

PROJECT: STRUCTURAL DESIGN D/S DWELLING

ADDRESS: 1 DAKARA CLOSE, MEADOW HEIGHTS VIC 3048

WB CIVIL STRUCTURAL ENGINEERS
ABN: 84119322438

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PLAN SET CONTENTS	
TITLE	SHEET NO
COVER SHEET	1 OF 20
GENERAL NOTES	2 OF 20
DRAINAGE NOTES	3 OF 20
SLAB & BEAMS DETAIL 1	4 OF 20
SLAB & BEAMS DETAIL 2	5 OF 20
SLAB & BEAMS DETAIL 3 & SLEEPER RETAINING WALL	6 OF 20
WAFFLE SLAB DETAIL	7 OF 20
UPPER FLOOR FRAMING PLAN	8 OF 20
ROOF FRAMING PLAN	9 OF 20
TIMBER BEAM TIE DOWN DETAIL	10 OF 20
TIMBER FRAME SIZING TABLE	11 OF 20
BRACING PLAN (GROUND & UPPER)	12 OF 20
BRACING TYPES 1	13 OF 20
BRACING TYPES 2	14 OF 20
ARTICULATION JOINTS PLAN	15 OF 20
ARTICULATION JOINTS DETAIL	16 OF 20
JOINT DETAIL 1	17 OF 20
JOINT DETAIL 2	18 OF 20
JOINT DETAIL 3	19 OF 20
JOINT DETAIL 4	20 OF 20

DISCLAIMER

CIVIL/STRUCTURAL DESIGN ENGINEER WB CIVIL STRUCTURAL ENGINEERS
MUST NOT BE HELD RESPONSIBLE FOR ANY CLAIM ARISING DUE TO MISTAKES,
OMISSIONS AND SUBSTANDARD WORKMANSHIP BY BUILDER OR ITS SUB
CONTRACTORS AND SUPPLIERS

DIMENSIONS

SETTING-OUT OF ANY ELEMENT MUST BE DONE AS PER ARCHITECTURAL PLANS. DIMENSIONS
PROVIDED ON THESE PLANS MUST ALWAYS BE CHECKED AGAINST ARCHITECTURAL PLANS.
STRUCTURAL ENGINEER (MOBILE: 0401023328) MUST BE KEPT INFORMED IMMEDIATELY OF ANY
DISCREPANCY AND CLARIFICATION SOUGHT BEFORE SETTING-OUT AND CONCRETING IS ORGANISED.



WARNING

ALL SERVICES SHOWN ON THESE DRAWINGS ARE
APPROXIMATE ONLY AND EXACT LOCATION IS
TO BE CONFIRMED ON SITE BY CONTRACTOR
PRIOR TO COMMENCEMENT OF ANY WORKS.

CLIENT:
PROFILE HOMES
SAM TOBOLOV

JOB NO: PH/MH/D/1719/1

**WB CIVIL STRUCTURAL
ENGINEERS**

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REGISTERED ENGINEER
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PRIYAN WIJEYERATNE
EC 19060, M.I.E.(AUST), C.P.ENG.
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STRUCTURAL DESIGN
D/S DWELLING
PROJECT ADDRESS:
1 DAKARA CLOSE,
MEADOW HEIGHTS VIC 3048

SHEET NO: **1/20** Rev A

SCALE: AS SHOWN

DATE: 26/04/2019



REV.	REMARKS/COMMENTS	DATE	APRV.
A	Revisions as per Building Surveyor Letter dated: 02/12/2019	08/02/2020	PW

GENERAL REQUIREMENTS

GENERAL

- G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANT’S DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER OR ARCHITECT BEFORE PROCEEDING WITH THE WORK.
- G2. ALL DIMENSIONS ARE TO BE OBTAINED FROM THE ARCHITECT’S DRAWINGS OR FROM SITE. ENGINEER’S DRAWINGS MUST NOT BE SCALED.
- G3. DURING CONSTRUCTION THE BUILDER SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVERSTRESSED UNDER CONSTRUCTION ACTIVITIES.
- G4. MATERIAL AND WORKMANSHIP ARE TO BE IN ACCORDANCE WITH THE RELEVANT SAA CODES, BCA/NCC REQUIREMENTS UNLESS OTHERWISE NOTED IN THE PROJECT SPECIFICATION.
- G5. THE APPROVAL OF A SUBSTITUTION BY THE ENGINEER IS NOT AN AUTHORIZATION FOR AN EXTRA. ANY EXTRA INVOLVED MUST BE TAKEN UP WITH THE ARCHITECT BEFORE WORK COMMENCES.
- G6. THE STRUCTURAL WORK SHOWN ON THESE DRAWINGS HAS BEEN DESIGNED FOR THE FOLLOWING LIVE LOADS:-

AREA	LIVE LOAD
GARAGE	2.5 kPa
FLOOR	1.5 kPa
ROOF	0.25 kPa ‘OR’ (1.8/A + 0.12) WHICHEVER IS GREATER
BALCONY (IF APPLICABLE)	2.0 kPa

- G7. FOUNDATION MATERIAL TO BE APPROVED BEFORE POURING CONCRETE FOR A SAFE BEARING CAPACITY OF: 50kPa.WAFFLE SLAB 100kPa.....STRIP FOOTING
- G8. ALL DETAILS SHOWN IN WBCSE DRAWING SETS ARE FOR STRUCTURAL PURPOSES ONLY. THE ARCHITECT AND BUILDER MUST ENSURE ALL CONSTRUCTION REQUIREMENTS SET BY THE BCA/NCC ARE MET. THIS OFFICE SHOULD BE CONTACTED IF ANY CLARIFICATION IS REQUIRED.

STRUCTURAL STEELWORK

- S1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 1250 AND/OR AS4100.
- S2. WELDING SHALL BE PERFORMED BY AN EXPERIENCED OPERATOR IN ACCORDANCE WITH AS 1554.
- S3. HIGH STRENGTH BOLTING SHALL BE IN ACCORDANCE WITH AS 1511.
- S4. TWO COPIES OF THE SHOP DETAIL DRAWINGS ARE TO BE SUBMITTED TO THE ENGINEERS AND APPROVAL OF SAME OBTAINED BEFORE COMMENCING FABRICATION. APPROVAL WILL NOT COVER DIMENSIONS OR LAYOUT.
- S5. THE BUILDER SHALL PROVIDE AND LEAVE IN PLACE UNTIL PERMANENT BRACING ELEMENTS ARE CONSTRUCTED SUCH TEMPORARY BRACING AS IS NECESSARY TO STABILIZE THE STRUCTURE DURING ERECTION.
- S6. CAMBER TO STRUCTURAL STEEL ROOF BEAMS, TRUSSES, PORTALS, ETC.,TO BE 2mm FOR EVERY 1M OR SPAN UNLESS OTHERWISE NOTED.
- S7. ALL CLEAT AND DRILLING FOR FIXING OF TIMBER MEMBERS, ETC., TO BE PROVIDED BY FABRICATOR.
- S8. EXCEPT WHERE OTHERWISE SHOWN CONNECTIONS SHALL HAVE 6mm CONTINUOUS FILLET WELDS, 2-M16 8.8/S BOLTS IN 1.5mm CLEARANCE HOLES AND 10mm THICK CLEAT PLATE.
- S9. CONCRETE ENCASED STEELWORK SHALL BE WRAPPED WITH SLAB FABRIC, UNLESS OTHERWISE SHOWN.
- S10. STEELWORK SHALL BE THOROUGHLY WIRE BRUSHED AND GIVEN ONE SHOP COAT OF APPROVED PRIMER EXCEPT THAT NONE SHALL BE APPLIED AT CONTACT SURFACES WHERE H.S. BOLTS USED.
- S11. ALL STEEL BEAMS AND LINTELS ARE TO HAVE 100mm MIN. END BEARING UP TO 1.0m & 150mm MIN. END BEARING OVER 1.0m, UNLESS OTHERWISE NOTED.
- S12. STEEL FRAMING MUST BE PROTECTED FROM CORROSION WHERE REQUIRED IN ACCORDANCE WITH BCA 2016 3.4.2.2

CONCRETE

- C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600.
- C2. CONCRETE COVER TO ALL REINFORCEMENT (FINISHES NOT INCLUDED).

ELEMENT	FORMED AND SHELTERED	FORMED AND EXPOSED	NO FORM WORK
SLABS AND WALLS	20mm	30mm	65mm
BEAMS	25mm	40mm	65mm
COLUMNS	40mm	50mm	75mm
FOOTINGS		65mm	75mm

- C3. CONCRETE SIZES SHOWN DO NOT INCLUDE FINISH AND MUST NOT BE REDUCED OR HOLED IN ANY WAY WITHOUT THE ENGINEER APPROVAL.
- C4. DEPTHS OF BEAMS ARE GIVEN FIRST AND INCLUDE SLAB THICKNESS.
- C5. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE PROPERLY FORMED AND LOCATED TO THE APPROVAL OF THE ENGINEER.
- C6. REINFORCEMENT IS SHOWN DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.
- C7. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN. WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.
- C8. REINFORCEMENT SYMBOLS:-
L LOW DUCTILITY BARS TO AS 4671 : 2001
N NORMAL DUCTILITY BARS TO AS 4671 : 2001
E SEISMIC (EARTHQUAKE) DUCTILITY BAR TO AS 4671 : 2001
THE NUMBER FOLLOWING THE BAR SYMBOL IS THE NOMINAL BAR DIAMETER IN MILLIMETRES.
- C9. CAMBER TO BEAMS AND SLABS SHALL BE 2mm FOR EVERY 1M OF SPAN UNLESS OTHERWISE NOTED.
- C10. ALL CONCRETE SHALL BE GRADE 20MPa - 100mm SLUMP (U.N.O.)
- C11. ALL REINFORCEMENT SHALL BE SUPPORTED IN ITS CORRECT POSITION SO AS NOT TO BE DISPLACED DURING CONCRETING ON APPROVED BAR CHAIRS AT 1.0m MAX CRS BOTH WAYS. WHERE REQUIRED PROVIDE SUPPORT BARS N16 AT 1.0M MAX CRS.
- C12. CONCRETE TO BE KEPT FREE OF SUPPORTING BRICKWORK BY TWO LAYERS OF A SUITABLE MEMBRANE (MALTHOID, ETC.), OR AS DIRECTED BY THE ENGINEER. VERTICAL FACES OF CONCRETE TO BE KEPT FREE BY 10mm THICKNESS OF BITUMINOUS CANITE.
- C13. WHERE WALLS ARE NON-LOAD BEARING AT EITHER HORIZONTAL OR VERTICAL FACES THEY SHALL BE SEPARATED FROM CONCRETE OR BRICKWORK BY 10mm THICK CANITE.
- C14. ALL REINFORCEMENT FOR ANY ONE POUR SHALL BE COMPLETELY PLACED AND TIED PRIOR TO INSPECTION BY THE ENGINEER OR ARCHITECT. NO CONCRETE SHALL BE POURED UNTIL REINFORCEMENT HAS BEEN INSPECTED AND APPROVED.
- C15. WHERE SLABS AND BEAMS ARE TO SUPPORT BRICKWORK OVER, FORMWORK AND PROPS MUST BE REMOVED BEFORE COMMENCEMENT OF BRICKWORK.
- C16. TRENCH MESH IN BEAMS TO BE LAID CONTINUOUSLY WITH EACH LAYER BEING LAPPED FOR ITS FULL WIDTH AT INTERSECTIONS AND FOR A MINIMUM OF 500mm AT SPLICES. THE TRENCH MESH SHALL BE OVERLAPPED BY THE WIDTH OF THE FABRIC AT T & L JUNCTIONS.
- C17. AS A GENERAL POLICY, WBCSE DO NOT RECOMMEND THE USE OF POLISHED CONCRETE. THE OWNER SHOULD BE MADE AWARE BY THE BUILDING DESIGNER AND BUILDER THAT CONCRETE IS A NATURAL MATERIAL AND THE POSSIBILITY OF SURFACE CRACK FORMATION MAY OCCUR AND CANNOT BE GUARANTEED EITHER IN THE SHORT OR LONG TERM, WE HIGHLY RECOMMEND CURING THE SLAB USING AN APPROVED CURING SPRAYED MEMBRANE.
- C18. WHEN NEW FOOTING IS ABUTTED TO THE ADJACENT STRUCTURES OF NEIGHBOURING BUILDING AT BOUNDARY, A MINIMUM OF 10mm THICK “ABLEFLEX” (OR APPROVED EQUIVALENT) MUST BE PLACED BETWEEN STRUCTURES (UNLESS OTHERWISE NOTED ON ENGINEERING DRAWINGS TYPICAL)

BRICKWORK

- B1. THE UNCONFINED COMPRESSIVE STRENGTH OF A BRICK UNIT TO BE MIN. OF 15MPa AND COMPRESSIVE STRENGTH OF MASONRY TO BE A MIN. OF 5.4 MPa
- B2. THE MORTAR MIX FOR BRICKWORK SHALL BE 1:1:6
- B3. FOR NON-LOAD BEARING WALLS SEE NOTE C13.
- B4. ARTICULATION (OR EXPANSION) JOINT SPACING MUST BE IN ACCORDANCE WITH AS4773.1 - 2015, AS4773.2 - 2015 & TECHNICAL NOTE 61 (AUG 2008) FOR ARTICULATED WALLING UNLESS NOTED OTHERWISE.
- B5. ALL WALL TIES MUST BE GALVANISED.

STRUCTURAL TIMBER

- T1. ALL TIMBER FRAMING IS TO BE IN ACCORDANCE WITH AS 1684-2010 RESIDENTIAL TIMBER FRAMED CONSTRUCTION.
- T2. ALL TIMBER STRESS GRADES NOMINATED SHALL BE IN ACCORDANCE WITH THE RELEVANT CODES AND MEANS THE STRUCTURAL QUALITY OF A TIMBER SECTION (REFER TO AS 1720).
- T3. TIMBER SHALL BE STORED AND HANDLED SO AS NOT TO BE DETRIMENTAL TO THEIR PERFORMANCE OR DAMAGE THEM. REFER APPENDIX H AS 1684-2:2010
- T4. ALL TIMBER SHALL BE DRY, IE: LESS THAN 15% MOISTURE CONTENT AT THE TIME OF CONSTRUCTION AND SHALL BE PROTECTED AND/OR TREATED AS NOTED.
- T5. ALL TIMBER BEAMS AND LINTELS ARE TO BEAR ON DOUBLE STUDS (ONE JAMB AND ONE BEARING STUD), UNLESS OTHERWISE NOTED.
- T6. BEAMS/STUDS HAVING MORE THAN 1 MEMBER TO BE NAIL LAMINATED TOGETHER IN ACCORDANCE WITH AS 1684-2010.
- T7. ALL EXPOSED TIMBER TREATMENT MUST BE IN ACCORDANCE WITH EXPOSURE CLASSIFICATION AS1684.2 TABLE B1, MINIMUM H3 TREATED OR DURABLE SPECIES TO BE ADOPTED TYPICAL U.N.O.

FRAMING

- F1. PROVIDE SOLID BLOCKING (45 WIDE x D-25 DEEP) SECURELY NAILED TO JOISTS/RAFTERS (D=DEPTH OF JOIST/RAFTER) AT 1800 MAX. CRS.
- F2. ALL EXTERNAL OR EXPOSED STEELWORK TO BE HOT DIP GALVANISED.
- F3. WATERPROOFING TO ARCHITECTS DETAILS.
- F4. ALL TIMBER FRAMING & BRACING NOT SHOWN TO COMPLY WITH AS1684 TIMBER FRAMING MANUAL.
- F5. ALL BRICKWORK LINTELS TO ARCHITECTS DETAILS. ALL BRICKWORK LINTELS TO COMPLY WITH F.3.3.3.5 OF B.C.A 2012 VOLUME 2.
- F6. ALL BEAMS/GIRDER & HIP TRUSSES TO BE SUPPORTED ON DOUBLE STUDS EACH END U.N.O.
- F7. ALL LINTELS TO BE SUPPORTED ON SINGLE STUD AND JAMB STUD U.N.O.
- F8. ALL TRUSSES & WALL FRAMES TO MANUFACTURER’S DESIGN & DETAILS.
- F9. TRUSS DIRECTION ASSUMED AS SHOWN (IF APPLICABLE). CONTACT THIS OFFICE IF DIFFERENT TRUSS LAYOUT IS USED SO LINTELS ETC CAN BE REDESIGNED (IF REQUIRED).
- F10. ALL TIMBER LINTELS TO BE DESIGNED BY THE TRUSS MANUFACTURER. TYPICAL U.N.O
- F11. BUILDER TO SUPPLY MANUFACTURERS TRUSS LAYOUT TO THIS OFFICE FOR APPROVAL PRIOR TO CONSTRUCTION. TRUSS DESIGN MUST BE IN ACCORDANCE WITH AS1720 AND AS1684. TRUSS FABRICATOR/BUILDER IS RESPONSIBLE FOR PROVIDING ADEQUATE ROOF/WALL BRACING TO ENSURE STABILITY OF THE STRUCTURE IN ACCORDANCE TO AS1684.
- F12. ALL INTERNAL WALLS TO BE NON-LOAD BEARING (TYPICAL) UNLESS HATCHED OTHERWISE ON PLANS.

INSPECTIONS

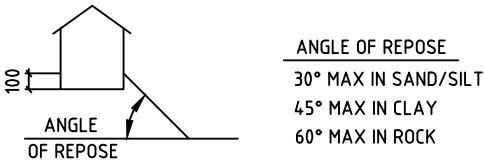
ALL STRUCTURAL WORK MUST BE INSPECTED AND APPROVED IN WRITING PRIOR TO ANY WORK PROCEEDING. 48 HOUR MIN. NOTICE IS REQUIRED FOR ALL INSPECTIONS.

SITE DRAINAGE

- D1. AT THE TIME OF THE PREPARATION OF THIS DOCUMENT, IF THE DRAINAGE DESIGN WAS NOT PREPARED OR CERTIFIED BY THIS OFFICE THEN THE DRAINAGE SYSTEM MAY NEED TO BE DOCUMENTED BY A SUITABLY QUALIFIED PERSON TO COMPLY WITH AS2870-2011. THE DRAINAGE DESIGNER SHOULD ENSURE THAT THE ELEMENTS OF THE DRAINAGE SYSTEM DESIGN ARE CONSIDERED WITH RESPECT TO THE PROPOSED FOOTING SYSTEM.WE RECOMMEND THAT WBCSE OR AN EQUIVALENT CERTIFIED PRACTITIONER, REVIEW ALL THE DOCUMENTATION TO ENSURE COMPLIANCE.
- D2. SITES SHOULD BE DRAINED SO THAT WATER CANNOT POND AGAINST OR NEAR THE HOUSE. THE GROUND IMMEDIATELY ADJACENT TO THE HOUSE SHOULD BE GRADED TO FALL 50mm OVER THE FIRST METRE.WHERE THIS IS IMPRACTICABLE (IE: ON SEVERAL SLOPING SITES) USE A.G. DRAINS ADJACENT TO FOOTINGS WHERE THE GROUND FALLS TOWARDS THE BUILDING.

FOOTING: ANGLE OF REPOSE

- A1. FOOTING MUST NOT UNDERMINE EXISTING FOOTING OR BE UNDERMINED BY PROPOSED EXCAVATION.
- A2. ENSURE ADEQUATE ANGLE OF REPOSE AT ALL TIMES (REFER DETAILS BELOW).
- A3. NOTIFY THIS OFFICE IF FOOTING UNDERMINE OCCURS.
- A4. PIPE DEPTH & LOCATION MUST BE CONFIRMED PRIOR TO CONSTRUCTION.



