

SPECIFICATION-OF-INTENT

ISSUED FOR
DEVELOPMENT APPROVAL
COMPRISING OF
PROVISIONAL DEVELOPMENT PLAN CONSENT
PROVISIONAL BUILDING RULES CONSENT

***MISCION PTY LTD**
STRUCTURAL DESIGN

Maitland, South Australia

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*also T/A Roy Harrison & Associates

DRAWING INDEX & DOCUMENT STATUS		
DRAWING NUMBER	TITLE	REV
1946/G01	GENERAL NOTES (1)	A
1946/G02	GENERAL NOTES (2)	A
1946/S01	FOOTING LAYOUT	A
1946/S02	HOUSE STRENGTHENING	A
1946/SD01	HOUSE CONNECTION	A
1946/SD02	TIE-DOWN (1)	A
1946/SD03	TIE-DOWN (2)	A
1946/SD04	TIE-DOWN (3)	A

Example No - 1981

January 2007

for

Proposed Tie-Down
MODBURY NORTH

EXAMPLE

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GENERAL

1. The builder shall ensure that the process of construction is supervised by an appropriately qualified person.
2. The Building Code of Australia (BCA) is adopted as the primary reference specification for objective, function and performance.
3. The South Australian Housing Code (SAHC) is adopted as a specification of acceptable product and process unless noted otherwise.
4. The project specific specification-of-intent comprises of the documents listed on the cover sheet.
5. This project specification takes precedence over the BCA and the SAHC unless the BCA imposes higher levels of performance.
6. The scope of the SAHC is extended to the BCA class of the current building project subject to:
 - a) The SAHC shall not be used for the sizing of Structural members
7. All materials and workmanship shall be in accordance with the latest editions of the relevant Australian codes unless noted otherwise (uno).
8. The structural drawings shall be read in conjunction with these Construction Notes and associated drawings, and with such other written instructions as may be issued by the Engineer, during the course of construction.
9. All dimensions in millimetres(mm) unless noted otherwise.
10. The Contractor shall verify setting out dimensions shown on the drawings by measurement on site.
11. The structure has been designed to meet the requirements of the Code or Standard relevant to the facility in its in-service condition. During construction and prior to hand-over the Contractor shall, at all time, ensure that the structure is protected from over-stressing and instability due to any causes whatsoever.
12. Details of component parts of each structure are typical only. Where items are not detailed the contractor or fabricator shall use similar methods to those shown on the drawings.
13. The contractor shall provide all cleats and holes for fixing to steel, timber and other components as required by the engineering and architectural drawings whether or not shown.
14. All beams shall be fabricated and installed with natural camber up.
15. The quality characteristics of all materials and components used shall be verifiable against this specification upon request.

BASIS OF DESIGN

1. Structure Importance Level : 2 (Normal)
2. Design wind Class : N2 (AS4055)
3. Design live loading : Roof = 0.25 kPa
4. A maximum allowable bearing pressure of 100kPa has been assumed.
5. Footings shall be placed centrally under walls and columns uno.
6. All variations from the design specification to be referred to the design engineer for approval before proceeding.

STRUCTURAL CONCRETE

1. Concrete quality shall be as tabulated, and verifiable

Concrete Element	Exposure Class'n	Class/ Grade	Slump mm	Aggregate Size mm	Cement Type
Footing Piers & Pads	A2	N20	80	20	GP

STRUCTURAL STEELWORK

1. All shop and field welds shall be classification General-Purpose (GP) uno.
2. Continuous fillet weld (CFW) shall be as specified on details.
3. Butt welds shall be complete penetration(CPBW) type.
4. Bolt designation: 4.6/S refer to commercial bolts grade 4.6, tightened using a standard wrench to a snug-tight condition.
5. All bolts shall be 4.6/S uno.
6. Bolts in slotted holes shall be "finger tight" and supplied with lock nuts.
7. Seal weld a 3mm plate to the ends of all hollow sections uno.
8. All damage to protective coatings as a result of transport, welding or other building operations shall be repaired in accordance with relevant codes as approved.
9. Welds to cold-formed sections shall be continuous fillet M.I.G. welds of a size equal to the thinnest section of the material joined, wire brushed and coated with zinc silicate paint.
10. Surface treatment and coating:

