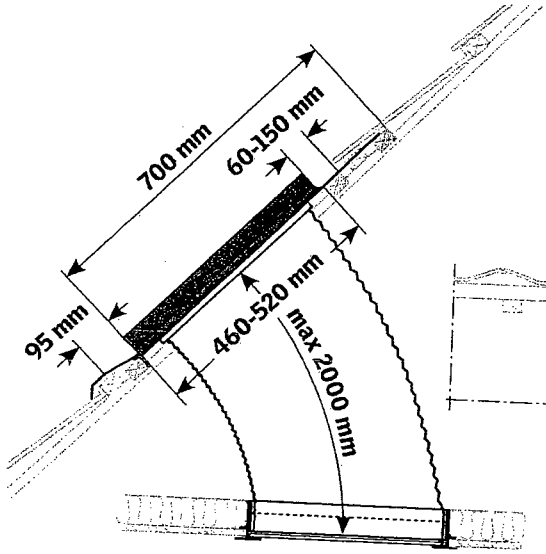


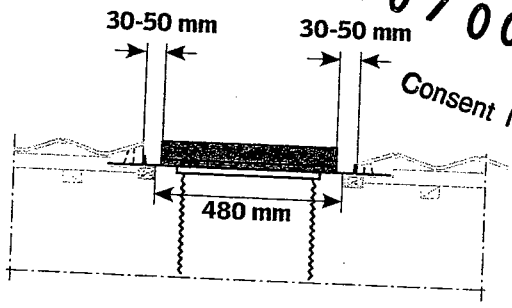


1b

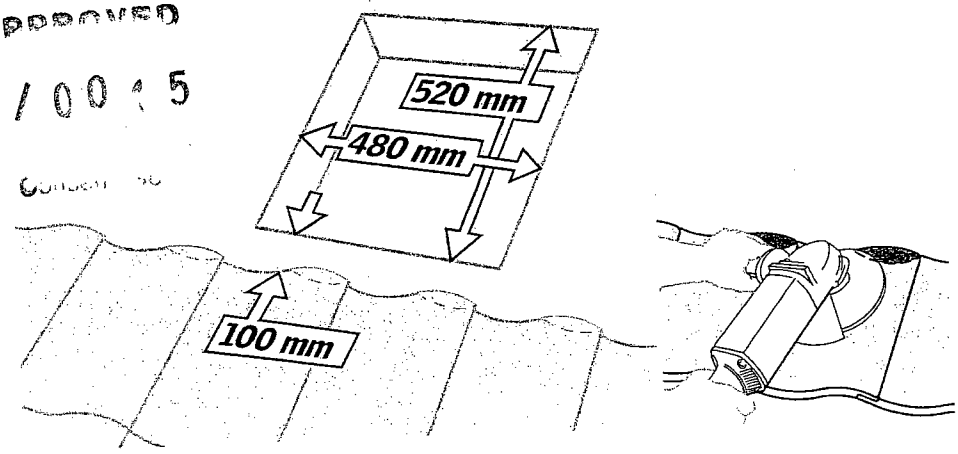


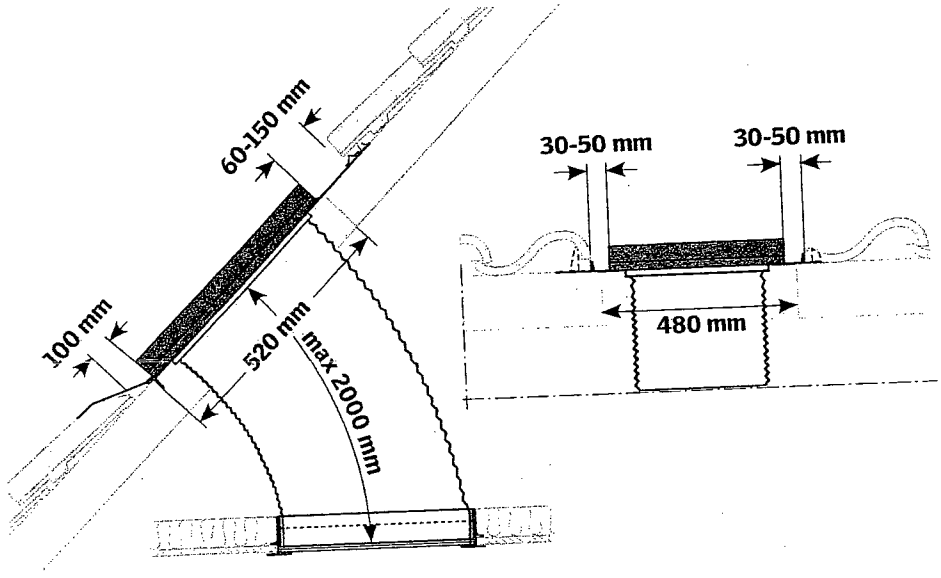


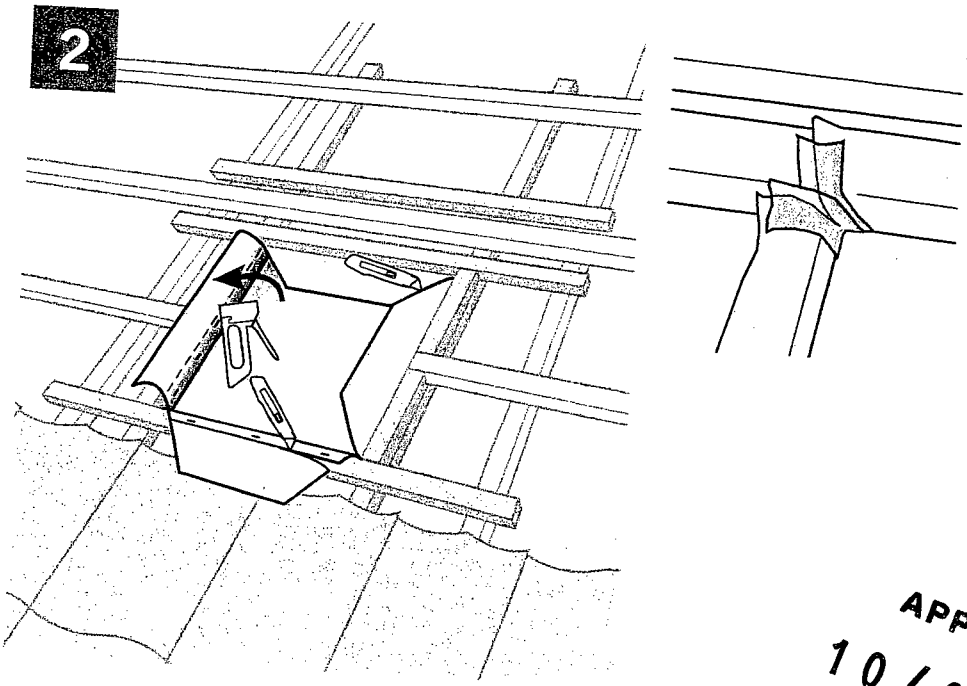


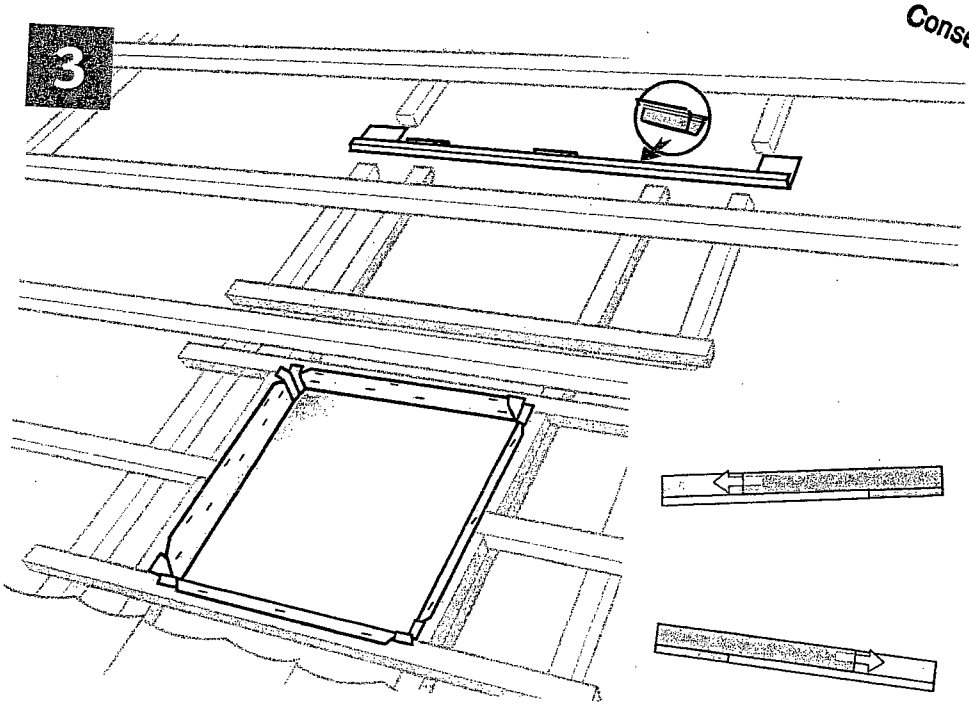


1c

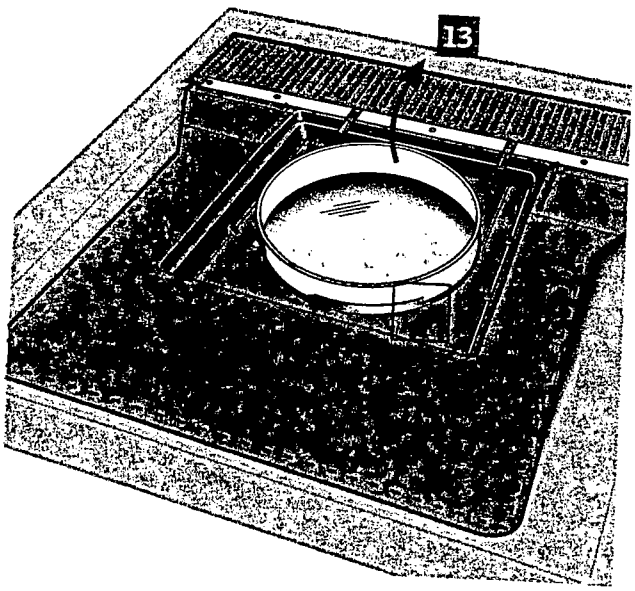


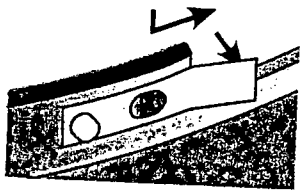




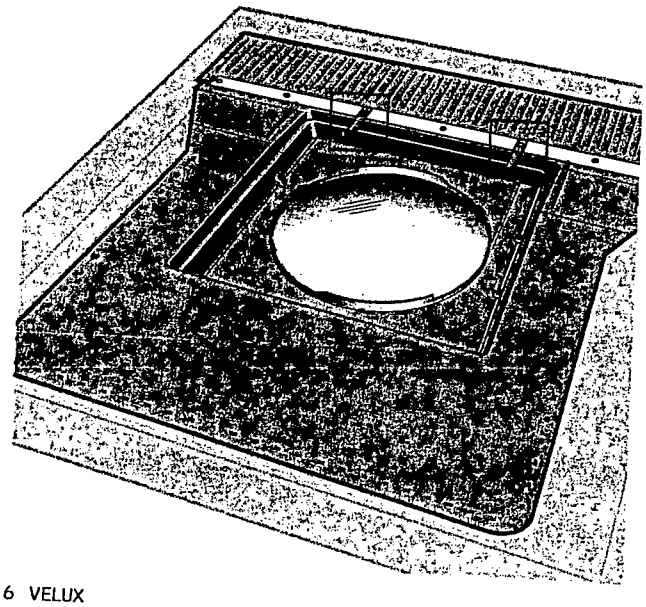


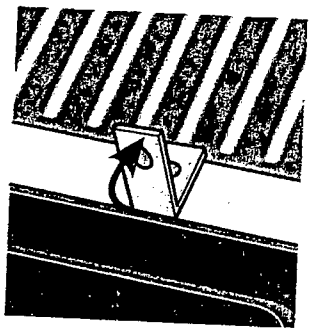
4



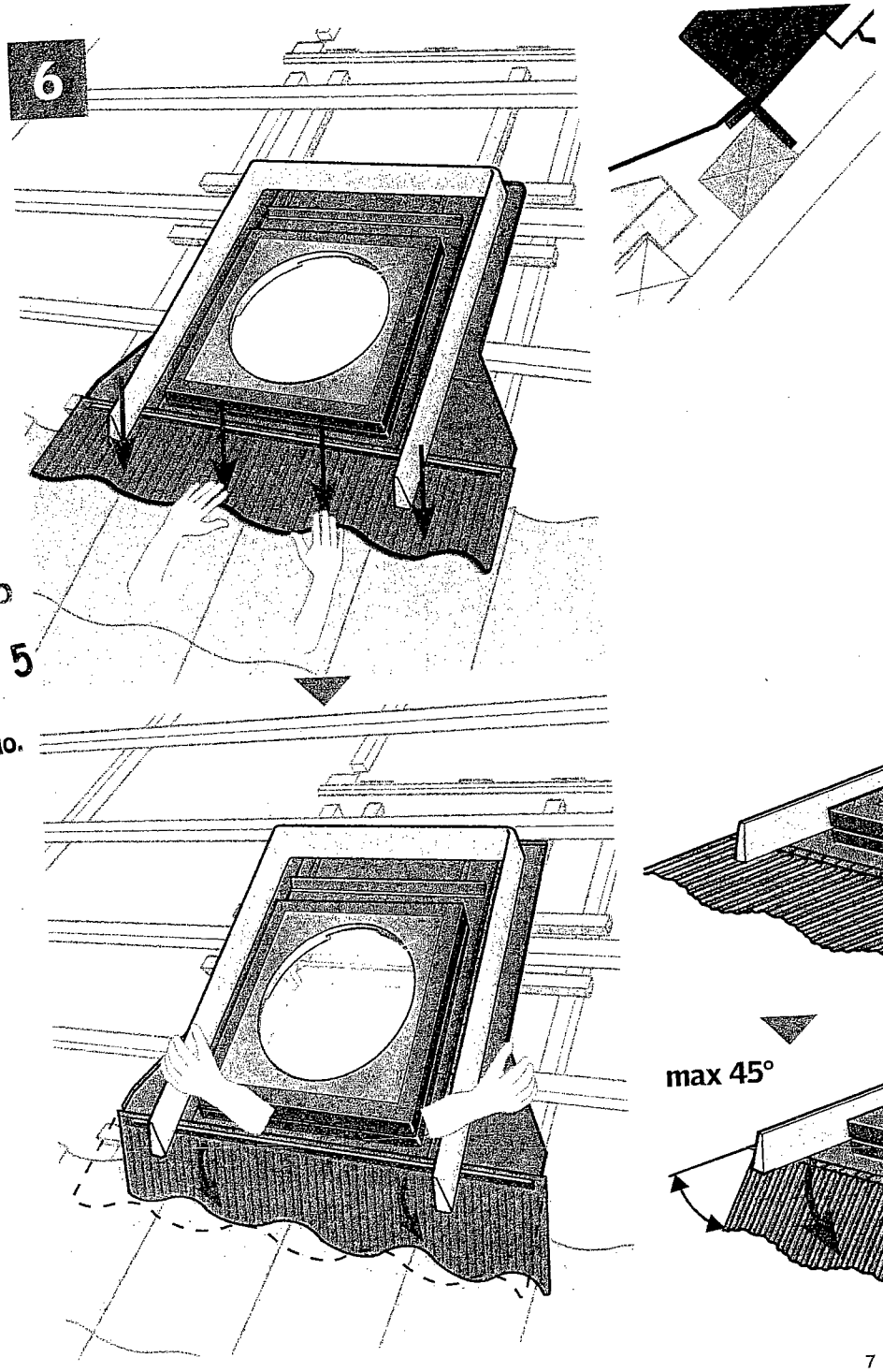


5

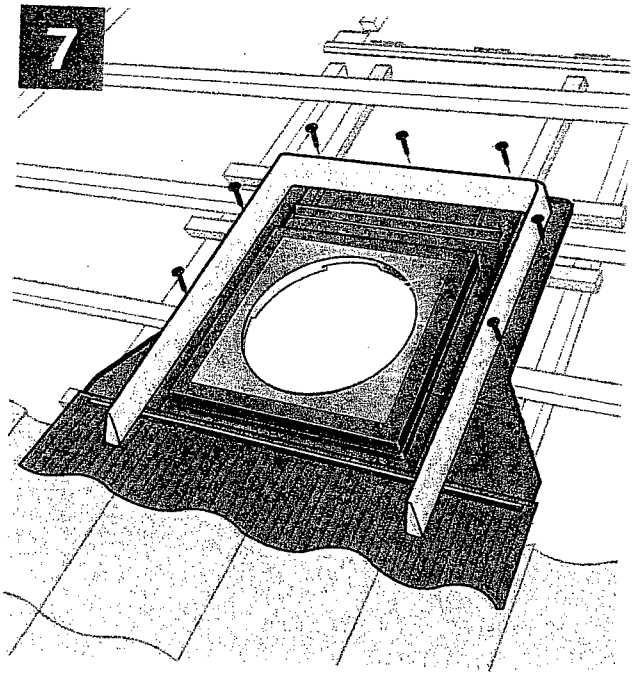


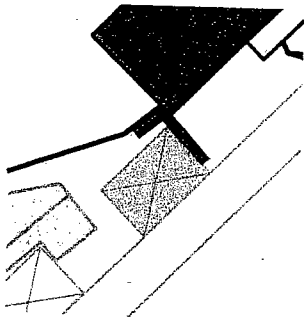


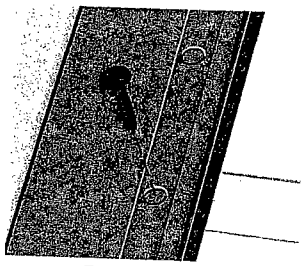
6

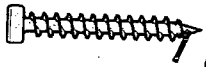


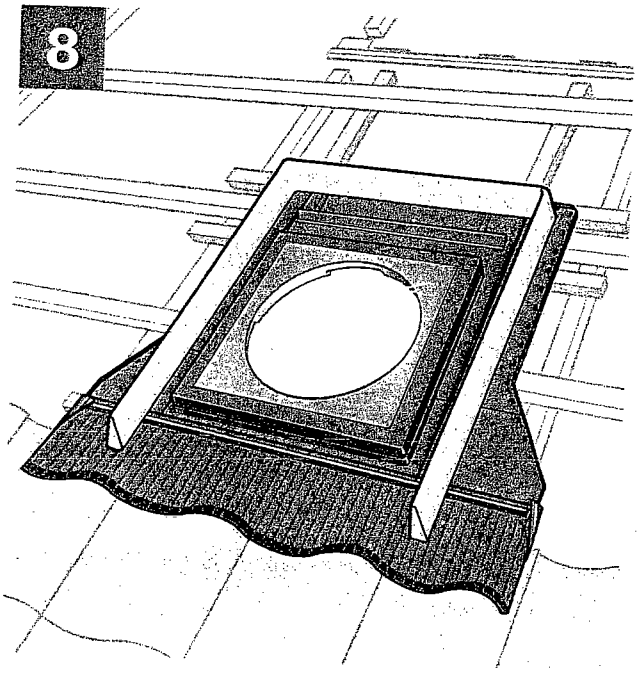
max 45°

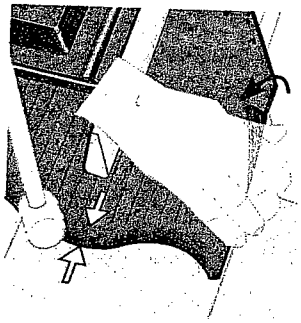




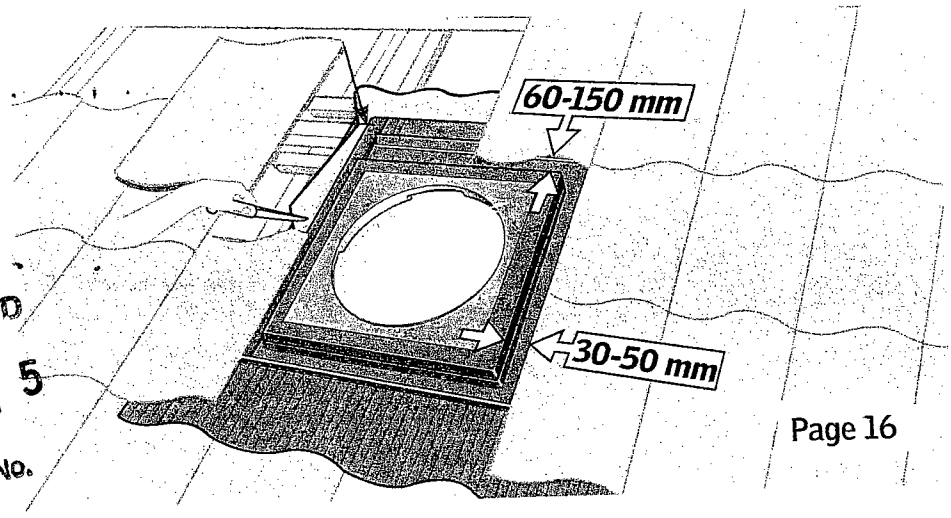


7 x 



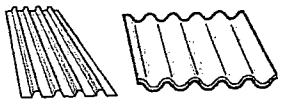


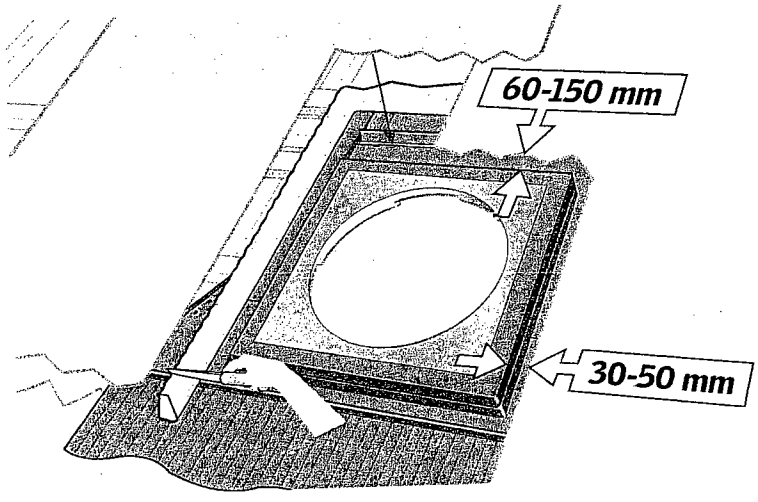
9a



Page 16

9b





Page 16

BRANZ APPRAISAL CERTIFICATE (No. 376 (2006))

EPS CAVITY PLUS RENDER SYSTEM

Polystyrene Research Ltd

BRANZ

WETAQ

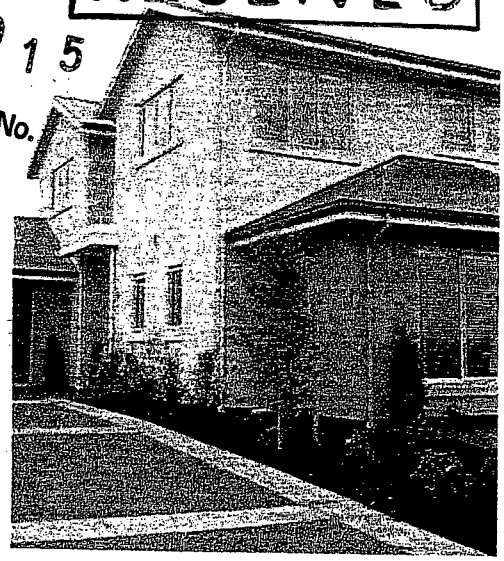
Product

1.1 The EPS Cavity Plus Render System is a cavity-based Exterior Insula and Finishing (EIFS) wall cladding. It is designed to be used as an exte cladding system for residential and light commercial type buildings where dome construction techniques are used.

1.2 The system consists of 40 or 60 mm thick polystyrene sheets fixed c polystyrene or timber battens to form the cavity. The coating system consist minimum 5 mm thickness of fibreglass mesh reinforced polymer-modified plas and high-build, tintable finishing plasters applied to polystyrene sheets. The pla is finished with a tintable protective finishing coat. The plaster can be applie give different texture appearances.

1.3 The system incorporates a primary and secondary means of weat resistance (first and second line of defence) against water penetration by separat the cladding from the external wall framing with a nominal 20 mm cavity.

Wanganui District Council
23 DEC 2009
RECEIVED
APPROVED
10/0015
Consent No.



Scope

2.1 The EPS Cavity Plus Render System has been appraised as an exter wall cladding system for buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1. and,
- constructed with timber framing complying with the NZBC; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptat Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Building Wind Zones up to, and including 'Very High'.

2.2 The EPS Cavity Plus Render System has also been appraised as an exter wall cladding system for steel framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, with regards building height and floor plan area; and,
- constructed with steel framing complying with the NZBC; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptat Solution E2/AS1, Table 2; and
- situated in NZS 3604 Building Wind Zones up to, and including 'Very High'.

2.3 The EPS Cavity Plus Render System must only be installed to vertic surfaces (except for tops of parapets, sills and balustrades, which must ha a minimum 15 slope and be waterproofed in accordance with the Technic Literature).

2.4 The system is appraised for use with aluminium window and door joine

that is installed with vertical jambs and horizontal heads and sills. (The Appraisal of the EPS Cavity Plus Render System relies on the joinery meeting the requirements of NZS 4211 for the relevant Building Wind Zone.)

2.5 Installation of components and accessories supplied by Rockcote Resene Ltd and registered applicators must be carried out only by Rockcote registered applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, the EPS Cavity Plus Render System if designed, used, installed and maintained in accordance with the statements and conditions of this Certificate, will meet the following provisions of the NZBC:**

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. The EPS Cavity Plus Render System meets the requirements for loads arising from self-weight, earthquake, wind, impact and creep, [i.e. B1.3.3 (a), (f), (h), (j) and (q)]. See Paragraphs 10.1 – 10.4.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years and B2.3.1 (c), 5 years. The EPS Cavity Plus Render System meets these requirements. See Paragraph 11.1 and 11.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The EPS Cavity Plus Render System meets this requirement. See Paragraphs 16.1 – 16.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The EPS Cavity Plus Render System meets this requirement and will not present a health hazard to people.

3.2 This Certificate appraises an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 System components and accessories supplied by Rockcote Resene Ltd are as follows:

Polystyrene

- Cavity battens are manufactured from high density (Class H) expanded polystyrene (EPS) with an approximate density of 24 kg/m³. The battens are 40 mm wide by 22 mm thick and are supplied in 2400 mm lengths.
- EPS sheets are 40 or 60 mm thick Class S or H with a nominal density of 16 or 24 kg/m³ respectively. The sheets are supplied in lengths of 2400, 2700, 3600 and 4800 mm x 1200 mm wide and are manufactured to meet the requirements of AS 1366.3.
- Extruded polystyrene (XPS) sheets are 40 mm thick with a nominal density of 30 kg/m3. The sheets are 2400 x 600 mm with tongue and groove edges and are manufactured to meet the requirements of AS 1366.4.

Plasters

- Rockcote PM100 Quick Render is a dry mix, cement-based, polymer-modified plaster supplied in 25 kg bags and mixed on site with clean water. It is used as a base coat for bonding and bedding the fibreglass mesh and is trowel-applied to an approximate thickness of 4-5 mm.
- Rockcote Textures are ready mixed, tintable, mineral-filled, polymer-based, high-build finishing plasters with pail and dry film preservatives, supplied in 15 litre pails. They are spray or trowel applied to an approximate thickness of 1.0, 2.0 or 3.0 mm. The selected Rockcote Texture colour must have a minimum light refle value (LRV) of 40%.

Primer, Plaster Modifier and Finishes

- Rockcote Render Prime is a water-borne acrylic, p dispersion, tintable coating supplied in 15 litre pails brush or roller-applied as a primer between the Ro Quick Render base and Rockcote Textures.
- Multistop bedding compound – used as a uPVC when mixed with diluted Acrylbond resin or water.
- Rockcote Acrylbond is a water-based co-p resin supplied in 4 and 15 litre pails used as a modifier.
- Rockcote Premium Armour is a water-borne acrylic standard and elastomeric protective finish for us Rockcote Textures. It is supplied in 4 and 15 litr and is brush or roller applied. The protective finis must have a minimum LRV of 40%.
- Resene X200 is an acrylic waterproofing membr use as a protective finish over Rockcote Textures supplied in 4 and 10 litre pails and is brush, ro spray applied. The protective finish coat must minimum LRV of 40%.

(Note: Rockcote Resene Ltd allows the use of Ro Textures, Rockcote Premium Armour and Resene colours with a minimum LRV of 25%. This the scope of this Certificate and approval for its use specific design.)

Accessories

- Reinforcing mesh – an alkali-resistant fibreglass nominal mesh size of approximately 5.0 x 4.0 m an approximate weight of 160 g/m².
- Rockcote Sticky Mesh – alkali-resistant fibreglas mm wide corner pieces.
- uPVC components – sill and jamb flashings, head fl control joint, starter strips, sill/jamb corner soak jamb/head corner soakers.
- Flashman sill flashing system – extruded 60 aluminium alloy sill profile and end caps for conjunction with the EPS Cavity Plus Render The sill profile and end caps are available with e powder coated or anodised finish.
- Rockcote washers – 40 mm diameter, nylon.

4.2 Accessories used with the system wh supplied by the Rockcote Resene Ltd registered app are:

- Cavity batten fixings – 30 or 40 x 2.5 mm galvanised steel flat head nails to timber fra construction adhesive for temporary fixing to b wrap fixed over timber and steel frame.
- uPVC component fixings – 30 x 2.5 mm galvanised steel flat head nails to timber frame 3566 Corrosion Class 3, 20 mm screws to steel
- Polystyrene sheet fixings (timber frame) – 90 x 3 (for 40 mm EPS and XPS) and 110 x 3.55 mm mm EPS) hot-dip galvanised steel flat-head nails v mm diameter washers. (Note: Hot-dip galvanisi comply with AS/NZS 4680.)
- Polystyrene sheet fixings (steel frame) – 8-guag mm (for 40 mm EPS and XPS) and 8-guage x 1 (for 60 mm EPS) self-drilling AS 3566 Corrosion or 4 screws in NZS 3604 defined Corrosion Zone 3 and 4 and Grade 304 stainless steel screws in spray zone, with 40 mm diameter Rockcote was
- Waterproof membrane tapes – tapes covered by BRANZ Appraisal Certificate for use as wa membranes over the tops of plastered balustrade blocks and the like.

- Flexible sealant – Silaflex MS, or sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal Certificate for use as a weather sealing sealant for exterior use.

4.3 Accessories used with the system which are supplied by the building contractor are:

- Building wrap – paper or wrap complying with NZBC Acceptable Solution E2/AS1, Table 23, or breather-type building membranes covered by a valid BRANZ Appraisal Certificate for use as wall wraps.
- Building wrap support – polypropylene strap for securing the building wrap in place and to prevent bulging of the bulk insulation into the drainage cavity where cavity battens are installed at greater than 450 mm centres. (Note: additional battens may also be installed to provide support.)
