PROPOSED ADDITIONS

at: 15 Gondola Rd, North Narrabeen

for: Your Style

Architect: Your Style

Prepared By:

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DRAWING SCHEDULE:

NB Consulting Engineers

191044

REV. _ - _____

GENERAL NOTES:

GENERAL

G1. The drawings are to be read together with all Architects drawings and specifications.

G2. Dimensions shall not be obtained by scaling from the drawings. All setting out dimensions shall be verified and discrepancies shall be referred to the Engineer prior to commencement of work.

G3. Care is required during construction so that structural elements are not over stressed and that the works and excavations required therefore are kept stable at all times.

G4. Design, materials and workmanship are to be in accordance with current S.A.A standards and statutory authority regulations except where varied by these documents.

G5. Design live loads are in accordance with AS 1170.1

G6. Builder to ensure stability of existing structures in the vicinity of excavation works.

FOOTINGS

F1. FOUNDATION STRATA IS ASSUMED FOR DESIGN PURPOSES IN ACCORDANCE WITH AS 2870-1996 "RESIDENTIAL SLAB AND FOOTINGS-CONSTRUCTION". SEE FOOTNOTE. CLASSIFICATION TO BE VERIFIED BY A GEOTECHNICAL ENGINEER COMMISSIONED BY THE CLIENT FOR CERTIFICATION OF FOUNDATIONS.

F2. Footings to be constructed and back filled as soon as possible following excavation to avoid softening by rain or drying out by exposure.

F3. Footings must bear into undisturbed natural ground clear of organic material. Refer to details.

F4. If rock or variable bearing strata is encountered during excavation of the footings all footings/piers are to be excavated to similar material of greater bearing capacity.
The Engineer is to be contacted at that time for approval or review.

F5. Footings to be cast in approved material having an allowable capacity as follows:

Sand Foundations:

SA1. Required bearing capacity 100 kPa.

SA2. Trenches must be cleaned of all debris and hand compacted prior to placement of reinforcement.

Clay Foundations:

CL1. Required bearing capacity 200 kPa.

CL2. Trenches must be cleaned of all debris. Soft spots must be cut out and filled as per compacted fill notes, prior to placement of reinforcement.

Shale Foundations:

SH1. Required bearing capacity 600 kPa.

SH2. Excavation for footings into shale must be cast or capped with plain concrete on the same day as excavation.

Sandstone Foundations:

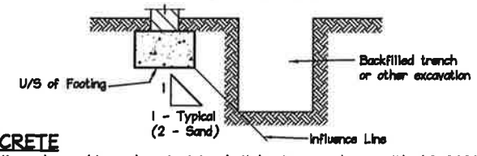
SS1. Required bearing capacity 1000 kPa.

SS2. Scrape weathered surface to remove cleaved sandstone under footings.

Refer adjacent for assumed Design bearing strata.

F6. Future development of neighboring properties may affect ground water conditions on this site. Consequently, reactivity in subgrade beneath footings may be locally altered therefore putting footing at risk of differential settlement. We recommend that, particularly in clay subgrades, agricultural drainage is installed to the upstream perimeter of the building at a distance from the building which is outside the zone of influence of the footings. The agricultural drain must be installed below the fluctuating seasonal zone which should be identified by geotechnical investigation.

F7. UNLESS OTHER WISE APPROVED. Excavations near new or existing footings shall not be within the footing influence line.



CONCRETE

C1. All workmanship and materials shall be in accordance with AS 3600.

C2. Concrete quality shall be as follows and shall be verified by tests.

C3. All concrete unless otherwise noted shall have a slump of 80mm at point of placement, a max. aggregate size of 20 mm.
No water shall be added to the mix prior to or during placement of concrete. Strength as specified on plans.

