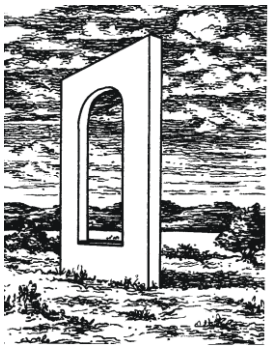

cad planz

DBH LICENSED BP110435 DESIGN D2 SITE S2

WOODWORKS CONSTRUCTION LTD trading as **cadplanz**

Paul Hayman
P O Box 250, Kaeo. 0448. New Zealand.
Tel. 09 407 9816 Mob. 0274 505 471
info@cadplanz.co.nz

SPECIFICATION & PLANS

FOR

PROPOSED NEW HOUSE

FOR

PETER & JENNY MORGAN

36 Old Hospital Road
Whangaroa

28th March 2022

SPECIFICATION FOR NEW HOUSE

Please note that these specifications are not designed to be used as contract documents.

CAUTION

WARNING:
It is expected that these works will be undertaken by experienced tradesmen who are qualified to do the work shown and/or inferred in these working drawings, and who will do the said works in a professional manner to best trade practice.
It is also expected that they will have the following documents on site at all times.
1. The building consent copy of the plans and specifications
2. NZS 3604:2011.
3. Technical specifications for all the products that are used to construct the said works.

HEALTH & SAFETY

The provisions of the Health & Safety at Work Act 2015 are to be observed.

SITE SAFETY:
A 1.8m high safety fence is to be erected to prevent unauthorised access to the building site.

PRELIMINARY AND GENERAL

WORKMANSHIP:
All workmanship must be in accordance with normal trade practice and all materials must be suitable for their proposed use.

NZ BUILDING CODE: All works and materials must comply with the N Z Building Act, NZS 3604:2011 and related documents.

CONCRETE

MATERIALS:
a) Cement: All cement shall be Portland cement conforming to the requirements of the NZS 3122:2009.
b) Aggregates: Fine and coarse aggregates shall conform to the requirements of NZS 3121:2015.
c) Water: Water shall be clean and fresh and shall comply with NZS 3121:2015.
d) Boxing: Boxing shall be clean and dressed material in good condition.

WORKMANSHIP:
All work shall be carried out in a tradesman like manner in accordance with best trade practice and in accordance with relevant standards, particularly NZS4229:2013.

CONCRETE:
Concrete is to be batch mixed by a certified plant, strength to be 25MPa for floor slab and for post footings. Concrete is to be placed and cured as per NZS 3109:1997.

CONCRETE POST FOOTINGS:
180mm2 PL8 H5 posts are to be embedded 1.4m in 450mmØ x 1.5m deep 25MPa footings.
125mm2 and 90mm2 H5 piles are to be embedded 500mm below basement wall excavation shear as shown on sheet 19.

CONCRETE SLAB:
Footings: 400mm wide by 250mm 25MPa concrete footing is to be built with bottom of footing 450mm 225mm below CGL. Footing is to have 3-HD12 longitudinal bars with R10 ties at 300mm centres and HD12 slab bars at 400mm centres. Slab bars are to lap under mesh 500mm.
Blinding sand: 25mm layer of blinding sand is to be laid over the hardfill.
Vapour barrier: Generally lay vapour barrier under concrete slab on 25mm blinding sand. Lap joins by 150mm and tape.
Insulation: 50mm EPS sheets are to be laid on top of the vapour barrier.
Reinforcing steel: 1-D12 slab perimeter bar is to b e installed under slab bars as shown on the drawings. SE62 mesh is to be installed with 35mm top cover using bar chairs.
Slab: 100mm thick 20MPa slab is to have SE62 mesh with 35mm top cover. Concrete is to be placed and cured as per NZS 3109:1997.

REINFORCEMENT

SCOPE:
All concrete work is reinforced, except in some areas where mass concrete filling is incorporated under structural foundations. Carry out all reinforcing work to detail.

MATERIALS:
Steel shall comply with the conditions and tests laid down in the following standard specifications.
a) Plain round mild steel bars shall fully comply with NZS 3402
b) Deformed mild steel bars shall fully comply with NZS 3402
c) Deformed High Tensile steel bars shall fully comply with NZS 3402
d) Hard Drawn steel wire mesh shall fully comply with NZS 3421 & NZS 3422

POSITIONS:
Except where expressly shown otherwise on the drawings or where required by later clauses of this Specification the positions where the various grades of steel specified above are to be used shall be as follows:-
a) Plain round mild steel bars shall be used:
i) Wherever it will be necessary during the progress of the works to bend a bar on site. Where this is not detailed on the drawings, the Contractor must, in advance or ordering steel, obtains the Owners approval for procedure and positions.
ii) For stirrups, ties and starters for slabs poured on the ground.

b) Deformed high tensile steel bars shall be used only in those positions shown on the drawings and will generally be designated Grade 430 with an '1-1' shown after the diameter.
c) Deformed mild steel bars shall be used in all positions other than (a) and (b) above.

CONDITION OF MATERIALS:
All metals for reinforcement shall be clean, free from all loose mill scale, dirt, loose rust, paint, oil or any other material.
Steel which is pitted by rust or otherwise damaged shall not be used. Re-bent steel shall not be used.

