

CLIENT:



Government Of Nepal  
Department Of Education  
Sanothimi, Bhaktapur, Nepal

DONOR:



Japan International Cooperation Agency

PROJECT:

# Emergency School Reconstruction Project

TYPE DESIGN:

1 Combine Medium Toilet Block for Male & Female  
Tc(M)



CONSULTANTS:



**ORIENTAL CONSULTANTS GLOBAL**  
Global Consulting for sustainable Development

Joint Venture



**MOHRI, ARCHITECTS & ASSOCIATES, INC**

**EWES** East West Engineering Service Pvt. Ltd.  
P. Box-8621, Bansbari, Kathmandu, Nepal. web: ewesnepal.com  
Tel: 9771-4373316, Fax: 4650203, email - hbgewe@gmail.com

JANUARY 2016

# 1COMBINE MEDIUM TOILET BLOCK FOR MALE AND FEMALE

## Tc(M)

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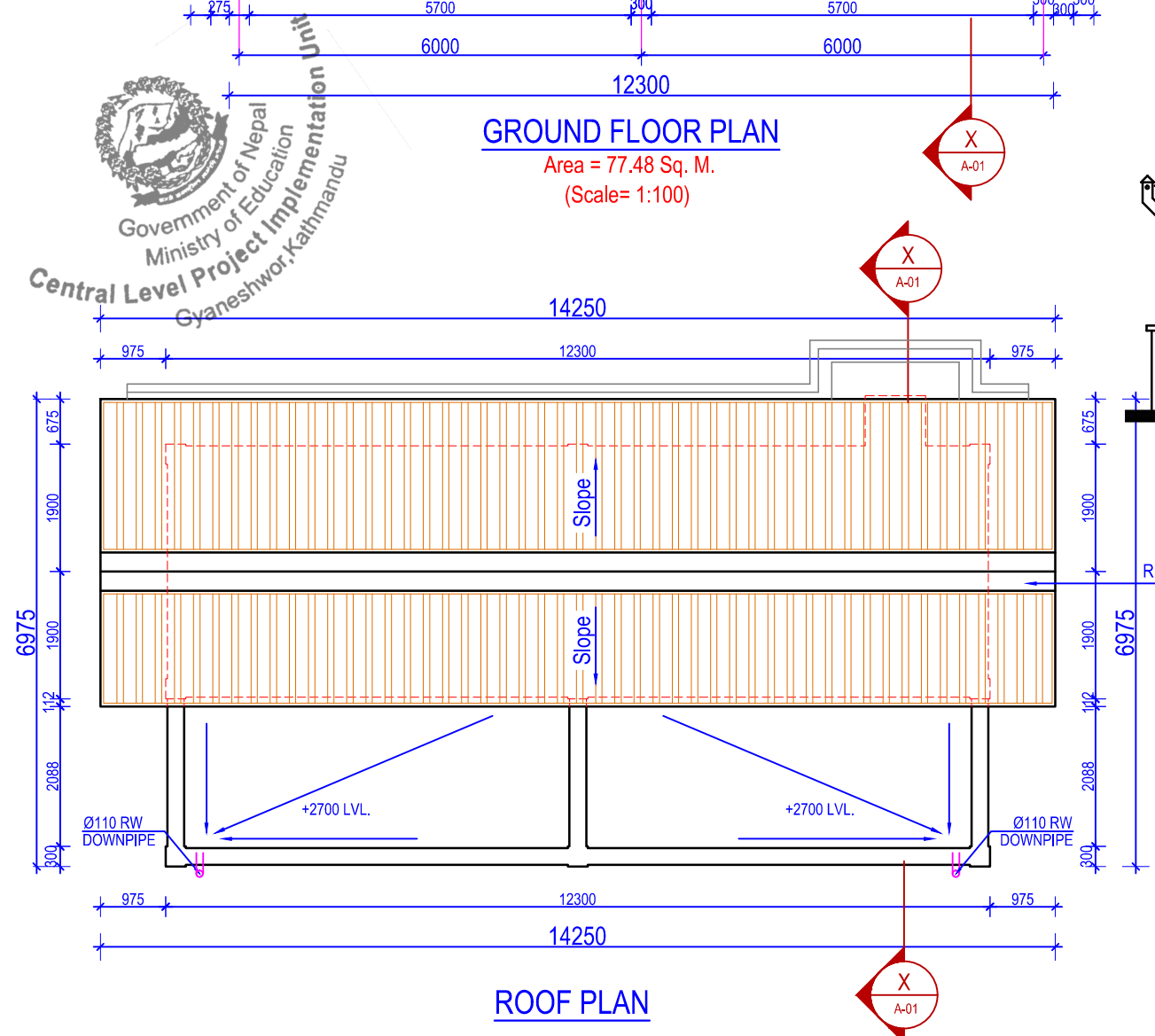
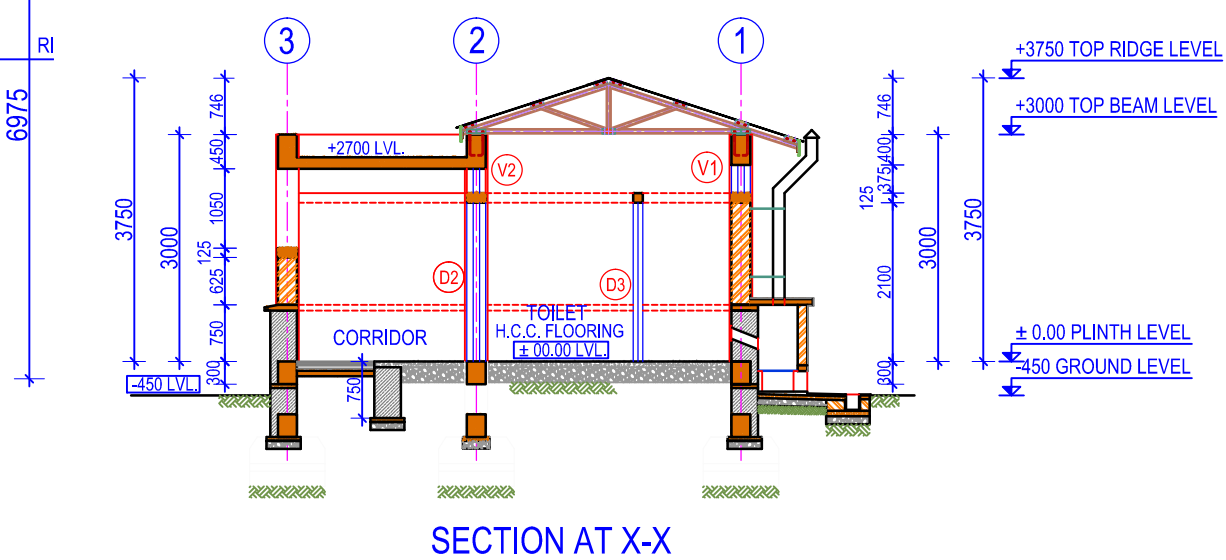
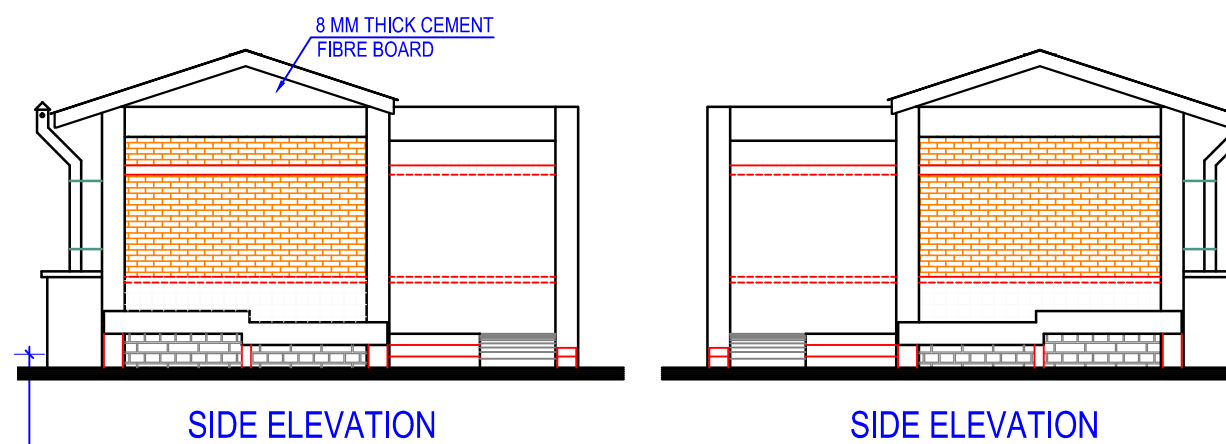
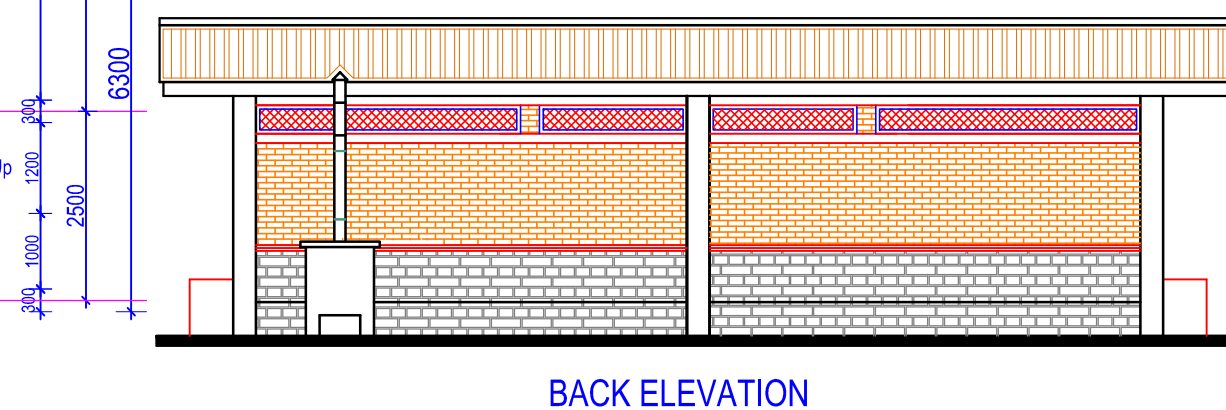
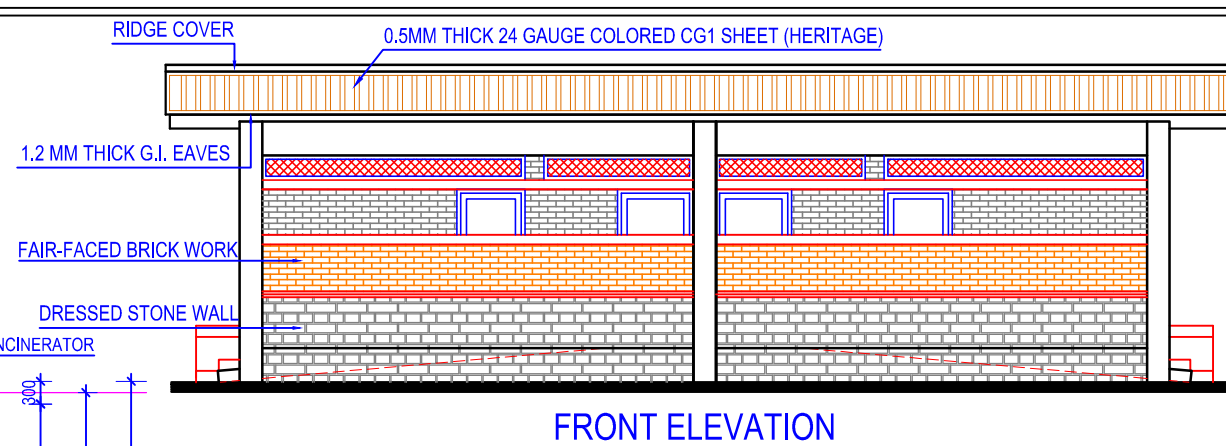
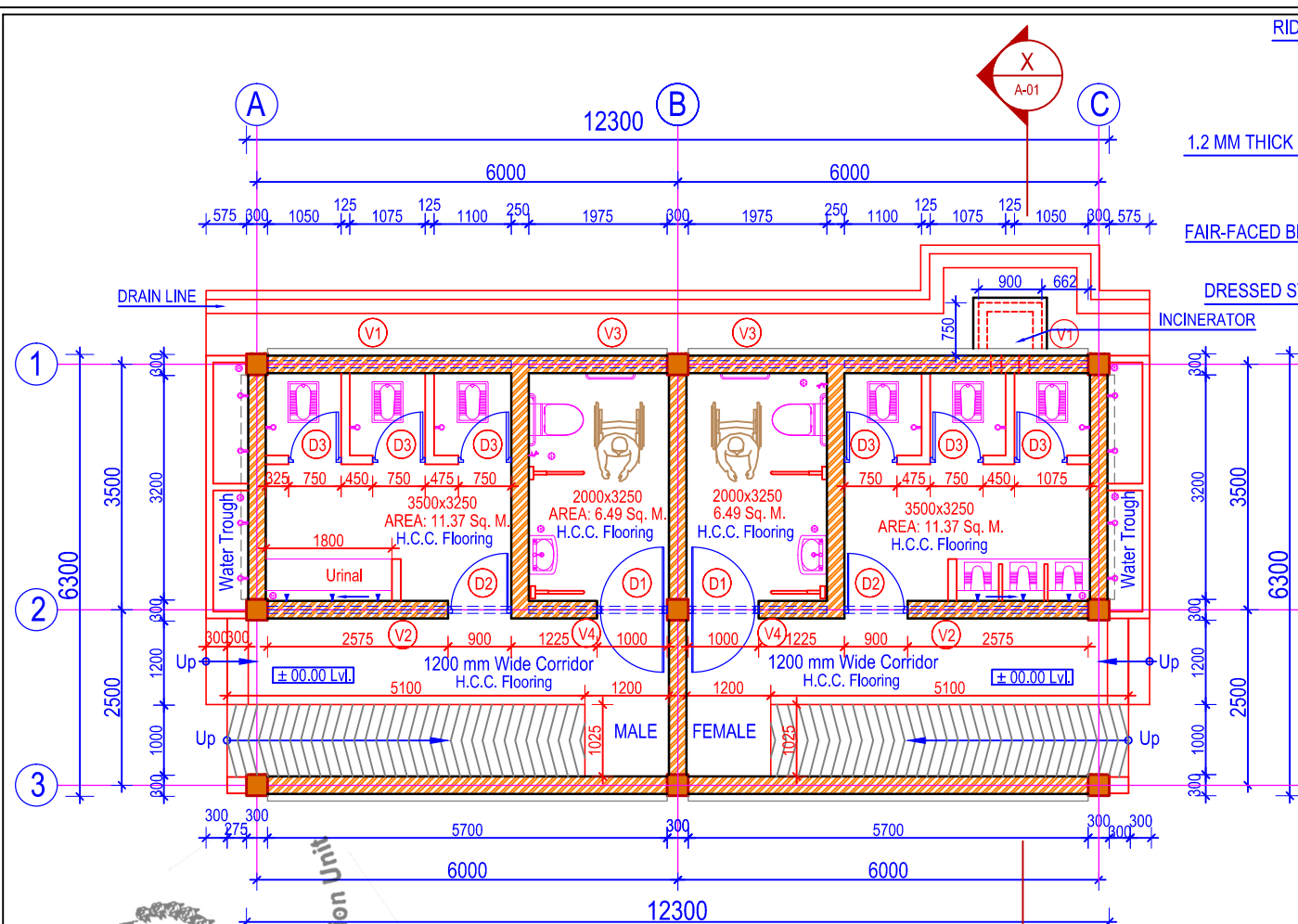
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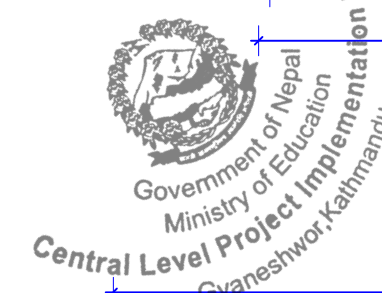
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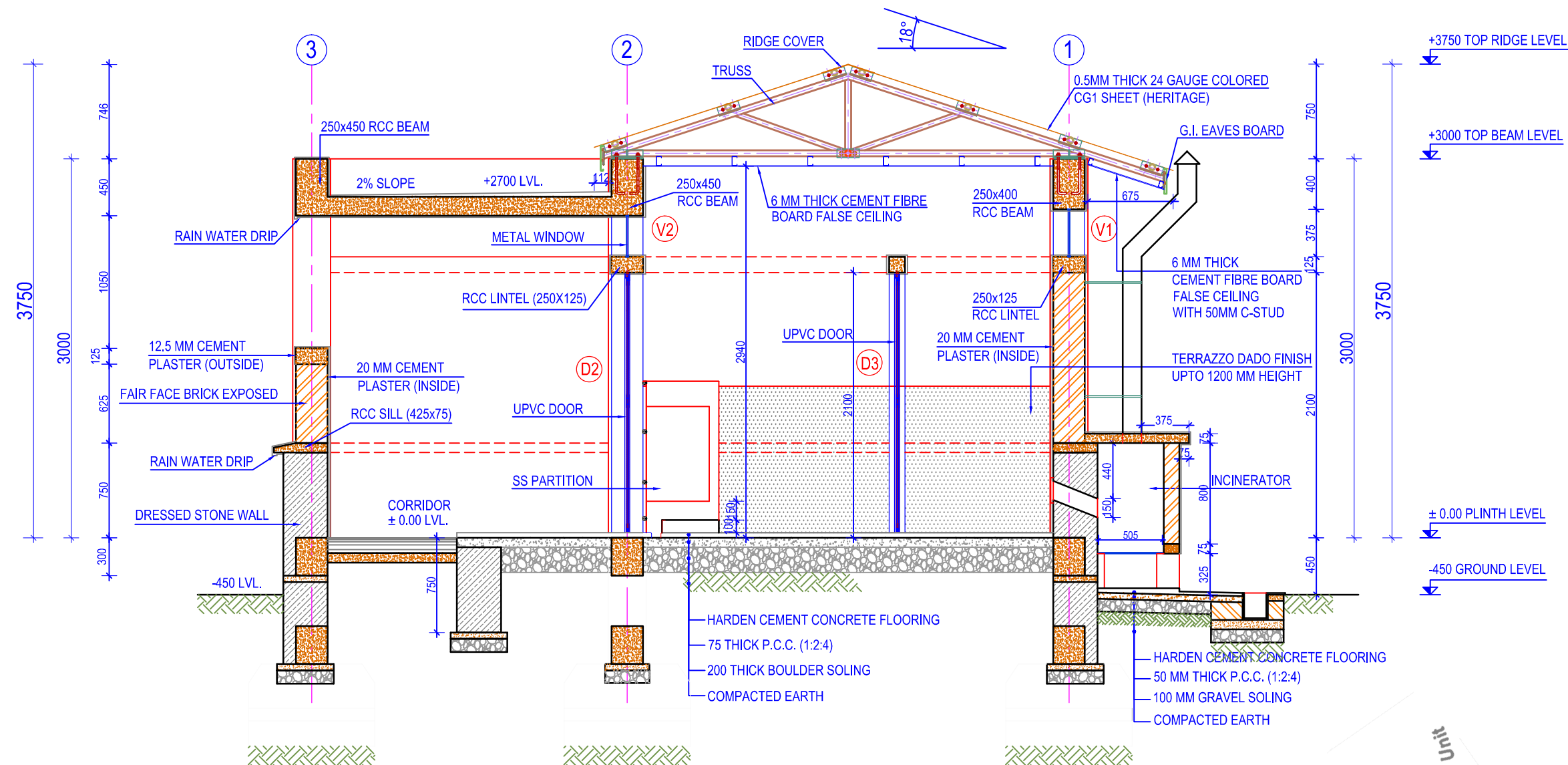
Mr. Tomoki Miyano	Mr. H.B. Gurung
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Mr. Wong Kuok Hung	Ms. M. Rana