C4. Clear concrete cover to reinforcement shall be as follows unless otherwise shown-

ELEMENT	INTERIOR	EXTERIOR	EXTERIOR CAST AGAINST GROUND
FOOTINGS	-	-	50
COLUMNS/PEDESTALS	30 UNO	REFER TO PLAN	-
SLABS/WALLS	25	REFER TO PLAN	40 ON MEMBRANE
BEAMS	25 UNO	REFER TO PLAN	50
BLOCKWORK	55 FROM APPROPRIATE FACE		

C5. Sizes of concrete elements do not include thickness of applied finishes.

C6. All Construction Joints locations shall be approved by the Structural Engineer.

C7. Beam depths are written first and include slab thickness, if any.

C8. No holes or chases other than those shown on the structural drawings shall be made in concrete elements without the prior approval of the engineer.

C9. Shrinkage reducing admixtures such as 'Eclipse' or approved equivalent, if specified, must be added to mix prior to pour.

C10. Water reducing agents, if specified, must be added to mix prior to pour. No extra water is to be added to increase slump.

C11. Where vertical slab/beam surfaces are formed against a masonry (or other) wall, provide 10 mm styrene separation material.

C12. Water must not be added to concrete mix prior to placement of concrete.

C13. Above covers may have to be adjusted if fire rating is a requirement.

C14. Any structural concrete slab that is designed in accordance with Australian Standards is susceptible to shrinkage cracking due to the nature of the hydration and curing process involved in setting. A certain level of cracking is therefor considered acceptable in the Standards and consequently if a crack free surface is necessary then a proprietary topping system should be considered.

REINFORCEMENT

R1. All reinforcement specified is Grade D500 unless noted otherwise.

R2. Reinforcement is represented diagrammatically it is not necessarily shown in true projection.

R3. Top reinforcement is to be continuous over supports.
Bottom reinforcement to be lapped at supports.

R4. Welding of reinforcement shall not be permitted unless shown on the structural drawings.

R5. Pipes or conduits shall not be placed within the zone of concrete cover to the reinforcement without the approval of the engineer.

R6. All reinforcing bars and fabric shall comply with AS 4671-2001.

R7. Reinforcement symbols:
N - Grade 500N deformed bar (D500) Normal Ductility
R - Grade 250N plain round bar (R250) Normal Ductility.
SL - Grade 500L welded deformed ribbed mesh (D500) Square Low Ductility.
RL - Grade 500L welded deformed ribbed mesh (D500) Rectangular Low Ductility.
The number immediately following these symbols is the number of millimeters in the bar diameter.
Example : 8 N12-250
Denotes 8, Grade 500N deformed bars, 12 mm diameter at 250 cts.

R8. Fabric reinforcement to be lapped 1 complete square + 25 mm unless noted otherwise.

R9 All reinforcement shall be firmly supported on bar chairs spaced at a maximum of 750 centres both ways under rod and fabric reinforcement. Reinforcement shall be tied at alternate intersections.

FORMWORK

FW1. Formwork must be cleaned of all debris prior to casting of concrete.

FW2. Minimum stripping times for form work shall be as recommended in AS 3610 - 1990 or as directed by the engineer.

FW3. The finished concrete shall be a dense homogeneous mass, completely filling the form work, thoroughly embedding the reinforcement and free of stone pockets. All concrete elements including slabs on ground and footings shall be compacted with mechanical vibrators.

FW4. Curing of all concrete is to be achieved by keeping surfaces continuously wet for a period of 3 days, followed by prevention of loss of moisture for seven days followed by a gradual drying out . Approved sprayed on curing compounds may be used where no floor finishes are proposed. Polythene sheeting or wet hessian may be used if protected from wind and traffic.

BRICKWORK

BR1. Brickwork is to be constructed to AS 3700.

BR2. Two layers of approved greased metal based slip material shall be used over all load bearing walls that support concrete slabs and placed on smooth brickwork or trowelled mortar finish. Non load-bearing walls shall have 10 mm compressible material and ties to the slab soffit.

BR3. No brickwork shall be constructed on suspended slabs until all propping has been removed from the underside of the slab and the concrete has the specified 28 day cylinder strength verified by tests.

