

GENERAL

- STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION, CIVIL AND ENGINEERING SERVICES DOCUMENTS.
- UNLESS OTHERWISE NOTED, ALL LEVELS ARE METRES, AND ALL DIMENSIONS ARE IN MILLIMETRES.
- 3. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING FROM DRAWINGS.
- 4. ALL DISCREPANCIES SHALL BE REFERRED TO THE DESIGN ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
- 5. THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT NEW ZEALAND STANDARDS EXCEPT WHERE VARIED BY THE SPECIFICATION AND/OR DRAWINGS.
- WHERE PROPRIETRY PRODUCTS ARE SPECIFIED IN THE DOCUMENTS THE CONTRACTOR MUST SUBMIT ALL ALTERNATIVE PRODUCTS FOR APPROVAL IF WISHING TO CHANGE
- CONTRACTOR TO CHECK LOCATION OF EXISTING SERVICES PRIOR TO ANY EXCAVATION WORK. NOTIFY ENGINEER OF ANY CONFLICTS AND AWAIT APPROVAL BEFORE PROCEEDING.
- D&E INDICATES DRILL & EPOXY WITH EPCON C6 (UNLESS NOTED OTHERWISE).

CONCRETE

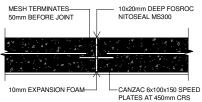
MINIMUM CONCRETE STRENGTHS SHALL BE AS FOLLOWS, UNLESS NOTED
 OTHERWISE ON DRAWINGS

ELEMENT	MPa
FOUNDATION	30
FLOOR	30
PRECAST	30

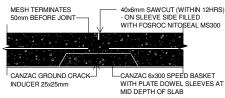
- 2. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES
- 3. CONSTRUCTION JOINTS WHERE NOT SHOWN ON DRAWINGS SHALL BE LOCATED TO THE APPROVAL OF THE FNGINEER.
- 4. NO PENETRATIONS, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN ON CONCRETE MEMBERS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRECAST UNITS FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
- 6. TOLERANCES AND FINISHES TO BE AS PER SPECIFICATION.
- 7. SCHEDULES OF SURFACE FINISHES: NZS3114:1987.

ELEMENT	FINISH
EXPOSED CONCRETE FACES OF ABUTMENTS AND PILES	F5
CONCEALED FOUNDATION SURFACES	U1
TOP SURFACES OF FOUNDATIONS BEAMS AND PADS	U3
VISIBLE FOUNDATION SURFACES	F5
CONCRETE NOT EXPOSED IN FINISHED STRUCTURE (FORMED)	F1
CONCRETE NOT EXPOSED IN FINISHED STRUCTURE (UNFORMED)	U3
ALL PRECAST SURFACES EXPOSHED IN THE FINISHED JOB	F5

*OFF A STEEL FORM



TYPICAL CONTROL JOINT DETAIL



TYPICAL SAWCUT DETAIL

PRECAST WALLS

 PROP WALLS FULLY DURING CONSTRUCTION UNTIL FOUNDATIONS REACH FULL STRENGTH.

REINFORCEMENT

1. REINFORCING DESIGNATION AS FOLLOWS:

NOTE: DH BARS ARE NOT TO BE REBENT .

SYMBOL	TYPE
R	PLAIN BARS GRADE 300 TO AS/NZS 4671 (300 MPa)
RH	PLAIN BARS GRADE 500 TO AS/NZS 4671 (500 MPa)
D	DEFORMED BARS GRADE 300 TO AS/NZS 4671 (300 MPa)
DH	DEFORMED BARS GRADE 500 TO AS/NZS 4671 (500 MPa)
M	MESH TO NZS 3422
RB	DEFORMED REIDBAR GRADE 500 MPa

 CLEAR COVER TO ALL REINFORCEMENT, INCLUDING STIRRUPS, TIES ETC SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE ON THE DRAWINGS AND SPECIFICATION.