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1 COMBINE MEDIUM TOILET BLOCK  
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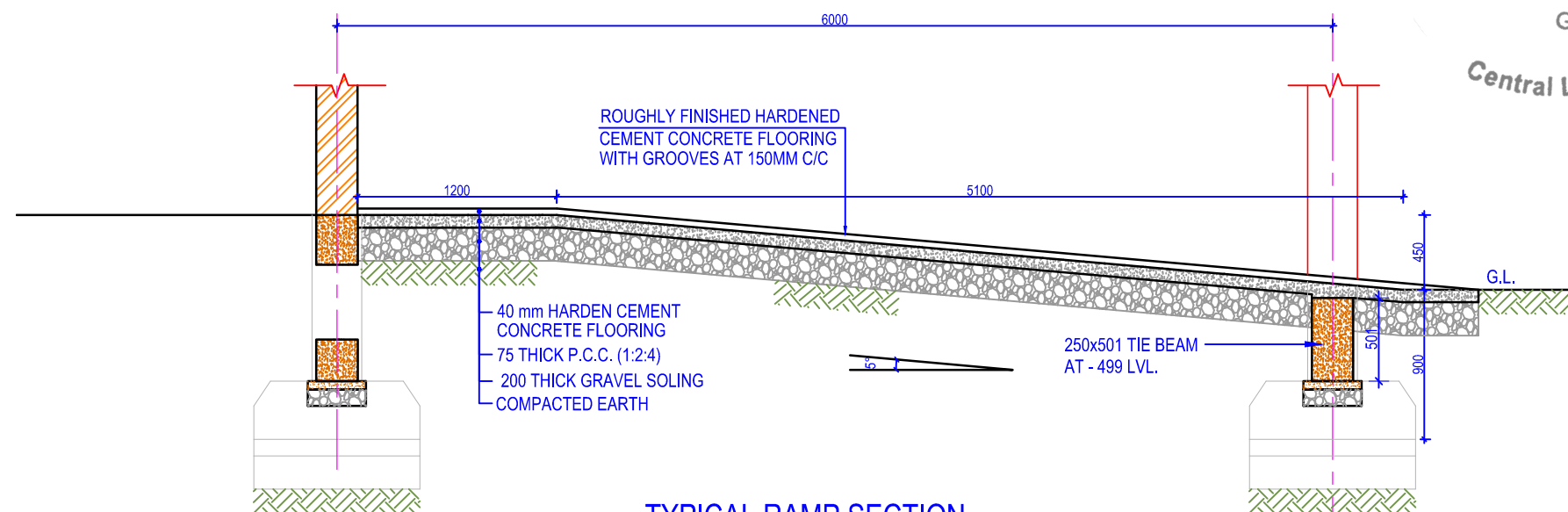
Sheet Title : FLOOR PLAN, ELEVATIONS & SECTION	Sheet No. <b>Tc(M)</b>
--	---------------------------

Date : September, 2016	<b>A-01</b>
Print Sheet : A'3' Size	





WALL SECTION AT X-X  
(Scale= 1:40)



TYPICAL RAMP SECTION  
(Scale= 1:40)



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Sheet Title :  
WALL SECTION & RAMP  
SECTION DETAIL

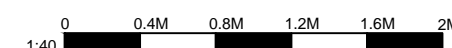
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Tc(M)

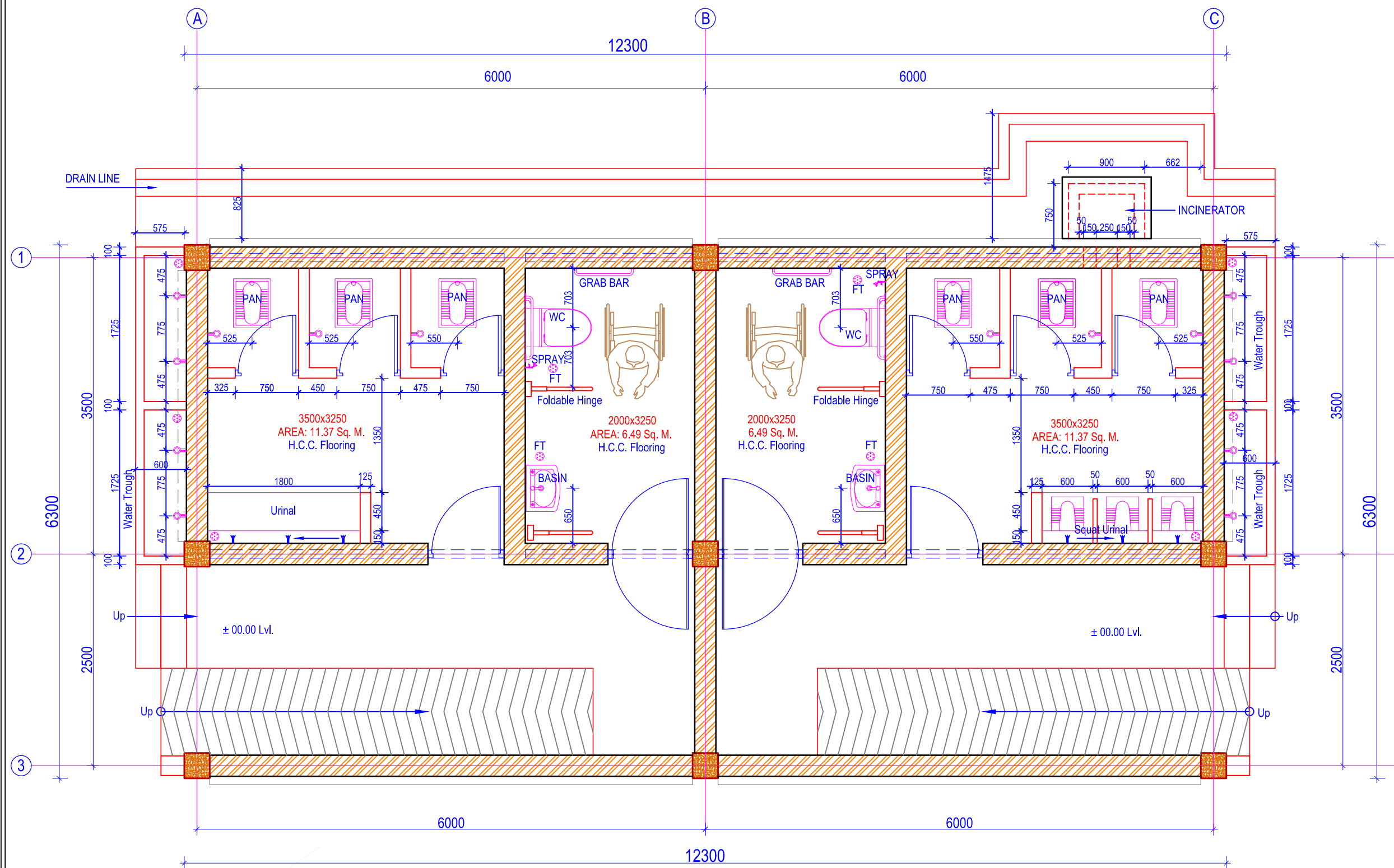
Date : September, 2016

Print Sheet : A'3' Size

A-02







**GROUND FLOOR PLAN**

(Scale= 1:50)



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Type Design :

**1 COMBINE MEDIUM TOILET BLOCK FOR MALE & FEMALE**

Sheet Title :  
**FLOOR PLAN BLOW UP**

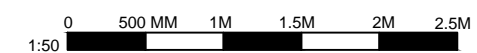
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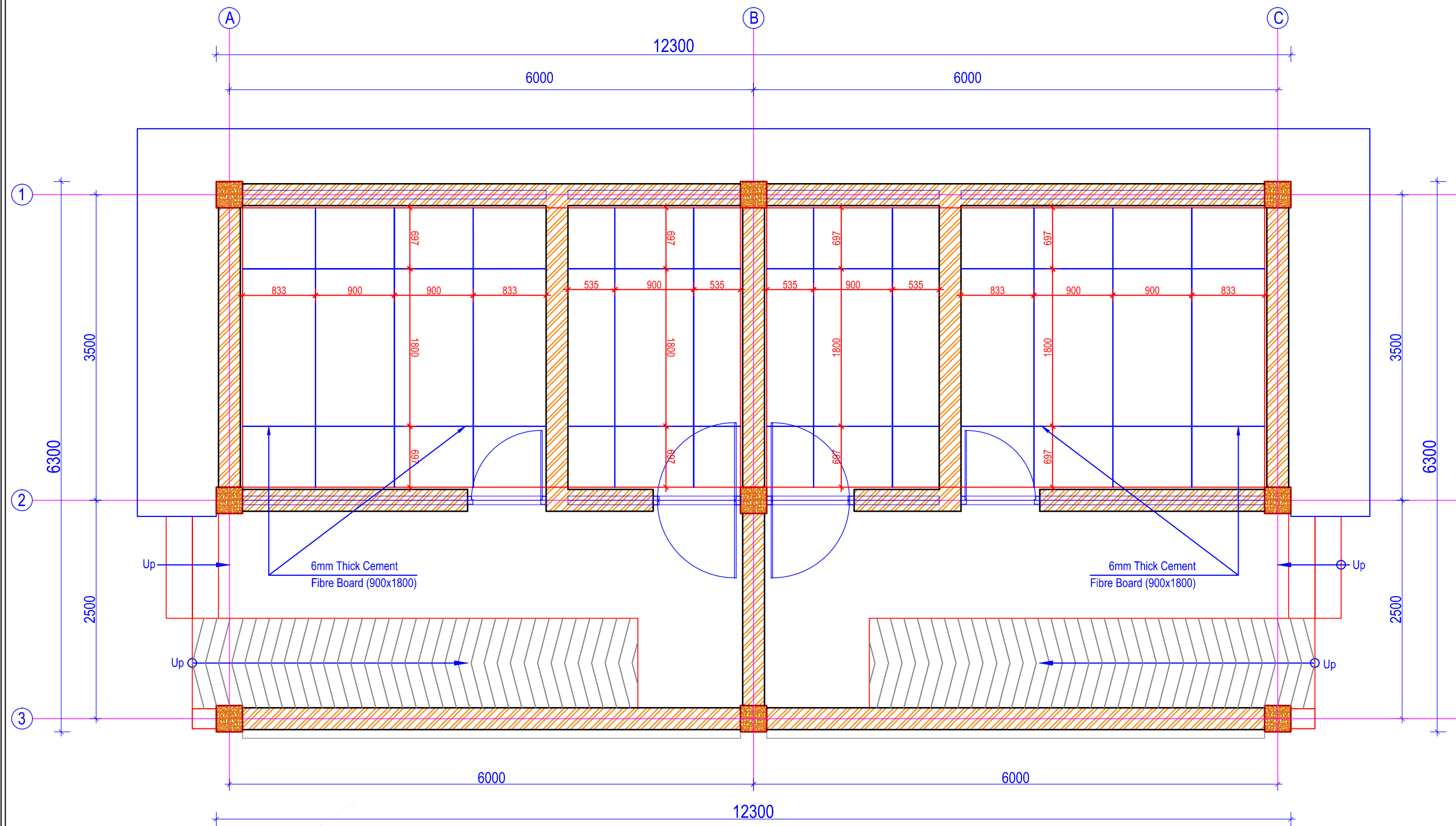
**Tc(M)**

Date : September, 2016

Print Sheet : A'3' Size

**A-03**





**FALSE CEILING PLAN**

(Scale= 1:50)



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Ms. M. Rana

Type Design :

**1 COMBINE MEDIUM TOILET BLOCK  
FOR MALE & FEMALE**

Sheet Title :

**FALSE CEILING PLAN**

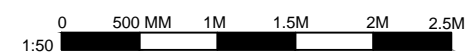
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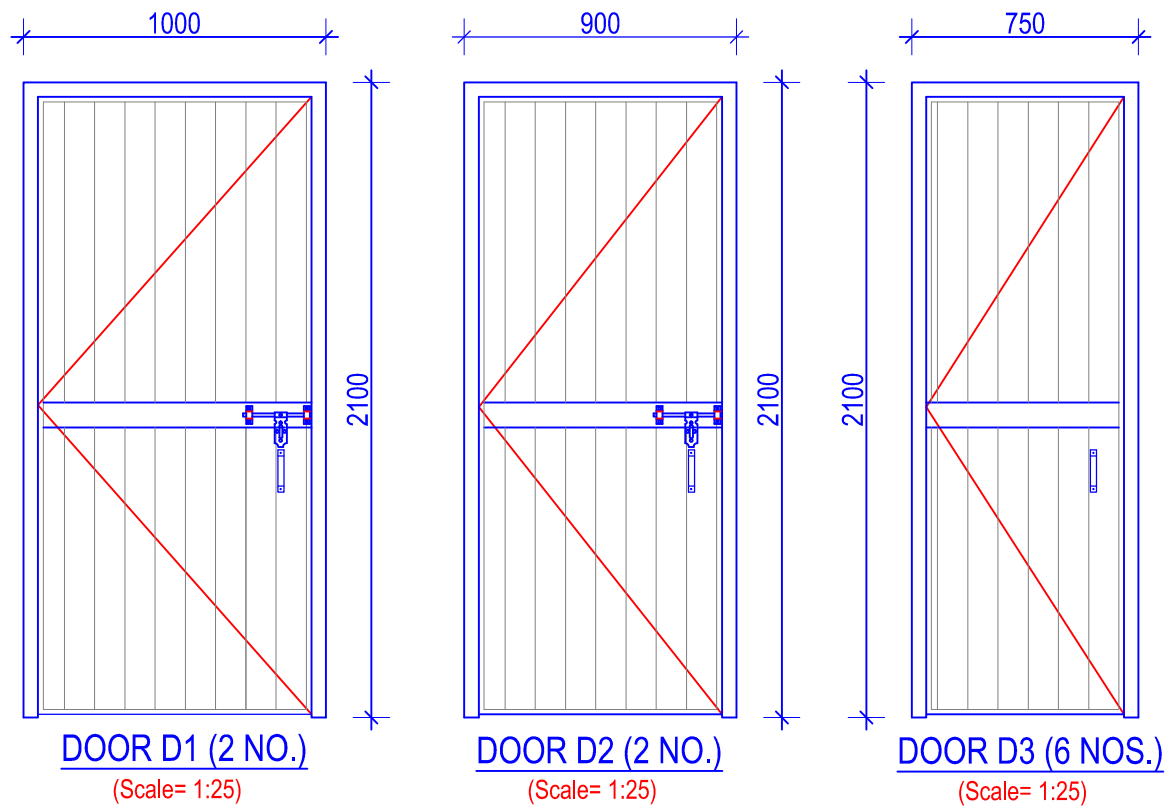
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Date : September, 2016

Print Sheet : A'3' Size

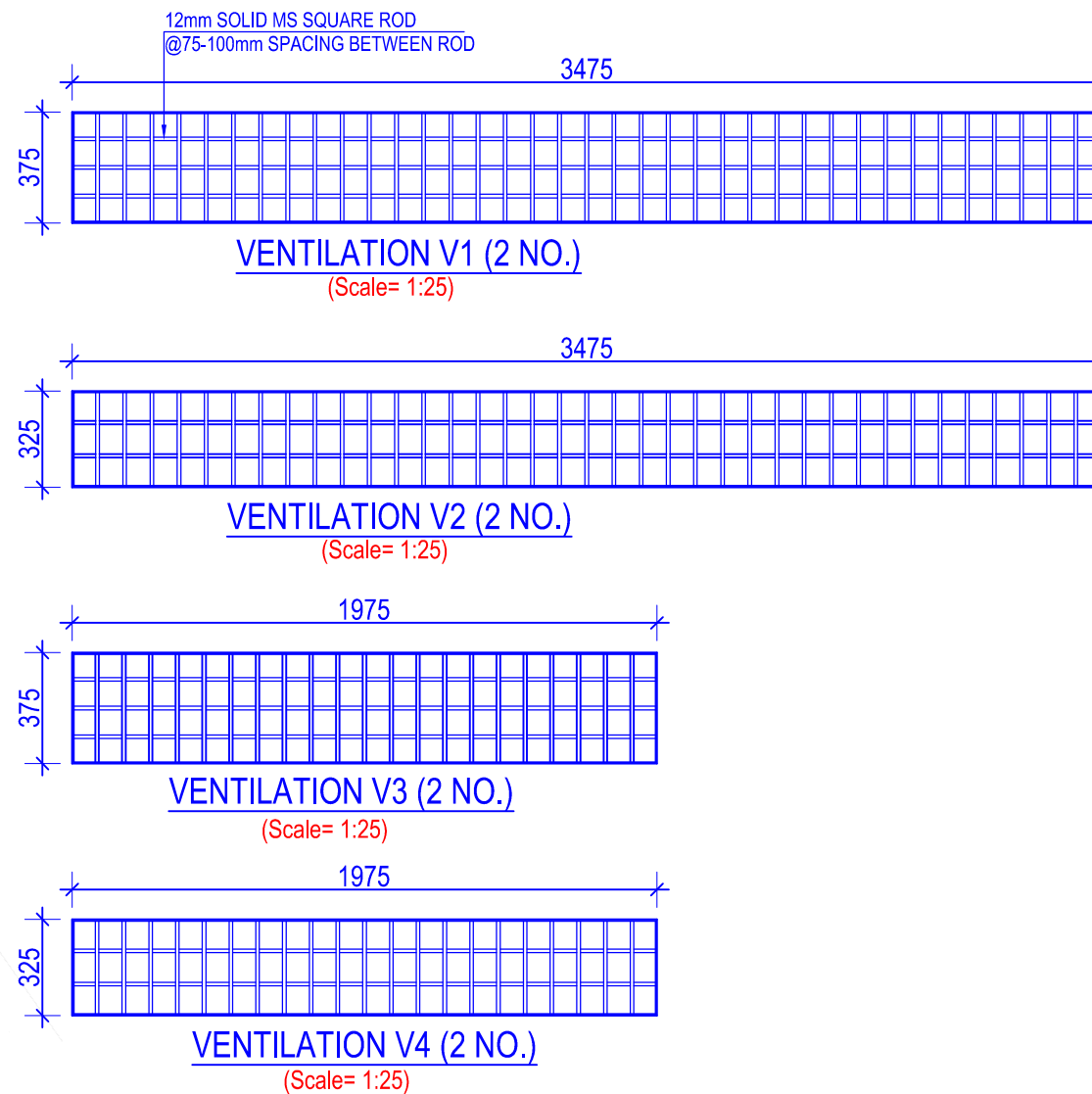
**A-04**





#### DOORS & WINDOWS SCHEDULE:

S.N.	SYMBOL	SIZES	NOS.	REMARKS
1.	V1	3475 x 375	2	MS Frame
2.	V2	3475 x 325	2	MS Frame
3.	V3	1975 x 375	2	MS Frame
4.	V4	1975 x 325	2	MS Frame
5.	D1	1000 x 2100	2	UPVC Frame & Shutter
6.	D2	900 x 2100	2	UPVC Frame & Shutter
7.	D3	750 x 2100	6	UPVC Frame & Shutter
TOTAL			18	