Element	Surface Treatment	Treatment or Coating
All steel fitments including Hold Down Bolts, Nuts & Washers, Cast-in steel items, external steelwork walkways & Hand-railing	. . Chemical Treatment Hot Dip Galvanising
All other steelwork	Grit blast to near white metal finish	Inorganic Zinc Silicate with average thickness 85 microns

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U.N.O : unless noted otherwise.

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PROPOSED TIE-DOWN

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MODBURY HEIGHTS
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GENERAL NOTES(1)

DRAWN SCH

DESIGNED SCH

CHECKED

SCALE as shown | DO NOT SCALE

SIZE	DRAWING NUMBER	REVISION
A4	1981/G01	A

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ATTACHMENT OF CANOPY TO EXISTING STRUCTURE

1. Beams not to overhang connection brackets, unless beams and house structure designed to suit.
2. Canopy Dimension to be a whole number multiple of the rafter spacing.
3. Extenda Brackets: Brackets to be fastened to rafter directly above house wall framing, else rafter stiffening to be provided.
4. Long Pergola brackets: Brackets not to extend beyond house fascia more than 150mm.
5. Joist hangers: Fascia to rafter connection to be strengthened using Pryda Fascia support bracket.
6. Fabricated brackets as detailed to achieve full support of canopy at beam ends, and house corners.
7. Posts to be provided at hip corners unless noted otherwise.

CONNECTION BRACKETS

BRACKET TYPE	DESCRIPTION
Type-1	Long Pergola Brackets: (UFB or similar) (Ex. 50x5 FL G300 Steel, 4M10 bolts to house rafter, 4M10 bolts to canopy fascia)
Type-2	Fabricated bracket: (Ex. 50x50x2 SHS C450LO + 50x5 FL end plates bolted to fascia beam with 2M10 bolts.)

STRENGTHENING OF EXISTING STRUCTURE

1. Minimum house structure:
 - a) Rafters : 120x35 F5 not notched more than 40mm (Not greater than 600 c/c for tiled roof, not greater than 1200 c/c for sheet roof)
 - b) Hip Rafters 170x45 F5
 - c) Fascia : 190 x 19
2. Rafter Stiffener to all rafters supporting connection brackets. Minimum length of stiffener as specified or full length of rafter, which ever is the lesser. Timber stiffeners fixed to rafters with 2/ Ø3.06 x 75 long nails at 150 centres. Rafter Backspan support connection to be strengthened with 1/30x0.8 steel strap AS1684.2-1999 Table 9.22, detail (b) unless bolted connection present. Steel stiffeners fastened with M10 bolts at 200 c/c.
3. Tie-downs to be provided to all rafters supporting connection brackets, exceptions as noted.
4. Multiple rafters per tie-down – NOT applicable except as noted for lintels over openings.
5. Canopies not to be attached to light weight timber framed construction. Additional posts and piers to be provided adjacent to house.
6. Fascia Ledger plates to be bolted to house gable end walls only, using M10 dynabolts at 600 c/c, staggered vertically. Minimum of 2m rise of brick gable end above canopy fascia at location of house ridge, else tie fascia plate to bottom of wall using Ø10 steel rods at 2.4m centres.
7. For openings install z-section Prydabeams. Beam to extend to first stud each side of opening, fasten to manufacturers instructions. Install Type-4 tie-downs to each end of lintel, anchor point to be centre of 1.2m width of brickwork. Ensure 3.6m width of brickwork between adjacent openings. Each rafter to be attached to lintel using Type-1 tiedowns.