- Flexible sill and jamb tapes – flexible flashing tapes complying with NZBC Acceptable Solution E2/AS1, Paragraph 4.3.11, or flexible flashing tapes covered by a valid BRANZ Appraisal Certificate for use around window and door joinery.
- Joinery head flashings – as supplied by the joinery manufacturer or contractor.
- Window and door trim cavity air seal – air seals complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6, or self expanding, moisture cure polyurethane foam air seals covered by a valid BRANZ Appraisal Certificate for use around window, door and other wall penetration openings.

Handling and Storage

5.1 Handling and storage of all materials supplied by Rockcote Resene Ltd or their registered applicators, whether on or off site is under the control of Rockcote System's registered applicators. Dry storage must be provided for the fibreglass mesh and bags and pails of plaster mix. Polystyrene sheets and battens, uPVC flashings and profiles must be protected from direct sunlight and physical damage, and should be stored flat and under cover.

5.2 Handling and storage of all materials supplied by the building contractor, whether on or off the site is under the control of the building contractor. Materials must be handled and stored in accordance with the relevant manufacturer's instructions.

5.3 Bags and pails of plaster mix must be used within the designated shelf life from the date of manufacture.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the EPS Cavity Plus Render System. The Technical Literature must be read in conjunction with this Certificate. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Certificate must be followed.

Design Information

Framing

Timber Treatment

7.1 Timber wall framing behind the EPS Cavity Plus Render System must be treated as required by NZS 3602.

Timber Framing

7.2 Timber framing must comply with NZS 3604 buildings or parts of buildings within the scope limitatior NZS 3604. Buildings or parts of buildings outside the sc of NZS 3604 must be to a specific design in accordance v NZS 3603 and NZS 4203. Where specific design is requi the framing must be of at least equivalent stiffness to framing provisions of NZS 3604. In all cases studs mus at maximum 600 mm centres. Dwangs must be fitted fl between the studs at maximum 800 mm centres.

7.3 Timber framing must have a maximum mois content of 24% at the time of the cladding installation. *polystyrene sheets are fixed to framing with a moist content of greater than 24% problems may occur at a l date due to excessive shrinkage.)*

Steel Framing

7.4 Steel framing must be to a specific design meet the requirements of the NZBC.

7.5 The minimum framing specification is 'C' sect studs and nogs of overall section size of 75 mm web and mm flange. Steel thickness must be minimum 0.55 mm

7.6 Studs must be at maximum 600 mm centres, v nogs flush fitted between at maximum 800 mm centres.

Polystyrene Sheets, Battens and Spacers

7.7 All polystyrene vertical sheet edges must supported and fixed through the cavity battens to frami Horizontal sheet edges must be supported at fixing locati with cavity spacers 100 mm long maximum in accorda with the requirements of NZBC Acceptable Solution E2/A Paragraph 9.1.8.2 (f). At the base of the wall sheets m hang 50 mm below the supporting framing.

7.8 Additional battens and framing will be required soffits and at internal and external corners for the supp and fixing of sheet edges.

General

8.1 Holes in the base strip provide a ventilation open area of 1000 mm² per linear metre of wall in accorda with the requirements of NZBC Acceptable Solution E2/A Paragraph 9.1.8.3 (b).

8.2 The ground clearance to finished floor levels as out in NZS 3604 must be adhered to at all times. At grou level paved surfaces, such as footpaths, must be kept cl of the bottom edge of the cladding system by a minimum 100 mm, and unpaved surfaces by 175 mm in accorda with the requirements of NZBC Acceptable Solution E2/A Table 18.

8.3 At balcony, deck or roof/wall junctions, the bott edge of the cladding system must be kept clear of a adjacent surface, or above the top surface of any adjac of flashing by a minimum of 35 mm in accordance w the requirements of NZBC Acceptable Solution E2/A Paragraph 9.1.3.6.

8.4 All buildings must have barriers to airflow in t form of interior linings with all joints stopped, or alternative Unlined gables and walls must incorporate a rigid sheathi or an air barrier which meets the requirements of NZ Acceptable Solution E2/AS1, Table 23. Where rig sheathings are used, the fixing length must be increased a minimum of the thickness of the sheathing.

8.5 Where penetrations through the EPS Cavity Pl Render System are wider than the cavity batten spacir allowance must be made for airflow between adjac cavities. A minimum 10 mm gap must be left between t bottom of the vertical cavity batten and the flashing to t opening.

8.6 Where the system abuts other cladding systems, designers must detail the junction to meet their own requirements and the requirements of the NZBC. The Technical Literature provides some guidance. Details not included within the Technical Literature have not been assessed and are outside the scope of this Certificate.

Electrical Cables

8.7 PVC sheathed electrical cables must be prevented from direct contact with the polystyrene. When cables must penetrate the EPS or XPS sheet for exterior electrical connections, the cable must be directly supported by passing through an electrical conduit.

Control Joints

9.1 Control joints must be constructed in accordance with the Technical Literature, and be provided as follows:

- Horizontal control joints - at maximum 6 m centres.
- Vertical control joints – at maximum 6 m centres; aligned with any control joint in structural framing; where building frame movement is likely; or where the system abuts other construction.

(Note: Control joints must be located over structural supports. The design of vertical control joints where the system abuts different cladding types is outside the scope of this Certificate and is the responsibility of the designer – see Paragraph 8.6.)

Inter-storey Junctions

9.2 Inter-storey drained joints must be provided for walls over 2 storeys in height in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4(b). Inter-storey junctions must be constructed in accordance with the Technical Literature. *(Note: Refer to Paragraph 14.3 for the requirements for barriers to vertical fire spread at inter-storey junctions for buildings of three floors.)*

Structure

Mass

10.1 The mass of the EPS Cavity Plus Render System is approximately 9 kg/m² at equilibrium moisture content therefore it is considered a light wall cladding in terms of NZS 3604.

Impact Resistance

10.2 The system has adequate resistance to impact loads likely to be encountered in normal residential use. Where a greater level of impact protection is required a heavier grade of reinforcing mesh or two layers of mesh may be used. The likelihood of impact damage to the system when used in light commercial type situations should be considered at the design stage, and appropriate protection such as the installation of barriers or bollards should be provided for vulnerable areas.

Wind Zones

10.3 The system is suitable for use in all Building Wind Zones of NZS 3604 up to, and including, 'Very High'.

Polystyrene Sheet Fixing

10.4 Sheets must be fixed through the cavity battens to the wall framing at maximum centres specified in Table 1.

Table 1: Sheet Fixing Centres for Edges and Intermediate Studs

NZS 3604 Building Wind Zone	Maximum Fixing Centres (mm)
Low	300[1]
Medium	300[1]
High	300[1]
Very High	200[2]

1. One fixing is required into each dwang and top and bottom plates at mid-dwang length.
2. Fixings are also required into each dwang at 200 mm centres and top and bottom plates at mid-dwang length.

Durability

Serviceable Life

11.1 The EPS Cavity Plus Render System meets code compliance with NZBC Clause B2.3.1 (b), 15 years for the cavity system and plaster finish, and code compliance with NZBC Clause B2.3.1 (c), 5 years for the protective finishing coat.

11.2 The EPS Cavity Plus Render System is expected to have a serviceable life of at least 30 years provided it is maintained in accordance with this Certificate, and the polystyrene sheets, fixings and plasters are continuously protected by a weathertight paint system such as the Rockcote Premium Armour and remain dry in service.

Maintenance

12.1 Regular maintenance is essential to ensure the performance requirements of the NZBC are continually met and to ensure the maximum serviceability of the system. The system must be maintained in accordance with the Rockcote Resene Ltd 'My Home' Maintenance Guide.

12.2 Annual inspections must be made to ensure that all aspects of the cladding system, including the finish coating system, plaster, flashings and any sealed joints remain in a weatherproof condition. Any cracks, damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Sealant, finish coatings and the like must be repaired in accordance with the sealant or finish coating manufacturer's instructions. Refer to Rockcote Resene Ltd 'My Home' Maintenance Guide.

