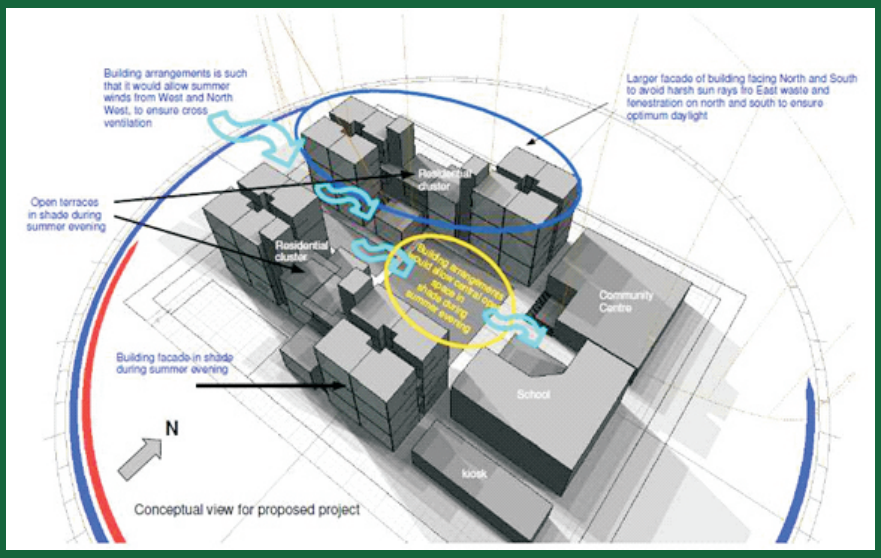
DESIGN PACKAGE

Using Alternate Building Materials & Technologies



KARNATAKA

bmtpc

BUILDING MATERIALS & TECHNOLOGY PROMOTION COUNCIL

Ministry of Housing & Urban Poverty Alleviation, Government of India

Foreword

With the demographic growth and massive urbanization, the housing and infrastructure demand pose a major challenge. Housing activity has received a phenomenal thrust in the last decade, with quantum jump in large scale housing projects. This is also linked with major increase in Housing Finance supply. However, the housing needs of Weaker Sections, Low Income Group and Middle Income Groups continue to face difficulties with the steep increase in construction costs due to rise in input costs for steel, cement, joinery and other building materials including labour costs.

Therefore, there is an imperative need to find ways by which housing can be made within the affordable reach of the various stakeholder groups. Affordable housing, within the socio-economic context, would need major technological interventions such as using appropriate and cost effective technologies so that the cost of construction can be brought down. At the same time, the alternate options should also lead to safe, durable, strong, functional, acceptable housing. There are many time tested and proven technological options, which may help in bringing the construction cost down from 15 to 20%. However, there is a major gap between the availability of the technology options and the accessibility of the same in the housing delivery process.

An equally important concern is the lack of awareness about these technology options at the level of Public and private construction agencies, practicing professionals, artisans dealing with house construction and from the general public. At the same time, there have been many initiatives to propagate and apply some of these technology options in the field through the work of BMTPC, Padmashree Laurie Baker & few likeminded professionals, NGOs, Building Centres and few educational institutions. In view of the fact that the general awareness has not been raised to the desired level to make an impact, these technologies have not got into mainstream practice.

The Government through National Urban Housing and Habitat Policy, 2007 aims to promote cost effective building materials and technologies with a view to bring down the cost of EWS/LIG houses. It is pertinent to mention here that disaster resistant technology and achieving Green Rating for buildings are mandatory and therefore, adoption of alternate, environment friendly, energy efficient technologies has become need of the hour. In the context of the massive housing initiatives from the Government of India, State Governments under various programmes as well as shortage of housing in affordable sector, an urgent need is now felt around the country to rejuvenate the efforts for propagation and dissemination of cost effective options and introduce appropriate technical interventions so as to close the gap between availability of technology and application of the same increasingly in mass housing initiatives.

As a process to help mainstream the time proven technologies, BMTPC undertook initiative of development of Design Packages on alternate house building technologies for various regions of the country having different geo- climatic condition and topography. The design package includes a cluster of 60 houses having carpet area of 25 sqm. each with two habitable rooms, kitchen & toilet, a primary school, a community centre & shops/kiosks with on-site infrastructure development and are customized to the local needs and includes regional specific appropriate technologies. The most important aspect is that this effort is not for demonstration but for mass level application of the cost effective technologies which are based on local materials, time tested and being financially viable with respect to conventional technologies.

The Design Package envisages to facilitate wide spread dissemination and adoption of proven cost effective and sustainable building materials and construction technologies as an alternate to the

conventional, in a manner and by a strategy that will promote knowledge, confidence and create enabling environment for the large scale adoption of such materials and technologies in different geo-climatic regions of the country, thus making housing cost effective, accessible and sustainable.

Specific emphasis has been laid in selecting the proven and cost effective technologies for developing the Design Packages which are appropriate in the context of the selected zones of the country. In preparation of design package, apart from economy; regional context, disaster resistant features, gender context, disable friendly features, etc. has also been considered. The Design Packages also provide detailed quantities of materials, actual Rate analysis of cost effective technologies, etc. so as to provide all the basic information to help in adopting the packages directly.

So far, BMTPC has developed Design Packages using Alternate Building Materials & Technologies for West/Central Zone, South Zone, North Zone (Plain), North-East Zone, East Zone and North Zone (Hilly). The Design Package for Karnataka Zone is being presented here.

The Design Package for Karnataka has been developed in close association with Shri V.Sriraman and Shri Peeyush Sekhsaria. I place on record my gratitude and deep appreciation to them for doing such commendable work. The efforts of my Council's officers Mr. J.K.Prasad, Chief (BM), Mr. S.K. Gupta, Dy.Chief(TDE&IC), Mr. Dalip Kumar, Sr.Field Officer (DC&E) and Ms. Veena Sachdev, Architect to bring the document to printable form are laudable.

I sincerely hope that the Design Package will be helpful to various stakeholders in the construction sector in designing a project using cost effective and alternate building materials & technologies and would go a long way in mainstreaming these alternate technologies into conventional construction practices.

Dr. Shailesh Kr. Agrawal
Executive Director, BMTPC

1. Introduction

1.1 Background:

Building Materials and Technology Promotion council (BMTPC) has been pioneering large scale dissemination of appropriate, cost effective and environment friendly building materials and technologies in India for almost 2 decades now. The council has been very actively engaged in bringing up the innovative building materials and products in the commercial environment for the building material entrepreneurs to make such products available in the building construction industry. A wide range of building materials such as Reinforced Cement Concrete roof panels, funicular shells, ferrocement products, RCC door and window frames, reconstituted timber etc have been developed tested and promoted widely in our country. BMTPC in association with academic and research institutions, NGOs involved in building materials development and promotion, state governments etc have been contributing to the industry by offering a basket of cost effective options as viable alternatives for conventional building systems which are highly resource intensive and energy embodied, besides being exorbitant in price. BMTPC in also keen in promoting building systems and designs that have inbuilt disaster resistant features so that the shelters and buildings can be safe against the fury of natural calamities like earthquakes, cyclone etc. As part of promotion of cost-effective and eco-friendly building systems, BMTPC has, through experienced building technology experts envisaged developing designs for various geo-climatic zones of India..

1.2 Scope of the project

This project envisages looking into the design and technology options for the state of Karnataka in India and proposes to draw up design of

- Dwelling Unit 60 No.(minimum of 25 sq.m carpet area each)
- Community centre- 1 No (300 sq.m built up area)
- Primary School 1 No (250 sq.m)
- Shops/Kiosk 4 No (100 sq.m each)

1.3 Methodology

The project has focused on bringing appropriateness at all levels; **Habitability, Stability and Durability.**

The buildings viz. shelters, community hall, school etc. need to be functional from users' point of view. Accordingly, the spatial layout, thermal comfort, safety etc have been considered for developing the design concept. The shelters and other facilities will be sited considering the appropriateness of cluster

or any other settlement pattern so as to give economy and efficiency of design, especially looking at the water supply, sanitation and drainage..

Choice of building materials are based on the market availability of products and the appropriateness of their choice considering structural safety, cost, thermal comfort and ease of construction. Feasibility of incorporating disaster resistant features in the design using the available options of technologies has been considered as the structures are of framed construction type with infill walls.

Time tested materials that have offered technically viable alternatives to conventional building materials have been given high priority. The detailed specifications for various items of construction have been drawn up considering the need for long term durability of construction.

Cost estimates have been drawn up based on the standard schedule of rates of building materials and construction items in the state of Karnataka. This have been also featured in the detailed design phase of this project.

2. Regional characteristics

a. Brief description of the region:

Karnataka is one the 4 southern states of India that enjoys moderate weather most apt of the year. Karnataka has a diverse topography ranging from mountainous western ghats, to vast coastal belts to beautiful plains.

Average rainfall annually is about 1000 mm. It falls under moderate climate.

b. Geo-climatic conditions:

Bangalore experiences a tropical savanna climate (Köppen climate classification *Aw*) with distinct wet and dry seasons. Due to its high elevation, Bangalore usually enjoys a more moderate climate throughout the year, although occasional heat waves can make things very uncomfortable in the summer. The coolest month is December with an average low temperature of 15.4 °C and the hottest month is April with an average high temperature of 32.8 °C. The highest temperature ever recorded in Bangalore is 38.9°C(recorded in March 1931) and the lowest ever is 7.8 °C (recorded in January 1884). Winter temperatures rarely drop below 12 °C (54 °F), and summer temperatures seldom exceed 34–35 °C (<100 °F). Bangalore receives rainfall from both the northeast and the southwest monsoons and the wettest months are September, October and August, in that order. The summer heat is moderated by fairly frequent thunderstorms, which occasionally cause power outages and local flooding. The heaviest rainfall recorded in a 24-hour period is 179 millimetres (7.0 in) recorded on 1 October 1997.

c. Hazard proneness of the state

State is prone to EQ and it falls under Zone II. Drought and floods are also common, though not severe.

d. Conventional materials of construction used in the region

Item	Conventional Building systems
Foundations	Stone masonry
Walls	BW, CC block, flyash blocks, hollow blocks, Sand lime bricks,
Framed structure	RCC frame with brick infill walls
Floors	RCC slab
Sloping roof	Mangalore pattern clay roofing tiles, CGI, Cement sheets
Openings	RCC lintel, lintel band, arches,
Door frames	MS, timber, Plastic/PVC etc

e. Alternative materials known/used in the region:

Item	Conventional Building systems
Foundations	Stone masonry
Walls	Rat-trap bond brick masonry, Solid and hollow cement concrete blocks, Flyash blocks, Sand lime bricks, Light weight aerated blocks etc
Framed structure	RCC frame with hollow blocks,flyash blocks etc as infills
Floors	RCC filler slab, Hollow blocks roofs, ferrocement shell floor
Sloping roof	MCR (Micro Concrete Roofing tiles)roofing
Openings	Arched openings, reinforced Brick lintel, Reinforced CEB lintel
oor frames	RCC door frames

3. Broad Design Considerations

Location: Bangalore peri-urban/rural

3.1 Main Architectural Design Considerations:

The Project Design takes into account the

- "Current Trends in the Construction Sector"
- "Construction Time" with a focus on efficient construction
- "Prefabrication"
- "Earthquake Resistant Features &Multi Hazard Resistance"
- "Space efficiency by design"
- The "Peri-Urban" location of chosen site

- The “Upward Urban Mobility” of residents

Building Type

- Maximum of Ground + 2 floors, with varying floor levels across the campus. The structure is framed with infill walls. The G+2 is considered given the urban context, looking at the scarcity and the cost of land for developing the habitat.

Construction system

- RCC Framed Structure - especially considering the G + 2 and the need for special features for multi-hazard resistance. (National Building Code specifications for G + 2)

The key design considerations of unit design

1. Considering the relatively small footprint of the unit the design focuses on maximizing the volumetric space rather than the plan alone.
2. The Plan is an open plan with options for privacy screens depending on the needs and resources of individual families
3. The Larger Volumetric space; double height space over the living area (please see cluster section above) not only assures a greater sense of space and well being but also provides adequate natural light to the entire unit
4. The Plan details out all the furniture and other essential living items so as to assure optimum use of space
5. It also reflects on optimum utilization of Floor Space Index, which is one of the most important driving factors in today’s urban & peri- urban location

The key design considerations of cluster planning

1. East West Orientation with shorter dead sides towards the east and west and longer exposed sides to the South & the North.
2. Minimal circulation area
3. Adequate natural lighting and ventilation to the toilet/ bathroom & Kitchen
4. Creation of terrace spaces at each of the above floors for leisure and other essential activities like drying of clothes, food items etc

The key design considerations of overall site layout

1. Orientation East West so as to optimize the climatic aspects of the region
2. The common open space located in a way that can be used as a school play ground, also for functions at the Community hall

3. Vehicular circulation organized around the site at the periphery keeping all open spaces and other spaces enclosed by the built form as pedestrian

The key design considerations of climatic analysis and design

1. Building orientation and design informed by precise climatic data of the region
2. Larger Façade of Building facing North & South to avoid harsh sun rays from the East & West and fenestration on the North & South to ensure optimum sunlight
3. Allows summer winds from the West & North, ensuring cross ventilation
4. Open Terraces, open areas in shade during summer evenings
5. Building facades in shade during summer evenings

3.2 Structural considerations

Shelter clusters:

TYPE OF STRUCTURE : R.C.C. Framed Structure

Width of Building = 12.20 M

Length of Building = 20.86 M

Height above GL = 14.31 M

Reference IS codes:

Reference of the following IS Codes is done

1. IS 456 – 2000 Plain & Reinforced Concrete.

2. IS 800 Steel Structure.

3. IS 3370 Liquid retaining Structure.

4. IS 2911 Pile foundation.

5. IS 1893 (1) – 2002 Earthquake Resistant Design of Structure.

6. IS 875 Code for Design Loads

LOAD CONSIDERATIONS :

A. DEAD LOAD (DL)

R.C.C. WORK = 25 KN/Cu. M.

BRICK MASONRY (brunt bricks)	=	20 KN/Cu. M
BRICK MASONRY (Hallow bricks)	=	20 KN/Cu. M
FLOOR FINISH	=	1.0 KN/ Sq. M
TOILET LOADING	=	4 KN/Sq. M.
FLOOR FINISH ON ROOF	=	3 KN/Sq. M.
G.I. SHEET	=	0.05 KN/M2
OHWT over Staircase	=	12000 Liters

B. LIVE LOAD (LL) As Per IS 875

Habitable Rooms	=	2 KN/Sq. M.
Corridors, Passages ,Staircase	=	3 KN/Sq. M.
Accessible Terrace	=	1.5 KN/Sq. M.
Non-accessible Terrace	=	0.75 KN/Sq. M
Office area	=	3.0 KN/Sq. M.

C. EARTHQUAKE LOAD (EL)

ZONE = II (For Bangalore area)

ZONE FACTOR	=	0.10
IMPORTANCE FACTOR	=	1.0
RESPONSE REDUCTION FACTOR	=	3
DAMPING RATIO	=	0.05

SOIL TYPE MEDIUM SOIL

D. LOAD COMBINATIONS

Case 1 -	1.5 (DL + LL)
Case 2 -	1.2 (DL + LL + EL in X Dir.)

Case 3 - 1.2 (DL + LL - EL in X Dir.)

Case 4 - 1.2 (DL + LL + EL in Z Dir.)

Case 5 - 1.2 (DL + LL - EL in Z Dir.)

Case 6 - 0.9 DL + 1.5 EL in X Dir.

Case 7 - 0.9 DL - 1.5 EL in X Dir.

Case 8 - 0.9 DL + 1.5 EL in Z Dir.

Case 9 - 0.9 DL - 1.5 EL in Z Dir.

E. Grade of Concrete and Structural Steel:

CONCRETE GRADE

For PCC work - M 15

For RCC work – M20

Minimum Cement Content - 300 KG/CU. M

GRADE OF REINFORCEMENT

TOR STEEL - Fe 415

MILD STEEL - Fe 250.

F. FOUNDATIONS :

Type of foundation - Isolated and Combined Footing foundation

Safe Bearing capacity assumed - 200 KN / M^2

G. DETAILING ASPECTS :

Exposure Condition As per IS 456- Moderate

H. Cover to Reinforcement

Slab - 20 mm

Beam - 25 mm

Column - 40 mm

R.C.C. Wall - 25 mm

Foundation/ Raft - 50mm

Expansion Joint - No Expansion Joint Provided.

I. SAMPLE DESIGN CALCULATION FOR FOOTING

1. LOAD DATA FOR CALCULATIONS

COLUMN NO - C1, STAAD OUTPUT MEMBER NO -92

DESIGN LOAD CASE - 7, 1.2 (DL + LL + EL)

VERTICAL AXIAL LOAD (Fy) in kN	608
SHEAR FORCE IN X DIRECTION (Fx) in KN	11.95
SHEAR FORCE IN Z DIRECTION (Fz) in KN	17.15
MOMENT @ X AXIS (Mx) in KN.m	5
MOMENT @ Z AXIS (Mz) in KN.m	25
MOMENT @ Y AXIS TORTIONAL MOMENT (My) in KN.m	0.01
COLUMN WIDTH b in mm.	200
COLUMN DEPTH d in mm	450
Assumed Safe Bearing Capacity of soil (SBC) in kN/Sq.m	200

2. CALCULATION FOR FOOTING SIZE

Approximate Area required in Sqm.	3.04
Length of Footing required in mm	1873.034611
Provided Length of Footing (L) in mm	1900
offset beyond face of column kept equal Cx=Cy in mm	725
Provided Width of Footing (B) in mm	1650
Footing Area Provided (A) Sqm.	3.135

3. CHECK FOR SOIL PRESSURE

Section Modulus of Footing in X Direction (Zx) in Cu.m	0.99275
Section Modulus of Footing in Z Direction (Zz) i. Cu.m	0.862125

SOIL PRESSURE IN X DIRECTION

Maximum soil Pressure (Pmax) in kN/Sq.M	=	Fy/A + Mx/Zx 198.9759087
Minimum Soil Pressure (Pmin) in KN/Sqm.	=	Fy/A - Mx/Zx 188.9028792

Maximum Pressure is less than SBC HENCE SAFE

SOIL PRESSURE IN Z DIRECTION

Maximum soil Pressure (Pmax) in kN/Sq.M	=	Fy/A + Mz/Zx 222.9375091
Minimum Soil Pressure (Pmin) in KN/Sqm	=	Fy/A - Mz/Zx 164.9412788

Allowable soil Pressure can Increase by 25% for Earthquake Load case

Maximum Pressure is less than Allowable SBC HENCE SAFE

Average Soil Pressure (P) kN/Sqm. = Fy/A	193.9393939

4. CALCULATIONS FOR FOOTING DEPTH

Depth from BM Consideration.

Bending Moment in footing X direction kN.m	99.3573764
Bending Moment in footing Z direction kN.m	96.67476077
Depth Required in X dirction (tx) in mm	244.9457403
Depth Required in Y dirction (ty) in mm	316.35011
Provided Depth of Footing (T) in mm	450
Depth at edge D'	200
Actual dx	390
Actual dy	380

5. CHECK FOR TWO WAY, PUNCHING SHEAR FORCE

Perimeter at Critical Section in mm	2820
Depth at critical Section	389.9603407
Concrete Area Resisting Shear Force in Sq.mm	1099688.161
Allowable Shear Stress (Tou c) A/P IS 456	1.118

Ks = 0.5 + b/d 0.944444444	
Shear Capacity of Concrete (Vuc) in kN	1229.451364
Design Shear Force In Concrete (Vud) kN	514.6375758
Vuc is More Than Vud HENCE SAFE	

6. CALCULATIONS FOR REINFORCEMENT

Width of Footing Along The Shorter Axis (b1) in mm	600
Width of Footing Along The Longer Axis (d1) in mm	350
Area of Steel Required (Ast in X-dir) in Sq.mm	756.8635909
PROVIDE 10 NOS, TOR 10 BAR AT EQUAL SPACING	
Area of Steel Required (Ast in Z-dir) in Sq.mm	806.571205
PROVIDE 11 NOS, TOR 10 BAR AT EQUAL SPACING	

7. CHECK FOR ONE WAY SHEAR

One Way in X-Direction	
Depth at critical Section	449.8948167
Width at critical Section	1210
Area Resisting Shear at critical Section in Sq.mm	544372.7282
Area of Steel Provided (Ast in X-dir) in Sq.mm	785
Percentage Area of Steel at Critucal Section (%Ast)	0.144202668
Beta	16.10233726
Allowable Shear Stress (Tou c) A/P IS 456	0.282533107
Shear Capacity of Concrete (Vuc) in kN	153.8033183
Design Shear Force In Concrete (Vud) kN	127.1272727
Vuc is More Than Vud HENCE SAFE	
Depth at critical Section	449.8913681
Width at critical Section	980

Area Resisting Shear at critical Section in Sq.mm	440893.5407
Area of Steel Required (Ast in Z-dir) in Sq.mm	864
Percentage Area of Steel at Critucal Section (%Ast)	0.195965674
Beta	11.84901391
Allowable Shear Stress (Tou c) A/P IS 456	0.323376451
Shear Capacity of Concrete (Vuc) in kN	142.5745883
Design Shear Force In Concrete (Vud) kN	110.4

Vuc is More Than Vud HENCE SAFE

8. DESIGN SUMMARY

SIZE OF FOOTING (LxB)	1900 x 1650
DEPTH OF FOOTING T/t	450/ 200
REINFORCEMENT IN X-DIRECTION T10 -	13 NOS
REINFORCEMENT IN Z-DIRECTION T10 -	14 NOS

J. SAMPLE DESIGN CALCULATION FOR COLUMN

1. LOAD DATA FOR CALCULATIONS

COLUMN NO - C1,

STAAD OUTPUT MEMBER NO - 92 C1

DESIGN LOAD CASE - 7, 1.2 (DL +LL+EL)

VERTICAL AXIAL LOAD (Fy) in kN	608
SHEAR FORCE IN LONG SIDE Fz in kN	11.94
SHEAR FORCE IN SHORT SIDE Fz in kN	17.15
MOMENT @ LONGER SIDE (Mz) in KN.m	25.33
MOMENT @ SHORTER SIDE (Mx) in KN.m	5.72
DESIGN CONCRETE GRADE (fck) M20	20
DESIGN STEEL GRADE Fe 415	415

ASSUMED COLUMN WIDTH (b) in mm.	200
ASSUMED COLUMN DEPTH (D) in mm	450

2. CALCULATION FOR STEEL REQUIRED

As REQUIRED IN LONG DIRECTION	
Ratio = d'/D 0.1	
Ratio = Fy/fck* b*D	0.337777778
Ratio = Mz/fck*b*D*D	0.031271605
Value of Pt/fck From Design Aids Charts	0
Percentage Area of Steel Required (Pt %)	0
Area of steel required (Asc) in Sq.mm.	0
Asc REQUIRED IN SHORT DIRECTION	
Ratio = d'/b	0.225
Ratio = Mx/fck*b*b*D	0.015888889
Value of Pt/fck From Design aids Charts	0.01
Percentage Area of Steel (Pt %)	0.2
Area of steel required (Asc) in Sq.mm.	180

Provide 10 - 16 tor bars Eualy Distributed on all four sides

3. CHECK FOR CAPACITY

Area of Steel PROVIDED (Asc)	1256
Ultimate load capacity (Puz) Kn	1200.93
Ratio of actual Load to Ultimate capacity = Fy/Puz	0.506274304

Is less than 1 HENCE SAFE

4. CHECK FOR BIAXIAL BENDING MOMENT

Area of Steel Provided in Long Direction	804
Area of Steel Provided in Short Direction	1256

% Area of Steel Provided in Long Direction (Pt)	0.893333333
%Area of Steel Provided in Short Direction (Pt)	1.395555556
Ratio of Pt/fck in LONG direction	0.044666667
Ratio of Pt/fck in SHORT direction	0.069777778
Ratio of M/fckbD2 from Chart	0.08
Ratio of M/fckDb2 from Chart	0.095
Ultimate Moment resisting Capacity In Long Direction (Muz)	64.8
Ultimate Moment resisting Capacity In Short Direction (Mux)	34.2
Ratio of Actual to Ultimate Moment = Mz/Muz	0.390895062
Ratio of Actual to Ultimate Moment = Mx/Mux	0.167251462
SUM of Moment Ration	0.558146524

Is less than 1 HENCE SAFE

5. DESIGN FOR HORIZONTAL REINFORCEMENT

6. DESIGN SUMMARY

SIZE OF COLUMN (b x D)	200 x 450 mm
MAIN REINFORCEMENT	T16 - 4 NOS and T12- 4 Nos
LINKS	6mm-150 c/c

K. SAMPLE DESIGN CALCULATION FOR RCC SLAB

1. LOAD DATA FOR CALCULATIONS

SLAB NO -	S2
DESIGN LOAD CASE -	1, 1.5 (DL +LL)
SHORT SIDE SPAN OF SLAB (Lz) in M	3.2
LONG SIDE SPAN OF SLAB (Lx) in M	5.3
DESIGN CONCRETE GRADE M20	20

DESIGN STEEL GRADE Fe 415	415
DESIGN LIVE LOAD ON SLAB 2	
LOAD FOR FLOOR FINISH	1
DENSITY OF SLAB MATERIAL Kn/Cum.	22
Ratio of Lx/Lz	1.65625
Type Of slab one way / two way ONE WAY	

2. DESIGN FOR ONE WAY SLAB

Depth from Deflection criteria Lz/26	123.0769231
Provided depth of slab	125
Self Weight of Slab	2.75
Total Factored Design Load (W)	8.625
Maximun Moment (M) =	W*Lz*Lz/8 11.04
Effective Depth Of slab	100
Assuming Width of Slab 1 M	1000
Ratio of M/b*d*d	1.104
Percentage area of Steel required (%Ast) in Sq.mm	0.328291022
Area of Steel required	410.363778
Spacing for 8 mm Tor bars	119.4062503
Spacing for 10 mm Tor bars	191.2936868
Spacing for 12 mm Tor bars	275.3654344
Provide Tor 12 mm Bars @ 275 c/c	
Area for Distribution Steel	
0.15 % of slab area	187.5
Spacing for 8 mm Tor bars 261.3333333	

Provide Tor 8 mm Bars @ 270 c/c

3. DESIGN SUMMARY

DEPTH OF SLAB IN mm 120

BOTTOM REINFORCEMENT ALONG SHORT SPAN T12 @ 275 c/c

BOTTOM REINFORCEMENT ALONG LONG SPAN T8 @ 270 c/c

4. Design concept:

The design concept considered land area and FSI as the main criteria for evolving concept design of various facilities for this project. The genesis of space efficient design stems from the fact that the land costs in Southern Karnataka especially in peri-urban/rural belt of Bangalore.

Design concept adopted volumetric design unit as the basis for design of buildings, particularly for shelter clusters. The concept uses the volumetric space instead of the conventional approach of considering the plan area only.

Volumetric Dwelling Units - A Design Idea For Economical Housing

The volumetric design unit approach visualizes space not just as area, but rather as a volume. This becomes all the more important in homes of economically weaker sections, wherein allocated area is low, family size large and the home may serve as a space for home based livelihood activities. The volumetric design unit at the same time optimizes space, maximizes spaciousness, keeping costs low. It does not penalize the economically weaker section by fitting them into minimum specifications, but inversely by adopting a design based approach it maximizes the opportunity offered by such a challenge and offers a spacious home, fulfilling needs and aspirations.

Concept designs are attached in Annexure with this report.

5. Environmental Consideration:

Rain Water Harvesting

Bangalore is well suited for roof top rain water harvesting because of its rainfall pattern. It has an annual average of 950 mm, which is spread over close to 60 rainy days spread over nine months of the year. Effectively starting April, Bangalore receives rain through all months to

November and also receives some in December. This well spread out rainfall means that a storage tank based roof rainwater harvesting system can be quite successful.

Average Annual Rainfall in Bangalore

Month	Mean Total Rainfall (mm)	Mean Number of Rainy Days
Jan	**2.7**	**0.2**
Feb	**7.2**	**0.5**
Mar	**4.4**	**0.4**
Apr	**46.3**	**3**
May	**119.6**	**7**
Jun	**80.6**	**6.4**
Jul	**110.2**	**8.3**
Aug	**137**	**10**
Sep	**194.8**	**9.3**
Oct	**180.4**	**9**
Nov	**64.5**	**4**
Dec	**22.1**	**1.7**
	969.8 mm	**59.8**

The proposed project for Bangalore rural exploits this advantage and through design and investment in adequate storage facility in the form of underground tanks on site maximizes 'Rain Water Harvesting'

Waste Water Treatment and Recycling

A Waste Water Recycling system has been designed to be able to recycle the entire waste water generated by the project on site itself. The designed system works on natural systems and uses no electricity. The system has been calculated for a full load of 275 persons from cluster, 91 persons from the school and a variable load of 579 persons from the Community Hall. BOD at source has been assumed at 300-400 Mg/L, COD at source at 600-800 Mg/L and Settable Solids at 250-350 Mg/L

The treatment and recycling system comprises broadly of, 1. Settler tank, 2. Baffle tank, 3. Horizontal planted gravel filter 4. Polishing pond / soak pit. The sewage from the Cluster units, Community Hall and School are combined. The Sludge From Settler Tank To Be Removed Every 12 Months. Grey water from the polishing pond to be pumped out and used only for gardening through a drip irrigation system. Not to be sprayed or used for flushing.

6. Technologies adopted in the Design package:

Shelter Clusters		
Building Component	**Conventional technology/system considered**	**Alternative technology/system adopted**
External Walls	Burnt brick masonry 230 mm thick	**Clay hollow bricks masonry**
Roof slab/floors	RCC slab	**RCC filler slab with flyash block fillers**
Door frames	Honne (Class II) timber	**RCC Door frame**

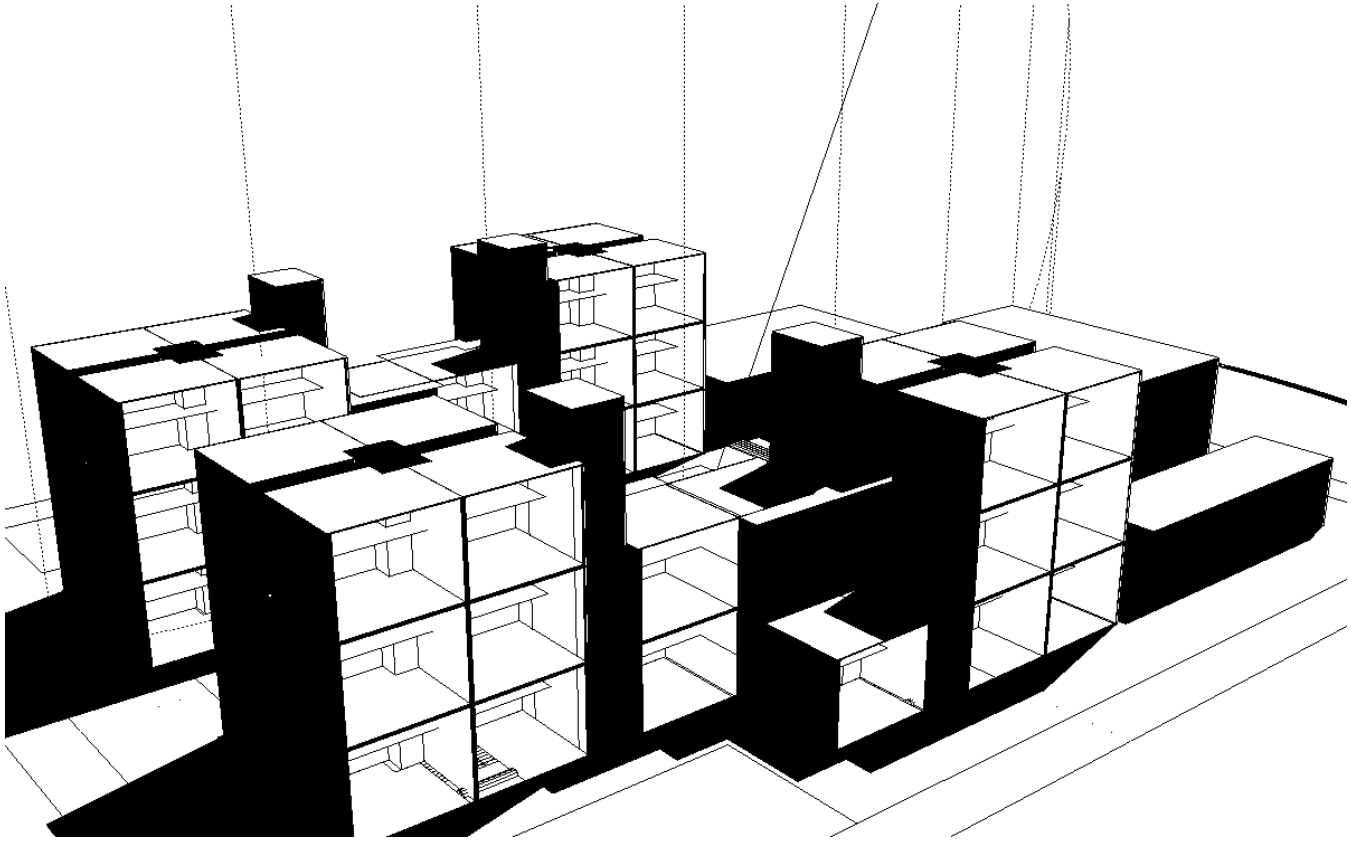
School		
Building Component	Conventional technology/system considered	Alternative technology/system adopted
External Walls	Burnt brick masonry 230 mm thick	**Clay hollow bricks masonry**
Roof slab/floors	RCC slab	**RCC filler slab with flyash block fillers**
Door frames	Honne (Class II) timber	**RCC Door frame**

Community hall and kiosks		
Building Component	Conventional technology/system considered	Alternative technology/system adopted
External Walls	Burnt brick masonry 230 mm thick	**Hollow cement concrete blocks masonry**
Roof slab/floors	RCC slab	**RCC filler slab with flyash block fillers**
Pyramidal roof	Mangalore pattern clay roofing tiles on steel understructure	**Micro Concrete Roofing tiles on steel understructure**
Door frames	Honne (Class II) timber	**RCC Door frame**

2

CLIMATIC ANALYSIS

CONTENT



CLIMATIC DATA OF BANGALORE

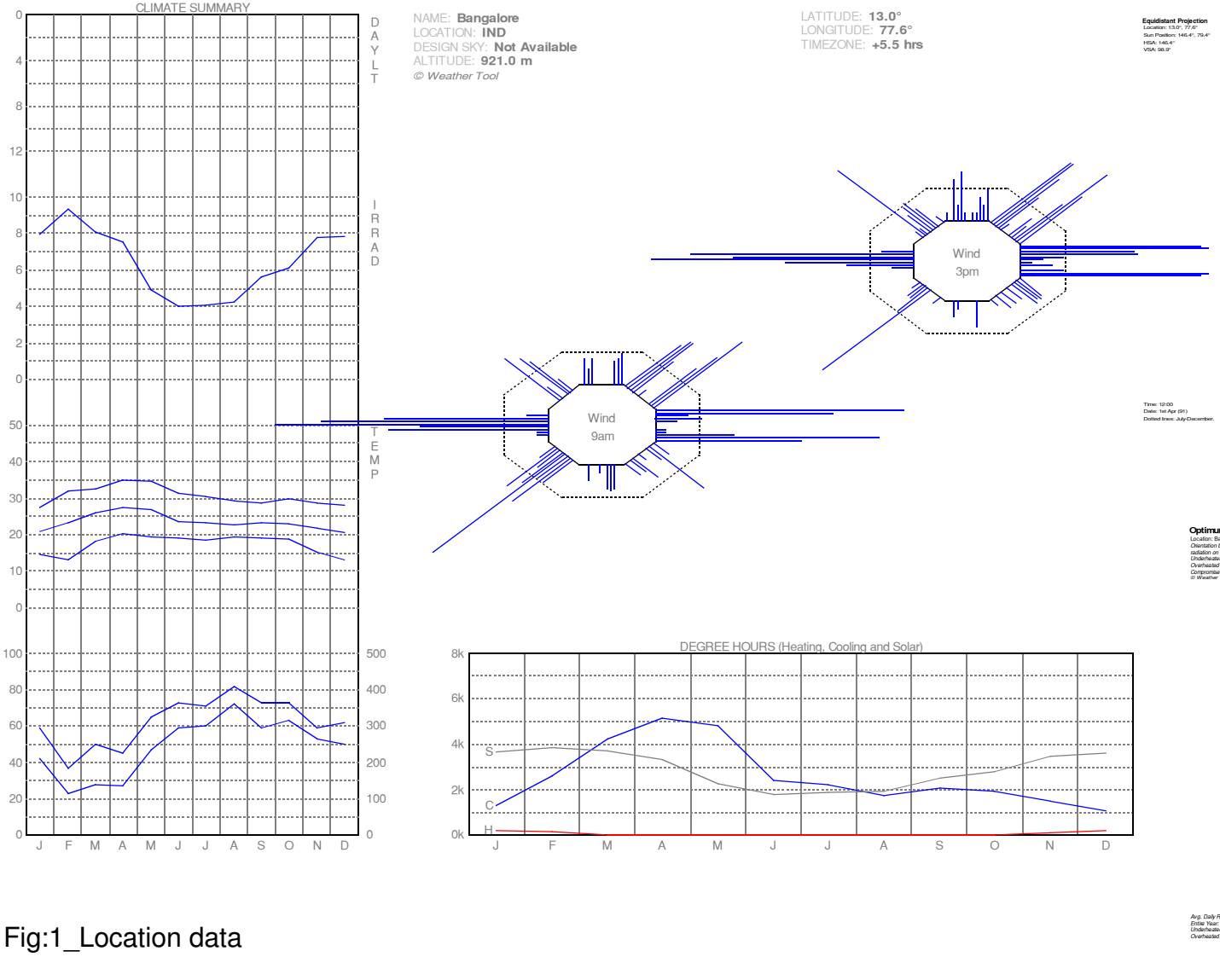


Fig:1_Location data

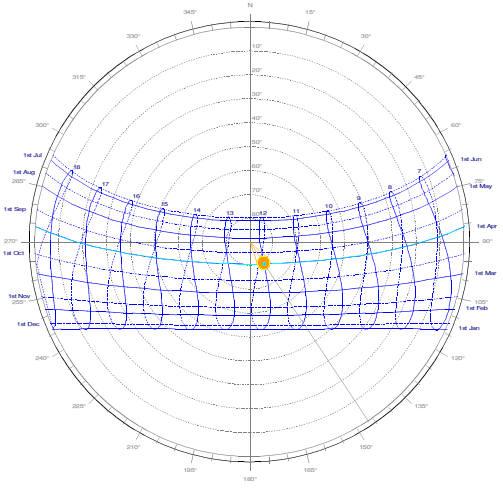


Fig: 2_Sun path diagram

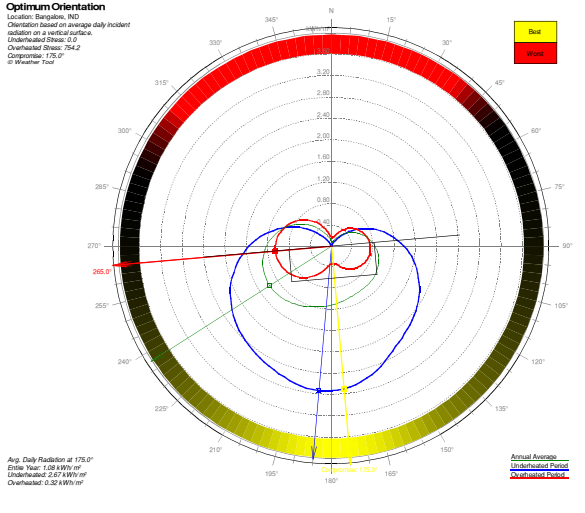


Fig: 3_Optimum orientation

CLIMATIC DATA OF BANGALORE

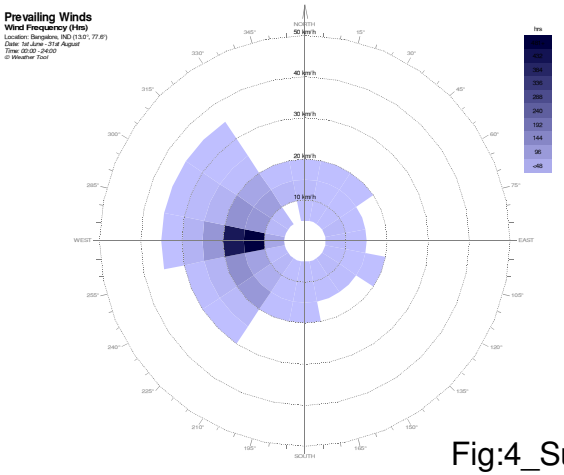
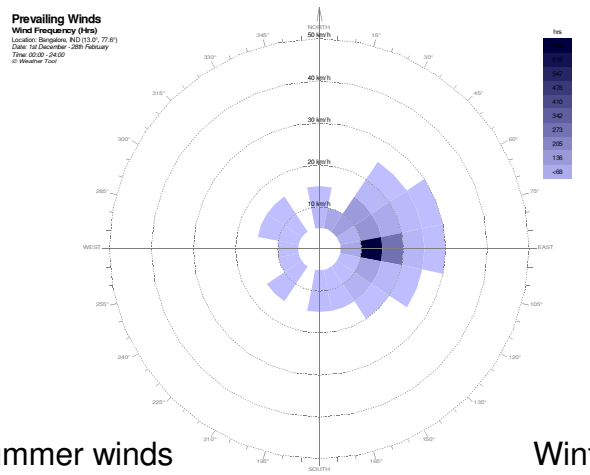
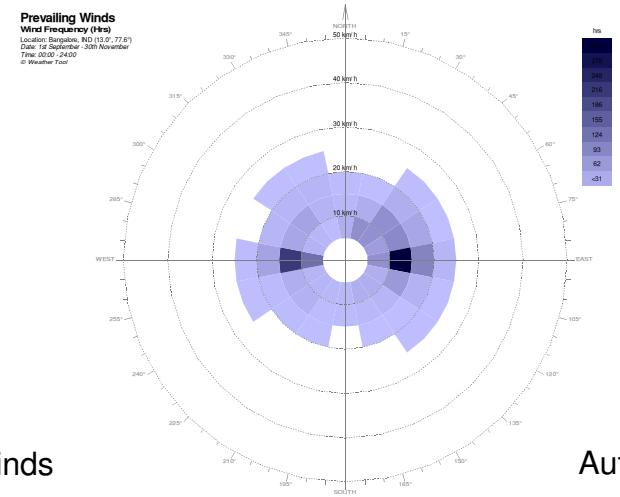


Fig:4_Summer winds



Winter winds



Autumn winds

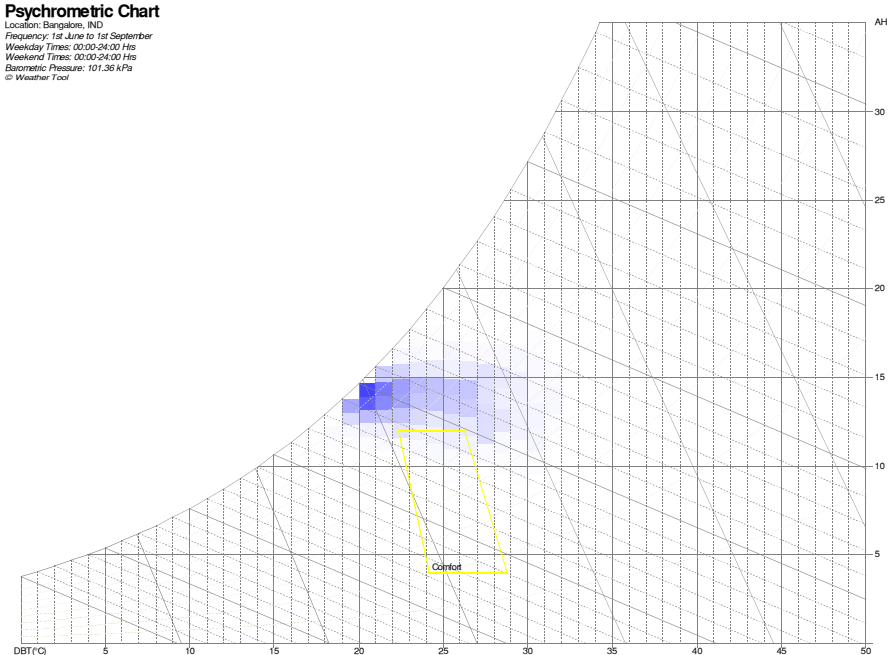


Fig:5_Psychrometric chart

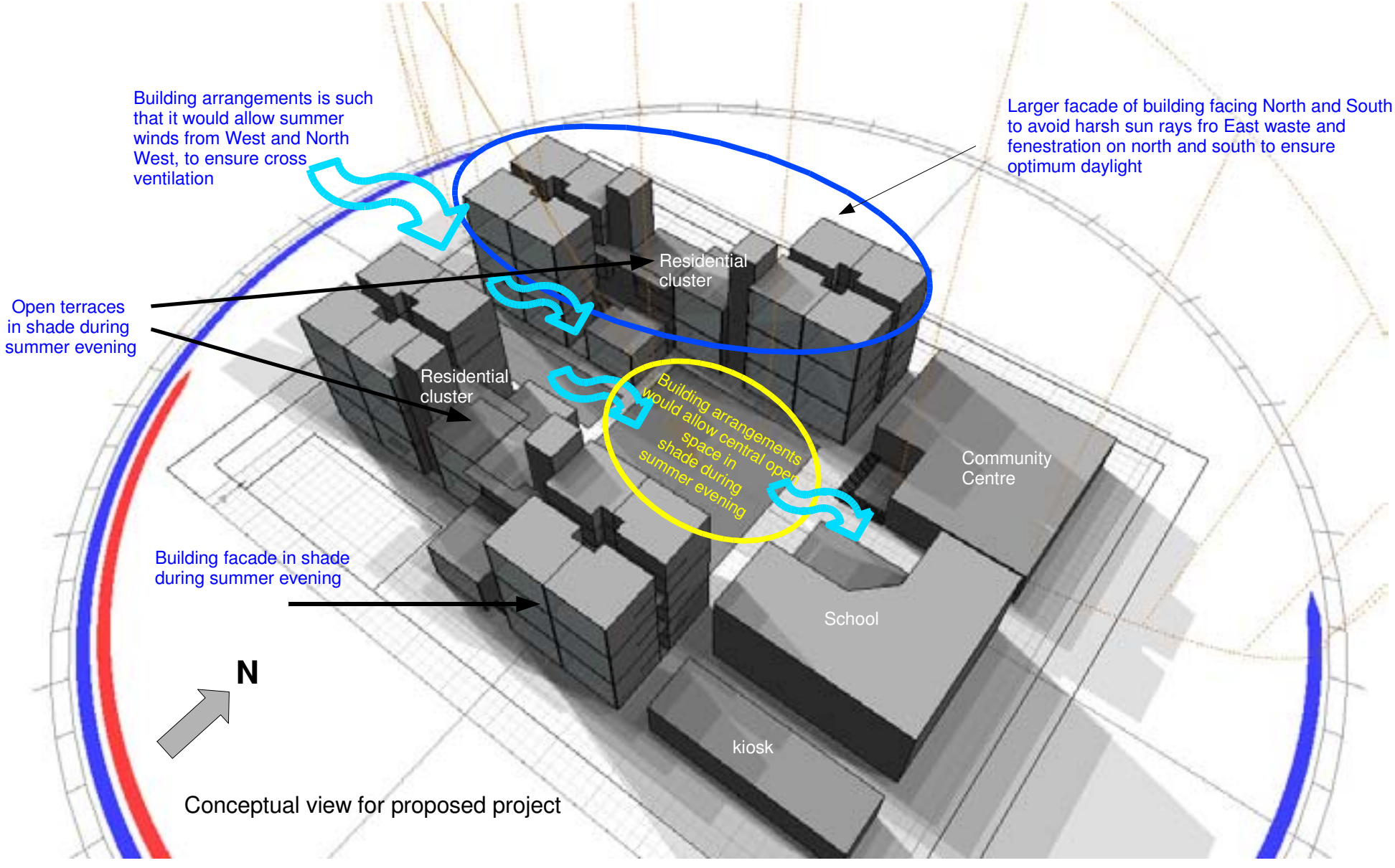
Bangalore comes under 'Moderate Climatic Zone'. Average Air temperature ranges from 25ºC to 29ºC in summer and 20ºC to 24ºC in winters.
Wind directions are predominantly from West, at morning and from East, at evening. During summer, the wind directions are from North-West and West. (refer wind rose fig:4). Incident solar radiation on horizontal surface is high (8139 W/sqm/day) as compared to vertical surfaces. Amongst vertical surfaces, East and West receives higher solar radiation up to 3361 W/sqm/day (as perNBC) as compared to South and North. Solar shading would be provided for surfaces facing East-West to reduce solar heat gain. Solar radiation on South would be higher during Winters. Solar radiation is required to ensure thermal comfort during winters. Hence, solar access need to ensure during winters into interiors.

Considering moderate climate, optimum orientation of buildings would be along East-West Axis, facing building's larger area to North and South.(refer fig:2). Fig 5 shows climatic stress during summer for moderate climate, which require reduction in air temperature in order to achieve thermal comfort.

With respect to Climate Responsive design the predominant climatic Stress is to reduce Solar Heat Gains. Hence below mentioned climate responsive strategies have been considered in the proposed design.

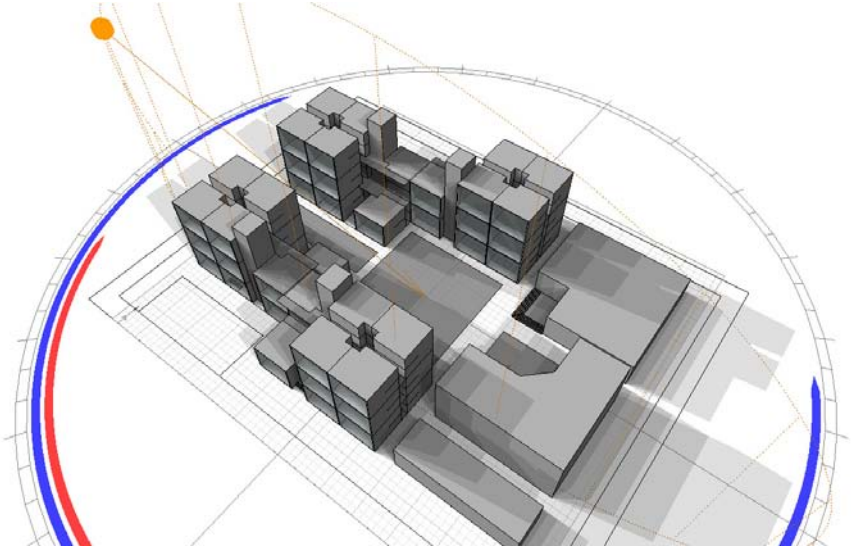
1. Optimum building Orientation- Larger facade of Buildings are facing North-South which would receive minimum solar radiation as well as diffused daylight.
2. Solar shading- on Building and on ground- Building arrangement is such that it would experience mutual shading during summer and central open space would receive shade during summer evening, to ensure reduced solar heat gains.
3. Wind Access- The arrangement of building would be such that would allow summer winds from West and North West to flow within the cluster, which helps in cross ventilation.
4. Solar Access during winters- Habitable areas have been planned to receive sun rays during winter, which helps to provide thermal comfort.

Climatic Analysis on Layout

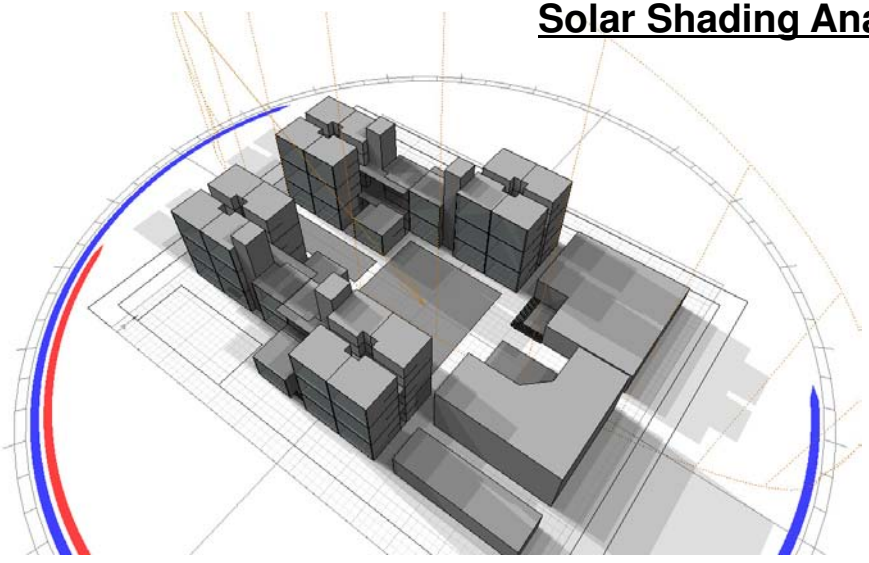


Conceptual view for proposed project

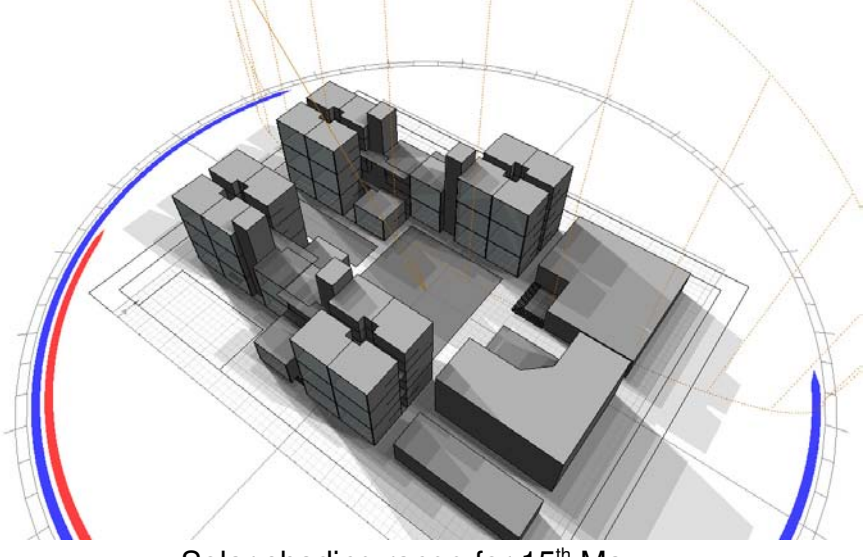
Solar Shading Analysis



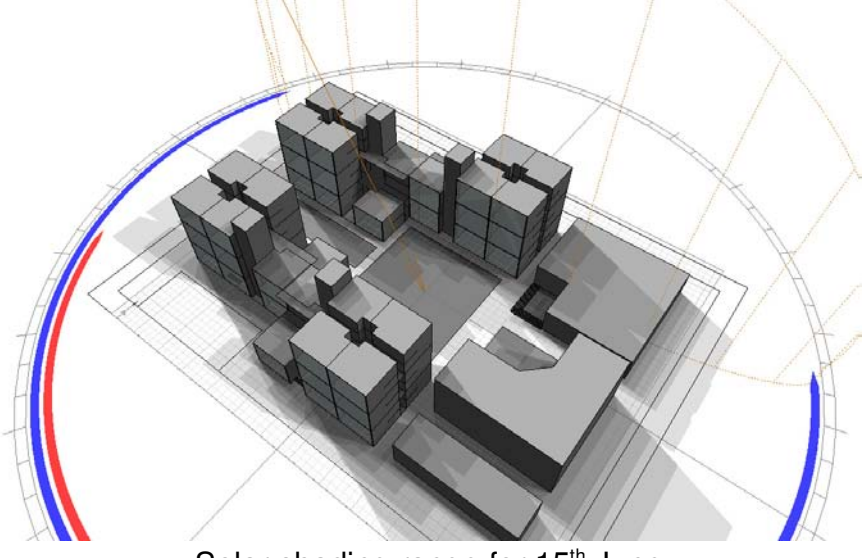
Solar shading range for 15th March



Solar shading range for 15th Apriil

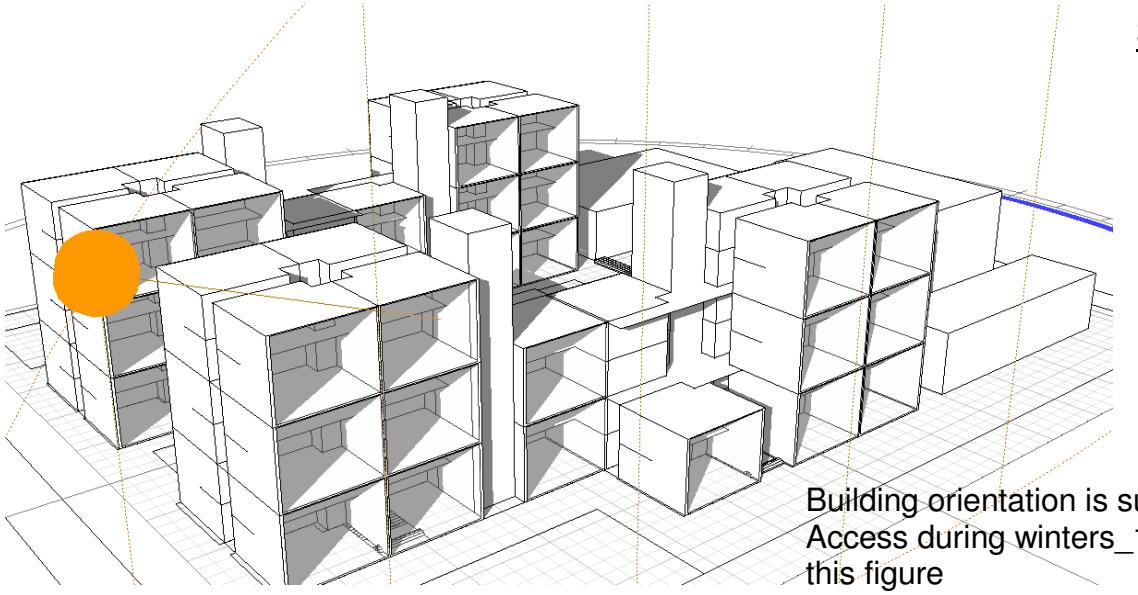


Solar shading range for 15th May

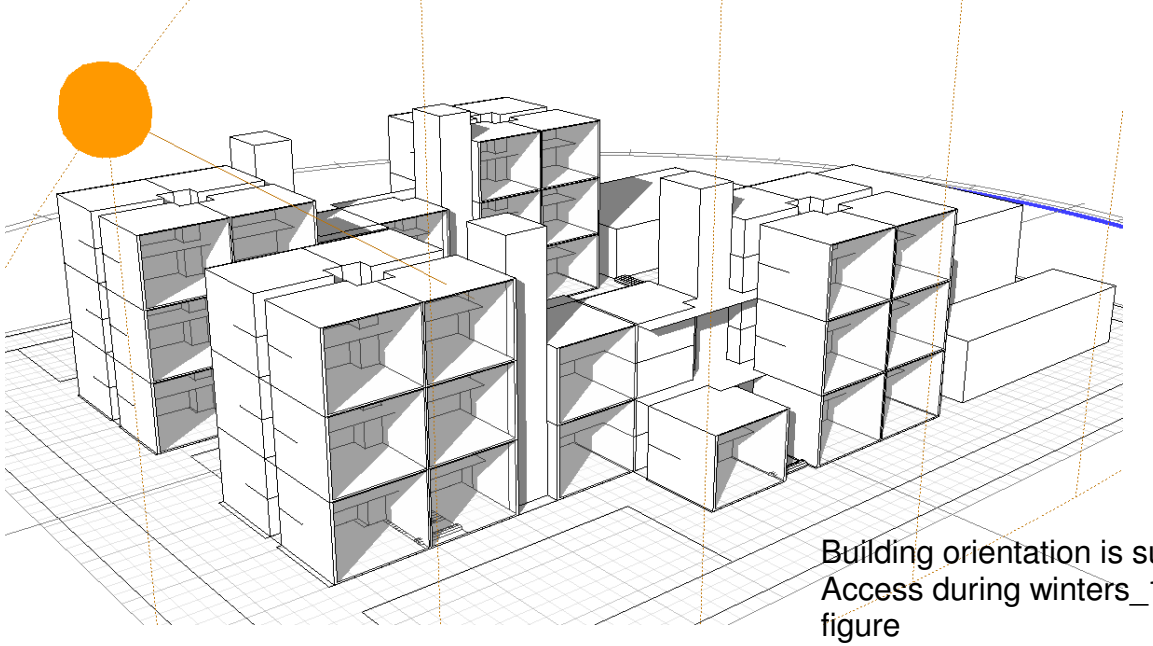


Solar shading range for 15th June

Solar Access Analysis

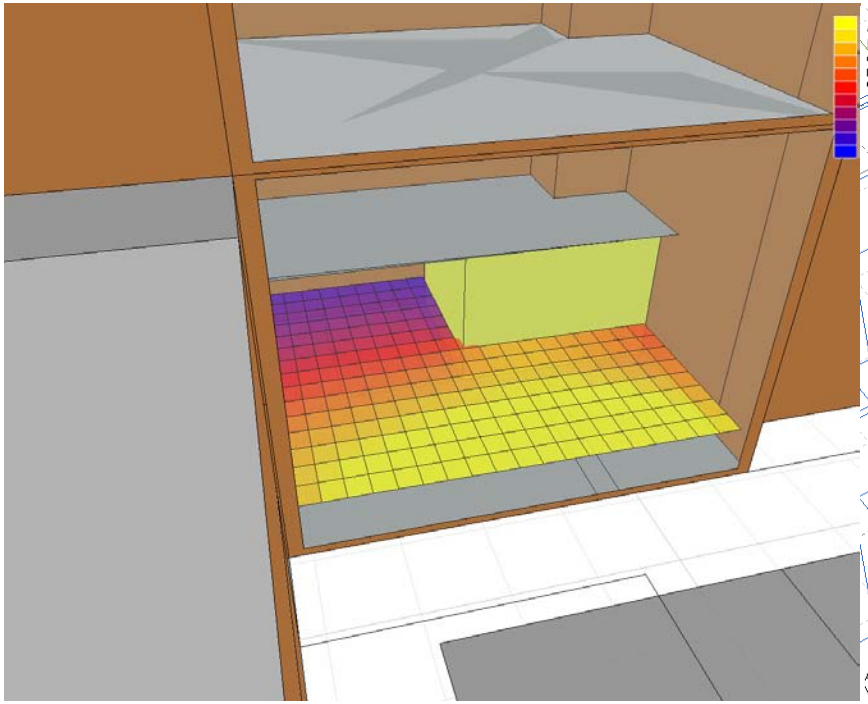


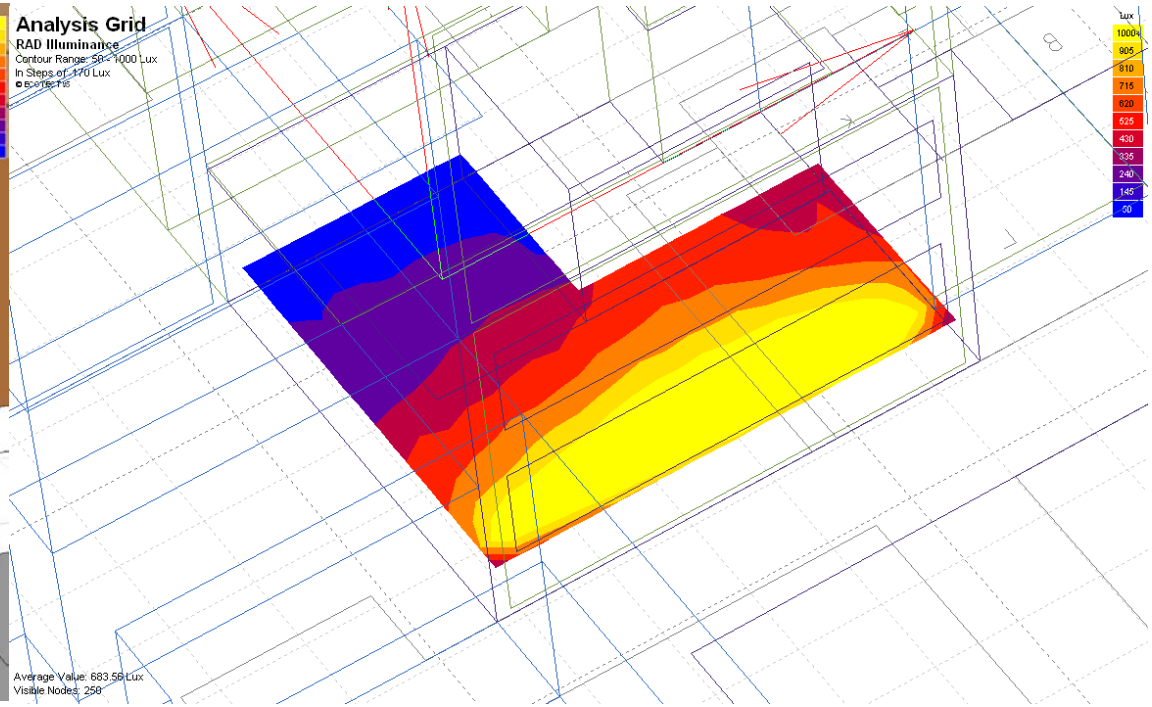
Building orientation is such it would allow Solar Access during winters_15th December, as shown in this figure



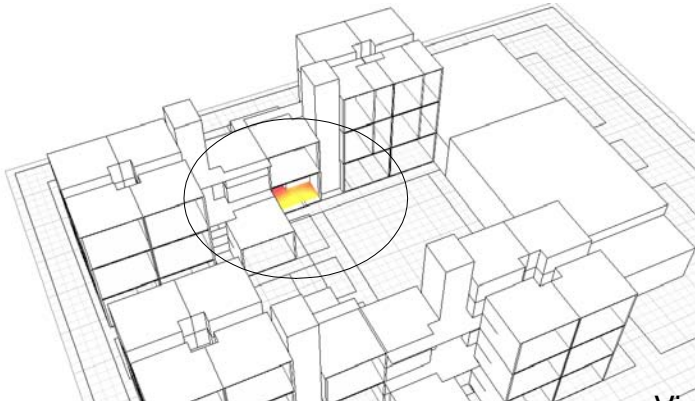
Building orientation is such it would allow Solar Access during winters_15th January, as shown in this figure

Daylighting Analysis for typical flat





Daylighting levels for typical flat _Living Kitchen



Daylighting levels for typical flat _Living Kitchen

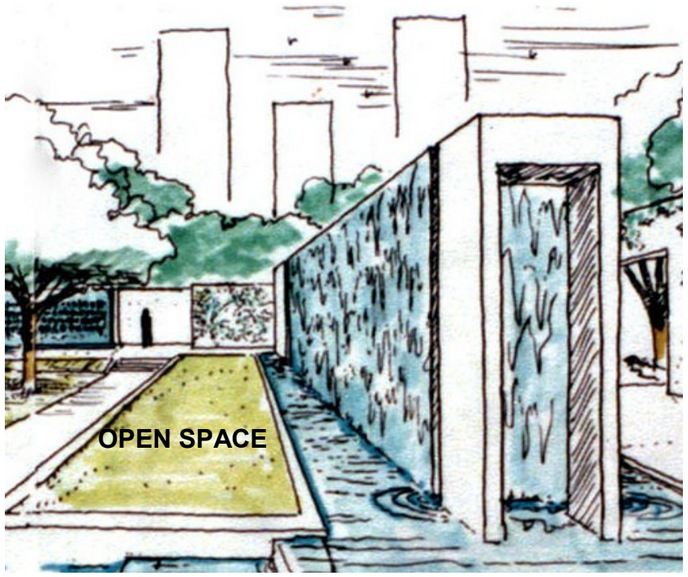
Assumptions area as follows-

-2 Windows on facade (5m x 1.2m)
-Sky Condition: Cloudy Sky

3

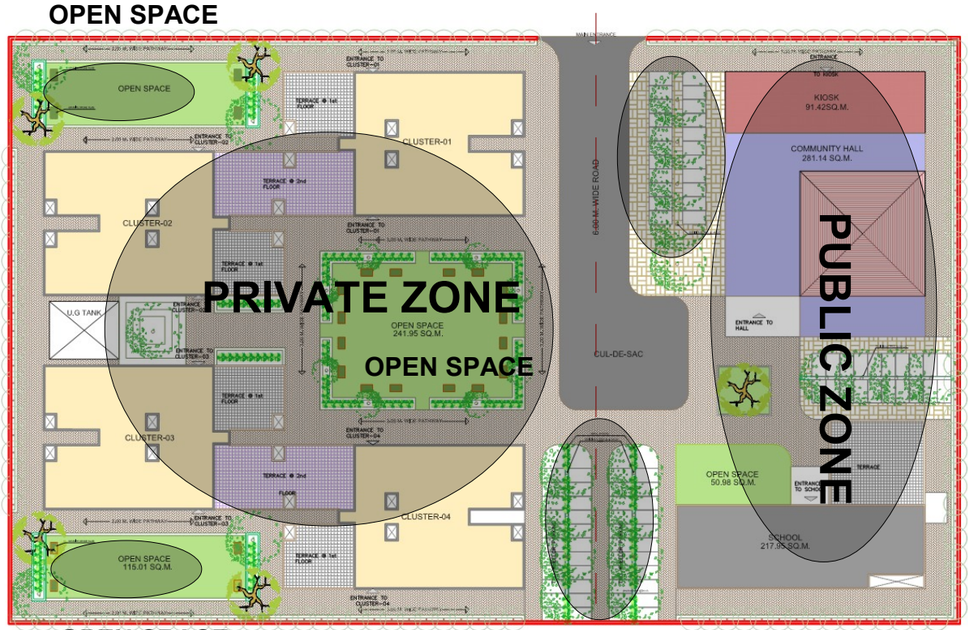
CONCEPT DESIGN

CONCEPT

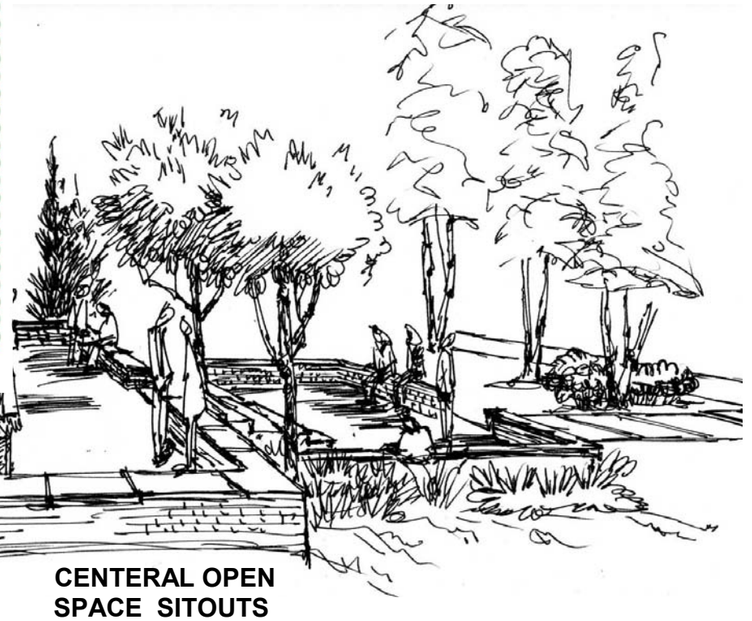


MAIN ROAD CUTTING TWO DIFFERENT ZONES

OPEN SPACE

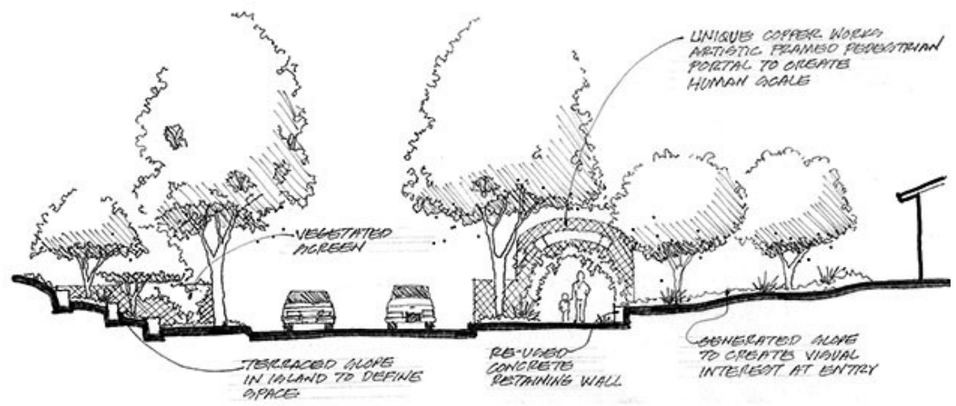


OPEN SPACE



CENTERAL OPEN SPACE SITOUTS

PATHWAYS CONNECTING OPEN SPACES



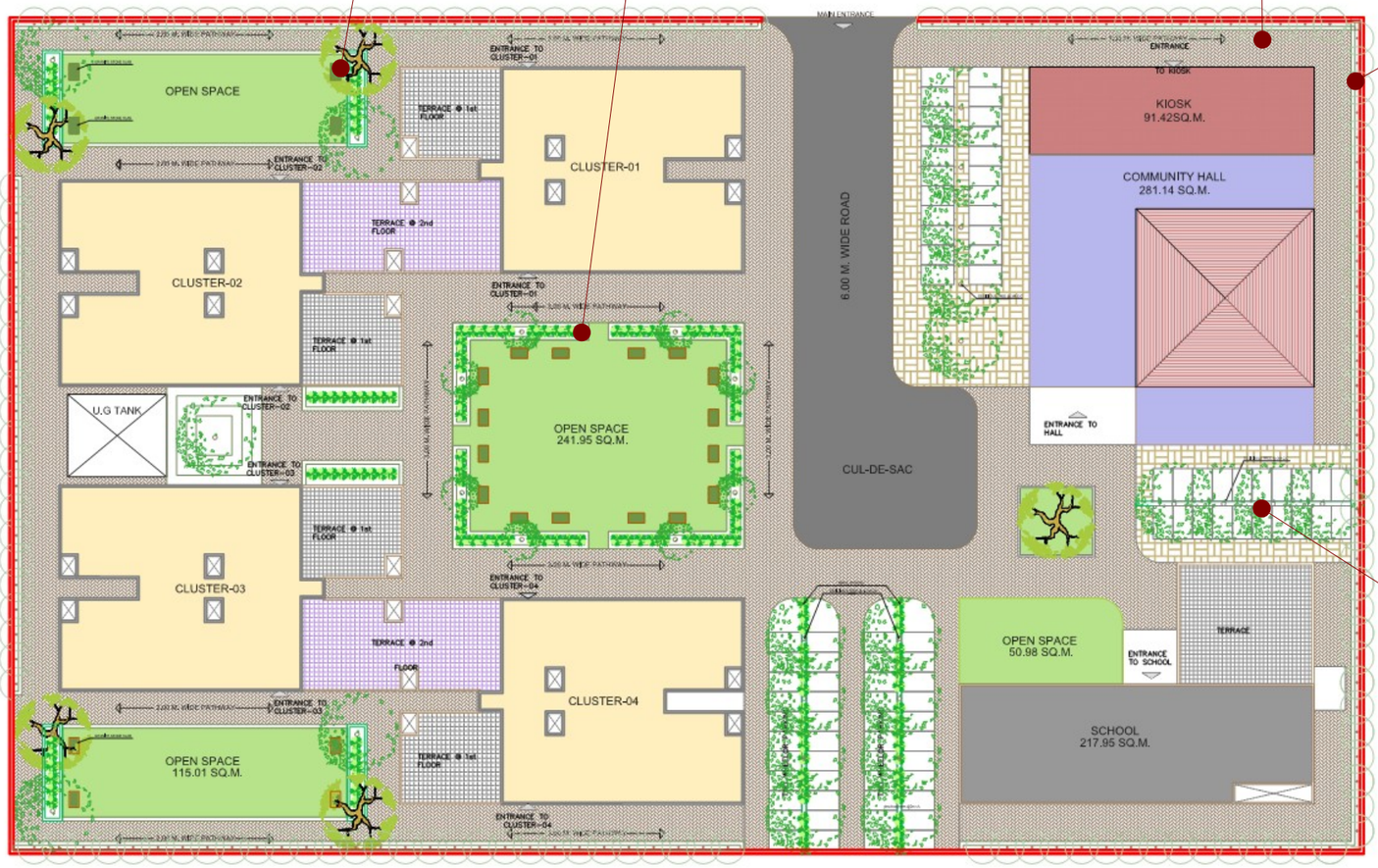
ROAD SECTION

LANDSCAPE FEATURE

SITOUTS BENCHES

FLOWER BED TYPE-A

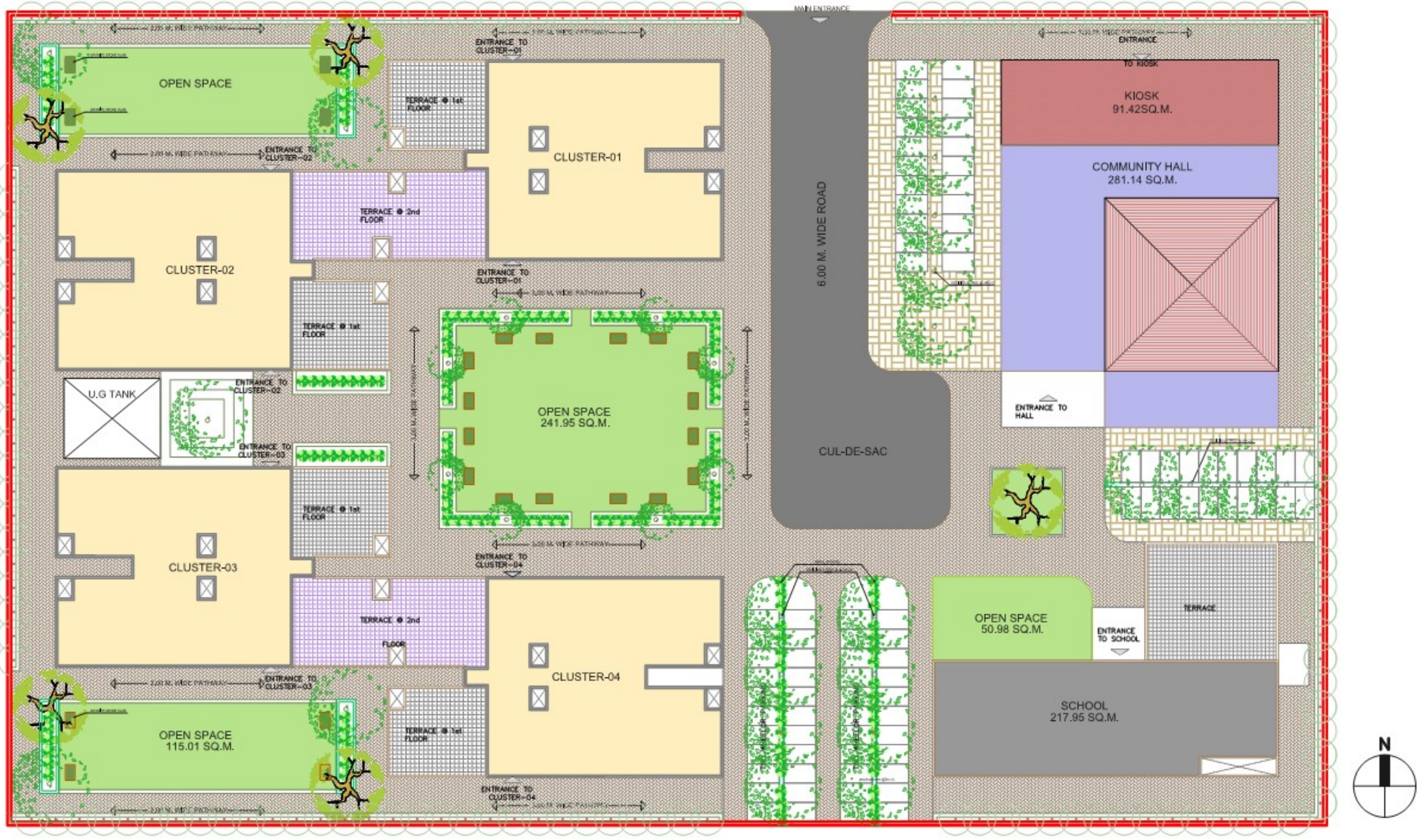
PATHWAYS



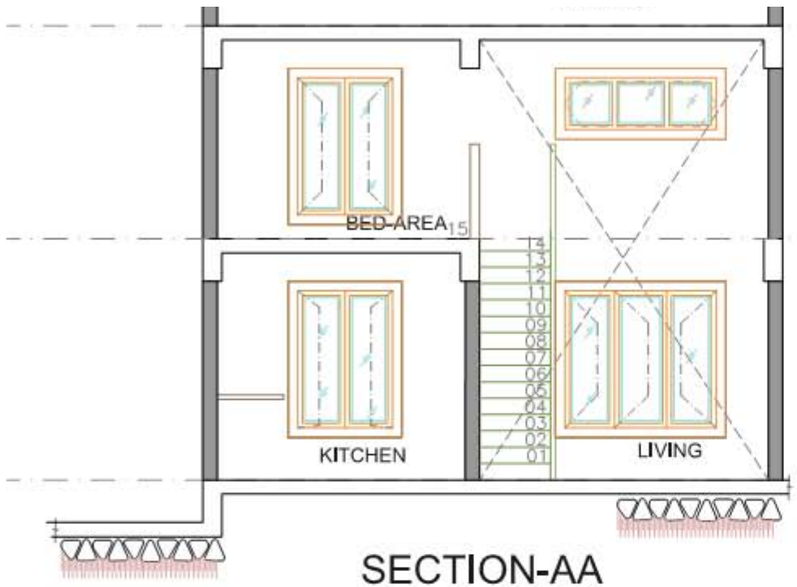
FLOWER BED TYPE-C

FLOWER BED TYPE-B

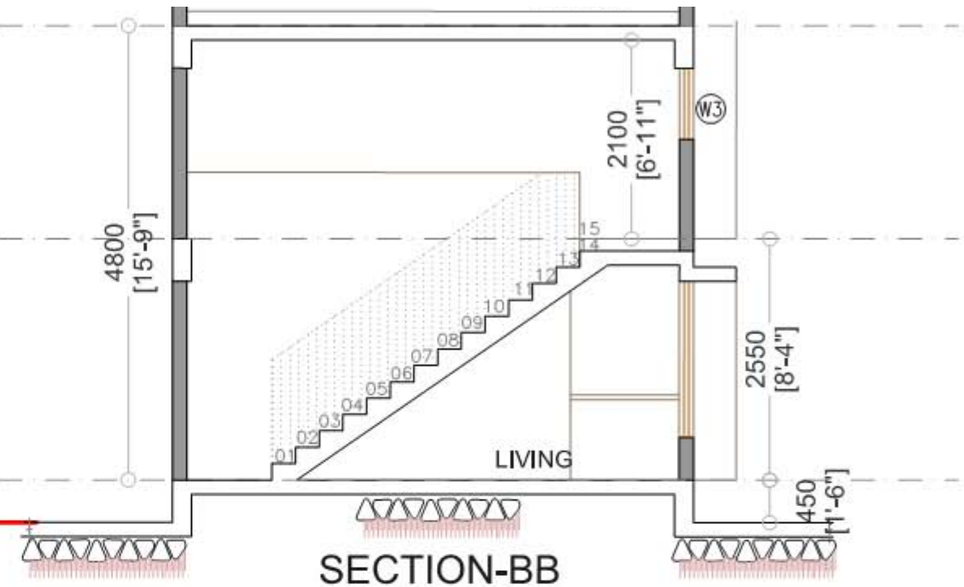
SITE LAYOUT


MAIN ENTRANCE
OPEN SPACE
ENTRANCE TO CLUSTER-01
TERRACE @ 1st FLOOR
CLUSTER-01
ENTRANCE TO CLUSTER-02
TERRACE @ 2nd FLOOR
CLUSTER-02
6.00 M. WIDE ROAD
ENTRANCE
TO KIOSK
KIOSK
91.42SQ.M.
COMMUNITY HALL
281.14 SQ.M.
ENTRANCE TO CLUSTER-01
TERRACE @ 1st FLOOR
U.G TANK
ENTRANCE TO CLUSTER-02
ENTRANCE TO CLUSTER-03
OPEN SPACE
241.95 SQ.M.
ENTRANCE TO HALL
CUL-DE-SAC
ENTRANCE TO CLUSTER-04
TERRACE @ 1st FLOOR
CLUSTER-03
TERRACE @ 2nd FLOOR
CLUSTER-04
OPEN SPACE
50.98 SQ.M.
ENTRANCE TO SCHOOL
TERRACE
ENTRANCE TO CLUSTER-03
OPEN SPACE
115.01 SQ.M.
ENTRANCE TO CLUSTER-04
SCHOOL
217.95 SQ.M.
N

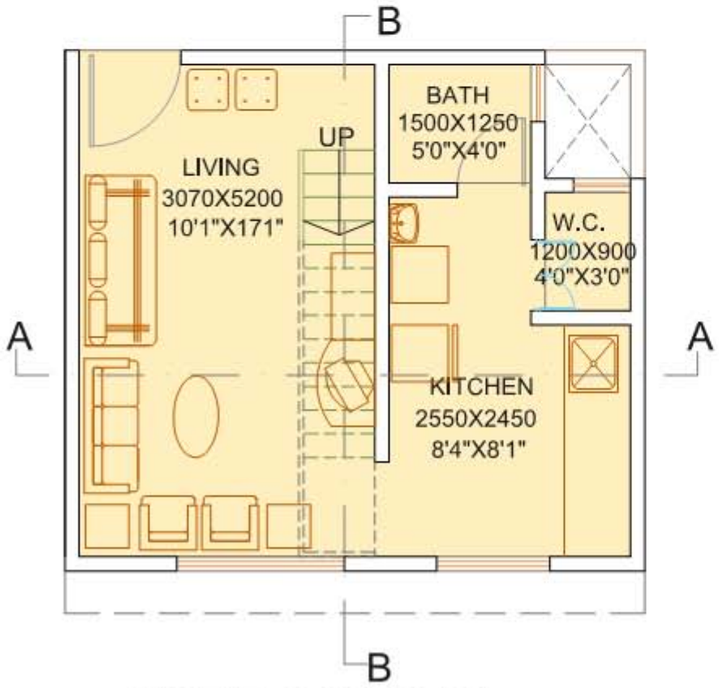
CLUSTER UNIT LAYOUT



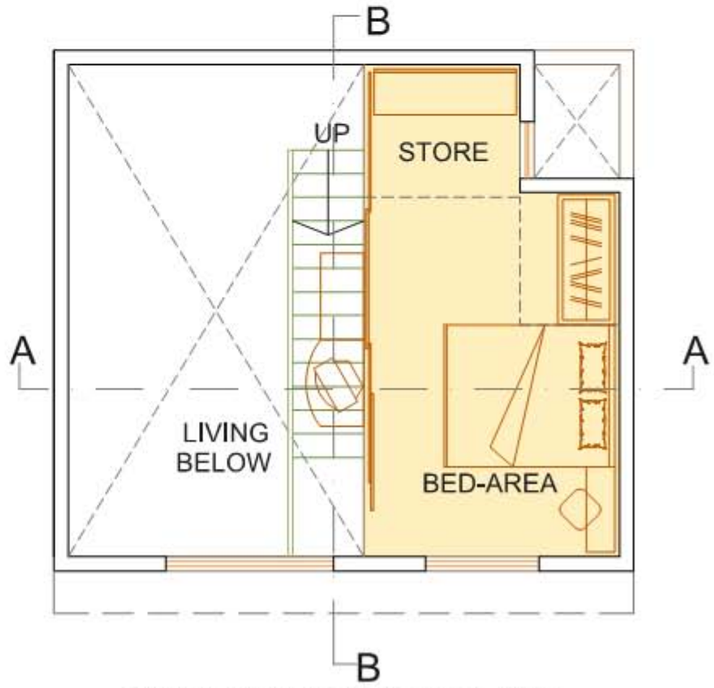
SECTION-AA



SECTION-BB

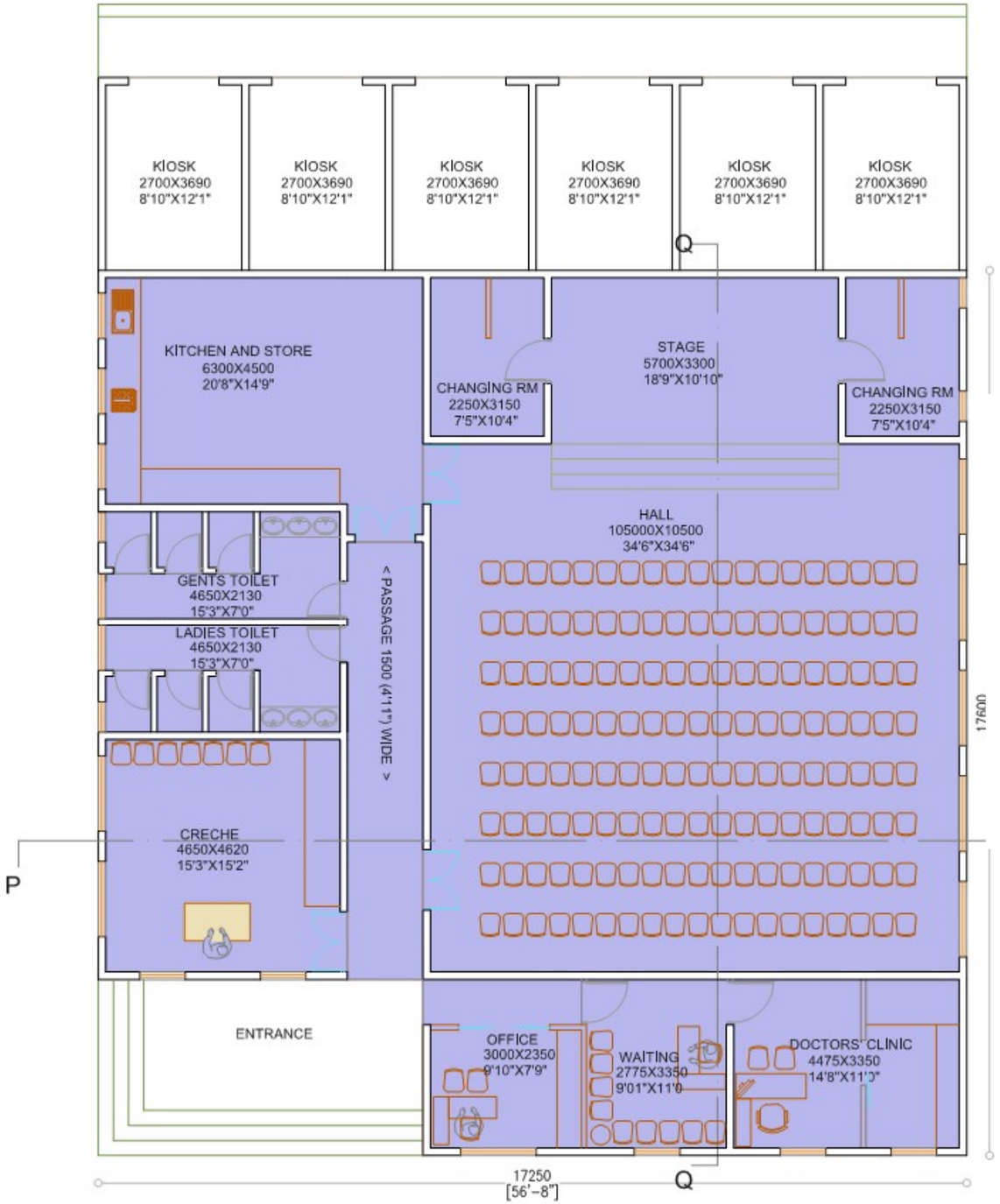


UNIT FLOOR PLAN

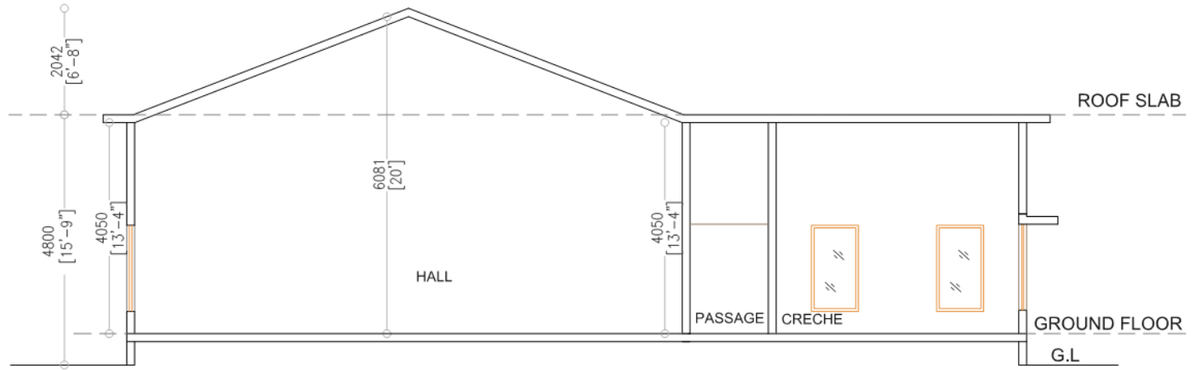


MEZZANINE FLR PLAN

COMMUNITY HALL & KIOSK

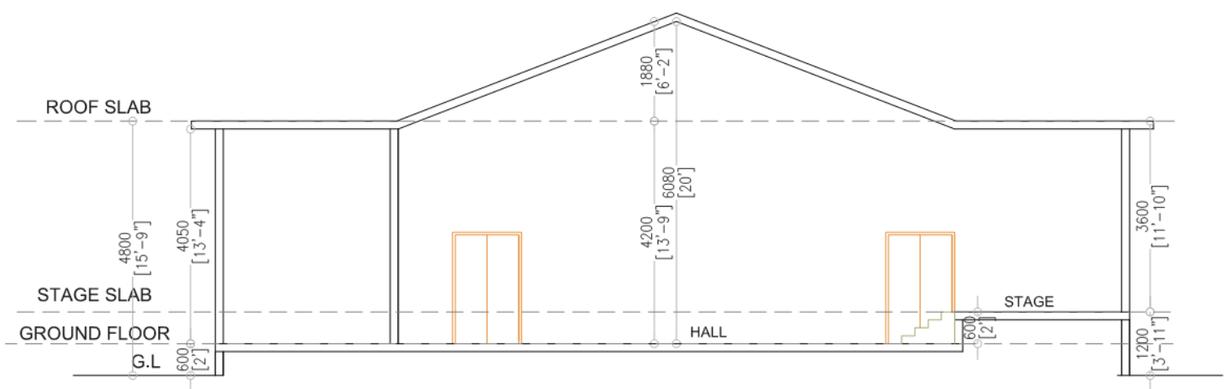


PLAN



SECTION-PP

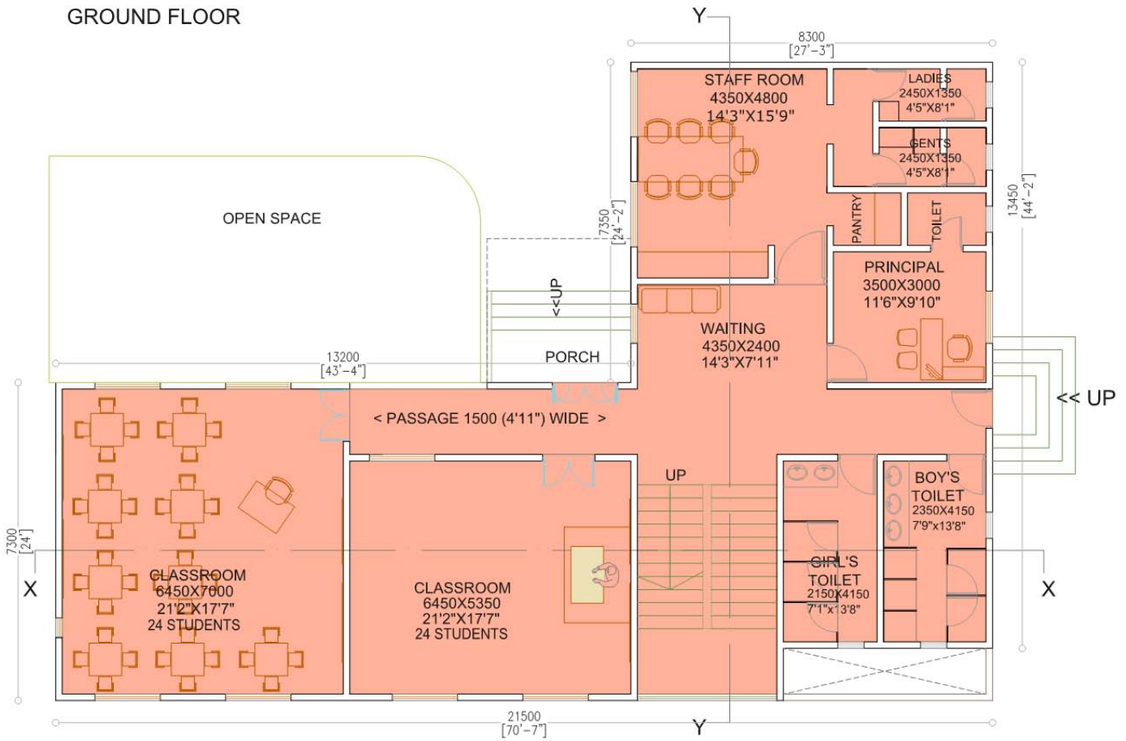
P

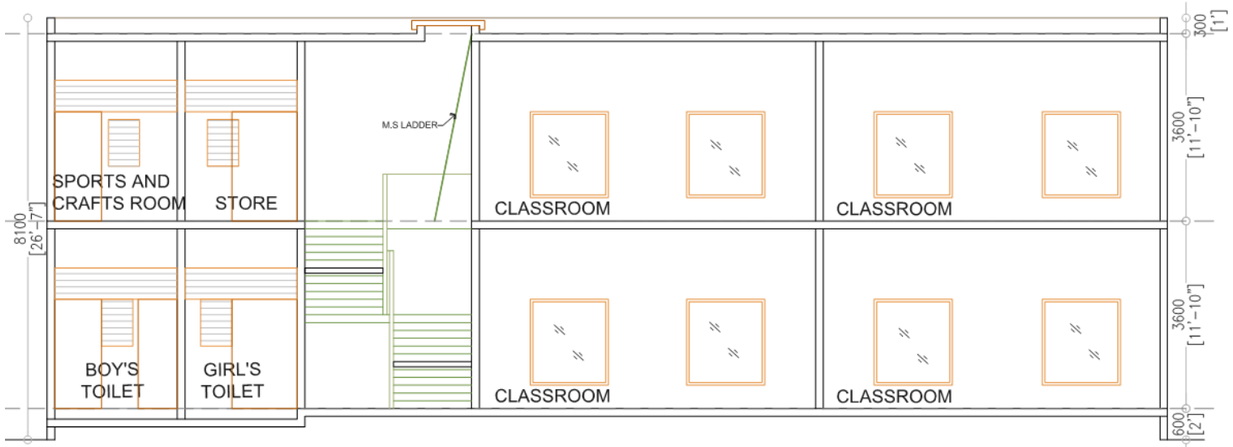


SECTION-QQ

SCHOOL

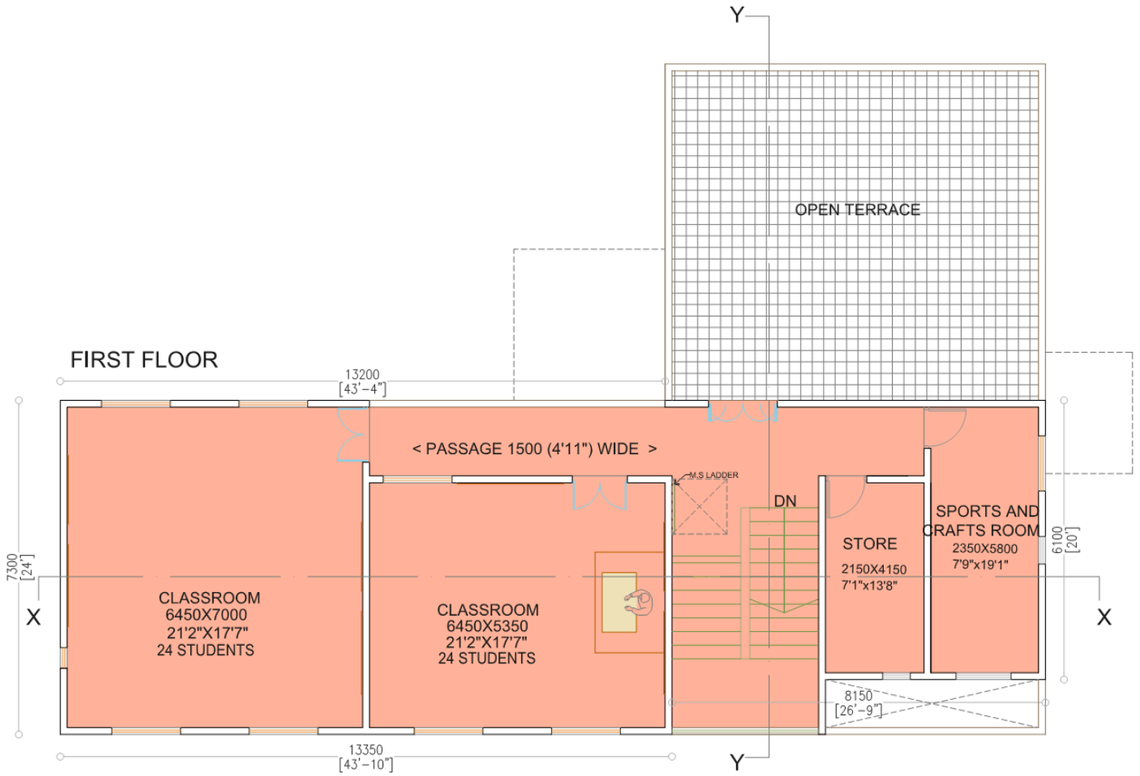
GROUND FLOOR

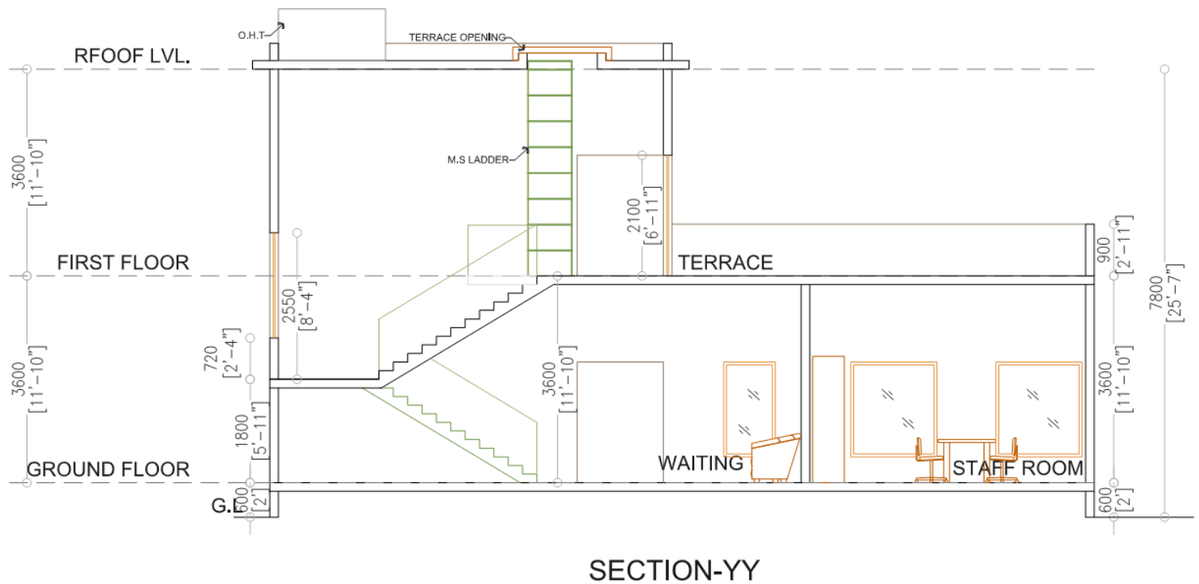




SECTION-XX

FIRST FLOOR





SECTION-YY

AREA STATEMENT

Cluster unit area				Total Built up area		
Floor	Built up area	Staircase area	Passage area	in Sq.mt.	in Sq.ft.	Terrace
Ground Floor	386.56	28.88	58.22	473.66	5098.47624	-
First Floor	329.39	28.88	55.56	413.83	4454.46612	58.34
Second Floor	291.06	28.88	55.56	375.5	4041.882	58.39
Total Area	1007.01	86.64	169.34	1262.99	13594.8244	116.73
Area for both Cluster unit				2525.98	27189.6487	233.46

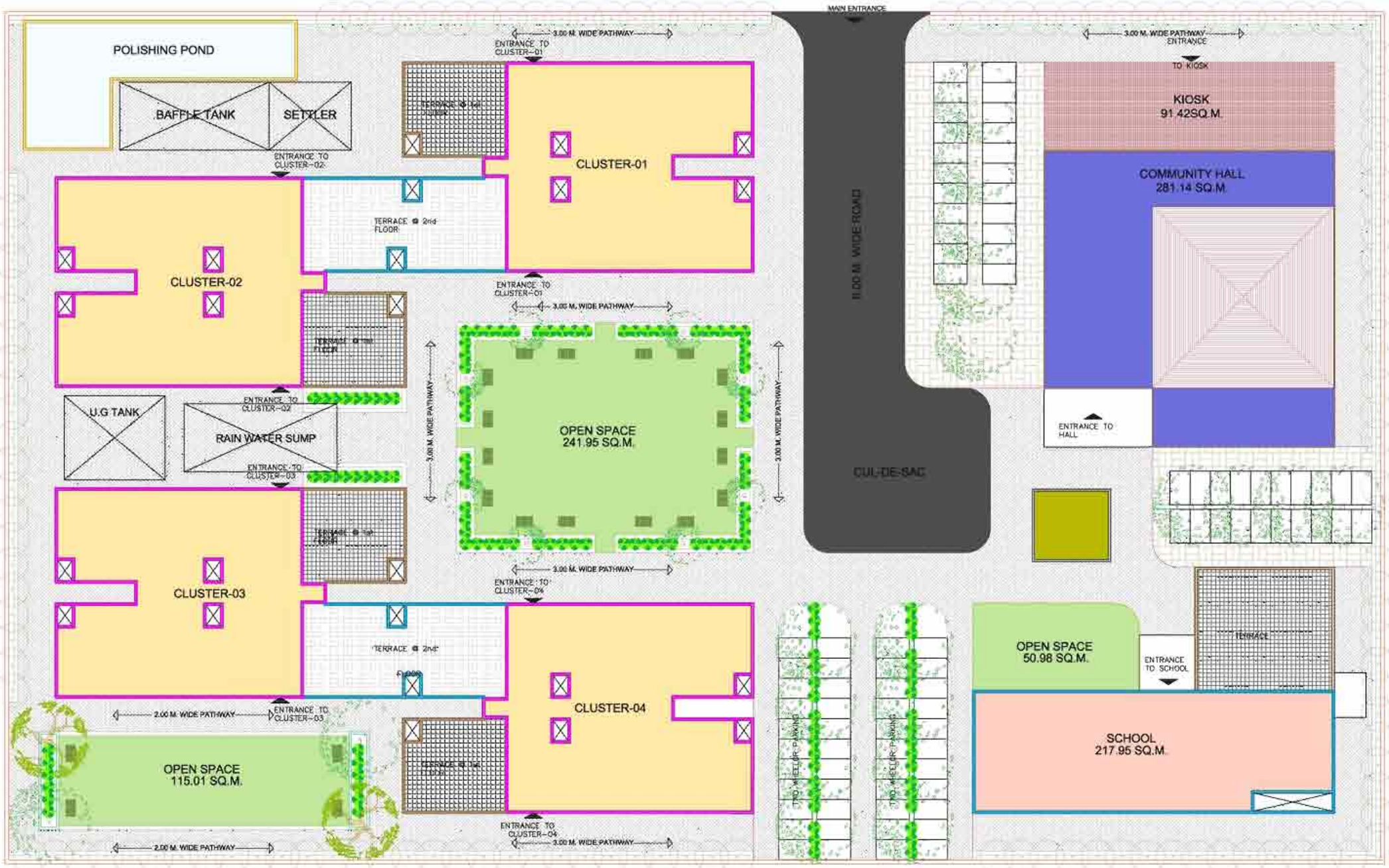
Kiosk & Community Hall area				Total Built up area		
Floor	Built up area	Staircase area	Passage area	in Sq.mt.	in Sq.ft.	Terrace
Ground Floor	347.25	-	-	347.25	3737.799	-
Area for Kiosk & Community Hall				347.25	3737.799	-

School area				Total Built up area		
Floor	Built up area	Staircase area	Passage area	in Sq.mt.	in Sq.ft.	Terrace
Ground Floor	173.57	17.6	21.9	213.07	2293.48548	-
First Floor	116.31	17.6	18.15	152.06	1636.77384	57.6
Total Area	289.88	35.2	40.05	365.13	3930.25932	57.6
Area for School				365.13	3930.25932	57.6

4

ARCHITECTURAL DRAWINGS

i. Layout Plan
ii. Landscape Plan
iii. Shelter clusters
iv. School
v. Community Hall and Kiosks
vi. Main Gate



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N

Client Company & Person:
"A Housing proposal for peri urban Bangalore - BMTPC"

Work Title:
BMPTC Technology

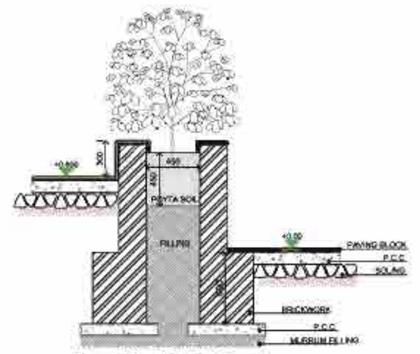
Drawing Title: SITE LAYOUT			Scale: 1:250
Drawn by: KC	Checked by:		Date: 07/11/12
Job No.: 1021	Drawing no.: 301		Revision: -

Status: GOOD FOR CONSTRUCTION

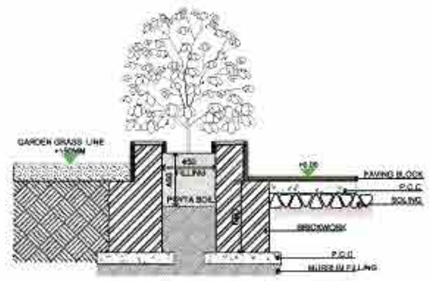
REV	REVISIONS	DR	CH	DATE

SITE LANDSCAPE LAYOUT

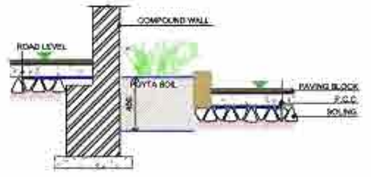
SITE PLAN



Flower Bed Detail - Type A



Flower Bed Detail - Type B



Flower Bed Detail - Type C

Flower Bed Detail - Type C

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VK:i interiors
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+91 20 24329566
f: +91 20 40195801
e: mail@vkarch.com
w: www.vkarch.com