OH & SAFETY

- O1. FOR ALL WORKS CONDUCTED ON THIS PROJECT, THE BUILDER SHALL HAVE ALL APPROPRIATE AND SUFFICIENT SAFETY MEASURES AND PROCEDURES IN PLACE.
- O2. DEEP TRENCHES MAY EXIST ON THIS SITE. BUILDER TO ENSURE NECESSARY SAFETY MEASURES ARE TAKEN TO PREVENT FALL AND TRIPPING HAZARDS ARE ELIMINATED.
- O3. FOR LARGE SPAN BEAMS (SAY6000mm), BUILDER TO ENSURE SEAT PLATES/ANGLES TO STEEL COLUMNS FOR MAJOR BEAMS AND LINTELS ARE INSTALLED FOR SAFER CONNECTION, BOLTING AND SITE WELDING.
- O4. ADEQUATE PROPPING MAY BE REQUIRED FOR ANY RETAINING/LOAD BEARING WALLS ON BOUNDARIES. TEMPORARY SHORING MAY BE REQUIRED.
- O5. PROVISIONS SHALL BE MADE FOR APPROPRIATE DISTANCE FOR ROOF BATTENS/RAFTERS TO PROVIDE A SAFE WORKING PLATFORM DURING ROOF INSTALLATION AND WORKING AT HEIGHTS.
- O6. BUILDER MAY NEED TO BE AWARE OF APPROPRIATE MEASURES TO DEAL WITH HAZARDOUS MATERIALS SUCH AS ASBESTOS THAT MAY BE FOUND IN SERVICE PITS.
- O7. IF A CRANE IS REQUIRED, THE BUILDER IS TO PROVIDE ADEQUATE SAFETY MEASURES FOR CRANE USAGE AROUND POWER LINES.
- O8. IF ANY DIGGING IS REQUIRED OUTSIDE OF SITE BOUNDARIES, INFORMATION REGARDING EXISTING COUNCIL ASSETS NEED TO BE SOUGHT FROM “DIAL BEFORE YOU DIG”.
- O9. THE SAFETY CONCERNS AND HAZARDS IDENTIFIED ABOVE REPRESENT COMMONLY OCCURRING RISKS. THE LIST DOES NOT COVER THE FULL RANGE OF RISK AVOIDANCE MEASURES REQUIRED.

DOWNPIPE & GUTTER NOTES:

THEY ARE TO BE IN ACCORDANCE WITH NCC PART 3.5.2, AS 3500.3 AND AS 3500.5. A DOWNPIPE MUST NOT SERVE MORE THAN 12m OF GUTTER LENGTH AND BE LOCATED WITHIN 1.2m FROM A VALLEY. WHERE DOWNPIPES ARE LOCATED GREATER THAN 1.2m FROM A VALLEY, PROVISION FOR OVERFLOW MUST BE MADE TO THE GUTTER. EAVE GUTTERS ARE TO BE PROVIDED WITH OVERFLOW PROVISIONS ALONG THE LENGTH OF THE GUTTERING IN ACCORDANCE WITH AS 3500.3

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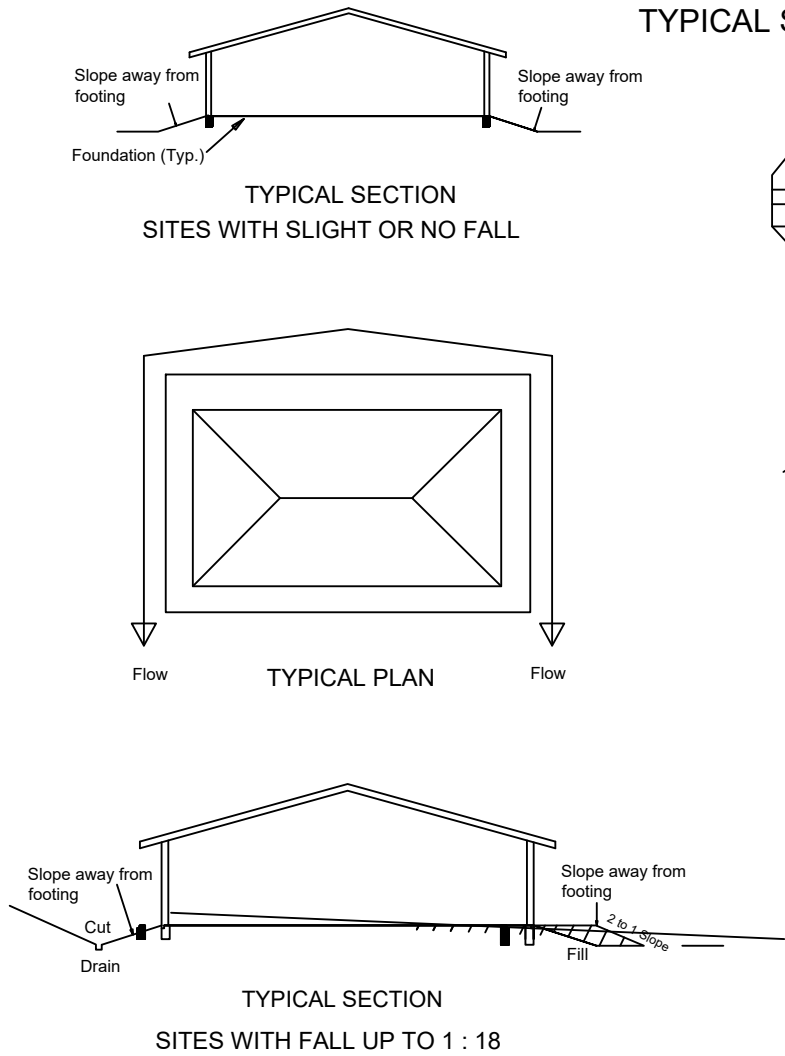
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SITE DRAINAGE REQUIREMENTS

TYPICAL STORMWATER DRAINAGE



MAINTENANCE:

- THE MAINTENANCE OF THE SITE AROUND A NEW HOME IS AN IMPORTANT FACTOR IN THE LONG-TERM PERFORMANCE OF THE FOOTING SYSTEM
- THE PRIMARY OBJECTIVE OF THIS MAINTENANCE IS TO MINIMISE THE VARIATION IN SOIL MOISTURE LEVEL AROUND THE FOOTING THAT COULD LEAD TO EXCESSIVE SOIL MOVEMENT AND POSSIBLE DISTRESS TO THE SUPERSTRUCTURE AND/OR FOOTING. WHEN THE SLAB FORMS PART OF THE TERMITE BARRIER SYSTEM FOR THE HOUSE, THEN IT IS ALSO NECESSARY TO MAINTAIN THE EFFECTIVENESS OF THAT BARRIER BY APPROPRIATE MAINTENANCE ACTIVITIES.
- WHEN A CONCRETE SLAB-ON-GROUND IS USED AS PART OF THE TERMITE BARRIER SYSTEM AS OUTLINED IN AS3660.0, THEN IT CANNOT BE TOO HIGHLY STRESSED THAT REGULAR INSPECTION AND MAINTENANCE OF THE SLAB SURROUNDING BY A COMPETENT PROFESSIONAL IS REQUIRED TO ENSURE THAT ANY TERMITE INFESTATION IS DETECTED AND TREATED PROMPTLY.
- ONGOING MAINTENANCE AND INSPECTION ON A REGULAR BASIS IS A REQUIREMENT OF AS3660.1 AND OWNERS SHOULD BE CLEARLY ADVISED OF THEIR RESPONSIBILITIES TO ENSURE THAT THEIR INVESTMENT IS PROPERLY PROTECTED.
- LEAKING TAPS, DOWNPIPES, SEWERS, GUTTERS AND DRAINAGE CAN ALSO AFFECT THE MOISTURE CONTENT OF THE SOIL AND THESE MUST BE INSPECTED REGULARLY TO ENSURE AGAINST DAMAGE TO THE FOOTINGS. SIMILARLY, GUTTERS, DOWNPIPES AND COLLECTION POINTS CAN GET BLOCKED WITH LEAF AND OTHER DEBRIS, PREVENTING THE EFFECTIVE DRAINAGE OF STORMWATER AWAY FROM THE HOUSE. REGULAR INSPECTIONS AND MAINTENANCE SHOULD BE CARRIED OUT TO PREVENT BLOCKAGE.
- IT IS IMPORTANT FOR BUILDER TO MAKE THE HOMEOWNER AWARE OF THE MAINTENANCE ISSUES ASSOCIATED WITH ENSURING THE LONG-TERM PERFORMANCE OF THE FOOTING SYSTEM.

LANDSCAPING

- THE WORKS ON GARDENS SHALL NOT IMPACT ON DRAINAGE REQUIREMENTS, SUBFLOOR VENTILATION AND WEEPHOLE DRAINAGE SYSTEMS. GARDEN BEDS ADJACENT TO THE BUILDING SHALL BE AVOIDED. CARE SHALL BE TAKEN TO AVOID OVERWATERING OF GARDENS CLOSE TO THE BUILDING FOOTINGS. (AS 2870 Cl. B2.3(b))
- PLANTING OF TREES SHALL BE AVOIDED NEAR THE FOUNDATION OF A BUILDING OR NEIGHBOURING BUILDING AS THEY CAN CAUSE DAMAGE DUE TO DRYING OF THE CLAY AT SUBSTANTIAL DISTANCES. TO REDUCE THE POSSIBILITY OF DAMAGE TREES SHOULD BE RESTRICTED TO A DISTANCE FROM THE HOUSE AS FOLLOWS:
- 1 1/2 x MATURE TREE HEIGHT FOR CLASS E SITES.
- 1 1/2 x MATURE TREE HEIGHT FOR CLASS H1 AND CLASS H2 SITES
- 1 1/2 x MATURE TREE HEIGHT FOR CLASS M SITES
- WHERE ROWS OR GROUPS OF TREES ARE INVOLVED, THE DISTANCE FROM THE BUILDING SHOULD BE INCREASED. REMOVAL OF TREES FROM THE SITE CAN ALSO CAUSE SIMILAR PROBLEMS. (AS 2870 B2.3 (c))

DRAINAGE REQUIREMENTS

GENERAL

THESE DRAINAGE AND OTHER REQUIREMENTS FORM PART OF THE FOOTING DESIGN.

DEFECTIVE SURFACE DRAINAGE IS A COMMON FACTOR IN REACTIVE CLAY FOUNDATION MOVEMENT PROBLEMS. THE EFFECTIVE DRAINAGE OF THE SITE IS A PREREQUISITE FOR SATISFACTORY PERFORMANCE OF A FOUNDATION SYSTEM.

THE BUILDER'S RESPONSIBILITY IS TO MAKE THE OWNER AWARE OF THE IMPORTANCE OF SURFACE DRAINAGE, EVEN IF IT IS NOT PART OF BUILDER'S CONTRACT TO CONSTRUCT SURFACE DRAINAGE.

LANDSCAPING AND OTHER FINISHING SITE WORKS MUST BE INCORPORATED WITH WELL DESIGNED SURFACE DRAINAGE TO MITIGATE ANY ADVERSE IMPACT ON A FOUNDATION SYSTEM.

DRAINAGE NOTES

- ALL SURFACE DRAINAGE WORKS SHALL BE INSTALLED IN ACCORDANCE WITH CLAUSE 5.6.3 DRAINAGE REQUIREMENTS OF AS 2871-2011, WHEREIN FOR BUILDINGS ON MODERATELY, HIGH AND REACTIVE SITES
- SURFACE DRAINAGE SHALL BE CONTROLLED THROUGHOUT CONSTRUCTION AND BE COMPLETED BY THE FINISH OF CONSTRUCTION
- THE BASES OF TRENCHES SHALL SLOPE AWAY FROM THE BUILDING
- WHERE PIPES PASS UNDER THE FOOTING SYSTEM, CLAY PLUGS ARE TO BE ADOPTED TO PREVENT THE INGRESS OF WATER
- FOR BUILDINGS ON HIGHLY REACTIVE SITES, DRAINER SHALL PROVIDE DRAINAGE ARTICULATION TO ALL STORMWATER, SANITARY PLUMBING DRAINS AND DISCHARGE PIPES IN ACCORDANCE WITH CLAUSE 5.6.4 PLUMBING REQUIREMENTS. WHEREIN FLEXIBLE JOINTS IMMEDIATELY OUTSIDE BUILDING AND COMMENCING WITHIN 1m OF THE BUILDING PERIMETER ARE REQUIRED TO ACCOMMODATE THE REQUIRED DIFFERENTIAL MOVEMENT BASED ON THE SOIL CLASSIFICATION. REFER TO TABLE BELOW FOR MIN. REQUIREMENTS FOR EXPANSION AND ALLOWABLE FITTINGS
- FLEXIBLE JOINTS ARE REQUIRED AT ENTRY & EXIT OF SLAB/FOOTINGS. SURFACE WATER MUST BE DIVERTED AWAY FROM THE DWELLING AND GRADED AWAY FROM ALL FOUNDATIONS TO GIVE A SLOPE OF NOT LESS THAN 50mm OVER THE FIRST 1000mm FROM THE DWELLING
- SUBSURFACE DRAINS TO REMOVE GROUND WATER SHALL BE DETAILED BY THE DESIGN ENGINEER. FURTHERMORE, DAMP-PROOF MEMBRANE IN ACCORDANCE WITH CLAUSE 5.3.3 OF AS 2870 SHALL BE INSTALLED FOR GROUNDWATER DRAINAGE ON AGGRESSIVE SOILS

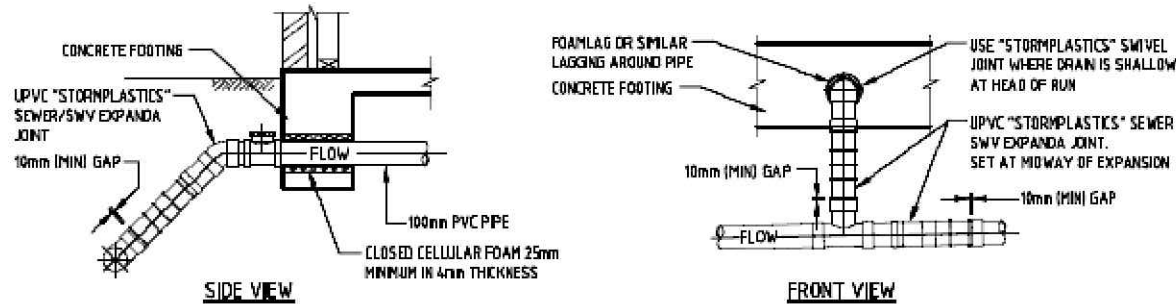
SITE DRAINAGE REQUIREMENTS

CONSTRUCTION STAGE

THE GEO TECHNICAL REPORT HAS RECOMMENDED THE USE OF A CERTAIN FOOTING THAT IS APPROPRIATE FOR THIS SITE. WHILE MAKING THIS RECOMMENDATION IT HAS BEEN ASSUMED THAT CERTAIN SITE DRAINAGE REQUIREMENTS AS PER AS2870-2011 HAS BEEN MET.

DURING THE CONSTRUCTION OF THE FOOTING THE FOLLOWING SITE DRAINAGE REQUIREMENTS ARE LISTED AS BEING PART OF THE FINAL FOOTING DESIGN BY THE DESIGN ENGINEER.

- MUST PREVENT WATER PONDING AGAINST OR NEAR THE FOOTING
- THE GROUND IN THE IMMEDIATE VICINITY OF THE PERIMETER FOOTING SHALL BE GRADED TO A FALL OF 50mm MIN. AWAY FROM THE FOOTING OVER A DISTANCE OF 1000mm (1.2m) AND SHAPED TO PREVENT PONDING OF WATER (THIS INCLUDES THE GROUND UP HILL FROM THE FOOTING ON A CUT/FILL SITE) - WHERE FILLING IS PLACED ADJACENT TO THE BUILDING, THE FILLING SHALL BE COMPACTED AND GRADED TO ENSURE DRAINAGE AWAY FROM FOOTINGS OR
- ALL COLLECTED STORMWATER MUST BE DISCHARGED TO A LEGAL POINT OF DISCHARGE
- SURFACE DRAINAGE OF THE SITE SHALL BE CONTROLLED FROM THE START OF THE SITE PREPARATION AND CONSTRUCTION. SURFACE DRAINAGE INCLUDES SURFACE WATER RUN-OFF AND BUILDING WATER (ROOF/FLOOR/CONCRETE) RUN-OFF
- ALL WATER RUN-OFF SHALL BE CONTROLLED AT ALL TIMES
- USE TEMPORARY DOWNPIPES TO COLLECT WATER FROM A ROOFED BUILDING FRAME
- WHEN SILT PITS ARE USED TO GATHER SURFACE WATER FROM AREAS ADJACENT TO THE FOOTINGS, THESE SILT PITS ARE TO BE AT LEAST 1000mm AWAY FROM THE FOOTING AND CONNECTED TO THE STORMWATER SYSTEM WITH A SOLID PIPE
- STORMWATER DRAINS SHALL BE AT LEAST 90mm AND HAVE A MINIMUM FALL OF 1:100 AND 100mm COVER UNDER THE SOIL AND/OR PAVED AREAS
- INSPECTION OPENINGS SHOULD BE PROVIDED AT EACH PIPE CONNECTION POINT AND AT A NOMINAL SPACING OF 2.5m
- AVOID UNDERMINING THE FOOTING WITH ANY TRENCHES OR PIPE OR PITS UNLESS THE FOOTING HAS BEEN DESIGNED TO ALLOW FOR SUCH SITUATION. SUB-SURFACE DRAINAGE IS REQUIRED TO REMOVE ANY UNWANTED GROUND WATER BY MEANS OF 90mm SLOTTED PIPE IN A 300mm WIDE TRENCH (MIN. FALL OF 1:100). BASE OF THE TRENCH IS FILLED WITH 10mm CRUSHED ROC OR SIMILAR COVERING THE SLOTTED PIPE
- AG DRAINS MUST NOT BE INSTALLED WITHIN 1500mm FROM ANY FOOTING
- AG DRAINS MUST BE INSTALLED AT THE BASE OF ALL SITE CUTS THAT EXCEED 400mm IN HEIGHT, ALONG THE HIGH SIDE OF A SLOPING SITE AND POSSIBLY ALONG THE LOW SIDE OF A SLOPING SITE ALONG THE BOUNDARY, TO BE CONNECTED TO



FLEXIBLE PIPE CONNECTIONS FOR CLASS "H" AND "E" SITES, (AND CLASS "P" SITES WITH HIGHLY REACTIVE SOILS WHERE SPECIFIED IN THE SOIL REPORT)

SEWER & STORMWATER PIPE CONNECTION DETAIL

SCALE: N.T.S

SITE CLASS	SEWER EXIT POINTS		MIN. EXPANSION JOINT CAPACITY	ALLOWABLE ROTATION	LAGGING
	SWIVEL	EXPANDER			
M	0	0	-	-	MIN. 20
H1	1	1	60MM	15°	MIN. 40
H2/H2-D	2	1	90MM	15°	MIN. 40
E	2	1	120MM	15°	MIN. 40
P	2	1	90MM (UND.)	15°	MIN. 40