12.3 Although the Rockcote Premium Armour is designed as a protective finish over the system, regular cleaning (at least annually) is still recommended to remove any grime, dirt and organic growth that may have accumulated, and to maximise the life and appearance of the coating. Grime may be removed by brushing with a soft brush, warm water and detergent. The protective finish must be recoated at approximately 7-10 yearly intervals in accordance with Rockcote System's instructions.

12.4 Minimum ground clearances as set out in this Certificate and the Technical Literature must be maintained at all times during the life of the system. *(Failure to adhere to the ground clearances given in this Certificate and the Technical Literature will adversely affect the long term durability of the system.)*

Control of Internal Fire and Smoke Spread

13.1 The polystyrene used with the system meets the flame propagation criteria of AS 1366. It must also comply with the requirements of NZBC Acceptable Solution C/AS1 Part 6, Paragraphs 6.20.11 and 6.20.12. Where required by NZBC Acceptable Solution C/AS1 Part 6, Table 6.3, flame barriers meeting the requirements of NZBC C/AS1 Part 6, Paragraph 6.20.13 and Appendix C, Paragraph C10.1 must be provided.

Control of External Fire Spread

14.1 The EPS Cavity Plus Render System using **Rockcote PM100 Quick Render base coat and mineral texture finish, Rockcote Render Prime and Rockcote Premium Armour protective finishing coat** has a performance level A in accordance with NZBC Acceptable Solution C/AS1, Table 7.5. The system is suitable for use as an external wall cladding system on buildings in all Purpose Groups, at any distance to the boundary.

14.2 The EPS Cavity Plus Render System using **Rockcote PM100 Quick Render base coat and mineral texture finish, Rockcote Render Prime and Resene X200 protective finishing coat** has a performance level B in accordance with NZBC Acceptable Solution C/AS1, Table 7.5. The system is considered to meet the performance provisions of NZBC C3.3.5 for use as an external wall cladding system when restricted to:

- Single storey buildings 1 m or more from the boundary for all purpose groups.
- Buildings up to 7 m high, 1 m or more from the boundary, for all purpose groups.
- Buildings up to 25 m high, 1 m or more from the boundary for all purpose groups other than SC and SD.
- Buildings over 25 m high, 1 m or more from the boundary for all purpose groups other than SC, SD, SA and SR.

14.3 The EPS Cavity Plus Render System using any other Rockcote Texture and surface finish is considered to meet the performance provisions of NZBC C3.3.5 for use as an external wall cladding system when restricted to:

- Single storey buildings 1 m or more from the boundary for all purpose groups.
- Buildings up to 7 m high, 1 m or more from the boundary, for all purpose groups other than SC and SD.
- Fully sprinklered buildings up to 10 m high, 1 m or more from the boundary for all purpose groups other than SC, SD, SA and SR.
- Buildings containing purpose group SH, with a building height less than 10 m and located 1 m or more from the boundary.

(Note: The scope of this Certificate limits building heights to 10 m in accordance with the limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 (a). The building heights referenced in Paragraphs 14.2 and 14.3 above are as defined in the Definitions Section of the Fire Safety Clauses of the NZBC.)

14.4 Where buildings are of the three floor maximum permitted by NZBC Acceptable Solution E2/AS1, Paragraph 1.1 (a) and when the cladding system extends to cover the walls of all three floors, the requirements for barriers to vertical fire spread as set out in NZBC Acceptable Solution C/AS1 Part 7, Paragraphs 7.9.18 and 7.9.19 must be met. Design of the barrier joint must be specifically detailed by the designer to meet the NZBC, including blocking of the cladding cavity and wall framing cavity, and installation of flashing and sealing systems to collect and direct any moisture to the outside of the cladding system. Joints between buildings are not covered by the Technical Literature, therefore are outside the scope of this Certificate.

Outbreak of Fi

15.1 The EPS Cavity Plus Render System must be separated from chimneys and flues in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9 for the protection of combustible materials.

External Moisture

16.1 The EPS Cavity Plus Render System, when installed in accordance with this Certificate and the Technical Literature, prevents the penetration of moisture that could cause undue dampness or damage to building elements.

16.2 The cavity must be sealed off from the roof and sub-floor space to meet compliance with NZBC E2.3.5.

16.3 The EPS Cavity Plus Render System allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet compliance with NZBC Clause E2.3.6.

16.4 The details given in the Technical Literature for weather sealing are based on the design principle of having a first and second line of defence against moisture entry for all joints, penetrations and junctions. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Technical Literature. Weathertightness details that are developed by the designer are outside the scope of this Certificate and are the responsibility of the designer for compliance with the NZBC.

16.5 The use of the EPS Cavity Plus Render System where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirement for junctions, penetrations, etc to remain weather resistant.

Internal Moisture

17.1 NZBC Acceptable Solution E3/AS1 Paragraph 1.1.1(a) requires a minimum wall R-value of 1.5 for framed cavity wall construction. The EPS Cavity Plus Render System alone does not meet NZBC Acceptable Solution E3/AS1, Paragraph 1.1.1 (a), therefore minimum R1.8 wall batts must be installed in the wall frame cavity. Alternatively, a specific design may be carried out.

17.2 The EPS cavity battens will act as a thermal break to steel framing in accordance with NZBC Acceptable Solution E3/AS1.

Water Vapour

17.3 The EPS Cavity Plus Render System is not a barrier to the passage of water vapour, and when installed in accordance with this Certificate will not create or increase the risk of moisture damage resulting from condensation.

Energy Efficiency

18.1 The thermal performance of the EPS Cavity Plus Render System, and any additional insulation provided within the wall can be calculated in accordance with NZS

4214. Calculations in accordance with NZS 4214 require that, unless better information is available, the ventilated air gap and the thermal resistance of each layer between the ventilated air gap and outside air be de-rated by a factor of 0.45. Therefore, in this system, unless better information is available for a specific design case, the R-value of the polystyrene layer must be taken as half of the actual value, and as set out in Table 2.

Table 2: Board R-value (including 0.5 de-rating)

Polystyrene Type	Thickness	
	40 mm	60 mm
EPS Class S[1]	R0.54	R0.80
EPS Class H[2]	R0.57	R0.87
XPS[3]	R0.77	-

1. Based on a thermal conductivity k value of 0.041 W/m°C.
2. Based on a thermal conductivity k value of 0.038 W/m°C.
3. Based on a thermal conductivity k value of 0.028 W/m°C.

Installation Information

Installation Skill Level Requirement

19.1 Installation and finishing of components and accessories supplied by Rockcote Resene Ltd and its registered applicators must be completed by the registered applicator.

19.2 Installation of the accessories supplied by the building contractor must be completed by tradespersons with an understanding of cavity wall construction and EIFS (exterior insulation finishing system) installation, in accordance with the instructions given within the Rockcote System's Technical Literature and this Certificate.

System Installation

Building Wrap and Flexible Sill and Jamb Tape

20.1 The selected building wrap and flexible sill and jamb tape system must be installed by the building contractor in accordance with the wrap and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of the EPS Cavity Plus Render System. Building wrap must be installed horizontally and be continuous around corners. The wrap must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. Particular attention must be paid to the installation of the building wrap and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.

Aluminium Joinery Installation

20.2 Aluminium joinery and associated head flashings must be installed in accordance with the Technical Literature. A 7.5-10 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed after the joinery has been secured in place.

EPS Cavity Plus Render System

20.3 Components and accessories supplied by Rockcote Resene Ltd and the registered applicator must be installed in accordance with the Technical Literature by the registered applicator.

20.4 The EPS Cavity Plus Render System must only be applied when the air and substrate temperature is in the range of +5 C to +30 C.

Inspections

20.5 The Technical Literature must be re... the inspection of EPS Cavity Plus Render System ... by building consent authorities and territorial au...

Health and Safety

21.1 Safe use and handling proce... components that make up the EPS Cavi... System are provided in the relevant manufacture... Literature.

Basis of Appraisal

The following is a summary of the technic... carried out:

Tests

22.1 The following testing has been ... BRANZ:

- BRANZ expert opinion on NZBC E2 ... for the EPS Cavity Plus Render S... testing and evaluation of all details within th... as stated within this Certificate. The EPS Render System and balustrade to wall ... were tested to AS/NZS 4284 with a ... extension, which became the basis of E2 testing was completed in three stages: th... the standard AS/NZS 4284 test, the s... modified AS/NZS 4284 test with defect ... into the panel, and the third being the mod... 4284 test with the internal linings a... removed. The testing assessed the pe... foundation detail, window head, jamb an... vertical and horizontal control joints, ... external corners and balustrade to wa... plastered cap. In addition to the weather... the details contained within the Techni... have been reviewed, and an opinion h... BRANZ technical experts that the syst... performance levels of NZBC Acceptable So... for drained cavity claddings.
- Wind face load and fastener pull th... EIFS cladding systems. BRANZ determine... suction pressures, and by comparing th... with the NZS 3604 design wind speed, a... pressure coefficients, the fixing re... determined for timber and steel framed wa...
- Cone calorimeter testing of the EPS Cavit... System with various protective finishing ... was carried out in accordance with AS/...

Other Investigations

23.1 Structural and durability opinion... provided by BRANZ technical experts.

23.2 Site visits have been carried out b... the practicability of installation, and to e... installations.

23.3 The Technical Literature for the EP... Render System has been examined by BR... be satisfactory.

Quality

24.1 The manufacture of the plasters has been examined by BRANZ and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

24.2 The quality management system of the plaster manufacturer, Fulton Hogan Ltd, has been assessed and registered as meeting the requirements of ISO 9001: 2000 by Telarc, Registration Number 440.

24.3 The quality of materials, components and accessories supplied by Rockcote Resene Ltd is the responsibility of Rockcote Resene Ltd.

24.4 Quality on site is the responsibility of the Rockcote Resene Ltd registered applicators.

24.5 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and joinery, building wraps, flashing tapes, air seals and joinery head flashings in accordance with the instructions of Rockcote Resene Ltd.

24.6 Sub trades are responsible for installation of penetrations, flashings etc that are relevant to their trade in accordance with the EPS Cavity Plus Render System Technical Literature.

24.7 Building owners are responsible for the maintenance of the EPS Cavity Plus Render System in accordance with the instructions of Rockcote Resene Ltd.

Sources of Information

- AS 1366.3 - 1992 Rigid cellular plastic sheets for thermal insulation - Rigid cellular polystyrene - Moulded (RC/PS-M).
- AS 1366.4- 1989 Rigid cellular plastic sheets for thermal insulation - Rigid cellular polystyrene – Extruded (RC/PS-E).
- AS 3566 – 2002 Self-drilling screws for the building and construction industries.
- AS/NZS 3837: 1998 Method of test for heat and smoke release rates for materials and products using an oxygen consumption calorimeter.
- AS/NZS 4284: 1995 Testing of building facades.
- AS/NZS 4680: 1999 Hot-dip galvanised (zinc) coatings on fabricated ferrous articles.
- NZS 3602: 2003 Timber and wood-based products for use in building.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 1999 Timber framed buildings.
- NZS 4203: 1992 General structural design and design loadings for buildings.
- NZS 4211: 1985 Specification for the performance of windows.
- NZS 4214: 2002 (INT) Methods of determining the total thermal resistance of parts of buildings.
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005.
- New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, 1992.
- The Building Regulations 1992, up to, and including October 2004 Amendment.

APPROVED

10/0015

Consent No.

P Robertson
Chief Executive

Rockcote EPS Cavity Plus Render System Specification

Timber Frame - 40mm Expanded Polystyrene (EPS) on a cavity

Rockcote Acrylic Based Texture

1. General

This specification deals with Rockcote EPS Cavity Plus Render System applied over a 40mm EPS sheet substrate. The system incorporate installation of a 20mm drainage cavity and pre-coloured acrylic texture finish.

2. Building Code Compliance

2.1. Durability

The work covered by this part of the specification has been designed and constructed to achieve a minimum durability of 15 years.

2.2. On Going Maintenance Instructions

Provide ongoingmaintenance instructions required to meet the performance requirements of the NZBC B2 Durability.

2.3. Substrate

The substrate for this Rockcote RenderSpec™ has had all the appropriate inspections carried out by a BCA representative and that it co with the NZBC requirements. If the substrate is existing, all tests and checks have been carried out by a BCA representative or Indepen assessor and that the substrate is found to be sound and stable.

3. Documents

3.1. Abbreviations

The following abbreviations are used throughout this work section:

- PPCS Proprietary Plaster Cladding System
- LRV Light Reflectance Value
- MSDS Material safety data sheet(s)
- BCA Building Control Authority
- NZBC New Zealand Building Code
- NZS New Zealand Standards
- AS/NZ Australia New Zealand Standard
- WANZ Windows Association of New Zealand

3.2. Documents Referred to

- NZS 3603 Timber structures standard
- NZS 3604 Timber framed buildings
- NZS 4203 General structural design and design loadings for buildings
- NZBC B2 Durability
- NZBC E2/AS1 External moisture
- AS/NZS 1170.2 Structural design actions - Wind actions
- NZS 3602 Timber and wood-based products for use in building
- NZBC E3/AS1 Internal moisture, 1.0 Prevention of fungal growth
- BRANZ Bulletin 353 Ground clearances
- BRANZ Bulletin 418 Weathertightness do's and don'ts
- BRANZ Bulletin 439 Condensation risk in walls
- WANZ WIS

3.3. Manufacturers Documents

- Rockcote Technical Manual - April 2008
- Rockcote Systems Technical CD Rom v 6
- Rockcote Systems Project Guide
- Resene: Total Colour System
- Rockcote Technical Bulletins

Copies of the above literature are available at;

Rockcote Systems
Web: www.rockcote.co.nz
Telephone: 0800 50 70 40
Resene Paints
Web:www.resene.co.nz
Telephone: 0800 RESENE (0800 737 363)

3.4. No Substitutions

Substitutions are not permitted to any specified Rockcote Systems wall cladding system. Materials and execution to Rockcote Systems specification except where varied by this specification and supported by architectural detailing.

3.5. Qualifications

Use only PPCS registered plasterers licensed to apply the Rockcote Systems exterior render systems.

4. Documentation

4.1. Sample

Submit one 300 mm x 300 mm sample of the selected texture finish and colour for approval. Obtain signature of acceptance on samp return to the Registered Plasterer.

4.2. Maintenance Instructions

Provide Rockcote Systems Maintenance Guide on or before practical completion of the contract for issuing to the building ownerRock Systems Maintenance Guide to be provided on request.

4.3. Producer Statement

Provide the producer statement compiled by the Registered Plasterer in the form as required by the BCA.

4.4. Health and Safety

Refer to the requirements of the Health and Safety in Employment Act and OSH:Guidelines for the provision of facilities and general safety in the construction industry. Supply protective clothing and equipment. Inform employees and others on site of the hazards and put into place procedures for dealing with emergencies. Obtain from Rockcote Systems the MSDS for each product. Keep sheets on site and comply with the required safety procedures.

4.5. Warranty

Warrant this system under normal environmental and use conditions against failure. Rockcote Systems system warranty.
Materials: 15 years by Rockcote Systems - Materials
Execution: 5 years by Registered Plasterer - Workmanship

4.6. Performance

Accept responsibility for the structural and weather-tight performance of the cladding installation.

4.7. OnSite Assistance

Allow to inspect the whole of the work at each stage. Determine a programme for onsite assistance including notification when each part and stage of the work is ready for inspection prior to the work commencing. Permit representatives of Rockcote Systems to inspect the work in progress and to take samples of their products from site if requested refer Rockcote Systems Project Guide.

5. Components

5.1 EPS Insulation Boards

- All EPS complies with the flame propagation criteria as specified in AS1366 for the type of material being used.
- Length: 2400, 2700, 3600 mm
- Width: 1200 mm
- Thickness: 40 mm
- Density: H Grade

5.2 Battens

- 40mm x 22mm Polystyrene Battens - AS 1366 Part 3 Class H (with fire retardant).

5.3 Fasteners

- Timber frame : flat-head, hot-dipped galvanised and Rockcote 40 mm diameter nylon washers.
- Steel frame : AS3566 Class 3 - Rockcote 40 mm diameter nylon washers.

5.4 Reinforcing Mesh

- Rockcote brand - alkali resistant - red (160gsm), weave (mesh) size 5 mm x 4 mm
- Rockcote brand - alkali resistant - blue (170gsm), weave (mesh) size 8 mm x 9 mm
- Rockcote Sticky Mesh - Soft Mesh 150mm Wide

5.5 Rockcote PM100 Quick Render

- Polymer-modified cement-based dry plaster mix. Supplied in 25 kg bags

5.6 Rockcote Render Prime or Resene Limelock

- Rockcote Render Prime - Water based acrylic polymer dispersion tinted (optional) to the colour of Rockcote finishing coats. Supplied in 15 litre pails.
- Resene Limelock - Water based acrylic polymer dispersion. Supplied in 10 litre pails.

5.7 Rockcote Acrylic Texture

- 100% acrylic, high-build texture coating. Supplied in 15 Litre pails

5.8 Resene X200 or Rockcote Armour

- Resene X200 - Acrylic reinforced waterproof membrane. Supplied in 4 and 10 litre pails. Tinted to the selected colour.
- Rockcote Armour - Acrylic-based protective finish. Supplied in 4 and 15 litre pails. Tinted to the selected colour.

5.9 PVC Flashings and Accessories

- Rockcote 40 mm EPS Window Side Flashing
- Rockcote 40 mm EPS Window Sill Flashing
- Rockcote Standard Corner Flashing
- Rockcote 60 mm Ventilated EPS Starter Strip
- Rockcote Control Joint - vertical
- Rockcote Control Joint - horizontal
- Rockcote Head and Sill Flashing Soakers
- Protecto EIFS Flashing Tape

5.10 Head Flashings

- Supplied by the builder for both recessed and face-fixed timber, aluminium. PVC joinery.
- For all environments - powder coated aluminium or PVC.

5.11 Sealant

- Silaflex MS or equivalent BRANZ Appraised Sealant
- Sealant must comply with WANZ requirements for adhesion to powder coated aluminium

5.12 UPVC Flashing Primer

- Rockcote MultiStop Bedding Compound mixed with diluted acrylbond resin. MultiStop Bedding Compound supplied in 15 kg bags.

6. Installation

6.1. General

- Check Building wraps/underlays and flashing tapes - Refer to Rockcote TradeSpec™ document 1.1
- Design Information - Refer to Rockcote TradeSpec™ document 1.2
- Check Joinery - Refer to Rockcote TradeSpec™ document 1.3
- Check Timber Framing - Refer to Rockcote TradeSpec™ document 2.1
- Control Joints - Refer to Rockcote TradeSpec™ document 1.4

6.2. Substrates

- Cavity and Batten installation - Refer to Rockcote TradeSpec™ document 2.5
- Fastening EPS - Refer to Rockcote TradeSpec™ document 2.6
- Preparing EPS - Refer to Rockcote TradeSpec™ document 2.9

6.3. Flashings & Accessories

- Rockcote Flashings - Refer to Rockcote TradeSpec™ document 3.1
- Builder Supplied Flashings - Refer to Rockcote TradeSpec™ document 3.2
- Sealants - Refer to Rockcote TradeSpec™ document 3.4
- Adhesives- Refer to Rockcote TradeSpec™ document 3.5
- Expanding Foams - Refer to Rockcote TradeSpec™ document 3.6
- Butyl Based Flashing Tapes - Refer to Rockcote TradeSpec™ document 3.9
- Polystyrene feature moulding installation - Refer to Rockcote TradeSpec™ document 3.10 (optional)

6.4. Applying Plaster

- General Render Information - Refer to Rockcote TradeSpec™ document 4.1
- Base Coat - Refer to Rockcote TradeSpec™ document 4.2
- Mesh Installation - Refer to Rockcote TradeSpec™ document 4.3
- Levelling Coat - Refer to Rockcote TradeSpec™ document 4.4

6.5. Sealing & Finishing

- General Finish Coat Information- Refer to Rockcote TradeSpec™ document 5.1
- Sealer Application - Refer to Rockcote TradeSpec™ document 5.3
- Acrylic Texture Application - Refer to Rockcote TradeSpec™ document 5.5
- Rockcote Armour Application - Refer to Rockcote TradeSpec™ document 5.7

or

- 2 x Coats Resene X200 Application - Refer to Rockcote TradeSpec™ document 5.8
- Cleaning Up - Refer to Rockcote TradeSpec™ document 5.10

7. Cleaning

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

8. Final Onsite Assistance

Final Onsite Assistance by Rockcote Systems Registered plasterer and Rockcote project assessor of the entire finished cladding to take immediately after completion of the wall cladding work and any defects or subsequent damage made good immediately.