NZS 3101:2006

EXPOSURE CLASSIFICATION (TABLE 3.1) = A2

(REF. - FIG. 3.1 (A) NZS 3101:2006 NORTH ISLAND) TAURANGA

TABLE 3.6 - MINIM	ECIFIE	D INTE	NDED	LIFE C	F 50					
EXPOSURE	CEMENT	SPEC		OMPR	ESSIVE	STRE	NGTH	(MPa)		
CLASSIFICATION	BINDER TYPE	25	30	35	40	45	50	60-100		
MINIMUM REQUIRED CO						COVE	/ER (mm)			
A1	GP, GB OR HE	25	20	20	20	20	20	20		
A2	GP, GB OR HE	35	30	30-	25	25	25	20		
B1	GP, GB OR HE	40	35	35	30	30	30	25		
B2	GP, GB OR HE	-	45	40	35	30	30	25		
C (I)	30 % FA	-	-	-	60	60	60	55		
C (I)	65 % GBS	-	-	-	-	50	50	50		
C (I)	8 % MS	-	-	-	-	60	50	50		

NOTE:

FOR ZONE C THE TOTAL BINDER CONTENT SHALL BE EQUAL TO OR GREATER THAN $350 \, kg/m^3$ AND WATER TO BINDER RATIO SHALL NOT EXCEED 0.45 THE MINIMUM COVER FOR THE C ZONE SHALL BE 50mm

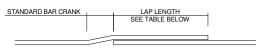
3.11.3.3 CASTING AGAINST GROUND:

WHERE CONCRETE IS CAST ON OR AGAINST GROUND AND COMPACTED IN ACCORDANCE WITH NZS 3109, THE MINIMUM COVER FOR A SURFACE IN CONTACT WITH THE GROUND SHALL BE 75MM, OR 50MM IF USING A DAMP-PROOF MEMBRANE BETWEEN THE GROUND AND THE CONCRETE TO BE CAST.

 NO REINFORCEMENT SPLICES SHALL BE MADE OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER

REINFORCEMENT LAPS IN CONCRETE TO COMPLY WITH THE TABLE BELOW: SPLICE LAP LENGTHS FOR DEFORMED BARS (IN MM) NZS3101:2006 8.6.3 (EQN 8.2).

ΙΔPS

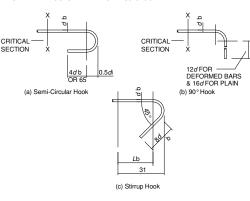


LAP LENGTHS

HOOK BARS	12 Ø
D BARS	40 Ø
DH BARS	50 Ø

THE DEVELOPMENT OF PLAIN BARS SHALL RELY ON HOOKS.

- 4. EPOXY GROUTING OF REINFORCING BARS INTO CONCRETE: HOLES FOR VERTICAL BARS SHALL BE VERTICAL HOLES FOR HORIZONTAL STARTERS SHALL SLOPE DOWN AT 15 DEGREES.
- 5. WELDING OF REINFORCEMENT IS NOT PERMITTED.
- TOP AND BOTTOM REINFORCEMENT IN SLABS SHALL BE ADEQUATELY SUPPORTED TO ENSURE ALL REINFORCEMENT STAYS IN PLACE DURING CONCRETE POURING.
- STANDARD HOOKS AND BENDS. NZS3101:8.6.



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CHIRAG PATEL WALLACE project title drawn Development project date 01/02/2017 1333 Cameron Road scale @A3 \bigcap MEGA DEVELOPMENT issue date 01/02/2017 Tauranga ALL DIMENSIONS TO BE VERIFIED ON SITE 1046 sheet S01-01 rev R0 Company Limited Structural Notes drawing title

ALL DIMENSIONS ARE FROM OUTSIDE TO OUTSIDE OF BARS EXCEPT RADII WHICH ARE TO INSIDE OF BAR.. 'd' DENOTES BAR DIAMETER.