N

Client Company & Person: "A Housing proposal for peri urban Bangalore - BMTPC"

Job Title: BMPTC Technology

Drawing Title: LANDSCAPE LAYOUT | Scale: 1:250

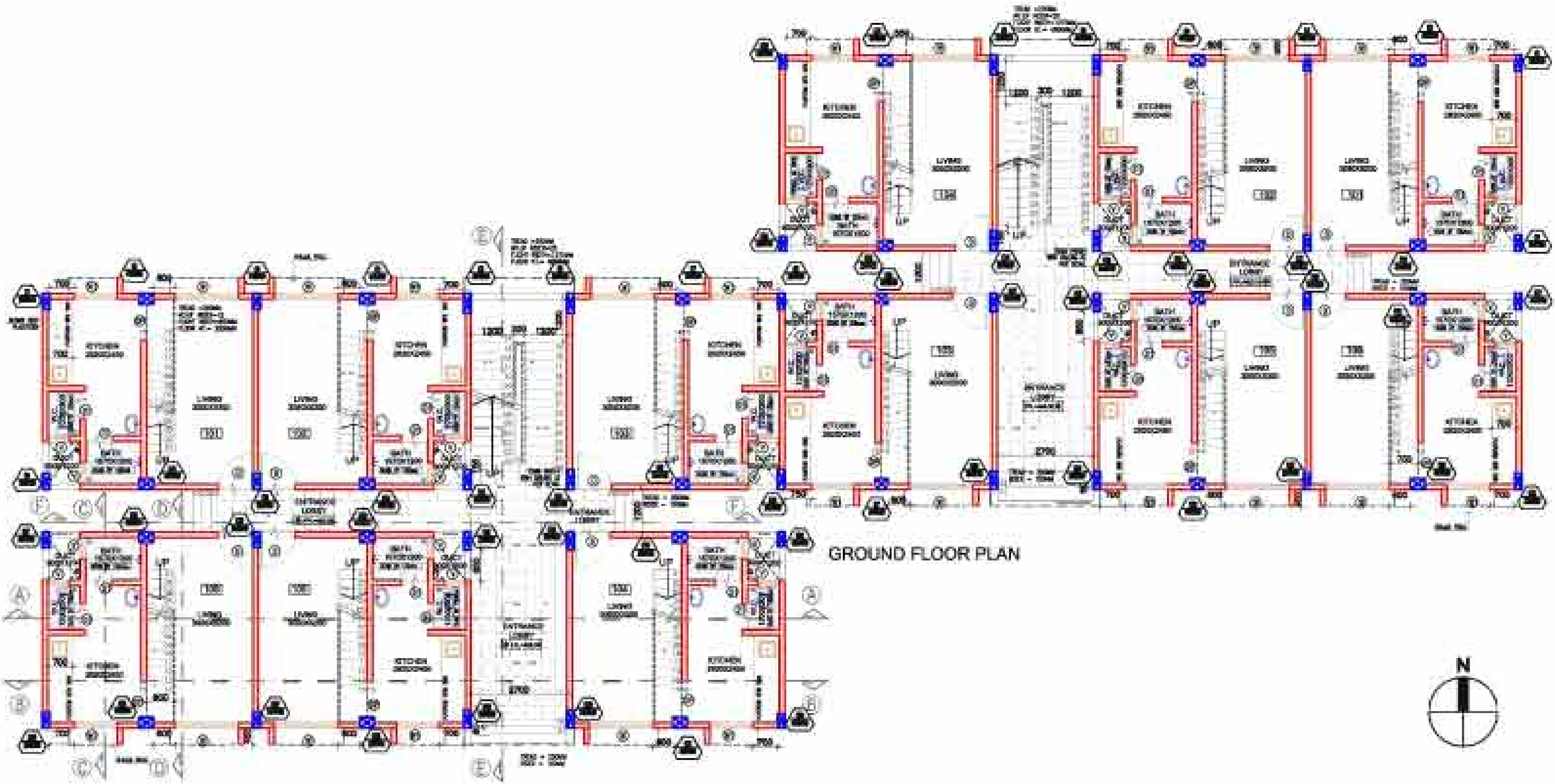
Drawn by: KC | Checked by: | Date: 07/11/12

Job no.: 1021 | Drawing no.: 500 | Revision: -

Status: GOOD FOR CONSTRUCTION

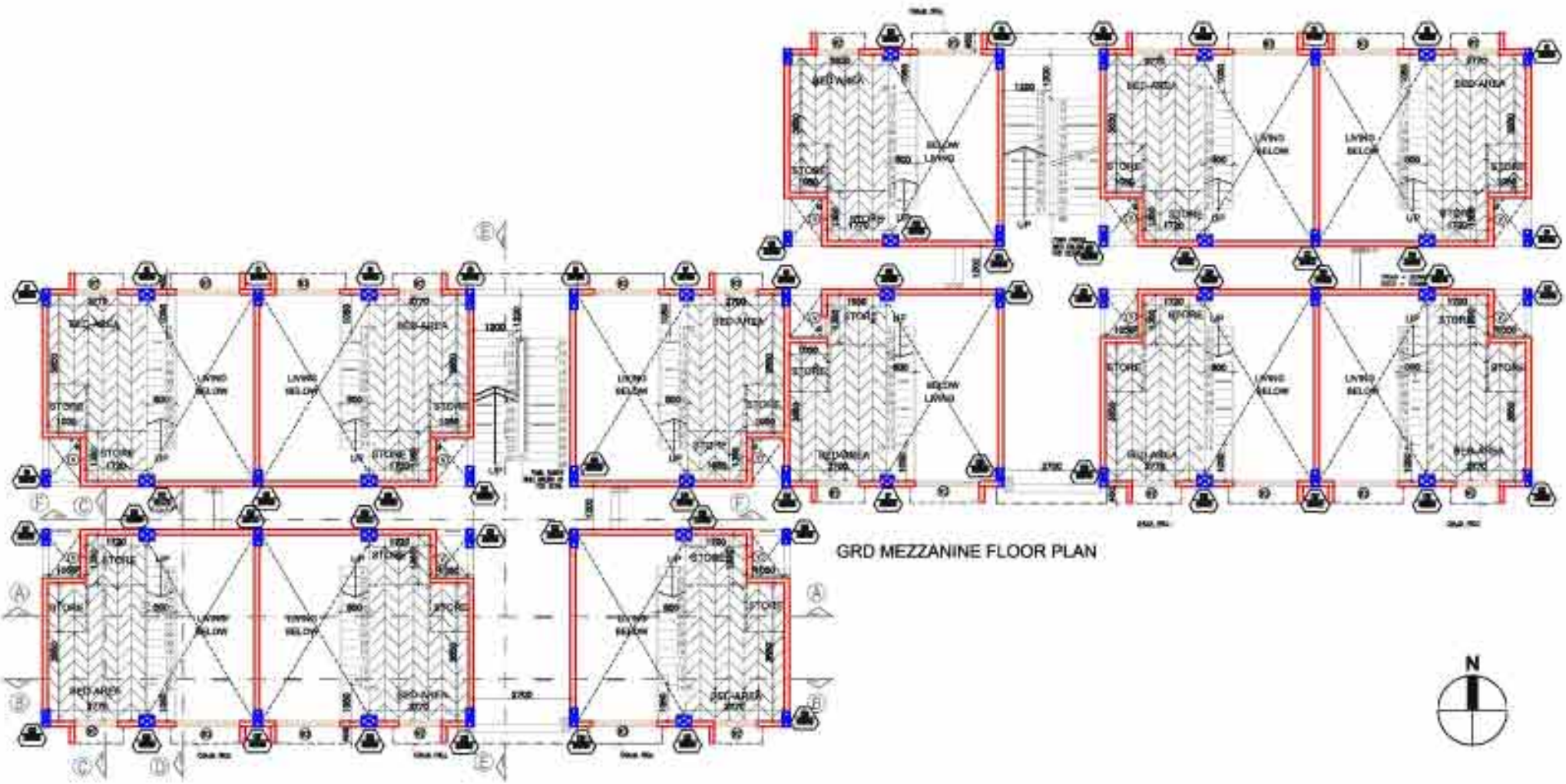
REV	REVISED DETAILS	DR	CK	ROA'D

GROUND FLOOR PLAN
CLUSTER UNIT



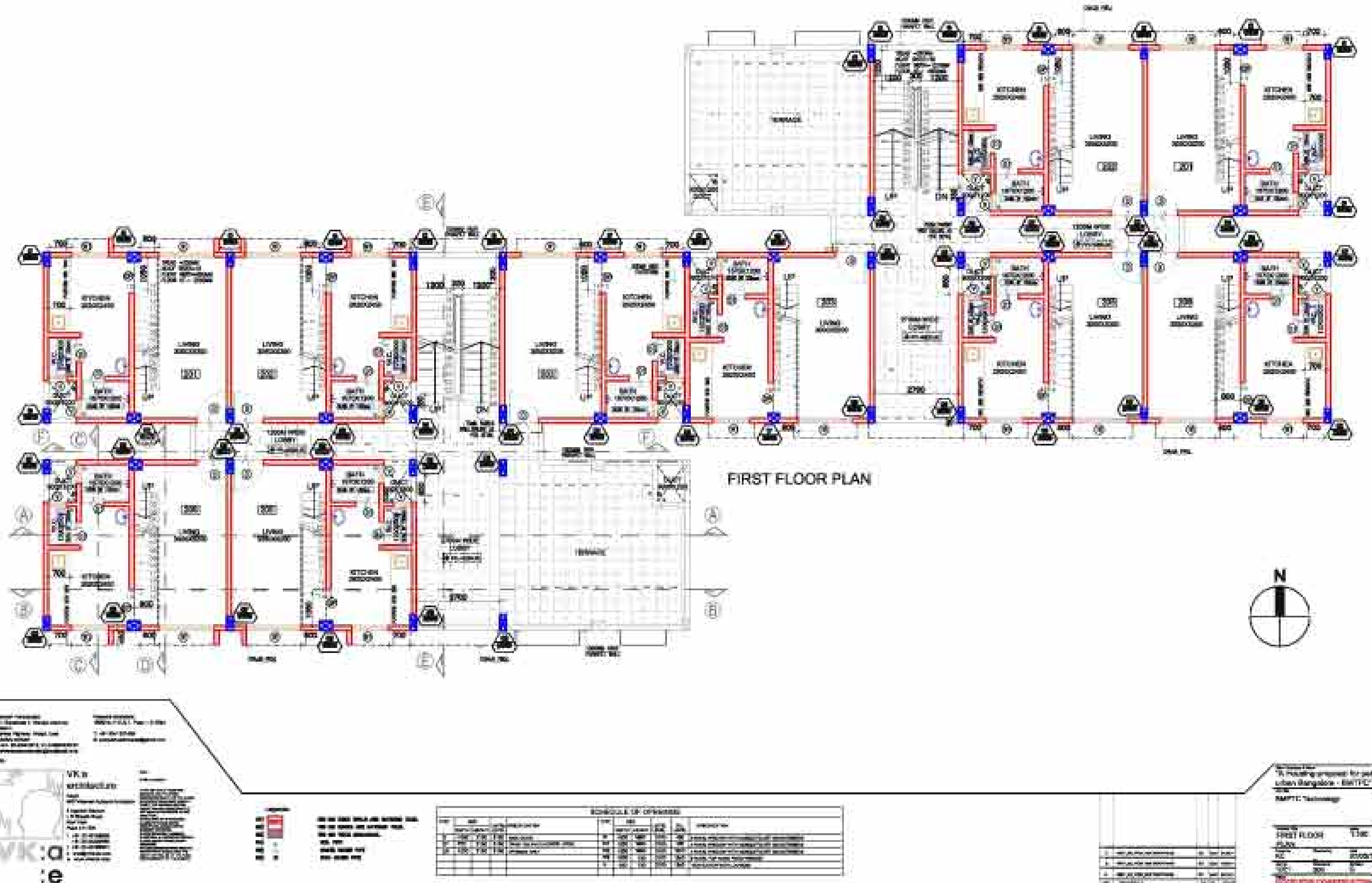
GROUND FLOOR PLAN

GROUND MEZZ. FLOOR PLAN
CLUSTER UNIT



GRD MEZZANINE FLOOR PLAN

FIRST FLOOR PLAN
CLUSTER UNIT



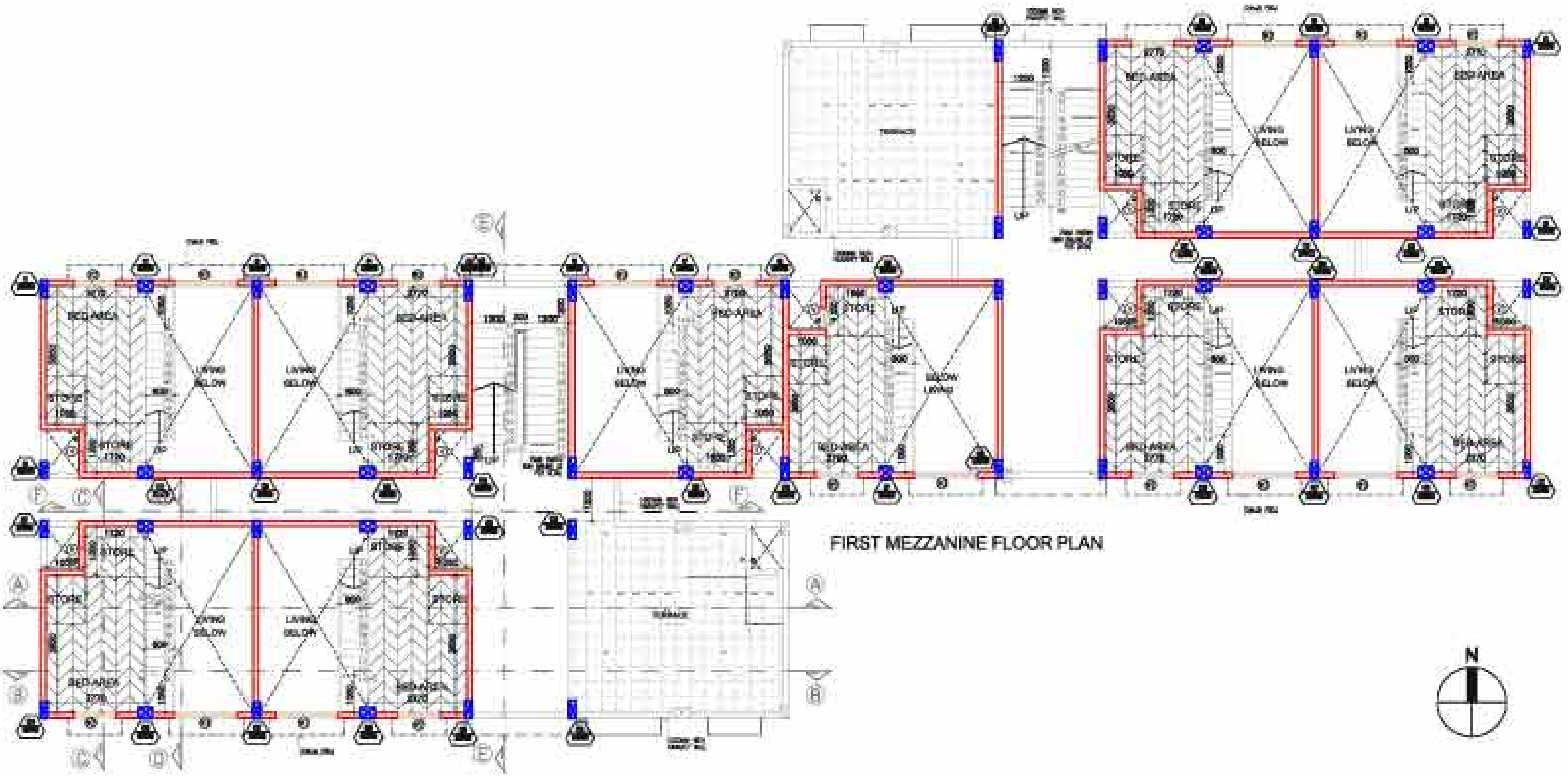
SCHEDULE OF OPENINGS

"A Housing proposal for peri urban Bangalore - BMTPC"

BMTPC Technology

FIRST FLOOR PLAN

FIRST MEZZ. FLOOR PLAN
CLUSTER UNIT



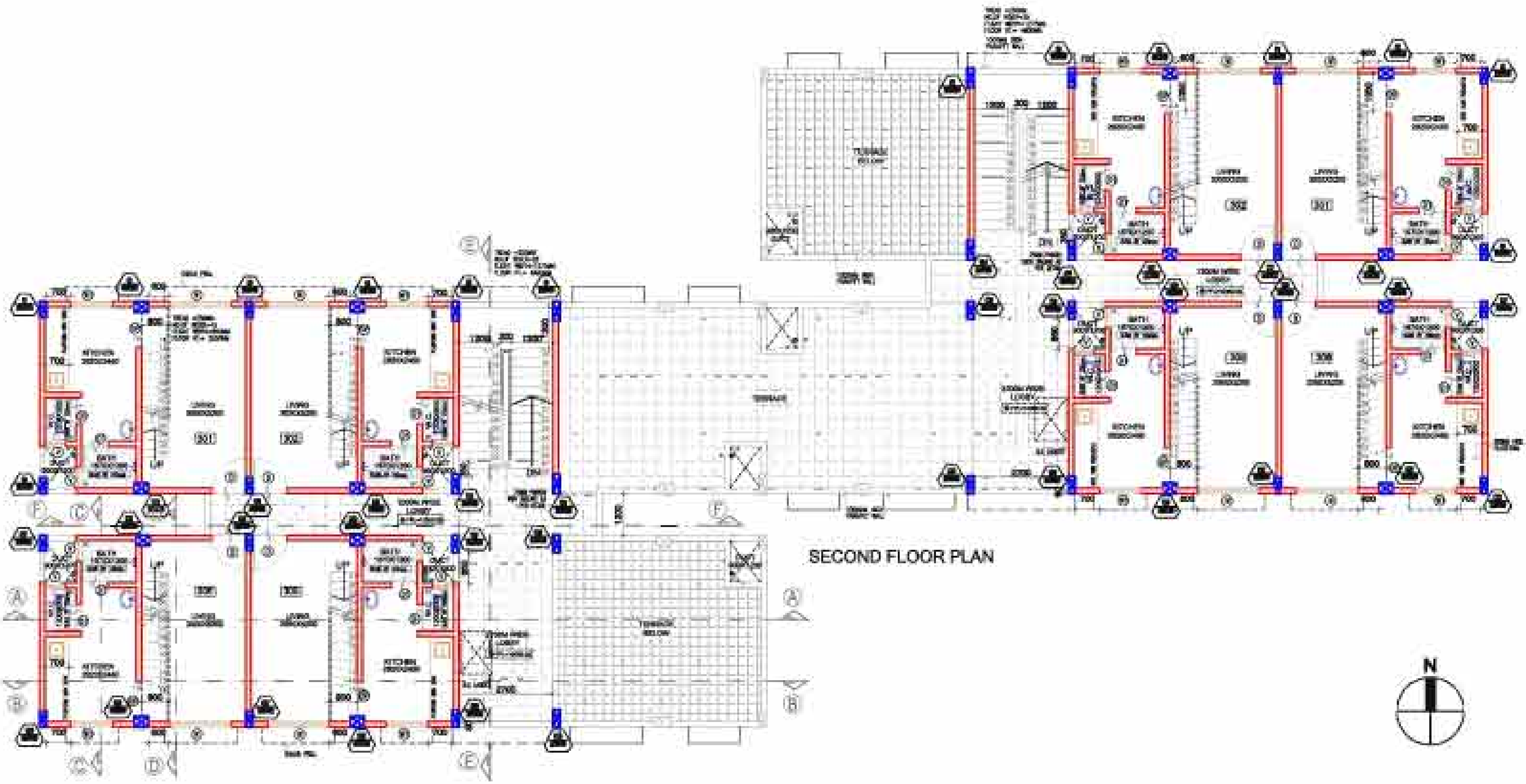
VK:a architecture

"A Housing proposal for peri urban Bangalore - BMTPC"

BMTPC "Technology"

FIRST MEZZ. CLUSTER PLAN

SECOND FLOOR PLAN
CLUSTER UNIT



SECOND FLOOR PLAN

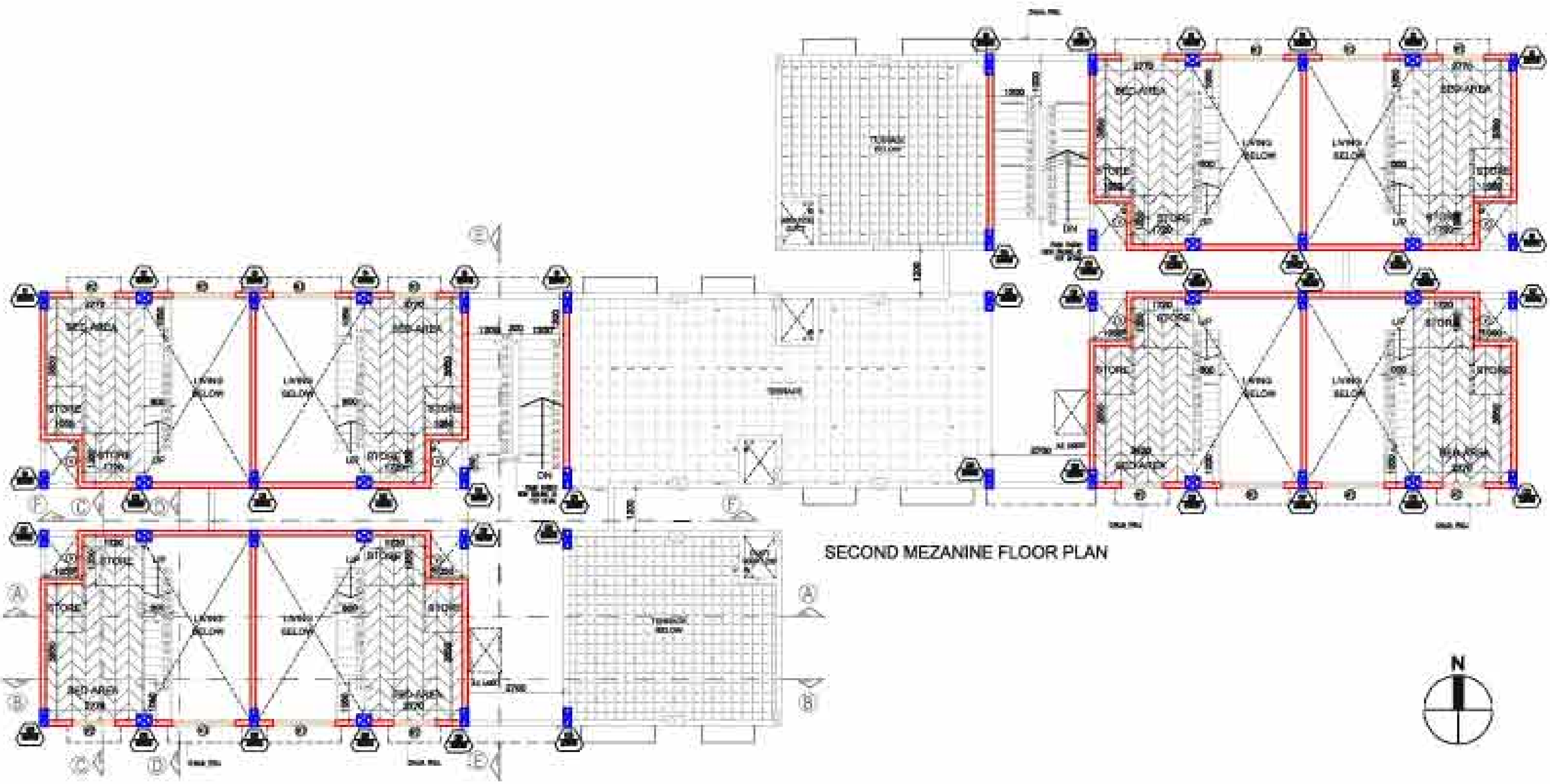
SCHEDULE OF OPENINGS

"A Housing proposal for peri urban Bangalore - BMTPC"

BMTPC Technology

SECOND FLOOR PLAN

SECOND MEZZ. FLOOR PLAN
CLUSTER UNIT



SECOND MEZANINE FLOOR PLAN

SCHEDULE OF OPENINGS

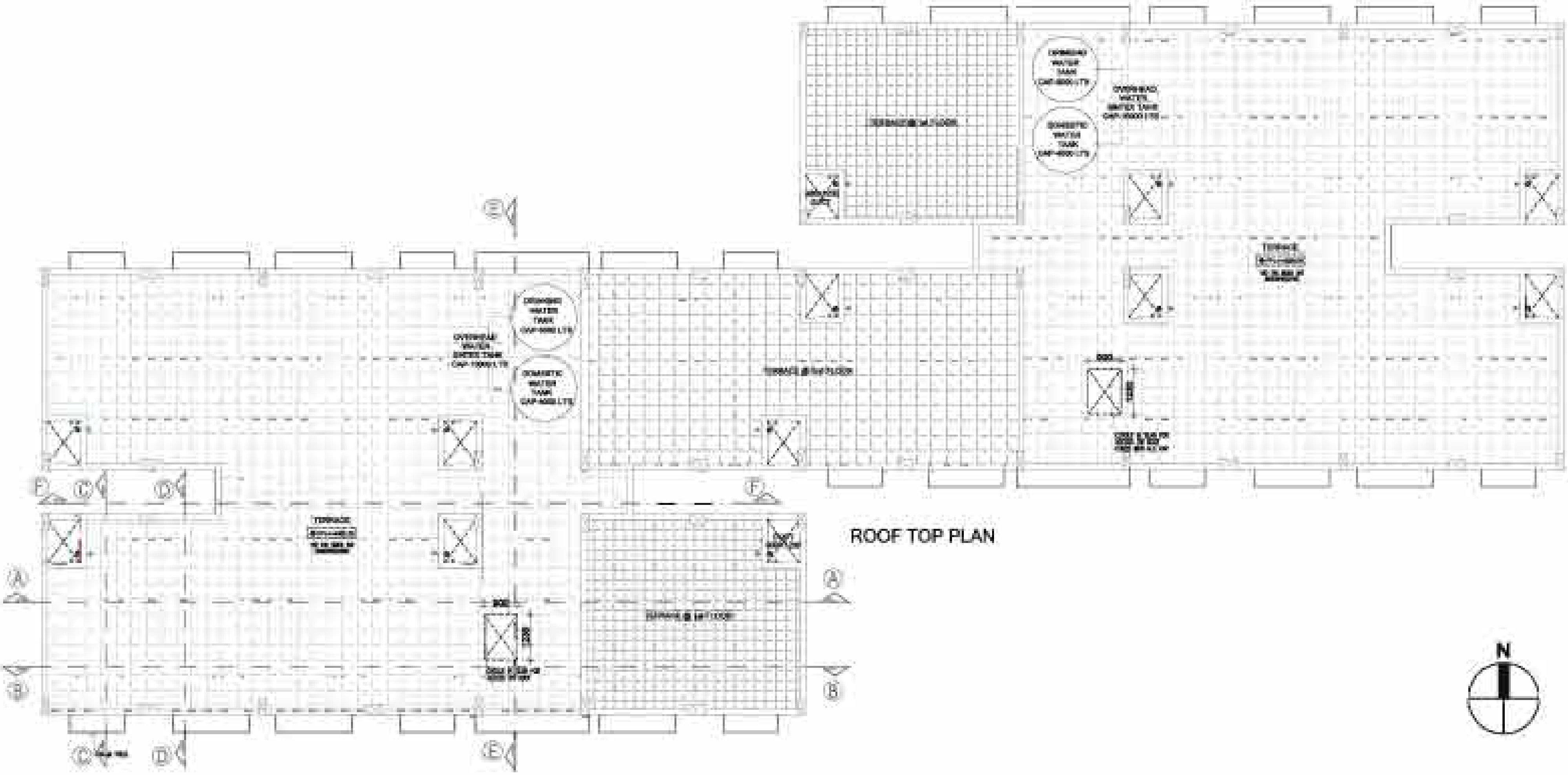
VK:a architecture

"A Housing proposal for peri urban Bangalore - BMTPC"

BMTPC Technology

SECOND MEZZ. FLOOR PLAN

ROOF TOP FLOOR PLAN
CLUSTER UNIT



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ROOF TOP FLOOR PLAN

SECTION-AA,DD
CLUSTER UNIT

SCHEDULE OF OPENINGS

"A Housing proposal for peri urban Bangalore - BMTPC"

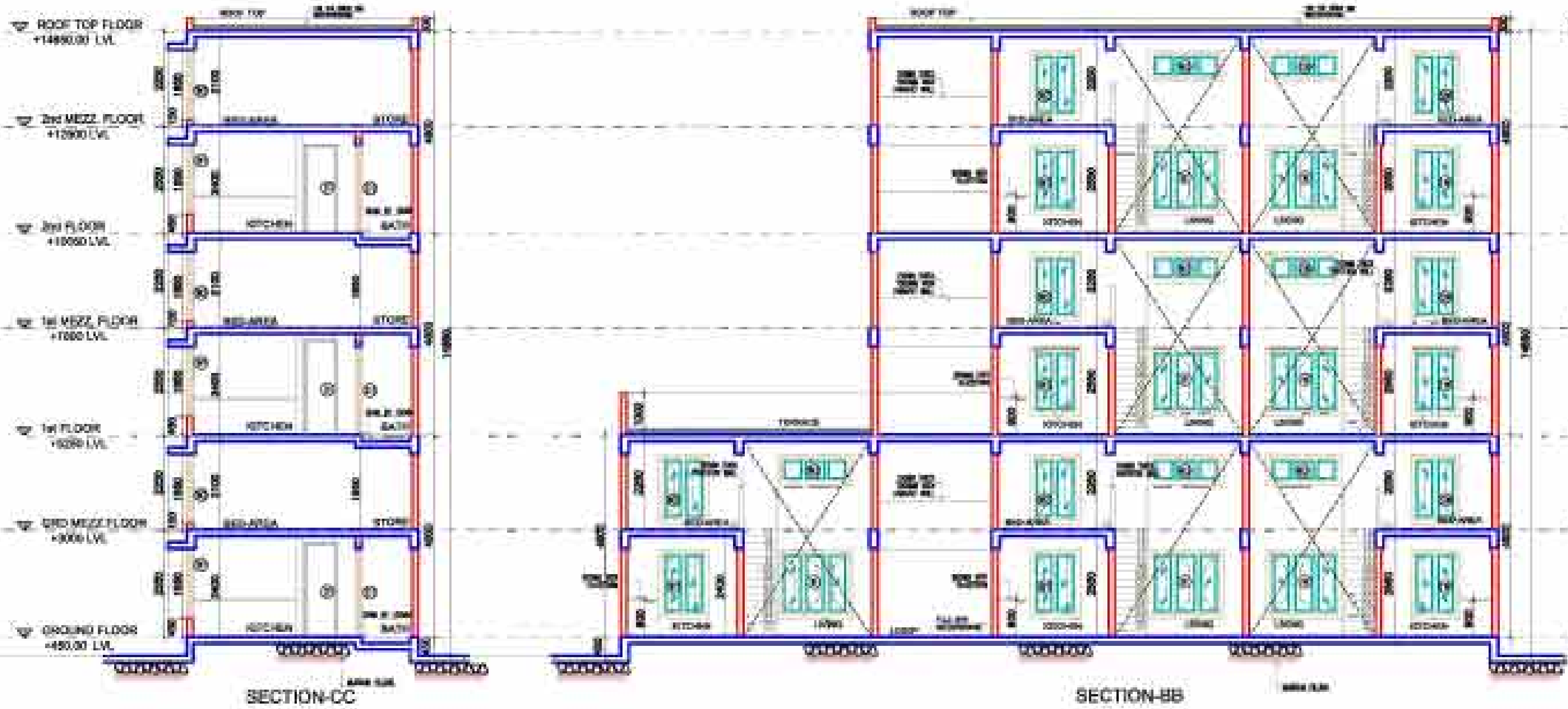
BMTPC Technology

SECTION-AA,DD

VK:a architecture

VK:a :e

SECTION-BB,CC
CLUSTER UNIT



SCHEDULE OF OPENINGS

"A Housing proposal for peri urban Bangalore - BMTPC"

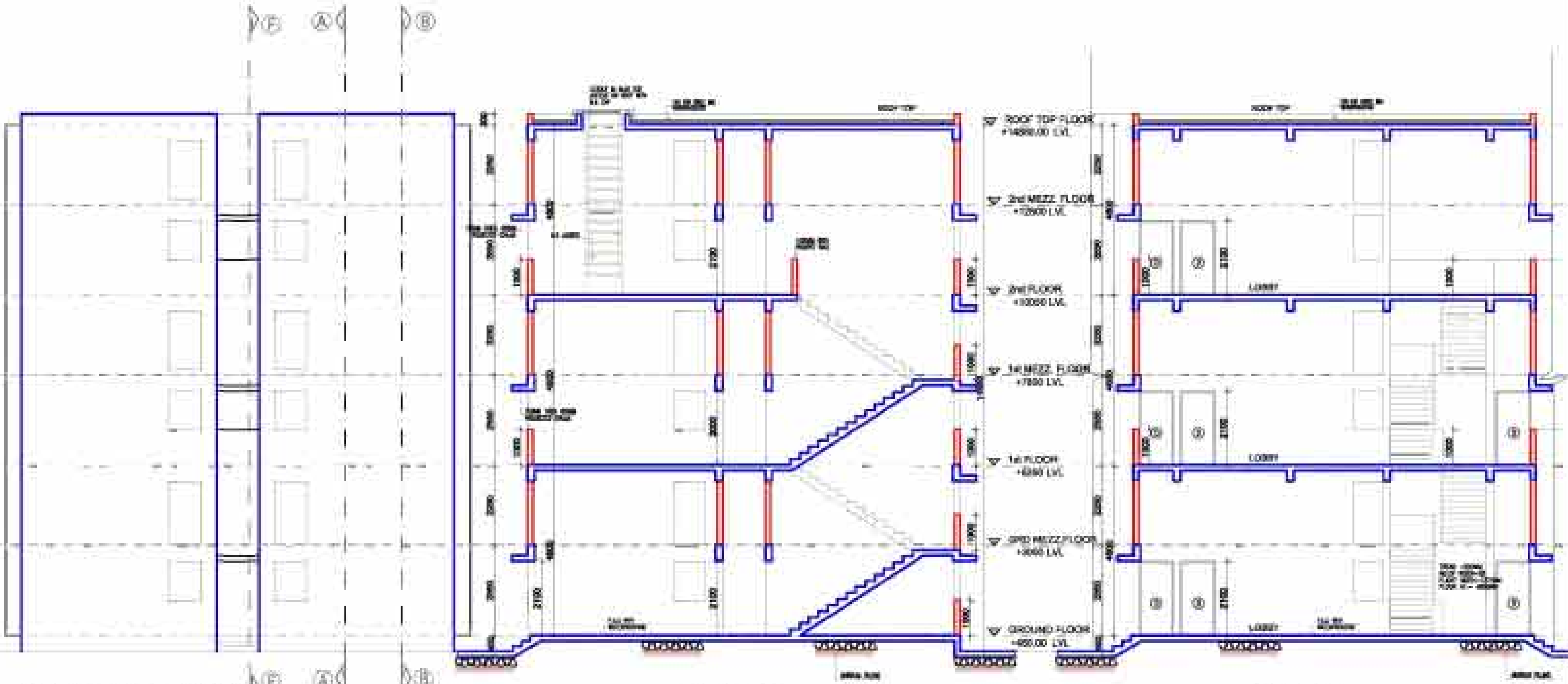
BMTPC Technology

SECTION-CC,BB

1:100

VK:a architecture

SECTION-FF,EE
CLUSTER UNIT



RIGHT/LEFT SIDE ELEVATION

SECTION-EE

SECTION-FF

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BMTPC Technology

FRONT SIDE ELEVATION
CLUSTER UNIT

FRONT SIDE ELEVATION

VK:a architecture

SCHEDULE OF OPENINGS

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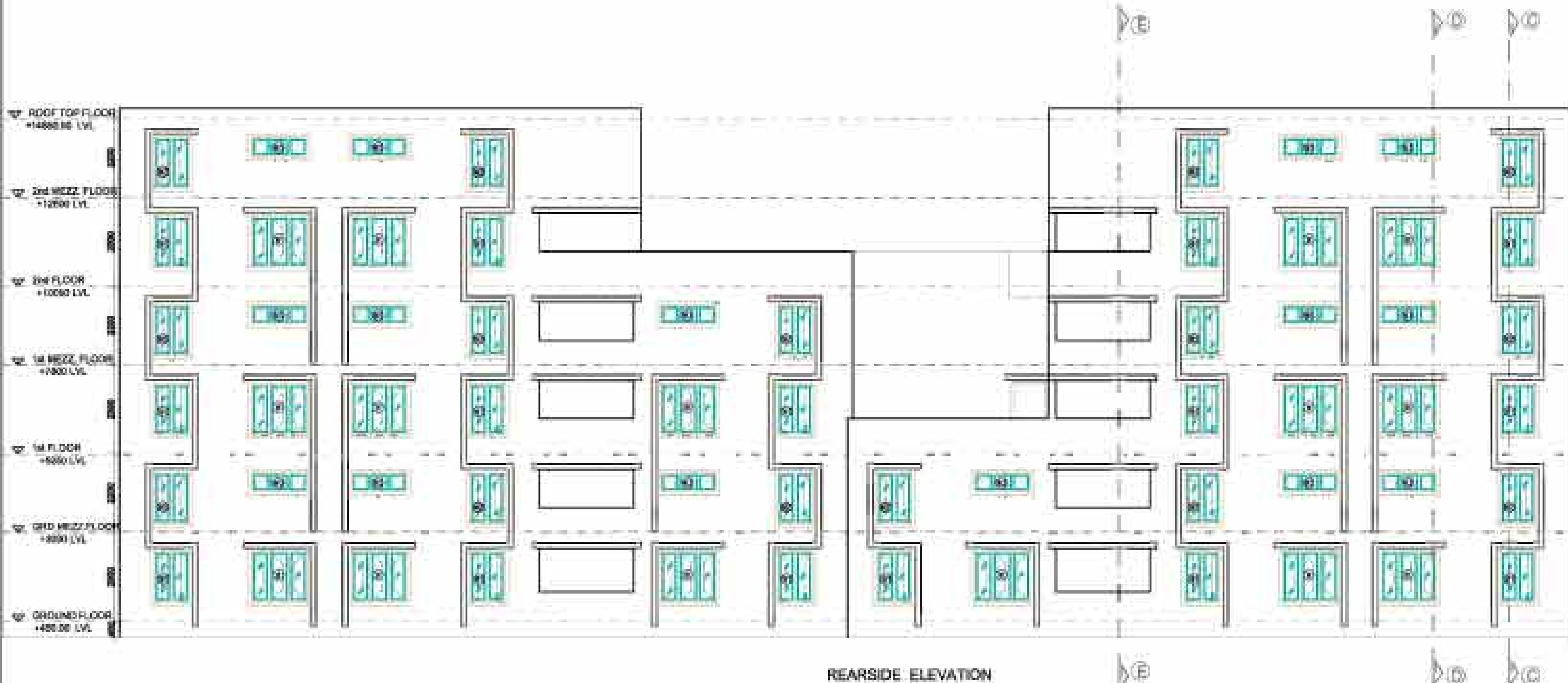
FRONTSIDE ELEVATION

1:100

REARSIDE ELEVATION
CLUSTER UNIT



REARSIDE ELEVATION

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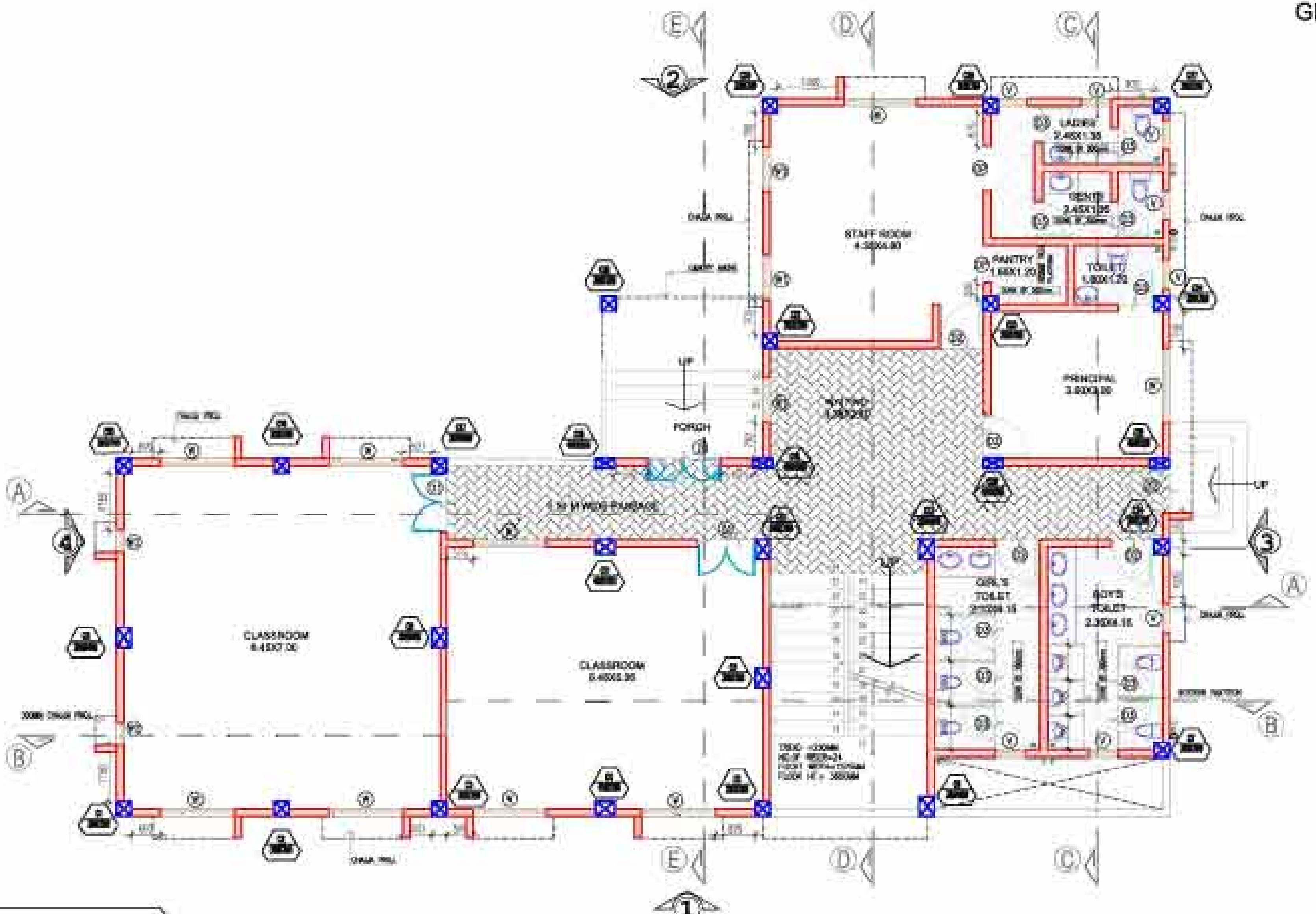
GROUND FLOOR PLAN
SCHOOL



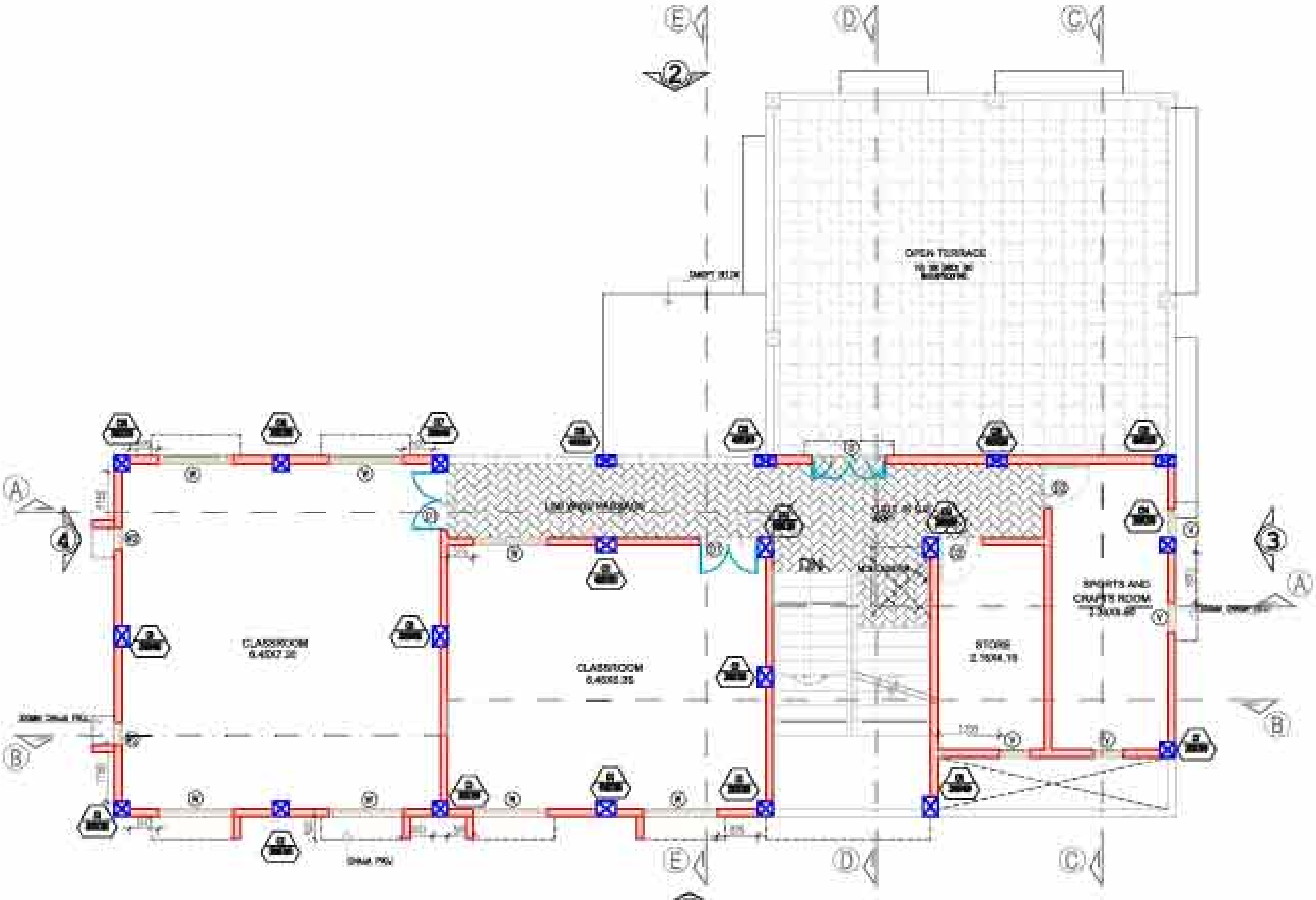
GROUND FLOOR

Legends

SCHEDULE OF OPENINGS										
TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	[illegible]	[illegible]	[illegible]	MAIN DOOR	W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D1	[illegible]	[illegible]	[illegible]	[illegible]	W1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D2	[illegible]	[illegible]	[illegible]	[illegible]	W2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D3	[illegible]	[illegible]	[illegible]	[illegible]	V	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
OP	[illegible]	[illegible]	[illegible]	OPENING ONLY	V1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
					V2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VK:a architecture

FIRST FLOOR PLAN
SCHOOL



FIRST FLOOR

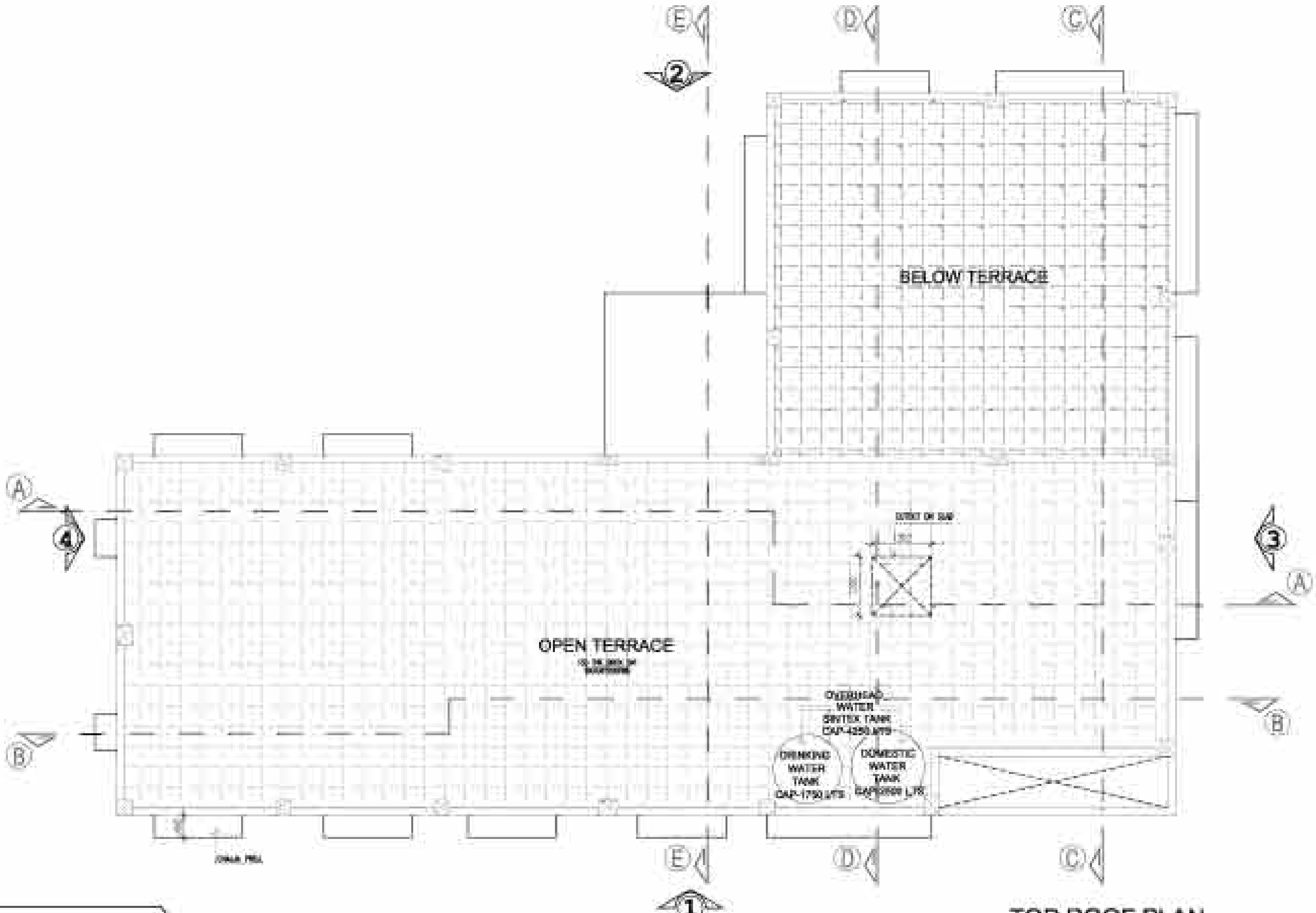
Legends

SCHEDULE OF OPENINGS

TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1500	2100	2100	[illegible]	W	1500	1800	2100	300	[illegible]
D1	1200	2100	2100	[illegible]	W1	900	1800	2100	300	[illegible]
D2	900	2100	2100	[illegible]	W2	600	1800	2100	300	[illegible]
D3	750	2100	2100	[illegible]	V	600	600	2100	1500	[illegible]
OP	900	2100	2100	[illegible]	V1	600	900	2100	1200	[illegible]
					V2	1000	600	2400	1800	[illegible]

FIRST FLOOR PLAN

TOP FLOOR PLAN
SCHOOL



TOP ROOF PLAN

Legends

SCHEDULE OF OPENINGS

TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1500	2200	2200	MAIN DOOR	W	1500	1800	2200	[illegible]	[illegible]
D1	1200	2200	2200	[illegible]	W1	900	1800	2200	[illegible]	[illegible]
D2	900	2200	2200	[illegible]	W2	600	1800	2200	[illegible]	[illegible]
D3	750	2200	2200	[illegible]	V	600	900	2200	[illegible]	[illegible]
DR	900	2200	2200	[illegible]	V1	600	900	2200	[illegible]	[illegible]
					V2	1000	900	2200	[illegible]	[illegible]

VK:a
architecture

:e

ELEVATION-01
SCHOOL

ELEVATION-1

Legends

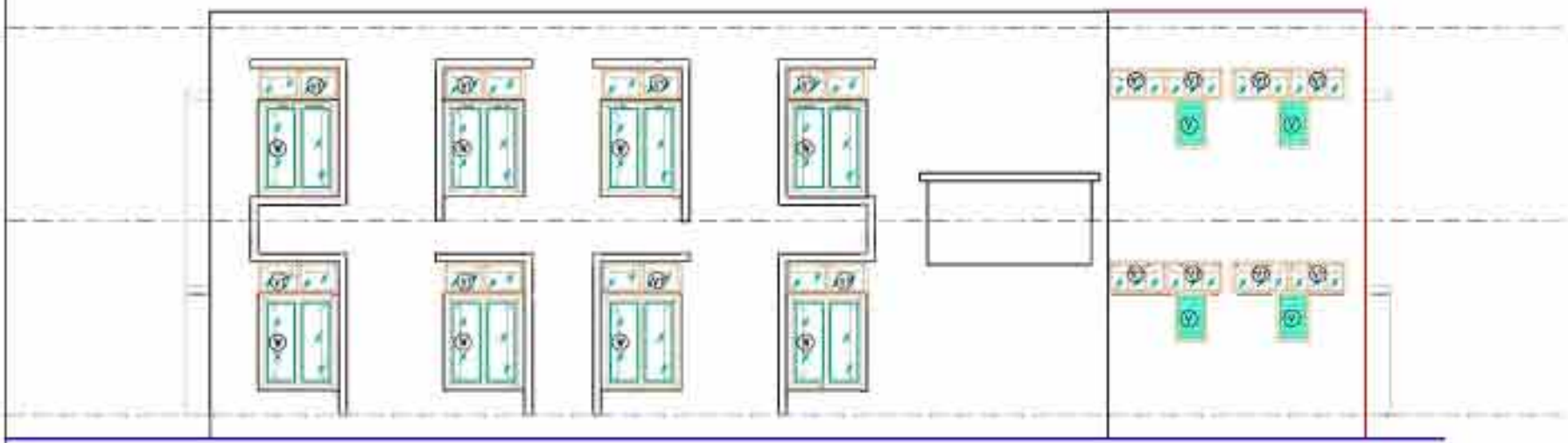
SCHEDULE OF OPENINGS

TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	[illegible]	[illegible]	[illegible]	[illegible]	W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D1	[illegible]	[illegible]	[illegible]	[illegible]	W1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D2	[illegible]	[illegible]	[illegible]	[illegible]	W2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D3	[illegible]	[illegible]	[illegible]	[illegible]	V	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
OP	[illegible]	[illegible]	[illegible]	[illegible]	V1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
					V2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VK:a
architecture

VK:a
:e

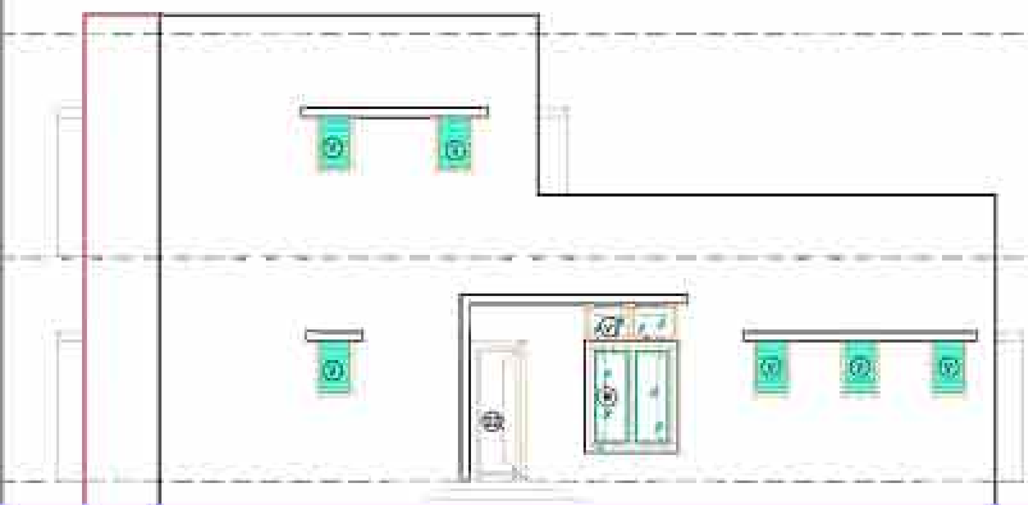
ELEVATION-02
SCHOOL



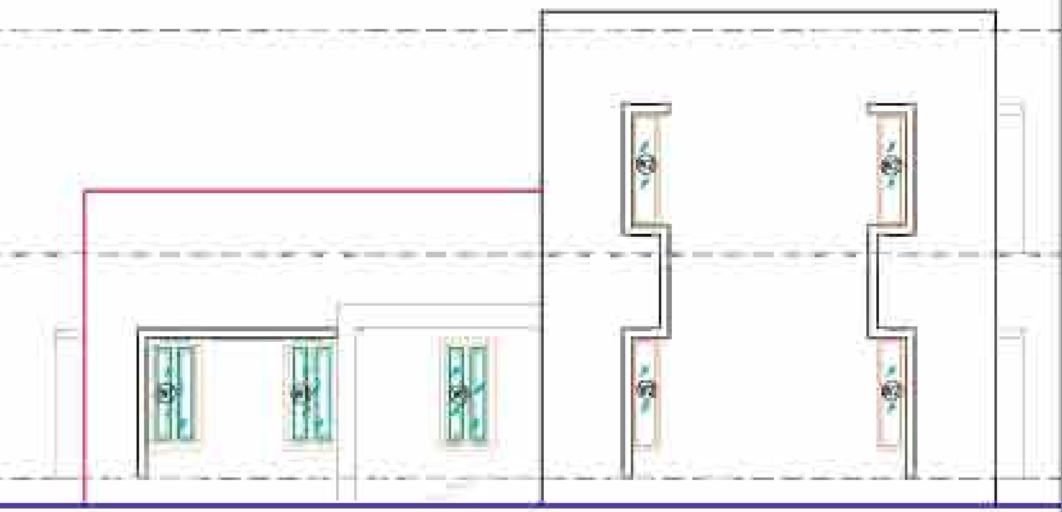
ELEVATION-2

SCHEDULE OF OPENINGS

ELEVATION-03 & 04
SCHOOL



ELEVATION-3



ELEVATION-4

VK:a architecture

Legends

SOIL PIPE
WASTE WATER PIPE
RAIN WATER PIPE

SCHEDULE OF OPENINGS

TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	[illegible]	2200	2200	MAIN DOOR	W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D1	[illegible]	2200	2200	[illegible]	W1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D2	[illegible]	2200	2200	[illegible]	W2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D3	[illegible]	2200	2200	[illegible]	V	[illegible]	[illegible]	[illegible]	[illegible]	VENTILATOR WITH LOUVERS
OP	[illegible]	2200	2200	[illegible]	V1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] TOP HUNG VENTILATOR
					V2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible] TOP HUNG VENTILATOR

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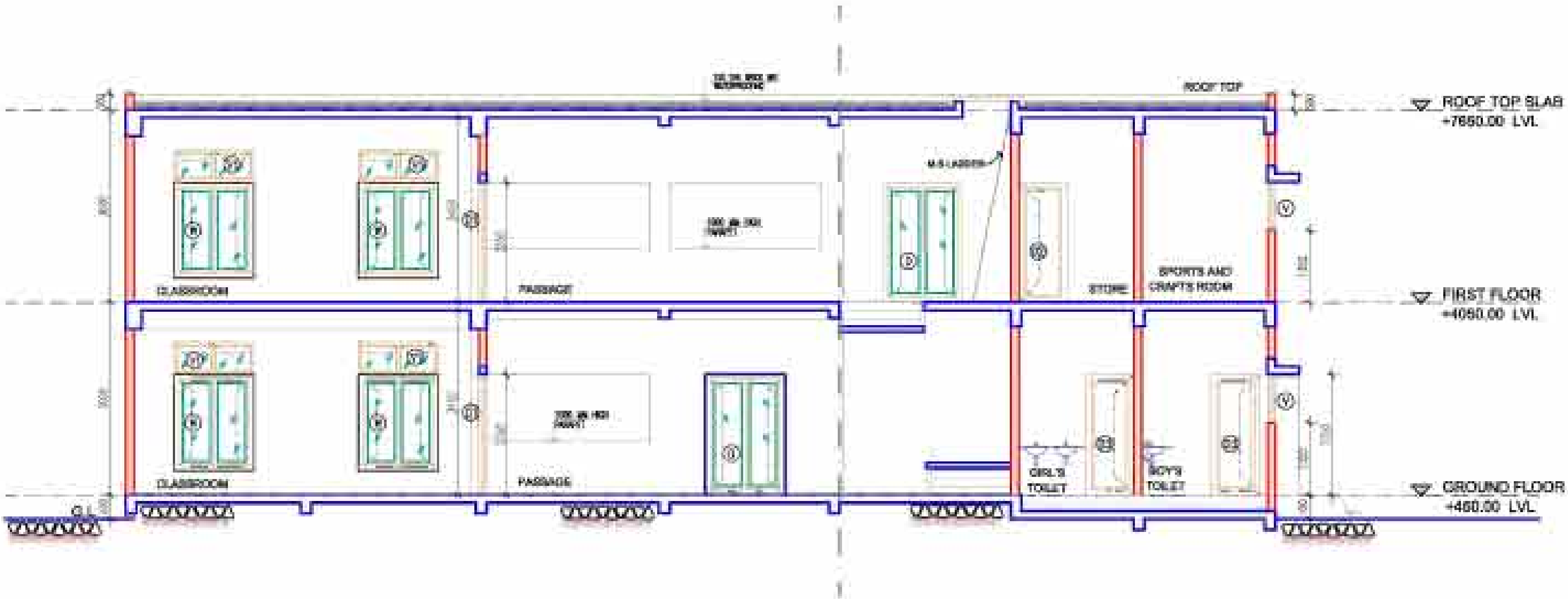
ELEVATION-3
ELEVATION-4

AC

SECTION-AA
SCHOOL



SECTION-AA

Legends

SCHEDULE OF OPENINGS

TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1500	2250	2250	MAIN DOOR	W	1500	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET [illegible]
D1	1200	2250	2250	[illegible] DOOR	W1	900	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET [illegible]
D2	900	2250	2250	[illegible] DOOR	W2	600	1800	2250	450	1 PANEL WINDOW WITH MOSQUITO NET [illegible]
D3	750	2250	2250	[illegible] DOOR	V	600	450	2250	1800	VENTILATOR WITH LOUVERS
D4	900	2250	2250	OPENING ONLY	V1	900	600	2500	2250	3 PANEL TOP HUNG VENTILATOR
					V2	1000	600	2800	2200	3 PANEL TOP HUNG VENTILATOR

VK:a
:e

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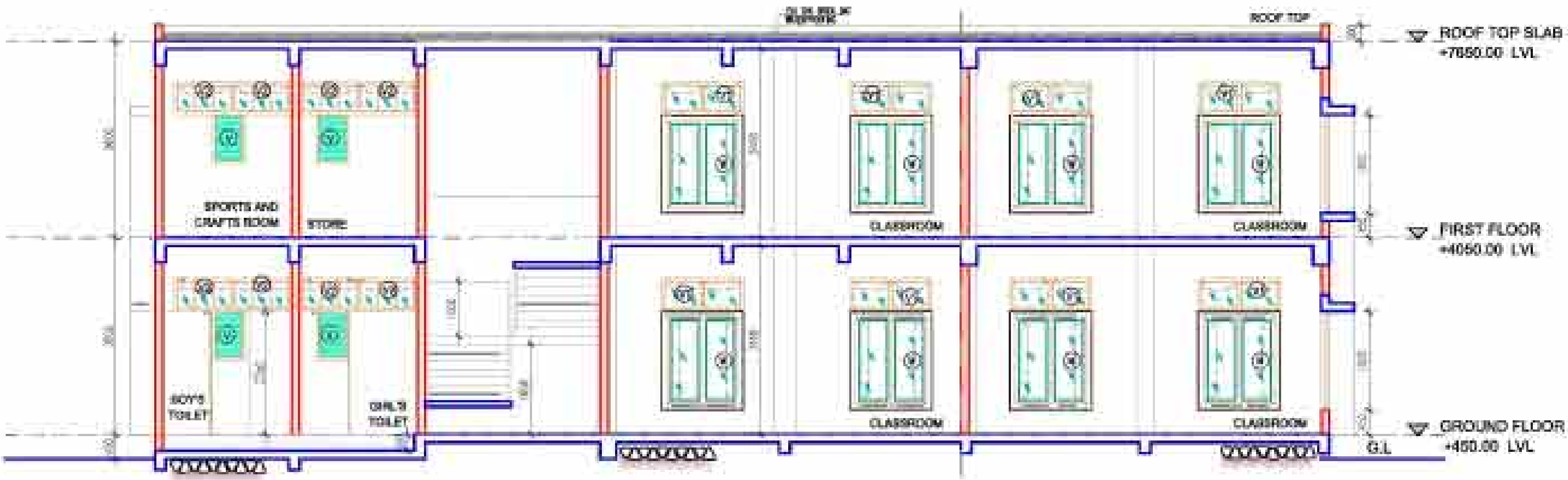
SECTION-AA

SECTION-BB
SCHOOL



SECTION-BB

Legends

SCHEDULE OF OPENINGS

TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	[illegible]	[illegible]	[illegible]	MAIN DOOR	W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D1	[illegible]	[illegible]	[illegible]	[illegible]	W1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D2	[illegible]	[illegible]	[illegible]	[illegible]	W2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D3	[illegible]	[illegible]	[illegible]	[illegible]	V	[illegible]	[illegible]	[illegible]	[illegible]	VENTILATOR WITH LOUVERS
OP	[illegible]	[illegible]	[illegible]	OPENING	V1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
					V2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

VK:a architecture

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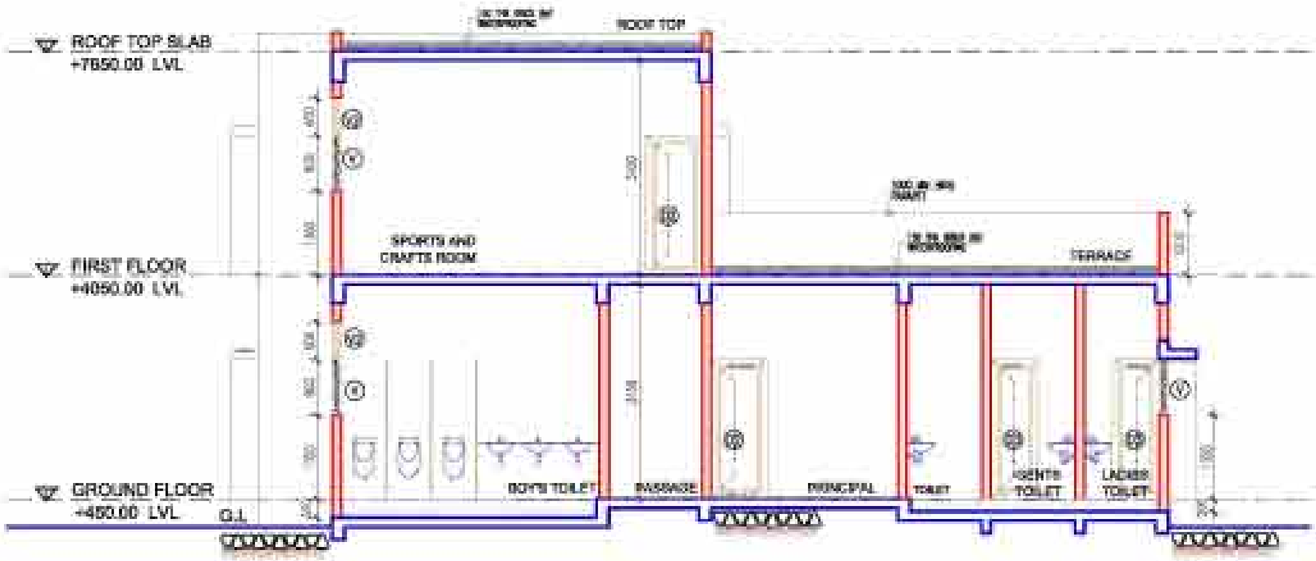
SECTION-BB

SECTION-CC
SCHOOL



SECTION-CC

VK:a
architecture

Legends

150 MM THICK WALLS ARE HATCHED THUS
200 MM SUNK ARE HATCHED THUS
SOIL PIPE
WASTE WATER PIPE
RAIN WATER PIPE

SCHEDULE OF OPENINGS

TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SPECIFICATION	TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SILL LEVEL	SPECIFICATION
D	1500	2050	2050	[illegible]	W	1500	1500	2050	450	[illegible]
D1	1200	2050	2050	[illegible]	W1	900	1500	2050	450	[illegible]
D2	900	2050	2050	[illegible]	W2	450	1500	2050	450	[illegible]
D3	750	2050	2050	[illegible]	V	600	450	2050	1350	[illegible]
D4	900	2050	2050	OPENING ONLY	V1	600	900	2050	2050	[illegible]
					V2	1200	900	2050	2050	[illegible]

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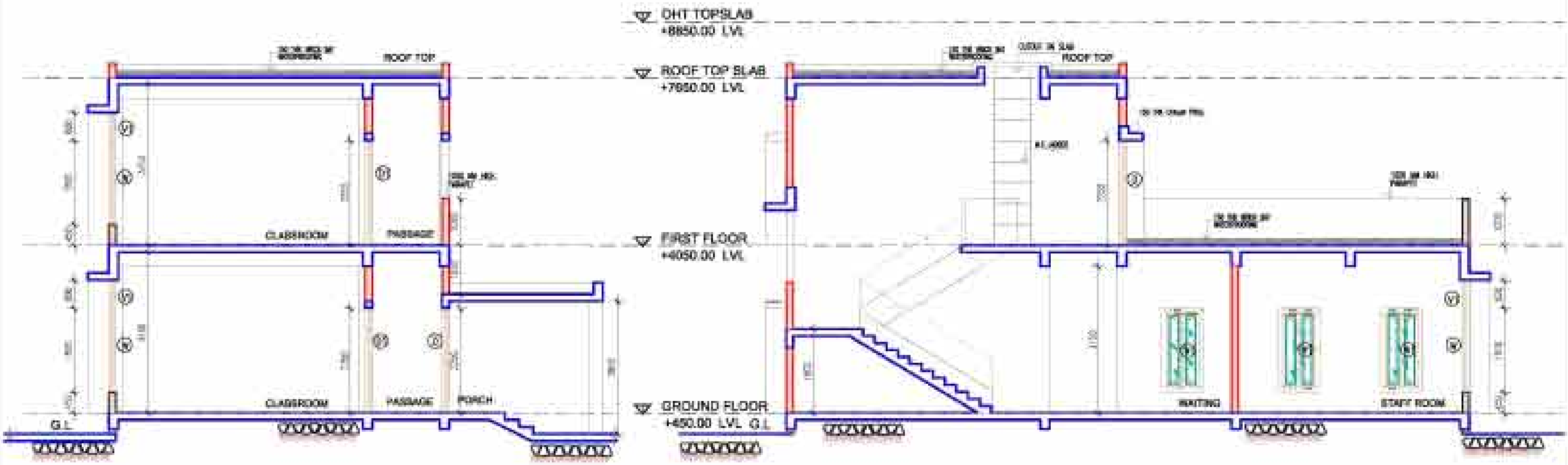
SECTION-CC

SECTION-EE &DD
SCHOOL



SECTION-EE

SECTION-DD

VK:a architecture

Legends

100 MM THICK WALLS ARE HATCHED THUS.
200 MM BLOCKS ARE HATCHED THUS.
300 MM BLOCK ARE HATCHED THUS.
100 MM THICK BRICKWORK.
SOIL PIPE
WASTE WATER PIPE
RAIN WATER PIPE

SCHEDULE OF OPENINGS

TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	[illegible]	[illegible]	[illegible]	MAIN DOOR	W	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D1	[illegible]	[illegible]	[illegible]	[illegible]	W1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D2	[illegible]	[illegible]	[illegible]	[illegible]	W2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D3	[illegible]	[illegible]	[illegible]	[illegible]	V	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
D4	[illegible]	[illegible]	[illegible]	OPENING ONLY	V1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
					V2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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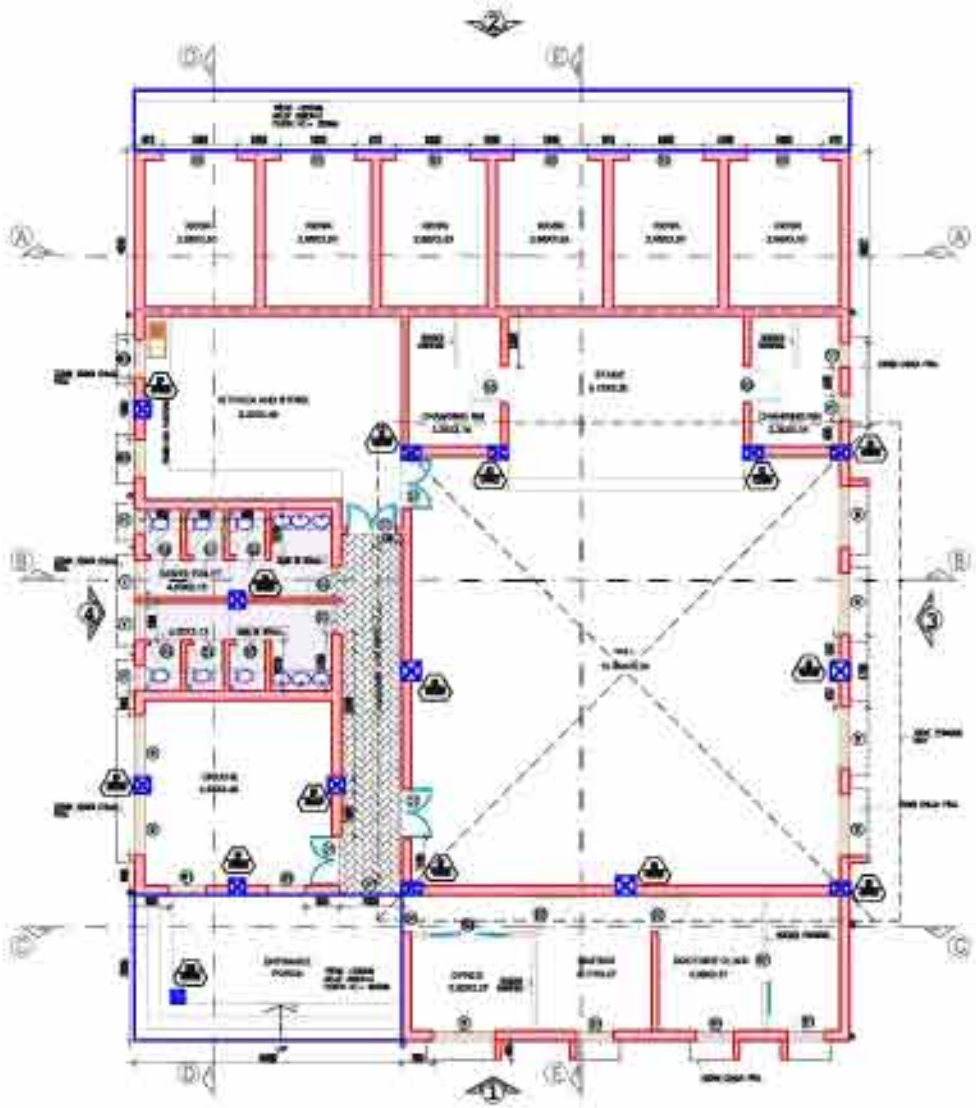
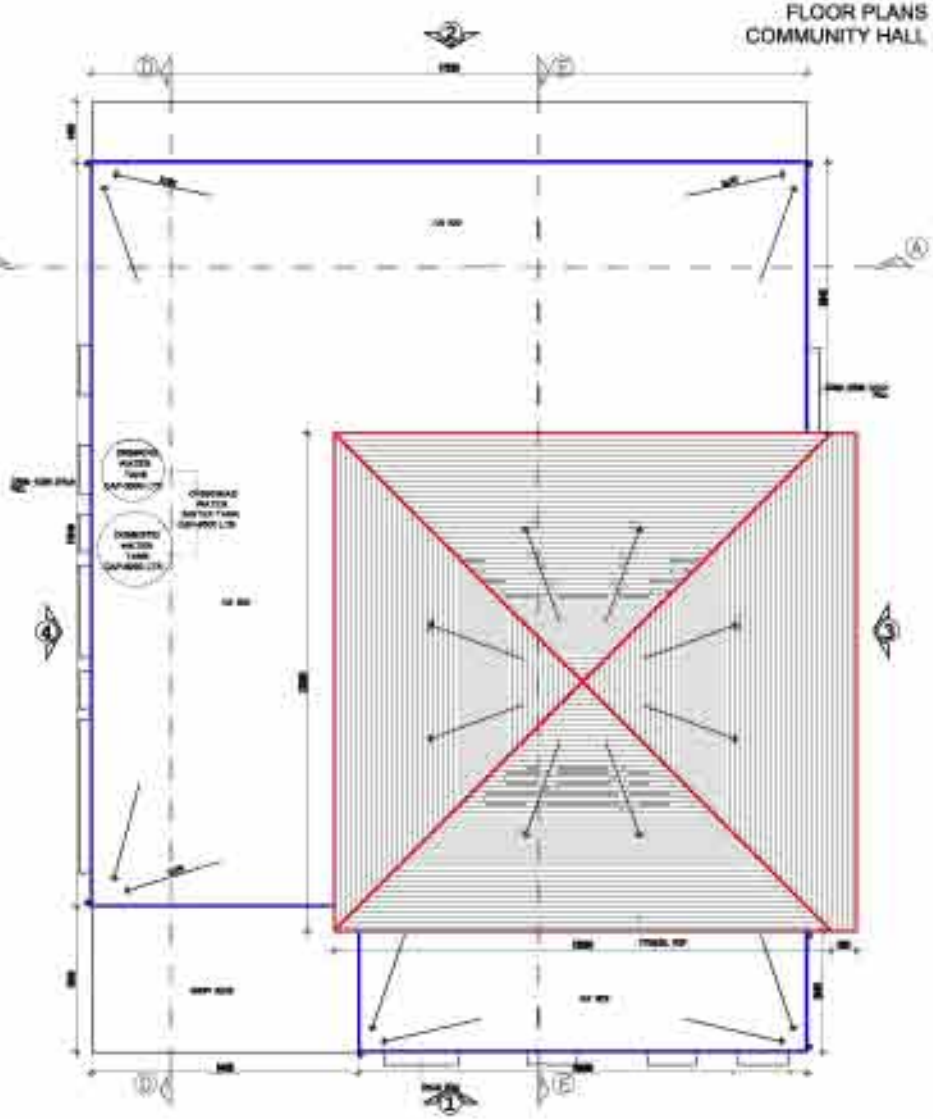
SECTION-DD
SECTION-EE

FLOOR PLANS
COMMUNITY HALL

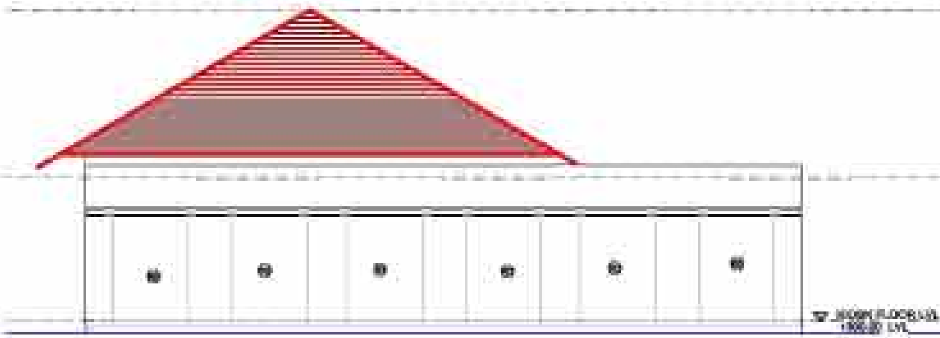


GROUND FLOOR



ROOF PLAN

ELEVATIONS
COMMUNITY HALL



ELEVATION-2

ELEVATION-1

ELEVATION-4

ELEVATION-3

VK:a architecture

SCHEDULE OF OPENINGS

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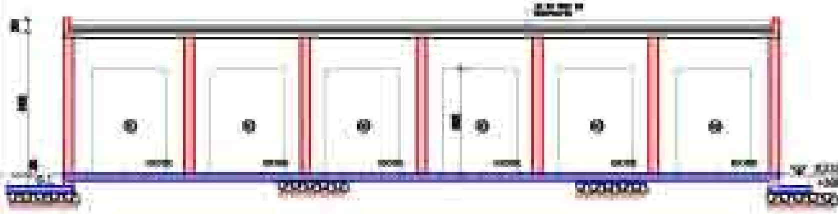
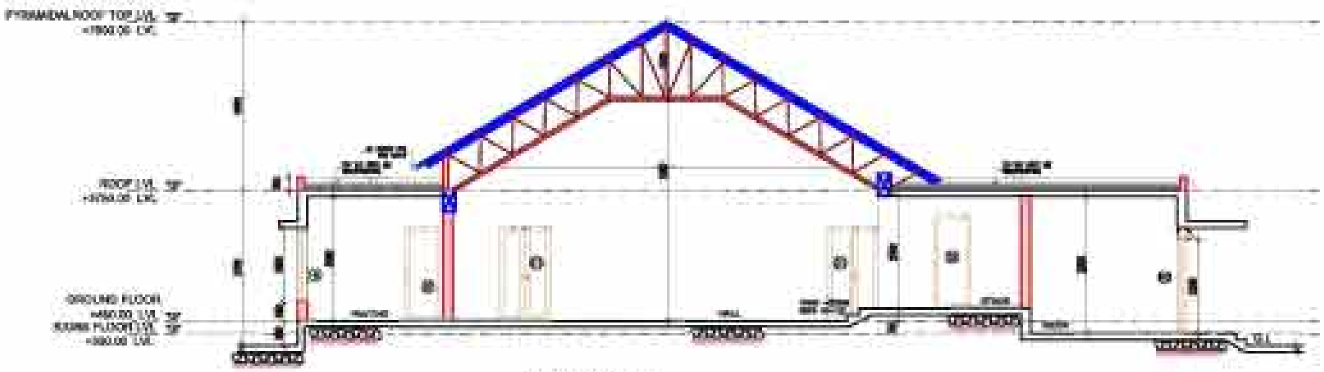
COMMUNITY ELEVATIONS

SECTIONS
COMMUNITY HALL

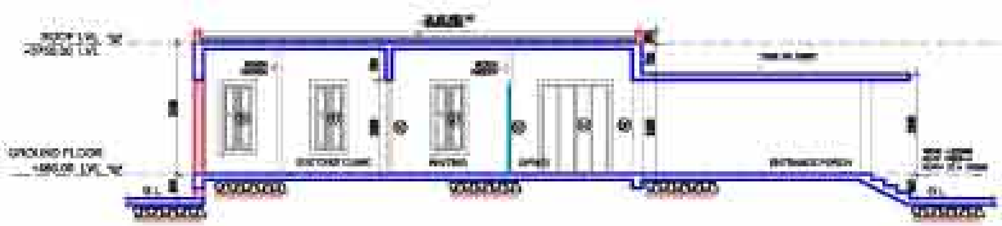


SECTION-AA

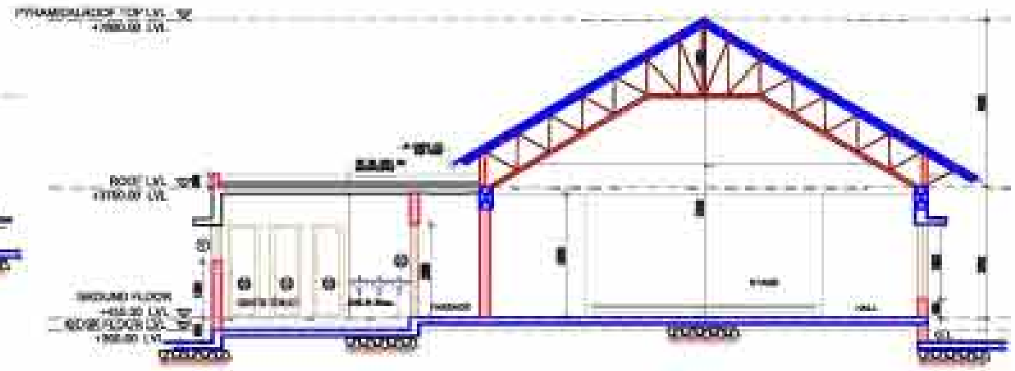
SECTION-DD



SECTION-EE

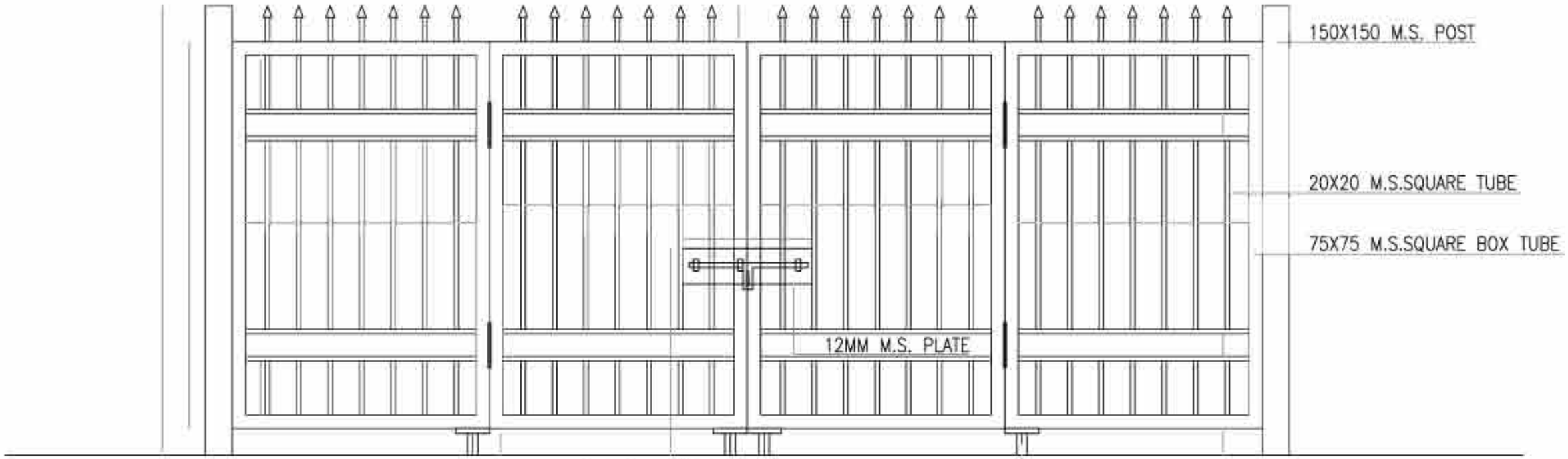


SECTION-CC



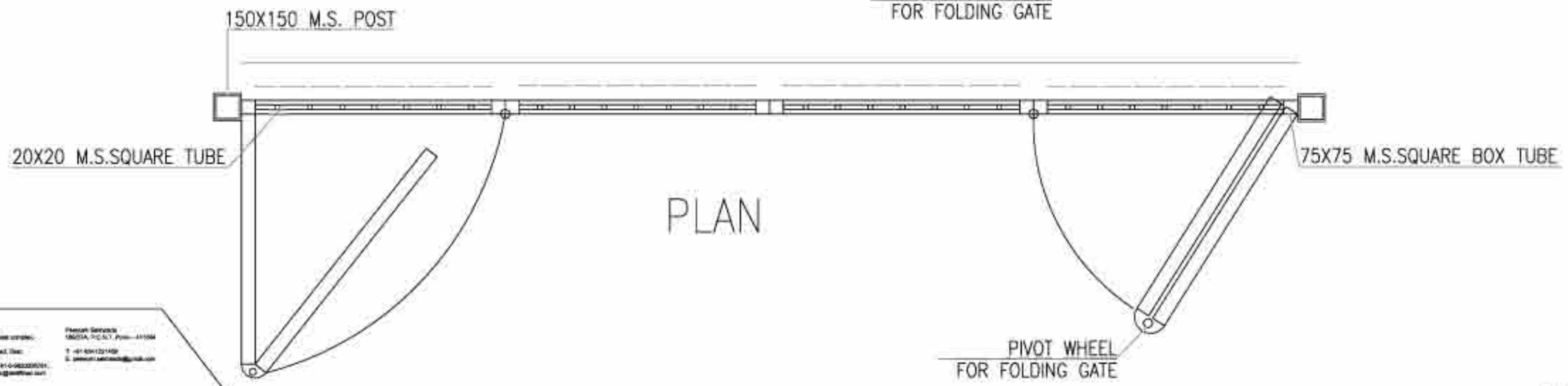
SECTION-BB

SCHEDULE OF OPENINGS



ELEVATION

PIVOT WHEEL
FOR FOLDING GATE



PLAN

PIVOT WHEEL
FOR FOLDING GATE

VK:I
Interiors
:e

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ENTRANCE GATE DETAIL

1:25

KC

07/11/12

1021

505

GOOD FOR CONSTRUCTION

5

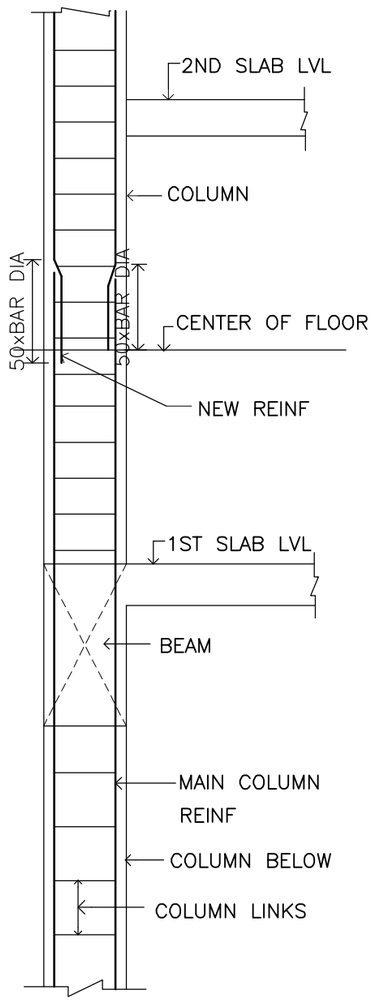
Structural Drawings

i. Shelter clusters
ii. School
iii. Community Hall and Kiosks
iv. U.G. Water Tank
v. Rain Water Harvesting Tank
vi. Waste Water Treatment Tank

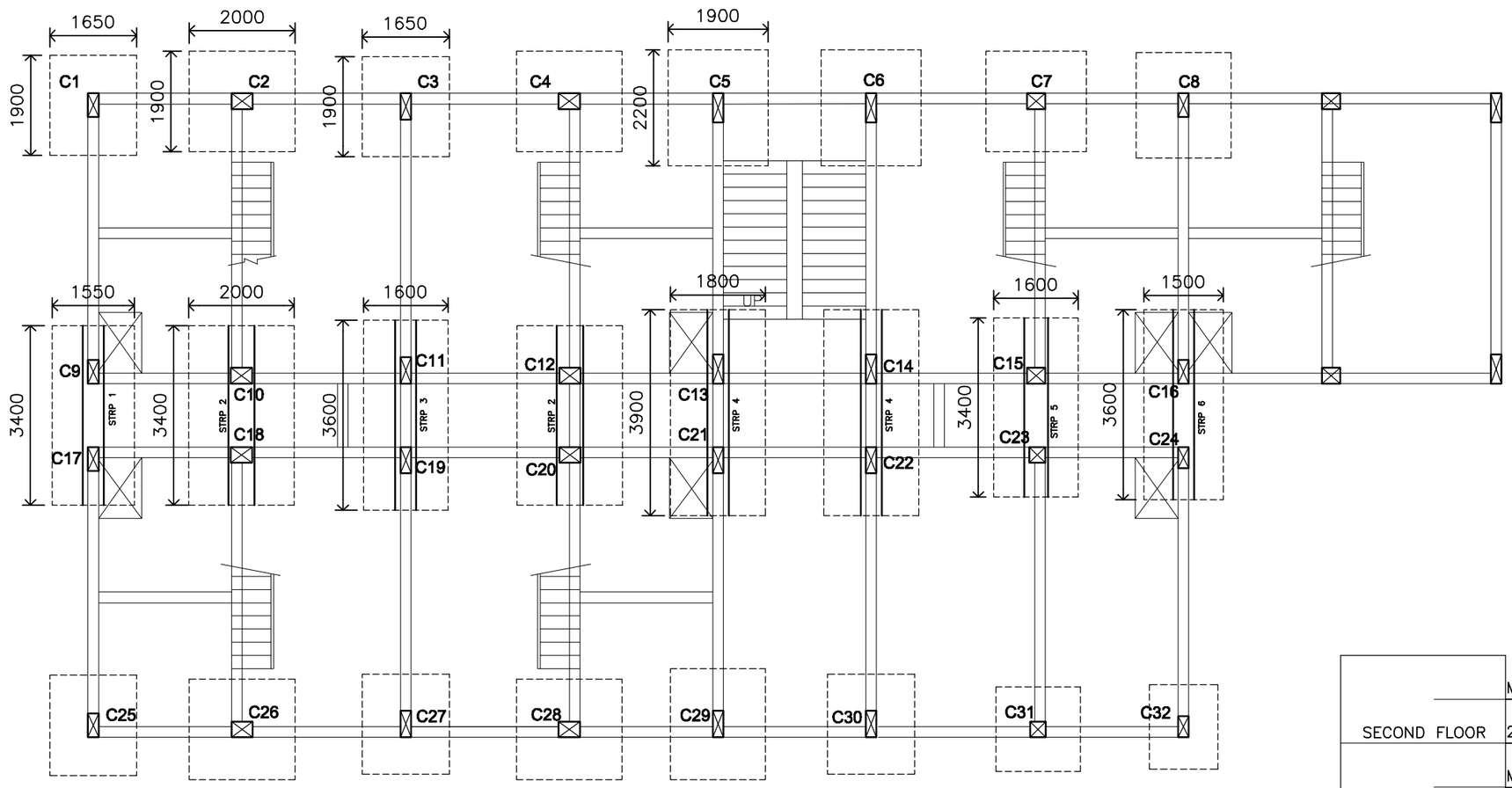
*NOTES-

*MAIN BAR OF COLUMN SHOULD NOT LAP AT BEAM JUNCTION AND SHALL BE AT THE CENTER OF TWO FLOORS

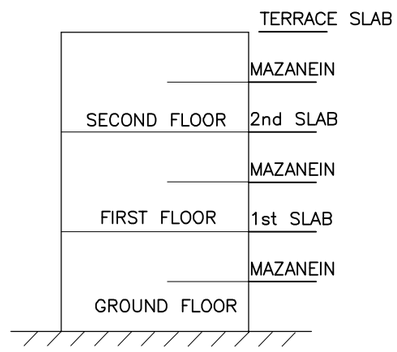
*MAX.50% BAR SHALL BE LAPPED AT ONE PLACE



TYPICAL COLUMN LAP DETAILS



LAYOUT OF COLUMN & FOOTINGS



KEY ELEVATION

GENERAL NOTES

1) ALL DIMENSIONS ARE IN mm UNLESS MENTIONED OTHERWISE
2) REFER THIS DRAWING ALONG WITH ARCHITECTURAL DRAWING.
3) DO NOT SCALE THE DRAWING, REFER FIGURED DIMENSIONS
4) ANY DESCRIPANCIES OR OMISSION OR CHANGES SHALL BE BROUGHT TO NOTICE PRIOR TO EXECUTION
5) CONCRETE GRADE USED IS M20 UNLESS OTHERWISE MENTIONED.
6) ALL STEEL EXCEPT 6mmø IS TOR STEEL(ए) OF GRADE Fe 415 N/mmSq.
7) LAPPING OR ANCHORANGE OR DEVELOPMENT LENGTH (Ld) FOR a) BEAM AND SLAB = 60 x DIA OF BAR
   b) COLUMN = 50 x DIA OF BAR

DRAWING ESSUED FOR - ☐ APPROVAL, ☐ ESTIMATION, ☐ EXECUTION

8) ALL CONCRETE SHALL BE MACHINE MIXED AND VIBRATED.
9) CLEAR COVER TO RENFORCEMENT
   a) FOOTING = 50 m.m.
   b) COLUMN = 40 m.m.
   c) SLAB = 20 m.m.
   d) BEAM = 25 m.m.
10) S.B.C. OF SOIL ASSUMED IS 20 T/Sq.M.
11) COLUMNS AND FOOTINGS ARE DESIGNED FOR GROUND + 2 FLOORS ONLY
12) DO NOT CAST ANY R.C.C WORK UNLESS IT IS CHECKED AND CONFIRMED BY ENGINEER
13) DESIGN OF CENTRING, SHUTTERING, AND CONCRETE MIX IS CONTRACTOR RESPONSIBLITY

REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	10.10.2011

REFERENCE I. S. CODES :

1.	IS 456–2000	PLAIN AND REINFORCED CONCRETE.
2.	IS 800	STEEL STRUCTURE.
3.	IS 3370	LIQUID RETAINING STRUCTURE.
4.	IS 2911	PILE FOUNDATION.
5.	IS 1893–2002	EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

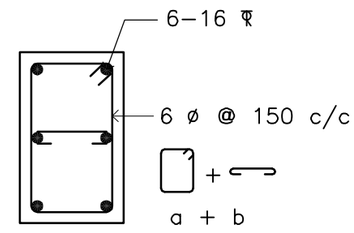
ST-01-01 | DETAIL OF COLUMNS & FOOTINGS

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
MUKUND NAGAR, NEAR LAXMI NARAYAI
THEATER PUNE - 37. TEL- 020 242740
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:04/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

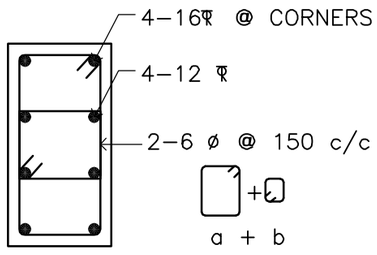
SCHEDULE OF COLUMNS AND FOOTINGS

COLUMN NOS	FOOTING SIZE		THICKNESS		REINFORCEMENT BOTH WAYS	FOOTING TO 1st SLAB		1st SLAB TO 2nd SLAB		2nd SLAB TO 3rd SLAB		REMARKS
						SIZE	REINF.	SIZE	REINF.	SIZE	REINF.	
	B	L	t	T		d D	NO. DIA.	d D	NO. DIA.	d D	NO. DIA.	
C1 C25	1650	1900	200	450	10 ϕ @ 150 c/c	200 x 450	4 −16ϕ +4 −12ϕ	200 x 450	8 −12ϕ	200 x 450	8 −12ϕ	
C2 C4 C26 C28	1900	2000	200	500	10 ϕ @ 150 c/c	300 x 400	4 −16ϕ +4 −12ϕ	300 x 400	4 −16ϕ +4 −12ϕ	300 x 400	4 −16ϕ +4 −12ϕ	
C3 C27 C29 C30	1650	1900	200	450	10 ϕ @ 150 c/c	200 x 450	4 −16ϕ +4 −12ϕ	200 x 450	4 −16ϕ +4 −12ϕ	200 x 450	4 −16ϕ +4 −12ϕ	
C5 C6	1900	2200	200	550	10 ϕ @ 125 c/c	200 x 550	8 −16ϕ	200 x 550	8 −16ϕ	200 x 550	8 −16ϕ	
C7	1600	1700	200	400	10 ϕ @ 150 c/c	300 x 350	4 −16ϕ +4 −12ϕ	300 x 350	4 −16ϕ +4 −12ϕ	----	----	
C8	1650	1900	200	450	10 ϕ @ 150 c/c	200 x 450	4 −16ϕ +4 −12ϕ	200 x 450	4 −16ϕ +4 −12ϕ	----	----	
C9 C17	1550	3400	200	450	10 ϕ @ 150 c/c	200 x 450	8 −12ϕ	200 x 450	8 −12ϕ	200 x 450	8 −12ϕ	COMBINED FOOTING
C10 C12 C18 C20	2000	3400	200	550	10 ϕ @ 125 c/c	300 x 400	8 −16ϕ	300 x 400	4 −16ϕ +4 −12ϕ	300 x 400	4 −16ϕ +4 −12ϕ	COMBINED FOOTING
C11 C19	1600	3600	200	450	10 ϕ @ 150 c/c	200 x 450	4 −16ϕ +4 −12ϕ	200 x 450	8 −12ϕ	200 x 450	8 −12ϕ	COMBINED FOOTING
C13 C14	1800	3900	200	550	10 ϕ @ 125 c/c	200 x 550	8 −16ϕ	200 x 550	8 −16ϕ	200 x 550	8 −16ϕ	COMBINED FOOTING
C15	1550	3300	200	450	10 ϕ @ 150 c/c	300 x 350	4 −16ϕ +4 −12ϕ	300 x 350	4 −16ϕ +4 −12ϕ	----	----	COMBINED FOOTING
C16	1500	3400	200	450	10 ϕ @ 150 c/c	200 x 450	4 −16ϕ +4 −12ϕ	200 x 450	4 −16ϕ +4 −12ϕ	----	----	COMBINED FOOTING
C21 C22	1800	3900	200	550	10 ϕ @ 150 c/c	200 x 500	8 −16ϕ	200 x 500	4 −16ϕ +4 −12ϕ	200 x 450	4 −16ϕ +4 −12ϕ	COMBINED FOOTING
C23	1550	3300	200	450	10 ϕ @ 150 c/c	300 x 300	4 −16ϕ +4 −12ϕ	----	----	----	----	COMBINED FOOTING
C24	1500	3400	200	450	10 ϕ @ 150 c/c	200 x 400	6 −16ϕ	----	----	----	----	COMBINED FOOTING
C31	1400	1500	200	400	10 ϕ @ 150 c/c	300 x 300	4 −16ϕ +4 −12ϕ	----	----	----	----	
C32	1250	1500	200	400	10 ϕ @ 150 c/c	200 x 400	6 −16ϕ	----	----	----	----	



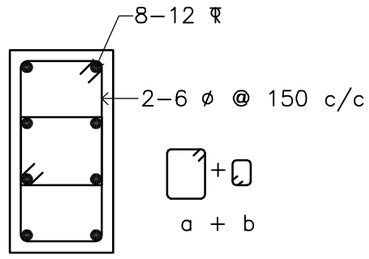
COL-200x400

6−16 ϕ



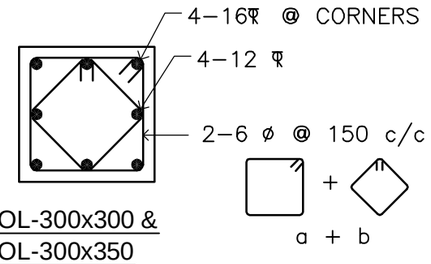
COL-200x450
COL-200x500
COL-200x550

4−16+4−12 ϕ



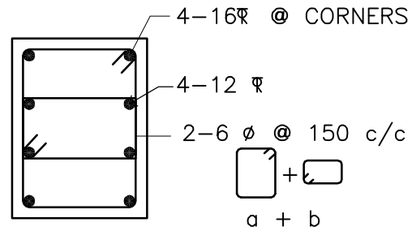
COL-200x450
COL-200x500
COL-200x550

8−12ϕ / 8−16 ϕ



COL-300x300 &
COL-300x350

4−16+4−12 ϕ



COL-300x400

4−16 ϕ +4−12 ϕ

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAIL OF COLUMNS & FOOTINGS

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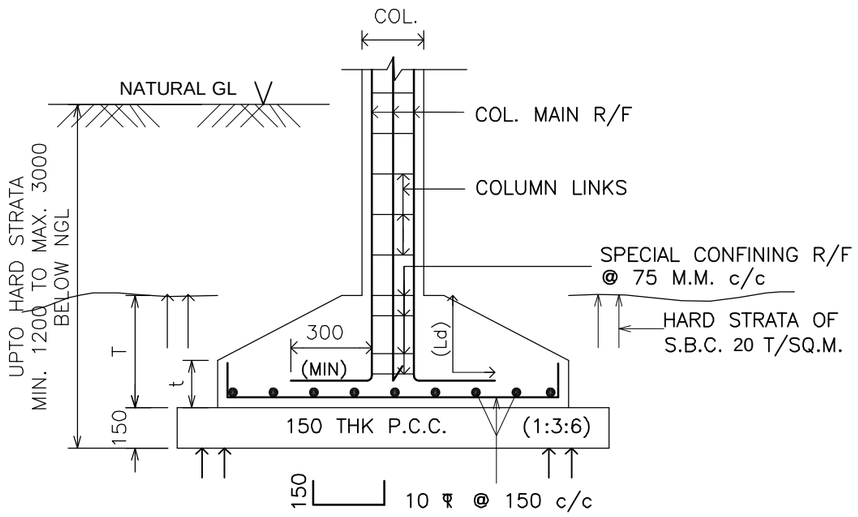
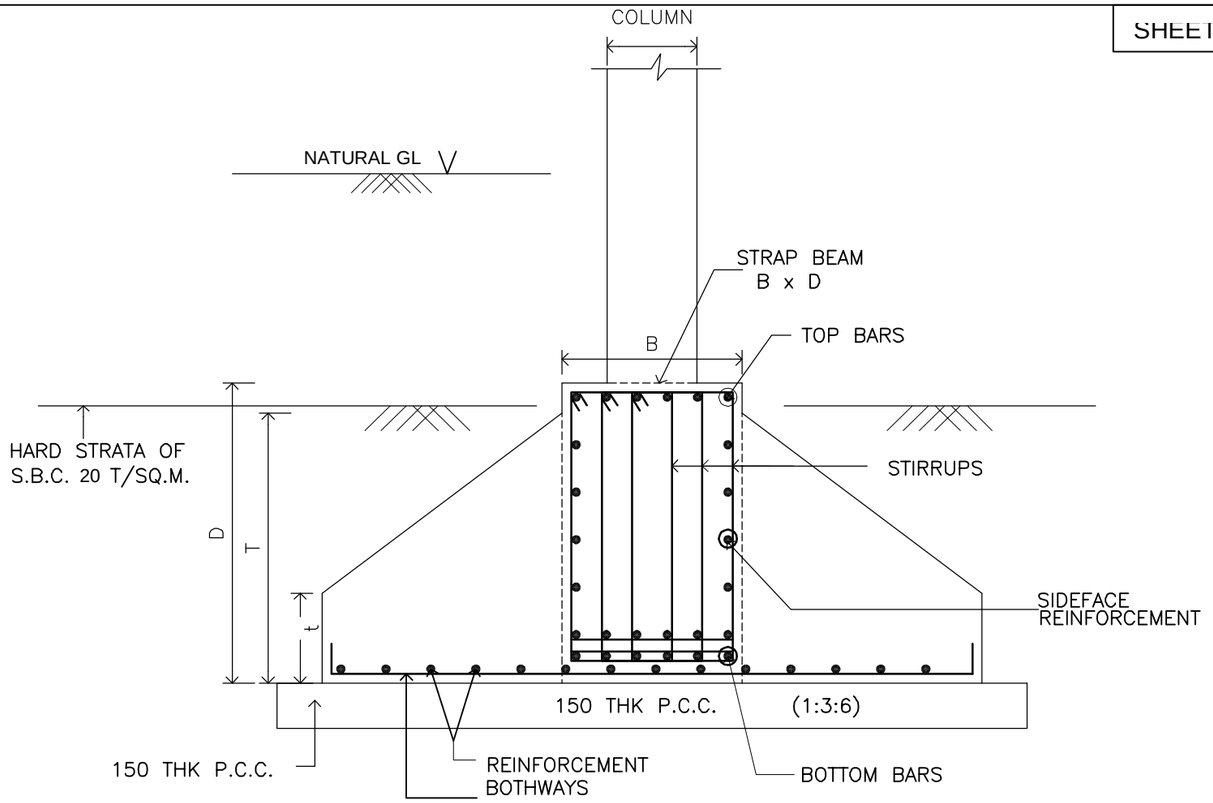
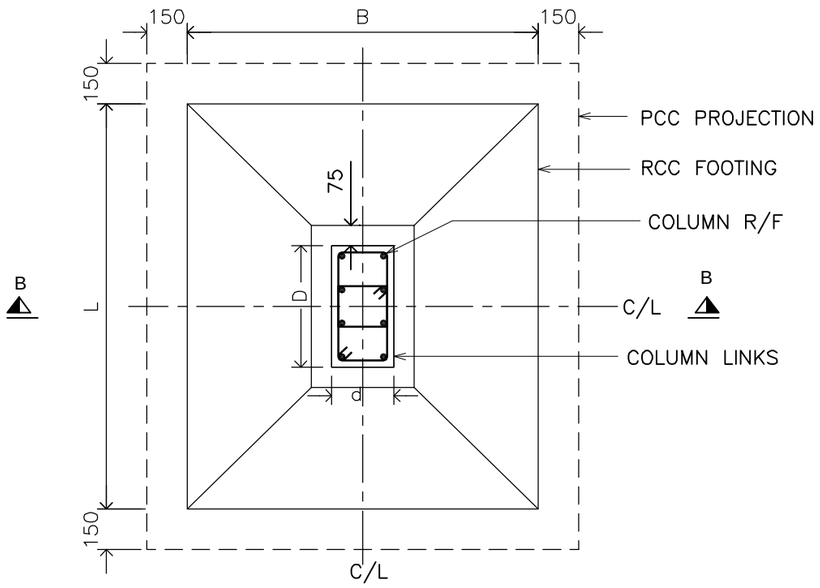


SECTION AT B - B



TYPICAL CROSS SECTION OF COMBINED FOOTING



TYP. COLUMN FOOTING PLAN

SCHEDULE OF STRAP BEAMS FOR COMBINED FOOTINGS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	SIDE FACE BARS	STIRRUPS	REMARKS
	B x D	FULL LENGTH BARS	CURTAILED BARS				
STRP 1	400 x 600	4–12 ϕ	----	4–16 ϕ	----	8 ϕ @ 150 c/c– 4 LEGGED	
STRP 2	500 x 600	4–16 ϕ	----	4–16 ϕ	----	8 ϕ @ 150 c/c– 4 LEGGED	
STRP 3	400 x 600	4–12 ϕ	----	4–16 ϕ	----	8 ϕ @ 150 c/c– 4 LEGGED	
STRP 4	400 x 600	4–16 ϕ	----	5–16 ϕ	----	8 ϕ @ 150 c/c– 4 LEGGED	
STRP 5	450 x 600	4–16 ϕ	----	4–12 ϕ	----	8 ϕ @ 150 c/c– 4 LEGGED	
STRP 6	400 x 600	4–16 ϕ	----	4–12 ϕ	----	8 ϕ @ 150 c/c– 4 LEGGED	

A HOUSING PROPOSAL FOR PERI URBAN
BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAIL OF COLUMNS & FOOTINGS

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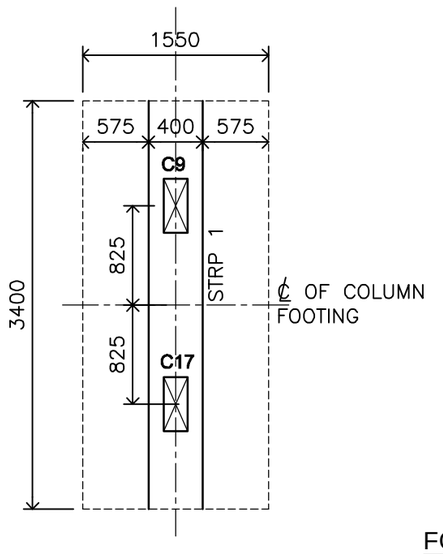
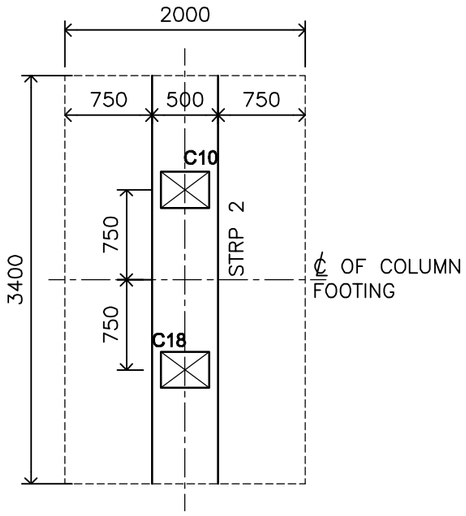
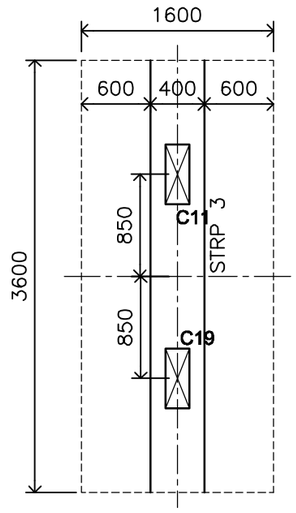


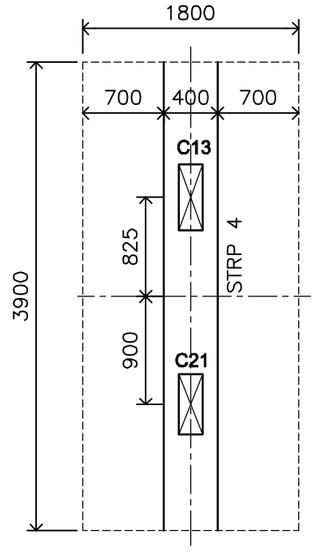
FOOTING PLAN C9 + C17



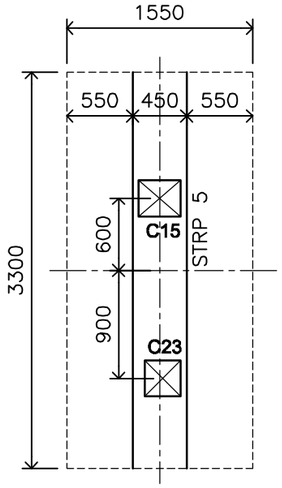
FOOTING PLAN C10+C18 & C12+C20



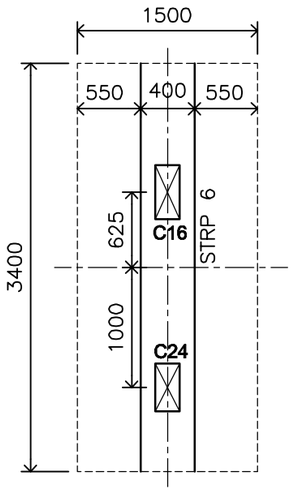
FOOTING PLAN C11 + C19



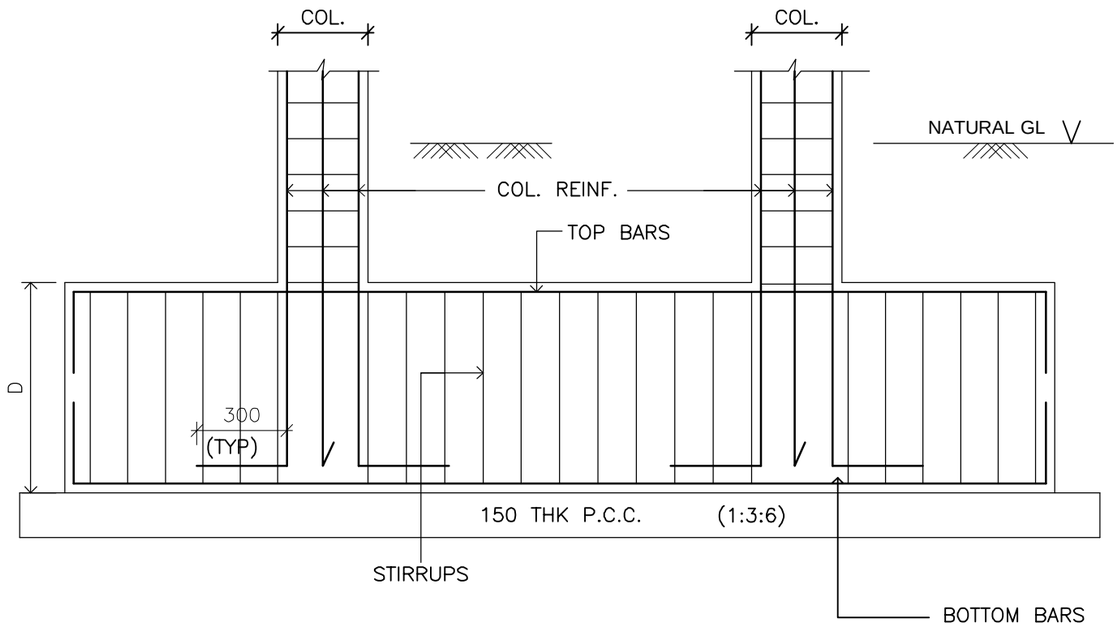
FOOTING PLAN C13+C21 & C14+C22



FOOTING PLAN C15 + C23



FOOTING PLAN C16 + C24



LONGITUDENAL SECTION OF STRAP BEAM

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAIL OF COLUMNS & FOOTINGS

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DO NOT SCALE
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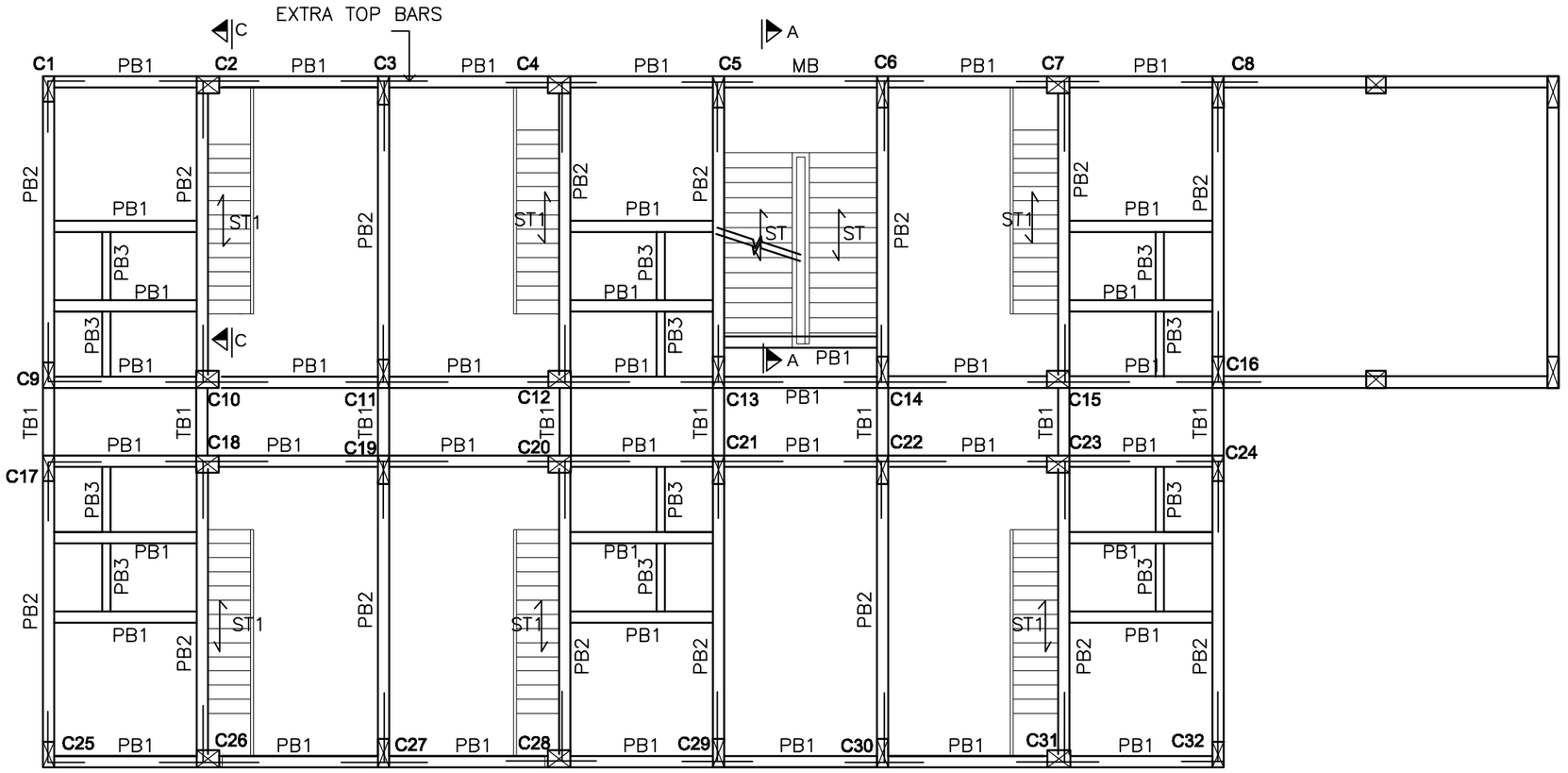
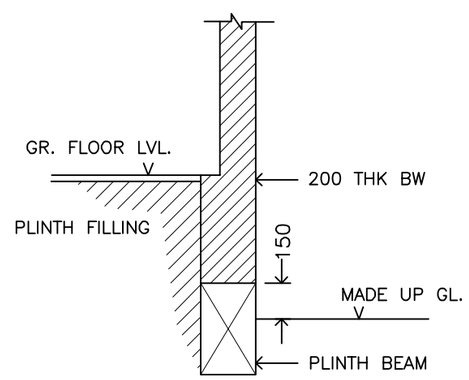
SCHEDULE OF BEAMS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	STIRRUPS	REMARKS
		Straight	Curtailed (0.7L span)			
PB1	200 x 350	3–12 ϕ	----	2–10 ϕ	6 ø @ 150 (6) 230 c/c	
PB2	200 x 350	3–12 ϕ	2–12 ϕ	2–12 ϕ	6 ø @ 125 (12) 230 c/c	
PB3	150 x 350	2–12 ϕ	----	2–10 ϕ	6 ø @ 150 (6) 230 c/c	
TB1	200 x 350	3–12 ϕ	----	2–10 ϕ	6 ø @ 150 c/c	TIE BEAM
MB	200 x 400	2–16 ϕ	2–12 ϕ	2–12 ϕ	8 ϕ @ 150 c/c	MIDLANDING BEAM.