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Sheet Title :  
DOOR WINDOW DETAILS

Sheet No.  
Tc(M)

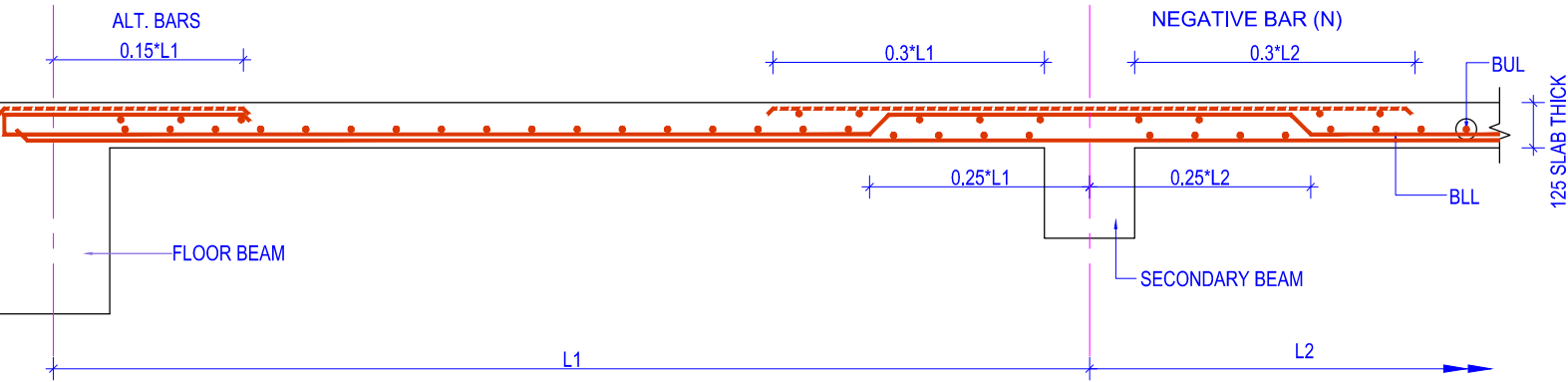
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Print Sheet : A'3' Size

A-05

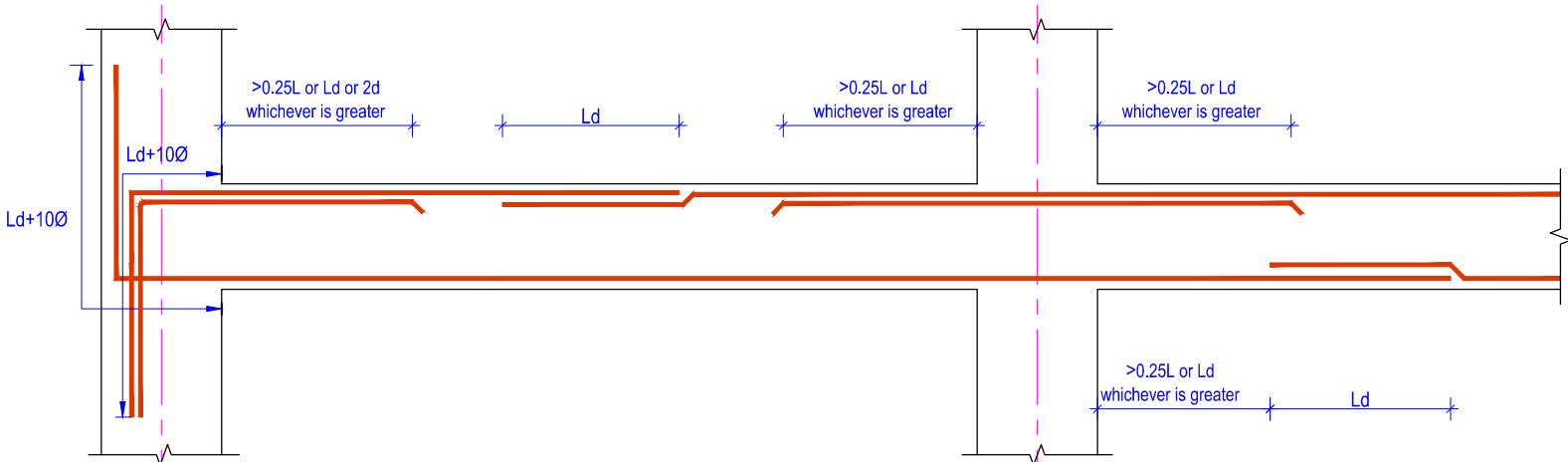
0 250 MM 500MM 750MM 1M 1.25M  
1:25

GENERAL NOTE:

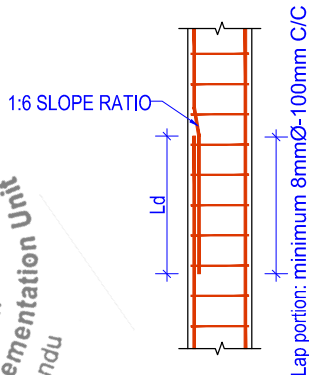
- 1. USE M20 (1:1.5:3) GRADE CONCRETE FOR SLAB, BEAM, COLUMN, FOUNDATION, SILL & LINTEL BANDS (ALL RCC WORKS)
- 2. USE Fe500 GRADE STEEL ( $f_y=500\text{N/mm}^2$ ) for stirrups Fe415 N/mm<sup>2</sup>
- 3. CLEAR COVER TO BARS
  - a. FOR CONCRETE MEMBERS IN CONTACT WITH SOIL = MIN 50mm
  - b. FOR LONGITUDINAL (VERTICAL) BARS IN COLUMN = 40mm
  - c. FOR MAIN BARS IN BEAMS = 25mm
  - d. FOR OUTER BARS IN SLAB = 20mm
- 4. BARS IN COLUMNS SHALL BE SPliced ONLY AT MID HEIGHT OF COLUMN AS PER DUCTILE DETAILING IS 13920- 2014
- 5. BARS SPlicing IN BEAM SHALL BE AVOIDED IN THE SPAN WHERE INTERMEDIATE BEAM IS CONNECTED AND SHALL BE ONLY AS SHOWN ON DWG.
- 6. DEVELOPMENT / LAP LENGTH ( $L_d$ ) FOR BARS.
- 7. TEMP./DISTRIBUTION REINFORCEMENT FOR SLAB - TMT 8Ø @ 150 C/C
- 8. CLEAR VERTICAL DISTANCE BETWEEN TWO ROWS (LAYERS) OF BARS=25mm.
- 9. PROVIDE SHEAR REINFORCEMENT AT 100 C/C AT LAP LOCATIONS.
- 10.  $H$  = CLEAR SPAN OF FLOOR.
- 11.  $h$  =  $H/6$  OR 450mm OR LARGER LATERAL DIMENSION OF THE MEMBER ,WHICHEVER IS GREATER.
- 12.  $Z$  = DEPTH OF BEAM.
- 13. STRUCTURAL STEEL SHALL HAVE STRENGTH  $F_y$  345MPa
- 14. FOUNDATION TYPE SHOULD BE DECIDED BY SITE CONDITION AFTER EXCAVATION OF FOUNDATION.
- 15. IF BEARING CAPACITY IS LESS THAN 50 kN/m<sup>2</sup>. FOUNDATION SHOULD BE RE-DESIGNED.
- 16. PROVIDE 2-16dia TORSION BARS IN 525mm DEEP BEAM



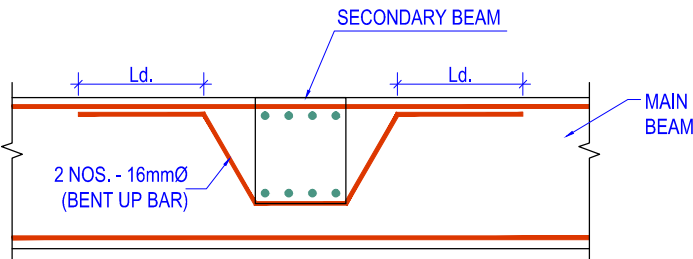
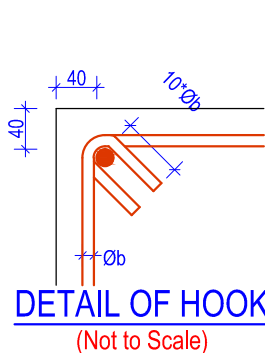
TYPICAL BENT-UP DETAIL FOR SLAB BARS



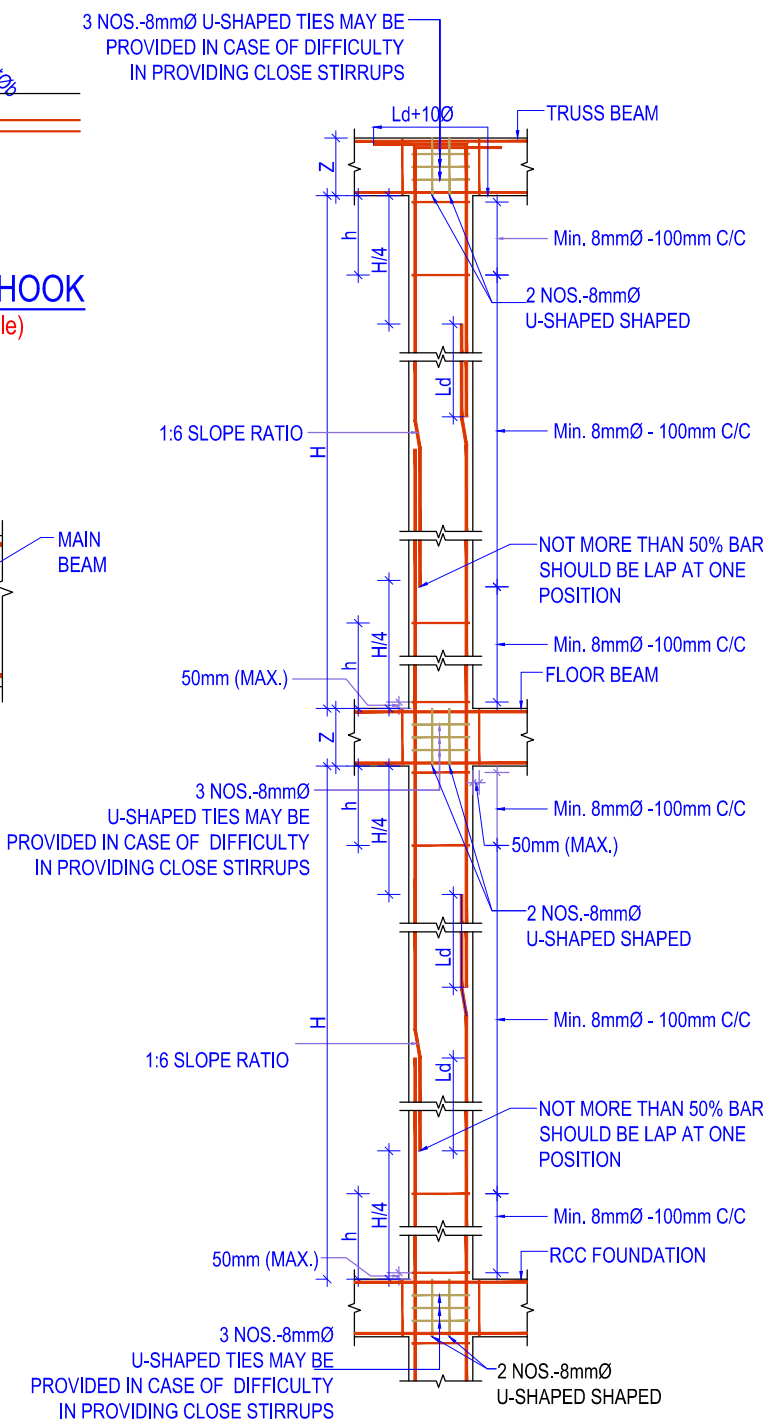
TYPICAL LAP LOCATION FOR BEAM BARS



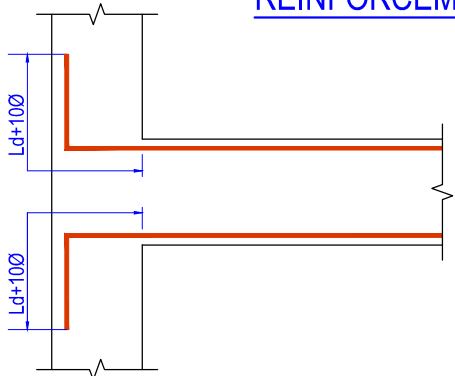
LAP PORTION DETAIL



CONNECTION DETAIL BETWEEN MAIN & SECONDARY BEAM



TYP. COLUMN SHEAR REINFORCEMENT DETAIL



CONNECTION DETAIL BETWEEN MAIN & SECONDARY BEAM (PLAN)

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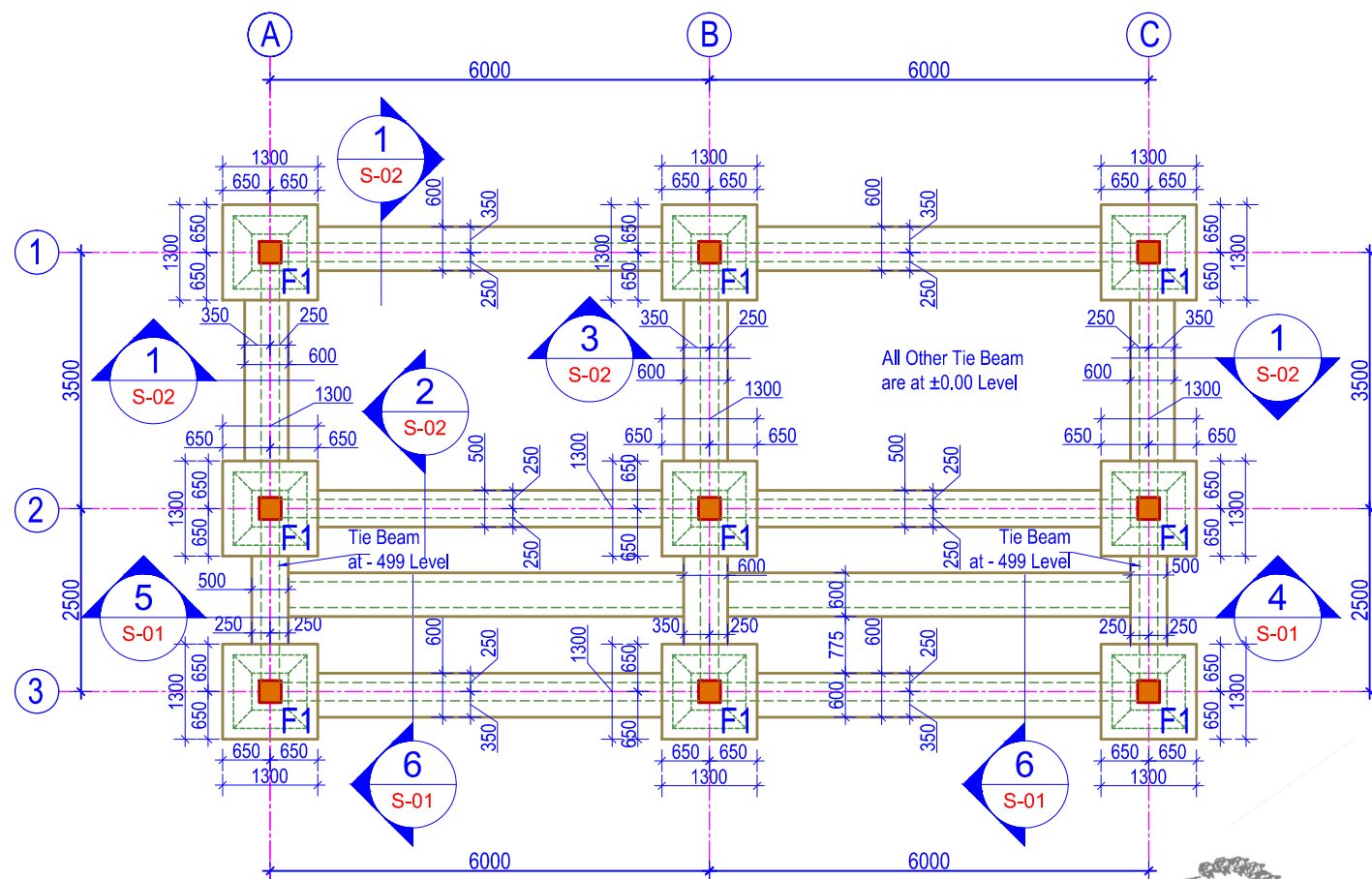
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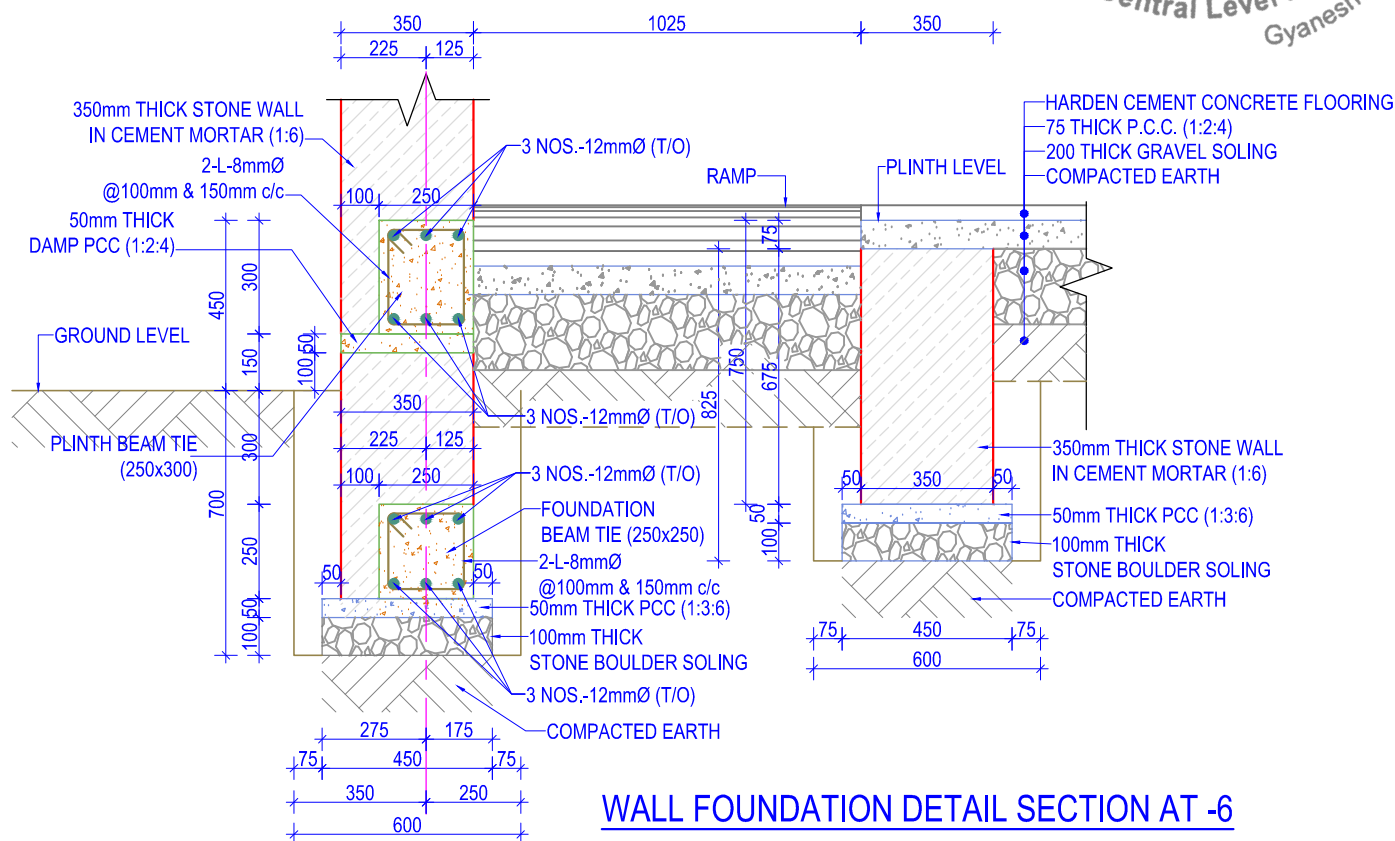
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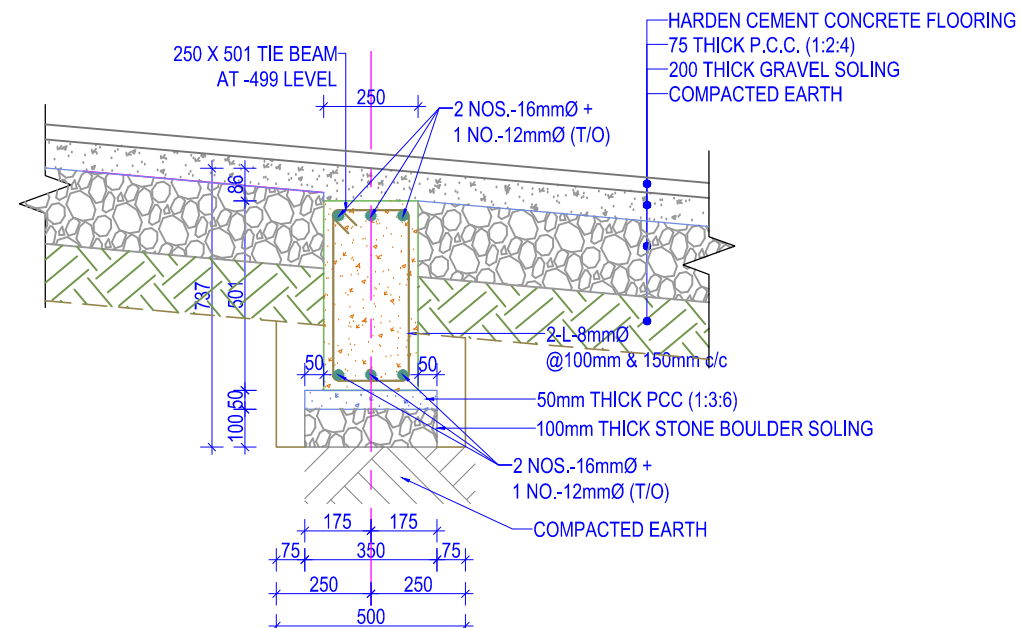