LINTELS	APPLICATION
PB1.4	-- NA --
PB2.0	-- NA --

TIE-DOWN TYPE	DESCRIPTION
Type-1	1/30x0.8 steelstrap over rafter, 1M10 bolt each end to added structure.(eg. over battens, lintels)
Type-2	1/30x0.8 steel strap looped around Ø10 rod epoxy doweled to brickwork; minimum of 1.2m wide x 12 courses high of brickwork above anchor point. Strap fastened to rafter with 4/Ø2.8 nails each end.
Type-3	Duralgal angle 30x30x2.5 CA, 1M10 bolt top to rafter, bottom anchored with Ø10 rod epoxy doweled above 2nd course of brickwork from bottom of wall ; , minimum of 1.2m wide x fullheight brickwork above anchor point free from openings.
Type-4	M10 threaded steel rod, welded to 40x40x2 SHS C350LO tube at lower end. Tube sealed each end with 5 PL end plates. Bottom anchored with Ø10 rod epoxy doweled above 2nd course of brickwork from bottom of wall, minimum of 1.2m wide x fullheight brickwork above anchor point free from openings. Top bolted through bottom flange of added steel z-lintels, or through leg of angles, or through over batten as required.
Type-5	M10 threaded steel rod, with 50 x 5 FL x 75 long each end. End cleats welded with 25mm x 3 Continuous Fillet Weld(cfw). Top bolted through rafter 1M10 bolt, bottom anchored into concrete footing beam using 1M10 dynabolt, min. 38mm embedment. Anchor point to be 100mm clear of all concrete edges.
Type-6	Abel Tie-Down Device. Concrete anchor driven 75mm into concrete floor slab, at location of footing beams. Upper connections as shown on structural details for specific project.

8. If inadequate brickwork to anchor tie-downs then substitute with Type-5 tiedowns brought down external face of brick work and anchored into footing beam.
9. If it is not desirable to have tie-downs visible on the external face of the brickwork, then proprietary tie-down devices such as Abel Tie-Downs may be installed either in the wall cavity or through the timber framing of the wall, directly into the top of the concrete floor slab & beams.
10. Footing beam to be 300mm deep or greater, with a 100mm thick slab extending at least 1700mm back from wall, with additional transverse beams at 4000mm centres or less. (Min. 5m between Walls wind class N1, and 15m for N3. These can be reduced for deeper footing beams.)
11. If neither adequate brickwork or footing beam to anchor into, then canopy is NOT to be attached to the house, and additional posts and piers are to be provided.

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WARNING: M10 refers to metric(M) profile thread with nominal diameter of 10mm. When purchasing anchors make sure threaded portion matches the thread requirement. For Example M10 Dynabolt has a 12mm diameter anchor body, NOT 10mm. From a site inspection viewpoint if an M10 nut doesn't thread onto the exposed thread of the anchor, then the anchor is the wrong size.

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PROPOSED TIE-DOWN
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MODBURY HEIGHTS
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GENERAL NOTES(2)

DRAWN	SCH	
DESIGNED	SCH	
CHECKED		
SCALE	as shown	DO NOT SCALE
SIZE	DRAWING NUMBER	REVISION
A4	1981/G02	A

CAD FILE : C:\198\STRUCT\DWG Fri 12 Jan 2007 14:57

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NB: All houses rafters attached to the canopy are to be tie-down.

