P-2686

PLANNING, SCHEDULING AND DESIGNING OF MASS HOUSING UNIT

MAHATMA GANDHI • KCT CBE.6 • CENTRAL LIBRARY

A PROJECT REPORT

Submitted by

NAVEENKUMAR.C	**(Reg.no:71205103501)**
RAJKUMAR.M	**(Reg.no:71205103304)**
SAMPATH.R	**(Reg.no:71205103305)**
SIBI CHAKRAVARTHY.M	**(Reg.no:71205103308)**

GUIDED BY

MS.M.SABHARIMALA., M.E.,

in partial fulfillment for the award of the degree

of

BACHELOR OF ENGINEERING

in

CIVIL ENGINEERING

KUMARAGURU COLLEGE OF TECHNOLOGY

COIMBATORE-641006

ANNA UNIVERSITY: CHENNAI 600 025

APRIL 2009

BONAFIDE CERTIFICATE

Certified that report titled **"PLANNING, SCHEDULING AND DESIGNING OF MASS HOUSING UNIT"** is the bonafide work of.....Reg.No ....., who has carried out the research under my supervision. Certified further, that to the best of my knowledge the work reported herein does not from part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

Dr.S.L.NARASIMHAN	**Mrs.M.SABHARIMALA.,M.E.,**
Prof & Head of the Department	Supervisor / Guide
Department of Civil Engineering	Department of Civil Engineering
Kumaraguru College of Technology	Kumaraguru College of Technology
Coimbatore-641006	Coimbatore-641006

The candidate with University Reg.No:..... were examined by us in the project viva voice examination held on:

INTERNAL EXAMINER

EXTERNAL EXAMINER

ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

First I would like to express my praise and gratitude to lord, who has showered his grace and blessings me to complete this in an excellent manners, he has made all things beautiful in his time.

It is a pleasure and privileges my deep sense of gratitude to my internal guide **Mrs.M.SABHARIMALA., M.E.,,** Lecturer in civil engineering Department, for having rendered excellence guidance, valuable suggestions and encouragement throughout the period of this the project work from very inception to the successful completion.

I am very grateful to my Head of the Department **Dr.S.L.NARASIMHAN**, for having been a constant source of encouragement.

I take privilege to express thanks to our Principal **Dr.JOSEPH V.THANIKAL** for providing the all necessary facilities to complete this project.

I am honorably indebted to all the faculty members in Civil Engineering Department, Kumaraguru College of Technology, Coimbatore, for their precious suggestions and help for completing this thesis.

I would like to express my sincere thanks to all the lab assistants,for their help in conducting the laboratory tests.

I also express my sincere gra-titute to my loving friends for their help towards my work at the right time.

CONTENTS

CHAPTER NO	TITLE	PAGE NO
1	ABSTRACT	i
2	INTRODUCTION	ii
3	LITERATURE REVIEW	v
4	DESIGN DETAILS	01
5	QUANTITY ESTIMATION	50
6	COST WISE	89
7	DETAILED ESTIMATE	95
8	DRAWING DETAILS	121
9	REFERENCE	xii
10	CONCLUSION	xiii

ABSTRACT

ABSTRACT

The project involves preparation of plan, design by manual and then planning and scheduling of a mass housing unit using primavera software

The proposed structure was designed as load bearing and framed structure using "limit state design" M_{20} glade of cone and Fe_{415} glade of steel have been used for design.

The total number of storey in each proposed building is two, (LIG, MIG, HIG, HOSPI, School, Shopping complex)

Total site area = 8.55 hect

Location of site: pappampatty pirivu, trichy main road.

INTRODUCTION

Introduction

India has experienced rapid growth of population during last five decades and this has generated lot of pressure on urban infrastructure. These is shortage of housing as well as infrastructure both in terms of quality and quantity. The estimated storage of dovelling units in urban in urban areas in 24.71 million at the beginning of 11th five year plan. 99% of total shortage pertains the economically weaker sections and low income groups.

Our project deals with planning of mass housing units considering the different sections of people like HIG, MIG and CIG.

Total built up area = 3.02hect

Section	**Build up area bounded G+1 (m^2)**	**No of units provided**
LIG	115.20	32
MIG	244.15	32
HIG	323.30	32

Residential = 3.60hect

Shopping = 0.32hect

School = 2.11hect

Roads & Pathways = 2.52hect

Total = 8.55hect

Number of dwelling units/hect = 107.565

Final layout is provided for

- Consists of four zones.

ZONE-1	ZONE-2	ZONE-2	ZONE-4
LIG-16 MIG-16 HIG-16 SHOPING COMPLEX-1	LIG-16 MIG-16 HIG-16 SHOPING COMPLEX-1	LIG-16 MIG-16 HIG-16 SHOPING COMPLEX-1 SCHOOL-1	LIG-16 MIG-16 HIG-16 SHOPING COMPLEX-1 HOSPITAL-1

- Plots for services shops and high shops
- Market for daily accessories
- Plots for health (2), religious (2) & other social faculties (3 Nos)
- Open space school playground and other garden
- Road way pathway and parking lot

Specifications of various housing units

Economic Section	**Build up area** (m^2)	**Description of unit**
LIG	57.60	bed room, hall, pooja, kitchen, toilet.
MIG	122.075	bed room, hall, pooja, kitchen, toilet, dining.
HIG	161.65	bed room, hall, pooja, kitchen, toilet, dining, master bed room, store, dress room, sitout.

Public facilities:

Hospital

Shopping complex

School

Scheduling:

- Primavera
- Detailed Estimate centerewd method
- Coimbatore city->cost details

LITERATURE REVIEW

Literature Review

National Building Review:

The National Building Code of India(NBC) is a National instrument cotech provides guidelines for regarding building construction objects for all of India. The code mainly contains administration regulations, development control rules and general building requirements such fire safety requirements, stipulations regulating ma tends, structural design and construction.

Building Regulation control floor spare index, margin areas, building heights, number of floors and how much high building construction can be according to width of road.

Residential complex buildings

Path way – width should not be less than 1.5m and length should not be more than 30m

Open spaces for residential complex

- For cluster type housing minimum open spaces should be 0.3ha
- 15% of the land should be provided for recreational use
- For 1000 persons 0.3 – 0.4ha should be provided for recreational purpose
- The recreational space should be minimum 24m width and should have minimum area about 450m2
- Recreational use land must be at least 3m away from main building and must be approachable by all
- Front open space – min 12m from the road
- Rear and side open spaces depends upon the height of the building, minimum of 6m should be provided around the building for movement of fire engines.

Height (m)	Side and rear spaces (m)
10	3
15	5
18	6
21	7
24	8
27	9
30	10
35	11
40	12
45	13
50	14

- Minimum area of the plot required for the construction is $3000m^2$

PLOT COVERAGE AND FAR

DWELLING UNITS/HECTARE	MAX PLOT COVERAGE	FAR
25	25	.50
50	30	.75
100	35	1.00
150	35	1.5

- Parking Space should be provided one car space for every 90m2 and one or more for every 100m2 or more
- Basement may vary between 33.33% to 50% of the total area without counting for the F A R
- A separation should be given for every increase in height of 7m which may be in form of ducts. The width of separation should about 1.5m minimum.
- Plinth level should be at least 450mm above from the ground.

Hospital building

- Dispensary (15000 population) -0.08ha to 0.12ha
- Nursing home(30 beds) -0.20ha to 0.30ha
- Poly-clinic (100000 population) -0.20ha to 0.30ha
- Intermediate hospital(80 beds , including 30 beds for maternity) -1.00ha
- Intermediate hospital(100 beds initially) -3.70ha
- General hospital (300 beds initially) -6.00ha
- Multi-specialty hospital (100 beds initially) -9.00ha
- Specialty hospital (100 beds initially) -3.70ha

	George town and other areas where continuousbuildings are permissible	Chennai City excluding areas mentioned under column (2) and Municipal and Township areas	Metropolitan area excluding areas mentioned under Columns (2) and (3)
1	2	3	4
Minimum extent of plot	90 square meter	110 square meter	110 square meter
Minimum plot frontage	4.5m	7m	7m
Maximum FSI	1.5	1.5	1.5
Maximum plot coverage	65%	65%	65%
Minimum extent of plot	90 Square metres except in area specifically set apart for continuous buildings where it shall not be less than 80 square metres. For housing economically weaker sections, it shall not be less than 20 square metres within the Chennai City and 40 square metres in rest of the Chennai Metropolitan Area.		
Minimum plot frontage	6 metres except in area set apart for continous buildings, where it shall not be less than 4.5 metres and for housing economically weaker section it shall not be less than 4metres.		

Description	Minimum width	Remarks
A. Passage : (i) In areas of Economically Weaker Section and for continuous building area : a) For single plot b) For two to four plots The passage will remain private c) For more than four plots small passage is not permissible	 1.0metre (40") 1.5metre (5') 3.0metres(10')	 The passage will remain private The passage will remain private
(ii) When it is intended to service upto two plots (length of the passage should not exceed 40 metres)	3.0 metres (10')	The passage will remain private
(iii) When it is intended to serve upto four (length of the passage should not exceed 80 metres)	plots 3.6 metres (12')	- do -
(iv) When it is intended to serve upto ten plots (length of the passage should not exceed 100 metres)	4.8 metres (16')	- do -

Streets and roads:

(i) Streets intended to serve not more than 10 plots and / or subject to a maximum length of 120 metres	7.2 metres (24')	All streets shall become public. The land owners / developers shall hand over these street / roads portion through a deed to the local authority concerned, after forming the roads as per specifications given under relevant section of Chennai City Municipal Corporation Act or Panchayat Act or Tamil Nadu District Municipal Act.
(ii) Streets intended to serve not more than 20 plots and / or subject to a maximum length of 240 metres	9.0 metres (30')	- do -
(iii) Roads of length more than 240 metres but below 400 metres	12.0 metres (40')	- do -

$$FSI = \frac{\text{total coverage area on all floors}(m^2)}{\text{Plot area}\ (m^2)}$$

for LIG = 1.24
MIG = 1.42
HIG = 1.10

DESIGN DETAILS

LIG

DESIGN DETAILS

SLAB - A

One long edge discontinuous:

L_y = 3.05m

L_x = 4.88m

L_y / L_x = 1.60<2

Design as two way slab.

LOAD CALCULATION

Live load = 4000N/m^2

Dead load = 0.175*25000 = 4375 N/m^2

Finishes = 1000 N/m^2

Total load = 9375 N/m^2

Factored load = 1.5*Total load

= 14070 N/m^2

Moment	a_x	a_y
Negative moment	0.071	0.037
Positive moment	0.054	0.028

SHORTER SPAN :

Negative moment at support

M_x (negative) = a_x *W*1_x^2

= 0.071*14070*$(3.43)^2$

= 9.28*10^6 N-m

Positive moment at mid span

M_x (positive) = a_x *W*1_x^2

= 0.054*14070*$(3.43)^2$

= 7.06*10^6 N-mm

LONGER SPAN :

Negative momen at support

$$M_y(\text{negative}) = a_y * W * l_x^2$$

$$= 0.037*14070*(3.05)^2$$

$$= 6.125*10^6 \text{ N-m}$$

Positive moment at mid span

$$M_y(\text{positive}) = a_y * W * l_x^2$$

$$= 0.028*14070*(3.05)^2$$

$$= 4600*10^6 \text{ N-m}$$

Form limit state design, for M_{20} and Fe415,

$$M_u / (b*d^2) = 2.76$$

$$(9.28*10^6) / (1000*2.76) = d^2$$

$$= 60\text{mm}$$

Provide D=150mm and d = 125mm

To find A_{st}:

Form limit state design,

$$M_u = 0.87 * f_y * A_{st} * d * [1-(A_{st} * f_y / b*d*f_{ck})]$$

Shorter span :

$$M_x(\text{negative}) = 10845*10^3 \text{N-m}$$

$$= 0.87*415* A_{st}*125*[1-(A_{st} *415 /1000*125*20)]$$

$$A_{st} = 250.73\text{mm}^2$$

Assume 8mm dia

$$\text{Spacing} = (\text{area of one bar} / A_{st})*1000$$

$$= (3.14*8^2*1000)/ (4*250.73)$$

$$= 200.47\text{mm}$$

$$= 200\text{mm}$$

Adopt 8mm dia at 200mm c/c at support

$$M_x(\text{positive}) = 8.194*10^3 \text{N-m}$$

$$= 0.87*415* A_{st}*125*[1-(A_{st} *415 /1000*125*20)]$$

A_{st} = $187.38mm^2$

Assume 8mm dia bars,

Spacing = (area of one bar/ A_{st})*1000

= $(3.14*8^2*1000)/ (187.38)$

= 268.245mm

= 250mm

Adopt 8mm dia bars at 250mm c/c at mid span

Longer span :

M_y(negative) = $6.145*10^3$N-m

= $0.87*415* A_{st}*125*[1-(A_{st} *415/1000*125*20)]$

A_{st} = $140mm^2$

Assume 6mm dia

Spacing = (area of one bar/ A_{st})*1000

= $(3.14*6^2*1000)/ (4*301.104)$

= 201.95mm

= 200mm

Adopt 6mm dia bars at 200mm c/c at support

M_y(positive)= $4.635*10^3$N-m

= $0.87*415* A_{st*}125*[1-(A_{st} *415/1000*125*20)]$

A_{st} = $110mm^2$

Assume 6mm dia bars,

Spacing = (area of one bar/ A_{st})*1000

= $(3.14*6^2*1000)/ (187.38)$

= 257mm

= 250mm

Adopt 6mm dia bars at 250mm c/c at mid span

Edge strip reinforcement :

A_{st} = 0.12% of total c/s area

$= \quad 0.0012*1000*125$

$= \quad 150mm^2$

Spacing $= \quad (3.14*8^2*1000) / (150)$

$= \quad 280mm$

Adopt 8mm dia bars at 280mm c/c

Tarisional reinforcement :

$A_{st} = \quad 3/4*A_{stmax}$

$= \quad 3/4*250.73$

$= \quad 188.05mm^2$

Assume 6mm dia bars

Spacing $= \quad 3.14*6^2*1000/188.05$

$= \quad 150mm$

Adopt 6mm dia bars @ 150mm c/c.

MIG

DESIGN DETAILS

SLAB - A

One long edge discontinuous:

L_y = 4.88m

L_x = 5.11m

L_y / L_x = 1.047<2

Design as two way slab.

LOAD CALCULATION

Live load = 4000N/m^2

Dead load = 0.175*25000 = 4375 N/m^2

Finishes = 1000 N/m^2

Total load = 9375 N/m^2

Factored load = 1.5*Total load

= 14070 N/m^2

Moment	a_x	a_y
Negative moment	0.038	0.037
Positive moment	0.029	0.028

SHORTER SPAN :

Negative moment at support

M_x (negative) = a_x *W*l_x^2

= 0.038*14070*$(4.88)^2$

= 12.732*10^6 N-m

Positive moment at mid span

M_x (positive) = a_x *W*l_x^2

= 0.029*14070*$(3.43)^2$

= 9.716*10^6 N-mm

LONGER SPAN :

Negative momen at support

M_y (negative) = $a_y * W * 1_x^2$

= $0.037 * 14070 * (4.88)^2$

= $12.397 * 10^6$ N-m

Positive moment at mid span

M_y (positive) = $a_y * W * 1_x^2$

= $0.028 * 14070 * (4.88)^2$

= $9.38 * 10^6$ N-m

Form limit state design, for M_{20} and Fe415,

$M_u / (b * d^2) = 2.76$

$(12.79 * 10^6) / (1000 * 2.76) = d^2$

= 67mm

Provide D=150mm and d = 125mm

To find A_{st} :

Form limit state design,

$M_u = 0.87 * f_y * A_{st} * d * [1 - (A_{st} * f_y / b * d * f_{ck})]$

Shorter span :

M_x(negative) = $10845 * 10^3$N-m

= $0.87 * 415 * A_{st} * 125 * [1 - (A_{st} * 415 / 1000 * 125 * 20)]$

A_{st} = $250.73mm^2$

Assume 8mm dia

Spacing = (area of one bar/ A_{st})*1000

= $(3.14 * 8^2 * 1000) / (4 * 250.73)$

= 200.47mm

= 200mm

Adopt 8mm dia at 200mm c/c at support

M_x(positive)= $8.194 * 10^3$N-m

= $0.87 * 415 * A_{st} * 125 * [1 - (A_{st} * 415 / 1000 * 125 * 20)]$

A_{st} = 187.38mm^2

Assume 8mm dia bars,

Spacing = (area of one bar/ A_{st})*1000

= (3.14*8^2*1000)/ (187.38)

= 268.245mm

= 250mm

Adopt 8mm dia bars at 250mm c/c at mid span

Longer span :

M_y(negative) = 6.145*10^{3}N-m

= 0.87*415* A_{st}*125*[1-(A_{st} *415 /1000*125*20)]

A_{st} = 140mm^2

Assume 6mm dia

Spacing = (area of one bar/ A_{st})*1000

= (3.14*6^2*1000)/ (4*301.104)

= 201.95mm

= 200mm

Adopt 6mm dia bars at 200mm c/c at support

M_y(positive)= 4.635*10^{3}N-m

= 0.87*415* A_{st}*125*[1-(A_{st} *415 /1000*125*20)]

A_{st} = 110mm^2

Assume 6mm dia bars,

Spacing = (area of one bar/ A_{st})*1000

= (3.14*6^2*1000)/ (187.38)

= 257mm

= 250mm

Adopt 6mm dia bars at 250mm c/c at mid span

Edge strip reinforcement :

A_{st} = 0.12% of total c/s area

$= 0.0012*1000*125$

$= 150mm^2$

Spacing $= (3.14*8^2*1000) / (150)$

$= 280mm$

Adopt 8mm dia bars at 280mm c/c

Tarisional reinforcement :

$A_{st} = 3/4*A_{stmax}$

$= 3/4*250.73$

$= 188.05mm^2$

Assume 6mm dia bars

Spacing $= 3.14*6^2*1000/188.05$

$= 150mm$

Adopt 6mm dia bars @ 150mm c/c.

HIG

DESIGN DETAILS

SLAB - A

One long edge discontinuous:

L_y = 4.88m

L_x = 6.33m

$L_y / L_x = 1.3 < 2$

Design as two way slab.