BR4. Control joints to be placed at a maximum of 8rn centres or in accordance with AS 3700.

BR5. Exposure grade bricks to be used below damp proof course.

BR6. Vertical control joint material where specified on plan between slabs and brick walls shall be: 10 mm Spandex External UNO.
Bitumastic fibreboard internal UNO.

BR7. Provide stainless steel wall ties below DPC to AS 3700. Provide galvanized wall ties above DPC to AS 3700 & Local Council Specifications.

BR8. Dry Pressed Bricks should always be use for brick retaining walls. In addition we recommend that dry pressed bricks be used for all types of construction where possible. Dry pressed bricks grow only half as much as extruded bricks. Extruded bricks are difficult to fix to and excessive brick growth leads to cracking in walls and render.

BLOCKWORK

BL1. Concrete blocks shall have a minimum compressive strength of 15 MPa and conform to AS 1500. Masonry to be constructed to AS 3700.

BL2. Where cores of hollow blocks are to be filled, properly compacted 20MPa concrete with 10 mm aggregate and 230 mm slump shall be used. Clean out openings must be utilized for all cores.

BL3. Location of actual starters is critical to suit block cores, allow 55 mm cover from the outside face of blockwork. All reinforcement lap lengths to conform to AS 3600.

BL4. Control joints to be placed at a maximum of 8 m centres or in accordance with AS 3700.

BL5. Vertical control joint material where specified on plan between slabs and brick walls shall be: 10 mm Spandex External UNO.
Bitumastic fibreboard internal UNO.

BL6. Retaining walls or any reinforced and concrete core filled block walls to be of Double 'U' Block Construction.

BL7. No blockwork shall be constructed on suspended slabs until all propping has been removed from the underside of the slab and the concrete has the specified 28 day cylinder strength verified by tests. unless approved by the Structural Engineer.

BL8. Max. pour height for unrestrained blockwork is 2000.

STEEL

S1. All Structural steelwork to be Grade 300 or greater.
Design, fabrication and erection to be in accordance with AS 4100.

S2. Materials and workmanship shall comply with AS 1250 - 1981, SAA Steel Structures Code and the specification for Structural Steel.

S3. Rolled steel sections including steel plates shall comply with AS 3678-1990.

S4. Cold formed steel sections shall be Grade 450 Zinc coated in accordance with AS 1538-1988.

S5. Welded and seamless steel hollow sections shall comply with AS 1163 Grade 350.

S6. Bolt Designation:
4.6S - Commercial bolts Grade 4.6, snug tightened.
8.8S - High Strength structural bolts Grade 8.8, snug tightened.
8.8TB - High Strength structural bolts Grade 8.8, fully tightened to AS 1511 and acting as a Bearing Joint.
8.8TF - High Strength structural bolts Grade 8.8, fully tensioned to AS 1511 and acting as a Bearing Joint.
Unless noted otherwise, all bolts will be 8.8S.

S7. Unless shown otherwise, minimum connection shall be 2M16 bolts, 10 thick gusset plates, 6mm continuous fillet welds.

S8. Load indicating washers shall be used in all fully tensioned joints. (8.8TF & 8.8TB).

S9. All welding shall be carried out in accordance with AS 1554 SAA Structural Steel Welding Code.

S10. Unless noted otherwise all welds shall be category SP using E41xx Electrodes. All butt welds shall be complete penetration butt welds category SP.

S11. Grouting of anchor bolt sleeves and base plates shall be completed by the contractor using High Strength, Non-Shrink grout.

S12. Fabrication and erection tolerances for Structural Steelwork shall be in accordance with AS 4100.

S13. Purlin bolts shall be M12 - 4.6S galvanised.