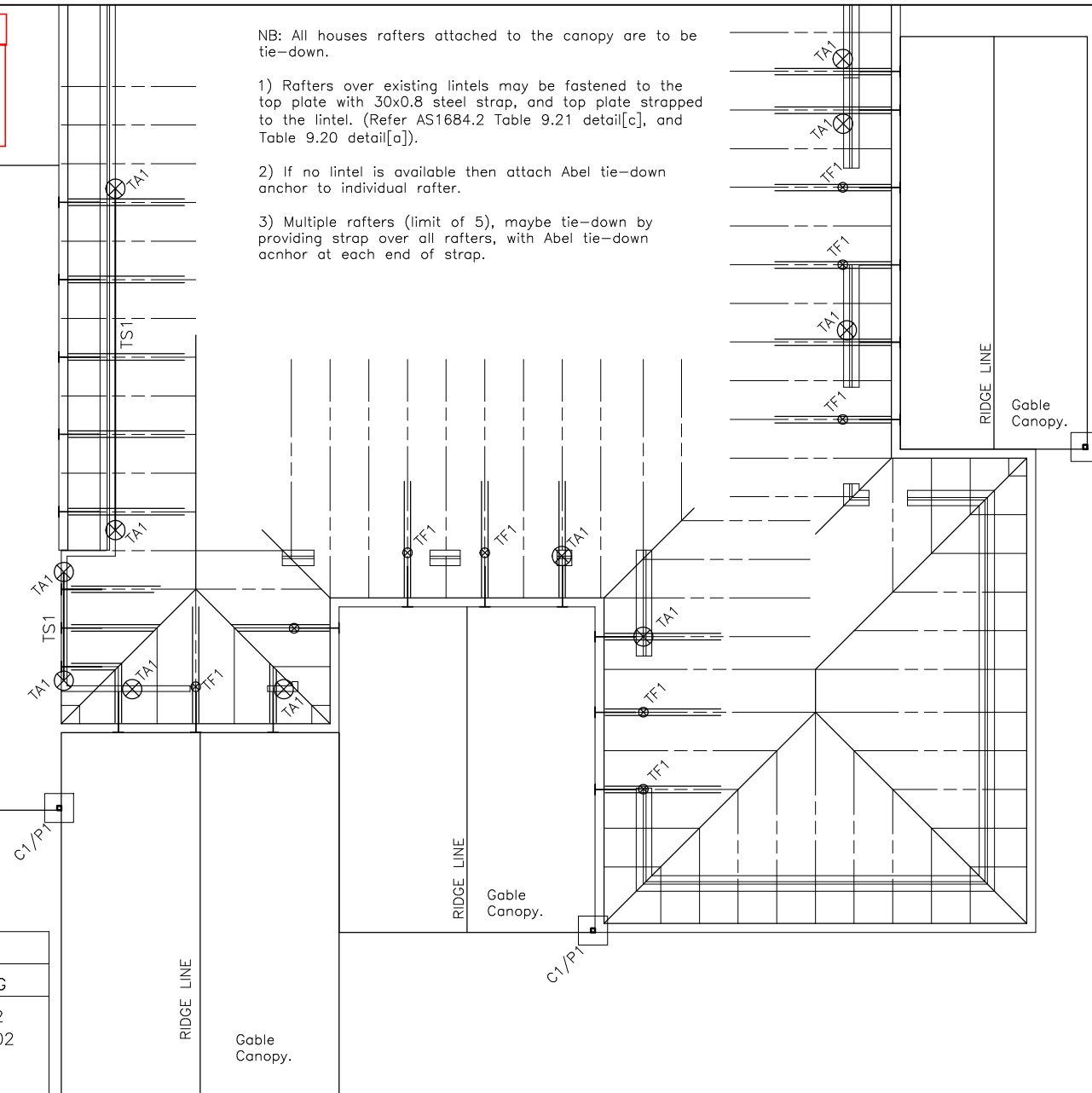
- 1) Rafters over existing lintels may be fastened to the top plate with 30x0.8 steel strap, and top plate strapped to the lintel. (Refer AS1684.2 Table 9.21 detail[c], and Table 9.20 detail[a]).
- 2) If no lintel is available then attach Abel tie-down anchor to individual rafter.
- 3) Multiple rafters (limit of 5), maybe tie-down by providing strap over all rafters, with Abel tie-down anchor at each end of strap.

SPECIFICATION-OF-INTENT

⊗ TIE-DOWNS

NB: This drawing ONLY shows posts and piers as required to minimise load transfer too the existing house roof and wall structure at hip corners.

House roof layout is indicative only, some variation may exist in actual spacing and layout of rafter/trusses.