LAYOUT OF PLINTH AND TIE BEAMS

PROVIDE 1 –12 ϕ EXTRA TOP OVER ALL COLUMN SUPPORTS



SECTION C-C

GENERAL NOTES

1) ALL DIMENSIONS ARE IN mm UNLESS MENTIONED OTHERWISE
2) REFER THIS DRAWING ALONG WITH ARCHITECTURAL DRAWING.
3) DO NOT SCALE THE DRAWING, REFER FIGURED DIMENSIONS
4) ANY DESCRIPANCIES OR OMISSION OR CHANGES SHALL BE BROUGHT TO NOTICE PRIOR TO EXECUTION
5) CONCRETE GRADE USED IS M20 UNLESS OTHERWISE MENTIONED.
6) ALL STEEL EXCEPT 6mmø IS TOR STEEL(ϕ) OF GRADE Fe 415 N/mmSq.
7) LAPPING OR ANCHORANGE OR DEVELOPMENT LENGTH (Ld) FOR a) BEAM AND SLAB = 60 x DIA OF BAR
   b) COLUMN = 50 x DIA OF BAR

DRAWING ESSUED FOR - ☐ APPROVAL, ☐ ESTIMATION, ☐ EXECUTION

8) ALL CONCRETE SHALL BE MACHINE MIXED AND VIBRATED.
9) CLEAR COVER TO RENFORCEMENT
   a) FOOTING = 50 m.m.
   b) COLUMN = 40 m.m.
   c) SLAB = 20 m.m.
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A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAIL OF PLINTH AND TIE BEAMS

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Email : matrixengineers@gmail.com

DO NOT SCALE
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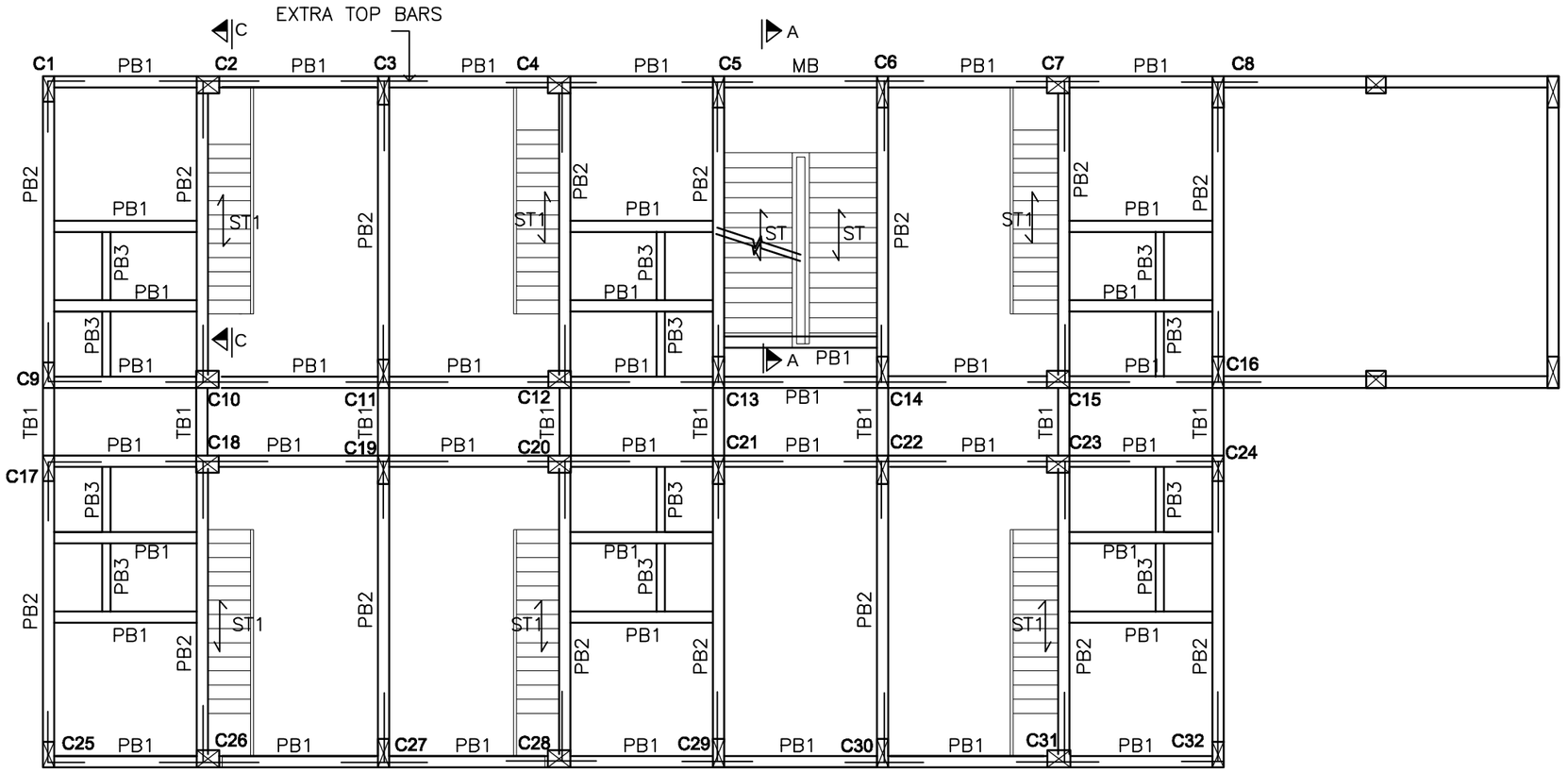
DEALT : SACHIN YADAV

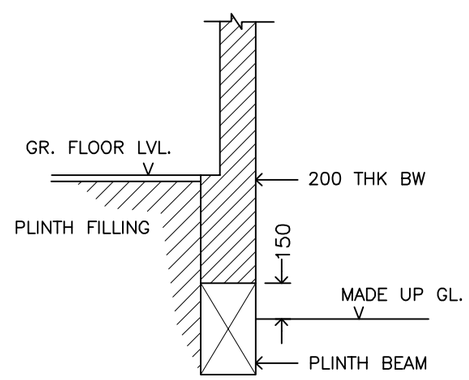
SCHEDULE OF BEAMS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	STIRRUPS	REMARKS
		Straight	Curtailed (0.7L span)			
PB1	200 x 350	3–12 ϕ	----	2–10 ϕ	6 ø @ 150 (6) 230 c/c	
PB2	200 x 350	3–12 ϕ	2–12 ϕ	2–12 ϕ	6 ø @ 125 (12) 230 c/c	
PB3	150 x 350	2–12 ϕ	----	2–10 ϕ	6 ø @ 150 (6) 230 c/c	
TB1	200 x 350	3–12 ϕ	----	2–10 ϕ	6 ø @ 150 c/c	TIE BEAM
MB	200 x 400	2–16 ϕ	2–12 ϕ	2–12 ϕ	8 ϕ @ 150 c/c	MIDLANDING BEAM.



LAYOUT OF PLINTH AND TIE BEAMS

PROVIDE 1 –12 ϕ EXTRA TOP OVER ALL COLUMN SUPPORTS



SECTION C-C

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3) DO NOT SCALE THE DRAWING, REFER FIGURED DIMENSIONS
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6) ALL STEEL EXCEPT 6mmø IS TOR STEEL(ϕ) OF GRADE Fe 415 N/mmSq.
7) LAPPING OR ANCHORANGE OR DEVELOPMENT LENGTH (Ld) FOR a) BEAM AND SLAB = 60 x DIA OF BAR
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A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAIL OF PLINTH AND TIE BEAMS

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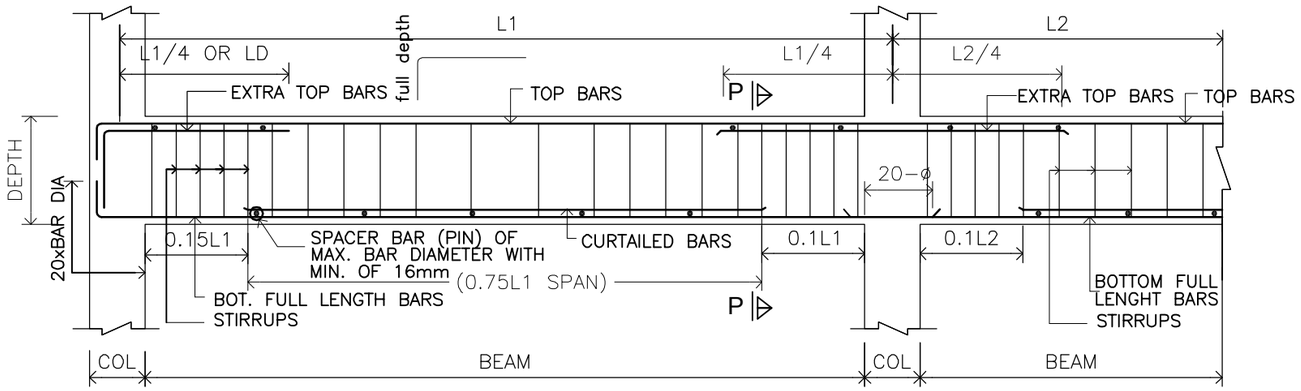
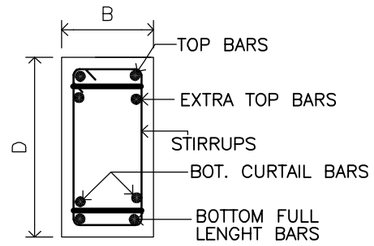
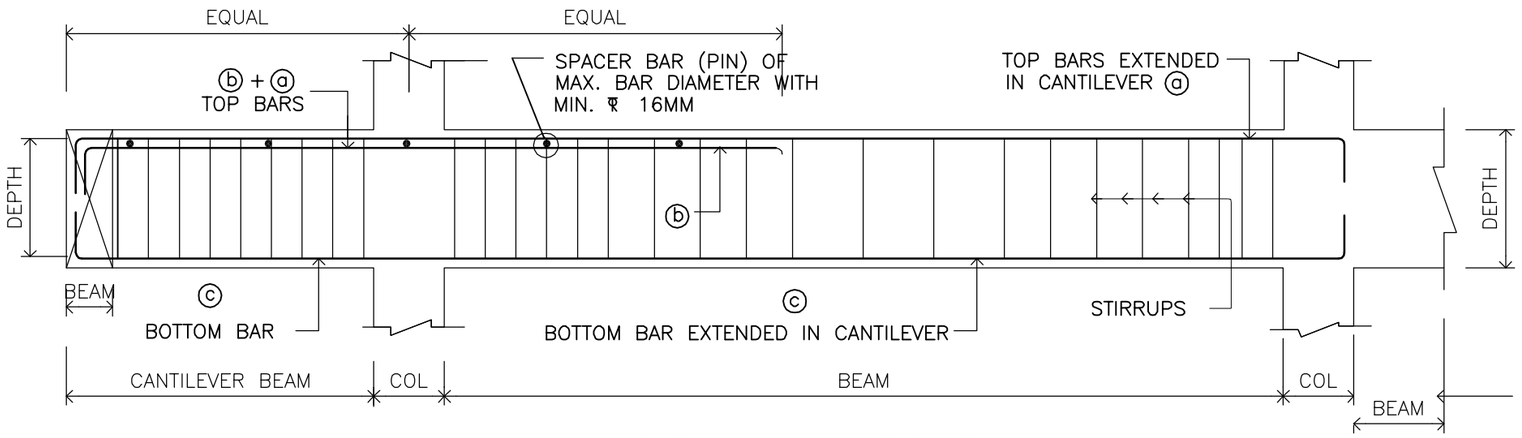


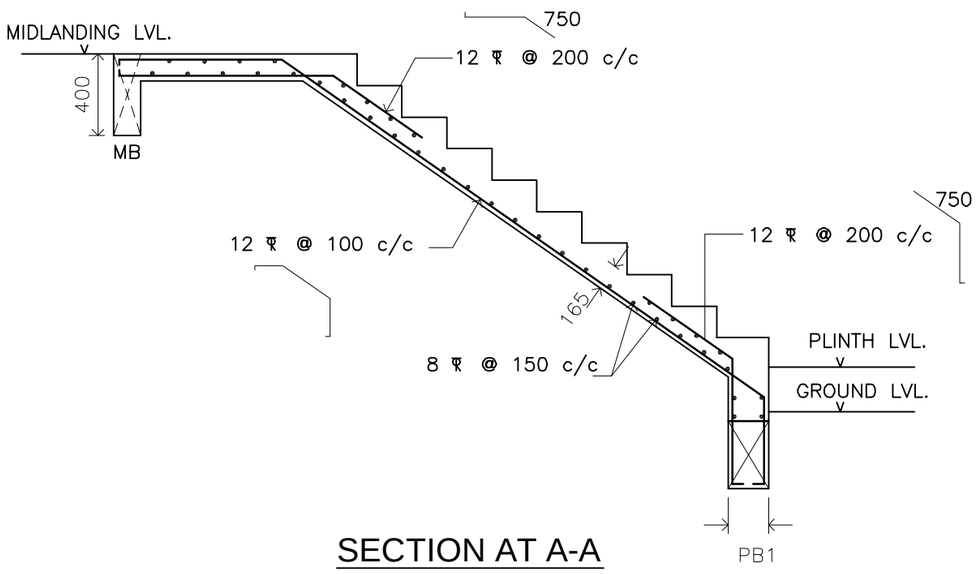
TYP.LONGITUDENAL SECTION OF BEAM



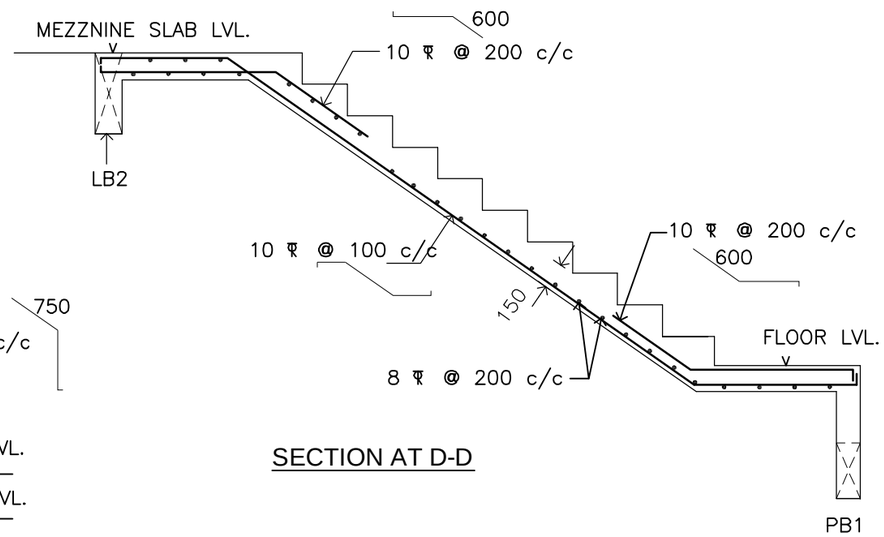
SECTION AT P - P



TYP. REINFORCEMENT DETAILS OF CANTILEVER BEAM



SECTION AT A-A



SECTION AT D-D

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ST-01-01 | DETAIL OF PLINTH AND TIE BEAMS

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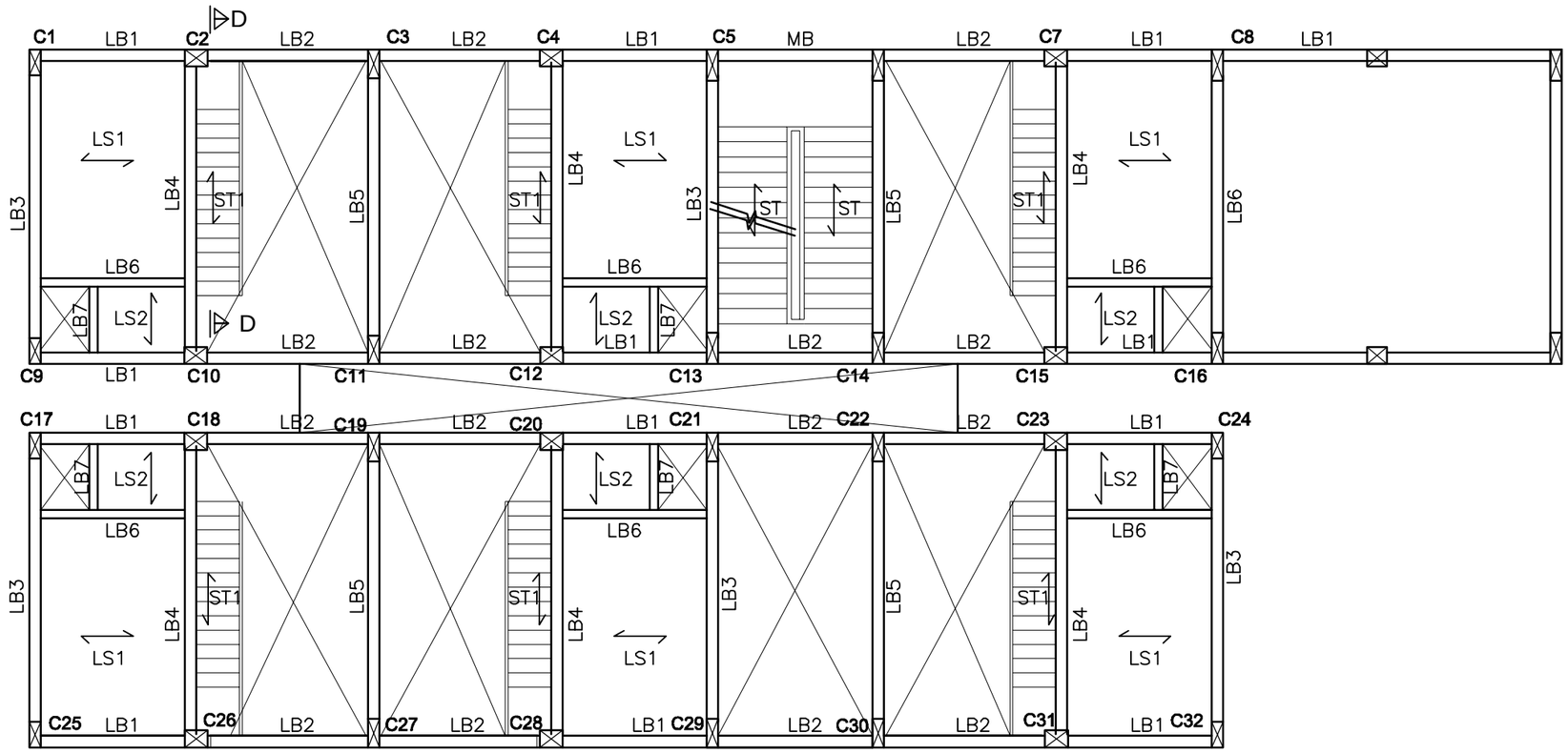
Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:04/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

SCHEDULE OF LINTEL BEAMS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	EXTRA TOP BARS	STIRRUPS	REMARKS
	B x D	FULL LENGTH BARS	CURTAILED BARS				
LB1	200 x 300	3–12 ϕ	----	2–10 ϕ	2–10 ϕ	6 ø @ 150 c/c	
LB2	200 x 300	3–10 ϕ	----	2–10 ϕ	2–10 ϕ	6 ø @ 150 c/c	
LB3	200 x 400	3–16 ϕ	2–12 ϕ	2–16 ϕ	2–16 ϕ	8 ϕ @ 150 (10) 250 c/c	
LB4	200 x 400	3–16 ϕ	2–16 ϕ	2–16 ϕ	2–16 ϕ	8 ϕ @ 150 (10) 250 c/c	
LB5	200 x 400	3–12 ϕ	2–12 ϕ	2–10 ϕ	2–12 ϕ	8 ϕ @ 150 (10) 250 c/c	
LB6	150 x 400	2–12 ϕ	2–10 ϕ	2–10 ϕ	----	6 ø @ 150 (6) 250 c/c	
LB7	150 x 400	2–12 ϕ	----	2–10 ϕ	----	6 ø @ 150 c/c	



FRAMING PLAN AT MAZZANAIN SLAB LVL.

GENERAL NOTES

1) ALL DIMENSIONS ARE IN mm UNLESS MENTIONED OTHERWISE
2) REFER THIS DRAWING ALONG WITH ARCHITECTURAL DRAWING.
3) DO NOT SCALE THE DRAWING, REFER FIGURED DIMENSIONS
4) ANY DESCRIPANCIES OR OMISSION OR CHANGES SHALL BE BROUGHT TO NOTICE PRIOR TO EXECUTION
5) CONCRETE GRADE USED IS M20 UNLESS OTHERWISE MENTIONED.
6) ALL STEEL EXCEPT 6mmø IS TOR STEEL(ϕ) OF GRADE Fe 415 N/mmSq.
7) LAPPING OR ANCHORANGE OR DEVELOPMENT LENGTH (Ld)
   FOR a) BEAM AND SLAB = 60 x DIA OF BAR
   b) COLUMN = 50 x DIA OF BAR

DRAWING ESSUED FOR - ☐ APPROVAL, ☐ ESTIMATION, ☐ EXECUTION

8) ALL CONCRETE SHALL BE MACHINE MIXED AND VIBRATED.
9) CLEAR COVER TO RENFORCEMENT
   a) FOOTING = 50 m.m.
   b) COLUMN = 40 m.m.
   c) SLAB = 20 m.m.
   d) BEAM = 25 m.m.
10) S.B.C. OF SOIL ASSUMED IS 20 T/Sq.M.
11) COLUMNS AND FOOTINGS ARE DESIGNED FOR GROUND + 2 FLOORS ONLY
12) DO NOT CAST ANY R.C.C WORK UNLESS IT IS CHECKED AND CONFIRMED BY ENGINEER
13) DESIGN OF CENTRING, SHUTTERING, AND CONCRETE MIX IS CONTRACTOR RESPONSIBLITY

REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	10.10.2011

REFERENCE I. S. CODES :

1.	IS 456–2000	PLAIN AND REINFORCED CONCRETE.
2.	IS 800	STEEL STRUCTURE.
3.	IS 3370	LIQUID RETAINING STRUCTURE.
4.	IS 2911	PILE FOUNDATION.
5.	IS 1893–2002	EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAIL OF MEZZANINE FLOOR

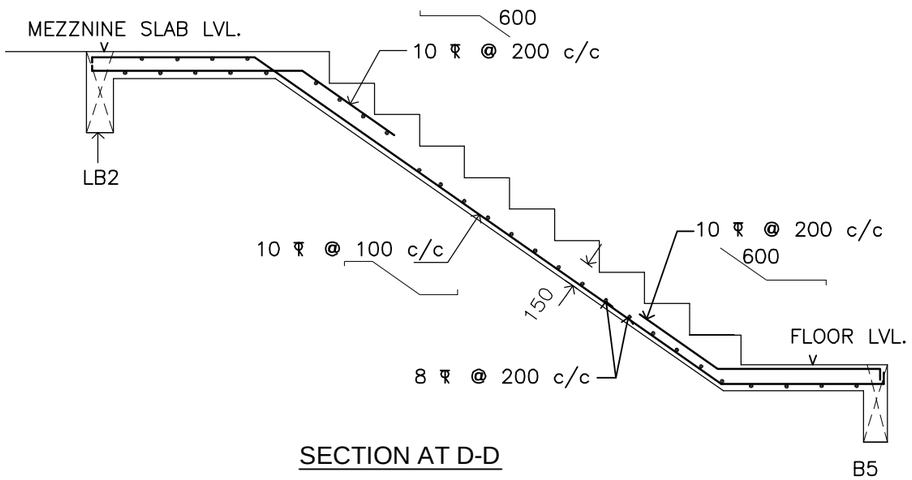
MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
MUKUND NAGAR, NEAR LAXMI NARAYAI
THEATER PUNE - 37. TEL- 020 242740
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:04/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

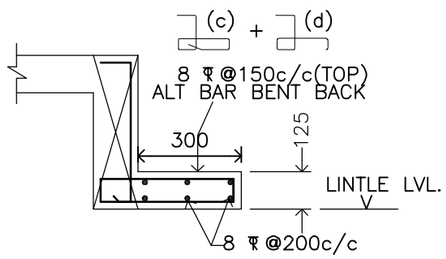
SCHEDULE OF SLABS

FOR SLAB SPAN 1500 AND MORE ALT. BAR SHALL BE BENT UP AT L/5 AND EXTEND FOR L/4 IN ADJUCENT SLAB

SLAB NOS.	THICKNESS	SHORT BARS	LONG BARS	REMARKS
LS1	140	10 ϕ @ 300 c/c	8 ϕ @ 300 c/c	ONE WAY.
LS2	100	8 ϕ @ 150 c/c	8 ϕ @ 230 c/c	TWO WAY.
ST	165	8 ϕ @ 150 c/c	12 ϕ @ 100 c/c	STAIRCASE WAIST SLAB.
ST1	150	8 ϕ @ 200 c/c	10 ϕ @ 100 c/c	STAIRCASE WAIST SLAB.



SECTION AT D-D



TYPICAL DETAILS OF CHAJJA @ BEAM BOTTOM

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAILS OF MEZZANINE FLOOR

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
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THEATER PUNE - 37. TEL- 020 242740
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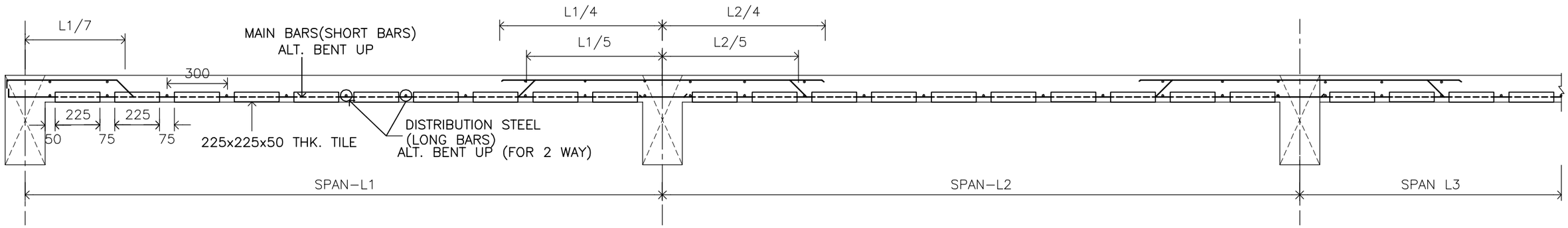
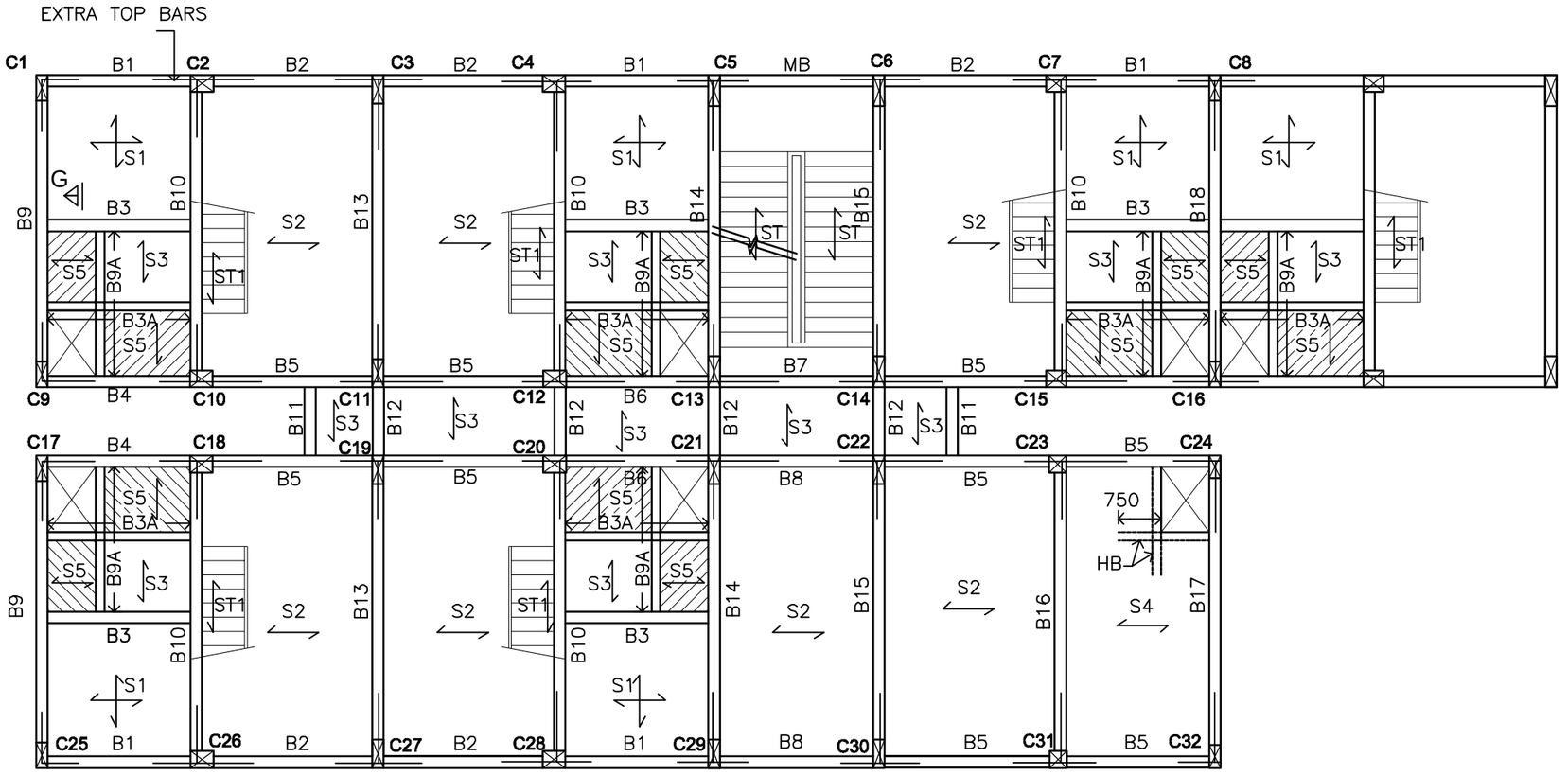
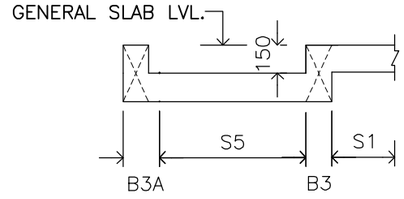


TYP. REINFORCEMENT DETAILS OF FILLER SLAB



FRAMING PLAN AT FIRST SLAB LVL.



SECTION AT G-G

GENERAL NOTES

1) ALL DIMENSIONS ARE IN mm UNLESS MENTIONED OTHERWISE
2) REFER THIS DRAWING ALONG WITH ARCHITECTURAL DRAWING.
3) DO NOT SCALE THE DRAWING, REFER FIGURED DIMENSIONS
4) ANY DESCRIPANCIES OR OMISSION OR CHANGES SHALL BE BROUGHT TO NOTICE PRIOR TO EXECUTION
5) CONCRETE GRADE USED IS M20 UNLESS OTHERWISE MENTIONED.
6) ALL STEEL EXCEPT 6mmø IS TOR STEEL(Ғ) OF GRADE Fe 415 N/mmSq.
7) LAPPING OR ANCHORANGE OR DEVELOPMENT LENGTH (Ld) FOR a) BEAM AND SLAB = 60 x DIA OF BAR
   b) COLUMN = 50 x DIA OF BAR

DRAWING ESSUED FOR - ☐ APPROVAL, ☐ ESTIMATION, ☐ EXECUTION

8) ALL CONCRETE SHALL BE MACHINE MIXED AND VIBRATED.
9) CLEAR COVER TO RENFORCEMENT
   a) FOOTING = 50 m.m.
   b) COLUMN = 40 m.m.
   c) SLAB = 20 m.m.
   d) BEAM = 25 m.m.
10) S.B.C. OF SOIL ASSUMED IS 20 T/Sq.M.
11) COLUMNS AND FOOTINGS ARE DESIGNED FOR GROUND + 2 FLOORS ONLY
12) DO NOT CAST ANY R.C.C WORK UNLESS IT IS CHECKED AND CONFIRMED BY ENGINEER
13) DESIGN OF CENTRING, SHUTTERING, AND CONCRETE MIX IS CONTRACTOR RESPONSIBLITY

REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	10.10.2011

REFERENCE I. S. CODES :

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4.	IS 2911	PILE FOUNDATION.
5.	IS 1893–2002	EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAIL OF FIRST SLAB AND BEAMS

MATRIX ENGINEERS
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DO NOT SCALE
DATE:04/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

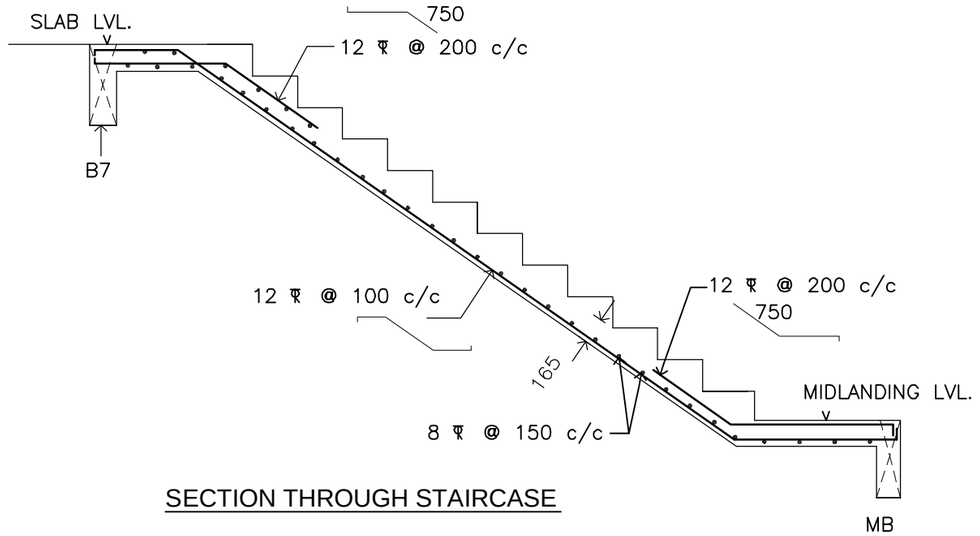
SCHEDULE OF LINTEL BEAMS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	EXTRA TOP BARS AT SUPPORT	STIRRUPS	REMARKS
	B x D	FULL LENGTH BARS	CURTAILED BARS				
B1 B2 B4 B6 B12	200 x 350	2–12 ϕ	1–12 ϕ	2–10 ϕ	2–12 ϕ	8 ϕ @ 150 (6) 200 c/c	
B3	200 x 300	3–16 ϕ	----	2–12 ϕ	---	8 ϕ @ 150 (6) 200 c/c	
B3A B9A	150 x 300	2–16 ϕ	----	2–12 ϕ	---	8 ϕ @ 150 c/c	
B5 B7 B8	200 x 450	3–12 ϕ	2–10 ϕ	2–10 ϕ	3–16 ϕ	8 ϕ @ 150 (6) 200 c/c	
B9 B15	200 x 450	2–16 ϕ	2–12 ϕ	2–10 ϕ	2–16 ϕ	8 ϕ @ 150 (8) 200 c/c	
B10 B13 B14 B18	200 x 450	2–16 ϕ	2–12 ϕ	2–10 ϕ	3–16 ϕ	8 ϕ @ 150 (8) 200 c/c	
B11	150 x 350	2–12 ϕ	----	2–10 ϕ	----	6 ø @ 150 c/c	
B16	200 x 450	2–12 ϕ	2–12 ϕ	2–10 ϕ	2–16 ϕ	8 ϕ @ 150 (8) 200 c/c	
HB	150 x 150	2–12 ϕ	----	2–10 ϕ	---	6 ø @ 150 c/c	HIDDEN BEAM

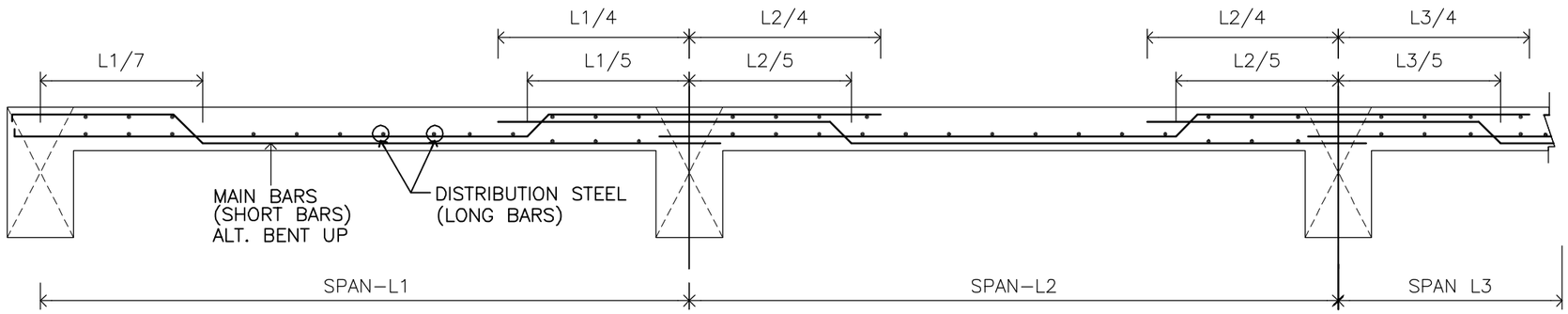
SCHEDULE OF SLABS

FOR SLAB SPAN 1500 AND MORE ALT. BAR SHALL BE BENT UP AT L/5 AND EXTEND FOR L/4 IN ADJUCENT SLAB

SLAB NOS.	THICKNESS	SHORT BARS	LONG BARS	REMARKS
S1	140	10 ϕ @ 300 c/c	8 ϕ @ 300 c/c	TWO WAY.
S2	140	12 ϕ @ 300 c/c	8 ϕ @ 300 c/c	ONE WAY.
S3	100	8 ϕ @ 150 c/c	8 ϕ @ 230 c/c	TWO WAY.
S4	140	10 ϕ @ 300 c/c	8 ϕ @ 300 c/c	ONE WAY.
S5	150	8 ϕ @ 150 c/c	8 ϕ @ 250 c/c	ONE WAY. 150 SUNK
ST	165	8 ϕ @ 150 c/c	12 ϕ @ 100 c/c	STAIRCASE WAIST SLAB.
ST1	150	8 ϕ @ 200 c/c	10 ϕ @ 100 c/c	STAIRCASE WAIST SLAB.



SECTION THROUGH STAIRCASE



TYP. REINFORCEMENT DETAIL OF REGULAR RCC SLAB

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAILS OF FRIST SLAB AND BEAMS

MATRIX ENGINEERS
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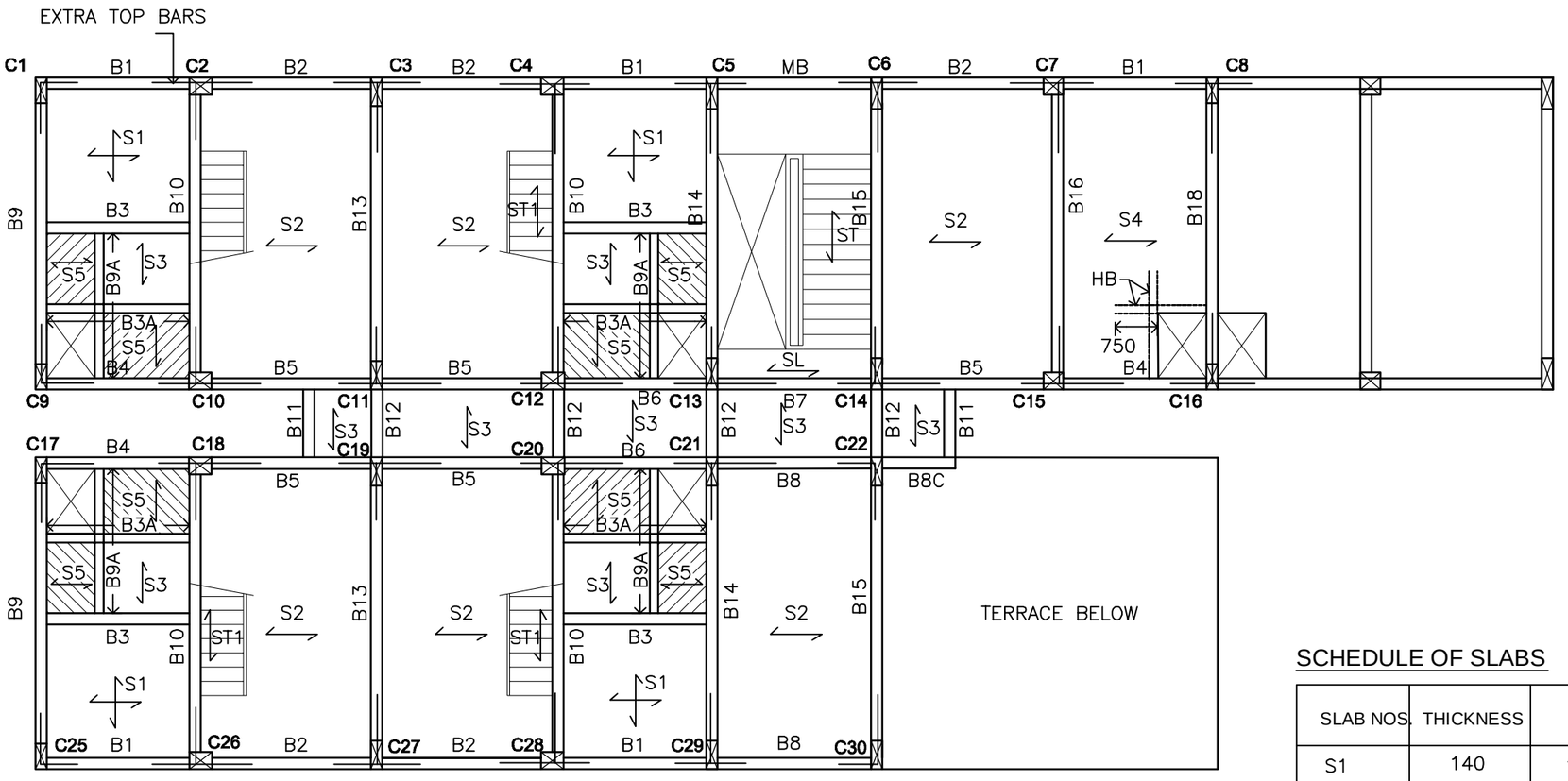
DO NOT SCALE
DATE:04/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV



FRAMING PLAN AT SECOND SLAB LVL.

SCHEDULE OF SLABS

FOR SLAB SPAN 1500 AND MORE ALT. BAR SHALL BE BENT UP AT L/5 AND EXTEND FOR L/4 IN ADJUCENT SLAB

SLAB NOS.	THICKNESS	SHORT BARS	LONG BARS	REMARKS
S1	140	10 ϕ @ 300 c/c	8 ϕ @ 300 c/c	TWO WAY.
S2	140	12 ϕ @ 300 c/c	8 ϕ @ 300 c/c	ONE WAY.
S3	100	8 ϕ @ 150 c/c	8 ϕ @ 230 c/c	TWO WAY.
S4	140	10 ϕ @ 300 c/c	8 ϕ @ 300 c/c	ONE WAY.
S5	150	8 ϕ @ 150 c/c	8 ϕ @ 230 c/c	ONE WAY. 150 SUNK
ST	165	8 ϕ @ 150 c/c	12 ϕ @ 100 c/c	STAIRCASE WAIST SLAB.
ST1	150	8 ϕ @ 200 c/c	10 ϕ @ 100 c/c	STAIRCASE WAIST SLAB.

SCHEDULE OF LINTEL BEAMS

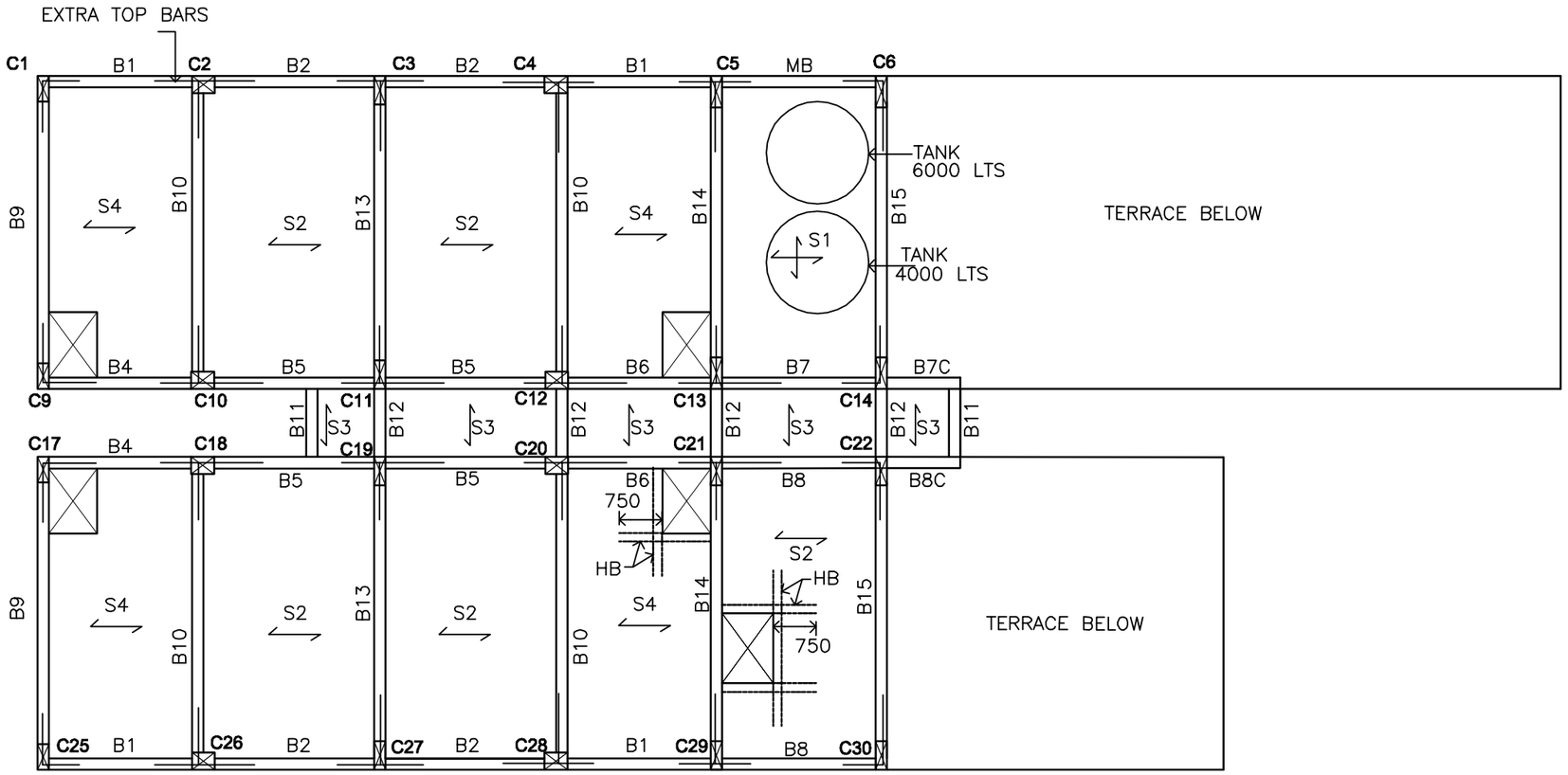
BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	EXTRA TOP BARS AT SUPPORT	STIRRUPS	REMARKS
	B x D	FULL LENGTH BARS	CURTAILED BARS				
B1 B2 B4 B6 B12	200 x 350	2–12 ϕ	1–12 ϕ	2–10 ϕ	2–12 ϕ	8 ϕ @ 150 (6) 200 c/c	
B3	200 x 300	3–16 ϕ	----	2–12 ϕ	---	8 ϕ @ 150 (6) 200 c/c	
B3A B9A	150 x 300	2–16 ϕ	----	2–12 ϕ	---	8 ϕ @ 150 c/c	
B5 B7 B8	200 x 450	3–12 ϕ	2–10 ϕ	2–10 ϕ	3–16 ϕ	8 ϕ @ 150 (6) 200 c/c	
B8C	200 x 450	3–12 ϕ	----	4–16 ϕ	---	8 ϕ @ 150 c/c	CANTILEVER BEAM
B9 B15	200 x 450	2–16 ϕ	2–12 ϕ	2–10 ϕ	2–16 ϕ	8 ϕ @ 150 (8) 200 c/c	
B10 B13 B14	200 x 450	2–16 ϕ	2–12 ϕ	2–10 ϕ	3–16 ϕ	8 ϕ @ 150 (8) 200 c/c	
B11	150 x 350	2–12 ϕ	----	2–10 ϕ	----	6 ø @ 150 c/c	
B16 B18	200 x 450	2–12 ϕ	2–12 ϕ	2–10 ϕ	2–16 ϕ	8 ϕ @ 150 (8) 200 c/c	
HB	150 x 150	2–12 ϕ	----	2–10 ϕ	---	6 ø @ 150 c/c	HIDDEN BEAM

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAIL OF SECOND SLAB AND BEAMS

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
MUKUND NAGAR, NEAR LAXMI NARAYAI
THEATER PUNE - 37. TEL- 020 242740
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:04/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV



FRAMING PLAN AT TERRACE SLAB LVL.

SCHEDULE OF SLABS

FOR SLAB SPAN 1500 AND MORE ALT. BAR SHALL BE BENT UP AT L/5 AND EXTEND FOR L/4 IN ADJUCENT SLAB

SLAB NOS.	THICKNESS	SHORT BARS	LONG BARS	REMARKS
S1	150	10 ϕ @ 100 c/c	8 ϕ @ 150 c/c	TWO WAY.
S2	140	12 ϕ @ 300 c/c	8 ϕ @ 300 c/c	ONE WAY.
S3	125	8 ϕ @ 150 c/c	8 ϕ @ 230 c/c	TWO WAY.
S4	140	10 ϕ @ 300 c/c	8 ϕ @ 300 c/c	ONE WAY.

SCHEDULE OF LINTEL BEAMS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	EXTRA TOP BARS AT SUPPORT	STIRRUPS	REMARKS
	B x D	FULL LENGTH BARS	CURTAILED BARS				
B1 B2 B4 B6 B12	200 x 350	2–12 ϕ	1–12 ϕ	2–10 ϕ	2–12 ϕ	8 ϕ @ 150 (6) 200 c/c	
B5 B7 B8	200 x 450	3–12 ϕ	2–10 ϕ	2–10 ϕ	3–16 ϕ	8 ϕ @ 150 (6) 200 c/c	
B7C B8C	200 x 450	3–12 ϕ	----	4–16 ϕ	---	8 ϕ @ 150 c/c	CANTILEVER BEAM
B13 B15	200 x 450	2–16 ϕ	2–12 ϕ	2–10 ϕ	2–16 ϕ	8 ϕ @ 150 (8) 200 c/c	
B14	200 x 450	2–16 ϕ	2–12 ϕ	2–10 ϕ	3–16 ϕ	8 ϕ @ 150 (8) 200 c/c	
B11	150 x 350	2–12 ϕ	----	2–10 ϕ	----	8 ϕ @ 150 c/c	
B9 B10	200 x 450	2–12 ϕ	2–12 ϕ	2–10 ϕ	2–16 ϕ	8 ϕ @ 150 (8) 200 c/c	
HB	150 x 150	2–12 ϕ	----	2–10 ϕ	---	6 ø @ 150 c/c	HIDDEN BEAM

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, CLUSTER BUILDING

ST-01-01 | DETAIL OF TERRACE SLAB AND BEAMS

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
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THEATER PUNE - 37. TEL- 020 242740
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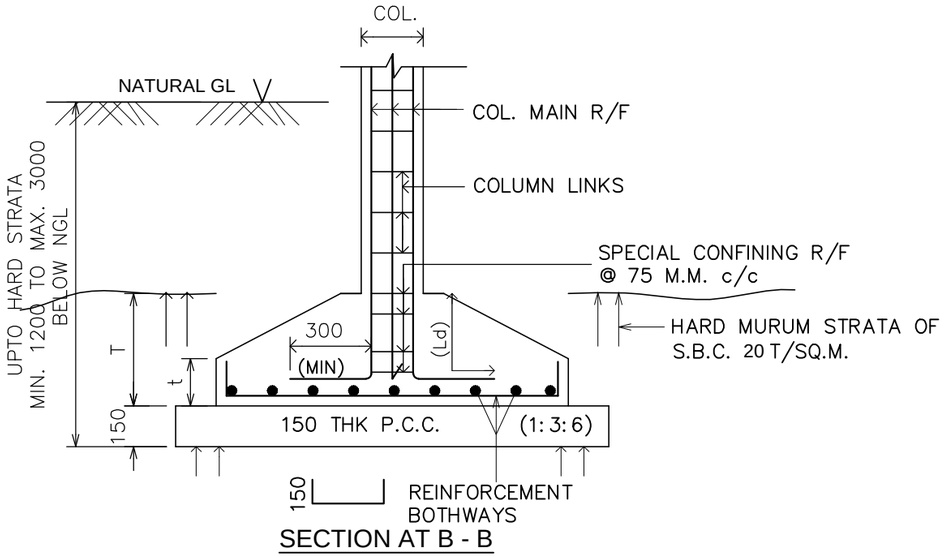
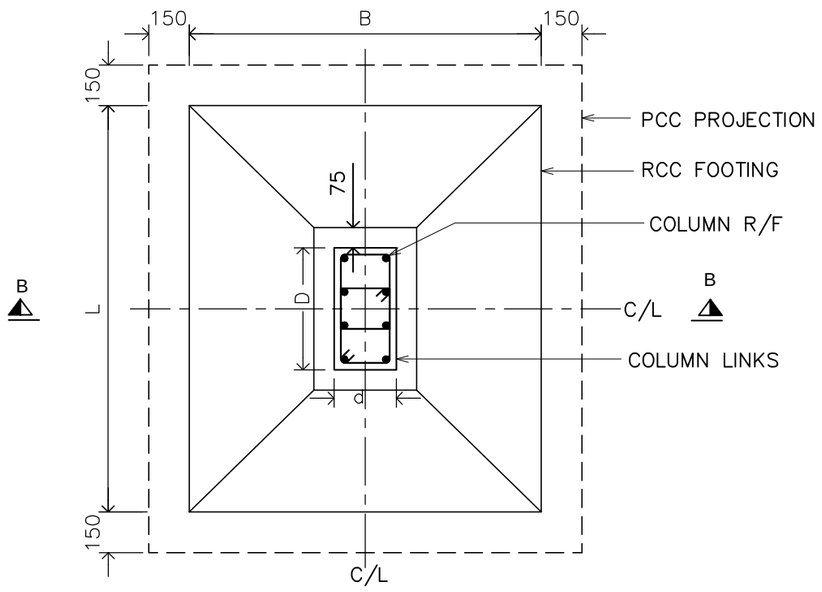
Email : matrixengineers@gmail.com

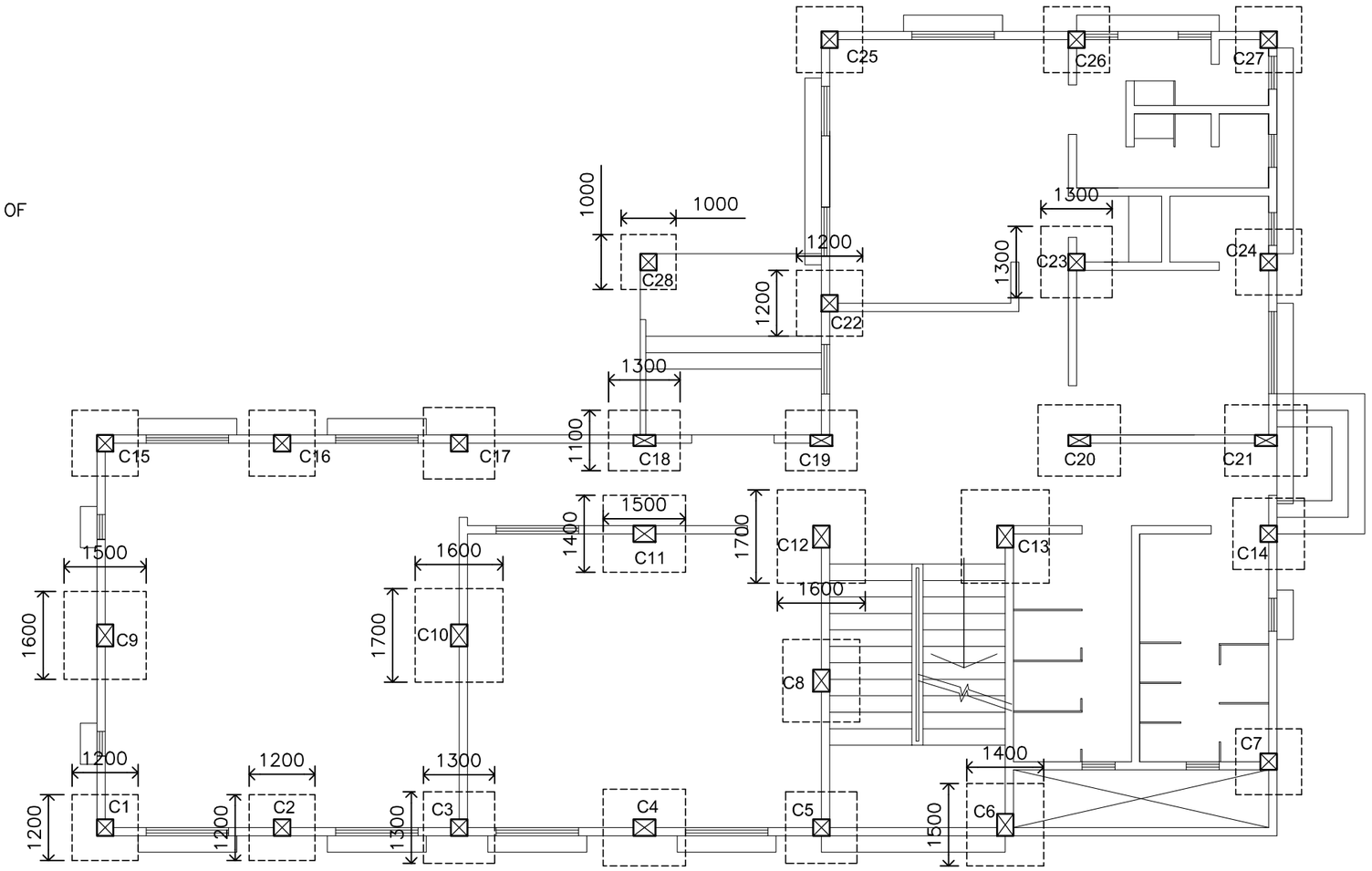
DO NOT SCALE
DATE:04/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV



SECTION AT B - B



TYP. COLUMN FOOTING PLAN



LAYOUT OF COLUMN & FOOTINGS

WORKING DRAWING

GENERAL NOTES	DRAWING ESSUED FOR - ☐APPROVAL, ☐ESTIMATION, ☐EXECUTION	REVISION
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4.	IS 2911	PILE FOUNDATION.
5.	IS 1893–2002	EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, SCHOOL BUILDING

ST-01-01	DETAIL OF COLUMNS & FOOTINGS

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
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THEATER PUNE - 37. TEL- 020 24274077
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:25/05/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

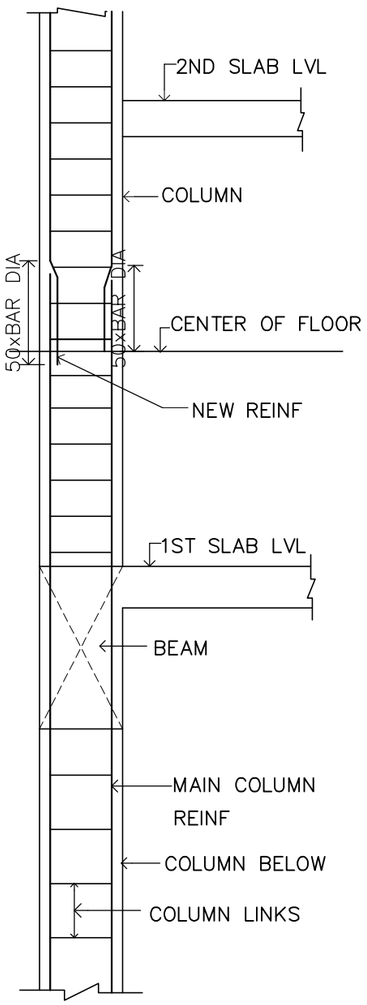
SCHEDULE OF COLUMNS AND FOOTINGS

COLUMN NOS	FOOTING SIZE		THICKNESS		REINFORCEMENT BOTH WAYS	FOOTING TO 1st SLAB		1st SLAB TO 2nd SLAB		REMARKS
						SIZE	REINF.	SIZE	REINF.	
	B	L	t	T		d D	NO. DIA.	d D	NO. DIA.	
C1 C7 C15	1200	1200	200	350	10 ' @ 150 c/c	300 x 300	8 –12'	300 x 300	8 –12'	
C2 C16	1200	1200	200	350	10 ' @ 150 c/c	300 x 300	8 –12'	300 x 300	8 –12'	
C3 C5 C14 C17	1300	1300	200	400	10 ' @ 150 c/c	300 x 300	8 –12'	300 x 300	8 –12'	
C6 C8	1400	1500	200	450	10 ' @ 150 c/c	300 x 400	8 –12'	300 x 400	8 –12'	
C9	1500	1600	200	450	10 ' @ 150 c/c	300 x 400	4 –16' +4 –12'	300 x 400	4 –16' +4 –12'	
C10	1600	1700	200	450	10 ' @ 150 c/c	300 x 400	4 –16' +4 –12'	300 x 400	4 –16' +4 –12'	
C4 C11	1400	1500	200	400	10 ' @ 150 c/c	300 x 400	8 –12'	300 x 400	8 –12'	
C12 C13	1600	1700	200	500	10 ' @ 150 c/c	300 x 400	4 –16' +4 –12'	300 x 400	8 –12'	
C18 C19 C20 C21	1100	1200	200	350	10 ' @ 150 c/c	200 x 400	8 –12'	200 x 400	8 –12'	
C22 C24 C26	1200	1200	200	350	10 ' @ 150 c/c	300 x 300	8 –12'	-----	----	
C23	1300	1300	200	400	10 ' @ 150 c/c	300 x 300	8 –12'	-----	----	
C25 C27	1200	1200	200	350	10 ' @ 150 c/c	300 x 300	8 –12'	-----	----	
C28	1000	1000	200	350	10 ' @ 150 c/c	300 x 300	8 –12'	-----	----	

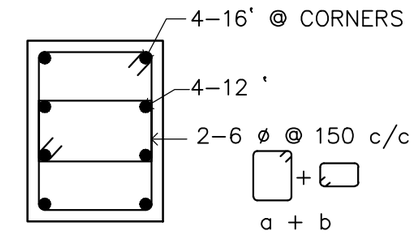
***NOTES-**

*MAIN BAR OF COLUMN SHOULD NOT LAP AT BEAM JUNCTION AND SHALL BE AT THE CENTER OF TWO FLOORS

*MAX.50% BAR SHALL BE LAPPED AT ONE PLACE

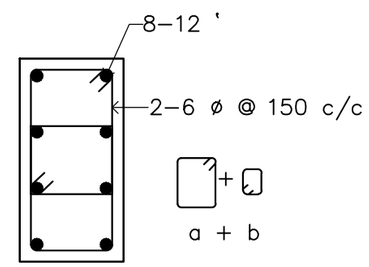


TYPICAL COLUMN LAP DETAILS



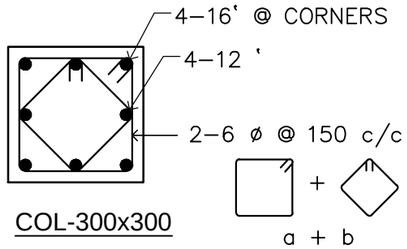
COL-300x400

8–12 ' &
4–16 '+4–12 '



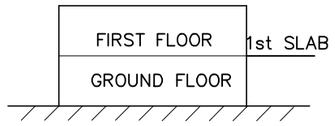
COL-200x400

8–12'



COL-300x300

8–12 ' &
4–16+4–12 '



KEY ELEVATION

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, SCHOOL BUILDING

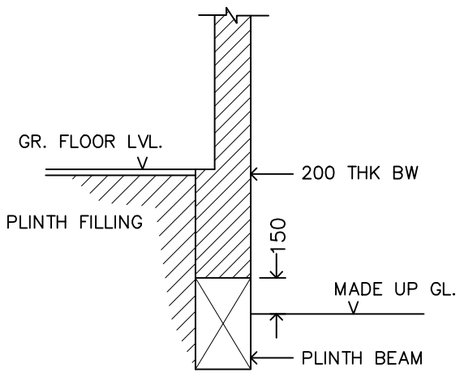
ST-01-01	DETAIL OF STRUCTURAL SYSTEM

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
MUKUND NAGAR, NEAR LAXMI NARAYAN
THEATER PUNE - 37. TEL- 020 24274077
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

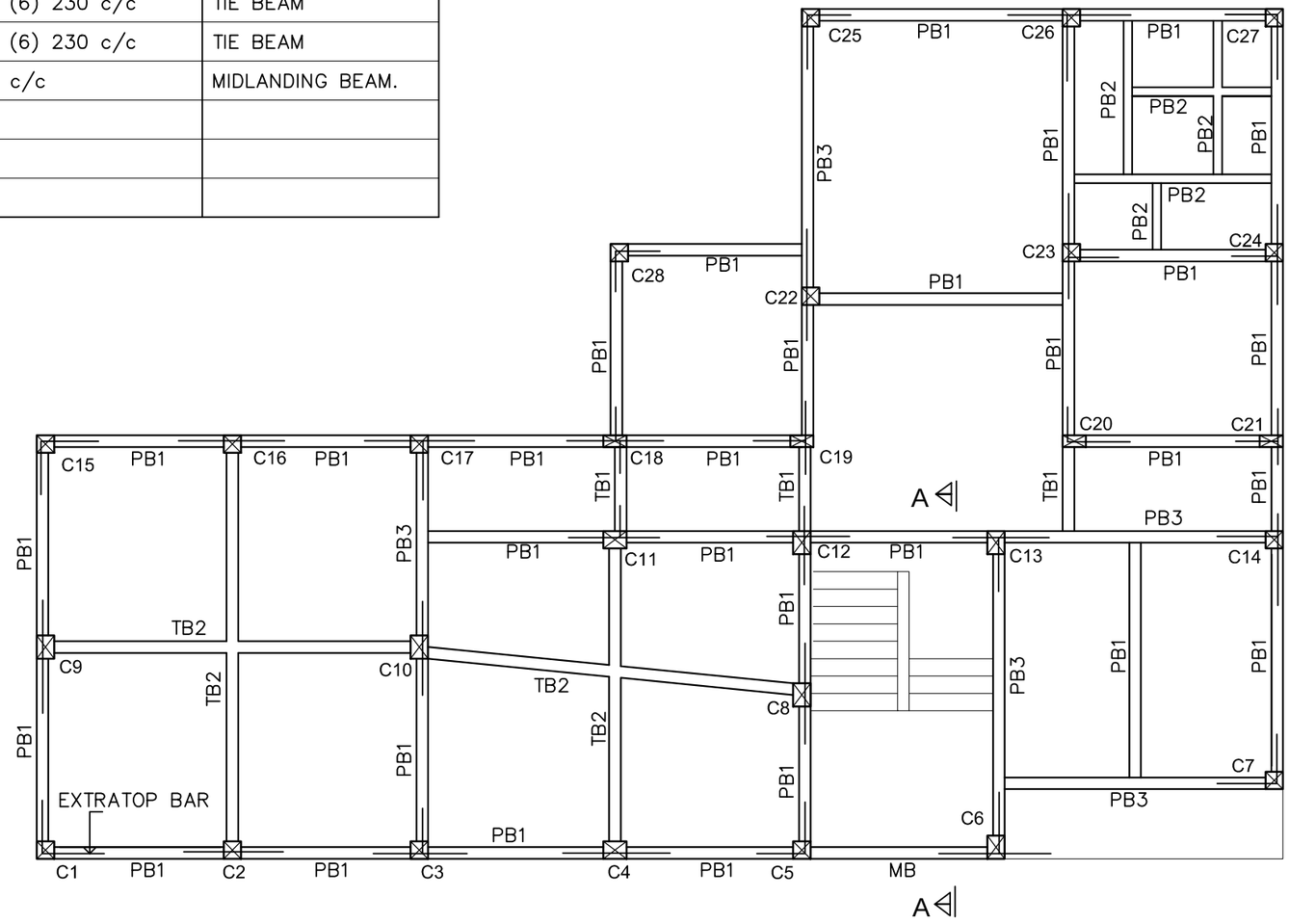
DO NOT SCALE
DATE:25/05/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

SCHEDULE OF BEAMS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	STIRRUPS	REMARKS
		Straight	Curtailed (0.7L span)			
PB1	200 x 350	3–12 '	----	2–10 '	8 ' @ 150 (6) 230 c/c	
PB2	150 x 350	2–12 '	----	2–10 '	8 ' @ 150 (6) 230 c/c	
PB3	200 x 450	3–16 '	2–10 '	2–12 '	8 ' @ 150 (10) 230 c/c	
TB1	200 x 350	3–12 '	----	2–10 '	8 ' @ 150 (6) 230 c/c	TIE BEAM
TB2	200 x 350	3–12 '	----	2–12 '	8 ' @ 150 (6) 230 c/c	TIE BEAM
MB	200 x 450	2–16 '	2–12 '	2–12 '	8 ' @ 150 c/c	MIDLANDING BEAM.



PYPICAL PLINTH BEAM LVL.



LAYOUT OF PLINTH AND TIE BEAMS

PROVIDE 1 –16 ' EXTRA TOP OVER ALL COLUMN SUPPORTS

WORKING DRAWING

GENERAL NOTES

1) ALL DIMENSIONS ARE IN mm UNLESS MENTIONED OTHERWISE
2) REFER THIS DRAWING ALONG WITH ARCHITECTURAL DRAWING.
3) DO NOT SCALE THE DRAWING, REFER FIGURED DIMENSIONS
4) ANY DESCRIPANCIES OR OMISSION OR CHANGES SHALL BE BROUGHT TO NOTICE PRIOR TO EXECUTION
5) CONCRETE GRADE USED IS M20UNLESS OTHERWISE MENTIONED.
6) ALL STEEL EXCEPT 6mmø IS TOR STEEL(') OF GRADE Fe 415 N/mmSq.
7) LAPPING OR ANCHORANGE OR DEVELOPMENT LENGTH (Ld)
   FOR a) BEAM AND SLAB = 60 x DIA OF BAR
   b) COLUMN = 50 x DIA OF BAR

DRAWING ESSUED FOR - ☐APPROVAL, ☐ESTIMATION, ☐EXECUTION

8) ALL CONCRETE SHALL BE MACHINE MIXED AND VIBRATED.
9) CLEAR COVER TO RENFORCEMENT
   a) FOOTING = 50 m.m.
   b) COLUMN = 40 m.m.
   c) SLAB = 20 m.m.
   d) BEAM = 25 m.m.
10) S.B.C. OF SOIL ASSUMED IS 20T/Sq.M.
11) COLUMNS AND FOOTINGS ARE DESIGNED FOR GROUND + 2 FLOORS ONLY
12) DO NOT CAST ANY R.C.C WORK UNLESS IT IS CHECKED AND CONFIRMED BY ENGINEER
13) DESIGN OF CENTRING, SHUTTERING, AND CONCRETE MIX IS CONTRACTOR RESPONSIBLITY

REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	05.10.2011

REFERENCE I. S. CODES :

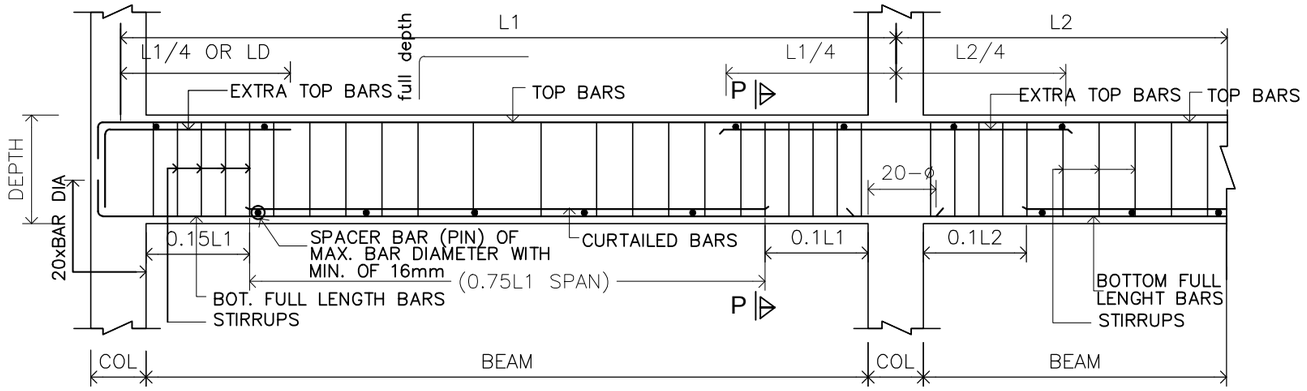
1.	IS 456–2000	PLAIN AND REINFORCED CONCRETE.
2.	IS 800	STEEL STRUCTURE.
3.	IS 3370	LIQUID RETAINING STRUCTURE.
4.	IS 2911	PILE FOUNDATION.
5.	IS 1893–2002	EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, SCHOOL BUILDING

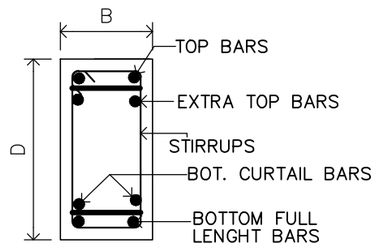
ST-01-01 | DETAIL OF PLINTH AND TIE BEAMS

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6, MUKUND NAGAR, NEAR LAXMI NARAYAN THEATER PUNE - 37. TEL- 020 24274077
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

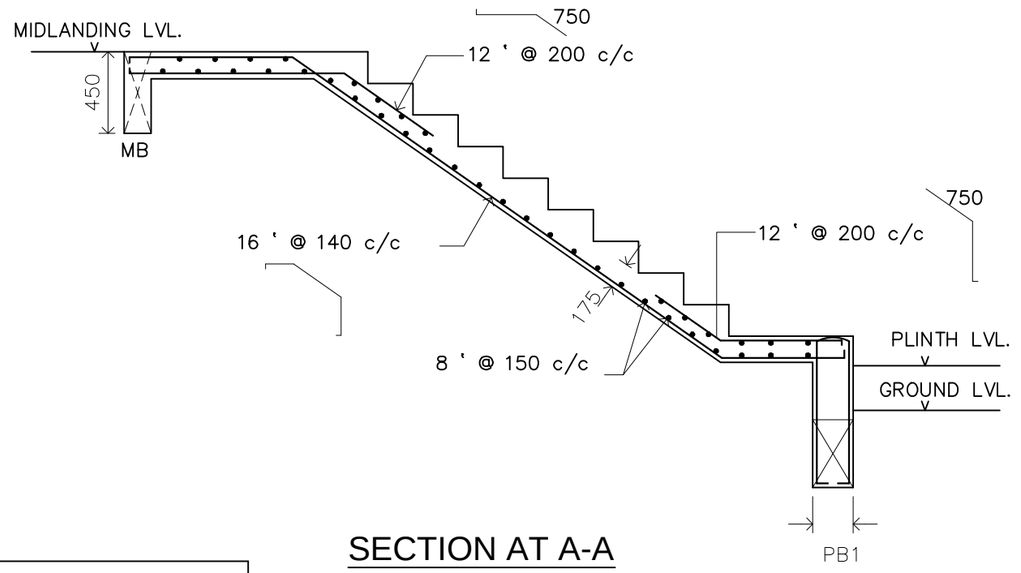
DO NOT SCALE
DATE:25/05/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV



TYP.LONGITUDENAL SECTION OF BEAM



SECTION AT P - P



SECTION AT A-A

EXTRA TOP BAR		
BAR DIA	L/4 OR LD	
a = 2–12 '	L/4 OR LD=720	PROVIDE L/4 OR LD– WHICHEVER IS GREATER AT BOTHSIDE FROM CENTRE OF SUPPORT

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, SCHOOL BUILDING

ST-01-01 | DETAIL OF PLINTH AND TIE BEAMS

MATRIX ENGINEERS
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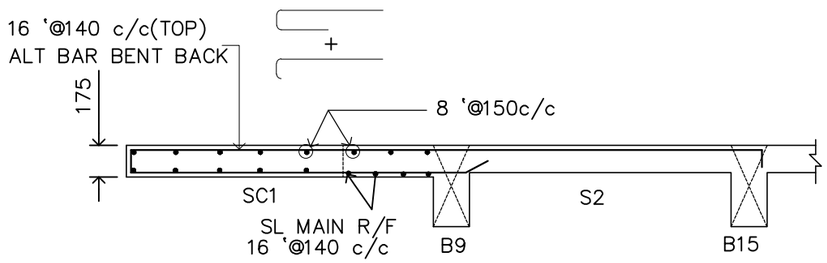
Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:25/05/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

SCHEDULE OF SLABS

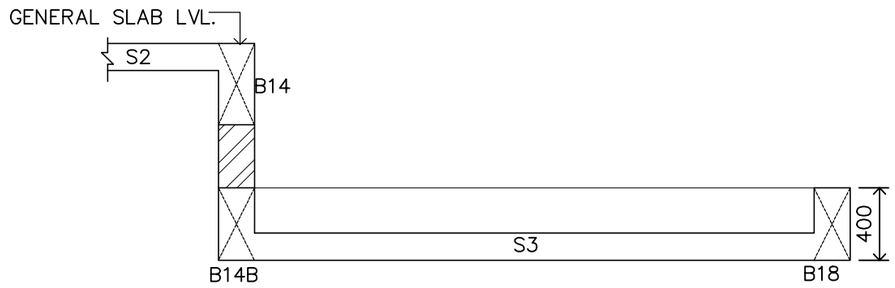
FOR SLAB SPAN 1500 AND MORE ALT. BAR SHALL BE BENT UP AT L/5 AND EXTEND FOR L/4 IN ADJUCENT SLAB

SLAB NOS.	THICKNESS	SHORT BARS	LONG BARS	REMARKS
S1	140	10 ' @ 300 c/c	8 ' @ 300 c/c	ONE WAY.
S2	125	8 ' @ 300 c/c	8 ' @ 300 c/c	ONE WAY.
S3	140	10 ' @ 300 c/c	10 ' @ 300 c/c	TWO WAY. @ PORCH LVL.
S4	140	12 ' @ 300 c/c	10 ' @ 300 c/c	TWO WAY.
ST	175	8 ' @ 150 c/c	16 ' @ 140 c/c	STAIRCASE WAIST SLAB.
SL	175	12 ' @ 200 c/c	16 ' @ 140 c/c	STAIRCASE LANDING SLAB.

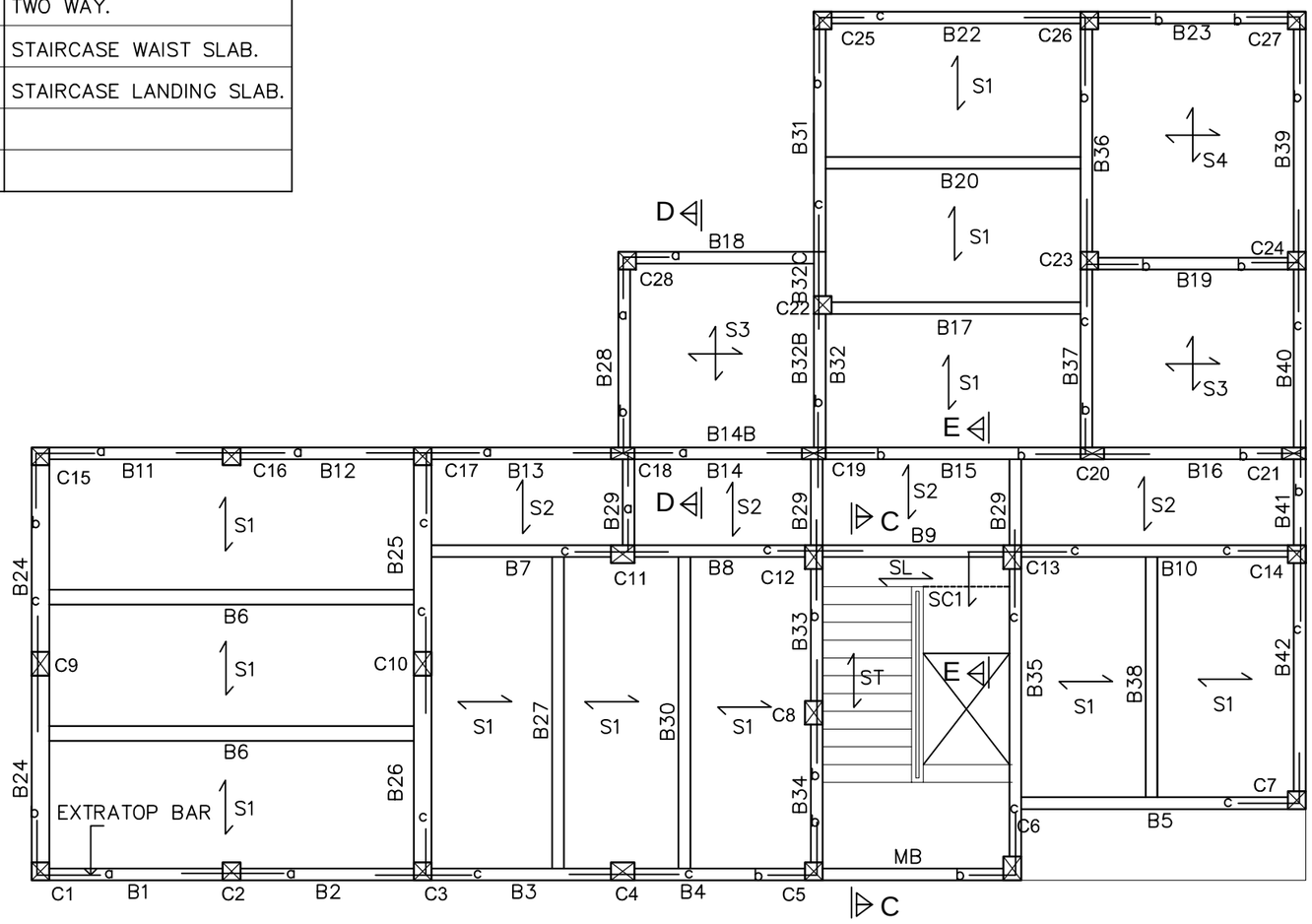


SECTION E-E

EXTRA TOP BAR		
BAR DIA	L/4 OR LD	
a = 2–12 '	MIN. LENGTH LD=720	PROVIDE L/4 OR LD– WHICHEVER IS GREATER AT BOTHSIDE FROM CENTRE OF SUPPORT
b = 2–16 '	MIN. LENGTH LD=960	
c = 3–16 '	MIN. LENGTH LD=960	



SECTION AT D-D



FRAMING PLAN AT FIRST SLAB LVL.

WORKING DRAWING

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   b) COLUMN = 50 x DIA OF BAR

DRAWING ESSUED FOR - ☐APPROVAL, ☑ESTIMATION, ☐EXECUTION

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   c) SLAB = 20 m.m.
   d) BEAM = 25 m.m.
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REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	05.10.2011

REFERENCE I. S. CODES :

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2. IS 800 STEEL STRUCTURE.
3. IS 3370 LIQUID RETAINING STRUCTURE.
4. IS 2911 PILE FOUNDATION.
5. IS 1893–2002 EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, SCHOOL BUILDING

ST-01-01 | DETAIL OF FIRST SLAB AND BEAMS

MATRIX ENGINEERS
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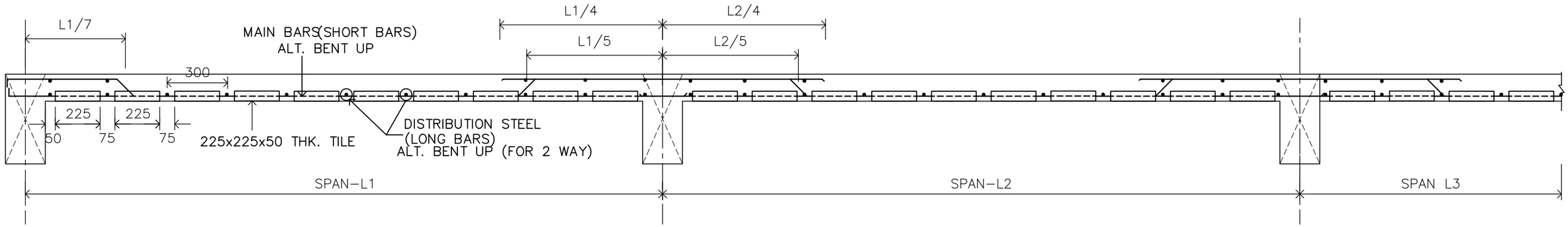
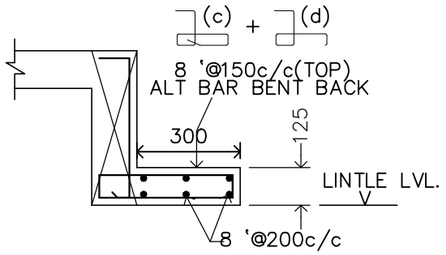
DO NOT SCALE
DATE:25/05/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV



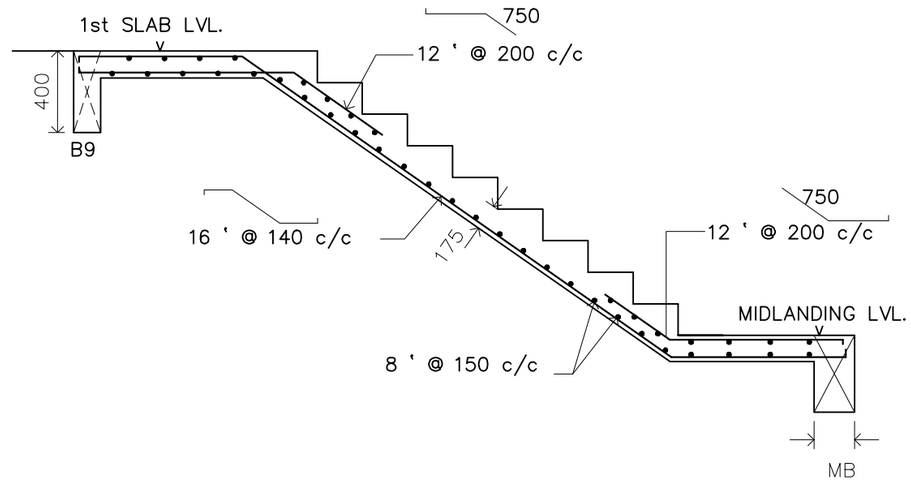
TYP. REINFORCEMENT DETAILS OF FILLER SLAB



SCHEDULE OF LINTEL BEAMS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	STIRRUPS	REMARKS
	B x D	FULL LENGTH BARS	CURTAILED BARS			
B1 B2 B11 B12	200 x 500	2–12 '	2–10 '	2–10 '	8 ' @ 150 (6) 230 c/c	
B3 B4	200 x 500	2–16 '	1–16 '	2–10 '	8 ' @ 150 (8) 230 c/c	
B5	200 x 500	2–16 '	1–12 '	2–10 '	8 ' @ 150 (6) 230 c/c	
B6	250 x 500	3–16 '	3–16 '	2–12 '	8 ' @ 125 (10) 230 c/c	
B7 B8	200 x 500	2–16 '	2–12 '	2–10 '	8 ' @ 150 (8) 230 c/c	
B9	200 x 450	2–16 '	1–16 '	2–12 '	8 ' @ 150 c/c	
B10	200 x 500	2–16 '	2–16 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B13 B14	200 x 450	2–12 '	1–10 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B15 B16	200 x 450	2–12 '	2–12 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B17 B20 B38	200 x 450	2–16 '	2–16 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B14 B18 B28	200 x 400	2–12 '	1–12 '	2–10 '	8 ' @ 150 (6) 200 c/c	INVERTED TO S3 SLAB
B19 B33 B34 B42	200 x 450	2–12 '	1–12 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B22 B32	200 x 450	2–16 '	1–12 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B23 B40	200 x 450	2–12 '	1–12 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B24 B25 B26	300 x 500	3–16 '	2–10 '	2–12 '	8 ' @ 125 (8) 200 c/c	
B27 B30	200 x 450	2–16 '	2–16 '	2–10 '	8 ' @ 150 (8) 200 c/c	
B29 B41	200 x 300	2–12 '	––––	2–10 '	8 ' @ 150 c/c	
B31	200 x 500	2–16 '	2–16 '	2–10 '	8 ' @ 150 (8) 200 c/c	
B32B B32C	200 x 400	2–16 '	–––	2–16 '	8 ' @ 150 (6) 200 c/c	INVERTED TO S3 SLAB, B32C CANTILEVER BEAM
B35	200 x 600	3–16 '	2–16 '	2–12 '	10 ' @ 150 (10) 230 c/c	
B36 B37	200 x 500	2–16 '	2–16 '	2–10 '	8 ' @ 150 (8) 200 c/c	
B39	200 x 450	2–16 '	1–12 '	2–10 '	8 ' @ 150 (6) 200 c/c	

TYPICAL DETAILS OF CHAJJA @ BEAM BOTTOM



SECTION AT C -C

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, SCHOOL BUILDING

ST-01-01 | DETAILS OF FRIST SLAB AND BEAMS

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
MUKUND NAGAR, NEAR LAXMI NARAYAN
THEATER PUNE - 37. TEL- 020 24274077
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:25/05/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

SCHEDULE OF LINTEL BEAMS

CANCELED BEAM NO.–B17 B18 B19 B22 B23 B28 B31 B32 B36 B37 B39 B40

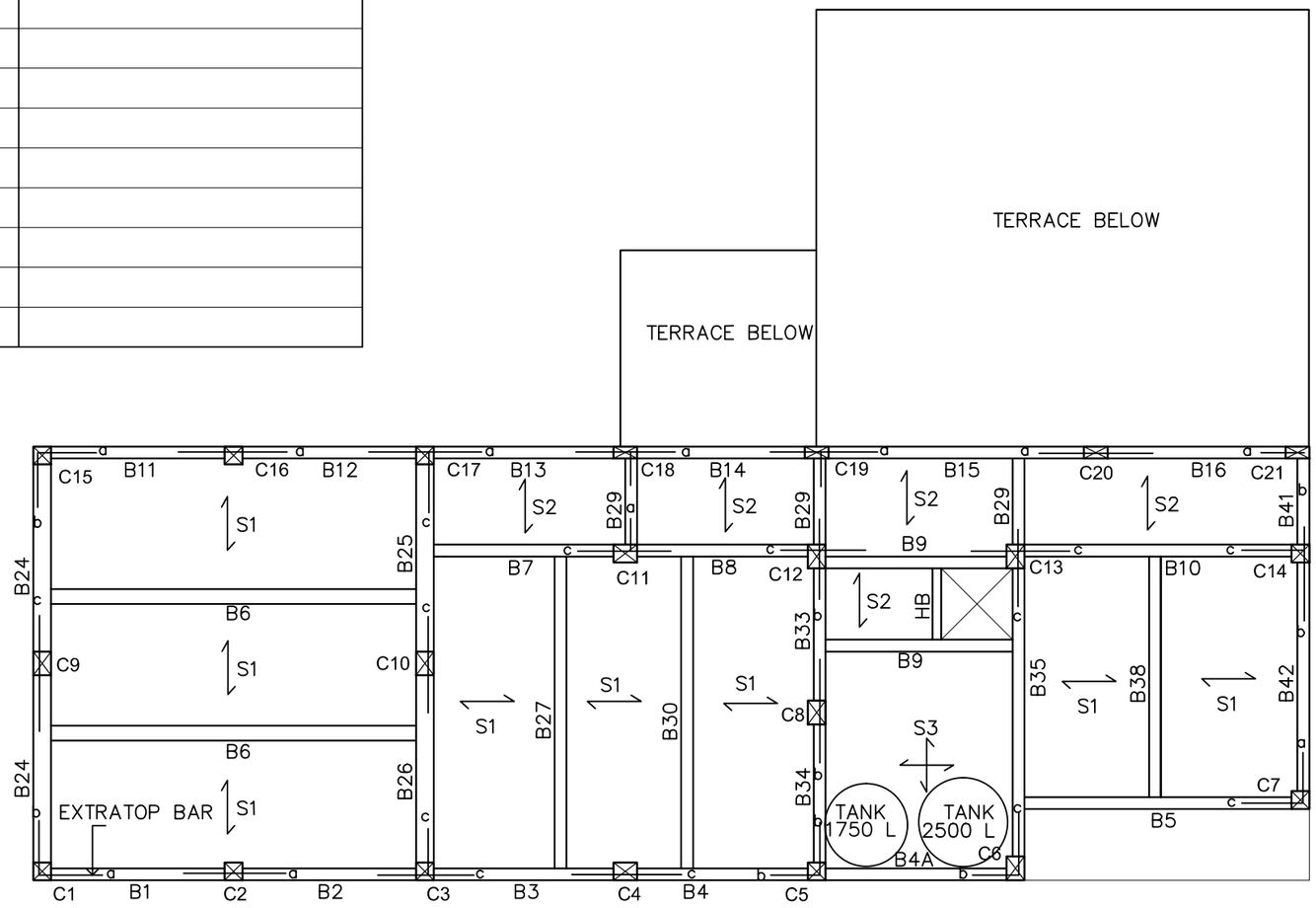
BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	STIRRUPS	REMARKS
	B x D	FULL LENGTH BARS	CURTAILED BARS			
B1 B2 B11 B12	200 x 500	2–12 '	2–10 '	2–10 '	8 ' @ 150 (6) 230 c/c	
B3 B4 B4A	200 x 500	2–16 '	1–16 '	2–10 '	8 ' @ 150 (8) 230 c/c	
B5	200 x 500	2–16 '	1–12 '	2–10 '	8 ' @ 150 (6) 230 c/c	
B6	250 x 500	3–16 '	3–16 '	2–12 '	8 ' @ 125 (10) 230 c/c	
B7 B8	200 x 500	2–16 '	2–12 '	2–10 '	8 ' @ 150 (8) 230 c/c	
B9	200 x 450	2–16 '	––––	2–10 '	8 ' @ 150 c/c	
B10	200 x 500	2–16 '	2–16 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B13 B14	200 x 450	2–12 '	1–10 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B15 B16	200 x 450	2–12 '	2–12 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B24 B25 B26	300 x 500	3–16 '	2–10 '	2–12 '	8 ' @ 125 (8) 200 c/c	
B27 B30 B33 B34	200 x 450	2–16 '	2–16 '	2–10 '	8 ' @ 150 (8) 200 c/c	
B29 B41	200 x 300	2–12 '	–––––	2–10 '	8 ' @ 150 c/c	
B42	200 x 450	2–12 '	1–12 '	2–10 '	8 ' @ 150 (6) 200 c/c	
B35	200 x 600	3–16 '	2–16 '	2–12 '	8 ' @ 100 (10) 200 c/c	
B38	200 x 450	2–16 '	2–16 '	2–10 '	8 ' @ 150 (6) 200 c/c	

EXTRA TOP BAR		
BAR DIA	L/4 OR LD	
a = 2–12 '	MIN. LENGTH LD=720	PROVIDE L/4 OR LD– WHICHEVER IS GREATER AT BOTHSIDE FROM CENTRE OF SUPPORT
b = 2–16 '	MIN. LENGTH LD=960	
c = 3–16 '	MIN. LENGTH LD=960	

SCHEDULE OF SLABS

FOR SLAB SPAN 1500 AND MORE ALT. BAR SHALL BE BENT UP AT L/5 AND EXTEND FOR L/4 IN ADJUCENT SLAB

SLAB NOS.	THICKNESS	SHORT BARS	LONG BARS	REMARKS
S1	140	10 ' @ 300 c/c	8 ' @ 300 c/c	ONE WAY.
S2	125	8 ' @ 300 c/c	8 ' @ 300 c/c	ONE WAY.
S3	150	12 ' @ 150 c/c	10 ' @ 150 c/c	TWO WAY.



FRAMING PLAN AT TERRACE SLAB LVL.

