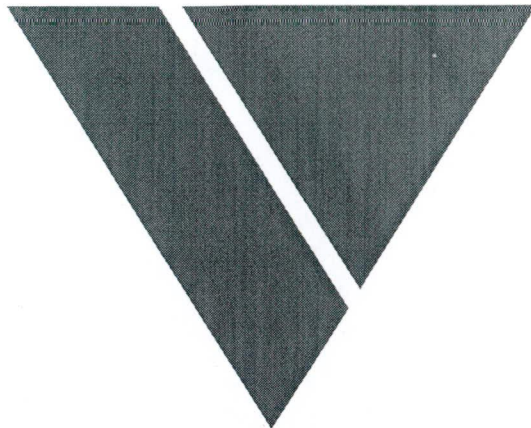




SOUTHLAND DISTRICT COUNCIL
No. 43681/1
Approved L.F. Luker
Date 7/7/09

VERSATILE[®]

BUILDINGS

Housing Specification

Concrete Floor with Mastacled on Cavity Battens

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EXCAVATION

SECTION 1

1. PRELIMINARY

1.1 Scope See Site Plan for extent of work

2. Clearing of Site

Remove all vegetation trees and roots within area to be covered by the building, verandah and porches in accordance with NZS 3604, Section 3.5.

3. EXCAVATION

3.1 Concrete Floor

Excavate for foundations to a minimum depth of 200mm or to solid bearing. Excavate for verandah, porches and steps to depth shown on the drawings. A minimum 100mm depth of topsoil is to be excavated under all concrete floors.

4. FILL UNDER CONCRETE FLOORS.

Approved hardfill to NZS 3604, section 7.5.3 shall be well compacted and leveled under all concrete floors and shall be a minimum thickness of 150mm.

5. BACKFILLING

Backfill with excavated material, in 150mm compacted layers, to foundation walls, verandah piles and service trenches.

CONCRETE

SECTION 2

1. PRELIMINARY

1.1 Standards

Workmanship and materials shall comply with NZS 3109 and NZS 3104.

1.2 Inspection

At least 24 hours notice shall be given to the Territorial Authority before pouring, to allow for inspection of the excavation, formwork and reinforcing. No concrete shall be poured before approval.

2. MATERIALS

2.1 Concrete

All concrete shall be Ordinary Grade 17.5 MPa min, maximum aggregate size 19mm complying to NZS 3104.

2.2 Reinforcing

Reinforcing shall be mild steel deformed bars lapped 40 rod diameters and tied with black annealed tie wires. Reinforcing bars shall comply with AS/NZS 4671, grade 300 deformed. Welded mesh to AS/NZS 4671.

3. FOUNDATION WALLS

Pour reinforced foundation footings and walls as detailed on the drawings and in accordance with NZS 3604. Allow to build in 40mm minimum P.V.C. power conduit. Allow to build in pipes etc as required by other trades.

4. CONCRETE FLOORS

Concrete floor shall be 100mm minimum thickness poured over 0.25mm polythene or "Moistop" vapour barrier. Vapour barriers shall be lapped 150mm at joints and sealed with pressure sensitive tape. Floor slab surface shall be smooth and level, free from ridges or hollows in accordance with NZS 3114.

Sawcut slabs as soon as practical after laying (generally within 24 hrs). Sawcuts to be 33% of slab depth or 30mm min.

5. VERANDAH

Verandah and porches shall be tied into the foundation with D12 starters @ 600crs into concrete verandah 300mm. Verandah and porches shall have falls away from the building and shall be finished with a wooden float. Form shrinkage control joints at 3.0m crs. Allow to build in verandah post brackets.

6. HOLD DOWN BOLTS

12mm Through bolts with 50 x 50 washers at 1200 max centres.

ALUMINIUM JOINERY

SECTION 3

1. PRELIMINARY

1.1 Scope

Supply aluminium windows and doors of size shown on Elevations and Versatile standard window schedule.

1.2 Standards

All windows and doors shall comply with the performance requirements of NZBC E2/VM1. Fabrication by a member of the Window Association of New Zealand.

2. FINISH

Aluminium shall be powder coated with paint grade timber reveals to NZS 3602.

3. GLAZING

Glass as selected to NZS 4223, parts 1 and 3. Use safety glass in locations as stated in NZS 4223, part 3 as modified by F2/AS1, 1.0 Glazing. All windows and doors shall be Double Glazed.

CARPENTRY

SECTION 4

1. PRELIMINARY

1.1 Standards

Workmanship and materials shall comply with NZS 3604, the NZBC and all relevant N.Z. Standards.

1.2 Protection

All finished or partly finished work shall be protected from surface injury or damage from exposure to the weather or any other cause.

2. MATERIALS

2.1 Timber

All timber shall comply with NZS 3603, tables 1 to 3. Moisture to be between 12% to 18% before fixing linings.

2.2 Fasteners

Nails, screws and other fixings shall be galvanised for exterior work or stainless steel where required by NZS 3604:1999. All fixings as per Versatile Buildings VB 1000 producer statement or NZS 3604.

For fixing type and quantity, see Versatile Buildings VB 1000 producer statement or NZS 3604

3. DAMP PROOF COURSE

Where timber is in contact with concrete the timber shall be separated from the concrete with "Cromford supercourse 500" hi-impact polyethylene DPC.

4. SCHEDULE OF TIMBERS

<u>Location</u>	<u>Timber</u>	<u>Grade</u>	<u>Treatment</u>
Wall framing	Pinus Radiata	MSG10	H 1.2
Trusses up to 7.2m	Douglas Fir	MSG8	Chem Free
Trusses 7.8m – 9.0m	Douglas Fir	MSG10	Chem Free
Purlins	Pinus Radiata	MSG8	Chem Free
Verandah Beam	Pinus Radiata	MSG8	H 3.2
Verandah Posts	Pinus Radiata (laminated)	No. 1	H 3.1
Verandah Deck	Pinus Radiata	No. 1	H 3.2

5. WALL FRAMING

5.1 Exterior Framing

Shall be 90 x 35 MSG-10 studs at 600 crs with one row of dwangs equally spaced. Top and bottom plates shall be 90 x 35 MSG-10 with top plates joined over studs and at intersecting wall with nail plates. Fix bottom plates to concrete floors with bolts into slab (See section 2). Cavity battens 45 x 20 H3.1 shall be fixed to studs and top plate. A cavity rodent strip will be fixed to bottom plate.

5.2 Internal Framing

Shall be 90 x 35 MSG-10 studs at 600 crs with one rows of dwangs equally spaced. Join top plates as for exterior framing. Bottom plates may be fixed to concrete floors with powder actuated fixings as "Ramset" or similar.

5.3 Bracing

Shall be galvanised angle bracing, brace line Gibraltar board or Mitek's VF7 as per VB1000 in accordance with the bracing schedule and to satisfy all requirements in the NZS 3604. Fix bracing to manufacturers recommendations at the wall position shown on the bracing schedule and Versatile Buildings VB1000 Producer Statement.

6. ROOF FRAMING

6.1 Trusses

Trusses shall be spaced at 1200mm crs and fabricated as shown on the drawing by registered truss manufacturer. Fix trusses over studs.

6.2 Purlins

Shall be 70x45 @ 800crs fixed over trusses as per purlin fixing sheet.

6.3 Soffit (see elevations for extent of work)

Fix 70x45 sprockets to end of truss overhang to form soffits. Fix 140x45 fascia to end of truss overhang. Fix 4.5mm hardiflex Soffit.

6.4 Bracing

Shall be Lumberlok galv steel strap brace (27 x 0.6mm) fixed as per Truss layout.

6.5 Fascia

Shall be 0.35 BMT G250 coloured steel fixed with laps away from prevailing wind. Fix with galv. Clouts through top edge of fascia and through lip up into underside of soffit.

7. VERANDAH

Frame up verandah as shown on the drawings. Set 90 x 35 rafters into position at 1200crs max to verandah beam and verandah waling fixed over cladding on exterior wall framing. Rafters shall be set to 10 degrees pitch. Laminated posts shall be 90 x 90 at 2.7m maximum crs supported on galv post brackets embedded in concrete footings or directly into concrete edge beam of concrete deck. Rebate top of post round beam and fix with Lumberlok Midi 65/200 plate with 8 type 17 screws.

8. ROOFING

8.1 Building Wrap

Lay Tasman Bitumac 860 self supporting building wrap. Building wrap shall be breather type to NZS 2295 run parallel to ridge and lapped 150mm over lower sheet. Provide adequate lap of building wrap into gutters.

8.2 Gutter

Versatile roll-formed 0.4mm BMT coloured steel gutters 150x60mm with a cross section area of 9000mm complying with E1, should be fixed prior to fixing of roof.

Fix end brackets 300mm from corners with three galv clouts into gutter purlin. Fix intermediate bracket at 900mm crs maximum spacing. Fit pre-fabricated ends to gutters, seal joints with RTV sealant and rivet fix. Cut hole for down pipe dropper. Rivet dropper and seal with R.T.V. Lap lengths of gutter to form joints with overlap running down the fall of the gutter. Seal between laps and rivet fix. Fix gutter roll to bracket ends then fold gutter up into position. Secure gutter by clipping bottom into bracket

and front rolled edge over gutter bracket. Rivet through gutter roll into bracket.

8.3 Roofing Iron

- a) Material: Shall be Versatile "Six Rib: 0.4 B.M.T., G.550, ZM275 coloured steel longrun roofing fixed with 75mm spiral shanked nails with colour matched heads with neoprene seals.
- b) Installation: Lay sheets with laps away from the prevailing wind. Lap bottom edge of sheet 50mm over fascia.
- Fix roofing through every rib to gutter purlin. Nail through sheet laps to every purlin. Fix each rib to each alternative purlin, except no two adjacent ribs (except laps) shall be nailed to the same purlin. All cutting of roofing shall be by shears or nibblers. Cutting discs will not be permitted.
- Installers should wear clean soft soled shoes when walking on roof and should take all reasonable care to ensure the surface film of the roofing is not scratched. After completion of the roof wash down the entire surface with hose and soft bristled broom to remove all fixing debris and swarf. Ensure all fixing debris and swarf is washed out of gutters.
- c) Limitations and Maintenance: Versatile "Six Rib" coloured steel roofing will perform to the requirements of New Zealand Building Code, Clause B.2 Durability if installed and maintained as herein specified and in accordance with the recommendations of Versatile Buildings Ltd VB1000 Durability Statement.

8.4 Barges

Shall be 0.4mm roll formed coloured steel barges nailed through top face into each purlin with spiral shanked roof nails. Colour to match roofing iron.

8.5 Ridging

Shall be coloured steel alu-edged ridging with 150mm laps between sections. Lap lengths away from prevailing wind and fix with 75mm spiral shank roof nails through every roof rib into top purlin. Dress alu-edge down into tray of roofing. Colour to match roofing iron.

8.6 Ridge Caps

Fix coloured steel ridge caps by riveting to each end of ridge over barges and under ridging.

9. EXTERIOR WALL COVERINGS

9.1 Building Wrap

Cover all exterior wall framing with Tasman Bitumac 851 building wrap and Flamestop 650 Building wrap to Gable Ends complying with NZBC E2/AS1 clause 9.1.7. Synthetic wraps shall not be used. Fix building wrap horizontally with 75mm minimum laps that shed water. Securely fix to top and bottom plates and studs.

9.2 Mastaclad

a) Standards.

Mastaclad metal weatherboards are an Alternative Solution under Clause E2 of the NZ Building Code.

b) Material

Versatile Mastaclad shall be rollformed from 0.40mm BMT, G.300, ZM275 coloured steel with strippable film, colour Titania, Smooth Cream, Mist Green and Desert Sand.

c) Installation

Fix PVC back flashing to all window and door openings and corners, and to all cladding joints where shown on the drawings or worksheet in accordance with Versatile's instructions. Remove all strippable film from boards before fixing. Position top board and fix through top flange with 35 x 2.5 galv high tensile clouts at 600 crs. Nail through bottom flange of board, through cavity batten, into every stud and through middle flange at ends of boards only. The top board of Mastaclad shall be positioned so that the bottom of the board is 45mm below the top of the top plate.