BENDING:
Reinforced shall be carefully bent to the exact shapes and dimensions shown on the drawings, all bends being made cold, over freely rotating roller, so that binding between rollers and steel is prevented. Rebending of reinforcement is not permitted, unless specifically detailed on the drawings or expressly approved by the Owner.
Hooks shall be to NZS 3101 Section 5.3.3.

PLACING:
The number, size, form and position of bars, ties, stirrups, binding etc shall be in exact accordance with the working drawings, and nothing shall be allowed to interfere with this. The steel shall be supported at the bottom sides etc by an adequate number of steel or concrete chairs (see clause in 'Concreter') and shall be tightly bound at each intersection with No: 16 gauge soft iron wire. Stirrups shall fit snugly round the main bars and cover to bars shall be maintained as hereunder.
All bars shall be straight between bends and hooks. Kinks will not be allowed.
Slab steel shall be adequately supported at a sufficiently close spacing before concrete pouring begins to ensure that the steel remains in the exact location shown on the drawings and does not sag or displace when concrete placers are working on the slab pour.
Generally the main requirements shall be:

Slab and beam steel - two approved supports per sq.m.
Column and wall steel - one approved support per two sq.m.

COVER TO BARS:
The concrete cover to bars shall be as shown on the drawings.
If not expressly shown on the drawings cover to principal reinforcement shall be as follows:

Foundations	Against natural ground - 75mm
	Against boxing - 50mm
Beams Columns	Against natural ground or fill - 75mm
	Against boxing exposed to weather - 50mm
	Against boxing not exposed to weather - 40mm
Slabs	Against natural ground or fill - 50mm
	Against boxing exposed to weather - 30mm
	Against boxing not exposed to weather - 20mm
Walls	Against natural ground - 50mm
	Against boxing exposed to weather - 40mm
	Against boxing not exposed to weather - 25mm

INSPECTION OF REINFORCING:
No concrete shall be placed until the reinforcing in any section of the work has been inspected and approved by the Engineer.

REINFORCING DETAILS:
Footings: 3-HD12 bars with R10 ties at 300mm centres and R10 slab bars at 400mm centres.
Slab: SE62 mesh with 35mm top cover & D12 slab perimeter bar.

STRUCTURAL STEELWORK & METALWORKING

WORKMANSHIP:
Distortion:
During fabrication, allowances shall be made for distortion during welding so that internal stresses are reduced to a minimum and so that resulting work is straight and true.
Finish:
Cut surfaces shall be dressed to a neat, smooth, workmanlike finish, free from defects and distortions. Sharp edges shall be lightly rounded, whether visible or not.
Joints:
Field joint in structural steel members may be made only where and by the method shown, unless written approval of the Engineer is obtained in any particular instance.
Straightness:
Unless otherwise shown on the drawings, steelwork shall be within the tolerances for straightness

specified in NZS 3404. Straightening and other work necessary to comply with this requirement shall be carried out by methods which in the opinion of the Engineer do not injure or mark the steel.

MATERIALS:

Steelwork:

The steel shall be fully weldable mild steel conforming in every respect with AS 3679 Grade 300 plus or equivalent. In addition, structural steel hot rolled sections shall comply with the requirements of AS 36978/3679 and structural steel hot rolled hollow sections with AS 1163. The steel shall be of first quality free from laminations or any other defects, which affect its structural soundness. It shall be clean and free from dirt, or other deleterious substances. Putted or heavily rusted steel will not be accepted. The steel shall be free of dents, twists, kinks or any other defects which, in the opinion of the Engineer, affect its structural soundness or appearance. All members shall be of single length unless shown to the contrary on the drawings or approved by the Engineer.

Fasteners:

Bolts shall conform to the requirement of AS 1111, AS 1112 for Commercial Bolts and AS 1452 for High Strength Bolts.

Welding Electrodes:

All welding electrodes shall comply with the appropriate requirements of NZS 1554.1 and are to be 41xx.

Certification:

Test certificates for all steel, shall be made available to the Engineer on request.

SCOPE:

The work described under this section of the Specification includes the supply of all materials, labour, plant and equipment necessary for the proper and satisfactory fabrication and erection of all structural steelwork as shown on the drawings and specified herein including all miscellaneous items not expressly shown or specified but obviously needed for the satisfactory completion of the building.

RELATED DOCUMENTS:

This section makes reference to the various standards, which shall form part of this Specification unless qualified by this or other contract documents. It should be noted that these documents in turn require reference to other standards. In all cases, the standards below are to include the latest issue complete with all amendments current at the time.

NZS 3404 Code of Design of Steel Structures.
NZS 1554.1:2014 Welding of Steel Structures.
NZS 2980:2018 Qualification of Welders for Fusion Welding.
AS 1111 Metric Hexagon Commercial Bolts and Screws.
AS 1112 Metric Hexagonal Nuts
AS 1252 High Strength Steel Bolts (metric)
AS 1511 SAA High Strength Structural Bolting Code.
AS 1538 SAA Cold Formed Steel Structures Code.