FOOTING TABLE				
S.N.	FOOTING	LENGTH	BREADTH	DEPTH
1.	F1	1000	1000	350

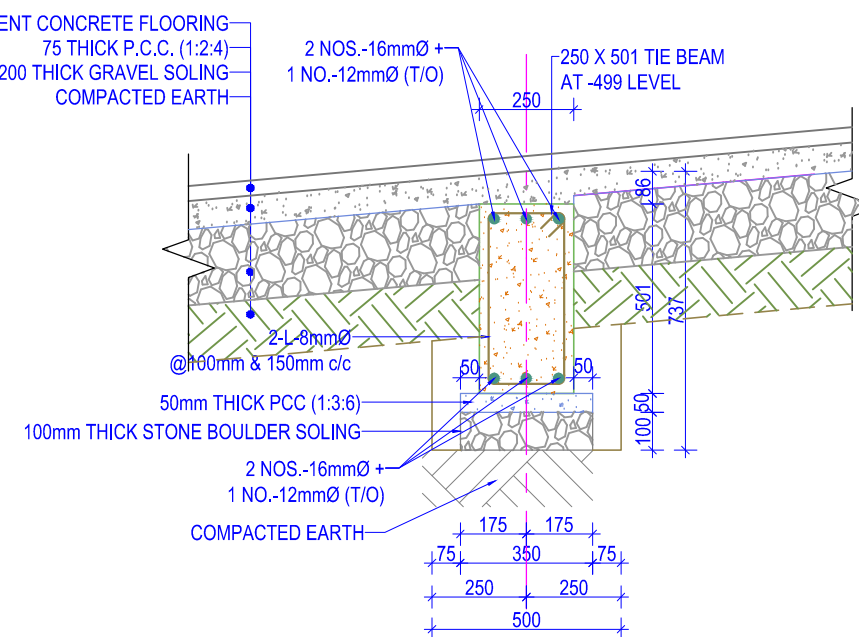
**TRENCH PLAN**  
(Scale= 1:100)



**WALL FOUNDATION DETAIL SECTION AT -6**  
(Scale= 1:20)



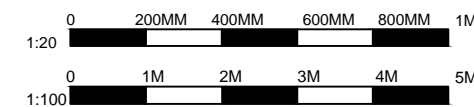
**PLINTH BEAM TIE SECTION DETAIL AT -4**  
(Scale= 1:20)



**PLINTH BEAM TIE SECTION DETAIL AT -5**  
(Scale= 1:20)

#### Footing Design for Tc(M)

Soil Bearing Capacity	Grid	Foundation Size L x B (mm)	Thickness (mm)	Reinforcement Each way (AS)
Above 180 kN/m <sup>2</sup>	A1, B1, A2, B2, A3, B3	1000 x 1000	350	12Ø - 150 c/c
101-180 kN/m <sup>2</sup>	A1, B1, A2, B2, A3, B3	1000 x 1000	350	12Ø - 150 c/c
50-100 kN/m <sup>2</sup>	A1, B1, A2, B2, A3, B3	1200 x 1200	350	12Ø - 150 c/c



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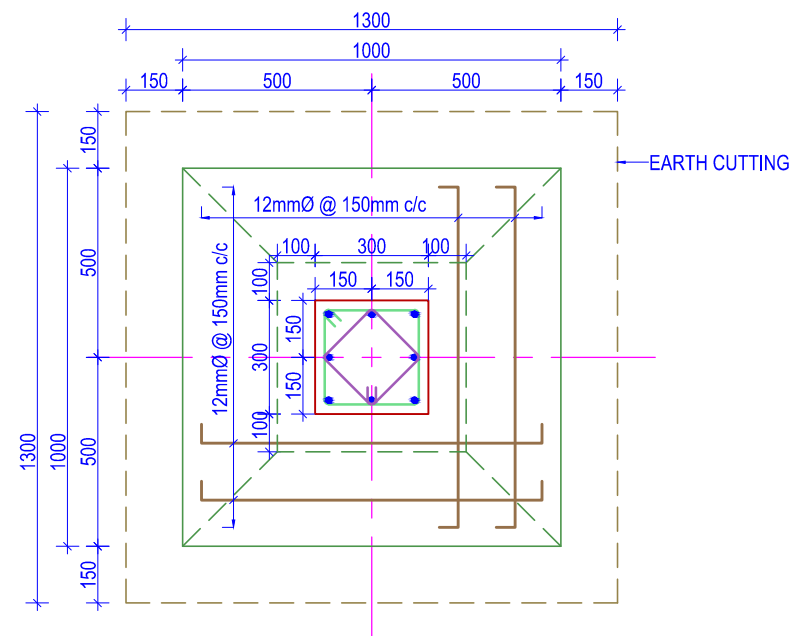
Sheet Title :  
TRENCH PLAN,  
TIE BEAM DETAIL &  
WALL FOUNDATION DETAIL

Sheet No.  
**Tc(M)**

Date : September, 2016

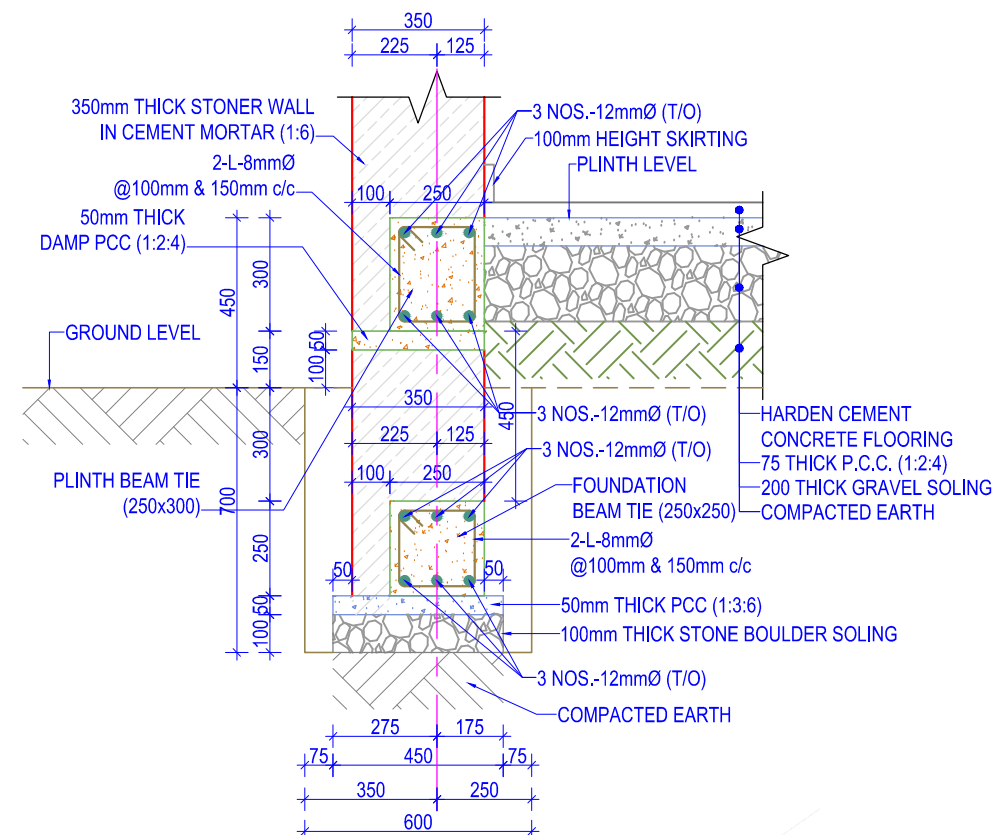
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**S-01**



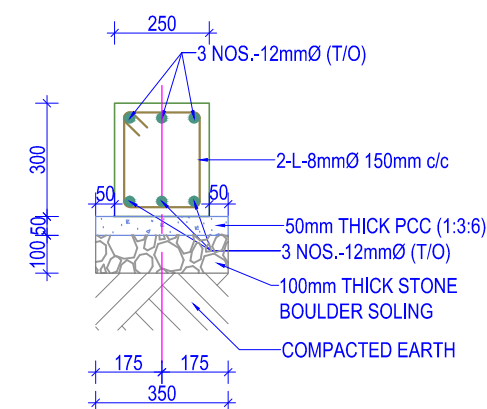
**COLUMN FOOTING PLAN -F1**

(Scale= 1:20)



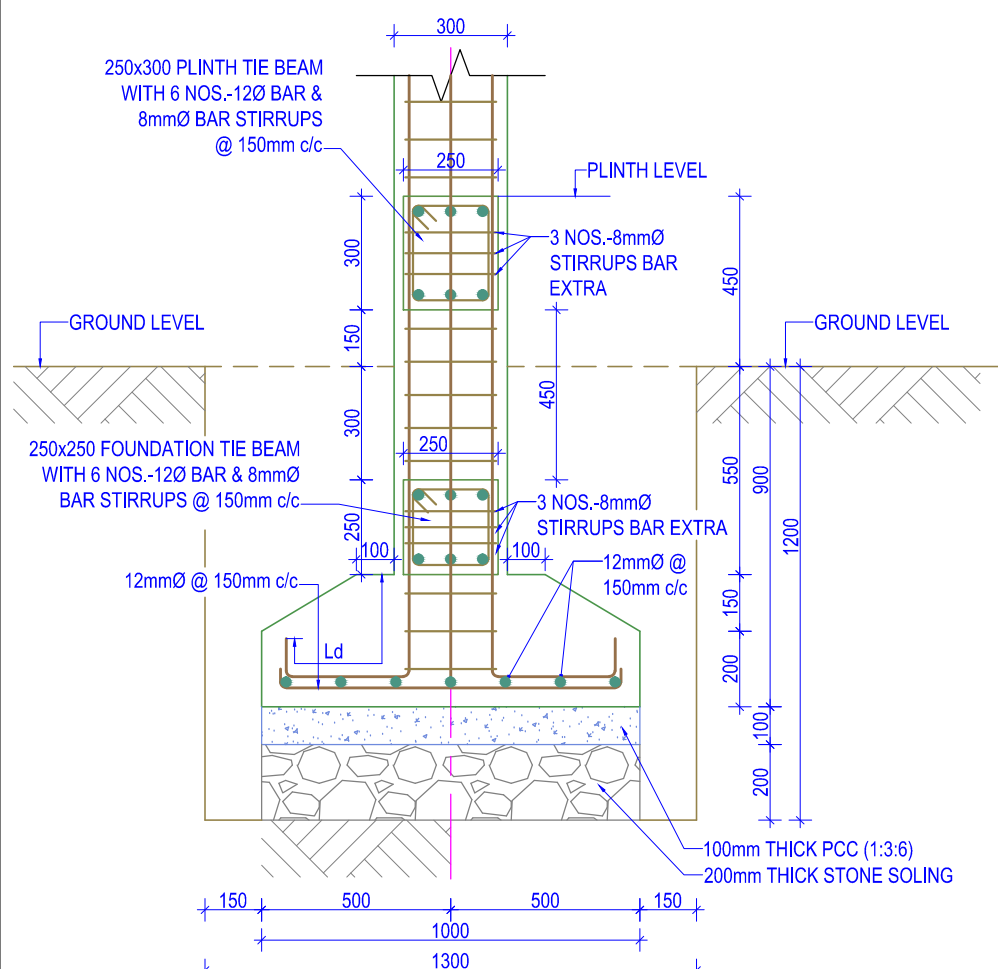
**WALL FOUNDATION DETAIL SECTION AT -1**

(Scale= 1:20)



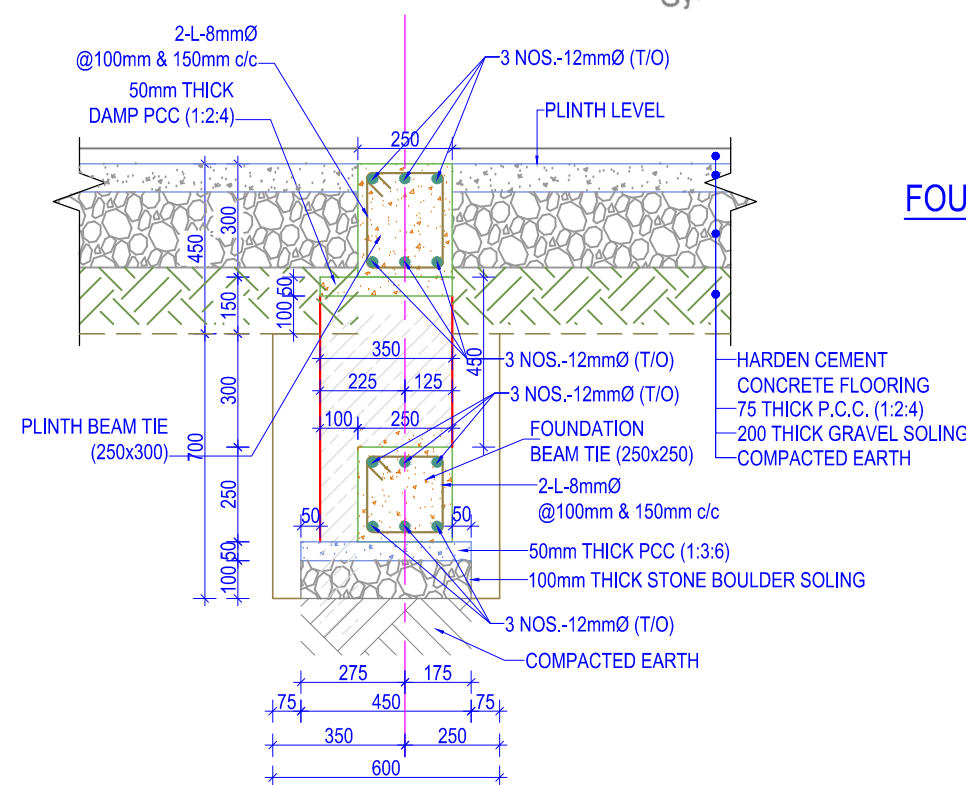
**PLINTH BEAM TIE SECTION  
DETAIL AT -2**

(SCALE = 1:20)



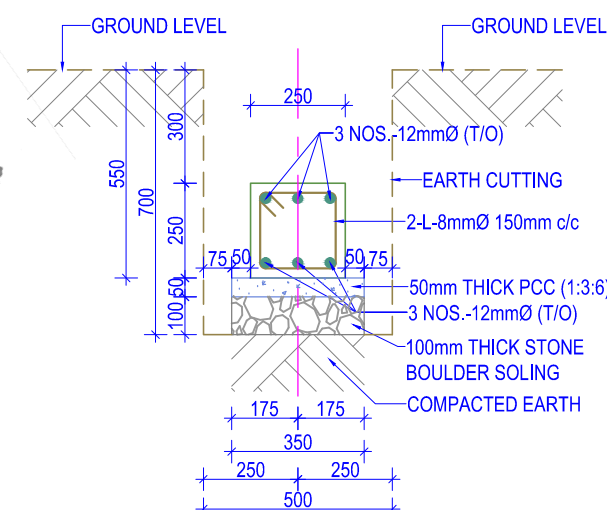
**COLUMN FOOTING SECTION -F1**

(Scale= 1:20)



**WALL FOUNDATION DETAIL SECTION AT -3**

(Scale= 1:20)