CLIENT:
PROFILE HOMES
SAM TOBOLOV

JOB NO: PH/MH/D/1719/1

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D/S DWELLING
PROJECT ADDRESS:
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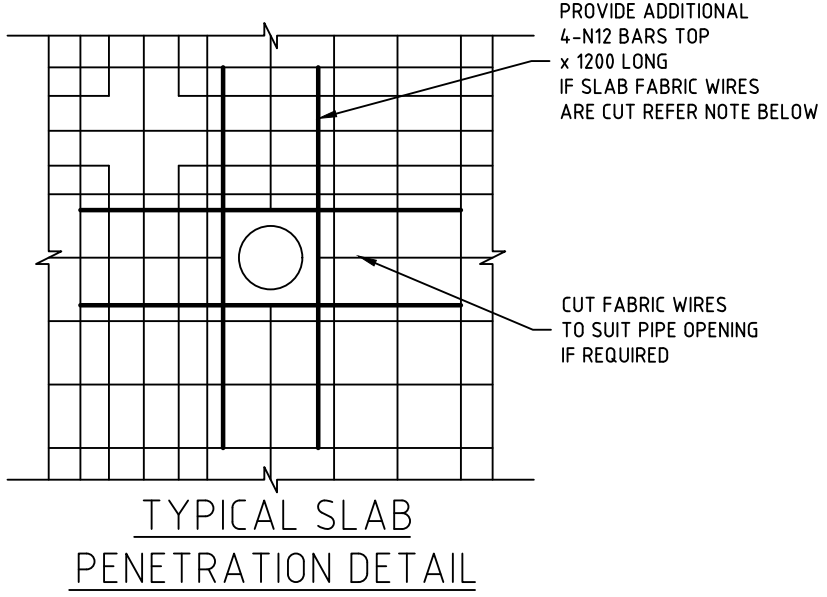
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SCALE: AS SHOWN

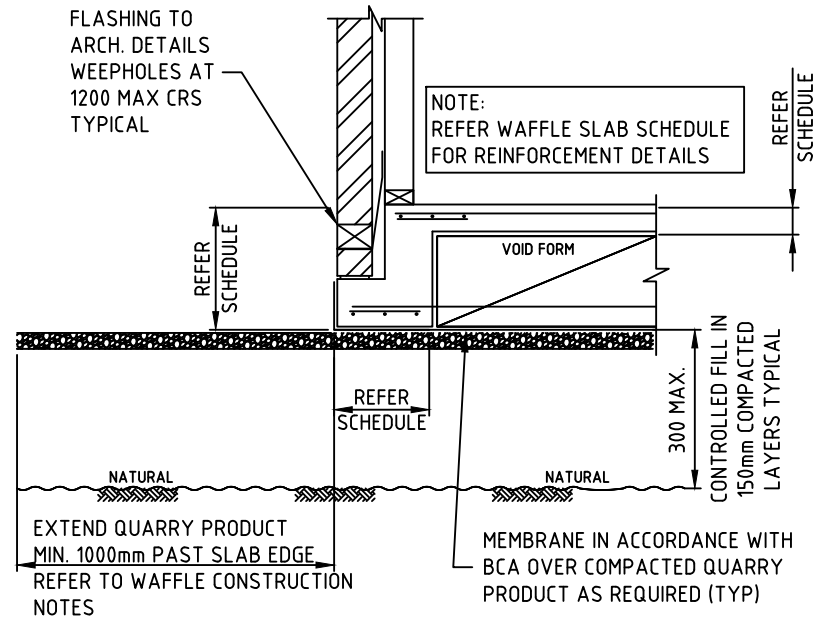
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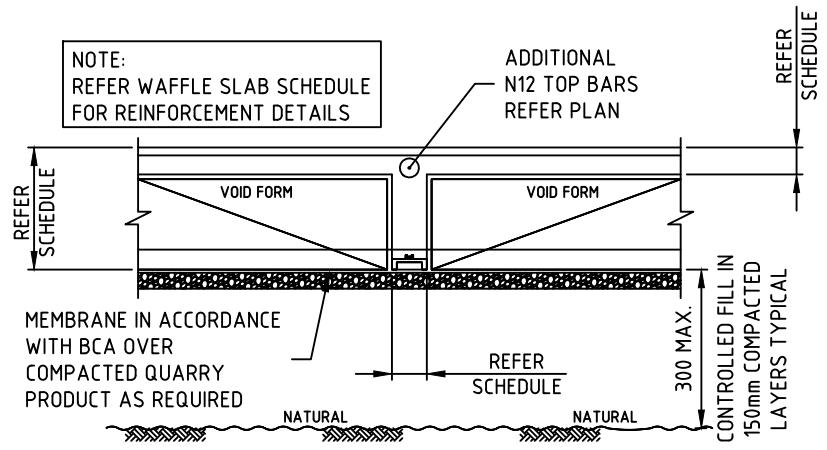
TYPICAL WAFFLE SLAB BEAM DETAILS 1 - NTS



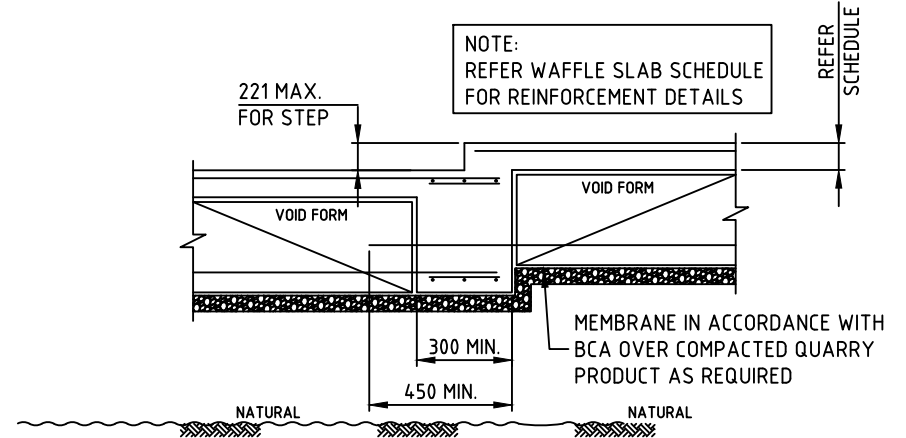
NOTE:
ADDITIONAL BARS MUST BE PLACED AROUND PIPE OPENING IF SLAB FABRIC WIRES ARE CUT, DAMAGED OR BENT (TYPICAL)



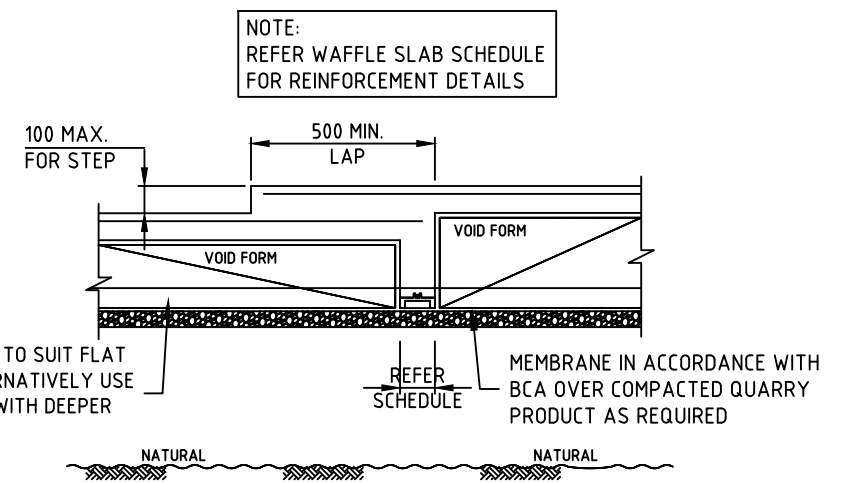
TYPICAL EXTERNAL RIB DETAIL



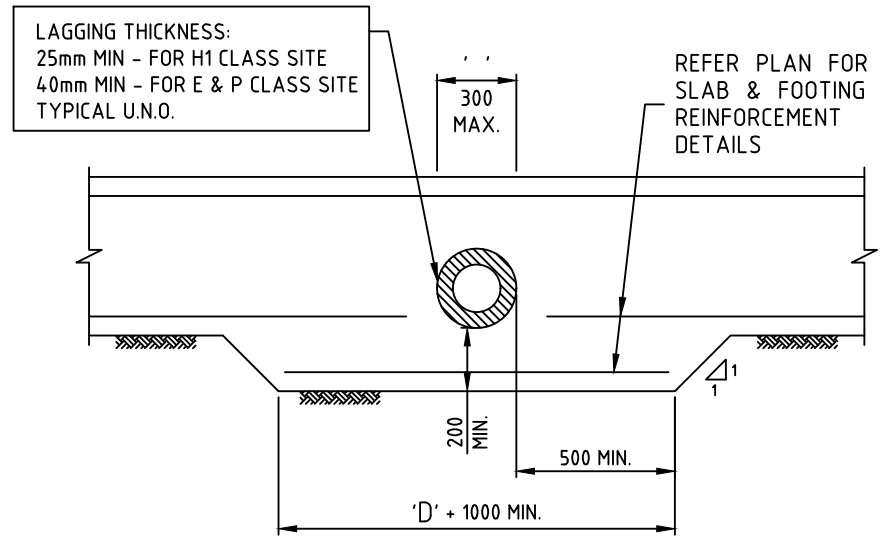
TYPICAL INTERNAL RIB DETAIL



TYPICAL STEPDOWN DETAIL AT GARAGE/PORCH



TYPICAL SLAB RECESS (SHOWER) DETAIL



TYPICAL PENETRATION THROUGH FOOTING DETAIL

NOTE 1
ENSURE A LEVELED WORKING GROUND SURFACE/FILING MATERIAL IS WELL COMPACTED PROPR TO PLACEMENT OF WAFFLE PODS. ANY FILL PLACED DUE TO CUT/FILL OPERATIONS SHALL BE COMPACTED AS "CONTROLLED FILL" IN ACCORDANCE WITH AS 2870-2011 6.4.2.(a). COMPACTION DENSITY TO BE VERIFIED. DEPTH OF FILL NOT TO EXCEED 300MM.

NOTE 2
SUITABLE QUARRY PRODUCTS INCLUDE WELL GRADED QUARRY SAND OR RUBBLE HAVING A MAXIMUM PARTICLE SIZE OF 20MM. LEVELED & COMPACTED.

NOTE 3
EXTERNAL / INTERNAL RIBS WIDER THAN 300MM SHALL BE REINFORCED WITH AN ADDITIONAL N16 BAR TOP & BOTTOM FOR EVERY ADDITIONAL 110MM I WIDTH (TYP.).

NOTE 4
MASS CONCRETE PIERS TO UNDERSIDE OF SLAB/EDGE BEAMS, NOT SHOWN FOR CLARITY. REINFORCEMENT SHOWN ARE ONLY TYPICAL, REFER TO SHEET NO: 6 / 6 FOR REINFORCEMENT DETAIL

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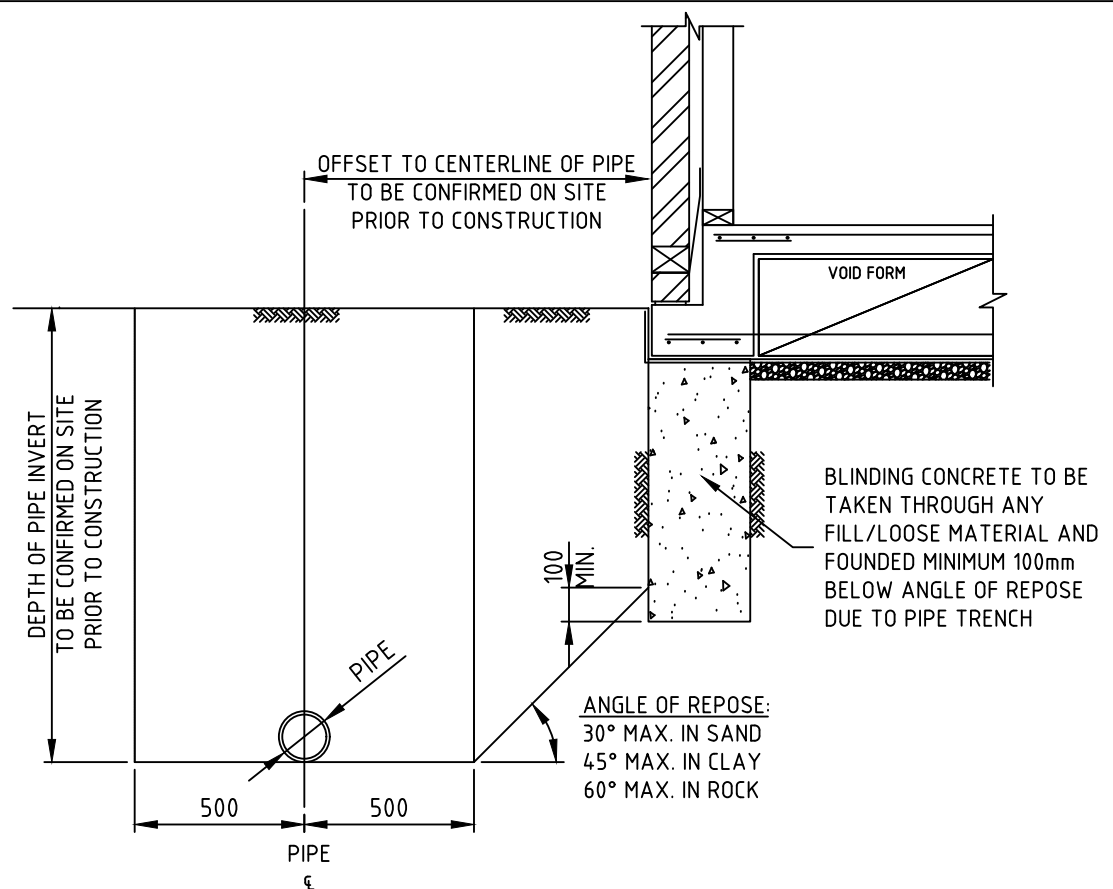
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SCALE: AS SHOWN

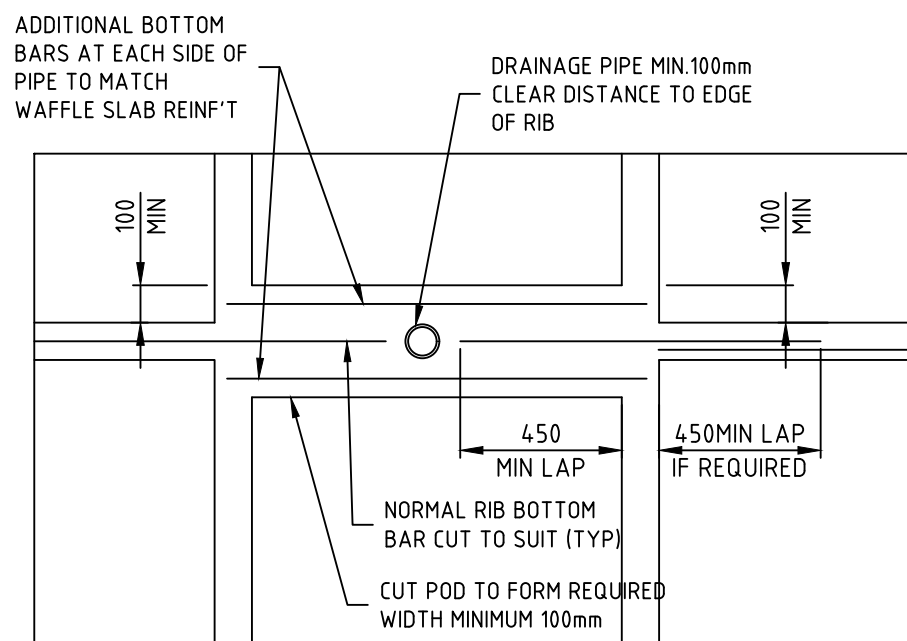
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TYPICAL WAFFLE SLAB BEAM DETAILS 2 - NTS

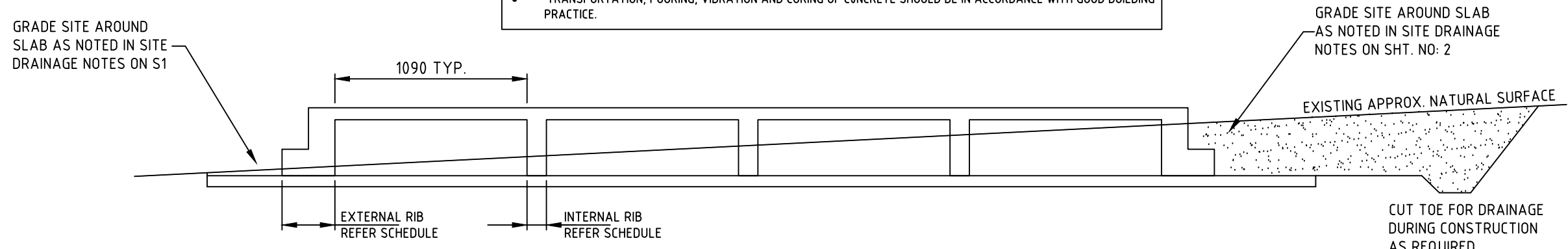


TYPICAL ANGLE OF REPOSE DETAIL
(IF REQUIRED)



TYPICAL PIPE THROUGH WAFFLE RIB
PLAN VIEW

- NOTES:
- 0.2mm THICK POLYETHYLENE MEMBRANE TO BE APPROVED, TAPED AROUND PIPES AND LAPPED A MINIMUM OF 200mm.
 - MINOR PENETRATION IS ACCEPTABLE AS PER AS2870 C5.3.3.
 - 30mm COVER FOR BEAM REINFORCEMENT, AT SPLICES (500mm LAP FOR N12 BARS, 700mm LAP FOR N16 BARS) AND FULL BEAM WIDTH AT INTERSECTIONS.
 - SLAB REINFORCEMENT COVER TO HAVE 30mm MINIMUM, LAP LENGTH TO BE MINIMUM 225mm OR 2 CROSS WIRES AND SHOULD BE SUPPORTED ON BAR CHAIRS, SPACE OF BAR CHAIRS SHOULD NOT EXCESS 1000mm CRS BOTH WAYS.
 - CONCRETE SHALL BE VIBRATED INTO PLACE AND REINFORCEMENT SHALL BE FIXED IN POSITION BY BAR CHAIRS OR SIMILAR APPROVED.
 - TRANSPORTATION, POURING, VIBRATION AND CURING OF CONCRETE SHOULD BE IN ACCORDANCE WITH GOOD BUILDING PRACTICE.