S14. All specification, inspection and maintenance of steel coating systems to be the responsibility of the project manager and in accordance with the NCC BCA Table 3.4.4.2 and AS/NZS 2312:2002.
NB Consulting Engineers does not warrant certify or take responsibility for any specification, inspection and maintenance of steel coating systems. At a minimum NB Consulting recommends the following:

INTERNAL "LOW" GREATHER THAN 1km FOR THE COAST AND ENCLOSED
Epoxy primer (two pack) to AS/NZ 3750.13

INTERNAL "MEDIUM" 0 TO 1km FROM THE COAST AND ENCLOSED
Galvanised(HDG500) to AS/NZS 4680 (after fabrication)

CAVITY "R3" GREATER THAN 500m FROM COAST
Galvanised in accordance with AS/NZS 2699.3 (after fabrication)

CAVITY "R4" 0 TO 500m FROM COAST
Galvanised in accordance with AS/NZS2699.3 and Epoxy primer (two pack) to AS/NZ 3750.13 plus Epoxy micaceous iron oxide (two pack) to AS/NZ 3750.14 (after fabrication)

EXTERNAL "MEDIUM" GREATER THAN 1km FROM COAST
Galvanised(HDG500) to AS/NZS 4680 (after fabrication)

EXTERNAL "HIGH" 500m TO 1km FROM COAST
Galvanised(HDG900) to AS/NZS 4680 (after fabrication)

EXTERNAL "VERY HIGH" 0 TO 500m FROM COAST
Galvanised(HDG900) to AS/NZS 4680 (after fabrication) and Epoxy primer (two pack) to AS/NZ 3750.13 plus Epoxy micaceousiron oxide (two pack) to AS/NZ 3750.14

All protective coatings to be maintained in accordance with the required Durability - Years to first maintenance specification from AS/NZS 2312:2002.

S15. Workshop drawings shall be prepared and two copies submitted to the engineer for review prior to fabrication commencement.

TIMBER

T1. All workmanship and materials to be in accordance with AS 1684, AS 1720 and as 3959. All soft wood to be Grade F7 unless noted otherwise. All hardwood to be minimum Grade F14 unless otherwise noted. Exposed timber to be CCA treated (to AS 1604) redried after full impregnation, or durability class 1, 2 or 3.
ALL SOFTWOOD TIMBER FRAMING TO HAVE A MINIMUM TREATMENT PROTECTION OF H2 or T2 TREATED FOR TERMITE PROTECTION UNLESS NOTED OTHERWISE.

T2. All joists deeper than 150 to have blocking over support bearers and at a maximum 3000 centres.

T3. Roof trusses to be designed by the manufacturer to the relevant standards. Pre camber to be an amount equal to dead load deflection unless otherwise noted..

T4. All holes for bolts to be exact size. Washers to be used under all heads and nuts and to be at least 2.5 times the bolt diameter. Bolts to be M16 grade 4.6 unless noted otherwise.

T5. Treat all exposed cut ends with Reseal by Protim to manufacturers specification to achieve required Hazard Level Exposure Classification.

T6. Battens for T & G to be Kiln Dried to 12 %. 38mm minimum. deep treated pine or as recommended by supplier. Flooring to be installed no sooner than 28 days after slab pour.

T7. Hot dip galvanized nails/clouts/screws to be used with all timber connections.

T8. Continuous nailing must not be used for any timber connections.

T9. All exposed CCA treated pine to have an application of penetrating sealer to reduce warping and twist of the timber due to varying moisture content in service.

T10. All Stud walls to be 90x45 F7 Kiln Dried
T2 Treated at 450 Cts and noggings to AS 1684.

COMPACTED FILL

CF1. Only to be used with approval by Engineer & to be certified by a geotechnical Engineer.

CF2. Clear organic material, topsoil and any uncontrolled existing fill under proposed slabs/footings.

CF3. Filling shall be granular material compacted in not more than 200 mm layers to a minimum dry density ratio (AS 1289/E4.2 1982) of 98 percent standard maximum dry density.

CF4. During clearing and excavation for slabs and footings cut out soft spots and fill as above.