LOAD CALCULATION

Live load = 4000N/m^2

Dead load = 0.175*25000 = 4375 N/m^2

Finishes = 1000 N/m^2

Total load = 9375 N/m^2

Factored load = 1.5*Total load

= 14070 N/m^2

Moment	a_x	a_y
Negative moment	0.057	0.037
Positive moment	0.044	0.028

SHORTER SPAN :

Negative moment at support

$$M_x \text{ (negative)} = a_x * W * l_x^2$$

$$= 0.057 * 14070 * (4.88)^2$$

$$= 19.1 * 10^6 \text{ N-m}$$

Positive moment at mid span

$$M_x \text{ (positive)} = a_x * W * l_x^2$$

$$= 0.044 * 14070 * (4.88)^2$$

$$= 14.743 * 10^6 \text{ N-mm}$$

LONGER SPAN :

Negative momen at support

M_y (negative) = $a_y * W * 1_x^2$

= $0.037 * 14070 * (4.88)^2$

= $12.397 * 10^6$ N-m

Positive moment at mid span

M_y (positive) = $a_y * W * 1_x^2$

= $0.028 * 14070 * (4.88)^2$

= $9.382 * 10^6$ N-m

Form limit state design, for M_{20} and Fe415,

$M_u / (b * d^2) = 2.76$

$(19.1 * 10^6) / (1000 * 2.76) = d^2$

= 85mm

Provide D=150mm and d = 125mm

To find A_{st}:

Form limit state design,

$M_u = 0.87 * f_y * A_{st} * d * [1-(A_{st} * f_y / b * d * f_{ck})]$

Shorter span :

M_x(negative) = $10845 * 10^3$N-m

= $0.87 * 415 * A_{st} * 125 * [1-(A_{st} * 415 / 1000 * 125 * 20)]$

A_{st} = $250.73mm^2$

Assume 8mm dia

Spacing = (area of one bar/ A_{st})*1000

= $(3.14 * 8^2 * 1000) / (4 * 250.73)$

= 200.47mm

= 200mm

Adopt 8mm dia at 200mm c/c at support

M_x(positive)= $8.194 * 10^3$N-m

= $0.87 * 415 * A_{st} * 125 * [1-(A_{st} * 415 / 1000 * 125 * 20)]$

A_{st} = $187.38mm^2$

Assume 8mm dia bars,

Spacing = (area of one bar/ A_{st})*1000

= $(3.14*8^2*1000)/ (187.38)$

= 268.245mm

= 250mm

Adopt 8mm dia bars at 250mm c/c at mid span

Longer span :

M_y(negative) = $6.145*10^3$N-m

= $0.87*415* A_{st}*125*[1-(A_{st} *415/1000*125*20)]$

A_{st} = $140mm^2$

Assume 6mm dia

Spacing = (area of one bar/ A_{st})*1000

= $(3.14*6^2*1000)/ (4*301.104)$

= 201.95mm

= 200mm

Adopt 6mm dia bars at 200mm c/c at support

M_y(positive)= $4.635*10^3$N-m

= $0.87*415* A_{st}*125*[1-(A_{st} *415/1000*125*20)]$

A_{st} = $110mm^2$

Assume 6mm dia bars,

Spacing = (area of one bar/ A_{st})*1000

= $(3.14*6^2*1000)/ (187.38)$

= 257mm

= 250mm

Adopt 6mm dia bars at 250mm c/c at mid span

Edge strip reinforcement :

A_{st} = 0.12% of total c/s area

$= \quad 0.0012*1000*125$

$= \quad 150mm^2$

Spacing $= \quad (3.14*8^2*1000) / (150)$

$= \quad 280mm$

Adopt 8mm dia bars at 280mm c/c

Tarisional reinforcement :

$A_{st} = \quad 3/4*A_{stmax}$

$= \quad 3/4*250.73$

$= \quad 188.05mm^2$

Assume 6mm dia bars

Spacing $= \quad 3.14*6^2*1000/188.05$

$= \quad 150mm$

Adopt 6mm dia bars @ 150mm c/c.

LOAD CALCULATION

Introduction

In this project, we have made the manual load calculation. The following loads are considered for load calculation.

Dead load

Imposed load

As per IS 1893 (PART I):2002, for irregular building those having height less than 40m, dynamic analysis is not required.

Load data

Floor to floor height = 3.6m

Depth of foundation = 1.5m

SBC of the soil = 220 KN/m2

Concrete grade = M20

Steel grade = Fe 415

Unit weight of concrete = 25 KN/m2

Unit wt of brick masonry = 20 KN/m2

Design: Limit State Method

Code: IS 456:2000

Assumed imposed loads as per IS 875:1987(part II)

ROOF:

Roof finish = 1 KN/m2

Live load = 3.5 KN/m2

Total load = 4.5 KN/m2

FLOOR:

Floor finish = 0.75 KN/m2

Live load = 3.5 KN/m2

Total load = 3.75KN/m2

Dead load calculation

SLAB:

Slab thickness = 125mm

Self wt of slab = 3.125 KN/m2

WALL:

Main wall thickness = 230mm

Partition wall thickness = 115mm

Self wt of main wall = 16.56 KN/m2

Self wt of partition wall = 8.28 KN/m2

BEAM:

Main beam = 230mm*400mm

Self wt of main beam = 2.3KN/m

COLUMN:

Column size = 230mm*400mm

Self wt of column = 8.66KN/m

Load combinations

The various load combination used in the analysis are:

1. (dead load + live load)*1.5

FRAME ANALYSIS

LOAD CALCULATION:

Span AB:

Influence area = ((6.3+2.9)/2*1.6+((6.3+2.9)/2)*1.6

= 14.4mm2

DEAD LOAD

Self wt of slab = 14.4*0.15*25000

54000N

Self wt of beam = 6.33*0.4*0.23*25000

=14600N

Self wt of wall = 6.33*0.23*3.6*20000

=104825N

Floor finish = 1440N

Dead load = 187785N

Load/m run = 29665N/m

Live load = 7960N/m

DESIGN LOAD:

Dead load = 44500N/m

Total load = 56440N/m

Span BC:

Influence area = ((6.3+2.9)/2*1.6+((6.3+2.9)/2)*1.6

= 14.4mm2

DEAD LOAD

Self wt of slab = 14.4*0.15*25000

54000N

Self wt of beam = 6.71*0.4*0.23*25000

=15430N

Self wt of wall = 6.71*0.23*3.6*20000

=111118N

Floor finish = 1440N

Dead load = 195000N

Load/m run = 26755N/m

Live load = 7960N/m

DESIGN LOAD:

Dead load = 40130N/m

Total load = 51380N/m

Span CD:

Influence area = 2.66m2

DEAD LOAD

Self wt of slab = 2.66*0.15*25000

=9975N

Self wt of beam = 2.33*0.4*0.23*25000

=5820N

Floor finish = 2660N

Dead load = 43000N

Load/m run = 18455N/m

Live load = 7960N/m

DESIGN LOAD:

Dead load = 27685N/m

Total load = 33205N/m

CALCULATION OF FIXED END MOMENT:

Span	AB	BC	CD
Length	6.33	6.71	2.33
Fixed end moment due to DL	148590N.m	150570N.m	14770N.m
Fixed end moment due to DL+LL	188460N.m	192790N.m	17710N.m

JOINT – A: ('-' ve bending moment at A)

Joint	A	B		C		D
Member	AB	BA	BC	CB	CD	DC
Distribution factor	0.13	0.18	0.18	0.13	0.37	0.42
FEM	-188460	+188460	-150570	+150570	-17710	+17710
Distribution	+41460	-6820				
COM	-3410					
	-191870					
Distribution	+42210					
Net moment	-149660					

JOINT – B: ('-' ve bending moment at B)

Joint	A	B		C		D
Member	AB	BA	BC	CB	CD	DC
Distribution factor	0.13	0.18	0.18	0.13	0.37	0.42
FEM	-188460	+188460	-192760	+192760		
Distribution	+41460	+775	+775	-23138		
COM		+20730	-11570			
		+209190	-204330			
Distribution		-1000	-1000			
Net moment		+208190	-203330			

JOINT –C: ('-' ve bending moment at C)

Joint	A	B		C		D
Member	AB	BA	BC	CB	CD	DC

Distribution factor	0.13	0.18	0.18	0.13	0.37	0.42
FEM			-192760	+192760	-17710	+17710
Distribution			+7956	+7956	-64780	-7440
COM				-22760	-64780	
				+196770	-21430	
Distribution				-22795	-64875	
Net moment				+173975	-86305	

JOINT –D: ('-' ve bending moment at D)

Joint	A	B		C		D
Member	AB	BA	BC	CB	CD	DC
Distribution factor	0.13	0.18	0.18	0.13	0.37	0.42
FEM			-150570	+150570	-17710	+17710
Distribution					-49160	+7440
COM						-24580
						-688
Distribution						+2880
Net moment						+4000

'+'ve bending moment at mid span:

Joint	A	B		C		D
Member	AB	BA	BC	CB	CD	DC
Distribution factor	0.13	0.18	0.18	0.13	0.37	0.42
FEM	-188460	+188460	-150570	+150570	-17710	+17710
Distribution	+41460	+6820	-6820	-17270	-49160	+7440
COM	-3410	+20730	-8635	-3410	-3720	-24580
	-191870	+209190	-159205	+147160	-21430	+6879
Distribution	+42210	-9000	-9000	-16340	-46520	+2880
Net moment	-149660	+200190	-168205	+130820	-67950	+4000

'-'ve bending moment at mid span:

Joint	A	B		C		D
Member	AB	BA	BC	CB	CD	DC
Distribution factor	0.13	0.18	0.18	0.13	0.37	0.42
FEM	-148590	+148590	-192760	+192760	-14770	+14770
Distribution	+32690	-8000	-8000	+23140	-65870	-6200
COM	-4000	+16340	-8000	-23140	-65870	-6200
	-144590	+164930	-204360	+180790	-11670	-18165
Distribution	+31810	+7100	+7100	-23020	-65535	+7630
Net moment	-1121780	+172030	-197260	+197260	-17870	-10585

Net bending moment at centre of the span:

AB = 56440*6.332/8-(170790+200190)/2

= 97190N-m

BC = 51385*6.712/8-(197260+197260)/2

= 91935N-m

CD = 17710*2.332/8-(67950+4000)/2

= 23400N-m

Maximum bending moment in column:

Joint	A	B		C		D
Column D.F. above & below	0.39	0.33		0.25		0.29
Member	AB	BA	BC	CB	CD	DC
Distribution factor	0.13	0.18	0.18	0.13	0.37	0.42
FEM	-188460	+188460	-150570	+150570	-17710	+17710
Distribution	+41460	+6820	-6820	-17270	-49160	+7440
COM	-3410	+20730	-8635	-3410	-3720	-24580
	-191870	+209190	-159205	+147160	-21430	+6879
Distribution to column above & below	+74830	-16500		-125730		-2000

Maximum bending moment in column:

Joint	A	B		C		D
Column D.F. above & below	0.39	0.33		0.25		0.29
Member	AB	BA	BC	CB	CD	DC
Distribution factor	0.13	0.18	0.18	0.13	0.37	0.42
FEM	-148590	+148590	-192760	+192760	-14770	+14770
Distribution	+32690	-8000	-8000	+23140	-65870	-6200
COM	-4000	+16340	-8000	-23140	-65870	-6200
	-144590	+164930	-204360	+180790	-11670	-18165
Distribution to column above & below	+56390	+39450		-42280		+5300

DESIGN OF SLAB

Introduction

The reinforced concrete slabs may be designed in two ways.

1. One Way Slab
2. Two Way Slab

ONE WAY SLAB:

The reinforced concrete slabs may be supported on two parallel long edges only and free on any support along the parallel short edges. The structural action of the slab is essentially one way. The slab in the direction perpendicular to the supporting beams or walls carries the loads. Such slabs are called slab spanning in one direction. These are known as one-way slabs.

CONDITIONS TO BE AN ONE-WAY SLAB :

Consider long span as L_y

Consider long span as L_x

If the ratio between L_y and L_x is greater 2, then it is said to be one-way slab.

The roof slab for this project is divided into number of strips and designed as one-way slab.

TWO WAY SLAB :

The reinforced concrete slabs supported on its four sides on beams or walls having the ratio of a long span less than or equal to 2 are called as slabs spanning in two directions or two way slabs. The structural action in such slabs is two way. The loads are carried by the slab along both short span and long span. The bending moments and deflection in two way slabs considerably less than those in one way slab for similar loading and similar support conditions. The deflected surfaces of such slabs have double curvature .

Two way slab is designed by using STAAD. Pro and the results are detailed below.

CONDITIONS TO BE AN ONE-WAY SLAB :

Consider long span as L_y

Consider long span as L_x

If the ratio between L_y and L_x is less than or equal to 2, then it is said to be one-way slab.

DESIGN DETAILS

SLAB - A

One short edge discontinuous.

$L_y = 3.43m$

$L_x = 6.33m$

$L_y / L_x = 1.845 < 2$

Design as two way slab.

LOAD CALCULATION

Live load = $4000 N/m^2$

Dead load = $0.175*25000 = 4375 N/m^2$

Finishes = $1000 N/m^2$

Total load = $9375 N/m^2$

Factored load = 1.5*Total load

= $14070 N/m^2$

Moment	a_x	a_y
Negative moment	0.0655	0.037
Positive moment	0.0495	0.028

SHORTER SPAN :

Negative moment at support

M_x (negative) $= a_x * W * 1_x^2$

$= 0.0655*14070*(3.43)^2$

$= 10.845*10^6$ N-m

Positive moment at mid span

M_x (positive) $= a_x * W * 1_x^2$

$= 0.0495*14070*(3.43)^2$

$= 8.194*10^6$ N-mm

LONGER SPAN :

Negative momen at support

$$M_y(\text{negative}) = a_y * W * l_x^2$$

$$= 0.037*14070*(3.43)^2$$

$$= 6125*10^6 \text{ N-m}$$

Positive moment at mid span

$$M_y(\text{positive}) = a_y * W * l_x^2$$

$$= 0.028*14070*(3.43)^2$$

$$= 4635*10^6 \text{ N-m}$$

Form limit state design, for M_{20} and Fe415,

$$M_u / (b*d^2) = 2.76$$

$$(10.845*10^6) / (1000*2.76) = d^2$$

$$= 65\text{mm}$$

Provide D=150mm and d = 125mm

To find A_{st} :

Form limit state design,

$$M_u = 0.87 * f_y * A_{st} * d * [1-(A_{st} * f_y / b*d*f_{ck})]$$

Shorter span :

$M_x(\text{negative}) = 10845*10^3\text{N-m}$

$= 0.87*415* A_{st}*125*[1-(A_{st} *415 /1000*125*20)]$

$A_{st} = 250.73\text{mm}^2$

Assume 8mm dia

Spacing = (area of one bar/ A_{st})*1000

= $(3.14*8^2*1000)/ (4*250.73)$

= 200.47mm

= 200mm

Adopt 8mm dia at 200mm c/c at support

$M_x(\text{positive}) = 8.194*10^3\text{N-m}$

$= 0.87*415* A_{st}*125*[1-(A_{st}*415/1000*125*20)]$

$A_{st} = 187.38mm^2$

Assume 8mm dia bars,

Spacing = (area of one bar/ A_{st})*1000

$= (3.14*8^2*1000)/ (187.38)$

$= 268.245mm$

$= 250mm$

Adopt 8mm dia bars at 250mm c/c at mid span

Longer span :

M_y(negative) $= 6.145*10^3$N-m

$= 0.87*415* A_{st}*125*[1-(A_{st}*415/1000*125*20)]$

$A_{st} = 140mm^2$

Assume 6mm dia

Spacing = (area of one bar/ A_{st})*1000

$= (3.14*6^2*1000)/ (4*301.104)$

$= 201.95mm$

$= 200mm$

Adopt 6mm dia bars at 200mm c/c at support

M_y(positive)$= 4.635*10^3$N-m

$= 0.87*415* A_{st}*125*[1-(A_{st}*415/1000*125*20)]$

$A_{st} = 110mm^2$

Assume 6mm dia bars,

Spacing = (area of one bar/ A_{st})*1000

$= (3.14*6^2*1000)/ (187.38)$

$= 257mm$

$= 250mm$

Adopt 6mm dia bars at 250mm c/c at mid span

Edge strip reinforcement :

A_{st} = 0.12% of total c/s area

= 0.0012*1000*125

= $150mm^2$

Spacing = $(3.14*8^2*1000) / (150)$

= 280mm

Adopt 8mm dia bars at 280mm c/c

Tarisional reinforcement :

A_{st} = $3/4*A_{stmax}$

= 3/4*250.73

= $188.05mm^2$

Assume 6mm dia bars

Spacing = $3.14*6^2*1000/188.05$

= 150mm

Adopt 6mm dia bars @ 150mm c/c.

CORRIDOR

The Corridor may be designed as a One Way Slab.

Designed load = 14070 N/m

Span = 3.81M

Bending Moment = $WI^2/8$

= $14070*3.81^2/8$

= 25.53kN-m

Depth d^2 = $25.53*10^6/(2.76*1000)$

= 96mm

Provide d = 100mm

D = 125mm

To find A_{st}

A_{st} = $560mm^2$

Provide 12mm Ø bars at 180mm c-c

Distributors:

Provide 6mm Ø bars at 150mm c-c as distributors.

Two way slab details :

S.No	Slab size In (m0	Reinforcement Details	
		Longer span	Shorter span
1	3.43*6.33	8mm ø @200mm c/c at midsapn 8mm ø @250mm c/c at support	6mm ø @200mm c/c at midsapn 6mm ø @250mm c/c at support
2	6.76*6.86	10mm ø @150mm c/c at midsapn 10mm ø @200mm c/c at support	10mm ø @150mm c/c at midsapn 10mm ø @200mm c/c at support
3	4.50*6.33	10mm ø @200mm c/c at midsapn 10mm ø @250mm c/c at support	8mm ø @250mm c/c at midsapn 8mm ø @250mm c/c at support
4	6.71*9.00	16mm ø @240mm c/c at midsapn 12mm ø @180mm c/c at support	12mm ø @220mm c/c at midsapn 10mm ø @200mm c/c at support
5	3.58*6.33	8mm ø @200mm c/c at midsapn 8mm ø @250mm c/c at support	8mm ø @200mm c/c at midsapn 8mm ø @250mm c/c at support

DESIGN OF BEAM

Considering a beam, bending moment and shearing stress are greater than those of slabs. Therefore, the depth of the beam is governed by the bending moment criteria while deflection criteria normally get satisfied.

A beam simply supported at its ends carrying a uniformly distributed load bends with concavity upwards. It is subjected to maximum sagging or positive bending moment at its mid-span and zero at its supports. Sometimes the beam will be subjected to maximum negative or hogging bending moment.

The point where the curvature changes from **sagging** to **hogging** is called **point of contra flexure.**

While designing a beam, according to the bending moment we design as a **flanged** section or **rectangular** section or a **Tee-beam** or an **L-beam**.

At the time of load calculation, end shear from slab, load due to wall carried by the beam, self weight of the beam, concentrated load transferred by secondary beam resting on main beam etc are considered.

Following are the design done manually:

Let us consider the beam ABCD which is more critical.

A 6.33m B 6.71m C 2.33m D

Bending moment calculated from Substitute Frame Method:

Moment at joint A = 53.82kN-m

Moment at joint B = 67kN-m

Moment at joint C = 62.55kN-m

Moment at joint D = 5.08kN-m

Bending moment at midspan:

Moment at midspan AB = 30.15kN-m

Moment at midspan BC = 33.75kN-m

Moment at midspan CD = 1.56kN-m

DEPTH OF BEAM:

Depth of beam can be calculated based on the maximum bending moment.