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, SCHOOL BUILDING

ST-01-01 | DETAIL OF FIRST SLAB AND BEAMS

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6, MUKUND NAGAR, NEAR LAXMI NARAYAN THEATER PUNE - 37. TEL- 020 24274077
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Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:25/05/2012
DRN BY : SHANKAR
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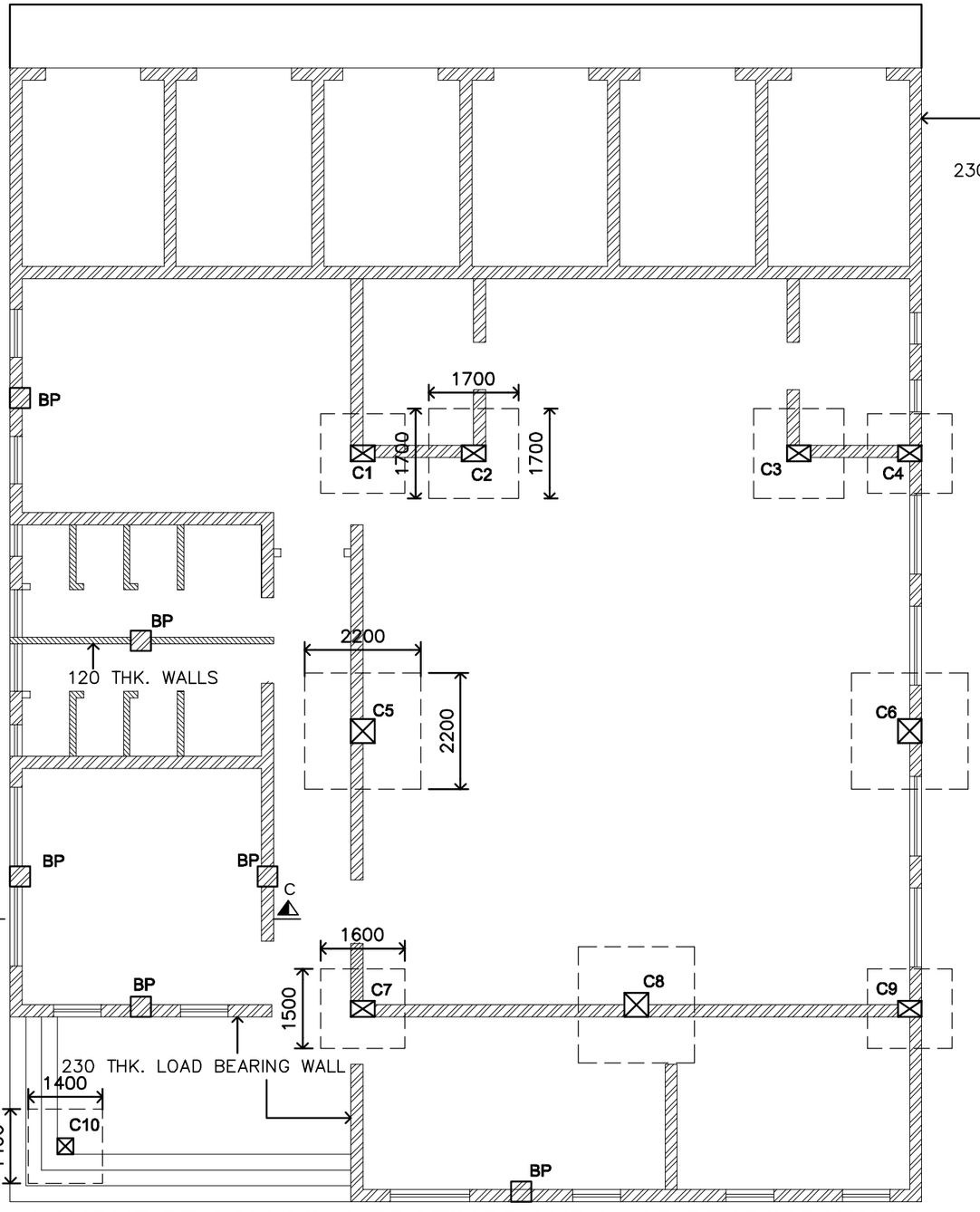
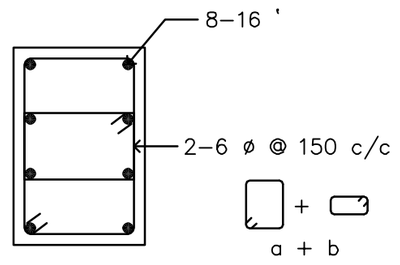


LAYOUT OF COLUMN & FOOTINGS AND LOAD BEARING WALLS

KEY ELEVATION

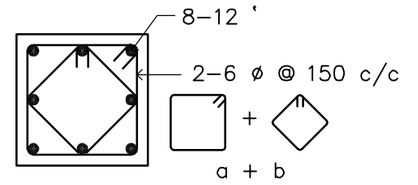
SCHEDULE OF COLUMNS AND FOOTINGS

COLUMN NOS	FOOTING SIZE		THICKNESS		REINFORCEMENT BOTH WAYS	FOOTING TO 1st SLAB			REMARKS
						SIZE		REINF.	
	B	L	t	T		d	D	NO. DIA.	
C1 C4 C7 C9	1500	1600	200	450	10 ' @ 150 c/c	300	450	8 –16'	
C2 C3	1700	1700	200	500	10 ' @ 125 c/c	300	450	10 –16'	
C5 C6 C8	2200	2200	200	600	10 ' @ 100 c/c	450	450	12 –16'	
C10	1400	1400	200	450	10 ' @ 150 c/c	300	300	8 –16'	
BP	---		--	--	----	380	380	----	BRICK PILLARS



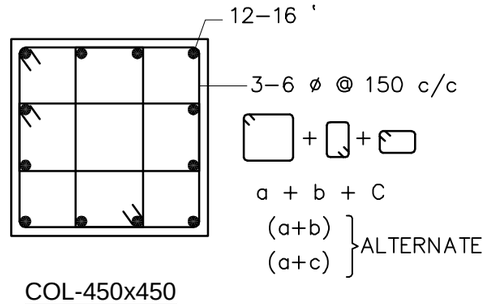
COL-300x450

8–16 '



COL-300x300

8–12 '



COL-450x450

12–16 '

WORKING DRAWING

GENERAL NOTES

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5) CONCRETE GRADE USED IS M20UNLESS OTHERWISE MENTIONED.
6) ALL STEEL EXCEPT 6mmø IS TOR STEEL(') OF GRADE Fe 415 N/mmSq.
7) LAPPING OR ANCHORANGE OR DEVELOPMENT LENGTH (Ld) FOR a) BEAM AND SLAB = 60 x DIA OF BAR
   b) COLUMN = 50 x DIA OF BAR

DRAWING ESSUED FOR - ☐ APPROVAL, ☐ ESTIMATION, ☐ EXECUTION

8) ALL CONCRETE SHALL BE MACHINE MIXED AND VIBRATED.
9) CLEAR COVER TO RENFORCEMENT
   a) FOOTING = 50 m.m.
   b) COLUMN = 40 m.m.
   c) SLAB = 20 m.m.
   d) BEAM = 25 m.m.
10) S.B.C. OF SOIL ASSUMED IS 20T/Sq.M.
11) COLUMNS AND FOOTINGS ARE DESIGNED FOR GROUND + 2 FLOORS ONLY
12) DO NOT CAST ANY R.C.C WORK UNLESS IT IS CHECKED AND CONFIRMED BY ENGINEER
13) DESIGN OF CENTRING, SHUTTERING, AND CONCRETE MIX IS CONTRACTOR RESPONSIBLITY

REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	02.11.2011

REFERENCE I. S. CODES :

1. IS 456–2000 PLAIN AND REINFORCED CONCRETE.
2. IS 800 STEEL STRUCTURE.
3. IS 3370 LIQUID RETAINING STRUCTURE.
4. IS 2911 PILE FOUNDATION.
5. IS 1893–2002 EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, COMMUNITY HALL

ST-01-01 DETAILS OF FOUNDATIONS

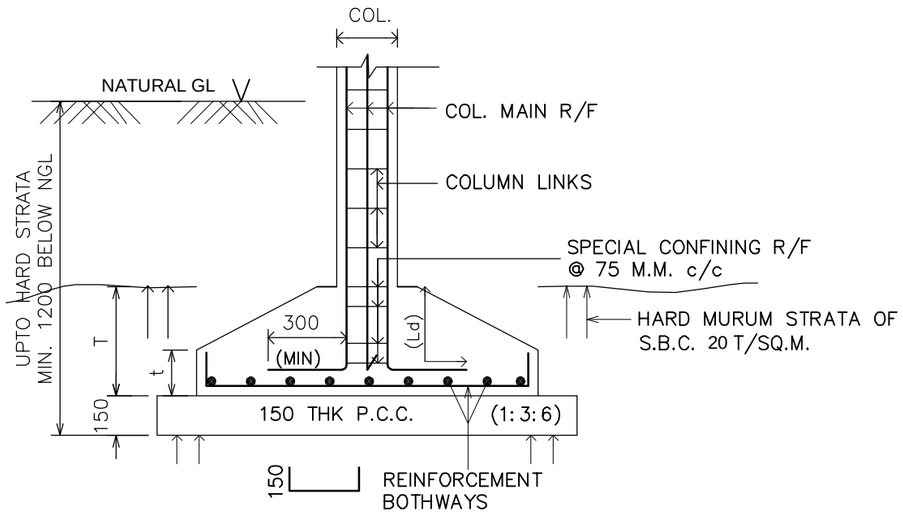
MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
MUKUND NAGAR, NEAR LAXMI NARAYAN
THEATER PUNE - 37. TEL- 020 24274077
matrixengineers@gmail.com
CIVIL & STRUCTURAL CONSULTANT
Email

DO NOT SCALE
DATE:12/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

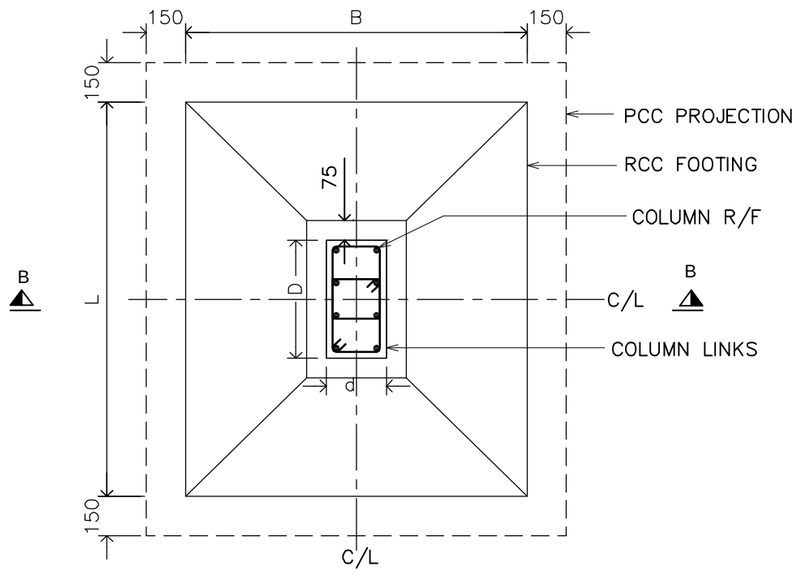
*NOTES-

*MAIN BAR OF COLUMN SHOULD NOT LAP AT BEAM JUNCTION AND SHALL BE AT THE CENTER OF TWO FLOORS

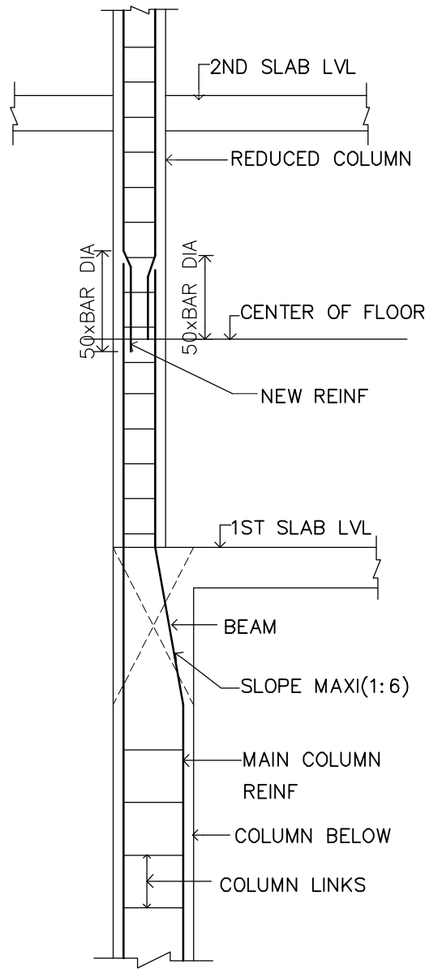
*MAX.50% BAR SHALL BE LAPPED AT ONE PLACE



SECTION AT B - B



TYP. COLUMN FOOTING PLAN



TYPICAL COLUMN LAP

AND REDUCTION DETAILS

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, COMMUNITY HALL

ST-01-01 | DETAILS OF FOUNDATIONS

MATRIX ENGINEERS
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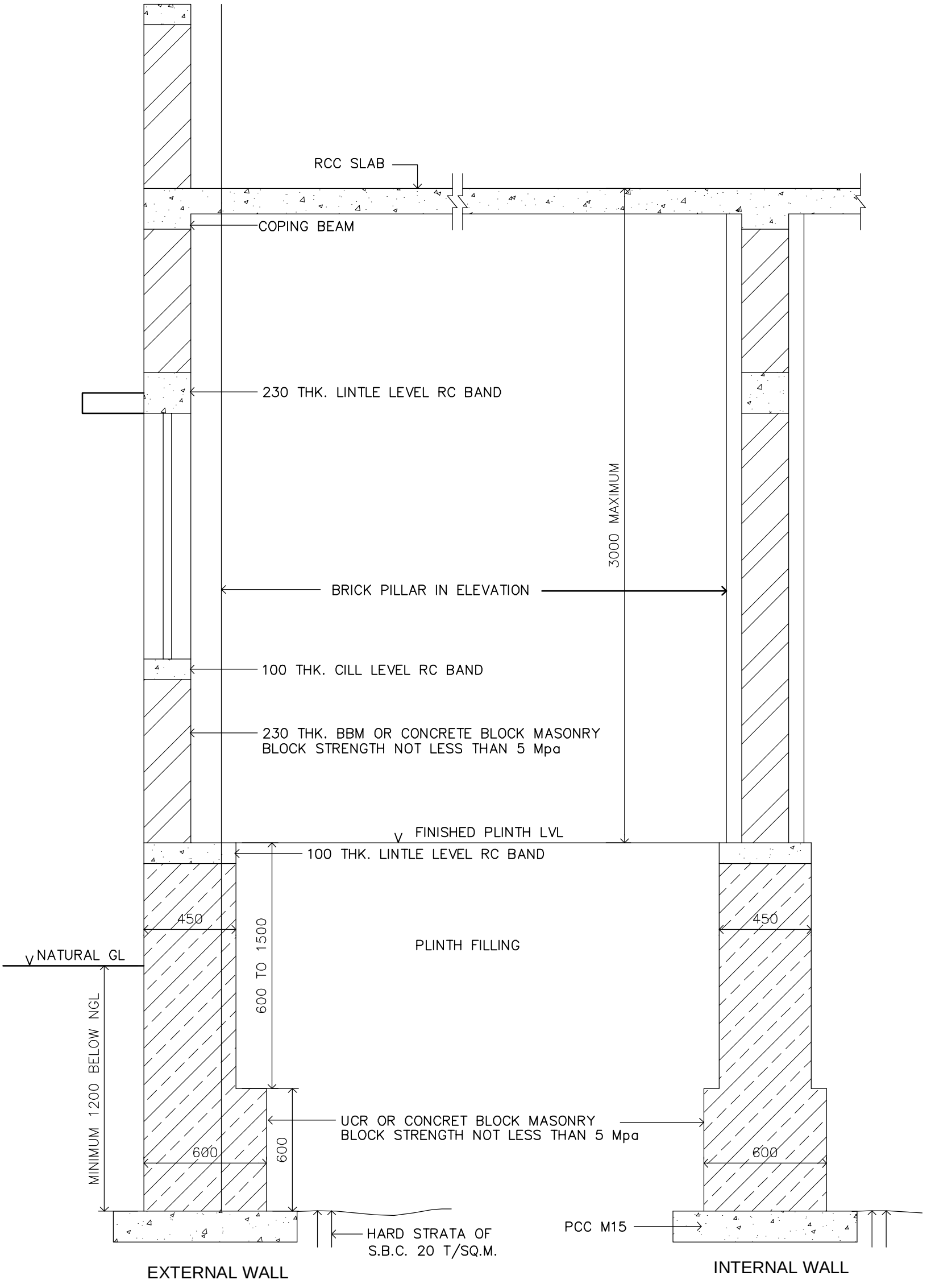

SECTION C-C

(FOUNDATION DETAILS OF LOAD BEARING WALLS)

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, COMMUNITI HALL

ST-01-01	DETAILS OF FOUNDATIONS

MATRIX ENGINEERS
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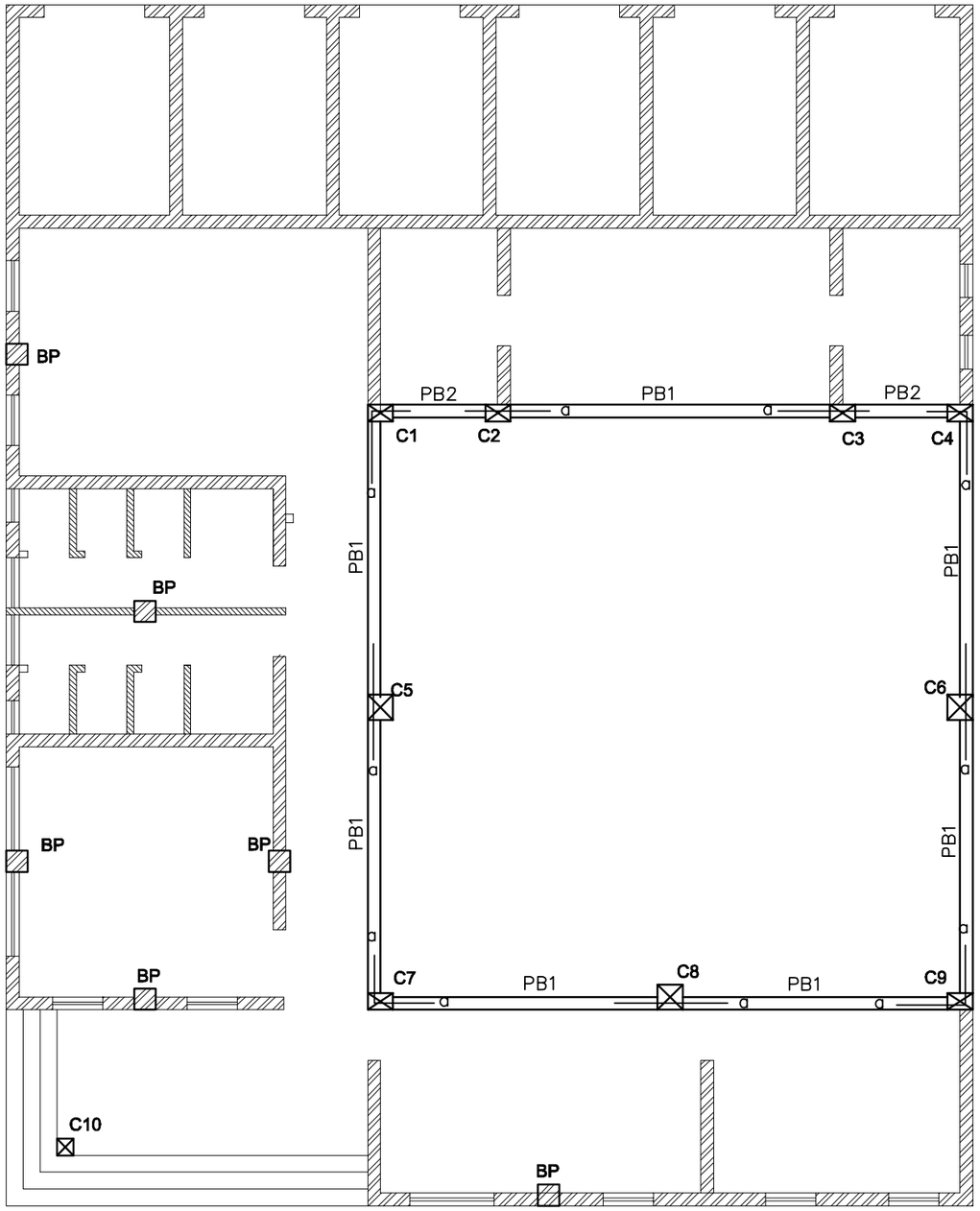
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:12/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV

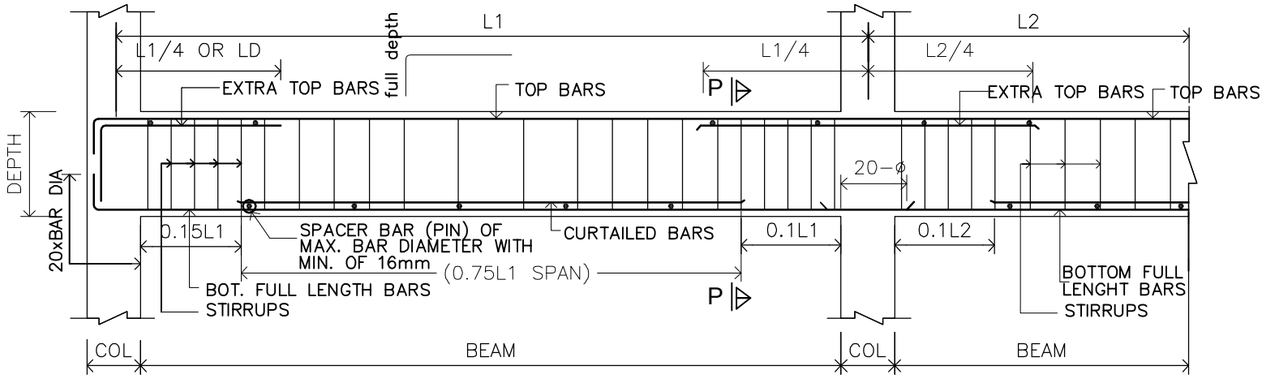


LAYOUT OF PLINTH AND TIE BEAMS

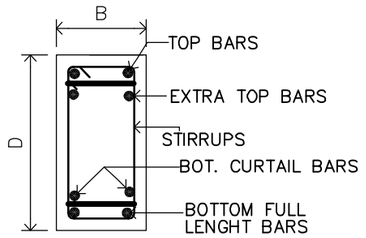
PROVIDE 2 –12 ' EXTRA TOP OVER ALL SUPPORTS

SCHEDULE OF BEAMS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	STIRRUPS	REMARKS
		Straight	Curtailed (0.7L span)			
PB1	230 x 450	3–16 '	2–12 '	2–12 '	8 ' @ 150 (12) 230 c/c	
PB2	230 x 450	3–12 '	----	2–10 '	8 ' @ 150 (6) 230 c/c	

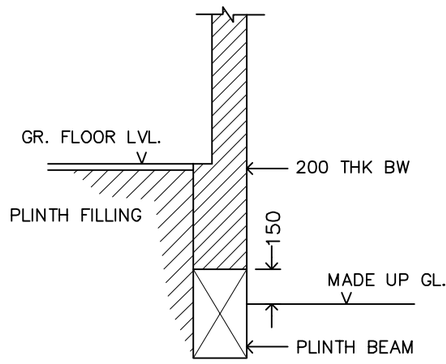


TYP.LONGITUDENAL SECTION OF BEAM



SECTION AT P - P

EXTRA TOP BAR		
BAR DIA	L/4 OR LD	
a = 2–16 '	L/4 OR LD=700	PROVIDE L/4 OR LD– WHICHEVER IS GREATER AT BOTHSIDE FROM CENTRE OF SUPPORT



SECTION THROUGH PLINTH BEAM

WORKING DRAWING

GENERAL NOTES

1) ALL DIMENSIONS ARE IN mm UNLESS MENTIONED OTHERWISE
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DRAWING ISSUED FOR - ☐ APPROVAL, ☐ ESTIMATION, ☐ EXECUTION

REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	05.10.2011

REFERENCE I. S. CODES :

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4.	IS 2911	PILE FOUNDATION.
5.	IS 1893–2002	EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, COMMUNITY HALL

ST-01-01 | DETAIL OF PLINTH AND TIE BEAMS

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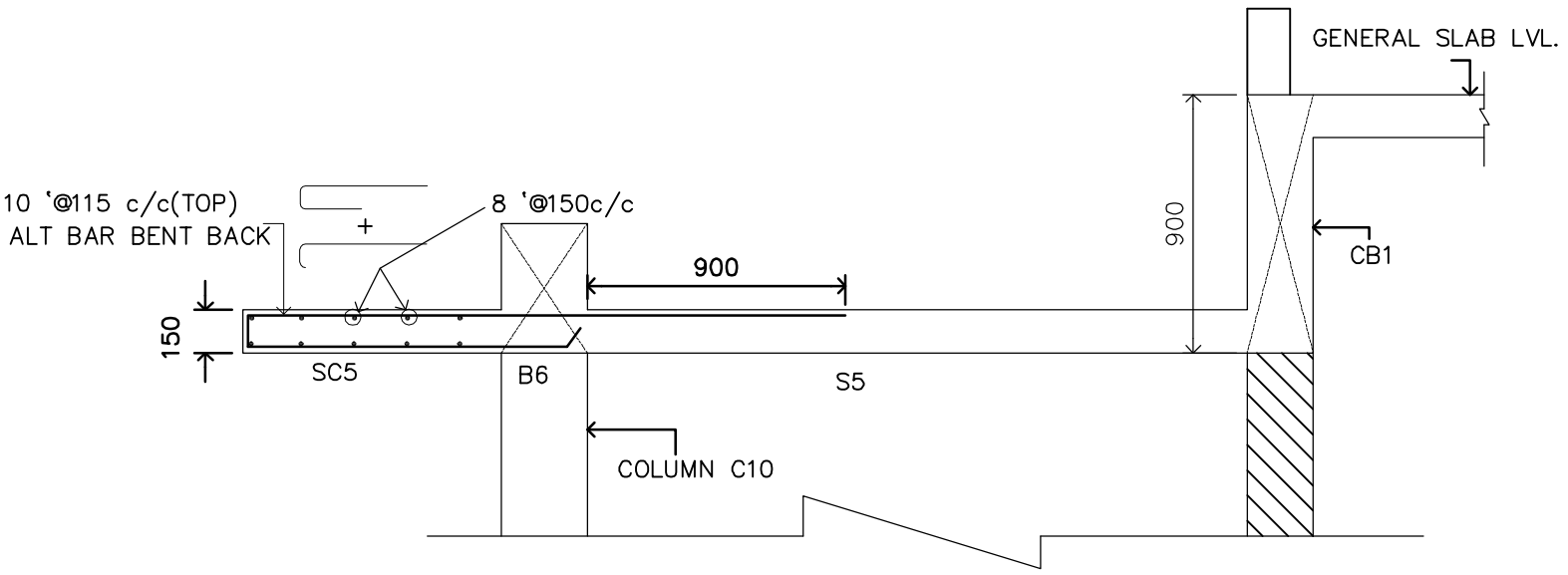
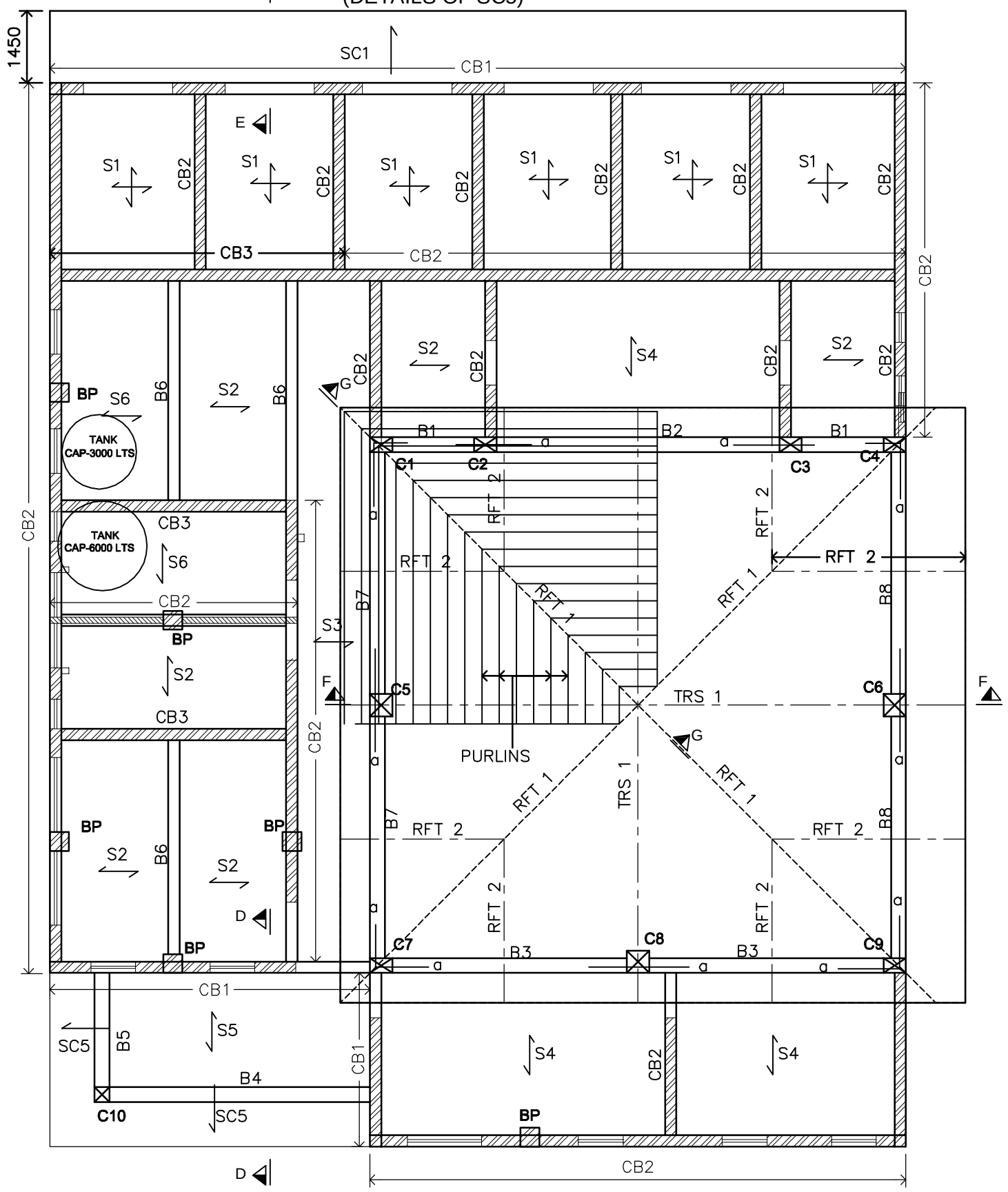
matrixengineers@gmail.com
CIVIL & STRUCTURAL CONSULTANT
Email

DO NOT SCALE
DATE:12/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV



SECTION D-D
(DETAILS OF SC5)



LAYOUT OF SLAB AND BEAMS AT ROOF LVL.

PROVIDE 2 –12 ' EXTRA TOP OVER ALL SUPPORTS

SCHEDULE OF SLABS

FOR SLAB SPAN 1500 AND MORE ALT. BAR SHALL BE BENT UP AT L/5 AND EXTEND FOR L/4 IN ADJUCENT SLAB

SLAB NOS.	THICKNESS	SHORT BARS	LONG BARS	REMARKS
S1	140	10 ' @ 300 c/c	8 ' @ 300 c/c	TWO WAY
S2	140	10 ' @ 300 c/c	8 ' @ 300 c/c	ONE WAY.
S3	125	8 ' @ 300 c/c	8 ' @ 300 c/c	ONE WAY.
S4	150	12 ' @ 300 c/c	8 ' @ 150 c/c	TWO WAY.–200 SUNK
S5	150	10 ' @ 300 c/c	8 ' @ 300 c/c	ONE WAY, POARCH SLAB

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, COMMUNITY HALL

ST-01-01 | DETAILS OF TERRACE SLAB AND ROOF

MATRIX ENGINEERS
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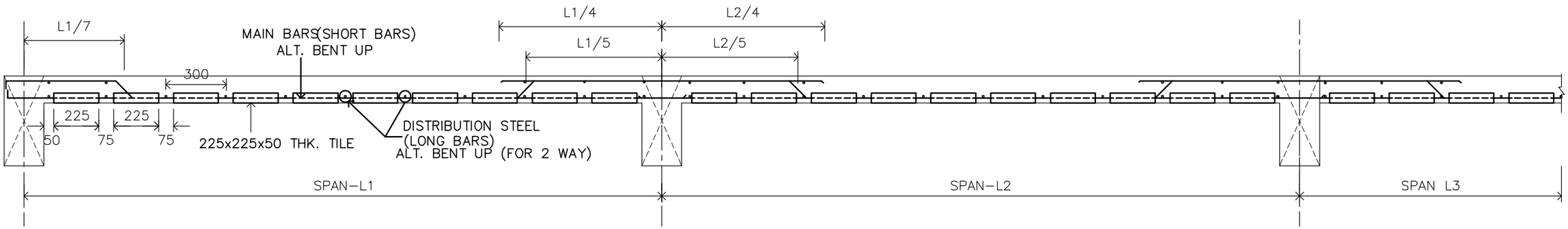
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

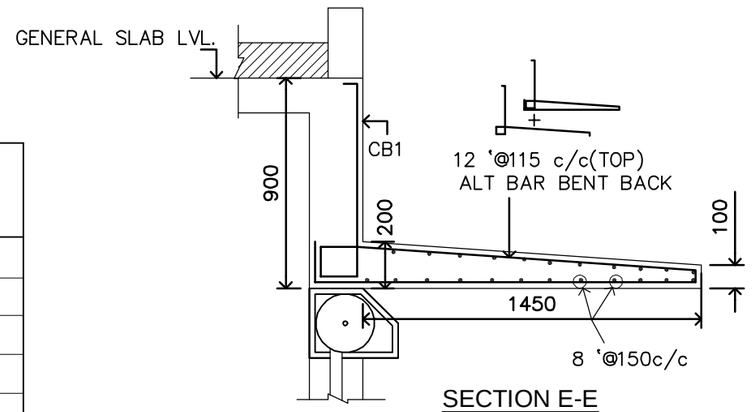
DO NOT SCALE
DATE:12/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV



TYP. REINFORCEMENT DETAILS OF FILLER SLAB

SCHEDULE OF BEAMS

BEAM NOS.	BEAM SIZE	BOTTOM BARS		TOP BARS	SIDE FACE BARS	STIRRUPS	REMARKS
	B x D	FULL LENGTH BARS	CURTAILED BARS				
CB1	230 x 900	3–16 '	----	2–16 '	6–10 '	8 ' @ 200 c/c	COPING BEAM OVER WALL
CB2	230 x 300	3–10 '	----	2–10 '	----	6 ø @ 150 c/c	COPING BEAM OVER WALL
CB3	230 x 450	3–12 '	----	2–12 '	----	8 ' @ 150 c/c	COPING BEAM OVER WALL
B1	300 x 600	3–16 '	----	2–16 '	----	8 ' @ 150 (6) 250 c/c	
B2	300 x 600	3–20 '	3–20 '	2–16 '	----	8 ' @ 100 (15) 200 c/c	
B3 B7 B8	300 x 600	3–16 '	2–16 '	2–16 '	----	8 ' @ 150 (12) 200 c/c	
B4	300 x 450	4–16 '	2–16 '	2–16 '	----	8 ' @ 150 (12) 200 c/c	INVERTED TO S5 SLAB
B5	300 x 450	3–16 '	----	2–16 '	----	8 ' @ 150 c/c	INVERTED TO S5 SLAB
B6	230 x 450	2–16 '	2–12 '	2–12 '	----	8 ' @ 150 (8) 250 c/c	
LB	230 x 230	2–12 '	----	2–12 '	----	6 ø @ 150 c/c	LINTLE BEAM



SECTION E-E
(DETAILS OF SC1)

SCHEDULE OF STEEL BEAMS

MEMBER	DISCRIPTION	REMARK
TRS 1	REFER DETAILS	MAIN TRUSS
RFT1	REFER DETAILS	MAIN RAFTER
RFT2	ISMB 125 @ 13.4 Kg/M	SECONDARY RAFTER
PURLINS	ISA 50x30x5 @ 3.0 Kg/M	PURLINS TO SUPPORT TILES

GENERAL NOTES

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   FOR a) BEAM AND SLAB = 60 x DIA OF BAR
   b) COLUMN = 50 x DIA OF BAR

DRAWING ISSUED FOR - ☐ APPROVAL, ☐ ESTIMATION, ☐ EXECUTION

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REVISION

R.NO.	DESCRIPTION	DATE
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REFERENCE I. S. CODES :

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4. IS 2911 PILE FOUNDATION.
5. IS 1893–2002 EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, COMMUNITY HALL

ST-01-01 | DETAILS OF TERRACE SLAB AND ROOF

MATRIX ENGINEERS
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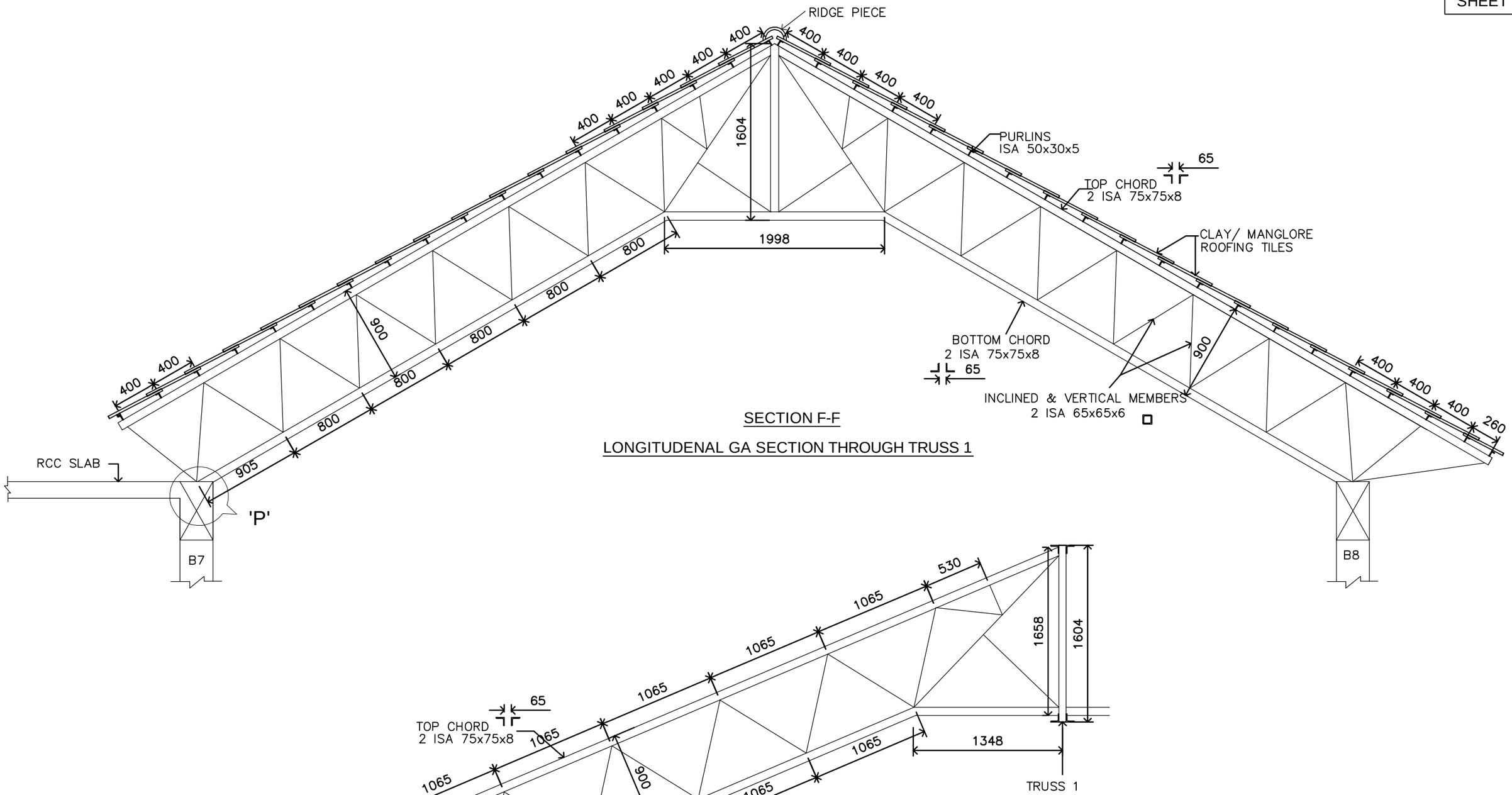
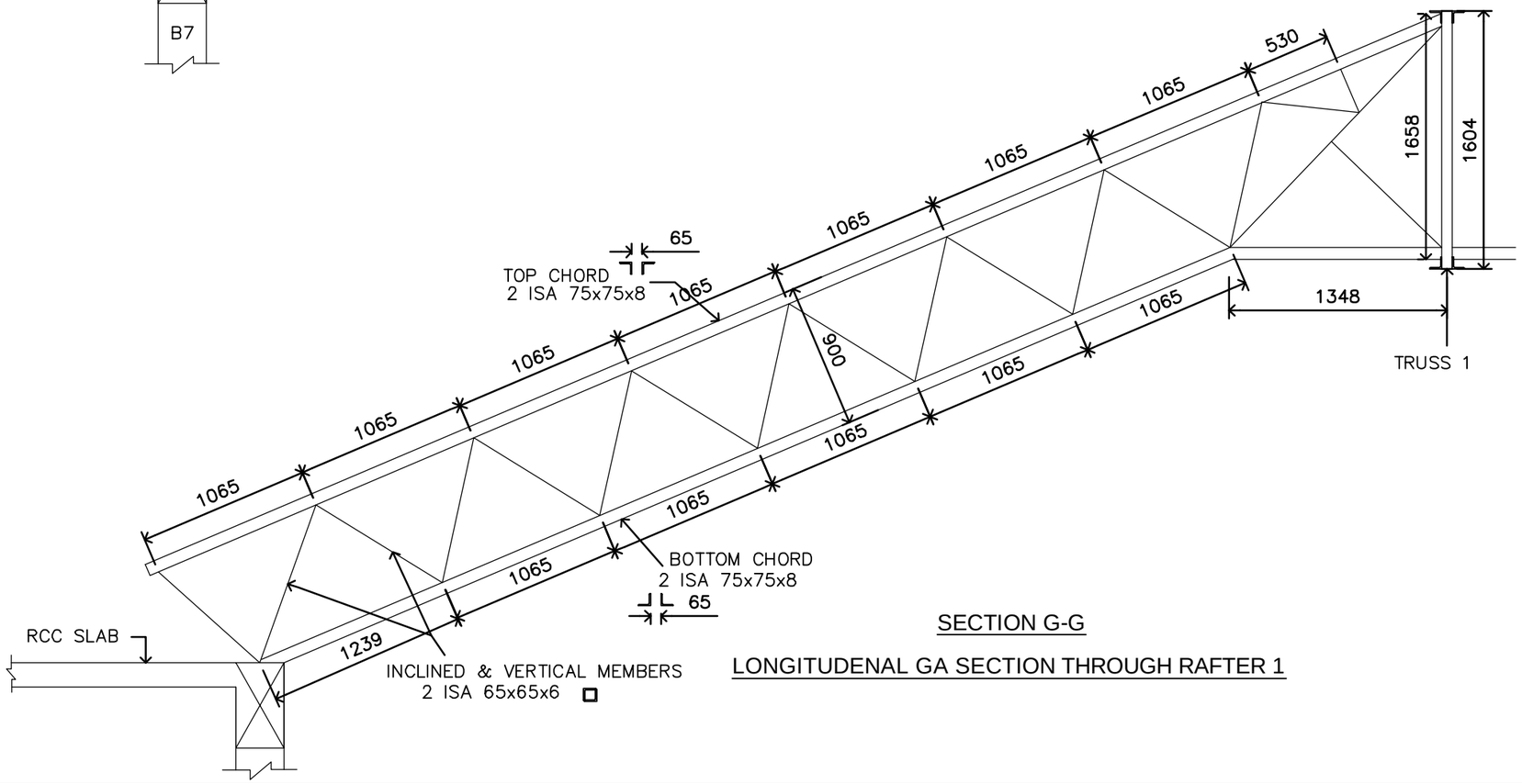
matrixengineers@gmail.com
CIVIL & STRUCTURAL CONSULTANT
email

DO NOT SCALE
DATE:12/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV



SECTION F-F

LONGITUDENAL GA SECTION THROUGH TRUSS 1



SECTION G-G

LONGITUDENAL GA SECTION THROUGH RAFTER 1

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, COMMUNITY HALL

ST-01-01	DETAILS OF TERRACE SLAB AND ROOF

MATRIX ENGINEERS
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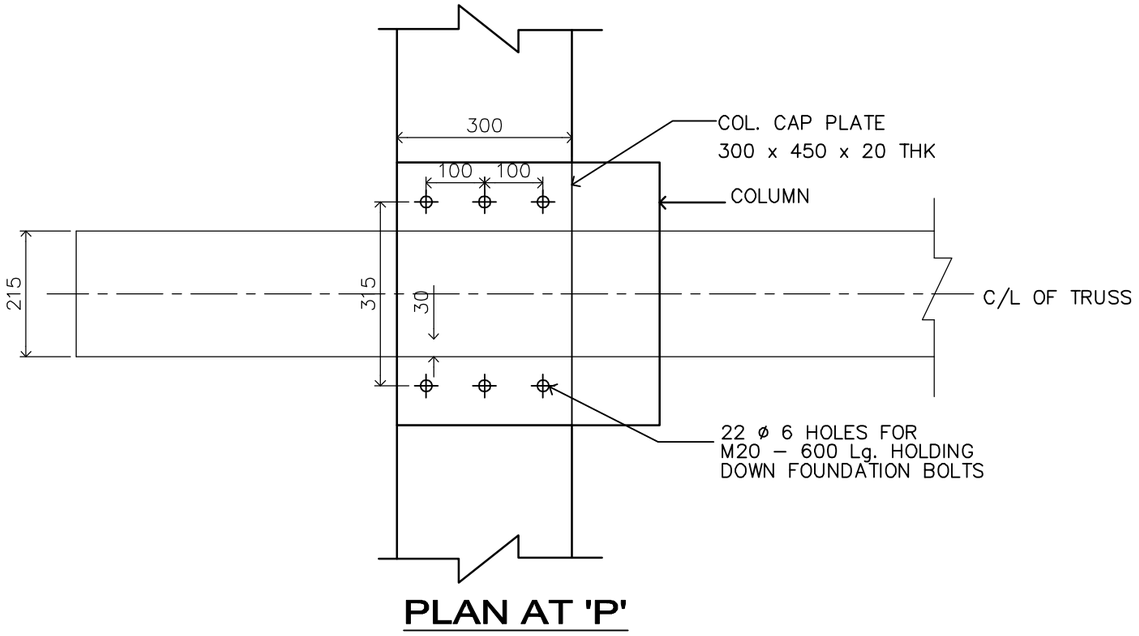
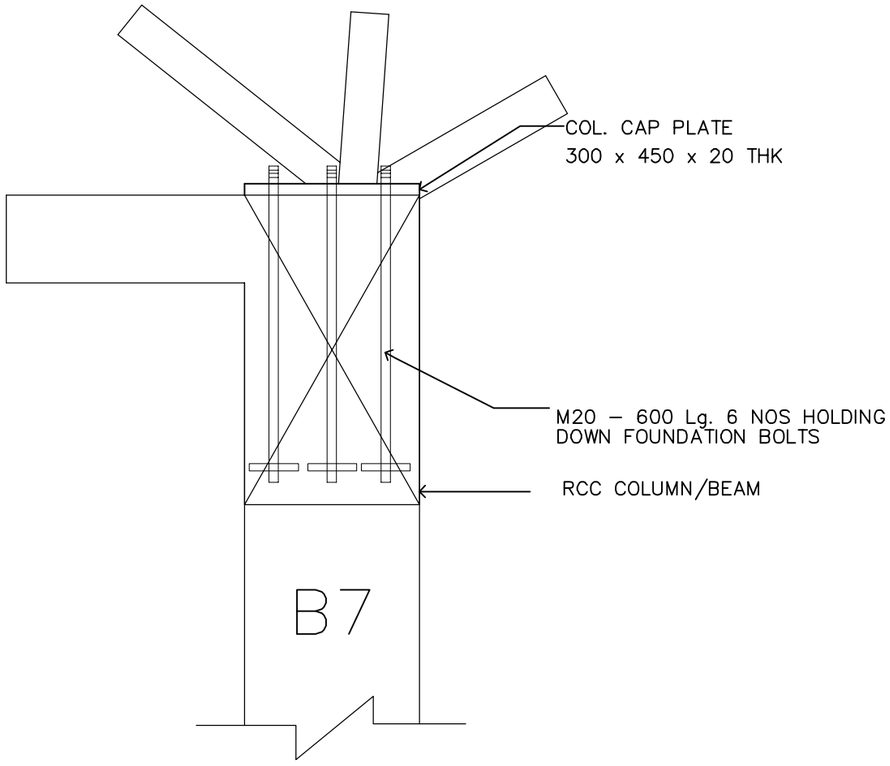


PLAN AT 'P'



DETAILS AT 'P'

WORKING DRAWING

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, COMMUNITY HALL

ST-01-01	DETAILS OF TERRACE SLAB AND ROOF

MATRIX ENGINEERS
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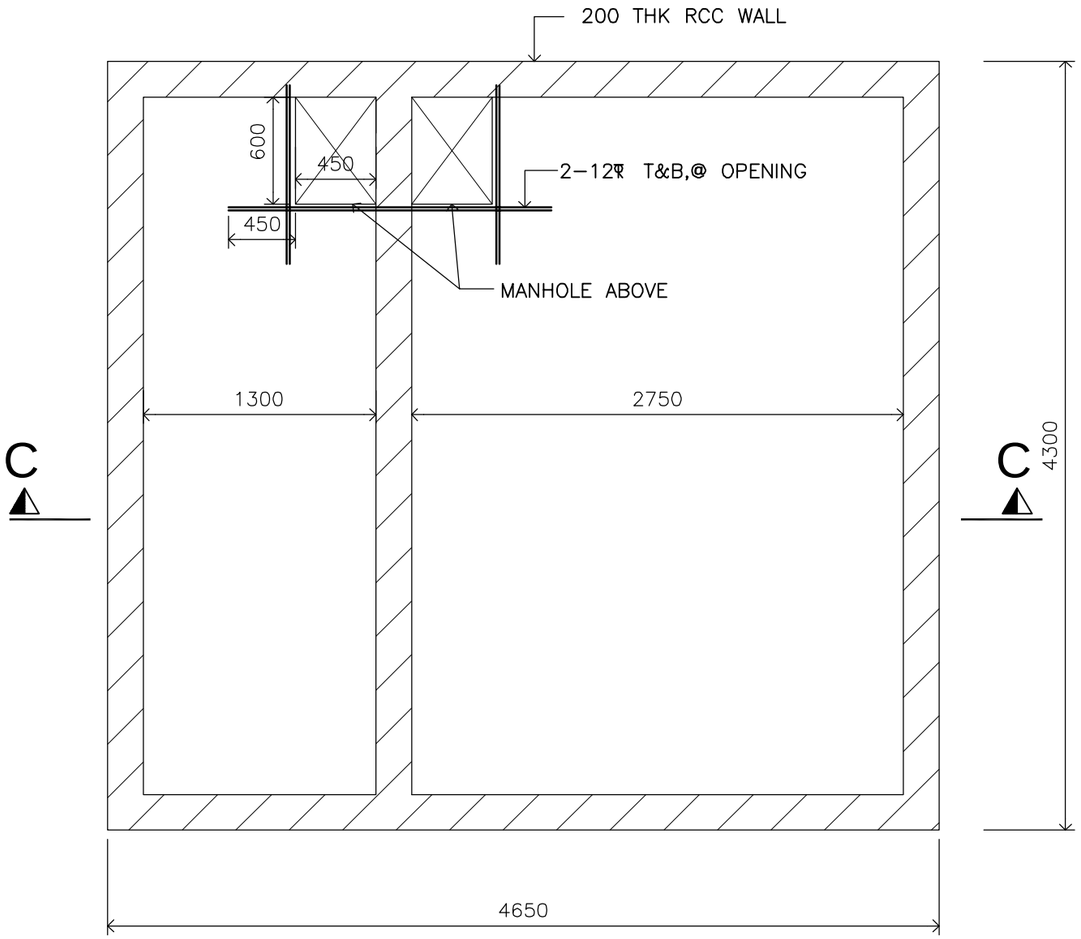
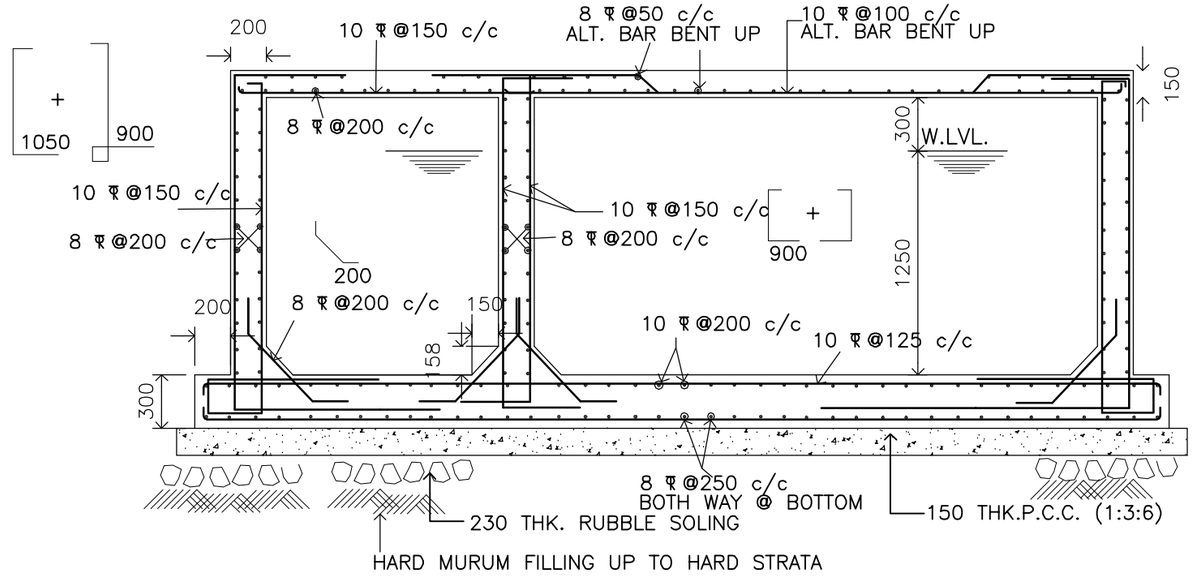
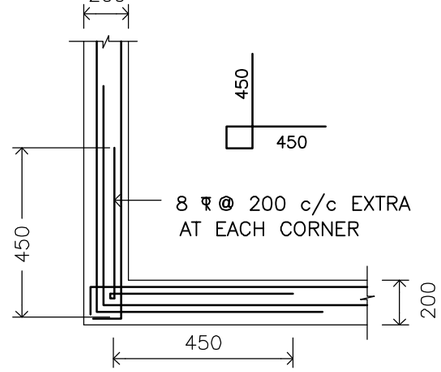
DO NOT SCALE
DATE:12/06/2012
DRN BY : SHANKAR
DEALT : SACHIN YADAV



PLAN AT SLAB LVL.



SECTION C - C



DETAILS OF CORNER REINFORCEMENT

DESIGN LI□E LOAD - □□□ □□□S□□□

GENERAL NOTES

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REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	14.05.10

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A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, UGWT

ST-01-02 | DETAILS OF UGW TANK FOR SCHOOL AND COMMUNITY HAL

MATRIX ENGINEERS
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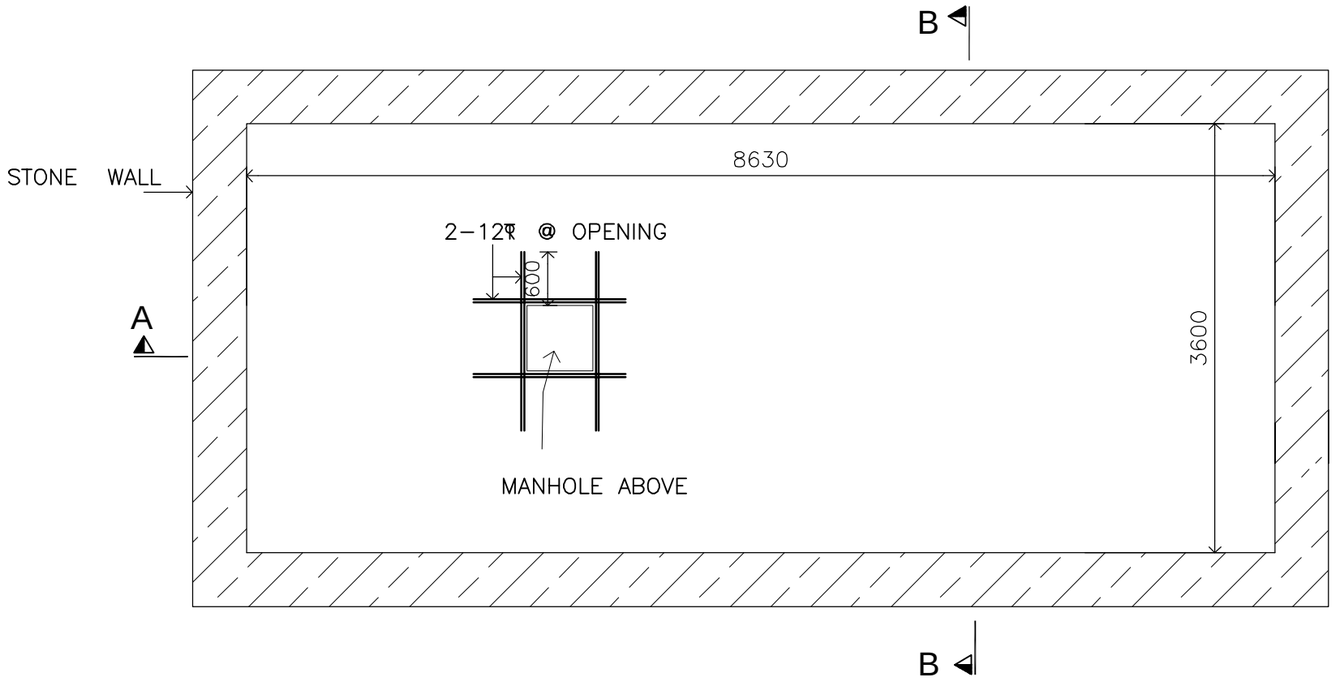
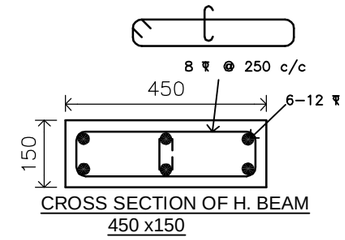
Email : matrixengineers@gmail.com

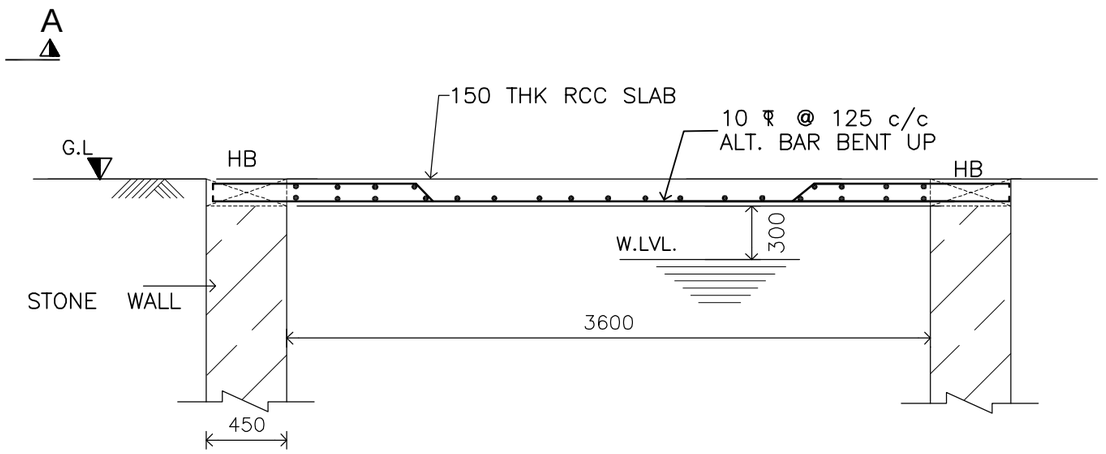
DO NOT SCALE
DATE:09/10/2012
DRN BY : SANDEEP
DEALT : SACHIN YADAV



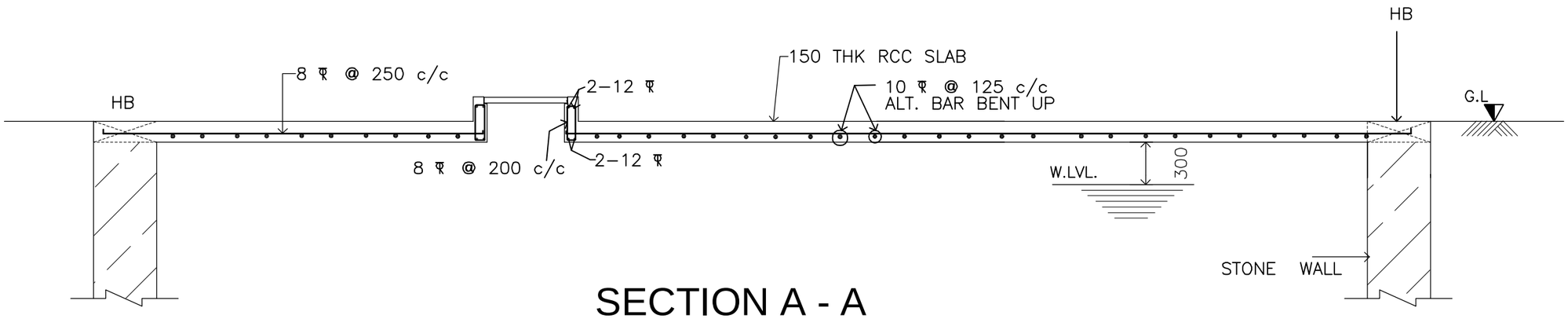
PLAN AT SLAB LVL.



CROSS SECTION OF H. BEAM
450 x150



SECTION B - B



SECTION A - A

DESIGN LI□E LOAD - □□□ □□□S□□□

GENERAL NOTES	DRAWING ESSUED FOR -☐ APPROVAL, ☑ ESTIMATION, ☐ EXECUTION
1) ALL DIMENSIONS ARE IN mm UNLESS MENTIONED OTHERWISE 2) REFER THIS DRAWING ALONG WITH ARCHITECTURAL DRAWING. 3) DO NOT SCALE THE DRAWING, REFER FIGURED DIMENSIONS 4) ANY DESCRIPANCIES OR OMISSION OR CHANGES SHALL BE BROUGHT TO NOTICE PRIOR TO EXECUTION 5) CONCRETE GRADE USED IS M20 UNLESS OTHERWISE MENTIONED. 6) ALL STEEL EXCEPT 6mmø IS TOR STEEL(ϕ) OF GRADE Fe 415 N/mmSq. 7) LAPPING OR ANCHORANGE OR DEVELOPMENT LENGTH (Ld) FOR a) BEAM AND SLAB = 60 x DIA OF BAR b) COLUMN = 50 x DIA OF BAR	8) ALL CONCRETE SHALL BE MACHINE MIXED AND VIBRATED. 9) CLEAR COVER TO RENFORCEMENT a) FOOTING = 50 m.m. b) COLUMN = 40 m.m. c) SLAB = 20 m.m. d) BEAM = 25 m.m. 10) DESIGN LOAD CAPACITY OF STONE WALL BELOW WILL NOT BE OUR RESPONSIBILITY 11) DESIGN FOR SINGLE SLAB ONLY 12) DO NOT CAST ANY R.C.C WORK UNLESS IT IS CHECKED AND CONFIRMED BY ENGINEER 13) DESIGN OF CENTRING, SHUTTERING, AND CONCRETE MIX IS CONTRACTOR RESPONSIBLITY

REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	14.05.10

REFERENCE I. S. CODES :

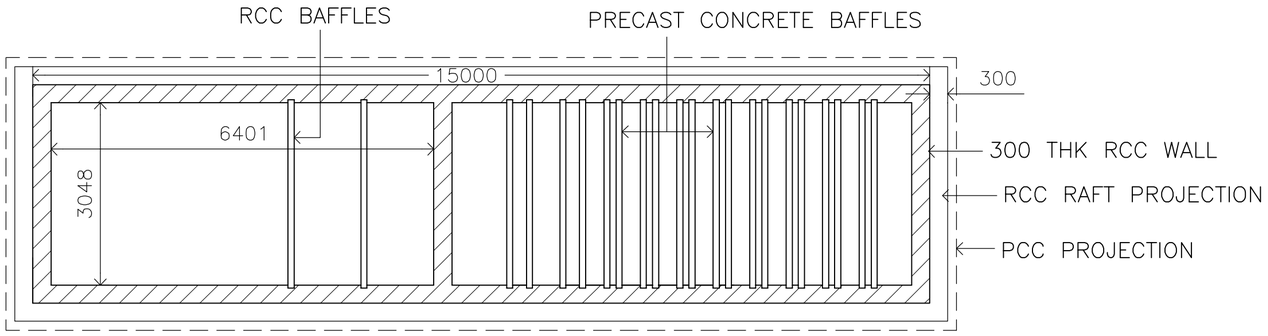
1.	IS 456–2000	PLAIN AND REINFORCED CONCRETE.
2.	IS 800	STEEL STRUCTURE.
3.	IS 3370	LIQUID RETAINING STRUCTURE.
4.	IS 2911	PILE FOUNDATION.
5.	IS 1893–2002	EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, RW SUMP

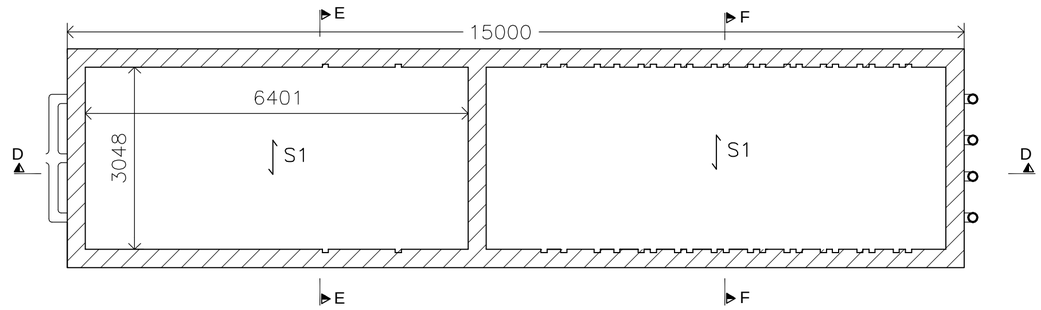
ST-01-01 | DETAILS OF RW SUMP TANK TOP SLAB

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
MUKUND NAGAR, NEAR LAXMI NARAYAN
THEATER PUNE - 37. TEL- 020 2427407
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

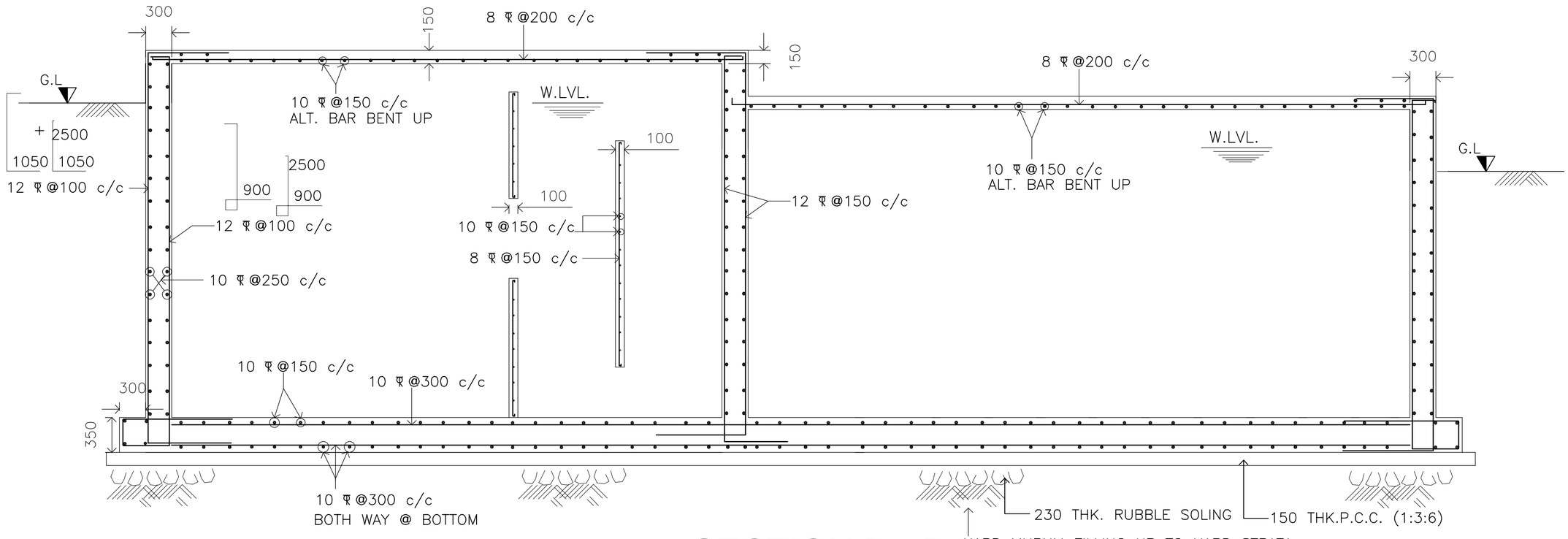
DO NOT SCALE
DATE:09/10/2012
DRN BY : SANDEEP
DEALT : SACHIN YADAV



BOTTOM PLAN OF STP



TOP PLAN OF STP



SECTION D - D

DESIGN LI□E LOAD - □□□ □□□S□□□

GENERAL NOTES

1) ALL DIMENSIONS ARE IN mm UNLESS MENTIONED OTHERWISE
2) REFER THIS DRAWING ALONG WITH ARCHITECTURAL DRAWING.
3) DO NOT SCALE THE DRAWING, REFER FIGURED DIMENSIONS
4) ANY DESCRIPANCIES OR OMISSION OR CHANGES SHALL BE BROUGHT TO NOTICE PRIOR TO EXECUTION
5) CONCRETE GRADE USED IS M20 UNLESS OTHERWISE MENTIONED.
6) ALL STEEL EXCEPT 6mmø IS TOR STEEL(ϕ) OF GRADE Fe 415 N/mmSq.
7) LAPPING OR ANCHORANGE OR DEVELOPMENT LENGTH (Ld)
   FOR a) BEAM AND SLAB = 60 x DIA OF BAR
   b) COLUMN = 50 x DIA OF BAR

DRAWING ESSUED FOR - □APPROVAL, ☑ESTIMATION, □EXECUTION

8) ALL CONCRETE SHALL BE MACHINE MIXED AND VIBRATED.
9) CLEAR COVER TO RENFORCEMENT
   a) FOOTING = 50 m.m.
   b) COLUMN = 40 m.m.
   c) SLAB = 20 m.m.
   d) BEAM = 25 m.m.
10) S.B.C. OF SOIL ASSUMED IS 15 T/Sq.M.
11) COLUMNS AND FOOTINGS ARE DESIGNED FOR GROUND + 3 FLOORS PROVISION ONLY
12) DO NOT CAST ANY R.C.C WORK UNLESS IT IS CHECKED AND CONFIRMED BY ENGINEER
13) DESIGN OF CENTRING, SHUTTERING, AND CONCRETE MIX IS CONTRACTOR RESPONSIBLITY

REVISION

R.NO.	DESCRIPTION	DATE
R0	ORIGINAL DRAWING	09.10.12

REFERENCE I. S. CODES :

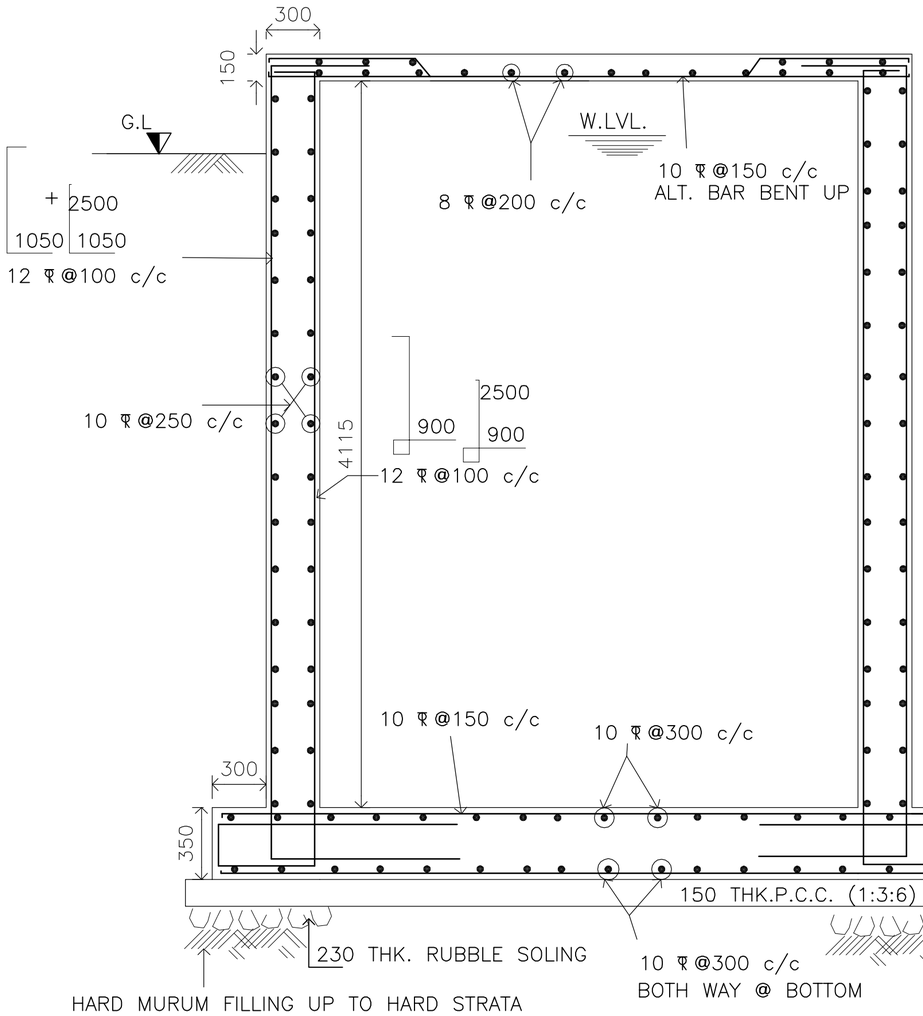
1.	IS 456–2000	PLAIN AND REINFORCED CONCRETE.
2.	IS 800	STEEL STRUCTURE.
3.	IS 3370	LIQUID RETAINING STRUCTURE.
4.	IS 2911	PILE FOUNDATION.
5.	IS 1893–2002	EARTHQUAKE RESISTANT DESIGN OF STRUCTURE.

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, WWTP

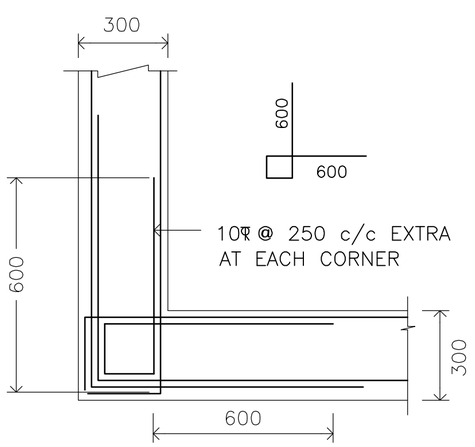
ST-01-01 | STRUCTURAL DETAILS FOR WASTE TREATMENT PLANT

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
MUKUND NAGAR, NEAR LAXMI NARAYAN
THEATER PUNE - 37. TEL- 020 24274077
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

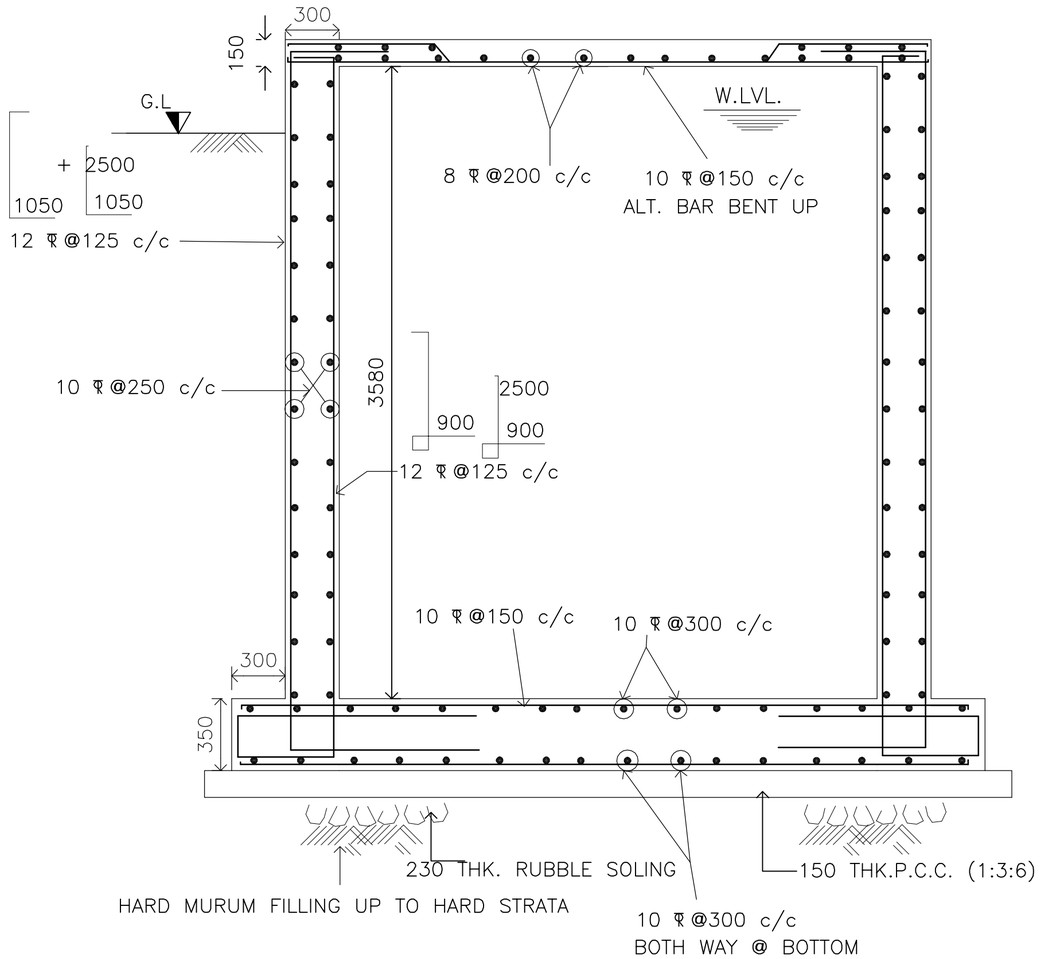
DO NOT SCALE
DATE:19/10/2012
DRN BY : SANDEEP
DEALT : SACHIN YADAV



SECTION E - E



DETAILS OF CORNER REINFORCEMENT



SECTION F - F

DESIGN LI□E LOAD - □□□ □□□S□□□

A HOUSING PROPOSAL FOR PERI URBAN BANGLORE - BMTPC, WWTP

ST-01-01	STRUCTURAL DETAILS FOR WASTE TREATMENT PLANT

MATRIX ENGINEERS
OFF-OB2, SHASTRI COMPLEX, 408/6,
MUKUND NAGAR, NEAR LAXMI NARAYAN
THEATER PUNE - 37. TEL- 020 24274077
CIVIL & STRUCTURAL CONSULTANT
Email : matrixengineers@gmail.com

DO NOT SCALE
DATE:19/10/2012
DRN BY : SANDEEP
DEALT : SACHIN YADAV

6

Plumbing Drawings

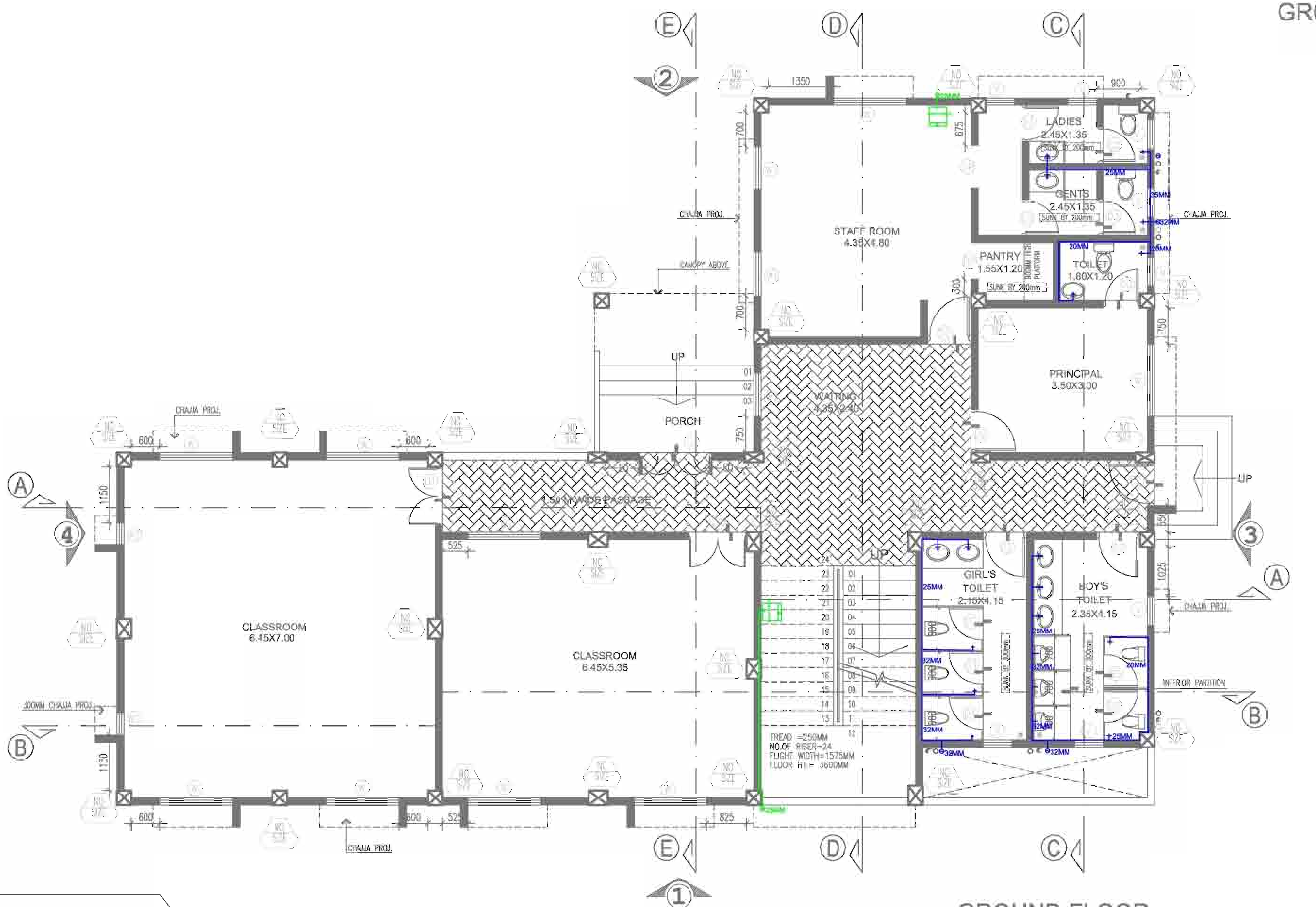
A Water supply

i) Shelter clusters
ii) School
iii) Community Hall and Kiosks

B Sanitation

i) Shelter clusters
ii) School
iii) Community Hall and Kiosks

GROUND FLOOR PLAN
SCHOOL



GROUND FLOOR

Legends:

01) ... WALLS ARE HATCHED THUS
02) ... ARE HATCHED THUS
03) ... THUS
04) ... THICK BRICKWORK
05) SOIL PIPE
06) WASTE WATER PIPE
07) RAIN WATER PIPE

SCHEDULE OF OPENINGS

TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	CILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1500	2250	2250	MAIN DOOR	W	1500	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	1200	2250	2250	30MM THK PRECAST DOOR	W1	900	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D2	900	2250	2250	30MM THK PRECAST DOOR	W2	450	1800	2250	450	1 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D3	750	2250	2250	30MM THK WATERPROOF DOOR	V	600	900	2250	1350	VENTILATOR WITH LOUVERS
OP	900	2250	2250	OPENING ONLY	V1	600	600	2850	2250	2 PANEL TOP HUNG VENTILATOR
					V2	1000	600	2850	2250	3 PANEL TOP HUNG VENTILATOR

T: +91 9941221409
E: ...@gmail.com

With

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L B Shastri Road
Navi Peth
Pune 411 030
t +91 20 40198888
+91 20 24329999
f +91 20 40198801
e mail@vkarch.com
w www.vkarch.com

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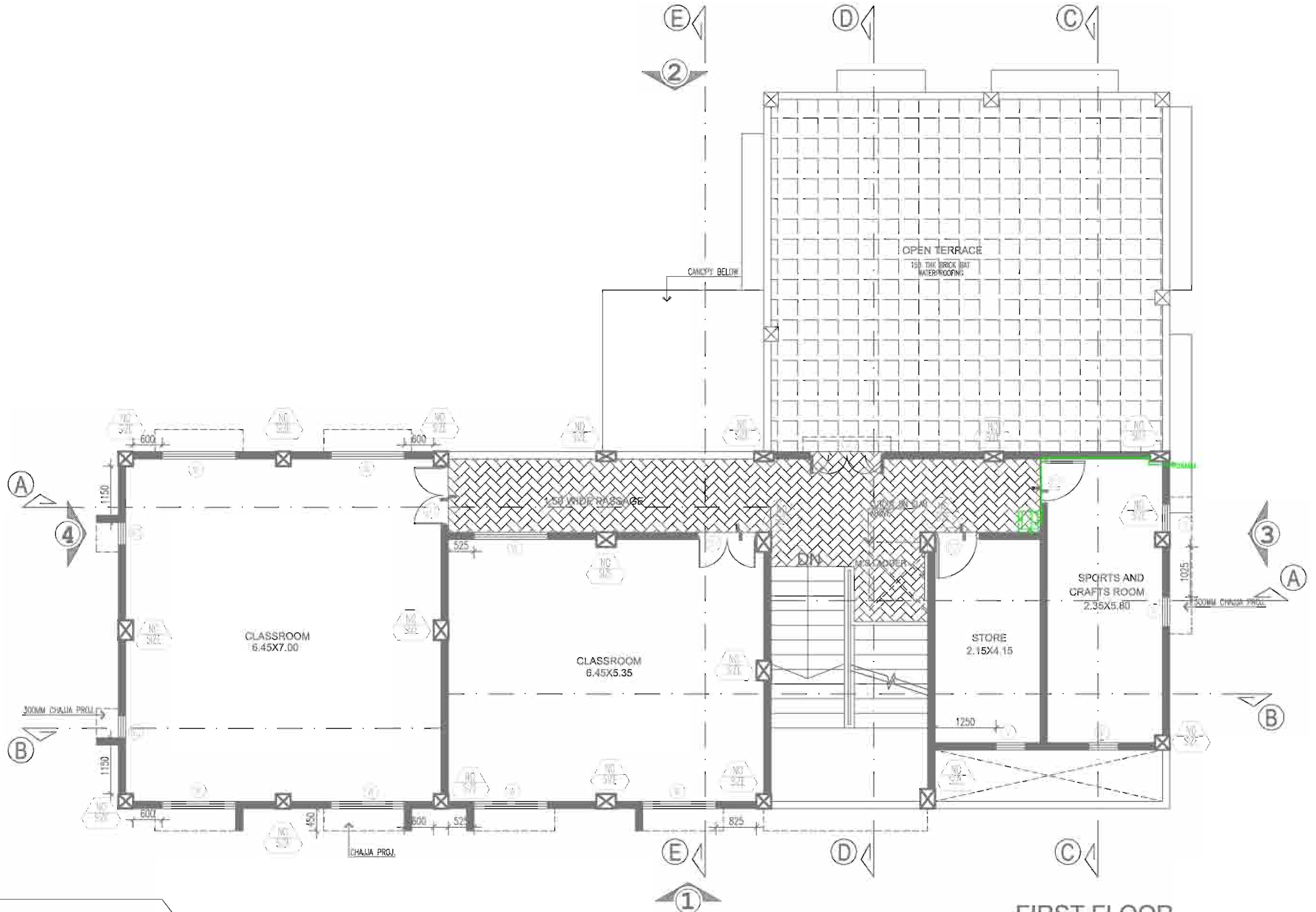
GROUND FLOOR 1:75
DOMESTIC & DRINKING WATER LAYOUT
KC 18/04/12
1021 314 -
GOOD FOR CONSTRUCTION

FIRST FLOOR PLAN
SCHOOL



FIRST FLOOR

VK:a architecture

Legends:

SCHEDULE OF OPENINGS										
TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	CILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1500	2250	2250	MAIN DOOR	W	1500	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	1200	2250	2250	30MM THK PRECAST DOOR	W1	900	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D2	900	2250	2250	30MM THK PRECAST DOOR	W2	450	1800	2250	450	1 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D3	750	2250	2250	30MM THK WATERPROOF DOOR	V	600	900	2250	1350	VENTILATOR WITH LOUVERS
OP	900	2250	2250	OPENING ONLY	V1	600	600	2850	2250	2 PANEL TOP HUNG VENTILATOR
					V2	1000	600	2850	2250	3 PANEL TOP HUNG VENTILATOR

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FIRST FLOOR — 1:75

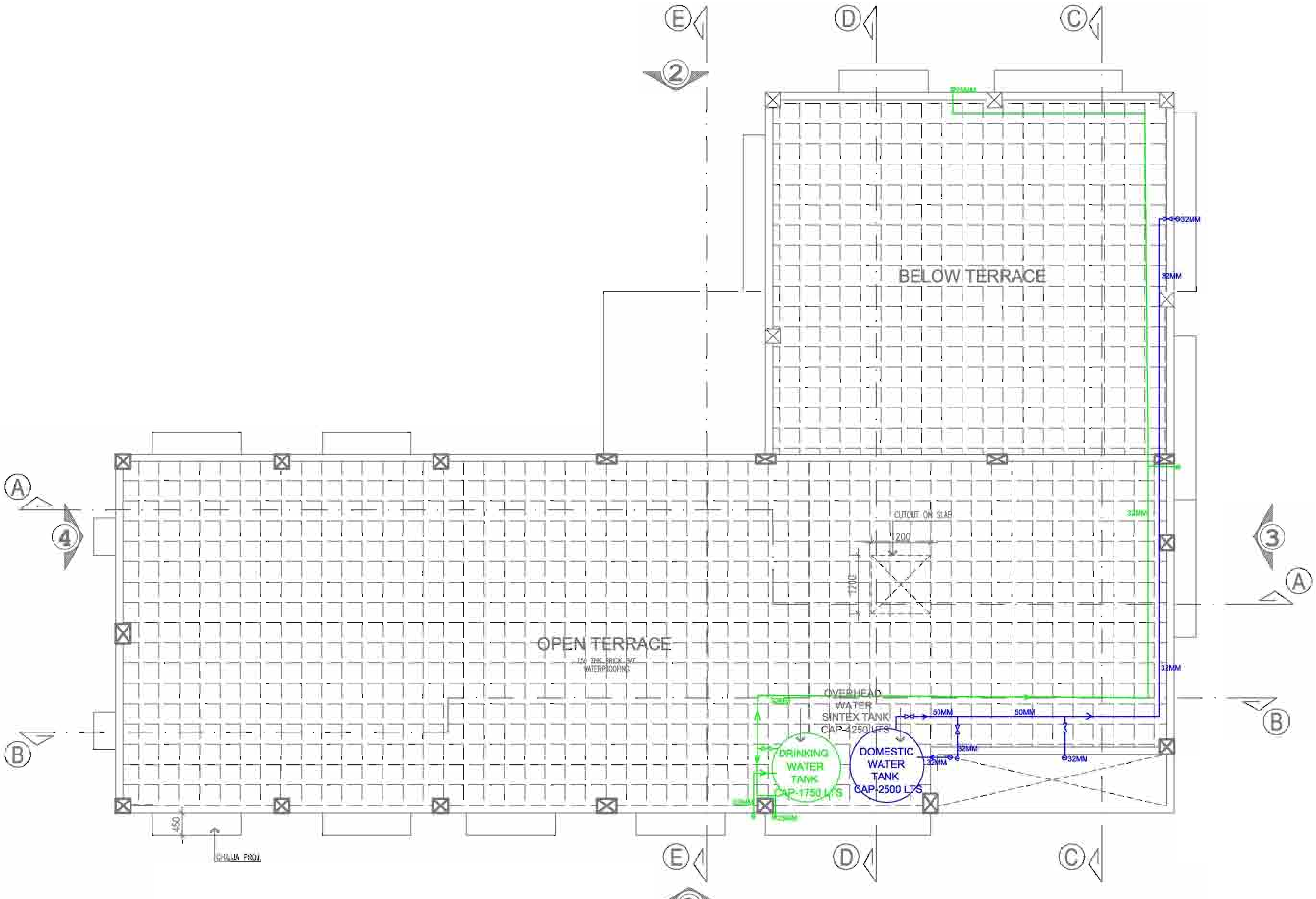
DOMESTIC & DRINKING WATER LAYOUT

KC — 18/04/12

1021 — 316

GOOD FOR CONSTRUCTION

TOP FLOOR PLAN
SCHOOL



TOP ROOF PLAN

VK:a architecture

Legends:

01) 230 MM THICK WALLS ARE HATCHED THUS
02) 150 MM SUNKS ARE HATCHED THUS
03) 300 MM SUNK ARE HATCHED THUS
04) 110 MM THICK BRICKWORK
05) SOIL PIPE
06) WASTE WATER PIPE
07) RAIN WATER PIPE

SCHEDULE OF OPENINGS										
TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	CILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1500	2250	2250	MAIN DOOR	W	1500	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	1200	2250	2250	30MM THK PRECAST DOOR	W1	900	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D2	900	2250	2250	30MM THK PRECAST DOOR	W2	450	1800	2250	450	1 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D3	750	2250	2250	30MM THK WATERPROOF DOOR	V	600	900	2250	1350	VENTILATOR WITH LOUVERS
OP	900	2250	2250	OPENING ONLY	V1	600	600	2850	2250	2 PANEL TOP HUNG VENTILATOR
					V2	1000	600	2850	2250	3 PANEL TOP HUNG VENTILATOR

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TERRACE WATER SUPPLY DRG

TOP ROOF PLAN — 1:75

KC — 18/04/12

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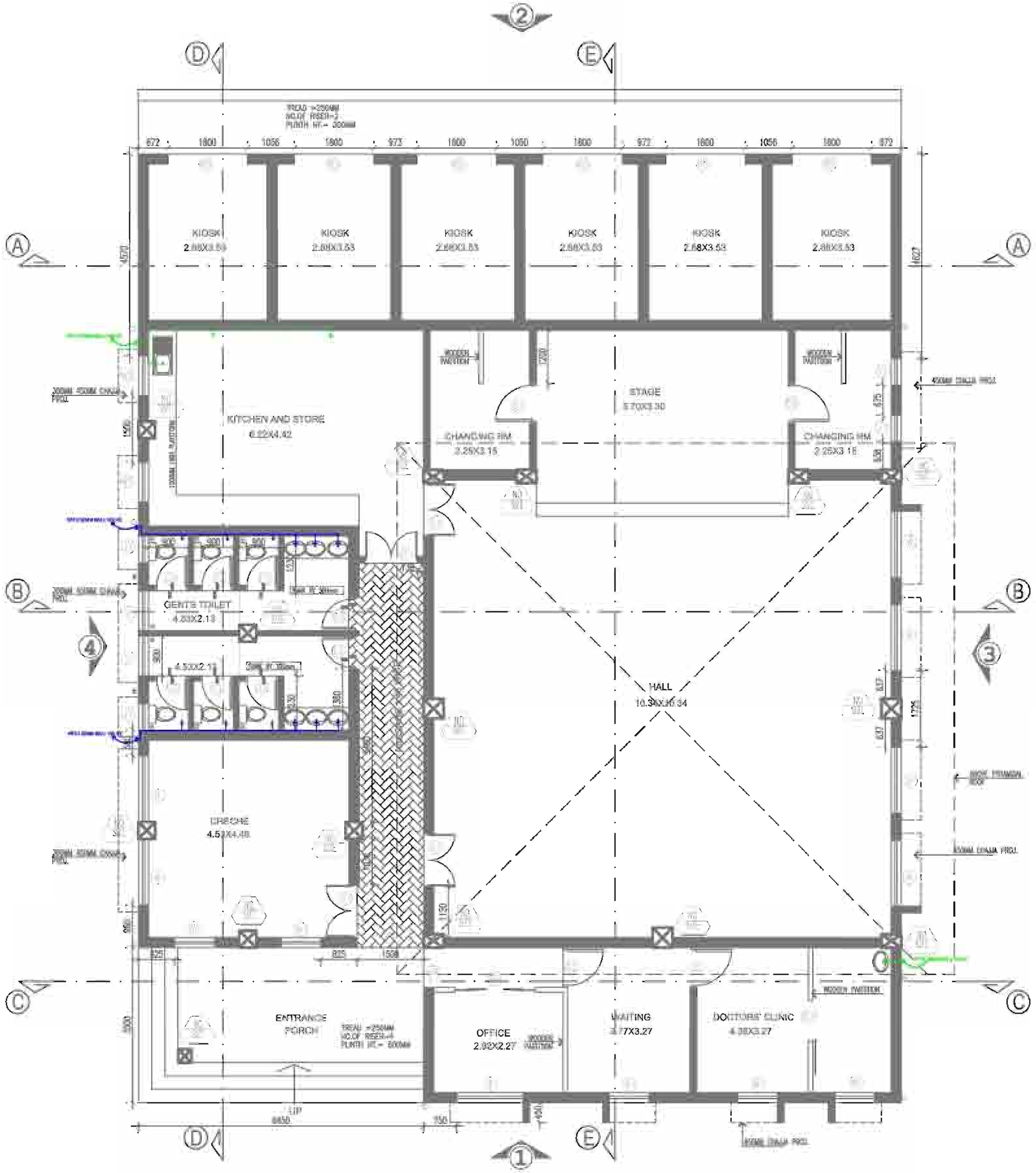
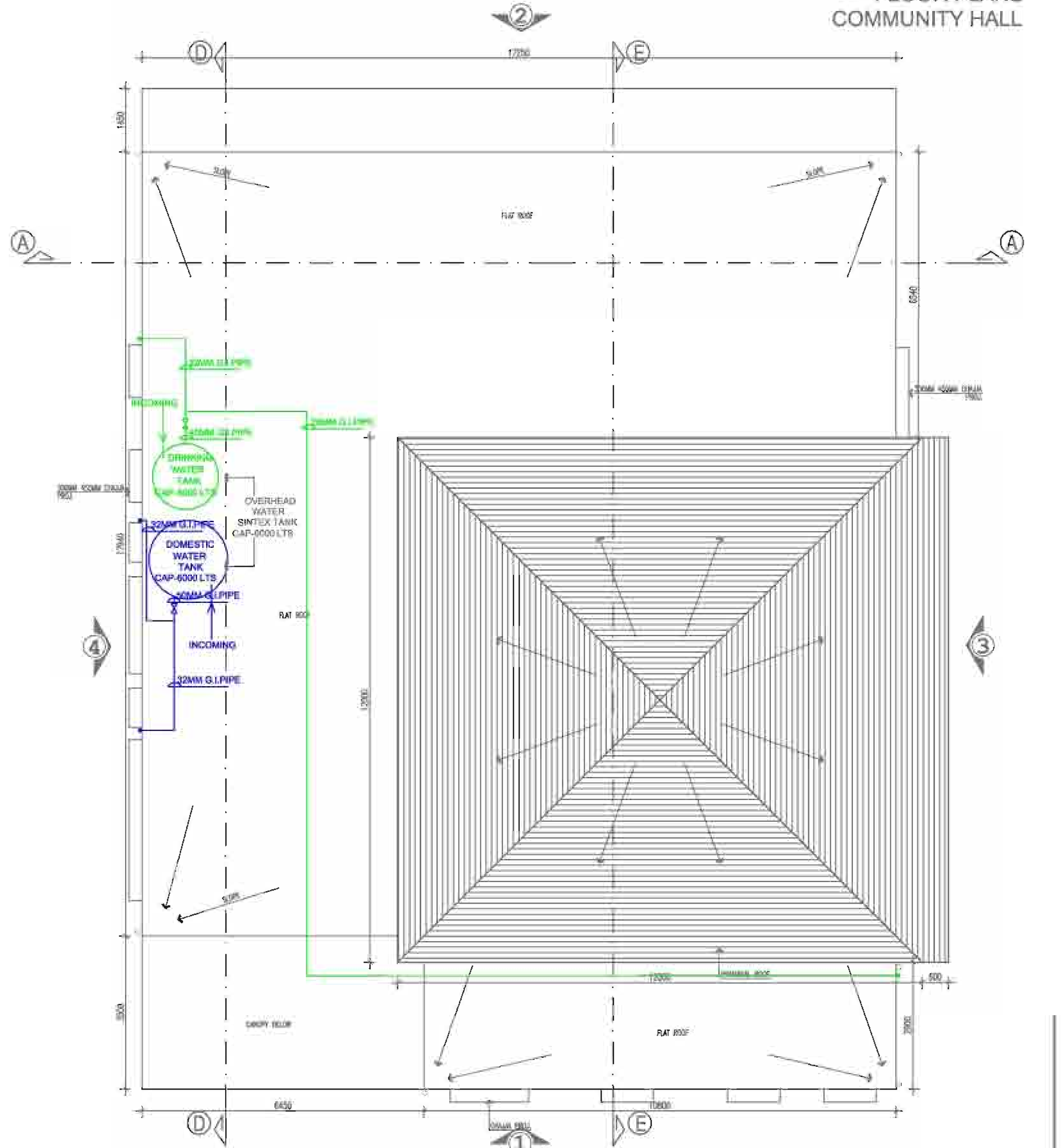
GOOD FOR CONSTRUCTION

FLOOR PLANS
COMMUNITY HALL



GROUND FLOOR



ROOF PLAN

VK:a architecture

Legends:

SCHEDULE OF OPENINGS										
TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SPECIFICATION	TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SILL LEVEL	SPECIFICATION
D	1500	2200	2250	MAIN DOOR	W	1500	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	1200	2200	2250	30MM THK PRECAST DOOR	W1	900	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D2	900	2200	2250	30MM THK PRECAST DOOR	W2	450	1800	2250	450	1 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D3	750	2200	2250	30MM THK WATERPROOF DOOR	W3	900	1050	2250	1200	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
SD	1800	2200	2250	30MM THK. 3 PANEL SLIDING DOOR	V	900	600	2250	1350	VENTILATOR WITH LOUVERS
SD1	900	2200	2250	30MM THK. 1 PANEL SLIDING DOOR	V1	[illegible]	600	2250	1350	VENTILATOR WITH LOUVERS
RD	1800	2200	2250	M.S. ROLLING SHUTTER						
OP	900	2200	2250	OPENING ONLY						
OP1	1500	2200	2250	OPENING ONLY						

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Scale: 1:75

DOMESTIC & DRINKING WATER LAYOUT

Drawn by: KC | Date: 18/04/12

Job no.: 1021 | Drawing no.: 324 | Revision: -

GOOD FOR CONSTRUCTION

GROUND FLOOR PLAN
CLUSTER UNIT

TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SPECIFICATION	TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	CILL LEVEL	SPECIFICATION
D	1000	2100	2100	MAIN DOOR	W	1800	1050	2100	950	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	750	2100	2100	30MM THK WATERPROOF DOOR	W1	1100	1050	2100	950	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
OP	1000	2100	2100	OPENING ONLY	W2	1300	1050	2100	1200	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
					W3	1800	750	2100	1350	3 PANEL, TOP HUNG FIXED WINDOW
					V	600	750	2100	1300	VENTILATOR WITH LOUVERS

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"A Housing proposal for peri urban Bangalore - BMTPC"

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1:100

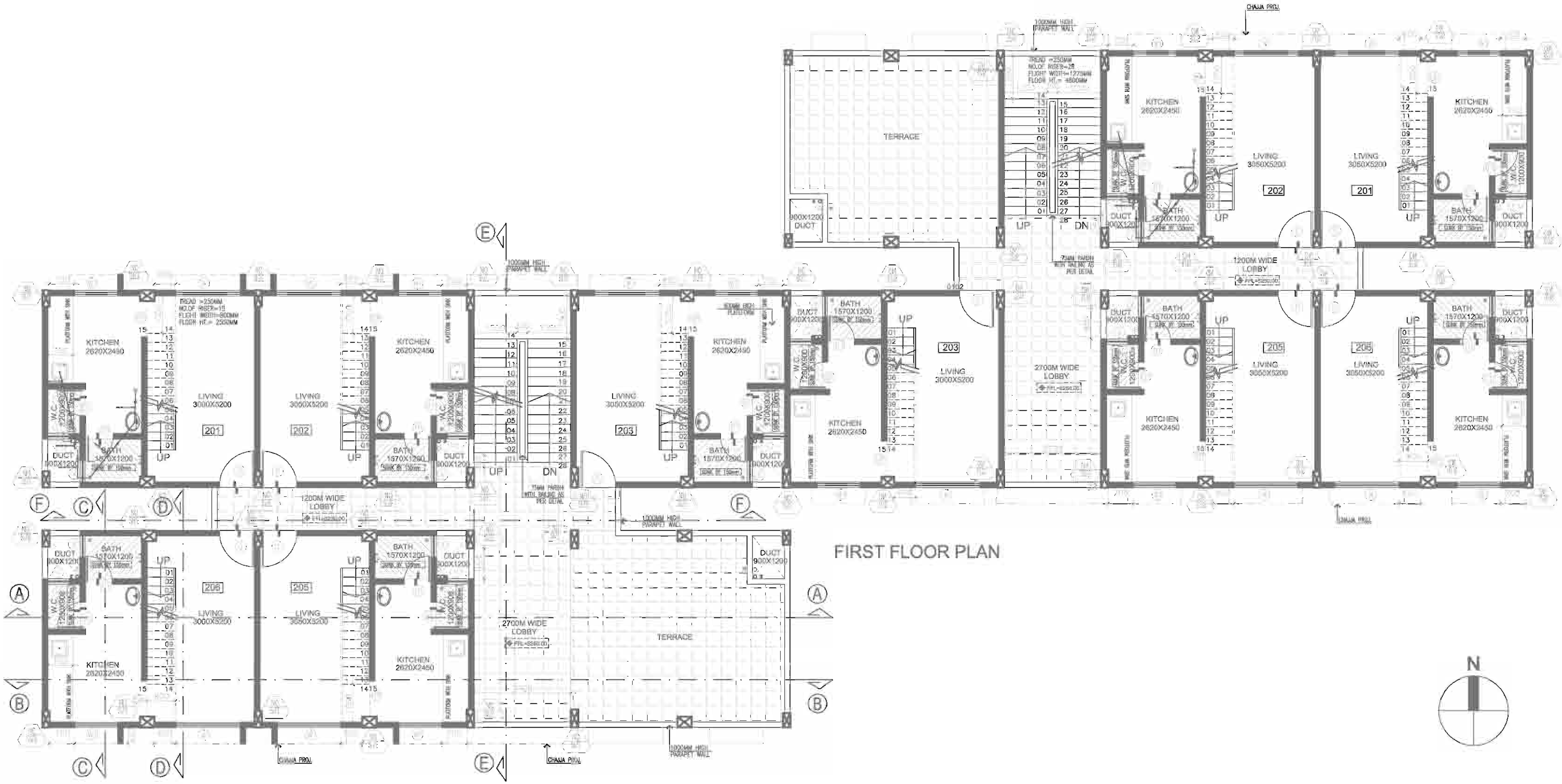
GROUND FLOOR DRAINAGE LAYOUT

KC 07/05/12

1021 302 C

GOOD FOR CONSTRUCTION

FIRST FLOOR PLAN
CLUSTER UNIT



FIRST FLOOR PLAN

SCHEDULE OF OPENINGS

TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SPECIFICATION	TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SILL LEVEL	SPECIFICATION
D	[illegible]	2100	2100	MAIN DOOR	W	[illegible]	[illegible]	2100	[illegible]	[illegible] PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	750	2100	2100	30MM THK WATERPROOF DOOR	W1	1200	[illegible]	2100	[illegible]	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
OP	[illegible]	2100	2100	OPENING ONLY	W2	1200	[illegible]	2100	1200	[illegible] PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
					W3	[illegible]	750	2100	[illegible]	[illegible] PANEL TOP HUNG FIXED WINDOW
					V	[illegible]	750	2100	[illegible]	VENTILATION WITH LOUVERS

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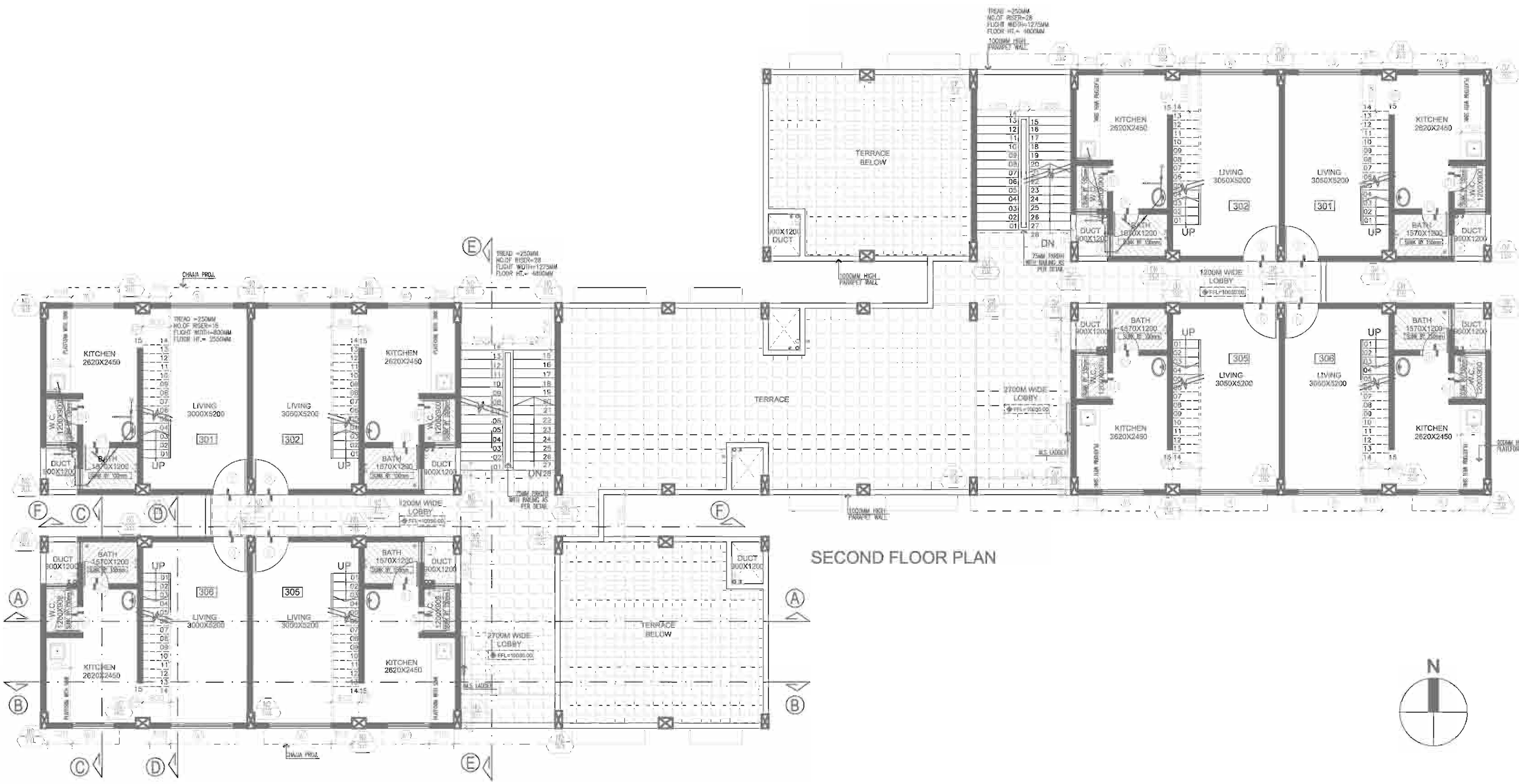
Drawing Title	FIRST FLOOR PLAN
Scale	1:100
Drawn by	KC
Date	07/05/12
Project No.	1021
Drawing No.	304
Revision	C
Status	GOOD FOR CONSTRUCTION