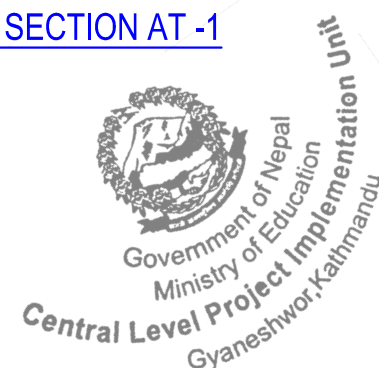


**FOUNDATION BEAM TIE SECTION  
DETAIL AT -2**

(SCALE = 1:20)

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Global Consulting for sustainable Development



Joint Venture with  
MOHRI, ARCHITECT & ASSOCIATES, INC

Sub-Consultant:

**EWES** East West Engineering Service Pvt. Ltd.  
P. Box-8621, Bansbari, Kathmandu, Nepal. web: ewesnepal.com  
Tel: 9771-4373316, Fax: 4650203, email: hbgewe@gmail.com

Mr. Tomoki Miyano	Mr. H.B. Gurung
Mr. Hisafumi Michikawa	Mr. A.S. Tamang
Mr. Wong Kuok Hung	Mr. S. Malla

Type Design :  
1 COMBINE MEDIUM TOILET BLOCK  
FOR MALE AND FEMALE

Sheet Title :  
FOOTING PLAN & SECTION,  
TIE BEAM DETAIL &  
WALL FOUNDATION DETAIL

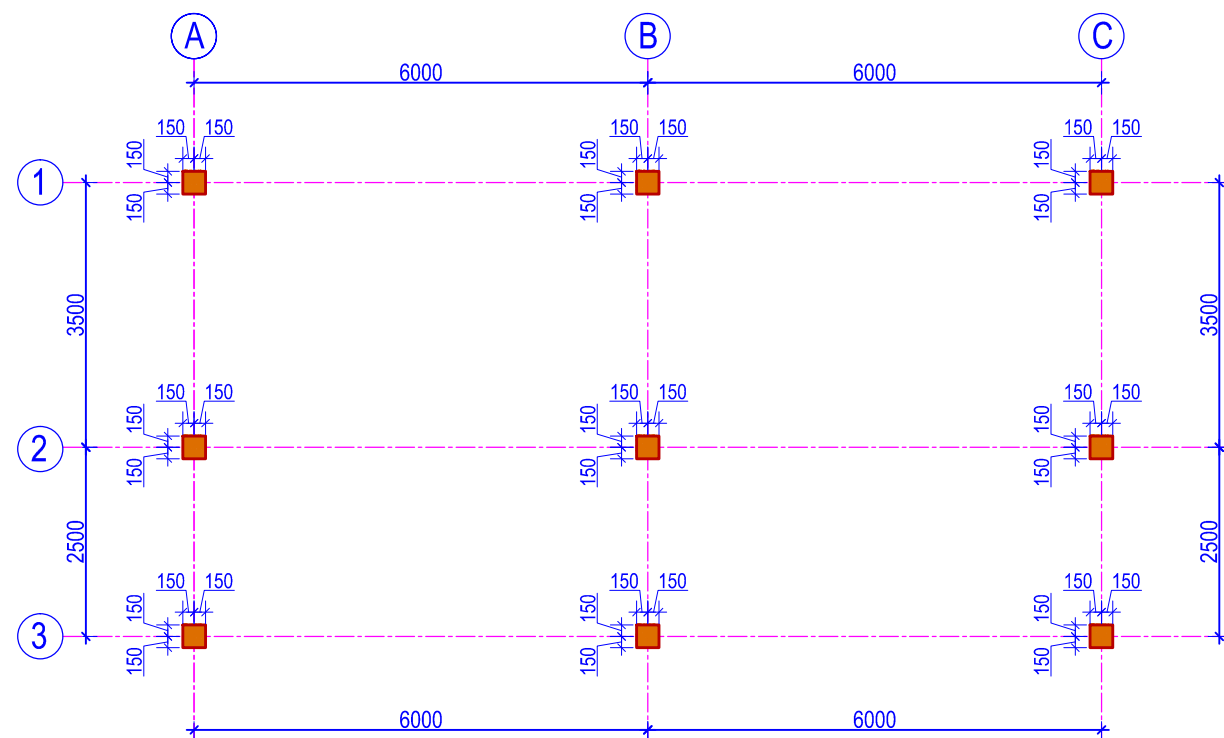
Sheet No.  
**Tc(M)**

Date : September, 2016

Print Sheet : A'3' Size

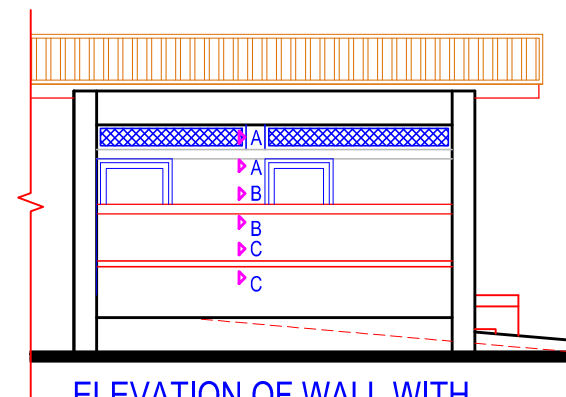
**S-02**





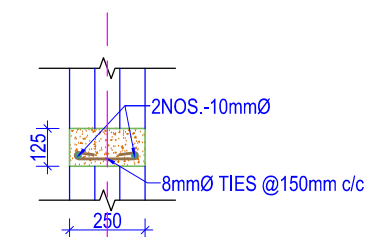
**COLUMN LAYOUT PLAN**

(Scale= 1:100)



**ELEVATION OF WALL WITH LINTEL & SILL BAND**

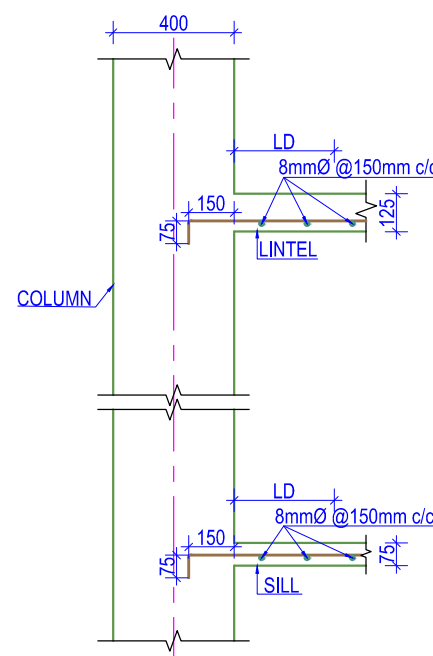
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**X-SECTION OF LINTEL BAND AT A-A**

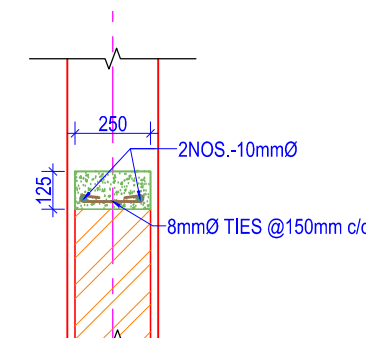
(Scale= 1:25)

COLUMN REINFORCEMENT DETAILS					
S. NO.	GRID	GRID -1	GRID -2	GRID -3	STIRRUPS
		COLUMN SIZE (300 x 300)	COLUMN SIZE (300 x 300)	COLUMN SIZE (300 x 300)	
1	A, B & C	 8 NOS. -12mmØ	 8 NOS. -12mmØ	 8 NOS. -12mmØ	 8Ø@100mm c/c & 150mm c/c



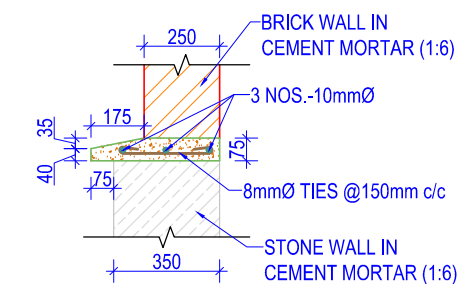
**COLUMN & LINTEL JOINT DETAIL**

(Scale= 1:25)



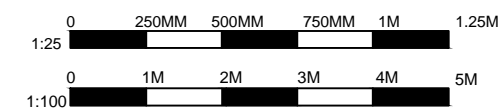
**X-SECTION OF LINTEL BAND AT B-B**

(Scale= 1:25)



**X-SECTION OF SILL BAND AT C-C (STONE MASONRY)**

(Scale= 1:25)



**NOTES:**

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Government Of Nepal  
Department Of Education  
Sanathimi, Bhaktapur, Nepal



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FOR MALE AND FEMALE

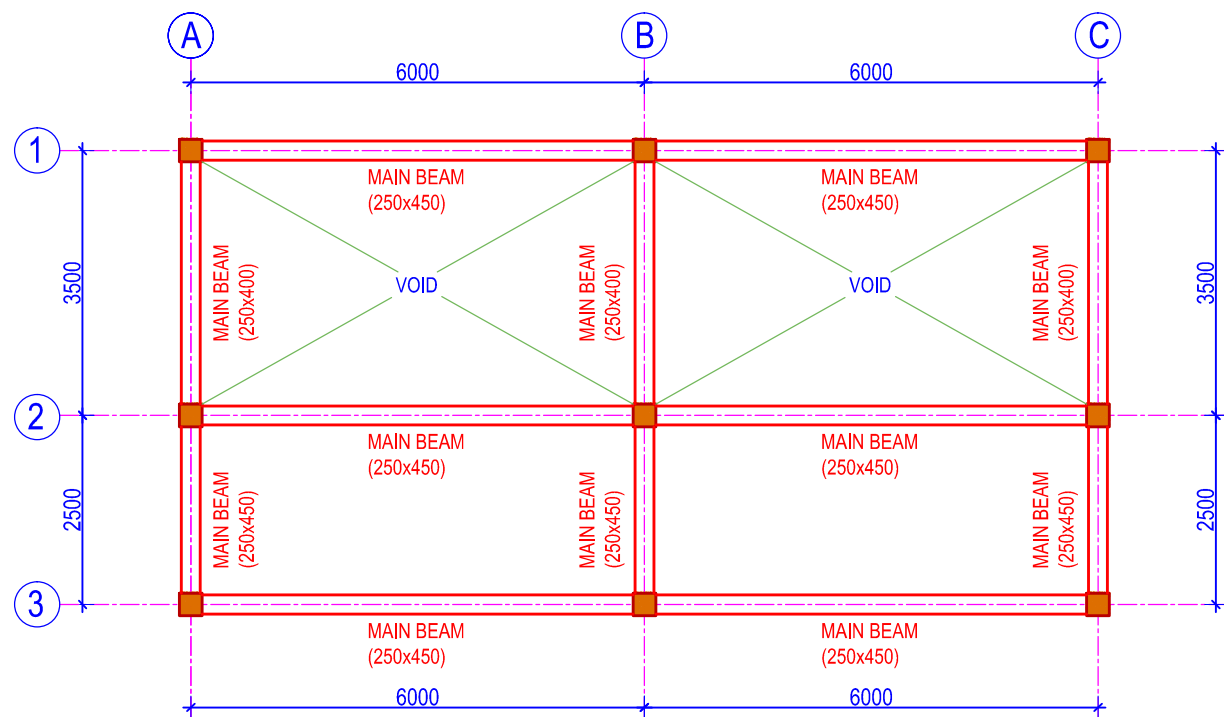
Sheet Title :  
COLUMN PLAN & DETAILS,  
SILL & LINTEL DETAILS

Date : September, 2016  
Print Sheet : A'3' Size

Sheet No.  
Tc(M)

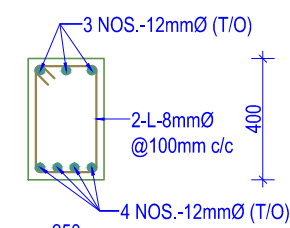
S-03





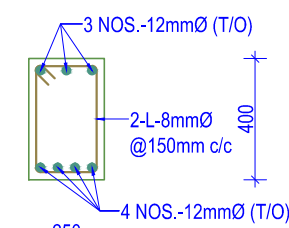
**BEAM PLAN**

(Scale= 1:100)



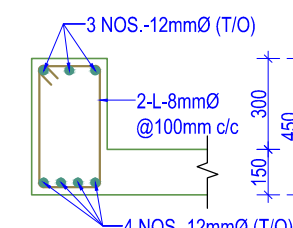
**SECTION -5-5**

(SCALE = 1:25)



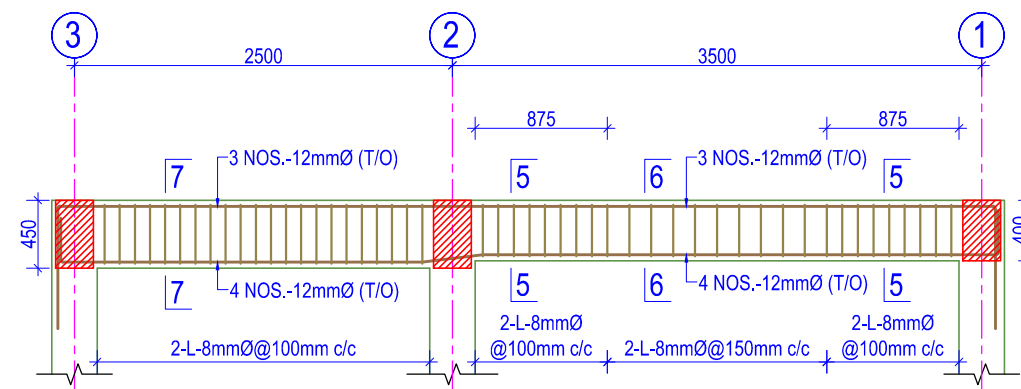
**SECTION -6-6**

(SCALE = 1:25)



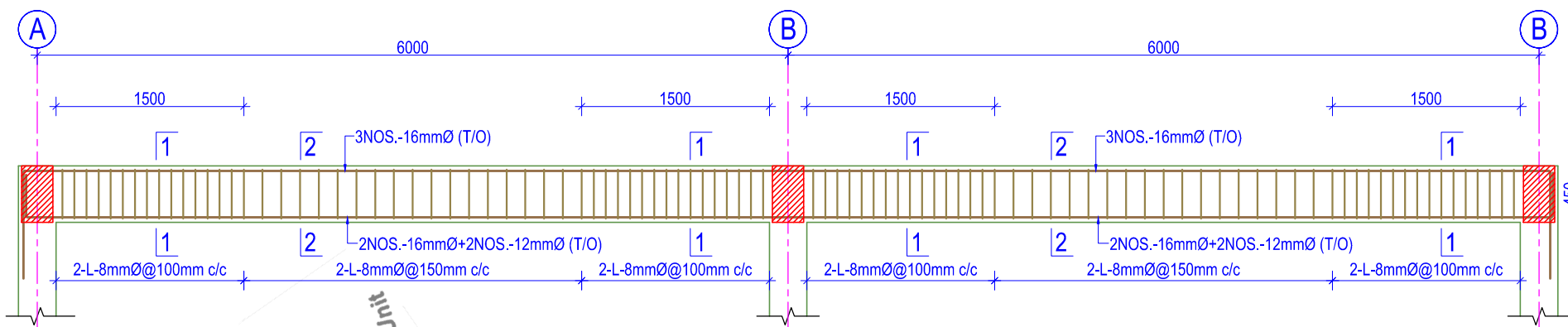
**SECTION -7-7**

(SCALE = 1:25)



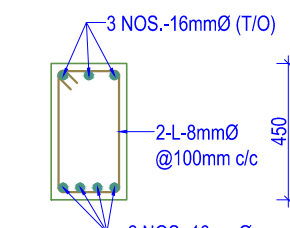
**BEAM DETAIL ALONG GRID AT -A, B & C**

(SCALE = 1:50)



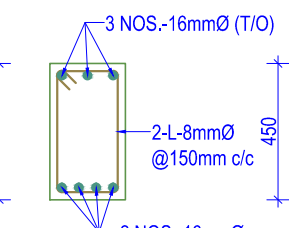
**BEAM DETAIL ALONG GRID AT -1**

(SCALE = 1:50)



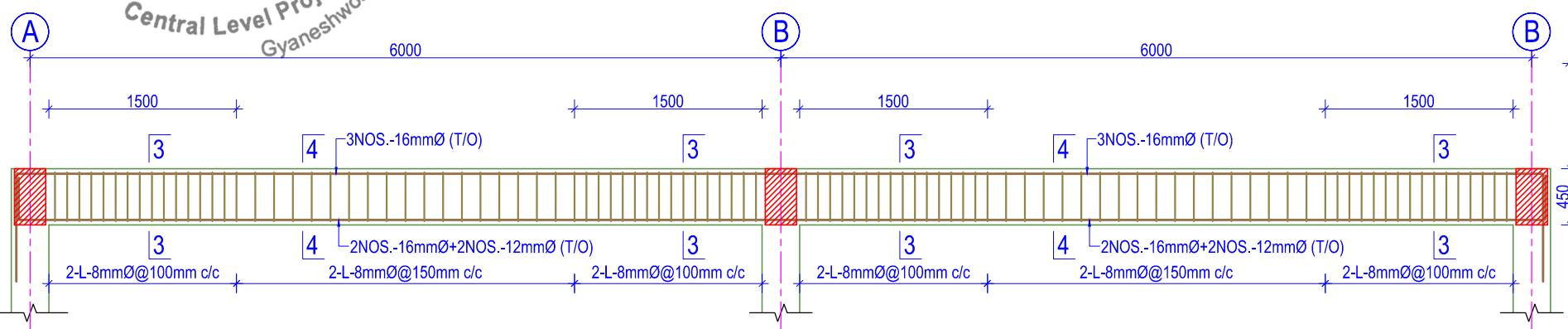
**SECTION -1-1**

(SCALE = 1:25)



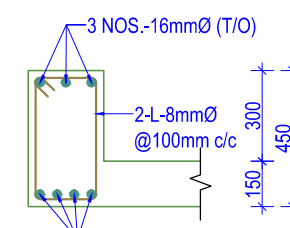
**SECTION -2-2**

(SCALE = 1:25)



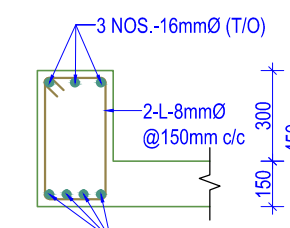
**BEAM DETAIL ALONG GRID AT -2 & 3**

(SCALE = 1:50)



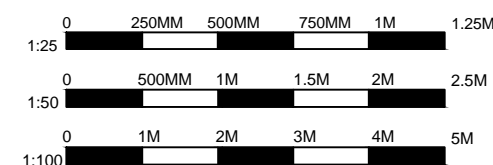
**SECTION -3-3**

(SCALE = 1:25)



**SECTION -4-4**

(SCALE = 1:25)



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Type Design :  
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FOR MALE AND FEMALE

Sheet Title :  
BEAM PLAN & DETAILS

Sheet No.