(Mu/bd^2) = 2.76

D=324.87mm

Provide d = 400mm and D = 365mm

CALCULATION OF AREA OF STEEL

At support A:

A_{st} = $465.76mm^2$

Provide 3 bars of 16mm ø.

At support B:

A_{st} = $596.65mm^2$

Provide 3 bars of 16mm ø.

At support C:

A_{st} = 576.43mm^2

Provide 3 bars of 16mm ø.

At support D:

Provide 2 bars of 12mm ø.

At mid span AB:

A_{st} = 243.54mm^2

Provide 3 bars of 12mm ø.

At mid span BC:

A_{st} = 270mm^2

Provide 3 bars of 12mm ø.

At mid span CD:

A_{st} = 50mm^2

Provide 2 bars of 12mm ø.

SHEAR FORCE:

Load on AB = 48.5KN-m

Load on BC = 49.1KN-m

t_v = WI (2bd) + W/bd

= (49*1000*5.11)/(2*230*365) + 87.4 / (230*365)

t_v = 1.83 N/mm^2

% of steel = 1.19%

t_c = 0.392N/mm^2

provide a minimum of 2 legged 8mm ø stirrups at 250mm c-c for the span AB and BC.

CHECK FOR DEFLECTION:

Span / Effective depth > 20* k1

5.11*1000 / 415 > 20*0.98

12.3 > 19.6

Hence the design is safe.

CHECK FOR ANCHORAGE :

L_d = (16*0.87*415) / (4*1.2)

= 1203.5mm

(M1 / V) + L_o

Ld > (M1 / V) + L_o

Hence the design is Safe.

DESIGN OF COLUMN

The columns in the structure are mainly subjected to axial compression. The columns carrying axial compression only are the internal columns with beam in all four direction or beams in one place same spans and same loading.

Some columns in the structure are subjected to bending due to rigid connections with the beam or due to eccentric loading. The side column on the eternal wall carrying beams in the three mutually perpendicular directions or a single beam in one direction are subjected to axial compression and uniaxial bending. The corner column in the structure required to be designed for bi-axial bending and axial compression.

The load carrying capacity of the column also depends on the slenderness ratio which is the ratio of effective length l_{eff} to the corresponding lateral dimension (h). if the slenderness ratio is greater than or equal to 12 it is called a long or slender column.

The design of both interior and the exterior column is given.

DESIGN OF INTERIOR COLUMN

Axial load on column = 1900KN

Size of column = 0.40m*0.40m

SLENDER CHECK :

L_{ex}/b = 3600/400 = 9

L_{ey}/b = 3600/400 = 9

Since the value of L/b is lesser than 12, design the column as short column.

Assume p = 2%

P/ f_{ck} = 2/20 = 0.1

Assume 25mm dia bars at 40mm c/c

d^1 = 40+12.5 = 52.5mm

d^1/d = 52.5/450 = 0.116

$P_u / (f_{ck}*b*d)$ = $[1900*10^6/(20*400*400)]$ =0.59

From IS : 456-1978 DESIGN AIDS chart 46,

$M_u/ (f_{ck}*b*d^2)$ = 0.082

M_{ux1} = $0.082*20*400*400^2$

= 104.96KN-m

Similarly,

M_{uy1} = 104.96KN-m

TO FIND ECCENTRICITY :

e = [(1/500) + (d/30)]

e_{xx} = [(3600/500) + (400/30)]

= 20.53

similarly,

e_{yy} = 20.53

Mux = 20.53*1900

= 39 KN-m

Muy = 20.53*1900

= 39 KN-m

CHECK FOR BENDING :

$[M_{ux}/ M_{ux1}]^{1.05} + [M_{uy}/ M_{uy1}]^{1.05} < 1$

= 0.452<1

So the structure is safe in bending.

TO FIND A :

Ast = [(p*b*d)/100]

= [(2*400*400)/100]

= $3200mm^2$

Assume 25mm dia bars,

N = [3200/ $(0.25*3.14*25^2)$]

= 6.52

= 8bars

Spacing = [area of 1 bar / A_{st}]*1000

= [.25*3.14*25^2/3200]*1000

150mm

Provide 8bars of 25mm dia

PITCH:

The pitch of transverse reinforcement shall be not more than the following as per IS 456:2000

I. The least lateral dimension of the compression member = 230mm
II. 16*d=400mm
III. 300mm

Provide 8mm ø bars as the lateral ties at 200mm c-c .

DESIGN OF EXTERIOR COLUMN

Axial load on column = 1250KN

Size of column = 0.40m*0.40m

SLENDER CHECK :

L_{ex}/b = 3600/400 = 9

L_{ey}/b = 3600/400 = 9

Since the value of L/b is lesser than 12, design the column as short column.

Assume p = 2%

P/ f_{ck} = 2/20 = 0.1

Assume 25mm dia bars at 40mm c/c

d^1 = 40+12.5 = 52.5mm

d^1/d = 52.5/450 = 0.116

$P_u / (f_{ck}*b*d)$ = $[1900*10^6/(20*400*400)]$ =0.59

From IS : 456-1978 DESIGN AIDS chart 46,

$M_u/ (f_{ck}*b*d^2)$ = 0.065

M_{ux1} = $0.065*20*400*400^2$

= 83.2KN-m

Similarly,

M_{uy1} = 83.2KN-m

TO FIND ECCENTRICITY :

e = [(1/500) + (d/30)]

e_{xx} = [(3600/500) + (400/30)]

= 20.53

similarly,

e_{yy} = 20.53

Mux = 20.53*1250

= 25.31 KN-m

Muy = 20.53*1250

= 25.31 KN-m

CHECK FOR BENDING :

$[M_{ux}/ M_{ux1}]^{1.05} + [M_{uy}/ M_{uy1}]^{1.05} < 1$

= 0.452<1

So the structure is safe in bending.

TO FIND A :

Ast = [(p*b*d)/100]

= [(2*400*400)/100]

= $3200mm^2$

Assume 25mm dia bars,

N = [3200/ $(0.25*3.14*25^2)$]

= 6.52

= 8bars

Spacing = [area of 1 bar / A_{st}]*1000

= [$.25*3.14*25^2/3200$]*1000

= 150mm

Provide 8bars of 25mm dia

PITCH:

The pitch of transverse reinforcement shall be not more than the following as per IS 456:2000

I. The least lateral dimension of the compression member = 230mm
II. 16*d=400mm
III. 300mm

Provide 8mm ø bars as the lateral ties at 200mm c-c .

DESIGN OF LINTEL CUM SUNSHADE

Lintel is a beam which is provided above the openin in a building. It is proved to withstand the load. The opening is a cantilever slab which is provided along with lintel beam. This sunshade may varyor uniform in c/s.the length of lintel cum sun shade should be much longer than the opening. Sun shade is provided to resist the entry of rain and sunlight into the building. Lintel is desined as beam and sun shade is deigned as cantilever slab. Lintels are provided at all doors and windows.

DESIGN DETAILS

Span=3.2m

Design live load = 1000 N/m^2

Assume the thickness as 100mm

Thickness of water proof = 25mm

Consider 1m length of sunshade.

Live load = 1000N/m

Dead load = 1*1*0.1*25

= 2500N/m

Water proof = 1*1*0.025*20

= 500 N/m

Total load = 4000 N/m

Design load = 4000*1.5

= 6000 N/m

Bending moment

= $WI^2/8$

= 3 KN-m

$M_u(bd)^2$ = 2.76

$(3*10^6) / (1000*d^2)$ = 2.76

d = 32mm

Adopt minimum

d = 110mm at the top and

d = 90mm at the end

A_{st} = $76.6mm^2$

Minimum A_{st} = 0.12bd

= $156mm^2$

Assume 8mm ø bars

Spacing = $(p/4)*8^2*1000/156$

= 322mm

Provide 8mm ø bars at 300mm c-c on the both directions.

CHECK FOR ANCHORAGE :

$L_d \triangleright (1.3*M1 / V) + L_o$

L_d = 47* diameter of rod

= 376mm

M1 = $0.87 * f_y * A_{st} (d - 0.416\ Xu)$

= 6 KN-m

Lo = Eff. Thick (or) 12 * diameter of rod

= 110mm (or) 96mm

$(1.3*M1 / V) + L_o$ = 1.3*1000 + 110

= 1410 > 376mm

LINTEL DESIGN

The length of wall on each side is greater than half effective span of lintel
Load dispersion = Rectangular

Effective span = 4.50m

For 1m length :

Self weight of lintel = 0.23*0.3*1*25 = 1725N/m

Self weight of wall = 0.23*0.85*20 = 3910N/m

Self weight of sunshade = 1*1*0.1*25 = 2500N/m

Total Load = 8760 N/m

Design load = 13140 N/m

Bending Moment = $WI^2/8 = (13.14*4.50^2)/8 = 44.24$ KN-m

$M_u/(bd^2)$ = 2.76

d = 126mm

A_{st} = 546mm^2

Provide 3 bars of 16mm ø at the mid span and bend 2 bars to the top at a distance of L/7 = 0.74m and provide 2 bars of 10mm ø at the top.

SHEAR REINFORCEMENT:

t_v = V/bd = $(34*10^3) / (230*300)$ = 0.49 N/mm^2

% of stell = 0.86%

t_c = 0.37 N/mm^2

Vsu = 0.37 * 230 * 300 = 25580N

Sv = 100.5*0.87*415*275 / 25580 = 390mm

MINIMUM SHEAR REINFORCEMENT :

As per IS 456:2000,

0.75* d = 225mm (or) 300mm

Therefore provide 2 legged 8mm ø stirrups at 225mm c-c.

DESIGN OF STAIR CASE

Type of stair case – Dog legged

Arrangement of staircase :

Vertical height between the floors

= 3.6m

Width of step = 1.015m

Assume rise of steps as 200mm

Number of risers = 3600/200

=18

Riser per flight = 18/2

= 9

Providing tread as 300mm

Going on each flight = 9*300

= 2700mm

Providing a clear gap of 100mm between the two flights

Width of flights = (2300-100)/2

= 1015mm

Effective span:

Effective span of flight = c/c distance of supports

= 1.2+2.7+1.2+0.23

= 5.33mm

Loads:

Assume the thickness of waist slab and landing slab as 210mm

Self weight of waist slab per m^2 of slopped area

= 1*0.21*25000

= 5250N

Self weight of waist slab per m^2 of slopped area

$= (5250*(300^2+200^2))^{1/2}/300$

$= 6310N$

Weight of steps per m^2 of plan area

$= 1000*0.5*0.3*0.2*1*25000$

$= 2500N$

Live load per m^2 of plan area

$= 400N$

Total load on waist portion

$= 6310+2500+4000$

$= 12810/m^2$

Total load on landing portion

$= 5250+4000$

Bending movement and shear force

Consider 1m width of slab throughout the span

Reaction:

$= 0.5(9250*1.315*2+12810*2.7)$

$= 29460N$

Maximum sear force $= 29460N$

Maximum Bending movement and shear force at mid span

$= 29460*2.7-9250*1.315(1.315/2+1.315)$
$- \quad 12810*1.315*1.315*2$

$= 44480N\text{-}m$

$V_u = 29460*1.5$

$= 44190N$

$M_u = 44480*1.5$

$= 66720N\text{-}m$

Depth of slab required

$MOR = (66720000/(2.76*1000))^{1/2}$

= 155mm

Providing 12mm dia bars with 20mm nominal cover

Effective depth provided

= 210 – 20 – 12/2

= 184mm > 155 mm

Hence OK

Main reinforcement:

$0.87*415*A_{st}(184 – 415* A_{st}/(20*1000)) = 6670000$

$A_{st} = 1155mm^2$

Number of 12mm dia bars required for each flight

$=1155*1.015/(3.14*12^2)$

= 10.37

Say = 11 numbers

Providing 11 bars of12mm dia bars in each flight

Distributors:

A_{st} required = $0.15*1000*210/100$

= $310mm^2$

Spacing of 8mm dia bars

= 50*1000/315

= 158.7

Say 155mm c/c

Check for shear:

Design shear force = 44190N

Nominal shear stress = 44190/(1000*184)

= $0.24N/mm^2$

\minimum va,ue of permissible shear stress

= $0.28N/mm^2$

Hence safe against shear

DESIGN OF FOOTING

Iif the L/B ratio is less 5 we use spread footings. These ootings are the most common of all types of footings with minimum cost and complexity of construction. It necessarily provides the function of distributing the column load over a wide area taking care of the strength and deformation characteristic of the soil. These types of footings are also known as **pad** fottings, **isolated** footings and **square** or **rectangular** footings.

DESIGN DETAILS

Total load acting on footing

= 1900KN

Self weight of footing = 10% of total load

= 0.1*1940 = 190KN

Total load = 1900+190 = 2090 KN

Area = {load/bearing capacity]

Bearing capacity of soil = 220 KN/m^2

Area = [2090/220]

=9.5m^2

Provide 301m*301m square footing.

Design load = 1.5*load on footing

= 1.5*1900

= 330KN/m^2

DEPT CALCULATION

For one way shear ,

d = $[(P*(L-B)) / (2*3135 + 700*3.1^2)]$

= 650mm

provide D = 700mm

for two way shear,

perimeter = 4[b+d]

= 4[0.4+0.65]

= 4.2m

Shear = $275[2.9^2 - 1.105^2]$

= 1992.54KN/m^2

Shear stress = $0.25*[f_{ck}]^{(1/2)}$

= $1.118 KN/m^2$

1992.5 = $1.118*4.06*d$

d = 438.97mm=440mm

Provide d = 565mm

DEPTH FROM BENDING :

Moment = $[W*1^2]/8 = [p*(L-B)^2][8*L]$

= $[3135*(3.1 - 0.4)^2]/8*3.1]$

= 922KN- m

We know that for limit state design,

$M_u/[b*d^2]$ = 2.76

d^2 = $[92*10^6]/[2.76*3.1]$

= 330mm<650mm

So provide 'd' of 565mm.

TO FIND A_{st} :

From limit state design,

$M_u = 0.87*f_y*A_{st}*d*[1 - (A_{st}*f_y/b*d*f_{ck})]$

$922*10^6 = 0.87*415*A_{st}*650[1-((A_{st}*415)/(20*230*650))]$

$A_{st} = 3935 mm^2$

Assume 20mm dia bars,

N = $[3935/ (0.25*?**20^2)]$

N = 12.53 = 14 bars

Spacing = $[A_{st}$ of 1 bar/$A_{st}]*1000$

= [314/3935]*1000

= 79 = 75mm.

Total depth = 650 +50 +[20/2]

= 710mm

DESIGN OF SEPTIC TANK

We have designed for the septic tank by calculating the number of peoples using the toilets per day.

Assume 5 persons for each house.

So the for 16 flats there are 80 users and provide 20 users in the commercial zone.

Total number of users is taken as 100 and is desgned accordingly.

Rate of water supply is assumed as 100 lit/hr/day.

DESIGN DETAILS

Assume,

Number of users = 100

Rate of water supply = 100 lit/hr/day

Assuming 80% of water appears as sewage,

Total quantity of sewage per day = (100*100*0.8)/1000

= $8m^3$/day

Assuming a detention period of 24 hours

Tank capacity required = (8*24)/24

= $8m^3$

Sludge storage at 0.0078 m^3 / capita (for cleaning period of 2 years)

= 100*0.078

= $7.80m^3$

Total capacity = 7.80+4

= $11.80m^3$

Add 25% for future expansion

= 0.25*11.8

= $2.95m^3$

Total design capacity = 11.8+2.95

= $14.75m^3$

Let the depyh of liquid be 2m

Plan area of tank = 14.75/2

= $7.375m^2$.

Provide tank dimension as **4m x 2m**

Plan area = $8m^2$

Allow free board of 0.5m

Total depth of tank = 2+0.5

= 2.5m

Therfore,

Size is **4m x 2m x 2.5m**

QUANTITY ESTIMATION

LIG

S.N.o	Description about items	No	L	B	D	Qty

GROUND FLOOR

1 Earthwork excavation for foundation in all type of soils except hard rock with the initial lead of 10m and lift of 2m including the cost of refiling the sides etc. complete.

Alround	1 X	1	26.66	0.90	1.52	36.47
Long wal	1 X	1	4.21	0.90	1.52	5.76
Cross wall	1 X	1	4.05	0.90	1.52	5.54
Cross wall	1 X	1	2.38	0.90	1.52	3.26
					Net qty	**51.03** /cum

2 Supplying and laying the base with plain c.c 1:4:8, using 40mm size HGB jelly including the cost and conveyance of all materials to site etc. complete.

Alround	1 X	1	26.66	0.90	0.30	7.20
Long wal	1 X	1	4.21	0.90	0.30	1.14
Cross wall	1 X	1	4.05	0.90	0.30	1.09
Cross wall	1 X	1	2.38	0.90	0.30	0.64
					Net qty	**10.07** /cum

3 Construction of foundation and basement footings with r.r masonry in c.m 1:7, including thecost and conveyance of all materials to site etc. complete.

For footing :

For I'st footing;

Alround	1 X	1	26.66	0.60	0.61	9.76
Long wal	1 X	1	4.51	0.60	0.61	1.65
Cross wall	1 X	1	4.35	0.60	0.61	1.59
Cross wall	1 X	1	2.68	0.60	0.61	0.98

For II'st footing;

Alround	1 X	1	26.66	0.45	0.61	7.32
Long wal	1 X	1	4.66	0.45	0.61	1.28
Cross wall	1 X	1	4.50	0.45	0.61	1.24
Cross wall	1 X	1	2.83	0.45	0.61	0.78

Basement;

Alround	1 X	1	26.66	0.38	0.60	6.08
Long wal	1 X	1	4.73	0.38	0.60	1.08
Cross wall	1 X	1	4.57	0.38	0.60	1.04
Cross wall	1 X	1	2.90	0.38	0.60	0.66
					Net qty	**33.45** /cum

4 Supplying and errection of centring for soffits of r.c.c work for plain surface strutting upto requires height.

For lintel:-

MD - Door	1 X	1	1.30	--------	0.53	0.69
D - Door	1 X	2	1.20	--------	0.53	1.27
				50		
D2 - Door	1 X	2	1.05	--------	0.53	1.11
O - Open	1 X	1	1.30	--------	0.53	0.69

For sunshade

W - Windov	1 X	1	1.82	0.45	------	0.82
W1 - Windov	1 X	4	1.52	0.45	------	2.74
W2 - Windov	1 X	1	1.20	0.45	------	0.54

For roof beam

Alround	1 X	1	5.18	8.61	------	44.60
					Net qty	**52.46** /sqm

5 Supplying and laying the r.c.c items with in c.c 1:11/2:3, using 20mm size of HGB jelly including cost of all materials at site but excluding cost of steel

For lintel:-

MD - Door	1 X	1	1.30	0.23	0.15	0.20
D - Door	1 X	2	1.20	0.23	0.15	0.36
D2 - Door	1 X	2	1.05	0.23	0.15	0.32

S.N.o	Description about items	No		L	B	D	Qty
	For sunshade						
	W - Windov	1 X	1	1.82	0.45	0.08	0.07
	W1 - Windov	1 X	4	1.52	0.45	0.08	0.22
	W2 - Windov	1 X	1	1.20	0.45	0.08	0.04
	For roof beam						
	Alround	1 X	1	5.18	8.61	0.12	5.35
						Net qty	**6.55** /cum

6 Supplying and placing of steel reinforcement including cost of steel fabrication charges etc. complete.

5% wt of concrete

0.05 x 2400 x 6.74 808.8 kg 1.00 40000

7 Construction of superstructure with brick work in c.m 1:5, using chamber brick including the cost and conveyance of all materilas to site, labour, scaffolding charges etc. complete.