SECOND FLOOR PLAN
CLUSTER UNIT



SECOND FLOOR PLAN

VK:a architecture

Legends:

SCHEDULE OF OPENINGS

TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SPECIFICATION	TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	CILL LEVEL	SPECIFICATION
D	1000	2100	2100	MAIN DOOR	W	1800	1650	2100	450	3 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	750	2100	2100	30MM THK WATERPROOF DOOR	W1	1200	1650	2100	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
OP	1000	2100	2100	OPENING ONLY	W2	1200	1650	2100	1200	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
					W3	1800	750	2100	1350	3 PANEL TOP HUNG FIXED WINDOW
					V	600	750	2100	1350	VENTILATOR WITH LOUVERS

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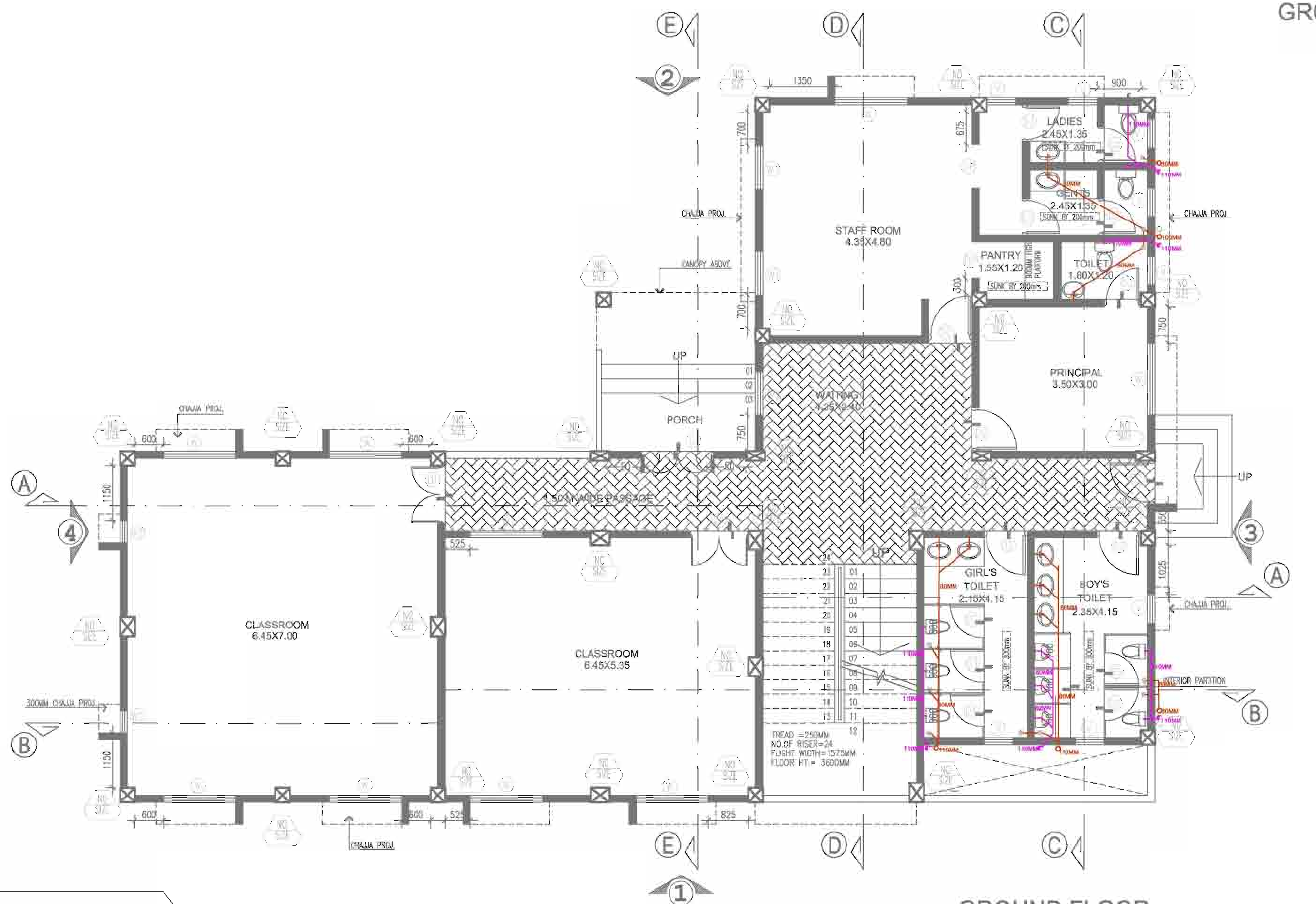
SECOND FLOOR PLAN 1:100

KC 07/05/12

1021 308 C

GOOD FOR CONSTRUCTION

GROUND FLOOR PLAN
SCHOOL



GROUND FLOOR

VK:a architecture

Legends:

01) 230 MM THICK WALLS ARE HATCHED THUS
02) 20 MM SUNKS ARE HATCHED THUS
03) 300 MM SUNK ARE HATCHED THUS
04) 150 MM THICK BRICKWORK
05) SOIL PIPE
06) WASTE WATER PIPE
07) RAIN WATER PIPE

SCHEDULE OF OPENINGS

TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	CILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1500	2250	2250	MAIN DOOR	W	1500	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	1200	2250	2250	30MM THK PRECAST DOOR	W1	900	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D2	900	2250	2250	30MM THK PRECAST DOOR	W2	450	1800	2250	450	1 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D3	750	2250	2250	30MM THK WATERPROOF DOOR	V	600	900	2250	1350	VENTILATOR WITH LOUVERS
OP	900	2250	2250	OPENING ONLY	V1	600	600	2850	2250	2 PANEL TOP HUNG VENTILATOR
					V2	1000	600	2850	2250	3 PANEL TOP HUNG VENTILATOR

"A Housing proposal for peri urban Bangalore - BMTPC"

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GROUND FLOOR
DRAINAGE LAYOUT

Scale: 1:75

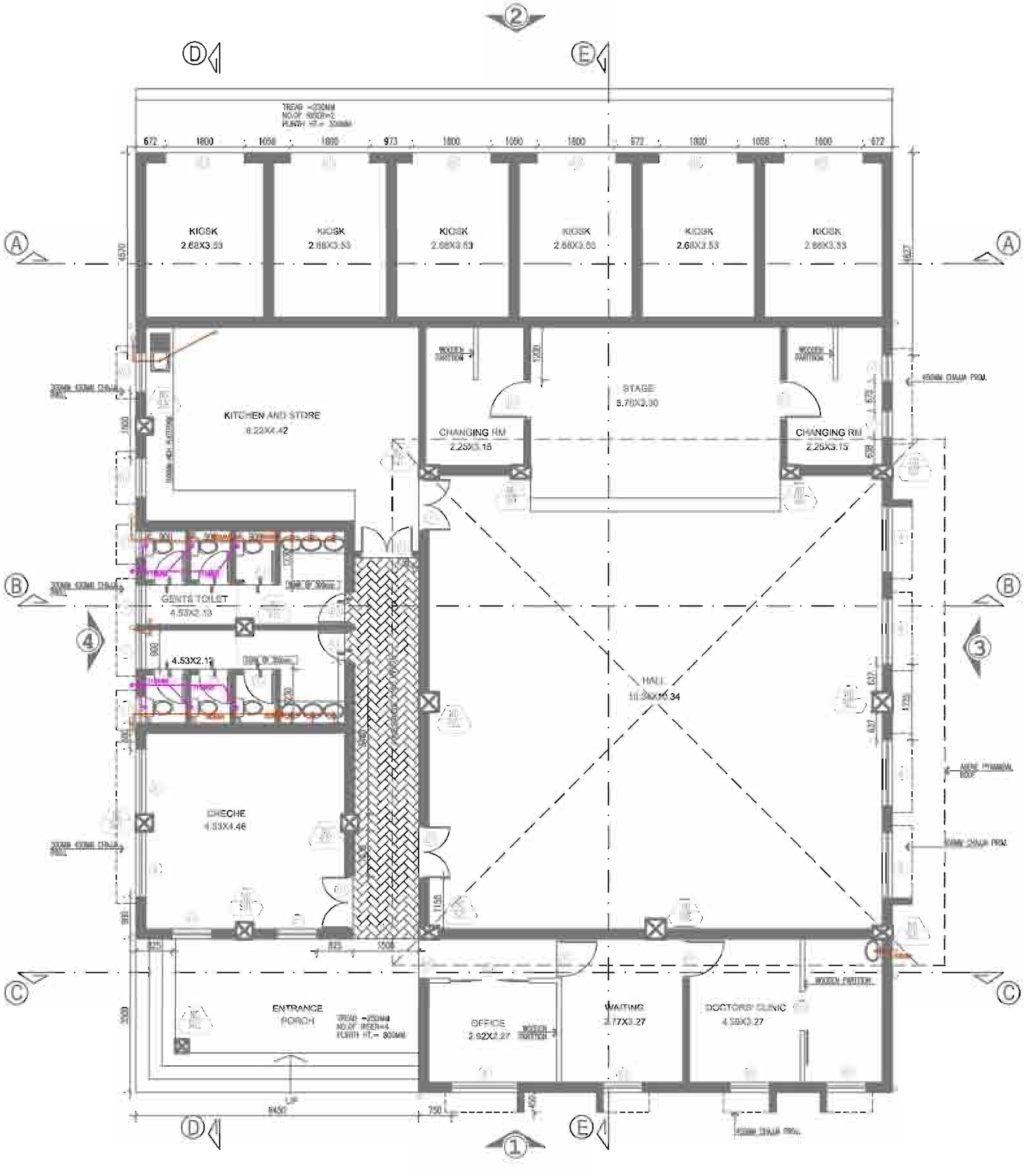
KC

Date: 18/04/12

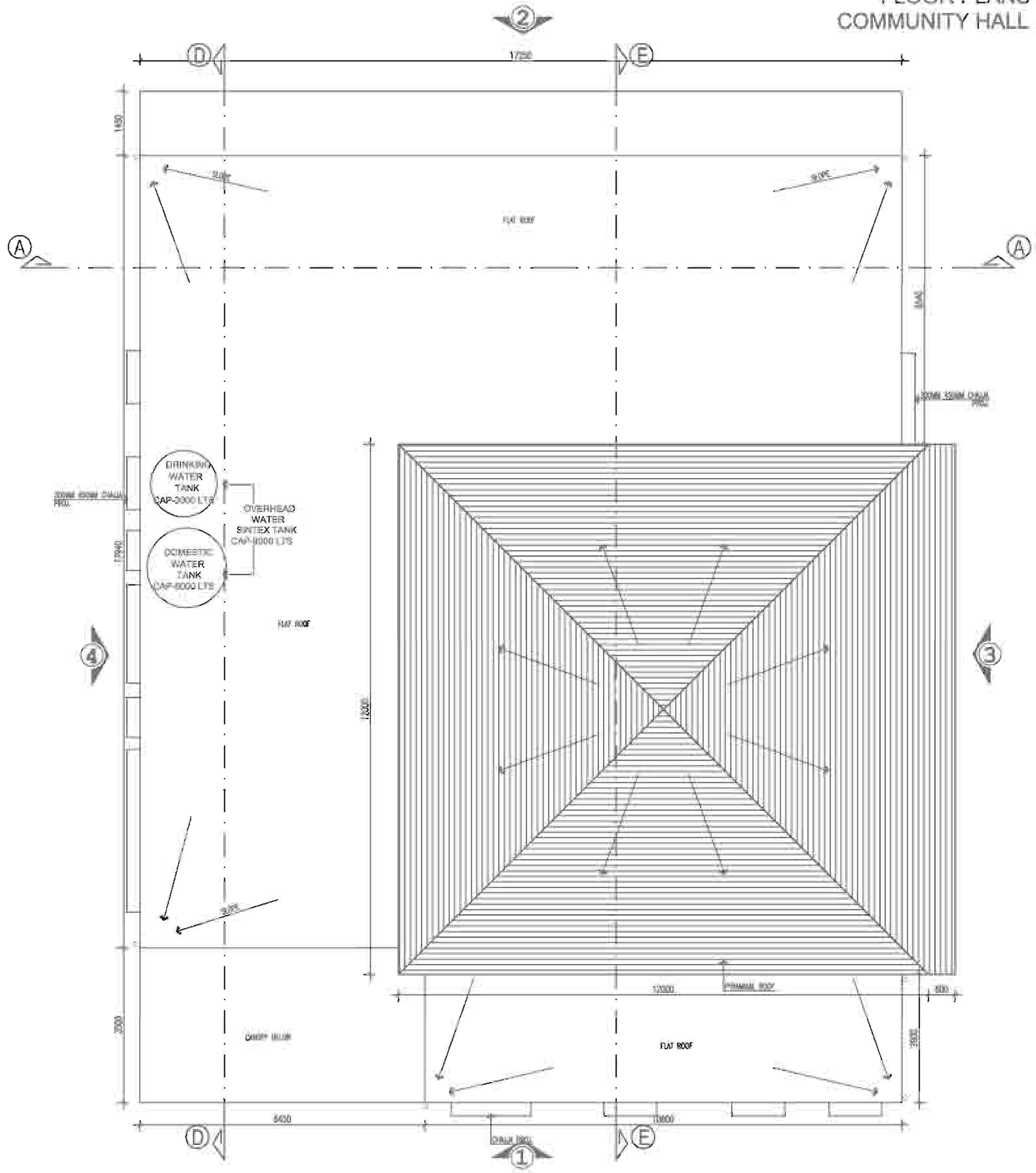
1021 | 314 | -

GOOD FOR CONSTRUCTION

FLOOR PLANS
COMMUNITY HALL



GROUND FLOOR



ROOF PLAN

VK:a architecture

Legends:

SCHEDULE OF OPENINGS

TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SPECIFICATION	TYPE	SIZE WIDTH	SIZE HEIGHT	LINTEL LEVEL	SILL LEVEL	SPECIFICATION
D	1500	2200	2250	MAIN DOOR	W	1500	1800	2250	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	1200	2200	2250	30MM THK PRECAST DOOR	W1	900	1800	2250	450	3 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D2	900	2200	2250	30MM THK PRECAST DOOR	W2	450	1800	2250	450	1 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D3	750	2200	2250	30MM THK WATERPROOF DOOR	W3	900	1050	2250	1200	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
SD	1800	2250	2250	30MM THK. 3 PANEL SLIDING DOOR	V	600	600	2250	1350	VENTILATOR WITH LOUVERS
SD1	900	2250	2250	30MM THK. 2 PANEL SLIDING DOOR	V1	900	600	2250	1350	VENTILATOR WITH LOUVERS
RD	1800	2200	2250	M.S. ROLLING SHUTTER						
OP	900	2250	2250	OPENING ONLY						
OP1	1500	2250	2250	OPENING ONLY						

"A Housing proposal for peri urban Bangalore - BMTPC"

BMPTC Technology

Scale 1:75

DRAINAGE LAYOUT

KC — 18/04/12

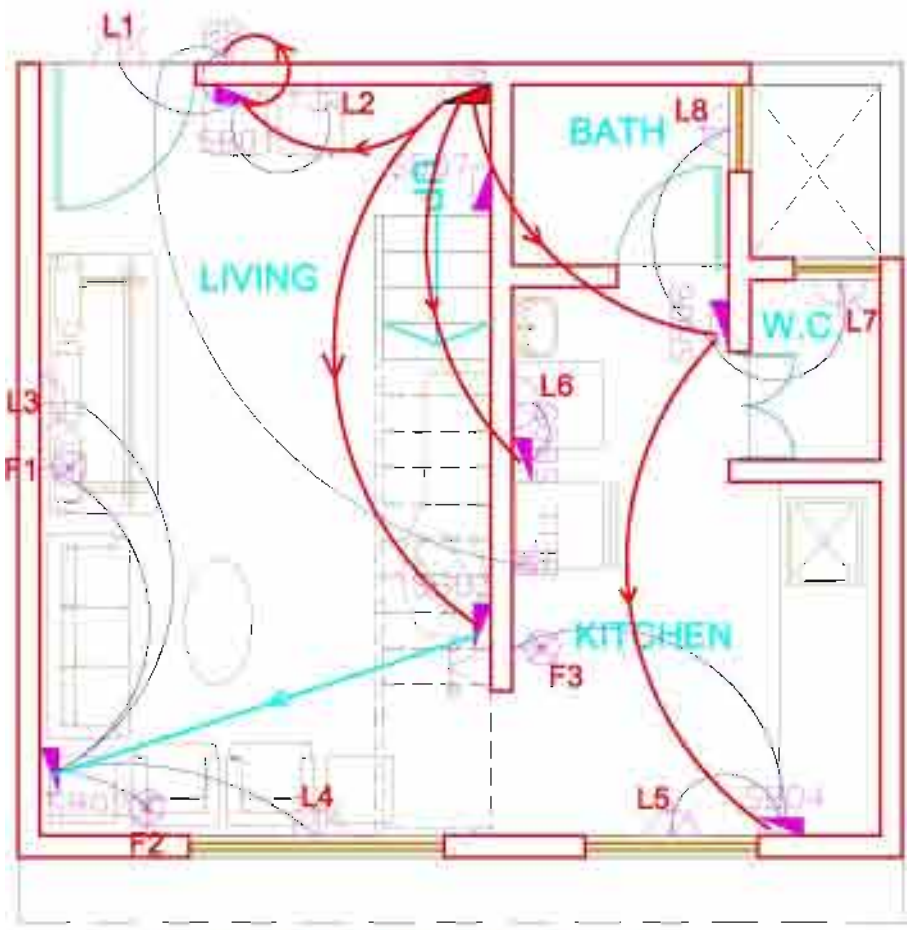
1021 324 -

GOOD FOR CONSTRUCTION

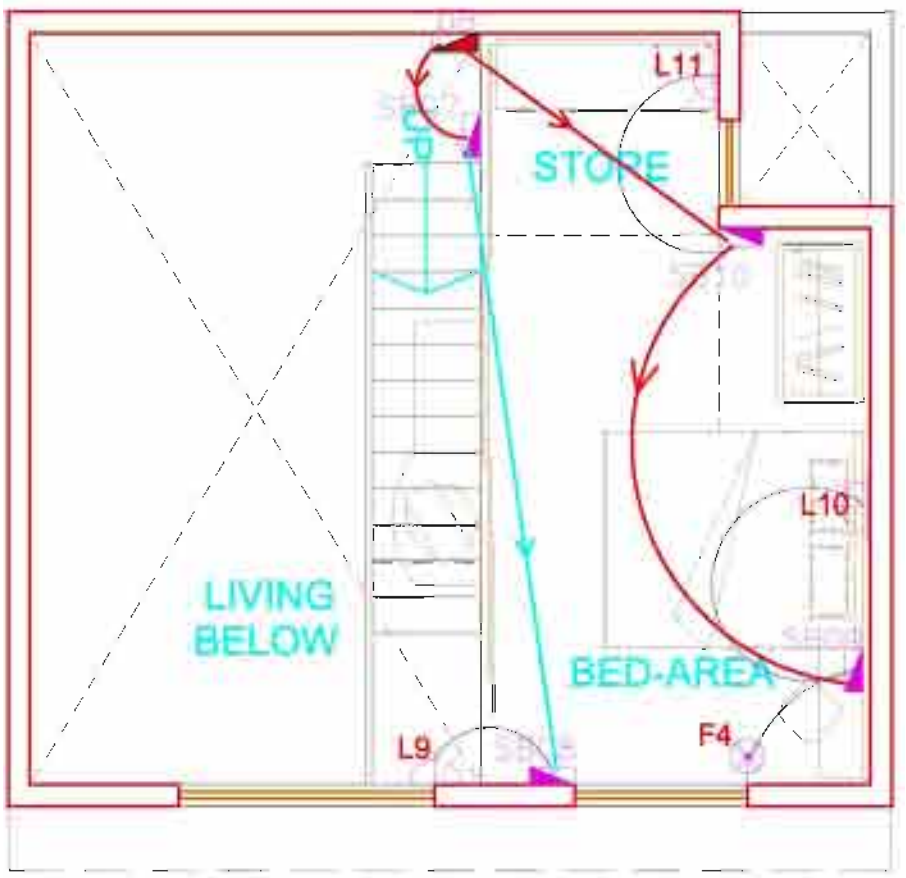
12

Electrical Drawings

i. Shelter Clusters
ii. School
iii. Community Hall and Kiosks



UNIT FLOOR PLAN



MEZZANINE FLOOR PLAN

LEGEND

- INCOMING CIRCUIT FROM DB TO SB
- INTERCONNECTION BETWEEN 2 WAY SWITCHES
- CONTROL WIRE FROM SWITCH TO LOAD
- WALL LIGHT FIXTURE
- WALL FAN
- BELL PUSH
- DISTRIBUTION BOARD

TYPICAL UNIT

SWITCH BOARD	LOCATION	FIXTURE CONTROLLED	MOUNTING LVL	
SB 01	LIVING	2 NO. WALL LIGHT POINT	1350MM	
		1 NO. 5 AMP PLUG POINT		
SB02	LIVING	2 NO. WALL LIGHT POINT	750MM	
		2 NO. WALL FAN POINT		
SB03	LIVING	2 NO. WALL LIGHT POINT	750MM	
		2 NO. WALL FAN POINT		
SB04	KITCHEN	1 NO. WALL LIGHT POINT	750MM	
		1 NO. WALL FAN POINT		
		1 NO. 5 AMP PLUG POINT-MIXER		
SB05	KITCHEN	1 NO. WALL LIGHT POINT	1350MM	
		1 NO. 15 AMP PLUG POINT-FRIDGE		
		1 NO. 15 AMP PLUG POINT-WASHING M/C		
SB06	TOILET LOBBY	2 NO. WALL LIGHT POINT	1350MM	
SB07	STAIRCASE STARTING	1 NO. WALL LIGHT POINT	1350MM	TWO WAY
SB08	BED AREA-MEZZ.	1 NO. WALL LIGHT POINT	1350MM	SWITCH
SB09	BED AREA-MEZZ.	1 NO. WALL LIGHT POINT	750MM	
		1 NO. WALL FAN POINT		
		1 NO. 5 AMP PLUG POINT		
SB10	STORE AREA-MEZZ	1 NO. WALL LIGHT POINT	1350MM	

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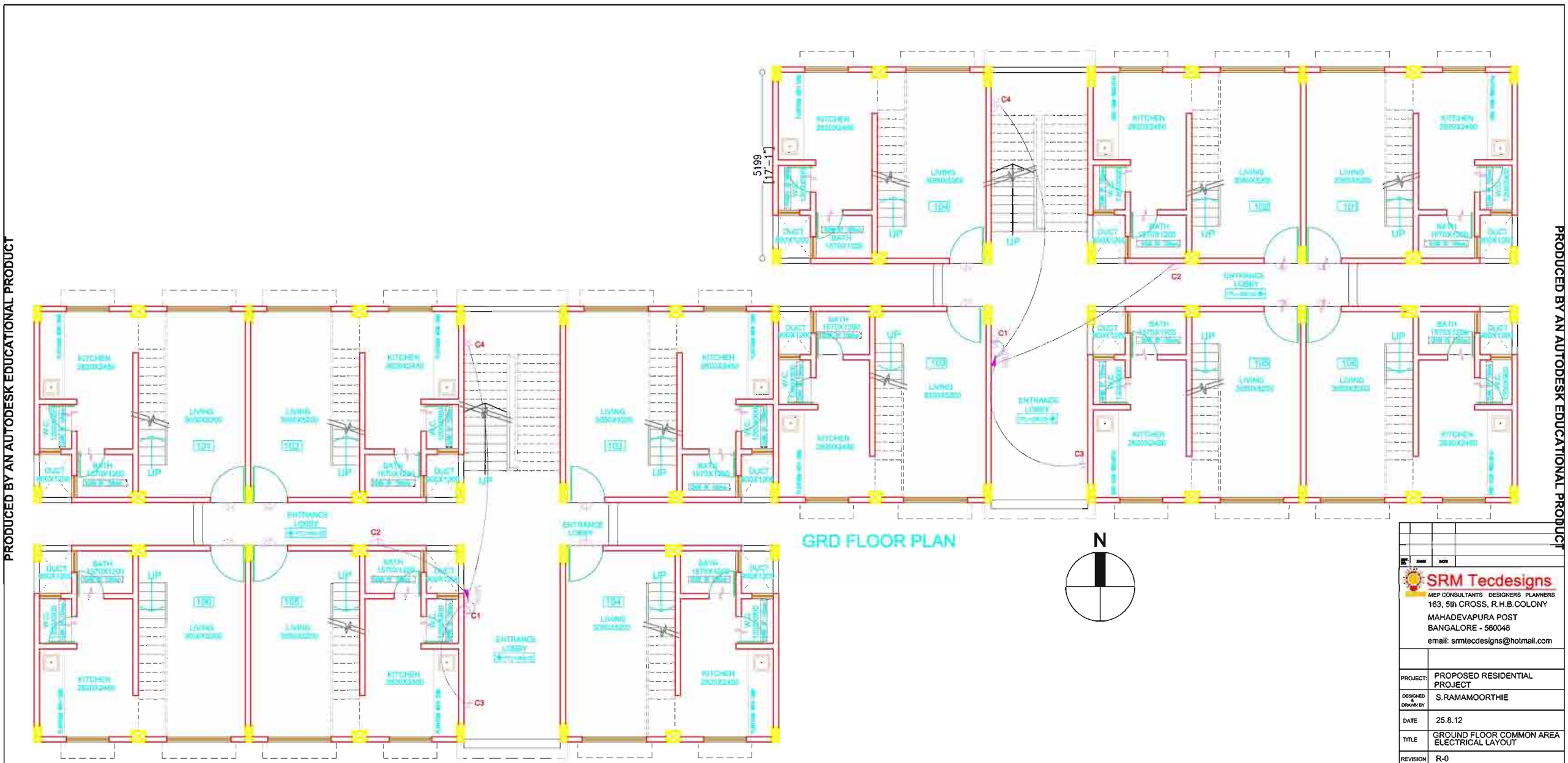
REV. NO.	NAME	DATE	

PROJECT:	PROPOSED RESIDENTIAL PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	25.8.12
TITLE	ELECTRICAL WIRING LAYOUT OF TYPICAL HOUSE
REVISION	R-0
DRG NO.	ELEC/WL/RP/2012/02

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



GRD FLOOR PLAN

N

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PROJECT:	PROPOSED RESIDENTIAL PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	25.8.12
TITLE	GROUND FLOOR COMMON AREA ELECTRICAL LAYOUT
REVISION	R-0
DRG NO.	ELEC/CA/GF/RP/2012/03

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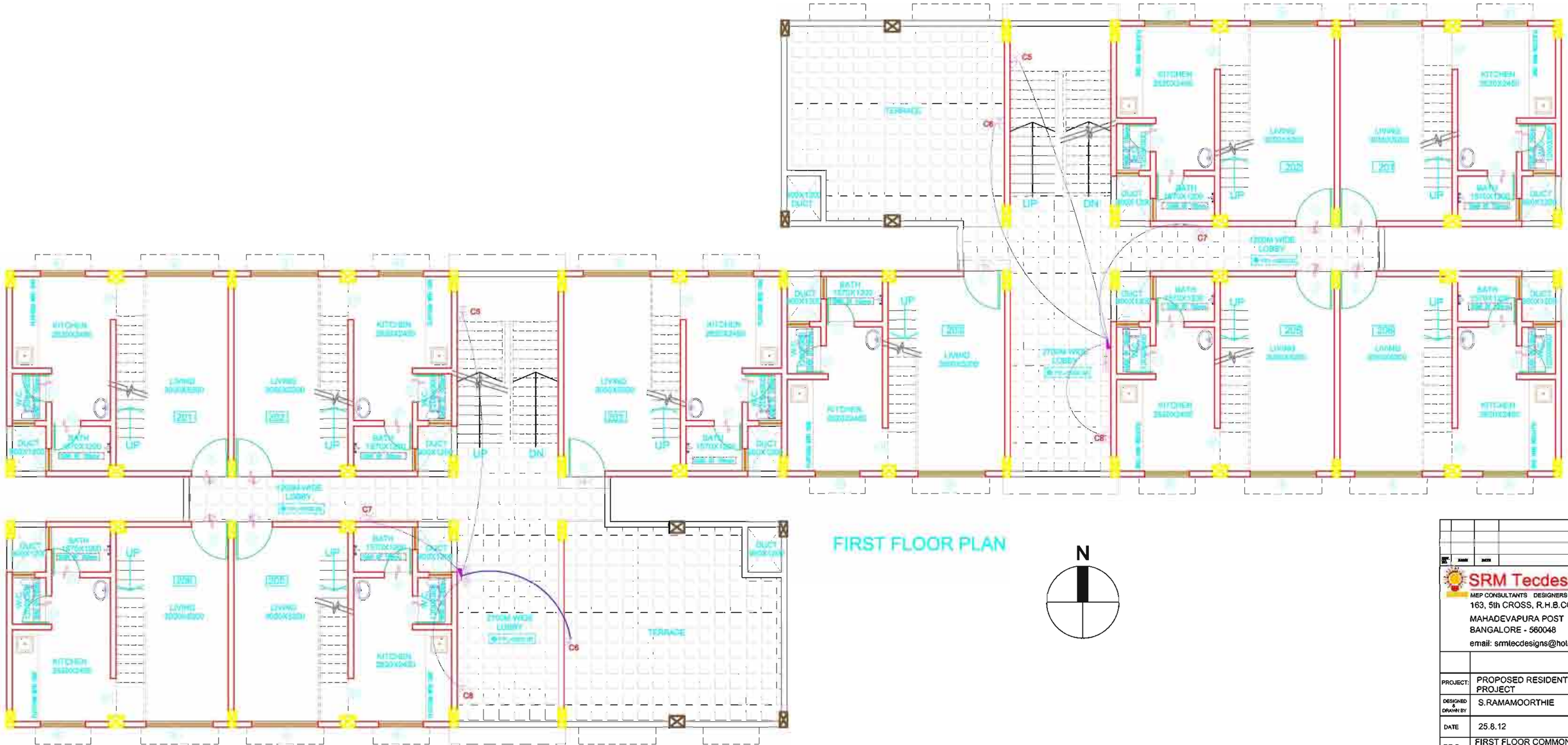

FIRST FLOOR PLAN

N

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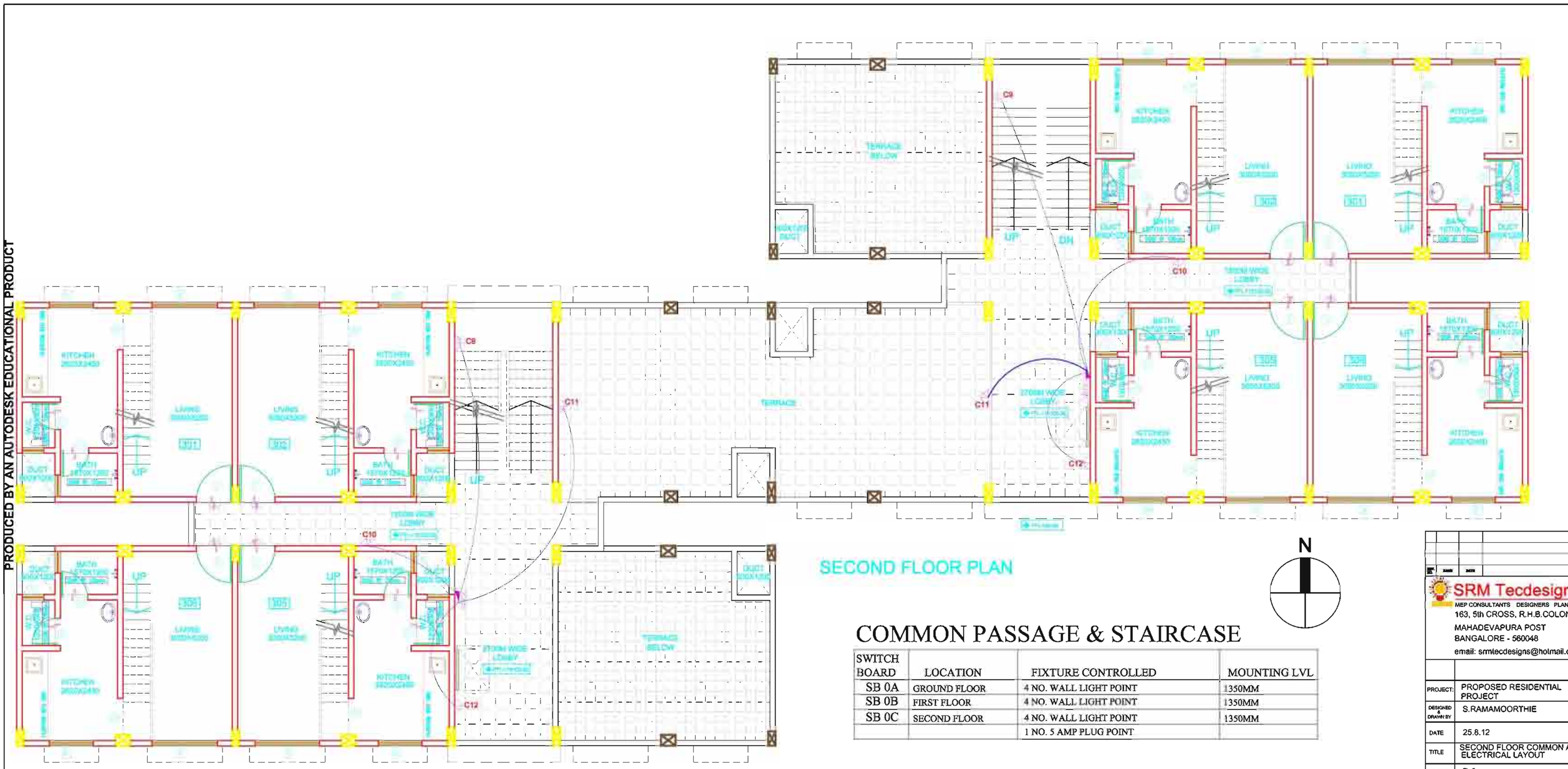
PROJECT:	PROPOSED RESIDENTIAL PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	25.8.12
TITLE	FIRST FLOOR COMMON AREA ELECTRICAL LAYOUT
REVISION	R-0
DRG NO.	ELEC/CA/FF/RP/2012/04



SECOND FLOOR PLAN

N

COMMON PASSAGE & STAIRCASE

SWITCH BOARD	LOCATION	FIXTURE CONTROLLED	MOUNTING LVL
SB 0A	GROUND FLOOR	4 NO. WALL LIGHT POINT	1350MM
SB 0B	FIRST FLOOR	4 NO. WALL LIGHT POINT	1350MM
SB 0C	SECOND FLOOR	4 NO. WALL LIGHT POINT	1350MM
		1 NO. 5 AMP PLUG POINT	

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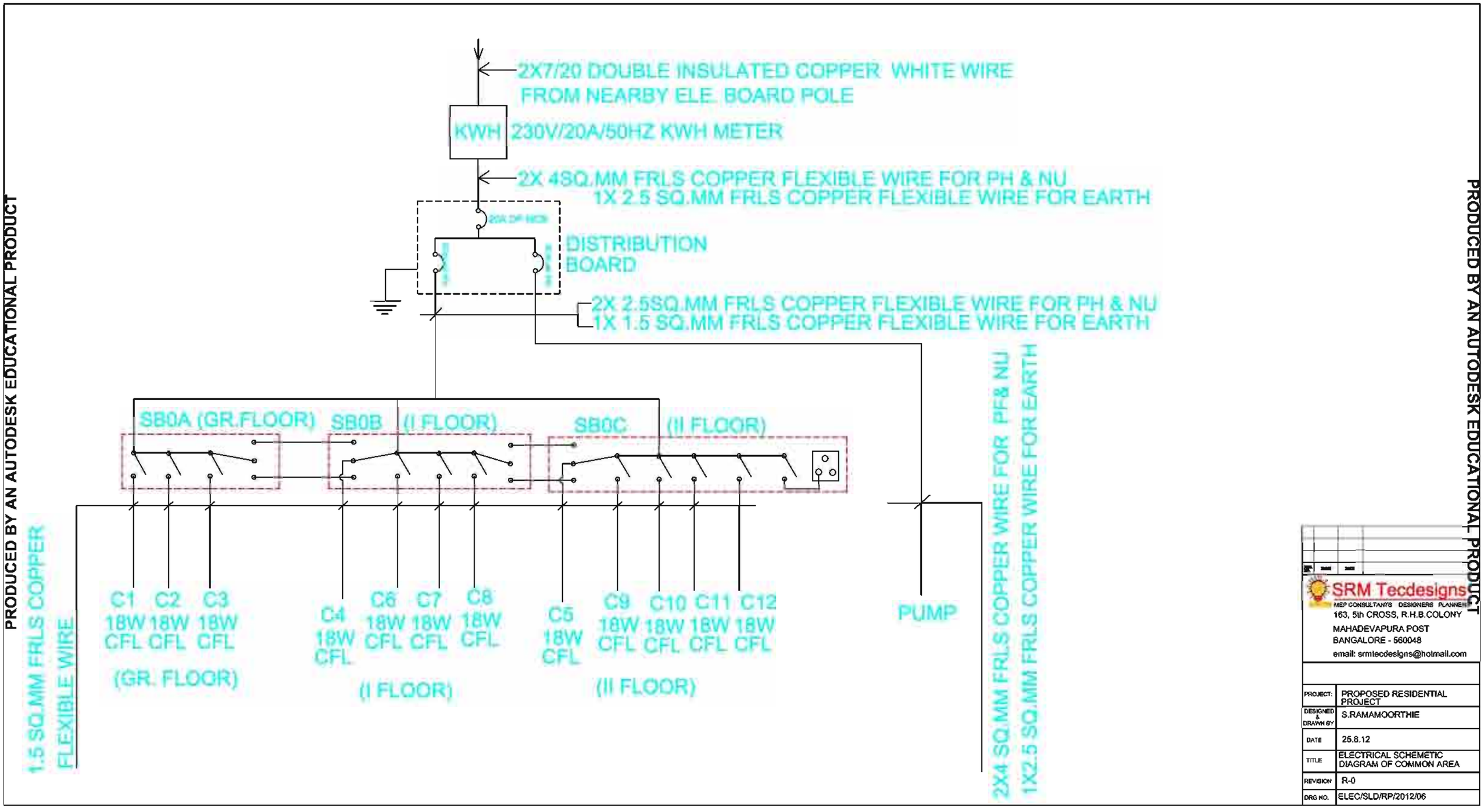
PROJECT:	PROPOSED RESIDENTIAL PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	25.8.12
TITLE	SECOND FLOOR COMMON AREA ELECTRICAL LAYOUT
REVISION	R-0
DRG NO.	ELEC/CA/SF/RP/2012/05

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



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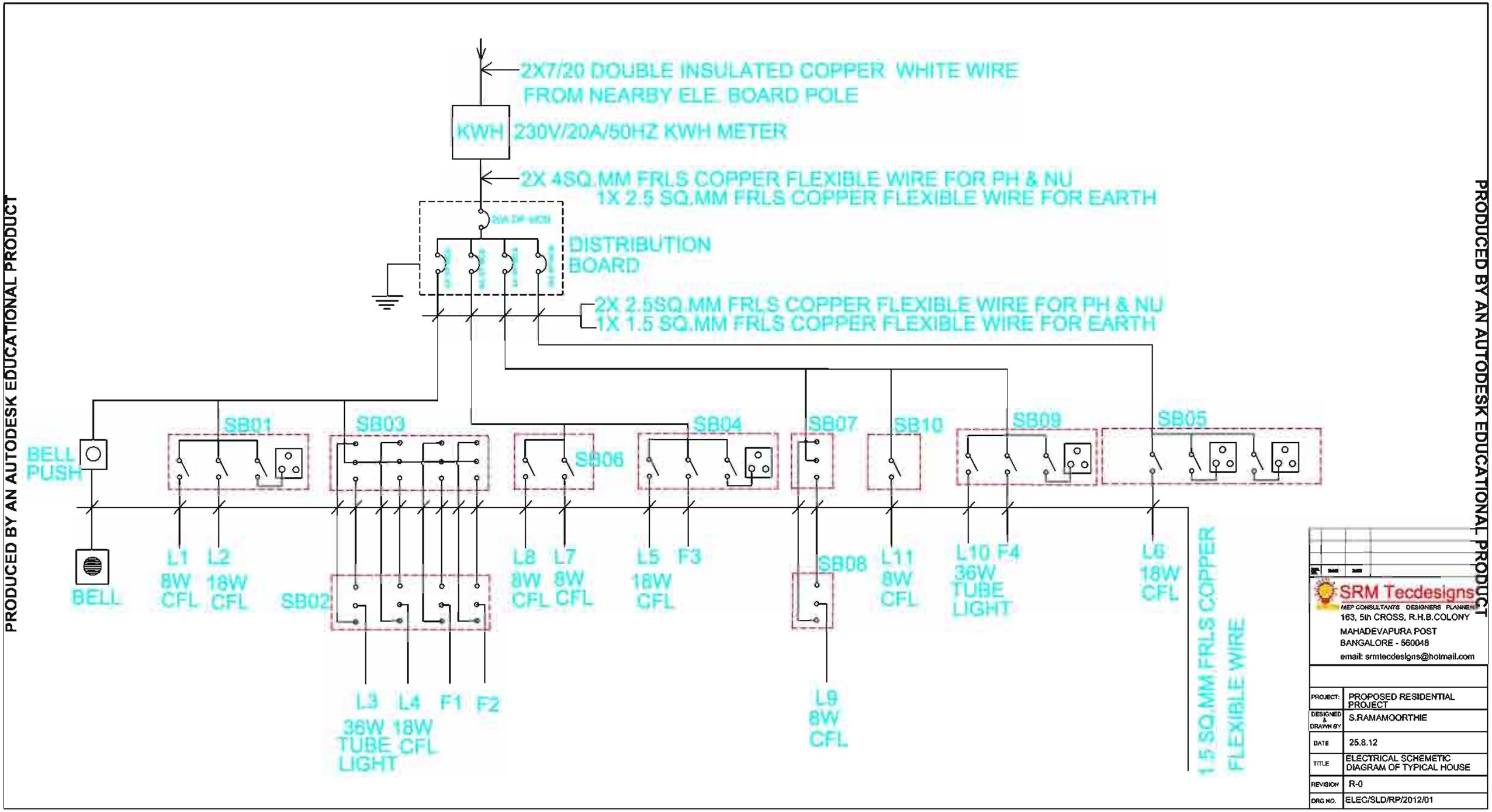
PROJECT:	PROPOSED RESIDENTIAL PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	25.8.12
TITLE	ELECTRICAL SCHEMETIC DIAGRAM OF COMMON AREA
REVISION	R-0
DRG NO.	ELEC/SLD/RP/2012/06



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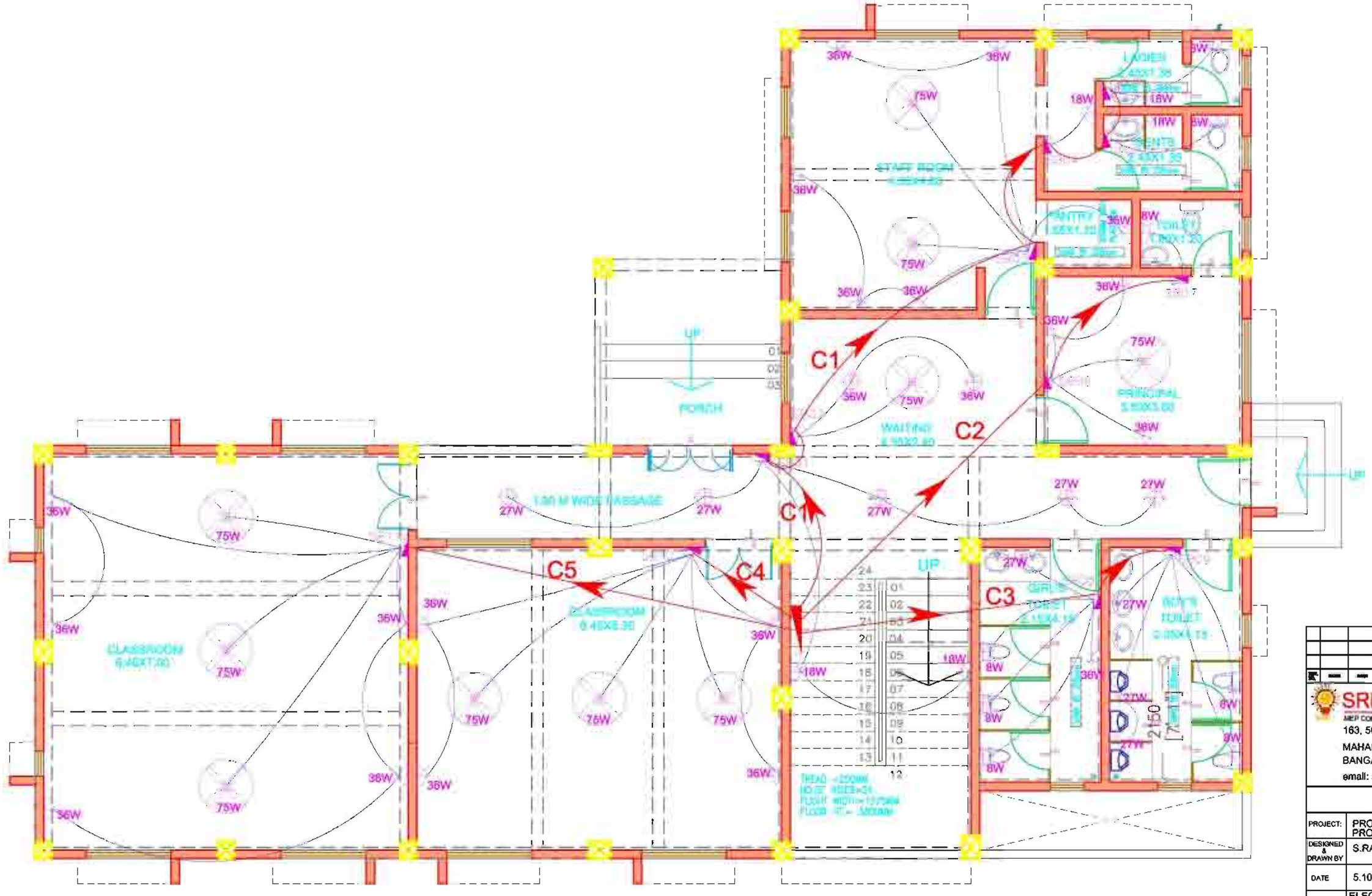
PROJECT:	PROPOSED RESIDENTIAL PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	25.8.12
TITLE	ELECTRICAL SCHEMETIC DIAGRAM OF TYPICAL HOUSE
REVISION	R-0
DRG NO.	ELEC/SLD/RP/2012/01



GROUND FLOOR

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PROJECT:	PROPOSED SCHOOL BUILDING PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	5.10.12
TITLE	ELECTRICAL LAYOUT - GROUND FLOOR
REVISION	R-0
DRG NO.	ELEC/SB/2012/03

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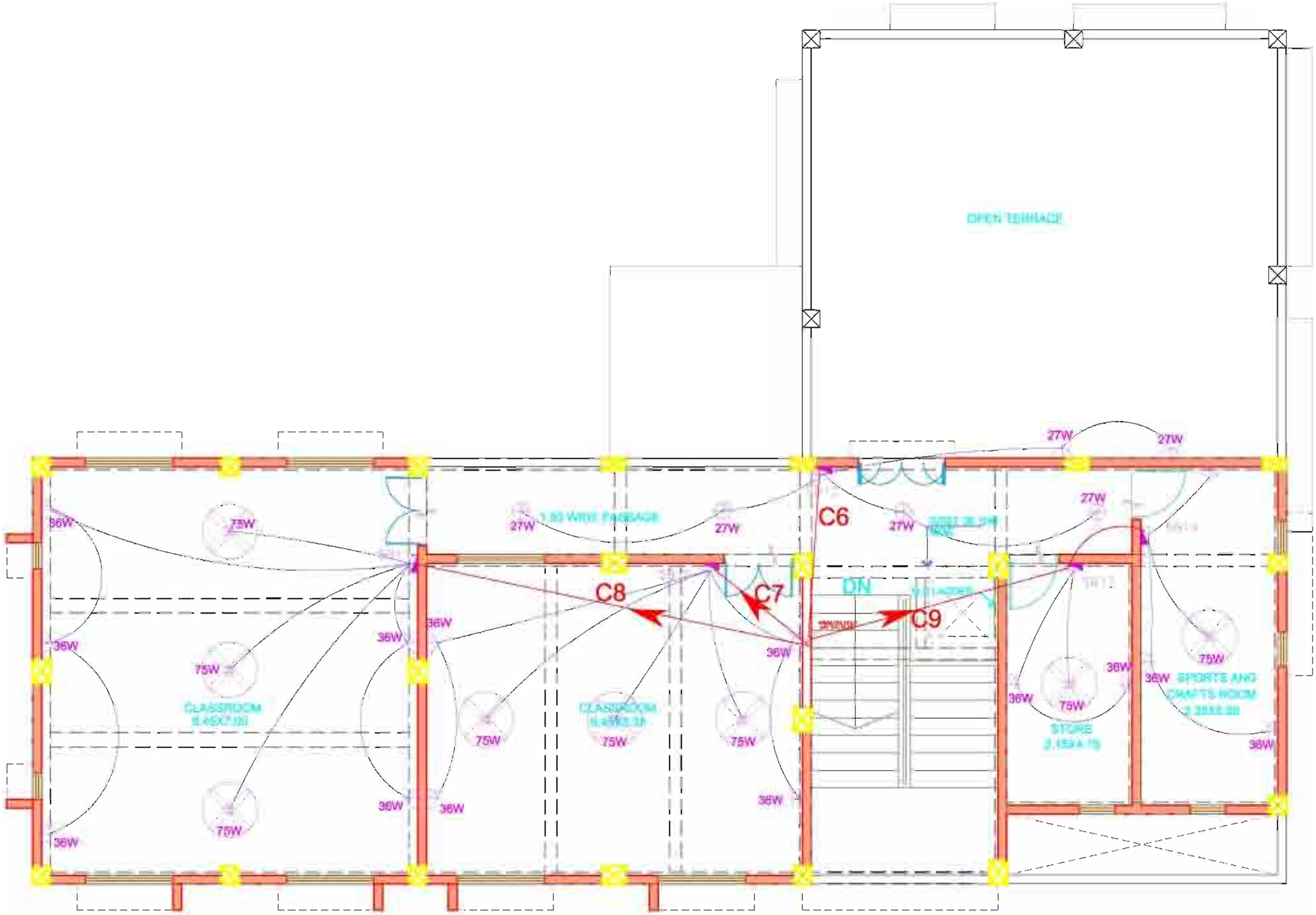

FIRST FLOOR

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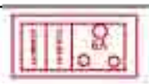
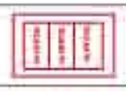
PROJECT:	PROPOSED SCHOOL BUILDING PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	5.10.12
TITLE	ELECTRICAL LAYOUT - FIRST FLOOR
REVISION	R-0
DRG NO.	ELEC/SB/2012/04

SWITCH PLATE DETAILS	SWITCH BOARD	LOCATION	FIXTURE CONTROLLED	MOUNTING LVL	TOTAL LOAD
	SB 01 x 1 NO.	PASSAGE GRND FLOOR	5 NO. X 27W/3'/T8 FLORESCENT LIGHT	1350MM	135 WATTS
			2 NO. X 18W/2'/T8 FLORESCENT LIGHT		36 WATTS
	SB02x 1 NO.	WAITING	2 NO. X36W/4'/T8 FLORESCENT LIGHT	1350MM	72 WATTS
			1 NO. X48"/75W CEILING FAN		75 WATTS
	SB03 X1NO.	STAFF ROOM	6 NO. X36W/4'/T8 FLORESCENT LIGHT	1350MM	216 WATTS
			2 NO. X48"/75W CEILING FAN		150 WATTS
			2 NO. 5 AMP SOCKET X 200 WATTS		400 WATTS
	SB04 X1NO.	STAFF ROOM TOILET LOBBY	1 NO. X 18W/2'/T8 FLORESCENT LIGHT	1350MM	18 WATTS
	SB05x 1NO.	GENTS TOILET	1 NO. X 18W/2'/T8 FLORESCENT LIGHT	1350MM	26 WATTS
			1 NO. X 8W/1'/T5 FLORESCENT LIGHT		
	SB05X1NO.	LADIES TOILET	1 NO. X 18W/2'/T8 FLORESCENT LIGHT	1350MM	26 WATTS
			1 NO. X 8W/1'/T5 FLORESCENT LIGHT		
	SB06X1NO.	PRICIPAL'S ROOM	3 NO. X36W/4'/T8 FLORESCENT LIGHT	1350MM	108 WATTS
			1 NO. X48"/75W CEILING FAN		75 WATTS
			1 NO. 5 AMP SOCKET X 200 WATTS		200 WATTS
	SB07X1NO.	PRICIPAL'S ROOM TOILET	1 NO. X 8W/1'/T5 FLORESCENT LIGHT	1350MM	208 WATTS
			1 NO. 5 AMP SOCKET X 200 WATTS		
					
					
			1 NO. 5 AMP SOCKET X 200 WATTS		
	SB10 X 2NO.	CLASSROOM	4 NO. X36W/4'/T8 FLORESCENT LIGHT	1350MM	288 WATTS
			3 NO. X48"/75W CEILING FAN		450 WATTS
			1 NO. 5 AMP SOCKET X 200 WATTS		400 WATTS
	SB11X2 NO.	CLASSROOM	5 NO. X36W/4'/T8 FLORESCENT LIGHT	1350MM	360 WATTS
			3 NO. X48"/75W CEILING FAN		450 WATTS
			1 NO. 5 AMP SOCKET X 200 WATTS		400 WATTS
	SB12X1NO	PASSAGE 1ST FLOOR	4 NO. X 27W/3'/T8 FLORESCENT LIGHT	1350MM	108 WATTS
			2 NO. X 27W/3'/T8 FLORESCENT LIGHT		54 WATTS
	SB13X1NO.	STORE	2 NO. X36W/4'/T8 FLORESCENT LIGHT	1350MM	72 WATTS
			1 NO. X48"/75W CEILING FAN		75 WATTS
			1 NO. 5 AMP SOCKET X 200 WATTS		200 WATTS
	SB14X1NO.	SPORTS & CRAFT ROOM	3 NO. X36W/4'/T8 FLORESCENT LIGHT		
			1 NO. X48"/75W CEILING FAN	1350MM	108 WATTS
			1 NO. 5 AMP SOCKET X 200 WATTS		75 WATTS
					200 WATTS
				TOTAL LOAD	5569 WATTS

MAKE:

FANS - CROMPTON GREAVES

LIGHTS - WIPRO

SWITCH BOX/PLATES/SOCKETS/SWITCHES/WIRE - ANCHOR

WIRING SPECIFICATIONS:-

FROM SWITCH BOARD TO FAN/LIGHT:- 3RX1.5SQ.MM COPPER WIRE (P+N+E)

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PROJECT:	PROPOSED SCHOOL BUILDING PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	6.10.12
TITLE	ELECTRICAL LOAD SCHEDULE
REVISION	R-0
DRG NO.	ELEC/SB/2012/02

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4CX10 SQ.MM COPPER AR.PVC CABLE
FROM NEARBY ELEC. BOARD POLE

KWH

415V/32A/50HZ KWH METER

4CX10 SQ.MM COPPER AR.PVC CABLE

32A/4P/100mA
RCBO

MAIN DB

CONNECTED LAOD -5569W

R
Phase

Y
Phase

B
Phase

20ADP/30mA
RCBO

20ADP/30mA
RCBO

10 SP MCB 10 — C1 1154W
SP MCB 10 — C2 591W
SP MCB 6 A — C6 162W
SP MCB 6 — Spare

TOTAL LOAD IN
R-PHASE:-1907W

Spare

10 SP MCB 10 — C7 569W
SP MCB 10 — C5 605W
SP MCB 10 — C9 730W
SP MCB 6 — Spare

TOTAL LOAD IN
B-PHASE:-1904W

3RX2.5SQ.MM COPPER WIRE (P+N+E)

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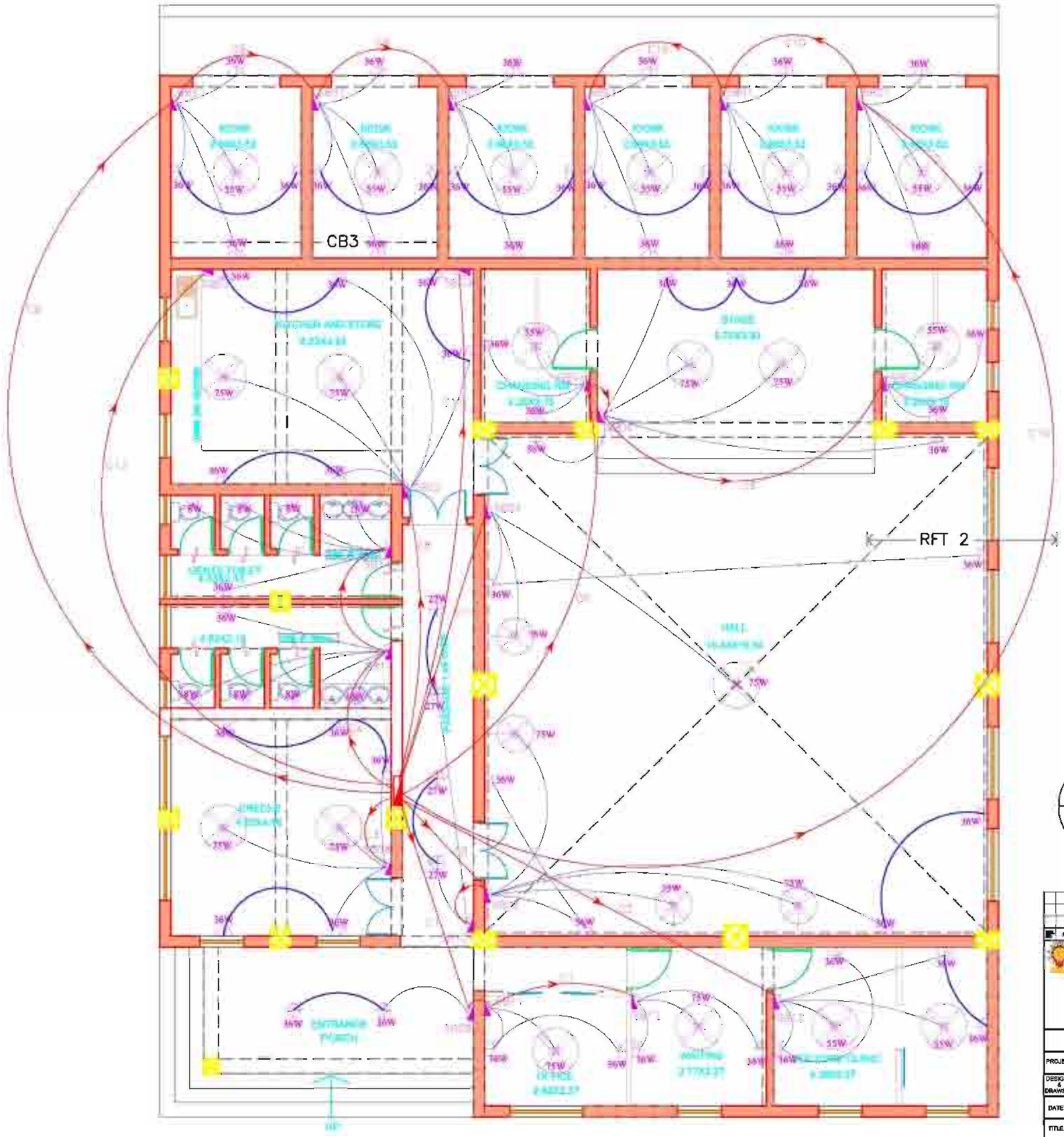
PROJECT:	PROPOSED SCHOOL BUILDING PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	5.10.12
TITLE	ELECTRICAL SLD DIAGRAM
REVISION	R-0
DRG NO.	ELEC/SB/2012/01

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



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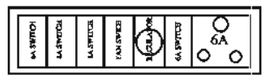
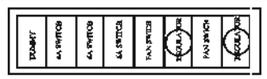
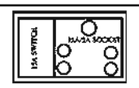
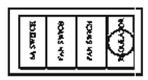
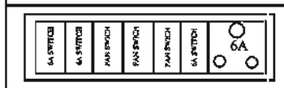
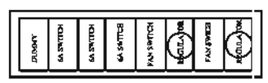
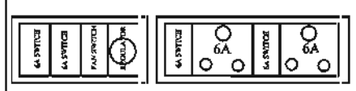
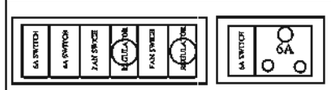
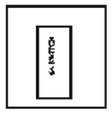
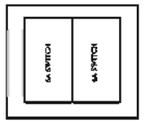
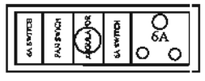
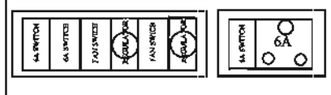
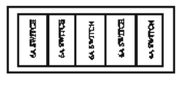
PROJECT	PROPOSED COMMUNITY HALL PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	4.10.12
TITLE	ELECTRICAL LAYOUT DIAGRAM
REVISION	R-0
DRG NO.	ELEC/CH/2012/01

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

SWITCH PLATE DETAILS	SWITCH BOARD	LOCATION	FIXTURE CONTROLLED	MOUNTING LEVEL	TOTAL WATTS
	SB 01 X 6 NOS.	KIOSK	4 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	864 WATTS
			1 NO. X 55W/36" CEILING FAN		330 WATTS
			1 NO. 5 AMP PLUG POINT X 200W		1200 WATTS
	SB02 X 1 NO.	KITCHEN			
			6 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	216 WATTS
			2 NO. X 75W/48" CEILING FAN		150 WATTS
	SB03 X 2 NOS.	KITCHEN	1 NO. 15 AMP PLUG POINT X 1000W	1350MM	2000 WATTS
	SB04 X 1 NO	HALL	2 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	72 WATTS
			1 NO. WALL FAN POINT X75 W		75 WATTS
			1 NO. X 75W/48" CEILING FAN		75 WATTS
	SB05 X1 NO.	HALL	4 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	144 WATTS
			3 NO. WALL FAN POINT X 75W		225 WATTS
			1 NO. 5 AMP PLUG POINT X 200		200 WATTS
	SB06 X 1NO.	STAGE			
			5 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	180 WATTS
			2 NO. X 75W/48" CEILING FAN		150 WATTS
	SB07 X 2 OS.	CHANGING ROOM	2 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	144 WATTS
			1 NO. X 55W/36" CEILING FAN		110 WATTS
			2 NO. 5 AMP PLUG POINTX 200W		800 WATTS
	SB08 X 1NO.	CRECHE	5 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	180 WATTS
			2 NO. X 75W/48" CEILING FAN		150 WATTS
			1 NO. 5 AMP PLUG POINT X 200W		200 WATTS
	SB09 X 1NO.	ENTRANCE PORCH	2 NO. WALL LIGHT X (2X18W) CFL CEILING DOOM LIGHT	1350MM	72 WATTS
	SB10 X 1NO.	PASSAGE	4 NO. CEILING LIGHT X 27W/3' T8 FLORESCENT LIGHT	1350MM	108 WATTS
	SB11 X 1.NO	OFFICE	2 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	72 WATTS
			1 NO. X 75W/48" CEILING FAN		75 WATTS
			1 NO. 5 AMP PLUG POINT X 200W		200 WATTS
	SB12 X 1 NO.	WAITING	2 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	72 WATTS
			1 NO. X 75W/48" CEILING FAN		75 WATTS
	SB13 X 1NO.	DOCTOR'S CLINIC	4 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	144 WATTS
			2 NO. X 55W/36" CEILING FAN		110 WATTS
			1 NO. 5 AMP PLUG POINT X 200W		200 WATTS
	SB14 X 2 NO.	TOILETS	1 NO. WALL LIGHT X 36W/4' T8 FLORESCENT LIGHT	1350MM	72 WATTS
			1 NO. WALL LIGHT X 18W/2' T8 FLORESCENT LIGHT		36 WATTS
			3 NO. WALL LIGHT X 8W/1' T5 FLORESCENT LIGHT		48 WATTS

MAKE:

FANS - CROMPTON GREAVES

LIGHTS - WIPRO

SWITCH BOX/PLATES/SOCKETS/SWITCHES/WIRE - ANCHOR

WIRING SPECIFICATIONS:-

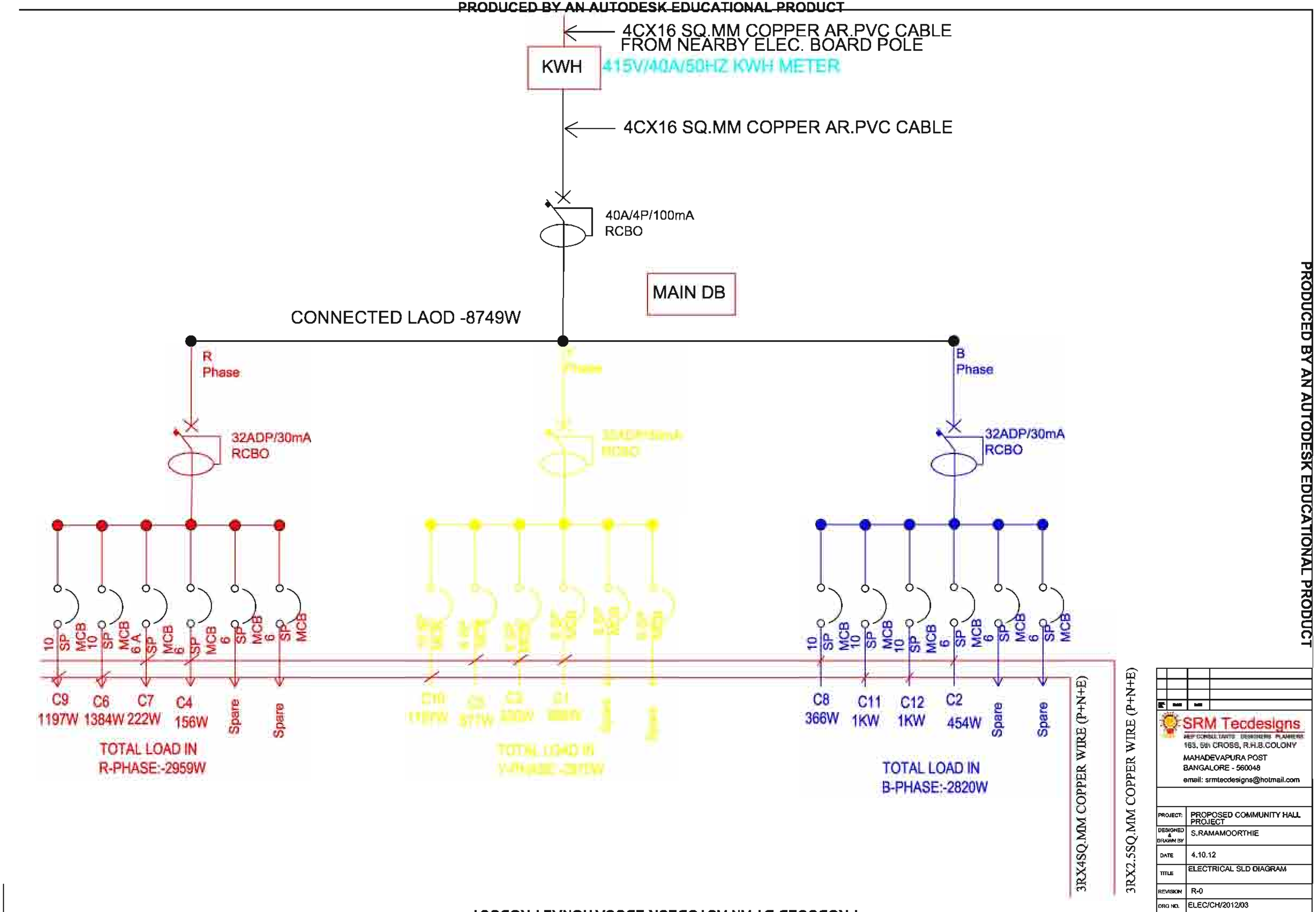
FROM SWITCH BOARD TO FAN/LIGHT:- 3RX1.5SQ.MM COPPER WIRE (P+N+E)

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

SRM Tecdesigns
183, 5th CROSS, R.H.B.COLONY
MAHADEVAPURA POST
BANGALORE - 560048
email: srmtecdesigns@hotmail.com

PROJECT:	PROPOSED COMMUNITY HALL PROJECT
DESIGNED & DRAWN BY	S.RAMAMOORTHIE
DATE	4.10.12
TITLE	ELECTRICAL LOAD SCHEDULE DIAGRAM
REVISION	R-0
DRG NO.	ELEC/CH/2012/02

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

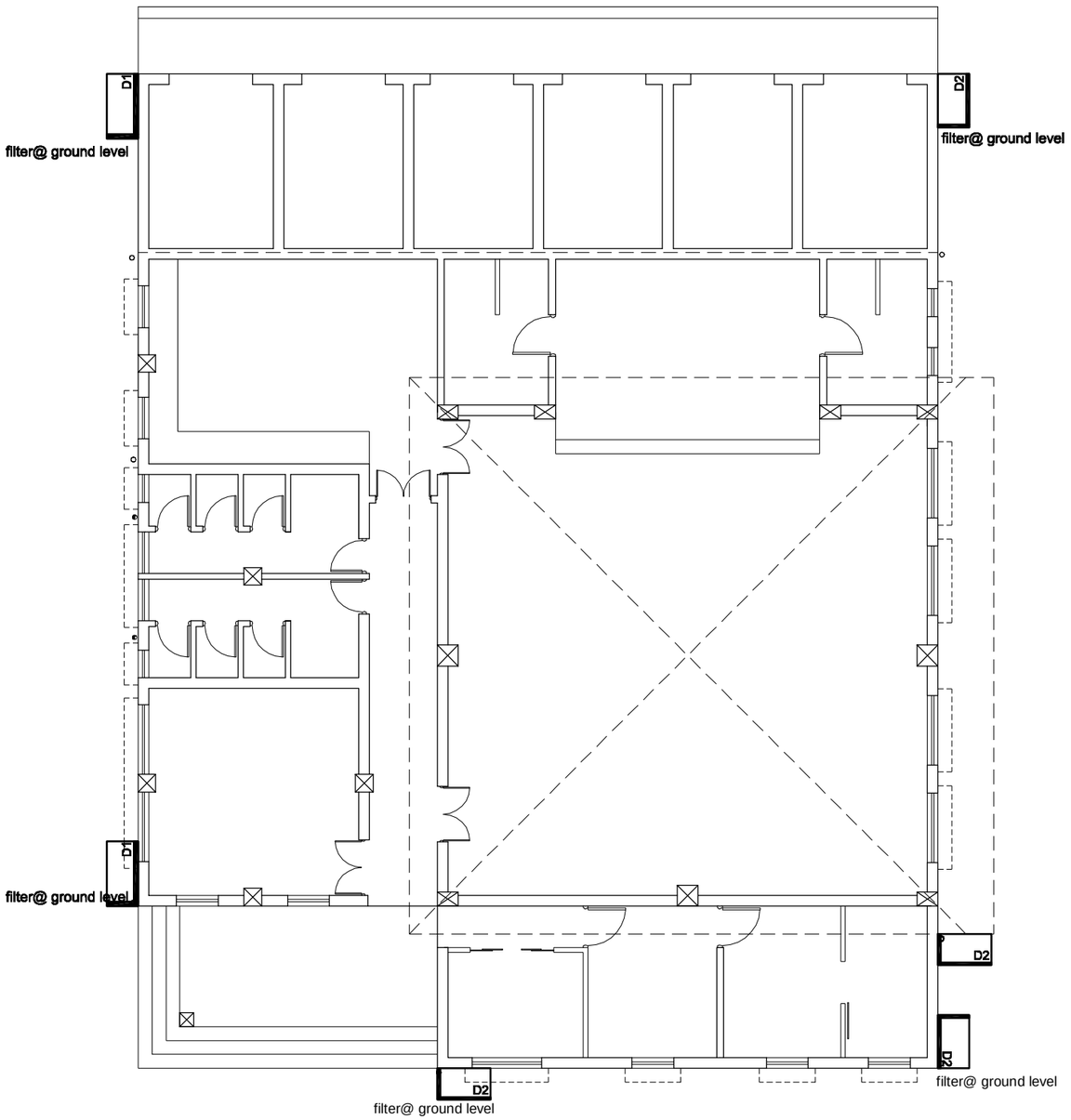

4CX16 SQ.MM COPPER AR.PVC CABLE
FROM NEARBY ELEC. BOARD POLE
KWH
415V/40A/50HZ KWH METER
4CX16 SQ.MM COPPER AR.PVC CABLE
40A/4P/100mA
RCBO
MAIN DB
CONNECTED LAOD -8749W
R
Phase
B
Phase
32ADP/30mA
RCBO
32ADP/30mA
RCBO
10 SP MCB
10 SP MCB
6 A SP MCB
6 SP MCB
6 SP MCB
6 SP MCB
C9
1197W
C6
1384W
C7
222W
C4
156W
Spare
Spare
TOTAL LOAD IN
R-PHASE:-2959W
C10
TOTAL LOAD IN
10 SP MCB
10 SP MCB
10 SP MCB
6 SP MCB
6 SP MCB
6 SP MCB
C8
366W
C11
1KW
C12
1KW
C2
454W
Spare
Spare
TOTAL LOAD IN
B-PHASE:-2820W
3RX4SQ.MM COPPER WIRE (P+N+E)
3RX2.5SQ.MM COPPER WIRE (P+N+E)
SRM Tecdesigns
163, 5th CROSS, R.H.B.COLONY
MAHADEVAPURA POST
BANGALORE - 560048
email: srmtecdesigns@hotmail.com
PROJECT: PROPOSED COMMUNITY HALL PROJECT
DESIGNED & DRAWN BY S.RAMAMOORTHIE
DATE 4.10.12
TITLE ELECTRICAL SLD DIAGRAM
REVISION R-0
DRG NO. ELEC/CH/2012/03

8

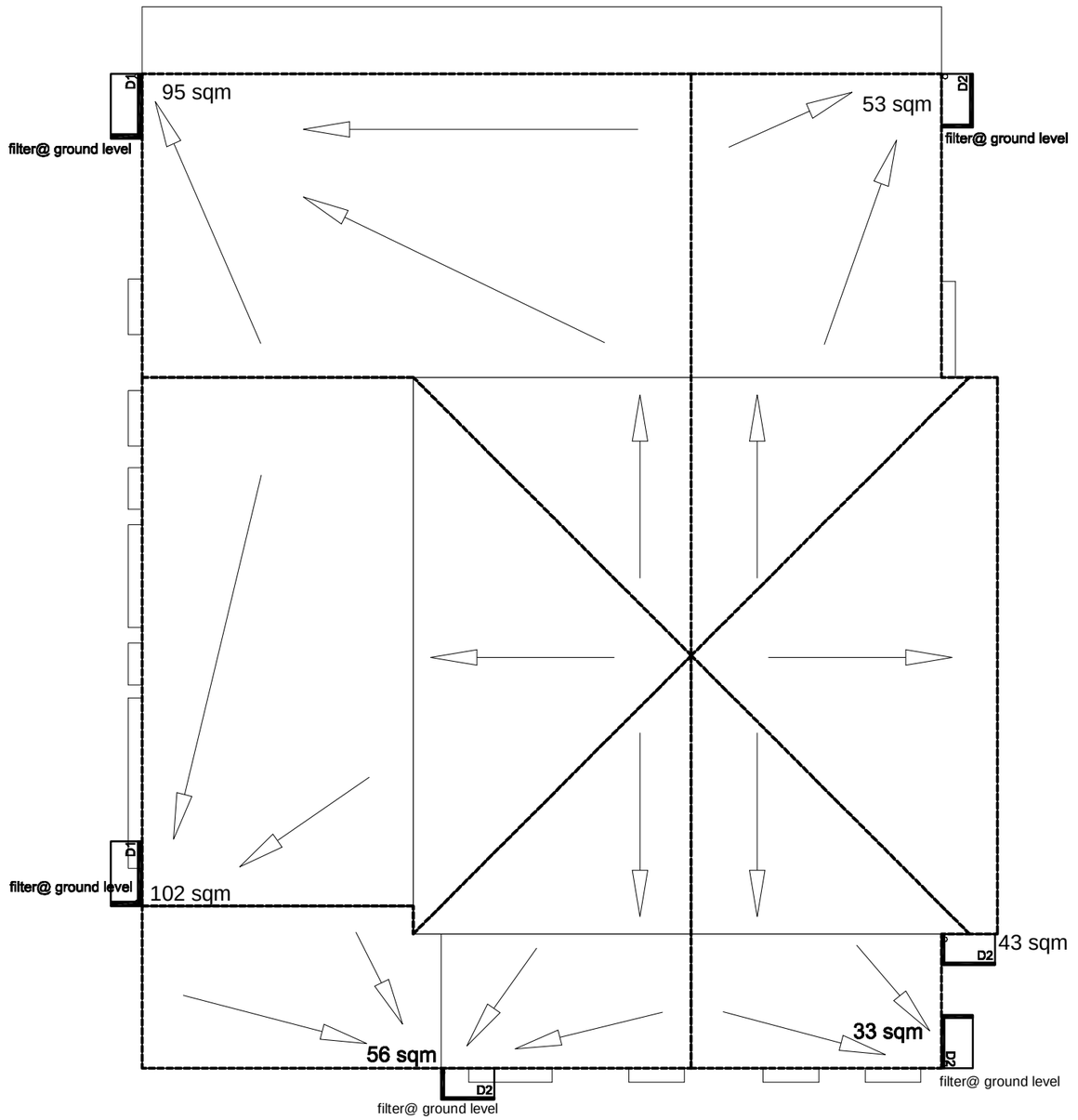
Rainwater Harvesting

&

Waste Water Disposal



GROUND FLOOR SHOWING LOCATION OF FILTERS



ROOF PLAN

NOTE: FILTERS INDICATED IN THIS ROOF PLAN ARE ALL LOCATED AT GROUND LEVEL

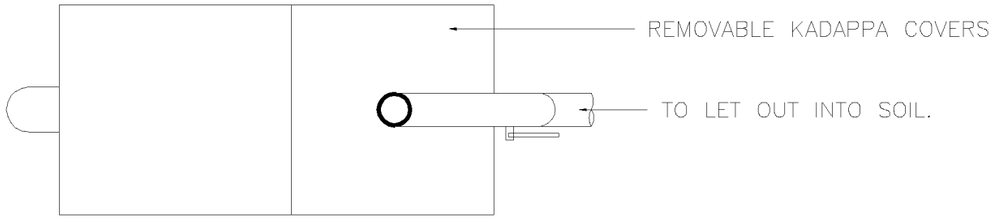
LEGEND

	FLOW OF RAIN WATER
	COLLECTION AREA FOR ONE DOWNTAKE PIPE
D1 D2	RWH FILTER D1:100 SQM AREA, D2: 40 TO 70SQM AREA
	RAINWATER HARVESTING COLLECTION SURFACE
	4" RAINWATER DOWNTAKE PIPE
	INSPECTION CHAMBER

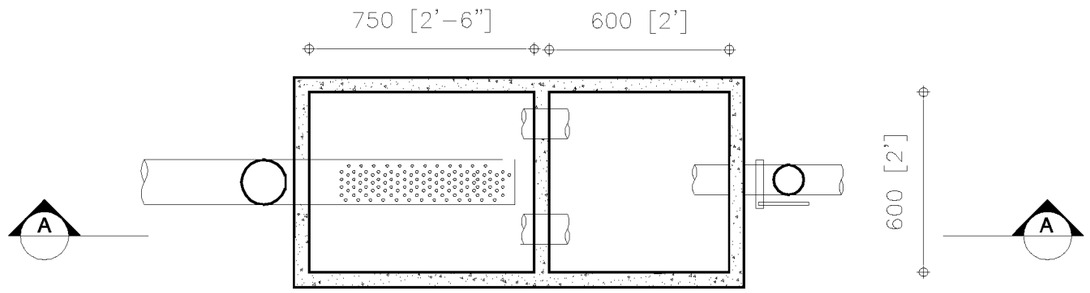
Legends:

01) 150 MM THICK WALLS ARE HATCHED THUS.
02) 150 MM SUNKS ARE HATCHED THUS.
03) 150 MM THICK BRICKWORK.
04) SOIL PIPE
05) WASTE WATER PIPE
06) RAIN WATER PIPE

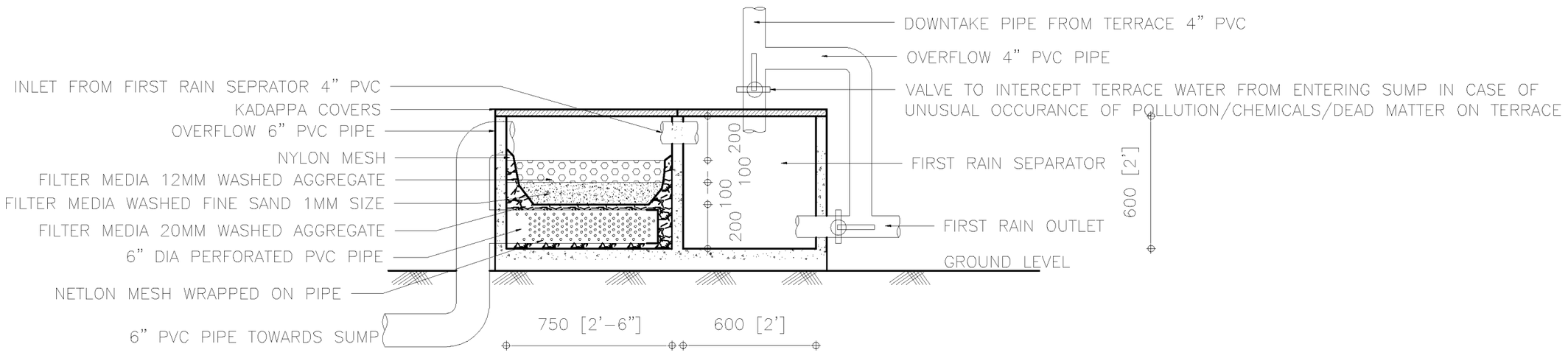
DRAWING NAME: RAINWATER HARVESTING SCHEME FOR COMMUNITY BLOCK	NORTH N	SCALE FIT TO A3	REVISIONS	DRG.NO. R-C-2	SIGN	POOJA JOSHI ARCHITECT 4,MANGALAM CHAMBERS PAUD ROAD, PUNE - 411 038 OFFICE TEL / FAX +91-20-254 426 48 pooja.chaphalkar@gmail.com
PROJECT NAME: PROPOSED WATERSCHEME FOR BMPTC		STAMP		DATE 10.10.12		



PLAN OF D1

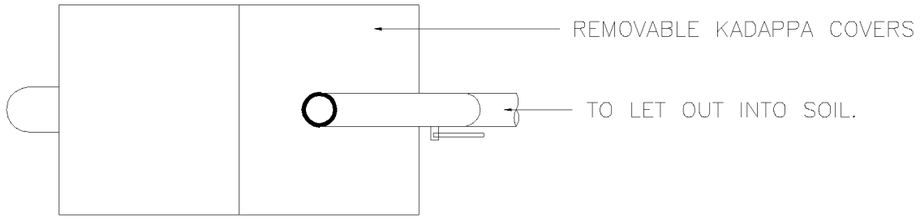


SECTIONAL PLAN

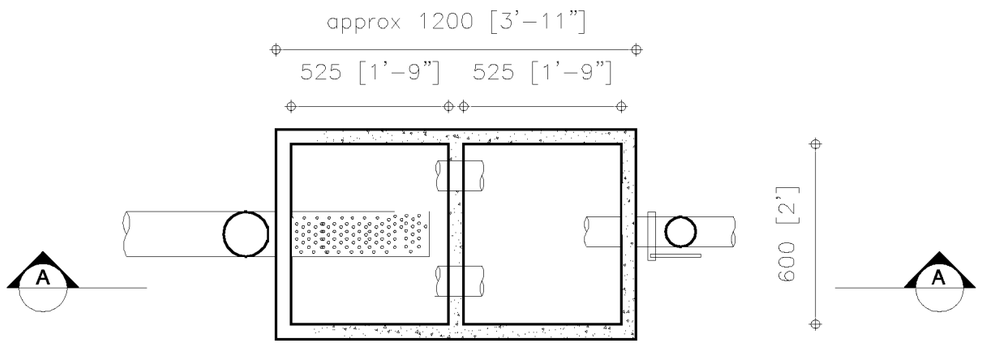


VERTICAL SECTION A-A

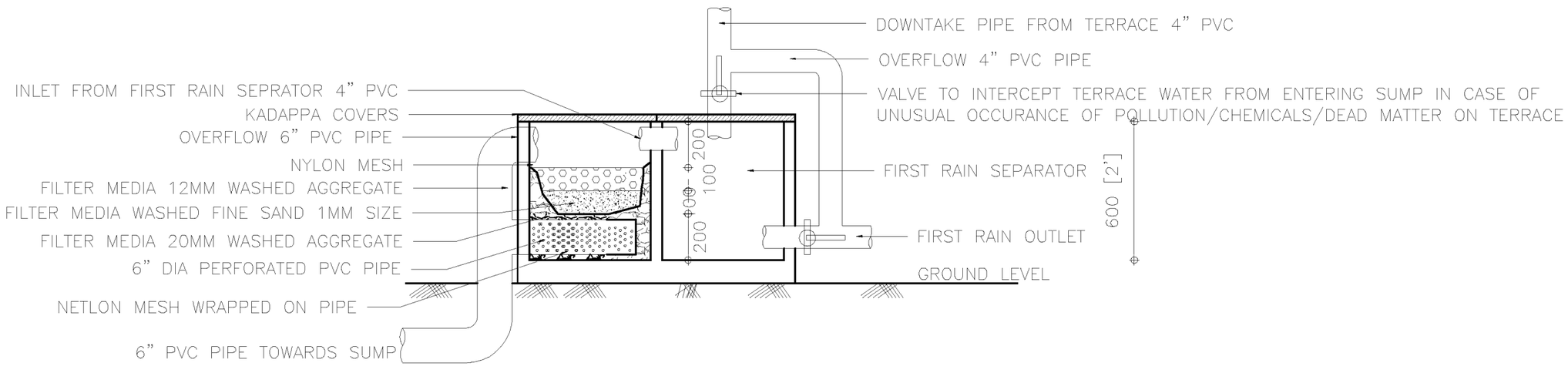
DRAWING NAME: TYPICAL FILTER DETAIL D1 FOR 100SQM TERRACE AREA	NORTH N	SCALE FIT TO A3	REVISIONS	DRG.NO. R-C-5	SIGN	POOJA JOSHI ARCHITECT 4,MANGALAM CHAMBERS PAUD ROAD, PUNE - 411 038 OFFICE TEL / FAX +91-20-254 426 48 pooja.chaphalkar@gmail.com
PROJECT NAME: PROPOSED WATERSCHEME FOR BMPTC		STAMP		DATE 10.10.12		



PLAN OF D2

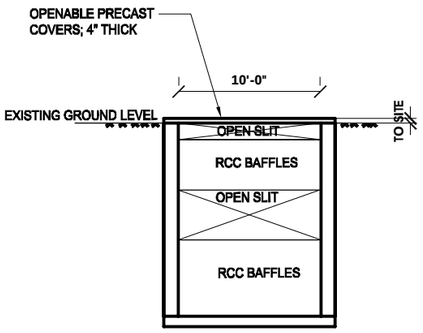


SECTIONAL PLAN

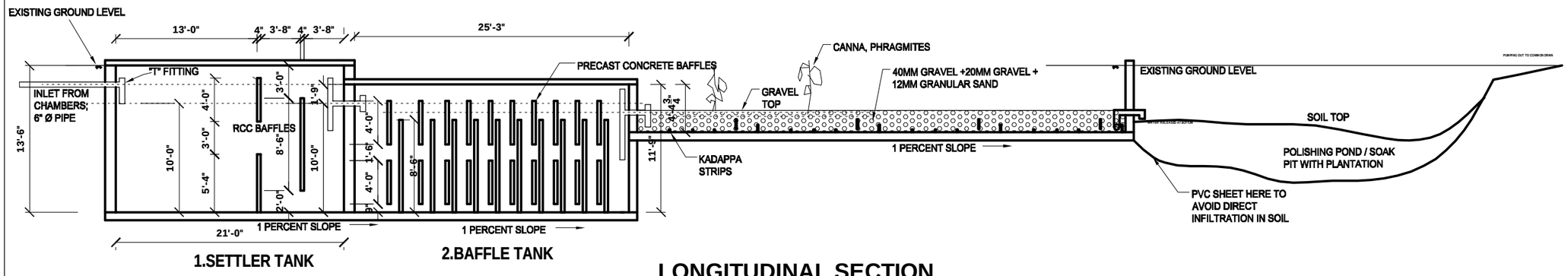


VERTICAL SECTION A-A

DRAWING NAME: TYPICAL FILTER DETAIL D2 FOR 40SQM TO 70SQM TERRACE AREA	NORTH N	SCALE FIT TO A3	REVISIONS	DRG.NO. R-C-6	SIGN	POOJA JOSHI ARCHITECT 4,MANGALAM CHAMBERS PAUD ROAD, PUNE - 411 038 OFFICE TEL / FAX +91-20-254 426 48 pooja.chaphalkar@gmail.com
PROJECT NAME: PROPOSED WATERSCHEME FOR BMPTC		STAMP		DATE 10.10.12		

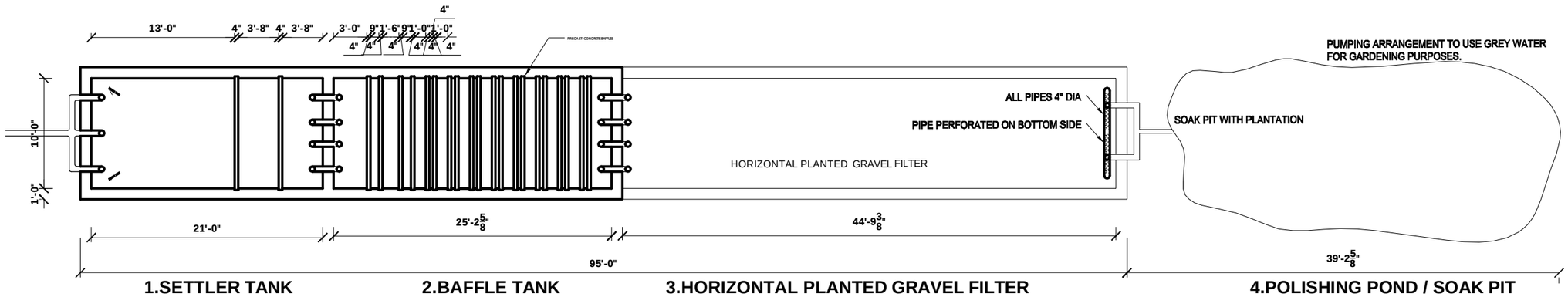


SECTION THROUGH SETTLER



LONGITUDINAL SECTION

LONGITUDINAL SECTION SHOWING ALL MODULES OF WASTE WATER TREATMENT PLANT



SECTIONAL PLAN SHOWING ALL MODULES OF WASTE WATER TREATMENT PLANT

ASSUMPTIONS:

1.BOD AT SOURCE: 300-400 mg/l
2.COD AT SOURCE: 600-800 mg/l
3. SETTLABLE SOLIDS: 250-350 mg/l

4.SLUDGE FROM SETTLER TANK TO BE REMOVED EVERY 12 MONTHS
5.SEWAGE FROM CLUSTER+ COMMUNITY HALL+SCHOOL COMBINED
6. GREY WATER FROM POLISHING POND TO BE PUMPED OUT ONLY FOR GARDENING THROUGH DRIP SYSTEM. NOT TO BE SPRAYED / USED FOR FLUSHING.

SYSTEM CALCULATED FOR 675 PERSONS FROM CLUSTER,
91 FROM SCHOOL
AND VARIABLE LOAD OF 579 PERSONS FROM COMMUNITY HALL.

DRAWING NAME: DRAWING OF SEWAGE TREATMENT PLANT FOR ESTIMATION PURPOSES	NORTH	SCALE FIT TO A3	REVISIONS	DRG.NO. R-C-8	SIGN
PROJECT NAME: PROPOSED WATERSCHEME FOR BMPTC		STAMP		DATE 10.10.12	

POOJA JOSHI
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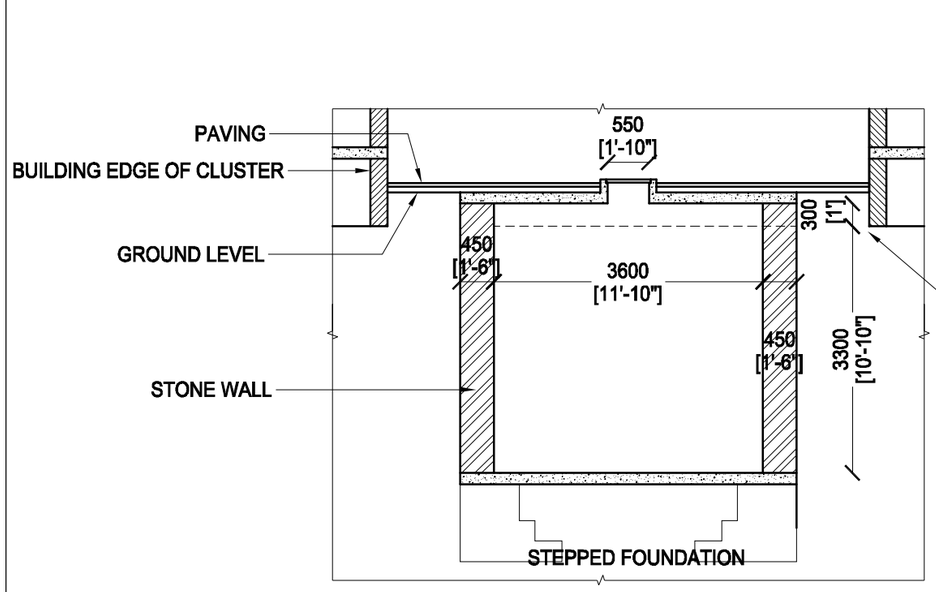
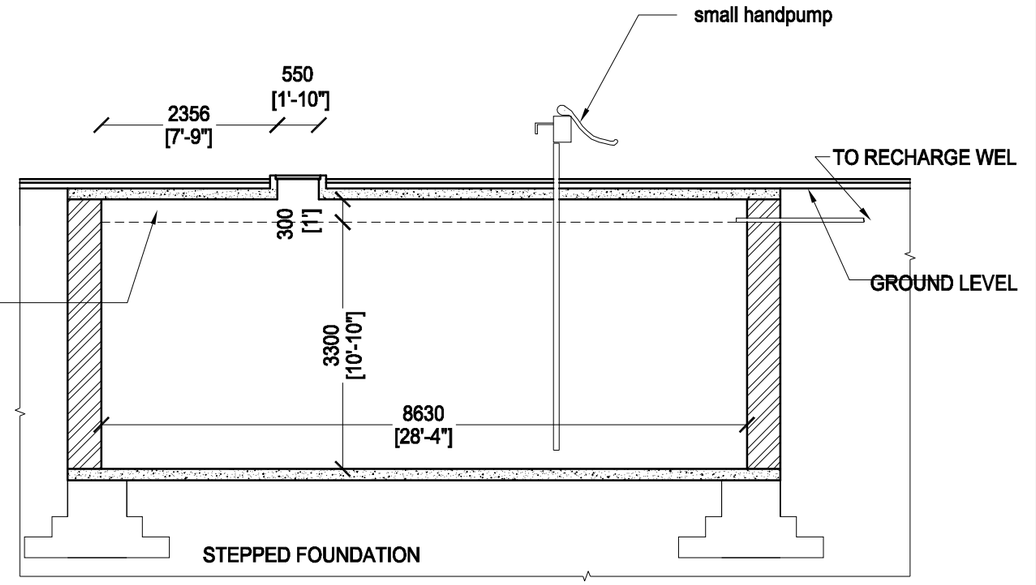
OFFICE TEL / FAX +91-20-254 426 48
pooja.chaphalkar@gmail.com



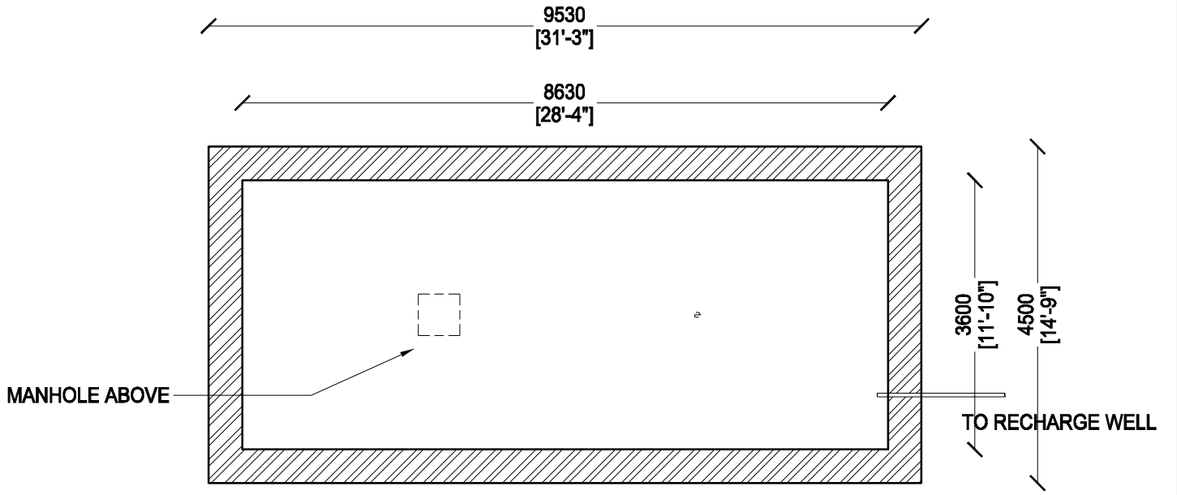
SECTION ALONG SHORT SIDE



SECTION ALONG LONG SIDE

CAPACITY:

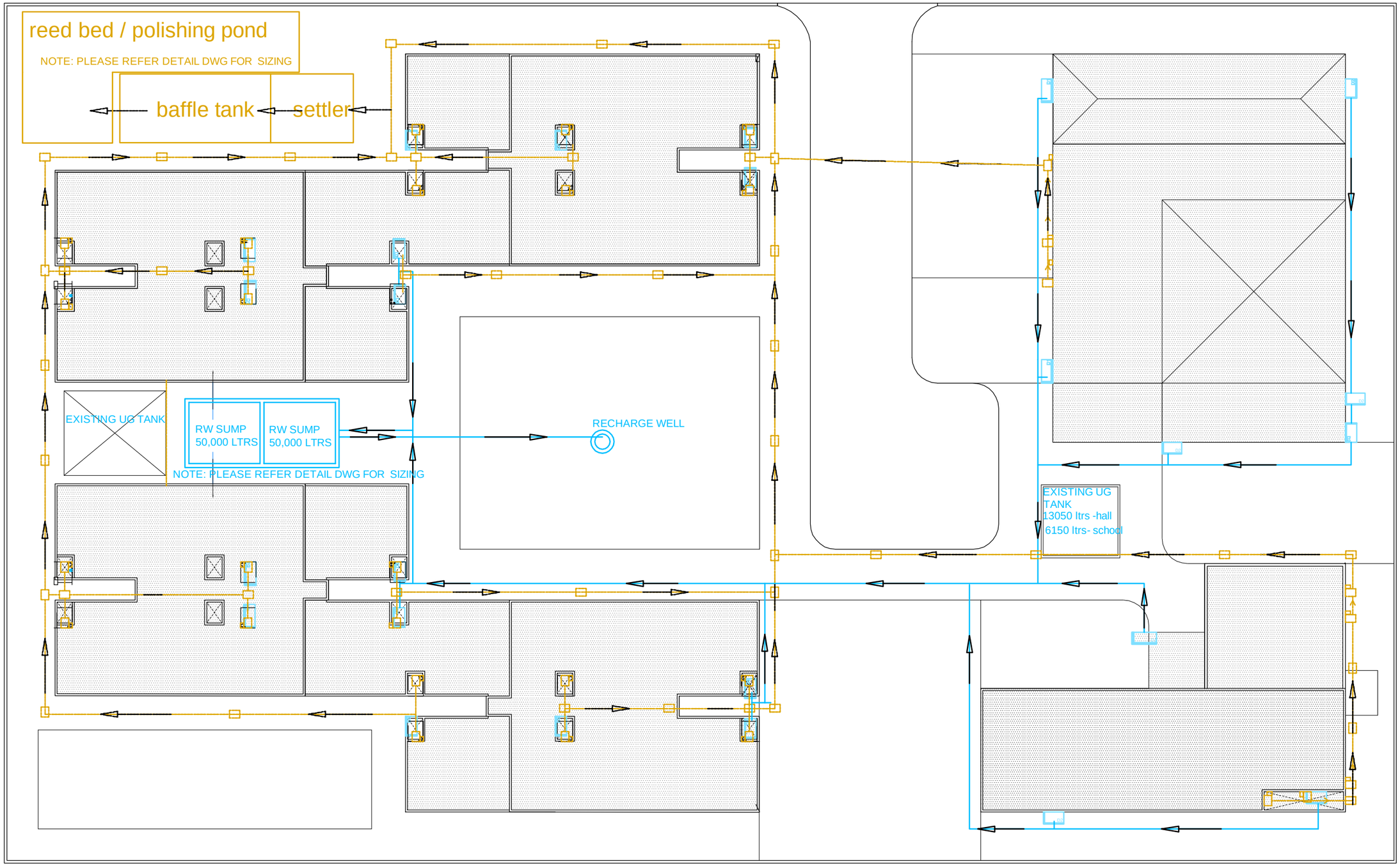
8.6M X 3.6M X 3.3M= 102METRIC CUBE = 1,02,000 LITRES



SECTIONAL PLAN

DRAWING NAME: TANK DETAILS FOR RAINWATER STORAGE	NORTH N	SCALE FIT TO A3	REVISIONS	DRG.NO. R-C-7	SIGN	POOJA JOSHI ARCHITECT 4,MANGALAM CHAMBERS PAUD ROAD, PUNE - 411 038 OFFICE TEL / FAX +91-20-254 426 48 pooja.chaphalkar@gmail.com
PROJECT NAME: PROPOSED WATERSCHEME FOR BMPTC ON BEHALF OF VKE		STAMP		DATE 10.10.12		

NOTE: LAND SLOPE NOT CONSIDERED HERE. IN CASE THE LAND IS SLOPING SOUTHWARDS THE DEWATS PLANT SHOULD BE PLACED IN THE SOUTH EAST CORNER



SITE PLAN SHOWING RAINWATER COLLECTION AREA, FILTER LOCATIONS AND PIPING NETWORK

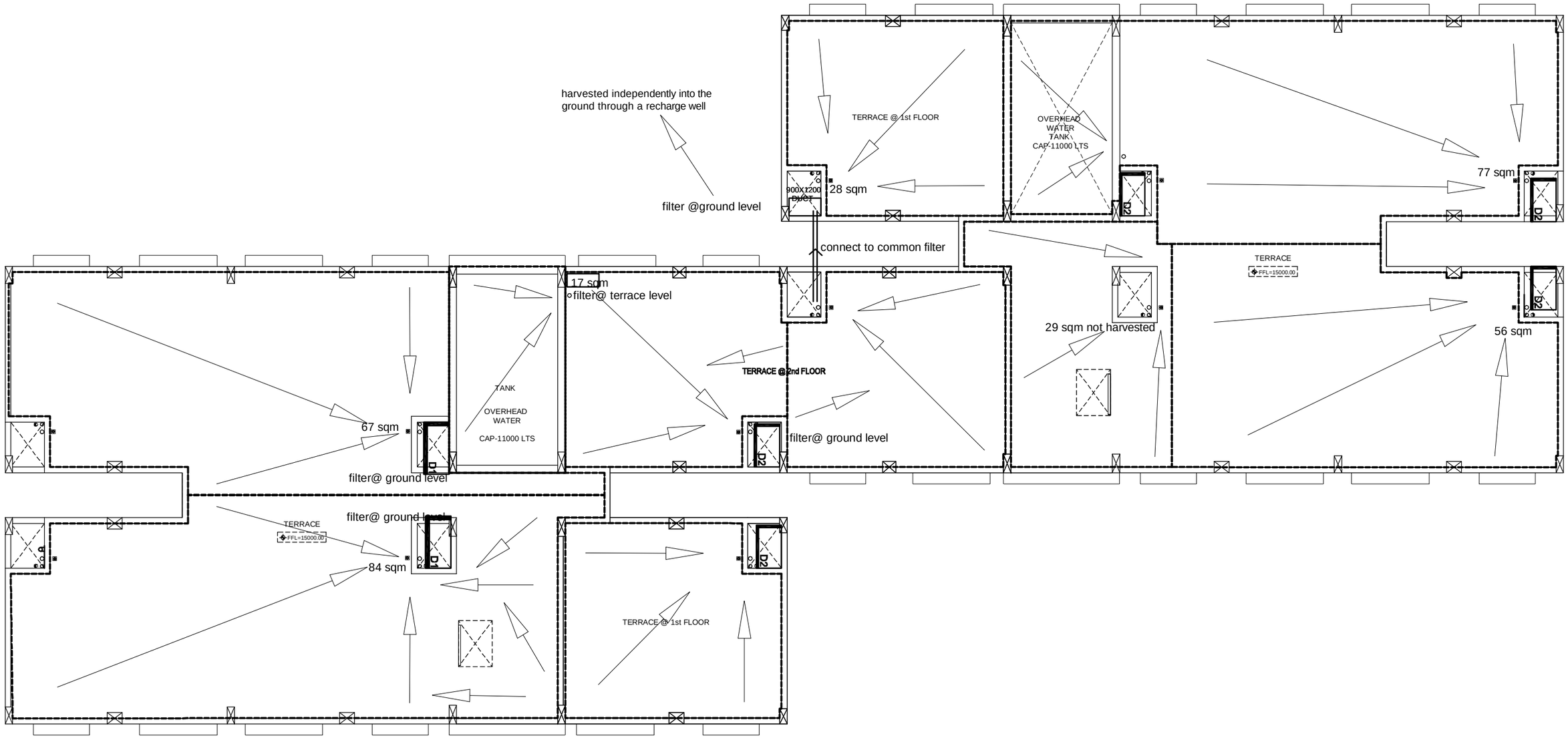
LEGEND

	SEWAGE LINE
	PIPE CARRYING HARVESTED AND FILTERED RAINWATER
	RWH FILTER D1:100 SQM AREA, D2: 40 TO 70SQM AREA
	RAINWATER HARVESTING COLLECTION SURFACE
°	4" RAINWATER DOWNTAKE PIPE
	INSPECTION CHAMBER

01)		150 MM THICK WALLS ARE HATCHED THUS.
02)		150 MM SUNKS ARE HATCHED THUS.
03)		150 MM THICK BRICKWORK.
04)		SOIL PIPE
05)	o	WASTE WATER PIPE
06)	o	RAIN WATER PIPE

DRAWING NAME:	RAINWATER HARVESTING AND WASTE WATER SCHEME FOR ENTIRE SITE	NORTH N	SCALE FIT TO A3	REVISIONS	DRG.NO. R-C-1	SIGN
PROJECT NAME:	PROPOSED RAINWATER AND SANITATION SCHEME FOR BMPTC		STAMP		DATE 10.10.12	

POOJA JOSHI
ARCHITECT
4,MANGALAM CHAMBERS PAUD ROAD, PUNE - 411 038
OFFICE TEL / FAX +91-20-254 426 48
pooja.chaphalkar@gmail.com



ROOF PLAN SHOWING DOWNTAKE LOCATIONS.