Important:

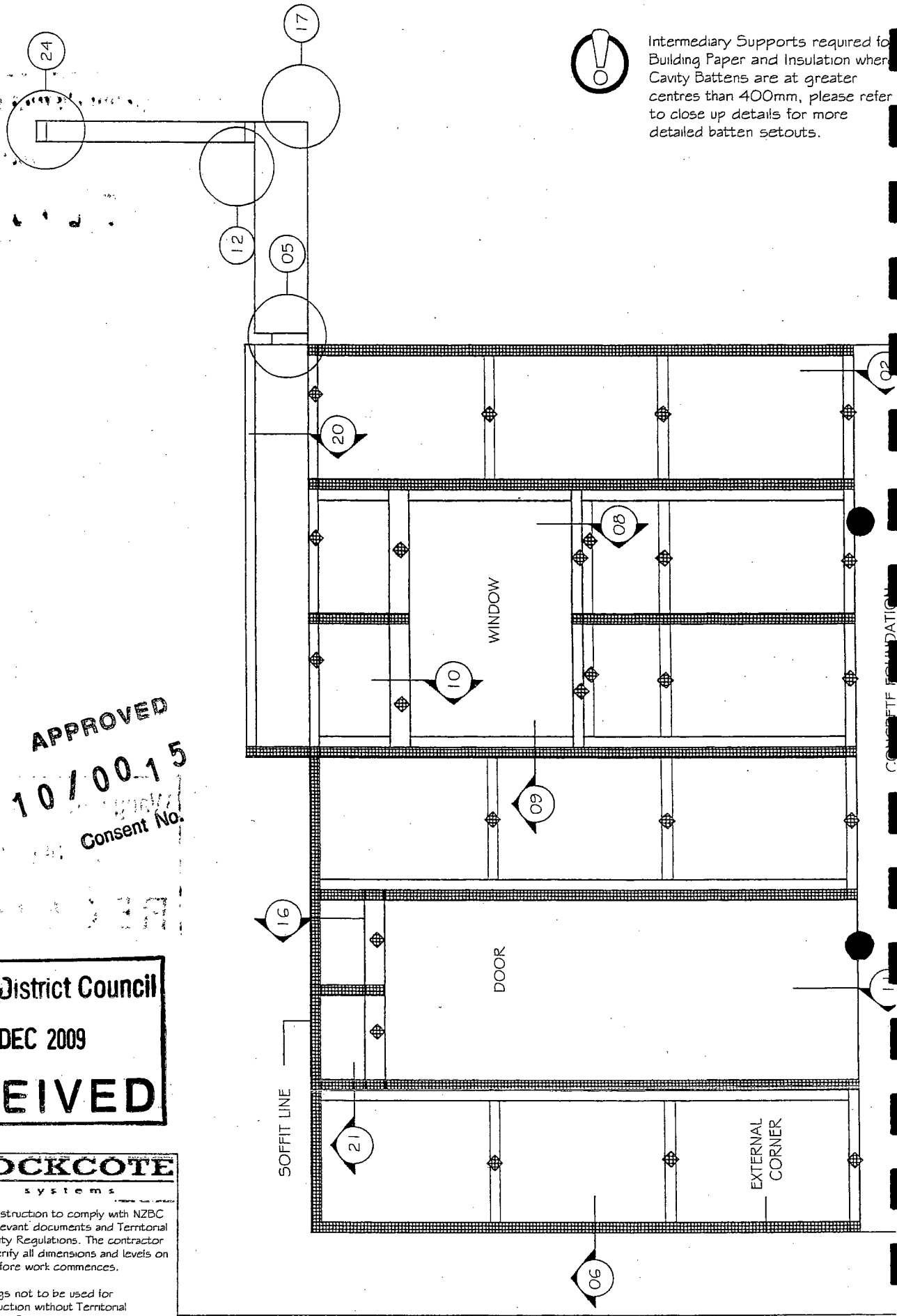
This specification must be read in conjunction with the Rockcote Systems technical drawings.

No alteration to the Rockcote RenderSpec™ is permitted.

This Rockcote RenderSpec™ must be read in conjunction with Rockcote TradeSpec™ documents version 1.1

APPROVED
10/0015
Consent No.

Wanganui District Council
23 DEC 2009
RECEIVED



Intermediary Supports required for Building Paper and Insulation where Cavity Battens are at greater centres than 400mm, please refer to close up details for more detailed batten setouts.

APPROVED
10/00115
Consent No.

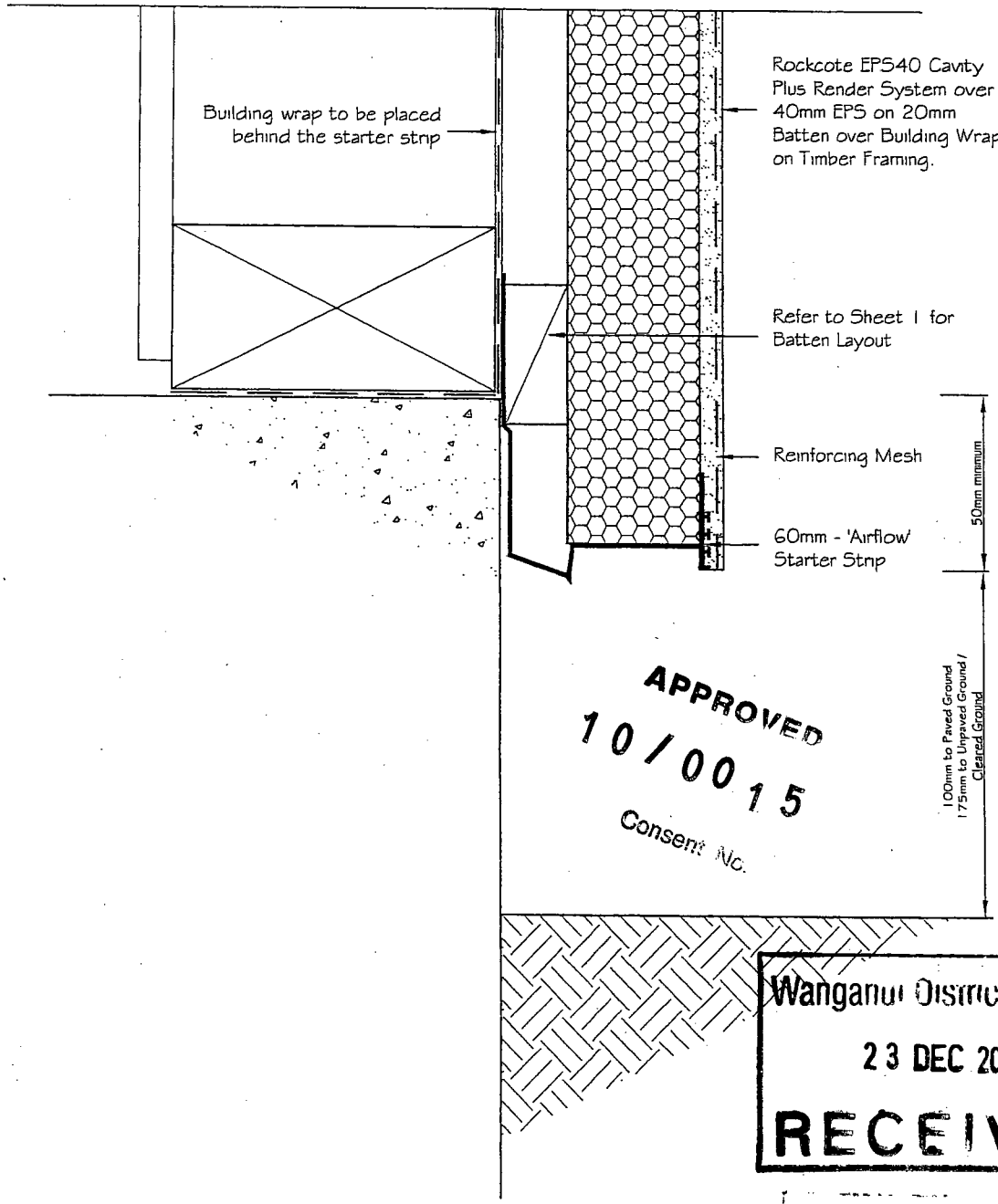
Wairarapa District Council
23 DEC 2009
RECEIVED

ROCKCOTE systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename: EPS40Cavity_01.dwg	EPS40 CP RENDER SYSTEM
Drawn By: Mark Flewellen	Date: 25 June 2005
Drawing Name: Batten Layout	Sheet: 01



APPROVED
10/0015
Consent No.

Wanganui District Council
23 DEC 2009
RECEIVED

Rockcote Starter Strip is fixed using masonry anchors to Foundation Walls if unable to nail t to the bottom plate.

Rockcote Cladding must extend a minimum of past the bottom plate.

The distance from the top of the floor slab to cleared ground must be a minimum of 225mm paved surface this must be a minimum of 150 Refer to NZBC E2/AS1 (3rd Edition June 20(Paragraph 9.1.3 or NZS 3604:1999 Fig 7.

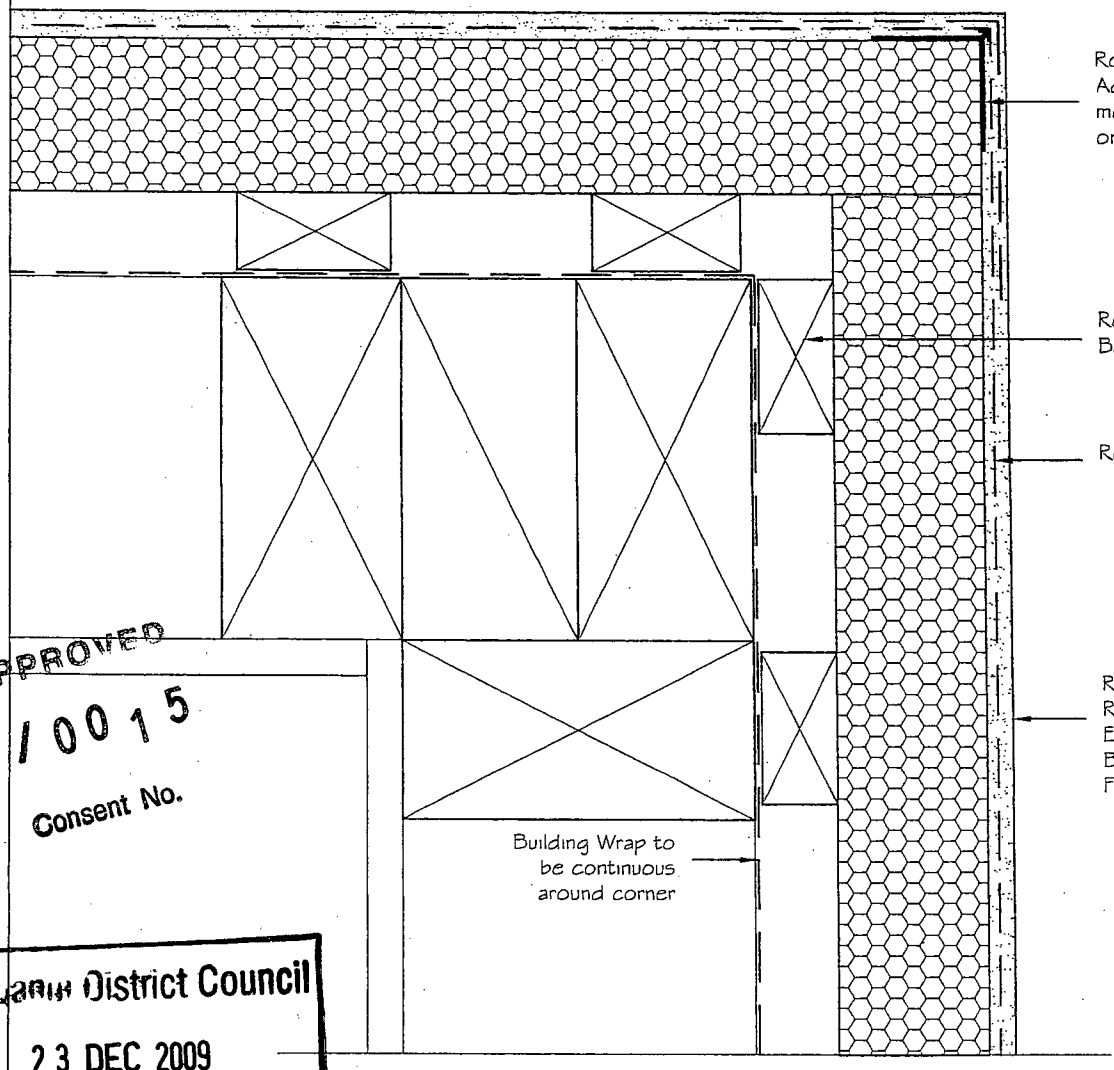
Drain Holes in the Starter Strip are sufficient achieve ventilation openings of 1000mm²

ROCKCOTE systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale	EPS40 CA PL
EPS40Cavity_02.dwg	1 : 2 (150)	RENDER SYSTEM
Drawn By: Sae-woon Lim		Date: 25 June 2005
Drawing Name: Standard Foundation Detail		Sheet: 02

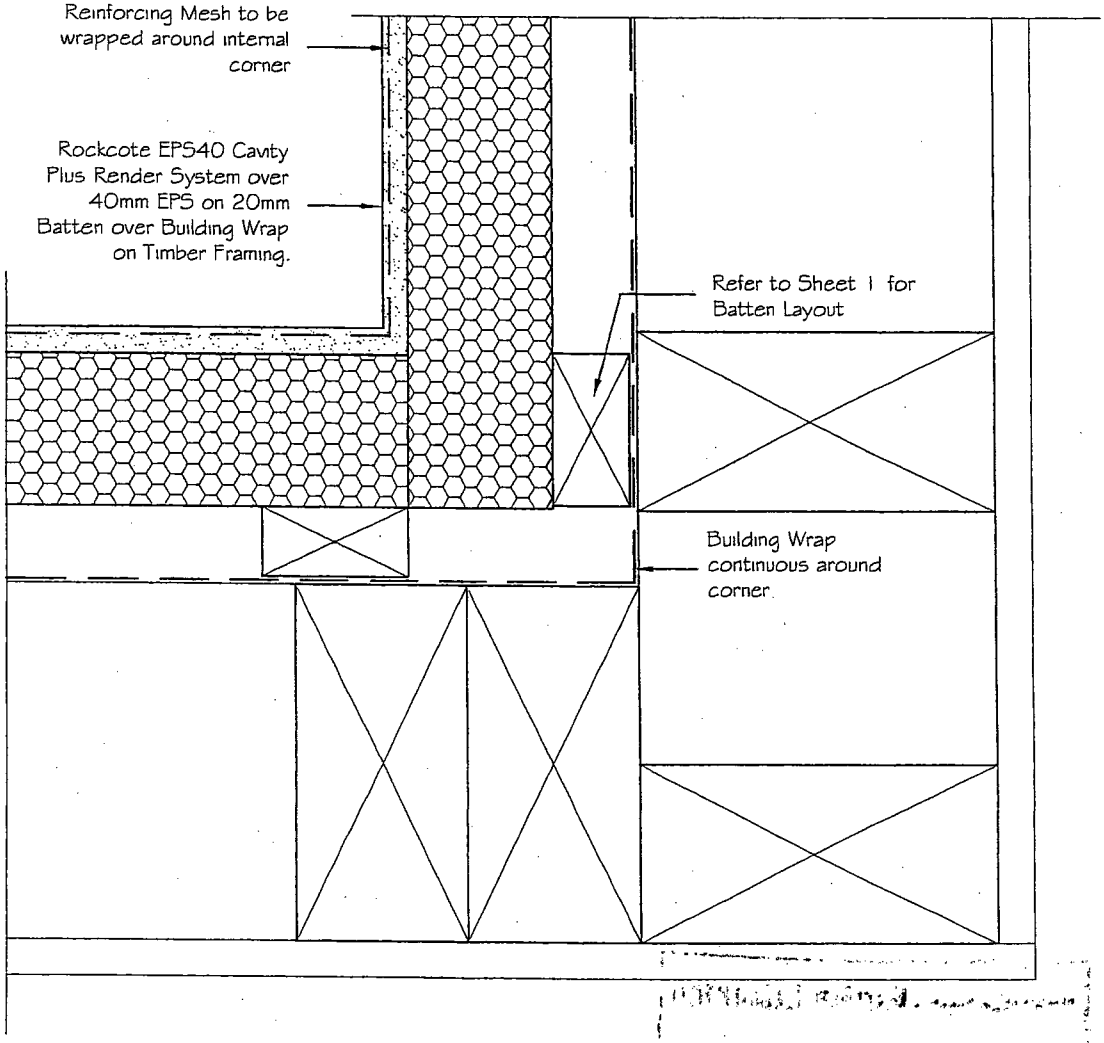


ROCKCOTE
systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale	
EPS40Cavity_06.dwg	1 : 2 (ISO)	EPS40 CA P RENDER SYSTEM
Drawn By		Date
Sae-woon Lim		25 June 2005
Drawing Name		Sheet
External Corner		06

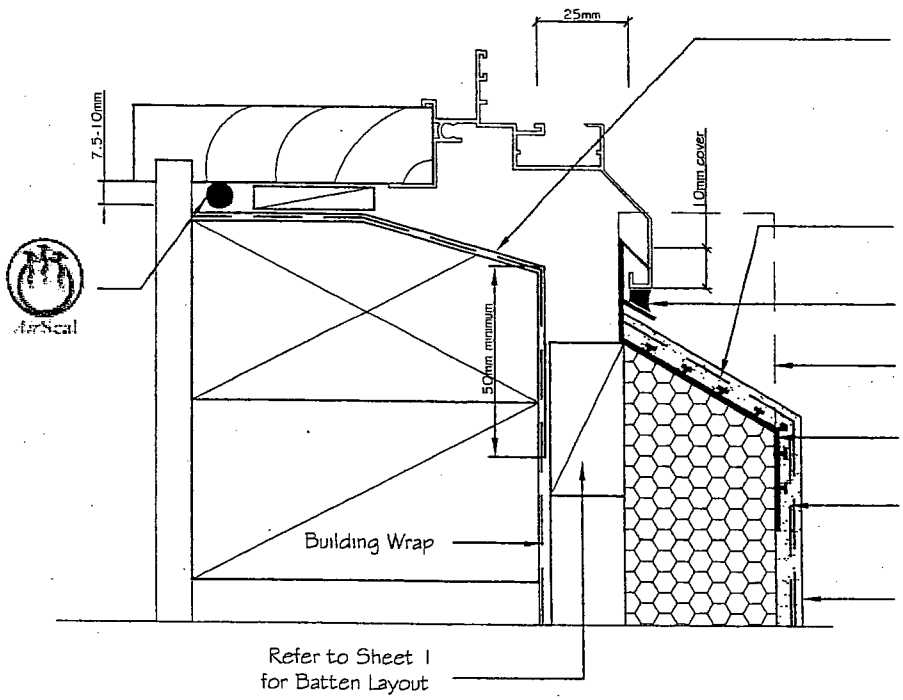


ROCKCOTE
systems

All Construction to comply with NZBC and relevant documents and Territonal Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territonal Authority Consent.