INSPECTIONS BY ENGINEER

48 HOURS NOTICE IS REQUIRED BEFORE ANY SITE INSPECTION
ANY STRUCTURAL ELEMENT NOT INSPECTED BY NBC WILL NOT BE CERTIFIED BY NBC

1. Bearing strata of all footings prior to concrete pour by Geotechnical Engineer.
2. Any reinforcement prior to concrete pour.
3. Timber and Steel framing prior to cladding or lining.
4. Steel lintels after installation.
5. CONTACT YOUR PCA (Principal Certifying Authority) AS TO REQUIREMENTS FOR MANDATORY CRITICAL STAGE inspections IN ACCORDANCE WITH REVISED EP&A ACT REGULATIONS EFFECTIVE JULY 1, 2004.
6. Inspection by Geotechnical Engineer over 1.5m of vertical cut through Sandstone bed rock to permit identification of defects and remedial measures initiated.

NB Consulting Engineers

A3

Date:	Rev:	Amendment:	By:
-	-	-	-

DOCUMENT CERTIFICATION
Date : Nov 19
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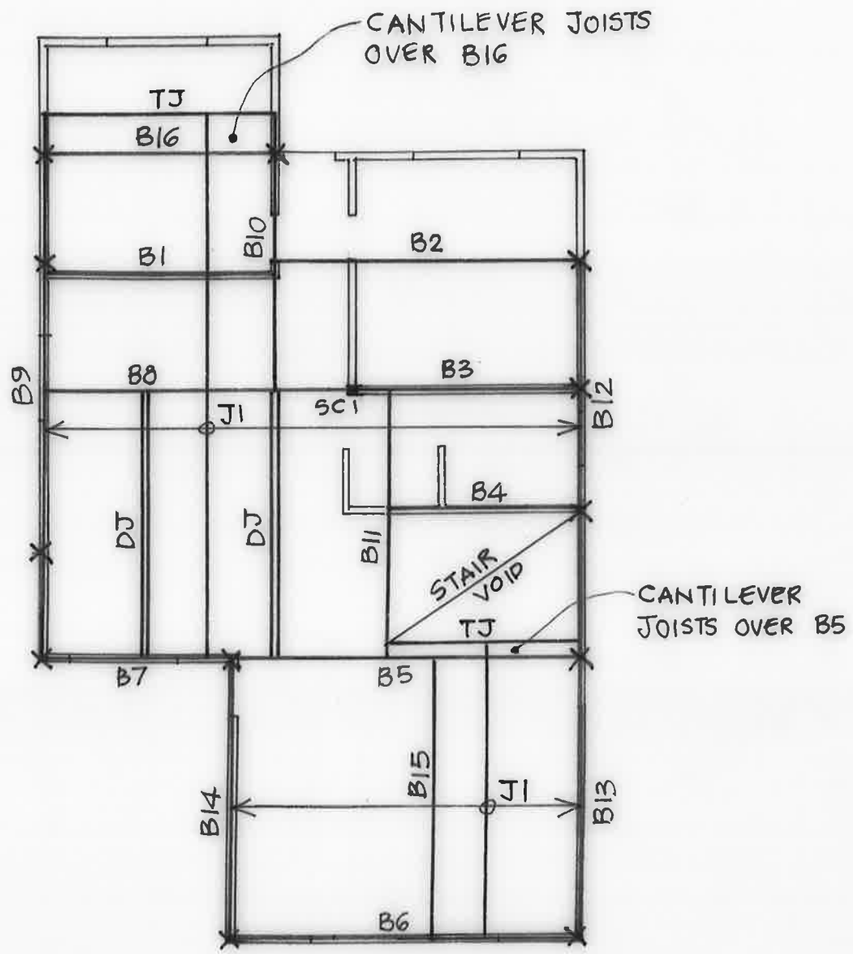
Architect: YOUR STYLE	Project: 15 GONDOLA RD NORTH NARRABEEN		Date: NOV. '19	Design: C.J.	Drawn: LFC	Review:
Client: YOUR STYLE	Drawing Title: GENERAL NOTES		Job No: 191044		Drawing No: S01	Rev: -



FIRST FLOOR FRAMING PLAN

1:100

NOTES:

1. ALL DIMENSIONS TO BE VERIFIED ON SITE BY BUILDER BEFORE COMMENCING WITH WORK.
2. FOR GENERAL NOTES REFER TO DRAWING NUMBER: S01.