DRAWINGS & DIMENSIONS:

The contract drawings indicate the general arrangements and dimensions of the structural steelwork. In general the structural drawings are made to scale, but scaled dimensions shall not be used. The Contractor shall be responsible for the correct setting out of all steelwork as the work proceeds. Should the Contractor wish to make any changes to the drawings, such as substitution of members or portion of the splices and details to suit fabrication methods, the Contractor shall obtain the approval of the engineer before beginning work.

VERIFICATION OF DIMENSIONS**:**
Where the new steelwork is being placed onto or connecting with other work, the Contactor shall check and verify all dimensions and levels on site before commencing fabrication of structural steel. Any discrepancy so found between the drawings and the site dimension shall be referred immediately to the engineer who shall direct any amendments necessary.

CO-OPERATION WITH OTHER TRADES**:**
The steel fabricator and erector shall co-operate with the main Contactor and shall be responsible for the accurate set out of the structural steel in concrete fixings. All measurements, horizontal or vertical, shall be checked or verified on the job before fabrication is commenced.

SHOP DRAWINGS**:**
Shop drawings prepared by the fabricator will NOT be required for this contract.
These drawings shall conform to the American Institute of Steel Construction publication "The AISC Textbook of Structural Shop Drafting" published in 1961.
The shop drawing detailer shall be a person who has the necessary technical knowledge and experience to enable him to carry out these drawings.
Those supplying the drawings shall be responsible for the completeness and accuracy of the shop drawings released.
One prints of each these drawings shall be submitted to the Engineer for his examination and perusal.
Shop drawings shall be delivered to the fabricator in the time to permit material procurement and fabrication to proceed in an orderly manner in accordance with the prescribed time schedule.

WELDING**:**
General:
All welding shall be carried out in accordance with NZS 1554.1:2014, including where appropriate, additional requirements of preheating. If requesting by the Engineer, the fabricator shall submit copies to the Engineer of his proposed welding procedures for approval before commencing work. These shall be based on pre-qualified joints listed in NZS 1554.1:2014. Before any welding is commenced, the Contractor shall advise the Engineer so that he may have an opportunity to inspect any of the prepared surfaces. Where two surfaces will be in permanent contact and enclosed by continuous welding, each surface shall be thoroughly cleaned to remove any rust, scale or surface contaminants before welding up the joint. Unless otherwise noted, all fillet welds shall be Class B and all butt welds shall be Class A as per NZS 1554.1:2014. Welding of PFC shall conform to the recommendations of NZS 1554.1:2014. All welding operators are to have passed and hold current qualification tests covering those weld positions required to complete the work as set out in NZS 4711. Where type, location and extent of welding is not clear, obtain Engineer's approval before welding.
Weld Quality:
Weld quality shall meet requirements of NZS 1554.1:2014 and in particular the permissible levels of weld imperfection presented in Tables.
Testing and Inspection:
Testing, inspection, cause for repair and the method to be used shall be in line with NZS 1554.1:2014. Type and extent of testing shall be set out in this standard unless noted otherwise in the Contract Documents with percentages based on the number of joints affected as opposed to the portion of each joint.
All welding to be GP to AS/NZS 1554.1:2014 by NZS 2980:2018 certified welder using 410MPa consumables.
All welds to be 5mm FWAR welds.

BOLTING:

General:

In general, all field connections shall be bolted as shown on the drawings with holes drilled or punched not more than 2mm greater than the nominal bolt diameter. Oversize holes, short and long slots may be used in specific locations as defined in AS 15511. Flat washers shall be used under the turning element of the bolt and against the face of oversize or slotted holes. Hardened flat washers shall be used with all high strength structural bolts. Tapered washers shall be used where the angle between the seating and the bolt head or nut exceeds 3 degrees. All bolts set into concrete and holding steel members that are not encased in the concrete shall be galvanised prior to a NORMALISING HEAT TREATMENT process. In the case of connections of secondary importance, such as purlins, hand railing, framing for wall sheathing, secondary floor beams and like, a clearance of holes of 1.5mm will be permitted. The threads of all bolts shall be entirely outside the holes, provide a thick washer under each nut, tapered if necessary so the head and nut are parallel. Where nuts are not embedded in concrete, they shall be secured by adequate riveting over the bolt ends or by approved spring washers. Holding down bolts, as detailed on the drawings, shall be supplied to the Contractor for building in.

NOTE: Grade 8.8 bolts referred to in this Specification, relate to High Strength Structural Quality (noted 8.8, TF or TB) only unless specifically stated otherwise.

Tightening:

Snug tight bolts shall be installed in accordance with Clause 15.2.5.2 (a) of NZS 3404. Where 8.8/TF or TB bolts are used, they shall be installed by the 'load indicating washer' method complying with the procedure of High Strength Bolting code AS 1511.

Subtrade:

The structural drawings do not show all the requirements for bolts to other trades and architectural finishes. The Sub-Contractor is to check the drawings and to provide all bolt holes where required.

ERECTION:

General:

Where steel interfaces with concrete, the true relationship of the steel shall be obtained by the use of either washers, small packs, levelling pins or levelling nuts.

Safety:

Safety requirements, erection cranes, equipment, scaffolding and staging shall meet the requirements of the Department of Occupational Safety and Health and other controlling authorities. The Contractor shall be solely responsible for the safety of the steelwork during erection. Adequate temporary bracing shall be provided and the steelwork shall be properly supported at a sufficient number of points and braced in a sufficient number of planes to ensure their safety until completion of the permanent work. Proper lifting equipment with sufficient range shall be provided so that erection can proceed expeditiously and safely.