Filename	Scale	EPS40 CP RENDER SYSTEM
EPS40Cavity_07.dwg	1 : 2 (ISO)	
Drawn By: Sae-woon Lim		Date: 25 June 2005
Drawing Name: Internal Corner		Sheet: 07



Allow a 25mm Gap between the
of the joinery and external facin
timber framing to allow the sill
flashing to fit.

A sloped Sill Trimmer is required
when the glazing pocket of the
window/door frame is located ba
past the line of the wall frame.

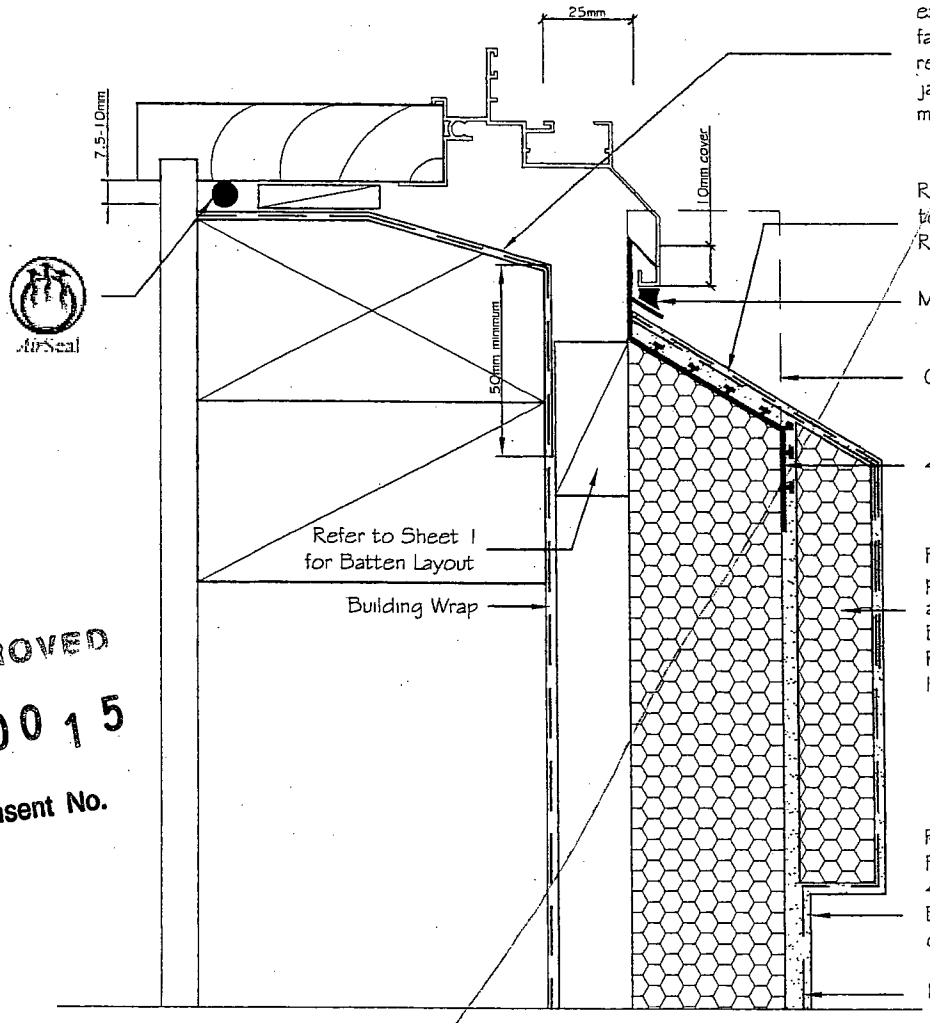
ROCKCOTE
systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Air Seal please refer to Rockcote Technical Bulletin 09 for more information on Air Sealing Technology.

Filename	Scale	
EPS40Cavity_08.dwg	1 : 2 (ISO)	EPS40 CA PL RENDER SYSTEM
Drawn By		Date
Sae-woon Lim		25 June 2005
Drawing Name		Sheet
Standard Recessed Window Sill		08



Sill Wrap is applied over t sloping trimmer and must extend 50mm down onto th face of the Building Wrap, return atleast 100mm up jamb according to the manufacturers specifications

Reinforcing Sticky Mesh is to be wrapped around the Rockcote Sill Flashing

MS Sealant

Corner Soaker

40mm Sill Flashing

Polystyrene Moulding is pre-plastered, then adhered on top of the Base coat with Multi-stop Refer to Technical Bulletin 17 for more information.

Rockcote EPS40 Cavity Plus Render System over 40mm EPS on 20mm Batten over Building Wrap on Timber Framing.

Reinforcing Mesh

Allow a 25mm Gap between the of the joinery and external facing timber framing to allow the sill flashing to fit.

A sloped Sill Trimmer is required when the glazing pocket of the window/door frame is located ba past the line of the wall frame.

APPROVED

10/0015

Consent No.

Waimakariri District Council

23 DEC 2009

RECEIVED

ROCKCOTE systems

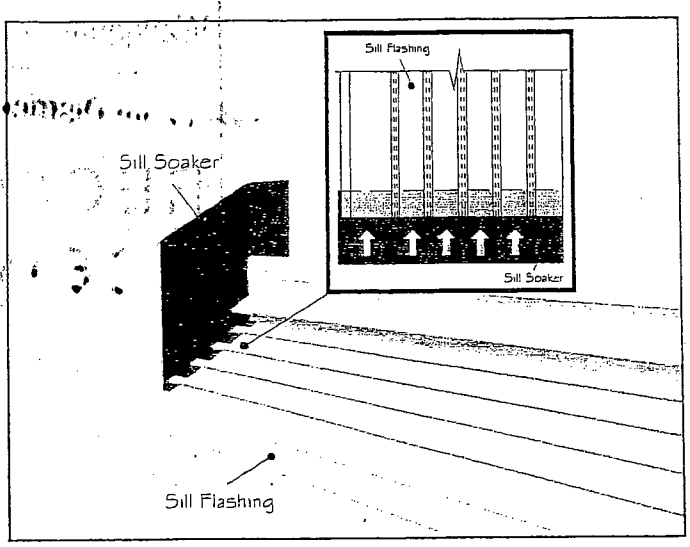
All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

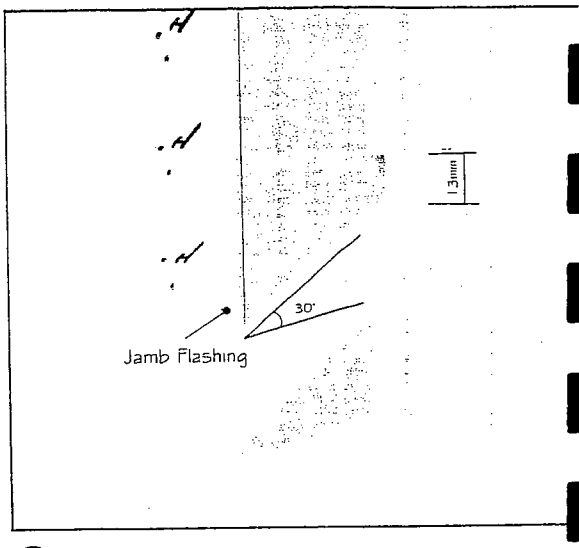
AirSeal

Air Seal please refer to Rockcote Technical Bulletin 09 for more information on Air Sealing Technology.

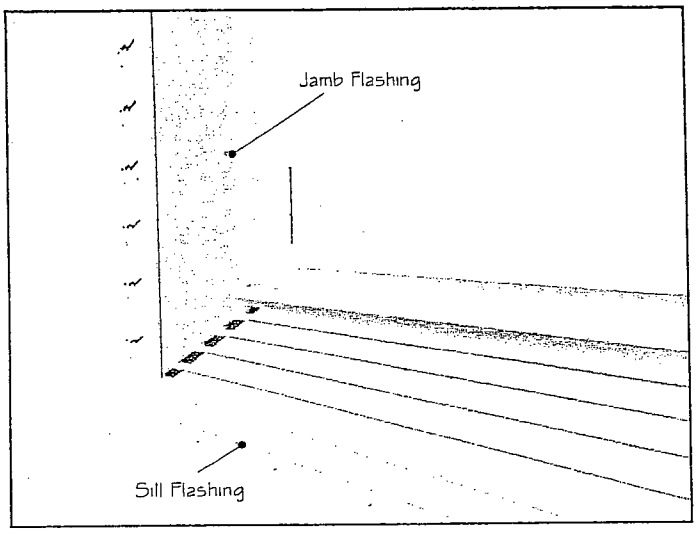
Filename	Scale	
EPS40Cavity_08A.dwg	1 : 2 (ISO)	EPS40 CAVITY PLUS RENDER SYSTEM
Drawn By		Date
Sae-woon Lim		25 June 2005
Drawing Name		Sheet
Standard Recessed Window Sill - Moulding		08A



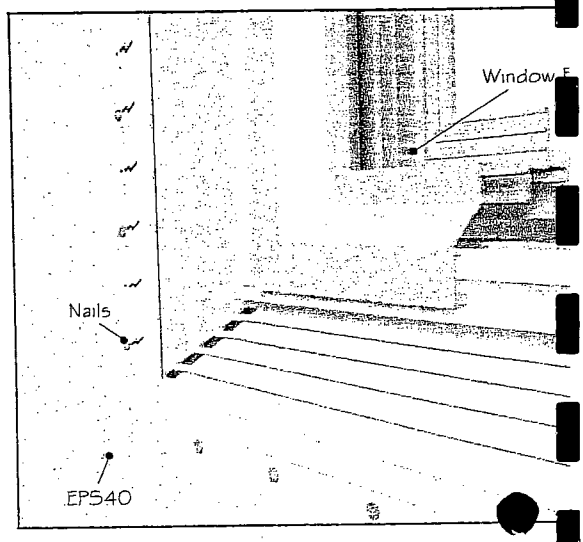
1 Lock in the Sill Soaker on the ends of the 40mm Sill Flashing and trim them off to the depth of cladding.



2 With the 40mm Jamb Flashing, trim the bottom end as shown in the diagram.
NOTE: The angle of cut should be identical to the ang
Sill Flashing (usually 30 degrees).



3 Place the Jamb Flashing on top of Sill Soaker and Sill Flashing as shown above.



4 The end result before plastering, should look like t

Wanganui District Council
23 DEC 2009
RECEIVED

APPROVED
10/0015
Consent No:

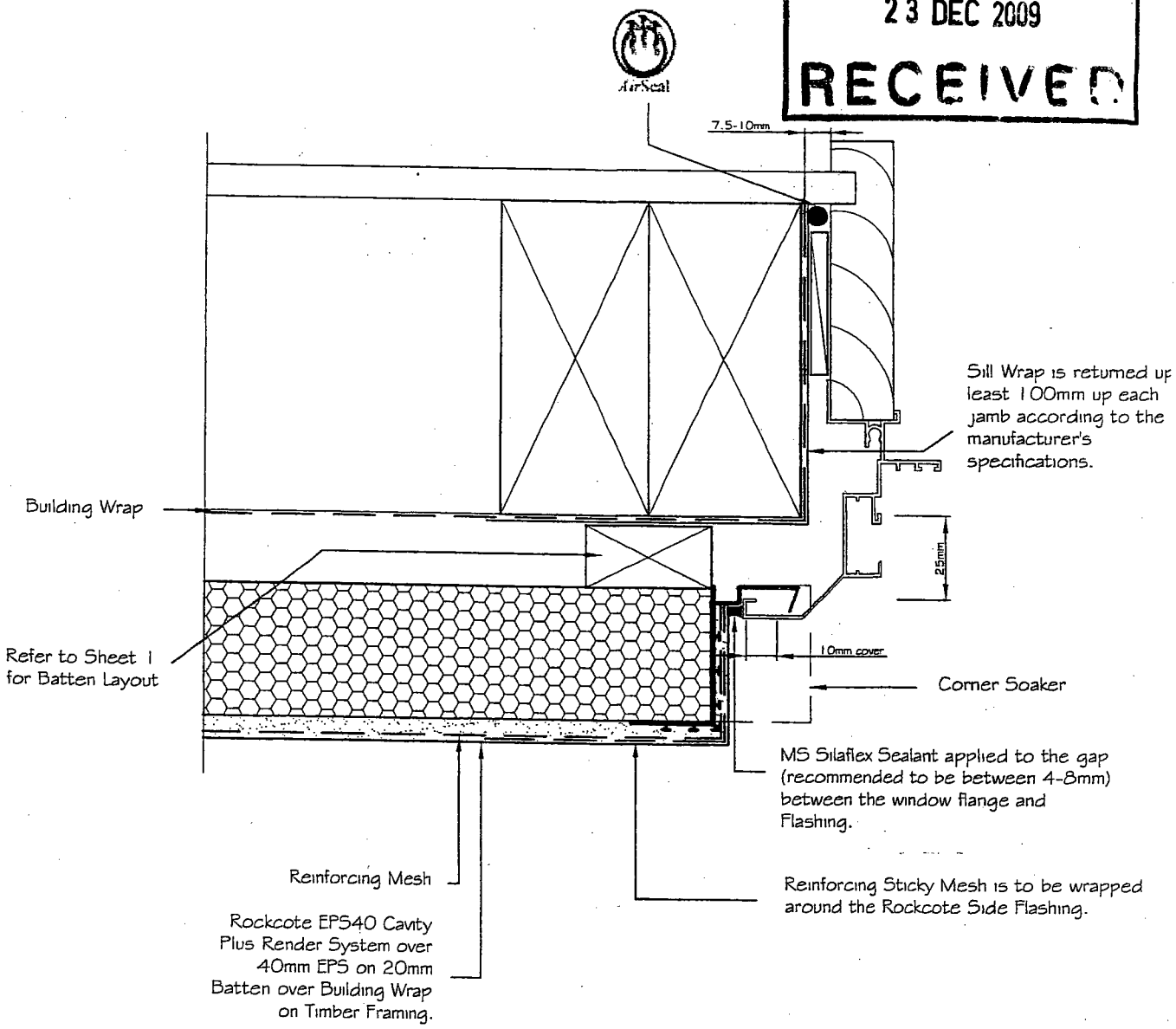
ROCKCOTE SYSTEMS

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

*indicates: components NOT supplied by Rockcote Systems

Filename		EPS40
Sill_Soaker_install.ai		
Drawn By		Date
Sae-woon Lim		25 June 2005
Drawing Name		Sheet
Window Sill/Jamb corner soaker Installation		08B



Allow a 25mm Gap between the back of the joinery and external facing timber framing to allow the Jamb flashing to fit.

ROCKCOTE
systems

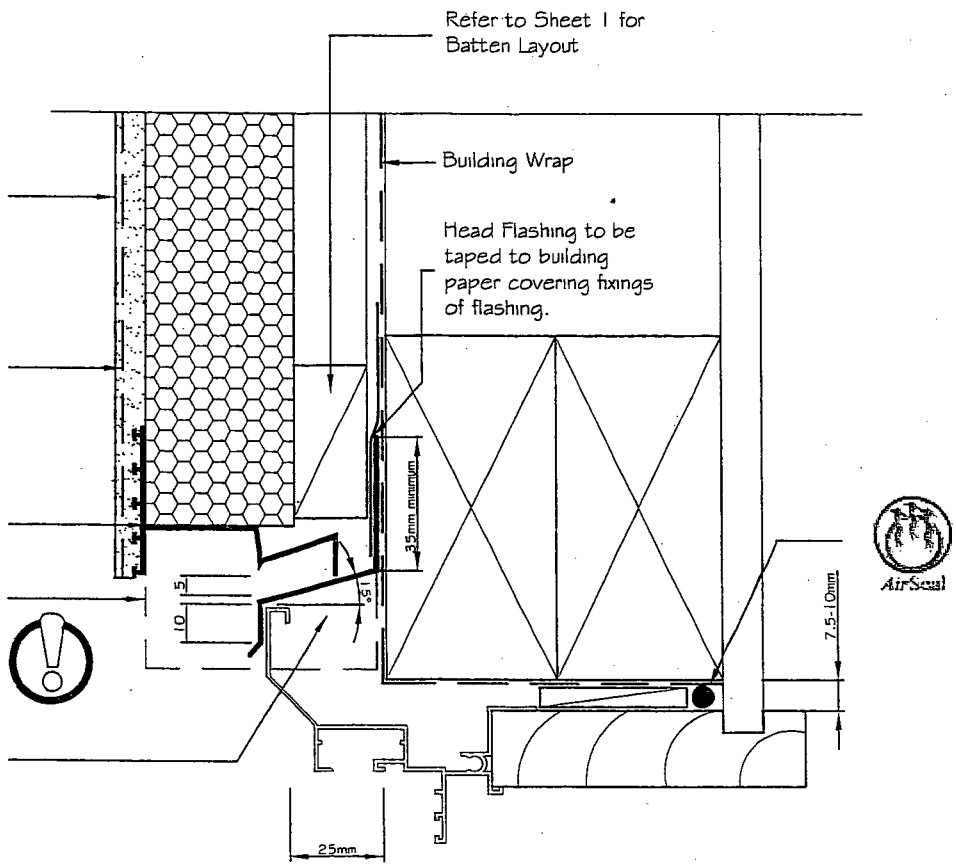
All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

AirSeal

Air Seal please refer to Rockcote Technical Bulletin 09 for more information on Air Sealing Technology.

Filename	Scale	
EPS40Cavity_09A.dwg	1 : 2 (ISO)	EPS40 CAVITY PLUS RENDER SYSTEM
Drawn By: Sae-woon Lim		Date: 25 June 2005
Drawing Name: Standard Recessed Window Jamb		Sheet: 09



Rockcote EPS40 Plus Plaster Cladding System over 40mm EPS on 20mm Batten over Building Wrap on Timber Framing

Reinforcing Mesh

Rockcote 'Airflo' Head Flashing

Corner Sill Soaker

Aluminium Flashing to extend (35mm minimum) up behind Cavity Battens and Starter Strip and over the top of the building Wrap, NOTE: It is imperative that the head flashing upstand has been taped to the building Wrap so that fixing holes have been covered (refer to WANZ).

Metal Flashing (or PVC Flashing if in corrosive areas) shown is to be supplied by the main contractor. these will need to be specifically designed to suit each application. All head flashings to be powder coated to colour match joinery. All Flashings are to meet the durability requirements of Section 4 of NZS 3604: 1999.

Drain Holes in the Head flashing are sufficient to achieve ventilation openings of 1000mm²

APPROVED
10/0015
Consent No.

AirSeal

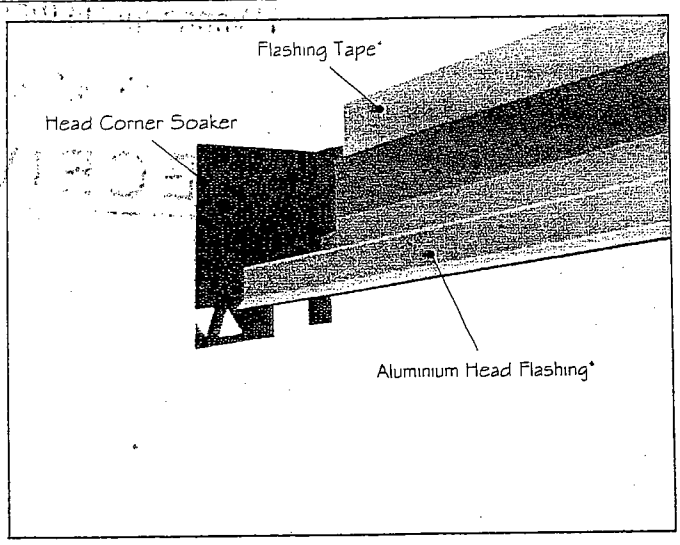
Air Seal please refer to Rockcote Technical Bulletin 09 for more information on Air Sealing Technology.