SCHEDULE OF MATERIALS			
MEMBER	MARK	SIZE	DWG
BRACKETS	BK1	-- by others --	G02
STIFFENERS	ST1	-- by others --	SD02
TIE-DOWNS			
anchors	TA1	TYPE-6	G02
over strap	TS1	TYPE-6	G02
fixing	TF1	TYPE-6	G02

HOUSE FRAME STRENGTHENING & ATTACHMENT POINTS
 1:100

DESIGN SKETCH ONLY

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PROPOSED TIE-DOWN
 --
 MODBURY HEIGHTS
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 --
 TIE-DOWN STRUCTURE

DRAWN	SCH	DO NOT SCALE	
DESIGNED	SCH		
CHECKED			
SCALE	as shown	DO NOT SCALE	
SIZE	DRAWING NUMBER	REVISION	
A4	1981/S01	A	

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WARNING: EXISTING STRUCTURE SHALL BE STRENGTHENED BEFORE ATTACHING CANOPY.

- 1) existing rafter to be minimum of 120x35 F5 with birdsmouth NOT more than 40mm. Or Existing truss chord to be minimum of 90x35 F7 no notching.
- 2) Rafters/Trusses at NOT more than 600mm c/c for tiled roof and NOT more than 1200mm c/c for sheet roof.

Stiffener Plate(ST) Nail Laminated to rafter with two $\phi 3.06$ Nails x 75 long at 150 centres.

2 No. 14 Type-17 Screws with hexagon washer head. Through tube of Abel tie-down device 30mm penetration into timber rafter

Stiffener Plate(ST) may be cut-back to clear eaves hangers and trim.

Back Span support to house rafter to be twice the overhang but not more than 3m from wall.

Critical that full depth of stiffener plate (ST) is present at this point.

40mm Hole through Top Plate and Noggins for Abel tie-down installation guide tube.

Rafter Strengthening & Tie-Down Detail.

$\phi 18$ Hole through bottom plate.

Abel Tie-Down Device
75mm embedment into concrete

GROUND LEVEL

Tie-Down detail bottom connection

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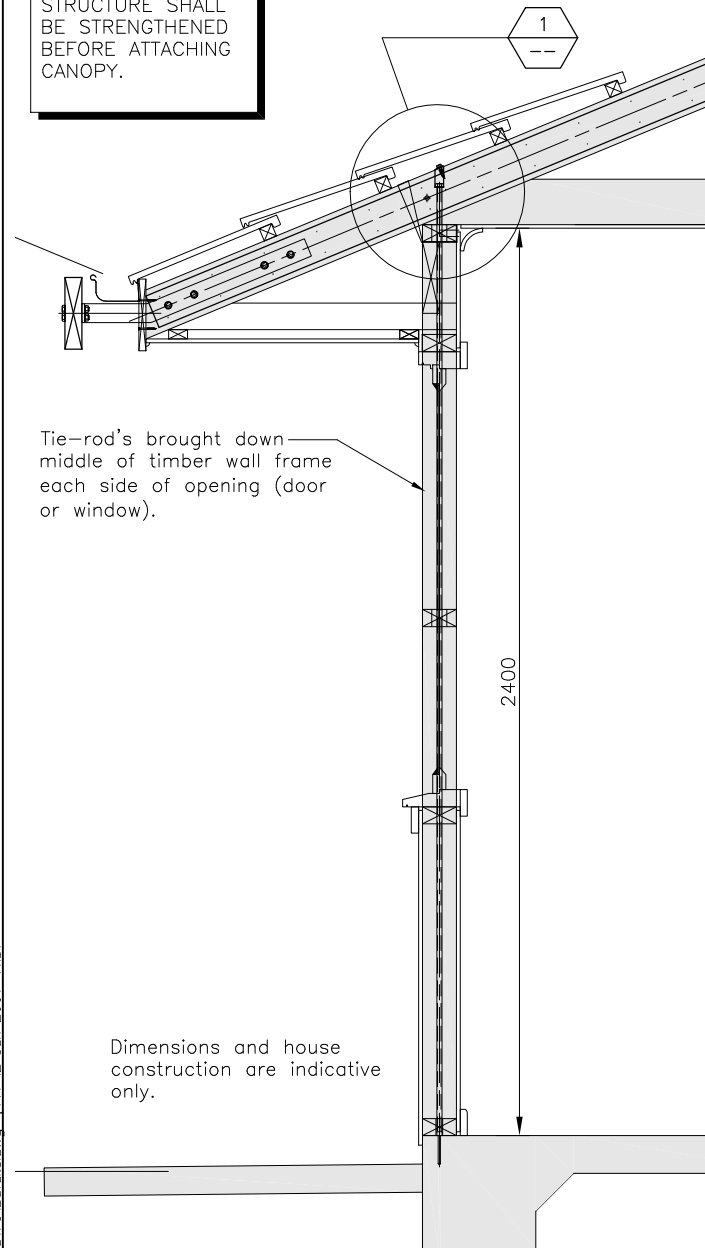
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PROPOSED TIE-DOWN
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MODBURY HEIGHTS
--
TIE-DOWN (1)