	MINIMUM FORMER	PIN DIAMETER (mm)						
BAR SIZE	MAIN STEEL	STIRRUPS AND TIES GRADE 300/500							
BAR SIZE	GRADE 300/500	PLAIN ROUND	DEFORMED						
6	30	12	24						
10	50	20	40						
12	60	24	48						
16	80	32	64						
20	100	40	80						
24	144	72	144						
32	192	96	192						
40	240	120	240						

TABLE 8.1 & 8.2 NZS3101:2006

NOTE: FOR STIRRUPS AND TIES, WHERE THE MAIN BAR SIZE IS GREATER THAN THE MINIMUM FORMER PIN DIAMETER, THE MAIN BAR SIZE WILL GOVERN.

STANDARD BAR CRANK.



WHEN MAIN BARS ARE OFFSET. i.e. FOR CRANKED LAPS, THE SLOPE OF THE INCLINE PORTION OF THE BAR SHALL NOT EXCEED 1 IN 6.

REINFORCING SPIRAL FOR CONCRETE POLES MUST HAVE ONE FULL TURN PLUS WELDED TERMINATOR AT EACH END AND WHEN SPLICED.

STRUCTURAL STEEL

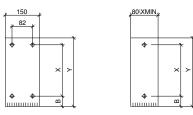
1. STEEL MEMBERS SHALL BE THE FOLLOWING GRADES U.N.O.

<u>MEMBER</u>	GRADE
UB'S, UC'S, PFC'S & ANGLES (125 X 125 OR LARGER)	300
RHS, SHS, CHS	350

- ALL COLD FORMED SECTIONS INCLUDING COLD ROLLED PURLINS TO CONFORM TO AS 1538 AND SHALL HAVE A MINIMUM YIELD STRESS OF 450
- THE ENDS OF ALL HOLLOW SECTIONS SHALL BE SEALED WITH 5mm MIN. STEEL PLATE, STEEL WELDED U.N.O.
- ALL PLATES & CLEATS SHALL BE GRADE 250 U.N.O
- ALL HOLDING DOWN BOLTS AND OTHER FIXING DEVICES SHALL HAVE A MINIMUM YIELD STRESS OF 300 MPa UNLESS NOTED OTHERWISE
- ALL DRY PACK MORTAR / GROUT SHALL HAVE A COMPRESSIVE STRENGTH OF AT LEAST 30 MPa
- SURFACE PREPARATION AND CORROSION PROTECTION OF STEELWORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATION. ANY DAMAGE TO THE PROTECTIVE COATING OF STEELWORK SHALL BE MADE GOOD
- BOLTS:
 - BOLTS AND NUTS SHALL BE GRADE 8.8 STEEL TO AS 1252:ISO METRIC HIGH STRENGTH STEEL PLTS U.N.O. ALL BOLTED CONNECTIONS SHALL BE GRADE 8.8/S CONNECTIONS U.N.O.
 - EDGE AND END DIST 2D PITCH DISTANCES 2.5D 8.3.