BEAMS:

Floor beam FB1:

200ub29.1 with 10mm ms endplates and 270x90x10mm cleat on south end. All welds are 6mm FWAR. Details on steel sheet #3 sheet 28.

Floor beam FB3:

310ub46.2 with 10mm ms end plates & stiffener plates as shown on steel sheet #4 sheet 29. At north end fix 270x195x10mm ms cleat to ub with 6mmFWAR welds to ub.

Deck beam DB3:

150uc37.3 with 10mm ms endplates and 215x90x10mm ms cleats each end. All welds are 6mm FWAR. Details on steel sheet #1 sheet 26.

Deck beam DB9:

250pfc with 10mm ms endplates and cleats all with 6mm FWAR welds to pfc. Details shown on sheet

steel sheet #4 sheet 29.
Portal 6 lintel:
150pfc portal frame lintel as detailed on steel sheet #2 sheet 27 with 8mm ms cleats and 10mm ms baseplates and stiffener plates all with 6mm FWAR welds to pfc. Details shown on steel sheet #2 sheet 27.
Roof beam RB3:
200ub22.3 with 10mm ms endplate and cleat both with 6mm FWAR welds to ub. Details shown on steel sheet #2 sheet 27.
East entrance Portico portal beam PB2:
150x75 pfc portal beam with 10mm ms stiffeners at ridge and knees with 6mm FWAR welds to pfc and 10mm ms baseplates with 14mmØ holes for M12 bolts through deck joists. See steel sheet #3 sheet 28.
Portal beam 3:
200pfc with 10mm ms endplates, stiffener plates and baseplates all with 6mm FWAR welds to ub. Details shown on steel sheet #2 sheet 27.
Cranked portal PB4:
200ub22.3 with 10mm ms endplate and 8mm ms cleats each side for RB1 & RB2 all with 6mm FWAR welds to ub. Full strength V butt weld at crank join. As per details shown on steel sheet #2 sheet 27.
Portal beams PB1 & PB5:
2-300x75 lawson cypress with 10mm ms gussets and base plates etc. as detailed on steel sheet #1 sheet 26 and steel sheet #4 sheet 29. Gussets are to have full strength V butt welds at join and are to be hot dipped galvanised after manufacture.

PREPARATION AND PAINTING**:**
General: Beams etc. are to be thoroughly cleaned and two coats of red oxide paint are to be applied.
PB2: After manufacture the bottom 500mm of PB2's portal legs are to have all cut edges and welds ground smooth to a 2mm minimum radius & degrease prior to 150micron zinc thermal metal spray being applied. After coat with 3x coats of Carboguard 635 as per attached specification. After installation apply silicone sealant to prevent water ponding around the baseplates.
HDG900: As noted on the plans other components; gussets, baseplates etc. are to be HDG900 treatment.

COMPLETION**:**
Remove from site, all gear, rubbish and surplus materials associated with structural steelwork on completion of work.
PS3: The welder is to issue a PS3 to the designer upon completion.

CARPENTRY

TIMBER TREATMENT:
The following timber treatments are to be adhered to for the following building elements.

BUILDING ELEMENT	TREATMENT LEVELS
Piles	H5
Posts (embedded in ground)	H5
Posts (fixed to brackets above ground)	H4
Bearers (closer than 300mm to G.L.)	H4
Bearers (further than 300mm from G.L. & protected from weather)	H3.2
Bearers (further than 300mm from G.L. unprotected from weather)	H3.2
Deck joists (further than 300mm to G.L.)	H3.2
Decking, external stair components,	H3.2
Handrails & balustrades	H3.2

Framing for enclosed decks & balconies	& roofs <10°	H1.2
Floor joists & nogs		H3.2
Edge Joists		H3.2
Wall bottom plates (when fixed to concrete)		H3.1
Wall bottom plates (when fixed to timber)		H1.2
Wall framings (studs, nogs, & top plates)		H1.2
Ceiling battens, joists, trusses		H1.2
Purlins & other enclosed roof framing, soffits etc.		H1.2
Purlins & roof framing (10° pitch and less)		H3.1
Exterior exposed rafters (excluding edge rafters)		H3.2
Exterior exposed roof beams, edge rafters etc.		H3.2
Fascia boards, cappings that shed water etc.		H3.2
Stair strings closer than 300mm to CGL.		H4
Stair treads closer than 300mm to CGL		H4
Stair strings further than 300mm to CGL.		H3.2
Handrails, balusters, rails & palings		H3.2

TIMBER GRADE:
All structural timber including bearers, plates, studs, lintels, double top plates and purlins, etc. are to be SG8 minimum.

NAILING AND FIXING:
As set out in NZS 3604:2011 nailing schedules.

FRAMING:
All timber work shall be framed with ex 50mm thick SG8 machine gauged materials, trussed, braced and assembled in a workmanlike manner and in accordance with normal trade practice, and to sizes as shown on plans. All materials are to be laid true to their various levels, constructed in a proper tradesman like manner to make the whole of the works a sound construction.
Treatment is generally to be H1.2, except where shown on plans and noted in these specifications.