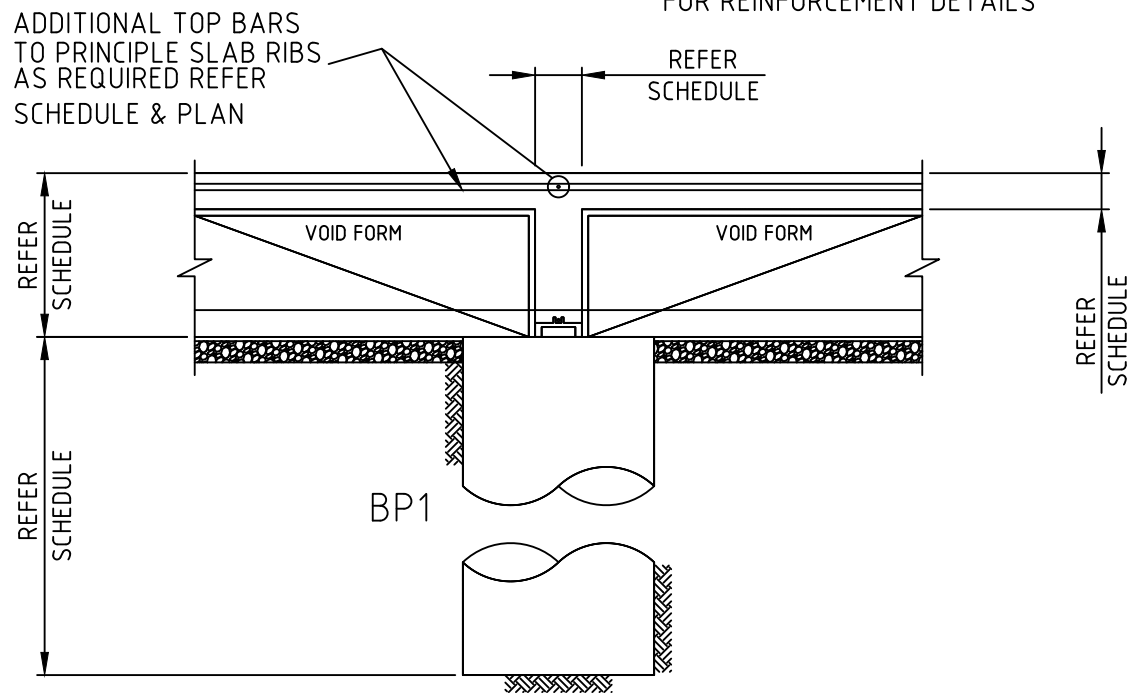
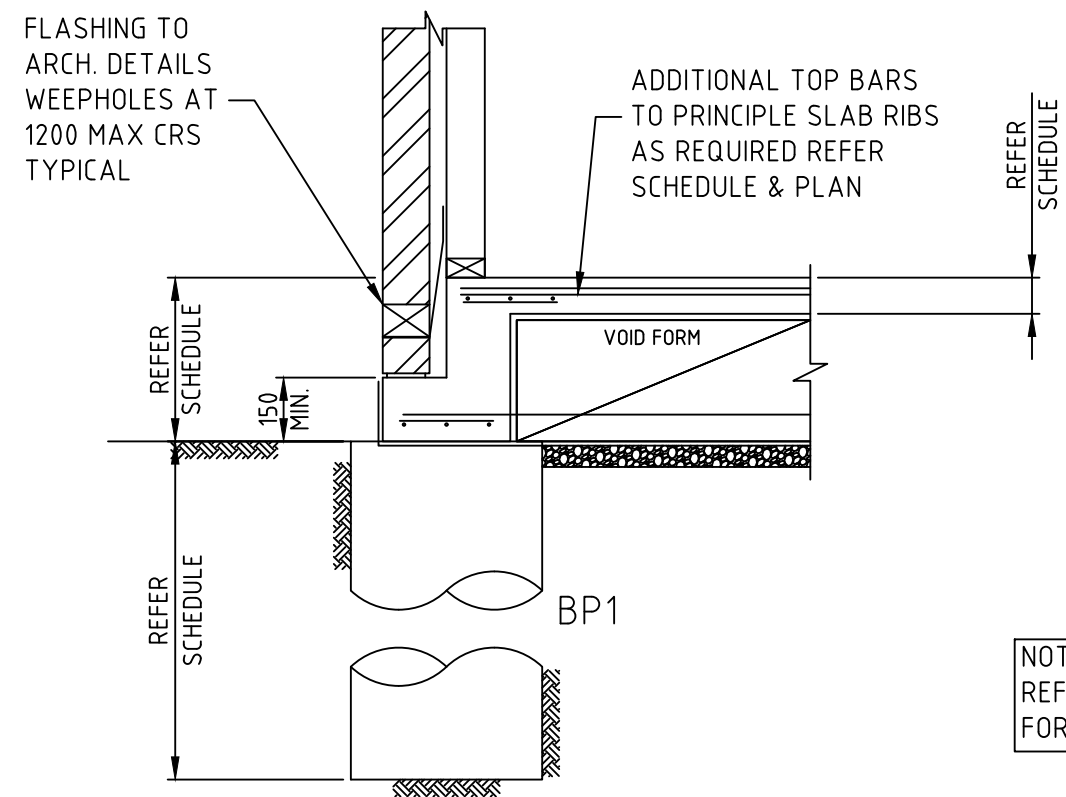


TYPICAL SECTION THROUGH WAFFLE SLAB

CLIENT: PROFILE HOMES SAM TOBOLOV JOB NO: PH/MH/D/1719/1	WB CIVIL STRUCTURAL ENGINEERS ABN: 84119322436 OFFICE: NO: 9, NUMERING COURT, MELTON, VIC 3337 Mobile: 0401023328 / Ph: 03 9746 0089 Email: priyan@wbcse.com.au	REGISTERED ENGINEER VICTORIAN BUILDING AUTHORITY PRIYAN WIJEYERATNE EC 19060, M.I.E.(AUST)., C.P.ENG. M.Eng(Struct)., M.Tech.(Mgt.), BSc(Civil)	PROJECT: STRUCTURAL DESIGN D/S DWELLING PROJECT ADDRESS: 1 DAKARA CLOSE, MEADOW HEIGHTS VIC 3048	SHEET NO: 5/20 Rev A SCALE: AS SHOWN DATE: 26/04/2019	
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TYPICAL WAFFLE SLAB BEAM DETAIL 3 & RETAINING WALL - NTS

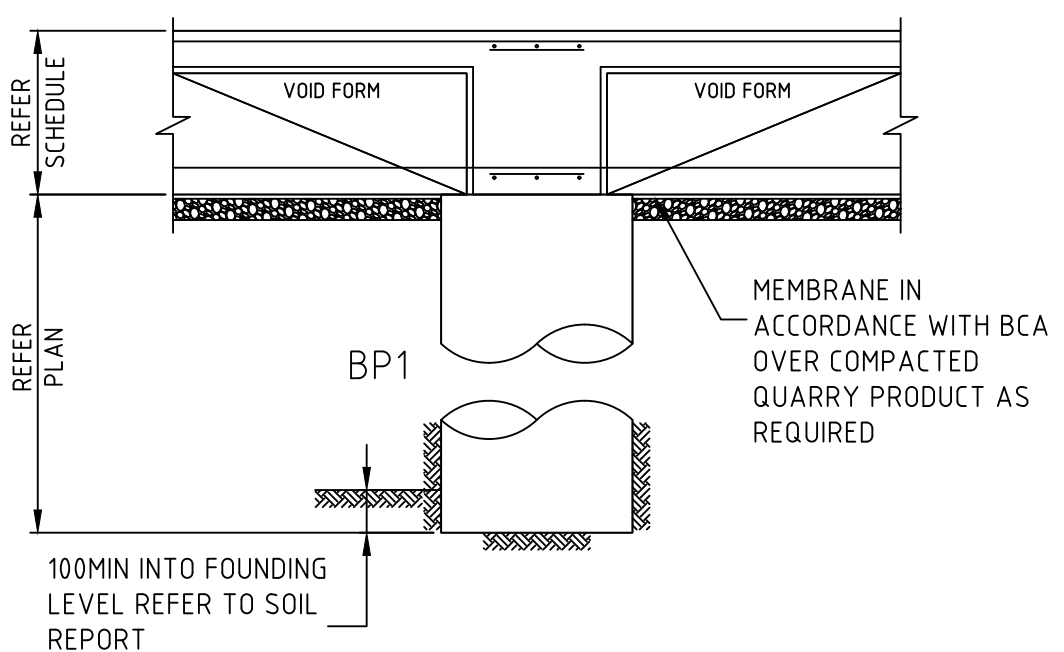
NOTE:
REFER WAFFLE SLAB SCHEDULE
FOR REINFORCEMENT DETAILS



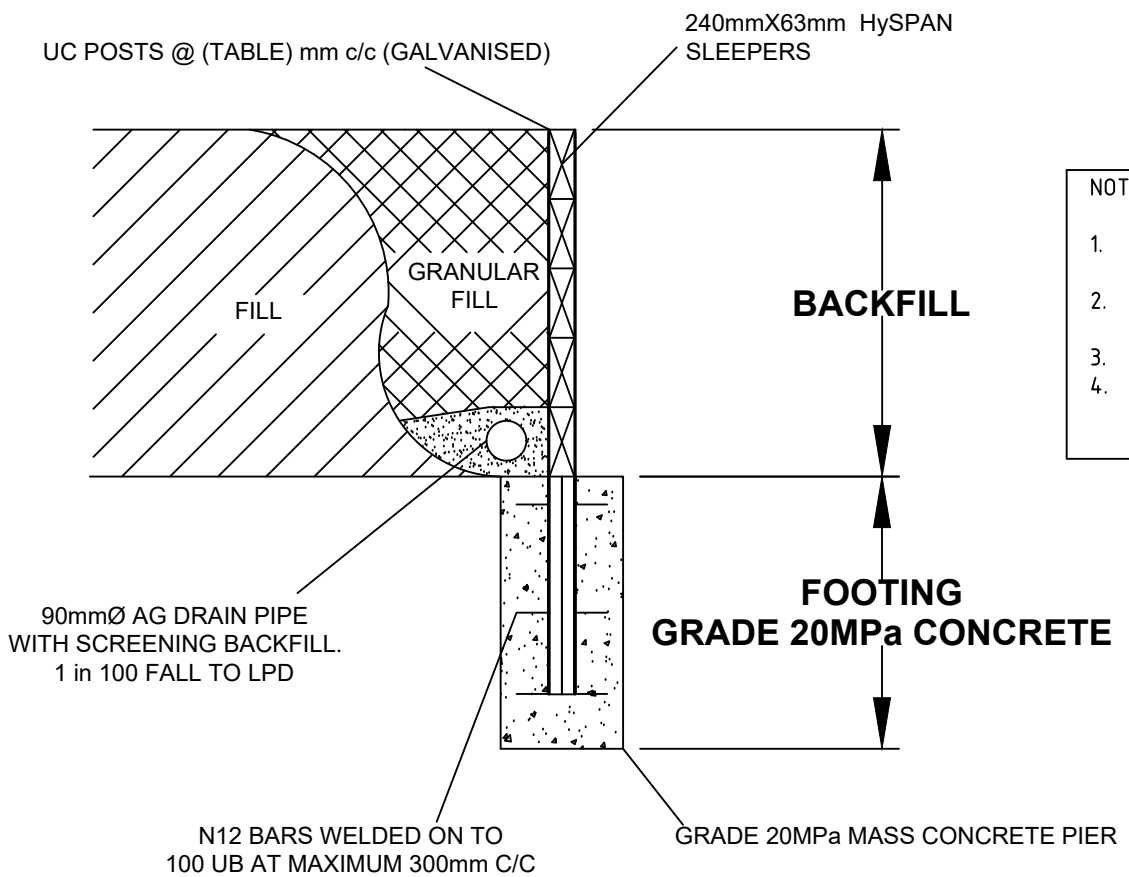
TYPICAL INTERNAL RIB ON PIER

NOTE:
REFER WAFFLE SLAB SCHEDULE
FOR REINFORCEMENT DETAILS

TYPICAL EXTERNAL RIB ON PIER



INTERNAL RIB ON BP1 DETAIL



- NOTES:
- 1. RETAINING WALL HEIGHT 1200mm MAXIMUM.
 - 2. MASS CONCERT FOOTING DEPTH 1000mm MINIMUM
 - 3. UPRIGHTS 100UC14.8 @ 1000mm C/C
 - 4. 240X63 HySPAN MAY BE SUBSTITUTED BY H3 TREATED PINE MINIMUM THICKNESS 75mm

TYPICAL SLEEPER RETAINING WALL

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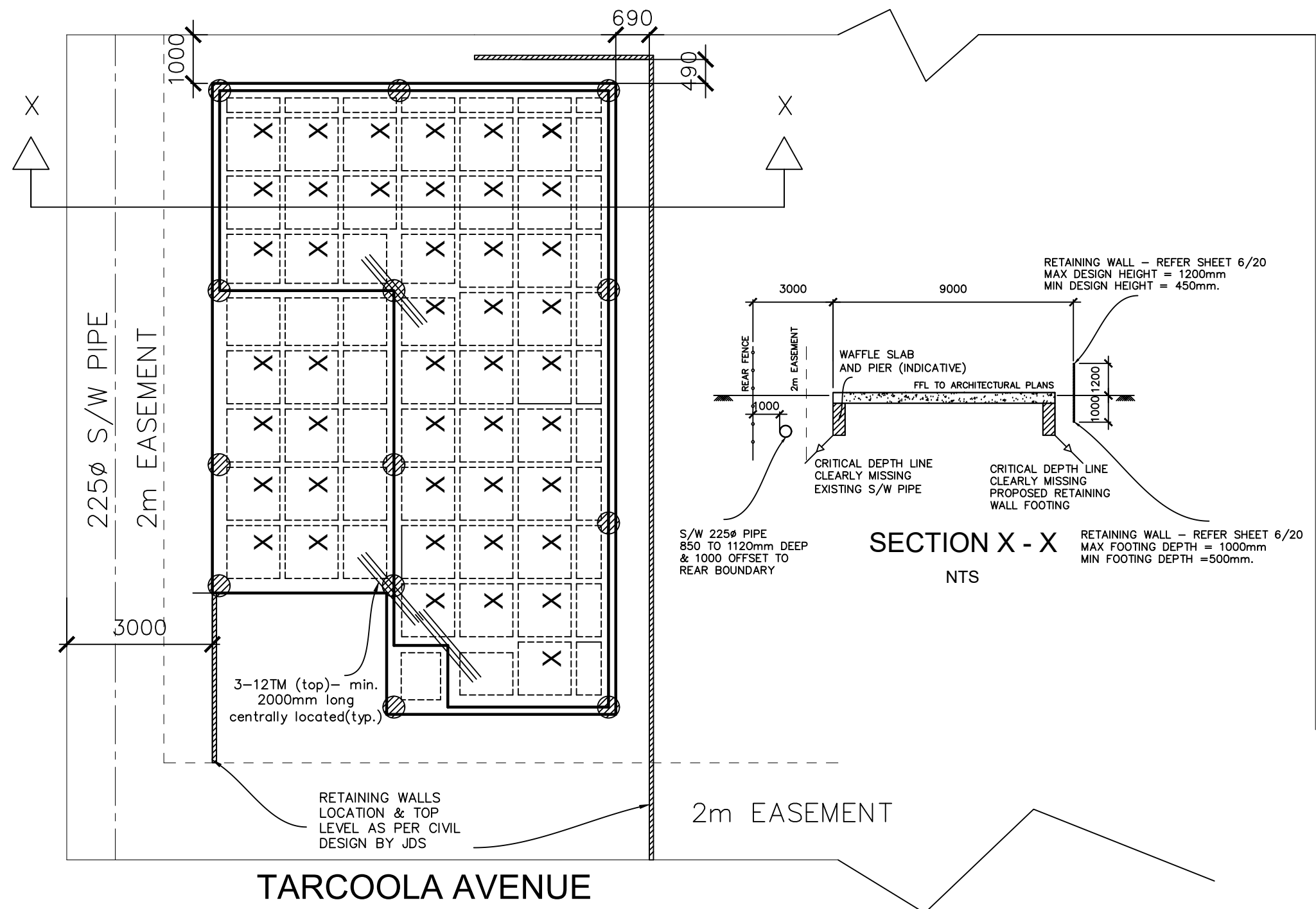
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WAFFLE SLAB DETAIL - SCALE 1: 100

CLASSIFICATION 'P' - REPORT NO: 04380
SOIL TEST MELBOURNE - 25/09/1718



WAFFLE SLAB SCHEDULE

Overall Slab Depth - 400mm
Void form height - 300mm
Slab thickness - 100mm
Internal rib width - 110mm
Internal beams @ step-down width - min. 300mm
External beam width - 300mm
Stem width min. - 150mm
Pod size - 1090mmx1090mmx300mm
X - Denotes standard pods

>>Vapour barrier 0.20mm th. in accordance with
BCA to be lapped 200mm min. and
taped at lap-joints, to be laid on a 50mm
quarry product.

CONCRETE

Concrete strength to be 25MPa at
28 days with a slump of 100mm at pouring. Min. cover to
reinforcement to be 30mm

REINFORCEMENT

TOP

Slab mesh - SL82
Internal beam/rib 1-N12 (tied to mesh)
External beam 1-N12 (tied to mesh)

BOTTOM

Internal rib - 1-N12
External beam - 3-N12
Note: 3-N12 or 3L11TM200 acceptable

MINIMUM LAP LENGTHS

3-L12TM: 500mm
SL 92/82 Mesh: 250mm
N16 bars: 600MM

BEAM CORNERS & AT 'T's

LAPS TO BE FULL WIDTH OF BEAM

MASS CONCRETE BORED PIERS

450mm dia. 20MPa concrete.
Founding depth 1200mm from ground level. All Piers
to be poured at once before the slab is poured. Finish
slab levels as per Architectural Plans. It is builders
responsibility to pour piers and finish at appropriate top
level to suit finish slab levels.

DAKARA CLOSE

- NOTE:
1. IT IS BUILDER'S RESPONSIBILITY, TO DRAIN SURFACE & ROOF STORMWATER AWAY FROM FOUNDATION DURING & AFTER BUILDING.
 2. WHERE CUT& FILL IS INVOLVED, FILL MUST BE COMPACTED WELL.
 3. PODS PLACEMENT SHOWN IS INDICATIVE ONLY.

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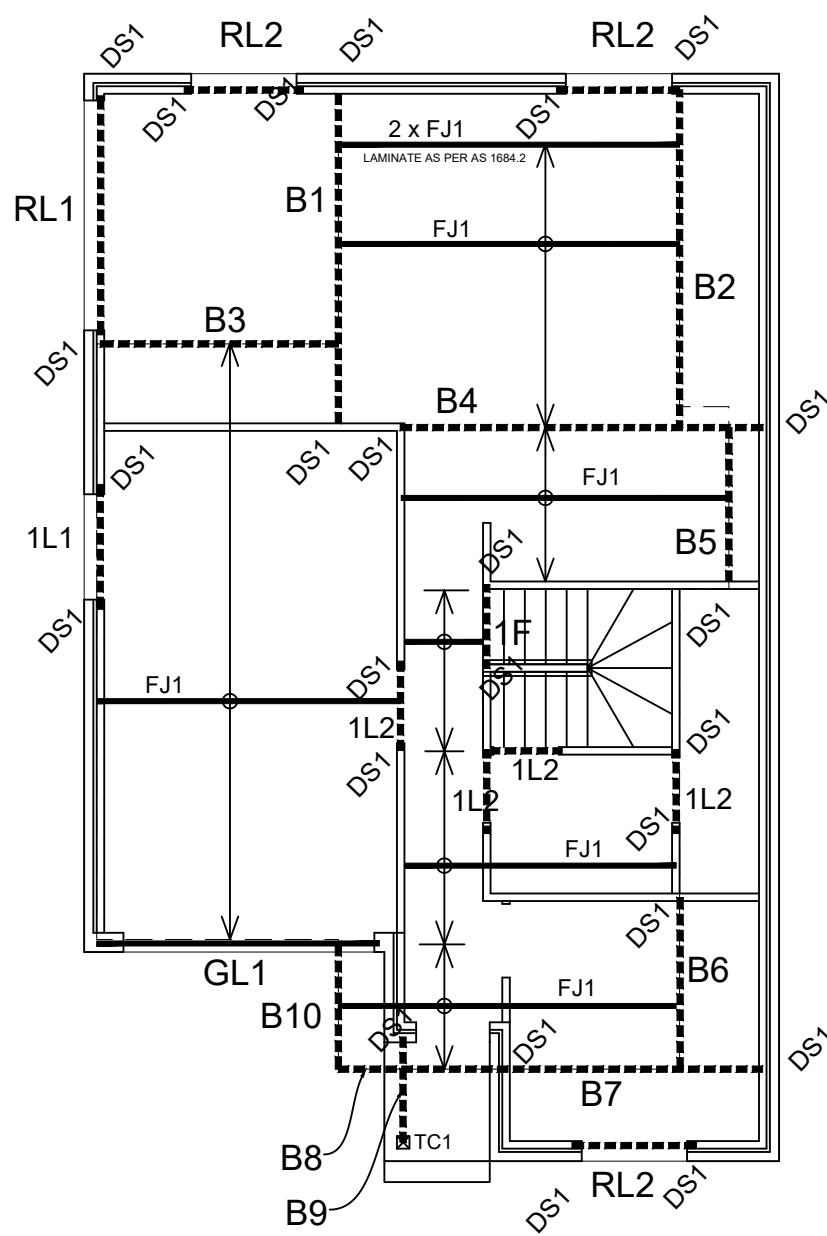
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UPPER/FIRST FLOOR FRAMING PLAN - NTS