 - GAUGE DISTANCES 70, 90, 140 AS PER AISC. U.N.O ALL BOLTS SHALL HAVE AT LEAST ONE WASHER WHICH SHALL BE NOT LESS THAN TWICE THE NOMINAL BOLT SIZE IN DIAMETER.
 - THE BOLTS SHALL BE SELECTED SO THAT THE PROJECTION BEYOND THE NUT IS NOT LESS THAN TWO THREADS AND NOT MORE THAN
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL STEELWORK FOR APPROVAL PRIOR TO THE COMMENCEMENT OF WORK
- 10. MILL CERTIFICATES SHALL BE PROVIDED TO THE ENGINEER FOR ALL STEELWORK USED IN THIS CONTRACT.
- - HOLES FOR BOLTS SHALL BE DRILLED OR PUNCHED AND NOT GAS CUT. 11.1.
 - 11.2. COMMON DETAILING CRITERIA:
 - 11.3. STANDARD HOLES
 - SLOTTED HOLES
 - D-2mm WIDE AND 2.5 LONG 133D (FABRICATED WASHER) 11.6. 1,22D (STANDARD WASHER)
- 12. WELDS:
- ALL WELDED CONNECTIONS SHALL BE OF SP GRADE METAL ARC AS SHOWN ON THE DRAWINGS.
- 12.2. ALL WELDING SHALL COMPLY WITH AS1554:PART 1 "WELDING OF STEEL STRUCTURES U.N.O.
- WELDS EXPOSED IN THE COMPLETED BUILDING AND IN PARTICULAR 12.3. BUTT WELDS SHALL BE NEATLY FINISHED AND GROUND SMOOTH. ALL BUTT WELDS SHALL BE FULL PENETRATION, USING BACKING
- 12.4. PLATES AS REQUIRED.
- 12.5 WELDING OF HOLLOW SECTIONS SHALL INCORPORATE INTERNAL SECTIONS OR BACKING PLATES AS NECESSARY TO COMPLETE THE SPECIFIED WELD.
- ALL FILLET WELDS TO BE 6mm FILLET WELD ALL ROUND U.N.O. 12.6
- - WHERE HERA CONNECTIONS SPECIFIED CONTRACTOR TO BE ABLE TO ACCESS HERA CONNECTIONS INFORMATION INDEPENDENTLY.

14. STANDATD DHS DETAILS:

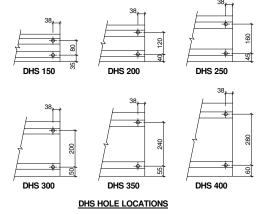


CLEATS AT INTERNAL
SUPPORTS

CLEATS AT END SUPPORTS

DHS PURLIN	DIMENSIONS						
DOS PURLIN	В	Х	Y				
150/12 AND 15	41	80	150				
200/12, 15 AND 18	48	120	200				
250/13, 15 AND 18	53	160	250				
300/15 AND 18	60	200	300				
350/18	65	240	340				
400/20	70	280	380				

CLEAT DIMENSIONS



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CHIRAG PATEL WALLACE project title drawn Development project date 01/02/2017 1333 Cameron Road scale @A3 OMEGA DEVELOPMENT issue date 01/02/2017 Tauranga ALL DIMENSIONS TO BE VERIFIED ON SITE 1046 sheet S01-02 rev R0 Structural Notes drawing title

3 Structure 3.14.13 150mm PC PANEL WITH 15 mm CHAMFERS TO ALL EXPOSED EDGES REFER TO STRUCTURAL DRAWINGS F1 500 X 500 30Mpa GROUND BEAMS F2 750 X 500 30Mpa GROUND BEAMS F5 S02-02 3.14.13 F2 44 7 F24 \$ 124 3560 3.14.13 . 1, 1 ∧ F1 ∧ G S02-02/ 4450 500-F2. 4 4 F2 G F2 2 3.14.13 Foundation Plan 1:100 © This drawing is copyright Omega Engineering Consultants Ltd CHIRAG PATEL project date 01/02/2017 WALLACE project title drawn Development 1333 Cameron Road Tauranga