WALL PLATES:
Lower level: Use 90x45 SG8 H1.2 top plate with 140x35 H1.2 double plate for top plate and single 90x45 SG8 H1.2 bottom plate. Fix top plates with Studlok SL170 screws at 600mm centres.
Note bottom plates fixed to slab are to be H3.2 with dpc under. Fix external plates with Fortress M12 x150mm screw bolts at 900mm centres. Fix internal plates with Fortress M10 x120mm screwbolts at 900mm centres.
Upper level: Generally where there is a truss roof use 90x45 SG8 H1.2 top plate with 140x35 H1.2 double plate for top plate and single 90x45 SG8 H1.2 bottom plate. Top plates carrying roof members are to be fixed with Studlok SL170 screws at 600mm centres. Fix bottom plates with 3-90x3.15mm nails at 600mm centres into floor joists.
Elsewhere use SL170 screws where there is a double plate.

WALL STUDS:
To be double nailed to all plates with 2-90x3.15mm nails.
Lower floor:
- internal load bearing walls: 2-90x45 SG8 H1.2 studs at 600mm centres
- internal non-load bearing walls: 90x45 SG8 H1.2 studs at 600mm centres
- external walls: 2-90x45 SG8 H1.2 studs at 600mm centres

Upper floor:
90mm walls:

internal load bearing walls:	<2.4m	90x45 SG8 H1.2 studs at 400mm centres
	<2.7m	2-90x45 SG8 H1.2 studs at 600mm centres
external load bearing walls:	<2.4m	90x45 SG8 H1.2 studs at 400mm centres
	<2.7m	2-90x45 SG8 H1.2 studs at 600mm centres

Non load bearing walls: 90x45 SG8 H1.2 studs at 600mm centres

140mm walls load bearing and external walls:

Stud length <3m	140x45 SG8 H1.2 studs at 600mm centres
Stud length <3.6m	140x45 SG8 H1.2 studs at 400mm centres
Stud length <4.2m	2-140x45 SG8 H1.2 studs at 400mm centres

LINTELS:
Lintels are as specified on wall bracing & framing sheets 6 & 8.
Lintels are to be fixed as per Lumberlok Lintel Fixing Schedule & NZS 3604:2011 fig 8.12.

STRAPPING:
70x45mm SG8 H1.2 strapping with dpc behind is to be fixed to masonry walls with 75mm shot-fired nails at 600mm max centres.

WALL BRACING:
Allow to install gib bracing elements where shown on wall bracing sheets 6 & 8 to comply with Gib bracing calcs and manufacturers bracing sheet specifications/instructions.

UPPER FLOOR FRAMING:
Sole plate: ex 140x45 SG8 H3.2 sole plates with dpc under are to be fixed to masonry walls with Fortress M12 x150 screw bolts at 900mm centres
Floor joists: Sheet 7 shows the arrangement of 190x45 SG8 H1.2 & 200x45 hySPAN floor joists at 400mm centres and 190x45 SG8 H1.2 floor joists at 450mm centres. Fix each joist to 190x45 SG8 H1.2 edge joists with 3-90x3.15mm nails into each joist.
Nogs: Allow to nog between joists >2.5m long with solid 190x45 SG8 H1.2 blocking. Fix nogs each end with 4-90x3/145mm nails
Floor beams:
FB1: Fix 200x45 hySPAN joists sitting on ex25mm packers glued to 200ub29.1 to nogs fixed to beam with 2-75mm shot-fired nails with 2-90x3.15mm skew nails
FB2: Fix 190x45 SG8 H1.2 joists to inline 2-190x45 SG8 H1.2 floor beam with 120 joist hangers fixed with 6-30x3.15mm product nails to each flange.

FLOORING:
Fix 19mm Secura tongue and groove flooring with 10g x40mm self-embedding woo screws at 200mm to sheet edges and to intermediate supports.
Fix Secura sheets with aris up for tiles and aris down when under carpet.

MAIN DECK SUBFLOOR:
Posts: 180mm2 PL8 H5 posts are to be embedded 1.4m in 450mmØ x 1.5m deep 20MPa footings.
Deck Bearers:
DB3: 10mm cleats are to be installed in slits cut into posts and fixed with 2-M16 s/steel bolts.
DB4-6: 2-190x45 SG8 H3.2 bearers are to be checked 90mm and bolted to posts with 2-M16 s/steel bolts with 60mm2 washers. Fix members together with 2-90x3.15mm nails at 300mm centres alternating from each side.
DB7: 290x88 PL8 is to have slit cut for 10mm ms cleat fixed to FB3 and fixed with 2-M16 s/steel bolts.
DB8: FB15L fixed to stringer with fully nailed Multigrip and fixed to edge joists with fully nailed

Multigrips each side.
DB9: 250pfc with cleats installed in slits cut into posts and fixed with 2-M16 s/steel bolts.
Stringers: 190x45 & 240x45 SG8 H3.2 stringers are be bolted through house edge joists with M12 s/steel bolts with 50mm2 washers at 1.2m centres.
Deck joists: 190x45 & 240x45 SG8 H3.2 deck joists at 400mm centres fixed to stringer with s/steel 120 joist hangers each with 6-30x3.15mm product nails to each flange & to bearers with 1-CPCSS40 with 3-Type 17-14g x 35mm s/steel screws to joists & 2-Type 17-14g x35mm s/steel screws to bearers. Allow to nog between joists with full depth ex45 H3.2 at midspan as per NZS 3604:2011 and elsewhere with 90x45 SG8 H3.2 at 400mm centres fixed with 4-90x3.15mm nails into ach end.
Deck edge joists: use outer 290x45 SG8 H3.2 doubling edge joist grooved for soffit lining. Fix to inner edge joist member with 3-90x3.15mm nails at 300mm centres.
Plywood cladding: 17.5mm CD H3.2 plywood is to be fixed across joists with 10g x50mm s/teel countersunk screws at 150mm centres to sheet edges and at 300mm centres elsewhere.