UPPER/FIRST FLOOR & LOWER
ROOF MEMBER SCHEDULE

MARK	SECTION	REMARKS
B1	2/300X63 hySPAN	LAMINATE AS PER AS1684.2
OR	180 UB16.1	G300
B2	2/300X63 hySPAN	LAMINATE AS PER AS1684.2
OR	180 UB16.1	G300
B3	240X45 F17 KDHW	
B4	2/300X63 hySPAN	LAMINATE AS PER AS1684.2
OR	180 UB16.1	G300
B5	240X45 MGP 12	
OR	190X45 F17 KDHW	
B6	240X45 MGP 12	
OR	190X45 F17 KDHW	
B7	2/240X45 F17 KDHW	LAMINATE AS PER AS1684.2
B8	2/240X45 MGP 12	CANTILEVER = 775mm MAX. LAMINATE AS PER AS 1684.2
OR	2/190X45 F17 KDHW	CANTILEVER = 775mm MAX. LAMINATE AS PER AS 1684.2
B9	240X45 MGP 12	
OR	190X45 F17 KDHW	
B10	240X45 MGP 12	
OR	190X45 F17 KDHW	
GL1	VER 250X12 HOR 200X10	GARAGE STEEL INV. "T" (G300)
RL1	2/240X45 F17 KDHW OR 2/240X45 HYPAN	
RL2	190X45 F17 KDHW OR 190X45 HYPAN	AS PER AS1684 SPAN TABLES
1L1	140X45 MGP 12	AS PER AS1684 SPAN TABLES
1L2	120X45 MGP 12	AS PER AS1684 SPAN TABLES
DS1 OR DS1(U)	90X45 MGP 10 - LINTELS	1 - BEARING STUD & 1 - JAMB STUD
DS1 OR DS1(U)	90X45 MGP 10 - BEAM	2 - BEARING STUD
TC1	150mmX150mm	TREATED PINE POST (SIZE AS PER ARCHITECTURAL PLAN)
FJ1	FLOOR JOISTS - 240X45 MGP 12 OR F17 KDHW	@450 CRS MAX.
NOTES:		
1. RL MEANS TIMBER ROOF LINTEL & 1L - MEANS TIMBER LINTEL IN UPPER/FIRST FLOOR		
2. DS1(U) & TS1(U) MEANS STUDS UNDER		
3. B1, B2 etc. MEANS FLOOR BEAMS		
4. FJ1 - MEANS FLOOR JOISTS AS SPECIFIED OR BY APPROVED MANUFACTURER		
5. BUILDER MAY SUBSTITUTE EQUIVALENT TIMBER OR STEEL SECTIONS/GRADES		

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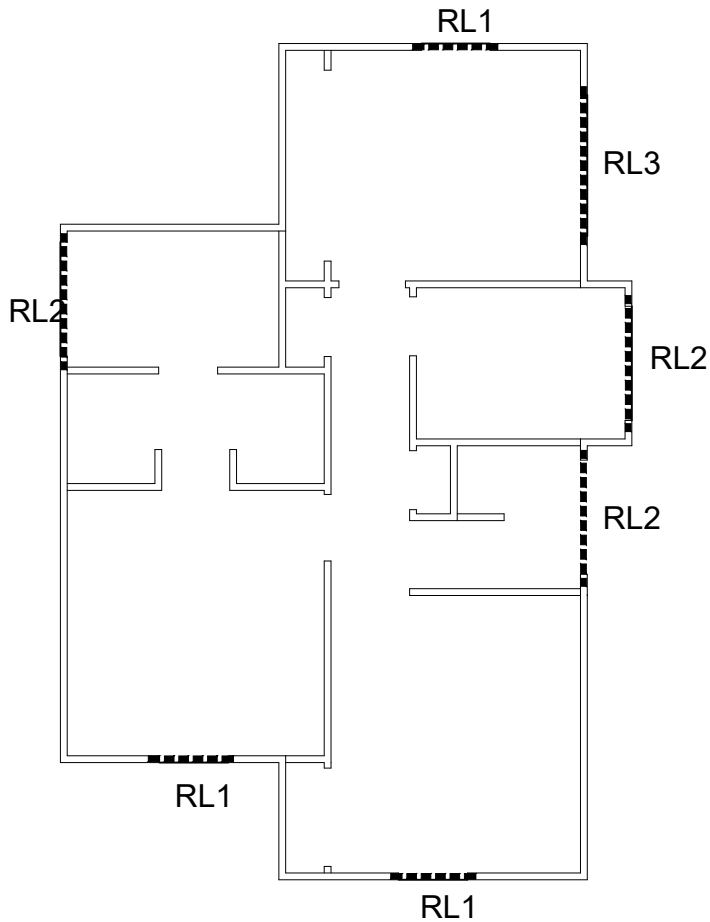
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ROOF FRAMING PLAN - NTS



ROOF MEMBER SCHEDULE		
MARK	SECTION	REMARKS
RL1	140X45 F7 KD PINE	AS PER AS 1684 SPAN TABLES
RL2	190X45 F17 KDHW	AS PER AS 1684 SPAN TABLES
RL3	240X45 F17 KDHW	AS PER AS 1684 SPAN TABLES
NOTES:		
1. RL MEANS TIMBER ROOF LINTEL & 1L - MEANS TIMBER LINTEL IN UPPER/FIRST FLOOR		
2. DS1(U) & TS1(U) MEANS STUDS UNDER		
3. B1, B2 etc. MEANS FLOOR BEAMS		
4. BUILDER MAY SUBSTITUTE EQUIVALENT TIMBER OR STEEL SECTIONS/GRADES		

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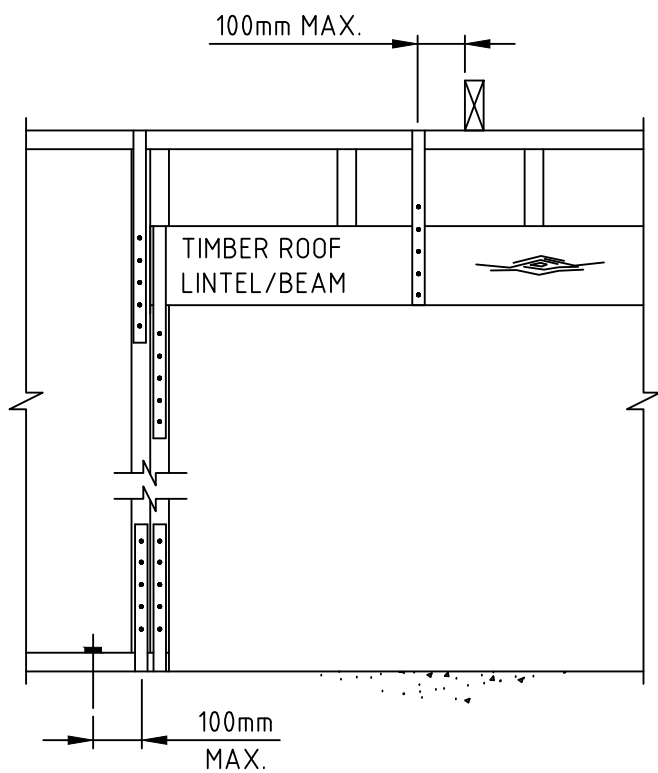
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TIMBER FRAME TIE DOWN DETAIL - NTS



TYPICAL TIMBER BEAM/LINTEL
TIE DOWN DETAIL

TIMBER ROOF LINTEL TIE DOWN SCHEDULE (TILE ROOF)			
LINTEL SPAN	WIND CLASSIFICATION (NON-CYCLONIC AREAS)		
	N1 & N2	N3	N4
0 - 1200	2/75×3.05ϕ NAILS	G.I.S. × 1 TOP & BOTTOM 4/2.8ϕ NAILS EACH END + M10 BOLT TO SLAB OR G.I.S. TO FLOOR FRAME	G.I.S. × 2 TOP & BOTTOM 4/2.8ϕ NAILS EACH END + M10 BOLT TO SLAB OR FLOOR FRAME
1201 - 1800	2/75×3.05ϕ NAILS	G.I.S. × 1 TOP & BOTTOM 6/2.8ϕ NAILS EACH END + M10 BOLT TO SLAB OR G.I.S. TO FLOOR FRAME	G.I.S. × 2 TOP & BOTTOM 6/2.8ϕ NAILS EACH END + M12 BOLT TO SLAB OR FLOOR FRAME
1801 - 2400	2/75×3.05ϕ NAILS	G.I.S. × 2 TOP & BOTTOM 4/2.8ϕ NAILS EACH END + M10 BOLT TO SLAB OR FLOOR FRAME	M12 BOLT/ROD THROUGH PLATE & LINTEL (EACH END) TO SLAB OR FLOOR FRAME
2401 - 3000	2/75×3.05ϕ NAILS	G.I.S. × 2 TOP & BOTTOM 4/2.8ϕ NAILS EACH END + M10 BOLT TO SLAB OR FLOOR FRAME	M12 BOLT/ROD THROUGH PLATE & LINTEL (EACH END) TO SLAB OR FLOOR FRAME
3001 - 3600	2/75×3.05ϕ NAILS	G.I.S. × 2 TOP & BOTTOM 6/2.8ϕ NAILS EACH END + M12 BOLT TO SLAB OR FLOOR FRAME	M16 BOLT/ROD THROUGH PLATE & LINTEL (EACH END) TO SLAB OR FLOOR FRAME

FRAMING TIE DOWN SCHEDULE (TILE ROOF)				
CONNECTION		WIND CLASSIFICATION (NON-CYCLONIC AREAS)		
		N1 & N2	N3	N4
SINGLE / UPPER STOREY	STUDS TO BOTTOM/TOP PLATES	2/75×3.05ϕ NAILS (UP TO 38 STUD) OR 2/90×3.05ϕ NAILS (38-50 STUD)	G.I.S. 2/2.8ϕ NAILS EACH END OR FRAMING ANCHOR × 1 WITH 4/2.8ϕ NAILS EACH LEG	G.I.S. 3/2.8ϕ NAILS EACH END OR FRAMING ANCHOR × 2 WITH 4/2.8ϕ NAILS EACH LEG
	BOTTOM PLATES TO SLAB	75 MASONRY NAILS (HAND DRIVEN AT SLAB EDGE), SCREW OR BOLT AT 1.2m MAX. CRS.	75 MASONRY NAILS 0.3m MAX. CRS. OR M10 CAST IN BOLT (180 MIN. EMBEDMENT) 1.2m MAX. CRS.	M10 CAST IN BOLTS WITH 180 MIN. EMBEDMENT 1.2m MAX. CRS.
	BOTTOM PLATES TO FLOOR FRAME	2/75×3.05ϕ NAILS (UP TO 38 STUD) OR 2/90×3.05ϕ NAILS (38-50 STUD) 600 MAX. CRS.	2/NO. 14 TYPE 17 SCREWS 900 MAX. CRS. (40 MIN. EMBEDMENT INTO JOIST)	2/NO. 14 TYPE 17 SCREWS 900 MAX. CRS. (40 MIN. EMBEDMENT INTO JOIST)

- EQUIVALENT FIXING IS PERMISSIBLE TO BE ADOPTED IN LIEU OF ABOVE SPECIFICATION AND IT MUST BE IN ACCORDANCE WITH AS1684.2-2010
- REFER TO TRUSS MANUFACTURER FOR TIE-DOWN FIXING ON ROOF BATTENS AND RAFTERS/TRUSSES
- TIMBER MEMBERS ASSUMED TO BE JD4 GROUP OR STRONGER
- HOUSE ASSUMED TO HAVE A MAXIMUM WIDTH OF 12m
- STUDS ASSUMED TO BE AT 450 MAX. CRS.
- THE TOP PLATE SHALL BE FIXED OR TIED TO THE LINTEL WITHIN 100mm OF EACH RAFTER/TRUSS, OR THE RAFTER/TRUSS FIXED DIRECTLY TO THE LINTEL WITH A FIXING OF EQUIVALENT TIE-DOWN STRENGTH TO THAT REQUIRED FOR THE RAFTER/TRUSS
- G.I.S. MEANS 30 × 0.8 GALVANISED IRON STRAP

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TIMBER FRAME SIZING TABLE

TIMBER FRAMING MEMBERS (U.N.O)

STUDS:

90X35 MGP10 AT 450 MAX CRS 1ST FLOOR (MAX. HEIGHT 2700mm)
90 x 35 MGP10 AT 450 MAX. CRS. (MAX. GROUND FLOOR HEIGHT 2700mm)
90 x 45 MGP10 AT 450 MAX. CRS. (HEIGHT 2700-3000mm)
90 x 45 MGP12 AT 450 MAX. CRS. (HEIGHT 3000-3600mm)
(NOGGINGS AT MIDHEIGHT)
2-90 x 45 MGP12 AT 450 MAX. CRS. (HEIGHT 3600-4200mm)
(NO NOTCHING OF STUDS)
(NOGGINGS AT 1/3 HEIGHT)

DOUBLE STUDS: 2-90 x 45 MGP10 STUDS U.N.O.

FIX END STUD WALL TO MASONRY WALLS WITH
M10 DYNABOLT AT TOP, BOTTOM AND 1200 MAX. CRS. TYPICAL

WALL PLATES:

UPPER STOREY: TOP PLATE - 1 X 45 x 90 MGP10 NOT TRENCHED
BTM PLATE - 45 x 90 MGP10 NOT TRENCHED
LOWER STOREY: TOP PLATE - 45 x 90 MGP10 NOT TRENCHED
BTM PLATE - 45 x 90 MGP10 NOT TRENCHED
FIXED TO SLAB WITH 75mm MASONRY NAILS AT 600mm MAX. CRS .
(FOLLOW TABLE 9.4 AS 1684.2)
REFER BRACING PLAN FOR FIXING REQUIREMENTS
PROVIDE DOUBLE TOP PLATES IF SUPPORTING METAL ROOF TRUSS

STUDS AT SIDE OPENINGS:

OPENING WIDTH	STUDS:
UP TO 1200MM	1-90 x 35 MGP10
1200MM TO 1800MM	2-90 x 45 MGP10
1800MM TO 2400MM	2-90 x 45 MGP10

WALL BRACING:

BRACING OF ALL STUD WALLS TO BE IN ACCORDANCE WITH THE RESIDENTIAL TIMBER
FRAMING CONSTRUCTION AS 1684.2-2010. U.N.O.

FIXING REQUIREMENTS:

GENERAL: REFER TO AS1684.2-2010 RESIDENTIAL TIMBER FRAMING
CONSTRUCTION MANUAL TYPICAL FIXING REQUIREMENTS.

MINIMUM JOINT REQUIREMENTS FOR SHEET ROOF STRUCTURES:

JOINT OR MEMBER:	MINIMUM FIXING DETAILS:
RAFTERS & PURLINS	METAL STRAPS, APPROVED FRAMING ANCHORS OR EQUIVALENT SHALL BE USED TO TIE RAFTERS TO TOP WALL PLATES AND TOP WALL PLATES TO STUDS (OR RAFTERS DIRECTY TO STUDS) WITH A MINIMUM OF 300MM x 3.15MM DIAMETER NAILS OR CLOUTS INTO THE SIDE GRAIN ON EACH MEMBER. MAXIMUM SPACINGS OF FASTENINGS SHALL BE 1800MM OR THREE STUD SPACINGS, WHICHEVER IS THE LESSER.
LARGE SPAN ROOF MEMBER (SUCH AS TRUSSES OR ROOF BEAMS OF SPAN 6000MM OR GREATER).	AS FOR RAFTERS & PURLINS SPACINGS OF FASTNINGS SHALL NOT EXCEED THE SPACING OF THE ROOF MEMBERS.

FIXING FOR STRUCTURES IN AREAS SUBJECT TO RELATIVELY HIGH WINDS:

GENERAL: REFER TO AS1684.2 -2010 RESIDENTIAL TIMBER FRAMING CONSTRUCTION MANUAL
ADDITIONAL FIXING REQUIREMENTS.

NOTE: EQUIVALENT TIMBER GRADE CAN BE USED TO
REPLACE TIMBER GRADES SPECIFIED

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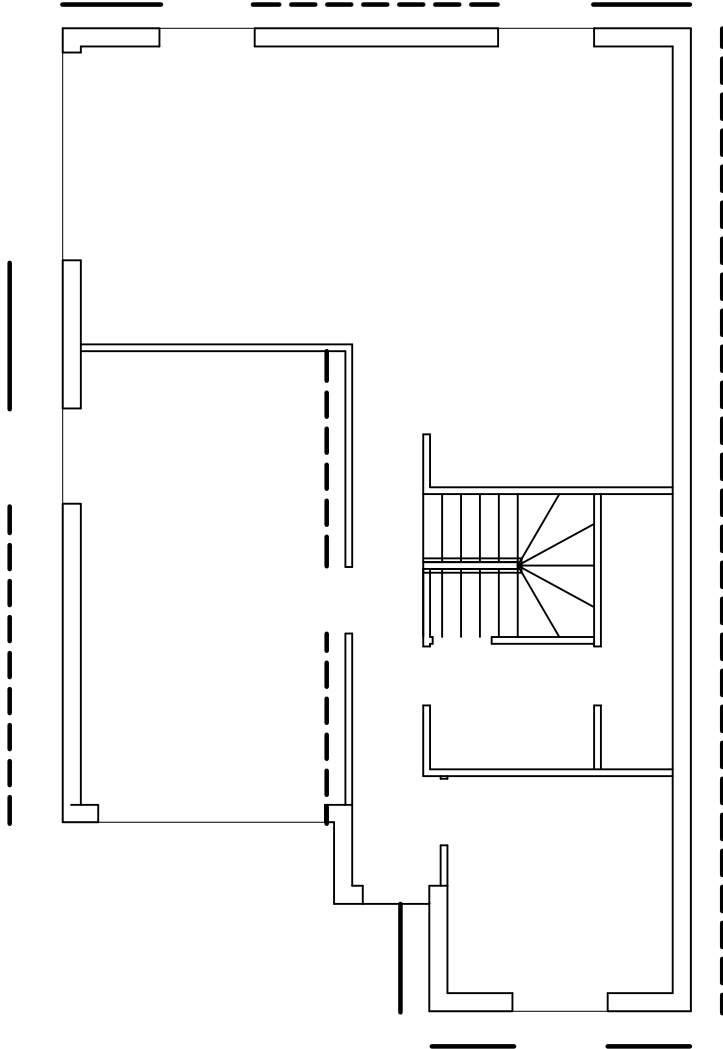
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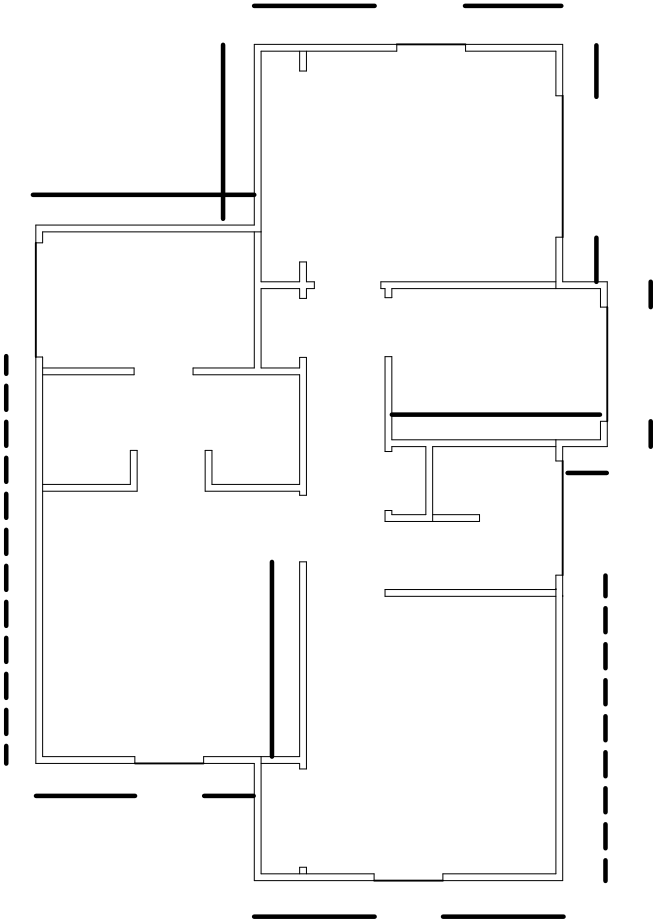
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BRACING PLAN GROUND & UPPER STOREYS - NTS