Position next board by pushing top flange of board up into rebate of board above then nail fix through bottom flange, through cavity batten, into every stud and nail through middle flange, only at the end of each board. After fixing all cladding, clip in cap flashing to all jointers and rivet all corner flashings into position. If cutting of board is required use shears or a nibbler; cutting discs are not to be used.

d) Limitation and Maintenance:

Versatile Mastaclad wall cladding will perform to requirements of the New Zealand Building Code Clause B.2. Durability, if installed and maintained as herein specified and in accordance with Versatile Buildings VB1000 producer statement. To ensure compliance the cladding and unwashed areas of the building such as under the gutters needs to be washed down using a hose and soft bristled broom. See producer statement for frequency.

10. INSULATION

10.1 General

Install insulation in accordance with NZBC acceptable solution H1/AS1

10.2 Ceiling Insulation

Insulate all interior roof cavity framing with R3.6 Pink batts minimum to form a complete insulated diaphragm.

10.3 Wall Insulation

Insulate all exterior framing with friction fit R2.6 Pink batts to form a complete envelope.

10.4 Floor Insulation

Insulate the perimeter of concrete slab with R1.3 EPS Perimeter Insulation.

11. INTERIOR LININGS

11.1 General

All linings shall be carried to floor level and behind all fittings. The moisture content of the framing shall be as specified by the manufacturer before fixing any linings.

11.2 Gibraltar Board

Line all walls and ceilings (except wet areas) with 10mm Gibraltar board stopped to a level 4 paint grade finish.

Line all walls and ceilings in wet areas with 10mm Gibraltar 'Aqualine' board stopped to a level 4 paint grade finish.

Fix sheets to manufacturers recommendations with 30 x 2.5 Gib clouts or Gib screws just below the surface of the board (without rupturing the face paper or core). Fix ceiling sheets across ceiling battens in a staggered pattern. Fix wall sheets horizontally. Fix wall sheets to stud in internal corners and at junctions with other walls.

11.3 Skirtings

Shall be customwood 60 x 10mm skirting to all wall and floor junctions including the inside of all built-in cupboards and wardrobes.

12. CUPBOARD AND FITTINGS

12.1 Wardrobes

Shall be fully lined and stopped. Fit 20mm full length customwood or particle board shelf at 1.7m above floor, with 20mm galv-pipe hanging rail 75mm below shelf.

12.2 Cylinder Cupboard

Fit four shelves beside cylinder as required. Each shelf to be ex 75 x 25 slats spaced 15mm apart.

12.3 Kitchen joinery

Supply and fit kitchen joinery as shown on plan. Apply Silicon seals to junctions between walls and bench.

13. INTERIOR DOORS

Shall be either Flush Panel (Nova Standard MDF) pre hung in rebated.

PLUMBING

SECTION 5

1. PRELIMINARY

1.1 Standards

All work shall comply with the NZBC clauses G.1 – G.4 and G.10- G.15. Acceptable solutions are as outlined in AS1.

All work shall be carried out by a tradesman registered under the Plumbers, Gasfitters and Drainlayers Act 1976.

2. MATERIALS

2.1 Copper Tubing

Shall be seamless cold drawn to comply with NZS 3501

2.2 Plastic Pipe

- a) Polybutylene – Shall comply with AS 2642 Pts 1,2,3
- b) Up.v.c. – wastes, vents and soil pipes shall be rigid having solvent welded joints to comply with NZS 7641:1978 and NZS 7642:1971.
- c) Polypropylene – Traps shall be white polypropylene 'Dux' with screwed joints.
- d) Polyethylene – Water supply pipe to be h.d. polythene complete with Philmac or equal approved pipe fittings to NZS 7602

2.3 Insulation

Sheath hot water pipework outside insulation envelope with cell foamed polymer lagging or hair felt lagging double lapped.

3. COLD WATER SUPPLY SERVICE

3.1 Supply

From point of supply run 20mm polythene pipe 450mm min, underground to stop cock in toby box outside house foundation.

3.2 Piping

All pipework shall comply with G.12/AS1, 5.0 Water Supply. Run 20mm pipe from entry point direct to hot water cylinder via stop cock, filter, pressure reducing valve, non return valve and final stop cock. Tee of supply pipe before supply tank or H.W.C. and run 20mm dia pipe with 15mm dia, branches and risers to sink, WHB, bath, shower, W.C. tub and hose taps.

4. HOT WATER SERVICE

4.1 Hot Water Heater/Cylinder

180 litre mains Pressure HWC

4.2 Piping

From H.W.C., run 20mm dia supply pipe with 15mm branches or risers to sink W.H.B., bath, shower and tub. Fit tempering valve to comply to NZS 4617 to hot water supply pipework prior to all fittings. Set valve to 55°C in accordance with NZBC G.12 AS1 clause 6.14.1.

5. WASTE PIPES AND TRAPS

Install system to NZBC G13, Foul Water. Provide all necessary traps, waste pipes, soil stacks, back vents and terminal vents. Adequately support all suspended wastes.

6. FLASHINGS

Flash all pipes that pass through the roof with Aquaseal pipe flashings bedded in R.T.V. sealant and rivetted to roofing. Flashings to comply with E2 2005 document.

7. TAPS AND SANITARY FITTINGS

See Schedule of Work, Fittings and Finishes document for schedule of taps, sanitary fittings, shower and all bathroom hardware. Apply Silicon seals to walls and fixtures.

8. DOWN PIPES

Supply and fit PVC downpipes to droppers in gutter. Fix each downpipe with two brackets per downpipe. Minimum 65Ø downpipe per 60m² roof area under 25° roof pitch in accordance with AS1/E1.

9. TESTING

At completion of all work test all water supply pipework at maximum pressure available. Test all waste pipework to 1500KPA Pressure Test

DRAINAGE

SECTION 6

1. PRELIMINARY

1.1 Standard

All work shall be to best trade practice and shall comply with NZBC Clauses G.13. Acceptable solutions are as outlined in AS1.

All work shall be carried out under the supervision of someone registered under the Plumbers, Gasfitters and Drainlayers Act 1976.

1.2 Scope

See Site plan for extent of work

2. MATERIALS

2.1 Pipes

UPVC pipes shall comply with NZS 1260:1999.

Pipe supports shall be supported at centres not exceeding those in G13 6.2 Table 7. The plumbing system shall not fail from Thermal movement as outlined in G13 6.3.1-2.

2.2 Concrete

Shall be 17.5 MPa Ordinary Grade to NZS 3109

3. TRENCHES

Carry out work to NZBC G13 Foul Water and NZBC B1/AS1, 6.0 Drains.

Neatly cut trenches, graded to falls and after approval, backfill and thoroughly consolidate. Spread surplus spoil where directed. Lay all drains on minimum 100mm of 20mm crushed metal. See E1 figure 13.

4. SEWER DRAINS

Provide all necessary bends junctions inspection fittings etc

Bed gullies in concrete and fit preformed concrete or plastic sumps complete with grate and cover.

Sumps shall be 100mm above existing ground level or 50mm above proposed concrete paving..

Finish all concrete to a dense smooth finish.

Connect to terminal vent and gully trap and run to New connection.

Hydraulic Test drains

5. STORMWATER DRAINS

Provide all necessary bends, junctions, inspections fittings etc

Bed easy bends in concrete below downpipe entries. Fit grating and cover plate cut round downpipe.

Finish bends as specified for gullies

Connect to stormwater drain soakpit as shown on the site plan using 100Ø stormwater pipes.

ELECTRICAL

SECTION 7

1. PRELIMINARY

1.1 Standards

The whole of the electrical installation shall be in strict accordance with the Electricity Regulations 1997, AS/NZS 3000 and with the utility network operators requirements.

1.2 Qualifications.

All work shall be carried out by or directly supervised by a person holding a practicing certificate under the Electrical Regulations 1996.

1.3 Scope

The supply and wiring up of all fittings as scheduled. For extent of work see Schedule of Work, Fittings and Finishes document and if PC Sum is allowed for a mains connection and connection fee. For Telecom connection see Schedule of Work, Fittings and Finishes document.

1.4 Compliance.

Supply a Certificate of Compliance to the Owner as required under the Electricity Regulations 1997.

2. MATERIALS

2.1 Cables

Cables shall be 250v grade tough plastic sheathed copper conductors on 16 amp MCB's. Increase these as necessary due to method of installation, cable length or load.

2.2 Light Switches

Shall be 10amp, all insulated P.D.L. micro-gap type or equivalent, mounted 1200mm above floor. Supply and wire up light switches as plans.

2.3 Power Points

All wall plugs shall be 230v 10 amp 3 pin flush type mounted 300mm above floor or 225mm above bench tops. Mount plugs for washing machine and refrigerator 1200mm above floor. Supply and wire up power points and Telecom telephone jack points as plans.

Provide and wire up exterior lights as per attached plans.

2.4 Heating outlet

Provide and wire up a Heat pump to Living area.

3. MAIN SWITCHBOARD

Supply and install in recess provided where shown on plans main switchboard complete with all necessary control and ancillary equipment.

4. METER BOX

4.1 Meter Box

Shall be installed in exterior wall. 40mm dia. Conduit will be run through framing to outside foundation for mains supply cable. (Conduit by others, See Concrete)

5. WATER HEATER

Allow to connect up hot water cylinder to adjacent switched 16 amp permanent connection.

6. ELECTRIC STOVE

See Schedule of Work, Fittings and Finishes for type of electric stove. Provide and fix a 30 amp flush switch for stove and sufficient cable for connection. Allow to connect up.

7. SMOKE ALARM.

Fit Fire Service approved smoke alarm with hush button within 3m of bedroom doors as per clause F7, Warning Systems of the NZ Building Code.

FINISHING

SECTION 8

1. PAINTING AND DECORATING

For extent of work see Schedule of Work, Fittings and Finishes document. All painting work included in the contract shall be carried out by an experienced tradesman. The minimum number of coats to all interior walls and ceilings, except wet areas shall be one sealer coat and two top coats of acrylic. For wet areas minimum shall be two undercoats and one finish coat of enamel. For exterior work the minimum will be one undercoat and two top coats if using acrylic or two undercoats and one finish coat if using gloss enamel.

2. CARPET AND VINYL

All floor coverings to wet areas to comply with NZS4102

VB1000

S T R U C T U R A L

D E T A I L S

Habitable



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VB 1000

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VERSATILE®
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PRODUCER STATEMENT DESIGN

ISSUED BY: Claude Antony Carter Cook (MiTek NZ Ltd)

TO: VERSATILE BUILDINGS

IN RESPECT OF: PROPOSED HABITABLE BUILDINGS

MiTek New Zealand Ltd has been engaged by Versatile Buildings to provide engineering design services in respect of the requirements of Clause(s) B1 of the Building Regulations 1992 for part only as specified - Roof Structure to Floor (excluding slab and foundation) of the building work. The design has been prepared in accordance with AS/NZS 1170 (Parts 0, 1, 2, 3 & 5), NZS 3603:1993, NZS 3604:1999, approved documents of the NZ Building Code and the work is described on MiTek New Zealand Ltd drawings titled VB 2000 Structural Details 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 \$500,000, I BELIEVE ON REASONABLE GROUNDS that subject to:

1. The verification of the following design assumptions:

- i) Light Roof
- ii) Trusses designed to a modified High Wind $p=660\text{Pa}$, and modified Very High Wind $p=850\text{Pa}$ with a $C_{fig}=-1.1$.
Locations defined as: Sheltered Rural & Open and Exposed Urban Conditions with maximum building height to the apex of 4.2m.
- iii) Snow Load $S_g = 0.9\text{kPa}$
- iv) Buildings designed for Building Importance Level 2, with a 50 year working life.

2. 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.

Signature

Date: 1st December 2008



Claude Antony Carter Cook
BE (Hons), MIPENZ (ID: 240891)
CPEng, IntPE

MANUFACTURERS STATEMENT DURABILITY



To satisfy the requirements of Clause B2: "Durability" of the New Zealand Building Code, the metal cladding material needs to meet a 15-year durability life. To achieve that, the following provisions must apply:

Range of Product and Use.

Specification:	AS1397: 2001
Coating Type:	Zinc/Aluminium & painted
Steel thickness range:	0.35mm – 0.95mm BMT
Steel grade range:	G300 – G550
Application:	Cladding for building Importance Level 2, with a working life of 50 years.
Fasteners:	Galvanised clouts. Aluminium rivets for all steel components. IFI114:1986

Requirements, Limitations and Exclusions.