J1 : HJ 240 63 HYJOIST AT 450 CTS
DJ : 2/240 x 45 LVL
TJ : 240 x 45 LVL TRIMMER JOIST

B1, B13, B14, B15 : 2/300x45 LVL
B2 : 2/400x63 LVL OR 250 UB 37
B3, B10, B11, B16 : 360x63 LVL OR 250 UB 25
B4, B7 : 300x 63 LVL
B5, B8, B9 : 310 UB 46
B6 : 310 UB 40
B12 : 2/240x45 LVL

SC1 : 89x89x5 SHS ON 500x500x300 DP MASS CONCRETE PAD FOOTING

X : LOAD CONCENTRATION POINT. PROVIDE DOUBLE STUD BELOW OR FULL BEARING ONTO BRICKWORK

NOTE : NEW FIRST FLOOR STRUCTURE IS NOT TO BE SUPPORTED ON ANY INTERNAL GROUND FLOOR WALLS.

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IF IN DOUBT ASK

A3

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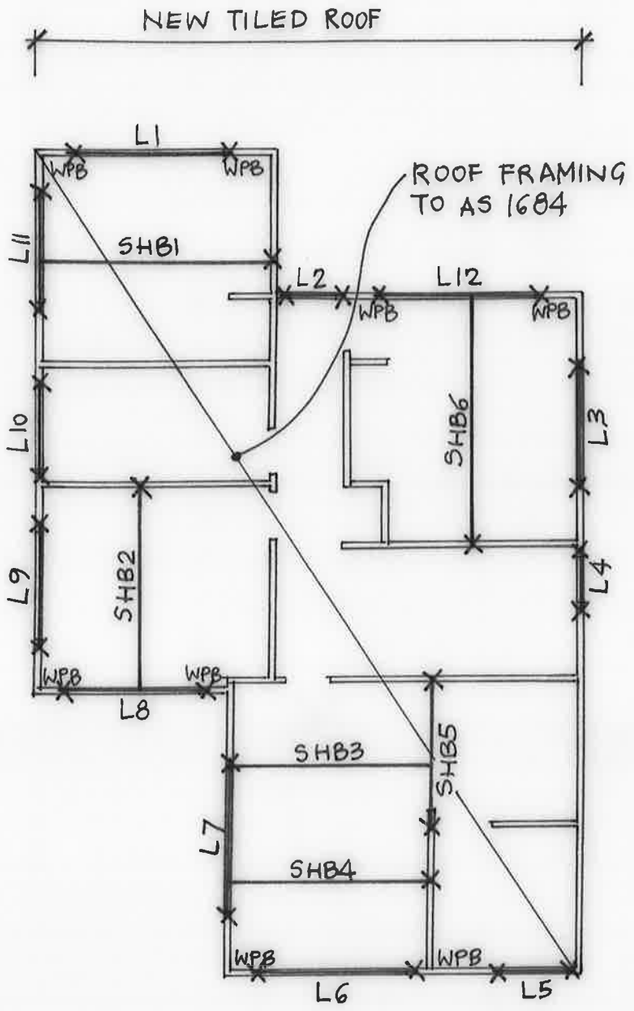
Architect: YOUR STYLE	Project: 15 GONDOLA RD NORTH NARRABEEN	Date: NOV. '19	Design: C.J.	Drawn: LFC	
Client: YOUR STYLE	Drawing Title: FIRST FLOOR FRAMING PLAN	Job No: 191044	Drawing No: S02	Issue:	



UPPER ROOF FRAMING PLAN

1:100

NOTES:

1. ALL DIMENSIONS TO BE VERIFIED ON SITE BY BUILDER BEFORE COMMENCING WITH WORK.
2. FOR GENERAL NOTES REFER TO DRAWING NUMBER: S01.