GROUND STOREY

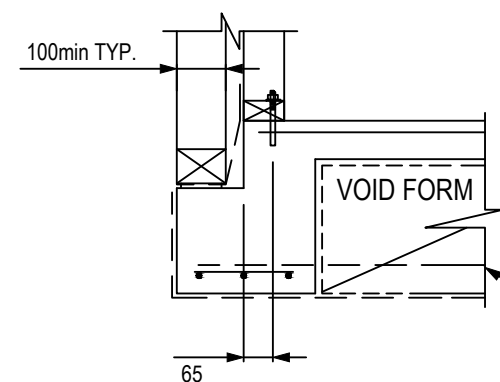


UPPER STOREY

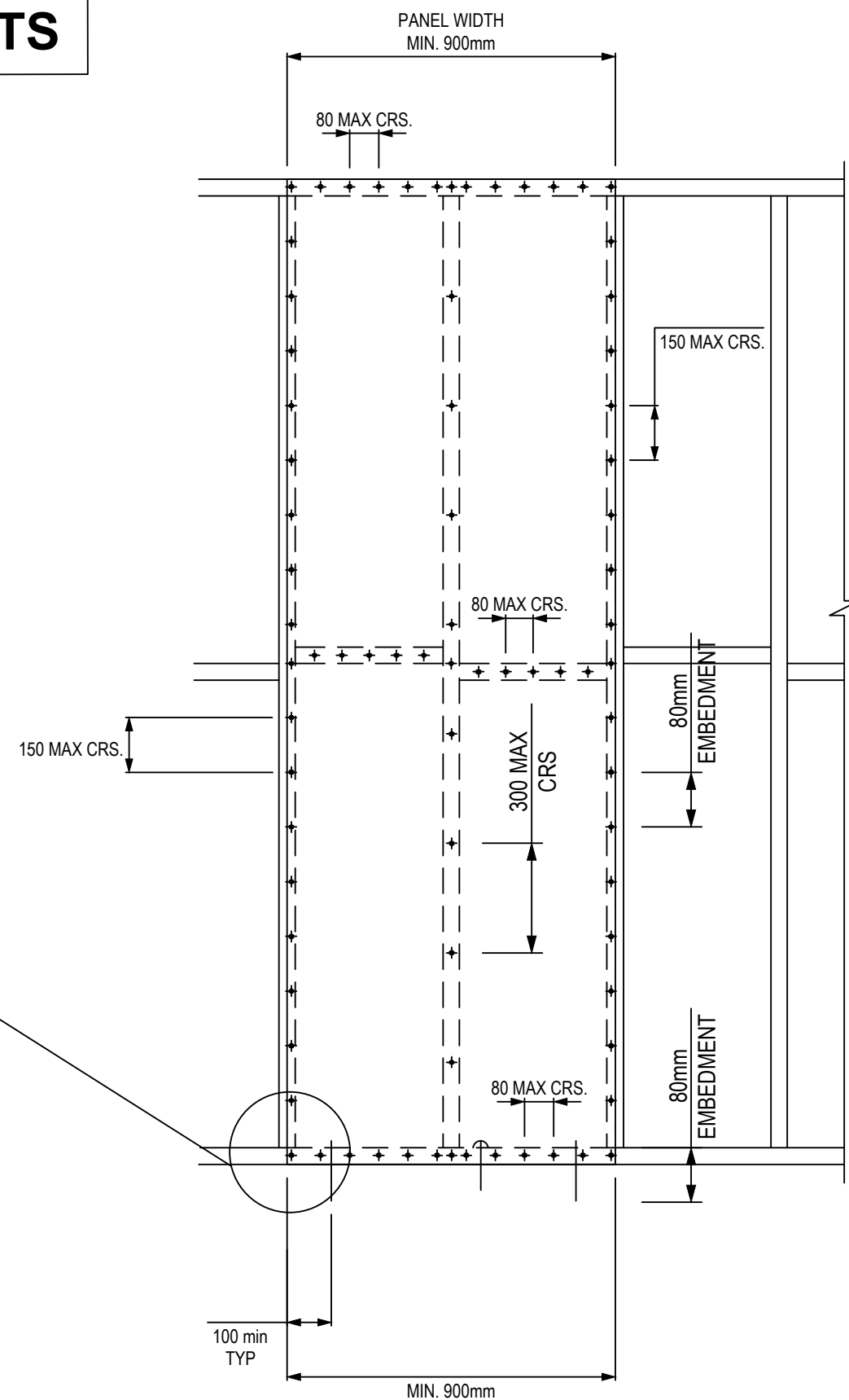
METAL BRACING

PLYWOOD BRACING

WALL BRACING TYPES - TYPICAL 1 - NTS



BRACING WALL PLATE TO CONCRETE
SLAB FIXING DETAIL (END FIXING)



PLYWOOD BRACING SYSTEM - PW
(BRACING CAPACITY - 3.4kN/m)

MINIMUM PLYWOOD THICKNESS (mm)		
STRESS GRADE	STUD SPACING	
	450	600
F8	7	7
F11	4.5	4.5
F14	4	4
F27	3	3

NOTE:
PLYWOOD SHALL BE NAILED TO FRAME
USING 30X2.8Ø GALV. FLAT HEAD NAILS @
CRS INDICATED ON FIGURE.

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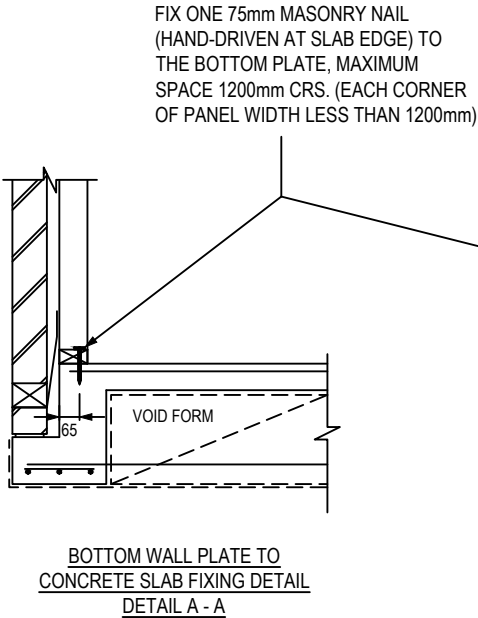
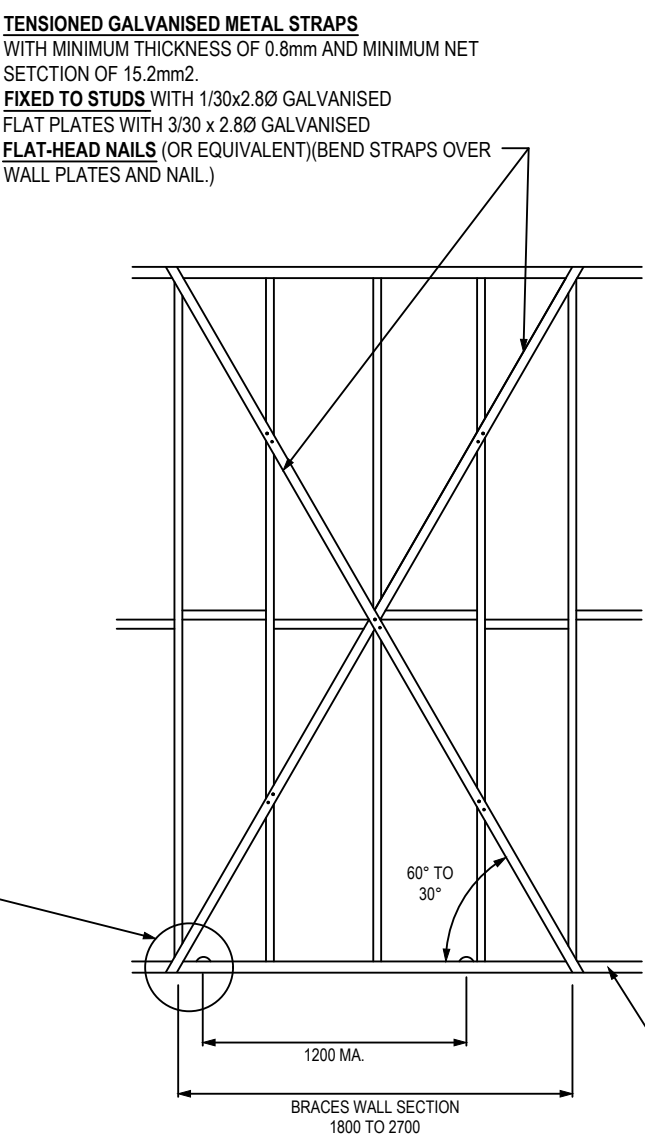
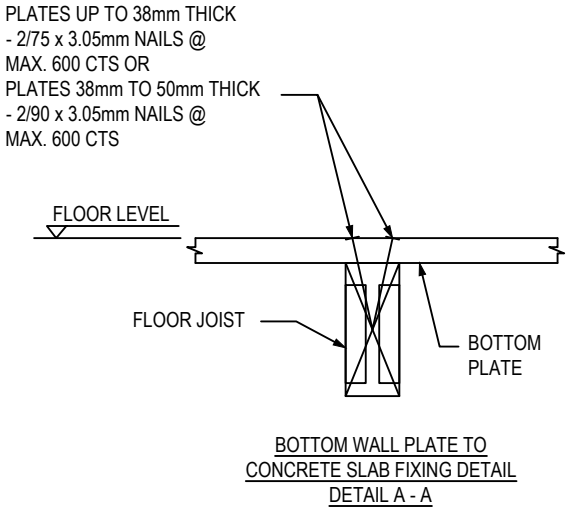
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WALL BRACING TYPES - TYPICAL 2 - NTS

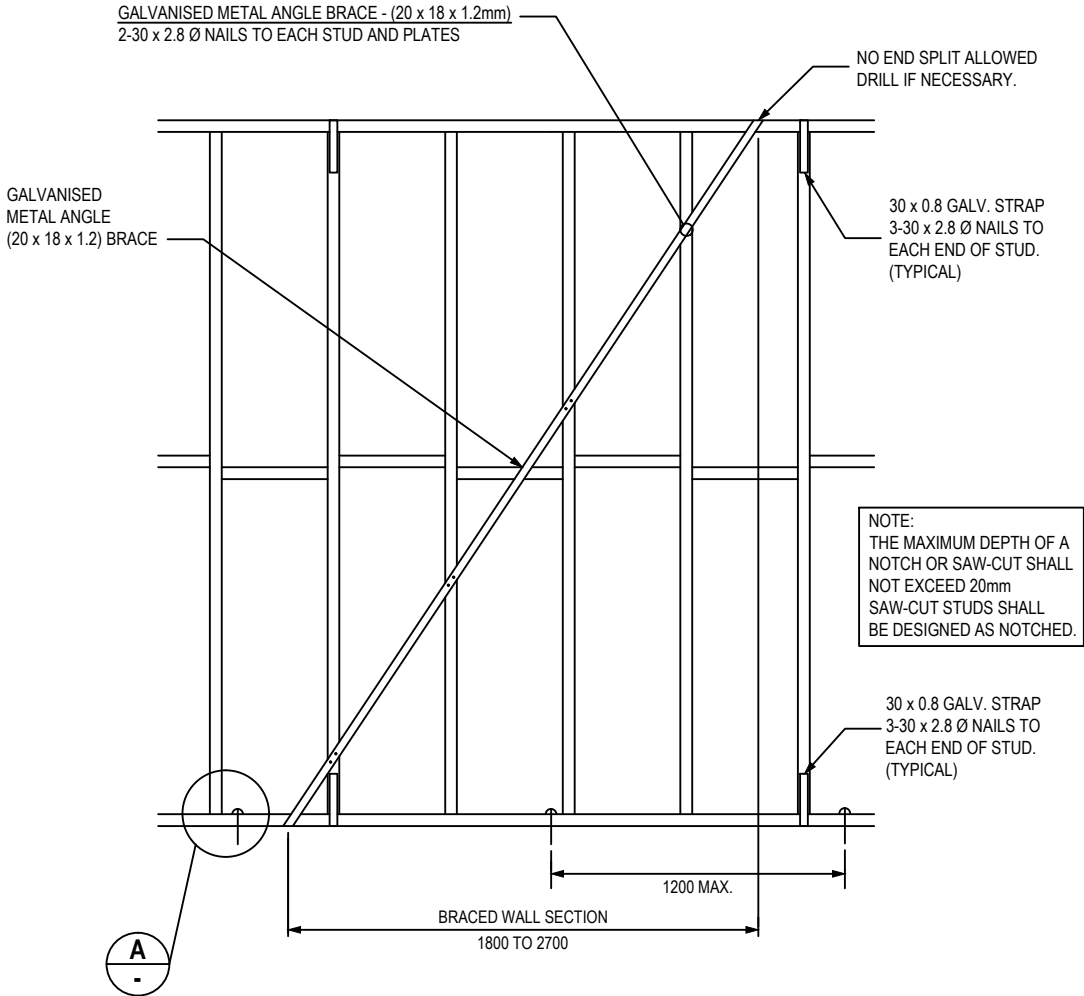


DOUBLE DIAGONAL METAL TENSION STRAPS
(BRACING CAPACITY - 1.5kN/m)

DENOTED AS M ON PLAN

FIX BOTTOM PLATE TO FLOOR
FRAME OR SLAB WITH NOMINAL
FIXING ONLY (SEE AS1684.2
TABLE 9.4)

OR



NOTE:
THE MAXIMUM DEPTH OF A
NOTCH OR SAW-CUT SHALL
NOT EXCEED 20mm
SAW-CUT STUDS SHALL
BE DESIGNED AS NOTCHED.

30 x 0.8 GALV. STRAP
3-30 x 2.8 Ø NAILS TO
EACH END OF STUD.
(TYPICAL)

DIAGONAL METAL ANGLE BRACES
(BRACING CAPACITY - 1.5kN/m)

DENOTED AS M ON PLAN

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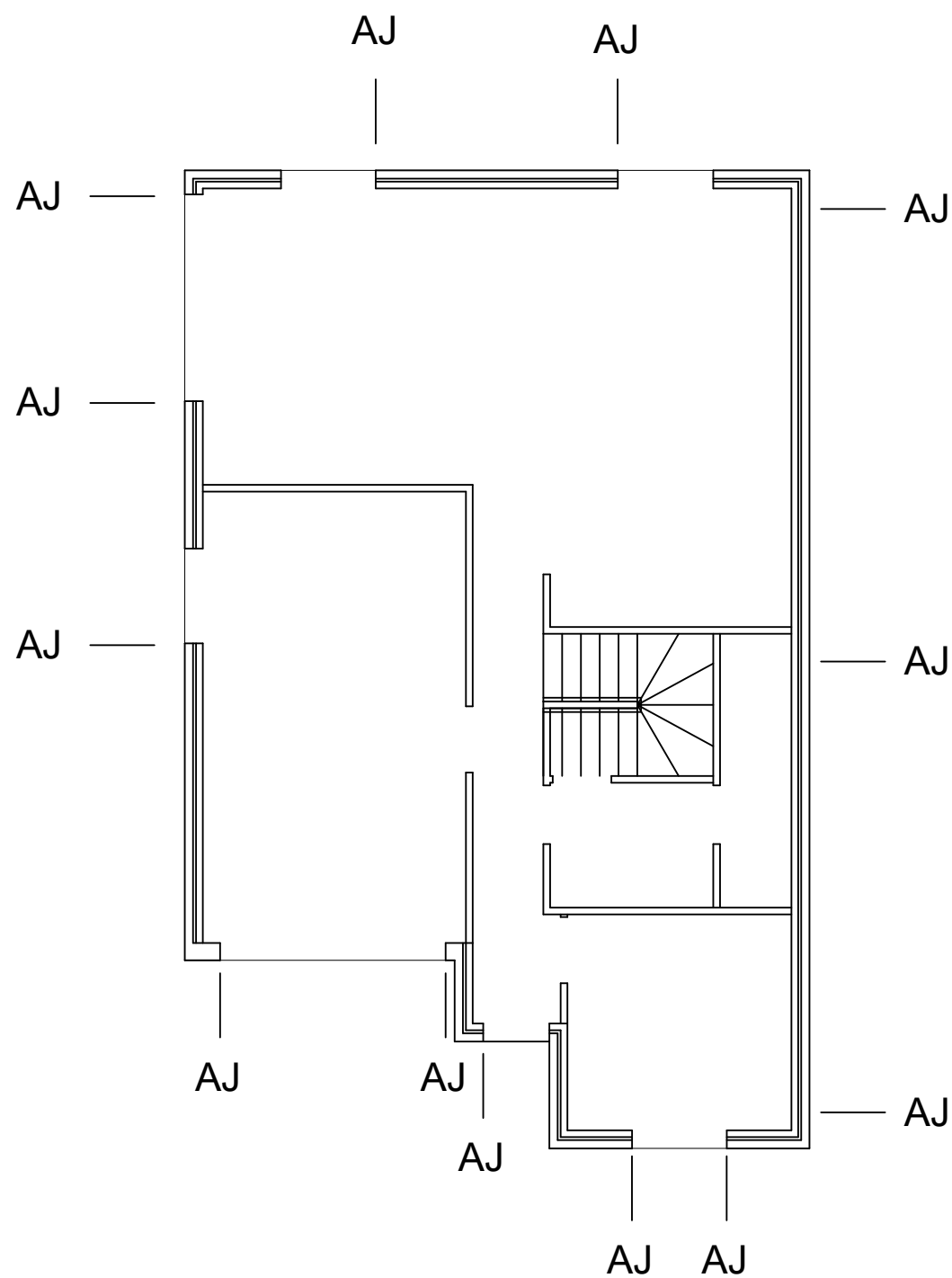
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ARTICULATION JOINTS PLAN - NTS



ARTICULATION JOINTS – AJ

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ARTICULATION JOINTS DETAIL - NTS