- Applicable to buildings in Sea-Spray zone and Exposure zones 1, 2, 3 & 4 in accordance with Clause 4, Durability, NZS 3604:1999 which is an acceptable solution under clause B2 of the NZBC.
- Fixing and installation of the cladding must be done exactly in accordance with Versatile Buildings Specifications.
- Normal and regular maintenance must be carried out on the exterior surface of the cladding and the following guide must be followed to ensure the durability requirements are met.

Regular Maintenance.

Exposure zones 1, 2, 3 & 4. (All areas other than Sea Spray zones – see below)

- Rain washing only required on exposed sections, sheltered or protected areas such as under spouting, top cladding boards and tops of doors require washing every 3 months.

Sea Spray zones (Within 500m from the sea or 100m from sheltered harbours or inlets) and areas of Geothermal Activity.

- Rain-washing only required on exposed areas. Sheltered and protected areas such as under spouting, top cladding boards and tops of doors require washing down every month and whenever corrosive salts are present.

Extended Maintenance, Painting or Repainting.

• Extended Durability

Once the metallic coating or the paint system has weathered away, signs of red rust for bare material or signs of the metallic coating for painted material, painting of the entire surface is required to extend the life of the cladding product. Paint manufacturer's recommendations are to be followed for surface preparation and paint type to be used.

• Evident Corrosion

Areas that show signs of white or red rust/corrosion (typically in unwashed areas) require cleaning back with a stiff brush and cleaner to remove all dust, surface contaminants and corrosion products and present a sound substrate for painting. Priming of the surface and application of two coats of paint as per the Paint Manufacturer's recommendations is then required.

Particular attention needs to be paid to laps (side, end, flashing etc) where earlier corrosion may start due to moisture and dirt entrapment.

If evident corrosion is not treated quickly rapid deterioration of the sheet may occur which could result in perforation. At this stage replacement of the affected sheet is the best option.

References.

1. NZS 3604:1999, Clause 4, Durability.
2. Versatile Buildings Assembly Instructions
3. New Zealand Building Code 2004

Versatile Buildings
112 Waterloo Road, Christchurch
New Zealand
Dated: 1st December 2008

WALL FRAME VB1000 DETAIL

STUD DESIGN TABLE

(As per NZS3604:1999 Table 8.2)

Wind Load	Max Wall Height (mm)	Stud Ctrs (mm)	Min Size & Grade
Low/Med	3.0	600	90X35 MSG10
High	2.4	600	90X35 MSG10
High	2.7	400	90X35 MSG10
High	3.0	400	90X35 MSG10
Very High	2.4	400	90X35 MSG10
Very High	2.7	400	90X35 MSG10

TIMBER GRADE & DESIGN

- Studs are to be constructed in 90x35 MSG10 in all situations as described in the table shown above.
- Top plates & bottom plates are to be constructed in 90x35 with minimum grade MSG8 or better.
- All other wall framing members not specified are to be non structural grade.
- All purlins, bottom chord stiffeners and lintels to be a minimum of MSG8 grade.

TIMBER TREATMENT

- Treated timber is to be used in the construction of the building as defined by the frame and truss requirements in NZS3602:2003. All treated timber is to meet the required standards.
- Minimum H1.2 timber treatment is to be used in all wall framing which are enclosed with GIB board lining.
- Treatment of Verandah & Deck construction refer to page 12 of this publication.
- Trusses including Gable Ends can be untreated.

DESIGN VB1000 INFORMATION

DESIGN SCOPE

The VB1000 design series covers the structural requirements for the purlin fixing, truss fixing, truss design, truss bracing, lintels, verandah / decks & garaports. All other structural requirements are as per NZS3604:1999

BUILDING ERECTION

Proper bracing must be installed to hold the components true and plumb and in a safe condition until permanent bracing is fixed. All permanent bracing and fixings must be installed before applying any loads.

DESIGN REFERENCES

Compliance Document for the New Zealand Building Code Clause B1 Structure Amendment 8

NZS3603:1993 Amendment 4
Cited Verification Method

NZS3604:1999 Amendment 2
Cited Acceptable Method

AS/NZS1170 Part 0:2002
Cited Verification Method

AS/NZS1170 Part 1:2002
Cited Verification Method

AS/NZS1170 Part 2:2002
Cited Verification Method

AS/NZS1170 Part 3:2002
Cited Verification Method

ANSI/TP11 - 2002
Alternative Solution

TRUSS JOINTS

GANG-NAIL plates are to be pressed into both sides at each joint by a licensed GANG-NAIL Fabricator

LOAD DETAILS

These drawings have been prepared using the above design loads.

It is the responsibility of the user to ensure that the design data and loads are still correct at the time of construction.

DESIGN LOADS

Dead loads for Light Roof -

Top Chord = 0.15kPa (includes weight of trusses, purlins, associated framing and zincalume roof).

Bottom Chord = 0.2 kPa for trusses @ 1200crs with ceiling.

Live loads -

Trusses:

Top Chord - 1.1kN concentrated load, 0.25kPa Uniform load

Bottom Chord - 0.9kN concentrated load below 1200mm head height and 1.4kN concentrated load above 1200mm head height.

Deck: 2.0kPa uniform load.

Wind loads -

All buildings designed for UP TO VERY HIGH wind conditions as defined by NZS3604:1999.

Seismic loads -

Seismic zones A, B or C.

Snow loads -

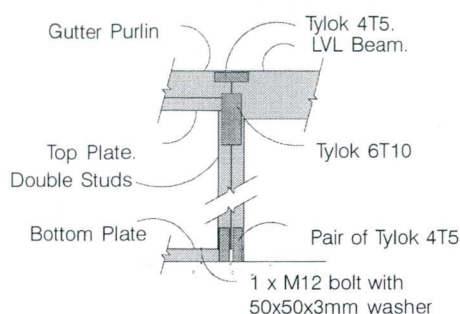
Buildings designed for $S_g = 0.9\text{kPa}$, 50 years working life, region N4 Altitude = 150m, N5 Altitude = 300m

Refer to MiTek New Zealand Limited for any design modifications required for increase in snow loads or wind loads above those stated on the drawings.

Buildings designed for a Building Importance Level 2. Refer AS/NZS1170.0:2002

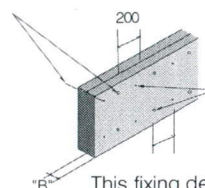
LINTEL **VB1000** **SELECTION**

LVL BEAM CONNECTION



LINTEL NAILING DETAILS

90x3.15 dia nails driven
alternative sides



90x3.15 dia
nails @ 200crs
fixed from
alternative
sides.

This fixing detail applies to 170,
240 & 300 LVL lintels

SIDE WALL: ALUMINIUM JOINERY

2.4m Stud Height (Maximum $S_g = 0.9\text{kPa}$ & Very High Wind)
(Building width up to 12.0m ref. to NZS 3604:1999)

Opening Width	Building Width	Lintel Size
865mm Clear Span	Up to 9.0m	2 x 90 x 45
1165mm Clear Span	Up to 9.0m	2 x 90 x 45
1765mm Clear Span	Up to 9.0m	2 x 140 x 45
2365mm Clear Span	Up to 9.0m	2 x 190 x 45

SIDE ENTRY: DOORS

2.6m Wide Opening

Bldg Width /Truss Span	Low/Med/High &/or 0.9kPa Snow load	Very High or 0.9 kPa Snow load
	Lintel Size	Lintel Size
Up to 6.0 m	170 x 45 LVL	2 x 170 x 45 LVL
Over 6.0 m to 12.0 m	2 x 170 x 45 LVL	2 x 170 x 45 LVL

3.0m - 4.5m Wide Opening

Up to 6.0 m	240 x 45 LVL	2 x 240 x 45 LVL
Over 6.0 m to 12.0 m	2 x 240 x 45 LVL	2 x 240 x 45 LVL

4.8m Wide Opening

Up to 12.0 m	2 x 300 x 45 LVL	2 x 300 x 45 LVL
--------------	------------------	------------------

SPAN AND LOAD DETAILS

LOAD CHART

Live Load = Top Chord - 1.1kN concentrated load, 0.25kPa uniform load.
Bottom Chord - 0.9kN concentrated load below 1200mm head height and 1.4kN concentrated load above 1200mm head height.

Dead Load = 0.15 kPa (Top Chord)
0.20 kPa (Bottom Chord)

Wind: Roof = Cfig = -1.1

SPAN CHART

Truss Span	Wind Load	Ground Snow Load (kPa)	Truss Centres	Timber Size	Timber Grade
2.4 - 7.2	Very High	0.9	1200	90x45	MSG8
7.8 - 9.0	Very High	0.9	1200	90x45	MSG10

CONSTRUCTION TOLERANCES

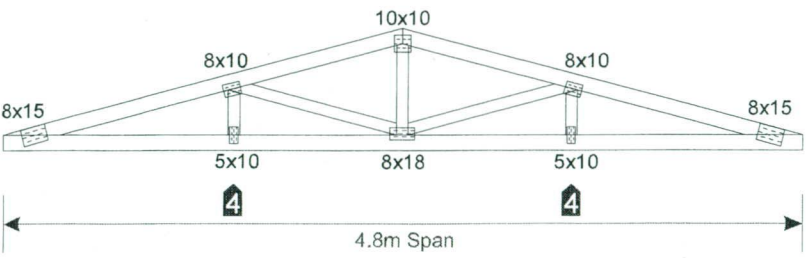
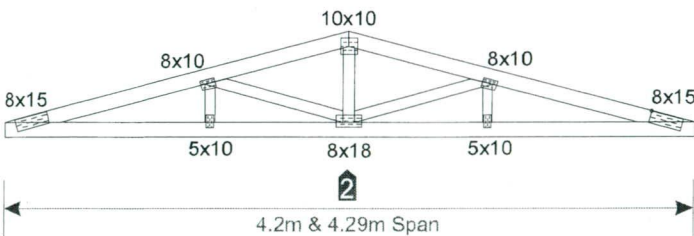
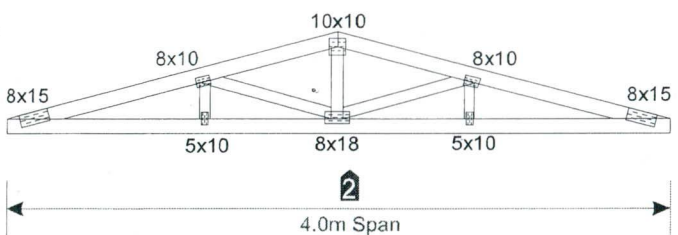
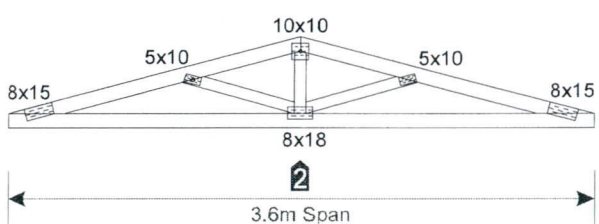
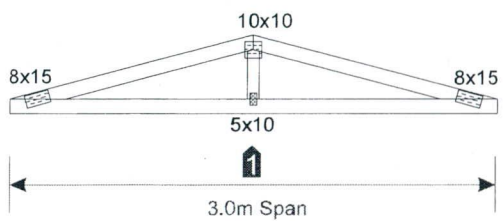
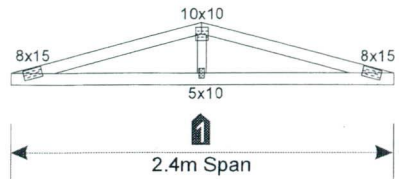
NOTE:

Nail plates are to be fully pressed home on both sides of joints.
The nail plate axis must be located in the specified or indicated direction.

NOTES

1. Truss top chord pitch range is 15°, 20°, 25°, 30°
2. ● Indicates location of bottom chord brace, (truss stiffener/ridge brace).
3. 2 Indicates the truss camber (typical).
4. All truss plates are GANG-NAIL® GNQ type.
5. For truss spans 2.4m - 7.2m all top & bottom chords are to be MSG8 90x45 and webs are to be MSG8 70x45 Douglas Fir or Radiata Pine.
6. For truss spans 7.8 - 9.0m all top & bottom chords are to be MSG10 90x45 and webs are to be MSG8 70x45 Douglas Fir or Radiata Pine.