OMEGA

DEVELOPMENT

scale

Foundation Plan

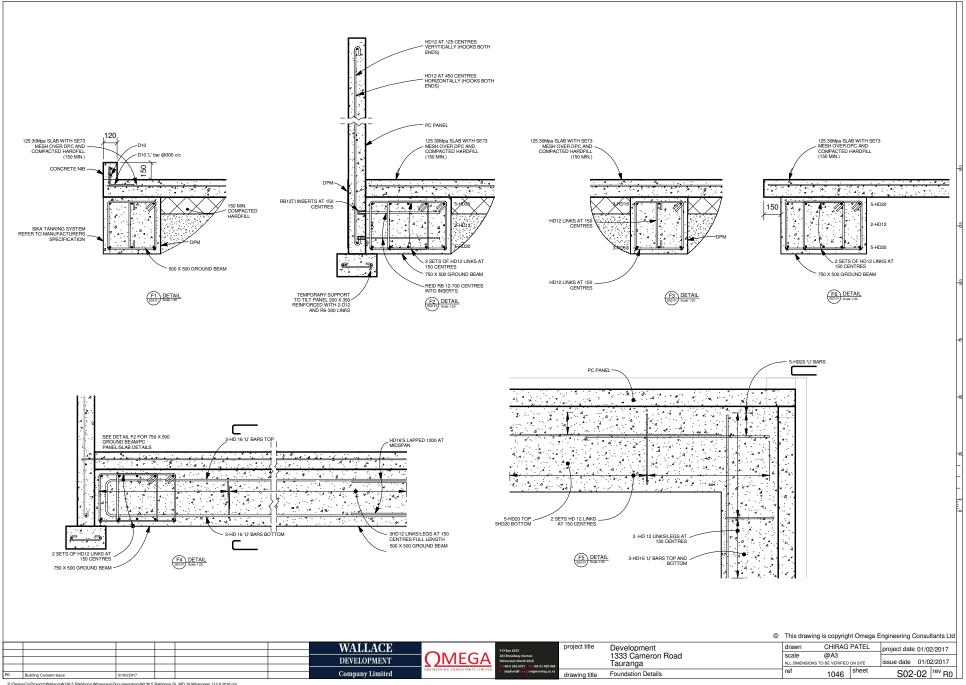
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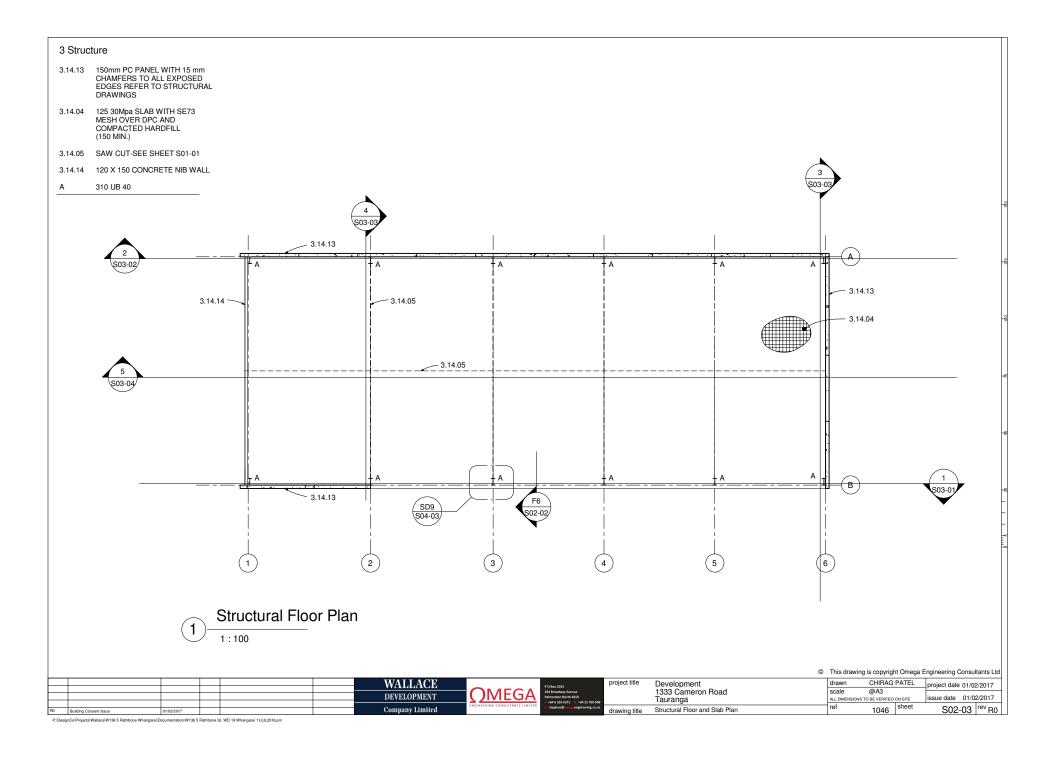