Alround	1 X	1	26.66	0.23	3.95	24.22
Long wal	1 X	1	4.88	0.23	3.05	3.42
Cross wall	1 X	1	4.72	0.23	3.05	3.31
Cross wall	1 X	1	3.05	0.23	3.05	2.14
Cross wall	1 X	2	1.45	0.11	3.05	0.97
					Net qty	**34.07**

Dedution for doors & windows:

MD - Door	1 X	1	1.00	0.23	2.10	0.48
D - Door	1 X	2	0.90	0.23	2.10	0.87
O - Open	1 X	1	0.90	0.23	2.10	0.43
D2 - Door	1 X	2	0.75	0.23	2.10	0.72
W - Window	1 X	1	1.52	0.23	1.22	0.43
W1 - Windov	1 X	4	1.22	0.23	1.22	1.37
V : Ventilatc	1 X	2	0.60	0.23	0.45	0.12
					Net qty	**29.64** /cum

8 Supplying and filling the basement with outside sand including cost and conveyance charges consolidation etc. complete.

Hall	1 X	1	2.90	4.73	0.45	6.17
Bed	1 X	1	2.36	2.90	0.45	3.08
Kitchen	1 X	1	1.83	2.90	0.45	2.39
Pooja & Toil	1 X	2	1.30	1.68	0.45	1.97
Passage	1 X	1	1.30	0.90	0.45	0.53
					Net qty	**14.13** /cum

9 Flooring with plain c.c. 1:4:8, 10 cm thick using 40mm size of HGB jelly including cost and conveyance of all materials to site etc. complete

Hall	1 X	1	2.9	4.73	0.10	1.37
Bed	1 X	1	2.36	2.90	0.10	0.68
Kitchen	1 X	1	1.83	2.90	0.10	0.53
Pooja & Toil	1 X	2	1.30	1.68	0.10	0.44
Passage	1 X	1	1.30	0.90	0.10	0.12
					Net qty	**3.14** /cum

10 Supplying and fixing best quality of country wood scantling wrought and Putup frames for doors and windows including cost of fixing materials, grills etc. complete

MD - Door	1 X	1	6.20	0.10	0.08	0.05
D - Door	1 X	2	6.00	0.10	0.08	0.10
D2 - Door	1 X	2	5.70	0.10	0.08	0.09

W - Windov	1 X	1	5.48	0.10	0.08	0.04
W1 - Windo\	1 X	4	4.88	0.10	0.08	0.16
V : Ventilatc	1 X	2	2.10	0.10	0.08	0.03
					Net qty	**0.47** /cum

11 Supplying and fixing best quality of country wood fully panelled doors and windows with all necessary accessories such as tower bolts, hooks, padlocks heldcasts wind appliances etc. including cost and conveyance of all materia complete as per standard specification.

MD - Door	1 X	1	0.84	-------	1.94	1.63
D - Door	1 X	2	0.74	-------	1.94	2.87
D2 - Door	1 X	2	0.59	-------	1.94	2.29

S.N.c	Description about items	No		L	B	D	Qty
	W1 - Windo\	1 X	4	1.06	-------	1.06	4.49
	V : Ventilatc	1 X	2	0.44	-------	0.29	0.26
						Net qty	**11.54** /cum

11 Plastering the walls with c.m. 1:5, 12 mm thick, including cost of labour and all materials to site etc. complete.

Outside:-

Alround	1 X	1	26.66	--------	3.95	105.31

Inside:

Hall	1 X	1	15.86	--------	3.05	48.37
Bed	1 X	1	11.12	--------	3.05	33.92
Kitchen	1 X	1	10.06	--------	3.05	30.68
Pooja & Toil	1 X	2	6.56	--------	3.05	40.02

Passage	1 X	1	4.88	--------	3.05	14.88
					Net qty	**273.18**

Dedution for doors & windows:

MD - Door	2 X	1	1.00	--------	2.10	4.20
D - Door	2 X	2	0.90	--------	2.10	7.56
O - Open	2 X	1	0.90	--------	2.10	3.78
D2 - Door	2 X	2	0.75	--------	2.10	6.30
W - Window	2 X	1	1.52	--------	1.22	3.71
W1 - Windov	2 X	4	1.22	--------	1.22	11.91
V : Ventilatc	2 X	2	0.60	--------	0.45	1.08
					Net qty	**234.64** /cum

14 Floor finish with one course of tiles, including cost of materials at site cost of laying & polishing etc. complete.

Hall	1 X	1	3.05	4.88	------	14.88
Bed	1 X	1	2.51	3.05	------	7.66
Kitchen	1 X	1	1.98	3.05	------	6.04
Pooja & Toil	1 X	2	1.45	1.83	------	5.31
Passage	1 X	1	1.45	0.99	------	1.44
					Net qty	**35.32** /cum

15 Ceiling finish with c.m. 1:3, 12 mm thick including cost of all materials at site etc. complete.

As per item no 14 net area 52.27 /sqm

16 Weathering coat with brick jelly in lime mortar including cost of all materials to site etc. complete etc. complete.

Alround	1 X	1	4.72	8.15	-------	38.47 /sqm

17 Top of terrace finish with pressed tiles, including cost of all materials to site, labour charges etc. complete.

Alround	1 X	1	4.72	8.15	-------	38.47 /sqm

18 Painting two coats over primer for doors and windows using best quality of approved paint including cost of brushed etc. complete

MD - Door	2.25 X	1	1.00	--------	2.10	4.73
D - Door	2.25 X	2	0.90	--------	2.10	8.51
O - Open	2.25 X	1	0.90	--------	2.10	4.25
D2 - Door	2.25 X	2	0.75	--------	2.10	7.09
W - Window	2.25 X	1	1.52	--------	1.22	4.17
W1 - Windov	2.25 X	4	1.22	--------	1.22	13.40
V : Ventilato	2.25 X	2	0.60	--------	0.45	1.22
					Net qty	**43.35** /cum

19 Color washing the plastered surface with two coats using best quality of shell lime including all costs etc. complete.

As per item no 13	net area	58.22 /sqm

MIG

S.No	Item of work	Nos	Length	Breadth	Depth	Quantity	
1	**Earth work Excavation for foundation in all soil except hard rock.**						
	Alround	1x1	45.64	0.9	1.52	62.44	
	Long wall	1x1	1.3	0.9	1.52	1.78	
	Cross wall	1x2	5.65	0.9	1.52	15.45	
	Cross wall	1x3	2.38	0.9	1.52	9.76	
	Pillar	1x2	0.9	0.9	1.52	2.46	
				Net qty		**91.88**	Cum
2	**Base with p.c.c.1:4:8**						
	Alround	1	45.64	0.9	0.3	12.32	
	Long wall	1	10.3	0.9	0.3	2.78	
	Cross wall	2	5.65	0.9	0.3	3.05	
	Cross wall	3	2.38	0.9	0.3	1.93	
	Pillar	2	0.9	0.9	0.3	0.49	
				Net qty		**20.57**	Cum
3	**centring charges**						
	For pillar footing:						
	For Pillar	2	3.60	-----	0.23	1.66	
	II'nd footing	2	2.40	----	0.23	1.10	
	Pillar						
	Pillar	2	3.14	0.3	---	1.88	
	For Lintel						
	D : Main door	1	1.52		0.53	0.81	
	Ao: Arch open	2	1.52		0.53	1.61	
	D : Door	6	1.2		0.53	3.82	
	D2: Door	2	1.05		0.53	1.11	
	D2: Door	2	1.04		0.44	0.92	
	W:Window	2	1.82		0.53	1.93	
	W1:Window	5	1.52		0.53	4.03	
	W2:Window	2	1.22		0.53	1.29	
	V :Ventilator	3	1.05		0.53	1.67	

For sunshade:						
W : Window	1	1.82	0.45	--	0.819	
W1: Window	4	1.52	0.45		2.736	
W2: Window	2	1.22	0.45		1.098	
For foor slab:						
Alround	1	10.06	13.22		132.99	
Portico	1	6.55	5.18		33.93	
			Net qty		**193.4**	cum

5 Supplying and laying of concrete

For pillar footing;					
I'st footing					
Pillar	2	0.90	0.9	0.23	0.37
II'nd footng					
Pillar	2	0.60	0.6	0.23	0.17
Pillar					
Pillar	2	3.14	0.3	3.81	7.18
For Lintel:					
MD : Main door	1	1.52	0.23	0.15	0.05
AO: Arch open	2	1.52	0.23	0.15	0.10
D : Door	6	1.22	0.23	0.15	0.25
W :Window	4	1.05	0.23	0.15	0.14
W1:Window	5	1.82	0.23	0.15	0.31
W2:Windwo	2	1.52	0.23	0.15	0.10
V :Ventilator	3	1.05	0.23	0.15	0.11
For roof slab:					
Alround	1	10.06	13.22	0.12	15.96
Portico	1	6.55	5.18	0.12	4.07
			Net qty		**28.83**

6 Steel reinforcement

5%wt of concrete

0.05 x 2400x 28.83 =	3459.60 Kg				**3.45mt**	
7 Brick work in c.m 1:5						
Alround	1	45.64	0.23	3.95	41.46	
Longwall	1	11.44	0.23	3.05	8.03	
Crosswall	2.00	6.32	0.23	3.05	8.87	
Crosswall	3	3.05	0.23	3.05	6.42	
Partiton wall	2	3.05	0.11	3.05	2.05	
	1	1.83	0.11	3.05	0.61	
	1	1.22	0.11	3.05	0.41	
Deduction for doors & windows:						
MD : Main door	2	1	0.23	2.1	0.97	
OA : Arch open	2	1.22	0.23	2.1	1.18	
D : Door	5	0.9	0.23	2.1	2.17	
D : Door	1	0.9	0.23	2.1	0.43	
D2 : Door	2	0.75	0.23	2.1	0.72	
D2 : Door	2	0.75	0.11	2.1	0.35	
W : Window	2	1.52	0.23	1.22	0.85	
W : Window	5	1.22	0.23	1.22	1.71	
W2: Window	2	0.9	0.23	1.22	0.51	
V : Ventilator	3	0.75	0.23	0.45	0.23	
			Net qty		**58.73**	Cum
8 Earth filling						
Portcio	1	6.55	5.1	0.45	15.03	
Hall	1	6.17	4.73	0.45	13.13	
Dining& Bed	2	4.73	2.9	0.45	12.35	
Kitchen&Beds	3	2.90	2.9	0.45	11.35	
Sitout	1	1.68	1.53	0.45	1.16	
Pooja	1	1.68	1.11	0.45	0.84	
Toilet	1	1.07	1.53	0.45	0.74	
Dress	1	1.07	1.11	0.45	0.53	
Toilet&Passage	1	2.90	1.07	0.45	1.40	
Sitout	1	1.45	3.05	0.45	1.99	
			Net qty		**58.51**	Cum
9 Flooring with p.c.c.1;4:8						
Portcio	1	6.55	5.1	0.1	3.34	
Hall	1	6.17	4.73	0.1	2.92	
Dining& Bed	2	4.73	2.9	0.1	2.74	
Kitchen&Beds	3	2.90	2.9	0.1	2.52	
Sitout	1	1.68	1.53	0.1	0.26	

Pooja	1	1.68	1.11	0.1	0.19	
Toilet	1	1.07	1.53	0.1	0.16	
Dress	1	1.07	1.11	0.1	0.12	
Toilet&Passage	1	2.90	1.07	0.1	0.31	
Sitout	1	1.45	3.05	0.1	0.44	
			Net qty		**13.00**	Cum

10 Frames of Doors & windows

MD : Main door	1	6.2	0.1	0.08	0.05	
D : Door	6	6	0.1	0.08	0.29	
D2 : Door	4	5.7	0.1	0.08	0.18	
W : Window	2	5.48	0.1	0.08	0.88	
W : Window	5	4.88	0.1	0.08	1.95	
W2 : Window	2	4.24	0.1	0.08	0.68	
		Net qty			**4.60**	Cum

11 Shutters of doors & windows

MD : Main door	1	0.84	----	1.94	1.6296	
D : Door	6	0.74	----	1.94	8.6136	
D2 : Door	4	0.59	----	1.94	4.5784	
W : Window	2	1.36	-----	1.06	2.8832	
W1 : Window	5	1.06	----	1.06	5.618	
W2 : Window	2	0.74	----	1.06	1.5688	
V :Ventilator	3	0.59	---	0.29	0.5133	
		Net qty			**25.40**	Sqm

12 Plastering with c.m1:5

Outside:					
Alround	1	45.64	---	3.05	139.20
Inside:					
Hall	1	22.40	----	3.05	68.32
Dining&Bed	2	15.86	----	3.05	96.75
Kitchen& Beds	3	12.20	----	3.05	111.63
Store	1	7.02	----	3.05	21.41
Pooja	1	6.18	----	3.05	18.85
Toilet	1	5.8	----	3.05	17.69
					473.85
Deduction for doors & windows:					
MD :Main door	2	1.00	----	2.1	4.20
D : Door	12	0.90	----	2.1	22.68
OA :Open arch	8	1.00	----	2.1	16.80

D2 : Door	4	0.75	----	2.1	6.30	
W : Window	4	1.52	----	1.22	7.42	
W1 : Window	10	1.22	---	1.22	14.88	
W2 : Window	4	0.9	---	1.22	4.39	
V : Ventilator	6	0.75	----	0.45	2.03	
		Net qty			**395.15**	Sqm

13 Floor finish with tiles

Portico	1	6.55	5.18	----	33.929	
Hall	1	6.32	4.88	---	30.842	
Dining & Bed	2	4.88	3.05	----	29.768	
Kitchen & beds	3	3.05	3.05	----	27.908	
Sitout	1	1.45	3.05	----	4.4225	
Store	1	1.83	1.68	---	3.0744	
Pooja	1	1.83	1.26	----	2.3058	
Toilet	1	1.22	1.68	----	2.0496	
Passage	1	1.22	1.26	----	1.5372	
Toilet & Dress	1	3.05	1.22	----	3.721	
		Net qty			**139.56**	Sqm

14 Ceiling finish with c.m 1:3

As per item no :13	net qty				**139.56**	Sqm

15 Weathering coat

Alround	1	9.6	12.76	0.1	**12.25**	Cum

16 Top terrace finish with pressed tiles

Alround	1	9.6	12.76	----	**122.5**	**Sqm**

17 Colour washing

As per item no :12					**395.15**	**Sqm**

18 Painting for doors & windows

MD : Main door	2.25x2	1	----	2.1	4.72	
D : Door	2.25x6	0.9	----	2.1	25.51	
D2 : Door	2.25x2	0.75	----	2.1	7.08	
W : Window	2.25x2	1.52	---	1.22	8.34	
W1 : Window	2.25x4	1.22	---	1.22	16.74	
W2 : Window	2.25x2	0.9	---	1.22	4.94	
V : Ventiltor	2.25x2	0.75	---	0.45	2.27	
		Neq qty			**69.6**	**Sqm**

HIG

S.No	Item of work	Nos	Length	Breadth	Depth	Quantity	
1	**Earth work Excavation for foundation in all soil except hard rock.**						
	Alround	1x1	45.64	0.9	1.52	62.44	
	Long wall	1x1	1.3	0.9	1.52	1.78	
	Cross wall	1x2	5.65	0.9	1.52	15.45	
	Cross wall	1x3	2.38	0.9	1.52	9.76	
	Pillar	1x2	0.9	0.9	1.52	2.46	
				Net qty		**91.88**	Cum
2	**Base with p.c.c.1:4:8**						
	Alround	1	45.64	0.9	0.3	12.32	
	Long wall	1	10.3	0.9	0.3	2.78	
	Cross wall	2	5.65	0.9	0.3	3.05	
	Cross wall	3	2.38	0.9	0.3	1.93	
	Pillar	2	0.9	0.9	0.3	0.49	
				Net qty		**20.57**	Cum
3	**centring charges**						
	For pillar footing:						
	For Pillar	2	3.60	-----	0.23	1.66	
	II'nd footing	2	2.40	----	0.23	1.10	
	Pillar						
	Pillar	2	3.14	0.3	---	1.88	
	For Lintel						
	D : Main door	1	1.52		0.53	0.81	
	Ao: Arch open	2	1.52		0.53	1.61	
	D : Door	6	1.2		0.53	3.82	
	D2: Door	2	1.05		0.53	1.11	
	D2: Door	2	1.04		0.44	0.92	
	W:Window	2	1.82		0.53	1.93	
	W1:Window	5	1.52		0.53	4.03	
	W2:Window	2	1.22		0.53	1.29	
	V :Ventilator	3	1.05		0.53	1.67	

For sunshade:						
W : Window	1	1.82	0.45	--	0.819	
W1: Window	4	1.52	0.45		2.736	
W2: Window	2	1.22	0.45		1.098	
For foor slab:						
Alround	1	10.06	13.22		132.99	
Portico	1	6.55	5.18		33.93	
			Net qty		**193.4**	cum

5 Supplying and laying of concrete

For pillar footing;						
I'st footing						
Pillar	2	0.90	0.9	0.23	0.37	
II'nd footng						
Pillar	2	0.60	0.6	0.23	0.17	
Pillar						
Pillar	2	3.14	0.3	3.81	7.18	
For Lintel:						
MD : Main door	1	1.52	0.23	0.15	0.05	
AO: Arch open	2	1.52	0.23	0.15	0.10	
D : Door	6	1.22	0.23	0.15	0.25	
W :Window	4	1.05	0.23	0.15	0.14	
W1:Window	5	1.82	0.23	0.15	0.31	
W2:Windwo	2	1.52	0.23	0.15	0.10	
V :Ventilator	3	1.05	0.23	0.15	0.11	
For roof slab:						
Alround	1	10.06	13.22	0.12	15.96	
Portico	1	6.55	5.18	0.12	4.07	
			Net qty		**28.83**	