NOTE: FILTERS INDICATED IN THIS ROOF PLAN ARE ALL LOCATED AT GROUND LEVEL

LEGEND

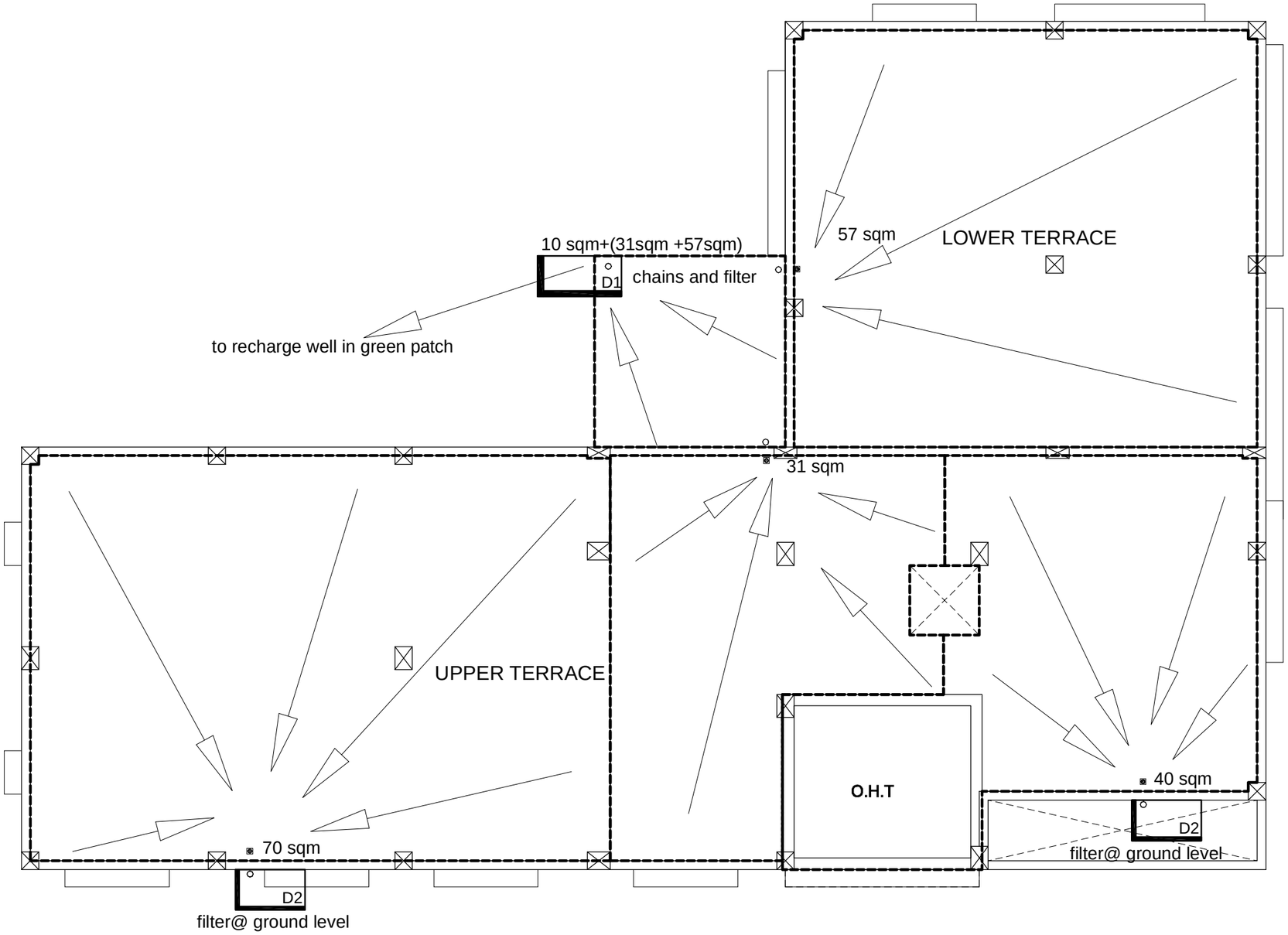
	FLOW OF RAIN WATER
	COLLECTION AREA FOR ONE DOWNTAKE PIPE
D1 D2	RWH FILTER D1:100 SQM AREA, D2: 40 TO 70SQM AREA
	RAINWATER HARVESTING COLLECTION SURFACE
○	4" RAINWATER DOWNTAKE PIPE
	INSPECTION CHAMBER

Legends:

01) 150 MM THICK WALLS ARE HATCHED THUS.
02) 150 MM SUNKS ARE HATCHED THUS.
03) 150 MM THICK BRICKWORK.
04) SOIL PIPE
05) WASTE WATER PIPE
06) RAIN WATER PIPE

DRAWING NAME: RAINWATER HARVESTING SCHEME FOR HOUSING CLUSTER	NORTH N	SCALE FIT TO A3	REVISIONS	DRG.NO. R-C-3	SIGN
PROJECT NAME: PROPOSED WATERSCHEME FOR BMPTC ON BEHALF OF VKE		STAMP		DATE 10.10.12	

POOJA JOSHI
ARCHITECT
4,MANGALAM CHAMBERS PAUD ROAD, PUNE - 411 038
OFFICE TEL / FAX +91-20-254 426 48
pooja.chaphalkar@gmail.com



ROOF PLAN SHOWING DOWNTAKE LOCATIONS FOR RAINWATER HARVESTING

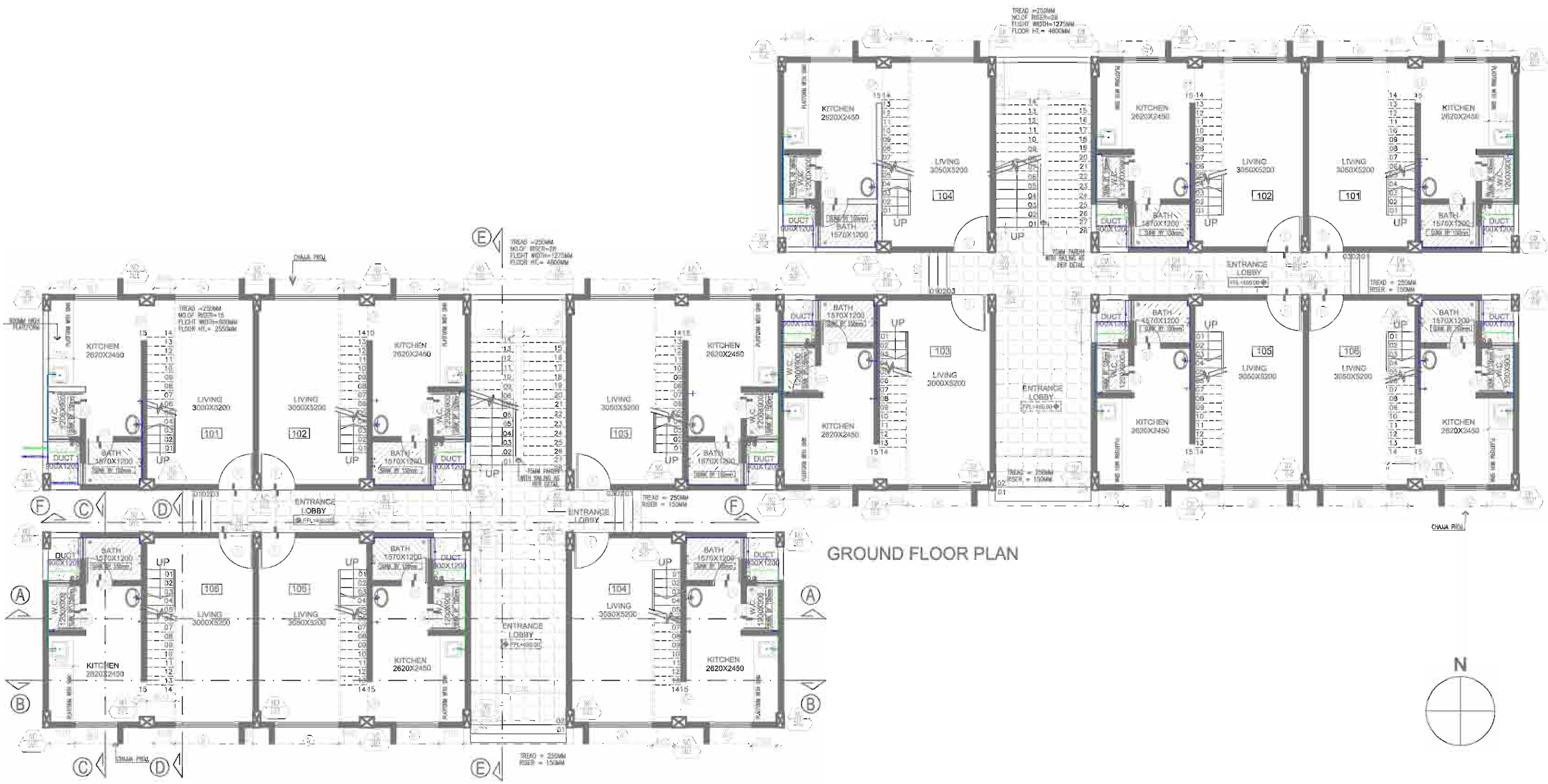
NOTE: FILTERS INDICATED IN THIS ROOF PLAN ARE ALL LOCATED AT GROUND LEVEL

LEGEND

◁———	FLOW OF RAIN WATER
- - - - - - - - - - - - - - -	COLLECTION AREA FOR ONE DOWNTAKE PIPE
D1 D2	RWH FILTER D1:100 SQM AREA, D2: 40 TO 70SQM AREA
	RAINWATER HARVESTING COLLECTION SURFACE
○	4" RAINWATER DOWNTAKE PIPE
[ ]	INSPECTION CHAMBER

DRAWING NAME: RAINWATER HARVESTING SCHEME FOR SCHOOL	NORTH N	SCALE FIT TO A3	REVISIONS	DRG.NO. R-C-4	SIGN	POOJA JOSHI ARCHITECT 4,MANGALAM CHAMBERS PAUD ROAD, PUNE - 411 038 OFFICE TEL / FAX +91-20-254 426 48 pooja.chaphalkar@gmail.com
PROJECT NAME: PROPOSED WATERSCHEME FOR BMPTC		STAMP		DATE 10.10.12		

GROUND FLOOR PLAN
CLUSTER UNIT



GROUND FLOOR PLAN

Srinivasan Venkataraman
301, ... complex,
Western
Express Highway, Malad, East,
MUMBAI-400097

Peeyush Sekhsaria
... Pune – 411044
T: +91 ... 221409

With

VK:a architecture
Regd
M/S Vikas Kulkarni Architects
8 Agarkar Bhawan
L B Shastri Road
Navi Peth
Pune 411 030

VK:a :e

Legends:

SCHEDULE OF OPENINGS											
TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	CILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1000	2100	2100	MAIN DOOR	W	1000	1050	2100	950	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	750	2100	2100	30MM THK WATERPROOF DOOR	W1	1100	1050	2100	950	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
OP	1000	2100	2100	OPENING ONLY	W2	1200	1050	2100	1200	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
					W3	1000	750	2100	1350	1 PANEL TOP HUNG FIXED WINDOW
					V	600	750	2100	1350	VENTILATOR WITH LOUVERS

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BMPTC Technology

Scale 1:100

GROUND FLOOR DOMESTIC WATER LAYOUT

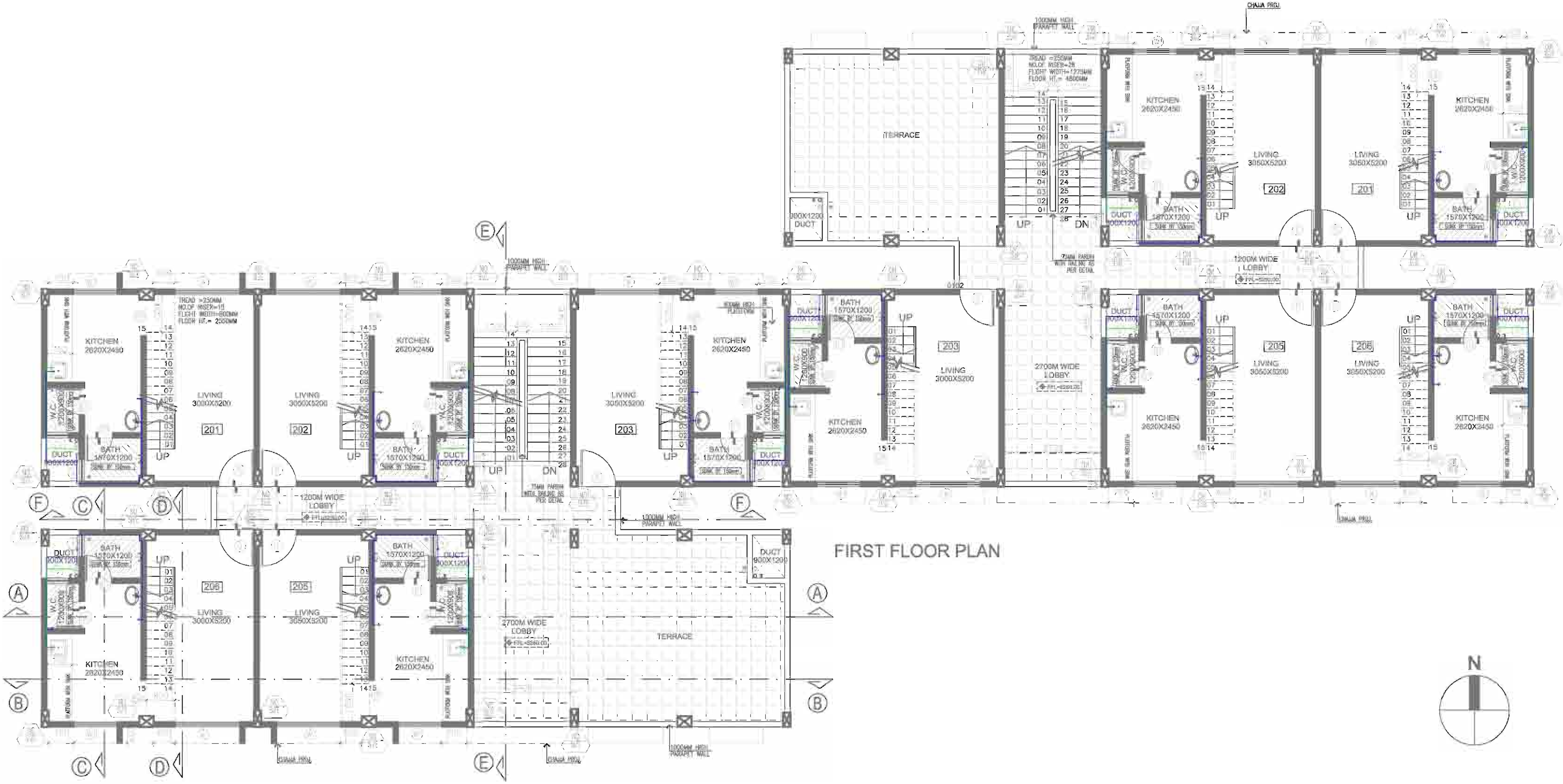
KC

Date 07/05/12

1021 | 302 | C

GOOD FOR CONSTRUCTION

FIRST FLOOR PLAN
CLUSTER UNIT



VK:a architecture

VK:a :e

Legends:

SCHEDULE OF OPENINGS										
TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1000	2100	2100	MAIN DOOR	W	1800	1650	2100	450	3 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	750	2100	2100	30MM THK WATERPROOF DOOR	W1	1200	1650	2100	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
OP	1000	2100	2100	OPENING ONLY	W2	1200	1050	2100	1050	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
					W3	1050	750	2100	1350	3 PANEL TOP HUNG FIXED WINDOW
					V	900	750	2100	1350	VENTILATION WITH LOUVERS

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1:100

FIRST FLOOR DOMESTIC WATER LAYOUT

KC

07/05/12

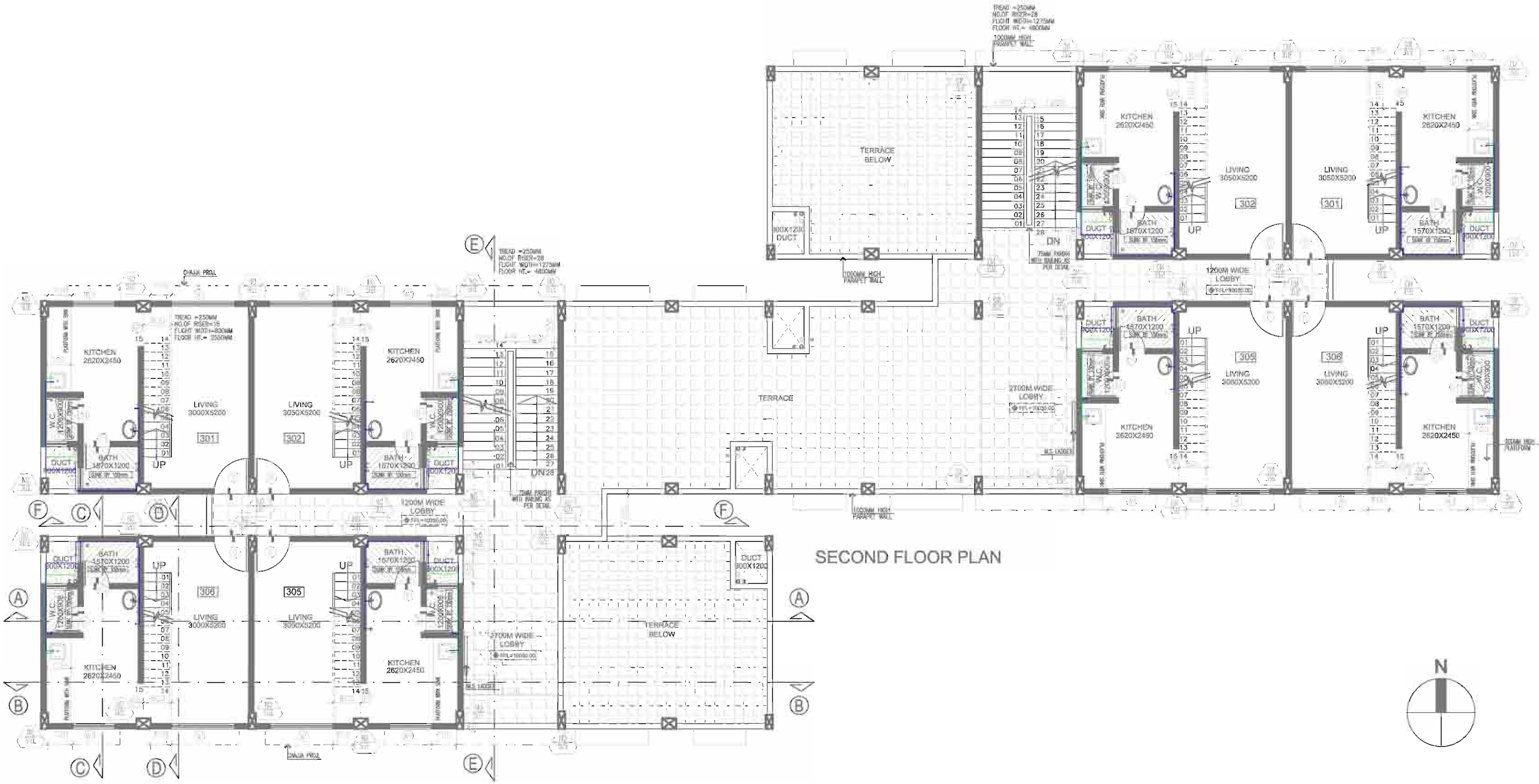
1021

304

C

GOOD FOR CONSTRUCTION

SECOND FLOOR PLAN
CLUSTER UNIT



SECOND FLOOR PLAN

Legends:

SCHEDULE OF OPENINGS											
TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION	
	WIDTH	HEIGHT				WIDTH	HEIGHT				
D	1000	2100	2100	MAIN DOOR	W	1800	1650	2100	450	[illegible] PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE	
D1	750	2100	2100	32MM THK WATERPROOF DOOR	W1	1200	1650	2100	450	[illegible] PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE	
OP	1000	2100	2100	OPENING ONLY	W2	1200	1650	2100	1200	[illegible] PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE	
					W3	1000	750	2100	1350	[illegible] PANEL TOP HUNG FIXED WINDOW	
					V	600	750	2100	1350	VENTILATOR WITH LOUVERS	

Srinaman Venkatraman
301, [illegible], Raheja complex,
Western
Express Highway, Malad, East,
MUMBAI-400097
T: +91 22 [illegible]
E: [illegible]@rediffmail.com

[illegible]
[illegible], Pune – 411044
T: +91 [illegible]221409
E: [illegible]@gmail.com

With

VK:a architecture
Regd.
M/S Vikramaa Kulkarni Architects
8 Agarkar Bhawan
L B Shastri Road
Navi Peth
Pune 411 030
t +91 20 [illegible]
+91 20 [illegible]
f +91 20 [illegible]
e mail@vkaarch.com
w www.vkaarch.com

VK:a :e

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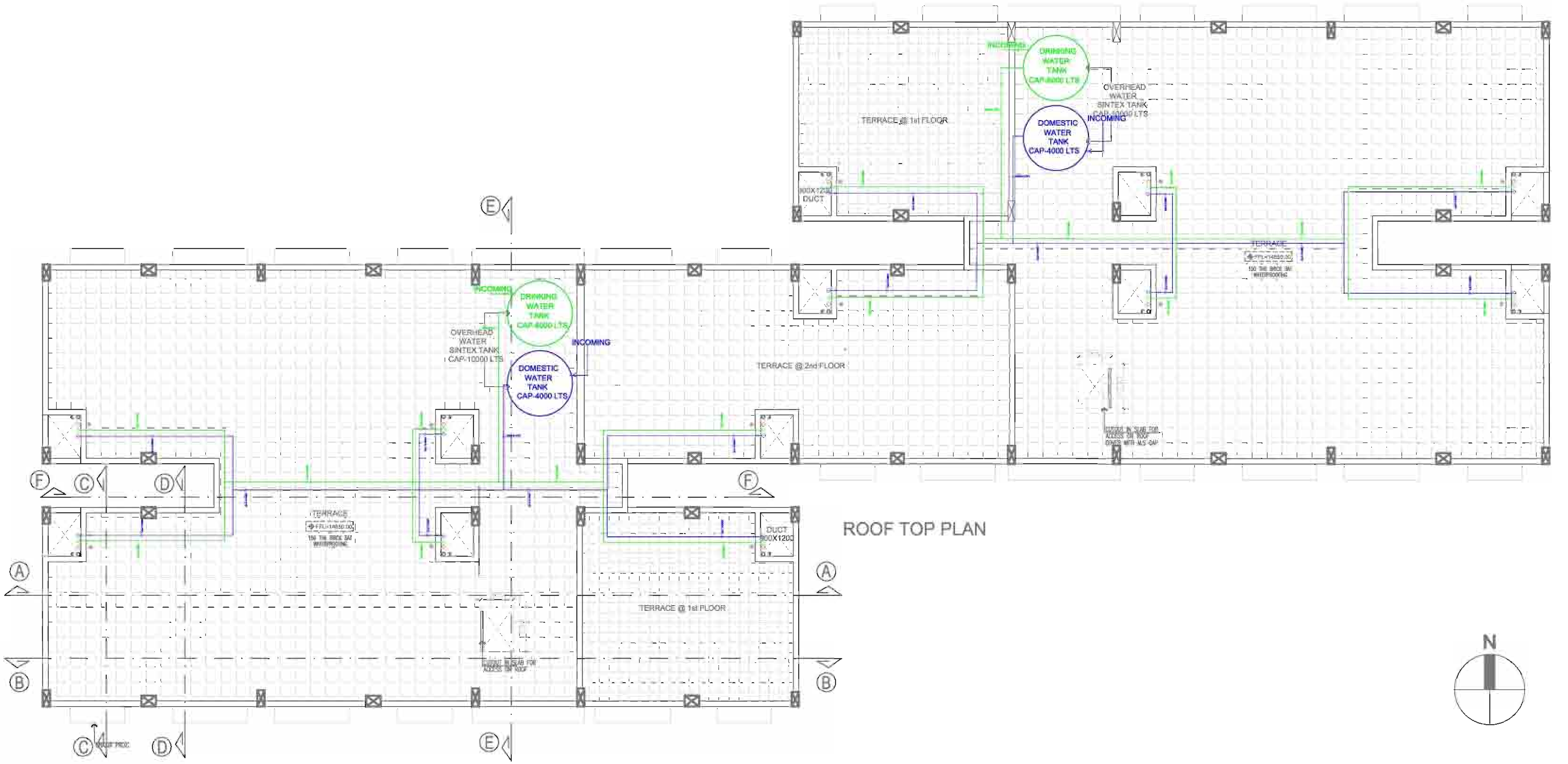
SECOND FLOOR DOMESTIC WATER LAYOUT

Drawing	Checked by	Date
KC		07/05/12
1021	306	C

GOOD FOR CONSTRUCTION

C	REV_AS_PER_INSTRUCTIONS	KC	SAS	[illegible]
B	REV_AS_PER_INSTRUCTIONS	KC	SAS	[illegible]
A	REV_AS_PER_INSTRUCTIONS	KC	SAS	21/10/11
REV	[illegible]	[illegible]	CK	[illegible]

ROOF TOP FLOOR PLAN
CLUSTER UNIT



ROOF TOP PLAN

Legends:

SCHEDULE OF OPENINGS											
TYPE	SIZE		LINTEL LEVEL	SPECIFICATION	TYPE	SIZE		LINTEL LEVEL	SILL LEVEL	SPECIFICATION
	WIDTH	HEIGHT				WIDTH	HEIGHT			
D	1000	2100	2100	MAIN DOOR	W	1800	1650	2100	450	3 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
D1	750	2100	2100	30MM THK WATERPROOF DOOR	W1	1200	1650	2100	450	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
OP	1000	2100	2100	OPENING ONLY	W2	1200	1050	2100	1200	2 PANEL WINDOW WITH MOSQUITO NET ON OUTERSIDE
					W3	1000	750	2100	1350	2 PANEL TOP HUNG FIXED WINDOW
					V	600	750	2100	1350	VENTILATION WITH LOUVERS

VK:a architecture

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TERRACE PLUMBING LAYOUT

Scale: 1:100

KC

Date: 07/05/12

1021 | 308 | C

GOOD FOR CONSTRUCTION

Over All Cost Summary

		Estimated Cost of construction in Rs.		
No.	Building	Conventional	Alternative	Savings in Rs.
A	Civil construction			
	i)Shelter clusters	39161327	35619994	3541333
	ii)School	4921670	4504741	416929
	iii)Community hall and kiosks	4385921	4111340	274581
	Sub-total	48468918	44236075	4232843
	% savings			**9.6%**
B	Site Layout and development	4190901	4190901	
C	Rainwater harvesting and storm water drainage	2215386	2215386	
D	Septic tank and waste water system	707266	707266	
E	Plumbing	5596305	5596305	
F	Electrical	2475740	2475740	
	i)Shelter	1395000		
	ii)Cluster entrance/common	740330		
	iii)School	151385		
	iv)Community hall and kiosks	189025		
Total Project cost		63654516	59421673	4232843
%savings on the total project cost				7.12%

10

Bill Of Quantities

Shelter cluster
School.
Community Hall and Kiosks
Site development
Septic tank and waste disposal
Rainwater harvesting and Drainage

BOQ For Shelter clusters 1,2,3 and 4 - 60 units

Building Name : Cluster House (1,2,3,4) **Alternative Technologies**

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1	2.3	05	**Earthwork excavation** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 mafter breaking of clods complete as per specifications	Cum	2,086.00	125.00	260,750
2	2.6	05	**Excavation** 1.5 m and above in width in **soft rock** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 m complete (Without Blasting)	Cum	596.00	585.00	348,660
3	2.8	05	**Excavation** for foundation in **Hard rock** by chiseling and/or wedging, where blasting is prohibited for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m in depth, stacking the excavated soil clear from the edges of excavation with lead upto 50 m including the cost of labour complete as per specifications	Cum	298.00	838.00	249,724
4	2.10	06	**Filling available excavated earth in sides of foundations up to plinth** in layers of 20 cm in depth, compacting each layer by ramming after watering with lead up to 50 m and lift up to 1.5 m including the cost of labour complete as per specifications	Cum	790.00	84.00	66,360
5	Non DSR	Non DSR	**Filling in plinth** floors and over areas with **contractors murum** in 15 to 20 cm. Layers including watering & compaction complete **(Specifications as per description of item & instructions from site in charge)**	Cum	1,190.00	450.00	535,500
6	3.2	09	Providing and injecting chemical emulsion for PRE-CONSTRUCTIONAL ANTI-termite treatment, creating a continuous chemical barrier under and all around the column pits, walls, trenches, basement excavation, top surface of the plinth filling, junction of wall and floor, along the external perimeter of building, surroundings of pipes and conduits etc. with Chlorpyriphos emulsifiable concentrates of 20% concentration, including cost of chemical, diluting in water to 1% concentration, labour, HOM of equipment, complete as per following specifications **(Plinth area of the building at ground floor only shall be measured for payment)** Chlorpyriphos emulsifiable concentrate 20% with 1% concentration. a) Treating the bottom and sides of excavation at the rate of 5 liters of emulsion per square meter of surface area. b) Treating the back fill in contact with foundation at the rate of 7.5 liters of emulsion per square meter of vertical surface c) Treating the top surface of filled earth at the rate of 5 liters of emulsion per square meter of surface. d)Treating the soil under plinth protection at the rate of 5 liters of emulsion per square meter of surface area. e) Treating the soil along with external perimeter of building at the rate of 2.25 liter of emulsion per meter of the perimeter wall.	Sqm	980.00	94.76	92,865
7	2.15	06	Providing and filling in foundation granite/trap broken metal 100mm and down size with approved sand including hand packing, ramming, watering including cost of all materials and labour with all lead and lift, complete as per specifications	Cum	260.00	1,051.00	273,260

SCHEDULE OF QUANTITIES							
SR.	**Sl. No.**	**Page No.**	**ITEMS DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
8	Non DSR	Non DSR	**Carting away** the excess excavated material obtained from the items of excavation and disposing the same off the site and at dumping place approved by PMC including loading, unloading and all leads and lifts complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	2,190.00	225.00	492,750
9	4.7	13	Providing and laying in position **plain cement concrete** of mix M10 grade with OPC @220 Kg, with 20 mm and down size graded metal coarse aggregate @0.84 cub.m and fine aggregate @0.56 cum, machine mixed, concrete laid in layers not exceeding 15 cm thick, well compacted in foundation, plinth and cills, including cost of all materials, labour, HOM of machinery, curing complete as per specifications	Cum	190.00	4,006.00	761,140
10			Providing and laying **Reinforced Cement Concrete of design mix M 20** with OPC @320 Kg, with 20 mm and down size graded metal coarse aggregate @0.878 cub.m and fine aggregate @0.459 cum, with super plasticizer @ 3 litres conforming to I.S.9103-1999 reaffirmed -2008, machine mixed, concrete laid in layers not exceeding 15 cm thick, vibrated for all works in foundation plinth and ground floor level for roof slabs, stair case, lintels, retaining walls, return walls, including attached pilasters, buttresses, columns, piers, abutments, pillars, lacing courses, parapets, coping, bed blocks, anchor blocks, plain window cills, fillets etc, including cost of al materials, labour, HOM of machinery, curing complete as per specifications (Excluding reinforcement steel)				
10 a	4.11	13	For **Footings and raft**	Cum	190.00	4851.00	921,690
10 b	4.17	15	For **Columns**	Cum	190.00	4851.00	921,690
10 c	4.11	13	For **Lintels**	Cum	2.00	4851.00	9,702
10 d	4.17	15	Plinth beams	Cum	56.00	4,851.00	271,656
10 e	4.17	15	Floor **beams**	Cum	276.00	4851.00	1,338,876
10 f	4.11	13	**Slabs and landings**	Cum	275.78	4851.00	1,337,809
			Slabs and landings- where filler slab is not possible	Cum	19.05	4851.00	92,412
10 g	4.20	15	For **Chajja`s**	Sq m	400.00	401.00	160,400
10 h	4.11	13	For **staircase waist slabs** and steps at all level	Cum	124.00	4851.00	601,524
11	4.28	16	**Shuttering For Footing, PCC, Raft**	Sq m	373.79	187.00	69,898
			KSRB 4-6.1 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **foundations, footings, bases** of columns for mass concrete including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
12	4.29	16	**Shuttering For Slab, Landing, Staircase**	Sq m	3557.21	240.00	853,731
			KSRB 4-6.2 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Flat Surface Such as Suspended Floors, roofs, landings, Balconies and likes thickness up to 200mm** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
13	4.32	17	**Shuttering For Column**	Sq m	2493.00	282.00	703,026
			KSRB 4-6.5 Providing and removing centering, shuttering, strutting, propping, etc**., f**or **Columns, pillars, piers, abutments, post and struts, square/ rectangular/ polygon,** in plan including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				

SCHEDULE OF QUANTITIES							
SR.	**Sl. No.**	**Page No.**	**ITEMS DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
14	4.34	17	**Shuttering For Beam , Chajja , Lintel**	Sq m	2750.95	206.00	566,696
			KSRB 4-6.7 Providing and removing centering, shuttering, strutting, propping, etc., and removal of form work for **Side and soffits of beams, beam haunchings, cantilever girders, Bressummers and lintels not exceeding 1m in depth** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
15	4.46	19	Providing and fixing in position **T.M.T. steel/ High** yield strength deformed steel bar (HYSD bar) reinforcement RCC work (footing, slabs, beams, columns, canopies, staircase, chajjas, lintel pardis, coping, etc) including straightening, cutting, bending, hooking, placing in position, lapping and /or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per . design (laps, hook and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete as per specifications	Quintal	1160.15	6781.00	7,866,977
16	38.18.2	292	Providing& Constructing 150 mm thk **clay hollow bricks masonry** of 400 X 200 X 150 mm perforated hollow clay Bricks cement mortar 1 : 6 for walls with minimum crushing strength of 35 Kg/Sq Cm including scaffolding, curing, etc, complete as directed at all levels.	Sqm	5450.72	476.00	2,594,543
17	10.2	68	Providing and laying integrated cement based **waterproofing** treatment including preparation of surface as required for treatment of roof, balconies and terraces consisting of the following application A) Applying and grouting a slurry coat of neat cement using 2.75 Kg per sq.m of cement admixed with proprietary water proofing compound conforming to I.S.2645 over the RCC slab after cleaning the surface before the treatment b)Laying cement concrete using broken brick bats 25 mm to 100 mm size with 50% of cement mortar 1:5 admixed with proprietary water proofing compound conforming to I.S.2645 over 20 mm thick layer of cement mortar 1:5 admixed with proprietary water proofing compound to required slope an treating similarly the adjoining walls and slabs C) After 2 days of proper curing, applying a second coat of cement slurry admixed with proprietary water proofing compound D) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 admixed with proprietary water proofing compound and finally finishing the surface with trowel and neat cement slurry and making of 300 mm x 300 mm square E) Then whole terrace so finished shall be flooded with water for a minimum period of 2 weeks for curing and for final testing including cost of materials, labour etc complete as per specifications	Sqm	872.00	650.00	566,800
18	Non DSR	Non DSR	providing **waterproofing** treatment to **sanitary blocks** consisting of one layer of B. B. coba of 5 to 7.5 cm thick in cement mortar 1:2 sandwich between two layers of cement mortar 1:4, 20mm thick mixed with waterproofing compound, top finishing one coat of cement slurry 6 to 12mm thick with waterproofing compound complete including waterproofing treatment to 45 cm height of wall in cement mortar 1:4 and covering 10 years guarantee on court fee stamp of Rs. 100 with pounding test including all lead, lift etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	180.00	1250.00	225,000

SCHEDULE OF QUANTITIES							
SR.	**Sl. No.**	**Page No.**	**ITEMS DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
19	15.21	121	Providing 12 mm thick (**internal) cement plaster** in single coat with cement mortar 1:3 to concrete or brick surfaces, ceiling including rounding off corners wherever required smooth rendering, providing and removing scaffolding including cost of materials, labour curing complete as per specifications	Sqm	14948.00	139.00	2,077,772
20	Non DSR	Non DSR	Providing **POP Plaster** 6 mm to 8 mm thick to plastered on ceilings in all positions including scaffolding etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	4122.00	110.00	453,420
21	15.33	122	Providing **neeru finish (lime rendering)** to plastered surfaces (in all positions for ceilings & Walls) and finishing smooth including scaffolding, cost of materials, labour and curing complete as per specifications.	Sqm	13928.00	15.80	220,062
22	15.18	121	Providing **20 mm cement plaster (External) single coat with cement mortar 1:3 to masonry & concrete surface** including rounding of corner wherever required smooth rendering,: providing & removing scaffolding including cost of material, labour, curing complete as per specification	Sqm	5884.00	189.00	1,112,076
23	14.9	110	Providing & Laying **red oxide flooring 40mm** thick with an under layer of 30 mm thick M15 cement concrete, using broken granite metal of 12.5 mm nominal size and top layer of 10 mm thick plaster with 1:3 cement mortar mixed with red oxide (Using 3.5 Kg of red oxide per 50kg of cement) finished with floating coat of neat cement mixed with red oxide (Mix of same proportion), including cost of materials labour curing, complete as per specifications.	Sq m	3,600.00	433.00	1,558,800
24	14.36.2	114	Providing and laying (anti skid) **ceramic tiles of approved make,** shade and size **(300 x 300mm x 7mm thick)** for **flooring**, treads of steps and landings laid on a bed of 12 mm thick cement mortar of 1:3 mix, flush pointing with white cement using colour pigment, including cost of materials, labour, curing complete as per specifications	Sqm	180.06	800.00	144,048
25	14.41.3	115	Providing skirting, dado and risers of steps with **Coloured glazed tiles** of size **300 x 450mm** and 5 to 6mm thick on 10 mm thick cement plaster 1:3 mix and jointed with white cement slurry over rough plaster surface (exclusing cost of rough plaster surface which should be measured paid separately) using glazed tiles of aproved make, including cost of materials, labour abd curing complete as per specifications	Sqm	1020.00	1150.00	1,173,000
26	Non DSR	Non DSR	**Kitchen Otta** shall be **Green Marble and Nirali** Make stainless steel Kitchen, sink of size 19" x 16". The width of the Kitchen Otta shall be 0.7 meter. The front fascia of 100 mm width shall be provided of granite. Granite slab of sufficient dimensions to cover stainless sink area and nahani trap below it shall be provided. Supporting system shall be 25 mm thick kadappa slabs in double layers for Vertical supports and 35 mm thick kadappa Slab below granite top. The working drawing of the Kitchen Otta shall be got approved from Engineer-in- charge if required the fixing shall be done by resin adhesive for the facia. The stainless sink shall be of the best quality available in the market with the I.S.I. mark. The best **(Specifications as per description of item & instructions from site in charge)**	Rmt	147.00	5500.00	808,500
27	Non DSR	Non DSR	Providing and fixing **solid core flush door** in single leaf 35 mm thick with both side painting, all necessary beads, molding and lipping, brass oxidized fixtures and fastenings with ISI marked mortise lock, Brass handles on both side, Tower bolt from inside, finishing with french polishing etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	134.00	2700.00	361,800

SCHEDULE OF QUANTITIES							
SR.	**Sl. No.**	**Page No.**	**ITEMS DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
28	9.98	65	Providing and fixing **RCC door frame** factory manufactured, with C.C 1: 1.5:3 reinforced with 3 nos of 6mm dia main bars and 6 mm dia stirrrups welded at 30 cm c/c , vibrating, curing including cost of steel and fabrication charges having 3 nos of hinges with 20 mmx 3 mm MS flat welded with required iron rods and flats with drilling and fixing 4 nos of flat screw nuts each in concrete for fixing hinges and making necessary provision in concrete for fixing aldrops, tower bolts etc including cost ofmone coat of oil bsaed enamel primer, 4 nos of hold fasts, 3 nos ISS Iron oxidised hinges necessary metal screws etc complete - 60 mm x 100 mm size door frames	Rmt	910.00	198.00	180,180
29	9.83	62	Providing and fixing 30 mm thick factory made rigid foam panelled door shutters made from MS tuve of 19 gauge thickness, size 19 x 19 mm for styles and 15 mm x 15 mm for top and bottom rails, covered with heat moulded PVC channel of 5 mm thick sheet and 30 mm x 50 mm wide to form styles and 5 mm thick and 75 mm wide PVC sheets for top rail, lock rail and bottom rial on either side and 5 mm thick and 20 mm wide PVS sheetsas gap insert for top rail and botom rail, panelling of 5 mm thick PVC sheet fitted in the MS frame, sealed to the styles and rails with 5 mm x 30 mm PVC sheet beading on wither side and joined together with solvent cement adhesive etc complete as per specification fixed to frames with 3 nos. of 75 mm Aluminium hinges	Sqm	190.00	1889.00	358,910
30	7.8	37	Providing and fixing in position in cement concrete 1:3:6 steel glazed windows and ventilators side hung/top hung 2/3 openable 1/3 fixed as per approved drawings using Z angles of 25 mm x 33 mm x 3 mm weighing 1.419 Kg/m both for outer and inner frames and central mullion section of size 25 x 46 x 3 mm , weighing 2.28 Kg/m all duty providing T section 19 x 19 x 3 mm weighing 0.838 Kg/m for glazing of windows, not more than 34 cm c/c including providing and fixing 4 mm thick reeded glass with teak wood beading of required size, all of steel sections conforming to I.S.7452-1990, 4 nos of holdfasts of approved size, section should be cut to length welded and grinded electrically subdividing frames of unit shall be tenonned and rivetted inot frames electrically. ALl the stel surface shall be throughly cleaned free of rust and painted with one coat of anti-corrosive paint and finishing 2 coats of ready mix paint of approved colour and make including cost of materials, fixtures, labour charges and HOM of machinery finishing the surface with tra	Sq m	498.00	2619.00	1,304,262
31	7.9	37	Providing & fixing **M. S. Grill work** for windows & Ventilators weighing 21 Kg/Sqm using M.S. Flat or M.S. Square rods, or combination of M.S. Flat and square rods as per approved design, drawings including cutting, steel sections and welding the same to required pattern with a coat of red lead primer , cost of material , fixtures , labour and HOM of machinery complete as per specifications	Kg	10458.00	87.00	909,846
32	15.74	128	Providing & applying **Enamel Metal Paint 2 coats** (Excluding Priming Coat) **over new steel or other metal surface** brushing to give an even shade after cleaning, oil, grease, dirt & other foreign matter, including cost of material , labour, complete as per specification	Sq m	498.00	69.00	34,362

SCHEDULE OF QUANTITIES							
SR.	**Sl. No.**	**Page No.**	**ITEMS DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
33	7.80	37	Z Section **Louvered Window** in position in cement concrete 1:3:6 steel glazed windows and ventilators side hung/top hung 2/3 openable 1/3 fixed as per approved drawings using Z angles of 25 mm x 33 mm x 3 mm weighing 1.419 Kg/m both for outer and inner frames and central mullion section of size 25 x 46 x 3 mm , weighing 2.28 Kg/m all duty providing T section 19 x 19 x 3 mm weighing 0.838 Kg/m for glazing of windows, not more than 34 cm c/c including providing and fixing 4 mm thick reeded glass with teak wood beading of required size, all of steel sections conforming to I.S.7452-1990, 4 nos of holdfasts of approved size, section should be cut to length welded and grinded electrically subdividing frames of unit shall be tenonned and rivetted into frames electrically. ALl the stel surface shall be throughly cleaned free of rust and painted with one coat of anti-corrosive paint and finishing 2 coats of ready mix paint of approved colour and make including cost of materials, fixtures, labour charges and HOM of machifinishing the surface with trowel a	Sq m	54.00	2619.00	141,426
34	7.35	47	Providing & fixing M**ild Steel** handrailing to **Staircase/Balcony** with 50 mm dia MS hollow pipes of 14 gauge, welded to 20 mm x 20 mm MS sqaure rod placed vertically, spaced at 100 mm at regular intervals of 600 mm. These vertical rods laterally tied to 3 horizontal rods spaced at equal interval. This assembly is fixed to concrete by using expansion bolts and welding the same to reinforcement bars and making good the surface. All hte joints and sectionms should be cut to length, weleded and grinded wherever necessary etc, complete including cost of all materials, labour charges, hire charges for welding, cutting and grinding equipment, electricity charges etc as per specifications	Rmt	330.00	2390.00	788,700
35	Non DSR	Non DSR	450 mm wide **M.S. ladder** for Bedroom to Top terrace, 50 mm vertical & horizontal round pipe with one coat of red oxide & two coats of oil paint etc. **(Specifications as per description of item & instructions from site in charge)**	No	16.00	10,000.00	160,000
36	15.49.2	124	Providing & applying 2 coats of **Oil Bound Distemper Paint (washable)** of approved shade and brand on wall surface including one coat of distemper primer after thoroughly brooming the surface free from mortar drops and other foreighn matter inlcuding preparing the surface even and sand paper smooth, including cost of materials, labour complete as per specifications- including applying oil bound distemper on ceillings	Sqm	18050.00	53.20	960,260
37	15.53.2	125	Providing and finsihing external walls in **2 coats with water proof cement paint** of approved brand and shade to give an even shade after thoroughly brooming the surface to remove all dirt and loose powder material free from morat drops and other foriegn matter including cost of materials, labour complee as per specifications	Sqm	5884.00	62.00	364,808
38	13.78	102	Providing & placing on **terrace, Polyethylene water storage tanks** with manhole, lid & Suitable locking arrangement, making holes of suitable dia. For inlet, outlet & OVERFLOW pipes including cost of all material, labour & transport charges, HOM of equipment & testing as per specification(10000 Liters) etc complete.	No	4.00	64,510.00	258,040
39	Non DSR	Non DSR	Providing & Laying **225 X 225 X 50 mm Fly ash filler blocks** on slab shuttering @ 300 C/C and as per instructions from the Engineer Incharge	No	27,390.00	2.42	66,284
			TOTAL OF CIVIL WORK ITEMS				**35,619,994**

BOQ For Shelter clusters 1,2,3 and 4 - 60 units

Building Name : Cluster House (1,2,3,4) Conventional Technologies

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1	2.3	05	**Earthwork excavation** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 metre after breaking of clods complete as per specifications	Cum	2,086.00	125.00	260,750
2	2.6	05	**Excavation** 1.5 m and above in width in **soft rock** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 m complete (Without Blasting)	Cum	596.00	585.00	348,660
3	2.8	05	**Excavation** for foundation in **Hard rock** by chiseling and/or wedging, where blasting is prohibited for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m in depth, stacking the excavated soil clear from the edges of excavation with lead upto 50 m including the cost of labour complete as per specifications	Cum	298.00	838.00	249,724
4	2.10	06	**Filling available excavated earth in sides of foundations up to plinth** in layers of 20 cm in depth, compacting each layer by ramming after watering with lead up to 50 m and lift up to 1.5 m including the cost of labour complete as per specifications	Cum	790.00	84.00	66,360
5	Non DSR	Non DSR	**Filling in plinth** floors and over areas with **contractors murum** in 15 to 20 cm. Layers including watering & compaction complete **(Specifications as per description of item & instructions from site in charge)**	Cum	1,190.00	450.00	535,500
6	3.2	09	Providing and injecting chemical emulsion for PRE-CONSTRUCTIONAL ANTI-termite treatment, creating a continuous chemical barrier under and all around the column pits, walls, trenches, basement excavation, top surface of the plinth filling, junction of wall and floor, along the external perimeter of building, surroundings of pipes and conduits etc. with Chlorpyriphos emulsifiable concentrates of 20% concentration, including cost of chemical, diluting in water to 1% concentration, labour, HOM of equipment, complete as per following specifications **(Plinth area of the building at ground floor only shall be measured for payment)** Chlorpyriphos emulsifiable concentrate 20% with 1% concentration. a) Treating the bottom and sides of excavation at the rate of 5 liters of emulsion per square meter of surface area. b) Treating the back fill in contact with foundation at the rate of 7.5 liters of emulsion per square meter of vertical surface c) Treating the top surface of filled earth at the rate of 5 liters of emulsion per square meter of surface. d)Treating the soil under plinth protection at the rate of 5 liters of emulsion per square meter of surface area.	Sqm	980.00	94.76	92,865
7	2.15	06	Providing and filling in foundation granite/trap broken metal 100mm and down size with approved sand including hand packing, ramming, watering including cost of all materials and labour with all lead and lift, complete as per specifications	Cum	260.00	1,051.00	273,260

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
8	Non DSR	Non DSR	**Carting away** the excess excavated material obtained from the items of excavation and disposing the same off the site and at dumping place approved by PMC including loading, unloading and all leads and lifts complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	2,190.00	225.00	492,750
9	4.7	13	Providing and laying in position **plain cement concrete** of mix M10 grade with OPC @220 Kg, with 20 mm and down size graded metal coarse aggregate @0.84 cub.m and fine aggregate @0.56 cum, machine mixed, concrete laid in layers not exceeding 15 cm thick, well compacted in foundation, plinth and cills, including cost of all materials, labour, HOM of machinery, curing complete as per specifications	Cum	190.00	4,006.00	761,140
10			Providing and laying **Reinforced Cement Concrete of design mix M 20** with OPC @320 Kg, with 20 mm and down size graded metal coarse aggregate @0.878 cub.m and fine aggregate @0.459 cum, with super plasticizer @ 3 litres conforming to I.S.9103-1999 reaffirmed -2008, machine mixed, concrete laid in layers not exceeding 15 cm thick, vibrated for all works in foundation plinth and ground floor level for roof slabs, stair case, lintels, retaining walls, return walls, including attached pilasters, buttresses, columns, piers, abutments, pillars, lacing courses, parapets, coping, bed blocks, anchor blocks, plain window cills, fillets etc, including cost of al materials, labour, HOM of machinery, curing complete as per specifications (Excluding reinforcement steel)				
10 a	4.11	13	For **Footings and raft**	Cum	190.00	4851.00	921,690
10 b	4.17	15	For **Columns**	Cum	190.00	4851.00	921,690
10 c	4.11	13	For **Lintels**	Cum	2.00	4851.00	9,702
10 d	4.17	15	Plinth beams	Cum	56.00	4,851.00	271,656
10 e	4.17	15	Floor **beams**	Cum	276.00	4851.00	1,338,876
10 f	4.11	13	**Slabs and landings**	Cum	345.11	4851.00	1,674,129
			Slabs and landings- where filler slab is not possible	Cum	19.05	4851.00	92,412
10 g	4.20	15	For **Chajja`s**	Sq m	400.00	401.00	160,400
10 h	4.11	13	For **staircase waist slabs** and steps at all level	Cum	124.00	4851.00	601,524
11	4.28	16	**Shuttering For Footing, PCC, Raft**	Sq m	373.79	187.00	69,898
			KSRB 4-6.1 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **foundations, footings, bases** of columns for mass concrete including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
12	4.29	16	**Shuttering For Slab, Landing, Staircase**	Sq m	3557.21	240.00	853,731
			KSRB 4-6.2 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Flat Surface Such as Suspended Floors, roofs, landings, Balconies and likes thickness up to 200mm** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
13	4.32	17	**Shuttering For Column**	Sq m	2493.00	282.00	703,026
			KSRB 4-6.5 Providing and removing centering, shuttering, strutting, propping, etc**., f**or **Columns, pillars, piers, abutments, post and struts, square/ rectangular/ polygon,** in plan including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
14	4.34	17	**Shuttering For Beam , Chajja , Lintel** KSRB 4-6.7 Providing and removing centering, shuttering, strutting, propping, etc., and removal of form work for **Side and soffits of beams, beam haunchings, cantilever girders, Bressummers and lintels not exceeding 1m in depth** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2	Sq m	2750.95	206.00	566,696
15	4.46	19	Providing and fixing in position **T.M.T. steel/ High** yield strength deformed steel bar (HYSD bar) reinforcement RCC work (footing, slabs, beams, columns, canopies, staircase, chajjas, lintel pardis, coping, etc) including straightening, cutting, bending, hooking, placing in position, lapping and /or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per . design (laps, hook and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete as per specifications	Quintal	1160.15	6781.00	7,866,977
16	6.6	30	Providing and constructing burnt brick masonry 230 mm thick for superstructure with approved quality of standard size of class 50 with cement mortar 1:6 including cost of materials, labour and scaffolding etc complete as per specifications	Sqm	5450.72	1037.76	5,656,539
17	10.2	68	Providing and laying integrated cement based **waterproofing** treatment including preparation of surface as required for treatment of roof, balconies and terraces consisting of the following application A) Applying and grouting a slurry coat of neat cement using 2.75 Kg per sq.m of cement admixed with proprietary water proofing compound conforming to I.S.2645 over the RCC slab after cleaning the surface before the treatment b)Laying cement concrete using broken brick bats 25 mm to 100 mm size with 50% of cement mortar 1:5 admixed with proprietary water proofing compound conforming to I.S.2645 over 20 mm thick layer of cement mortar 1:5 admixed with proprietary water proofing compound to required slope an treating similarly the adjoining walls and slabs C) After 2 days of proper curing, applying a second coat of cement slurry admixed with proprietary water proofing compound D) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 admixed with proprietary water proofing compound and finally finishing the surface with trowel and neat cement slurry and making of 300 mm x 300 mm square E) Then whole terrace so finished shall be flooded with water for a minimum period of 2 weeks for curing and for	Sqm	872.00	650.00	566,800
18	Non DSR	Non DSR	providing **waterproofing** treatment to **sanitary blocks** consisting of one layer of B. B. coba of 5 to 7.5 cm thick in cement mortar 1:2 sandwich between two layers of cement mortar 1:4, 20mm thick mixed with waterproofing compound, top finishing one coat of cement slurry 6 to 12mm thick with waterproofing compound complete including waterproofing treatment to 45 cm height of wall in cement mortar 1:4 and covering 10 years guarantee on court fee stamp of Rs. 100 with pounding test including all lead, lift etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	180.00	1250.00	225,000
19	15.21	121	Providing 12 mm thick (**internal) cement plaster** in single coat with cement mortar 1:3 to concrete or brick surfaces, ceiling including rounding off corners wherever required smooth rendering, providing and removing scaffolding including cost of materials, labour curing complete as per specifications	Sqm	14948.00	139.00	2,077,772

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
20	Non DSR	Non DSR	Providing **POP Plaster** 6 mm to 8 mm thick to plastered on ceilings in all positions including scaffolding etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	4122.00	110.00	453,420
21	15.33	122	Providing **neeru finish (lime rendering)** to plastered surfaces (in all positions for ceilings & Walls) and finishing smooth including scaffolding, cost of materials, labour and curing complete as per specifications.	Sqm	13928.00	15.80	220,062
22	15.18	121	Providing **20 mm cement plaster (External) single coat with cement mortar 1:3 to masonry & concrete surface** including rounding of corner wherever required smooth rendering,: providing & removing scaffolding including cost of material, labour, curing complete as per specification	Sqm	5884.00	189.00	1,112,076
23	14.9	110	Providing & Laying **red oxide flooring 40mm** thick with an under layer of 30 mm thick M15 cement concrete, using broken granite metal of 12.5 mm nominal size and top layer of 10 mm thick plaster with 1:3 cement mortar mixed with red oxide (Using 3.5 Kg of red oxide per 50kg of cement) finished with floating coat of neat cement mixed with red oxide (Mix of same proportion), including cost of materials labour curing, complete as per specifications.	Sq m	3,600.00	433.00	1,558,800
24	14.36.2	114	Providing and laying (anti skid) **ceramic tiles of approved make,** shade and size **(300 x 300mm x 7mm thick)** for **flooring**, treads of steps and landings laid on a bed of 12 mm thick cement mortar of 1:3 mix, flush pointing with white cement using colour pigment, including cost of materials, labour, curing complete as per specifications	Sqm	180.06	800.00	144,048
25	14.41.3	115	Providing skirting, dado and risers of steps with **Coloured glazed tiles** of size **300 x 450mm** and 5 to 6mm thick on 10 mm thick cement plaster 1:3 mix and jointed with white cement slurry over rough plaster surface (exclusing cost of rough plaster surface which should be measured paid separately) using glazed tiles of aproved make, including cost of materials, labour abd curing complete as per specifications	Sqm	1020.00	1150.00	1,173,000
26	Non DSR	Non DSR	**Kitchen Otta** shall be **Green Marble and Nirali** Make stainless steel Kitchen, sink of size 19" x 16". The width of the Kitchen Otta shall be 0.7 meter. The front fascia of 100 mm width shall be provided of granite. Granite slab of sufficient dimensions to cover stainless sink area and nahani trap below it shall be provided. Supporting system shall be 25 mm thick kadappa slabs in double layers for Vertical supports and 35 mm thick kadappa Slab below granite top. The working drawing of the Kitchen Otta shall be got approved from Engineer-in- charge if required the fixing shall be done by resin adhesive for the facia. The stainless sink shall be of the best quality available in the market with the I.S.I. mark. The best **(Specifications as per description of item & instructions from site in charge)**	Rmt	147.00	5500.00	808,500
27	Non DSR	Non DSR	Providing and fixing **solid core flush door** in single leaf 35 mm thick with both side painting, all necessary beads, molding and lipping, brass oxidized fixtures and fastenings with ISI marked mortise lock, Brass handles on both side, Tower bolt from inside, finishing with french polishing etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	134.00	2700.00	361,800

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
28	9.11	55	Providing **Honne wood** frames for doors, windows, ventilators and other frames, wrought framed or assembled including making plaster grooves including cost of materials, labour etc complete as per specifications	Rmt	910.00	428.00	389,480
29	9.83	62	Providing and fixing 30 mm thick factory made rigid foam panelled door shutters made from MS tuve of 19 gauge thickness, size 19 x 19 mm for styles and 15 mm x 15 mm for top and bottom rails, covered with heat moulded PVC channel of 5 mm thick sheet and 30 mm x 50 mm wide to form styles and 5 mm thick and 75 mm wide PVC sheets for top rail, lock rail and bottom rial on either side and 5 mm thick and 20 mm wide PVS sheetsas gap insert for top rail and botom rail, panelling of 5 mm thick PVC sheet fitted in the MS frame, sealed to the styles and rails with 5 mm x 30 mm PVC sheet beading on wither side and joined together with solvent cement adhesive etc complete as per specification fixed to frames with 3 nos. of 75 mm Aluminium hinges	Sqm	190.00	1889.00	358,910
30	7.8	37	Providing and fixing in position in cement concrete 1:3:6 steel glazed windows and ventilators side hung/top hung 2/3 openable 1/3 fixed as per approved drawings using Z angles of 25 mm x 33 mm x 3 mm weighing 1.419 Kg/m both for outer and inner frames and central mullion section of size 25 x 46 x 3 mm , weighing 2.28 Kg/m all duty providing T section 19 x 19 x 3 mm weighing 0.838 Kg/m for glazing of windows, not more than 34 cm c/c including providing and fixing 4 mm thick reeded glass with teak wood beading of required size, all of steel sections conforming to I.S.7452-1990, 4 nos of holdfasts of approved size, section should be cut to length welded and grinded electrically subdividing frames of unit shall be tenonned and rivetted inot frames electrically. ALl the stel surface shall be throughly cleaned free of rust and painted with one coat of anti-corrosive paint and finishing 2 coats of ready mix paint of approved colour and make including cost of materials, fixtures, labour charges and HOM of machinery per square meter of surface.	Sq m	498.00	2619.00	1,304,262
31	7.9	37	Providing & fixing **M. S. Grill work** for windows & Ventilators weighing 21 Kg/Sqm using M.S. Flat or M.S. Square rods, or combination of M.S. Flat and square rods as per approved design, drawings including cutting, steel sections and welding the same to required pattern with a coat of red lead primer , cost of material , fixtures , labour and HOM of machinery complete as per specifications	Kg	10458.00	87.00	909,846
32	15.74	128	Providing & applying **Enamel Metal Paint 2 coats** (Excluding Priming Coat) **over new steel or other metal surface** brushing to give an even shade after cleaning, oil, grease, dirt & other foreign matter, including cost of material , labour, complete as per specification	Sq m	498.00	69.00	34,362

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
33	7.80	37	Z Section **Louvered Window** in position in cement concrete 1:3:6 steel glazed windows and ventilators side hung/top hung 2/3 openable 1/3 fixed as per approved drawings using Z angles of 25 mm x 33 mm x 3 mm weighing 1.419 Kg/m both for outer and inner frames and central mullion section of size 25 x 46 x 3 mm , weighing 2.28 Kg/m all duty providing T section 19 x 19 x 3 mm weighing 0.838 Kg/m for glazing of windows, not more than 34 cm c/c including providing and fixing 4 mm thick reeded glass with teak wood beading of required size, all of steel sections conforming to I.S.7452-1990, 4 nos of holdfasts of approved size, section should be cut to length welded and grinded electrically subdividing frames of unit shall be tenonned and rivetted into frames electrically. ALl the stel surface shall be throughly cleaned free of rust and painted with one coat of anti-corrosive paint and finishing 2 coats of ready mix paint of approved colour and make including cost of materials, fixtures, labour charges and HOM of machiper square meter of surface.	Sq m	54.00	2619.00	141,426
34	7.35	47	Providing & fixing M**ild Steel** handrailing to **Staircase/Balcony** with 50 mm dia MS hollow pipes of 14 gauge, welded to 20 mm x 20 mm MS sqaure rod placed vertically, spaced at 100 mm at regular intervals of 600 mm. These vertical rods laterally tied to 3 horizontal rods spaced at equal interval. This assembly is fixed to concrete by using expansion bolts and welding the same to reinforcement bars and making good the surface. All hte joints and sectionms should be cut to length, weleded and grinded wherever necessary etc, complete including cost of all materials, labour charges, hire charges for welding, cutting and grinding equipment, electricity charges etc as per specifications	Rmt	330.00	2390.00	788,700
35	Non DSR	Non DSR	450 mm wide **M.S. ladder** for Bedroom to Top terrace, 50 mm vertical & horizontal round pipe with one coat of red oxide & two coats of oil paint etc. **(Specifications as per description of item & instructions from site in charge)**	No	16.00	10,000.00	160,000
36	15.49.2	124	Providing & applying 2 coats of **Oil Bound Distemper Paint (washable)** of approved shade and brand on wall surface including one coat of distemper primer after thoroughly brooming the surface free from mortar drops and other foreighn matter inlcuding preparing the surface even and sand paper smooth, including cost of materials, labour complete as per specifications- including applying oil bound distemper on ceillings	Sqm	18050.00	53.20	960,260
37	15.53.2	125	Providing and finsihing external walls in **2 coats with water proof cement paint** of approved brand and shade to give an even shade after thoroughly brooming the surface to remove all dirt and loose powder material free from morat drops and other foriegn matter including cost of materials, labour complee as per specifications	Sqm	5884.00	62.00	364,808
38	13.78	102	Providing & placing on **terrace, Polyethylene water storage tanks** with manhole, lid & Suitable locking arrangement, making holes of suitable dia. For inlet, outlet & OVERFLOW pipes including cost of all material, labour & transport charges, HOM of equipment & testing as per specification(10000 Liters) etc complete.	No	4.00	64,510.00	258,040
39	Non DSR	Non DSR	Providing & Laying **225 X 225 X 50 mm Fly ash filler blocks** on slab shuttering @ 300 C/C and as per instructions from the Engineer Incharge	No	0.00	2.42	0
			TOTAL OF CIVIL WORK ITEMS				**39,161,327**

Building Name : School Building

SCHEDULE OF QUANTITIES FOR SCHOOL Alternative Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1	2.3	05	**Earthwork excavation** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 mafter breaking of clods complete as per specifications	Cum	969.287	125.00	121,160.91
2	2.6	05	**Excavation** 1.5 m and above in width in **soft rock** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 m complete (Without Blasting)	Cum	276.939	585.00	162,009.45
3	2.8	05	**Excavation** for foundation in **Hard rock** by chiseling and/or wedging, where blasting is prohibited for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m in depth, stacking the excavated soil clear from the edges of excavation with lead upto 50 m including the cost of labour complete as per specifications	Cum	138.470	838.00	116,037.54
4	2.10	06	**Filling available excavated earth in sides of foundations up to plinth** in layers of 20 cm in depth, compacting each layer by ramming after watering with lead up to 50 m and lift up to 1.5 m including the cost of labour complete as per specifications	Cum	1246.227	84.00	104,683.03
5	Non DSR	Non DSR	**Filling in plinth** floors and over areas with **contractors murum** in 15 to 20 cm. Layers including watering & compaction complete **(Specifications as per description of item & instructions from site in charge)**	Cum	Rate only	85.00	
6	3.2	09	Providing and injecting chemical emulsion for PRE-CONSTRUCTIONAL ANTI-termite treatment, creating a continuous chemical barrier under and all around the column pits, walls, trenches, basement excavation, top surface of the plinth filling, junction of wall and floor, along the external perimeter of building, surroundings of pipes and conduits etc. with Chlorpyriphos emulsifiable concentrates of 20% concentration, including cost of chemical, diluting in water to 1% concentration, labour, HOM of equipment, complete as per following specifications **(Plinth area of the building at ground floor only shall be measured for payment)** Chlorpyriphos emulsifiable concentrate 20% with 1% concentration. a) Treating the bottom and sides of excavation at the rate of 5 liters of emulsion per square meter of surface area. b) Treating the back fill in contact with foundation at the rate of 7.5 liters of emulsion per square meter of vertical surface c) Treating the top surface of filled earth at the rate of 5 liters of emulsion per square meter of surface. d)Treating the soil under plinth protection at the rate of 5 liters of emulsion per square meter of surface area.	Sqm	225.000	94.76	21,321.00

SCHEDULE OF QUANTITIES FOR SCHOOL Alternative Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
7	2.15	06	Providing and filling in foundation granite/trap broken metal 100mm and down size with approved sand including hand packing, ramming, watering including cost of all materials and labour with all lead and lift, complete as per specifications	Cum	56.189	1,051.00	59,054.64
8	Non DSR	Non DSR	**Carting away** the excess excavated material obtained from the items of excavation and disposing the same off the site and at dumping place approved by PMC including loading, unloading and all leads and lifts complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	171.035	225.00	38,482.88
9	4.7	13	Providing and laying in position **plain cement concrete** of mix M10 grade with OPC @220 Kg, with 20 mm and down size graded metal coarse aggregate @0.84 cub.m and fine aggregate @0.56 cum, machine mixed, concrete laid in layers not exceeding 15 cm thick, well compacted in foundation, plinth and cills, including cost of all materials, labour, HOM of machinery, curing complete as per specifications	Cum	51.879	4,006.00	207,827.27
10			Providing and laying **Reinforced Cement Concrete of design mix M 20** with OPC @320 Kg, with 20 mm and down size graded metal coarse aggregate @0.878 cub.m and fine aggregate @0.459 cum, with super plasticizer @ 3 litres conforming to I.S.9103-1999 reaffirmed -2008, machine mixed, concrete laid in layers not exceeding 15 cm thick, vibrated for all works in foundation plinth and ground floor level for roof slabs, stair case, lintels, retaining walls, return walls, including attached pilasters, buttresses, columns, piers, abutments, pillars, lacing courses, parapets, coping, bed blocks, anchor blocks, plain window cills, fillets etc, including cost of al materials, labour, HOM of machinery, curing complete as per specifications (Excluding reinforcement steel)				
10-a	4.11	13	For **Footings and raft**	Cum	14.841	4851.00	71,993.69
10-b	4.17	15	For **Columns**	Cum	22.017	4851.00	106,804.47
10-c	4.11	13	For **Lintels**	Cum	0.442	4851.00	2,144.14
10-d	4.17	15	Plinth beams	Cum	9.824	4,851.00	47,656.22
10-e	4.17	15	Floor **beams**	Cum	27.366	4851.00	132,752.47
10-f	4.11	13	**Slabs and landings**	Cum	33.138	4851.00	160,752.44
			Slabs and landings where filler slab is not possible				
10-g	4.20	15	For **Chajja`s**	Sq m	34.335	401.00	13,768.34
10-h	4.11	13	For **staircase waist slabs** and steps at all level	Cum	3.039	4851.00	14,742.19
11	4.28	16	**Shuttering For Footing, PCC, Raft**	Sq m	202.17	187.00	37,805.79
			KSRB 4-6.1 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **foundations,footings, bases** of columns for mass concrete including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
12	4.29	16	**Shuttering For Slab, Landing, Staircase**	Sq m	314.06	240.00	75,373.20
			KSRB 4-6.2 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Flat Surface Such as Suspended Floors, roofs, landings, Balconies and likes thickness up to 200mm** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				

SCHEDULE OF QUANTITIES FOR SCHOOL Alternative Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
13	4.32	17	**Shuttering For Column**	Sq m	282.86	282.00	79,766.52
			KSRB 4-6.5 Providing and removing centering, shuttering, strutting, propping, etc**., f**or **Columns, pillars, piers,abutments, post and struts, square/ rectangular/ polygon,**in plan including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
14	4.34	17	**Shuttering For Beam , Chajja , Lintel**	Sq m	416.08	206.00	85,712.48
			KSRB 4-6.7 Providing and removing centering, shuttering, strutting, propping, etc., and removal of form work for **Side and soffits of beams, beam haunchings, cantilever girders, Bressummers and lintels not exceeding 1m in depth** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
15	4.46	19	Providing and fixing in position **T.M.T. steel/ High** yield strength deformed steel bar (HYSD bar) reinforcement RCC work (footing, slabs, beams, columns, canopies, staircase, chajjas, lintel pardis, coping, etc) including straightening, cutting, bending, hooking, placing in position, lapping and /or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per . design (laps, hook and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete as per specifications	quintal	137.775	6781.00	934,252.28
16	38.18.2	292	Providing& Constructing 150 mm thk **clay hollow bricks masonry** of 400 X 200 X 150 mm perforated hollow clay Bricks cement mortar 1 : 6 for walls with minimum crushing strength of 35 Kg/Sq Cm including scaffolding, curing, etc, complete as directed at all levels.	Sqm	651.70	476.00	310,209.20
17	10.2	68	Providing and laying integrated cement based **waterproofing** treatment including preparation of surface as required for treatment of roof, balconies and terraces consisting of the following application A) Applying and grouting a slurry coat of neat cement using 2.75 Kg per sq.m of cement admixed with proprietary water proofing compound conforming to I.S.2645 over the RCC slab after cleaning the surface before the treatment b)Laying cement concrete using broken brick bats 25 mm to 100 mm size with 50% of cement mortar 1:5 admixed with proprietary water proofing compound conforming to I.S.2645 over 20 mm thick layer of cement mortar 1:5 admixed with proprietary water proofing compound to required slope an treating similarly the adjoining walls and slabs C) After 2 days of proper curing, applying a second coat of cement slurry admixed with proprietary water proofing compound D) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 admixed with proprietary water proofing compound and finally finishing the surface with trowel and neat cement slurry and making of 300 mm x 300 mm square E) Then whole terrace so finished shall be flooded with water for a minimum period of 2 weeks for curing and for final testing including cost of materials, labour etc complete	Sqm	198.052	650.00	128,733.80
18	Non DSR	Non DSR	providing **waterproofing** treatment to **sanitary blocks** consisting of one layer of B. B. coba of 5 to 7.5 cm thick in cement mortar 1:2 sandwich between two layers of cement mortar 1:4, 20mm thick mixed with waterproofing compound, top finishing one coat of cement slurry 6 to 12mm thick with waterproofing compound complete including waterproofing treatment to 45 cm height of wall in cement mortar 1:4 and covering 10 years guarantee on court fee stamp of Rs. 100 with pounding test including all lead, lift etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	7.775	2500.00	19,437.50

SCHEDULE OF QUANTITIES FOR SCHOOL Alternative Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
19	15.21	121	Providing 12 mm thick (**internal) cement plaster** in single coat with cement mortar 1:3 to concrete or brick surfaces, ceiling including rounding off corners wherever required smooth rendering, providing and removing scaffolding including cost of materials, labour curing complete as per specifications	Sqm	958.275	139.00	133,200.23
20	Non DSR	Non DSR	Providing **POP Plaster** 6 mm to 8 mm thick to plastered on ceilings in all positions including scaffolding etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	348.075	110.00	38,288.25
21	15.33	122	Providing **neeru finish (lime rendering)** to plastered surfaces (in all positions for ceilings & Walls) and finishing smooth including scaffolding, cost of materials, labour and curing complete as per specifications.	Sqm	868.875	15.80	13,728.23
22	15.18	121	Providing **20 mm cement plaster (External) single coat with cement mortar 1:3 to masonry & concrete surface** including rounding of corner wherever required smooth rendering,: providing & removing scaffolding including cost of material, labour, curing complete as per specification	Sqm	541.831	189.00	102,406.06
23	14.90	110	Providing & Laying **red oxide flooring 40mm** thick with an under layer of 30 mm thick M15 cement concrete, using broken granite metal of 12.5 mm nominal size and top layer of 10 mm thick plaster with 1:3 cement mortar mixed with red oxide (Using 3.5 Kg of red oxide per 50kg of cement) finished with floating coat of neat cement mixed with red oxide (Mix of same proportion), including cost of materials labour curing, complete as per specifications.	Sq m	398.00	433.00	172,334.00
24	14.36.2	114	Providing and laying (anti skid) **ceramic tiles of approved make,** shade and size **(300 x 300mm x 7mm thick)** for **flooring**, treads of steps and landings laid on a bed of 12 mm thick cement mortar of 1:3 mix, flush pointing with white cement using colour pigment, including cost of materials, labour, curing complete as per specifications	Sqm	89.935	800.00	71,948.00
25	14.41.3	115	Providing skirting, dado and risers of steps with **Coloured glazed tiles** of size **300 x 450mm** and 5 to 6mm thick on 10 mm thick cement plaster 1:3 mix and jointed with white cement slurry over rough plaster surface (exclusing cost of rough plaster surface which should be measured paid separately) using glazed tiles of aproved make, including cost of materials, labour abd curing complete as per specifications	Sqm	89.400	1150.00	102,810.00
26	9.98	65	Providing and fixing **RCC door frame** factory manufactured, with C.C 1: 1.5:3 reinforced with 3 nos of 6mm dia main bars and 6 mm dia stirrrups welded at 30 cm c/c , vibrating, curing including cost of steel and fabrication charges having 3 nos of hinges with 20 mmx 3 mm MS flat welded with required iron rods and flats with drilling and fixing 4 nos of flat screw nuts each in concrete for fixing hinges and making necessary provision in concrete for fixing aldrops, tower bolts etc including cost ofmone coat of oil bsaed enamel primer, 4 nos of hold fasts, 3 nos ISS Iron oxidised hinges necessary metal screws etc complete - 60 mm x 100 mm size door frames	Rmt	86.850	198.00	17,196.30
27	Non DSR	Non DSR	**Kitchen Otta** shall be **Green Marble and Nirali** Make stainless steel Kitchen, sink of size 19" x 16". The width of the Kitchen Otta shall be 0.7 meter. The front fascia of 100 mm width shall be provided of granite. Granite slab of sufficient dimensions to cover stainless sink area and nahani trap below it shall be provided. Supporting system shall be 25 mm thick kadappa slabs in double layers for Vertical supports and 35 mm thick kadappa Slab below granite top. The working drawing of the Kitchen Otta shall be got approved from Engineer-in- charge if required the fixing shall be done by resine adhesive for the facia. The stainless sink shall be of the best quality available in the market with the I.S.I. mark. The best **(Specifications as per description of item & instructions from site in charge)**	Rmt	1.250	5500.00	6,875.00

SCHEDULE OF QUANTITIES FOR SCHOOL Alternative Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
28	Non DSR	Non DSR	Providing and fixing **solid core flush door** in single leaf 35 mm thick with both side painting, all necessary beads, molding and lipping, brass oxidized fixtures and fastenings with ISI marked mortise lock, Brass handles on both side, Tower bolt from inside, finishing with french polishing etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	14.18	2700.00	38,286.00
29	9.83	62	Providing and fixing **35 mm single leaf Solid PVC Door Shutter** light weight , self pigmented door shutters with high density honeycomb of approved colour and shade, without ventilator including brass oxidized fixtures and fastenings with brass handles (6")on both sides ,aldrops(12") on both side, tower bolts (8"),stoppers as per drawing & approved by architect etc. complete	Sqm	8.438	1889.00	15,938.44
30	7.13.2	39	Alluminium Powder Coated (**Openable/Top Hung/ventilator**) with Powder Coating, required section sizes without sub frame with Mosquito Net outside	Sq m	72.960	3491.00	254,703.36
31	7.9	37	Providing & fixing **M. S. Grill work** for windows & Ventilators weighing 21 Kg/Sqm using M.S. Flat or M.S. Square rods, or combination of M.S. Flat and square rods as per approved design, drawings including cutting, steel sections and welding the same to required pattern with a coat of red lead primer , cost of material , fixtures, labour and HOM of machinery complete as per specifications	Kg	1459.20	87.00	126,950.40
32	15.74	128	Providing & applying **Enamel Metal Paint 2 coats** (Excluding Priming Coat) **over new steel or other metal surface** brushing to give an even shade after cleaning, oil, grease, dirt & other foreign matter, including cost of material , labour, complete as per specification	Sq m	72.96	69.00	5,034.24
33	15.49.2	124	Providing & applying 2 coats of **Oil Bound Distemper Paint (washable)** of approved shade and brand on wall surface including one coat of distemper primer after thoroughly brooming the surface free from mortar drops and other foreighn matter inlcuding preparing the surface even and sand paper smooth, including cost of materials, labour complete as per specifications- including applying oil bound distemper on ceillings	Sqm	1216.950	53.20	64,741.74
34	15.53.2	125	Providing and finsihing external walls in **2 coats with water proof cement paint** of approved brand and shade to give an even shade after thoroughly brooming the surface to remove all dirt and loose powder material free from morat drops and other foriegn matter including cost of materials, labour complee as per specifications	Sqm	541.831	62.00	33,593.52
35	13.78	102	Providing & placing on **terrace, Polyethylene water storage tanks** with manhole, lid & Suitable locking arrangement, making holes of suitable dia. For inlet, outlet & OVERFLOW pipes including cost of all material, labour & transport charges, HOM of equipment & testing as per specification (5000 Litres) etc complete.	No	1.000	32,255.00	32,255.00
36	Non DSR	Non DSR	Providing 20 to 25 mm thick **Polished Kadappa slab urinal partitions** of approved quality & colour on a bed of 1:4 cement mortar and neat white cement float, jointed with white cement slurry with matching pigment including curing and cleaning complete.**(Specifications as per description of item & instructions from site in charge)**	Sq m	2.880	2,000.00	5,760.00
37	Non DSR	Non DSR	Providing & fixing in position fully panelled of **CCTW door** with **frame** of size 125mmx75mm, panel size 50mm thick as per detailed drawings including brass fixtures and fastenings and finishing the wood work with two coats of french polish etc complete. **(Specifications as per description of item & instructions from site in charge)**	Sq m	6.750	5,500.00	37,125.00

SCHEDULE OF QUANTITIES FOR SCHOOL Alternative Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
38	Non DSR	Non DSR	Providing and fixing solid core flush door in **double leaf** 35 mm thick commercial grade as per detailed drawings, approved colour **oil painting** on both faces without glazing, all necessary beads, molding and lipping, heavy duty brass oxidized fixtures and fastenings,including Al drop, handles on both side, tower bolts where necessary, 4nos SS hinges for the panels having height more than 2.1 m etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sq m	10.800	2,800.00	30,240.00
39	7.35	47	Providing & fixing M**ild Steel** handrailing to **Staircase/Balcony** with 50 mm dia MS hollow pipes of 14 gauge, welded to 20 mm x 20 mm MS sqaure rod placed vertically, spaced at 100 mm at regular intervals of 600 mm. These vertical rods laterally tied to 3 horizontal rods spaced at equal interval. This assembly is fixed to concrete by using expansion bolts and welding the same to reinforcement bars and making good the surface. All hte joints and sectionms should be cut to length, weleded and grinded wherever necessary etc, complete including cost of all materials, labour charges, hire charges for welding, cutting and grinding equipment, electricity charges etc as per specifications	R mt	8.900	2,390.00	21,271.00
40	Non DSR	Non DSR	450 mm wide **M.S. ladder** for outside of overhead tank, 50 mm vertical & horizontal round pipe with one coat of red oxide & two coats of oil paint etc. **(Specifications as per description of item & instructions from site in charge)**	No	1.000	10,000.00	10,000.00
41	Non DSR	Non DSR	ZMS SS/ Equivalent **Toilet Cubicals** including 12 mm laminated board,SS hinges, latch cum indicator,coat hook, door knob, Adjustable pedestal, Aluminium top rail. U channel ,door stopper channel, rubber door stopper lining, screws & wall plugs, door size 600x1700 mm, **(Specifications as per description of item & instructions from site in charge)**	No	5.000	22,000.00	110,000.00
42	Non DSR	Non DSR	Providing & Laying **225 X 225 X 50 mm Fly ash filler blocks** on slab shuttering @ 300 C/C and as per instructions from the Engineer Incharge	No	3130.00	2.42	7,574.60
			TOTAL OF CIVIL WORK ITEMS				**4,504,740.78**

Building Name : School Building

SCHEDULE OF QUANTITIES FOR SCHOOL Conventional Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1	2.3	05	**Earthwork excavation** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 mafter breaking of clods complete as per specifications	Cum	969.287	125.00	121,160.91
2	2.6	05	**Excavation** 1.5 m and above in width in **soft rock** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 m complete (Without Blasting)	Cum	276.939	585.00	162,009.45
3	2.8	05	**Excavation** for foundation in **Hard rock** by chiseling and/or wedging, where blasting is prohibited for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m in depth, stacking the excavated soil clear from the edges of excavation with lead upto 50 m including the cost of labour complete as per specifications	Cum	138.470	838.00	116,037.54
4	2.10	06	**Filling available excavated earth in sides of foundations up to plinth** in layers of 20 cm in depth, compacting each layer by ramming after watering with lead up to 50 m and lift up to 1.5 m including the cost of labour complete as per specifications	Cum	1246.227	84.00	104,683.03
5	Non DSR	Non DSR	**Filling in plinth** floors and over areas with **contractors murum** in 15 to 20 cm. Layers including watering & compaction complete **(Specifications as per description of item & instructions from site in charge)**	Cum	Rate only	85.00	
6	3.2	09	Providing and injecting chemical emulsion for PRE-CONSTRUCTIONAL ANTI-termite treatment, creating a continuous chemical barrier under and all around the column pits, walls, trenches, basement excavation, top surface of the plinth filling, junction of wall and floor, along the external perimeter of building, surroundings of pipes and conduits etc. with Chlorpyriphos emulsifiable concentrates of 20% concentration, including cost of chemical, diluting in water to 1% concentration, labour, HOM of equipment, complete as per following specifications **(Plinth area of the building at ground floor only shall be measured for payment)** Chlorpyriphos emulsifiable concentrate 20% with 1% concentration. a) Treating the bottom and sides of excavation at the rate of 5 liters of emulsion per square meter of surface area. b) Treating the back fill in contact with foundation at the rate of 7.5 liters of emulsion per square meter of vertical surface c) Treating the top surface of filled earth at the rate of 5 liters of emulsion per square meter of surface. d)Treating the soil under plinth protection at the rate of 5 liters of emulsion per square meter of surface area.	Sqm	225.000	94.76	21,321.00
7	2.15	06	Providing and filling in foundation granite/trap broken metal 100mm and down size with approved sand including hand packing, ramming, watering including cost of all materials and labour with all lead and lift, complete as per specifications	Cum	56.189	1,051.00	59,054.64
8	Non DSR	Non DSR	**Carting away** the excess excavated material obtained from the items of excavation and disposing the same off the site and at dumping place approved by PMC including loading, unloading and all leads and lifts complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	171.035	225.00	38,482.88

SCHEDULE OF QUANTITIES FOR SCHOOL Conventional Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
9	4.7	13	Providing and laying in position **plain cement concrete** of mix M10 grade with OPC @220 Kg, with 20 mm and down size graded metal coarse aggregate @0.84 cub.m and fine aggregate @0.56 cum, machine mixed, concrete laid in layers not exceeding 15 cm thick, well compacted in foundation, plinth and cills, including cost of all materials, labour, HOM of machinery, curing complete as per specifications	Cum	51.879	4,006.00	207,827.27
10			Providing and laying **Reinforced Cement Concrete of design mix M 20** with OPC @320 Kg, with 20 mm and down size graded metal coarse aggregate @0.878 cub.m and fine aggregate @0.459 cum, with super plasticizer @ 3 litres conforming to I.S.9103-1999 reaffirmed -2008, machine mixed, concrete laid in layers not exceeding 15 cm thick, vibrated for all works in foundation plinth and ground floor level for roof slabs, stair case, lintels, retaining walls, return walls, including attached pilasters, buttresses, columns, piers, abutments, pillars, lacing courses, parapets, coping, bed blocks, anchor blocks, plain window cills, fillets etc, including cost of al materials, labour, HOM of machinery, curing complete as per specifications (Excluding reinforcement steel)				
10-a	4.11	13	For **Footings and raft**	Cum	14.841	4851.00	71,993.69
10-b	4.17	15	For **Columns**	Cum	22.017	4851.00	106,804.47
10-c	4.11	13	For **Lintels**	Cum	0.442	4851.00	2,144.14
10-d	4.17	15	Plinth beams	Cum	9.824	4,851.00	47,656.22
10-e	4.17	15	Floor **beams**	Cum	27.366	4851.00	132,752.47
10-f	4.11	13	**Slabs and landings**	Cum	41.060	4851.00	199,182.06
			Slabs and landings where filler slab is not possible				
10-g	4.20	15	For **Chajja`s**	Sq m	34.335	401.00	13,768.34
10-h	4.11	13	For **staircase waist slabs** and steps at all level	Cum	3.039	4851.00	14,742.19
11	4.28	16	**Shuttering For Footing, PCC, Raft**	Sq m	202.17	187.00	37,805.79
			KSRB 4-6.1 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **foundations,footings, bases** of columns for mass concrete including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
12	4.29	16	**Shuttering For Slab, Landing, Staircase**	Sq m	314.06	240.00	75,373.20
			KSRB 4-6.2 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Flat Surface Such as Suspended Floors, roofs, landings, Balconies and likes thickness up to 200mm** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
13	4.32	17	**Shuttering For Column**	Sq m	282.86	282.00	79,766.52
			KSRB 4-6.5 Providing and removing centering, shuttering, strutting, propping, etc**., f**or **Columns, pillars, piers,abutments, post and struts, square/ rectangular/ polygon,**in plan including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
14	4.34	17	**Shuttering For Beam , Chajja , Lintel**	Sq m	416.08	206.00	85,712.48
			KSRB 4-6.7 Providing and removing centering, shuttering, strutting, propping, etc., and removal of form work for **Side and soffits of beams, beam haunchings, cantilever girders, Bressummers and lintels not exceeding 1m in depth** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				

SCHEDULE OF QUANTITIES FOR SCHOOL Conventional Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
15	4.46	19	Providing and fixing in position **T.M.T. steel/ High** yield strength deformed steel bar (HYSD bar) reinforcement RCC work (footing, slabs, beams, columns, canopies, staircase, chajjas, lintel pardis, coping, etc) including straightening, cutting, bending, hooking, placing in position, lapping and /or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per . design (laps, hook and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete as per specifications	quintal	137.775	6781.00	934,252.28
16	6.6	30	Providing and constructing burnt brick masonry 230 mm thick for superstructure with approved quality of standard size of class 50 with cement mortar 1:6 including cost of materials, labour and scaffolding etc complete as per specifications	Sqm	651.70	1037.76	676,308.19
17	10.2	68	Providing and laying integrated cement based **waterproofing** treatment including preparation of surface as required for treatment of roof, balconies and terraces consisting of the following application A) Applying and grouting a slurry coat of neat cement using 2.75 Kg per sq.m of cement admixed with proprietary water proofing compound conforming to I.S.2645 over the RCC slab after cleaning the surface before the treatment b)Laying cement concrete using broken brick bats 25 mm to 100 mm size with 50% of cement mortar 1:5 admixed with proprietary water proofing compound conforming to I.S.2645 over 20 mm thick layer of cement mortar 1:5 admixed with proprietary water proofing compound to required slope an treating similarly the adjoining walls and slabs C) After 2 days of proper curing, applying a second coat of cement slurry admixed with proprietary water proofing compound D) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 admixed with proprietary water proofing compound and finally finishing the surface with trowel and neat cement slurry and making of 300 mm x 300 mm square E) Then whole terrace so finished shall be flooded with water for a minimum period of 2 weeks for curing and for final testing including cost of materials, labour etc complete	Sqm	198.052	650.00	128,733.80
18	Non DSR	Non DSR	providing **waterproofing** treatment to **sanitary blocks** consisting of one layer of B. B. coba of 5 to 7.5 cm thick in cement mortar 1:2 sandwich between two layers of cement mortar 1:4, 20mm thick mixed with waterproofing compound, top finishing one coat of cement slurry 6 to 12mm thick with waterproofing compound complete including waterproofing treatment to 45 cm height of wall in cement mortar 1:4 and covering 10 years guarantee on court fee stamp of Rs. 100 with pounding test including all lead, lift etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	7.775	2500.00	19,437.50
19	15.21	121	Providing 12 mm thick (**internal) cement plaster** in single coat with cement mortar 1:3 to concrete or brick surfaces, ceiling including rounding off corners wherever required smooth rendering, providing and removing scaffolding including cost of materials, labour curing complete as per specifications	Sqm	958.275	139.00	133,200.23
20	Non DSR	Non DSR	Providing **POP Plaster** 6 mm to 8 mm thick to plastered on ceilings in all positions including scaffolding etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	348.075	110.00	38,288.25

SCHEDULE OF QUANTITIES FOR SCHOOL Conventional Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
21	15.33	122	Providing **neeru finish (lime rendering)** to plastered surfaces (in all positions for ceilings & Walls) and finishing smooth including scaffolding, cost of materials, labour and curing complete as per specifications.	Sqm	868.875	15.80	13,728.23
22	15.18	121	Providing **20 mm cement plaster (External) single coat with cement mortar 1:3 to masonry & concrete surface** including rounding of corner wherever required smooth rendering,: providing & removing scaffolding including cost of material, labour, curing complete as per specification	Sqm	541.831	189.00	102,406.06
23	14.90	110	Providing & Laying **red oxide flooring 40mm** thick with an under layer of 30 mm thick M15 cement concrete, using broken granite metal of 12.5 mm nominal size and top layer of 10 mm thick plaster with 1:3 cement mortar mixed with red oxide (Using 3.5 Kg of red oxide per 50kg of cement) finished with floating coat of neat cement mixed with red oxide (Mix of same proportion), including cost of materials labour curing, complete as per specifications.	Sq m	398.00	433.00	172,334.00
24	14.36.2	114	Providing and laying (anti skid) **ceramic tiles of approved make,** shade and size **(300 x 300mm x 7mm thick)** for **flooring**, treads of steps and landings laid on a bed of 12 mm thick cement mortar of 1:3 mix, flush pointing with white cement using colour pigment, including cost of materials, labour, curing complete as per specifications	Sqm	89.935	800.00	71,948.00
25	14.41.3	115	Providing skirting, dado and risers of steps with **Coloured glazed tiles** of size **300 x 450mm** and 5 to 6mm thick on 10 mm thick cement plaster 1:3 mix and jointed with white cement slurry over rough plaster surface (exclusing cost of rough plaster surface which should be measured paid separately) using glazed tiles of aproved make, including cost of materials, labour abd curing complete as per specifications	Sqm	89.400	1150.00	102,810.00
26	9.11	55	Providing **Honne wood** frames for doors, windows, ventilators and other frames, wrought framed or assembled including making plaster grooves including cost of materials, labour etc complete as per specifications	Rmt	86.850	428.00	37,171.80
27	Non DSR	Non DSR	**Kitchen Otta** shall be **Green Marble and Nirali** Make stainless steel Kitchen, sink of size 19" x 16". The width of the Kitchen Otta shall be 0.7 meter. The front fascia of 100 mm width shall be provided of granite. Granite slab of sufficient dimensions to cover stainless sink area and nahani trap below it shall be provided. Supporting system shall be 25 mm thick kadappa slabs in double layers for Vertical supports and 35 mm thick kadappa Slab below granite top. The working drawing of the Kitchen Otta shall be got approved from Engineer-in- charge if required the fixing shall be done by resine adhesive for the facia. The stainless sink shall be of the best quality available in the market with the I.S.I. mark. The best **(Specifications as per description of item & instructions from site in charge)**	Rmt	1.250	5500.00	6,875.00
28	Non DSR	Non DSR	Providing and fixing **solid core flush door** in single leaf 35 mm thick with both side painting, all necessary beads, molding and lipping, brass oxidized fixtures and fastenings with ISI marked mortise lock, Brass handles on both side, Tower bolt from inside, finishing with french polishing etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	14.18	2700.00	38,286.00
29	9.83	62	Providing and fixing **35 mm single leaf Solid PVC Door Shutter** light weight , self pigmented door shutters with high density honeycomb of approved colour and shade, without ventilator including brass oxidized fixtures and fastenings with brass handles (6")on both sides ,aldrops(12") on both side, tower bolts (8"),stoppers as per drawing & approved by architect etc. complete	Sqm	8.438	1889.00	15,938.44

SCHEDULE OF QUANTITIES FOR SCHOOL Conventional Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
30	7.13.2	39	Alluminium Powder Coated (**Openable/Top Hung/ventilator**) with Powder Coating, required section sizes without sub frame with Mosquito Net outside	Sq m	72.960	3491.00	254,703.36
31	7.9	37	Providing & fixing **M. S. Grill work** for windows & Ventilators weighing 21 Kg/Sqm using M.S. Flat or M.S. Square rods, or combination of M.S. Flat and square rods as per approved design, drawings including cutting, steel sections and welding the same to required pattern with a coat of red lead primer , cost of material , fixtures, labour and HOM of machinery complete as per specifications	Kg	1459.20	87.00	126,950.40
32	15.74	128	Providing & applying **Enamel Metal Paint 2 coats** (Excluding Priming Coat) **over new steel or other metal surface** brushing to give an even shade after cleaning, oil, grease, dirt & other foreign matter, including cost of material , labour, complete as per specification	Sq m	72.96	69.00	5,034.24
33	15.49.2	124	Providing & applying 2 coats of **Oil Bound Distemper Paint (washable)** of approved shade and brand on wall surface including one coat of distemper primer after thoroughly brooming the surface free from mortar drops and other foreighn matter inlcuding preparing the surface even and sand paper smooth, including cost of materials, labour complete as per specifications- including applying oil bound distemper on ceillings	Sqm	1216.950	53.20	64,741.74
34	15.53.2	125	Providing and finsihing external walls in **2 coats with water proof cement paint** of approved brand and shade to give an even shade after thoroughly brooming the surface to remove all dirt and loose powder material free from morat drops and other foriegn matter including cost of materials, labour complee as per specifications	Sqm	541.831	62.00	33,593.52
35	13.78	102	Providing & placing on **terrace, Polyethylene water storage tanks** with manhole, lid & Suitable locking arrangement, making holes of suitable dia. For inlet, outlet & OVERFLOW pipes including cost of all material, labour & transport charges, HOM of equipment & testing as per specification (5000 Litres) etc complete.	No	1.000	32,255.00	32,255.00
36	Non DSR	Non DSR	Providing 20 to 25 mm thick **Polished Kadappa slab urinal partitions** of approved quality & colour on a bed of 1:4 cement mortar and neat white cement float, jointed with white cement slurry with matching pigment including curing and cleaning complete.**(Specifications as per description of item & instructions from site in charge)**	Sq m	2.880	2,000.00	5,760.00
37	Non DSR	Non DSR	Providing & fixing in position fully panelled of **CCTW door** with **frame** of size 125mmx75mm, panel size 50mm thick as per detailed drawings including brass fixtures and fastenings and finishing the wood work with two coats of french polish etc complete. **(Specifications as per description of item & instructions from site in charge)**	Sq m	6.750	5,500.00	37,125.00
38	Non DSR	Non DSR	Providing and fixing solid core flush door in **double leaf** 35 mm thick commercial grade as per detailed drawings, approved colour **oil painting** on both faces without glazing, all necessary beads, molding and lipping, heavy duty brass oxidized fixtures and fastenings,including Al drop, handles on both side, tower bolts where necessary, 4nos SS hinges for the panels having height more than 2.1 m etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sq m	10.800	2,800.00	30,240.00

SCHEDULE OF QUANTITIES FOR SCHOOL Conventional Technologies

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
39	7.35	47	Providing & fixing M**ild Steel** handrailing to **Staircase/Balcony** with 50 mm dia MS hollow pipes of 14 gauge, welded to 20 mm x 20 mm MS sqaure rod placed vertically, spaced at 100 mm at regular intervals of 600 mm. These vertical rods laterally tied to 3 horizontal rods spaced at equal interval. This assembly is fixed to concrete by using expansion bolts and welding the same to reinforcement bars and making good the surface. All hte joints and sectionms should be cut to length, weleded and grinded wherever necessary etc, complete including cost of all materials, labour charges, hire charges for welding, cutting and grinding equipment, electricity charges etc as per specifications	R mt	8.900	2,390.00	21,271.00
40	Non DSR	Non DSR	450 mm wide **M.S. ladder** for outside of overhead tank, 50 mm vertical & horizontal round pipe with one coat of red oxide & two coats of oil paint etc. **(Specifications as per description of item & instructions from site in charge)**	No	1.000	10,000.00	10,000.00
41	Non DSR	Non DSR	ZMS SS/ Equivalent **Toilet Cubicals** including 12 mm laminated board,SS hinges, latch cum indicator,coat hook, door knob, Adjustable pedestal, Aluminium top rail. U channel ,door stopper channel, rubber door stopper lining, screws & wall plugs, door size 600x1700 mm, **(Specifications as per description of item & instructions from site in charge)**	No	5.000	22,000.00	110,000.00
42	Non DSR	Non DSR	Providing & Laying **225 X 225 X 50 mm Fly ash filler blocks** on slab shuttering @ 300 C/C and as per instructions from the Engineer Incharge	No	0.00	2.42	0.00
			TOTAL OF CIVIL WORK ITEMS				**4,921,670.30**

Community hall and Kiosks

Alternative tech

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1	2.3	05	**Earthwork excavation** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 mafter breaking of clods complete as per specifications	Cum	464.10	125.00	58,012.50
2	2.6	05	**Excavation** 1.5 m and above in width in **soft rock** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 m complete (Without Blasting)	Cum	132.60	585.00	77,571.00
3	2.8	05	**Excavation** for foundation in **Hard rock** by chiseling and/or wedging, where blasting is prohibited for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m in depth, stacking the excavated soil clear from the edges of excavation with lead upto 50 m including the cost of labour complete as per specifications	Cum	66.30	838.00	55,559.40
5	2.10	06	**Filling available excavated earth in sides of foundations up to plinth** in layers of 20 cm in depth, compacting each layer by ramming after watering with lead up to 50 m and lift up to 1.5 m including the cost of labour complete as per specifications	Cum	421.00	84.00	35,364.00
6	3.2	09	Providing and injecting chemical emulsion for PRE-CONSTRUCTIONAL ANTI-termite treatment, creating a continuous chemical barrier under and all around the column pits, walls, trenches, basement excavation, top surface of the plinth filling, junction of wall and floor, along the external perimeter of building, surroundings of pipes and conduits etc. with Chlorpyriphos emulsifiable concentrates of 20% concentration, including cost of chemical, diluting in water to 1% concentration, labour, HOM of equipment, complete as per following specifications **(Plinth area of the building at ground floor only shall be measured for payment)** Chlorpyriphos emulsifiable concentrate 20% with 1% concentration. a) Treating the bottom and sides of excavation at the rate of 5 liters of emulsion per square meter of surface area. b) Treating the back fill in contact with foundation at the rate of 7.5 liters of emulsion per square meter of vertical surface c) Treating the top surface of filled earth at the rate of 5 liters of emulsion per square meter of surface. d)Treating the soil under plinth protection at the rate of 5 liters of emulsion per square meter of surface area. e) Treating the soil along with external perimeter of	Sqm	370.00	94.76	35,061.20
7	2.15	06	Providing dry trap / granite / quartzite gneiss **230mm thick rubble stone soling** including hand packing, murum blindage on surface, watering and compacting etc. complete	Cum	80.00	1,051.00	84,080.00
8	Non DSR	Non DSR	**Carting away** the excess excavated material obtained from the items of excavation and disposing the same off the site and at dumping place approved by PMC including loading, unloading and all leads and lifts complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	242.00	225.00	54,450.00
9	4.7	13	Providing and laying in position **plain cement concrete** of mix M10 grade with OPC @220 Kg, with 20 mm and down size graded metal coarse aggregate @0.84 cub.m and fine aggregate @0.56 cum, machine mixed, concrete laid in layers not exceeding 15 cm thick, well compacted in foundation, plinth and cills, including cost of all materials, labour, HOM of machinery, curing complete as per specifications	Cum	76.00	4,006.00	304,456.00

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
10			Providing and laying **Reinforced Cement Concrete of design mix M 20** with OPC @320 Kg, with 20 mm and down size graded metal coarse aggregate @0.878 cub.m and fine aggregate @0.459 cum, with super plasticizer @ 3 litres conforming to I.S.9103-1999 reaffirmed -2008, machine mixed, concrete laid in layers not exceeding 15 cm thick, vibrated for all works in foundation plinth and ground floor level for roof slabs, stair case, lintels, retaining walls, return walls, including attached pilasters, buttresses, columns, piers, abutments, pillars, lacing courses, parapets, coping, bed blocks, anchor blocks, plain window cills, fillets etc, including cost of al materials, labour, HOM of machinery, curing complete as per specifications (Excluding reinforcement steel)				
10-a	4.11	13	For **Footings and raft**	Cum	26.00	4851.00	126,126.00
10-b	4.17	15	For **Columns**	Cum	8.00	4851.00	38,808.00
10-c	4.11	13	For **Lintels**	Cum	1.00	4851.00	4,851.00
10-d	4.17	15	Plinth beams	Cum	4.00	4,851.00	19,404.00
10-e	4.17	15	Floor **beams**	Cum	24.00	4851.00	116,424.00
10-f	4.11	13	**Slabs and landings**	Cum	14.11	4851.00	68,447.61
			Slabs and landings where filler slab is not possible	Cum	7.64	4851.00	37,076.19
10-g	4.20	15	For **Chajja`s**	Cum	2.00	401.00	802.00
11	4.28	16	**Shuttering For Footing, PCC, Raft**	Sq m	89.60	187.00	16,755.20
			KSRB 4-6.1 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **foundations,footings, bases** of columns for mass concrete including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
12	4.29	16	**Shuttering For Slab, Landing, Staircase**	Sq m	120.00	240.00	28,800.00
			KSRB 4-6.2 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Flat Surface Such as Suspended Floors, roofs, landings, Balconies and likes thickness up to 200mm** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
13	4.32	17	**Shuttering For Column**	Sq m	79.00	282.00	22,278.00
			KSRB 4-6.5 Providing and removing centering, shuttering, strutting, propping, etc**., f**or **Columns, pillars, piers,abutments, post and struts, square/ rectangular/ polygon,**in plan including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
14	4.34	17	**Shuttering For Beam , Chajja , Lintel**	Sq m	290.20	206.00	59,781.20
			KSRB 4-6.7 Providing and removing centering, shuttering, strutting, propping, etc., and removal of form work for **Side and soffits of beams, beam haunchings, cantilever girders, Bressummers and lintels not exceeding 1m in depth** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
15	4.46	19	Providing and fixing in position **T.M.T. steel/ High** yield strength deformed steel bar (HYSD bar) reinforcement RCC work (footing, slabs, beams, columns, canopies, staircase, chajjas, lintel pardis, coping, etc) including straightening, cutting, bending, hooking, placing in position, lapping and /or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per . design (laps, hook and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete as per specifications	Quintal	113.75	6781.00	771,338.75
16	Non DSR	Non DSR	Providing, cutting, straightening, bending, laying and, welding, bolting **structural steel** sections for Roofs , including and all lifts, leads and conveying, Erecting at any height all as per detail structural design, drawings, specification, including 2 coats of Oil Painting etc. as per directions and instructions complete. **(Specifications as per description of item & instructions from site in charge)**	M.T.	6.678	66000.00	440,748.00
17	5.24	27	Providing& Constructing load bearing wall with cement concrete cavities blocks (Hollow blocks) of proportion 1:5:3 of size 40 cm x 20 cm x 20 cm (lx bxh) of strength not less than 50 Kg/sq.cm with cement mortar 1:4 conforming to I.S.2185 of 1967 having not less than 40 mm shell thickness with two or more large cavities and having solid material between including cost of materials, labour charges, scaffolding, curing complete as per specifications 150 mm thk **clay hollow bricks masonry** of 400 X 200 X 150 mm perforated hollow clay Bricks cement mortar 1 : 6 for walls with minimum crushing strength of 35 Kg/Sq Cm including scaffolding, curing, etc, complete as directed at all levels.	Sqm	468.22	575.00	269,227.65
18	5.3	25	Providing & constructing Granite/ trap/ basalt **UCR Masonry** in foundation with 1:6 CM bond stones at 2.0 m apart in each course including cost of material , labour , curing etc. complete as per specifications	Cum	137.00	2141.00	293,317.00
19	6.7	30	Providing & constructing **Burnt Brick masonry** with approved quality class Designation 50 with Cement Mortar 1:4 for basement & super structure including cost of materials, labor charges, scaffolding, curing complete as per specifications	Cum	3.99	4760.00	18,992.40
20	10.2	68	Providing and laying integrated cement based **waterproofing** treatment including preparation of surface as required for treatment of roof, balconies and terraces consisting of the following application A) Applying and grouting a slurry coat of neat cement using 2.75 Kg per sq.m of cement admixed with proprietary water proofing compound conforming to I.S.2645 over the RCC slab after cleaning the surface before the treatment b)Laying cement concrete using broken brick bats 25 mm to 100 mm size with 50% of cement mortar 1:5 admixed with proprietary water proofing compound conforming to I.S.2645 over 20 mm thick layer of cement mortar 1:5 admixed with proprietary water proofing compound to required slope an treating similarly the adjoining walls and slabs C) After 2 days of proper curing, applying a second coat of cement slurry admixed with proprietary water proofing compound D) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 admixed with proprietary water proofing compound and finally finishing the surface with trowel and neat cement slurry and making of 300 mm x 300 mm square E) Then whole terrace so finished shall be flooded with	Sqm	211.00	650.00	137,150.00

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
21	Non DSR	Non DSR	providing **waterproofing** treatment to **sanitary blocks** consisting of one layer of B. B.coba of 5 to 7.5 cm thick in cement morter 1:2 sandwich between two layers of cement morter 1:4, 20mm thick mixed with waterproofing compound, top finishing one coat of cement slurry 6 to 12mm thick with waterproofing compound complete including waterproofing treatment to 45 cm height of wall in cement morter 1:4 and covering 10 years guarantee on court fee stamp of Rs. 100 with pounding test including all lead, lift etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	6.00	2500.00	15,000.00
22	15.21	121	Providing 12 mm thick (**internal) cement plaster** in single coat with cement mortar 1:3 to concrete or brick surfaces, ceiling including rounding off corners wherever required smooth rendering, providing and removing scaffolding including cost of materials, labour curing complete as per specifications	Sqm	855.00	139.00	118,845.00
23	Non DSR	Non DSR	Providing **POP Plaster** 6 mm to 8 mm thick to plastered on ceilings in all positions including scaffolding etc. complete.	Sqm	230.00	110.00	25,300.00
24	15.33	122	Providing Lime Rendering for plastered surfaces in all positions for ceilings & Walls including scaffolding and curing complete.	Sqm	794.00	15.80	12,545.20
25	15.18	121	Providing **20 mm cement plaster (External) single coat with cement mortar 1:3 to masonry & concrete surface** including rounding of corner wherever required smooth rendering,: providing & removing scaffolding including cost of material, labour, curing complete as per specification	Sqm	470.00	189.00	88,830.00
26	14.90	110	Providing & Laying **red oxide flooring 40mm** thk with an under layer of 30 mm thk M15 cement concrete, using broken granite metal of 12.5 mm nominal size & top layer of 10 mm thk plaster with 1:3 cement mortar mixed with red oxide (Using 3.5 Kg of red oxide per 50kg of cement) finished with floating coat of neat cement mixed with red oxide (Mix of same proportion), including cost of materials labour curing, complete as per specificatios.	Sq m	334.00	433.00	144,622.00
27	14.36.2	114	Providing and laying (anti skid) **ceramic tiles of approved make,** shade and size **(300 x 300mm x 7mm thick)** for **flooring**, treads of steps and landings laid on a bed of 12 mm thick cement mortar of 1:3 mix, flush pointing with white cement using colour pigment, including cost of materials, labour, curing complete as per specifications	Sqm	10.00	800.00	8,000.00
28	14.41.3	115	Providing skirting, dado and risers of steps with **Coloured glazed tiles** of size **300 x 450mm** and 5 to 6mm thick on 10 mm thick cement plaster 1:3 mix and jointed with white cement slurry over rough plaster surface (exclusing cost of rough plaster surface which should be measured paid separately) using glazed tiles of aproved make, including cost of materials, labour abd curing complete as per specifications	Sqm	60.00	1150.00	69,000.00
29	38	267	Providing & Laying **MCR (Micro Concrete Roofing Tiles) of 10 mm thickness tiles** over Structural Trusses with proper over lap.	Sq m	180.00	182.00	32,760.00
30	9.98	65	Providing and fixing **Pre Cast RCC frame** 100 X 60 mm thick fixed to wall with necessary holdfasts as per drawing with heavy duty hinges 4 nos. for each leaf complete.	Rmt	76.00	198.00	15,048.00

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
31	Non DSR	Non DSR	**Kitchen Otta** shall be **Green Marble and Nirali** Make stainless steel Kitchen, sink of size 19" x 16". The width of the Kitchen Otta shall be 0.7 meter. The front fascia of 100 mm width shall be provided of granite. Granite slab of sufficient dimensions to cover stainless sink area and nahani trap below it shall be provided. Supporting system shall be 25 mm thick kadappa slabs in double layers for Vertical supports and 35 mm thick kadappa Slab below granite top. The working drawing of the Kitchen Otta shall be got approved from Engineer-in- charge if required the fixing shall be done by resine adhesive for the facia. The stainless sink shall be of the best quality available in the market with the I.S.I. mark. The best **(Specifications as per description of item & instructions from site in charge)**	Rmt	8.00	5500.00	44,000.00
32	Non DSR	Non DSR	Providing and fixing **solid core flush door** in single leaf 35 mm thick with both side Painted all necessary beads, moulding and lipping, brass oxidized fixtures and fastenings with ISI marked mortise lock, Brass handles on both side(As per Requirement), Tower bolt from inside, etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	5.00	2800.00	14,000.00
33	9.83	62	Providing and fixing 30 mm thick factory made rigid foam panelled door shutters made from MS tuve of 19 gauge thickness, size 19 x 19 mm for styles and 15 mm x 15 mm for top and bottom rails, covered with heat moulded PVC channel of 5 mm thick sheet and 30 mm x 50 mm wide to form styles and 5 mm thick and 75 mm wide PVC sheets for top rail, lock rail and bottom rial on either side and 5 mm thick and 20 mm wide PVS sheetsas gap insert for top rail and botom rail, panelling of 5 mm thick PVC sheet fitted in the MS frame, sealed to the styles and rails with 5 mm x 30 mm PVC sheet beading on wither side and joined together with solvent cement adhesive etc complete as per specification fixed to frames with 3 nos. of 75 mm Aluminium hinges	Sqm	14.00	1889.00	26,446.00
34	7.10.2	38	Aluminium Powder Coated (**Openable/Top Hung**) with Powder Coating, required section sizes without sub frame with Mosquito Net outside as per design & drawing & specifications	Sq m	29.00	2953.00	85,637.00
35	7.10.2	38	Aluminium **Louvered Ventilators** with AL section including 100 mm wide 4 mm thick frosted glass in 45^0 slope from Inside to Outside and making arrangement of clips for fixing or removing including Powder coating etc complete as per design & drawing & specifications	Sq m	3.00	2953.00	8,859.00
36	15.49.2	124	Providing & applying 2 coats of **Oil Bound Distemper Paint (washable)** of approved shade and brand on wall surface including one coat of distemper primer after thoroughly brooming the surface free from mortar drops and other foreighn matter inlcuding preparing the surface even and sand paper smooth, including cost of materials, labour complete as per specifications- including applying oil bound distemper on ceillings	Sqm	1025.00	53.20	54,530.00
37	15.53.2	125	Providing and finsihing external walls in **2 coats with water proof cement paint** of approved brand and shade to give an even shade after thoroughly brooming the surface to remove all dirt and loose powder material free from morat drops and other foriegn matter including cost of materials, labour complee as per specifications	Sqm	470.00	62.00	29,140.00
38	13.78	102	Providing & placing on **terrace, Polyethylene water storage tanks** with manhole, lid & Suitable locking arrangement, making holes of suitable dia. For inlet, outlet & OVERFLOW pipes including cost of all material, labour & transport charges, HOM of equipment & testing as per specification(10000 Liters) etc complete.	No	1.00	64,510.00	64,510.00
39	Non DSR	Non DSR	Providing & Laying **225 X 225 X 50 mm Fly ash filler blocks** on slab shuttering @ 300 C/C and as per instructions from the Engineer Incharge	No	1750.00	2.42	4,235.00

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
40	07.50	36	Providing & fixing **pull & push type rolling shutters** of approved make out of 18 guage, 75 mm wide cold rolled steel laths of convex corrugation, with side guides & bottom rail, with interlocking arrangements for steel laths by means of alternate clips, suspension shaft with high tension coil type springs two numbers, mounted on specially designed pipe shaft, with bracket plates, guide channels, ball bearing arrangement, for inside & outside locking with push & pull operations complete including pulling hooks, 4 nos. handle with all fittings & accessories, painted with a coat of lead paint (without top cover) cost of material, labour, HOM of machinery complete as per specifications.	Sq m	28.00	2,684.00	75,152.00
			TOTAL OF CIVIL WORK ITEMS				**4,111,340.30**