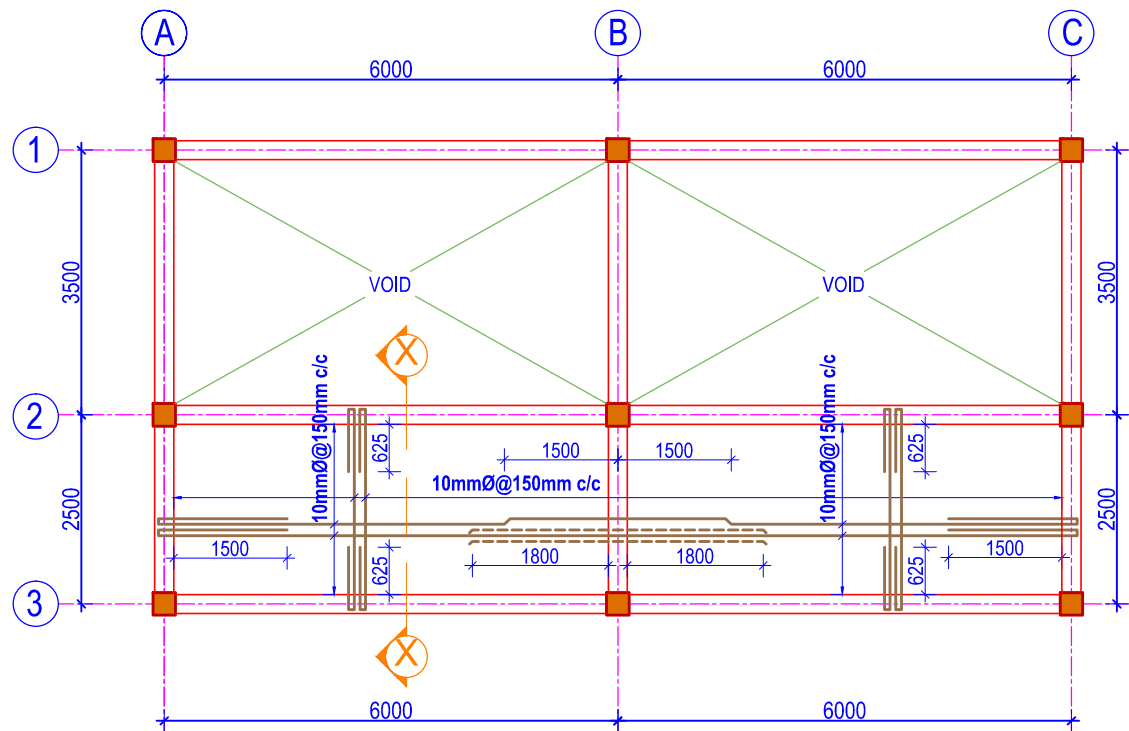
Tc(M)

Date : September, 2016

Print Sheet : A'3' Size

S-04

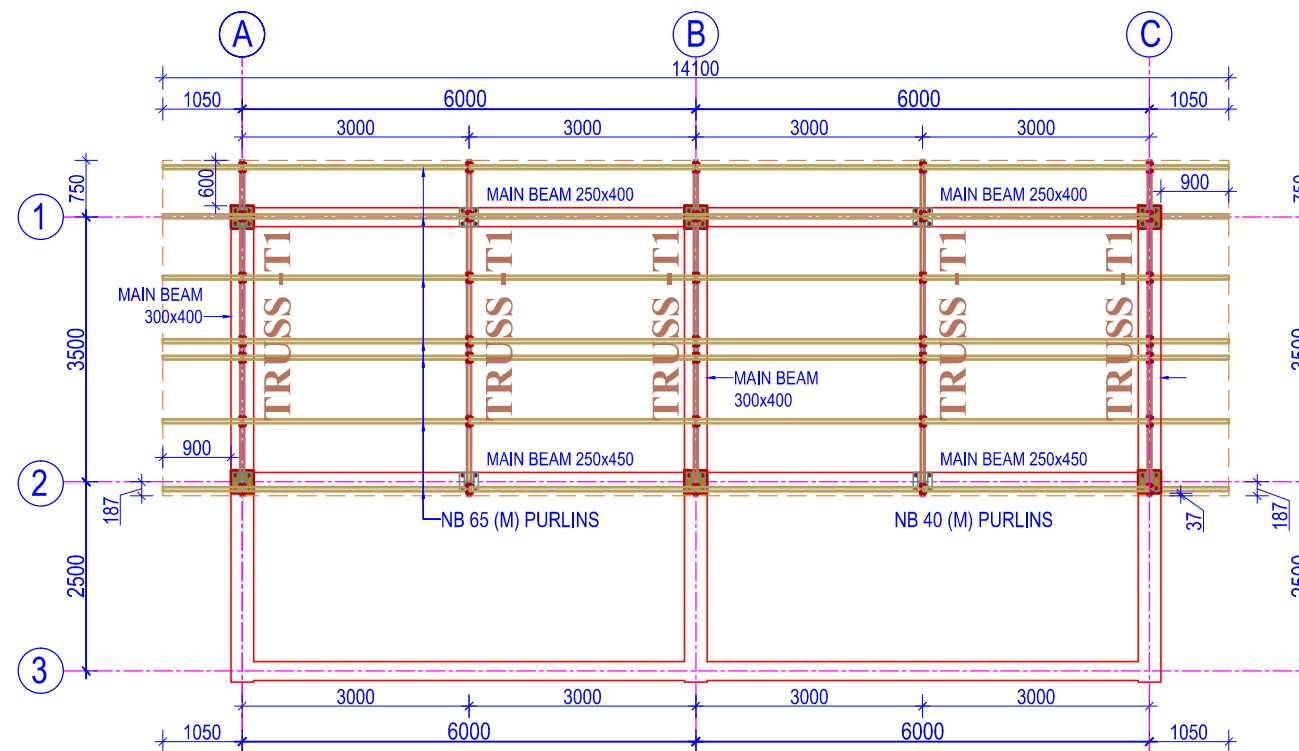




**SLAB REINFORCEMENT PLAN**

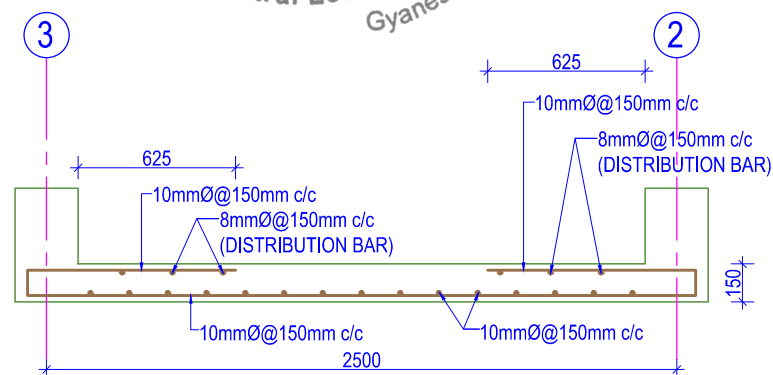
(Scale= 1:100)

SLAB THICKNESS	150mm
MAIN BAR (SHORT SPAN)	10mmØ@150mm c/c
MAIN BAR (LONG SPAN)	10mmØ@150mm c/c
DISTRIBUTION BAR	8mmØ@150mm c/c



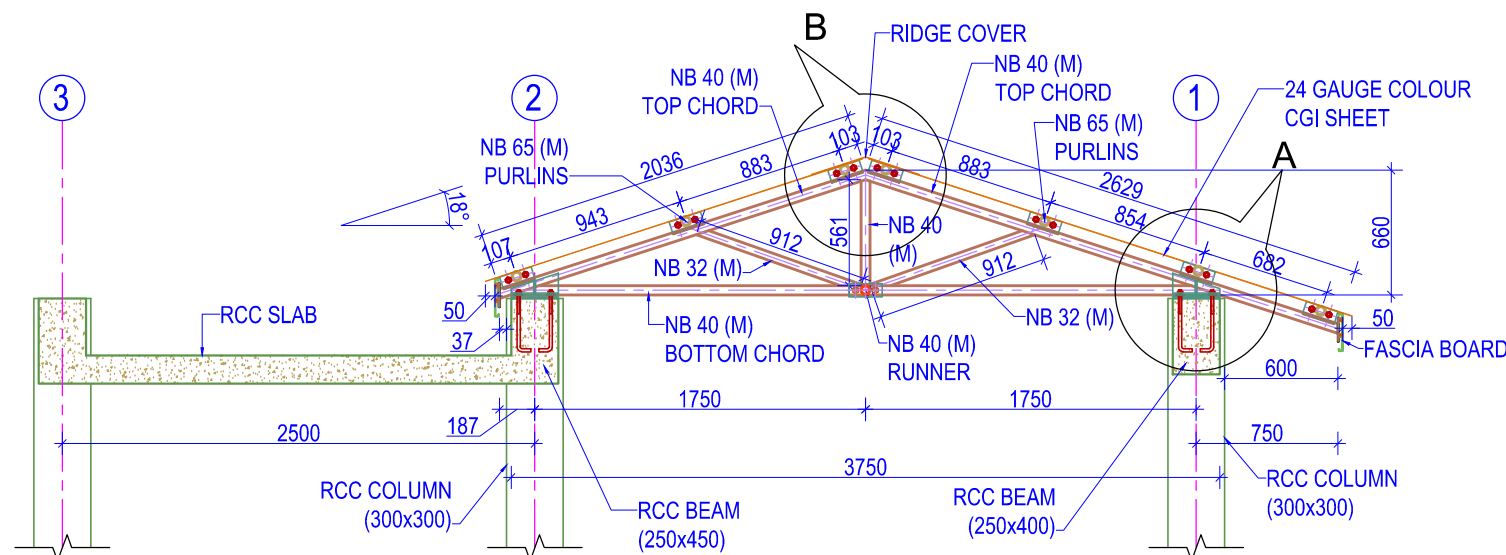
**TRUSS PLAN**

(Scale= 1:100)



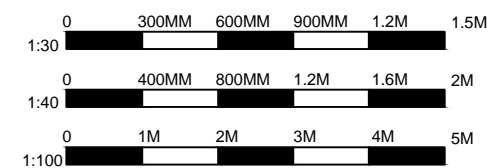
**SLAB SECTION -X-X**

(SCALE = 1:30)



**TRUSS-T1**

(Scale= 1:40)



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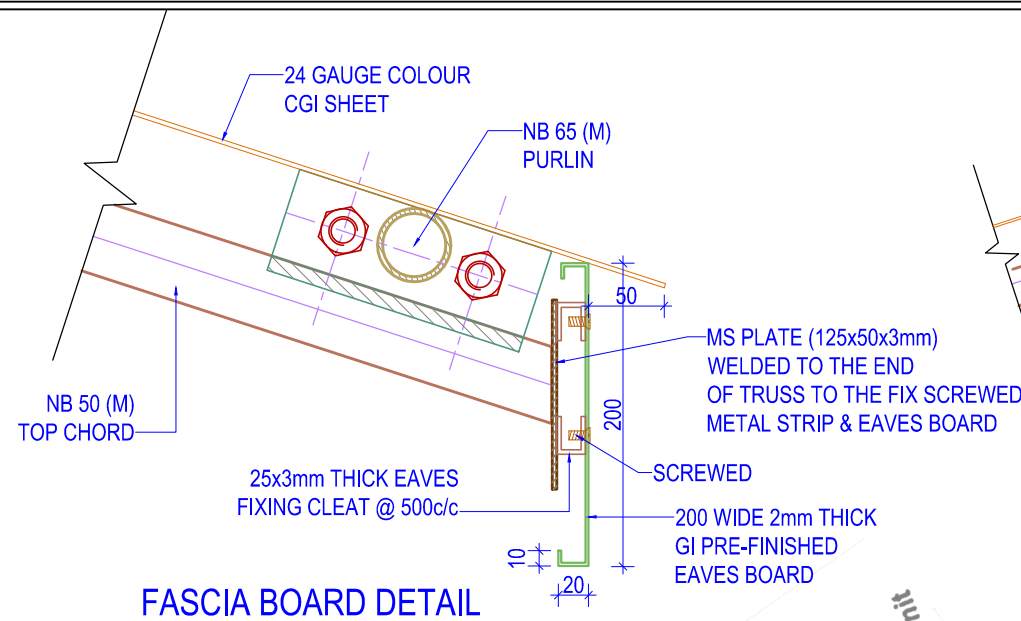
Mr. Tomoki Miyano	Mr. H.B. Gurung
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Type Design :  
1 COMBINE MEDIUM TOILET BLOCK  
FOR MALE AND FEMALE

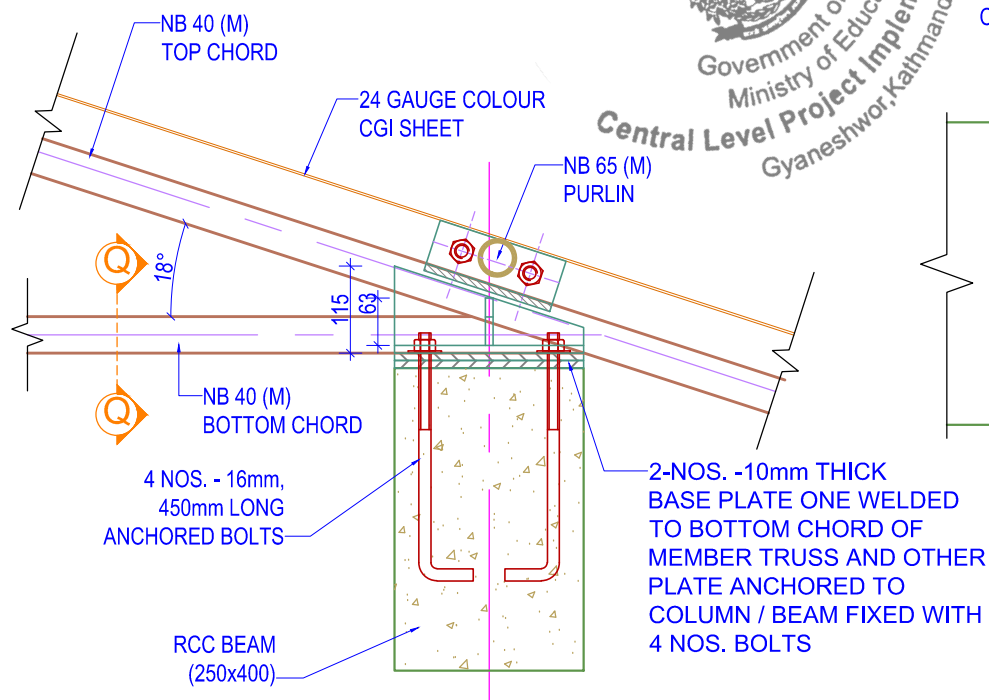
Sheet Title : SLAB PLAN & SECTION TRUSS PLAN & SECTION	Sheet No. Tc(M)
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Date : September, 2016	S-05
Print Sheet : A'3' Size	

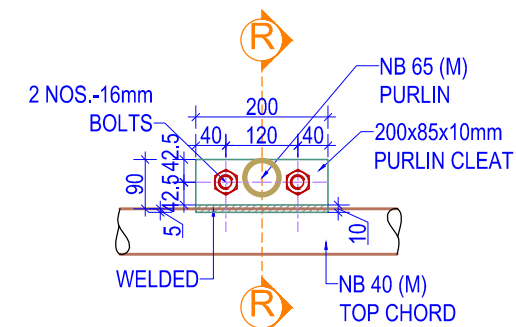




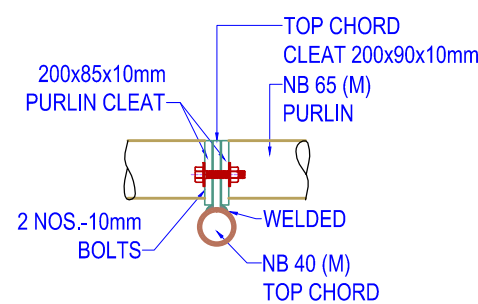
**FASCIA BOARD DETAIL**  
(Scale= 1:5)



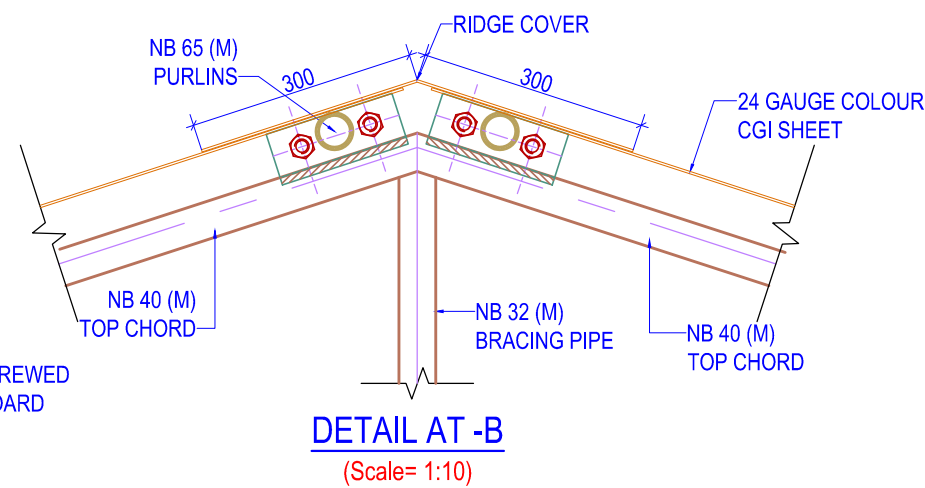
**DETAIL AT -A**  
(Scale= 1:10)



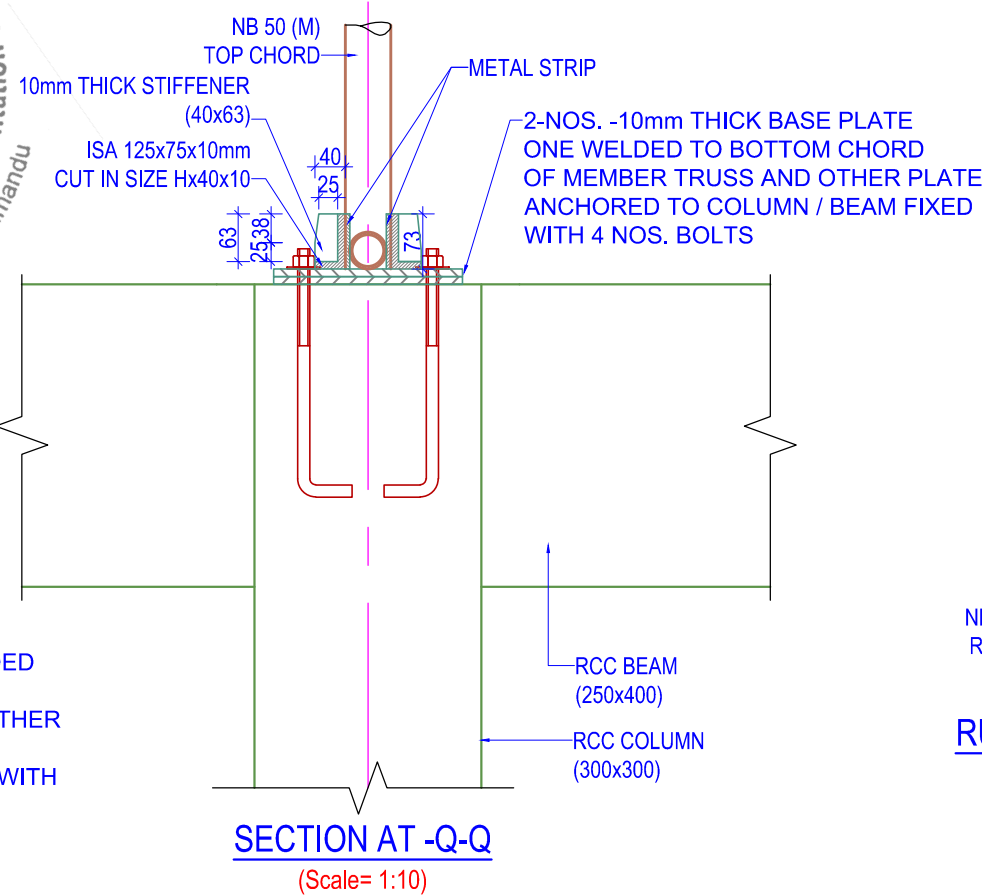
**PURLIN CLEAT DETAIL**  
(Scale= 1:10)