6 Steel reinforcement

5%wt of concrete

0.05 x 2400x 28.83 =	3459.60 Kg				**3.45mt**	
7 Brick work in c.m 1:5						
Alround	1	45.64	0.23	3.95	41.46	
Longwall	1	11.44	0.23	3.05	8.03	
Crosswall	2.00	6.32	0.23	3.05	8.87	
Crosswall	3	3.05	0.23	3.05	6.42	
Partiton wall	2	3.05	0.11	3.05	2.05	
	1	1.83	0.11	3.05	0.61	
	1	1.22	0.11	3.05	0.41	
Deduction for doors & windows:						
MD : Main door	2	1	0.23	2.1	0.97	
OA : Arch open	2	1.22	0.23	2.1	1.18	
D : Door	5	0.9	0.23	2.1	2.17	
D : Door	1	0.9	0.23	2.1	0.43	
D2 : Door	2	0.75	0.23	2.1	0.72	
D2 : Door	2	0.75	0.11	2.1	0.35	
W : Window	2	1.52	0.23	1.22	0.85	
W : Window	5	1.22	0.23	1.22	1.71	
W2: Window	2	0.9	0.23	1.22	0.51	
V : Ventilator	3	0.75	0.23	0.45	0.23	
			Net qty		**58.73**	Cum
8 Earth filling						
Portcio	1	6.55	5.1	0.45	15.03	
Hall	1	6.17	4.73	0.45	13.13	
Dining& Bed	2	4.73	2.9	0.45	12.35	
Kitchen&Beds	3	2.90	2.9	0.45	11.35	
Sitout	1	1.68	1.53	0.45	1.16	
Pooja	1	1.68	1.11	0.45	0.84	
Toilet	1	1.07	1.53	0.45	0.74	
Dress	1	1.07	1.11	0.45	0.53	
Toilet&Passage	1	2.90	1.07	0.45	1.40	
Sitout	1	1.45	3.05	0.45	1.99	
			Net qty		**58.51**	Cum
9 Flooring with p.c.c.1;4:8						
Portcio	1	6.55	5.1	0.1	3.34	
Hall	1	6.17	4.73	0.1	2.92	
Dining& Bed	2	4.73	2.9	0.1	2.74	
Kitchen&Beds	3	2.90	2.9	0.1	2.52	
Sitout	1	1.68	1.53	0.1	0.26	

Pooja	1	1.68	1.11	0.1	0.19	
Toilet	1	1.07	1.53	0.1	0.16	
Dress	1	1.07	1.11	0.1	0.12	
Toilet&Passage	1	2.90	1.07	0.1	0.31	
Sitout	1	1.45	3.05	0.1	0.44	
			Net qty		**13.00**	Cum

10 Frames of Doors & windows

MD : Main door	1	6.2	0.1	0.08	0.05	
D : Door	6	6	0.1	0.08	0.29	
D2 : Door	4	5.7	0.1	0.08	0.18	
W : Window	2	5.48	0.1	0.08	0.88	
W : Window	5	4.88	0.1	0.08	1.95	
W2 : Window	2	4.24	0.1	0.08	0.68	
		Net qty			**4.60**	Cum

11 Shutters of doors & windows

MD : Main door	1	0.84	----	1.94	1.6296	
D : Door	6	0.74	----	1.94	8.6136	
D2 : Door	4	0.59	----	1.94	4.5784	
W : Window	2	1.36	-----	1.06	2.8832	
W1 : Window	5	1.06	----	1.06	5.618	
W2 : Window	2	0.74	----	1.06	1.5688	
V :Ventilator	3	0.59	---	0.29	0.5133	
		Net qty			**25.40**	Sqm

12 Plastering with c.m1:5

Outside:					
Alround	1	45.64	---	3.05	139.20
Inside:					
Hall	1	22.40	----	3.05	68.32
Dining&Bed	2	15.86	----	3.05	96.75
Kitchen& Beds	3	12.20	----	3.05	111.63
Store	1	7.02	----	3.05	21.41
Pooja	1	6.18	----	3.05	18.85
Toilet	1	5.8	----	3.05	17.69
					473.85
Deduction for doors & windows:					
MD :Main door	2	1.00	----	2.1	4.20
D : Door	12	0.90	----	2.1	22.68
OA :Open arch	8	1.00	----	2.1	16.80

D2 : Door	4	0.75	----	2.1	6.30	
W : Window	4	1.52	----	1.22	7.42	
W1 : Window	10	1.22	---	1.22	14.88	
W2 : Window	4	0.9	---	1.22	4.39	
V : Ventilator	6	0.75	----	0.45	2.03	
	Net qty				**395.15**	Sqm
13 Floor finish with tiles						
Portico	1	6.55	5.18	----	33.929	
Hall	1	6.32	4.88	---	30.842	
Dining & Bed	2	4.88	3.05	----	29.768	
Kitchen & beds	3	3.05	3.05	----	27.908	
Sitout	1	1.45	3.05	----	4.4225	
Store	1	1.83	1.68	---	3.0744	
Pooja	1	1.83	1.26	----	2.3058	
Toilet	1	1.22	1.68	----	2.0496	
Passage	1	1.22	1.26	----	1.5372	
Toilet & Dress	1	3.05	1.22	----	3.721	
	Net qty				**139.56**	Sqm
14 Ceiling finish with c.m 1:3						
As per item no :13	net qty				**139.56**	Sqm
15 Weathering coat						
Alround	1	9.6	12.76	0.1	**12.25**	Cum
16 Top terrace finish with pressed tiles						
Alround	1	9.6	12.76	----	**122.5**	**Sqm**
17 Colour washing						
As per item no :12					**395.15**	**Sqm**
18 Painting for doors & windows						
MD : Main door	2.25x	1	----	2.1	4.72	
D : Door	2.25x	0.9	----	2.1	25.51	
D2 : Door	2.25x	0.75	----	2.1	7.08	
W : Window	2.25x	1.52	---	1.22	8.34	
W1 : Window	2.25x	1.22	---	1.22	16.74	
W2 : Window	2.25x	0.9	---	1.22	4.94	
V : Ventiltor	2.25x	0.75	---	0.45	2.27	
	Neq qty				**69.6**	**Sqm**

HIG

GROUND FLOOR

S.N.o	Description about items	No	L	B	D	Qty
1	Earthwork excavation for foundation in all type of soils except hard rock with the initial lead of 10m and lift of 2m including the cost of refiling the sides etc. complete.					

Alround	1 X	1	37.62	0.90	1.22	41.31
Long wal	1 X	1	9.53	0.90	1.22	10.46
Cross wall	1 X	1	4.21	0.90	1.22	4.62
Cross wall	1 X	2	2.38	0.90	1.22	5.23
Cross wall	1 X	1	4.09	0.90	1.22	4.49
					Net qty	**61.62** /cum

2 Supplying and laying the base with plain c.c 1:4:8, using 40mm size HGB jelly including the cost and conveyance of all materials to site etc. complete.

Alround	1 X	1	37.62	0.90	0.15	5.08
Long wal	1 X	1	9.53	0.90	0.15	1.29
Cross wall	1 X	1	4.21	0.90	0.15	0.57
Cross wall	1 X	2	2.38	0.90	0.15	0.64
Cross wall	1 X	1	4.09	0.90	0.15	0.55
					Net qty	**7.58** /cum

3 Construction of foundation and basement footings with r.r masonry in c.m 1:7, including thecost and conveyance of all materials to site etc. complete.

For footing :

For I'st footing;

Alround	1 X	1	37.62	0.60	0.61	13.77
Long wal	1 X	1	9.83	0.60	0.61	3.60
Cross wall	1 X	1	4.51	0.60	0.61	1.65
Cross wall	1 X	2	2.68	0.60	0.61	1.96
Cross wall	1 X	1	4.39	0.60	0.61	1.61

For II'st footing;

Alround	1 X	1	37.62	0.45	0.61	10.33
Long wal	1 X	1	9.98	0.45	0.61	2.74
Cross wall	1 X	1	4.66	0.45	0.61	1.28
Cross wall	1 X	2	2.83	0.45	0.61	1.55
Cross wall	1 X	1	4.54	0.45	0.61	1.25

Basement;

Alround	1 X	1	37.62	0.38	0.46	6.58
Long wal	1 X	1	10.05	0.38	0.46	1.76
Cross wall	1 X	1	4.73	0.38	0.46	0.83
Cross wall	1 X	2	2.90	0.38	0.46	1.01
Cross wall	1 X	1	4.61	0.38	0.46	0.81
					Net qty	**49.90** /cum

4 Supplying and errection of centring for soffits of r.c.c work for plain surface strutting upto requires height.

For Lintel

MD - Door	1 X	4	1.30	------	0.53	2.76
D2 - Door	1 X	2	1.05	------	0.53	1.11
W - Window	1 X	2	1.67	------	0.53	1.77
W1 - Windov	1 X	7	1.52	------	0.53	5.64
V : Ventilatc	1 X	2	1.05	------	0.53	1.11

For sunshade

W - Windov	1 X	1	1.67	0.45	------	0.75
W1 - Windov	1 X	6	1.52	0.45	------	4.10

For roof beam

Alround	1 X	1	10.66	8.61	------	91.78
	1 X	1	7.01	3.05	------	21.38
					Net qty	**130.41** /sqm

5 Supplying and laying the r.c.c items with in c.c 1:11/2:3, using 20mm size of HGB jelly including cost of all materials at site but excluding cost of steel

For lintel:-

S.N.(	Description about items	No		L	B	D	Qty
	D2 - Door	1 X	2	1.05	0.23	0.15	0.07
	W - Windov	1 X	2	1.67	0.23	0.15	0.12
	W1 - Windov	1 X	7	1.52	0.23	0.15	0.37
	V : Ventilatc	1 X	2	1.05	0.23	0.15	0.07
	For sunshade						
	W - Windov	1 X	1	1.67	0.45	0.08	0.06
	W1 - Windov	1 X	6	1.52	0.45	0.08	0.33
	For roof beam						
	Alround	1 X	1	10.66	8.61	0.12	11.01 /cum
		1 X	1	7.01	3.05	0.12	2.57
						Net qty	**14.60**

6 Supplying and placing of steel reinforcement including cost of steel fabrication charges etc. complete.

5% wt of concrete			
0.05 x 2400 x 14.77	1772.4 kg	1.50	40000

7 Construction of superstructure with brick work in c.m 1:5, using chamber brick including the cost and conveyance of all materilas to site, labour, scaffolding charges etc. complete.

Alround	1 X	1	37.62	0.23	3.95	34.18
Long wal	1 X	1	10.2	0.23	3.05	7.16
Cross wall	1 X	1	4.88	0.23	3.05	3.42
Cross wall	1 X	2	3.05	0.23	3.05	4.28
Cross wall	1 X	1	4.76	0.23	3.05	3.34
					Net qty	**52.37**

Dedution for doors & windows:

D - Door	1 X	4	1.00	0.23	2.10	1.93
D2 - Door	1 X	2	0.75	0.23	2.10	0.72

W - Windov	1 X	2	1.22	0.23	1.22	0.68
W1 - Windov	1 X	7	1.37	0.23	1.22	2.69
V : Ventilatc	1 X	2	0.90	0.23	0.60	0.25
					Net qty	**46.09** /cum

8 Supplying and filling the basement with outside earth including cost and conveyance charges consolidation etc. complete.

Kitchen	1 X	1	2.28	2.90	0.45	2.98
Dining	1 X	1	2.23	2.90	0.45	2.91
Bed	1 X	1	4.72	2.90	0.45	6.16
Hall	1 X	1	4.94	4.72	0.45	10.49
Bed	1 X	1	2.89	2.89	0.45	3.76
Toilet	1 X	1	1.44	1.67	0.45	1.08
Toilet	1 X	1	1.51	1.44	0.45	0.98
Portico	1 X	1	6.85	2.89	0.45	8.91
Stair	1 X	1	2.89	1.82	0.45	2.37
					Net qty	**39.63** /cum

9 Flooring with plain c.c. 1:4:8, 10 cm thick using 40mm size of HGB jelly including cost and conveyance of all materials to site etc. complete

Kitchen	1 X	1	2.28	2.90	0.10	0.66
Dining	1 X	1	2.23	2.90	0.10	0.65
Bed	1 X	1	4.72	2.90	0.10	1.37
Hall	1 X	1	4.94	4.72	0.10	2.33
Bed	1 X	1	2.89	2.89	0.10	0.84
Toilet	1 X	1	1.44	1.67	0.10	0.24
Toilet	1 X	1	1.51	1.44	0.10	0.22
Portico	1 X	1	6.85	2.89	0.10	1.98
Stair	1 X	1	2.89	1.82	0.10	0.53
					Net qty	**8.81** /cum

10 Supplying and fixing best quality of country wood scantling wrought and putup frames for doors and windows including cost of fixing materials, grills etc. complete

D - Door	1 X	4	6.20	0.10	0.08	0.20
D2 - Door	1 X	2	5.70	0.10	0.08	0.09
W - Window	1 X	2	5.18	0.10	0.08	0.08
W1 - Windov	1 X	7	4.88	0.10	0.08	0.27
V : Ventilatc	1 X	2	3.00	0.10	0.08	0.05
					Net qty	**0.69** /cum

S.N.c	Description No about items		L	B	D	Qty
11	Supplying and fixing best quality of country wood fully panelled doors and windows with all necessary accessories such as tower bolts, hooks, padlocks heldcasts wind appliances etc. including cost and conveyance of all materia complete as per standard specification.					
	D - Door	1 X	4	0.84	-------	1.94	6.52
	D2 - Door	1 X	2	0.59	-------	1.94	2.29
	W - Window	1 X	2	1.06	-------	1.06	2.25
	W1 - Windov	1 X	7	1.21	-------	1.06	8.98
	V : Ventilatc	1 X	2	0.74	-------	0.44	0.65
						Net qty	**20.68** /cum
11	Plastering the walls with c.m. 1:5, 20 mm thick, including cost of labour and all materials to site etc. complete.						
	Outside:-						
	Alround	1 X	1	37.62	-------	3.95	148.60
	Inside:						
	Kitchen	1 X	1	10.98	2.90	0.10	3.18
	Dining	1 X	1	10.98	2.90	0.10	3.18
	Bed	1 X	1	15.86	2.90	0.10	4.60
	Hall	1 X	1	19.96	4.72	0.10	9.42

Bed	1 X	1	12.20	2.89	0.10	3.53
Toilet	1 X	1	7.00	1.67	0.10	1.17
Toilet	1 X	1	6.86	1.44	0.10	0.99
					Net qty	**174.67** /cum

Dedution for doors & windows:

D - Door	2 X	4	1.00	-------	2.10	16.80
D2 - Door	2 X	2	0.75	-------	2.10	6.30
W - Window	2 X	2	1.37	-------	1.22	6.69
W1 - Windov	2 X	7	1.22	-------	1.22	20.84
V : Ventilatc	2 X	2	0.90	-------	0.60	2.16
					Net qty	**121.89** /cum

12 Floor finish with one course of tiles, including cost of materials at site cost of laying & polishing etc. complete.

Kitchen	1 X	1	2.44	3.05	------	7.44
Dining	1 X	1	4.88	3.05	------	14.88
Bed	1 X	1	2.44	3.05	------	7.44
Hall	1 X	1	5.10	4.88	------	24.89
Bed	1 X	1	3.05	3.05	------	9.30
Toilet	1 X	1	1.67	1.60	------	2.67
Toilet	1 X	1	1.60	1.83	------	2.93
Portico	1 X	1	7.01	3.05	------	21.38
					Net qty	**69.56** /cum

13 Ceiling finish with c.m. 1:3, 12 mm thick including cost of all materials at site etc. complete.

As per item n 12 net area 69.56 /sqm

14 Color washing the plastered surface with two coats using best quality of shell lime including all costs etc. complete.

As per item no 12 net area 69.56 /sqm

15 Weathering coat with brick jelly in lime mortar including cost of

all materials to site etc. complete etc. complete.

Alround	1 X	1	10.20	8.15	0.10	8.31
Portico	1 X	1	7.01	3.05	0.10	2.14
					Net qty	**10.45** /cum

16 Top of terrace finish with pressed tiles, including cost of all materials to site, labour charges etc. complete.

Alround	1 X	1	10.20	8.15	-----	83.13
	1 X	1	7.01	3.05	-----	21.38
					Net qty	**104.51** /cum

S.N.o	Description about items	No	L	B	D	Qty

17 Painting two coats over primer for doors and windows using best quality of approved paint including cost of brushed etc. complete

D - Door	2.25 X	4	1.00	--------	2.10	18.90
D2 - Door	2.25 X	2	0.75	--------	2.10	7.09
W - Window	2.25 X	2	1.37	--------	1.22	7.52
W1 - Windov	2.25 X	7	1.22	--------	1.22	23.44
V	2.25 X	2	0.90	--------	0.60	2.43
					Net qty	**59.38** /sqm

HOSPITAL

S.N.o	Description about items	No		L	B	D	Qty

GROUND FLOOR

1 Earthwork excavation for foundation in all type of soils except hard rock with the initial lead of 10m and lift of 2m including the cost of refiling the sides etc. complete.

Pillar	1 X	29	1.52	1.83	2.44	196.83
Pillar	1 X	4	1.22	1.22	2.44	14.53

Plinth beam	1 X	1	46.85	0.45	0.6	12.65
Crosswall	1 X	1	92.81	0.45	0.6	25.06
Portico	1 x	2	0.9	0.90	2.44	3.95
					Net qty	**266.38** /cum

2 Supplying and laying the base with plain c.c 1:4:8, using 40mm size HGB jelly including the cost and conveyance of all materials to site etc. complete.

Pillar	1 x	32	1.52	1.83	0.15	13.35168
Pillar	1 x	4	1.22	1.22	0.15	0.89304
Portico all	1 X	2	0.9	0.90	0.15	0.24
Plinth beam	1 X	1	72.98	0.30	0.15	3.28
crossbeam	1 x	1	122.89	0.23	0.15	4.24
					Net qty	**22.01** /cum

3 Supplying and errection of centring for soffits of r.c.c work for plain surface strutting upto requires height.

For I'st footing						
Pillar	1 x	24	6.70	--------	0.23	36.98
Pillar	1 X	4	4.88	--------	0.23	4.49
Porticopillar	1 X	2	3.66	--------	0.23	1.68
II'ndfooting:						
Pillar	1 x	24	3.88	-------	0.23	21.42
Pillar	1 x	4	2.90	-------	0.23	2.67
Porticopillar	1 x	2	2.40	------	0.23	1.10
For Pillar						
Pillar	1 x	34	1.50	-----	5.78	294.78
Pillar	1 x	4	0.92	-----	5.78	21.2704
Porticopillar	1 x	2	3.14	0.30	5.78	10.88952
For Plinth beam						
Alround	1 x	1	72.98	-----	0.60	43.788
Cross beam	1 x	1	122.89	-----	0.60	73.734

For Lintel							
Alround	1 x	1	72.98	----		0.53	38.6794
Crosswall	1 x	1	103.06	-----		0.53	54.6218
For sunshade							
W:Window	1 x	1	2.13	0.45	-----		0.9585
W1:Window	1 x	9	1.82	0.45	----		7.371
W2:Window	1 x	2	1.2	0.45	----		1.08
For roof beam							
Alround	1 x	1	72.98	----		0.6	43.788
Crossbeam	1 x	1	122.89	----		0.6	73.734
For roof slab							
Alround	1 x	1	13.72	26.44	----		362.7568
Portico	1 x	1	6.1	3.05	----		18.605
					Net qty		**1114.40** /sqm

4 Supplying and laying the r.c.c items with in c.c 1:11/2:3, using 20mm size of HGB jelly including cost of all materials at site but excluding cost of steel

For I'st footing

Pillar	1 X	29	1.83	1.52	0.23	12.21
Pillar	1 x	4	1.22	1.22	0.23	1.12
Portico	1 X	2	3.14	0.30	0.23	1.44
II'nd footing						
Pillar	1 X	29	1.14	0.88	0.23	7.60
Pillar	1 x	4	0.73	0.73	0.23	0.67
						23.04

S.N.(	Description about items	No	L	B	D	Qty
	For pillar					

Pillar	1 x	29	0.45	0.23	5.18	15.55
Pillar	1 X	4	0.23	0.23	5.18	1.10
Portico pillar	1 X	2	3.14	0.30	5.78	10.89
For plinth beam						
Alround	1 X	1	72.98	0.23	0.30	5.04
Cross wall	1 x	1	103.06	0.23	0.3	7.11
ForLintel:						
Alround	1 x	1	72.98	0.23	0.15	2.52
Cross wall	1 x	1	103.06	0.23	0.15	3.56
For sunshade						
W :Window	1 x	1	2.17	0.45	0.08	0.08
W1:Window	1 x	9	1.82	0.45	0.08	0.59
W2:Window	1 x	2	1.2	0.45	0.08	0.09
For roof beam						
Alround	1 x	1	72.98	0.23	0.3	5.04
Cross beam	1 x	1	122.89	0.23	0.3	8.48
For roof slab						
Alround	1 x	1	13.72	26.44	0.12	43.53
Portio	1 x	1	6.1	3.05	0.12	2.23
					Net qty	**23.04** /cum

5 Supplying and placing of steel reinforcement including cost of steel fabrication charges etc. complete.
5% wt of concrete
0.05 x 2400 x 23.04 2764.80 kg 3.00 40000

6 Construction of superstructure with brick work in c.m 1:5, using chamber brick including the cost and conveyance of all

materilas to site, labour, scaffolding charges etc. complete.