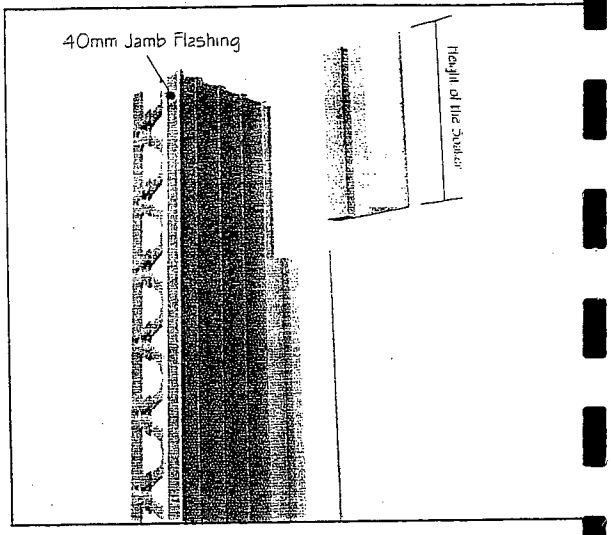
ROCKCOTE systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale	EPS40 CAVITY PLUS RENDER SYSTEM
EPS40Cavity_10.dwg	1 : 2 (ISO)	
Drawn By: Sae-woon Lim		Date: 25 June 2005
Drawing Name: Standard Recessed Window Head		Sheet: 10





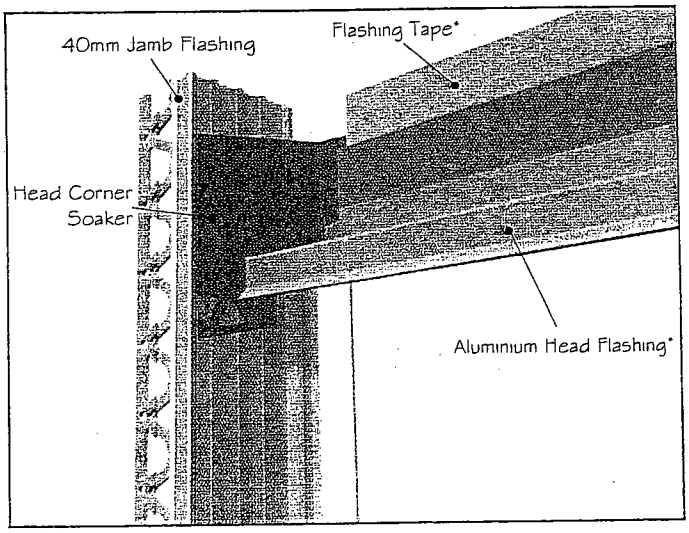
(1) Lock in the Head Corner Soaker on the ends of the Aluminium Head Flashing and trim them off to the depth of cladding. Make sure that the Aluminium Flashing is taped at the top at this stage.

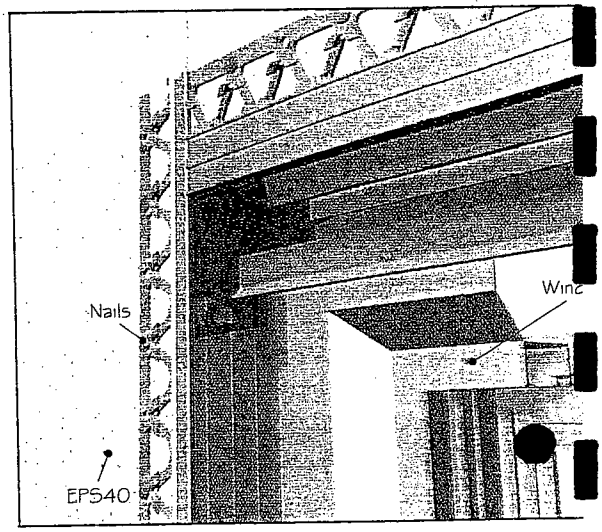
(2) With the 40mm Jamb Flashing, trim the top end as shown in the diagram.

APPROVED

10/0015

Consent No.





(3) Place the Jamb Flashing underneath the Head Soaker as shown above.

(4) The end result before plastering, should look like this.

Waitakere District Council

23 DEC 2009

RECEIVED

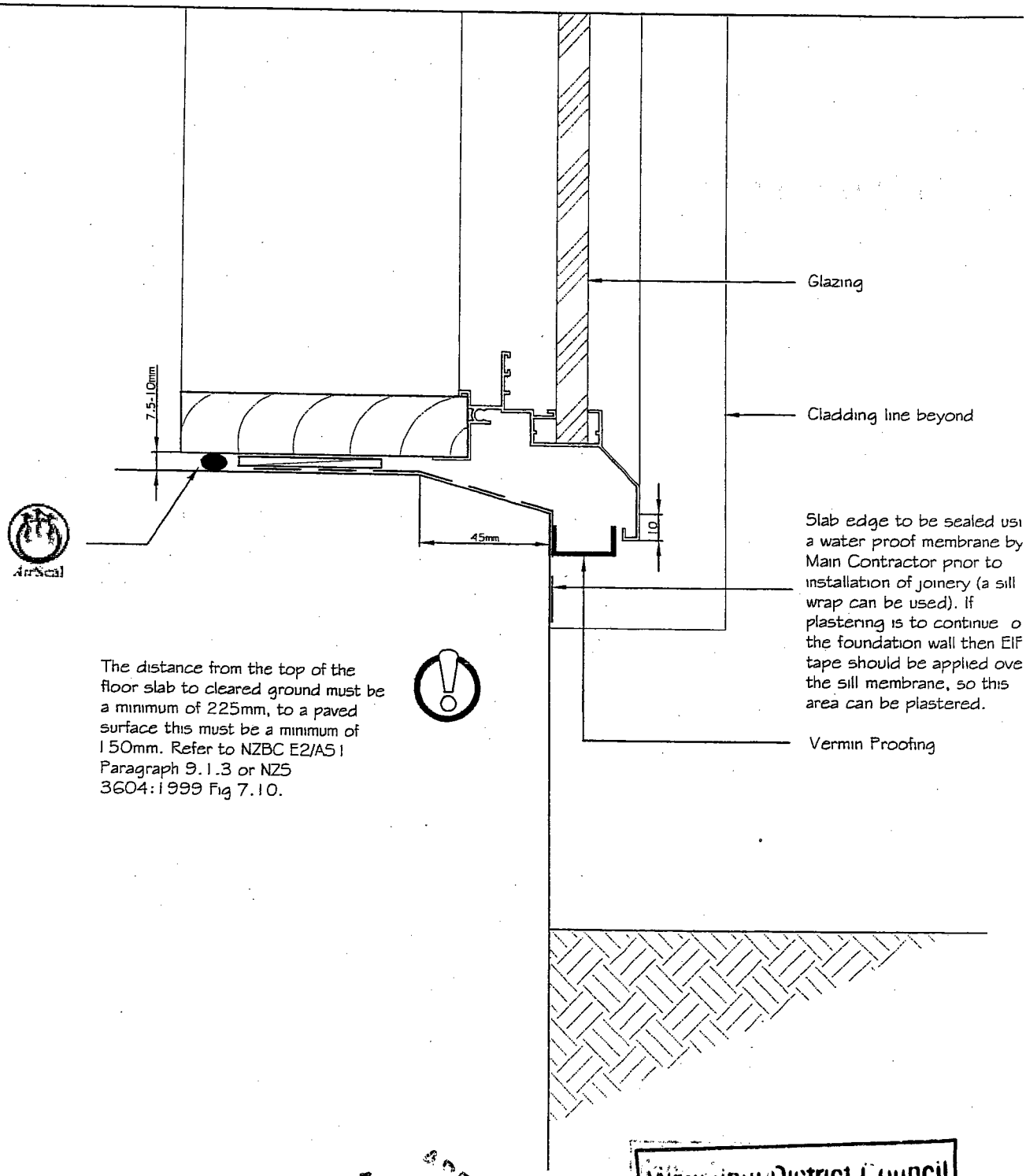
ROCKCOTE systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

*indicates: components NOT supplied by Rockcote Systems

Filename		EPS40 RENDER SYSTEM
Head_soaker_install.ai		
Drawn By: Sae-woon Lim		Date: 25 June 2005
Drawing Name: Window Head/Jamb corner Soaker installation		Sheet: 10B



APPROVED
10/00152
Consent No.

Wanganui District Council
23 DEC 2009
RECEIVED

ROCKCOTE
systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Air Seal please refer to Rockcote Technical Bulletin 09 for more information on Air Sealing Technology.

Filename	Scale	
EPS40Cavity_11.dwg	1 : 2 (ISO)	EPS40 CAVITY PLUS RENDER SYSTEM
Drawn By: Mark Flewellen		Date: 2 August 2007
Drawing Name: Concrete Door Sill		Sheet: 11

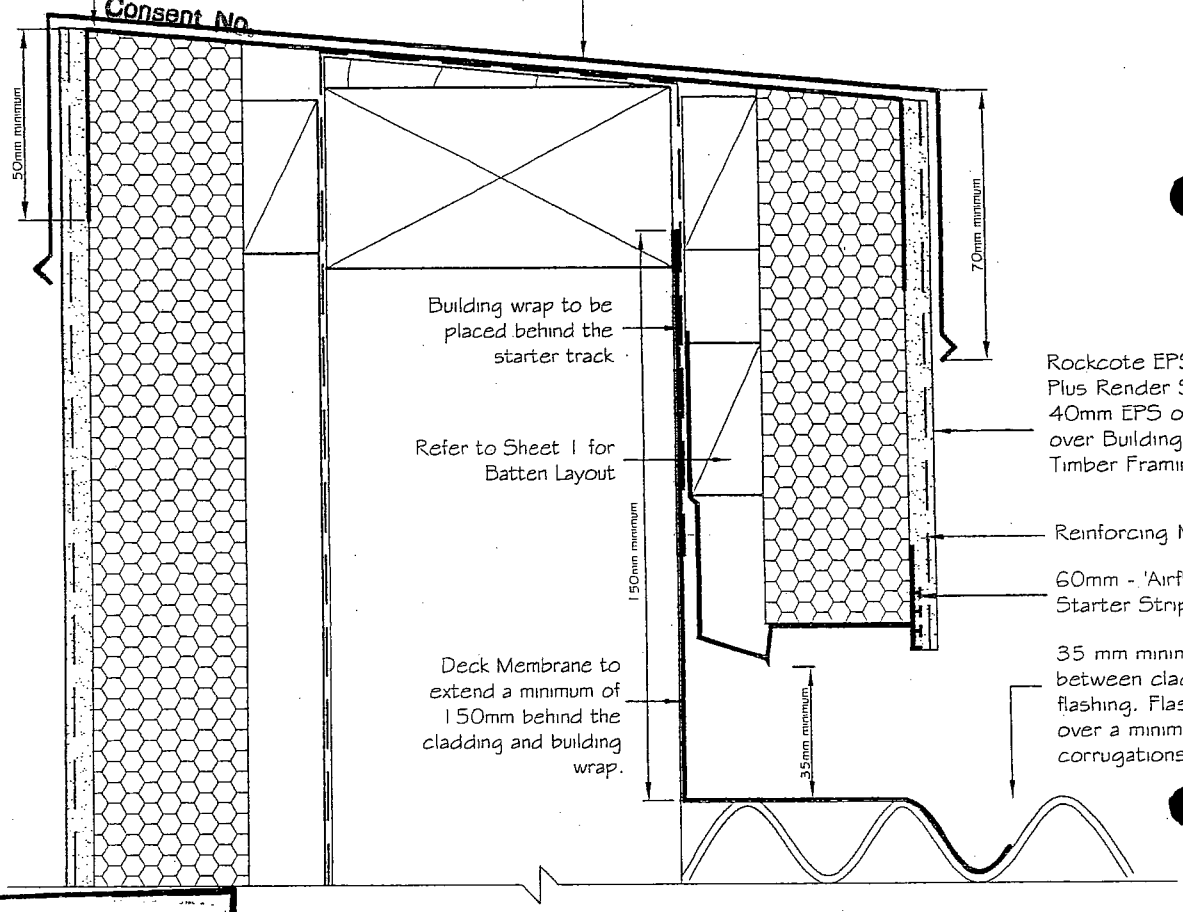
All Parapets to be wrapped using EIFS Tape. This is to be carried a minimum of 50mm down either side of the parapet over Styrene.

Metal Capping to be installed on an angle of no less tha degrees. This is to be preferably sloped to the inside of Parapet. The capping is to be installed AFTER all plaster been completed. The parapet must be fixed through the the capping. The parapet Flashing must extend a minimu 70mm down either side of the Parapet. All Flashings are the durability requirements of Section 4 of NZS 3604:1

APPROVED

10/0015

Consent No.



Deck Membrane over decking Roof / deck clearance 35mm minimum clearance from base of cladding to decking membrane / tiles

Drain Holes in the Starter Strip are sufficient to achieve ventilation openings of 1000mm²

Waimakariri District Council

23 DEC 2009

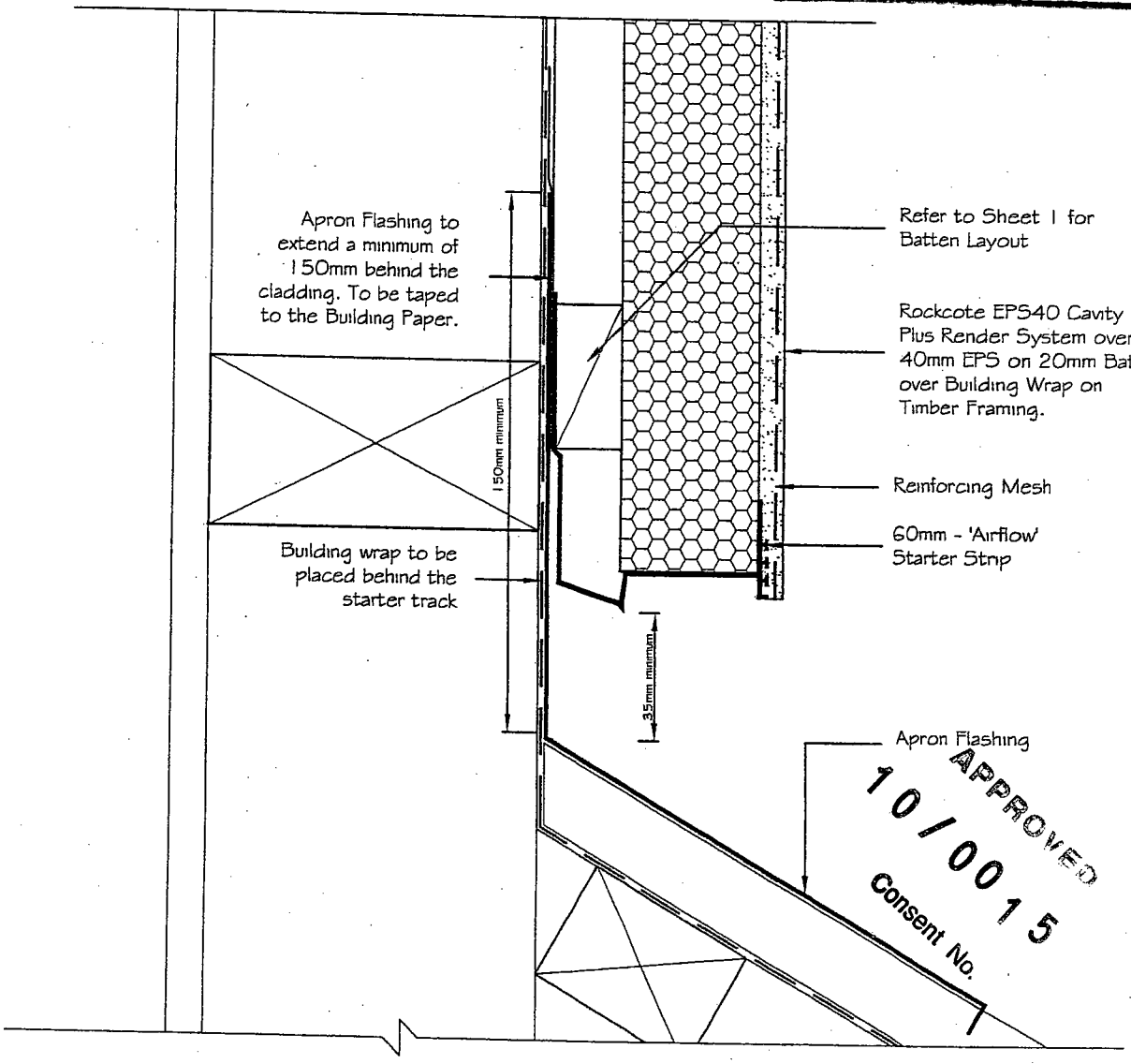
RECEIVED

Rockcote systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale	EPS40 RENDER SYSTEM
EPS40Cavity_13.dwg	1 : 2 (ISO)	
Drawn By: Sae-woon Lim		Date: 25 June 2005
Drawing Name: Parapet to Roof		Sheet: 13



Drain Holes in the Starter Strip are sufficient to achieve ventilation openings of 1000mm²

ROCKCOTE systems

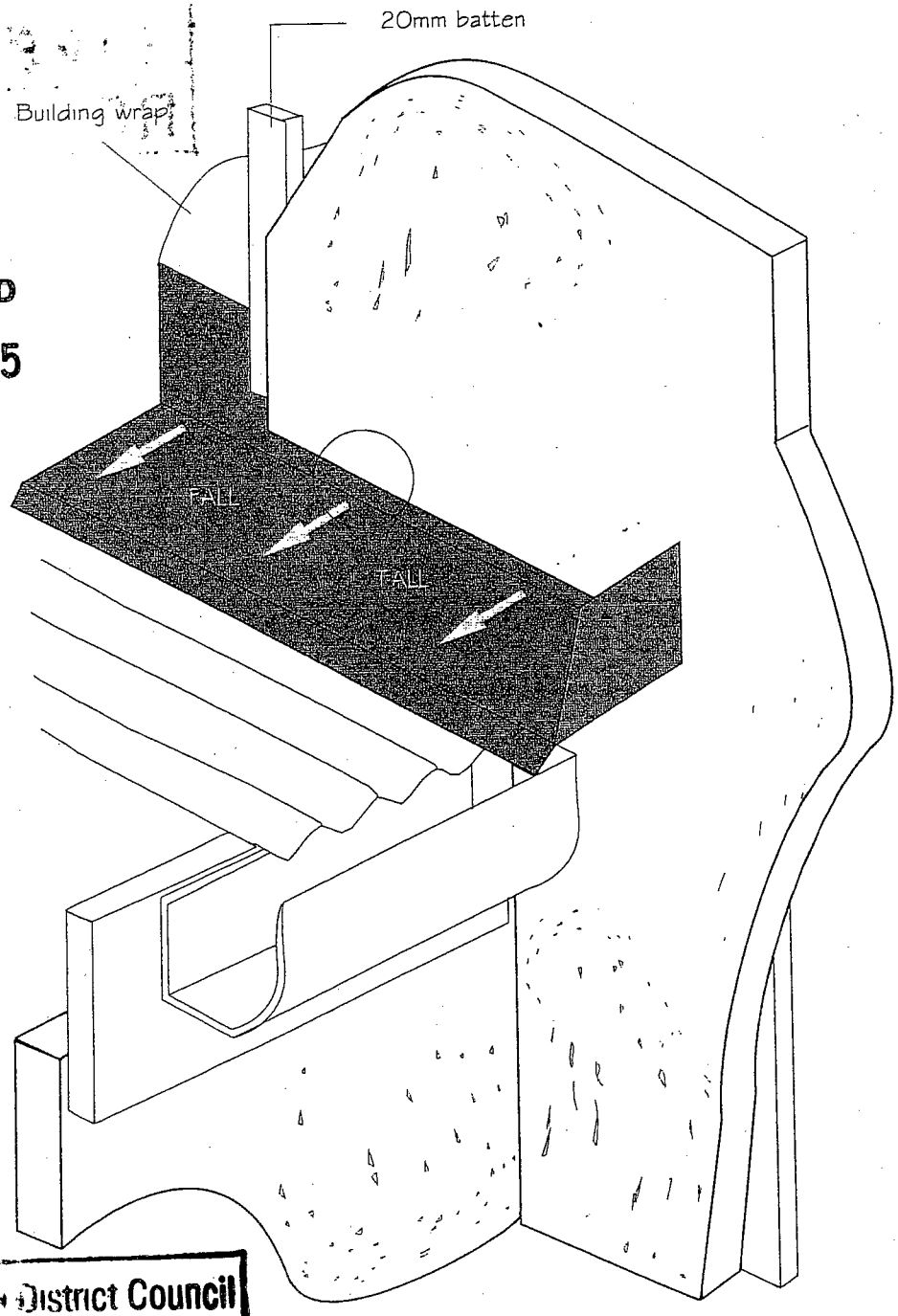
All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale
EPS40Cavity_15.dwg	1 : 2 (150)

EPS40 CAVITY PLUS RENDER SYSTEM

Drawn By	Date
Sae-woon Lim	25 June 2005
Drawing Name	**Sheet**
Wall to Roof (Apron)	15



Rockcote EPS40 Cavit
Render System on 20
Battens.