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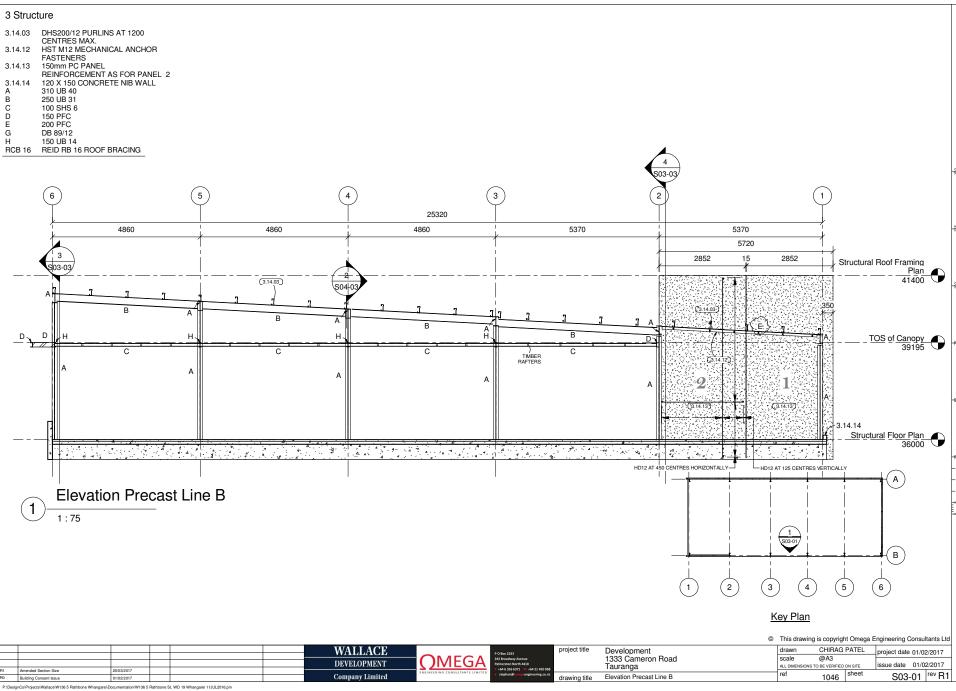
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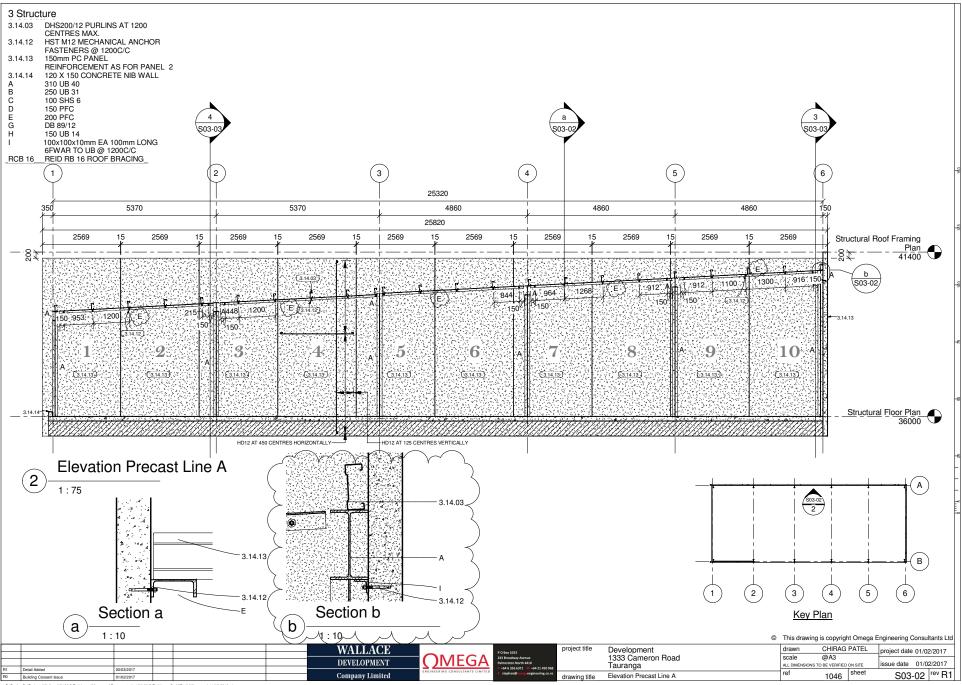