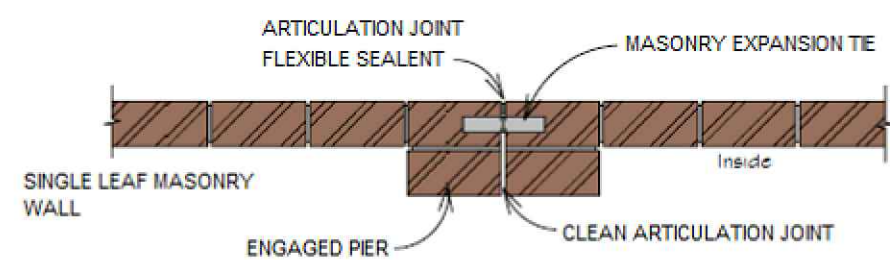
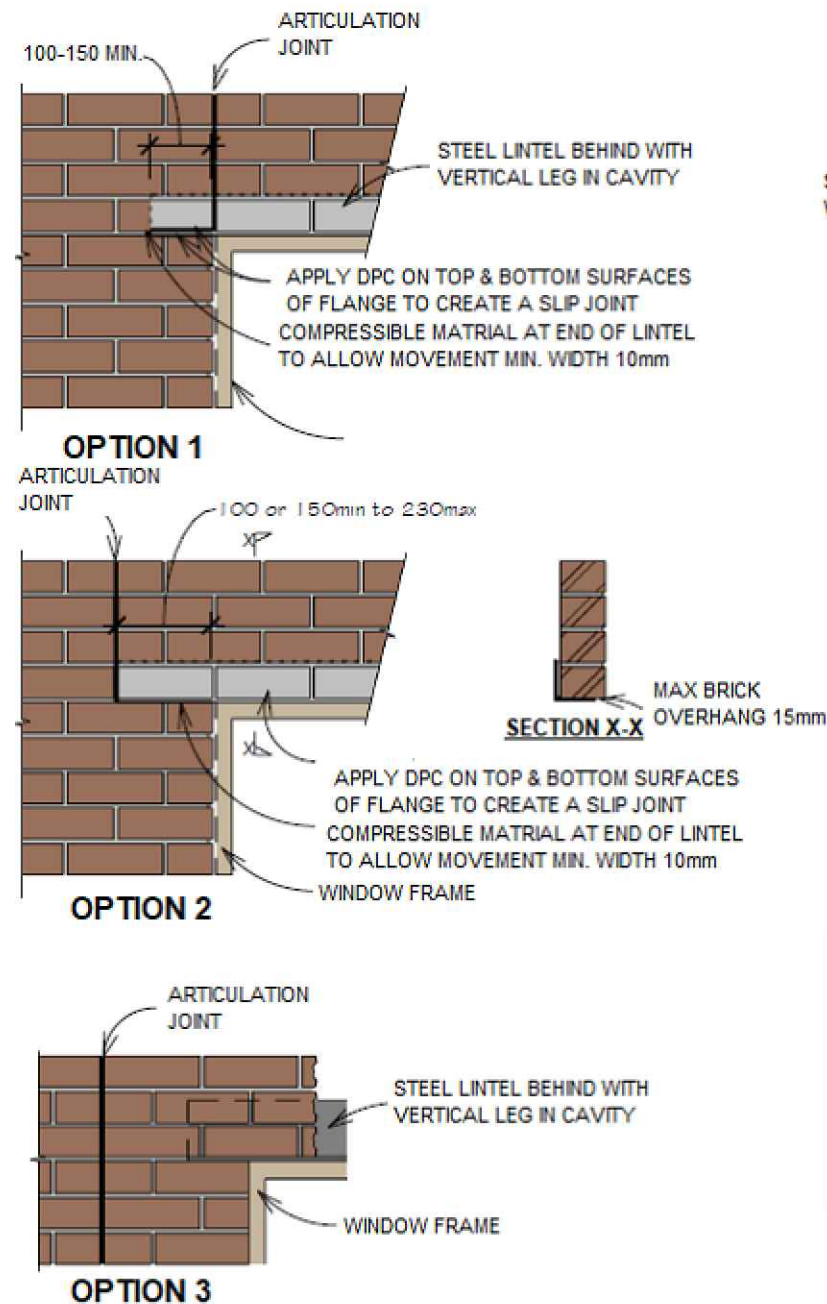


FIGURE 1

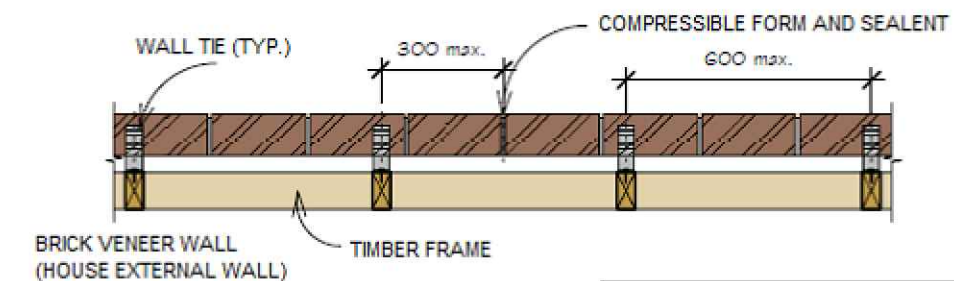


FIGURE 2

NOTE:
WALL TIE SPACINGS:
600 mm MAX VER. & HOR.

300 mm MAX FROM ENDS & TOPS OF WALLS
(ENDS INCLUDE OPENINGS, INTERSECTING WALLS & ARTICULATION JOINTS)

NOTES:

1. JOINTS PLACED AT OPENINGS SHALL PROVIDE SUFFICIENT CLEARANCE TO DOOR/WINDOW FRAMES TO ALLOW MOVEMENT & REMAIN WEATHER PROOF.

2. WHERE WALL ARE RENDERED PROVISION SHALL BE MADE MOVEMENT AT JOINTS

INFORMATION FROM AS 4773.2

BRICKWORK LINTELS - ARTICULATION JOINT DETAIL

BRICKWORK LINTELS			
SUPPORTING SINGLE SKIN MASONRY ONLY			
UP TO 7 BRICK COURSES (<= 600mm)		MORE THAN 7 BRICK COURSES (>600mm)	
MAX SPAN (mm)	STEEL SECTION (250MPa)	MAX SPAN (mm)	STEEL SECTION (250MPa)
3350	100X100X6.0 EA	2900	100X100X6.0 EA
3600	100X100X8.0 EA	3040	100X100X8.0 EA
4200	150X100X10.0 EA	3850	150X100X10.0 UA

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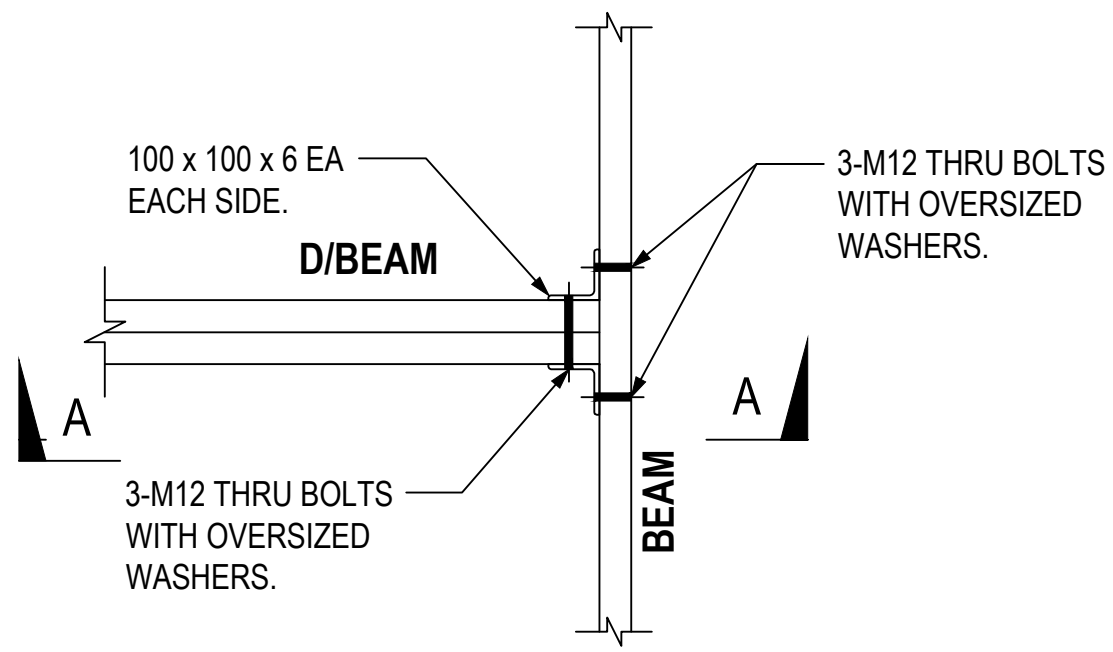
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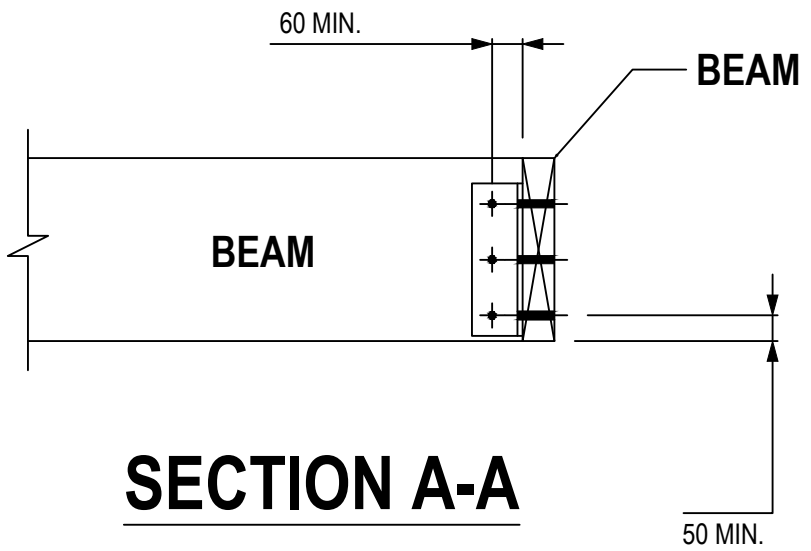
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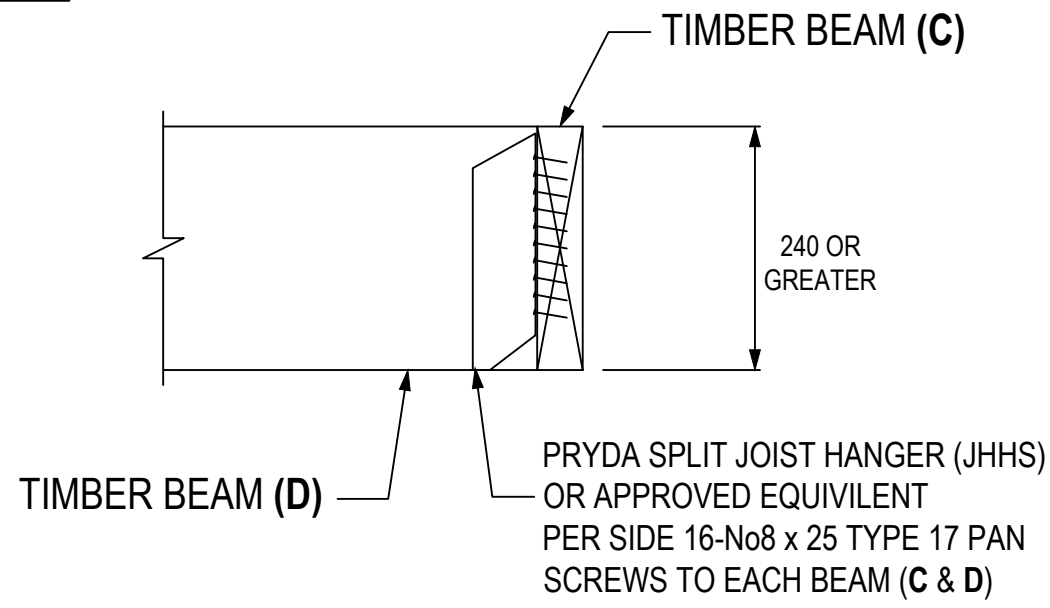
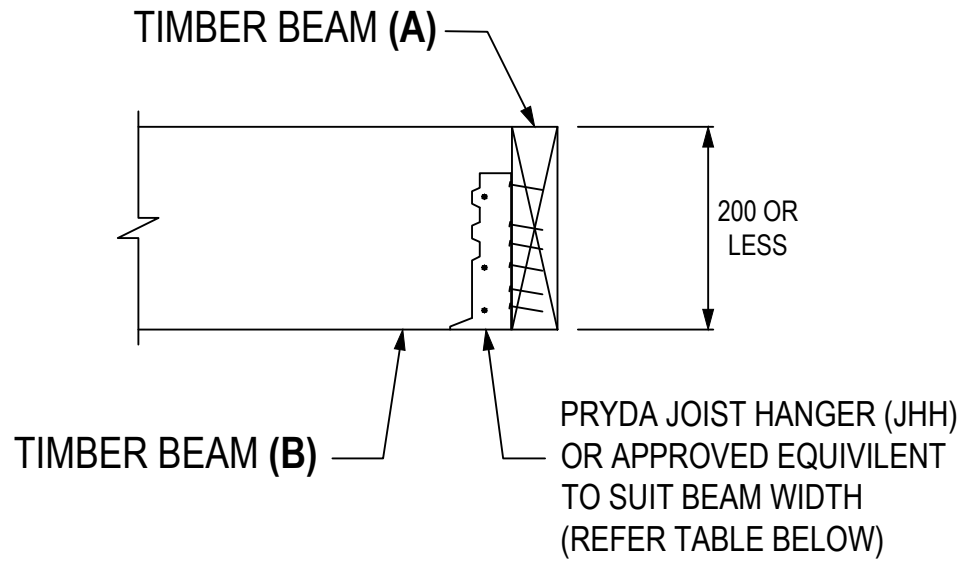
TYPICAL MEMBER JOINT DETAIL 1 - NTS



TIMBER BEAM TO TIMBER BEAM CONNECTION DETAIL



NOTE: ALL BEAM OR LINTEL JOINTS TO BE DONE AS PER AS 1684



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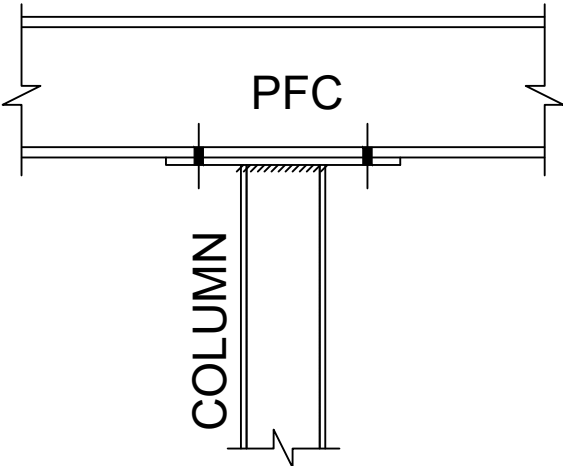
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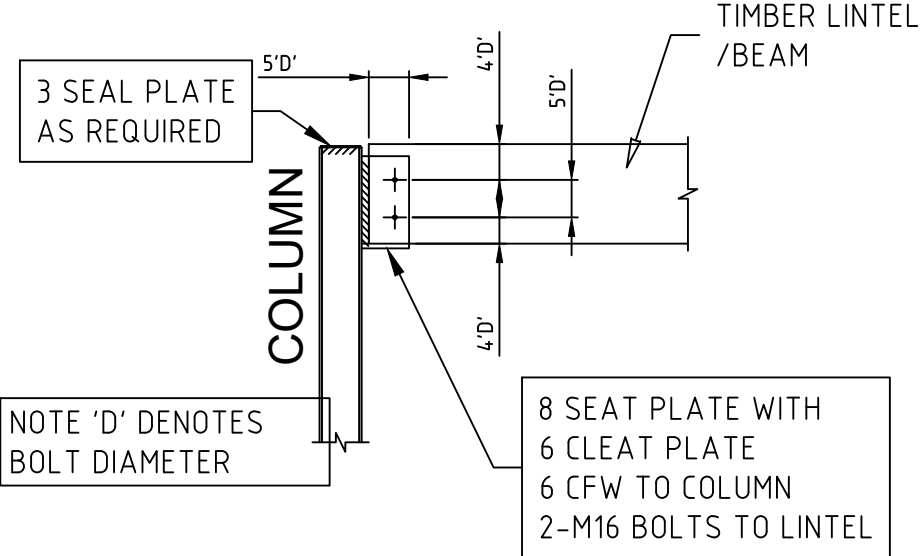
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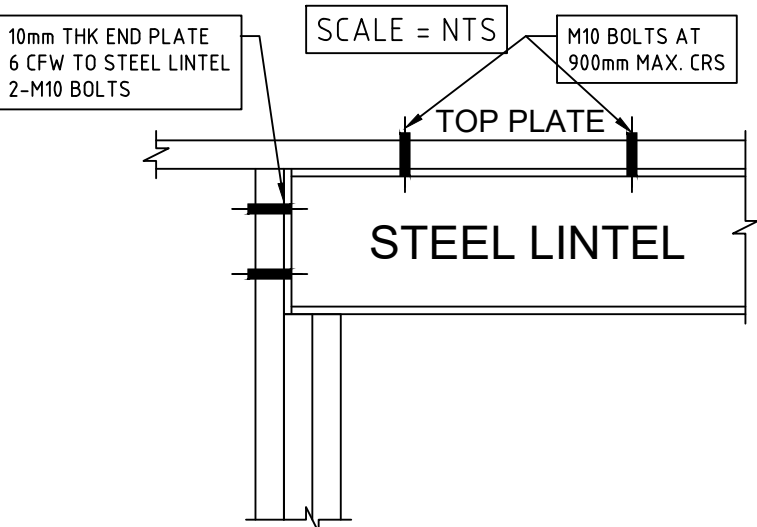
TYPICAL MEMBER JOINT DETAIL 2 - NTS



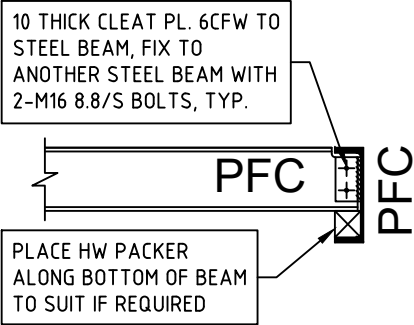
STEEL BEAM TO STEEL COLUMN DETAIL



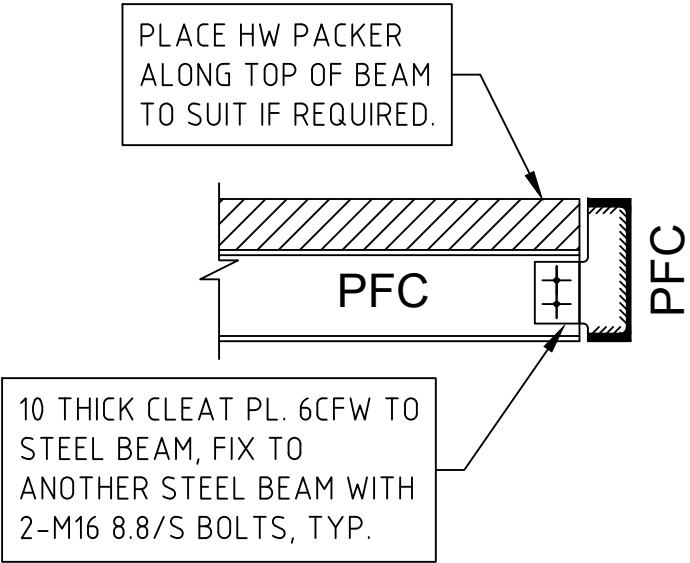
TIMBER BEAM/LINTEL TO COLUMN CONNECTION DETAIL