Rockcote / Roof detai
refer to technical manu

Kick-out* formed
and installed by roofer
to divert water into s

Fascia and gutter*
to remain clear of
the cladding to allow
for plastering - refer
technical bulletin
TB 02.
Minimum finished clear
of 10mm is required

Apron Flashing to be installe
with E2/AS1 Clause 5.1

APPROVED

10/0015

Consent No.

District Council

23 DEC 2009

RECEIVED

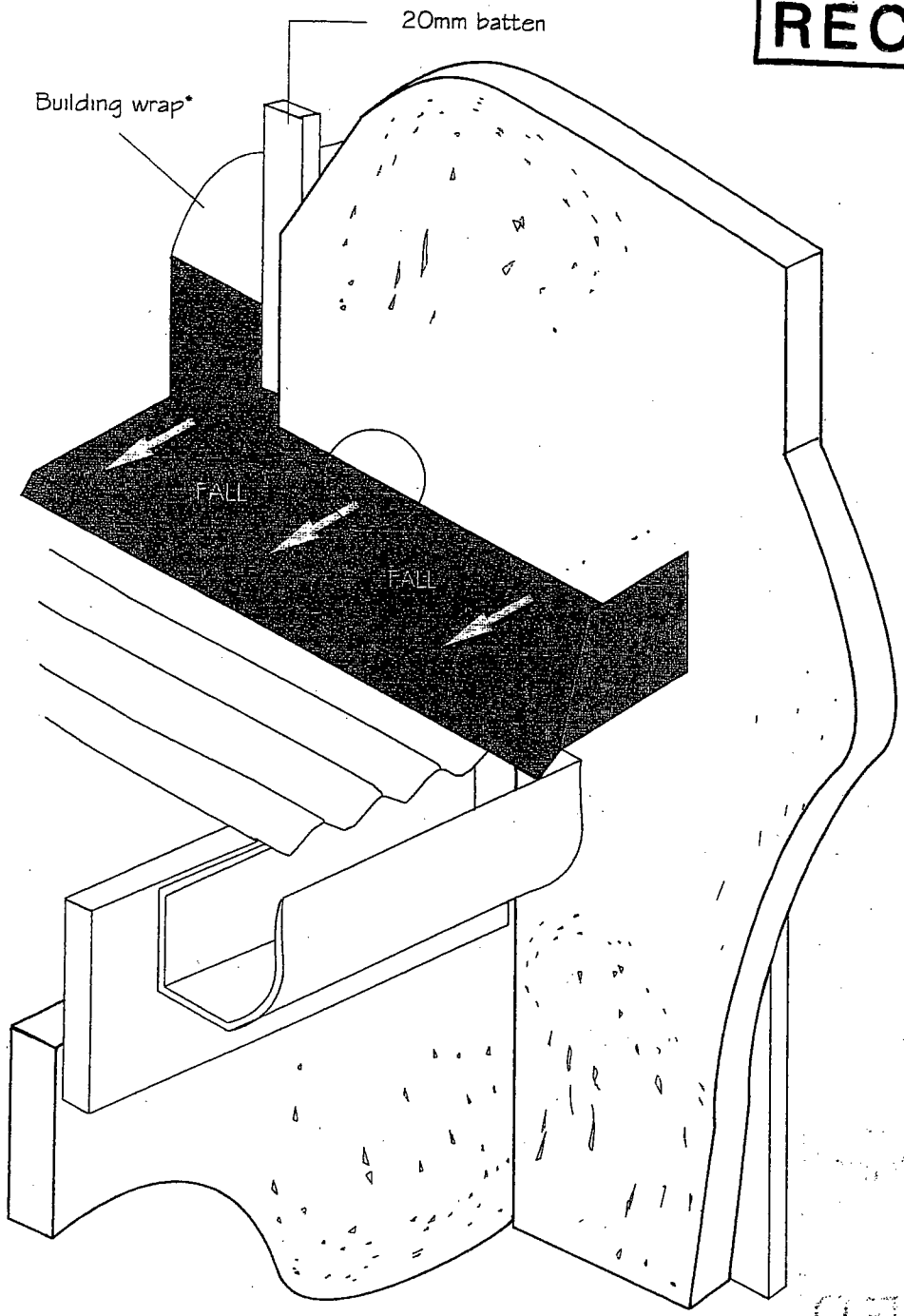
ROCKCOTE systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

*indicates: components NOT supplied by Rockcote Systems

Filename: EPS40_kickout.ai	EPS40 RENDER SYSTEM
Drawn By: Sae-woon Lim	Date: 25 June 2005
Drawing Name: Kickout Flashing Detail	Sheet: 15A



Rockcote EPS40 Cavity Plus Render System on 20mm Battens.

Rockcote / Roof detail refer to technical manual.

Kick-out* formed and installed by roofer to divert water into spouting.

Fascia and gutter* to remain clear of the cladding to allow for plastering - refer technical bulletin TB 02.
Minimum finished clearance of 10mm is required - E2/AS1

Apron Flashing to be installed in accordanc with E2/AS1 Clause 5.1

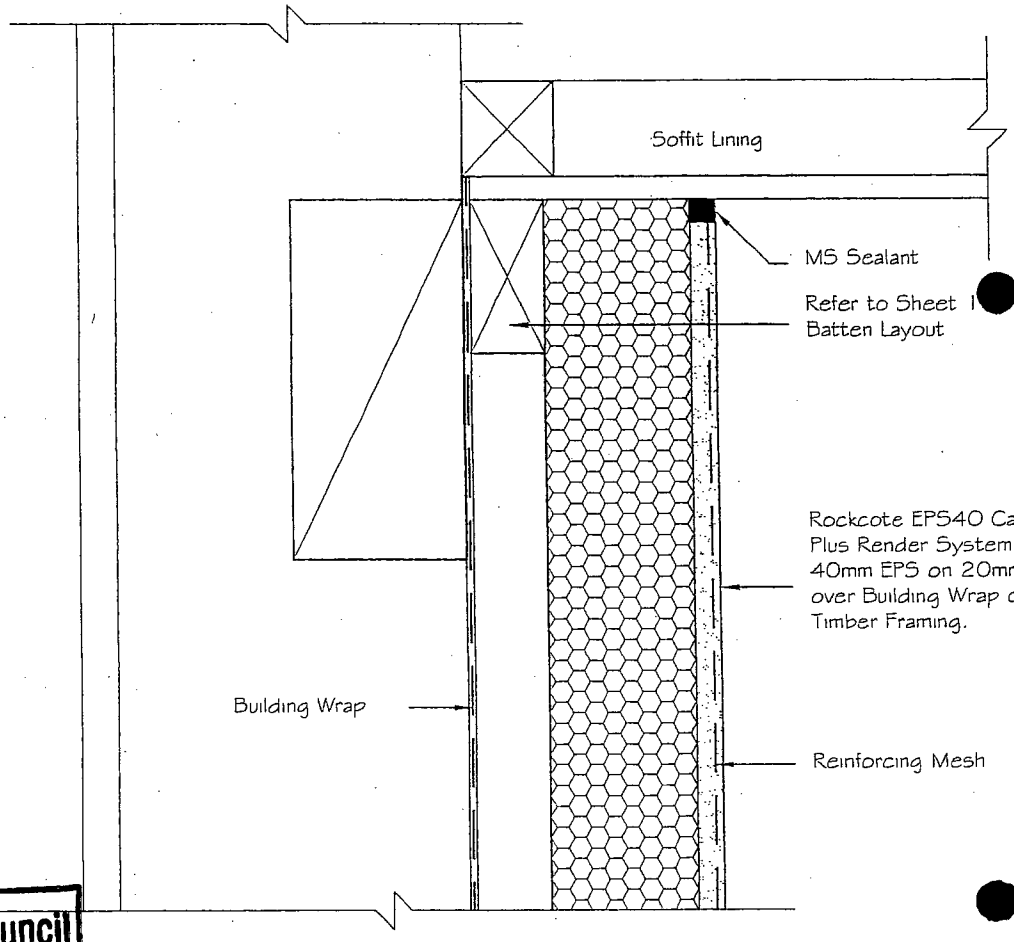
ROCKCOTE systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

*indicates: components NOT supplied by Rockcote Systems

Filename: EPS40_kickout.ai	EPS40 CAVITY PLUS RENDER SYSTEM
Drawn By: Sae-woon Lim	Date: 25 June 2005
Drawing Name: Kickout Flashing Detail	Sheet: 15A

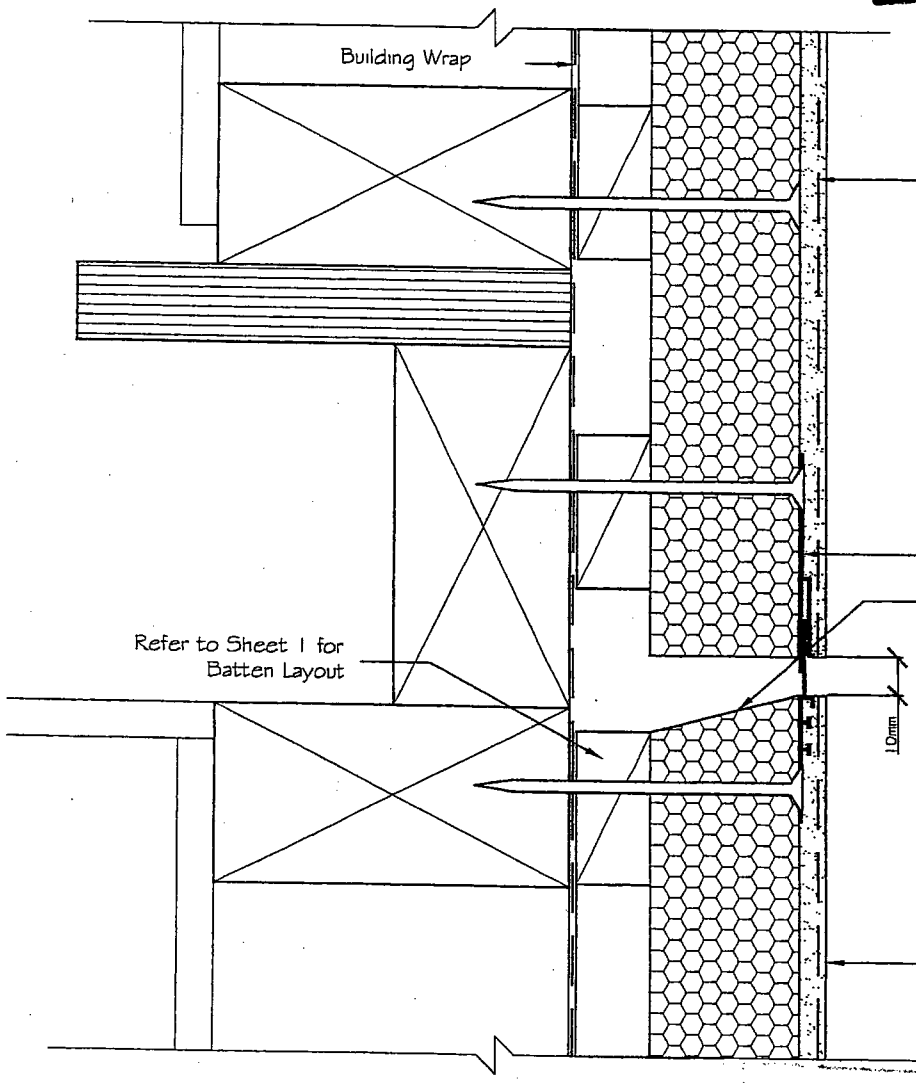


ROCKCOTE
systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale	
EPS40Cavity_16.dwg	1 : 2 (ISO)	EPS
Drawn By		Date
Sae-woon Lim		25 June 200
Drawing Name		Sheet
Wall to Soffit		16



uPVC Control Joint flashings must be nailed into the Timber Frames.

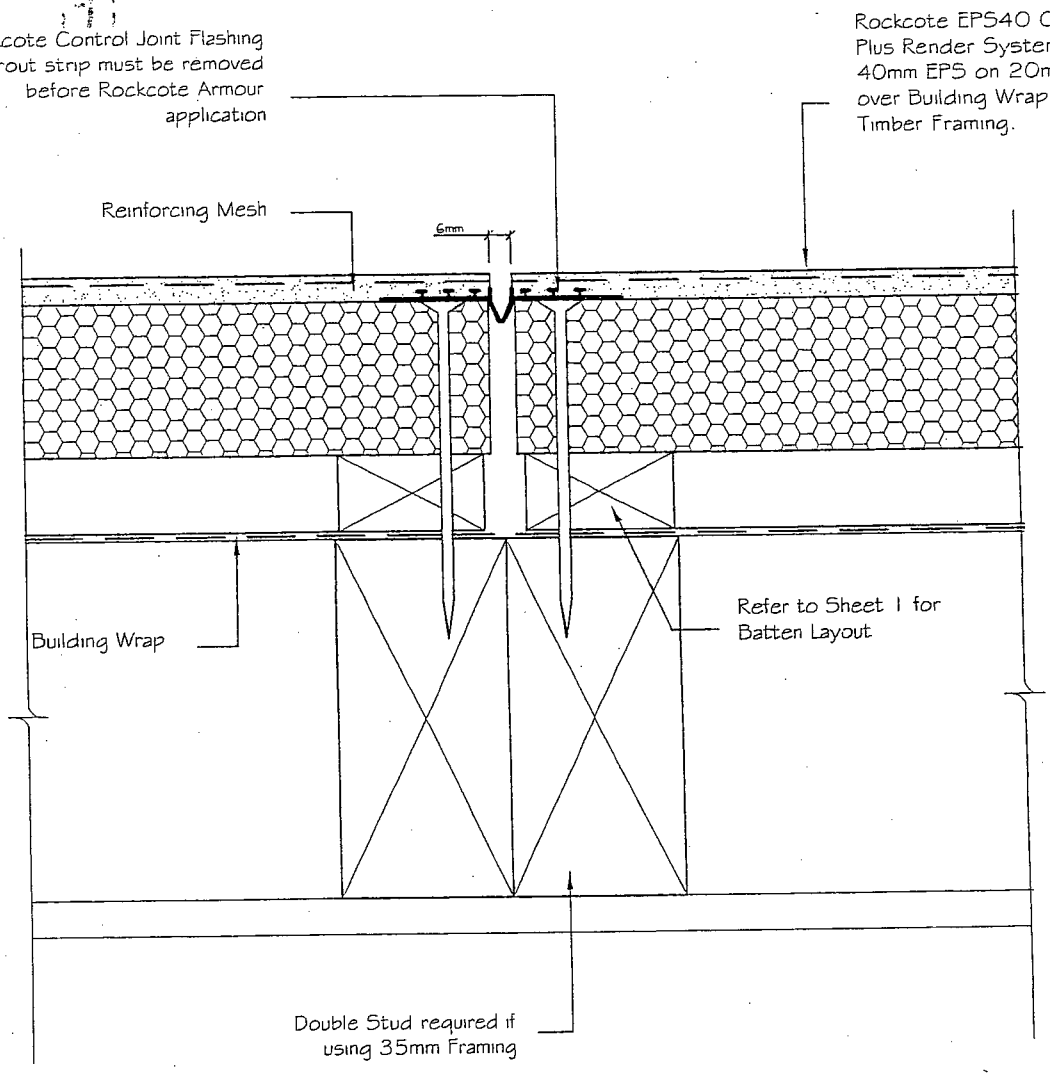
All Control Joint spacings and setouts are the responsibility of the Designer, for suggested locations refer to Technical Bulletin 11. Where Control Joints meet, then Protecto Tape is to be installed behind ALL junctions refer to Technical Bulletin 25 for more details.

Filename	Scale
EPS40Cavity_20.dwg	1 : 2 (ISO)
Drawn By: Sae-woon Lim	Date: 25 June 2005
Drawing Name: Horizontal Control Joint	Sheet: 20

APPROVED

10/0015

Consent No.



All Control Joint spacings and setouts responsibility of the Designer, for sugg locations refer to Technical Bulletin 11 Control Joints meet, then Protecto Tap be installed behind ALL junctions refer t Technical Bulletin 25 for more details.

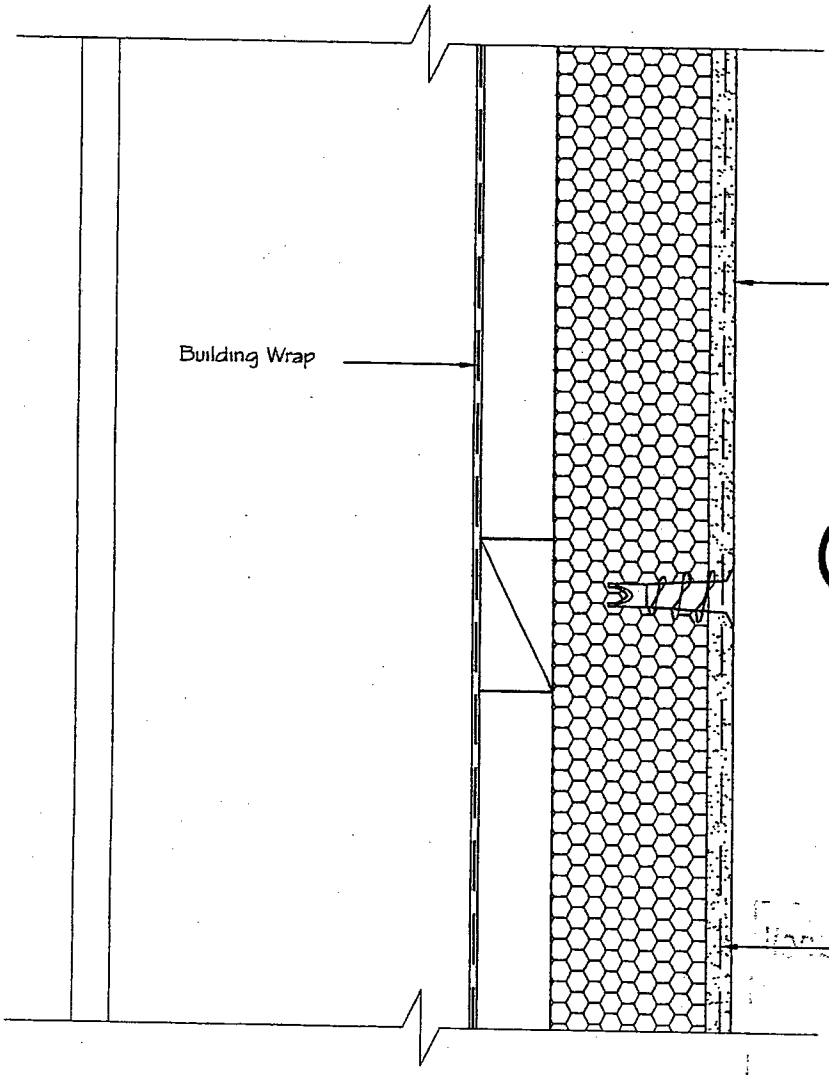
ROCKCOTE
systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale	EPS40 RENDER SYSTEM
EPS40Cavity_21.dwg	1 : 2 (ISO)	
Drawn By: Sae-woon Lim		Date: 25 June 2005
Drawing Name: Vertical Control Joint		Sheet: 21

APPROVED
10/0015
Consent No.