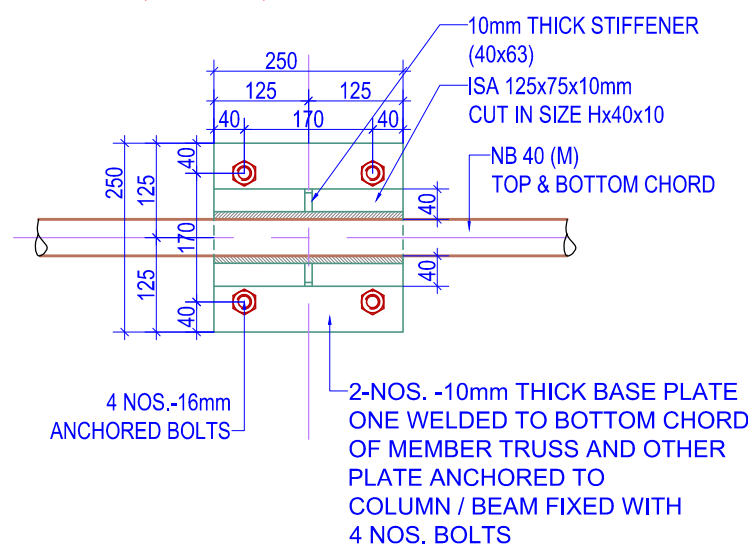
**PURLIN CLEAT DETAIL SECTION -R-R**  
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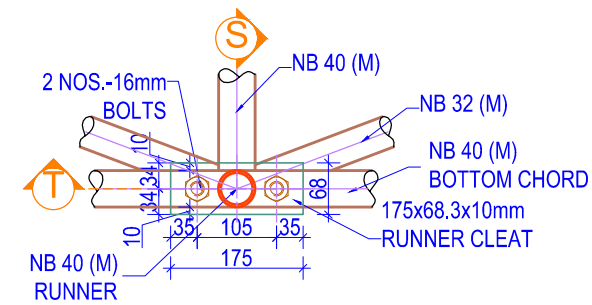
**DETAIL AT -B**  
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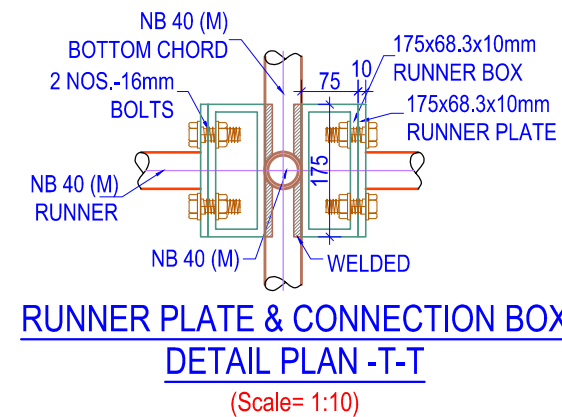
**SECTION AT -Q-Q**  
(Scale= 1:10)



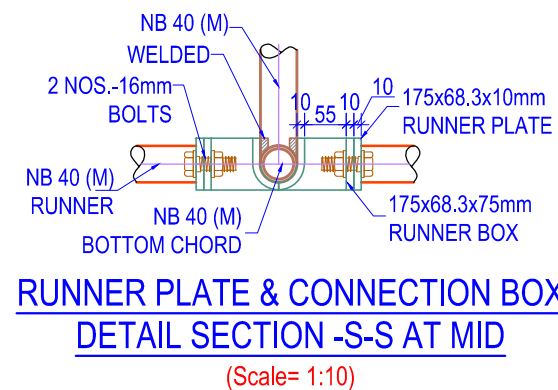
**BASE PLATE PLAN AT -A**  
(Scale= 1:10)



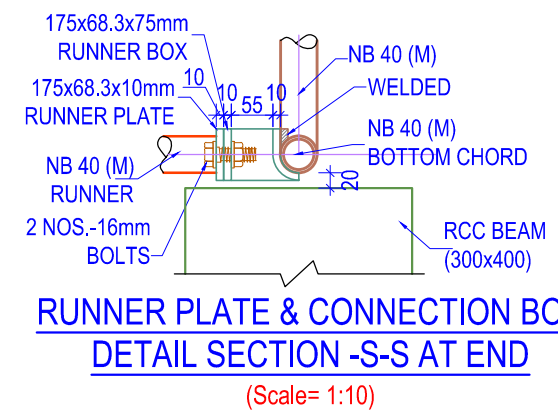
**RUNNER PLATE & CONNECTION BOX DETAIL**  
(Scale= 1:10)



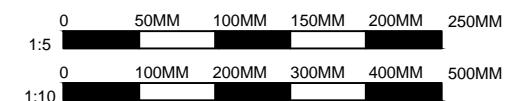
**RUNNER PLATE & CONNECTION BOX DETAIL PLAN -T-T**  
(Scale= 1:10)



**RUNNER PLATE & CONNECTION BOX DETAIL SECTION -S-S AT MID**  
(Scale= 1:10)



**RUNNER PLATE & CONNECTION BOX DETAIL SECTION -S-S AT END**  
(Scale= 1:10)



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Type Design :  
**1 COMBINE MEDIUM TOILET BLOCK FOR MALE AND FEMALE**

Sheet Title :  
**TRUSS DETAILS**

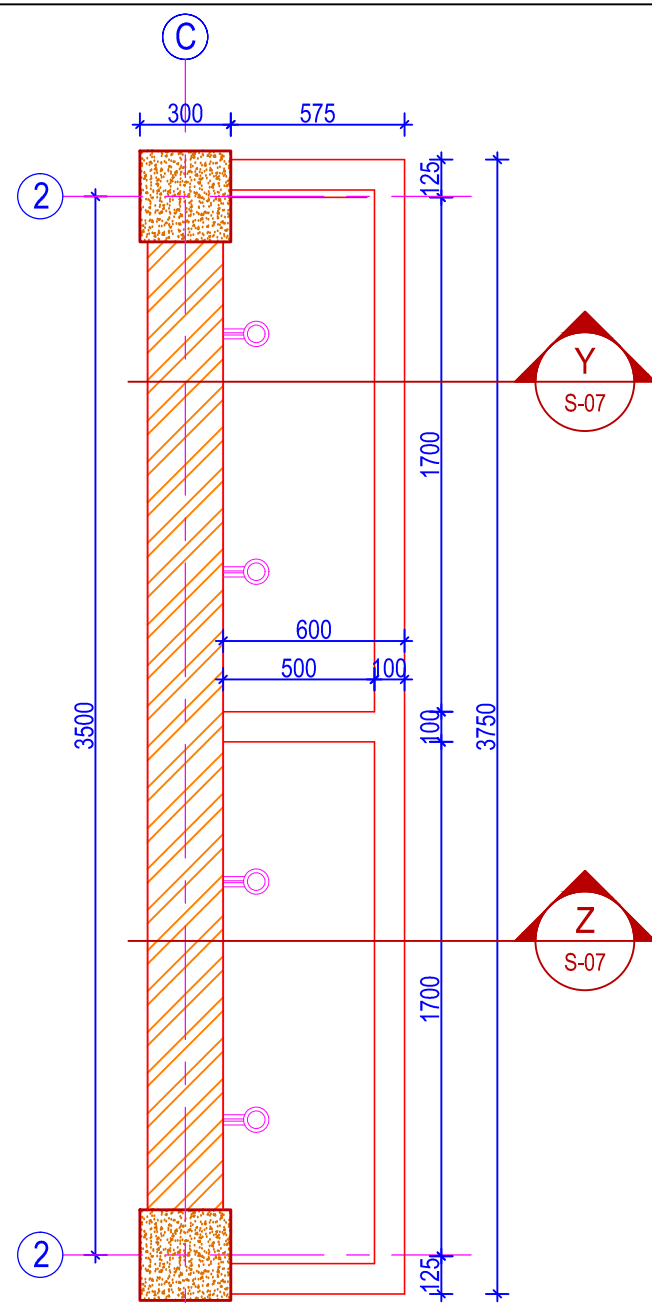
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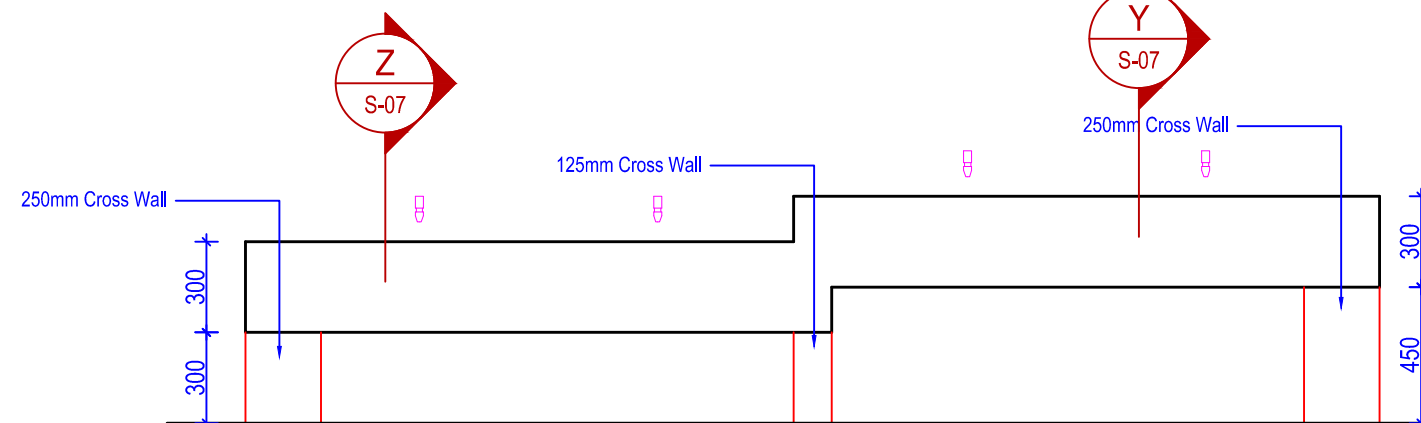
Date : September, 2016

Print Sheet : A'3' Size

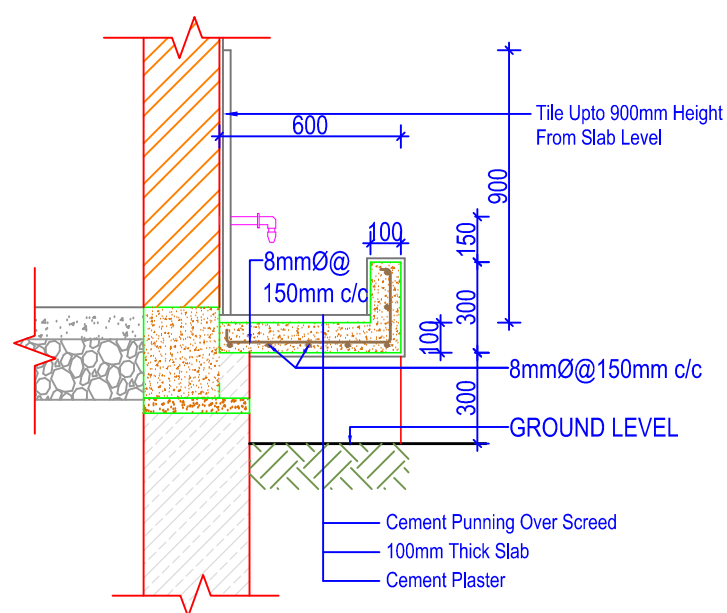
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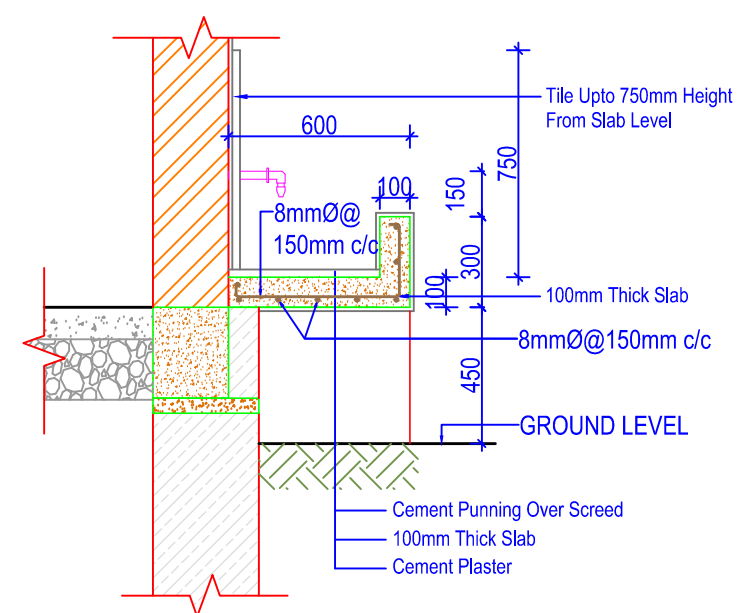
**WATER TROUGH PLAN**  
(Scale= 1:25)



**TYPICAL WATER TROUGH ELEVATION**  
(Scale= 1:25)



**WATER TROUGH SECTION DETAIL AT Z**  
(Scale= 1:25)



**WATER TROUGH SECTION DETAIL AT Y**  
(Scale= 1:25)



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Type Design :  
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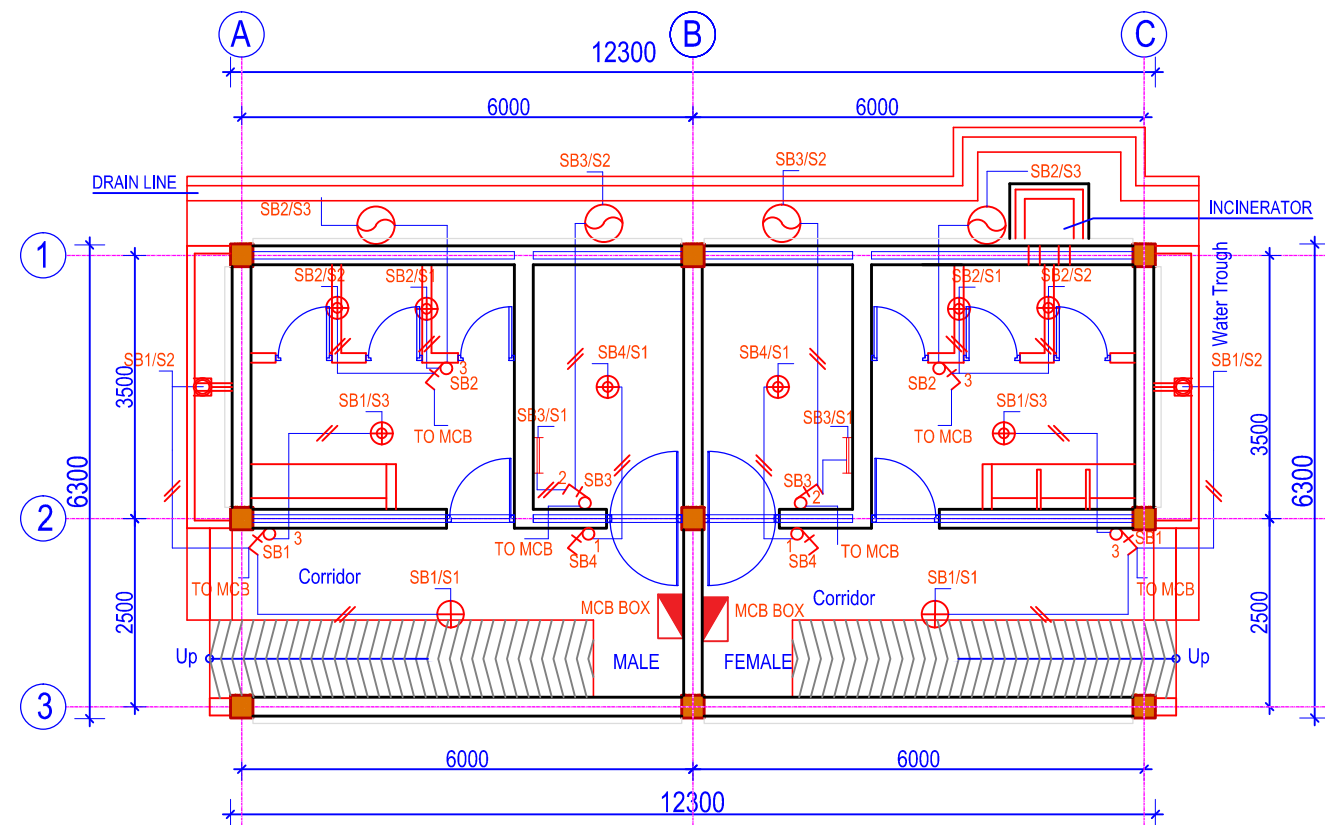
Sheet Title :  
**WATER TROUGH DETAILS**

Sheet No.  
**Tc(M)**

Date : September, 2016  
Print Sheet : A'3' Size

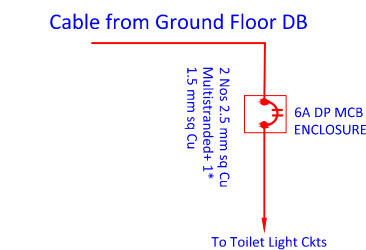
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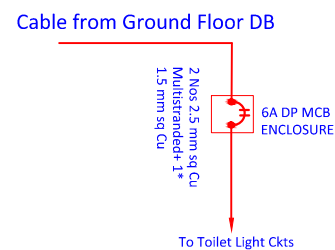


**LIGHT, POWER & DB LAYOUT PLAN  
(GROUND FLOOR)**

(Scale= 1:100)



**TOILET LIGHT DISTRIBUTION SYSTEM  
(MALE)**



**TOILET LIGHT DISTRIBUTION SYSTEM  
(FEMALE)**



### LEGEND

SN	SYMBOL	INDICATES	MOUNTING HEIGHT	REMARKS
1	⊕	13W CFL Dome Light	Attached to Ceiling	
2	⊕	8W CFL Recess Light	Attached to Ceiling	
3	— —	1X14W T5 Slim Mirror Light	Above Mirror	
4	⊙	62W Exhaust Fan	Attached to MS Frame, above 2.225m level	
5	1,2,3,...	One way Switch	1.25m above Finished Floor Level	
6	—□	13W LED Wall Light	Attached to Wall	
7	⤵	Single Pole MCB	-	
8	⤵	Double Pole MCB	-	
9	⤵	Three Pole MCB		
10	⊙	NEA Meter	2.5 m above Ground Level	
11	▢	MCB Enclosure Box	2.5 m above Ground Level	
12	⊠	Main Panel Board	2.5 m above Ground Level	

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- The location of ramps to be adjusted as per site condition.