Community hall and Kiosks

Conventional tech

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1	2.3	05	**Earthwork excavation** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 mafter breaking of clods complete as per specifications	Cum	464.10	125.00	58,012.50
2	2.6	05	**Excavation** 1.5 m and above in width in **soft rock** for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m and above in width, in ordinary soil not exceeding 1.5 m in depth including dressing the bottom and sides of pits and trenches, stacking the excavated soil clear from the edges of excavation with lead upto 50 m complete (Without Blasting)	Cum	132.60	585.00	77,571.00
3	2.8	05	**Excavation** for foundation in **Hard rock** by chiseling and/or wedging, where blasting is prohibited for foundation of buidings, culverts, water supply, sanitary lines and electrical conduits either in pits or in trenches 1.5 m in depth, stacking the excavated soil clear from the edges of excavation with lead upto 50 m including the cost of labour complete as per specifications	Cum	66.30	838.00	55,559.40
5	2.10	06	**Filling available excavated earth in sides of foundations up to plinth** in layers of 20 cm in depth, compacting each layer by ramming after watering with lead up to 50 m and lift up to 1.5 m including the cost of labour complete as per specifications	Cum	421.00	84.00	35,364.00
6	3.2	09	Providing and injecting chemical emulsion for PRE-CONSTRUCTIONAL ANTI-termite treatment, creating a continuous chemical barrier under and all around the column pits, walls, trenches, basement excavation, top surface of the plinth filling, junction of wall and floor, along the external perimeter of building, surroundings of pipes and conduits etc. with Chlorpyriphos emulsifiable concentrates of 20% concentration, including cost of chemical, diluting in water to 1% concentration, labour, HOM of equipment, complete as per following specifications **(Plinth area of the building at ground floor only shall be measured for payment)** Chlorpyriphos emulsifiable concentrate 20% with 1% concentration. a) Treating the bottom and sides of excavation at the rate of 5 liters of emulsion per square meter of surface area. b) Treating the back fill in contact with foundation at the rate of 7.5 liters of emulsion per square meter of vertical surface c) Treating the top surface of filled earth at the rate of 5 liters of emulsion per square meter of surface. d)Treating the soil under plinth protection at the rate of 5 liters of emulsion per square meter of surface area. e) Treating the soil along with external perimeter of	Sqm	370.00	94.76	35,061.20
7	2.15	06	Providing dry trap / granite / quartzite gneiss **230mm thick rubble stone soling** including hand packing, murum blindage on surface, watering and compacting etc. complete	Cum	80.00	1,051.00	84,080.00
8	Non DSR	Non DSR	**Carting away** the excess excavated material obtained from the items of excavation and disposing the same off the site and at dumping place approved by PMC including loading, unloading and all leads and lifts complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	242.00	225.00	54,450.00

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
9	4.7	13	Providing and laying in position **plain cement concrete** of mix M10 grade with OPC @220 Kg, with 20 mm and down size graded metal coarse aggregate @0.84 cub.m and fine aggregate @0.56 cum, machine mixed, concrete laid in layers not exceeding 15 cm thick, well compacted in foundation, plinth and cills, including cost of all materials, labour, HOM of machinery, curing complete as per specifications	Cum	76.00	4,006.00	304,456.00
10			Providing and laying **Reinforced Cement Concrete of design mix M 20** with OPC @320 Kg, with 20 mm and down size graded metal coarse aggregate @0.878 cub.m and fine aggregate @0.459 cum, with super plasticizer @ 3 litres conforming to I.S.9103-1999 reaffirmed -2008, machine mixed, concrete laid in layers not exceeding 15 cm thick, vibrated for all works in foundation plinth and ground floor level for roof slabs, stair case, lintels, retaining walls, return walls, including attached pilasters, buttresses, columns, piers, abutments, pillars, lacing courses, parapets, coping, bed blocks, anchor blocks, plain window cills, fillets etc, including cost of al materials, labour, HOM of machinery, curing complete as per specifications (Excluding reinforcement steel)				
10-a	4.11	13	For **Footings and raft**	Cum	26.00	4851.00	126,126.00
10-b	4.17	15	For **Columns**	Cum	8.00	4851.00	38,808.00
10-c	4.11	13	For **Lintels**	Cum	1.00	4851.00	4,851.00
10-d	4.17	15	Plinth beams	Cum	4.00	4,851.00	19,404.00
10-e	4.17	15	Floor **beams**	Cum	24.00	4851.00	116,424.00
10-f	4.11	13	**Slabs and landings**	Cum	18.53	4851.00	89,889.03
			Slabs and landings where filler slab is not possible	Cum	7.64	4851.00	37,076.19
10-g	4.20	15	For **Chajja`s**	Cum	2.00	401.00	802.00
11	4.28	16	**Shuttering For Footing, PCC, Raft**	Sq m	89.60	187.00	16,755.20
			KSRB 4-6.1 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **foundations,footings, bases** of columns for mass concrete including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
12	4.29	16	**Shuttering For Slab, Landing, Staircase**	Sq m	120.00	240.00	28,800.00
			KSRB 4-6.2 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Flat Surface Such as Suspended Floors, roofs, landings, Balconies and likes thickness up to 200mm** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
13	4.32	17	**Shuttering For Column**	Sq m	79.00	282.00	22,278.00
			KSRB 4-6.5 Providing and removing centering, shuttering, strutting, propping, etc**., f**or **Columns, pillars, piers,abutments, post and struts, square/ rectangular/ polygon,**in plan including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
14	4.34	17	**Shuttering For Beam , Chajja , Lintel**	Sq m	290.20	206.00	59,781.20
			KSRB 4-6.7 Providing and removing centering, shuttering, strutting, propping, etc., and removal of form work for **Side and soffits of beams, beam haunchings, cantilever girders, Bressummers and lintels not exceeding 1m in depth** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
15	4.46	19	Providing and fixing in position **T.M.T. steel/ High** yield strength deformed steel bar (HYSD bar) reinforcement RCC work (footing, slabs, beams, columns, canopies, staircase, chajjas, lintel pardis, coping, etc) including straightening, cutting, bending, hooking, placing in position, lapping and /or welding wherever required, tying with binding wire and anchoring to the adjoining members wherever necessary complete as per . design (laps, hook and wastage shall not be measured and paid) cost of materials, labour, HOM of machinery complete as per specifications	Quintal	113.75	6781.00	771,338.75
16	Non DSR	Non DSR	Providing, cutting, straightening, bending, laying and, welding, bolting **structural steel** sections for Roofs , including and all lifts, leads and conveying, Erecting at any height all as per detail structural design, drawings, specification, including 2 coats of Oil Painting etc. as per directions and instructions complete. **(Specifications as per description of item & instructions from site in charge)**	M.T.	6.678	66000.00	440,748.00
17	6.6	30	Providing and constructing burnt brick masonry 230 mm thick for superstructure with approved quality of standard size of class 50 with cement mortar 1:6 including cost of materials, labour and scaffolding etc complete as per specifications	Sqm	468.22	1037.76	485,902.06
18	5.3	25	Providing & constructing Granite/ trap/ basalt **UCR Masonry** in foundation with 1:6 CM bond stones at 2.0 m apart in each course including cost of material , labour , curing etc. complete as per specifications	Cum	137.00	2141.00	293,317.00
19	6.7	30	Providing & constructing **Burnt Brick masonry** with approved quality class Designation 50 with Cement Mortar 1:4 for basement & super structure including cost of materials, labor charges, scaffolding, curing complete as per specifications	Cum	3.99	4760.00	18,992.40
20	10.2	68	Providing and laying integrated cement based **waterproofing** treatment including preparation of surface as required for treatment of roof, balconies and terraces consisting of the following application A) Applying and grouting a slurry coat of neat cement using 2.75 Kg per sq.m of cement admixed with proprietary water proofing compound conforming to I.S.2645 over the RCC slab after cleaning the surface before the treatment b)Laying cement concrete using broken brick bats 25 mm to 100 mm size with 50% of cement mortar 1:5 admixed with proprietary water proofing compound conforming to I.S.2645 over 20 mm thick layer of cement mortar 1:5 admixed with proprietary water proofing compound to required slope an treating similarly the adjoining walls and slabs C) After 2 days of proper curing, applying a second coat of cement slurry admixed with proprietary water proofing compound D) Finishing the surface with 20 mm thick jointless cement mortar of mix 1:4 admixed with proprietary water proofing compound and finally finishing the surface with trowel and neat cement slurry and making of 300 mm x 300 mm square E) Then whole terrace so finished shall be flooded with	Sqm	211.00	650.00	137,150.00
21	Non DSR	Non DSR	providing **waterproofing** treatment to **sanitary blocks** consisting of one layer of B. B.coba of 5 to 7.5 cm thick in cement morter 1:2 sandwich between two layers of cement morter 1:4, 20mm thick mixed with waterproofing compound, top finishing one coat of cement slurry 6 to 12mm thick with waterproofing compound complete including waterproofing treatment to 45 cm height of wall in cement morter 1:4 and covering 10 years guarantee on court fee stamp of Rs. 100 with pounding test including all lead, lift etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	6.00	2500.00	15,000.00

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
22	15.21	121	Providing 12 mm thick (**internal) cement plaster** in single coat with cement mortar 1:3 to concrete or brick surfaces, ceiling including rounding off corners wherever required smooth rendering, providing and removing scaffolding including cost of materials, labour curing complete as per specifications	Sqm	855.00	139.00	118,845.00
23	Non DSR	Non DSR	Providing **POP Plaster** 6 mm to 8 mm thick to plastered on ceilings in all positions including scaffolding etc. complete.	Sqm	230.00	110.00	25,300.00
24	15.33	122	Providing Lime Rendering for plastered surfaces in all positions for ceilings & Walls including scaffolding and curing complete.	Sqm	794.00	15.80	12,545.20
25	15.18	121	Providing **20 mm cement plaster (External) single coat with cement mortar 1:3 to masonry & concrete surface** including rounding of corner wherever required smooth rendering,: providing & removing scaffolding including cost of material, labour, curing complete as per specification	Sqm	470.00	189.00	88,830.00
26	14.90	110	Providing & Laying **red oxide flooring 40mm** thk with an under layer of 30 mm thk M15 cement concrete, using broken granite metal of 12.5 mm nominal size & top layer of 10 mm thk plaster with 1:3 cement mortar mixed with red oxide (Using 3.5 Kg of red oxide per 50kg of cement) finished with floating coat of neat cement mixed with red oxide (Mix of same proportion), including cost of materials labour curing, complete as per specificatios.	Sq m	334.00	433.00	144,622.00
27	14.36.2	114	Providing and laying (anti skid) **ceramic tiles of approved make,** shade and size **(300 x 300mm x 7mm thick)** for **flooring**, treads of steps and landings laid on a bed of 12 mm thick cement mortar of 1:3 mix, flush pointing with white cement using colour pigment, including cost of materials, labour, curing complete as per specifications	Sqm	10.00	800.00	8,000.00
28	14.41.3	115	Providing skirting, dado and risers of steps with **Coloured glazed tiles** of size **300 x 450mm** and 5 to 6mm thick on 10 mm thick cement plaster 1:3 mix and jointed with white cement slurry over rough plaster surface (exclusing cost of rough plaster surface which should be measured paid separately) using glazed tiles of aproved make, including cost of materials, labour abd curing complete as per specifications	Sqm	60.00	1150.00	69,000.00
29	38	267	Providing & Laying **9" X 15" Manglore Tiles** over Structural Trusses with proper over lap.	Sq m	180.00	311.00	55,980.00
30	9.11	55	Providing **Honne wood** frames for doors, windows, ventilators and other frames, wrought framed or assembled including making plaster grooves including cost of materials, labour etc complete as per specifications	Rmt	76.00	428.00	32,528.00
31	Non DSR	Non DSR	**Kitchen Otta** shall be **Green Marble and Nirali** Make stainless steel Kitchen, sink of size 19" x 16". The width of the Kitchen Otta shall be 0.7 meter. The front fascia of 100 mm width shall be provided of granite. Granite slab of sufficient dimensions to cover stainless sink area and nahani trap below it shall be provided. Supporting system shall be 25 mm thick kadappa slabs in double layers for Vertical supports and 35 mm thick kadappa Slab below granite top. The working drawing of the Kitchen Otta shall be got approved from Engineer-in- charge if required the fixing shall be done by resine adhesive for the facia. The stainless sink shall be of the best quality available in the market with the I.S.I. mark. The best **(Specifications as per description of item & instructions from site in charge)**	Rmt	8.00	5500.00	44,000.00
32	Non DSR	Non DSR	Providing and fixing **solid core flush door** in single leaf 35 mm thick with both side Painted all necessary beads, moulding and lipping, brass oxidized fixtures and fastenings with ISI marked mortise lock, Brass handles on both side(As per Requirement), Tower bolt from inside, etc. complete. **(Specifications as per description of item & instructions from site in charge)**	Sqm	5.00	2800.00	14,000.00

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
33	9.83	62	Providing and fixing 30 mm thick factory made rigid foam panelled door shutters made from MS tuve of 19 gauge thickness, size 19 x 19 mm for styles and 15 mm x 15 mm for top and bottom rails, covered with heat moulded PVC channel of 5 mm thick sheet and 30 mm x 50 mm wide to form styles and 5 mm thick and 75 mm wide PVC sheets for top rail, lock rail and bottom rial on either side and 5 mm thick and 20 mm wide PVS sheetsas gap insert for top rail and botom rail, panelling of 5 mm thick PVC sheet fitted in the MS frame, sealed to the styles and rails with 5 mm x 30 mm PVC sheet beading on wither side and joined together with solvent cement adhesive etc complete as per specification fixed to frames with 3 nos. of 75 mm Aluminium hinges	Sqm	14.00	1889.00	26,446.00
34	7.10.2	38	Aluminium Powder Coated (**Openable/Top Hung**) with Powder Coating, required section sizes without sub frame with Mosquito Net outside as per design & drawing & specifications	Sq m	29.00	2953.00	85,637.00
35	7.10.2	38	Aluminium **Louvered Ventilators** with AL section including 100 mm wide 4 mm thick frosted glass in 45^0 slope from Inside to Outside and making arrangement of clips for fixing or removing including Powder coating etc complete as per design & drawing & specifications	Sq m	3.00	2953.00	8,859.00
36	15.49.2	124	Providing & applying 2 coats of **Oil Bound Distemper Paint (washable)** of approved shade and brand on wall surface including one coat of distemper primer after thoroughly brooming the surface free from mortar drops and other foreighn matter inlcuding preparing the surface even and sand paper smooth, including cost of materials, labour complete as per specifications- including applying oil bound distemper on ceillings	Sqm	1025.00	53.20	54,530.00
37	15.53.2	125	Providing and finsihing external walls in **2 coats with water proof cement paint** of approved brand and shade to give an even shade after thoroughly brooming the surface to remove all dirt and loose powder material free from morat drops and other foriegn matter including cost of materials, labour complee as per specifications	Sqm	470.00	62.00	29,140.00
38	13.78	102	Providing & placing on **terrace, Polyethylene water storage tanks** with manhole, lid & Suitable locking arrangement, making holes of suitable dia. For inlet, outlet & OVERFLOW pipes including cost of all material, labour & transport charges, HOM of equipment & testing as per specification(10000 Liters) etc complete.	No	1.00	64,510.00	64,510.00
39	Non DSR	Non DSR	Providing & Laying **225 X 225 X 50 mm Fly ash filler blocks** on slab shuttering @ 300 C/C and as per instructions from the Engineer Incharge	No	0.00	2.42	0.00
40	07.50	36	Providing & fixing **pull & push type rolling shutters** of approved make out of 18 guage, 75 mm wide cold rolled steel laths of convex corrugation, with side guides & bottom rail, with interlocking arrangements for steel laths by means of alternate clips, suspension shaft with high tension coil type springs two numbers, mounted on specially designed pipe shaft, with bracket plates, guide channels, ball bearing arrangement, for inside & outside locking with push & pull operations complete including pulling hooks, 4 nos. handle with all fittings & accessories, painted with a coat of lead paint (without top cover) cost of material, labour, HOM of machinery complete as per specifications.	Sq m	28.00	2,684.00	75,152.00
			TOTAL OF CIVIL WORK ITEMS				**4,385,921.14**

SCHEDULE OF QUANTITIES FOR SITE DEVELOPMENT

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
01	2.3	05	**Excavation** for foundation in existing **soil** of all types, including sand and gravel, shaudu murum, boulders etc. including removing the excavated unserviceable off the site and stacking & or spreading as directed, dewatering preparing the bed for the foundation and necessary back filling, ramming, watering including shoring & strutting etc. complete.	Cum	1248	125.00	156,000.00
02	2.6	05	**Excavation** for foundation in **soft rock** by chiseling, wedging, hand drilling etc. including trimming and leveling the bed, removing the unserviceable materials off the site stacking as directed, de watering and back filling with available excavated earth / murum ramming, watering, etc complete.(Without Blasting)	Cum		585.00	
03	2.15	06	Providing dry trap / granite / quartzite gneiss up to **230mm thick rubble stone soling** including hand packing, murum blindage on surface, watering and compacting etc. complete	Cum	432.000	1,051.00	454,032.00
04	5.3	25	Providing & Constructing Granite/trap/ basalt rubble stone masonry in foundation with **cement mortar 1:6 (uncoursed),** bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications,	Cum	129.00	2141.00	276,189.00
05	Non DSR	Non DSR	**Carting away** the excess excavated material obtained from the items of excavation and disposing the same off the site and at dumping place approved by PMC including loading, unloading and all leads and lifts complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	1,248.00	225.00	280,800.00
06	4.7	13	Providing and laying is situ, **plain cement concrete 1:3:6** of trap stone metal **for foundation** and bedding including bailing out water, form work compacting and curing.	Cum	188	4,006.00	753,128.00
07	4.28	16	**Shuttering For Footing, PCC, Raft**	Sq m	153.66	187.00	28,734.61
			KSRB 4-6.1 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **foundations,footings, bases** of columns for mass concrete including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
08	14.66.2	118	Providing and laying **heavy duty cobble stones 80 mm thick interlock pavers**, using cement and course sand for manufacture of blocks of approved size, shape and colour with a minimum compressive strength of 281 kg per Sqm over 50 mm thick sand bed (average thickness) and Compacting with plate vibration having 3 tonnes compaction force there by forcing part of sand underneath to come up in between joints, final compaction of Paver surface joints into final level, including Cost of materials , labour and HOM of machineries Complete as Specification	Sqm	1546.00	825.00	1,275,450.00
09	5.24	27	Providing **Concrete Cavity Blocks (Hollow Blocks) masonry** of thickness **200 mm** in cement mortar 1 : 4 for walls in superstructure including scaffolding, raking out joints and watering etc complete as per specification	Sqm	596	575.00	342,700.00

SCHEDULE OF QUANTITIES							
SR.	**Sl. No.**	**Page No.**	**ITEMS DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
10	15.18	121	Providing **20 mm cement plaster (External) single coat with cement mortar 1:3 to masonry & concrete surface** including rounding of corner wherever required smooth rendering,: providing & removing scaffolding including cost of material, labour, curing complete as per specification	Sqm	1094	189.00	206,766.00
11	15.53.2	125	Providing & applying two coats of **Waterproof cement Paint** to External Surfaces of approved manufacturer & approved colour to plastered surface etc. complete.	Sqm	1094	62.00	67,828.00
12	7.37	47	Providing and Fixing **M.S. gate as per chief Architect Drawing** , using 50 mm x 50 mm 14 gauge M.S.hollow pipe frame Work bent to ornamental Shape as shown in the drawing and 35 mm x 6mm and 16x16 mm Square rods for verticals alternatively Spaced at 4cms C/C in two havles and 40mm x 6mm M.S flats for horizontal member and at the top Cast iron Spikes are provided at alternate Vertical members as Shown in drawing etc. complete . All the steel surface should be thoroughly cleaned free of rust and painted with anti corrosive paint (shop paint) etc ., Complete . The work includes Cost of all materials, labour Charges for all items of Work,hire Charges for welding, cutting and grinding equipment, and electricity charges, with lead and lift , loading and unloading charges, etc, Complete As Per Specification	Sqm	20	5249.00	104,980.00
13	20.20	168	Providing & laying Construction of median and island with soil taken from barrows areas. Construction of median & island above above road level with with approved material deposited from borrow pits , spread , sloped and compacted as per Clause 400.7 Complete as per specifications. MORTH Specification	Cum	78.00	102.00	7,956.00
14	20.14.1	166	Providing, laying, spreading and compacting stone aggregates of specific size to water bound macadam specifications including spreading in uniform thickness, hand packing ,rolling with 3- wheeled steel /vibratory roller 8-10 tonnes in stages to proper grade and camber, applying and brooming requisite type of screening/binding materials to fill up the interstices of coarse aggregates, watering and compacting to the required density complete as per Specification. A. By manual means MORTH specification No.404 **Type A 13.2mm for grading II**	Cum	184.00	1200.00	220,800.00
15	21.90	173	Providing & Applying **tack coat** on Granular base such as WBM & WMM Surfaces hot bitumen primed at 4kg per 10 sqm , heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specification.	Sqm	245.00	24.30	5,953.50
16	7.3		Providing & installing cement concrete precast **curbing stones of 150mm thk & 450mm high** set in 1:2:4 P.C.C bed including painting, curing ,cleaning stc.,complete	Rmt	299	6.00	1,794.00
17	14.16	111	Providing Flooring With **25 mm to 40mm thick polished Cadapa Slabs** Using Cement Mortar 1:6, 25mm thick over existing cement concrete bed or top of roof laid to line and level and jointed with cement slurry mixed with pigment to match the shade of the slab, including Cost of materials, labour, curing, polishing Complete as per Specification.	Sqm	10	779.00	7,790.00
			TOTAL OF CIVIL WORK ITEMS				**4,190,901.11**

SCHEDULE OF QUANTITIES FOR SEPTIC TANK

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1.00	2.30	5.00	**Excavation** for foundation in existing **soil** of all types, including sand and gravel, shaudu murum, boulders etc. including removing the excavated unserviceable off the site and stacking & or spreading as directed, dewatering preparing the bed for the foundation and necessary back filling, ramming, watering including shoring & strutting etc. complete.	Cum	269.00	125.00	33,625.00
2.00	2.15	6.00	Providing dry trap / granite / quartzite gneiss up to **230mm thick rubble stone soling** including hand packing, murum blindage on surface, watering and compacting etc. complete	Cum	16.00	1,051.00	16,816.00
3.00	4.70	13.00	Providing and laying is situ, **plain cement concrete 1:3:6** of trap stone metal **for foundation** and bedding including bailing out water, formwork compacting and curing.	Cum	10.50	4,006.00	42,063.00
4.00	Non DSR	Non DSR	**Carting away** the excess excavated material obtained from the items of excavation and disposing the same off the site and at dumping place approved by PMC including loading, unloading and all leads and lifts complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	269.00	225.00	60,525.00
6.00			Providing and laying reinforced cement **concrete M – 20** of trap stone metal, as per detailed designs & drawing or as directed by Architect / Structural Engineer, including centering, form work, compaction, curing and roughening the surface etc complete. (Excluding reinforcement steel)				
6-a	4.11	13.00	For **Footings and raft**	Cum	17.00	4,851.00	82,467.00
6-b	4.11	13.00	**RCC Pardi**	Cum	48.00	4,851.00	232,848.00
6-c	4.11	13.00	**Slabs**	Cum	7.00	4,851.00	33,957.00
07	4.28	16	**Shuttering For Footing, PCC, Raft**	Sq m	17.68	187.00	3,306.72
			KSRB 4-6.1 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **foundations,footings, bases** of columns for mass concrete including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
08	4.31	17	**Pardi Shuttering**	Sq m	342.36	226.00	77,374.26
			KSRB 4-6.4 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Vertical surface such as Walls at any thickness,** including attached pilasters ,Buttresses, Plinth & String courses, cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
09	4.29	16	**Shuttering For Slab, Landing, Staircase**	Sq m	45.72	240.00	10,972.80
			KSRB 4-6.2 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Flat Surface Such as Suspended Floors, roofs, landings, Balconies and likes thickness up to 200mm** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				

SCHEDULE OF QUANTITIES FOR SEPTIC TANK							
SR.	**Sl. No.**	**Page No.**	**ITEMS DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
10.00	4.46	19.00	Providing and fixing in position **T.M.T. steel/ High** yield strength deformed steel bar (HYSD bar) reinforcement of various diameters for RCC footing, slabs, beams, columns, canopies, staircase, chajjas, lintel pardis, coping, etc. as per detail designs, drawings and schedules including cutting, bending, hooking the bars, binding with 18 gauge binding steel wire or tack welding & supporting as required complete.	Quintel	11.94	6,781.00	80,965.14
11.00	15.18	121.00	Providing **20 mm cement plaster single coat with cement mortar 1:3 to masonry & concrete surface** including rounding of corner wherever required smooth rendering,: providing & removing scaffolding including cost of material, labour, curing complete as per specification	Sqm	152.00	189.00	28,728.00
12.00	15.27	121.00	**Extra for Providing Waterproofing Compound** in cement Mortar for at one Kg/Bag or in the proportion recommended by the manufacturer's , for cement 1:4 , 20 mm thk cost of materials as per specifications	Sqm	152.00	8.00	1,216.00
13.00	15.32	122.00	Providing **floating coat of cement** to plastering and finishing smooth, including cost of materials, labour, curing complete as per specifications	Sqm	152.00	15.80	2,401.60
			TOTAL OF CIVIL WORK ITEMS				**707,266.00**

Storm Water & Drainage Work

SCHEDULE OF QUANTITIES

SR.	Sl. No.	Page No.	ITEMS DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1.00	2.30	5.00	**Excavation** for foundation in existing **soil** of all types, including sand and gravel, shaudu murum, boulders etc. including removing the excavated unserviceable off the site and stacking & or spreading as directed, dewatering preparing the bed for the foundation and necessary back filling, ramming, watering including shoring & strutting etc. complete.	Cum	444.32	125.00	55,540.00
2.00	2.15	6.00	Providing dry trap / granite / quartzite gneiss up to **230mm thick rubble stone soling** including hand packing, murum blindage on surface, watering and compacting etc. complete	Cum	27.000	1,051.00	28,377.00
3.00	4.70	13.00	Providing and laying is situ, **plain cement concrete 1:3:6** of trap stone metal **for foundation** and bedding including bailing out water, formwork compacting and curing.	Cum	15	4,006.00	60,090.00
4.00	Non DSR	Non DSR	**Carting away** the excess excavated material obtained from the items of excavation and disposing the same off the site and at dumping place approved by PMC including loading, unloading and all leads and lifts complete. **(Specifications as per description of item & instructions from site in charge)**	Cum	444.32	225.00	99,972.00
5.00	5.30	25.00	Providing & Constructing Granite/trap/ basalt rubble stone masonry in foundation with **cement mortar 1:6 (uncoursed),** bond stones at two m. apart in each course including cost of materials, labour, curing complete as per specifications,	Cum	76.00	2141.00	162,716.00
6.00			Providing and laying reinforced cement **concrete M – 20** of trap stone metal, as per detailed designs & drawing or as directed by Architect / Structural Engineer, including centering, form work, compaction, curing and roughening the surface etc complete. (Excluding reinforcement steel)				
6-a	4.11	13.00	For **Footings and raft**	Cum	17.00	4851.00	82,467.00
6-b	4.11	13.00	**RCC Pardi**	Cum	10.00	4851.00	48,510.00
6-c	4.11	13.00	**Slabs and landings**	Cum	8.00	4851.00	38,808.00
7.00	4.28	16	**Shuttering For Footing, PCC, Raft**	Sq m	47.21	187.00	8,828.27
			KSRB 4-6.1 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **foundations,footings, bases** of columns for mass concrete including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
8.00	4.31	17	**Shuttering For Pardi**	Sq m	120.96	226.00	27,336.96
			KSRB 4-6.4 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Vertical surface such as Walls at any thickness,** including attached pilasters ,Buttresses, Plinth & String courses, cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
9.00	4.29	16	**Shuttering For Slab, Landing, Staircase**	Sq m	42.89	240.00	10,293.60

SCHEDULE OF QUANTITIES							
SR.	**Sl. No.**	**Page No.**	**ITEMS DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
			KSRB 4-6.2 Providing and **removing centering, shuttering, strutting, propping, etc.,** and removal of form work for **Flat Surface Such as Suspended Floors, roofs, landings, Balconies and likes thickness up to 200mm** including cost of all material, labour complete as per Specification. Specification No. KBS 4.6.2				
10.00	4.46	19.00	Providing and fixing in position **T.M.T. steel/ High** yield strength deformed steel bar (HYSD bar) reinforcement of various diameters for RCC footing, slabs, beams, columns, canopies, staircase, chajjas, lintel pardis, coping, etc. as per detail designs, drawings and schedules including cutting, bending, hooking the bars, binding with 18 gauge binding steel wire or tack welding & supporting as required complete.	Quintel	42.00	6781.00	284,802.00
11.00	15.18	121.00	Providing **20 mm cement plaster single coat with cement mortar 1:3 to masonry & concrete surface** including rounding of corner wherever required smooth rendering,: providing & removing scaffolding including cost of material, labour, curing complete as per specification	Sqm	205	189.00	38,745.00
12.00	15.27	121.00	**Extra for Providing Waterproofing Compound** in cement Mortar for at one Kg/Bag or in the proportion recommended by the manufacturer's , for cement 1:4 , 20 mm thk cost of materials as per specifications	Sqm	205.00	8.00	1,640.00
13.00	15.32	122.00	Providing **floating coat of cement** to plastering and finishing smooth, including cost of materials, labour, curing complete as per specifiactions.	Sqm	205.00	15.80	3,239.00
14.00	Non DSR	Non DSR	Providing,fixing and laying in position **RCC NP2, 250** mm Dia , A-class with collar joint and with rubber ring at the place of work including transportation in and out of rejected pipes ,providing testing Certificate 2% etc. complete.	Rmt	256.00	450.00	115,200.00
15.00	11.50	74.00	Providing & constructing **brick masonry Inspection chamber of 455 x 610 x 450 mm depth** (internal clear size) using table moulded non-modular bricks of class designation 50 in cement mortar 1:5 , CI cover withframe (light duty) 455 X 610 mm internal dimensions, total weight not less than 380 kg (Weight of Cover 23 kG and weight of frame 15 kg) RCC . Top slab with cement concrete M15 with 20 mm and downsize granite metal, foundation concrete M 5 with 40 mm and downsize granite metal inside plastering 12 mm thk with cement mortar 1:3, finish smooth with a floating coat of cement on walls and bed concrete complete as per standard design including cost of material, labour charges, curing complete as per specifications.	Nos	70.00	5118.00	358,260.00
16.00	13.87.10	105.00	Providing and fixing Chlorinated Poly Vinyle Chloride (CPVC) pipes confirming to IS 15778 having thermal stability for hot & cold water supply including all CPVC plain and brass threaded fittings, this includes jointing of pipes and fittings with one step solvent cement, trenching, refilling & testing of joints complete. (External Works)	Rmt	205.00	3750.00	768,750.00

SCHEDULE OF QUANTITIES							
SR.	**Sl. No.**	**Page No.**	**ITEMS DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE**	**AMOUNT**
17.00	14.16	111.00	Providing Flooring With **25 mm to 40mm thick polished Cadapa Slabs** Using Cement Mortar 1:6/ only place over the filters, over existing cement concrete bed or top of roof laid to line and level and jointed with cement slurry mixed with pigment to match the shade of the slab, including Cost of materials, labour, curing, polishing Complete as per Specification.	Sqm	28	779.00	21,812.00
			TOTAL OF CIVIL WORK ITEMS				**2,215,386.83**

11
Plumbing Cost

BOQ FOR PLUMBING WORKS

				RATE		TOTAL
SL.NO	DISCRIPTION	QTY	UNIT	SUPPLY	LABOUR	
A	**DOMESTIC & DRINKING WATER SYSTEM**					
1	Supply & installation of GI.tata C-class pipe lines for domestic water & drinking water supply with all required accessories like Tee, bend,unions, reducer, clamps, screws, etc.					
1.1	65 mm dia	160	Mts	560	235	127200
1.2	50 mm dia	150	Mts	425	175	90000
1.3	40 mm dia	920	Mts	380	165	501400
1.4	32 mm dia	780	Mts	325	150	370500
1.5	25 mm dia	310	Mts	250	110	111600
1.6	20mm dia	1250	Mts	175	90	331250
2	Supply and fixing of HIGH QUALITY gun metal ball valves with stainless steel ball, lever operated and tested to 20kg / sq.cm. (Make: Zolato)					
2.1	65 mm dia	6	Nos.	1700	375	12450
2.2	50 mm dia	6	Nos.	1400	300	10200
2.3	40 mm dia	60	Nos.	1200	300	90000
2.4	32 mm dia	10	Nos.	900	200	11000
2.5	25 mm dia	67	Nos.	600	150	50250
2.6	20mm dia	65	Nos.	420	125	35425
3	Supply & the installation of CP angle cocks (Make: Jaquar)	78	Nos.	420	125	42510
4	Supply & the installation of CP wash basin taps (Make: Jaquar)	78	Nos.	350	110	35880
5	Supply & the installation of 1/2"dia /2' length braided flexible hose (Make: Jaquar)	78	Nos.	260	75	26130
6	Supply & the installation of CP SINK taps (Make: Jaquar)	125	Nos.	580	125	88125
7	Supply & the installation of CP 1/2" taps (Make: Jaquar)	140	Nos.	375	100	66500
8	Supply & the installation of CP shower mixer taps (Make: Jaquar)	62	Nos.	2200	480	166160
9	Supply & the installation of CP urinal flush out (Make: Jaquar)	3	Nos.	1600	350	5850
B	**SANITORY WARES**					
1	Supply & installation of SS kitchen sinks	62	Nos.	4800	350	319300
2	Supply & installation of hindware wash basins	75	Nos.	2200	250	183750

3	Supply & installation of hindware wall mounting type EWC along with cistren flush out system and 'P'-trap, MS brackets	75	Nos.	9000	1200	765000
4	Supply & installation of hindware urinals	3	Nos.	3800	875	14025
C	**DRAINAGE SYSTEM**					
1	Supply & installation of SWR PIPE (6kg/sq.cm) (Make: Finolex)for the drain lines with all accessories like bend, reducer clamps, screws etc.					
1.1	150MM PIPE	490	Mts	625	180	394450
1.2	110 MM PIPE	1200	Mts	400	125	630000
1.3	80MM PIPE	250	Mts	325	100	106250
1.4	65MM PIPE	30	Mts	265	90	10650
1.5	50MM PIPE	270	MTS	200	75	74250
1.6	40MM PIPE	135	Mts	140	60	27000
2	Supply and providing the drain connection using PVC heavy duty flexible hose of 40mm dia for the SINKS & WASH BASINS from the waste coupler to the main drain line with all required accessories	137	Nos.	250	50	41100
3	Supply & Installation of 6"x6" drain grating	200	Nos.	320	75	79000
4	Supply & Installation of 6" PVC floor trap	200	Nos.	450	145	119000
D	**RAIN WATER SYSTEM**					
1	Supply & installation of SWR PIPE (6kg/sq.cm) (Make: Finolex)for the drain lines with all accessories like bend, reducer clamps, screws etc.					
1.1	150MM PIPE	820	Mts	625	180	660100
				TOTAL		**5596305**

12
Electrical Cost

BOQ & COSTING FOR ELECTRICAL WORKS OF HOUSING UNIT

				RATE		TOTAL
SL.NO	DISCRIPTION	QTY	UNIT	SUPPLY	LABOUR	AMOUNT
	Area Details:					
	Living Room -3050x5200					
	Kitchen - 2620x5200					
	Mazzanine floor - 2620x5200					
	Make of wire/switches/metal boxes/angle holder etc = Anchor					
I)	**HOUSES:**					
A	**CONDUITING & WIRING:**					
1	**INCOMER FROM POLE:-** Supply & laying of wiring from nearby Electricity Board pole (Approximate distance 13 mts) to the location below the staircase at ground level using double insulated white colour 7/20 copper wire (Phase + Neutral) with twisted 7x16SWG G.I wire, bobbin insulators and all accessories	13	Mt	130	25	2015
2	**INCOMER FROM METER BOX:-** Supply & laying of concealled wiring of 2 x 4 sq.mm (P+N) & 1x 2.5 sq.mm (E) FRLS multi stranded wire from Energy meter enclosure box to MCB DB box of the house using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	12	Mt	140	40	2160
3	**INCOMING CIRCUITS:-** Supply & laying of concealled wiring of 2 x 2.5 sq.mm (P+N) & 1x 1.5 sq.mm (E) FRLS multi stranded wire from DB enclosure box to VARIOUS SWITCH BOXES of the house using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	55	MT	90	25	6325
4	**INTERCONNECTION FOR 2 WAY SWITCHES:-** Supply & laying of concealled wiring of 2 x 1.5 sq.mm (P+N) FRLS multi stranded wire between two SB for 2 way controlling of fan/lights of the house using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	5	Nos.	350	25	1875

5	**CONTROL CIRCUITS FROM SWITCH TO LOAD:-** Supply & laying of concealled wiring of 2 x 1.5 sq.mm (P+N) FRLS multi stranded wire from switch to light/fan/bell points of the house using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	16	Nos.	130	25	2480
B	**SWITCH BOXES, PLATES, SWITCHES & SOCKETS**					
6	Supply & installation of concealed metallic switch boxes and installation of switch plates along with switches & sockets .Rate inclusive of chipping & chasing of wall and wiring terminations .					
6.1	1 module switch box & switch plate with 1# 5A switch	4	Nos.	140	35	700
6.2	2 module switch box & switch plate with 2# 5A switches	1	No.	180	45	225
6.3	4 module switch box & switch plate with 4# 5A switches	2	Nos.	330	85	830
6.4	5 module switch box & switch plate with 3# 5A switches + 1#5A socket	3	Nos.	360	90	1350
6.5	6 module switch box & switch plate with 1# 5A switch+2# 15A switches + 2# 15A sockets	1	No,	425		425
6.6.	Supply & installation of 6 module MCB DB box with 20A DP MCB as incomer and 3# 6A MCBs & 1# 16A MCB as outgoing. Rate inclusive of chipping & chasing of wall and wiring terminations .	1	NO.	1100	180	1280
C	**FIXTURES:-**					
7	Supply & installation of PVC angle holders on the walls and wiring terminations .	11	Nos.	110	30	1540
8	Supply & installation of 8W CFL bulbs	5	Nos.	95	10	525
9	Supply & installation of 18W CFL bulbs	4	Nos.	135	10	580
10	Supply & installation of 36W Tube Light fixtures	2	Nos.	350	120	940
	TOTAL (FOR ONE HOUSE)					**23250**
	TOTAL (FOR 30 NOS. OF HOUSES)					**697500**

II)	**COMMON PASSAGES & STAIRCASES:-**					
A	**CONDUITING & WIRING:**					
1	**INCOMER FROM POLE:-** Supply & laying of wiring from nearby Electricity Board pole (Approximate distance 13 mts) to the location below the staircase at ground level using double insulated white colour 7/20 copper wire (Phase + Neutral) with twisted 7x16SWG G.I wire, bobbin insulators and all accessories	13	Mt	130	25	2015
2	**INCOMER FROM METER BOX:-** Supply & laying of concealled wiring of 2 x 4 sq.mm (P+N) & 1x 2.5 sq.mm (E) FRLS multi stranded wire from Energy meter enclosure box to MCB DB box of Common Area of the building located below the staircase at Gr. level, using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	5	Mt	140	40	900
3	**INCOMING CIRCUITS:-** Supply & laying of concealled wiring of 2 x 2.5 sq.mm (P+N) & 1x 1.5 sq.mm (E) FRLS multi stranded wire from DB enclosure box to VARIOUS SWITCH BOXES of the common area using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	45	MT	90	25	5175
4	**INTERCONNECTION FOR 2 WAY SWITCHES:-** Supply & laying of concealled wiring of 2 x 1.5 sq.mm (P+N) FRLS multi stranded wire between two SB for 2 way controlling of staircase lights of the building using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	2	Nos.	350	25	750
5	**CONTROL CIRCUITS FROM SWITCH TO LOAD:-** Supply & laying of concealled wiring of 2 x 1.5 sq.mm (P+N) FRLS multi stranded wire from switch to lights points of the common area using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	12	Nos.	130	25	1860

B	**SWITCH BOXES, PLATES, SWITCHES & SOCKETS**					
6	Supply & installation of concealed metallic switch boxes and installation of switch plates along with switches & sockets .Rate inclusive of chipping & chasing of wall and wiring terminations .					
6.1	4 module switch box & switch plate with 4# 5A switches	1	No.	340	85	425
6.2	5 module switch box & switch plate with 5# 5A switches	1	No.	390	95	485
6.3	8 module switch box & switch plate with 6# 5A switches + 1# 5A socket	1	No.	535	130	665
C	**FIXTURES:-**					
7	Supply & installation of PVC angle holders on the walls and wiring terminations .	12	Nos.	110	30	1680
8	Supply & installation of 18W CFL bulbs	12	Nos.	135	10	1740
	TOTAL FOR ONE BUILDING					**15695**
	TOTAL FOR TWO BUILDINGS					**31390**
III)	**EARTHING :**					
1	Supply & providing of G.I. conventional type earth pits using 40mm 'B'-class perforated G.I. pipe of length 3 Mt with 25x3mm strip mounted and providing G.I. funnel at the top. Rate inclusive of digging and alternate filling of common salt and charcoal powder	2	Nos.	1670	600	4540
2	Supply and laying 25mmx3mm G.I. earth strips from earth pits to the metering box location and providing G.I. earth bar strip to connect earthing wires of all the houses/common areas	100	Mt	44	25	6900
	TOTAL - C					**11440**
	GRAND TOTAL (A+B+C)					**740330**

BOQ & COSTING FOR ELECTRICAL WORKS OF SCHOOL BUILDING

				RATE		TOTAL
SL.NO	DISCRIPTION	QTY	UNIT	SUPPLY	LABOUR	AMOUNT
	Make of wire/switches/metal boxes/angle holder etc = Anchor					
A	**MAIN DISTRIBUTION BOARD**					
1	Supply & installation of seven compartment type with 12 outgoing circuits Main DB with 32A/4P/100mA RCBO as incomer and all the outgoing MCB/RCBO specs as shown in the drawing (Make: MDS/ABB)	1	No	6300	400	6700
B	**CONDUITING & WIRING:**					
2	**INCOMER FROM POLE:-** Supply & laying of wiring from nearby Electricity Board pole (Approximate distance 13 mts) to the location of METER BOX using 4CX10 SQ.MM COPPER AR. PVC CABLE	13	Mt	375	25	5200
3	**INCOMER FROM METER BOX:-** Supply & laying of 4CX10SQ.MM copper AR. PVC cable from meter box to the MDB. Rate inclusive of chipping & chasing of wall where ever required	12	Mt	375	25	4800
5	**INCOMING CIRCUITS:-** Supply & laying of concealed wiring of 3 x 2.5 sq.mm (P+N+E) FRLS multi stranded wire from MDB enclosure box to VARIOUS SWITCH BOXES using 25 mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	230	MT	75	25	23000
6	**CONTROL CIRCUITS FROM SWITCH TO LOAD:-** Supply & laying of concealed wiring of 3 x 1.5 sq.mm (P+N+E) FRLS multi stranded wire from switch to light/fan points using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	95	Nos.	140	25	15675
C	**SWITCH BOXES, PLATES, SWITCHES & SOCKETS**					
7	Supply & installation of concealed metallic switch boxes and installation of switch plates along with switches/fan regulators & sockets .Rate inclusive of chipping & chasing of wall and wiring terminations .					
7.1	1 module switch box & switch plate with 1# 6A switch	1	No.	140	35	175
7.2	2 module switch box & switch plate with 2# 6A switches	2	No.	180	45	450
7.3	3 module switch box & switch plate with 1# 6Aswitch and 1# 6A sockets	4	Nos.	230	85	1260

7.4	3 module switch box & switch plate with 3# 6A switches	2	Nos.	250	100	700
	3 module switch box & switch plate with 2# 6A switches + 1#fan regulator	1	No.	350	100	450
7.5	4 module switch box & switch plate with 2# 6A switches and 1# 6A socket	1	Nos.	360	120	480
7.6	6 module switch box & switch plate with 2# 6A switches +2# 6A sockets	1	Nos.	380	140	520
7.7	6 module switch box & switch plate with 3# 6A switches and 1 # fan regulators + 1# 6A socket	1	Nos.	430	155	585
7.8	8 module switch box & switch plate with 6# 6A switches and 1 # 6A sockets	1	Nos.	490	160	650
7.9	8 module switch box & switch plate with 5# 6A switches and 3 # fan regulator	4	Nos.	1020	180	4800
7.10	8module switch box & switch plate with 5# 6A switches and 2# fan regulator & 1# dummy	1	Nos.	950	240	1190
7.11	8module switch box & switch plate with 5# 6A switches and 1# 5A socket + 1 # dummy	1	No.	520	160	680
7.12	8module switch box & switch plate with 4# 6A switches and 1# fan regulator & 1# 5A socket + 1 # dummy	2	Nos.	650	165	1630
D	**FIXTURES:-**					
8	Supply & installation of 1'/8W T5 florescent light fixture for toilets	8	Nos.	390	65	3640
10	Supply & installation of 2'/18W T8 florescent light fixture for toilets	5	Nos.	410	90	2500
11	Supply & installation of 3'/27W T8 florescent light fixture for passages	15	Nos.	560	120	10200
12	Supply & installation of 4'/36W T8 florescent light fixture	35	Nos.	680	130	28350
14	Supply & installation of 48" ceiling fan	18	Nos.	1350	150	27000
III)	**EARTHING :**					
1	Supply & providing of G.I. conventional type earth pits using 40mm 'B'-class perforated G.I. pipe of length 3 Mt with 25x3mm strip mounted and providing G.I. funnel at the top. Rate inclusive of digging and alternate filling of common salt and charcoal powder	2	Nos.	1670	600	4540
2	Supply and laying 25mmx3mm G.I. earth strips from earth pits to the metering box location and providing G.I. earth bar strip to connect earthing wires of all the houses/common areas	90	Mt	44	25	6210
	TOTAL					**151385**

BOQ & COSTING FOR ELECTRICAL WORKS OF COMMUNITY HALL

SL.NO	DISCRIPTION	QTY	UNIT	RATE		TOTAL
				SUPPLY	LABOUR	AMOUNT
	Make of wire/switches/metal boxes/angle holder etc = Anchor					
A	**MAIN DISTRIBUTION BOARD**					
1	Supply & installation of seven compartment type with 18 outgoing circuits Main DB with 40A/4P/100mA RCBO as incomer and all the outgoing MCB/RCBO specs as shown in the drawing (Make: MDS/ABB)	1	No	7200	400	7600
B	**CONDUITING & WIRING:**					
2	**INCOMER FROM POLE:-** Supply & laying of wiring from nearby Electricity Board pole (Approximate distance 13 mts) to the location of METER BOX using 4CX16 SQ.MM COPPER AR. PVC CABLE	13	Mt	420	25	5785
3	**INCOMER FROM METER BOX:-** Supply & laying of 4CX16SQ.MM copper AR. PVC cable from meter box to the MDB. Rate inclusive of chipping & chasing of wall where ever required	12	Mt	420	25	5340
4	**INCOMING CIRCUITS:-** Supply & laying of concealed wiring of 3 x 4 sq.mm (P+N+E) FRLS multi stranded wire from MDB enclosure box to VARIOUS SWITCH BOXES using 25 mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	50	MT	110	30	7000
5	**INCOMING CIRCUITS:-** Supply & laying of concealed wiring of 3 x 2.5 sq.mm (P+N+E) FRLS multi stranded wire from MDB enclosure box to VARIOUS SWITCH BOXES using 25 mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	270	MT	75	25	27000
6	**CONTROL CIRCUITS FROM SWITCH TO LOAD:-** Supply & laying of concealed wiring of 3 x 1.5 sq.mm (P+N+E) FRLS multi stranded wire from switch to light/fan points using 19mm dia heavy duty FRLS PVC conduit. Rate inclusive of chipping & chasing of wall where ever required and all accessories like saddles, screws, PVC Junction boxes, bends, etc	106	Nos.	140	25	17490

C	**SWITCH BOXES, PLATES, SWITCHES & SOCKETS**					
7	Supply & installation of concealed metallic switch boxes and installation of switch plates along with switches/fan regulators & sockets .Rate inclusive of chipping & chasing of wall and wiring terminations .					
7.1	1 module switch box & switch plate with 1# 5A switch	1	No.	140	35	175
7.2	2 module switch box & switch plate with 2# 5A switches	1	No.	180	45	225
7.3	3 module switch box & switch plate with 1# 5Aswitch and 1# 5A sockets	2	Nos.	230	85	630
7.4	3 module switch box & switch plate with 1# 15Aswitch and 1# 15A socket	2	Nos.	320	100	840
7.5	4 module switch box & switch plate with 3# 5A switches and 1# fan regulator	4	Nos.	360	120	1920
7.6	6 module switch box & switch plate with 6# 5A switches	2	Nos.	490	140	1260
7.7	6 module switch box & switch plate with 4# 5A switches and 2 # fan regulators	2	Nos.	790	155	1890
7.8	6 module switch box & switch plate with 2# 5A switches and 2 # 5A sockets	2	Nos.	370	120	980
7.9	6 module switch box & switch plate with 3# 5A switches and 1 # 5A sockets & 1# fan regulator	1	Nos.	610	140	750
7.10	8module switch box & switch plate with 5# 5A switches and 2# fan regulator & 1# dummy	2	Nos.	950	240	2380
7.11	8module switch box & switch plate with 6# 5A switches and 1# 5A socket	1	No.	600	180	780
7.12	8module switch box & switch plate with 5# 5A switches and 1# fan regulator & 1# 5A socket	6	Nos.	755	220	5850
D	**FIXTURES:-**					
8	Supply & installation of 1'/8W T5 florescent light fixture for toilets	6	Nos.	390	65	2730
9	Supply & installation of (2x18W) CFL doom type ceiling lights fixture for entrance	2	Nos.	545	75	1240
10	Supply & installation of 2'/18W T8 florescent light fixture for toilets	2	Nos.	410	90	1000
11	Supply & installation of 3'/27W T8 florescent light fixture for passages	4	Nos.	560	120	2720
12	Supply & installation of 4'/36W T8 florescent light fixture	60	Nos.	680	130	48600
13	Supply & installation of 36" ceiling fan	10	Nos.	1200	150	13500
14	Supply & installation of 48" ceiling fan	9	Nos.	1350	150	13500
15	Supply & installation of wall mounting fan	4	Nos.	1450	150	6400

III)	**EARTHING :**					
1	Supply & providing of G.I. conventional type earth pits using 40mm 'B'-class perforated G.I. pipe of length 3 Mt with 25x3mm strip mounted and providing G.I. funnel at the top. Rate inclusive of digging and alternate filling of common salt and charcoal powder	2	Nos.	1670	600	4540
2	Supply and laying 25mmx3mm G.I. earth strips from earth pits to the metering box location and providing G.I. earth bar strip to connect earthing wires of all the houses/common areas	100	Mt	44	25	6900
	TOTAL					**189025**

13
Analysis Of Rates

Hollow Concrete blocks masonry
Rate analysis

Material and labour rates				
Item	**Unit**	**Rate in R**	**Page**	**Code in SOR**
Hollow concrete blocks 40 x 15 x 20	100 no	2690	i	0498
Hollow concrete blocks 40 x 10 x 20	100 no	1350	i	0499
cement	Kg	6.4	v	0084
Sand	Cub.m	950	ii	0731
40 mm aggre	Cub.m	600	ii	0750
20 mm aggre	Cub.m	850	ii	0749
10 mm aggre	Cub.m	700	ii	0057
6 mm down gravel	Cub.m	200	ii	0287
cement mortar 1:4	Cub.m	4412	2	
Skilled		176.58	xxxxv	
Semi-Skilled		171.58	xxxxv	
Helper		171.58	xxxxv	

Estimation for Hollow blocks masonry of 300 x 150 x 150 mm

deriving material constants from 40 x 20 x 10 cm block

reference BMTPC's stds and Speciifcations publication (page 185- BC -0106)

		0.008		0.00675
block size				
	400	0.4		0.3
	100	0.1		0.15
	200	0.2		0.15
No of blocks per cub.m		125		148.148
cem		1.13		0.95344
coarse sand		0.004		0.00338
20 mm aggre		0.002		0.00194
10 mm aggre		0.002		0.00194

Material	Unit	Quantity	Rate	Amount in Rs.
Cement	Kg	0.95344	6.4	6.10
Sand	Cub.m	0.00338	950	3.21
20 mm aggregate	Cub.m	0.00194	850	1.65
10 mm aggregate	Cub.m	0.00194	700	1.36
				12.32
1000 blocks per day production				
material cost for 1000 nos	nos	1000		**12316.22**
Labour cost				
Skilled	nos	176.58	2	353.16
Semiskilled	nos	171.58	5	857.90
				1211.06
				13527.28
Add 15% cost for machine depreciation, maintenance, electricity, water and other consumbles etc				**2029.09**
Cost of 1000 blocks				**15556.37**
Cost per block				**15.56**

Hollow concrete blocks masonry cost estimation

Mortar 1:4				
cement	Kg	6.4	380	2432.00
sand	Cub.m	950	1.07	1016.50
				3448.50

No of blocks per 10 sq.m = 10 divided by 0.3 m x 0.15 m				**222.22 nos**
Material	**Unit**	**Quantity**	**Rate**	**Amount in Rs.**
No of blocks per 10 sq.m	nos	15.56	222.222	3456.97
Cement mortar	Cub.m	3448.5	0.11	379.34
				3836.31
Labour				
Skilled	nos	176.58	2.15	379.65
Semiskilled	nos	171.58	3.25	557.64
				937.28
				4773.59
Add 10% for scaffolding, consumables, water etc				**477.36**
Cost per 10 sq.m				**5250.95**
Cost per sq.m				**525**

Hollow Concrete blocks masonry
Rate analysis

Material and labour rates				
Item	**Unit**	**Rate in R**	**Page**	**Code in SOR**
Hollow concrete blocks 40 x 15 x 20	100 no	2690	i	0498
Hollow concrete blocks 40 x 10 x 20	100 no	1350	i	0499
cement	Kg	6.4	v	0084
Sand	Cub.m	950	ii	0731
40 mm aggre	Cub.m	600	ii	0750
20 mm aggre	Cub.m	850	ii	0749
10 mm aggre	Cub.m	700	ii	0057
6 mm down gravel	Cub.m	200	ii	0287
cement mortar 1:4	Cub.m	4412	2	
Skilled		176.58	xxxxv	
Semi-Skilled		171.58	xxxxv	
Helper		171.58	xxxxv	

Estimation for Hollow blocks masonry of 300 x 150 x 150 mm

deriving material constants from 40 x 20 x 10 cm block

reference BMTPC's stds and Speciifcations publication (page 185- BC -0106)

		0.008		0.00675
block size				
	400	0.4		0.3
	100	0.1		0.15
	200	0.2		0.15
No of blocks per cub.m		125		148.148
cem		1.13		0.95344
coarse sand		0.004		0.00338
20 mm aggre		0.002		0.00194
10 mm aggre		0.002		0.00194

Material	Unit	Quantity	Rate	Amount in Rs.
Cement	Kg	0.95344	6.4	6.10
Sand	Cub.m	0.00338	950	3.21
20 mm aggregate	Cub.m	0.00194	850	1.65
10 mm aggregate	Cub.m	0.00194	700	1.36
				12.32
1000 blocks per day production				
material cost for 1000 nos	nos	1000		**12316.22**
Labour cost				
Skilled	nos	176.58	2	353.16
Semiskilled	nos	171.58	5	857.90
				1211.06
				13527.28
Add 15% cost for machine depreciation, maintenance, electricity, water and other consumbles etc				**2029.09**
Cost of 1000 blocks				**15556.37**
Cost per block				**15.56**

Hollow concrete blocks masonry cost estimation

Mortar 1:4				
cement	Kg	6.4	380	2432.00
sand	Cub.m	950	1.07	1016.50
				3448.50

No of blocks per 10 sq.m = 10 divided by 0.3 m x 0.15 m				**222.22 nos**
Material	**Unit**	**Quantity**	**Rate**	**Amount in Rs.**
No of blocks per 10 sq.m	nos	15.56	222.222	3456.97
Cement mortar	Cub.m	3448.5	0.11	379.34
				3836.31
Labour				
Skilled	nos	176.58	2.15	379.65
Semiskilled	nos	171.58	3.25	557.64
				937.28
				4773.59
Add 10% for scaffolding, consumables, water etc				**477.36**
Cost per 10 sq.m				**5250.95**
Cost per sq.m				**525**

Cost of II class teak wood door frame

rate derived from cub.m rate as given in SOR

Providing **Honne wood** frames for doors, windows, ventilators and other frames, wrought framed or assembled including making plaster grooves including cost of materials, labour etc complete as per specifications	71415	Cub.m
Section size 60 x 100 mm		
B	0.06	m
D	0.1	m
Volume of frame per running metre		
0.06 x 0.1 x 1 =	0.006	Cub.m
Cost of frame per run metre	428.49	run.m

COST ESTIMATION FOR MCR TILE

A	**Materials**					
	Cement	0.75	Kg		6.4 Kg	4.8
	Coarse sand	1.5	Kg	0.000833	180 cub.m	0.15
	6 mm aggregate	0.75	Kg	0.000417	200 cub.m	0.083333
						5.033333
B	**Labour**					
	Machine operator	0.005	person-days		176.58	0.8829
	Skilled	0.005	person-days		171.58	0.8579
	Unskilled	0.01	person-days		171.58	1.7158
						3.4566
	Add 1% water charges on material cost					0.050333
						8.540267
	Colouring using acrylic emulsion paint				1 per tile	1
	Cost of one colured tile					**9.540267**

Providing and fixing MCR tiles of 10 mm thickness on steel sub-structure including Gi wires, fastners, etc all complete excluding cost of steel

Consider area of MCR roof in plar	5.6 m	3.71 m	20.776 sq.m	
Area in sloping angle				
Angle of slope	30 degrees	0.523599 radians		
Cosine value of slope		0.866025		
Sloping area	6.466323	4.283939	27.70133 sq.m	
MCR tiles	360.1173 nos		9.540267	3435.615
Gi wire of 18 gauge thickness	2.770133 Kg		45	124.656
Labour				
Skilled	3.601173 person-days		176.58	635.8952
Unskilled	3.601173 person-days		171.58	617.8893
				4814.056
Add 5% for ropes, scaffolding etc				240.7028
Total				5054.759
Rate per sq.m				**182.4735**

14

Measurement And Quantities

	Shelter clusters- Earthwork excavation estimation						
	Measurement Sheet						
Sr No	**Item Description**	**Unit**	**Nos**	**L**	**B**	**D\H**	**Quantity**
	Cluster 1,2,3,4						
1	Total Excavation Quantity	Cu m	2.000	698.600		2.100	2934.120
	Assume Soil quantity (70%)	Cu m	1.000				2053.884
		Cu m					**2053.884**
	Assume Soft Rock (20%)	Cu m	1.000				586.824
		Cu m					**586.824**
	Assume Hard Rock (10%)	Cu m	1.000				293.412
		Cu m					**293.412**
	Filling quantity	Cu m	2.000	190.390		1.500	571.170
	middle quantity 70%	Cu m	1.000				1400.000
						Total	1971.170
2	Filling in excavated material (40% of total)	Cu m					788.468
		Cu m				**Says**	**790.000**
3	Filling in Contractor murum (60% of total)	Cu m					1182.702
		Cu m				**Says**	**1190.000**
4	Anti termite (P line area)	Sq m	2.000	490.000		**Says**	**980.000**
5	230thick Soiling						
	Below plinth beam	Cu m	1.000	400.800	0.230	0.350	32.264
	Below footing						
	Below plinth	Cu m	1.000	508.000		0.230	116.840
	Beam Area deduct	Cu m	-1.000	400.800	0.230	0.230	-21.202
	Quantity of Cluster 1 & 2						127.902
	Quantity of cluster 3 & 4 (Same as above)						127.902
						Total	255.804
		Cu m				**Says**	**260.000**
6	Carting away Material	Cu m				**Says**	**2144.120**
	Total exe qty- filling exe material qty						
7	Plain Cement Concrete 1:4:8						
	Below footing	Cu m	1.000	188.735		0.100	18.874
	Plinth PCC	Cu m	1.000	508.000		0.150	76.200
	Quantity of Cluster 1 & 2						95.074
	Quantity of cluster 3 & 4 (Same as above)						95.074
						Total	190.148
		Cu m				**Says**	**190.000**

Plinth beams, steel reinforcement estimation

Measurement Sheet

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity	Total Len.
								in M
1	PB1							
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.80	0.20	0.35	0.20	2.8
		Cum	1.00	2.80	0.20	0.35	0.20	2.8
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.80	0.20	0.35	0.20	2.8
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.48	0.20	0.35	0.17	2.48
		Cum	1.00	2.76	0.20	0.35	0.19	2.76
		Cum	1.00	2.81	0.20	0.35	0.20	2.81
		Cum	1.00	2.51	0.20	0.35	0.18	2.51
		Cum	1.00	2.70	0.20	0.35	0.19	2.7
		Cum	1.00	2.80	0.20	0.35	0.20	2.8
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.48	0.20	0.35	0.17	2.48
		Cum	1.00	2.76	0.20	0.35	0.19	2.76
		Cum	1.00	2.81	0.20	0.35	0.20	2.81
		Cum	1.00	2.51	0.20	0.35	0.18	2.51
		Cum	1.00	2.70	0.20	0.35	0.19	2.7
		Cum	1.00	2.80	0.20	0.35	0.20	2.8
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.48	0.20	0.35	0.17	2.48
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.80	0.20	0.35	0.20	2.8
		Cum	1.00	2.80	0.20	0.35	0.20	2.8
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.80	0.20	0.35	0.20	2.8
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	1.00	2.52	0.20	0.35	0.18	2.52
		Cum	6.00	1.15	0.20	0.35	0.48	6.9
		Cum	1.00	2.70	0.20	0.35	0.19	2.7
	PB2	Cum	2.00	4.60	0.20	0.35	0.64	9.2
		Cum	2.00	4.90	0.20	0.35	0.69	9.8
		Cum	2.00	4.50	0.20	0.35	0.63	9
		Cum	2.00	4.90	0.20	0.35	0.69	9.8

		Cum	2.00	4.50	0.20	0.35	0.63	9
		Cum	2.00	4.50	0.20	0.35	0.63	9
		Cum	2.00	4.90	0.20	0.35	0.69	9.8
		Cum	2.00	4.40	0.20	0.35	0.62	8.8
	PB3	Cum	6.00	1.20	0.15	0.35	0.38	7.2
	TB2	Cum	8.00	1.20	0.20	0.35	0.67	9.6
		Cum					14.06	202.6
	Other Side						14.06	
	Deduct	Cum	1.00	4.40	0.20	0.35	-0.31	
	Quantity of Cluster 1	Cum					**27.81**	
	Quantity of Cluster 3	Cum					**27.808**	202.6
						Total	**55.62**	
								-4.4
	Total Plinth Beams	**Cum**					**56.00**	
	Plinth beam length							400.8
	Lintel Quantity							
	For all cluster	Cum	120.00	1.05	0.15	0.10	1.89	
	Lintel Quantity	**Cum**				**Says**	**2.00**	

	Steel Quantity							
	Area Considered for all cluster							
	3.25/ Per Sq ft	Kg	1.00	37830.00			3.25	122947.50
		MT						122.95
		quintel						1229.48
	area steel	quintel						69.33
	quantity	quintel						1160.15
	Steel reinforcement	**Quintel**					**1160.15**	

Shelter clusters

Shuttering/formwork estimation

Measurement Sheet

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Shuttering For Footing	Sq m	2	1.650	1.900	0.200	2.840
		Sq m	4	1.900	2.000	0.200	6.240
		Sq m	4	1.650	1.900	0.200	5.680
		Sq m	2	1.900	2.200	0.200	3.280
		Sq m	1	1.600	1.700	0.200	1.320
		Sq m	1	1.650	1.900	0.200	1.420
		Sq m	2	1.550	3.400	0.200	3.960
		Sq m	4	2.000	3.400	0.200	8.640
		Sq m	2	1.600	3.600	0.200	4.160
		Sq m	2	1.800	3.900	0.200	4.560
		Sq m	1	1.550	3.300	0.200	1.940
		Sq m	1	1.500	3.400	0.200	1.960
		Sq m	2	1.800	3.900	0.200	4.560
		Sq m	1	1.550	3.300	0.200	1.940
		Sq m	1	1.500	3.400	0.200	1.960
		Sq m	1	1.400	1.500	0.200	1.160
		Sq m	1	1.250	1.500	0.200	1.100
		Sq m	2	1.650	1.900	0.200	2.840
		Sq m	4	1.900	2.000	0.200	6.240
		Sq m	4	1.650	1.900	0.200	5.680
		Sq m	2	1.900	2.200	0.200	3.280
		Sq m	1	1.600	1.700	0.200	1.320
		Sq m	2	1.550	3.400	0.200	3.960
		Sq m	4	2.000	3.400	0.200	8.640
		Sq m	2	1.600	3.600	0.200	4.160
		Sq m	2	1.800	3.900	0.200	4.560
		Sq m	1	1.550	3.330	0.200	1.952
		Sq m	2	1.800	3.900	0.200	4.560
		Sq m	1	1.550	3.330	0.200	1.952
		Sq m	1	1.500	3.400	0.200	1.960
		Sq m	1	1.400	1.500	0.200	1.160
		Sq m	1	1.250	1.500	0.200	1.100
	Shuttering For PCC at Plinth	**Sq m**	1	######		0.150	21.768
	Periphery of Plinth- 145.122						
	Shuttering For Footing PCC	**Sq m**	2	1.650	1.900	0.100	1.420
		Sq m	4	1.900	2.000	0.100	3.120
		Sq m	4	1.650	1.900	0.100	2.840
		Sq m	2	1.900	2.200	0.100	1.640

		Sq m	1	1.600	1.700	0.100	0.660
		Sq m	1	1.650	1.900	0.100	0.710
		Sq m	2	1.550	3.400	0.100	1.980
		Sq m	4	2.000	3.400	0.100	4.320
		Sq m	2	1.600	3.600	0.100	2.080
		Sq m	2	1.800	3.900	0.100	2.280
		Sq m	1	1.550	3.300	0.100	0.970
		Sq m	1	1.500	3.400	0.100	0.980
		Sq m	2	1.800	3.900	0.100	2.280
		Sq m	1	1.550	3.300	0.100	0.970
		Sq m	1	1.500	3.400	0.100	0.980
		Sq m	1	1.400	1.500	0.100	0.580
		Sq m	1	1.250	1.500	0.100	0.550
		Sq m	2	1.650	1.900	0.100	1.420
		Sq m	4	1.900	2.000	0.100	3.120
		Sq m	4	1.650	1.900	0.100	2.840
		Sq m	2	1.900	2.200	0.100	1.640
		Sq m	1	1.600	1.700	0.100	0.660
		Sq m	2	1.550	3.400	0.100	1.980
		Sq m	4	2.000	3.400	0.100	4.320
		Sq m	2	1.600	3.600	0.100	2.080
		Sq m	2	1.800	3.900	0.100	2.280
		Sq m	1	1.550	3.330	0.100	0.976
		Sq m	2	1.800	3.900	0.100	2.280
		Sq m	1	1.550	3.330	0.100	0.976
		Sq m	1	1.500	3.400	0.100	0.980
		Sq m	1	1.400	1.500	0.100	0.580
		Sq m	1	1.250	1.500	0.100	0.550
	Total Footing & Column Shuttering Area	**Sq m**					**186.8943**
	Quantity of Cluster 1 & 2						**186.8943**
	Quantity of cluster 3 & 4 (Same as above)						**186.8943**
	Total Footing PCC Shuttering Area	**Sqm**					**373.7886**
	Shuttering For Columns						
	C1,25	Sq m	2	0.200	0.450	16.500	42.900
	C2,4,26,28	Sq m	4	0.300	0.400	16.500	92.400
	C3,27,29,30	Sq m	4	0.200	0.450	16.500	85.800
	C5,6	Sq m	2	0.200	0.550	16.500	49.500
	C7	Sq m	1	0.300	0.350	11.700	15.210
	C8	Sq m	1	0.200	0.450	11.700	15.210
	C9,17	Sq m	2	0.200	0.450	16.500	42.900
	C10,12,18,20	Sq m	4	0.300	0.400	16.500	92.400
	C11,19	Sq m	2	0.200	0.450	16.500	42.900

	C13,14	Sq m	2	0.200	0.550	16.500	49.500
	C15	Sq m	1	0.300	0.350	11.700	15.210
	C16	Sq m	1	0.200	0.450	11.700	15.210
	C21,22	Sq m	2	0.200	0.500	16.500	46.200
	C23	Sq m	1	0.300	0.300	6.900	8.280
	C24	Sq m	1	0.200	0.400	6.900	8.280
	C31	Sq m	1	0.300	0.300	6.900	8.280
	C32	Sq m	1	0.200	0.400	6.900	8.280
	C1,25	Sq m	2	0.200	0.450	16.500	42.900
	C2,4,26,28	Sq m	4	0.300	0.400	16.500	92.400
	C3,27,29,30	Sq m	4	0.200	0.450	16.500	85.800
	C5,6	Sq m	2	0.200	0.550	16.500	49.500
	C7	Sq m	1	0.300	0.350	11.700	15.210
	C9,17	Sq m	2	0.200	0.450	16.500	42.900
	C10,12,18,20	Sq m	4	0.300	0.400	16.500	92.400
	C11,19	Sq m	2	0.200	0.450	16.500	42.900
	C13,14	Sq m	2	0.200	0.550	16.500	49.500
	C15	Sq m	1	0.300	0.350	11.700	15.210
	C21,22	Sq m	2	0.200	0.500	16.500	46.200
	C23	Sq m	1	0.300	0.300	6.900	8.280
	C24	Sq m	1	0.200	0.400	6.900	8.280
	C31	Sq m	1	0.300	0.300	6.900	8.280
	C32	Sq m	1	0.200	0.400	6.900	8.280
	Quantity of Cluster 1 & 2						1246.500
	Quantity of Cluster 3 & 4 (Same as above)						1246.500
	Column Shuttering Area	**Sq m**				**Total**	**2493.000**

	Beam, Plinth Beams, Lintel & Chajja Shuttering						
	Plinth Beams						
	PB1						
		Sq m	1.00	2.52	0.20	0.35	1.764
		Sq m	1.00	2.80	0.20	0.35	1.960
		Sq m	1.00	2.80	0.20	0.35	1.960
		Sq m	1.00	2.52	0.20	0.35	1.764
		Sq m	1.00	2.80	0.20	0.35	1.960
		Sq m	1.00	2.52	0.20	0.35	1.764
		Sq m	1.00	2.52	0.20	0.35	1.764
		Sq m	1.00	2.52	0.20	0.35	1.764
		Sq m	1.00	2.52	0.20	0.35	1.764
		Sq m	1.00	2.52	0.20	0.35	1.764
		Sq m	1.00	2.52	0.20	0.35	1.764
		Sq m	1.00	2.52	0.20	0.35	1.764
		Sq m	1.00	2.48	0.20	0.35	1.736
		Sq m	1.00	2.76	0.20	0.35	1.932
		Sq m	1.00	2.81	0.20	0.35	1.967
		Sq m	1.00	2.51	0.20	0.35	1.757

	Sq m	1.00	2.70	0.20	0.35	1.890
	Sq m	1.00	2.80	0.20	0.35	1.960
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.48	0.20	0.35	1.736
	Sq m	1.00	2.76	0.20	0.35	1.932
	Sq m	1.00	2.81	0.20	0.35	1.967
	Sq m	1.00	2.51	0.20	0.35	1.757
	Sq m	1.00	2.70	0.20	0.35	1.890
	Sq m	1.00	2.80	0.20	0.35	1.960
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.48	0.20	0.35	1.736
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.80	0.20	0.35	1.960
	Sq m	1.00	2.80	0.20	0.35	1.960
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.80	0.20	0.35	1.960
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	1.00	2.52	0.20	0.35	1.764
	Sq m	6.00	1.15	0.20	0.35	4.830
	Sq m	1.00	2.70	0.20	0.35	1.890
PB2	Sq m	2.00	4.60	0.20	0.35	6.440
	Sq m	2.00	4.90	0.20	0.35	6.860
	Sq m	2.00	4.50	0.20	0.35	6.300
	Sq m	2.00	4.90	0.20	0.35	6.860
	Sq m	2.00	4.50	0.20	0.35	6.300
	Sq m	2.00	4.50	0.20	0.35	6.300
	Sq m	2.00	4.90	0.20	0.35	6.860
	Sq m	2.00	4.40	0.20	0.35	6.160
PB3	Sq m	6.00	1.20	0.15	0.35	5.040
TB2	Sq m	8.00	1.20	0.20	0.35	6.720
	Sq m					
Other Side	Sq m					
Deduct	Sq m	1.00	4.40	0.20	0.35	-3.080
Lintel Quantity						
For all cluster (Toilet door)	Sq m	#####	1.05	0.15	0.10	25.20
For Mezzanine Floor						
LB1 Near C1	Sq m	2	2.520	0.200	0.300	4.032

LB2 Near C2	Sq m	2	2.800	0.200	0.300	4.480
LB3 Near C1	Sq m	2	4.600	0.200	0.400	9.200
LB1 Near C9	Sq m	2	2.520	0.200	0.300	4.032
LB4 Near C2	Sq m	2	4.900	0.200	0.400	9.800
LB1 Near C10	Sq m	2	2.810	0.200	0.300	4.496
LB5 Near C11	Sq m	2	4.600	0.200	0.400	9.200
LB2 Near C3	Sq m	2	2.800	0.200	0.300	4.480
LB2 Near C11	Sq m	2	2.812	0.200	0.300	4.499
LB4 Near C4	Sq m	2	4.900	0.200	0.400	9.800
LB1 Near C4	Sq m	2	2.520	0.200	0.300	4.032
LB1 Near C12	Sq m	2	2.510	0.200	0.300	4.016
LB3 Near C5	Sq m	2	4.400	0.200	0.400	8.800
MB Near C5	Sq m	2	2.700	0.200	0.400	5.400
LB2 Near C13	Sq m	2	2.700	0.200	0.300	4.320
LB5 Near C14	Sq m	2	4.400	0.200	0.400	8.800
LB2 Near C6	Sq m	2	2.800	0.200	0.300	4.480
LB2 Near C14	Sq m	2	2.800	0.200	0.300	4.480
LB4 Near C7	Sq m	2	4.900	0.200	0.400	9.800
LB1 Near C7	Sq m	2	2.520	0.200	0.300	4.032
LB1 Near C15	Sq m	2	2.520	0.200	0.300	4.032
LB 6 Near C8	Sq m	1	4.400	0.200	0.400	4.400
LB1 Near C08	Sq m	2	2.520	0.200	0.300	4.032
LB1 Near C16	Sq m	2	2.520	0.200	0.300	4.032
LB1 Near C17	Sq m	2	2.510	0.200	0.300	4.016
LB3 Near C17	Sq m	2	4.600	0.200	0.400	9.200
LB1 Near C25	Sq m	2	2.520	0.200	0.300	4.032
LB4 Near C26	Sq m	2	4.900	0.200	0.400	9.800
LB2 Near C18	Sq m	2	2.812	0.200	0.300	4.499
LB2 Near C26	Sq m	2	2.800	0.200	0.300	4.480
LB5 Near C19	Sq m	2	4.550	0.200	0.400	9.100
LB2 Near C 19	Sq m	2	2.812	0.200	0.300	4.499
LB2 Near C 27	Sq m	2	2.800	0.200	0.300	4.480
LB4 Near C28	Sq m	2	4.900	0.200	0.400	9.800
LB1 Near C20	Sq m	2	2.520	0.200	0.300	4.032
LB1 Near C28	Sq m	2	2.520	0.200	0.300	4.032
LB2 Near C21	Sq m	2	2.700	0.200	0.300	4.320
LB3 Near C29	Sq m	2	4.500	0.200	0.400	9.000
LB2 Near C29	Sq m	2	2.700	0.200	0.300	4.320
LB2 Near C22	Sq m	2	2.800	0.200	0.300	4.480
LB5 Near C 22	Sq m	2	4.500	0.200	0.400	9.000
LB2 Near C30	Sq m	2	2.810	0.200	0.300	4.496
LB4 Near C23	Sq m	2	4.900	0.200	0.400	9.800
LB1 Near C23	Sq m	2	2.520	0.200	0.300	4.032
LB1 Near C32	Sq m	2	2.510	0.200	0.300	4.016
LB3 Near C32	Sq m	2	4.600	0.200	0.400	9.200

For 1st Slab						
B1 Near C1	Cu m	2	2.520	0.200	0.350	4.536
B2 Near C2	Cu m	2	2.800	0.200	0.350	5.040
B9 Near C1	Cu m	2	4.600	0.200	0.450	10.120
B4 Near C9	Cu m	2	2.520	0.200	0.350	4.536
B10 Near C2	Cu m	2	4.900	0.200	0.450	10.780
B5 Near C10	Cu m	2	2.810	0.200	0.450	6.182
B13 Near C11	Cu m	2	4.500	0.200	0.450	9.900
B2 Near C3	Cu m	2	2.800	0.200	0.350	5.040
B5 Near C11	Cu m	2	2.812	0.200	0.450	6.186
B10 Near C4	Cu m	2	4.900	0.200	0.450	10.780
B1 Near C4	Cu m	2	2.520	0.200	0.350	4.536
B6 Near C12	Cu m	2	2.510	0.200	0.350	4.518
B3 Between C4, C12	Cu m	2	2.520	0.200	0.300	4.032
B9A Between C4, C12	Cu m	2	1.200	0.150	0.300	1.800
B3A Between C4, C12	Cu m	2	2.520	0.200	0.300	4.032
HB Between C4, C12	Cu m	2	1.150	0.200	0.150	1.150
B14 Near C5	Cu m	2	4.400	0.200	0.450	9.680
MB Near C5	Cu m	2	2.700	0.200	0.400	5.400
B7 Near C13	Cu m	2	2.700	0.200	0.450	5.940
B15 Near C14	Cu m	2	4.400	0.200	0.450	9.680
B2 Near C6	Cu m	2	2.850	0.200	0.350	5.130
B5 Near C14	Cu m	2	2.850	0.200	0.450	6.270
B10 Near C7	Cu m	2	4.900	0.200	0.450	10.780
B1 Near C7	Cu m	2	2.520	0.200	0.350	4.536
B4 Near C15	Cu m	2	2.520	0.200	0.350	4.536
B3 Between C7, C15	Cu m	2	2.520	0.200	0.300	4.032
B9A Between C7, C15	Cu m	2	1.200	0.150	0.300	1.800
B3A Between C7, C15	Cu m	2	2.520	0.200	0.300	4.032
HB Between C7, C15	Cu m	2	1.150	0.200	0.150	1.150
B18 Near C8	Cu m	1	4.600	0.200	0.450	5.060
B4 Near C17	Cu m	2	2.510	0.200	0.350	4.518
B9 Near C17	Cu m	2	4.600	0.200	0.450	10.120
B3 Between C17, C25	Cu m	2	2.520	0.200	0.300	4.032
B9A Between C17, C25	Cu m	2	1.200	0.150	0.300	1.800
B3A Between C17, C25	Cu m	2	2.520	0.200	0.300	4.032
HB Between C17, C25	Cu m	2	1.150	0.200	0.150	1.150
B1 Near C25	Cu m	2	2.520	0.200	0.350	4.536
B10 Near C26	Cu m	2	4.900	0.200	0.450	10.780
B5 Near C18	Cu m	2	2.812	0.200	0.450	6.186
B2 Near C26	Cu m	2	2.800	0.200	0.350	5.040
B13 Near C19	Cu m	2	4.500	0.200	0.450	9.900
B5 Near C 19	Cu m	2	2.812	0.200	0.450	6.186
B2 Near C 27	Cu m	2	2.800	0.200	0.350	5.040
B10 Near C28	Cu m	2	4.900	0.200	0.450	10.780
B6 Near C20	Cu m	2	2.520	0.200	0.350	4.536

B1 Near C28	Cu m	2	2.520	0.200	0.350	4.536
B3 Between C20, C28	Cu m	2	2.520	0.200	0.300	4.032
B9A Between C20, C28	Cu m	2	1.200	0.150	0.300	1.800
B3A Between C20, C28	Cu m	2	2.520	0.200	0.300	4.032
HB Between C20, C28	Cu m	2	1.150	0.200	0.150	1.150
B8 Near C21	Cu m	2	2.700	0.200	0.450	5.940
B14 Near C29	Cu m	2	4.500	0.200	0.450	9.900
B8 Near C29	Cu m	2	2.700	0.200	0.450	5.940
B5 Near C22	Cu m	2	2.900	0.200	0.450	6.380
B15 Near C 22	Cu m	2	4.500	0.200	0.450	9.900
B5 Near C30	Cu m	2	2.912	0.200	0.450	6.406
B16 Near C23	Cu m	2	4.900	0.200	0.450	10.780
B5 Near C23	Cu m	2	2.520	0.200	0.450	5.544
B5 Near C32	Cu m	2	2.510	0.200	0.450	5.522
B17 Near C32	Cu m	2	4.700	0.200	0.450	10.340
B11 Between C10, C18	Cu m	2	1.200	0.150	0.350	2.040
B12 Between C11, C19	Cu m	2	1.200	0.200	0.353	2.174
B12 Between C12, C20	Cu m	2	1.200	0.200	0.353	2.174
B12 Between C13, C21	Cu m	2	1.200	0.200	0.353	2.174
B12 Between C14, C22	Cu m	2	1.200	0.200	0.353	2.174
B11 Between C15, C23	Cu m	2	1.200	0.150	0.350	2.040
For 2nd Slab						
B1 Near C1	Cu m	2	2.520	0.200	0.350	4.536
B2 Near C2	Cu m	2	2.800	0.200	0.350	5.040
B9 Near C1	Cu m	2	4.600	0.200	0.450	10.120
B4 Near C9	Cu m	2	2.520	0.200	0.350	4.536
B10 Near C2	Cu m	2	4.900	0.200	0.450	10.780
B5 Near C10	Cu m	2	2.810	0.200	0.450	6.182
B13 Near C11	Cu m	2	4.500	0.200	0.450	9.900
B2 Near C3	Cu m	2	2.800	0.200	0.350	5.040
B5 Near C11	Cu m	2	2.812	0.200	0.450	6.186
B10 Near C4	Cu m	2	4.900	0.200	0.450	10.780
B1 Near C4	Cu m	2	2.520	0.200	0.350	4.536
B6 Near C12	Cu m	2	2.510	0.200	0.350	4.518
B3 Between C4, C12	Cu m	2	2.520	0.200	0.300	4.032
B9A Between C4, C12	Cu m	2	1.200	0.150	0.300	1.800
B3A Between C4, C12	Cu m	2	2.520	0.200	0.300	4.032
HB Between C4, C12	Cu m	2	1.150	0.200	0.150	1.150
B14 Near C5	Cu m	2	4.400	0.200	0.450	9.680
MB Near C5	Cu m	2	2.700	0.200	0.400	5.400
B7 Near C13	Cu m	2	2.700	0.200	0.450	5.940
B15 Near C14	Cu m	2	4.400	0.200	0.450	9.680
B2 Near C6	Cu m	2	2.850	0.200	0.350	5.130
B5 Near C14	Cu m	2	2.850	0.200	0.450	6.270

B16 Near C7	Cu m	2	4.900	0.200	0.450	10.780
B1 Near C7	Cu m	2	2.520	0.200	0.350	4.536
B4 Near C15	Cu m	2	2.520	0.200	0.350	4.536
B3 Between C1, C9	Cu m	2	2.520	0.200	0.300	4.032
B9A Between C1, C9	Cu m	2	1.200	0.150	0.300	1.800
B3A Between C1, C9	Cu m	2	2.520	0.200	0.300	4.032
HB Between C1, C9	Cu m	2	1.150	0.200	0.150	1.150
B18 Near C8	Cu m	1	4.600	0.200	0.450	5.060
B4 Near C17	Cu m	2	2.510	0.200	0.350	4.518
B9 Near C17	Cu m	2	4.600	0.200	0.450	10.120
B3 Between C17, C25	Cu m	2	2.520	0.200	0.300	4.032
B9A Between C17, C25	Cu m	2	1.200	0.150	0.300	1.800
B3A Between C17, C25	Cu m	2	2.520	0.200	0.300	4.032
HB Between C17, C25	Cu m	2	1.150	0.200	0.150	1.150
B1 Near C25	Cu m	2	2.520	0.200	0.350	4.536
B10 Near C26	Cu m	2	4.900	0.200	0.450	10.780
B5 Near C18	Cu m	2	2.812	0.200	0.450	6.186
B2 Near C26	Cu m	2	2.800	0.200	0.350	5.040
B13 Near C19	Cu m	2	4.500	0.200	0.450	9.900
B5 Near C 19	Cu m	2	2.812	0.200	0.450	6.186
B2 Near C 27	Cu m	2	2.800	0.200	0.350	5.040
B10 Near C28	Cu m	2	4.900	0.200	0.450	10.780
B6 Near C20	Cu m	2	2.520	0.200	0.350	4.536
B1 Near C28	Cu m	2	2.520	0.200	0.350	4.536
B3 Between C20, C28	Cu m	2	2.520	0.200	0.300	4.032
B9A Between C20, C28	Cu m	2	1.200	0.150	0.300	1.800
B3A Between C20, C28	Cu m	2	2.520	0.200	0.300	4.032
HB Between C20, C28	Cu m	2	1.150	0.200	0.150	1.150
B8 Near C21	Cu m	2	2.700	0.200	0.450	5.940
B14 Near C29	Cu m	2	4.500	0.200	0.450	9.900
B8 Near C29	Cu m	2	2.700	0.200	0.450	5.940
B15 Near C 22	Cu m	2	4.500	0.200	0.450	9.900
B11 Between C10, C18	Cu m	2	1.200	0.150	0.350	2.040
B12 Between C11, C19	Cu m	2	1.200	0.200	0.353	2.174
B12 Between C12, C20	Cu m	2	1.200	0.200	0.353	2.174
B12 Between C13, C21	Cu m	2	1.200	0.200	0.353	2.174
B12 Between C14, C22	Cu m	2	1.200	0.200	0.353	2.174
B11 Between C15, C23	Cu m	2	1.200	0.150	0.350	2.040
For 3rd Slab						
B1 Near C1	Cu m	2	2.520	0.200	0.350	4.536
B2 Near C2	Cu m	2	2.800	0.200	0.350	5.040
B9 Near C1	Cu m	2	4.600	0.200	0.450	10.120
B4 Near C9	Cu m	2	2.520	0.200	0.350	4.536
B10 Near C2	Cu m	2	4.900	0.200	0.450	10.780
B5 Near C10	Cu m	2	2.810	0.200	0.450	6.182

	B13 Near C11	Cu m	2	4.500	0.200	0.450	9.900
	B2 Near C3	Cu m	2	2.800	0.200	0.350	5.040
	B5 Near C11	Cu m	2	2.812	0.200	0.450	6.186
	B10 Near C4	Cu m	2	4.900	0.200	0.450	10.780
	B1 Near C4	Cu m	2	2.520	0.200	0.350	4.536
	B6 Near C12	Cu m	2	2.510	0.200	0.350	4.518
	B14 Near C5	Cu m	2	4.400	0.200	0.450	9.680
	MB Near C5	Cu m	2	2.700	0.200	0.400	5.400
	B7 Near C13	Cu m	2	2.700	0.200	0.450	5.940
	B15 Near C14	Cu m	2	4.400	0.200	0.450	9.680
	B4 Near C17	Cu m	2	2.510	0.200	0.350	4.518
	B9 Near C17	Cu m	2	4.600	0.200	0.450	10.120
	B1 Near C25	Cu m	2	2.520	0.200	0.350	4.536
	B10 Near C26	Cu m	2	4.900	0.200	0.450	10.780
	B5 Near C18	Cu m	2	2.812	0.200	0.450	6.186
	B2 Near C26	Cu m	2	2.800	0.200	0.350	5.040
	B13 Near C19	Cu m	2	4.500	0.200	0.450	9.900
	B5 Near C 19	Cu m	2	2.812	0.200	0.450	6.186
	B2 Near C 27	Cu m	2	2.800	0.200	0.350	5.040
	B10 Near C28	Cu m	2	4.900	0.200	0.450	10.780
	B6 Near C20	Cu m	2	2.520	0.200	0.350	4.536
	B1 Near C28	Cu m	2	2.520	0.200	0.350	4.536
	B8 Near C21	Cu m	2	2.700	0.200	0.450	5.940
	B14 Near C29	Cu m	2	4.500	0.200	0.450	9.900
	B8 Near C29	Cu m	2	2.700	0.200	0.450	5.940
	B15 Near C 22	Cu m	2	4.500	0.200	0.450	9.900
	B11 Between C10, C18	Cu m	2	1.200	0.150	0.350	2.040
	B12 Between C11, C19	Cu m	2	1.200	0.200	0.353	2.174
	B12 Between C12, C20	Cu m	2	1.200	0.200	0.353	2.174
	B12 Between C13, C21	Cu m	2	1.200	0.200	0.353	2.174
	B12 Between C14, C22	Cu m	2	1.200	0.200	0.353	2.174
							1359.330
	Quantity of Cluster 1 & 2						1359.3304
	Quantity of Cluster 3 & 4 (Same as above)						1359.3304
	Total Beam & Lintel Shuttering					**Total**	**2718.6608**
	Chajja Shuttering						
	For 3 no. Mezz. Slab	Sq m	12	20.861	0.45	0.125	14.081
	For 3 no. Mezz. Slab	Sq m	6	6.12	0.45	0.125	2.066
	Quantity of Cluster 1 & 2	Sq m					16.147
	Quantity of Cluster 3 & 4 (Same as abo	Sq m					16.147
	Chajja Shuttering Total	**Sq m**					**32.29**

	Beam, Plinth Beams, Lintel & Chajja Shuttering	**Sq m**					**2750.95**

Shuttering For Slabs							
	1st Slab						
	S1	Sq m	2	12.851			25.702
	S2	Sq m	2	15.263			30.526
	S2	Sq m	2	15.293			30.586
	S1	Sq m	2	5.922			11.844
	S3	Sq m	2	1.800			3.600
	S5	Sq m	2	1.044			2.088
	S5	Sq m	2	1.725			3.450
	S2	Sq m	2	15.273			30.546
	S1	Sq m	2	5.924			11.848
	S3	Sq m	2	1.800			3.600
	S5	Sq m	2	1.044			2.088
	S5	Sq m	2	1.725			3.450
	S1	Sq m	2	5.922			11.844
	S3	Sq m	2	1.800			3.600
	S5	Sq m	2	1.044			2.088
	S5	Sq m	2	1.725			3.450
	S2	Sq m	2	15.264			30.528
	S2	Sq m	2	15.264			30.528
	S1	Sq m	2	5.922			11.844
	S3	Sq m	2	1.800			3.600
	S5	Sq m	2	1.044			2.088
	S5	Sq m	2	1.725			3.450
	S2	Sq m	2	13.768			27.536
	S2	Sq m	2	15.284			30.568
	S4	Sq m	2	11.907			23.814
	Slab At Passage portion	Sq m	2	12.357			24.714
		Sq m					
		Sq m					
	2nd Slab	Sq m					
	S1	Sq m	2	5.922			11.844
	S3	Sq m	2	1.800			3.600
	S5	Sq m	2	1.044			2.088
	S5	Sq m	2	1.725			3.450
	S2	Sq m	2	15.263			30.526
	S2	Sq m	2	15.263			30.526
	S1	Sq m	2	5.922			11.844
	S3	Sq m	2	1.800			3.600
	S5	Sq m	2	1.044			2.088
	S5	Sq m	2	1.725			3.450
	S2	Sq m	2	15.273			30.546
	S4	Sq m	2	11.910			23.820

	S1	Sq m	2	5.922		11.844
	S3	Sq m	2	1.800		3.600
	S5	Sq m	2	1.044		2.088
	S5	Sq m	2	1.725		3.450
	S2	Sq m	2	15.264		30.528
	S2	Sq m	2	15.264		30.528
	S1	Sq m	2	5.922		11.844
	S3	Sq m	2	1.800		3.600
	S5	Sq m	2	1.044		2.088
	S5	Sq m	2	1.725		3.450
	S2	Sq m	2	13.771		27.542
	Slab At Passage portion	Sq m	2	12.357		24.714
	3rd Slab					
	S4	Sq m	2	11.878		23.756
	S2	Sq m	2	15.263		30.526
	S2	Sq m	2	15.273		30.546
	S4	Sq m	2	11.87		23.740
	S4	Sq m	2	11.878		23.756
	S2	Sq m	2	15.263		30.526
	S2	Sq m	2	15.263		30.526
	S4	Sq m	2	11.87		23.740
	S2	Sq m	2	13.767		27.534
	Slab At Passage portion	Sq m	2	11.049		22.098
	Mezzanine Slab at ground floor					
		Sq m	2	11.910		23.820
		Sq m	2	11.908		23.816
		Sq m	2	11.909		23.818
		Sq m	2	11.908		23.816
		Sq m	2	11.908		23.816
		Sq m	2	11.908		23.816
		Sq m				
	Mezzanine Slab above 1st floor					
		Sq m	2	11.910		23.820
		Sq m	2	11.908		23.816
		Sq m	2	11.909		23.818
		Sq m	2	11.908		23.816
		Sq m	2	11.908		23.816
	Mezzanine Slab above 2nd floor					
		Sq m	2	11.910		23.820
		Sq m	2	11.908		23.816
		Sq m	2	11.908		23.816
		Sq m	2	11.908		23.816

	Quantity of Cluster 1 & 2	Sq m					1305.642
	Quantity of Cluster 3 & 4 (Same as above)						1305.642
							2611.284
	For Staircase						
	Concreting for Steps	Sq m	26	0.265	0.172	1.28	13.2912
	Concreting for Waist slab	Cu m	4	4.2	1.275		21.42
	Concreting for mid Landing	Cu m	2	1.08	2.7		5.832
	Concreting for Landing	Sq m	2	1.02	2.7		5.508
							92.1024
	Living Staircase						
	Concreting for Steps	Sq m	13	0.25	0.173	0.8	4.849
	Concreting for Waist slab	Sq m	2	4.054	0.8		6.4864
	Concreting for Landing	Sq m	2	0.85	0.8		1.36
	For 30 Nos						**380.862**
	Quantity of Cluster 1 & 2	Sq m					472.9644
	Quantity of Cluster 3 & 4 (Same as abo	Sq m					472.9644
		Sq m					**945.9288**
	Shuttering for Slabs, Staircase, Landings	**Sq m**					**3557.2128**

Shelter clusters Water proofing estimation

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1			Water Proofing				
A			Water Proofing for W C & Bath				
		Sq m	60	3.001			180.06
Total Quantity of Bath & WC		**Sq m**					**180.06**
B			**Water Proofing for Flat Terrace & Top Terrace**				
		Sq m	1	116.42			116.42
Total Quantity of Flat Terrac		**Sq m**					**116.42**
		Sq m	2	159.835			319.67
otal Quantity For Top Terrac		**Sq m**					**319.67**
Quantity of cluster 1 & 2							436.09
Quantity of cluster 3 & 4 (Same as above)							436.09
						Total	872.18
Total Quantity For Top Terrace & Flat Terrace						**Sq m**	**872.00**

Shelter clusters- Finishing Items Estimation

Measurement Sheet

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1	**Tiles Quantity**						
A	**Tiles Quantity for Bed Room**						
		Sq m	30	12.911			387.33
Total Quantity of Bed Room		**Sq m**					**387.33**
B	**Tiles Quantity for Living**						
	2' x 2' vitrified tiles	Sq m	30	15.689			470.67
Total Quantity of living		**Sq m**					**470.67**
C	**Tiles Quantity for kitchen**						
	1.5' x 2' Polish Tandoor tiles	Sq m	30		8.973		269.19
Total Quantity of kitchen		**Sq m**					**269.19**
E	**Tiles Quantity for common lobby**						
	1' x 1'/1.5' x 1' Polish Tandoor	Sq m	6		30.199		181.194
Total Quantity of common lobby		**Sq m**					**181.194**
F	**Tiles Quantity for Flat stair case**						
	Polish tandoor,Trade	Sq m	390	0.75	0.25		292.5
	Landing	Sq m	30	0.75	1.05		22.5
Total Quantity of flat stair case		**Sq m**					**315**
G	**Tiles Quantity for common stair case**						
	1' x 1'/1.5' x 1' Polish Tandoor	Sq m	52	0.265	1.2		13.78
	ground floor stair case Trades	Sq m	8	0.265	1.2		2.12
	Ground floor steps Riser	Sq m	12	0.167	1.2		2.004
	Main stair case Riser	Sq m	56	0.167	1.2		9.352
	Landing	Sq m	3	2.7	1.05		8.1
Total Quantity of common stair case		**Sq m**					**35.356**
						Total	**1658.74**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
2	**Skirting Quantity**						
A	**Skirting Quantity for Living**						
		Rm t	30	16.7			501
	Deduction of Doors	Rm t	-30		1.2		-36
Total Quantity of living		**Rm t**					**465**
B	**Skirting Quantity for kitchen**						
		Rm t	30		13.839		415.17
			-30		1.000		-30
Total Quantity of kitchen		**Rm t**					**385.17**

C	**Skirting Quantity for common lobby**					
		Rm t	6		37.42	224.52
	Deduction of flat Door	Rm t	-30		1.2	-36
Total Quantity of common lobby		**Rm t**				**188.52**
D	**Skirting Quantity for stair case**					
	Main stair case Trade	Rm t	52	0.265		13.78
	Main stair case Riser	Rm t	56	0.167		9.352
	Ground floor steps trade	Rm t	8	0.265		2.12
	Ground floor steps Riser	Rm t	12	0.167		2.004
	Stair case landing	Rm t	3	4.8		14.4
Total Quantity of Terrace		**Rm t**				**41.656**
E	**Skirting Quantity for Bed Room**					
		Rm t	30	10.72		321.6
Total Quantity of Bed Room		**Rm t**				**321.6**
					Total	**140.195**

	Quantity of cluster 1 & 2	**Skirting + tile area**				**1798.93**
	Quantity of cluster 3 & 4 (Same as above)					**1798.93**
					Total	**3597.87**
Red Oxide Flooring Quantity		**Sq m**			**Say**	**3600.00**

D	**Tiles Quantity for WC & Bath**					
	1' x 1' Anti skid tiles	Sq m	60		3.001	180.06
Total Quantity of WC & Bath		**Sq m**			**Says**	**180.06**

3	**Dado Work**					
A	**Dado Work for kitchen & Bath & W C**					
	1' x 1'/1.5' x 1' Glazed Ceramic for kitchen	Sq m	30	2.45	1.35	99.225
	1' x 1'/1.5' x 1' Glazed Ceramic for Bath	Sq m	30	5.54	2.1	349.02
	1' x 1'/1.5' x 1' Glazed Ceramic for Wc	Sq m	30	4.3	1.2	154.8
	Deduction of Doors	Sq m	-60	0.75	2.1	-94.5
	Quantity of cluster 1 & 2					508.545
	Quantity of cluster 3 & 4 (Same as above)					508.545
					Total	1017.09
Total Quantity of Kitchen,Bath,Wc		**Sq m**			**Says**	**1020.00**

4	**otta Quantity**					
A	**kitchen otta quantity**					
	Green Marble	Rm t	60	2.45		147
Total Quantity of Kitchen otta		**Rm t**				**147**

Shelter clusters- RCC slab and filler slab

Measurement Sheet

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Concreting For RCC Filler Slabs						
				Area			
	1st Slab						
	S1	Cu m	2	12.851		0.140	3.598
	S2	Cu m	2	15.263		0.140	4.274
	S2	Cu m	2	15.293		0.140	4.282
	S1	Cu m	2	5.922		0.140	1.658
	S2	Cu m	2	15.273		0.140	4.276
	S1	Cu m	2	5.924		0.140	1.659
	S1	Cu m	2	5.922		0.140	1.658
	S2	Cu m	2	15.264		0.140	4.274
	S2	Cu m	2	15.264		0.140	4.274
	S1	Cu m	2	5.922		0.140	1.658
	S2	Cu m	2	13.768		0.140	3.855
	S2	Cu m	2	15.284		0.140	4.280
	S4	Cu m	2	11.907		0.140	3.334
	Slab At Passage portion	Cu m	2	12.357		0.140	3.460
	2nd Slab						
	S1	Cu m	2	5.922		0.140	1.658
	S2	Cu m	2	15.263		0.140	4.274
	S2	Cu m	2	15.263		0.140	4.274
	S1	Cu m	2	5.922		0.140	1.658
	S2	Cu m	2	15.273		0.140	4.276
	S4	Cu m	2	11.910		0.140	3.335
	S1	Cu m	2	5.922		0.140	1.658
	S2	Cu m	2	15.264		0.140	4.274
	S2	Cu m	2	15.264		0.140	4.274
	S1	Cu m	2	5.922		0.140	1.658
	S2	Cu m	2	13.771		0.140	3.856
	Slab At Passage portion	Cu m	2	12.357		0.140	3.460
	3rd Slab						
	S4	Cu m	2	11.878		0.140	3.326
	S2	Cu m	2	15.263		0.140	4.274
	S2	Cu m	2	15.273		0.140	4.276
	S4	Cu m	2	11.87		0.140	3.324
	S4	Cu m	2	11.878		0.140	3.326
	S2	Cu m	2	15.263		0.140	4.274
	S2	Cu m	2	15.263		0.140	4.274
	S4	Cu m	2	11.87		0.140	3.324
	S2	Cu m	2	13.767		0.140	3.855
	Slab At Passage portion	Cu m	2	11.049		0.140	3.094

	Mezzanine Slab at ground floor						
		Cu m	2	11.910		0.140	3.335
		Cu m	2	11.908		0.140	3.334
		Cu m	2	11.909		0.140	3.335
		Cu m	2	11.908		0.140	3.334
		Cu m	2	11.908		0.140	3.334
		Cu m	2	11.908		0.140	3.334
	Mezzanine Slab above 1st floor						
		Cu m	2	11.910		0.140	3.335
		Cu m	2	11.908		0.140	3.334
		Cu m	2	11.909		0.140	3.335
		Cu m	2	11.908		0.140	3.334
		Cu m	2	11.908		0.140	3.334
	Mezzanine Slab above 2nd floor						
		Cu m	2	11.910		0.140	3.335
		Cu m	2	11.908		0.140	3.334
		Cu m	2	11.908		0.140	3.334
		Cu m	2	11.908		0.140	3.334
	Area of floor for cluster 1 and 2	sq.m	2	**616.269**			
	Quantity for Cluster 1 & 2	Cu m					**172.555**
	Quantity of Cluster 3 & 4 (Same as above)						**172.55532**
	Gross volume of Concrete in RCC filler slab for all clusters						**345.111**
	RCC Filler slab floor area	**sq.m**	2	**616.269**			**1232.538**
	Each filler block ocupies area 300 x 300 mm						
	No of filler blocks = Area divided by 0.3 m x 0.3 m						
	No of filler blocks = 616.269 divided by (0.3 m x 0. 3 m)						
	No of filler blocks			13695			
	Filler block volume for cluster 1 and 2	Cub.m	13695	0.225	0.225	0.05	**34.67**
	Filler block volume for cluster 3 and 4						**34.67**
	Filler block volume for all the cluster						**69.33**
	Net Concrete volume of RCC filler slab floor						**275.780**
	(Gross volume minus Filler block volume)						
	Filler blocks (225 x 225 x 50 mm) quantity						
	Cluster 1 &2 (Total slab area / filler sp	Nos	2	616.27	0.3	0.3	13695
	Same as Cluster 3 & 4	Nos					13695
						Total	27390
NON DSR	**No of Filler Blcoks**	**Nos**					**27390**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Concreting for RCC slabs on floor (where Filler slab is not possible)						
	1st Slab						
	S3	Cu m	2	1.800		0.100	0.360
	S5	Cu m	2	1.044		0.150	0.313
	S5	Cu m	2	1.725		0.150	0.518
	S3	Cu m	2	1.800		0.100	0.360
	S5	Cu m	2	1.044		0.150	0.313
	S5	Cu m	2	1.725		0.150	0.518
	S3	Cu m	2	1.800		0.100	0.360
	S5	Cu m	2	1.044		0.150	0.313
	S5	Cu m	2	1.725		0.150	0.518
	S3	Cu m	2	1.800		0.100	0.360
	S5	Cu m	2	1.044		0.150	0.313
	S5	Cu m	2	1.725		0.150	0.518
	2nd Slab						
	S3	Cu m	2	1.800		0.100	0.360
	S5	Cu m	2	1.044		0.150	0.313
	S5	Cu m	2	1.725		0.150	0.518
	S3	Cu m	2	1.800		0.100	0.360
	S5	Cu m	2	1.044		0.150	0.313
	S5	Cu m	2	1.725		0.150	0.518
	S3	Cu m	2	1.800		0.100	0.360
	S5	Cu m	2	1.044		0.150	0.313
	S5	Cu m	2	1.725		0.150	0.518
	S3	Cu m	2	1.800		0.100	0.360
	S5	Cu m	2	1.044		0.150	0.313
	S5	Cu m	2	1.725		0.150	0.518
	Volume of Concrete in RCC slab area S3 and S5 (non filler slab area)	Cub.m					**9.526**
	Volume of Concrete in RCC slab area S3 and S5 (non filler slab area)	Cub.m	for clusters 1, 2, 3 and 4				**19.0512**

Shelter clusters

Internal plaster estimation

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1	**Internal Plaster**						
A	**Flat Internal Plaster**						
	living plaster	Sq m	30	19.441		4.8	2799.504
	Kitchen plaster	Sq m	30	15.939		2.25	1075.8825
	Bed Room Plaster	Sq m	30	15.393		2.25	1039.0275
	Kitchen,WC,Bath wall plaster	Sq m	30	15.393		2.25	1039.0275
	Stair case Bottom portion	Sq m	30	0.8		4.75	114
	Stair case Riser Plaster	Sq m	420	0.75		0.167	52.605
	Living Ceiling plaster	Sq m	30	15.689		2.25	1059.0075
	Kitchen,WC,Bath ceiling plaster	Sq m	30	12.911			387.33
	Bed room ceiling plaster	Sq m	30	12.911			387.33
	Lobby						
	Lobby Wall Plaster	Sq m	6	58.82		4.8	1694.016
	Lobby Ceiling Plaster	Sq m	6	35.924			215.544
	Stair case Ceiling Plaster	Sq m	1	12.015			12.015
	Doors Top Portion	Sq m	30	3.55		0.45	47.925
	Deduction of Door	Sq m	-30	1.05		2.1	-66.15
	Deduction of window,Bed Room, Kitchen,Living,W,W1,W2	Sq m	-30	4.2		1.65	-207.9
	Deduction of Living Window W3	Sq m	-30	1.8		0.75	-40.5
	Deduction of flat main Door	Sq m	-30	1.05		2.1	-66.15
	Deduction of stair case window	Sq m	-3	2.7		0.95	-7.695
	Quantity of cluster 1 & 2						9534.819
	Quantity of cluster 3 & 4 (Same as above)						9534.819
	Plaster quantity including ceiling						**19070.00**
Total internal plaster Quantity of flat		**Sq m**					**14948.00**
	POP Plaster Quantity						
	Ceiling plaster quantity (Same as total flooring Quantity)	Sq m					4122
	Total POP plaster quantity	**Sq m**					**4122.00**
	Neeru finish plaster						
	Total Plaster Quantity	Sq m					19069.638
	Deduct POP Plaster	Sq m					-4122
	Deduct Dado tiles quantity	Sq m					-1020
Total Neeru finish plaster quantity		**Sq m**					**13928.00**
	Oil Bound Distemper						
	Internal Plaster quantity including ceiling	Sq m					19070
	Deduct Dado tiles quantity	Sq m					-1020
Oil Bound Distemper paint quantity		**Sq m**					**18050.00**

Shelter clusters

Internal plaster estimation

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1	**Internal Plaster**						
A	**Flat Internal Plaster**						
	living plaster	Sq m	30	19.441		4.8	2799.504
	Kitchen plaster	Sq m	30	15.939		2.25	1075.8825
	Bed Room Plaster	Sq m	30	15.393		2.25	1039.0275
	Kitchen,WC,Bath wall plaster	Sq m	30	15.393		2.25	1039.0275
	Stair case Bottom portion	Sq m	30	0.8		4.75	114
	Stair case Riser Plaster	Sq m	420	0.75		0.167	52.605
	Living Ceiling plaster	Sq m	30	15.689		2.25	1059.0075
	Kitchen,WC,Bath ceiling plaster	Sq m	30	12.911			387.33
	Bed room ceiling plaster	Sq m	30	12.911			387.33
	Lobby						
	Lobby Wall Plaster	Sq m	6	58.82		4.8	1694.016
	Lobby Ceiling Plaster	Sq m	6	35.924			215.544
	Stair case Ceiling Plaster	Sq m	1	12.015			12.015
	Doors Top Portion	Sq m	30	3.55		0.45	47.925
	Deduction of Door	Sq m	-30	1.05		2.1	-66.15
	Deduction of window,Bed Room, Kitchen,Living,W,W1,W2	Sq m	-30	4.2		1.65	-207.9
	Deduction of Living Window W3	Sq m	-30	1.8		0.75	-40.5
	Deduction of flat main Door	Sq m	-30	1.05		2.1	-66.15
	Deduction of stair case window	Sq m	-3	2.7		0.95	-7.695
	Quantity of cluster 1 & 2						9534.819
	Quantity of cluster 3 & 4 (Same as above)						9534.819
	Plaster quantity including ceiling						**19070.00**
Total internal plaster Quantity of flat		**Sq m**					**14948.00**
	POP Plaster Quantity						
	Ceiling plaster quantity (Same as total flooring Quantity)	Sq m					4122
	Total POP plaster quantity	**Sq m**					**4122.00**
	Neeru finish plaster						
	Total Plaster Quantity	Sq m					19069.638
	Deduct POP Plaster	Sq m					-4122
	Deduct Dado tiles quantity	Sq m					-1020
Total Neeru finish plaster quantity		**Sq m**					**13928.00**
	Oil Bound Distemper						
	Internal Plaster quantity including ceiling	Sq m					19070
	Deduct Dado tiles quantity	Sq m					-1020
Oil Bound Distemper paint quantity		**Sq m**					**18050.00**