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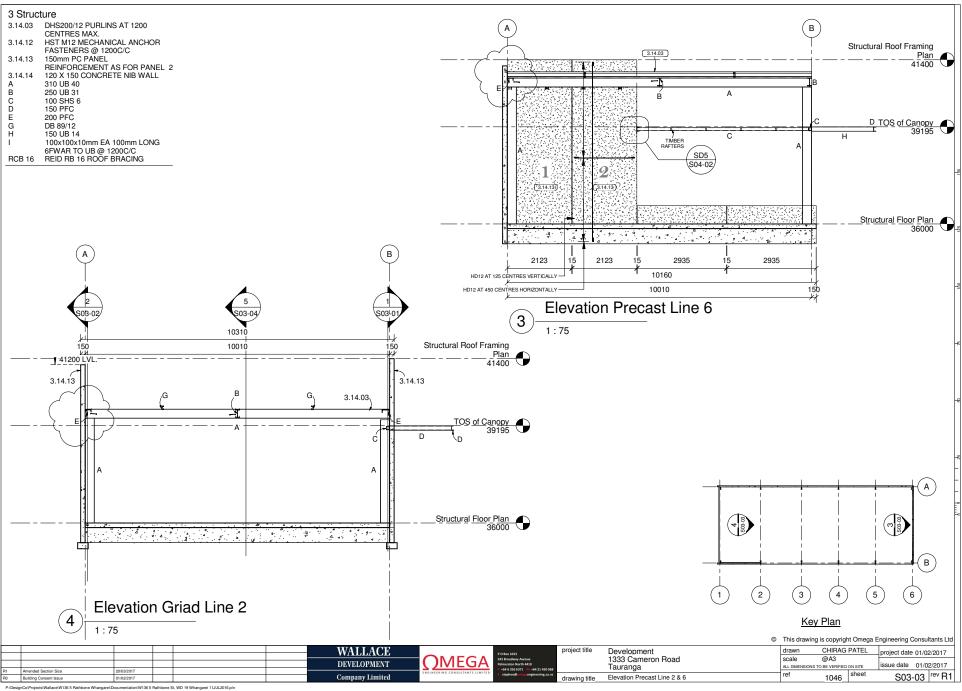
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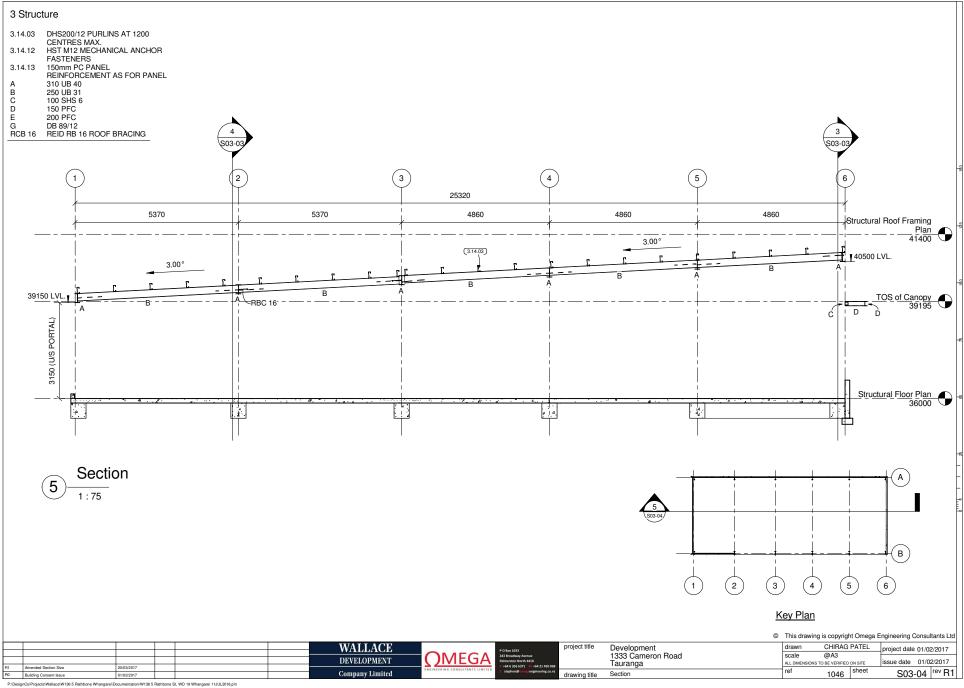