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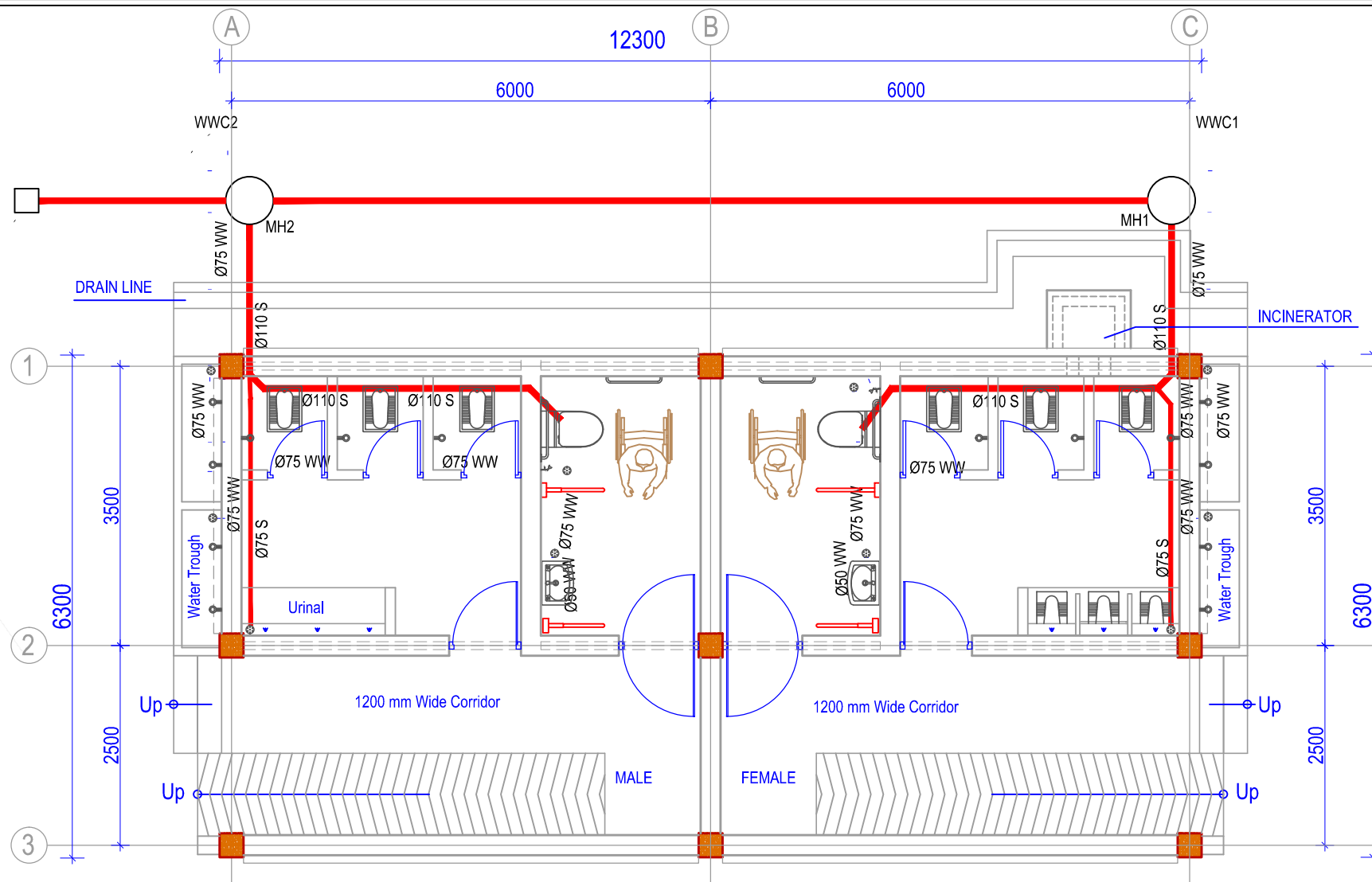
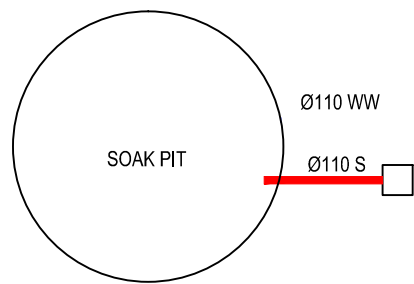
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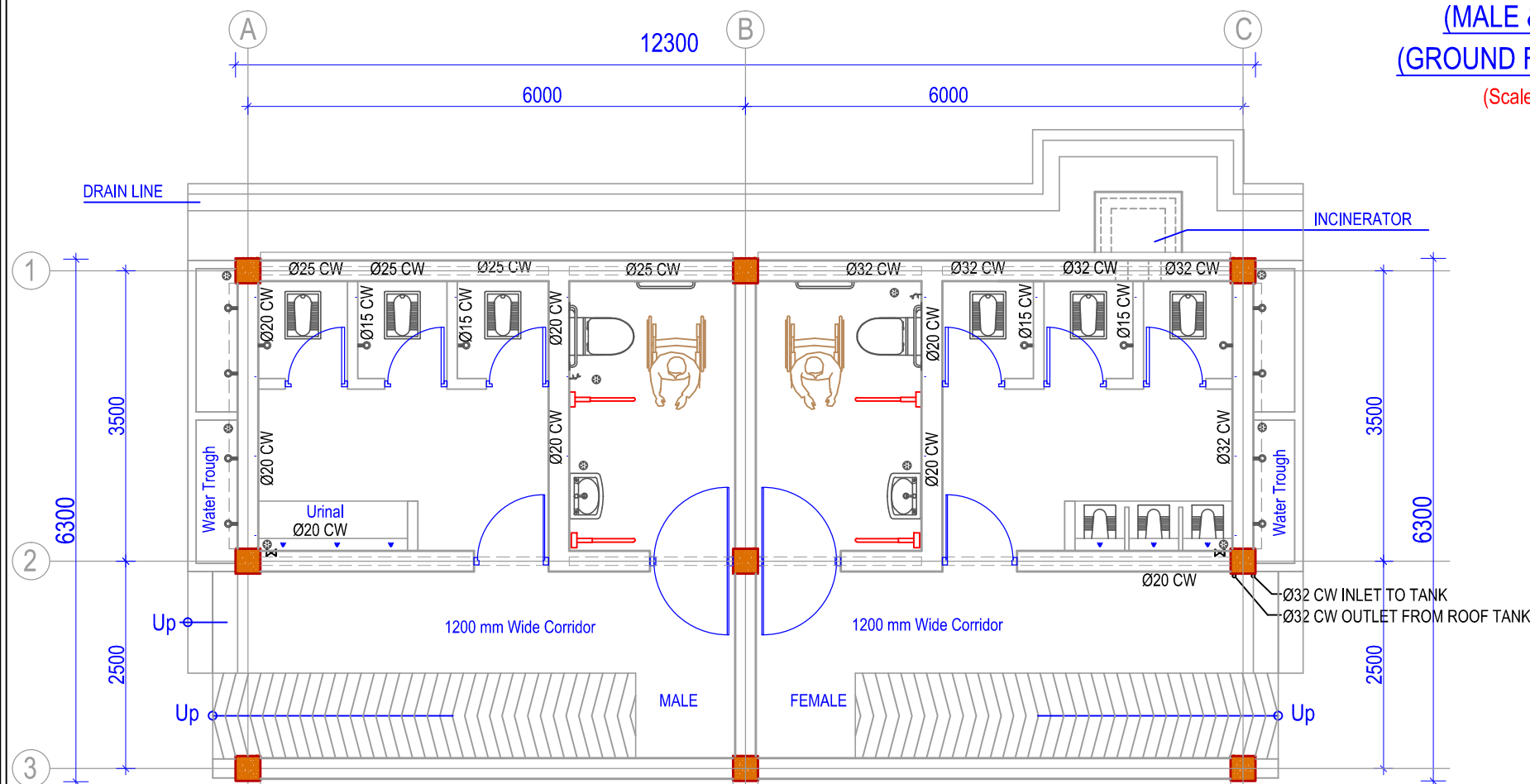
Sheet Title : <b>LIGHT, POWER AND DB LAYOUT PLAN (GROUND FLOOR)</b>	Sheet No. <b>Tc(M)</b>
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Date : September, 2016	<b>E-01</b>
Print Sheet : A'3' Size	

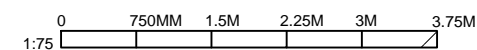
0 1M 2M 3M 4M 5M  
1:100



**SOIL & WASTE WATER PIPELINE LAYOUT  
(MALE & FEMALE)  
(GROUND FLOOR PLAN)**  
(Scale= 1:75)



**WATER SUPPLY PIPELINE LAYOUT  
(MALE & FEMALE)  
(GROUND FLOOR PLAN)**  
(Scale= 1:75)



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4. Refer doors & windows schedule/elevations for size of doors & windows
5. Provide threshold at all exterior doors as per details, unless otherwise indicated.
6. The location of ramps to be adjusted as per site condition.

#### LEGEND FOR SANITARY DRAWINGS

SYMBOL	DESCRIPTION
Ø25 CW	COLD WATER PIPE, CPVC, SIZE IN MM
Ø110 S	PVC SEWER PIPE, SIZE IN MM
Ø75 WW	PVC WASTE WATER PIPE, SIZE IN MM
FOLDABLE HINGE FOR DISABLED	
ORISSA PAN	
EUROPEAN WATER CLOSET WITH COMMODE SPRAY AND GRAB BAR	
SQUAT URINAL	
WALL HUNG WASH BASIN	
PVC CLEANOUT	
LONG BODY BIB COCK	
COCK	CP PUSH COCK & SPREADER FOR URINAL
BASIN MISTURE	
CP COMMODE SPRAY WITH CISTERN INLET	
TRAP	BASIN TRAP
	FLOOR TRAP
CPVC BALL VALVE/	
WWC2	450x450 WASTE WATER CHAMBER
MH2	600 Ø SEWER MANHOLE

#### NOTE:

1. ALL WATER SUPPLY PIPES : CPVC SDR 11
2. ALL SOIL & WASTE (SW) PIPES: PVC
3. AVOID 90° BENDS ON SW PIPES AND USE 2 NOS 45° BENDS



Government Of Nepal  
Department Of Education  
Sanathimi, Bhaktapur, Nepal



Donor :  
Japan International  
Cooperation Agency

Project Title:

Emergency School Reconstruction Project



ORIENTAL CONSULTANTS GLOBAL  
Global Consulting for sustainable Development



Joint Venture with  
MOHRI, ARCHITECT & ASSOCIATES, INC

Sub-Consultant:

**EWES** East West Engineering Service Pvt. Ltd.  
P. Box-8621, Bansbari, Kathmandu, Nepal. web: ewesnepal.com  
Tel: 9771-4373316, Fax: 4650203, email: hbgewe@gmail.com

Mr. Tomoki Miyano	Mr. H.B. Gurung
Mr. Hisafumi Michikawa	Mr. A.S. Tamang
Mr. Wong Kuok Hung	Mr. R.K. Karkee

Type Design :

1 COMBINE MEDIUM TOILET BLOCK  
FOR MALE & FEMALE

Sheet Title :  
SOIL & WASTE WATER &  
WATER SUPPLY PIPELINE  
LAYOUT PLAN (MALE & FEMALE)

Sheet No.

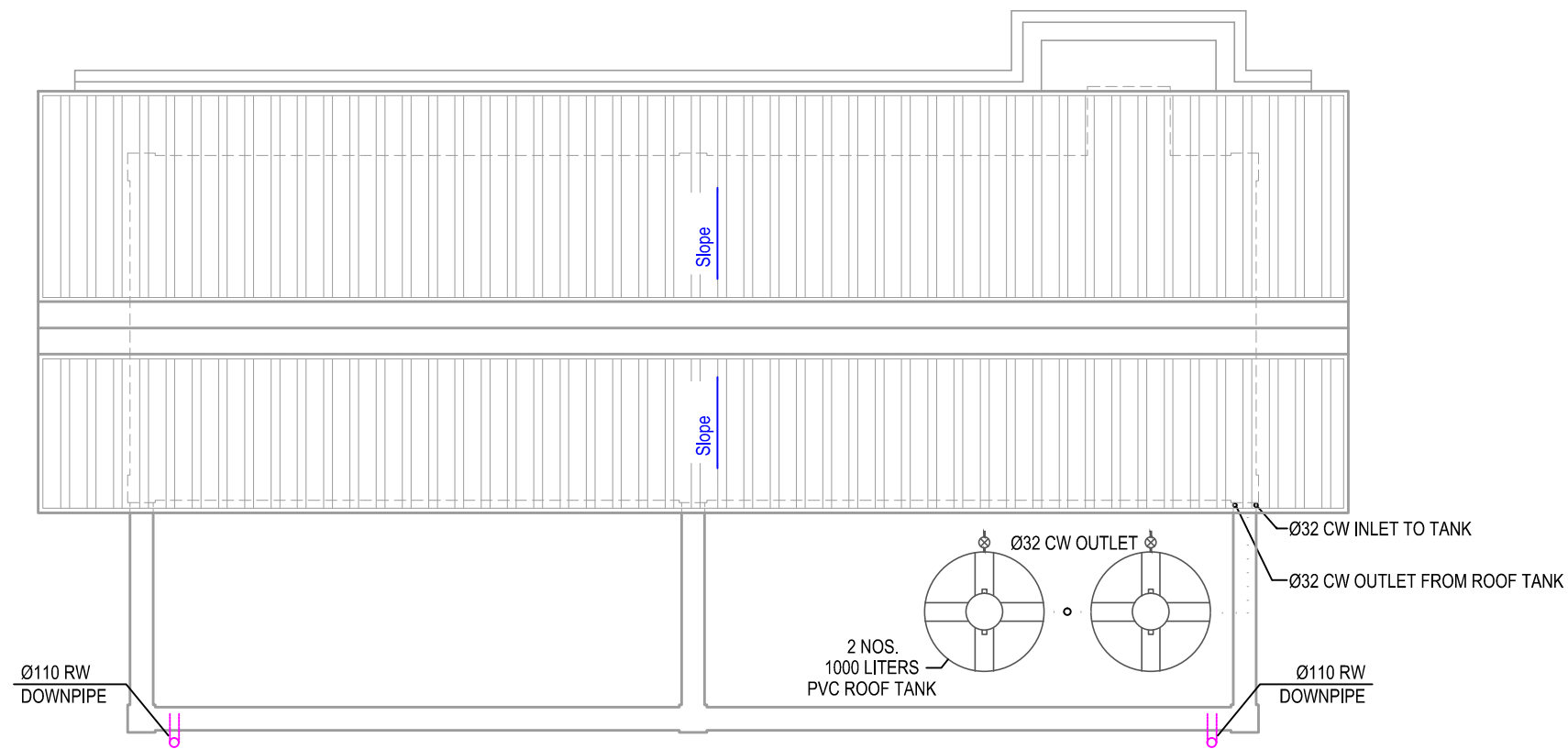
**Tc (M)**

Date :September, 2016

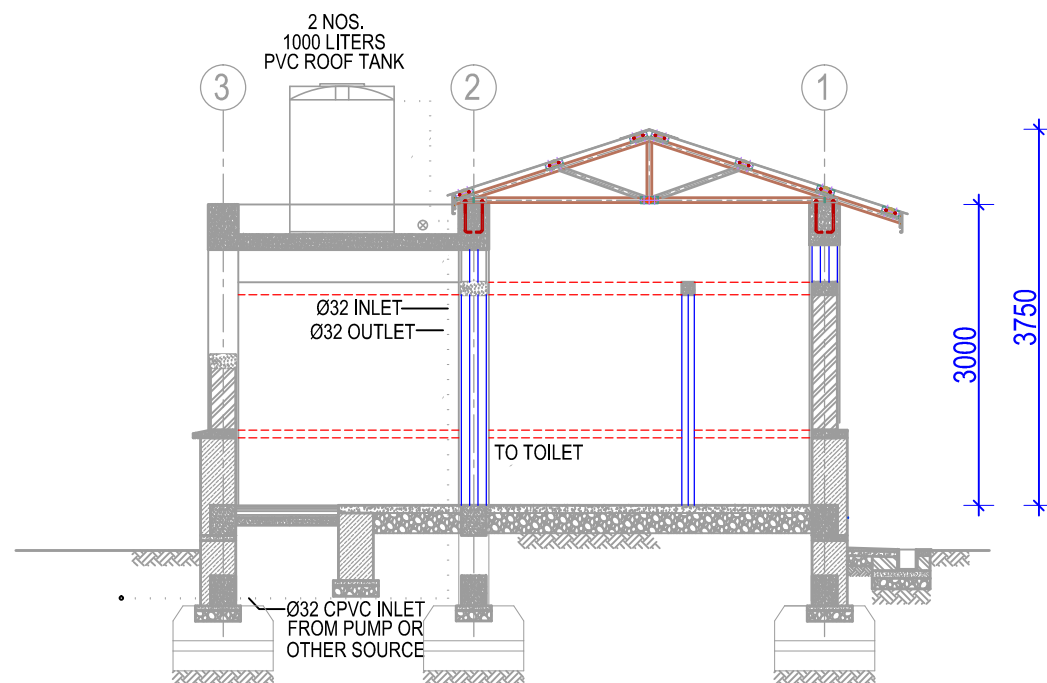
Print Sheet : A3' Size

**P-01**





**WATER SUPPLY PIPELINE LAYOUT  
(MALE & FEMALE)  
(ROOF PLAN)**  
(Scale= 1:75)



**WATER SUPPLY PIPELINE SECTIONAL DIAGRAM  
(MALE & FEMALE)**  
(Scale= 1:75)



#### NOTES:

1. Any discrepancy in the drawing to be immediately reported to the consultant or concerned engineer.
2. Drawing are not to be directly measured.
3. Read this drawing along with other related drawings and coordinate with Structural, Electrical, Plumbing and other services drawings.
4. Refer doors & windows schedule/elevations for size of doors & windows
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#### LEGEND FOR SANITARY DRAWINGS

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	COCK
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	CP COMMODE SPRAY WITH CISTERN INLET
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Type Design :  
1 COMBINE MEDIUM TOILET BLOCK  
FOR MALE & FEMALE

Sheet Title : WATER SUPPLY PIPELINE LAYOUT & SECTIONAL DIAGRAM (MALE & FEMALE)	Sheet No. <b>Tc(M)</b>
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Date :September, 2016	<b>P-02</b>
Print Sheet : A3' Size	

0 750MM 1.5M 2.25M 3M 3.75M  
1:75