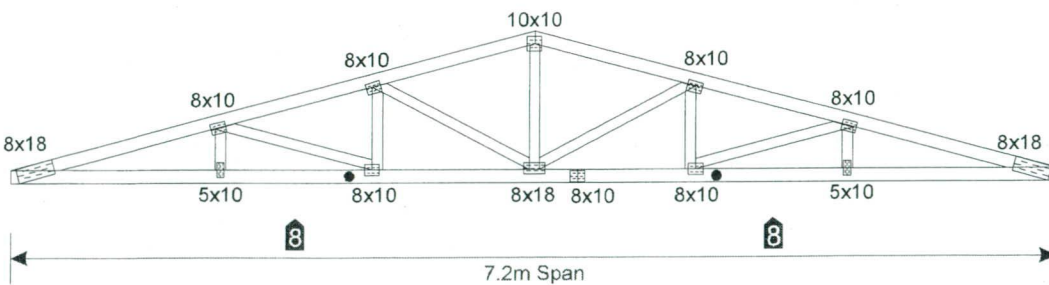
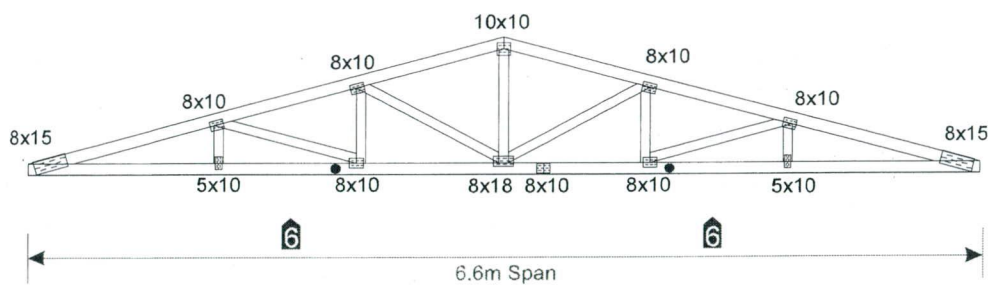
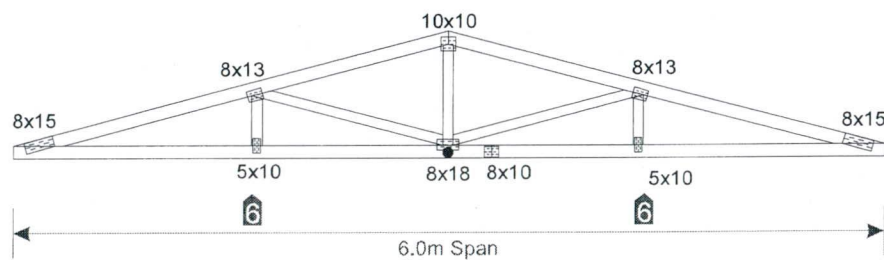
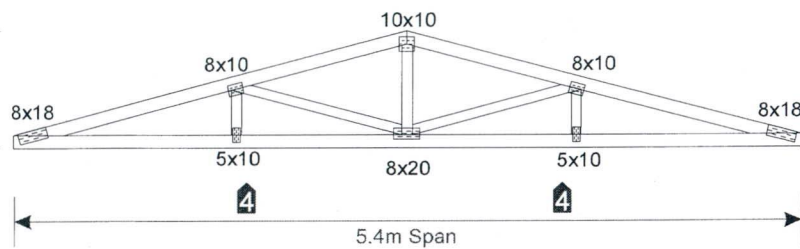
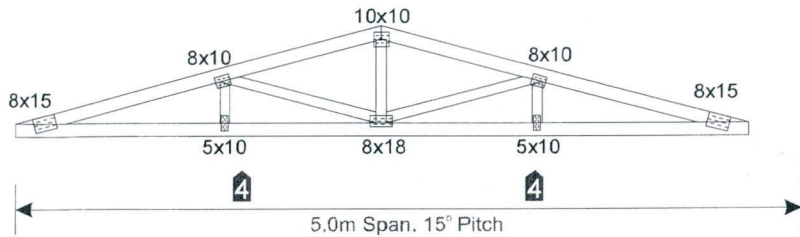
TRUSS VB1000 DETAILS



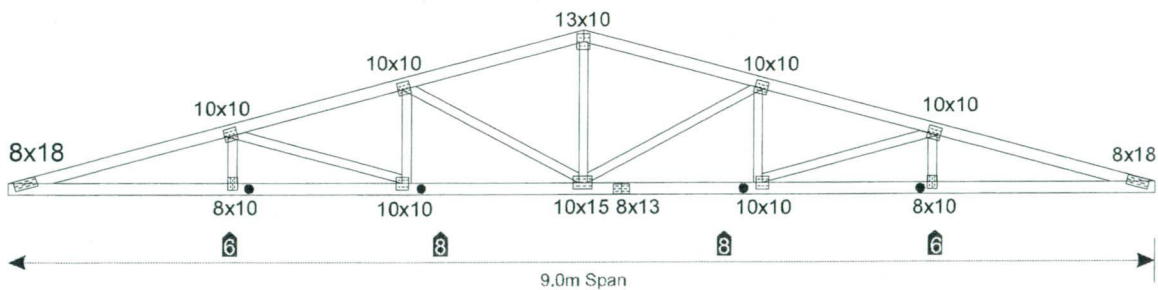
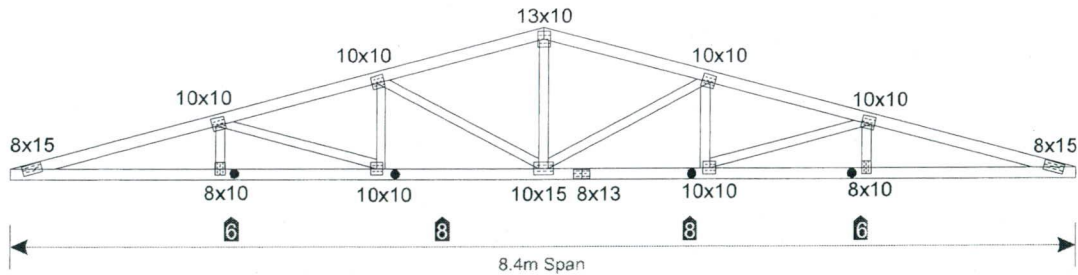
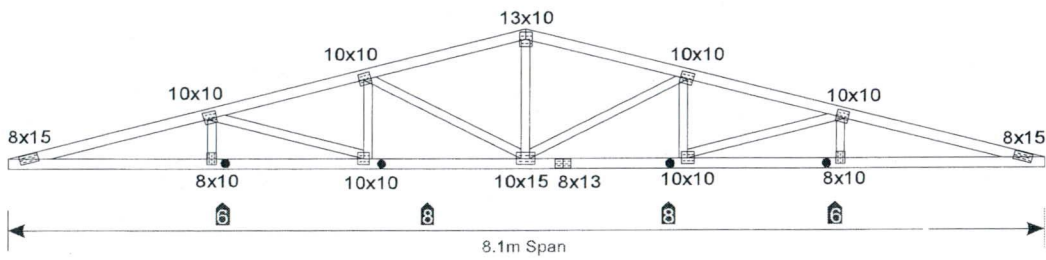
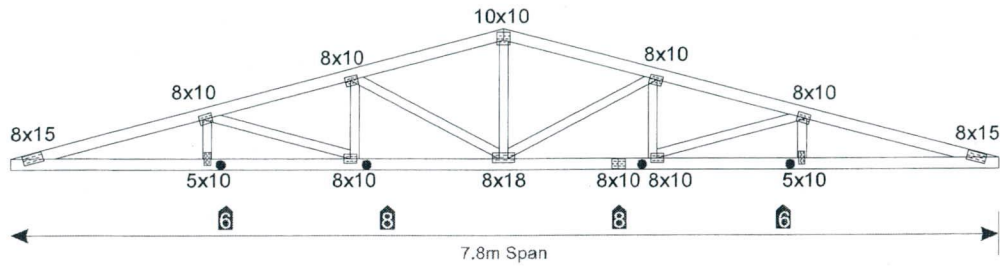
TRUSS

VB1000

DETAILS



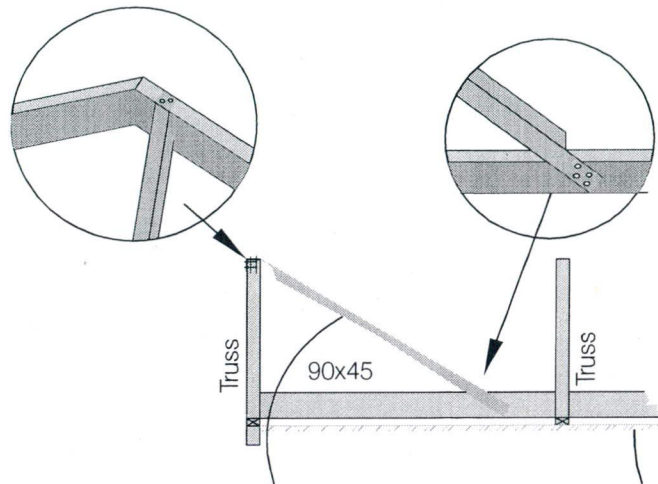
TRUSS VB1000 DETAILS



TRUSS VB1000 DETAILS

RIDGE BRACE

NOTE:
For roof pitches above 15° replace
LUMBERLOK® Ridge Brace with 2100
long Stud Saver.

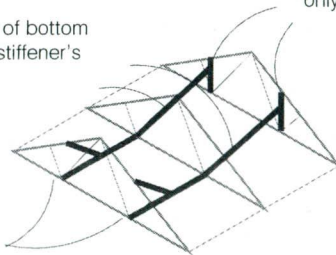


1500 long LUMBERLOK® Ridge Brace cropped at each end to allow
nailing to truss chord and bottom chord runner. Fix with 4x30x3.15 nails

TRUSS STIFFENER POSITION

Diagram indicative only

2 rows of bottom
chord stiffener's

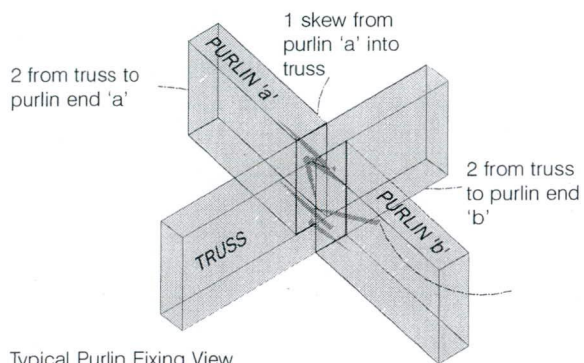


For the number of rows of
bottom chord stiffener's
refer to truss details.
Note: Some buildings do
not require bottom chord
stiffener's.

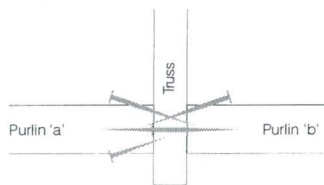
2 Vertical stiffener's on
sectional & roller doors
only.