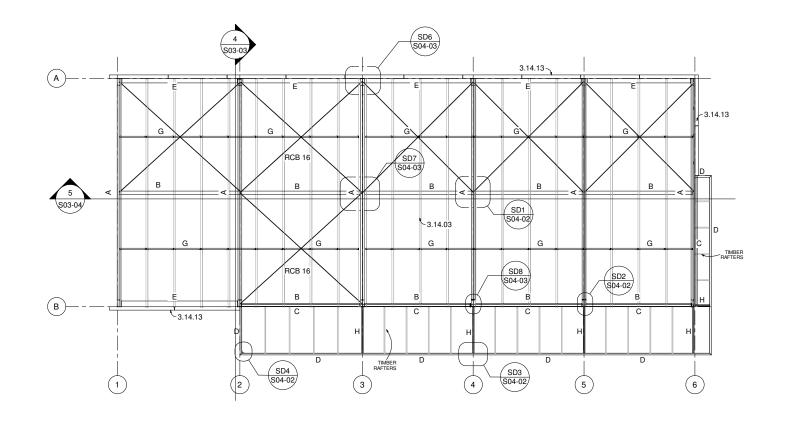


3 Structure

3.14.03 DHS200/12 PURLINS AT 1200 CENTRES MAX. 3.14.12 HST M12 MECHANICAL ANCHOR

FASTENERS
3.14.13 150mm PC PANEL
REINFORCEMENT AS FOR PANEL 2

HEINFORCEMENT AS FOR PA A 310 UB 40 B 250 UB 31 C 100 SHS 6 D 150 PFC E 200 PFC G DB 89/12 H 150 UB 14 RCB 16 REID RB 16 ROOF BRACING



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\vdash				DEVELOPMENT	$\bigcap MFG\Delta$	243 Broadway Avenue		1333 Cameron Road	scale	@A3	, ,
R1	Amended Section Size	20/03/2017		700 PM - 100 PM	ENGINEERING CONSULTANTS LIMITED	P +64 6 356 6371 M +64 21 450 068		Tauranga	ALL DIMENSION	IS TO BE VERIFIED ON SITE	issue date 01/02/2017
R0	Building Consent Issue	01/02/2017		Company Limited		E stephen@omegaengineering.co.nz	drawing title	Roof Plan	ret	1046 Sneet	S04-01 rev R1