DECK MEMBRANE:
Environclad membrane is to be installed by a licensed applicator as per manufacturers specifications using all recommended accessories. PS3 is to be issued upon completion.
Drip edge: 50x50x2mm aluminium angle is to be fixed top underside of overhang and 12mm radius installed to leading edge of plywood. Fix 25x2 aluminium bar to aluminium angle with pop rivets at 300mm centres.
Pencil cove: Environclad membrane is to be pencil coved 150mm up house walls and into door openings.

HOUSE DECK JOISTS:
Above membrane lay ex45mm SG8 H3.2 joists above joists below membrane with underside tapered to suit membrane deck falls. Deck joists are to have tapered coats coated with Metalex Green and the joists are to be installed on a strip of Environclad membrane.
At 1.8m centres fix BS50 bracket to joist with M12 s/steel bolt and fix bracket to house edge joist with adjustable lag screw as shown on sheet 20.

EAST ENTRANCE DECK:
Stringer: 140x45 SG8 H3.2 stringer is to be fixed over 12mm H3.2 spacers and 6mm HardieFlex cladding with M12 x150mm s/steel coach screws at 800mm centres with EPDM washer behind stringer.
Piles: 125mm2 & 90mm2 SG8 H5 piles are to be embedded as shown on sheet 5 with stated embedments below basement footing shear line as shown on sheet 19.
Bearer: 2-90x45 SG8 H3.2 bearer.
Joists: 140x45 SG8 H3.2 deck joists at 400mm centres with 3-joists under portal beam 2.
Flooring: 18mm compressed sheet fixed with countersunk Hardies 10g x 50mm compressed sheet screws at 400mm max centres.
Membrane: Wet-Seal DS420 membrane to be used.
Tiles: 6mm non-slip tiles are to be laid over membrane.

DECK HANDRAILS:
1m high Glass Vice top fixed channel balustrade system is to be installed.
See attached Glass Vice PS1 and documentation.

HOUSE ROOF FRAMING:
Trusses: Where shown on roof plan Roof Plan sheet 9b fix purpose designed ex45mm H1.2 trusses at <1m centres as per manufacturer's fixing report.
Gable truss is to have dropped chord for 90x45 SG8 H1.2 outriggers at 900mm max centres fixed to

inner trusses with 4-90x3.15mm nails and fixed to gable truss with 2-90x3.15mm skew nails and 2-'Z' nails.
Fly rafters: 90x45 SG8 H1.2 fly rafters are to be fixed to outriggers with 4-90x3.15mm nails.
Roof framing over master bedroom:
Roof beam: fix FB25M roof beam to exterior walls at each end with 1-CPC80 with 4-Type 17-14g x35mm screws into beam & 3-Type 17-14g x75mm screws through double plate into top plate.
Rafters: fix 140x45 SG8 H1.2 rafters at 900mm centres to trusses with 110x100x1mm each side each with 2-Type 17-14g x35mm screws into each member.
Ceiling joists: fix 140x45 SG8 H1.2 ceiling joists at 900mm centres to FB25M roof beam with 90 joist hangers each with 4-30x3.15mm nails per flange.
Main roof rafters: Fix 190x45 SG8 H1.2 rafters at 600mm centres to ridge beam beam plates with Multigrips each side each with 2-Type 17-14g x35mm screws into each flange and fix to top plates with 2-90x3.15mm nail and 2-'Z' nails.
Valley beams: 2-190x45 SG8 H1.2 valley beams are to be fixed to top plates with 1-CPC80 with 4-Type 17-14g x75mm screws into plate and 4-Type 17-14g x35mm screws into valley beam. Fix top end of valley beam with 1-M12 bolt through 8mm ms cleat welded to cranked portal beam 4 as shown on sheet 18.
Purlins: Fix 70x45 H1.2 purlins at 900mm maximum centres to trusses and rafters with 1-10g x 80mm screws. Note end spans are to be 600mm.
House soffit framing: Generally 90x45 SG8 H1.2 nogs.

PORTAL ROOF FRAMING:
Stringer: 140x45 & 190x45 SG8 H1.2 stringers fixed to top plates with M12 x15omm coach screws at 800mm centres.
Portal rafter purlins: 140x45 & 190x45 SG8 H1.2 rafter purlins fixed to stringer with Multigrips each side with 2-Type 17-14g x35mm screws into each flange and fix to top plates with 2-90x3.15mm nail and 2-'Z' nails. With 190x45 SG8 H1.2 rafter purlins cut overhang down to 135mm.
Verandah beams: all verandah beams are 2-190x45 SG8 H3.2 fixed to BS108 brackets with 2-M12 s/steel bolts and installed in beam pockets in house wall framing.
Portal soffits: 6mm Hardiflex is to be fixed to the underside of all portal soffits.