TRUSS VB1000 DETAILS

PURLIN FIXING DETAIL



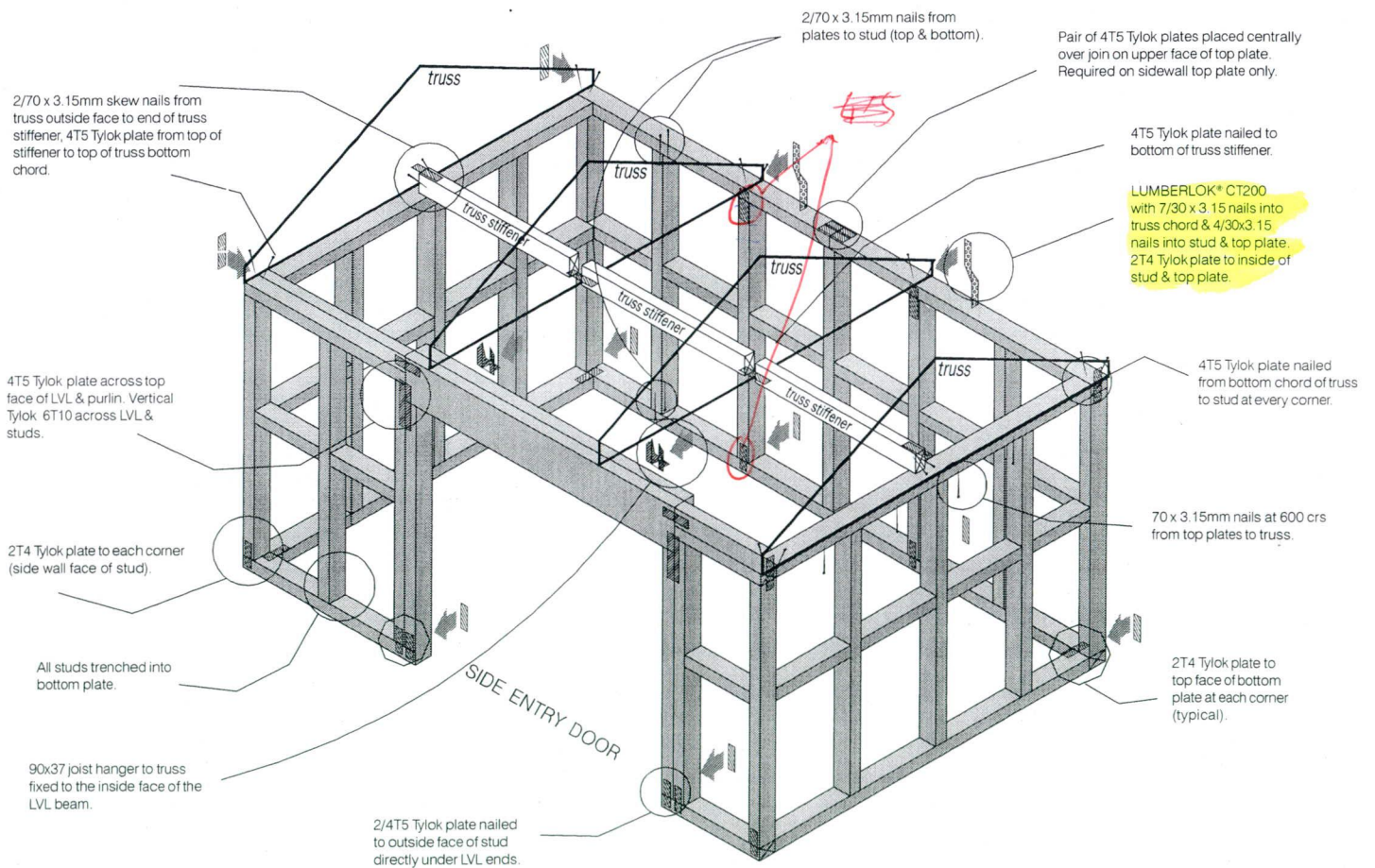
Typical Purlin Fixing View
Note: All nails to be 90x3,15mm



Typical Purlin Fixing Plan View

HARDWARE VB1000 FIXINGS

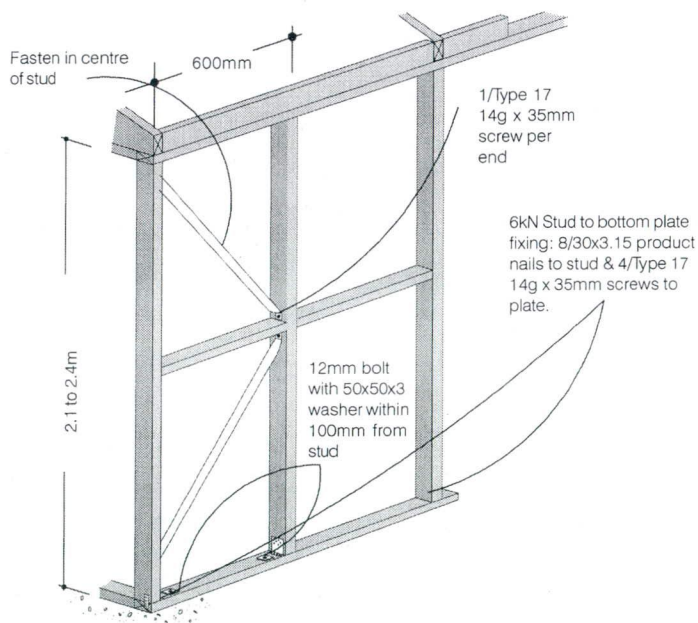
HARDWARE FIXING LOCATIONS: SIDE ENTRY



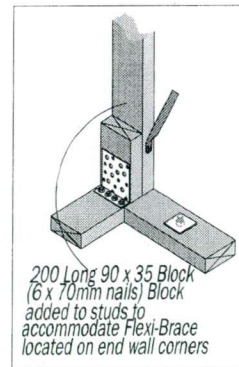
WALL VB1000 BRACING

***VF7+Gib®**
Wind Total BU's **50**

LUMBERLOK® FLEXIBRACE (Patent App. No 504428)



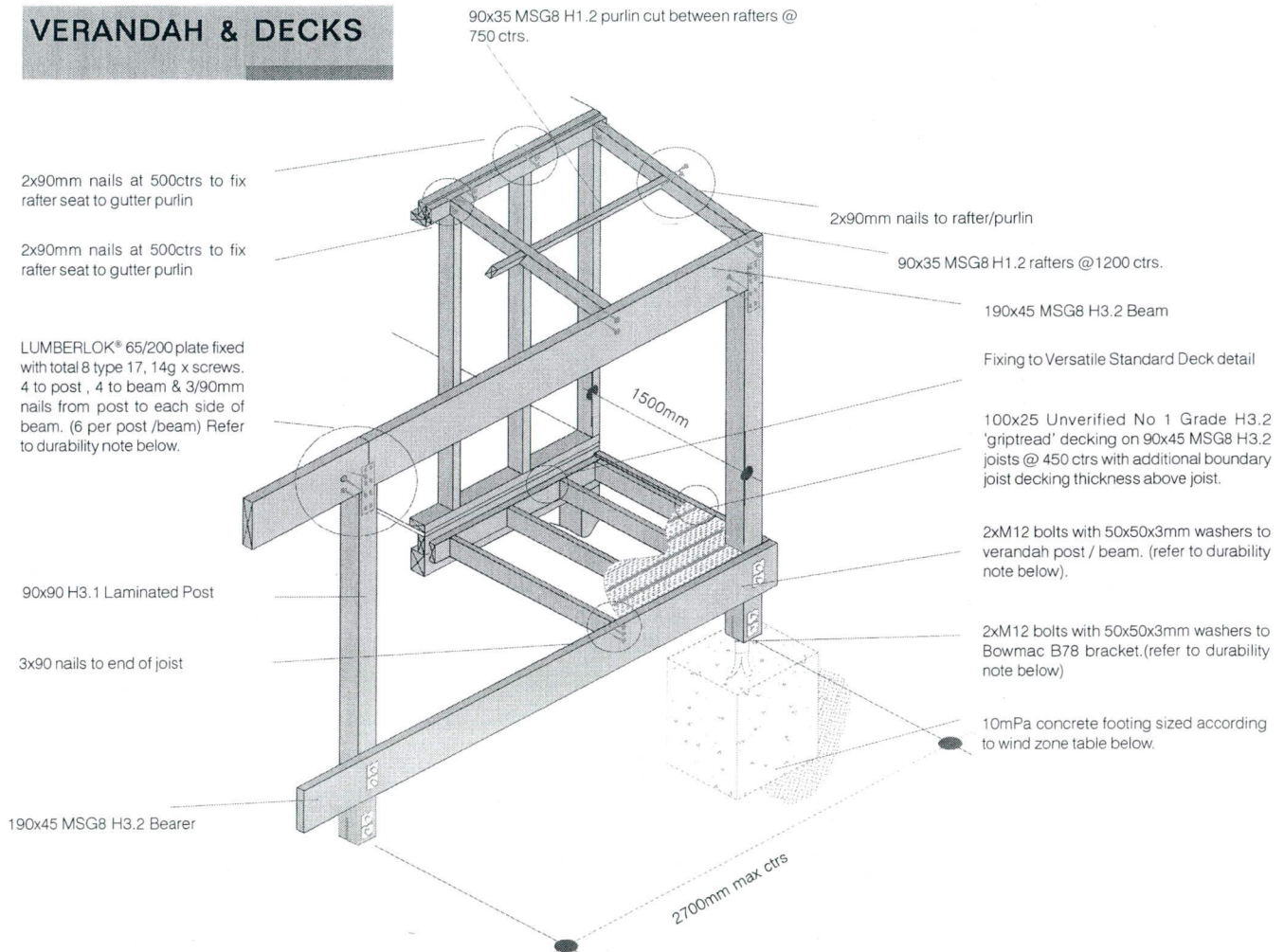
* 10mm Gib® Standard Plasterboard,
Refer to Winstone Technical manual for correct fixing details.



VERANDAHS & DECKS

Note: Maximum $S_g = 0.9\text{kPa}$ and Very High Wind.

VERANDAH & DECKS



VERANDAH FOOTING DETAILS

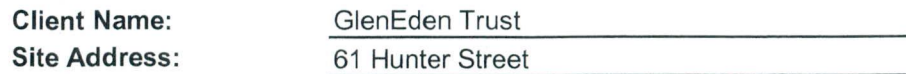
WIND ZONE	CONCRETE VOLUME m ³	FOOTING W x D x H
LOW WIND	0.02m ³	250x250x350
MEDIUM WIND	0.03m ³	300x300x350
HIGH WIND	0.05m ³	300x300x600
V/HIGH WIND	0.07m ³	350x350x600

Fastener Durability Note

Timber Treatment

190x45 beam, bearer, 90x45 joists and all other exposed timber - H3.2
 Posts to be minimum H3.1
 Purlins and rafters minimum H1.2

L.F.V



Risk Severity

Risk Factor	Low		Medium		High		Very High		Subtotals
Wind Zone	0		0		1	x	2		1
Number of Storeys	0	x	1		2		4		0
Roof/Wall Intersection Design	0	x	1		3		5		0
Eaves Width	0	x	1		2		5		0
Envelope Complexity	0	x	1		3		6		0
Deck Design	0	x	2		4		6		0
Total Risk Score:									1

Risk Severity

Risk Factor	Low		Medium		High		Very High		Subtotals
Wind Zone	0		0		1	x	2		1
Number of Storeys	0	x	1		2		4		0
Roof/Wall Intersection Design	0	x	1		3		5		0
Eaves Width	0		1		2	x	5		2
Envelope Complexity	0	x	1		3		6		0
Deck Design	0	x	2		4		6		0
Total Risk Score:									3

Risk Severity

[illegible]

Risk Severity

Risk Factor	Low		Medium		High		Very High		Subtotals
Wind Zone	0		0		1	x	2		1
Number of Storeys	0	x	1		2		4		0
Roof/Wall Intersection Design	0	x	1		3		5		0
Eaves Width	0		1		2	x	5		2
Envelope Complexity	0	x	1		3		6		0
Deck Design	0	x	2		4		6		0
Total Risk Score:									3



H1Energy Efficiency - Third Edition - Compliance Schedule Method

Client: GlenEden Trust
Address: 61 Hunter street Edendale
Plan: Edgecunbe
Cladding: Masta Clad
Floor: Concrete
Zone: 3

Floor Area (m ²)	102.00
Perimeter Total (lm)	44.58
Perimeter South, East, West (lm)	30.39
Wall Height (m)	2.40
Total Wall Area (m ²)	106.99
Wall Area South, East, West (m ²)	72.94
Total Joinery Area (m ²)	25.40
Joinery Area South, East, West	15.02
Glazing Area Percentage	23.7%
Glazing Area Percentage S, E, W	20.6%
Concrete Floor Ratio	2.29

(Percentage must be below 30%)

(Percentage must be below 30%)

(If ratio is less than 2.4 insulation is required)

Component	Insulation Value	Construction Value	Minimum Required
Roof	R3.6 Batts	R3.5	R3.3
Wall (Brick)	N/A	N/A	R2.0
Wall (Linea)	N/A	N/A	R2.0
Wall (Steel)	R2.6 Batts	R2.2	R2.0
Floor	Concrete with 'EPS' perimeter	R1.3	R1.3
Glazing	Double Glazing	R0.26	R0.26

This Building complies with clause H1Energy Efficiency - Third Edition - of the New Zealand Building Code.