STEEL LINTEL TO DOUBLE STUD DETAIL

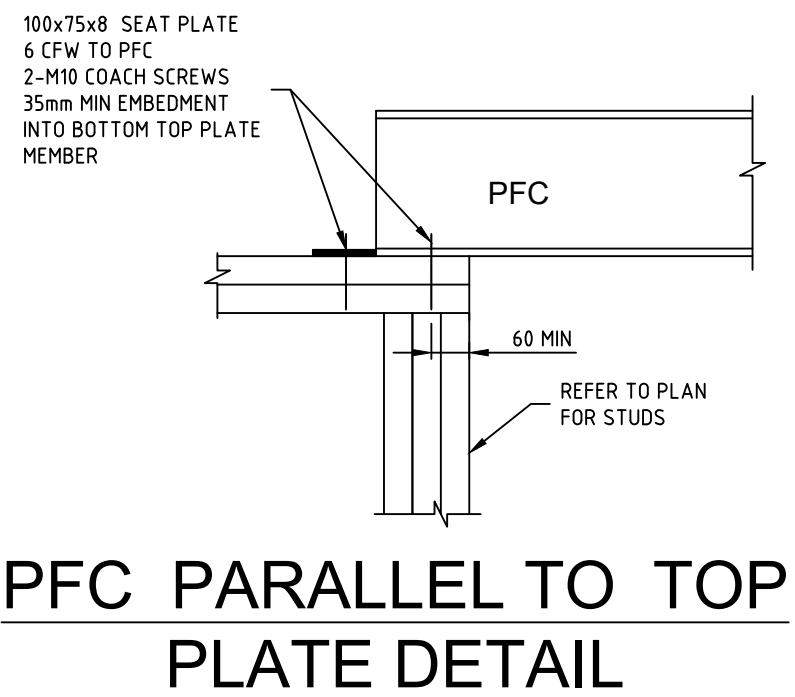
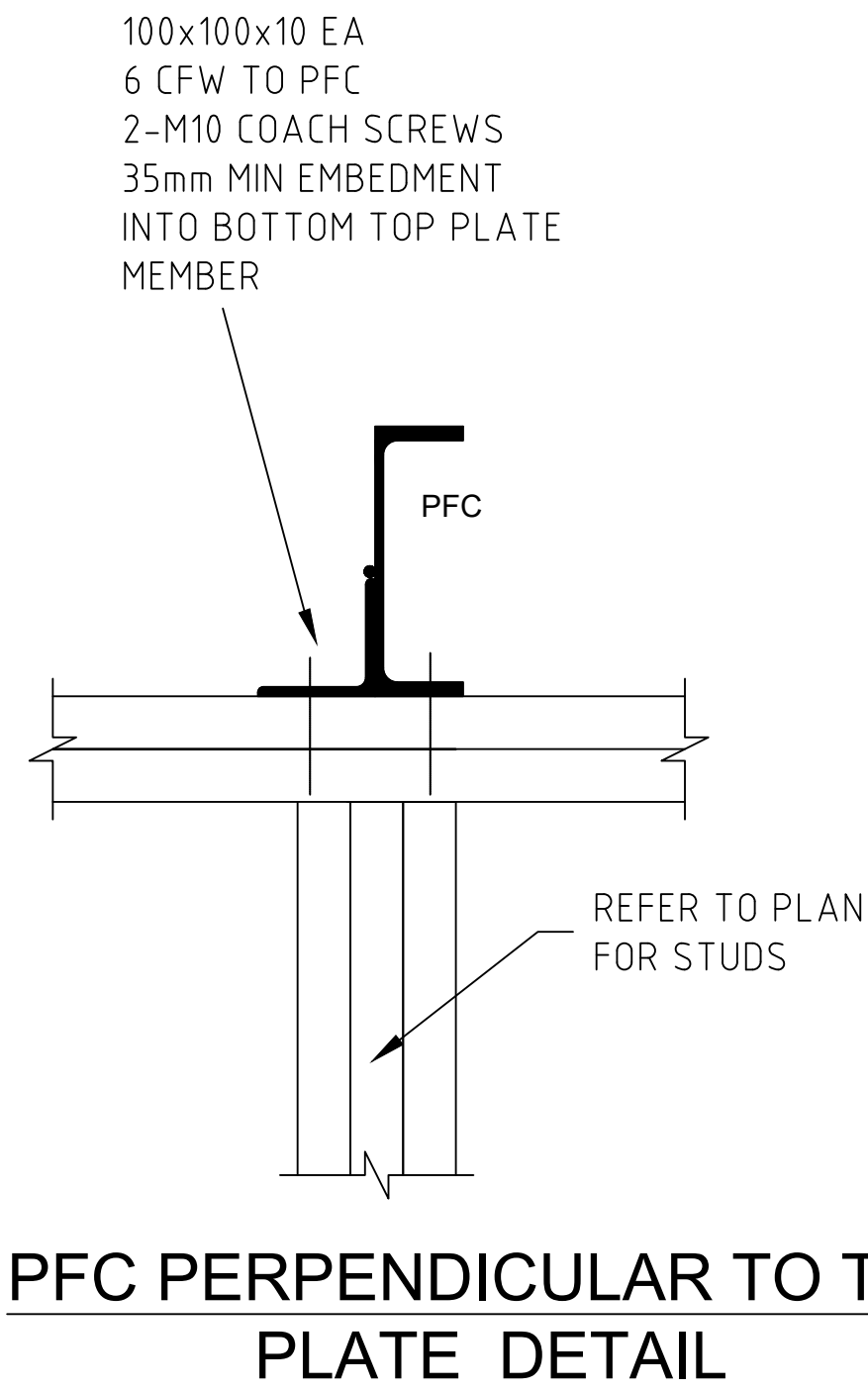
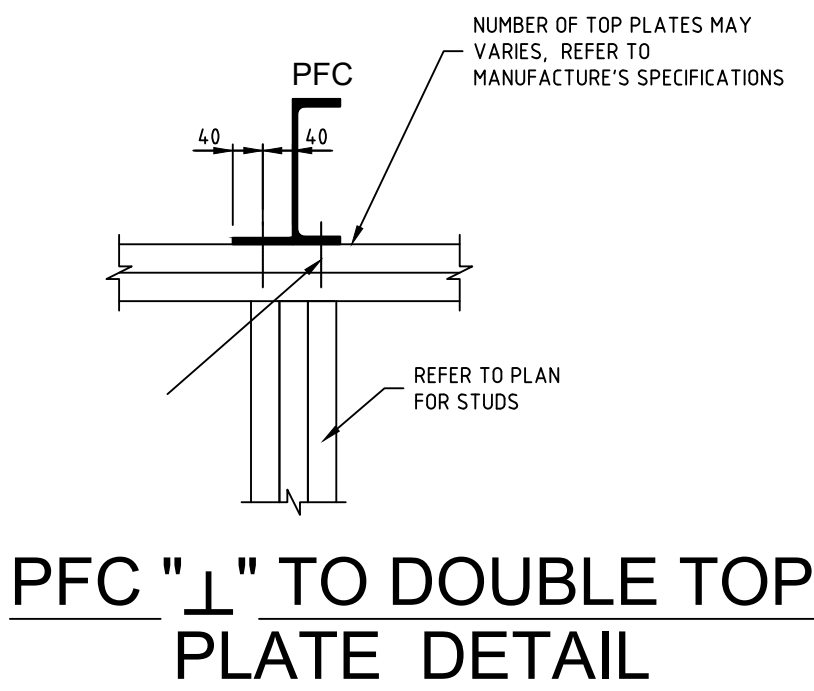
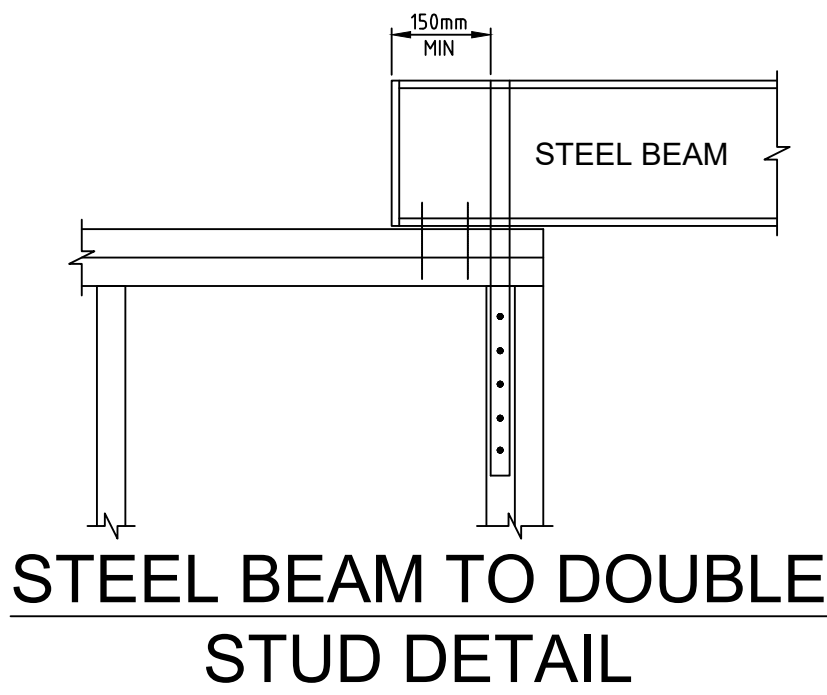


STEEL BEAM TO STEEL BEAM DETAIL

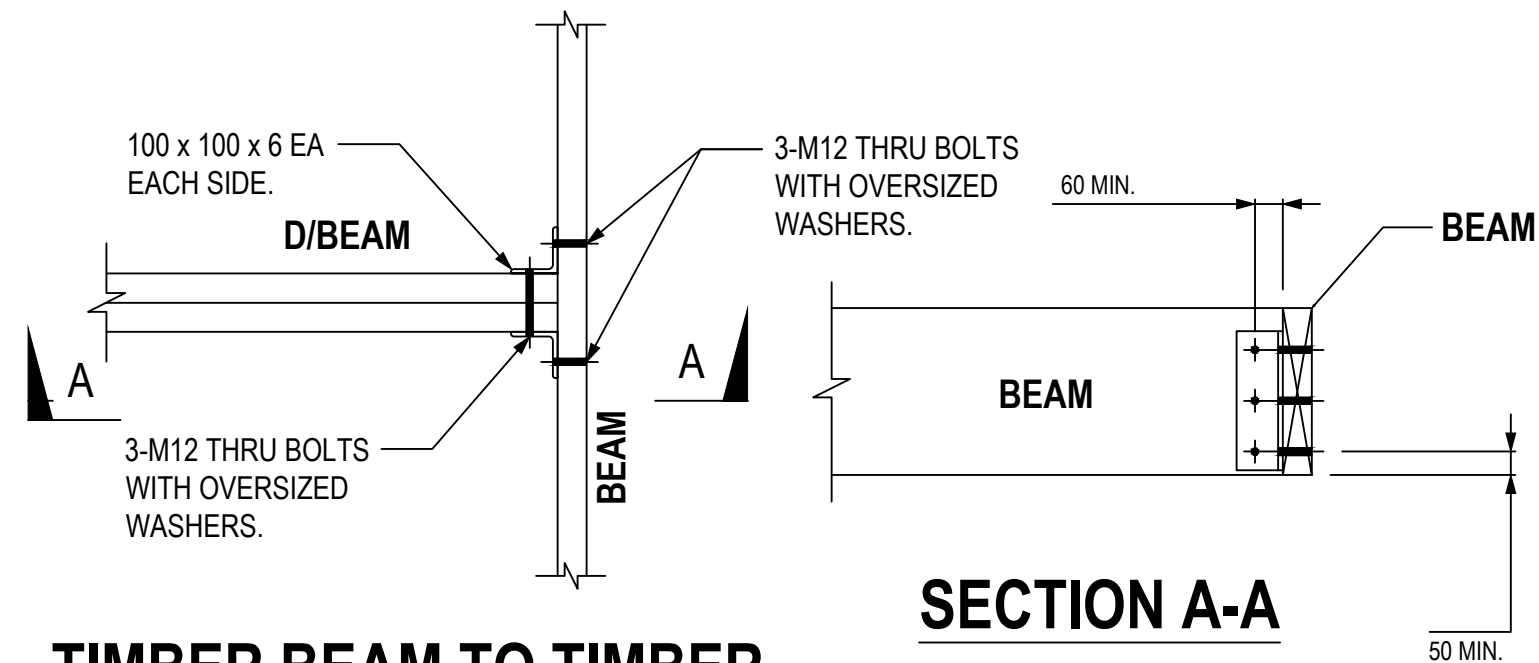


STEEL BEAM TO STEEL BEAM DETAIL

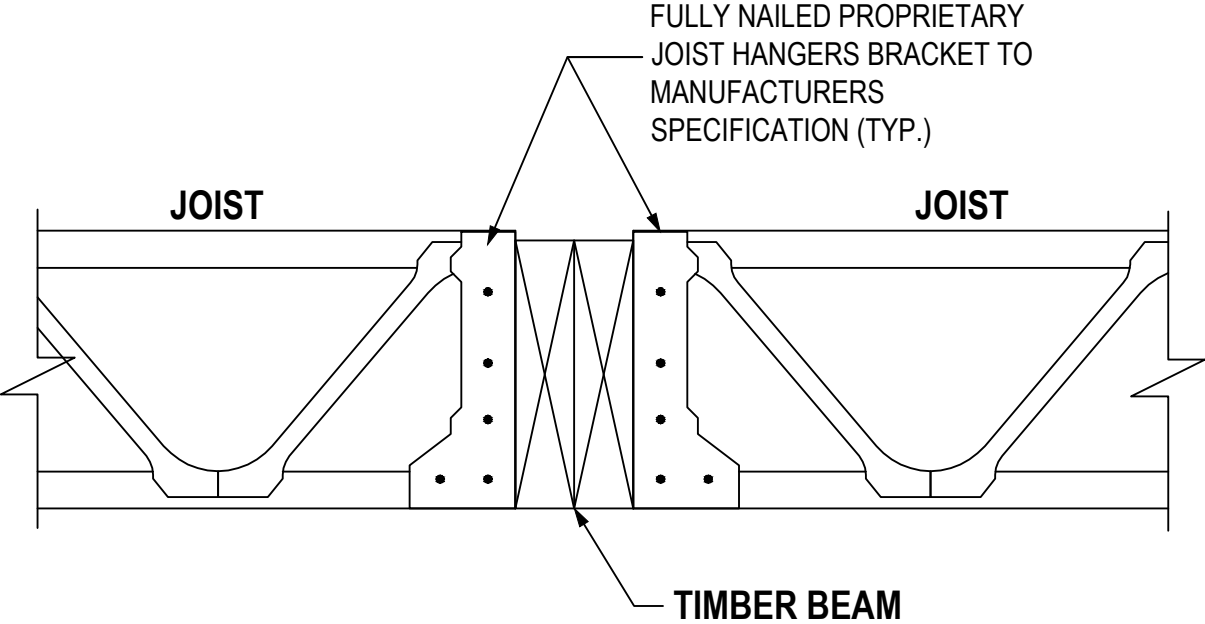
TYPICAL MEMBER JOINT DETAIL 3 - NTS



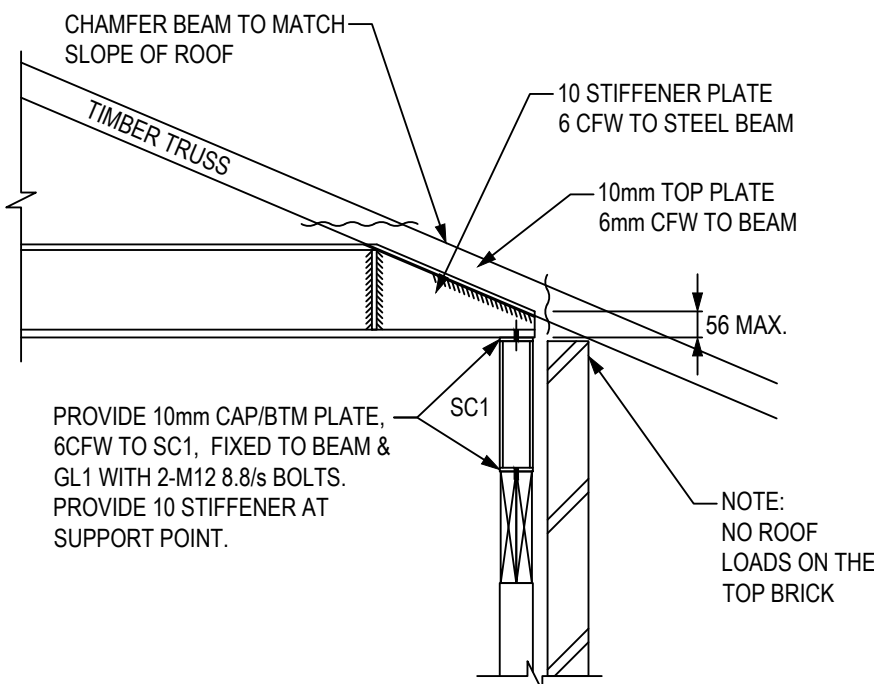
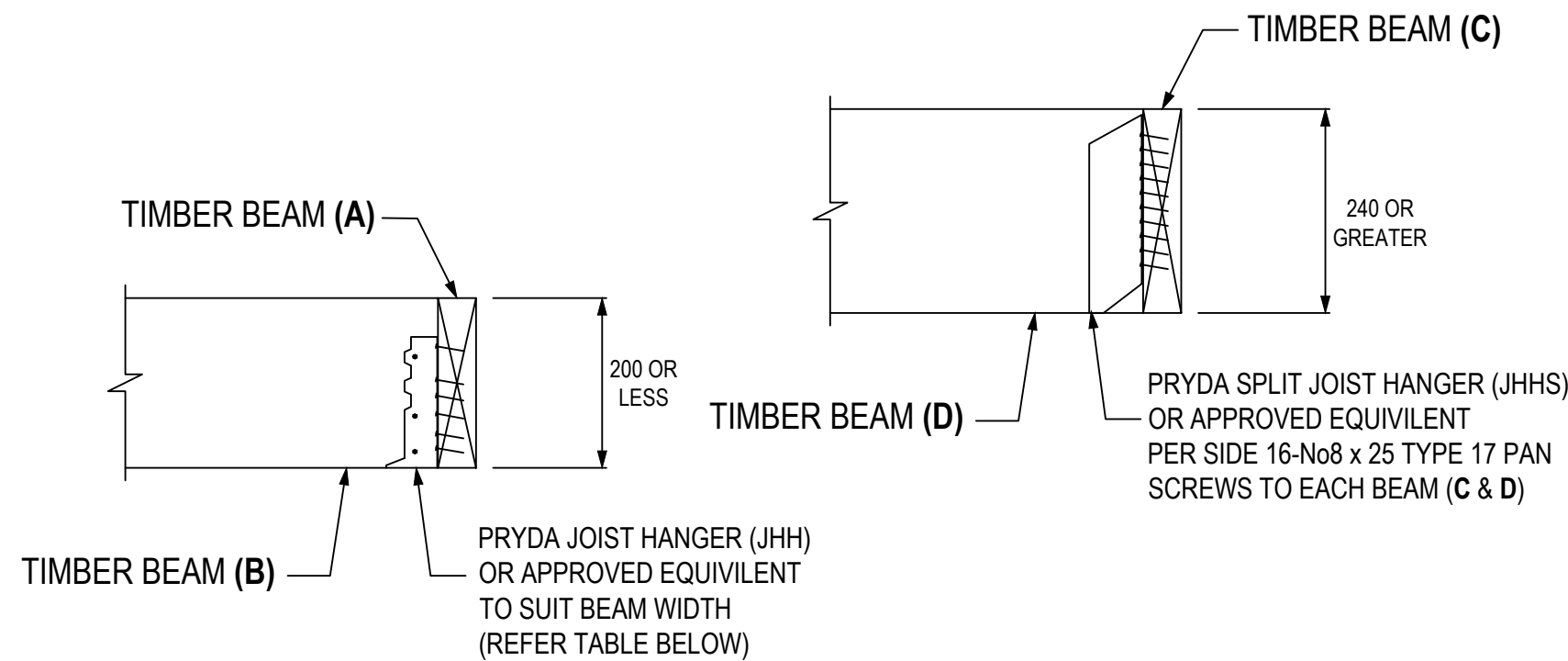
TYPICAL MEMBER JOINT DETAIL 4 - NTS



TIMBER BEAM TO TIMBER BEAM CONNECTION DETAIL



FLOOR JOIST TO TIMBER BEAM CONNECTION DETAIL



BEAM/LINTEL TO STUB COLUMN DETAIL

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