Alround	1 X	1	72.98	0.23	3.95	66.30
Cross wall	1 X	1	98.81	0.23	3.35	76.13
Partiionwall	1 x	1	13.79	0.11	3.35	5.08
					Net qty	**147.52**

Dedution for doors & windows:

G -Gate	1 x	2	1.83	0.23	2.10	1.77
MD - Door	1 X	1	1.52	0.23	2.10	0.73
D - Door	1 X	5	1.00	0.23	2.10	2.42
D2 - Door	1 X	3	0.75	0.23	2.10	1.09
D - Door	1 X	1	0.75	0.11	2.10	0.17
W - Windov	1 X	1	1.83	0.23	1.22	0.51
W1 - Windov	1 X	11	1.52	0.23	1.22	4.69
W2-Window	1 X	2	0.90	0.23	1.22	0.51
V -Ventilat	1 X	6	0.75	0.23	0.45	0.47
V -Ventilat	1 X	4	1.22	0.23	0.60	0.67
					Net qty	**134.49** /cum

7 Supplying and filling the basement with outside sand including cost and conveyance charges consolidation etc. complete.

Portico	1 X	1	6.10	3.05	0.45	8.37
Consulting	1 X	1	4.88	3.05	0.45	6.70
Toilet	1 X	1	1.71	1.83	0.45	1.41
Treatment	1 X	1	3.05	2.81	0.45	3.86
	1 X	1	0.87	1.82	0.45	0.71
Icc	1 x	1	6.10	6.10	0.45	16.74
Seen	1 x	1	3.35	3.05	0.45	4.60
Toilet	1 x	1	2.44	1.41	0.45	1.55
Toilet	1 x	1	2.44	1.52	0.45	1.67
Room	1 x	1	6.10	3.05	0.45	8.37
Doctor	1 x	1	3.05	3.05	0.45	4.19
Toilet	1 x	1	1.71	1.83	0.45	1.41
Passage	1 x	1	1.82	1.11	0.45	0.91
Labour ward	1 x	1	4.88	3.05	0.45	6.70

Toilet	1 x	1	1.22	1.83	0.45	1.00
Passage	1 x	1	1.82	1.11	0.45	0.91

S.N.o	Description about items	No		L	B	D	Qty
	X-rays	1 x	1	4.88	3.05	0.45	6.70
	Labour ward	1 x	1	3.05	3.05	0.45	4.19
	Lift	1 x	1	1.60	2.44	0.45	1.76
	Emergenc	1 x	1	4.88	3.05	0.45	6.70
	Step	1 x	1	3.05	2.82	0.45	3.87
	Medical	1 x	1	3.05	3.35	0.45	4.60
	Waitinghall	1 x	1	4.88	6.32	0.45	13.88
	Passage &hal	1 x	1	1.83	5.71	0.45	4.70
		1 x	1	3.66	9.60	0.45	15.81
		1 x	1	1.22	3.05	0.45	1.67
		1 X	1	3.05	9.6	0.45	13.18
						Net qty	**77.05** /cum

8 Flooring with plain c.c. 1:4:8, 10 cm thick using 40mm size of HGB jelly including cost and conveyance of all materials to site etc. complete

Portico	1 X	1	6.10	3.05	0.1	1.86
Consulting	1 X	1	4.88	3.05	0.1	1.49
Toilet	1 X	1	1.71	1.83	0.1	0.31
Treatment	1 X	1	3.05	2.81	0.1	0.86
	1 X	1	0.87	1.82	0.1	0.16
Icc	1 x	1	6.10	6.10	0.1	3.72
Seen	1 x	1	3.35	3.05	0.1	1.02
Toilet	1 x	1	2.44	1.41	0.1	0.34
Toilet	1 x	1	2.44	1.52	0.1	0.37
Room	1 x	1	6.10	3.05	0.1	1.86

Doctor	1 x	1	3.05	3.05	0.1	0.93
Toilet	1 x	1	1.71	1.83	0.1	0.31
Passage	1 x	1	1.82	1.11	0.1	0.20
Labour ward	1 x	1	4.88	3.05	0.1	1.49
Toilet	1 x	1	1.22	1.83	0.1	0.22
Passage	1 x	1	1.82	1.11	0.1	0.20
X-rays	1 x	1	4.88	3.05	0.1	1.49
Labour ward	1 x	1	3.05	3.05	0.1	0.93
Lift	1 x	1	1.60	2.44	0.1	0.39
Emergenc	1 x	1	4.88	3.05	0.1	1.49
Step	1 x	1	3.05	2.82	0.1	0.86
Medical	1 x	1	3.05	3.35	0.1	1.02
Waitinghall	1 x	1	4.88	6.32	0.1	3.08
Passage &hal	1 x	1	1.83	5.71	0.1	1.04
	1 x	1	3.66	9.60	0.1	3.51
	1 x	1	1.22	3.05	0.1	0.37
	1 X	1	3.05	9.6	0.1	2.93
					Net qty	**19.55** /cum

9 Frames of Doors & windows

D :Door	1 x	15	6.2	0.1	0.08	0.744
D2:Door	1 x	4	5.7	0.1	0.08	0.1824
W :Window	1 x	1	6.1	0.1	0.08	0.0488
W1:Window	1 x	11	5.48	0.1	0.08	0.48224
W2:Window	1 x	2	4.24	0.1	0.08	0.06784
V :Ventilatc	1 x	6	2.4	0.1	0.08	0.1152
V :Ventilatc	1 x	4	3.64	0.1	0.08	0.11648
					Net qty	**1.75696** /cum

10 Shutters of doors & windows

D :Door	1 x	15	0.84	---	1.94	24.444
D2:Door	1 x	4	0.59	---	1.94	4.5784
W :Window	1 x	1	1.67	---	1.06	1.7702
W1:Window	1 x	11	1.36	---	1.06	15.8576
W2:Window	1 x	2	0.74	---	1.06	1.5688
V :Ventilat	1 x	6	0.59	----	0.29	1.0266

V	:Ventilat	1 x	4	1.06	----	0.44	1.8656
						Net qty	**3180.124** /sqm

11 Suppling &fixing of rolling shutters &collsible doors

G	:Gate	1 x	2 2nos	8000/each
RS	:Rolling	1 x	1 1nos	10000/each

12 Plastering the walls with c.m. 1:5, 12 mm thick, including cost of labour and all materials to site etc. complete.

Outside:-						
Alround	1 X	1	72.98	--------	3.95	288.27
Pillar	1 x	2	3.14	0.30	3.35	21.04

S.N.o	Description about items	No		L	B	D	Qty
	Consulting	1 X	4	15.86	----	3.35	212.52
	Toilet	1 x	2	7.08	----	3.35	47.44
	Treatment	1 X	1	3.64	----	3.35	12.19
	Icc	1 X	1	11.72	----	3.35	39.26
	Toilet	1 x	1	24.40	----	3.35	81.74
	Toilet	1 x	1	7.70	----	3.35	25.80
	Scan	1 x	1	7.92	----	3.35	26.53
	Room	1 x	1	12.80	----	3.35	42.88
	Doctor	1 x	2	33.20	----	3.35	222.44
	Toilet	1 x	1	6.10	----	3.35	20.44
	Toilet	1 x	1	7.32	----	3.35	24.52
	Lift	1 x	1	8.08	----	3.35	27.07
	Store	1 x	1	11.58	----	3.35	38.79
	Medical	1 x	1	12.80	----	3.35	42.88
	Wainting	1 x	1	22.40	----	3.35	75.04
	Room	1 x	1	15.70	----	3.35	52.60
	Waintinghall	1 x	1	21.35	----	3.35	71.52

Deduction fordoors&windows:

G:Gate	2 x	2	1.83	----	2.10	15.37
MD :Maindo	2 x	1	1.52	----	2.10	6.38
D :Door	2 x	15	1.00	---	2.10	63.00
D :Door	2 x	3	0.75	---	2.10	9.45
W :Window	2 x	1	1.83	---	1.22	4.47
W1:Window	2 x	11	1.52	---	1.22	40.80
W2 :Window	2 x	2	0.90	---	1.22	4.39
V :Ventilat	2 x	6	0.75	---	0.60	5.40
Rs:Rolling	2 x	1	1.52	---	2.10	6.38
V :Ventilat	2 x	4	1.22	---	0.45	4.39

Net qty **1533.00** /cum

13 Floor finish with tiles

Conculting	1 x	4	4.88	3.05	----	59.536
Toilet	1 x	2	1.71	1.83	---	6.2586
Treatment	1 x	1	3.05	2.81	---	8.5705
	1 x	1	1.71	0.87	---	1.4877
Icc	1 x	1	6.1	6.1	---	37.21
Scan	1 x	1	3.35	3.05	---	10.2175
Toilet	1 x	1	2.44	1.41	---	3.4404
Toilet	1 x	1	2.44	1.52	---	3.7088
Room	1 x	1	6.1	3.05	---	18.605
Doctor &Lab	1 x	1	3.05	3.05	---	9.3025
Toilet	1 x	1	1.71	1.11	---	1.8981
Toilet	1 x	1	1.22	1.83	---	2.2326
Toilet	1 x	1	1.83	1.83	---	3.3489
Ramb	1 x	1	3.05	9.6	---	29.28
Store	1 x	1	3.05	2.74	----	8.357
Medical	1 x	1	3.05	3.35	----	10.2175
Waiting/	1 x	1	4.88	6.32	---	30.8416
Portico	1 x	1	1.83	6.10	----	11.163
Passage	1 x	1	3.05	6.33	---	19.3065
Waiting/	1 x	1	6.1	3.05	---	18.605
	1 x	1	3.66	3.05	---	11.163

Net qty **304.7502** /sqm

14 Ceiling finish with c.m. 1:3, 12 mm thick including cost of all materials at site etc. complete.

As per item n 13 net area 304.75 /sqm

15 Colour washing

As per item n 12 net qty 1533 /sqm

16 Painting for doors & windows

G : Gate	2.25 x	2	1.83	----	2.10	17.2935
MD :Main dc	2.25 x	2	1.52	----	2.10	14.364
D :Door	2.25 x	15	1.00	----	2.10	70.875
D2: Door	2.25 x	3	0.75	----	2.10	10.63125
W : Window	2.25 x	1	1.83	----	1.22	5.02335
W2:Window	2.25 x	###	1.52	----	1.22	45.8964
V : Ventilat	2.25 x	6	0.75	----	0.45	4.55625
V : Ventilat	2.25 x	4	1.22	----	0.60	6.588
			Net qty			**175.2278** /Sqm

FIRST FLOOR

S.N.c	Description about items	No	L	B	D	Qty

1 Supplying and errection of centring for soffits of r.c.c. work for plain surface strutting upto required height.

For Pillar						
Pillar	1 X	24	1.50	-------	4.25	153.00
Pillar	1 X	4	0.92	-------	4.25	15.64
For lintel						
Alround	1 X	1	72.98	-------	0.53	38.68
Cross wall	1 X	1	103.06	-------	0.53	54.62
For sunshade						
W - Windov	1 X	5	2.13	0.45	-------	4.79
W1 - Windov	1 X	6	1.52	0.45	-------	4.10
For roof beam						
Cross wall al	1 X	1	122.89	-------	0.60	73.73
For roof slab						
	1 X	1	2.13	1.22	-------	2.60
					Net qty	**753.72** /sqm

2 Supplying and laying the r.c.c. with in c.c. 1:11/2:3, using 20mm size of HGB jelly including cost of all materials at site but excluding cost of steel

For Pillar						
Pillar	1 X	24	0.45	0.23	4.25	10.56
Pillar	1 X	4	0.23	0.23	4.25	0.90
For lintel						
Alround	1 X	1	72.98	0.23	0.15	2.52
Cross wall	1 X	1	103.66	0.23	0.15	3.58
For sunshade						
W - Windov	1 X	5	2.13	0.45	0.08	0.38
W1 - Windov	1 X	6	1.52	0.45	0.08	0.33

For roof beam						
Alround	1 X	1	72.98	0.23	0.30	5.04
Cross wall al	1 X	1	122.89	0.23	0.30	8.48
For roof slab						
Alround	1 X	1	13.72	26.44	0.12	43.53
	1 X	1	2.13	1.22	0.12	0.32
					Net qty	**75.63** /sqm

3 Supplying and placing of steel reinforcement including cost of steel fabrication charges etc. complete.

5% wt of concrete			
0.05 x 2400 x 75.63	9075.6 kg	1.00	40000

4 Construction of superstructure with brick work in c.m. 1:5, using country brick including the cost and conveyance of all materials to site , labours, scaffolding charges etc. complete.

Alround	1 X	1	72.98	0.23	4.10	68.82
Long wall	1 X	1	24.37	0.23	3.35	18.78
Cross wall al	1 X	1	74.10	0.23	3.35	57.09
Partion wall	1 X	1	24.39	0.11	3.35	8.99
						153.68

Dedution for doors & windows:

MD - Door	1 X	1	1.22	0.23	2.10	0.59
D - Door	1 X	12	0.90	0.23	2.10	5.22
D2 - Door	1 X	10	0.75	0.11	2.10	1.73
W - Windov	1 X	6	1.86	0.23	1.22	3.13
W1 - Windov	1 X	6	1.22	0.23	1.22	2.05
V - Ventila	1 X	16	0.90	0.23	0.45	1.49
V1 - Ventila	1 X	3	1.22	0.23	0.60	0.51
					Net qty	**138.96** /cum

S.N.o	Description about items	No		L	B	D	Qty
	materials grills etc. complete.						
	MD - Door	1 X	1	6.64	0.10	0.08	0.05
	D - Door	1 X	12	6.00	0.10	0.08	0.58
	D2 - Door	1 X	10	5.70	0.10	0.08	0.46
	W - Windov	1 X	6	6.10	0.10	0.08	0.29
	W1 - Windov	1 X	6	4.88	0.10	0.08	0.23
	V - Ventila	1 X	16	2.70	0.10	0.08	0.35
	V1 - Ventila	1 X	3	3.64	0.10	0.08	0.09
						Net qty	2.05 /cum
6	Supplying and fixing best quality of country wood fully panelled doors and windows with all necessary accessories such as tower bolts, hooks, padlocks heldcasts wind appliances etc. including cost and conveyance of all materia complete as per standard specification.						
	MD - Door	1 X	1	1.06	-------	1.94	2.06
	D - Door	1 X	12	0.74	-------	1.94	17.23
	D2 - Door	1 X	10	0.59	-------	1.94	11.45
	W - Windov	1 X	6	0.67	-------	1.06	4.26
	W1 - Windov	1 X	6	1.06	-------	1.06	6.74
	V - Ventila	1 X	16	0.74	-------	0.29	3.43
	V1 - Ventila	1 X	3	1.06	-------	0.44	1.40
						Net qty	46.57 /cum
7	Plastering the walls with c.m. 1:5, 20 mm thick, including cost of labour and all materials to site etc. complete.						
	Outside:-						
	Alround	1 X	1	72.98	-------	4.10	299.22
	Inside:						
	Room	1 X	6	15.62	-------	3.05	285.85
		1 X	1	3.76	-------	3.05	11.47

Toilet	1 X	7	6.10	--------	3.05	130.24
Operation	1 X	1	21.96	--------	3.05	66.98
Auto cave	1 X	1	11.58	--------	3.05	35.32
Doctor	1 X	1	12.80	--------	3.05	39.04
Toilet	1 X	1	6.46	--------	3.05	19.70
Passage	1 X	1	11.58	--------	3.05	35.32
Store	1 X	1	12.20	--------	3.05	37.21
Waiting	1 X	1	16.08	--------	3.05	49.04
Nurse room	1 X	1	10.98	--------	3.05	33.49
Room	1 X	1	13.41	--------	3.05	40.90
Room	1 X	1	15.86	--------	3.05	48.37
Toilet	1 X	1	7.54	--------	3.05	23.00
Toilet	1 X	1	7.30	--------	3.05	22.27
Room	1 X	1	19.52	--------	3.05	59.54
						1236.94

Dedution for doors & windows:

MD - Door	2 X	1	1.22	--------	2.10	5.12
D - Door	2 X	12	0.90	--------	2.10	45.36
D2 - Door	2 X	10	0.75	--------	2.10	31.50
W - Windov	2 X	6	1.86	--------	1.22	27.23
W1 - Windov	2 X	6	1.22	--------	1.22	17.86
V - Ventila	2 X	16	0.90	--------	0.45	12.96
V1 - Ventila	2 X	3	1.22	--------	0.60	4.39
					Net qty	**1092.51** /cum

8 Floor finish with cm 1:3, including cost of materials at site cost of laying & polishing etc. complete.

Room	1 X	6	4.76	--------	3.05	87.11
	1 X	1	1.33	--------	1.02	1.36
Operation	1 X	1	6.10	--------	4.88	29.77
Auto cave	1 X	1	3.05	--------	2.44	7.44
Doctor	1 X	1	3.35	--------	3.05	10.22
Toilet	1 X	1	1.52	--------	1.71	2.60
Passage	1 X	1	3.35	--------	2.44	8.17
Store	1 X	1	3.05	--------	3.05	9.30