Ceiling framing: Generally ex45 mm nogs as required for upper skillion ceilings. For lower level ceilings and under upper level trusses use rondo perimeter channel, clips and battens as detailed on the drawings.
Roof bracing: Fix 30x1mm galv' strap bracing where shown on roof plan sheet 9b with each end 5-30mm galv' product nails and 1-30mm galv' product nails to each intersecting rafter.
Fascia boards: 34mm wide H3.2 pre-primed fascia pre-grooved for soffit linings are to be fixed with 3-75x3.15mm galvanised jolt head nails to each rafter.

EXTERIOR JOINERY:
Exterior aluminium joinery is to be of approved manufacture and sizes as shown on the plan and is to comply with NZS 3504:1979 & NZS 4211:2008.
Joinery & flashings etc. are to be fitted strictly as per manufacturer's specifications, and also as NZBC E2/AS1, plywood joinery installation details as shown on sheets 18 & 19.
Allow to site measure before manufacture.
Allow to fix into place strictly as per manufacturers specifications, including the use of sealants etc.
Window jambs are to be H3.1 treated.
Colour and finish is to be chosen by Owner.

INSULATION:
50mm thick EPS insulation sheets are to be over blinding sand under entire lower floor slab.

Fit R2.2 fibreglass insulation between framing timbers etc. to walls and R3.2 batts to ceiling, as per manufacturer's installation instructions.
Fit Pink Batts Silencer batts to between upper-level floor joists.
Fit Expol R1.4 Platinum board between strapping to lower-level masonry walls.

Allow to fit the batts snugly between framing members and in accordance with manufacturer's installation instructions.

INTERIOR LINING:
Walls: Generally line all walls with 10mm gib board, fixed in accordance with manufacturer's specifications.
Walls with plumbing fixtures fixed to them or adjacent to plumbing fixtures are to be lined with 10mm Gib Aqualine.
Ceilings: Generally fix 13mm Gib to 70x35 H1.2 ceiling battens at 600mm centres.

EXTERIOR CLADDING:
Building underlay: Building wrap is to comply with NZS 2295:2006 section 2, and NZBC E2/AS1. Allow to install Watergate Plus building underlay with Aluband flexible flashing tape as per manufacturer's specifications.
Linea weatherboards: Fix 180mm Linea weatherboards strictly as per manufacturers specifications
Cavity battens: Cavity battens are to be 40x18 H3.1. Cavity battens are to be at max 600mm centres.
Fastening: Hardies s/steel 60x3.15mm nails.

Soffits:
Line 600mm wide roof soffits with 4.5mm Hardieflex fixed in accordance with manufacturer's specifications.
Lower level under deck & portico soffits: Line other soffits with 6mm HardieFlex with 40x2.8mm flat head galvanised nails at 200mm centres to sheet edges and at 300mm centres elsewhere.
Generally install 40x18 H3.2 eaves margin to soffit edges.

INTERIOR JOINERY:

Interior doors: New interior doors are to be hollow core doors with leaf sizes as on shown on floor plan sheets. Jambs are to be ex 25mm pine with 30x10mm closing strips

ARHITRAVES, SCOTIAS & TRIMS:
Use UT pine mouldings for scotias, architraves etc.

INTERIOR FLOOR FINISHES

MATERIALS:
All materials used in this trade must be of approved manufacture and used according to the specifications of the manufacturer.

WORKMANSHIP:
Must be of high standard and carried out by skilled tradesmen, to best trade practice.

LOWER-LEVEL WET AREA FLOORS:
Bathroom: Bathroom floor is to be tiled over membrane. Shower walls are to be tiled over Gib Aqualine over membrane
Entry: Entry floor is to be tiled over membrane.

UPPER-LEVEL WET AREA FLOORS:
Kitchen, Wc, laundry and ensuite: Flooring is to be ceramic tiles over Flexi-Seal PUD membrane with Flexi-seal adhesive. Shower walls are to be ceramic tiles over Aqualine Gib over membrane.

SPLASBACKS: Above all sinks, vanities, tubs and washing machines install tiled splashbacks over membrane over Aqualine Gib

PLUMBER

MATERIALS:
All materials used by the Plumber must be of accepted standard and must conform to the New Zealand Building Code. Any part or parts omitted from this Specification which are useful or necessary to complete this work in proper manner shall be taken as though specially mentioned.

WORKMANSHIP:
All work shall be carried out by a competent craftsman strictly in accordance with NZBC G1/AS1 & NZBC G13/AS1 & AS3500 and must comply with best trade practice.

FLASHINGS:
All work shall be carried out by a competent craftsman strictly in accordance with the manufacturer's technical specifications, NZBC E2/AS1 and must comply with best trade practice.
Allow to make up flashings in .55g Colorsteel Maxx; colour to match the existing roof.
Flue overflashing is to cover 200mm roofing each side of penetration.