For further information please Refer to Technical Bulletin 05. Zip-It Fastener only appropriate for weight no more than 1 kg.

Wanganui District Council
23 DEC 2009
RECEIVED

ROCKCOTE
systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

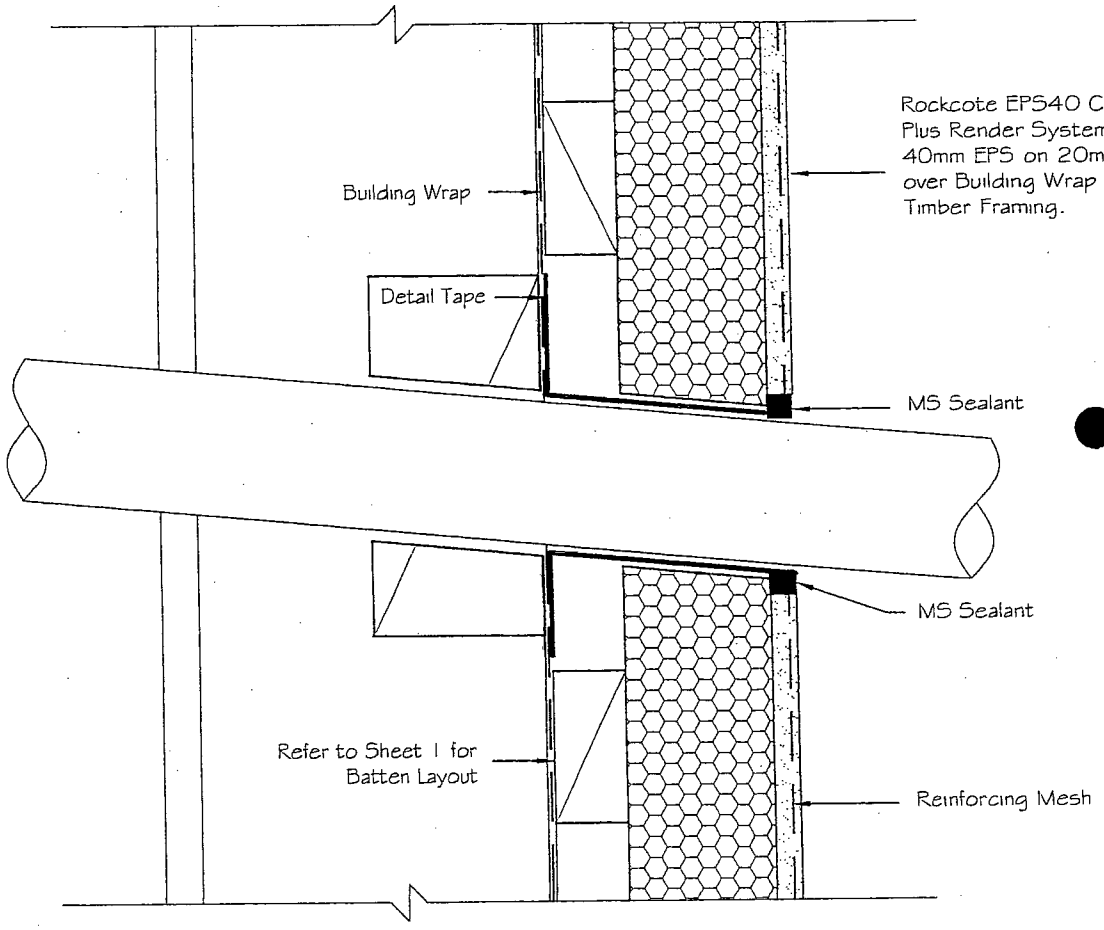
Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale	EPS40 CAVITY PLUS RENDER SYSTEM
EPS40Cavity_23.dwg	1 : 2 (ISO)	
Drawn By: Mark Flewellen		Date: 25 June 2005
Drawing Name: Lightweight Fixing		Sheet: 23

APPROVED

10/0015

Consent No.



The responsibility for the penetration is the responsibility of the main contractor, where possible and practical use a flange.

It is important that there is adequate support for the penetration in the form of timber packing. The penetration should be angled slightly away from the cladding so any moisture is diverted away from the cladding.

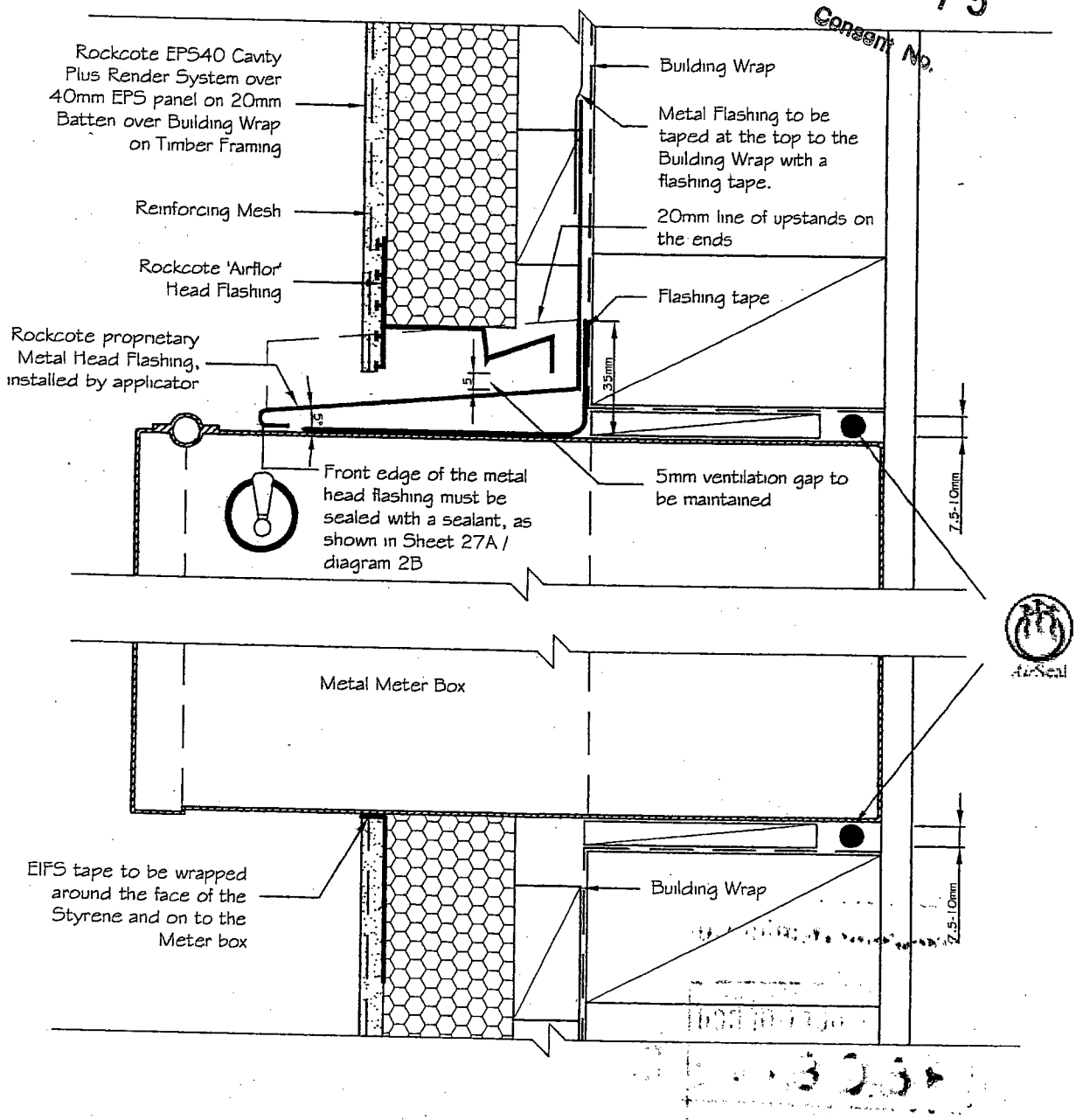
ROCKCOTE

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale	
EPS40Cavity_26.dwg	1 : 2 (ISO)	EPS40 RENDER SYSTEM
Drawn By: Sae-woon Lim		Date: 25 June 2005
Drawing Name: Pipe Penetration		Sheet: 26

APPROVED
10/0015
Consent No.



EIFS tape must NOT be exposed to the UV sunlight.

Wanganui District Council
23 DEC 2009
RECEIVED

AirSeal

Air Seal please refer to Rockcote Technical Bulletin 09 for more information on Air Sealing Technology.

ROCKCOTE systems

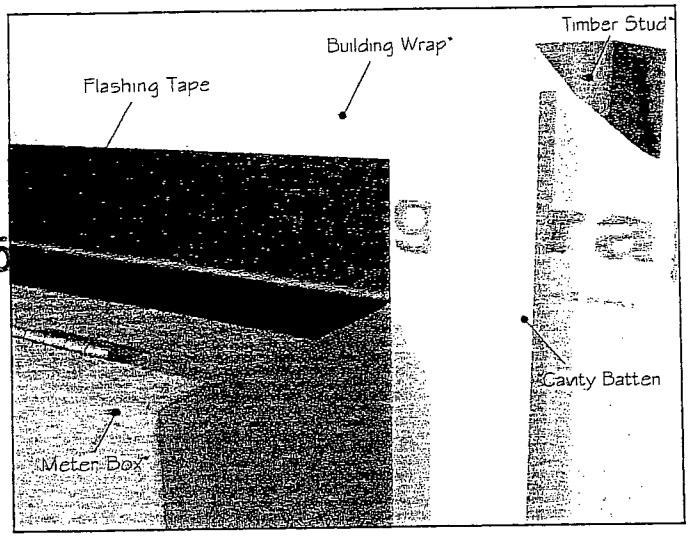
All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

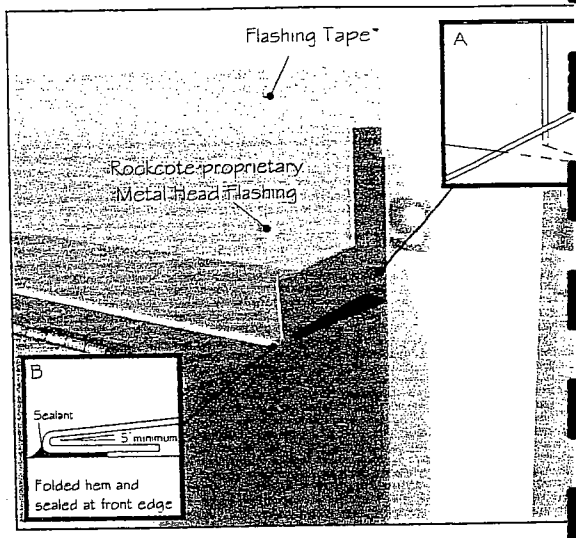
Filename	Scale
EPS40cavity_27.dwg	1 : 2 (150)

EPS40 CAVITY PLUS RENDER SYSTEM

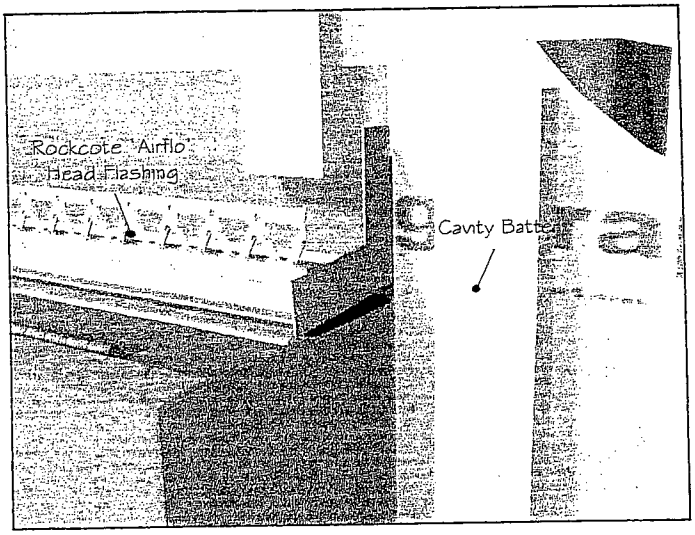
Drawn By	Date
Sae-woon Lim	25 June 2005
Drawing Name	Sheet
Meter Box Penetration	27



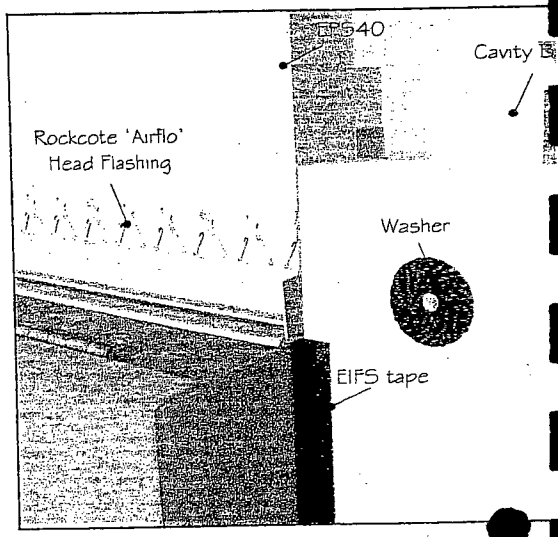
(1) Meter Box should penetrate into the Building Wrap as shown above.



(2) Metal Flashing is placed on top of the Meter Box and taped to the Building wrap at the top, and sealed on edge of the Meter Box.
20mm stop ends are folded up as shown in diagram



(3) Rockcote 'Airflow' Head Flashing is to be placed on top of the Metal flashing with a minimum of 5mm ventilation gap from the bottom of the PVC flashing to the top of the Metal Flashing.



(4) EIFS tape must be wrapped around the sides and the Meter Box and on to the Styrene (EPS40). The of the EIFS tape must be atleast 50mm on to the maximum of 7mm (or thickness of the plaster) on t It should look like above (4) before plastering.

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

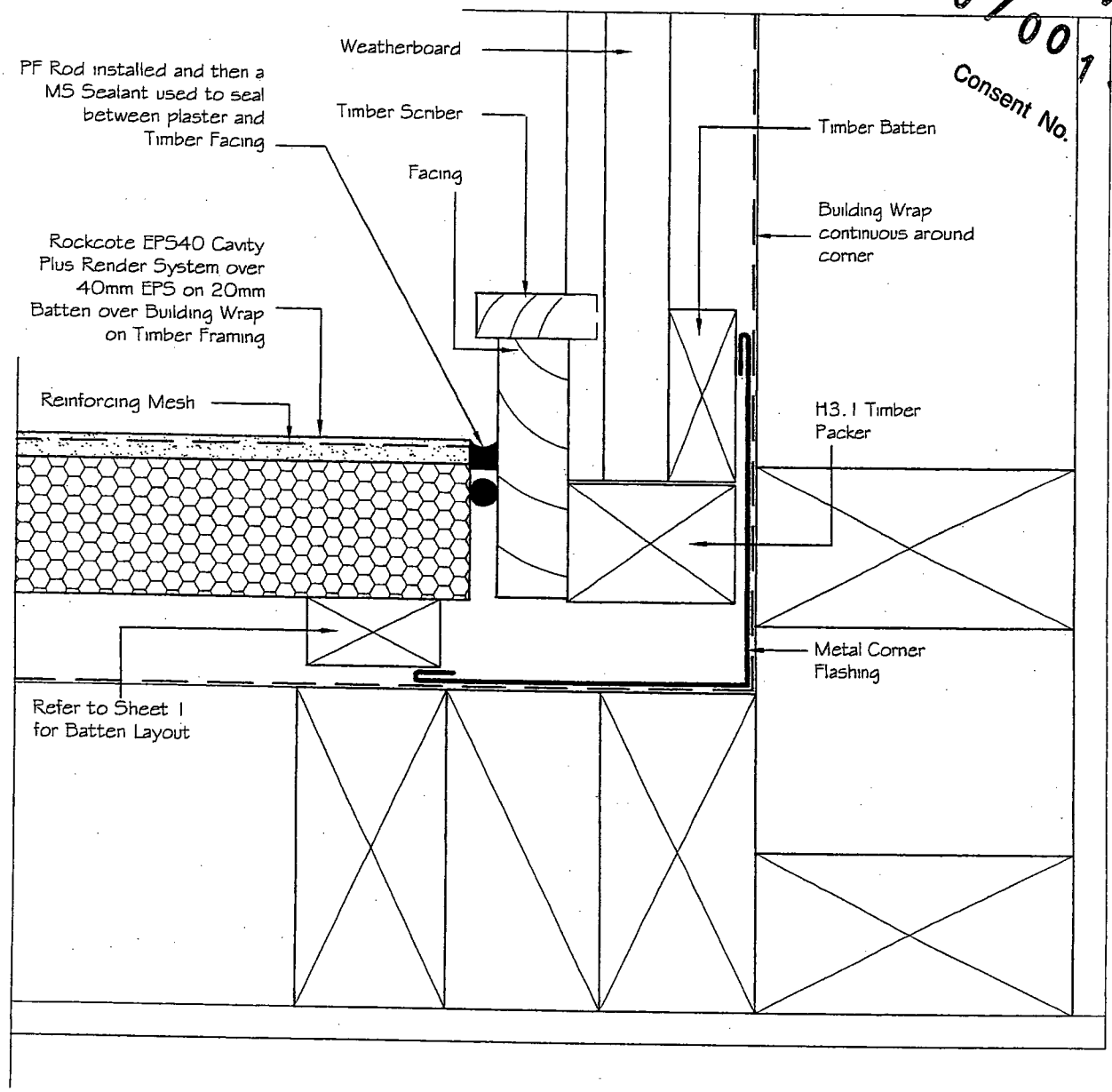
Drawings not to be used for construction without Territorial Authority Consent.

Drain holes in the Starter sufficient to achieve ventila of 1000mm² per lineal met

All EIFS tapes must not be to the UV light.

*indicates: components NOT supplied by Rockcote Systems

Filename: EPS40_MeterBox.ai	EPS4
Drawn By: Sae-woon Lim	Date: 25 June 2005
Drawing Name: Standard Meter Box Installation	Sheet: 27A



ROCKCOTE systems

All Construction to comply with NZBC and relevant documents and Territorial Authority Regulations. The contractor shall verify all dimensions and levels on site before work commences.

Drawings not to be used for construction without Territorial Authority Consent.

Filename	Scale	
EPS40Cavity_37.dwg	1 : 2 (150)	EPS40 CAVITY PLUS RENDER SYSTEM
Drawn By: Sae-woon Lim		Date: 25 June 2005
Drawing Name: Weatherboard to Styrene Internal Junction		Sheet: 37