Waiting	1 X	1	3.05	--------	7.78	23.73
Room	1 X	1	4.88	--------	3.05	14.88
Room	1 X	1	3.05	--------	7.92	24.16
Toilet	1 X	1	2.44	--------	1.33	3.25
Toilet	1 X	1	2.32	--------	1.33	3.09
Room	1 X	1	4.88	--------	4.88	23.81
						248.88

S.N.o	Description about items	No	L	B	D	Qty

9 Ceiling finish with c.m. 1:3, 12 mm thick including cost of all materials at site etc. complete.

As per item n 8 net area 232.866 /sqm

10 Colour washing

As per item n 7 net qty /sqm

11 Ceiling finish with c.m. 1:3, 12 mm thick including cost of all materials at site etc. complete.

As per item n 8 net area 232.866 /sqm

12 Top terrace finish with pressed tiles

Alround	1 x	1	13.26	25.98	----	344.4948 /Sqm

13 Painting for doors & windows

MD : Main	2.25 x	1	1.22	----	2.10	5.7645
D : Door	2.25 x	12	0.90	---	2.10	51.03
D2 : Door	2.25 x	10	0.75	---	2.10	35.4375
W : Window	2.25 x	16	1.83	---	1.22	80.3736
W1:Window	2.25 x	6	1.22	---	1.22	20.0934
V : Ventilat	2.25 x	16	0.9	---	0.45	14.58
V : Ventilat	2.25 x	3	1.22	---	0.60	4.941
				Net qty		**212.22** /Sqm

COST DETAILS

ITEM WISE RATES FOR STILT + 4 FLOORS

Basic Rates:

Cement	=	Rs.240/ bag
Steel	=	Rs.32000/ MT
Solid Block 16" X 8" X 8"	=	Rs.35/ Each
Solid Block 16" X 6" X 8"	=	Rs.30/ Each
Solid Block 16" X 6" X 4"	=	Rs.19/ Each
Brick	=	Rs.4.00/ Each
River Sand	=	Rs.17/ Cft
Stone Jelly 20mm	=	Rs.25/ Cft
Stone Jelly 40mm	=	Rs.24/ Cft
RMC M 15	=	Rs.3100/ Cum
RMC M 20	=	Rs.3200/ Cum

(Rates Including cost of cement & Steel

Sl.No.	Description of work	Unit	Rate
	Civil Works		
	Earth work excavation		
1	Earth work excavation in all kind of soils, except hardrock where blasting is required - upto 0 - 5' depth	Cft	5.50
2	Earth work excavation in all kind of soils, except hardrock where blasting is required - below 5' depth	Cft	6.90
2	Disposal of excavated earth within the site. (within 200mtrs)	Cft	
3a	Re filling with excavated earth	Cft	4.20
3b	Disposal of excavated earth within the site.	Cft	3.60
3c	Disposal of excavated earth to contractor's own dumping yard if necessary	Cft	-
4	River sand filling in foundation 6"tk. Including compaction watering & consolidation	Cft	28.70
5	Quarry dust filling in foundation & basement including compaction watering & consolidation	Cft	22.90
6	Pit sand filling including watering & consolidation	Cft	17.20
	Concretor		
1	P C C 1:4:8 in foundation, 40mm jelly	Cft	71.00
2	P C C 1:4:8 in basement, 40mm jelly	Cft	74.00
3	Providing & laying brick jelly concrete 1:2:5 (1 part of cement, 2part of lime & 5 part of brick jelly) mixed with water proofing compound for toilet	Cft	147.00

Sl.No.	Description of work	Unit	Rate
	REINFORCED CEMENT CONCRETE		
	All RCC item shall include the centering & shuttering charges at all height & in all floors.		
1	RCC 1:1½:3 in foundation & basement	Cft	155.70
	RCC1:2:4 (alternative rate)	Cft	138.18
2	RCC 1:1½:3 in plinth beam	Cft	259.30
	RCC1:2:4 (alternative rate)	Cft	241.80
3	RCC 1:1½:3 cloumn in stilt floor	Cft	270.40
	RCC1:2:4 (alternative rate)	Cft	252.90
4	RCC 1:1½:3 cloumn in first floor	Cft	282.10
	RCC1:2:4 (alternative rate)	Cft	264.60
5	RCC 1:1½:3 cloumn in second floor	Cft	294.70
	RCC1:2:4 (alternative rate)	Cft	277.30
6	RCC 1:1½:3 cloumn in Third floor	Cft	308.30
	RCC1:2:4 (alternative rate)	Cft	290.80
7	RCC 1:1½:3 cloumn in fourth floor	Cft	322.90
	RCC1:2:4 (alternative rate)	Cft	305.40
7a	RCC 1:1½:3 cloumn in terrace & LMR	Cft	338.60
	RCC1:2:4 (alternative rate)	Cft	321.10
8	RCC1:2:4 in RC roof slabs in Stilt Floor.	Cft	213.50
9	RCC1:2:4 in RC roof slabs in First Floor.	Cft	222.30
10	RCC1:2:4 in RC roof slabs in Second Floor.	Cft	231.80
11	RCC1:2:4 in RC roof slabs in Third Floor.	Cft	241.90
12	RCC1:2:4 in RC roof slabs in Fourth Floor.	Cft	252.80
12a	RCC1:2:4 in RC roof slabs in LMR	Cft	264.60
13	RCC1:2:4 in RC roof beams in Stilt Floor.	Cft	226.00
14	RCC1:2:4 in RC roof beams in First Floor.	Cft	235.70
15	RCC1:2:4 in RC roof beams in Second Floor.	Cft	246.20
16	RCC1:2:4 in RC roof beams in Third Floor.	Cft	257.40
17	RCC1:2:4 in RC roof beams in Fourth Floor.	Cft	269.50
17a	RCC1:2:4 in RC roof beams in LMR	Cft	282.50
18	RCC1:2:4 in RC Lintels in Stilt Floor.	Cft	259.60

Sl.No.	Description of work	Unit	Rate
19	RCC1:2:4 in RC Lintels in First Floor.	Cft	271.90
20	RCC1:2:4 in RC Lintels in Second Floor.	Cft	285.00
21	RCC1:2:4 in RC Lintels in Third Floor.	Cft	299.20
22	RCC1:2:4 in RC Lintels in Fourth Floor.	Cft	314.40
22a	RCC1:2:4 in RC Lintels in LMR	Cft	330.70
23	RCC1:2:4 in RC flat Sunshade in Stilt Floor.	Sft	75.90
24	RCC1:2:4 in RC flat Sunshade in First Floor.	Sft	79.80
25	RCC1:2:4 in RC flat Sunshade in Second Floor.	Sft	84.00
26	RCC1:2:4 in RC flat Sunshade in Third Floor.	Sft	88.50
27	RCC1:2:4 in RC flat Sunshade in Fourth Floor.	Sft	93.30
27a	RCC1:2:4 in RC flat Sunshade in LMR	Sft	98.50
28	RCC1:2:4 in RC loft-2ft.wide, 3" thick in all floors	Sft	87.00
29	RCC1:1½:3 in RCC bottom slab for Lift (4" tk slab)	Sft	91.90
30	RCC1:1½:3 in RCC sidewalls for lift 9" tk.	Cft	213.20
31	RCC1:2:4 for staircase waist slab from Stilt floor to First Floor.	Cft	229.40
32	RCC1:2:4 for staircase waist slab from First Floor to Second Floor.	Cft	239.35
33	RCC1:2:4 for staircase waist slab from Second Floor to Third Floor.	Cft	250.10
34	RCC1:2:4 for staircase waist slab from Third Floor to Fourth Floor.	Cft	261.60
34	RCC1:2:4 for staircase waist slab from Fourth Floor to Third Floor.	Cft	274.00
35	**Providing steel reinforcement to all RCC works including fabrication & fixing of steel reinforcement in all floors including cost of GI binding wire. All wastage of steel will be to contractor's account.**	Cft	39090.00
36a	**Supplying & Laying and levelling of RMC including vibrating for M20 Concrete**	Cft	122.80
36b	**Supplying & Laying and levelling of RMC including vibrating for M15 Concrete**	Cft	119.40

Sl.No.	Description of work	Unit	Rate
	CARPENTARY & JOINERY		
	Labour Charges for fixing of joineries & girls in all floors including cost of hold fast/MS clamps and packing with concrete.		
1	Fixing charges for doors	each	460.00
2	Fixing charges for Windows	each	430.00
3	Fixing charges for French windows	each	615.00
4	Fixing charges for ventilator	each	170.00
5	Fixing charges for grills	each	29.00
6	Fixing charges for staircase hand raillings in all floors	each	30.00
	FLOORING (tiles supplied by the developer)		
1	Cement Flooring in stilt Floor	Sft	21.30
2	Laying of 2'x2' tiles in all floors	Sft	34.50
3	Laying 1'x1' tiles in all floors	Sft	33.70
4	Laying of wall tiles in toilets in all floors	Sft	25.20
5	Laying of wall tiles in dado in Kitchen/wash area	Sft	25.20
6	Laying of RCC base slab 2ft.wide,for Kitchen work table	Sft	87.90
7	Providing & fixing Black granite for kitchen platform	Sft	38.40
	ROOFFER		
1	Supplying & laying brocken brick jelly (ISS 20mm) in pure slaked lime (Proportion being 32 brick jelly 12.5 lime for required thickness and slope on roof,well beaten with wooden beaters using lime water kadukkai, jaggery including preparing the finished surface	Cft	119.60
2	Supplying and laying one course of pressed falsh tiles 200mmX200mmx18mm thick laid in cement motor 1:3 (cement motor 1:3 (1 cement,3 sand) mixed with crude oil at5% weight of cement and pointed with cement motor 1:3 (1 cement,3 sand)	Cft	40.80

Sl.No.	Description of work	Unit	Rate
	BRICK WORK		
1	B.W in CM 1: 6, 9" tk in foundation & basement	Cft	98.80
2	B.W in CM 1:6, 9" tk in Stilt Floor.	Cft	98.80
3	B.W in CM 1:6, 9" tk in First Floor.	Cft	100.50
4	B.W in CM 1:6, 9" tk in Second Floor.	Cft	102.40
5	B.W in CM 1:6, 9" tk in Third Floor.	Cft	104.40
6	B.W in CM 1:6, 9" tk in Fourth Floor.	Cft	106.50
7	B.W in 4½" tk in First Floor with CM 1:4 with 6mm MS Rods at 5th course of masonry	Sft	43.90
8	B.W in 4½" tk in Second Floor with CM 1:4 with 6mm MS Rods at 5th course of masonry	Sft	45.20
9	B.W in 4½" tk in Third Floor with CM 1:4 with 6mm MS Rods at 5th course of masonry	Sft	46.60
10	B.W in 4½" tk in Fourth Floor with CM 1:4 with 6mm MS Rods at 5th course of masonry	Sft	48.10
11	B.W in CM 1:3 brick on edge for staircase steps from stilt floor to Terrace.	No	225.00
12	B.W in CM 1:4 for parapet walls in terrace.(4½" tk Wall)	Sft	49.70
	SOLID BLOCKS		
1	Solid Block Masonry in CM 1:6, 8" tk.in Stilt floor	Sft	85.30
2	Solid Block Masonry in CM 1:6, 8" tk.in First floor.	Sft	86.80
3	Solid Block Masonry in CM 1:6, 8" tk.in Second floor.	Sft	88.30
4	Solid Block Masonry in CM 1:6, 8" tk.in Third floor.	Sft	90.00
5	Solid Block Masonry in CM 1:6, 8" tk.in Fourth floor.	Sft	91.80
6	Solid Block Masonry in CM 1:5, 4" tk.in all floors.	Sft	61.60
	PLASTERER		
1	Prepare surface and plaster in First Floor internal walls with CM 1:4 (12mm tk)	Sft	16.30
2	Prepare surface and plaster in Second Floor internal walls with CM 1:4 (12mm tk)	Sft	17.10
3	Prepare surface and plaster in Third Floor internal walls with CM 1:4 (12mm tk)	Sft	17.90

Sl.No.	Description of work	Unit	Rate
4	Prepare surface and plaster in Fourth Floor internal walls with CM 1:4 (12mm tk)	Sft	18.80
5	Prepare surface and plaster in Staircase head room & LMR internal walls with CM 1:4 (12mm tk)	Sft	19.80
6	Prepare surface and plaster in First Floor external internal walls with CM 1:4 (12mm tk)	Sft	23.30
7	Prepare surface and plaster in Second Floor external walls with CM 1:4 (12mm tk)	Sft	24.60
8	Prepare surface and plaster in Third Floor external walls with CM 1:4 (12mm tk)	Sft	25.90
9	Prepare surface and plaster in Fourth Floor external walls with CM 1:4 (12mm tk)	Sft	27.40
10	Prepare surface and plaster both side of Parapet wall with CM 1:5 (12mm tk)	Sft	29.00
11	Ceiling Plastering in Stilt Floor with CM1:3, 12mm thick including beams.	Sft	16.10
12	Ceiling Plastering in First Floor with CM1:3, 12mm thick including beams & Loft.	Sft	16.90
13	Ceiling Plastering in Second Floor with CM1:3, 12mm thick including beams & Loft.	Sft	17.80
14	Ceiling Plastering in Third Floor with CM1:3, 12mm thick including beams & Loft	Sft	18.70
15	Ceiling Plastering in Fourth Floor with CM1:3, 12mm thick including beams & Loft.	Sft	19.70
16	Providing & applying water proof plastering to Toilet sunken slabs in all floors (the water proofing Chemical should be got approved by the developer.)	Sft	23.25
	ANTI TERMINATE TREATMENT WORK		
1	Providing & applying anti termite treatment in foundation and basement.	Sft	3.60

DETAILED ESTIMATE

PRIMAVERA SOFTWARE

- It helps in planning and scheduling.
- Now a days this is widely used.
- We can here observe the project start time and project end time.
- Here we can calculate the total budject cost before starting the construction itself.
- It helps in monitoring,with that we can analysis whether the project is going according to the planning.
- We can find whether the work is going according to the planned time and cost.
- The contractor can easily find the profit and loss by using this software.

Total budgeted cost

Zone-1 = Rs 8,91,67,800/-

Zone-2 = Rs 8,31,42,640/-

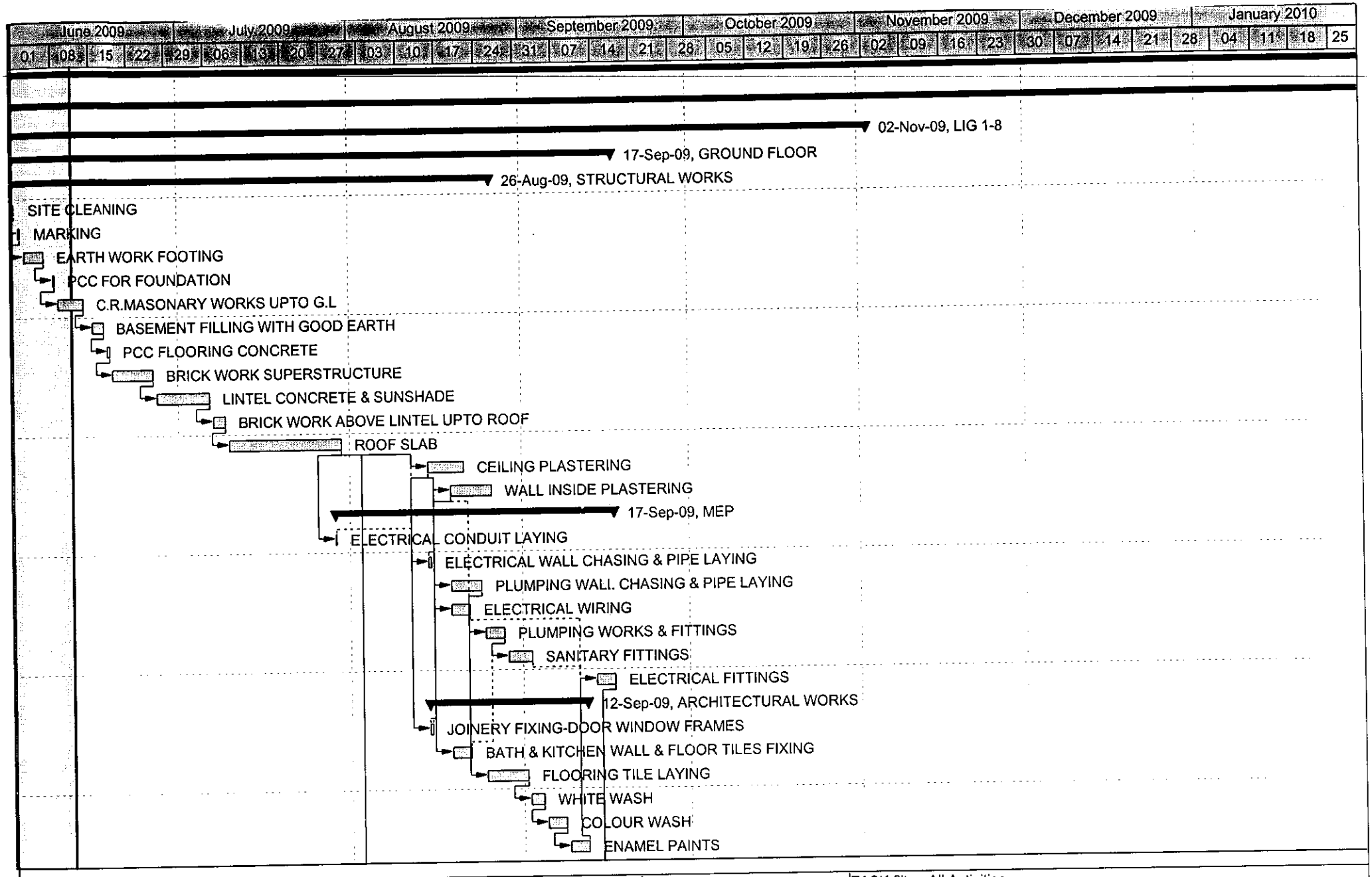
Zone-3 = Rs 8,84,12,280/-

Zone-4 = Rs 8,31,42,640/-

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
ZONE-1		274	274	0%	01-Jun-09	17-Jun-10	$89,169,768		
LIG 1-8		111	111	0%	01-Jun-09	02-Nov-09	$8,859,184		
GROUND FLOOR		79	79	0%	01-Jun-09	17-Sep-09	$4,778,816		
STRUCTURAL WORKS		63	63	0%	01-Jun-09	26-Aug-09	$3,958,032		
	SITE CLEANING	1	1	0%	01-Jun-09	01-Jun-09	$2,000		110
	MARKING	1	1	0%	02-Jun-09	02-Jun-09	$2,000	100	120
	EARTH WORK FOOTING	4	4	0%	03-Jun-09	06-Jun-09	$95,136	110	130
	PCC FOR FOUNDATION	1	1	0%	08-Jun-09	08-Jun-09	$233,960	120	140
	C.R.MASONARY WORKS UPTO G.L	5	5	0%	09-Jun-09	13-Jun-09	$777,120	130	160
	BASEMENT FILLING WITH GOOD EARTH	3	3	0%	15-Jun-09	17-Jun-09	$2,400	140	170
	PCC FLOORING CONCRETE	1	1	0%	18-Jun-09	18-Jun-09	$23,232	160	180
	BRICK WORK SUPERSTRUCTURE	7	7	0%	19-Jun-09	26-Jun-09	$620,480	170	190
	LINTEL CONCRETE & SUNSHADE	8	8	0%	27-Jun-09	06-Jul-09	$101,888	180	200
	BRICK WORK ABOVE LINTEL UPTO ROOF	3	3	0%	07-Jul-09	09-Jul-09	$1,532,592	190	210
	ROOF SLAB	18	18	0%	10-Jul-09	30-Jul-09	$322,560	200	240, 220, 310
	CEILING PLASTERING	6	6	0%	15-Aug-09	21-Aug-09	$71,904	210, 220	250, 230, 260
	WALL INSIDE PLASTERING	7	7	0%	19-Aug-09	26-Aug-09	$172,760	230, 240, 250	270, 280, 300, 290
MEP		37	37	0%	29-Jul-09	17-Sep-09	$340,000		
	ELECTRICAL CONDUIT LAYING	1	1	0%	29-Jul-09	29-Jul-09	$24,000	210	240
	ELECTRICAL WALL CHASING & PIPE LA...	1	1	0%	15-Aug-09	15-Aug-09	$60,000	240	260
	PLUMPING WALL CHASING & PIPE LAYING	5	5	0%	19-Aug-09	24-Aug-09	$32,000	260	280, 320
	ELECTRICAL WIRING	4	4	0%	19-Aug-09	22-Aug-09	$80,000	260, 230	340
	PLUMPING WORKS & FITTINGS	4	4	0%	25-Aug-09	28-Aug-09	$64,000	270	330
	SANITARY FITTINGS	4	4	0%	29-Aug-09	02-Sep-09	$64,000	320, 300	340
	ELECTRICAL FITTINGS	4	4	0%	14-Sep-09	17-Sep-09	$16,000	330, 370, 290	430
ARCHITECTURAL WORKS		20	20	0%	15-Aug-09	12-Sep-09	$480,784		
	JOINERY FIXING-DOOR WINDOW FRAMES	1	1	0%	15-Aug-09	15-Aug-09	$221,600	240	290, 260
	BATH & KITCHEN WALL & FLOOR TILES ...	4	4	0%	19-Aug-09	22-Aug-09	$18,688	260	330
	FLOORING TILE LAYING	7	7	0%	25-Aug-09	01-Sep-09	$80,472	270, 260	350
	WHITE WASH	3	3	0%	02-Sep-09	04-Sep-09	$40,008	280	360
	COLOUR WASH	3	3	0%	05-Sep-09	08-Sep-09	$56,016	350	370
	ENAMEL PAINTS	4	4	0%	09-Sep-09	12-Sep-09	$64,000	360	340

TASK filter: All Activities

© Primavera Systems, Inc.