SHB1 - SHB5 : 240 x 63 LVL
SHB6 : 300 x 75 LVL

L1, L3, L6, L9, L10 : 2/140 x 45 MGP10
L2, L4, L5 : 2/90 x 45 MGP10
L7, L8, L11, L12 : 2/200 x 45 LVL

X : DENOTES LOAD CONCENTRATION POINT. PROVIDE DOUBLE STUD BELOW OR FULL BEARING ONTO BRICKWORK.

ALL WALLS TO BE STRAP BRACED AS PER WSB U.N.O.
WSB : WALL STRAP BRACING } REFER S04.
WPB : WALL PLY BRACING }

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Date:	Issue:	Description:	By:	Review:

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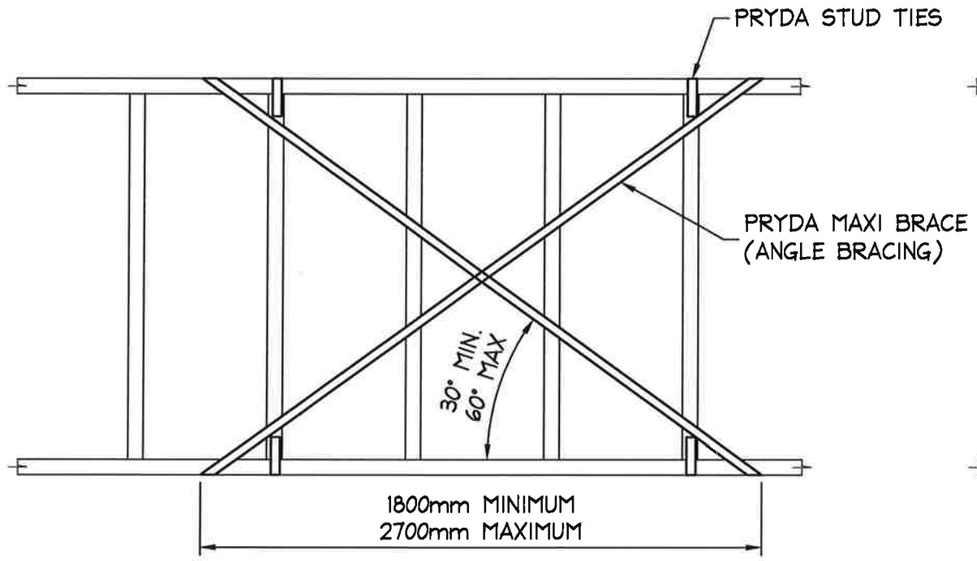
Architect: YOUR STYLE	Project: 15 GONDOLA RD NORTH NARRABEEN	Date: NOV. '19	Design: C.J.	Drawn: LFC
Client: YOUR STYLE	Drawing Title: UPPER ROOF FRAMING PLAN	Job No: 191044	Drawing No: S03	Issue:

NOTES:

1. ALL DIMENSIONS TO BE VERIFIED ON SITE BY BUILDER BEFORE COMMENCING WITH WORK.
2. FOR GENERAL NOTES REFER TO DRAWING NUMBER: S01.

METAL TENSION STRAP BRACING:

PRYDA MAXI BRACE (ANGLE BRACING)
FIXED WITH TWO GALVANISED FLATHEAD NAILS
ϕ3.15mm x 30mm LONG TO EACH STUD, AND THE FACE OF THE TOP AND BOTTOM PLATE.
AND FOUR GALVANISED FLATHEAD NAILS
ϕ3.15mm x 30mm LONG TO THE STRAP RETURN OVER THE TOP PLATE AND UNDER THE BOTTOM PLATE.