DRAWN	SCH		
DESIGNED	SCH		
CHECKED			
SCALE	as shown	DO NOT SCALE	
SIZE	A4	DRAWING NUMBER	REVISION
		1981/SD01	A

WARNING: EXISTING STRUCTURE SHALL BE STRENGTHENED BEFORE ATTACHING CANOPY.



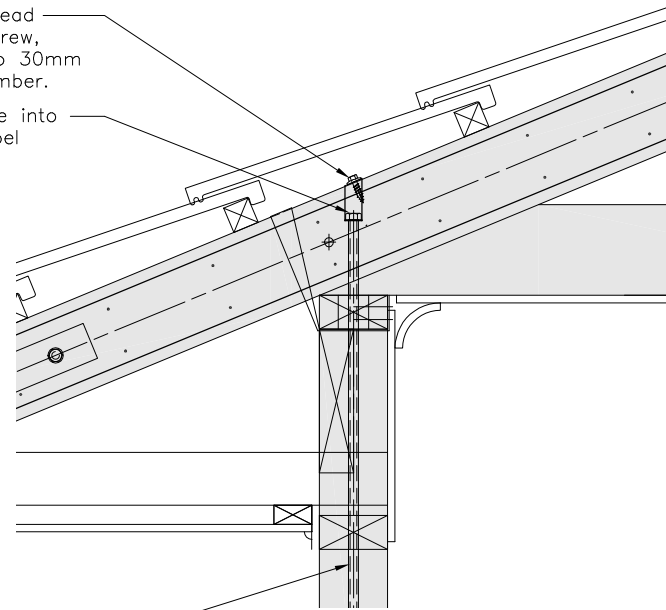
Tie-rod's brought down middle of timber wall frame each side of opening (door or window).

Dimensions and house construction are indicative only.

Tie-Down at openings.

Hexagon Washer Head No.12 Type-17 Screw, through steel strap 30mm penetration into timber.

Buildex M10 TapTite into top of tube, to Abel Tie-Down device.



Tubular body of Abel Tie-Down Device.

DETAIL 1
1:10

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PROPOSED TIE-DOWN

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MODBURY HEIGHTS

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TIE-DOWN (2)