Shelter clusters- Finishing Items Estimation

Measurement Sheet

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1	**Tiles Quantity**						
A	**Tiles Quantity for Bed Room**						
		Sq m	30	12.911			387.33
Total Quantity of Bed Room		**Sq m**					**387.33**
B	**Tiles Quantity for Living**						
	2' x 2' vitrified tiles	Sq m	30	15.689			470.67
Total Quantity of living		**Sq m**					**470.67**
C	**Tiles Quantity for kitchen**						
	1.5' x 2' Polish Tandoor tiles	Sq m	30		8.973		269.19
Total Quantity of kitchen		**Sq m**					**269.19**
E	**Tiles Quantity for common lobby**						
	1' x 1'/1.5' x 1' Polish Tandoor	Sq m	6		30.199		181.194
Total Quantity of common lobby		**Sq m**					**181.194**
F	**Tiles Quantity for Flat stair case**						
	Polish tandoor,Trade	Sq m	390	0.75	0.25		292.5
	Landing	Sq m	30	0.75	1.05		22.5
Total Quantity of flat stair case		**Sq m**					**315**
G	**Tiles Quantity for common stair case**						
	1' x 1'/1.5' x 1' Polish Tandoor	Sq m	52	0.265	1.2		13.78
	ground floor stair case Trades	Sq m	8	0.265	1.2		2.12
	Ground floor steps Riser	Sq m	12	0.167	1.2		2.004
	Main stair case Riser	Sq m	56	0.167	1.2		9.352
	Landing	Sq m	3	2.7	1.05		8.1
Total Quantity of common stair case		**Sq m**					**35.356**
						Total	**1658.74**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
2	**Skirting Quantity**						
A	**Skirting Quantity for Living**						
		Rm t	30	16.7			501
	Deduction of Doors	Rm t	-30		1.2		-36
Total Quantity of living		**Rm t**					**465**
B	**Skirting Quantity for kitchen**						
		Rm t	30		13.839		415.17
			-30		1.000		-30
Total Quantity of kitchen		**Rm t**					**385.17**

C	**Skirting Quantity for common lobby**					
		Rm t	6		37.42	224.52
	Deduction of flat Door	Rm t	-30		1.2	-36
Total Quantity of common lobby		**Rm t**				**188.52**
D	**Skirting Quantity for stair case**					
	Main stair case Trade	Rm t	52	0.265		13.78
	Main stair case Riser	Rm t	56	0.167		9.352
	Ground floor steps trade	Rm t	8	0.265		2.12
	Ground floor steps Riser	Rm t	12	0.167		2.004
	Stair case landing	Rm t	3	4.8		14.4
Total Quantity of Terrace		**Rm t**				**41.656**
E	**Skirting Quantity for Bed Room**					
		Rm t	30	10.72		321.6
Total Quantity of Bed Room		**Rm t**				**321.6**
					Total	**140.195**

	Quantity of cluster 1 & 2	**Skirting + tile area**				**1798.93**
	Quantity of cluster 3 & 4 (Same as above)					**1798.93**
					Total	**3597.87**
Red Oxide Flooring Quantity		**Sq m**			**Say**	**3600.00**

D	**Tiles Quantity for WC & Bath**					
	1' x 1' Anti skid tiles	Sq m	60		3.001	180.06
Total Quantity of WC & Bath		**Sq m**			**Says**	**180.06**

3	**Dado Work**					
A	**Dado Work for kitchen & Bath & W C**					
	1' x 1'/1.5' x 1' Glazed Ceramic for kitchen	Sq m	30	2.45	1.35	99.225
	1' x 1'/1.5' x 1' Glazed Ceramic for Bath	Sq m	30	5.54	2.1	349.02
	1' x 1'/1.5' x 1' Glazed Ceramic for Wc	Sq m	30	4.3	1.2	154.8
	Deduction of Doors	Sq m	-60	0.75	2.1	-94.5
	Quantity of cluster 1 & 2					508.545
	Quantity of cluster 3 & 4 (Same as above)					508.545
					Total	1017.09
Total Quantity of Kitchen,Bath,Wc		**Sq m**			**Says**	**1020.00**

4	**otta Quantity**					
A	**kitchen otta quantity**					
	Green Marble	Rm t	60	2.45		147
Total Quantity of Kitchen otta		**Rm t**				**147**

Shelter clusters Doors and windows estimation

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1			Doors				
A			1050 mm Flat Main Doors				
	Living Room Doors	Sq m	60	1.05		2.1	132.3
Total Quantity of 1050 mm Door		**Sq m**					**132.3**
	Solid Core Flush Door	**Sq m**				**Says**	**134.00**
A			**Flat Main Door**				
	Flat Main Door	Rm t	60	5.25			315
Total Quantity of Door		**Rm t**					**315**
B			**Bath & WC Door Frames**				
	Flat Bath & WC Door Fram	Rm t	120	4.95			594
Total Quantity of Frames		**Rm t**					**594**
						Total	909
	Precast RCC Frame Quantity	**Rm t**				**Says**	**910**
B			**750 mm Flat Main Doors**				
	Bath & WC Doors	Sq m	120	0.75		2.1	189
Total Quantity of 750 mm Door		**Sq m**					**189**
	Solid PVC door shutter	**Sq m**				**Says**	**190**

2			**Windows**				
A			**1800x1650 mm Flat Windows**				
	Living Room Doors	Sq m	60	1.8		1.65	178.2
Total Quantity of Window W1		**Sq m**					**178.2**
B			**1200 x 1650 mm Flat Windows**				
	Kitchen, Bed room	Sq m	120	1.2		1.65	237.6
Total Quantity of Window W,W2		**Sq m**					**237.6**
C			**1800 x 750 mm Flat Windows**				
	Living Room Doors	Sq m	60	1.8		0.75	81
Total Quantity of Window W3		**Sq m**					**81**
						Total	496.8
	M S Openable Windows	**Sq m**				**Says**	**498.00**

3	Ventilator					
A		600 x 900 mm flat ventilator				
	Bath & WC Ventilator	Sq m	120	0.6	0.75	54
Total Quantity of Ventilators		**Sq m**				**54**

4	M S Grill Work					
	Same Quantity of M S openable windows	Sq m				498
	21Kg / Sq m	Kg				10458
M S Grill work quantity		**Kg**				**10458**

5	Enamel Metal Paint					
	Same Quantity of M S openable windows	Sq m				498
Enamel Metal Paint		**Sq m**				**498.00**

6	M S Railing					
A		Railing For Stair case				
	Flat Stair case	Rm t	120	2.45		294
	main stair case		4	8.7		34.8
Total Quantity of Railing		**Rm t**				**330**

7	M S Ladder					
A		Ladder for top terrace				
	Stair case	No	1			16
Total Quantity of MS Ladder		**No**				**16**

8	Polyethylene water storage tanks					
	For All cluster	No				4
Polyethylene water storage tanks		**No**				**4.00**

School Building

Measurement Sheet

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1)	**Excavation**						
	Assuming Depth below Ground is 2 M						
	C1, 7, 15	Cum	3	2.400	2.400	2.000	34.560
	C2, 16	Cum	2	2.400	2.400	2.000	23.040
	C3, 5, 14, 17	Cum	4	2.500	2.500	2.000	50.000
	C6, C8	Cum	2	2.600	2.700	2.000	28.080
	C9	Cum	1	2.700	2.800	2.000	15.120
	C10	Cum	1	2.800	2.900	2.000	16.240
	C4, 11	Cum	2	2.600	2.700	2.000	28.080
	C12, 13	Cum	2	2.800	2.900	2.000	32.480
	C18, 19, 20, 21	Cum	4	2.300	2.400	2.000	44.160
	C22, 24, 26	Cum	3	2.400	2.400	2.000	34.560
	C23	Cum	1	2.500	2.500	2.000	12.500
	C25,27	Cum	2	2.400	2.400	2.000	23.040
	C28 (plinth area using P line)	Cum	1	2.200	0.000	2.000	0.000
	For Plinth Beams						
	PB1	Cum	4	2.925	0.500	0.730	4.271
	PB1	Cum	3	2.875	0.500	0.730	3.148
	PB1	Cum	3	3.025	0.500	0.730	3.312
	PB1	Cum	2	3.000	0.500	0.730	2.190
	PB1	Cum	3	3.150	0.500	0.730	3.449
	PB1	Cum	1	2.325	0.500	0.730	0.849
	PB1	Cum	1	2.225	0.500	0.730	0.812
	PB1	Cum	1	2.250	0.500	0.730	0.821
	PB1	Cum	1	4.050	0.500	0.730	1.478
	PB1	Cum	1	3.850	0.500	0.730	1.405
	PB1	Cum	1	1.450	0.500	0.730	0.529
	PB1	Cum	2	3.000	0.500	0.730	2.190
	PB1	Cum	2	3.750	0.500	0.730	2.738
	PB1	Cum	1	4.200	0.500	0.730	1.533
	PB1	Cum	1	3.200	0.500	0.730	1.168
	PB1	Cum	1	3.050	0.500	0.730	1.113
	PB2	Cum	2	2.650	0.450	0.730	1.741
	PB2	Cum	1	1.150	0.450	0.730	0.378
	PB2	Cum	1	2.400	0.450	0.730	0.788
	PB2	Cum	1	3.400	0.450	0.730	1.117
	PB3	Cum	1	3.150	0.500	0.830	1.307
	PB3	Cum	1	4.850	0.500	0.730	1.770
	PB3	Cum	2	4.500	0.500	0.730	3.285
	TB1	Cum	3	1.450	0.500	0.730	1.588
	TB2	Cum	3	2.975	0.500	0.730	3.258
	TB2	Cum	1	6.700	0.500	0.730	2.446
	TB2	Cum	1	3.200	0.500	0.730	1.168
	TB2	Cum	1	3.125	0.500	0.730	1.141
	TB2	Cum	1	5.050	0.500	0.730	1.843
	Total Excavation	**Cum**					**394.696**
	70% Soft Soil/ Murum						276.287

	20% Soft Rock						78.939
	10% Hard Rock						39.470
2)	**Filling with Excavated Material-Soft+Murum**	**Cum**					**355.227**
Sr No	**Item Description**	**Unit**	**Nos**	**L**	**B**	**D\H**	**Quantity**
3)	**Soling**						
	PB1	Cum	4	2.925	0.350	0.230	0.942
	PB1	Cum	3	2.875	0.350	0.230	0.694
	PB1	Cum	3	3.025	0.350	0.230	0.731
	PB1	Cum	2	3.000	0.350	0.230	0.483
	PB1	Cum	3	3.150	0.350	0.230	0.761
	PB1	Cum	1	2.325	0.350	0.230	0.187
	PB1	Cum	1	2.225	0.350	0.230	0.179
	PB1	Cum	1	2.250	0.350	0.230	0.181
	PB1	Cum	1	4.050	0.350	0.230	0.326
	PB1	Cum	1	3.850	0.350	0.230	0.310
	PB1	Cum	1	1.450	0.350	0.230	0.117
	PB1	Cum	2	3.000	0.350	0.230	0.483
	PB1	Cum	2	3.750	0.350	0.230	0.604
	PB1	Cum	1	4.200	0.350	0.230	0.338
	PB1	Cum	1	3.200	0.350	0.230	0.258
	PB1	Cum	1	3.050	0.350	0.230	0.246
	PB2	Cum	2	2.650	0.300	0.230	0.366
	PB2	Cum	1	1.150	0.300	0.230	0.079
	PB2	Cum	1	2.400	0.300	0.230	0.166
	PB2	Cum	1	3.400	0.300	0.230	0.235
	PB3	Cum	1	3.150	0.350	0.230	0.254
	PB3	Cum	1	4.850	0.350	0.230	0.390
	PB3	Cum	2	4.500	0.350	0.230	0.725
	TB1	Cum	3	1.450	0.350	0.230	0.350
	TB2	Cum	3	2.975	0.350	0.230	0.718
	TB2	Cum	1	6.700	0.350	0.230	0.539
	TB2	Cum	1	3.200	0.350	0.230	0.258
	TB2	Cum	1	3.125	0.350	0.230	0.252
	TB2	Cum	1	5.050	0.350	0.230	0.407
	Soling in Plinth Area						
		Cum	1	223.082		0.230	51.309
	Deduct Plinth Beam	Cum	1	145.550	0.200	0.230	-6.695
	Total Soling	**Cum**					**56.189**
Sr No	**Item Description**	**Unit**	**Nos**	**L**	**B**	**D\H**	**Quantity**
3)	**PCC-1:3:6**						
	For Footings						
	C1, 7, 15	Cum	3	1.500	1.500	0.150	1.013
	C2, 16	Cum	2	1.500	1.500	0.150	0.675

	C3, 5, 14, 17	Cum	4	1.600	1.600	0.150	1.536
	C6, C8	Cum	2	1.700	1.800	0.150	0.918
	C9	Cum	1	1.800	1.900	0.150	0.513
	C10	Cum	1	1.900	2.000	0.150	0.570
	C4, 11	Cum	2	1.700	1.800	0.150	0.918
	C12, 13	Cum	2	1.900	2.000	0.150	1.140
	C18, 19, 20, 21	Cum	4	1.400	1.500	0.150	1.260
	C22, 24, 26	Cum	3	1.500	1.500	0.150	1.013
	C23	Cum	1	1.600	1.600	0.150	0.384
	C25,27	Cum	2	1.500	1.500	0.150	0.675
	C28	Cum	1	1.300	1.300	0.150	0.254
	Plinth Beams PCC						
	PB1	Cum	4	2.925	0.350	0.150	0.614
	PB1	Cum	3	2.875	0.350	0.150	0.453
	PB1	Cum	3	3.025	0.350	0.150	0.476
	PB1	Cum	2	3.000	0.350	0.150	0.315
	PB1	Cum	3	3.150	0.350	0.150	0.496
	PB1	Cum	1	2.325	0.350	0.150	0.122
	PB1	Cum	1	2.225	0.350	0.150	0.117
	PB1	Cum	1	2.250	0.350	0.150	0.118
	PB1	Cum	1	4.050	0.350	0.150	0.213
	PB1	Cum	1	3.850	0.350	0.150	0.202
	PB1	Cum	1	1.450	0.350	0.150	0.076
	PB1	Cum	2	3.000	0.350	0.150	0.315
	PB1	Cum	2	3.750	0.350	0.150	0.394
	PB1	Cum	1	4.200	0.350	0.150	0.221
	PB1	Cum	1	3.200	0.350	0.150	0.168
	PB1	Cum	1	3.050	0.350	0.150	0.160
	PB2	Cum	2	2.650	0.300	0.150	0.239
	PB2	Cum	1	1.150	0.300	0.150	0.052
	PB2	Cum	1	2.400	0.300	0.150	0.108
	PB2	Cum	1	3.400	0.300	0.150	0.153
	PB3	Cum	1	3.150	0.350	0.150	0.165
	PB3	Cum	1	4.850	0.350	0.150	0.255
	PB3	Cum	2	4.500	0.350	0.150	0.473
	TB1	Cum	3	1.450	0.350	0.150	0.228
	TB2	Cum	3	2.975	0.350	0.150	0.469
	TB2	Cum	1	6.700	0.350	0.150	0.352
	TB2	Cum	1	3.200	0.350	0.150	0.168
	TB2	Cum	1	3.125	0.350	0.150	0.164
	TB2	Cum	1	5.050	0.350	0.150	0.265
	PCC in Plinth Area						
		Cum	1		223.082	0.150	33.462
	Total PCC	**Cum**					**51.879**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Footings						
	C1, 7, 15	Cum	3	1.200	1.200	0.350	1.234
	C2, 16	Cum	2	1.200	1.200	0.350	0.905

	C3, 5, 14, 17	Cum	4	1.300	1.300	0.400	2.298
	C6, C8	Cum	2	1.400	1.500	0.450	1.427
	C9	Cum	1	1.500	1.600	0.450	0.811
	C10	Cum	1	1.600	1.700	0.450	0.841
	C4, 11	Cum	2	1.400	1.500	0.400	1.544
	C12, 13	Cum	2	1.600	1.700	0.500	1.533
	C18, 19, 20, 21	Cum	4	1.100	1.200	0.350	1.510
	C22, 24, 26	Cum	3	1.200	1.200	0.350	1.357
	C23	Cum	1	1.300	1.300	0.400	0.480
	C25,27	Cum	2	1.200	1.200	0.350	0.822
	C28	Cum	1	1.000	1.000	0.350	0.080
	Total Footing	**Cum**					**14.841**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Plinth Beams						
	PB1	Cum	4	2.925	0.200	0.350	0.819
	PB1	Cum	3	2.875	0.200	0.350	0.604
	PB1	Cum	3	3.025	0.200	0.350	0.635
	PB1	Cum	2	3.000	0.200	0.350	0.420
	PB1	Cum	3	3.150	0.200	0.350	0.662
	PB1	Cum	1	2.325	0.200	0.350	0.163
	PB1	Cum	1	2.225	0.200	0.350	0.156
	PB1	Cum	1	2.250	0.200	0.350	0.158
	PB1	Cum	1	4.050	0.200	0.350	0.284
	PB1	Cum	1	3.850	0.200	0.350	0.270
	PB1	Cum	1	1.450	0.200	0.350	0.102
	PB1	Cum	2	3.000	0.200	0.350	0.420
	PB1	Cum	2	3.750	0.200	0.350	0.525
	PB1	Cum	1	4.200	0.200	0.350	0.294
	PB1	Cum	1	3.200	0.200	0.350	0.224
	PB1	Cum	1	3.050	0.200	0.350	
	PB2	Cum	2	2.650	0.150	0.350	0.278
	PB2	Cum	1	1.150	0.150	0.350	0.060
	PB2	Cum	1	2.400	0.150	0.350	0.126
	PB2	Cum	1	3.400	0.150	0.350	0.179
	PB3	Cum	1	3.150	0.200	0.450	0.284
	PB3	Cum	1	4.850	0.200	0.350	0.340
	PB3	Cum	2	4.500	0.200	0.350	0.630
	TB1	Cum	3	1.450	0.200	0.350	0.305
	TB2	Cum	3	2.975	0.200	0.350	0.625
	TB2	Cum	1	6.700	0.200	0.350	0.469
	TB2	Cum	1	3.200	0.200	0.350	0.224
	TB2	Cum	1	3.125	0.200	0.350	0.219
	TB2	Cum	1	5.050	0.200	0.350	0.354
	Total Plinth Beams	**Cum**					**9.824**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	1st Slab Beams						
	B1	Cum	1	2.925	0.200	0.500	0.293
	B2	Cum	1	2.925	0.200	0.500	0.293
	B3	Cum	1	3.025	0.200	0.500	0.303
	B4	Cum	1	2.875	0.200	0.500	0.288
	B5	Cum	1	4.500	0.200	0.500	0.450
	B6	Cum	2	6.150	0.250	0.500	1.538
	B7	Cum	1	3.025	0.200	0.500	0.303
	B8	Cum	1	2.875	0.200	0.500	0.288
	B9	Cum	1	3.050	0.200	0.450	0.275
	B10	Cum	1	4.500	0.200	0.500	0.450
	B11	Cum	1	2.925	0.200	0.500	0.293
	B12	Cum	1	2.925	0.200	0.500	0.293
	B13	Cum	1	3.025	0.200	0.450	0.272
	B14	Cum	1	4.200	0.200	0.450	0.378
	B14B	Cum	1	2.825	0.200	0.400	0.226
	B15	Cum	1	4.300	0.200	0.450	0.387
	B16	Cum	1	3.000	0.200	0.450	0.270
	B17	Cum	1	4.200	0.200	0.450	0.378
	B18	Cum	1	3.000	0.200	0.400	0.240
	B19	Cum	1	3.200	0.200	0.450	0.288
	B20	Cum	1	4.300	0.200	0.450	0.387
	B21						
	B22	Cum	1	4.200	0.200	0.450	0.378
	B23	Cum	1	3.200	0.200	0.450	0.288
	B24	Cum	2	3.150	0.300	0.500	0.945
	B25	Cum	1	3.150	0.300	0.500	0.473
	B26	Cum	1	3.150	0.200	0.500	0.315
	B27	Cum	1	5.250	0.200	0.450	0.473
	B28	Cum	1	3.000	0.200	0.400	0.240
	B29	Cum	3	1.450	0.200	0.300	0.261
	B30	Cum	1	5.250	0.200	0.450	0.473
	B31	Cum	1	3.950	0.200	0.500	0.395
	B32	Cum	1	2.250	0.200	0.450	0.203
	B32B	Cum	1	2.250	0.200	0.400	0.180
	B32 C	Cum	1	0.550	0.200	0.400	0.044
	B33	Cum	1	2.225	0.200	0.450	0.200
	B34	Cum	1	2.324	0.200	0.450	0.209
	B35	Cum	1	4.850	0.200	0.500	0.485
	B36	Cum	1	3.750	0.200	0.500	0.375
	B37	Cum	1	3.000	0.200	0.500	0.300
	B38	Cum	1	4.050	0.200	0.450	0.365
	B39	Cum	1	3.750	0.200	0.450	0.338
	B40	Cum	1	3.000	0.200	0.450	0.270
	B41	Cum	1	1.450	0.200	0.300	0.087
	B42	Cum	1	3.850	0.200	0.450	0.347

	2nd Slab Beams						
	B1	Cum	1	2.925	0.200	0.500	0.293
	B2	Cum	1	2.925	0.200	0.500	0.293
	B3	Cum	1	3.025	0.200	0.500	0.303
	B4	Cum	1	2.875	0.200	0.500	0.288
	B5	Cum	1	4.500	0.200	0.500	0.450
	B6	Cum	2	6.150	0.250	0.500	1.538
	B7	Cum	1	3.025	0.200	0.500	0.303
	B8	Cum	1	2.875	0.200	0.500	0.288
	B9	Cum	1	3.050	0.200	0.450	0.275
	B10	Cum	1	4.500	0.200	0.500	0.450
	B11	Cum	1	2.925	0.200	0.500	0.293
	B12	Cum	1	2.925	0.200	0.500	0.293
	B13	Cum	1	3.025	0.200	0.450	0.272
	B14	Cum	1	4.200	0.200	0.450	0.378
	B14B	Cum	1	2.825	0.200	0.400	0.226
	B15	Cum	1	4.300	0.200	0.450	0.387
	B16	Cum	1	3.000	0.200	0.450	0.270
	B20	Cum	1	4.300	0.200	0.450	0.387
	B24	Cum	2	3.150	0.300	0.500	0.945
	B25	Cum	1	3.150	0.300	0.500	0.473
	B26	Cum	1	3.150	0.200	0.500	0.315
	B27	Cum	1	5.250	0.200	0.450	0.473
	B29	Cum	3	1.450	0.200	0.300	0.261
	B30	Cum	1	5.250	0.200	0.450	0.473
	B32B	Cum	1	2.250	0.200	0.400	0.180
	B32 C	Cum	1	0.550	0.200	0.400	0.044
	B33	Cum	1	2.225	0.200	0.450	0.200
	B34	Cum	1	2.324	0.200	0.450	0.209
	B35	Cum	1	4.850	0.200	0.500	0.485
	B38	Cum	1	4.050	0.200	0.450	0.365
	B41	Cum	1	1.450	0.200	0.300	0.087
	B42	Cum	1	3.850	0.200	0.450	0.347
	Total Slab Beams	**Cum**					**27.366**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	1st Slab						
	S1	Cum	1	13.500		0.140	1.890
	S1	Cum	1	12.610		0.140	1.765
	S1	Cum	1	13.190		0.140	1.847
	S1	Cum	1	10.670		0.140	1.494
	S1	Cum	1	10.070		0.140	1.410
	S1	Cum	1	10.600		0.140	1.484
	S1	Cum	1	8.500		0.140	1.190
	S1	Cum	1	9.290		0.140	1.301
	S1	Cum	1	9.670		0.140	1.354
	S1	Cum	1	9.670		0.140	1.354
	S1	Cum	1	9.670		0.140	1.354
	S2	Cum	1	4.680		0.125	0.585
	S2	Cum	1	4.310		0.125	0.539
	S2	Cum	1	4.570		0.125	0.571
	S2	Cum	1	6.670		0.125	0.834
	S3	Cum	1	9.600		0.140	1.344
	S3	Cum	1	10.200		0.140	1.428
	S4	Cum	1	13.390		0.140	1.875
	SL	Cum	1	1.550		0.175	0.271

	2nd Slab						
	S1	Cum	1	13.500		0.140	1.890
	S1	Cum	1	12.610		0.140	1.765
	S1	Cum	1	13.190		0.140	1.847
	S1	Cum	1	10.670		0.140	1.494
	S1	Cum	1	10.070		0.140	1.410
	S1	Cum	1	10.600		0.140	1.484
	S1	Cum	1	8.500		0.140	1.190
	S1	Cum	1	9.290		0.140	1.301
	S2	Cum	1	4.680		0.125	0.585
	S2	Cum	1	4.310		0.125	0.539
	S2	Cum	1	4.570		0.125	0.571
	S2	Cum	1	6.670		0.125	0.834
	S2	Cum	1	2.160		0.125	0.270
	S3	Cum	1	11.480		0.150	1.722
	SL	Cum	1	1.550		0.175	0.271
	Total Slab	**Cum**		**281.680**			**41.060**
	Deduct Filler Block Quantity						
	Block Per 0.3 X 0.3 M Area						
	Filler Block Size- 0.225 X 0.225 X 0.05 M						
	No of Blocks- Slab Area/ (0.3X 0.3)=281.68/0.09						
	3129.78	Cum	###	0.225	0.225	0.050	7.923
	Net Slab Quantity	**Cum**					**33.138**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Staircase Slabs						
		Cum	8	1.500	0.250	0.150	0.450
		Cum	1	3.207	1.500	0.175	0.842
		Cum	1	3.456	1.500	0.175	0.907
		Cum	1	3.200	1.500	0.175	0.840
	Total Staircase	**Cum**					**3.039**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Column						
	Footing top to 1St Slab						
	C1, 7, 15	Cum	3	0.300	0.300	5.550	1.499
	C2, 16	Cum	2	0.300	0.300	5.550	0.999
	C3, 5, 14, 17	Cum	4	0.300	0.300	5.500	1.980
	C6, C8	Cum	2	0.300	0.400	5.450	1.308
	C9	Cum	1	0.300	0.400	5.450	0.654
	C10	Cum	1	0.300	0.400	5.450	0.654
	C4, 11	Cum	2	0.300	0.400	5.500	1.320
	C12, 13	Cum	2	0.300	0.300	5.400	0.972
	C18, 19, 20, 21	Cum	4	0.300	0.300	5.550	1.998
	C22, 24, 26	Cum	3	0.300	0.300	5.550	1.499
	C23	Cum	1	0.300	0.300	5.500	0.495
	C25,27	Cum	2	0.300	0.300	5.550	0.999
	C28	Cum	1	0.300	0.300	5.550	0.500
	1St Slab to Terrace Slab						
	C1, 7, 15	Cum	3	0.300	0.300	3.450	0.932

	C2, 16	Cum	2	0.300	0.300	3.450	0.621
	C3, 5, 14, 17	Cum	4	0.300	0.300	3.450	1.242
	C6, C8	Cum	2	0.300	0.400	3.450	0.828
	C9	Cum	1	0.300	0.400	3.450	0.414
	C10	Cum	1	0.300	0.400	3.450	0.414
	C4, 11	Cum	2	0.300	0.400	3.450	0.828
	C12, 13	Cum	2	0.300	0.300	3.450	0.621
	C18, 19, 20, 21	Cum	4	0.300	0.300	3.450	1.242
	Total Columns	**Cum**					**22.017**

	Filler Blocks- 225 X 225 X 50 MM	**Nos**		3130			**3130**

Steel reinforcement
Reinforcement Steel- Total Concrete-110.22 Cum
110.22

	Considering Avg Reinforcement is 125 K	**Quintal**	**1**	**110.22**	**1.25**		**137.775**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Chajja All Windows Length Plus 150 MM Bearing Each Side	Sqm					
	W	Sq m	16	1.8	0.45		12.96
	W1	Sq m	3	1.2	0.45		1.62
	W2	Sq m	4	0.75	0.45		1.35
	Windows	**Sq m**					
	V	Sq m	12	0.9	0.45		4.86
	Ventilator	**Sq m**					
	Top Hung Ventilator	Sq m	14	1.8	0.45		11.34
	Top Hung Ventilator	Sq m	2	2.45	0.45		2.205
	Total Chajja	**Sq m**					**34.335**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Lintel Over Doors						
	D1	Cum	4	1.5	0.15	0.15	0.135
	D2	Cum	7	1.2	0.15	0.15	0.189
	D3	Cum	5	1.05	0.15	0.15	**0.118**
	Lintel	**Cum**					**0.442**

School Building

Measurement Sheet For Shuttering quantity

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
3)	**PCC- Shuttering Quantity**						
	For Footings						
	C1, 7, 15	Sq m	3	6.000		0.150	2.700
	C2, 16	Sq m	2	6.000		0.150	1.800
	C3, 5, 14, 17	Sq m	4	6.400		0.150	3.840
	C6, C8	Sq m	2	1.700		0.150	0.510
	C9	Sq m	1	7.000		0.150	1.050
	C10	Sq m	1	7.800		0.150	1.170
	C4, 11	Sq m	2	7.000		0.150	2.100
	C12, 13	Sq m	2	7.800		0.150	2.340
	C18, 19, 20, 21	Sq m	4	5.800		0.150	3.480
	C22, 24, 26	Sq m	3	6.000		0.150	2.700
	C23	Sq m	1	6.400		0.150	0.960
	C25,27	Sq m	2	6.000		0.150	1.800
	C28	Sq m	1	5.200		0.150	0.780
	Plinth Beams PCC						
	PB1	Sq m	8	2.925		0.350	8.190
	PB1	Sq m	6	2.875		0.350	6.038
	PB1	Sq m	6	3.025		0.350	6.353
	PB1	Sq m	4	3.000		0.350	4.200
	PB1	Sq m	6	3.150		0.350	6.615
	PB1	Sq m	2	2.325		0.350	1.628
	PB1	Sq m	2	2.225		0.350	1.558
	PB1	Sq m	2	2.250		0.350	1.575
	PB1	Sq m	2	4.050		0.350	2.835
	PB1	Sq m	2	3.850		0.350	2.695
	PB1	Sq m	2	1.450		0.350	1.015
	PB1	Sq m	4	3.000		0.350	4.200
	PB1	Sq m	4	3.750		0.350	5.250
	PB1	Sq m	2	4.200		0.350	2.940
	PB1	Sq m	2	3.200		0.350	2.240
	PB1	Sq m	2	3.050		0.350	2.135
	PB2	Sq m	4	2.650		0.300	3.180
	PB2	Sq m	2	1.150		0.300	0.690
	PB2	Sq m	2	2.400		0.300	1.440
	PB2	Sq m	2	3.400		0.300	2.040
	PB3	Sq m	2	3.150		0.350	2.205
	PB3	Sq m	2	4.850		0.350	3.395
	PB3	Sq m	4	4.500		0.350	6.300

	TB1	Sq m	6	1.450		0.350	3.045
	TB2	Sq m	6	2.975		0.350	6.248
	TB2	Sq m	2	6.700		0.350	4.690
	TB2	Sq m	2	3.200		0.350	2.240
	TB2	Sq m	2	3.125		0.350	2.188
	TB2	Sq m	2	5.050		0.350	3.535
	PCC in Plinth Area						
		Sq m	1	73.000		0.150	10.950
	Total PCC Shuttering quantity	Sq m					**136.840**
	Footings Shuttering quantity						
	C1, 7, 15	Sq m	3	6.000		0.350	6.300
	C2, 16	Sq m	2	6.000		0.350	4.200
	C3, 5, 14, 17	Sq m	4	6.400		0.400	10.240
	C6, C8	Sq m	2	1.700		0.450	1.530
	C9	Sq m	1	7.000		0.450	3.150
	C10	Sq m	1	7.800		0.450	3.510
	C4, 11	Sq m	2	7.000		0.400	5.600
	C12, 13	Sq m	2	7.800		0.500	7.800
	C18, 19, 20, 21	Sq m	4	5.800		0.350	8.120
	C22, 24, 26	Sq m	3	6.000		0.350	6.300
	C23	Sq m	1	6.400		0.400	2.560
	C25,27	Sq m	2	6.000		0.350	4.200
	C28	Sq m	1	5.200		0.350	1.820
	Total Footing shuttering quantity	**Sq m**					**65.330**
A	**Total quantity of pcc & footing**	**Sq m**					**202.170**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	1st Slab						
	S1	Sq m	1	13.500			13.500
	S1	Sq m	1	12.610			12.610
	S1	Sq m	1	13.190			13.190
	S1	Sq m	1	10.670			10.670
	S1	Sq m	1	10.070			10.070
	S1	Sq m	1	10.600			10.600
	S1	Sq m	1	8.500			8.500
	S1	Sq m	1	9.290			9.290
	S1	Sq m	1	9.670			9.670
	S1	Sq m	1	9.670			9.670
	S1	Sq m	1	9.670			9.670
	S2	Sq m	1	4.680			4.680
	S2	Sq m	1	4.310			4.310
	S2	Sq m	1	4.570			4.570
	S2	Sq m	1	6.670			6.670
	S3	Sq m	1	9.600			9.600

	S3	Sq m	1	10.200			10.200
	S4	Sq m	1	13.390			13.390
	SL	Sq m	1	1.550			1.550
	2nd Slab						
	S1	Sq m	1	13.500			13.500
	S1	Sq m	1	12.610			12.610
	S1	Sq m	1	13.190			13.190
	S1	Sq m	1	10.670			10.670
	S1	Sq m	1	10.070			10.070
	S1	Sq m	1	10.600			10.600
	S1	Sq m	1	8.500			8.500
	S1	Sq m	1	9.290			9.290
	S2	Sq m	1	4.680			4.680
	S2	Sq m	1	4.310			4.310
	S2	Sq m	1	4.570			4.570
	S2	Sq m	1	6.670			6.670
	S2	Sq m	1	2.160			2.160
	S3	Sq m	1	11.480			11.480
	SL	Sq m	1	1.550			1.550
	Total Slab Shuttering Quantity	**Sq m**					**296.260**
	Staircase Slabs						
		Sq m	8	1.500	0.250		3.000
		Sq m	1	3.207	1.500		4.811
		Sq m	1	3.456	1.500		5.184
		Sq m	1	3.200	1.500		4.800
	Total Staircase Shuttering quantity	**Sq m**					**17.795**
B	**Total quantity of Slab & staircase**	**Sq m**					**314.055**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Column						
	Footing top to 1St Slab						
	C1, 7, 15	Sq m	3	1.200		5.550	19.980
	C2, 16	Sq m	2	1.200		5.550	13.320
	C3, 5, 14, 17	Sq m	4	1.200		5.500	26.400
	C6, C8	Sq m	2	1.400		5.450	15.260
	C9	Sq m	1	1.400		5.450	7.630
	C10	Sq m	1	1.400		5.450	7.630
	C4, 11	Sq m	2	1.400		5.500	15.400
	C12, 13	Sq m	2	1.200		5.400	12.960
	C18, 19, 20, 21	Sq m	4	1.200		5.550	26.640
	C22, 24, 26	Sq m	3	1.200		5.550	19.980
	C23	Sq m	1	1.200		5.500	6.600
	C25,27	Sq m	2	1.200		5.550	13.320
	C28	Sq m	1	1.200		5.550	6.660

	1St Slab to Terrace Slab						
	C1, 7, 15	Sq m	3	1.200		3.450	12.420
	C2, 16	Sq m	2	1.200		3.450	8.280
	C3, 5, 14, 17	Sq m	4	1.200		3.450	16.560
	C6, C8	Sq m	2	1.400		3.450	9.660
	C9	Sq m	1	1.400		3.450	4.830
	C10	Sq m	1	1.400		3.450	4.830
	C4, 11	Sq m	2	1.400		3.450	9.660
	C12, 13	Sq m	2	1.200		3.450	8.280
	C18, 19, 20, 21	Sq m	4	1.200		3.450	16.560
	Total Columns Shuttering Quantity	**Sq m**					**282.86**
C	**Total Column Shuttering quantity**	**Sq m**					**282.860**
	Plinth Beams Shuttering quantity						
	PB1	Sq m	8	2.925		0.350	8.190
	PB1	Sq m	6	2.875		0.350	6.038
	PB1	Sq m	6	3.025		0.350	6.353
	PB1	Sq m	4	3.000		0.350	4.200
	PB1	Sq m	6	3.150		0.350	6.615
	PB1	Sq m	2	2.325		0.350	1.628
	PB1	Sq m	2	2.225		0.350	1.558
	PB1	Sq m	2	2.250		0.350	1.575
	PB1	Sq m	2	4.050		0.350	2.835
	PB1	Sq m	2	3.850		0.350	2.695
	PB1	Sq m	2	1.450		0.350	1.015
	PB1	Sq m	4	3.000		0.350	4.200
	PB1	Sq m	4	3.750		0.350	5.250
	PB1	Sq m	2	4.200		0.350	2.940
	PB1	Sq m	2	3.200		0.350	2.240
	PB1	Sq m	2	3.050		0.350	2.135
	PB2	Sq m	4	2.650		0.350	3.710
	PB2	Sq m	2	1.150		0.350	0.805
	PB2	Sq m	2	2.400		0.350	1.680
	PB2	Sq m	2	3.400		0.350	2.380
	PB3	Sq m	2	3.150		0.450	2.835
	PB3	Sq m	2	4.850		0.350	3.395
	PB3	Sq m	4	4.500		0.350	6.300
	TB1	Sq m	6	1.450		0.350	3.045
	TB2	Sq m	6	2.975		0.350	6.248
	TB2	Sq m	2	6.700		0.350	4.690
	TB2	Sq m	2	3.200		0.350	2.240
	TB2	Sq m	2	3.125		0.350	2.188
	TB2	Sq m	2	5.050		0.350	3.535
	Total Plinth Beams shuttering quantity	**Sq m**					**102.515**

	1st Slab Beams						
	B1	Sq m	2	2.925		0.500	2.925
	B2	Sq m	2	2.925		0.500	2.925
	B3	Sq m	2	3.025		0.500	3.025
	B4	Sq m	2	2.875		0.500	2.875
	B5	Sq m	2	4.500		0.500	4.500
	B6	Sq m	4	6.150		0.500	12.300
	B7	Sq m	2	3.025		0.500	3.025
	B8	Sq m	2	2.875		0.500	2.875
	B9	Sq m	2	3.050		0.450	2.745
	B10	Sq m	2	4.500		0.500	4.500
	B11	Sq m	2	2.925		0.500	2.925
	B12	Sq m	2	2.925		0.500	2.925
	B13	Sq m	2	3.025		0.450	2.723
	B14	Sq m	2	4.200		0.450	3.780
	B14B	Sq m	2	2.825		0.400	2.260
	B15	Sq m	2	4.300		0.450	3.870
	B16	Sq m	2	3.000		0.450	2.700
	B17	Sq m	2	4.200		0.450	3.780
	B18	Sq m	2	3.000		0.400	2.400
	B19	Sq m	2	3.200		0.450	2.880
	B20	Sq m	2	4.300		0.450	3.870
	B21						
	B22	Sq m	2	4.200		0.450	3.780
	B23	Sq m	2	3.200		0.450	2.880
	B24	Sq m	4	3.150		0.500	6.300
	B25	Sq m	2	3.150		0.500	3.150
	B26	Sq m	2	3.150		0.500	3.150
	B27	Sq m	2	5.250		0.450	4.725
	B28	Sq m	2	3.000		0.400	2.400
	B29	Sq m	6	1.450		0.300	2.610
	B30	Sq m	2	5.250		0.450	4.725
	B31	Sq m	2	3.950		0.500	3.950
	B32	Sq m	2	2.250		0.450	2.025
	B32B	Sq m	2	2.250		0.400	1.800
	B32 C	Sq m	2	0.550		0.400	0.440
	B33	Sq m	2	2.225		0.450	2.003
	B34	Sq m	2	2.324		0.450	2.092
	B35	Sq m	2	4.850		0.500	4.850
	B36	Sq m	2	3.750		0.500	3.750
	B37	Sq m	2	3.000		0.500	3.000
	B38	Sq m	2	4.050		0.450	3.645
	B39	Sq m	2	3.750		0.450	3.375
	B40	Sq m	2	3.000		0.450	2.700
	B41	Sq m	2	1.450		0.300	0.870
	B42	Sq m	2	3.850		0.450	3.465

	2nd Slab Beams						
	B1	Sq m	2	2.925		0.500	2.925
	B2	Sq m	2	2.925		0.500	2.925
	B3	Sq m	2	3.025		0.500	3.025
	B4	Sq m	2	2.875		0.500	2.875
	B5	Sq m	2	4.500		0.500	4.500
	B6	Sq m	4	6.150		0.500	12.300
	B7	Sq m	2	3.025		0.500	3.025
	B8	Sq m	2	2.875		0.500	2.875
	B9	Sq m	2	3.050		0.450	2.745
	B10	Sq m	2	4.500		0.500	4.500
	B11	Sq m	2	2.925		0.500	2.925
	B12	Sq m	2	2.925		0.500	2.925
	B13	Sq m	2	3.025		0.450	2.723
	B14	Sq m	2	4.200		0.450	3.780
	B14B	Sq m	2	2.825		0.400	2.260
	B15	Sq m	2	4.300		0.450	3.870
	B16	Sq m	2	3.000		0.450	2.700
	B20	Sq m	2	4.300		0.450	3.870
	B24	Sq m	4	3.150		0.500	6.300
	B25	Sq m	2	3.150		0.500	3.150
	B26	Sq m	2	3.150		0.500	3.150
	B27	Sq m	2	5.250		0.450	4.725
	B29	Sq m	6	1.450		0.300	2.610
	B30	Sq m	2	5.250		0.450	4.725
	B32B	Sq m	2	2.250		0.400	1.800
	B32 C	Sq m	2	0.550		0.400	0.440
	B33	Sq m	2	2.225		0.450	2.003
	B34	Sq m	2	2.324		0.450	2.092
	B35	Sq m	2	4.850		0.500	4.850
	B38	Sq m	2	4.050		0.450	3.645
	B41	Sq m	2	1.450		0.300	0.870
	B42	Sq m	2	3.850		0.450	3.465
	Total Slab Beams Shuttering Quantity	**Sq m**					**258.063**

	Chajja All Windows Length Plus 150 MM Bearing Each Side	Sqm					
	W	Sq m	16	1.8	0.45		12.96
	W1	Sq m	3	1.2	0.45		1.62
	W2	Sq m	4	0.75	0.45		1.35
	W Sides	Sq m	16	2.7		0.125	5.4
	W1 Sides	Sq m	3	2.1		0.125	0.7875
	W2 Sides	Sq m	4	1.65		0.125	0.825
	V	Sq m	12	0.9	0.45		4.86
	Ventilator Sides	Sq m	12	1.8		0.125	2.7
	Top Hung Ventilator	Sq m	14	1.8	0.45		11.34
	Top Hung Ventilator sides	Sq m	14	2.7		0.125	4.725
	Top Hung Ventilator	Sq m	2	2.45	0.45		2.205
	Top Hung Ventilator sides	Sq m	2	3.35		0.125	0.8375
	Total Chajja Shuttering quantity	**Sq m**					**49.61**
	Lintel Over Doors						
	D1	Sq m	8	1.5		0.15	1.8
	D2	Sq m	14	1.2		0.15	2.52
	D3	Sq m	10	1.05		0.15	1.575
	Lintel Shuttering quantity	**Sq m**					**5.895**
D	**Total Beam, Chajja & Lintel quantity**	**Sq m**					**416.08**

School Building

Measurement Sheet

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Water Proofing						
	Toilet						
	Common Toilet	Cum	1	8.700		0.200	1.740
	Toilet	Cum	1	1.800	1.200	0.200	0.432
	Boy's Toilet	Cum	1	2.350	4.150	0.300	2.926
	Girls Toilet	Cum	1	2.15	4.15	0.300	2.677
	Toilet	**Cum**					**7.775**
	Open Terrace						
	Top terrace	Sq m	1	140.632			140.632
	Attached Terrace	Sq m	1	57.42			57.42
	Terrace	**Sq m**					**198.052**

School Building

Measurement Sheet-Brick Masonry

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Ground Floor						
	C1 to C8	Sq m	1	3.150		3.150	9.923
	C8 to C15	Sq m	1	3.150		3.150	9.923
	C15 to C16 & C1 to C2	Sq m	2	2.925		3.150	18.428
	C16 to C17 & C2 to C3	Sq m	2	2.925		3.150	18.428
	C3 To C9	Sq m	1	3.150		3.150	9.923
	C9 to C17	Sq m	1	3.150		3.150	9.923
	C17 to C18 & C3 To C4	Sq m	2	3.025		3.150	19.058
	C11 to wall between C9&17	Sq m	1	3.025		3.150	9.529
	C4 To C5, C11 to C12	Sq m	2	2.875		3.150	18.113
	C18 to C19	Sq m	1	2.825		3.150	8.899
	C5 To C5	Sq m	1	2.325		3.150	7.324
	C5 to C12	Sq m	1	2.225		3.150	7.009
	C5 To C6	Sq m	1	3.050		3.150	9.608
	C6 to C13	Sq m	1	4.850		3.150	15.278
	C6 ,C13 to C7	Sq m	1	4.500		3.150	14.175
	C13 to C14	Sq m	1	4.500		3.150	14.175
	C7 to C14	Sq m	1	3.850		3.150	12.128
	toilet partition wall	Sq m	1	4.150		3.150	13.073
	C19 to C22	Sq m	1	2.250		3.150	7.088
	C22 to C23, C25 to C26	Sq m	2	4.200		3.150	26.460
	C22 to C25	Sq m	1	4.500		3.150	14.175
	C23 to C26	Sq m	1	3.750		3.150	11.813
	C20 to C23	Sq m	1	3.000		3.150	9.450
	C14 to C21	Sq m	1	1.450		3.150	4.568
	Wall Perpendicular to C14 to C22	Sq m	1	0.450		3.150	1.418
	C21 to C24	Sq m	1	3.000		3.150	9.450
	C23 to C24	Sq m	1	3.200		3.150	10.080
	Wall Bet pantry & toilet	Sq m	1	1.200		3.150	3.780
	Wall Bet pantry , toilet & Common toi	Sq m	1	3.500		3.150	11.025
	C23 to C26 & C24 to C27	Sq m	2	3.750		3.150	23.625
	C26 to C27	Sq m	1	3.200		3.150	10.080
	Wall from C6 to C7	Sq m	1	5.850		3.150	18.428
	Elevation 2 Window W at corner Side	Sq m	2	0.450		3.450	3.105
	Elevation 2 Window W at center Side	Sq m	2	0.450		2.850	2.565

	Elevation 4 Window W2 Side BBM	Sq m	2	0.450		3.450	3.105
	Elevation 4 Window W1 Side BBM	Sq m	1	0.450		2.250	1.013
	Elevation 3 Window W1 Side BBM	Sq m	1	0.450		2.850	1.283
	Elevation 1 Window W Side BBM	Sq m	3	0.450		2.850	3.848
	First Floor						
	C1 to C8	Sq m	1	3.150		3.150	9.923
	C8 to C15	Sq m	1	3.150		3.150	9.923
	C15 to C16 & C1 to C2	Sq m	2	2.925		3.150	18.428
	C16 to C17 & C2 to C3	Sq m	2	2.925		3.150	18.428
	C3 To C9	Sq m	1	3.150		3.150	9.923
	C9 to C17	Sq m	1	3.150		3.150	9.923
	C17 to C18	Sq m	1	3.025		1.000	3.025
	C18 to C19	Sq m	1	2.825		1.000	2.825
	C3 To C4	Sq m	1	3.025		3.150	9.529
	C11 to wall between C9&17	Sq m	1	3.025		3.150	9.529
	C4 To C5, C11 to C12	Sq m	2	2.875		3.150	18.113
	C5 To C5	Sq m	1	2.325		3.150	7.324
	C5 to C12	Sq m	1	2.225		3.150	7.009
	C5 To C6	Sq m	1	3.050		3.150	9.608
	C6 to C13	Sq m	1	4.850		3.150	15.278
	C6 ,C13 to C7	Sq m	1	4.500		3.150	14.175
	C13 to C14	Sq m	1	2.150		3.150	6.773
	C7 to C14	Sq m	1	3.850		3.150	12.128
	C14 to C21	Sq m	1	1.450		3.150	4.568
	C19 to C20	Sq m	1	4.300		3.150	13.545
	C20 to C21	Sq m	1	3.000		3.150	9.450
	Open Terrace	Sq m	1	23.000		1.000	23.000
	Wall Bet Store & Sports Room	Sq m	1	5.800		3.150	18.270
	Wall from C6 to C7	Sq m	1	5.850		3.150	18.428
	Elevation 2 Window W at corner Side	Sq m	2	0.450		2.700	2.430
	Elevation 2 Window W at center Side	Sq m	2	0.450		2.850	2.565
	Elevation 4 Window W2 Side BBM	Sq m	2	0.450		2.700	2.430
	Elevation 1 Window W Side BBM	Sq m	2	0.450		2.850	2.565
	Elevation 1 Window D Side BBM	Sq m	2	0.450		2.250	2.025
	Passage Wall At staircase	Sq m	1	1.500		2.150	3.225
	Top Terrace	Sq m	1	63.300		1.000	63.300

	Deduction						
	D	Sq m	2	1.5		2.25	-6.75
	D1	Sq m	4	1.2		2.25	-10.8
	D2	Sq m	7	0.9		2.25	-14.175
	D3	Sq m	10	0.75		2.25	-16.875
	OP	Sq m	1	0.9		2.25	-2.025
	OP	Sq m	1	0.75		2.25	-1.6875
	W	Sq m	16	1.5		1.8	-43.2
	W1	Sq m	3	0.9		1.8	-4.86
	W2	Sq m	4	0.45		1.8	-3.24
	Opening in staircase	Sq m	1	3.050		1.550	-4.7275
	V	Sq m	12	0.6		0.9	-6.48
	Top Hung Ventilator	Sq m	14	1.5		0.6	-12.6
	Top Hung Ventilator	Sq m	2	2.15		0.6	-2.58
	BBM For Steps at G F						
		Sq m	1	7.93			7.93
	For Porch Side	Sq m	1	14.85			14.85
	Total BBM	**Sq m**					**651.703**

School Building

Measurement Sheet- Internal Plaster

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	First Floor						
	Classroom 6.45 x 7.00	Sq m	1	28.4		3.45	97.98
	Classroom 6.45 x 5.35	Sq m	1	24.8		3.45	85.56
	Wall of Common Passage & Staircas	Sq m	1	46.275		3.45	159.64875
	Girls Toilet	Sq m	1	9.058		3.45	31.2501
	Boy's Toilet	Sq m	1	13.3		3.45	45.885
	Principal	Sq m	1	13.6		3.45	46.92
	Staff Room	Sq m	1	20.86		3.45	71.967
	Common Toilet	Sq m	1	21.85		3.45	75.3825
	Pantry	Sq m	1	5.5		3.45	18.975
	Toilet	Sq m	1	6		3.45	20.7
	Wall Between C17 to C18	Sq m	1	3.025		1	3.025
	Second Floor						
	Classroom 6.45 x 7.00	Sq m	1	28.4		3.45	97.98
	Classroom 6.45 x 5.35	Sq m	1	24.8		3.45	85.56
	Wall of Common Passage & Staircas	Sq m	1	33.25		3.45	114.7125
	Store	Sq m	1	12.9		3.45	44.505
	Sports & Crafts Room	Sq m	1	16.9		3.45	58.305
	Deduction						
	D	Sq m	2	1.5		2.25	-6.75
	D1	Sq m	8	1.2		2.25	-21.6
	D2	Sq m	11	0.9		2.25	-22.275
	D3	Sq m	10	0.75		2.25	-16.875
	OP	Sq m	2	0.9		2.25	-4.05
	OP	Sq m	2	0.75		2.25	-3.375
	W	Sq m	18	1.5		1.8	-48.6
	W1	Sq m	4	0.9		1.8	-6.48
	W2	Sq m	4	0.45		1.8	-3.24
	Opening in staircase	Sq m	1	3.050		1.550	-4.7275
	Top Hung Ventilator	Sq m	18	1.5		0.6	-16.2
	Top Hung Ventilator	Sq m	2	2.15		0.6	-2.58
	Add Jams						
	D	Sq m	2	7.5		0.15	2.25
	D1	Sq m	4	6.9		0.15	4.14
	D2	Sq m	7	6.3		0.15	6.615
	D3	Sq m	10	6		0.15	9
	OP	Sq m	1	6.3		0.15	0.945
	OP	Sq m	1	6		0.15	0.9
	W	Sq m	16	6.6		0.15	15.84

	W1	Sq m	3	5.4		0.15	2.43
	W2	Sq m	4	4.5		0.15	2.7
	Opening in staircase	Sq m	1	9.212		0.15	1.3818
						0.15	
	Top Hung Ventilator	Sq m	14	4.2		0.15	8.82
	Top Hung Ventilator	Sq m	2	5.5		0.15	1.65
	Internal Plaster	**Sq m**					**958.27515**
	Add Ceiling Areas						
	Classroom 6.45 x 7.00	Sq m	2	45.030			90.060
	Classroom 6.45 x 5.35	Sq m	2	34.500			69.000
	Staff Room	Sq m	1	21.110			21.110
	Principal	Sq m	1	10.750			10.750
	Sports &Crafts Room	Sq m	1	13.700			13.700
	Store	Sq m	1	9.058			9.058
	Passage+ waiting	Sq m	1	34.800			34.800
	Passage at 1st Floor with Staircase C	Sq m	1	35.820			35.820
	Common Toilet	Sq m	1	8.700			8.700
	Pantry	Sq m	1	1.550	1.200		1.860
	Toilet	Sq m	1	1.800	1.200		2.160
	Boy's Toilet	Sq m	1	2.350	4.150		9.753
	Girls Toilet	Sq m	1	2.15	4.15		8.923
	Staircase Ceiling	Sq m	2	1.575	3.21		10.112
	Mid Landing	Sq m	1	4.770			4.770
	Porch Ceiling	Sq m	1	10.900			10.900
	Staircase Pardi	Sq m	2	3.3	0.75		6.600
	POP Plaster/Punning	**Sq m**					**348.075**
	Neeru Finish	Sq m					**868.875**
	Internal Plaster – Toilet Dado						
	958.275-89.40						
	OBD Painting	**Sq m**					**1216.950**
	Internal Plaster + POP - Toilet Dado						
	958.275+348.075-89.40= 1216.950						

School

External Plaster

Measurement Sheets

Sr. No	Item Description	Unit	Nos	Length	Breadth	Depth	Qty
	Ground Floor						
	As Per Auto Cad	Sq m	1.000	81.299		3.600	292.676
	W Chejja top & Bottom Side Plaster	Sq m	2.000	8.276			16.552
	W Window chejja Thick Portion	Sq m	1.000	22.450		0.150	3.368
	W1 Chejja Top & Bottom Side Plast	Sq m	2.000	1.045			2.090
	W2 Window chejja Thick Portion	Sq m	1.000	4.000		0.150	0.600
	W2 Chejja Top & Bottom Side Plast	Sq m	2.000	0.540			1.080
	W1 Window chejja Thick Portion	Sq m	1.000	1.200		0.150	0.180
	V Chejja Top & Bottom Side Plaster	Sq m	2.000	2.564			5.128
	V chejja Thick Portion	Sq m	1.000	9.350		0.150	1.403
	1st Floor						
	As Per Auto Cad	Sq m	1.000	62.999		3.600	226.796
	W Chejja top & Bottom Side Plaster	Sq m	2.000	6.096			12.192
	W Window chejja Thick Portion	Sq m	1.000	17.450		0.150	2.618
	W1 Chejja Top & Bottom Side Plast	Sq m	2.000	0.540			1.080
	W1 Window chejja Thick Portion	Sq m	1.000	2.100		0.150	0.315
	Door Chejja	Sq m	2.000	0.540			1.080
	Door Chejja front thick portion	Sq m	1.000	2.400		0.150	0.360
	V Chejja Top & Bottom Side Plaster	Sq m	2.000	1.257			2.514
	V chejja Thick Portion	Sq m	1.000	3.700		0.150	0.555
	Parapet Wall	Sq m	1.000	57.600		0.450	25.920
	Deductions						
	Deduction of Folding Door FD	Sq m	-2.000	1.500		2.250	-6.750
	Deduction of Door D	Sq m	-1.000	0.900		2.250	-2.025
	Deduction Of Window W	Sq m	-14.000	1.500		1.800	-37.800
	Deduction of Window W1	Sq m	-3.000	0.900		1.800	-4.860
	Deduction of Window W2	Sq m	-4.000	0.450		1.800	-3.240
	Total Quantity of External Plaster	Sq m					541.831

Waterproof Cement Paint	**Sq m**		**541.831**

Same as External Plaster

School Building

Measurement Sheet

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Flooring						
	Room Flooring						
	Classroom 6.45 x 7.00	Sq m	2	45.030			90.060
	Classroom 6.45 x 5.35	Sq m	2	34.500			69.000
	Staff Room	Sq m	1	21.110			21.110
	Principal	Sq m	1	10.750			10.750
	Sports &Crafts Room	Sq m	1	13.700			13.700
	Store	Sq m	1	9.058			9.058
	Pantry	Sq m	1	1.550	1.200		1.860
	Flooring for Room						**215.538**
	Passage Area Flooring						
	Passage+ waiting	Sq m	1	34.800			34.800
	Passage	Sq m	1	22.183			22.183
	Passage Area Tiles	**Sq m**					**22.183**
	Anti Skid Tiling for Flooring						
	Common Toilet	Sq m	1	8.700			8.700
	Toilet	Sq m	1	1.800	1.200		2.160
	Terrace	Sq m	1	57.420			57.420
	Boy's Toilet	Sq m	1	2.350	4.150		9.753
	Girls Toilet	Sq m	1	2.15	4.15		8.923
	Terrace Skirting	Sq m	1	29.8		###	2.980
	Anti Skid Tiling	**Sq m**					**89.935**
	Staircase Flooring						
	Tread	Sq m	22	1.500	0.250		8.250
	Riser	Sq m	24	1.500	0.150		5.400
	Mid Landing	Sq m	1	4.760			4.760
	Staircase Flooring	**Sq m**					**18.410**
	Entrance & porch Staircase Flooring						
	Tread	Sq m	1	15.758			15.758
	Riser	Sq m	1	13.200	0.150		13.200
	Mid Landing	Sq m	1	4.770			4.770

	Tread	Sq m	2	3.200	0.300		6.400
	Riser	Sq m	3	3.200	0.175		9.600
	porch Landing	Sq m	1	3.200	1.200		3.200
	Staircase Flooring	**Sq m**					**52.928**
	Total Red Oxide Flooring	**Sq m**					**398.994**

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Dado Tiles For Toilet & Pantry						
	Common Toilet	Sq m	1	21		###	31.500
	Pantry	Sq m	1	4.75		###	7.125
	Toilet	Sq m	1	5.25		###	7.875
	Pantry	Sq m	1	3.000		###	4.500
	Boy's Toilet	Sq m	1	13.000		###	19.500
	Girls Toilet	Sq m	1	12.6		###	18.900
	Staircase Skirting	**Sq m**					**89.400**
	Kitchen Otta						
	Kitchen Otta	R m	1	1.250			1.250
	Kitchen Otta	**R m**					**1.250**
	Counter basin						
	Boy's Toilet	Sq m	1	2.000	0.600		1.200
	Girls Toilet	Sq m	1	1.275	0.600		0.765
	Gents & ladies Toilet	Sq m	2	0.500	0.800		0.800
	Counter basin	**Sq m**					**2.765**
	Urinal Partition polished Kadappa						
	Toilet Urinal Partition	Sq m	3	0.800	1.200		2.880
	Urinal Partition	**Sq m**					**2.880**

School building
Measurement- Door and windows

Doors							
Sr No	**Item Description**	**Unit**	Nos	**L**	**B**	**D\H**	**Quantity**
	D Teak Wood Door	**Sq m**	**2**	**1.5**		**2.25**	**6.75**
	D1 Double Panel Door	**Sq m**	**4**	**1.2**		**2.25**	**10.8**
	D2- Flush Door Single Paanel	**Sq m**	**7**	**0.9**		**2.25**	**14.175**
	Toilet Doors						
	PVC Door Shutter	**Sq m**	**5**	**0.75**		**2.25**	**8.4375**
Windows							
	W	Sq m	16	1.5		1.8	43.2
	W1	Sq m	3	0.9		1.8	4.86
	W2	Sq m	4	0.45		1.8	3.24
	Windows	**Sq m**					**51.300**
Ventilator							
	V	Sq m	12	0.6		0.9	6.48
	Ventilator	**Sq m**					**6.480**
Top Hung Ventilator							
	Top Hung Ventilator	Sq m	14	1.5		0.6	12.6
	Top Hung Ventilator	Sq m	2	2.15		0.6	2.58
	Top Hung Ventilator	**Sq m**					**15.180**
	Total Windows	**Sq m**					**72.96**
	MS Grills- 20 Kg/ Sqm	**Kg**					**1459.2**
	Enamel Paint to MS Grills	**Sq m**					**72.96**
Door Frame							
	D1	R m	4	5.7			22.8
	D2	R m	7	5.4			37.8
	D3	R m	5	5.25			26.25
	RCC Door Frame	**R m**					**86.850**
	Water Tank 5000 Liter	**No**					**1**
	Toilet Cubicals	**No**	**5**				**5**
	Antitermite Treatment						
	Plinth Area As PLINE	**Sq m**					**225.000**

School Building

Measurement Sheet-

M.S. Railing For Staircase

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	M.S. Railing For Staircase up to 65(	R m	1	6.6			6.6
	M.S. Railing For Staircase at porch	R m	1	2.3			2.3
	M.S. Railing For Staircase	**R m**					**8.900**
M.S. Grills							
	W	Sq m	16	1.5		1.8	43.2
	W1	Sq m	3	0.9		1.8	4.86
	W2	Sq m	4	0.45		1.8	3.24
	V	Sq m	12	0.6		0.9	6.48
	Top Hung Ventilator	Sq m	14	1.5		0.6	12.6
	Top Hung Ventilator	Sq m	2	2.15		0.6	2.58
	M.S. Grills	**Sq m**					**72.960**
	MS Grills	**Kg/sq,r**	**20**			**Kg**	**1459.2**
M.S. Ladder							
		No	1	1			1

Community hall and Kiosks

Measurement Sheet Excavation, concrete, RCC

Sr No	Particular Item	Units	Nos	L	B	D\H	Quantity
	Community Hall						
1	**Excavation**						
	C1,C4,C7,C9	CUM	4.000	3.000	3.100	2.450	91.140
	C2,C3,	CUM	2.000	3.200	3.200	2.500	51.200
	C5,C6,C8	CUM	3.000	3.700	3.700	2.600	106.782
	C10	CUM	1.000	2.900	2.900	2.450	20.605
	Excavation for Load bearing wall	CUM	1.000	131.519	1.800	1.650	390.611
	Total Quantity of Excavation	**CUM**					**660.338**
		CUM			**Say**		**663.000**
	Ordinary Soil 70% (assume)	**CUM**					**464.100**
	Soft Rock 20% (assume)	**CUM**					**132.600**
	Hard Rock 10% (assume)	**CUM**					**66.300**
2	**Filling Quantity**						
	Total Excavated Quantity	CUM	1.000	660.338			660.338
	Deduction Of PCC For Footing & load Bearing Quantity	CUM	1.000	-75.866			-75.866
	Deduction Of Footing Concrete Quantity	CUM	1.000	-25.351			-25.351
	Deduction of Concrete Block Masonry Quantity	CUM	1.000	-136.122			-136.122
	Deduction Of Columns Quantity Below Plinth	CUM	1.000	-2.261			-2.261
	Total Quantity of filling	**CUM**					**420.738**
		CUM			**Say**		**421.000**
3	**Anti Termite Treatment**						
	Plinth Area	CUM					370.000
	Anti Termite Treatment	**CUM**					**370.000**
4	**Rubble Soiling**						
	Soiling Below Plinth Beams						
	Beams PB1	CUM	1.000	34.650	0.530	0.230	4.224
	Beam PB2	CUM	1.000	3.300	0.530	0.230	0.402
	Soiling For plinth level	CUM	1.000	323.970		0.230	74.513
	Total Quantity of Rubble Soiling	**CUM**					**79.139**
		CUM			**Say**		**80.000**

5	**Carting Away**						
	Excavation Qty						663.000
	Deduct Filling Qty						421.000
	Total Carting Away Quantity						**242.000**
6	**PCC**						
	Footing PCC						
	C1,C4,C7,C9	CUM	4.000	1.800	1.900	0.150	2.052
	C2,C3,	CUM	2.000	2.000	2.000	0.150	1.200
	C5,C6,C8	CUM	3.000	2.500	2.500	0.150	2.813
	C10	CUM	1.000	1.700	1.700	0.150	0.434
	PCC For Load Bearing Wall	CUM	1.000	131.519	0.900	0.150	17.755
	Beams PB1	CUM	1.000	34.650	0.530	0.150	2.755
	Beam PB2	CUM	1.000	3.300	0.530	0.150	0.262
	PCC For Plinth Level						
	PPC For Floor Finishing	CUM	1.000	323.970		0.150	48.596
	Total Quantity of PCC	**CUM**					**75.866**
			Say				**76.000**
7	**Footing Concrete**						
	C1,C4,C7,C9	CUM	4.000	1.755			7.020
	C2,C3,	CUM	2.000	2.020			4.041
	C5,C6,C8	CUM	3.000	4.254			12.761
	C10	CUM	1.000	1.529			1.529
	Total Quantity of Concrete For Footing	**CUM**					**25.351**
			Say				**26.000**
8	**Plinth Beam Concrete**						
	Plinth Beams						
	Beams PB1	CUM	1.000	34.650	0.230	0.450	3.586
	Beam PB2	CUM	1.000	3.300	0.230	0.450	0.342
	Total Quantity of Concrete For Plinth Beam	**CUM**					**3.928**
		CUM	**Say**				**4.000**
9	**Beam Concrete**						
	Slab Bottom Beams						
	CB1	CUM	1.000	30.240	0.230	0.900	6.260
	CB2	CUM	1.000	76.550	0.230	0.300	5.282
	CB3	CUM	1.000	25.780	0.230	0.450	2.668
	B1	CUM	1.000	3.300	0.300	0.600	0.594
	B2	CUM	1.000	5.700	0.300	0.600	1.026
	B3	CUM	1.000	9.450	0.300	0.600	1.701
	B4	CUM	1.000	5.250	0.300	0.450	0.709
	B5	CUM	1.000	2.300	0.300	0.450	0.311
	B6	CUM	1.000	13.150	0.300	0.450	1.775
	B7	CUM	1.000	9.750	0.230	0.600	1.346
	B8	CUM	1.000	9.750	0.230	0.600	1.346
	Total Quantity OF Beams Concrete	**CUM**					**23.016**
	Total Quantity OF Beams Concrete	**CUM**	**Say**				**24.000**

10	**Column Concrete**						
	C1,C4,C7,C9	CUM	4.000	0.300	0.450	5.030	2.716
	C2,C3,	CUM	2.000	0.300	0.450	5.030	1.358
	C5,C6,C8	CUM	3.000	0.450	0.450	5.030	3.056
	C10	CUM	1.000	0.300	0.300	5.030	0.453
	Total Quantity OF Column Concrete	**CUM**					**7.583**
	Total Quantity OF Column Concrete	**CUM**			**Say**		**8.000**
11	**Slab Concrete**						
	S1	CUM	1.000	55.202		0.140	7.728
	S2	CUM	1.000	51.090		0.140	7.153
	S3	CUM	1.000	19.983		0.125	2.498
	S4 (separately shown below)						
	S5	CUM	1.000	12.074		0.150	1.811
	S6	CUM	1.000	18.799		0.200	3.760
	Deduct Filler Block Qty	CUM					4.420
	Total Quantity Of Slab Concrete	**CUM**					**18.530**
	Total Quantity Of Slab Concrete	**CUM**					**18.530**
	Area of slab (all except S4)			**157.148**			
	No of filler blocks requried (area/(0.3 x0.3)			**1746.091**			
	Size of fillers - 0.225 x 0.225 x 0.05 m						
	Volume of filler blocks (size x nos)		**1746**	**0.225**	**0.225**	**0.050**	**4.420**
	Net Concrete volume (total - filler volume)						**14.110**
	Slab S4 where filler slab is not to be provided						
	S4	**CUM**	**1.000**	**50.956**		**0.150**	**7.643**
12	**UCR Masonry**						
	Concrete Block Masonry For Load Bearing Wall @ deep Bottom	CUM	1.000	131.519	0.600	0.600	47.347
	Concrete Block Masonry For Load Bearing Wall Above 600 mm	CUM	1.000	131.519	0.450	1.500	88.775
	Total Quantity of UCR Masonry	**CUM**					**136.122**
	Total Quantity of UCR Masonry	**CUM**			**Say**		**137.000**
13	**Lintel Concrete**						
	Lintel On All Windows	CUM	1.000	16.800	0.150	0.150	0.378
	Lintel On Toilet Doors	CUM	1.000	6.000	0.150	0.150	0.135
	Total Quantity of Lintel Concrete	**CUM**					**0.513**
	Total Quantity of Lintel Concrete	**CUM**			**Say**		**1.000**

14	**Chajja Concrete**						
	W	CUM	1.000	10.430	0.450	0.150	0.704
	W1	CUM	1.000	3.150	0.450	0.150	0.213
	W3	CUM	1.000	2.400	0.450	0.150	0.162
	V1	CUM	1.000	6.082	0.450	0.150	0.411
	Total Quantity of Chejja Concrete	**CUM**					**1.489**
	Total Quantity of Chejja Concrete	**CUM**		**Say**			**2.000**
15	**Steel Quantity**						
	Total Qty of Slab	CUM			91.000		91.000
	Consider Steel 125Kg/ Cum	Kg		11375.000			11375.000
		Quintel					113.750
	Total Quantity of Steel	**Quintel**					**113.750**
16	**Fly Ash Filler Block**						
	Total Qty of Filler Block	CUM			4.42		4.42
	Size of filler block 225x225x50 mm = 0.002531Cu m	CUM			0.002531		0.002531
	Fly Ash Filler Block	**No**					**1746.345**
		No		**Say**			**1750.000**
17	**Water Storage Tank**						
	Water Storage Tank	No					1
	Water Storage Tank	**No**					**1.000**

Community hall and Kiosks

Measurement Sheet Shuttering

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1	**PCC Shuttering**						
	Footing PCC						
	C1,C4,C7,C9	Sq m	4.000	7.400		0.150	4.440
	C2,C3,	Sq m	2.000	8.000		0.150	2.400
	C5,C6,C8	Sq m	3.000	10.000		0.150	4.500
	C10	Sq m	1.000	6.800		0.150	1.020
	PCC For Load Bearing Wall	Sq m	1.000	264.838		0.150	39.726
	Beams PB1	Sq m	1.000	70.360		0.150	10.554
	Beam PB2	Sq m	1.000	7.660		0.150	1.149
	PCC For Plinth Level						
	PCC For Floor Finishing	Sq m	1.000	77.380		0.150	11.607
	Total Quantity of Shuttering for PCC	**Sq m**					**75.396**
			Say				**75.500**
2	**Footing Shuttering**						
	C1,C4,C7,C9	Sq m	4.000	6.200		0.200	4.960
	C2,C3,	Sq m	2.000	6.800		0.200	2.720
	C5,C6,C8	Sq m	3.000	8.800		0.200	5.280
	C10	Sq m	1.000	5.600		0.200	1.120
	Total Quantity of Shuttering For Footing	**Sq m**					**14.080**
			Say				**14.100**
	Shuttering for PCC & Footing	**Sq m**					**89.600**
3	**Column Shuttering**						
	C1,C4,C7,C9	Sq m	4.000	0.300	0.450	5.030	30.180
	C2,C3,	Sq m	2.000	0.300	0.450	5.030	15.090
	C5,C6,C8	Sq m	3.000	0.450	0.450	5.030	27.162
	C10	Sq m	1.000	0.300	0.300	5.030	6.036
	Total Quantity OF Shuttering Concrete	**CUM**					**78.468**
	Total Quantity OF Shuttering Concrete	**CUM**		**Say**			**79.000**
4	**Slab Shuttering**						
	S1	Sq m	1.000	55.202			55.202
	S2	Sq m	1.000	51.090			51.090
	S3	Sq m	1.000	19.983			19.983
	S4	Sq m	1.000	50.956			50.956
	S5	Sq m	1.000	12.074			12.074
	S6	Sq m	1.000	18.799			18.799
	Deduct Filler Block Qty	Sq m					88.400
	Total Quantity Of Slab Shuttering	**Sq m**					**119.704**
	Total Quantity Of Slab Shuttering	**Sq m**		**Say**			**120.000**

5	**Plinth Beam Shuttering**						
	Plinth Beams						
	Beams PB1	Sq m	1.000	69.300		0.450	31.185
	Beam PB2	Sq m	1.000	6.600		0.450	2.970
	Total Quantity of Shuttering For Plinth Beam	**Sq m**					**34.155**
		Sq m		**Say**			**34.200**
6	**Beam Shuttering**						
	Slab Bottom Beams						
	CB1	Sq m	1.000	30.240	0.230	0.900	61.387
	CB2	Sq m	1.000	76.550	0.230	0.300	63.537
	CB3	Sq m	1.000	25.780	0.230	0.450	29.131
	B1	Sq m	1.000	3.300	0.300	0.600	4.950
	B2	Sq m	1.000	5.700	0.300	0.600	8.550
	B3	Sq m	1.000	9.450	0.300	0.600	14.175
	B4	Sq m	1.000	5.250	0.300	0.450	6.300
	B5	Sq m	1.000	2.300	0.300	0.450	2.760
	B6	Sq m	1.000	13.150	0.300	0.450	15.780
	B7	Sq m	1.000	9.750	0.230	0.600	13.943
	B8	Sq m	1.000	9.750	0.230	0.600	13.943
	Total Quantity OF Beams Shuttering	**Sq m**					**234.455**
	Total Quantity OF Beams Shuttering	**Sq m**		**Say**			**235.000**
7	**Lintel Shuttering**						
	Lintel On All Windows	Sq m	1.000	16.800		0.150	5.040
	Lintel On Toilet Doors	Sq m	1.000	6.000		0.150	1.800
	Total Quantity of Lintel Shuttering	**Sq m**					**6.840**
	Total Quantity of Lintel Shuttering	**Sq m**		**Say**			**7.000**
8	**Chajja Shuttering**						
	W	Sq m	1.000	10.430	0.450	0.150	6.393
	W1	Sq m	1.000	3.150	0.450	0.150	2.025
	W3	Sq m	1.000	2.400	0.450	0.150	1.575
	V1	Sq m	1.000	6.082	0.450	0.150	3.784
	Total Quantity of Chajja Shuttering	**Sq m**					**13.777**
	Total Quantity of Chajja Shuttering	**Sq m**		**Say**			**14.000**
	Shuttering for Plinth Beams , Beams Chajja & lintel	**Sq m**					**290.200**

Community hall and Kiosks

Measurement Sheet — Wall masonry, pillars and steps

BBM

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1	200 or 230 mm thick thick Brick Work- External Wall	Sq M	1	17.250		2.700	46.575
		Sq M	1	17.250		2.550	43.988
		Sq M	1	7.000		3.450	24.150
	Deduct	Sq M	6	1.800		2.250	24.300
		Sq M	1	2.060		3.000	6.180
		Sq M	1	1.980		3.000	5.940
		Sq M	1	8.670		3.000	26.010
		Sq M	1	2.460		3.000	7.380
		Sq M	1	2.055		3.000	6.165
		Sq M	1	2.285		3.000	6.855
		Sq M	1	1.030		3.000	3.090
		Sq M	1	3.460		3.000	10.380
		Sq M	1	3.230		3.000	9.690
		Sq M	2	4.530		3.000	27.180
		Sq M	2	3.270		3.000	19.620
		Sq M	1	10.800		3.000	32.400
		Sq M	4	4.875		2.700	52.650
		Sq M	1	3.150		2.700	8.505
		Sq M	1	1.650		2.700	4.455
		Sq M	1	1.688		2.700	4.558
		Sq M	2	4.725		2.700	25.515
		Sq M	4	4.875		2.700	52.650
	Deduct						
	W	Sq M	7	1.500		1.800	18.900
	W3	Sq M	2	0.900		1.050	1.890
	W1	Sq M	5	0.900		1.800	8.100
	D3	Sq M	2	0.750		2.250	3.375
	D1	Sq M	4	1.200		2.250	10.800
	V	Sq M	2	0.600		0.600	0.720
	V1	Sq M	4	0.900		0.600	2.160

	150 mm thk BBM- Internal Walls						
		Sq M	2	4.530		3.300	29.898
		Sq M	6	1.120		3.300	22.176
		Sq M	1	4.149		3.300	13.692
		Sq M	1	3.270		2.700	8.829
		Sq M	3	3.150		2.900	27.405
		Sq M	5	0.450		2.250	5.063
	Parapet	Sq M	1	78.900		0.300	23.670
	Deduct						
	D1	Sq M	1	1.200		2.250	-2.700
	D3	Sq M	8	0.750		2.250	-13.500
	Total 150 mm Thk BBM	**Sq M**					**468.222**
	Brick Pillars	Cum	5	0.380	0.380	2.700	1.949
		Cum	1	0.380	0.380	2.100	0.303
	Steps						
		Cum	1	9.700	0.250	0.150	0.364
		Cum	1	9.100	0.250	0.150	0.341
		Cum	1	8.450	0.250	0.150	0.317
		Cum	1	7.550	0.250	0.150	0.283
	Stage Steps						
		Cum	2	5.700	0.250	0.150	0.428
	Total BBM pillars and steps	**Cum**					**3.985**
	Total BBM pillars and steps	**Cum**			**Say**		**3.990**

Community hall and Kiosks

Measurement Sheet Water proofing

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Water Proofing						
	Toilet						
	Toilet	Cum	2	4.530	2.130	0.300	5.789
	Toilet	**Cum**					**5.789**
	Toilet	**Cum**			**Say**		**6.000**
	Top terrace						
	Top terrace	Sq m	1.000	179.500			179.500
		Sq m	1.000	10.800	2.900		31.320
	Brick Bat Koba on Top Terrac	**Sq m**					**210.820**
	Brick Bat Koba on Top Terrace			**Say**			**211.000**

Community hall and Kiosks

Measurement Sheet Internal Plaster

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Internal Sanala Plaster						
	Kiosk	Sq m	6	12.885		3.300	255.123
	Deduct RD	Sq m	-6	1.800		2.250	-24.300
	Creche, passage, kitchen & stor	Sq m	1	59.025		3.000	177.075
	Above door D1	Sq m	2	1.200		0.750	1.800
		Sq m	1	0.230		1.200	0.276
	D3	Sq m	2	0.750		0.750	1.125
		Sq m	2	0.230		0.750	0.345
	D1	Sq m	2	1.200		0.750	1.800
		Sq m	1	0.230		1.200	0.276
	Deduct Door D3	Sq m	-2	0.750		2.250	-3.375
	D1	Sq m	-2	1.200		2.250	-5.400
	OP1	Sq m	-1	1.500		2.250	-3.375
	Deduct window W	Sq m	-2	1.500		1.800	-5.400
	W1	Sq m	-2	0.900		1.800	-3.240
	W3	Sq m	-2	0.900		1.050	-1.890
	Ladies toilet						
		Sq m	1	21.860		3.000	65.580
	Above door D3	Sq m	6	0.750		0.750	3.375
		Sq m	3	0.120		0.750	0.270
	Deduct Door D3	Sq m	-1	0.750		2.250	-1.688
	V	Sq m	-1	0.600		0.600	-0.360
	V1	Sq m	-1	0.900		0.600	-0.540
	Gents toilet						
		Sq m	1	21.860		3.000	65.580
	Above door D3	Sq m	6	0.750		0.750	3.375
		Sq m	3	0.120		0.750	0.270
	Deduct Door D3	Sq m	-1	0.750		2.250	-1.688
	V	Sq m	-1	0.600		0.600	-0.360
	V1	Sq m	-1	0.900		0.600	-0.540
	Doctors clinic, office,waiting roo	Sq m	1	32.425		3.000	97.275
	Above OP	Sq m	1	0.900		0.750	0.675
		Sq m	1	0.230		0.900	0.207

	D2	Sq m	2	0.900		0.750	1.350
		Sq m	1	0.150		0.900	0.135
	Deduction OP	Sq m	-1	0.900		2.250	-2.025
	Deduct window W	Sq m	-1	1.500		1.800	-2.700
	W1	Sq m	-3	0.900		1.800	-4.860
	Hall	Sq m	1	43.750		3.150	137.813
	Stage front area	Sq m	-1	5.700		3.150	-17.955
	Above door D1	Sq m	2	1.200		0.750	1.800
	Deduct door D1	Sq m	-2	1.200		2.250	-5.400
	Deduct window W	Sq m	-4	1.500		1.800	-10.800
	Add steps area	Sq m	1	5.700		1.050	5.985
	Steps corner portion	Sq m	2	0.450		0.300	0.270
		Sq m	2	0.300		0.150	0.090
	Stage & changing room	Sq m	1	36.750		2.700	99.225
	Stage front area	Sq m	-1	5.700		2.700	-15.390
	Above D3	Sq m	4	0.750		0.750	2.250
		Sq m	2	0.150		0.750	0.225
	Deduct V1	Sq m	-2	0.900		0.600	-1.080
	Sloping roof supported brickwork plaster	Sq m	4	12.000		0.850	40.800
	Total Internal plaster Quantity	**Sq m**					**852.005**
	Total Internal plaster Quantity	**Sq m**			**Say**		**855.000**
Internal OBD Paint quantity							
	Total Internal plaster Quantity	Sq m					852.005
	Deduct Bath & Kitchen dado	Sq m					57.940
	Total Internal OBD Paint quan	**Sq m**					**1023.613**
	Total Internal OBD Paint quan	**Sq m**			**Say**		**1025**
Ceiling POP Finish							
	Ceiling area						
	Kiosk	Sq m	6	9.880			59.280
	Creche, passage, kitchen & stor	Sq m	1	61.973			61.973
	Ladies toilet	Sq m	1	9.100			9.100
	Gents toilet	Sq m	1	9.100			9.100
	Doctors clinic, office,waiting roo	Sq m	1	33.660			33.660
	Stage & changing room	Sq m	1	33.860			33.860

	Canopy ceiling area	Sq m	1	3.500		6.450	22.575
	POP Patra Finish to Ceiling	**Sq m**					**229.548**
	POP Patra Finish to Ceiling	**Sq m**			**Say**		**230.000**
Lime Rendering							
	Total Internal OBD Paint quantit	Sq m					1023.613
	POP Patra Finish to Ceiling	Sq m					230.000
	Lime Rendering Plaster to wal	**Sq m**					**793.613**
	Lime Rendering Plaster to wal	**Sq m**			**Say**		**794.000**

Community hall and Kiosks

Measurement Sheet — External Plaster

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	External Plaster						
1)	Elevation 01	Sq m	1	20.750		4.500	93.375
	Deduction W1	Sq m	-5	0.900		1.800	-8.100
	W	Sq m	-1	1.500		1.800	-2.700
	OP	Sq m	-1	0.900		2.250	-2.025
	OP1	Sq m	-1	1.500		2.250	-3.375
	Add window Jam W1	Sq m	5	5.400		0.230	6.210
	W	Sq m	1	6.600		0.230	1.518
	Chajja plaster W1	Sq m	6	1.200		0.450	3.240
		Sq m	3	2.100		0.125	0.788
	Chajja plaster W	Sq m	2	1.800		0.450	1.620
		Sq m	1	2.700		0.125	0.338
	Chajja side wall	Sq m	4	1.050		2.250	9.450
	Column C10 plaster	Sq m	1	1.200		2.250	2.700
2)	Elevation 04	Sq m	1	17.950		4.500	80.775
	Deduction W	Sq m	-2	1.500		1.800	-5.400
	V	Sq m	-2	0.600		0.600	-0.720
	V1	Sq m	-2	0.900		0.600	-1.080
	W3	Sq m	-2	0.900		1.050	-1.890
	Add window Jam W	Sq m	2	6.600		0.230	3.036
	V	Sq m	2	2.400		0.230	1.104
	V1	Sq m	2	3.000		0.230	1.380
	W3	Sq m	2	3.900		0.230	1.794
	Chajja plaster W	Sq m	2	3.670		0.450	3.303
		Sq m	1	4.570		0.125	0.571
	Chajja plaster V1	Sq m	4	0.900		0.450	1.620
		Sq m	2	1.800		0.230	0.828
	Chajja plaster V	Sq m	2	2.250		0.450	2.025
		Sq m	1	3.150		0.230	0.725
	Chajja plaster W3	Sq m	4	1.200		0.450	2.160
		Sq m	2	2.100		0.230	0.966

3)	Elevation 03	Sq m	1	21.450		4.500	96.525
	Deduction W	Sq m	-4	1.500		1.800	-10.800
	V1	Sq m	-2	0.900		0.600	-1.080
	Add window Jam W	Sq m	4	6.600		0.230	6.072
	V1	Sq m	2	3.000		0.230	1.380
	Chajja plaster w	Sq m	4	3.900		0.450	7.020
		Sq m	2	4.800		0.125	1.200
	V1	Sq m	2	2.175		0.450	1.958
		Sq m	1	3.075		0.125	0.384
	Chajja side wall	Sq m	2	2.250		1.050	4.725
4)	Elevation 02	Sq m	1	17.250		4.500	77.625
	Deduct RD	Sq m	-6	1.800		2.250	-24.300
	Add chajja	Sq m	2	17.250		1.450	50.025
		Sq m	1	20.150		0.150	3.023
	Add RD Beam bottom	Sq m	6	1.800		0.230	2.484
5)	Sloping roof supported brickwork plaster	Sq m	4	12.000		0.750	36.000
	Canopy ceiling area	Sq m	1	3.500		6.450	22.575
	Total External Plaster Quantit	**Sq m**					**469.050**
	Total External Plaster Quantit	**Sq m**			**Say**		**470.000**
	Total External Waterproof cement Paint Quantity	**Sq m**					**469.050**
	Total External Waterproof cement Paint Quantity	**Sq m**			**Say**		**470.000**

Community hall and Kiosks

Measurement Sheet Flooring/tiles

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
	Flooring						
	Polish Tandoor						
	KIOSK ROOMS						
			6	2.680	3.530		56.762
	Flooring for Room						**56.762**
	Passage Area Polish Tandoor						
	Passage	Sq m	1	8.700	1.500		13.050
	Passage Area Tiles	**Sq m**					**13.050**
	Creche Room						
		Sq m	1	4.530	4.460		20.204
	Creche Rooms	**Sq m**					**20.204**
	Kitchen & Storage						
		Sq m	1	28.440			28.440
	Kitchen & Storage	**Sq m**					**28.440**
	Stage						
		Sq m	1	22.230			22.230
	Stage	**Sq m**					**22.230**
	Change Room						
		Sq m	2	2.250	3.150		4.500
	Change Room	**Sq m**					**4.500**
	Hall						
		Sq m	1	101.830			101.830
	Hall	**Sq m**					**101.830**
	Entrance Porch						
	porch Landing	Sq m	1	14.330			14.330
	Entrance Porch	**Sq m**					**14.330**

	Office & Doctors Clinic-0.6 X 0.6 Vitrified Tile						
		Sq m	1.000	5.690	3.270		18.606
		Sq m	1.000	4.390	3.270		14.355
	Office & Doctors Clinic	**Sq m**					**32.962**
	Steps- Polish Tandoor						
	Outside	Sq m	1.000	9.700	0.250		2.425
		Sq m	1.000	9.100	0.250		2.275
		Sq m	1.000	8.450	0.250		2.113
	Risers	Sq m	1.000	10.050		0.150	1.508
		Sq m	1.000	9.350		0.150	1.403
		Sq m	1.000	8.750		0.150	1.313
		Sq m	1.000	8.150		0.150	1.223
	Inner side Steps						
		Sq m	1.000	5.700	0.250		1.425
		Sq m	2.000	5.700		0.150	1.710
	Steps Polish Tandoor	**Sq m**					**15.393**
	Steps Polish Tandoor	**Sq m**			**Say**		**15.400**
	Total Qty of Flooring	**Sq m**					**309.708**
	Total Qty of Flooring	**Sq m**			**Say**		**310.000**
	Skirting						
	KIOSK ROOMS	R m	6.000	10.620			63.720
	Passage Area	R m	1.000	17.700			17.700
	Creche Room	R m	1.000	16.780			16.780
	Kitchen & Storage	R m	1.000	20.551			20.551
	Stage	R m	1.000	19.830			19.830
	Change Room	R m	2.000	10.050			20.100
	Hall	R m	1.000	41.990			41.990
	Office & Doctors Clinic-Vitrified Tile Skirting						
		R m	1.000	16.100			16.100
		R m	1.000	14.420			14.420
	Total Polish Tandoor Skirting	**R m**					**231.191**
	Total Polish Tandoor Skirting	**Sq m**					**23.119**
	Total Skirting Qty	**Sq m**			**Say**		**24.000**
	Total Qty of Flooring	Sq m					310.000
	Total Skirting Qty	Sq m					24.000
	Total Red Oxide Flooring	**Sq m**					**334.000**

	Anti Skid Tiling for Flooring						
	Common Toilet	Sq m	2.000	4.530	2.130		9.060
	Total Antiskid Flooring	**Sq m**					**9.060**
	Total Antiskid Flooring	**Sq m**			**Say**		**10.000**
	Dado Tiles For Toilet & Pantry						
	Toilet	Sq m	12.000	1.230		1.500	22.140
		Sq m	6.000	0.900		1.500	8.100
		Sq m	2.000	4.830		1.500	0.000
		Sq m	2.000	3.060		1.500	0.000
		Sq m	2.000	5.020		1.500	168.000
	Kitchen Dado	Sq m	1.000	7.860		0.600	0.000
	Deduct						
		Sq m	14.000	0.750		1.500	-15.750
	Dado Tiles	**Sq m**					**182.490**
	Dado Tiles	**Sq m**			**Say**		**60.000**
	Kitchen Otta						
	Kitchen Otta	R m	1	7.860			7.860
	Kitchen Otta	**R m**					**7.860**
	Kitchen Otta	**R m**			**Say**		**8.000**
	Manglore tiles quantity						
	Sopping Roof Manglore tiles	Sq m	4	12.000		3.500	168.000
	Extra portion	Sq m	1	12.000		0.660	7.920
	Total Manglore tiles quantity	**Sq m**					**175.920**
	Total Manglore tiles quantity	**Sq m**			**Say**		**180.000**

Community hall and Kiosks

Measurement Sheet Doors,Windows & rolling shutters

Doors							
Sr No	**Item Description**	**Unit**	Nos	**L**	**B**	**D\H**	**Quantity**
	Doors Shutters						
	D1	Sq m	4.000	1.200		2.250	10.800
	D2	Sq m	2.000	0.900		2.250	4.050
	Flush Doors	**Sq m**					**4.050**
	Flush Doors	**Sq m**			**Say**		**5.000**
	FRP Door Shutters						
	D3	Sq m	8.000	0.750		2.250	13.500
	Total Solid Core PVC Doors	**Sq m**					**13.500**
	Total Solid Core PVC Doors	**Sq m**			**Say**		**14.000**
Windows							
Sr No	**Item Description**	**Unit**	Nos	**L**	**B**	**D\H**	**Quantity**
	Aluminum Powder Coated Windows						
	W	Sq m	7.000	1.500	1.800		18.900
	W1	Sq m	5.000	0.900	1.800		8.100
	W3	Sq m	2.000	0.900	1.050		1.890
	Total Windows	**Sq m**					**28.890**
	Total Windows	**Sq m**			**Say**		**29.000**
Ventilator							
Sr No	**Item Description**	**Unit**	Nos	**L**	**B**	**D\H**	**Quantity**
	V	Sq m	2.000	0.600	0.600		0.720
	V1	Sq m	4.000	0.600	0.900		2.160
	Louvered Ventilators	**Sq m**					**2.880**
	Louvered Ventilators	**Sq m**			**Say**		**3.000**
Pre Cast Door Frames							
Sr No	**Item Description**	**Unit**	Nos	**L**	**B**	**D\H**	**Quantity**
	D1	R m	4.000	5.700			22.800
	D2	R m	2.000	5.400			10.800
	D3	R m	8.000	5.250			42.000
	Total Pre Cast Door Frames	**R m**					**75.600**
	Total Pre Cast Door Frames	**R m**			**Say**		**76.000**
Rolling Shutter							
Sr No	**Item Description**	**Unit**	Nos	**L**	**B**	**D\H**	**Quantity**
	Kisok	Sq m	6.000	1.800		2.550	27.540
	Rolling Shutter	**Sq m**					**27.540**
	Rolling Shutter	**Sq m**			**Say**		**28.000**

Community hall and Kiosks

Measurement Sheet — Roof Truss and structure for MCR

Sr No	Item Description	Unit	Nos	L	B	D\H	Quantity
1	Truss 1 (2 ISA 75x75x8)						
	Bottom (4.905*2+1.998= 11.808)	R mt	4.000	11.808			47.232
	Top (7.2*2= 14.40)	R mt	4.000	14.400			57.600
	Middle (1.6)	R mt	4.000	1.600			6.400
	Inclined member (2*0.98 = 27.44)	R mt	4.000	27.440			109.760
	Inclined member (2*1.86 = 3.72)	R mt	4.000	3.720			14.880
	Inclined member (2*0.98 = 1.96)	R mt	4.000	1.960			7.840
	Inclined member (4*0.5 = 2)	R mt	4.000	2.000			8.000
							251.712
	Weight 8.90Kg/m						**2240.237**
2	Purlin (ISA 50x30x5)	R mt	72.000	7.050			507.600
	Weight 3Kg/m	**Kg**					**1522.800**
3	Rafter (2 ISA 75x75x8)						
	Bottom	R mt	8.000	7.912			63.296
	Top	R mt	8.000	8.520			68.160
	Middle	R mt	8.000	1.600			12.800
							144.256
	Weight 8.90Kg/m						**1283.878**
	Inclined member(2 ISA 65x65x6)						
	Inclined member (1.04*15 = 15.60)	R mt	8.000	15.600			124.800
	Inclined member (2.37*1 = 2.37)	R mt	8.000	2.370			18.960
	Inclined member (0.5*2 = 1)	R mt	8.000	1.000			8.000
							151.760
	Weight 5.80kg/m						**880.208**
4	Rafter 2 (ISMB125 mm)	R mt	8.000	3.900			31.200
	Weight 13.4Kg/m	**Kg**					**418.080**
5	Column cap plate (0.3*0.45*20mm)						
	20 mm Thick	Sq m	8.000	0.300	0.450		1.080
	Weight 157Kg/Sq m						**169.560**
6	M20 Bolts (600 mm Longs)	No	6.000				6.000
	Amount						9000.000
	Approximate steel						**163.636**
	Total weight	**Kg**					**6678.400**
	Total weight	**M.T,**				**Say**	**6.678**

	MEASUREMENT OF SITE DEVELOPMENT						
Sr NO	**Item Discription**	**Unit**	**Nos**	**L**	**B**	**D/H**	**Quantity**
1	**Excavation**						
	Excavation for paving Block	CUM	1.000	1546.436		0.450	695.896
	Excavation For Bituminous road	CUM	1.000	245.000		0.080	19.600
	Excavation for curbing Blocks	CUM	1.000	96.190		0.780	75.028
	Excavation for soil filling	CUM	1.000	173.732		0.450	78.179
	Excavation for boundary wall	CUM	1.000	265.450	1.140	1.230	372.214
	Excavation for RCC Bench	CUM	32.000	0.600	0.600	0.630	7.258
	Excavation	CUM					**1248.000**
2	**Soling**						
	Soling for paving Blocks	CUM	1.000	1546.436		0.230	355.680
	Soling for curbing	CUM	1.000	96.190		0.230	22.124
	Soling for boundary wall	CUM	1.000	265.450	0.850	0.230	51.895
	Soling for RCC bench	CUM	32.000	0.600	0.600	0.230	2.650
	Soling	CUM					**432.000**
3	**Stone masonry**						
	Stone masonry	CUM	1.000	265.450	0.540	0.900	129.009
	Stone masonry	CUM					**129.000**
4	**carting away**						
	paving block waste material	CUM	1.000	695.896			695.896
	Bituminous road waste material	CUM	1.000	19.600			19.600
	curbing block wate material	CUM	1.000	75.028			75.028
	soil filling wate material	CUM	1.000	78.179			78.179
	Boundary wall waste material	CUM	1.000	372.214			372.214
	RCC bench waste material	CUM	1.000	7.258			7.258
	carting away	CUM					**1248.000**
5	**PCC**						
	PCC for Paving blocks	CUM	1.000	1546.436		0.100	154.644
	PCC for curbing blocks	CUM	1.000	96.190		0.100	9.619
	PCC for boundary wall	CUM	1.000	265.450	0.850	0.100	22.563
	PCC for RCC bench	CUM	32.000	0.600	0.600	0.100	1.152
	PCC	CUM					**188.000**
6	**Paving Blocks**						
	Paving Block	CUM	1.000	1546.436			**1546.436**
	Paving Blocks	CUM					**1546.000**

7	**Brick work**						
	Brick work for curbing	CUM	1.000	91.190		0.450	41.035
	Boundary wall Brick work	Sq m	1.000	265.450		2.100	537.621
	Deduction Of Entrance Door	Sq m	1.000	9.440		2.100	19.824
	Brick work for RCC Bench	CUM	32.000	0.600		0.900	17.280
	Brick work	CUM					**596.000**
8	**Wall Plaster**						
	Boundary Wall Plaster both side	Sq m	2.000	265.450		2.100	1075.242
	Plaster For Brick work for RCC Benc	Sq m	32.000	1.000		0.600	19.200
	Deduction Of Entrance Door	Sq m	2.000	9.440		2.100	39.648
	Wall Plaster	Sq m					**1094.000**
9	**Panting**						
	painting for wall plaster	Sq m	1	1094			1094.000
	Painting	Sq m					**1094.000**
10	**Main Entrance Gate**						
	Main Entrance Gate	Sq m	1.000	9.440		2.100	**19.824**
	Main Entrance Gate	Sq m					**20.000**
11	**Soil filling for trees**						
	soil For Trees	CUM	1.000	173.732		0.450	**78.179**
	Soil filling for trees	CUM					**78.000**
12	**WBM**						
	WBM for road	CUM	1.000	245.000		0.750	**183.750**
	WBM	CUM					**184.000**
13	**Bituminous**						
	Bituminous Layer	Sq m	1.000	245.000			**245.000**
	Bituminous	CUM					**245.000**
14	**curbing Block**						
	curbing Block Work	R mt	1.000	299.103			**299.103**
	curbing Block	R mt					**299.000**
15	**Kadppa**						
	Kadppa	Sq m	16.000	0.600	1.000		**9.600**
	Kadapa	Sq m					**10.000**

Measurement of shuttering for site development

Sr NO	Item Description	Unit	Nos	L	B	D/H	Quantity
5	PCC						
	PCC for Paving blocks	Sq m	1.000	928.906		0.100	92.891
	PCC for boundary wall	Sq m	2.000	265.450		0.100	53.090
	PCC for RCC bench	Sq m	32.000	2.400		0.100	7.680
A	**PCC Shuttering quantity**	**Sq m**					**153.661**

Measurment For Septic Tank

	Measurement Sheet For Septic Tank						
Sr No	**Particular Item**	**Unit**	**Nos**	**length**	**Breadth**	**Height/ Depth**	**Quantity**
1	**Excavation**						
	Excavation For Septic Tank	CUM	1.000	4.248	7.760	4.162	137.198
	Excavation For Septic Tank	CUM	1.000	4.248	8.435	3.680	131.861
	Excavation	**CUM**					**269.059**
						Says	**269.000**
2	**Carting Away**						
	Waste Material Carried Away	CUM	1.000		269.059		269.059
	Carting Away	**CUM**					**269.059**
						Says	**269.000**
3	**Soiling**						
	Soiling For Septic tank	CUM	1.000	4.248	16.200	0.230	15.828
	Soiling	**CUM**					**15.828**
						Says	**16.000**
4	**PCC**						
	PCC For Septic Tank	CUM	1.000	4.248	16.200	0.150	10.323
	PCC	**CUM**					**10.323**
						Says	**10.500**
5	**RCC Pardi**						
	RCC Pardi For septic Tank	CUM	1.000	20.116	0.300	4.305	25.980
	RCC Pardi For septic Tank	CUM	1.000	19.028	0.300	3.580	20.436
	RCC Intermediate Pardi For Septic Tank	CUM	1.000	3.048	2.810	0.100	0.856
	RCC Intermediate Pardi For Septic Tank	CUM	1.000	3.048	2.591	0.100	0.790
	Total Quantity Of Concreting for RCC Pardi	**CUM**					**48.062**
						Says	**48.000**
6	**Raft Concrete**						
	Raft Concrete	**CUM**	1.000	3.648	15.600	0.300	17.073
	Raft Concrete	**CUM**					**17.073**
						Says	**17.000**
7	**RCC Slab**						
	RCC Slab For Septic Tank	**CUM**	1.000	3.048	15.000	0.150	6.858
	RCC Slab	**CUM**					**6.858**
						Says	**7.000**
8	**internal Plaster**						
	Internal Plaster For Septic Tank	Sq m	1.000	20.116		4.155	83.582
	Internal Plaster For Septic Tank	Sq m	1.000	19.028		3.580	68.120
	Total Quantity Of Internal Plaster	**Sq m**					**151.702**
						Says	**152.000**
9	**Water Proofing**						
	Water Proofing For Septic Tank	Sq m	1.000	20.116		4.155	83.582
	Water Proofing For Septic Tank	Sq m	1.000	19.028		3.580	68.120
	Total Quantity Of Internal Water Proofing	**Sq m**					**151.702**
						Says	**152.000**
10	**Floating Coat**						
	Floating Coat For Septic tank	Sq m	1.000	20.116		4.155	83.582
	Floating Coat For Septic tank	Sq m	1.000	19.028		3.580	68.120
	Total Quantity Of Floating Coat	**Sq m**					**151.702**
						Says	**152.000**

11	**Steel ReinForcement**						
	1 Steel Main Bars For Slab (8mm)	R mt	43.000	7.000			50.000
	2 Steel Distribution Bars For Slab (10 mm)	R mt	16.000	3.648			19.648
	1 Steel Main Bars For Slab (8mm) 2	R mt	52.000	8.285			60.285
	2 Steel Distribution Bars For Slab (10 mm) 2	R mt	16.000	3.650			19.650
	Main Bar For Bottom Raft Steel (10 mm) 1	R mt	13.000	7.000			20.000
	Distribution Bar For Raft Steel (10 mm) 1	R mt	24.000	3.650			27.650
	Main Bar For Top Raft Steel (10 mm) 1	R mt	13.000	7.000			20.000
	Distribution Bar For Top Raft Steel (10 mm) 1	R mt	47.000	3.650			50.650
	Main Bar For Bottom Raft Steel (10 mm) 2	R mt	13.000	8.285			21.285
	Distribution Bar For Raft Steel (10 mm) 2	R mt	28.000	3.650			31.650
	Main Bar For Top Raft Steel (10 mm) 2	R mt	25.000	8.285			33.285
	Distribution Bar For Top Raft Steel (10 mm) 2	R mt	28.000	3.650			31.650
	(12mm)	R mt	37.000	5.900			42.900
	Span 1 (10mm)	R mt	38.000	3.650			41.650
	Back	R mt	256.000	5.900			261.900
	Distribution Bars For RCC Pardi Longer Span 1	R mt	76.000	6.400			82.400
	intermediate Pardi Main Bars (12mm)	R mt	74.000	5.900			79.900
	intermediate Pardi Distribution Bars (10mm)	R mt	38.000	3.650			41.650
	[illegible]	R mt	74.000	4.050			78.050
	Distribution Bars For RCC Pardi left Side Shorter	R mt	34.000	3.650			37.650
	Main Bars For RCC Pardi Longer Span 2 (12mm)	R mt	166.000	5.250			171.250
	(10mm)	R mt	68.000	8.285			76.285
	Main Bars For RCC Pardi Left Side Shorter Span 1	R mt	37.000	7.112			44.112
	(12mm)	R mt	74.000	6.462			80.462
	Main Bars For RCC Pardi Longer Span 2 (12mm)	R mt	166.000	6.462			172.462
	Weight Of 8 mm Bars	Kg	110.285	0.395			43.563
	Weight Of 10 mm Bars	Kg	523.453	0.617			322.971
	Weight Of 12 mm Bars	Kg	931.036	0.888			826.760
	Total Quantity Of Steel in Kg	**Kg**					**1193.293**
	Total Quantity Of Steel in Quintel	**Q**					**11.933**

Shuttering Quantity For Septic Tank

Sr No	Particular Item	Unit	Nos	length	Breadth	Height/ Depth	Quantity
1	**PCC**						
	PCC For Septic Tank	Sq m	1.000	40.896		0.150	6.134
	PCC	**Sq m**					**6.134**
3	**Raft Concrete**						
	Raft Concrete	**Sq m**	1.000	38.496		0.300	11.549
	Raft Concrete	**Sq m**					**11.549**
A	**Total PCC & Raft Quantity**	**Sq m**					**17.683**
2	**RCC Pardi**						
	RCC Pardi For septic Tank	Sq m	2.000	20.116		4.305	173.199
	RCC Pardi For septic Tank	Sq m	2.000	19.028		3.580	136.240
	RCC Intermediate Pardi For Septic Tank	Sq m	2.000	3.048		2.810	17.130
	RCC Intermediate Pardi For Septic Tank	Sq m	2.000	3.048		2.591	15.795
	Total Quantity Of Concreting for RCC Pardi	**Sq m**					**342.364**
B	**Paradi shuttering Quantity**	**Sq m**					**342.364**
4	**RCC Slab**						
	RCC Slab For Septic Tank	**Sq m**	1.000	3.048	15.000		45.720
	RCC Slab	**Sq m**					**45.720**
C	**Total Slab Shuttering Quantity**	**Sq m**					**45.72**

RWH & Drainage Line Work of Infrastructure Work

Sr NO	Item Discription	Unit	Nos	L	B	D/H	Quantity
1.00	**Excavation**						
	For D1 Type Filter	Cum	7.00	2.30	1.50	0.98	23.67
	For D2 Type Filter	Cum	16.00	1.80	1.50	0.98	42.34
	For Sump						
	For Foundation						
		Cum	1.00	26.26	2.50	1.43	93.88
	For Sump	Cum	1.00	10.43	5.40	3.60	202.76
	For Pipes						
		Cum	1.00	205.00	0.30	0.45	27.68
		Cum	1.00	200.00	0.45	0.60	54.00
	Total Excavation	**Cum**					**444.32**
						Says	**444.32**
2.00	Soling						
	For D1 Type Filter	Cum	7.00	2.30	1.50	0.23	5.55
	For D2 Type Filter	Cum	16.00	1.80	1.50	0.23	9.94
	Below Raft of Sump	Cum	1.00	9.83	4.80	0.23	10.85
	Total Soling	**Cum**					**26.34**
						Says	**27.00**
3.00	PCC						
		Cum	7.00	2.00	1.20	0.10	1.68
		Cum	16.00	1.50	1.20	0.10	2.88
	For Wall Foundation	Cum	1.00	26.26	1.92	0.10	5.04
	For Sump	Cum	1.00	9.83	4.80	0.10	4.72
	Total PCC	**Cum**					**14.32**
						Says	**15.00**
4.00	**Carting Away Excavated Material**	**Cum**				**Says**	**444.32**
5.00	Un coursed Rubble Masonry	Cum	1.00	26.26	0.45	3.60	42.54
	Footing in UCR	Cum	1.00	26.26	1.25		32.85
	Total UCR	**Cum**					**75.39**
						Says	**76.00**

6.00	RCC Work						
a	Raft Foundation						
		Cum	7.00	2.00	1.20	0.15	2.52
		Cum	16.00	1.50	1.20	0.15	4.32
		Cum	1.00	9.83	4.80	0.20	9.44
	Total Raft Footing	**Cum**					**16.28**
						Says	**17.00**
b	RCC Pardi for Filters						
		Cum	14.00	1.50	0.15	0.60	1.89
		Cum	21.00	0.60	0.15	0.60	1.13
		Cum	32.00	1.20	0.15	0.60	3.46
		Cum	48.00	0.60	0.15	0.60	2.59
	Total RCC Pardi	**Cum**					**9.072**
						Says	**10.00**
c	**RCC Slab over Sump**	**Cum**	**1.00**	**9.53**	**4.50**	**0.18**	**7.72**
						Says	**8.00**
7.00	**TMT Bar**	**Quintal**	**1**	**33.07**	**125.00**		**41.34**
						Says	**42.00**
8.00	Internal Plaster to Filters & Sump						
		Sq M	14.00	0.53	0.60		4.41
		Sq M	16.00	0.75	0.60		7.20
		Sq M	16.00	0.60	0.60		5.76
		Sq M	64.00	0.60	0.60		23.04
		Sq M	32.00	0.75	0.60		14.40
		Sq M	32.00	0.60	0.60		11.52
		Sq M	28.00	0.60	0.60		10.08
		Sq M	28.00	0.53	0.60		8.82
		Sq M	1.00	3.60	8.63		31.07
		Sq M	2.00	3.60	3.60		25.92
		Sq M	2.00	8.63	3.60		62.14
	Total Single Coat Smooth Plaster	**Sq M**					**204.35**
						Says	**205.00**
9.00	**Adding Waterproofing Compound**	**Sq M**					**204.354**
						Says	**205.00**
10.00	**For Floating Coat**	**Sq M**					**204.354**
						Says	**205.00**
11.00	**Drainage Line RCC NP2 230 Mm Dia**	**Rmt**	**1.00**	**256.00**			**256.00**
						Says	**256.00**
12.00	**6” Dia RWH Pipe Clorinated Poly Venyle Cloride Pipe 105 No**		**1.00**	**205.00**			**205.00**
						Says	**205.00**
13.00	**RCC Chamber 11.50 Page No74**		**70.00**				**70.00**
						Says	**70.00**
14.00	Kadappa Laying over Filters						
		Sq M	7.00	1.70	0.90		10.71
		Sq M	16.00	1.20	0.90		17.28
14.00	**Total Kadappa Laying Works**	**Sq M**					**27.99**
						Says	**28.00**

RWH & Drainage Line Work of Infrastructure Work

Sr NO	Item Description	Unit	Nos	L	B	D/H	Quantity
1	**PCC shuttering**						
		Sq m	7.00	6.40		0.10	4.48
		Sq m	16.00	5.40		0.10	8.64
	For Wall Foundation	Sq m	1.00	56.36		0.10	5.64
	For Sump	Sq m	1.00	29.26		0.10	2.93
2	**RCC Work**						
	Raft Foundation shuttering						
		Sq m	7.00	6.40		0.15	6.72
		Sq m	16.00	5.40		0.15	12.96
		Sq m	1.00	29.26		0.20	5.85
A	**PCC & Raft quantity**	**Sq m**					**47.21**
	RCC Pardi for Filters shuttering						
		Sq m	28.00	1.50		0.60	25.20
		Sq m	42.00	0.60		0.60	15.12
		Sq m	64.00	1.20		0.60	46.08
		Sq m	96.00	0.60		0.60	34.56
B	**Total RCC Pardi shuttering qty**	**Sq m**					**120.96**
	RCC Slab over Sump shuttering qty	**Sq m**	**1.00**	**9.53**	**4.50**		**42.89**
C	**Total Slab shuttering quantity**	**Sq m**				**Says**	**42.89**