GIB® Wall Bracing Calculation Sheet A**single storey**

V85A

GIB® EzyBrace™

GIB® Bracing Systems, 2006

Job Details

Name	Gleneden Trust	
Street and Number	61 Hunter Street	
Lot and DP Number	Lot 109 DP 106	
City/Town/District	Edendale	
Designer and date	Mitek NZ Ltd	5-Jun-09
Company Name	VERSATILE BUILDINGS	

Building Specification

Location of Storey	single	▼	✓
Floor Loading	2 kPa	▼	✓
Foundation Type	slab	▼	✓
Building Height to Apex (m)	5	▼	✓
Roof Height above Eaves (m)	2	▼	✓
Stud Height (m)	2.4	▼	✓
Cladding Weight (top or single)	light	▼	✓
Cladding Weight (lower)	light	▼	WA not applicable (single storey building)
Cladding Weight (subfloor)	light	▼	WA not applicable (slab)
Roof Weight	light	▼	✓
Roof Pitch (degrees)	0-25	▼	✓
Room in Roof Space	no	▼	✓
Building Length (m)	14.2	✓	
Building Width (m)	8.1	✓	
Gross Building Plan Area (m2)	102	✓	

Building Location

Wind Zone	Medium ✓	Earthquake Zone
Region	R2 ▼	B ▼
Terrain	Inland ▼	
Exposure	Sheltered ▼	
Topography	Gentle ▼	Enter at least 'moderate' in a Lee Zone

Bracing Units required for Wind

per m	subfloor	walls
W along	n/a	44 BUs/m ✓
W across	n/a	37 BUs/m ✓
Totals	subfloor	walls
W along	n/a	356 BUs ✓
W across	n/a	525 BUs ✓

Bracing Units required for Earthquake

per m2	subfloor	walls
E	n/a	2.7 BUs/m2 ✓
Totals	subfloor	walls
E along	n/a	275 BUs ✓
E across	n/a	275 BUs

GIB® Wall Bracing Calculation Sheet B						single storey		V85A	
GIB® EzyBrace™						GIB® Bracing Systems, 2006			
Along									
Wall or Bracing Line	Bracing Elements provided							Wind 9W	Earthq. 10EQ
1	2	3	4	5	7	8	6		
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved
A	enter	1	GIB®	GS1a	2.4	2.4		180	156
		2	GIB®	GS1a	2.4	2.4		180	156
line totals		3							
W	360	4							
EQ	312	5							
B	enter	1	GIB®	GS2	2.4	2.4		216	192
		2	GIB®	GS2	1.8	2.4		144	126
line totals		3							
W	360	4							
EQ	318	5							
C	enter	1	MiTek	VF7	0.6	2.4		50	40
		2	MiTek	VF7	0.6	2.4		50	40
line totals		3							
W	100	4							
EQ	80	5							
D	enter	1	MiTek	VF7	0.6	2.4		50	40
		2	MiTek	VF7	0.6	2.4		50	40
line totals		3							
W	100	4							
EQ	80	5							
E	enter	1							
		2							
line totals		3							
W		4							
EQ		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							

Wind Earthq.
Totals Achieved 919 791

OK OK

Totals Required (from Sheet A) 356 275

GIB® Wall Bracing Calculation Sheet B							single storey		V85A		
GIB® EzyBrace™					GIB® Bracing Systems, 2006						
Across											
Wall or Bracing Line		Bracing Elements provided						Wind		Earthq.	
1	2	3	4	5	7	8	6	9W	10EQ		
Line Label	Minimum BUs Req/Ach	Bracing Element No.	Supplier	Bracing Type	Element Length L (m)	Element Height H (m)	Angle to Bracing line (degrees)	BUs Achieved	BUs Achieved		
M	enter	1	GIB®	GS1a	2	2.4		130	110		
		2	GIB®	GS1a	1.8	2.4		117	99		
line totals		3									
W	247	4									
EQ	209	5									
N	enter	1	GIB®	GS1a	2	2.4		130	110		
		2	GIB®	GS2	3	2.4		270	240		
line totals		3									
W	400	4									
EQ	350	5									
O	enter	1	GIB®	GS1a	1.8	2.4		117	99		
		2	GIB®	GS2	1.2	2.4		84	72		
line totals		3									
W	201	4									
EQ	171	5									
P	enter	1	GIB®	BL1	1.2	2.4		150	138		
		2	MiTek	VF7	0.6	2.4		50	40		
line totals		3	MiTek	VF7	0.6	2.4		50	40		
W	250	4									
EQ	218	5									
Q	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
R	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
S	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
T	enter	1									
		2									
line totals		3									
W		4									
EQ		5									
								Wind	Earthq.		
Totals Achieved								1098	✓ 948		
								OK	OK		
Totals Required (from Sheet A)								525	275		

Title Report

Description

This report provides details of the Certificate of Title including ownership and other main details.

Summary Details (Title 5B/916)

Land District	Document Type	Title	Issued Date	Status	Area (hectares)
Southland	Certificate of Title	5B/916	9/09/1976	Live	0.1012

Legal Description

Parcel	Parcel Share
LOT 109 DP 106	1/1

Owner(s)

Status	Name
Current	John Sydney Guise
Prior	George Nesbitt McBride
Prior	John Sydney Guise
Prior	Pauline Agnes Guise

Prior Title(s)

3A/940

Summary Details (Title 107/58)

Land District	Document Type	Title	Issued Date	Status	Area (hectares)
Southland	Certificate of Title	107/58	24/07/1917	Cancelled	1.9223

Legal Description

Parcel	Estate	Parcel Share
LOT 100 DP 106	Fee Simple	1/1
LOT 101 DP 106	Fee Simple	1/1
LOT 103 DP 106	Fee Simple	1/1
LOT 104 DP 106	Fee Simple	1/1
LOT 105 DP 106	Fee Simple	1/1
LOT 106 DP 106	Fee Simple	1/1
LOT 107 DP 106	Fee Simple	1/1
LOT 108 DP 106	Fee Simple	1/1
LOT 109 DP 106	Fee Simple	1/1
LOT 110 DP 106	Fee Simple	1/1
LOT 111 DP 106	Fee Simple	1/1
LOT 112 DP 106	Fee Simple	1/1
LOT 93 DP 106	Fee Simple	1/1
LOT 94 DP 106	Fee Simple	1/1
LOT 95 DP 106	Fee Simple	1/1
LOT 96 DP 106	Fee Simple	1/1
LOT 97 DP 106	Fee Simple	1/1
LOT 98 DP 106	Fee Simple	1/1
LOT 99 DP 106	Fee Simple	1/1

Title(s) Issued

Certificate of Title 204/12

Certificate of Title 3A/940

Prior Title(s)

Certificate of Title 43/6

Certificate of Title 58/204

Summary Details (Title 3A/940)

Land District	Document Type	Title	Issued Date	Status	Area (hectares)
Southland	Certificate of Title	3A/940	24/07/1973	Cancelled	1.8211

Legal Description

Parcel	Estate	Parcel Share
LOT 100 DP 106	Fee Simple	1/1
LOT 101 DP 106	Fee Simple	1/1
LOT 104 DP 106	Fee Simple	1/1
LOT 105 DP 106	Fee Simple	1/1
LOT 106 DP 106	Fee Simple	1/1
LOT 107 DP 106	Fee Simple	1/1
LOT 108 DP 106	Fee Simple	1/1
LOT 109 DP 106	Fee Simple	1/1
LOT 110 DP 106	Fee Simple	1/1
LOT 111 DP 106	Fee Simple	1/1
LOT 112 DP 106	Fee Simple	1/1
LOT 93 DP 106	Fee Simple	1/1
LOT 94 DP 106	Fee Simple	1/1
LOT 95 DP 106	Fee Simple	1/1
LOT 96 DP 106	Fee Simple	1/1
LOT 97 DP 106	Fee Simple	1/1
LOT 98 DP 106	Fee Simple	1/1
LOT 99 DP 106	Fee Simple	1/1

Title(s) Issued

Certificate of Title 5B/1416
Certificate of Title 5B/1417
Certificate of Title 5B/709
Certificate of Title 5B/916
Certificate of Title 5C/107
Certificate of Title 5C/351
Certificate of Title 5C/352
Certificate of Title 5C/599
Certificate of Title 6C/980
Certificate of Title 6D/138
Certificate of Title 6D/875
Certificate of Title 9D/183

Prior Title(s)

Certificate of Title 107/58

Summary Details (Title 58/204)

Land District	Document Type	Title	Issued Date	Status	Area (hectares)
Southland	Certificate of Title	58/204	29/06/1897	Cancelled	1.9223

Legal Description

Parcel	Estate	Parcel Share
LOT 100 DP 106	Fee Simple	1/1
LOT 101 DP 106	Fee Simple	1/1
LOT 104 DP 106	Fee Simple	1/1
LOT 105 DP 106	Fee Simple	1/1
LOT 106 DP 106	Fee Simple	1/1
LOT 107 DP 106	Fee Simple	1/1
LOT 108 DP 106	Fee Simple	1/1
LOT 109 DP 106	Fee Simple	1/1
LOT 110 DP 106	Fee Simple	1/1
LOT 111 DP 106	Fee Simple	1/1
LOT 112 DP 106	Fee Simple	1/1
LOT 92 DP 106	Fee Simple	1/1
LOT 93 DP 106	Fee Simple	1/1
LOT 94 DP 106	Fee Simple	1/1
LOT 95 DP 106	Fee Simple	1/1
LOT 96 DP 106	Fee Simple	1/1
LOT 97 DP 106	Fee Simple	1/1
LOT 98 DP 106	Fee Simple	1/1
LOT 99 DP 106	Fee Simple	1/1

Title(s) Issued

Certificate of Title 107/210
Certificate of Title 107/58

Prior Title(s)

Certificate of Title 24/211



Currency of Data

Description

The current age of the source data that makes up this report.

Data Source

Currency Date

Survey and Title Data

3/05/2009

Valuation and Sales Data

25/05/2009

Terralink Address Data

19/05/2009

Building Consents Data

20/04/2009

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HOME DOWNLIGHTS
BUCKLAND
095808302
MANAGER MIKE AUSTIN



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This data sheet contains information necessary to ensure compliance with the New Zealand Electrical Code of Practice for the Installation of Recessed Luminaires and Auxiliary Equipment NZECP 54.

Note: Where recessed luminaires are installed into loose, sprayed insulation, physical barriers must be fitted to ensure adequate clearances are maintained.

Caution: Recessed luminaires and their auxiliary equipment may pose a risk of fire or damage to property if not installed and maintained correctly.