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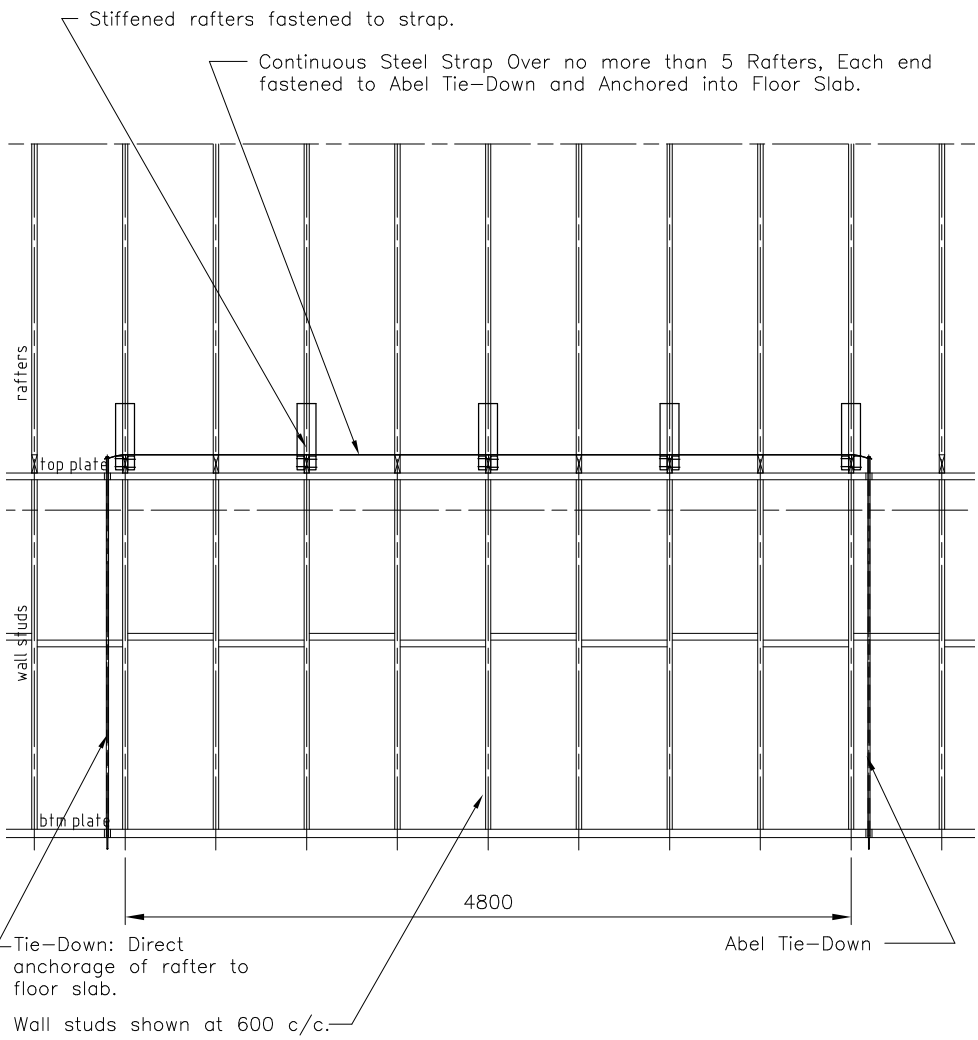
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SIZE	DRAWING NUMBER	REVISION
A4	1981/SD02	A

EXAMPLE

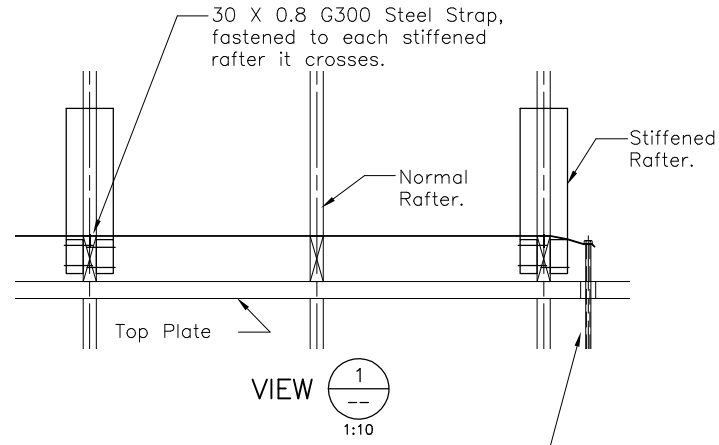
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WARNING: EXISTING STRUCTURE SHALL BE STRENGTHENED BEFORE ATTACHING CANOPY.



Tie-Down detail over openings
scale 1:50

(House Framing shown is indicative only)
All house framing assumed at 600 c/c with canopy attached at 1200 c/c.



Abel Tie-Down Device each end of strap.

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NB: This drawing is indicative only and should be read in conjunction with structural framing plans, and house strengthening plans for the specific construction project.

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PROPOSED TIE-DOWN
--
MODBURY HEIGHTS
--
TIE-DOWN (3)

DRAWN	SCH	
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