NOTES:

1. FOR POWER DRIVEN NAILS AND STAPLES REFER ABOVE.
2. NOGGINGS HAVE BEEN OMITTED FOR CLARITY.

EACH 1800 mm PANEL EQUALS TWO TYPE A BRACING UNITS AS PER AS1684.4

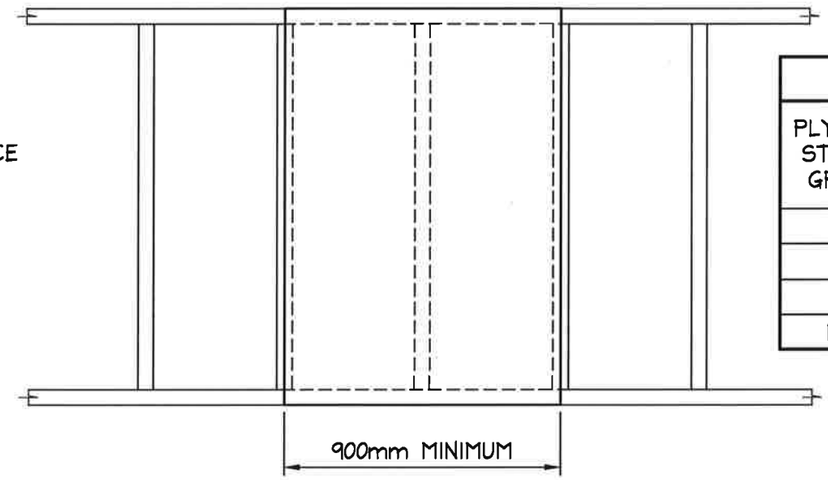
WALL STRAP BRACING DETAILS

DENOTED 'WSB' ON PLAN

NOT TO SCALE

PLYWOOD BRACING:

FIX PLYWOOD PANELS WITH GALVANISED FLATHEAD NAILS ϕ2.8mm x 30mm LONG MINIMUM OR EQUIVALENT AT 50mm CENTRES ALONG TOP AND BOTTOM PLATES, 150mm CENTRES ALONG VERTICAL EDGES AND 300mm CENTRES ALONG INTERMEDIATE STUDS.
NAILS SHALL BE LOCATED A MINIMUM OF 7mm FROM PANEL EDGES.
POWER DRIVEN GALVANISED NAILS OR COATED STAPLES MAY BE USED WHERE THEY PROVIDE AT LEAST THE EQUIVALENT STRENGTH TO HAND DRIVES ϕ2.8mm x 30mm LONG GALVANISED CLOUTS OR FLATHEAD NAILS. IN THE CASE OF POWER DRIVEN STAPLES, STAPLE SPACING SHALL BE 35mm CENTRES AT TOP AND BOTTOM PLATES, 100mm CENTRES AT VERTICAL PLYWOOD EDGES AND 200mm CENTRES ALONG INTERMEDIATE STUDS.



PLYWOOD THICKNESS		
PLYWOOD STRESS GRADE	PLYWOOD THICKNESS MAXIMUM STUD SPACING	
	450mm	600mm
F8	9.0mm	9.0mm
F11	7.0mm	7.0mm
F14	6.0mm	6.0mm
F27	4.5mm	4.5mm

NOTES:

1. FOR PLYWOOD THICKNESS REFER TO TABLE.
2. FOR POWER DRIVEN NAILS AND STAPLES REFER ABOVE.
3. PANEL EDGES SHALL BE SUPPORTED BY STUDS.
4. NOGGINGS HAVE BEEN OMITTED FOR CLARITY.

EACH 900 mm PANEL EQUALS FOUR TYPE A BRACING UNITS AS PER AS1684.4

WALL PLY BRACING DETAILS

DENOTED 'WPB' ON PLAN

NOT TO SCALE

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Architect: YOUR STYLE	Project: 15 GONDOLA RD NORTH NARRABEEN	Date: NOV. '19	Design: C.J.	Drawn: LFC
Client: YOUR STYLE	Drawing Title: TYPICAL WALL BRACING DETAILS	Job No: 191044	Drawing No: S04	Issue: -