DOT Downlight Model	Lamp(s)	Lamp Base(s)	Celling Hole Cutout mm	Hole Dia. Req'd in Insulation mm	Luminaire Moisture Transfer Category (1.)	Thermal Insulation Class (2.)	SCB mm (3.)	HCB mm (4.)	ta °C (5.)	Luminaire to Remote Gear Clearance (min.) mm	Luminaire Weight kg	Remote Gear Weight kg	IP Rating (6.)
DOT 70	MH 1x 20W	PGJ5	150	150	C	A	50	25	45	50	0.60	0.140	IP 20
DOT 70	MH 1x 35W	PGJ5	150	150	C	A	50	25	45	50	0.60	0.140	IP 20
DOT 70	MH 1x 20W	GU6.5	150	150	C	A	50	25	45	50	0.60	0.140	IP 20
DOT 70	Halogen 1x 75W (max.)	GY6.35	150	150	C	A	50	25	45	50	0.60	0.100	IP 20
DOT 107	GLS/HAPAR25/CFL-1 Spiral T2	E27/B22	103x103sq	103x103sq	C	A	50	25	45	n/a	0.300	n/a	IP 20
DOT 109	GLS/HAPAR25/CFL-1 Spiral	E27/B22	100	100	C	A	50	25	45	n/a	0.382	n/a	IP 20
DOT 109SQ	GLS/HAPAR25/CFL-1 Spiral T2	E27/B22	100	100	C	A	20	25	45	n/a	0.382	n/a	IP 20
DOT 110SQ	CFL-1 Spiral T3	E27	100	100	C	A	50	25	45	n/a	0.394	n/a	IP 20
DOT 114	GLS/HAPAR25/CFL-1 Spiral	E27/B22	120	120	C	A	50	25	45	n/a	0.33	n/a	IP 20
DOT 122	GLS/R95/HAPAR30/CFL-1/CFL-1 Spiral	E27/B22	125	125	C	A	50	25	45	n/a	0.38	n/a	IP 20
DOT 132	GLS/R95/HAPAR25/CFL-1 Spiral	E27/B22	125	125	C	A	50	25	45	n/a	0.39	n/a	IP 20
DOT 162	GLS/R95/HAPAR25/CFL-1/CFL-1 Spiral	E27	125	125	C	A	50	25	45	n/a	0.41	n/a	IP 20
DOT 165	GLS/R95/HAPAR25/CFL-1/CFL-1 Spiral	E27	125	125	C	A	50	25	45	n/a	0.308	n/a	IP 20
DOT 182	GLS/R80/HAPAR25/CFL-1 Spiral	E27	125	125	C	A	50	25	45	n/a	0.465	n/a	IP 20
DOT 183	CFL-1 / CFL-1 Spiral	E27	125	125	R	A	50	25	45	n/a	0.49	n/a	IP 20
DOT 202	GLS/R95/HAPAR30	E27/B22	140	140	R	A	50	25	45	n/a	0.416	n/a	IP 20
DOT 301	TC-T (4 pin) 1x 18W	G24d-2 or GX24q	125	125	C	A	50	25	45	n/a	0.725 (max)	n/a	IP 20
DOT 302	TC-D/TC-T (2 pin) 1x 13W	G24d-1	140	140	R	A	50	25	45	n/a	0.756	n/a	IP 20
DOT 322	TC-D/TC-T (2 pin) 1x 18W	G24d-2	140	140	R	A	50	25	45	n/a	0.756	n/a	IP 20
DOT 332	TC-D/TC-T (2 pin) 1x 26W	G24d-3	140	140	R	A	50	25	45	50	0.49	0.77	IP 20
DOT 340	TC-D/TC-T (2 pin) 1x 18W	G24d-2	175	175	C	A	50	25	45	n/a	0.856	n/a	IP 20
DOT 360	TC-D/TC-T (2 pin) 1x 26W	G24d-3	175	175	C	A	50	25	45	50	0.5	1.14	IP 20
DOT 370	TC-T (4 pin) 1x 26/32/42W	GX24q	175	175	C	A	50	25	45	50	0.526	0.405	IP 20
DOT 385	GLS/PAR38/R125/HAL/HAPAR38	E27	175	175	C	A	50	25	45	n/a	0.842	n/a	IP 20
DOT 705	MH 1x 35W	G8.5	100	100	C	A	50	25	45	50	0.34	1.4	IP 43
DOT 706	MH 1x 70W	G8.5	100	100	C	A	50	75	45	50	0.34	1.6	IP 43
DOT 710	MH 1x 35W	G12	125	125	C	A	50	75	45	50	0.575	1.4	IP 43
DOT 712	MH 1x 70W	G12	125	125	C	A	50	75	45	50	0.575	1.6	IP 43
DOT 714	SDW-TG 1x 50W	GX12-1	125	125	C	A	50	75	45	50	0.575	0.96	IP 43
DOT 716	SDW-TG 1x 100W	GX12-1	125	125	C	A	50	75	45	50	0.575	0.96	IP 43
DOT 730	MH 1x 35W	G12	125	125	C	A	50	75	45	50	0.53	1.4	IP 43
DOT 732	MH 1x 70W	G12	125	125	C	A	50	75	45	50	0.53	1.6	IP 43
DOT 734	SDW-TG 1x 50W	GX12-1	125	125	C	A	50	75	45	50	0.53	0.96	IP 43
DOT 736	SDW-TG 1x 100W	GX12-1	125	125	C	A	50	75	45	50	0.53	0.96	IP 43
DOT 770	MH-P 1x 100W	E27	140	140	C	A	50	75	45	50	0.53	3.0	IP 20
DOT 780	MH-P 1x 150W	E27	175	175	C	A	50	75	45	50	0.53	3.0	IP 20
DOT 1020	TC-D (2 pin) 2x 13W	2x G24d-1	175	175	R	A	50	25	45	50	0.512	1.35	IP 20
DOT 1030	TC-D (2 pin) 2x 18W	2x G24d-2	175	175	R	A	50	25	45	50	0.512	1.365	IP 20
DOT 1110	TC-D (2 pin) 1x 18W	G24d-2	180	180	C	A	50	25	45	n/a	0.905	n/a	IP 20
DOT 1120	TC-D (2 pin) 2x 13W	2x G24d-1	175	175	R	A	50	25	45	50	0.47	1.35	IP 20
DOT 1124	TC-D (2 pin) 2x 13W	2x G24d-1	175	175	C	A	50	25	45	50	0.54	1.35	IP 44
DOT 1130	TC-D (2 pin) 2x 18W	2x G24d-2	175	175	R	A	50	25	45	50	0.47	1.365	IP 20
DOT 1134	TC-D (2 pin) 2x 18W	2x G24d-2	175	175	C	A	50	25	45	50	0.54	1.365	IP 44
DOT 1200	TC-D/TC-T (2 pin) 1x 26W	G24d-3	175	175	R	A	50	25	45	50	0.414	1.21	IP 20
DOT 1210	TC-D/TC-T (4 pin) 1x 26/32/42W	GX24q	175	175	R	A	50	25	45	50	0.44	0.405	IP 20
DOT 1220	TC-D (2 pin) 1x 26W	G24d-3	175	175	R	A	50	25	45	50	0.45	1.21	IP 20

DOT 1230	TC-D (4 pin) 2x 26W	2x GX24q	175	175	R	A	50	25	45	50	0.512	0.43	IP 20
DOT 1250	TC-D (4 pin) 2x 26W	2x GX24q	175	175	O	A	50	25	45	50	0.47	0.43	IP 20
DOT 1254	TC-D (4 pin) 2x 26W	2x GX24q	175	175	C	A	50	25	45	50	0.54	0.43	IP 44
DOT 1300	TC-S (2 pin) 2x 9W	2x G23	180	180	R	A	50	25	45	n/a	0.88	n/a	IP 20
DOT 2000	TC-D (2 pin) 2x 18W	2x G24d-2	245	245	R	A	50	25	45	50	0.737	1.365	IP 20
DOT 2020	TC-D (2 pin) 2x 18W	2x G24d-2	245	245	R	A	50	25	45	50	0.842	1.365	IP 20
DOT 2030	TC-D (2 pin) 2x 18W	2x G24d-2	245	245	R	A	50	25	45	50	0.807	1.365	IP 20
DOT 2040	TC-D (2 pin) 2x 18W	2x G24d-2	245	245	C	A	50	25	45	50	0.997	1.365	IP 44
DOT 2100	TC-D/TC-T (2 pin) 1x 26W	G24d-3	245	245	C	A	50	25	45	50	0.674	1.21	IP 20
DOT 2120	TC-D/TC-T (2 pin) 1x 26W	G24d-3	245	245	C	A	50	25	45	50	0.779	1.21	IP 20
DOT 2130	TC-D/TC-T (2 pin) 1x 26W	G24d-3	245	245	C	A	50	25	45	50	0.744	1.21	IP 20
DOT 2140	TC-D/TC-T (2 pin) 1x 26W	G24d-3	245	245	C	A	50	25	45	50	0.934	1.21	IP 44
DOT 2200	TC-D (4 pin) 2x 26W	2x GX24q	245	245	R	A	50	25	45	50	0.737	0.43	IP 20
DOT 2220	TC-D (4 pin) 2x 26W	2x GX24q	245	245	R	A	50	25	45	50	0.842	0.43	IP 20
DOT 2230	TC-D (4 pin) 2x 26W	2x GX24q	245	245	R	A	50	25	45	50	0.807	0.43	IP 20
DOT 2240	TC-D (4 pin) 2x 26W	2x GX24q	245	245	C	A	50	25	45	50	0.997	0.43	IP 44
DOT 2300	TC-D/TC-T (4 pin) 1x 26/32/42W	GX24q	245	245	C	A	50	25	45	50	0.705	0.49	IP 20
DOT 2320	TC-D/TC-T (4 pin) 1x 26/32/42W	GX24q	245	245	C	A	50	25	45	50	0.779	0.49	IP 20
DOT 2330	TC-D/TC-T (4 pin) 1x 26/32/42W	GX24q	245	245	C	A	50	25	45	50	0.744	0.49	IP 20
DOT 2340	TC-D/TC-T (4 pin) 1x 26/32/42W	GX24q	245	245	C	A	50	25	45	50	0.934	0.49	IP 44
DOT 2400	TC-T (4 pin) 2x 32W/42W	2x GX24q	245	245	R	A	50	25	45	50	0.83	0.57	IP 20
DOT 2420	TC-T (4 pin) 2x 32/42W	2x GX24q	245	245	R	A	50	25	45	50	0.895	0.57	IP 20
DOT 2430	TC-T (4 pin) 2x 32/42W	2x GX24q	245	245	R	A	50	25	45	50	0.86	0.57	IP 20
DOT 2440	TC-T (4 pin) 2x 32W	2x GX24q	245	245	C	A	50	25	45	50	1.05	0.57	IP 44
DOT 2700	TC-T (4 pin) 1x 57W	GX24q-5	245	245	C	A	50	25	45	50	0.705	0.55	IP 20
DOT 2720	TC-T (4 pin) 1x 57W	GX24q-5	245	245	C	A	50	25	45	50	0.779	0.55	IP 20
DOT 2730	TC-T (4 pin) 1x 57W	GX24q-5	245	245	C	A	50	25	45	50	0.744	0.55	IP 20
DOT 2840	TC-D/TC-T (4 pin) 1x 26/32/42W	GX24q	245	245	C	A	50	25	45	50	0.884	0.49	IP 20
DOT 2850	TC-T (4 pin) 1x 57W	GX24q-5	245	245	C	A	50	25	45	50	0.884	0.55	IP 20
DOT 2860	TC-D (2 pin) 2x 18W	2x G24d-2	245	245	C	A	50	25	45	50	0.916	1.365	IP 20
DOT 2870	TC-D (4 pin) 2x 26W	2x GX24q	245	245	C	A	50	25	45	50	0.916	0.43	IP 20
DOT 2950	MH-DE (RX7s) 1x70W	RX 7s	245	245	C	A	50	25	45	50	1.125	1.6	IP 44
DOT 2960	MH-DE (RX7s) 1x150W	RX 7s	245	245	C	A	50	25	45	50	1.125	3.0	IP 44
DOT 4010	TC-D (2 pin) 2 x 13W	G24d-1	168x168	168x168	C	A	50	25	45	50	0.950	1.35	*
DOT 4020	TC-D (2 pin) 1 x 18W	1x G24d-2	168x168	168x168	C	A	50	25	45	50	0.950	1.36	*
DOT 4030	TC-D (2 pin) 2 x 18W	G24d-2	168x168	168x168	C	A	50	25	45	50	0.950	1.36	*
DOT 4040	TC-D (2 pin) 1 x 26W	1x G24d-3	168x168	168x168	C	A	50	25	45	50	0.950	1.36	*
DOT 4050	TC-D/E (4 pin) 2 x 26W	GX24q	168x168	168x168	C	A	50	25	45	50	0.950	0.43	*

* refer to accessories

NZECP 54

- (1) C = Closed R = Restricted O = Open
 (2) A = Abutted - Hole in insulation same size as ceiling cutout.
 (3) SCB = Side Clearance to Building Element.
 (4) HCB = Height Clearance to Building Element.
 (5) ta = Maximum ambient operating temperature °C (within ceiling space).
 † ta = 45°C for low loss ballast versions.
 (6) IP Rating refers to ingress protection from below ceiling.
 Please refer to accessories to increase IP Rating for individual luminaires
 S = Standard 200mm.
 * = Specified.
 NB: Amalgam compact fluorescent lamps are recommended in all models 32W and above except when used in non-maintained emergency and presence detection luminaires
 NB: When mounting downlights in exterior applications (forecourts etc.) - ensure mounting cavity temperatures do not exceed ta temperatures shown (5) above.