ROOFING:
Provide and fix Colorsteel Maxx trapezoidal roofing as per manufacturers specifications over roofing underlay laid at right angles to the fall of roofs.
Colour to be decided.
Roofing underlay is to be Thermocraft Covertek 407.
Allow to use Timbertite 12g x75mm s/steel roofing screws coloured to match roof colour.

SPOUTING:
Provide and fix Colosteel Maxx 125mm2 gutter with clips at 500mm max centres.
Spouting to have 1:100 graded fall to down pipes.

DOWN-PIPES:
Supply and fix 80mmØ downpipes where shown on plans. Downpipes are to discharge into 100mmØ stormwater pipe.
Stormwater is to be piped in 100mmØ pipe to water tanks.

COLD WATER SUPPLY:
Lay a cold water supply from water tank in 20mmØ diameter piping to house.
Provide and fix stopcock in suitable accessible position.
Lead 15mmØ branches to ensuite vanity, shower and wc and other wet rooms.

All piping in connection with the cold water system is to be in rehau polyethylene pipe with flanges for securing to framing and with recommended accessories & fittings.

HOT WATER SUPPLY:
All piping in connection with the cold water system is to be in rehau polyethylene pipe with flanges for securing to framing and with recommended accessories & fittings.

Lead from gas califont in 15mmØ piping to the bathroom, ensuite, laundry, wc and kitchen etc.

NB: Temperature of hot water to be set at a minimum of 60deg C and all water to taps and shower to be set at a maximum of 55deg C.

TAPS:
Taps shall be suitable for equal pressure. Taps to be marked Hot and Cold respectively.

WOODFIRE:
Fit Jetmaster 1050 LL woodfire with offset gather strictly as per manufacturers installation instructions.
Fire is to sit on 75mm thick Hebel panel as shown on sheet 33.
Flue is to be sealed to roof over flashing with premium dektite sealed and fastened with pop rivets.

ELDORADO STONE:
Fix 7.5mm BGC stone sheet over 10mm gib linins to timber framing with screws and washers as per specs. Glue stone to sheet as per Hard as Rocks specifications

GAS FITTER

MATERIALS:
Materials used by the gas fitter must be of an approved manufacturer and must comply with the NZ Building Code and approved documents and NZS5601:2013.

WORKMANSHIP:
The whole of the gas fitters work must be carried out in compliance with the Regulations and NZS5261:2003 by registered tradesmen.

FEES:
The gas fitter is to allow to pay all fees for the gas certificate etc.

LOCATION CERTIFICATE:
The gas fitter is to apply for and pay for a location certificate.

PIPEWORK:
All the gas pipe lines are to be concealed in the walls or ceilings. Pipes are to rise and fall in the walls and are to be horizontal in the ceiling.

GAS WATER HEATER:
Allow to supply and install where shown on the plans a Rinnai A26 gas water heater complete with 2-45kg gas bottles.

Location and installation of these units is to comply with NZS5601:2013 and all other relevant regulations.

MANIFOLDS:
Allow to supply and install one manifold system to suit 2-45kg gas bottles with automatic changeover.

GAS CYLINDERS:
Allow to supply and install 2-45kg gas cylinders complete with a 20kg co-map auto change regulator.

DRAINLAYER

MATERIALS:
All materials used by the Plumber must be of accepted standard and must conform to Building Code 1992. Any part or parts omitted from this Specification which are useful or necessary to complete this work in proper manner shall be taken as though specially mentioned.

PIPEWORK:
All pipework, trenching etc., is to be in accordance with FNDC & NZBC G1/AS1 regulations & requirements.

SCOPE:
Work in this section comprises;

- The connection of the house waste-water system into the existing sewage system in 100mmØ pipe.
- The connection of the down pipes with 100mmØ pipe to the water tank.
- The install of water tank overflow pipe to 6m length of 100mmØ Novaflo dispersion drain

WORKMANSHIP:
All work shall be carried out by a competent craftsman strictly in accordance with NZBC G12/AS1 and must comply with best trade practice.

PAINTING

MATERIALS:
All materials used in this trade must be of approved manufacture and used according to the specifications of the manufacturer.

WORKMANSHIP:
All work shall be carried out by a competent craftsman strictly in accordance with best trade practice.

CEILINGS:
Ceilings are to be given one seal coat, followed by two further coats of flat ceiling paint.

INTERIOR FINISHING:
All interior timber not enamelled or painted is to have one coat of an approved clear seal. Stop all nail holes and defects with matching putty and apply two coats of clear varnish.

EXTERIOR FINISHING:
All exterior timber is to be given 1x coat of primer/undercoat followed by 2x coats exterior acrylic paint.

ELECTRICIAN

MATERIALS:
Materials used by the electrician must be of an approved manufacturer and must comply with the NZ Building Code and approved documents.

WORKMANSHIP:
The whole of the electricians work must be carried out in compliance with the Regulations of the said Power Board and Underwriters Association by duly licensed tradesmen.

LIGHT & POWER POINTS:
Allow to supply and fit lights and power points etc. as per owners direction with reference to electrical sheets.

PHOTOGRAPHS

Looking towards south at the existing retaining wall with its footing

Looking north-east showing existing retaining wall and its footing: wall waterproofing & drainage can be seen

Looking south-west: wall waterproofing an drainage pipe can be seen