This data sheet contains information necessary to ensure compliance with the New Zealand Electrical Code of Practice for the Installation of Recessed Luminaires and Auxiliary Equipment NZECP 54.

Contact a distributor now to discuss your lighting needs.

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Note: Where recessed luminaires are installed into loose, sprayed insulation, physical barriers must be fitted to ensure adequate clearances are maintained.

Caution: Recessed luminaires and their auxiliary equipment may pose a risk of fire or damage to property if not installed and maintained correctly.

Supply Voltage: 230/240V 50Hz AC

	Downlight Model	Lamp(s)	Lamp Base(s)	Ceiling Hole Cutout mm	Hole Dia. Req'd in mm	Luminaire Moisture Transfer Category	Thermal Insulation Class	SCB mm	HCB mm	ta °C	Luminaire to Remote Gear Clearance (min.)mm	Luminaire Weight kg	Remote Gear Weight kg	IP Rating
						(1)	(2)	(3)	(4)	(5)				(6)
HORIZONTAL DOT 1000 COMPACT FLOURESCENT (CFL) SERIES														
Home	DOT 1110	1 x 18W TC-D	G24d-2	180	180	C	A	50	25	45	n/a	0.905	n/a	IP 20
Introduction	DOT 1120	2 x 13W TC-D	2x G24d-1	175	175	R	A	50	25	45	50	0.470	1.350	IP 20
Range Index	DOT 1130	2 x 18W TC-D	2x G24d-2	175	175	R	A	50	25	45	50	0.470	1.365	IP 20
Series Index	DOT 1200	1 x 26W TC-D/TC-T	G24d-3	175	175	R	A	50	25	45	50	0.414	1.210	IP 20
Model by Lamp	DOT 1210	1 x 26W TC-D/E	G24q-3	175	175	R	A	50	25	45	50	0.440	0.490	IP 20
Typical Componentry	- Multi-Wattage	1 x 32W/42W TC-T/E	GX24q-3/4											
1000 (CFL) Series														
2000 (CFL) Series	DOT 1250	2 x 26W TC-D/E	2x GX24q-3	175	175	O	A	50	25	45	50	0.470	0.430	IP 20
2000 (MH) Series	HORIZONTAL DOT 2000 COMPACT FLOURESCENT (CFL) SERIES													
4000 (CFL) Series	DOT 2000	2 x 18W TC-D	2x G24d-2	245	245	C	A	50	25	45	50	0.737	1.365	IP 20
Vertical (CFL) Series	DOT 2100	1 x 26W TC-D	G24d-3	245	245	C	A	50	25	45	50	0.674	1.210	IP 20
70 (MH) Series 	DOT 2200	2 x 26W TC-D/E	2x G24q-3	245	245	C	A	50	25	45	50	0.830	0.430	IP 20
70 (HAL) Series 	DOT 2300	1 x 26W TC-	G24q-3	245	245	C	A	50	25	45	50	0.705	0.430	IP 20
Vertical (MH) Series														
Vertical (HAL/CFL-I)														
Vertical (CFL-I)														
Vertical (CFL-I)														
Accessories														
Installation Instructions														
Distributors														

	D/E													
- Multi-Wattage	1 x 32/42W TC-T/E	GX24q-3/4												
DOT 2400	2 x 26W TC-T/E	2x G24q-3	245	245	R	A	50	25	45	50	0.830	0.570	IP 20	
- Multi-Wattage	2 x 32W/42W TC-T/E													
DOT 2700	1 x 57W TC-T/E	GX24q-5	245	245	C	A	50	25	45	50	0.705	0.550	IP 20	
DOT 2840	1 x 26W TC-D/E	G24q-3	245	245	C	A	50	25	45	50	0.884	0.490	IP 20	
- Multi-Wattage	1 x 32/42W TC-T/E	GX24q-3/4												
DOT 2850	1 x 57W TC-T/E	GX24q-5	245	245	C	A	50	25	45	50	0.884	0.550	IP 20	
DOT 2860	2 x 18W TC-D	2x G24d-2	245	245	C	A	50	25	45	50	0.916	1.365	IP 20	
DOT 2870	2 x 26W TC-D/E	2x G24q-3	245	245	C	A	50	25	45	50	0.916	0.430	IP 20	

HORIZONTAL DOT 2000 METAL HALIDE (MH) SERIES

DOT 2950	1 x 70W MH-DE	RX7s	245	245	C	A	50	25	45	50	1.125	-	IP 44
DOT 2960	1 x 150W MH-DE	RX7s	245	245	C	A	50	25	45	50	1.125	-	IP 44

HORIZONTAL DOT 4000 COMPACT FLOURESCENT (CFL) SERIES

DOT 4010	2 x 13W TC-D	2x G23d-1	168sq.	168sq.	C	A	50	25	45	50	0.950	1.350	IP 20
DOT 4020	1 x 18W TC-D	1x G24d-2	168sq.	168sq.	C	A	50	25	45	50	0.950	1.210	IP 20
DOT 4030	2 x 18W TC-D	2x G24d-2	168sq.	168sq.	C	A	50	25	45	50	0.950	1.365	IP 20
DOT 4040	1 x 26W TC-D	1x G24d-3	168sq.	168sq.	C	A	50	25	45	50	0.950	1.210	IP 20
DOT 4050	2 x 26W TC-D/E	2x G24q-3	168sq.	168sq.	C	A	50	25	45	50	0.950	0.430	IP 20
DOT 4055	1 x 18W TC-D	1x G24d-2	168sq.	168sq.	C	A	50	25	45	50	0.950	1.210	IP 20

DOT 4060	1 x 26W TC-D	1x G24d-3	168sq.	168sq.	C	A	50	25	45	50	0.950	1.365	IP 20
DOT 4065	1 x 32W TC-T/E	1x GX24q-3	168sq.	168sq.	C	A	50	25	45	50	0.950	0.430	IP 20

DOT VERTICAL COMPACT FLOURSCENT (CFL) SERIES

DOT 301 (LL)	18W TC-T	G24d-2	125	125	C	A	50	25	45	n/a	0.700	n/a	IP 20
DOT 301 (HF)	18W TC-T/E	GX24q-2	125	125	C	A	50	25	45	n/a	0.430	n/a	IP 20
DOT 302	13W TC-D or TC-T	G24d-1 or GX24d-1	140	140	R	A	50	25	45	n/a	0.756	n/a	IP 20
DOT 322	18W TC-D or TC-T	G24d-2 or GX24d-2	140	140	R	A	50	25	45	n/a	0.756	n/a	IP 20
DOT 332	26W TC-D or TC-T	G24d-3 or GX24d-3	140	140	R	A	50	25	45	50	0.490	0.770	IP 20
DOT 340	18W TC-D or TC-T	G24d-2 or GX24d-2	175	175	R	A	50	25	45	n/a	0.856	n/a	IP 20
DOT 340SM	18W TC-D or TC-T	G24d-2 or GX24d-2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.600	n/a	IP 20
DOT 360	26W TC-D or TC-T	G24d-3 or GX24d-3	175	175	R	A	50	25	45	50	0.500	1.210	IP 20
DOT 360SM	26W TC-D or TC-T	G24d-3 or GX24d-3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.800	n/a	IP 20
DOT 370	26/43/42W TC-T/E	GX24q-3/4	175	175	R	A	50	25	45	50	0.526	0.405	IP 20
- Multi-Wattage	26//32/42W TC-T/E												

DOT 370SM	26/43/42W TC-T/E	GX24q- 3/4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	1.100	n/a	IP 20
- Multi-Wattage														

DOT 70 HALOGEN (HAL) BEAM MODULATOR SERIES

DOT 70/H	75W max. Halogen- Low Pressure	GY 6.35	150	150	C	A	50	25	45	n/a	0.600	0.120	IP 20
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dot 70 METAL HALIDE (MH) BEAM MODULATOR SERIES

DOT 70-G8.5	70W MH	GU8.5	155	155	C	A	50	25	45	n/a	0.600	0.340	IP 20
DOT 70-G8.5	34W MH	GU8.5	155	155	C	A	50	25	45	n/a	0.600	0.340	IP 20
DOT 70-G8.5	20W MH	GU8.5	155	155	C	A	50	25	45	n/a	0.600	0.340	IP 20
DOT 70-PGJ5	35W MH	PGJ5	150	150	C	A	50	25	45	n/a	0.600	0.140	IP 20
DOT 70-PGJ5	20W MH	PGJ5	150	150	C	A	50	25	45	n/a	0.600	0.140	IP 20

DOT VERTICAL METAL HALIDE (MH) SERIES

DOT 705	35W MH	G8.5	100	100	C	A	50	25	45	50	0.340	-	IP 43
DOT 706	70W MH	G8.5	100	100	C	A	50	75	45	50	0.340	-	IP 43
DOT 710	35W MH	G12	125	125	C	A	50	75	45	50	0.575	-	IP 43
DOT 712	70W MH	G12	125	125	C	A	50	75	45	50	0.575	-	IP 43
DOT 730	35W MH	G12	125	125	C	A	50	75	45	50	0.575	-	IP 43
DOT 732	70W MH	G12	125	125	C	A	50	75	45	50	0.575	-	IP 43
DOT 770	100W MH-P	E27	175	175	C	A	50	75	45	50	0.530	-	IP 20
DOT 780	150W MH-P	E27	175	175	C	A	50	75	45	50	0.530	-	IP 20

DOT VERTICAL COMPACT FLOURESCENT - INTEGRAL (CFL-I) • PROFILE RANGE

DOT 183	14W CFL- I/20W CFL-I Spiral T3	E27	125	125	R	A	50	25	45	n/a	0.490	n/a	IP 20
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DOT VERTICAL COMPACT FLOURESCENT - INTEGRAL (CFL-I) - ES BASE SERIES

DOT 110RD	24W max. CFL-I Spiral T#	E27	100	100	C	A	50	25	45	n/a	0.394	n/a	IP 20
DOT 110SQ	24W max. CFL-I Spiral T3	E27	100	100	C	A	50	25	45	n/a	0.394	n/a	IP 20

DOT 122	• 2	E27	125	125	C	A	50	25	45	n/a	0.380	n/a	IP 20
DOT 162	• 3	E27	125	125	C	A	50	25	45	n/a	0.410	n/a	IP 20
DOT 202	• 2	E27	140	140	R	A	50	25	45	n/a	0.416	n/a	IP 20
DOT 385	• 4	E27	175	175	C	A	50	25	45	n/a	0.842	n/a	IP 20

DOT VERTICAL HALOGEN / COMPACT FLOURESCENT - INTEGRAL (HAL / CFL-I) - ES BASE SERIES

DOT 109RD	• 1	E27	100	100	C	A	50	25	45	n/a	0.330	n/a	IP 20
DOT 109SQ	• 1	E27	100	100	C	A	50	25	45	n/a	0.330	n/a	IP 20

• 1 = 70W max. Halogen Classic A / 20W max. CFL-I
Spiral T2 /
75W max. HAPAR 25

• 2 = 70W max. Halogen Classic A / 24W max. CFL-I
Spiral T3 /
75W max. HAPAR 25

• 3 = 70W max. Halogen Classic A / 24W max. CFL-I
Spiral T3 /
20W max. CFL / 75W max. HAPAR 25

• 4 = 70W max. Halogen Classic A / HAPAR 25

(1) C = Closed R = Restricted O = Open

(2) A = Abutted - Hole in insulation same size as ceiling cutout.

(3) SCB = Side Clearance to Building Element.

(4) HCB = Height Clearance to Building Element.

(5) ta = Maximum ambient operating temperature °C (within ceiling space).

† ta = 45°C for low loss ballast versions.

(6) IP Rating refers to ingress protection from below ceiling.
Please refer to accessories to increase IP Rating for individual luminaires

S = Standard 200mm.

* = Specified.

NB: Amalgam compact fluorescent lamps are recommended in all models 32W and above except when used in non-maintained emergency and presence detection luminaires

NB: When mounting downlights in exterior applications (forecourts etc.) - ensure mounting cavity temperatures do not exceed ta shown (5) above.

Contact a distributor now to discuss your lighting needs.