Actual Work | Critical Remaining Work | Summary
Remaining Work | Milestone

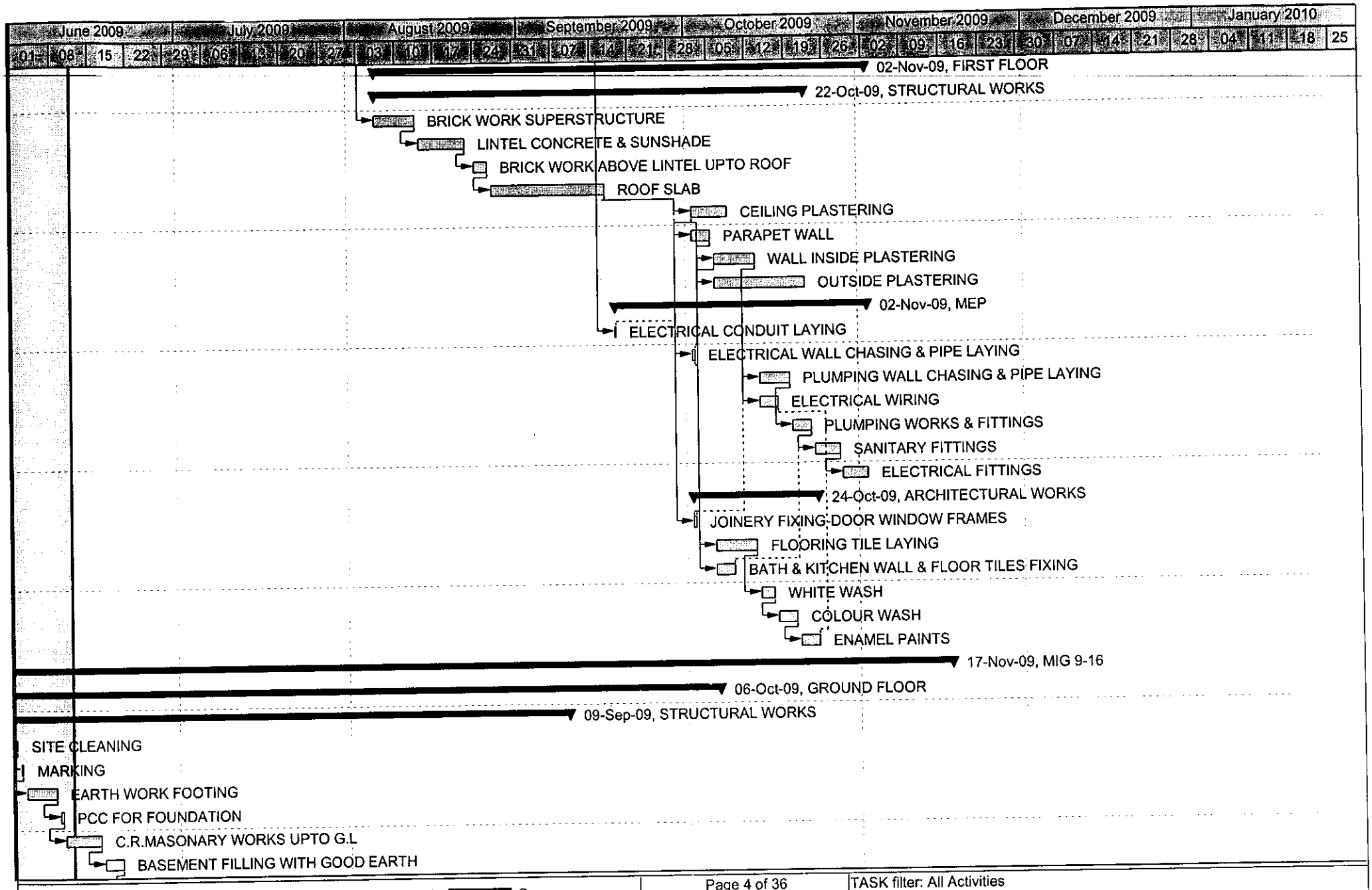
TASK filter: All Activities

© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	FIRST FLOOR	63	63	0%	06-Aug-09	02-Nov-09	$4,080,368		
	STRUCTURAL WORKS	56	56	0%	06-Aug-09	22-Oct-09	$3,259,584		
	BRICK WORK SUPERSTRUCTURE	7	7	0%	06-Aug-09	13-Aug-09	$620,480	210	380
	LINTEL CONCRETE & SUNSHADE	8	8	0%	14-Aug-09	22-Aug-09	$101,888	310	390
	BRICK WORK ABOVE LINTEL UPTO ROOF	3	3	0%	24-Aug-09	26-Aug-09	$1,532,592	380	400
	ROOF SLAB	18	18	0%	27-Aug-09	16-Sep-09	$322,560	390	410, 430
	CEILING PLASTERING	6	6	0%	02-Oct-09	08-Oct-09	$71,904	400, 430	420, 440, 500, 750
	PARAPET WALL	3	3	0%	02-Oct-09	05-Oct-09	$240,000	410	760
	WALL INSIDE PLASTERING	7	7	0%	06-Oct-09	13-Oct-09	$172,760	410, 440, 500	450, 460, 510, 520
	OUTSIDE PLASTERING	15	15	0%	06-Oct-09	22-Oct-09	$197,400	750	
	MEP	32	32	0%	18-Sep-09	02-Nov-09	$340,000		
	ELECTRICAL CONDUIT LAYING	1	1	0%	18-Sep-09	18-Sep-09	$24,000	400, 340	410
	ELECTRICAL WALL CHASING & PIPE LA...	1	1	0%	02-Oct-09	02-Oct-09	$60,000	410	420, 510
	PLUMPING WALL CHASING & PIPE LAYING	5	5	0%	14-Oct-09	19-Oct-09	$32,000	420	470
	ELECTRICAL WIRING	4	4	0%	14-Oct-09	17-Oct-09	$80,000	500, 420	490
	PLUMPING WORKS & FITTINGS	4	4	0%	20-Oct-09	23-Oct-09	$64,000	450	480
	SANITARY FITTINGS	4	4	0%	24-Oct-09	28-Oct-09	$64,000	470, 520	490
	ELECTRICAL FITTINGS	4	4	0%	29-Oct-09	02-Nov-09	$16,000	480, 460, 550	
	ARCHITECTURAL WORKS	16	16	0%	02-Oct-09	24-Oct-09	$480,784		
	JOINERY FIXING-DOOR WINDOW FRAMES	1	1	0%	02-Oct-09	02-Oct-09	$221,600	410	460, 420
	FLOORING TILE LAYING	7	7	0%	06-Oct-09	13-Oct-09	$80,472	420, 440	530
	BATH & KITCHEN WALL & FLOOR TILES ...	4	4	0%	06-Oct-09	09-Oct-09	$18,688	420	480
	WHITE WASH	3	3	0%	14-Oct-09	16-Oct-09	$40,008	510	540
	COLOUR WASH	3	3	0%	17-Oct-09	20-Oct-09	$56,016	530	550
	ENAMEL PAINTS	4	4	0%	21-Oct-09	24-Oct-09	$64,000	540	490
	MIG 9-16	122	122	0%	01-Jun-09	17-Nov-09	$12,062,152		
	GROUND FLOOR	92	92	0%	01-Jun-09	06-Oct-09	$6,493,312		
	STRUCTURAL WORKS	73	73	0%	01-Jun-09	09-Sep-09	$4,270,520		
	SITE CLEANING	1	1	0%	01-Jun-09	01-Jun-09	$3,000		560
	MARKING	1	1	0%	02-Jun-09	02-Jun-09	$2,000	150	570
	EARTH WORK FOOTING	5	5	0%	03-Jun-09	08-Jun-09	$114,840	560	580
	PCC FOR FOUNDATION	1	1	0%	09-Jun-09	09-Jun-09	$233,960	570	590
	C.R.MASONARY WORKS UPTO G.L	6	6	0%	10-Jun-09	16-Jun-09	$1,000,000	580	600
	BASEMENT FILLING WITH GOOD EARTH	4	4	0%	17-Jun-09	20-Jun-09	$9,600	590	610

TASK filter: All Activities

© Primavera Systems, Inc.



Actual Work | Critical Remaining Work | Summary
Remaining Work | Milestone

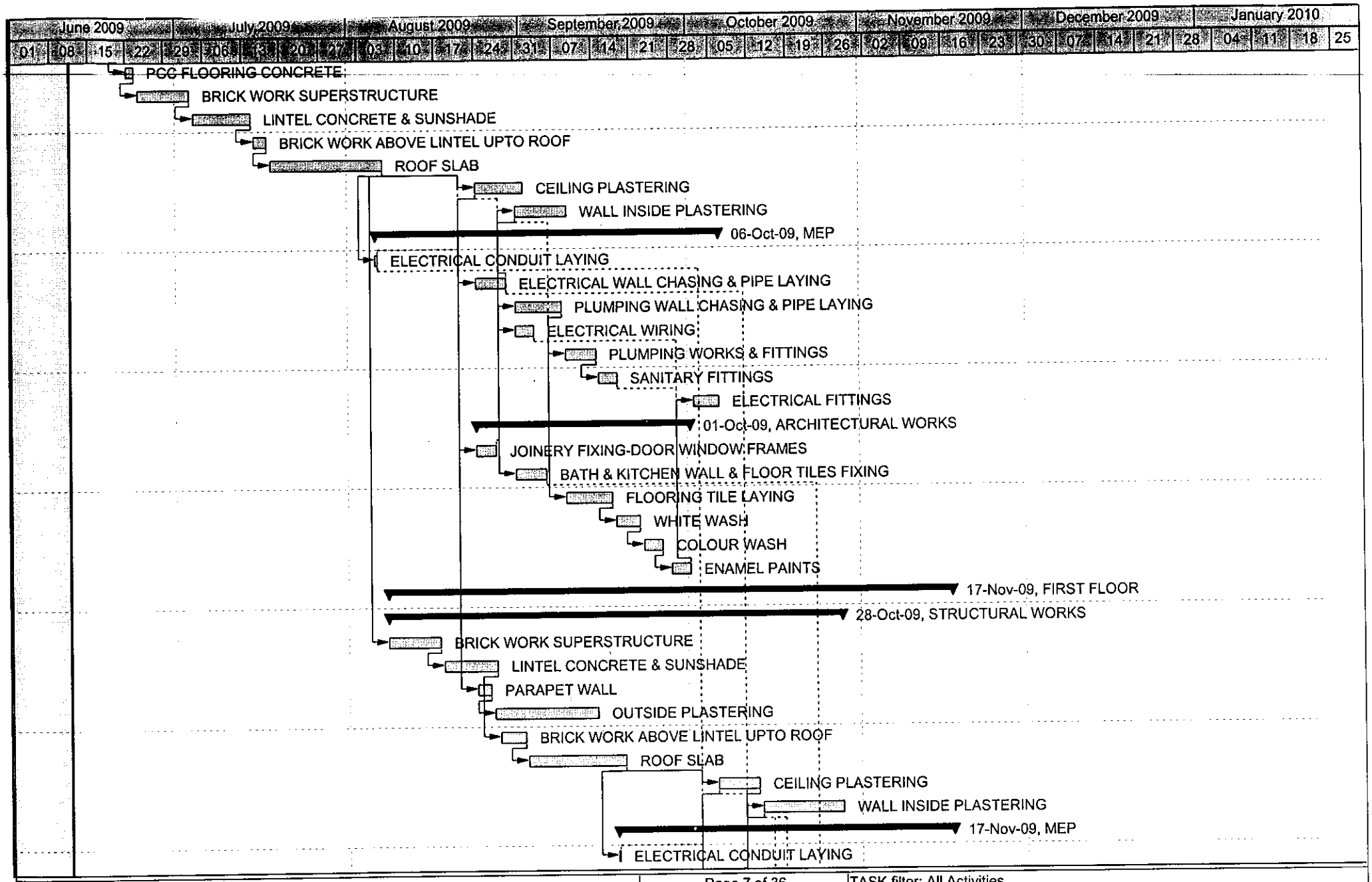
TASK filter: All Activities

© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	PCC FLOORING CONCRETE	2	2	0%	22-Jun-09	23-Jun-09	$216,064	600	620
	BRICK WORK SUPERSTRUCTURE	9	9	0%	24-Jun-09	03-Jul-09	$935,200	610	630
	LINTEL CONCRETE & SUNSHADE	9	9	0%	04-Jul-09	14-Jul-09	$256,000	620	640
	BRICK WORK ABOVE LINTEL UPTO ROOF	3	3	0%	15-Jul-09	17-Jul-09	$407,688	630	650
	ROOF SLAB	18	18	0%	18-Jul-09	07-Aug-09	$617,328	640	660, 680, 830
	CEILING PLASTERING	8	8	0%	24-Aug-09	01-Sep-09	$154,840	650, 680	670, 690, 770, 890
	WALL INSIDE PLASTERING	9	9	0%	31-Aug-09	09-Sep-09	$320,000	660, 690, 770	700, 710, 780, 790
	MEP	44	44	0%	06-Aug-09	06-Oct-09	$956,000		
	ELECTRICAL CONDUIT LAYING	1	1	0%	06-Aug-09	06-Aug-09	$48,000	650	660, 870
	ELECTRICAL WALL CHASING & PIPE LA...	6	6	0%	24-Aug-09	29-Aug-09	$400,000	660	670, 880
	PLUMPING WALL CHASING & PIPE LAYING	8	8	0%	31-Aug-09	08-Sep-09	$48,000	670	720, 780
	ELECTRICAL WIRING	4	4	0%	31-Aug-09	03-Sep-09	$160,000	670, 770	740
	PLUMPING WORKS & FITTINGS	5	5	0%	09-Sep-09	14-Sep-09	$140,000	700	730
	SANITARY FITTINGS	4	4	0%	15-Sep-09	18-Sep-09	$128,000	720	740
	ELECTRICAL FITTINGS	4	4	0%	02-Oct-09	06-Oct-09	$32,000	730, 710, 820	
	ARCHITECTURAL WORKS	29	29	0%	24-Aug-09	01-Oct-09	$1,266,792		
	JOINERY FIXING-DOOR WINDOW FRAMES	4	4	0%	24-Aug-09	27-Aug-09	$840,000	660	670, 710
	BATH & KITCHEN WALL & FLOOR TILES ...	6	6	0%	31-Aug-09	05-Sep-09	$48,000	670	960
	FLOORING TILE LAYING	8	8	0%	09-Sep-09	17-Sep-09	$98,952	670, 700	800
	WHITE WASH	4	4	0%	18-Sep-09	22-Sep-09	$80,000	780	810
	COLOUR WASH	4	4	0%	23-Sep-09	26-Sep-09	$103,840	800	820
	ENAMEL PAINTS	4	4	0%	28-Sep-09	01-Oct-09	$96,000	810	740
	FIRST FLOOR	72	72	0%	08-Aug-09	17-Nov-09	$5,568,840		
	STRUCTURAL WORKS	58	58	0%	08-Aug-09	28-Oct-09	$3,386,048		
	BRICK WORK SUPERSTRUCTURE	8	8	0%	08-Aug-09	17-Aug-09	$935,200	650	840
	LINTEL CONCRETE & SUNSHADE	9	9	0%	18-Aug-09	27-Aug-09	$256,000	830	850
	PARAPET WALL	3	3	0%	24-Aug-09	26-Aug-09	$240,000	660	900
	OUTSIDE PLASTERING	16	16	0%	27-Aug-09	14-Sep-09	$420,000	890	
	BRICK WORK ABOVE LINTEL UPTO ROOF	4	4	0%	28-Aug-09	01-Sep-09	$407,688	840	860
	ROOF SLAB	16	16	0%	02-Sep-09	19-Sep-09	$514,440	850	870, 910
	CEILING PLASTERING	7	7	0%	06-Oct-09	13-Oct-09	$132,720	860, 680, 910	880, 920, 980
	WALL INSIDE PLASTERING	13	13	0%	14-Oct-09	28-Oct-09	$480,000	870, 690, 920, 980	930, 940, 990, 1000
	MEP	43	43	0%	18-Sep-09	17-Nov-09	$916,000		
	ELECTRICAL CONDUIT LAYING	1	1	0%	18-Sep-09	18-Sep-09	$48,000	860	870

TASK filter: All Activities

© Primavera Systems, Inc.

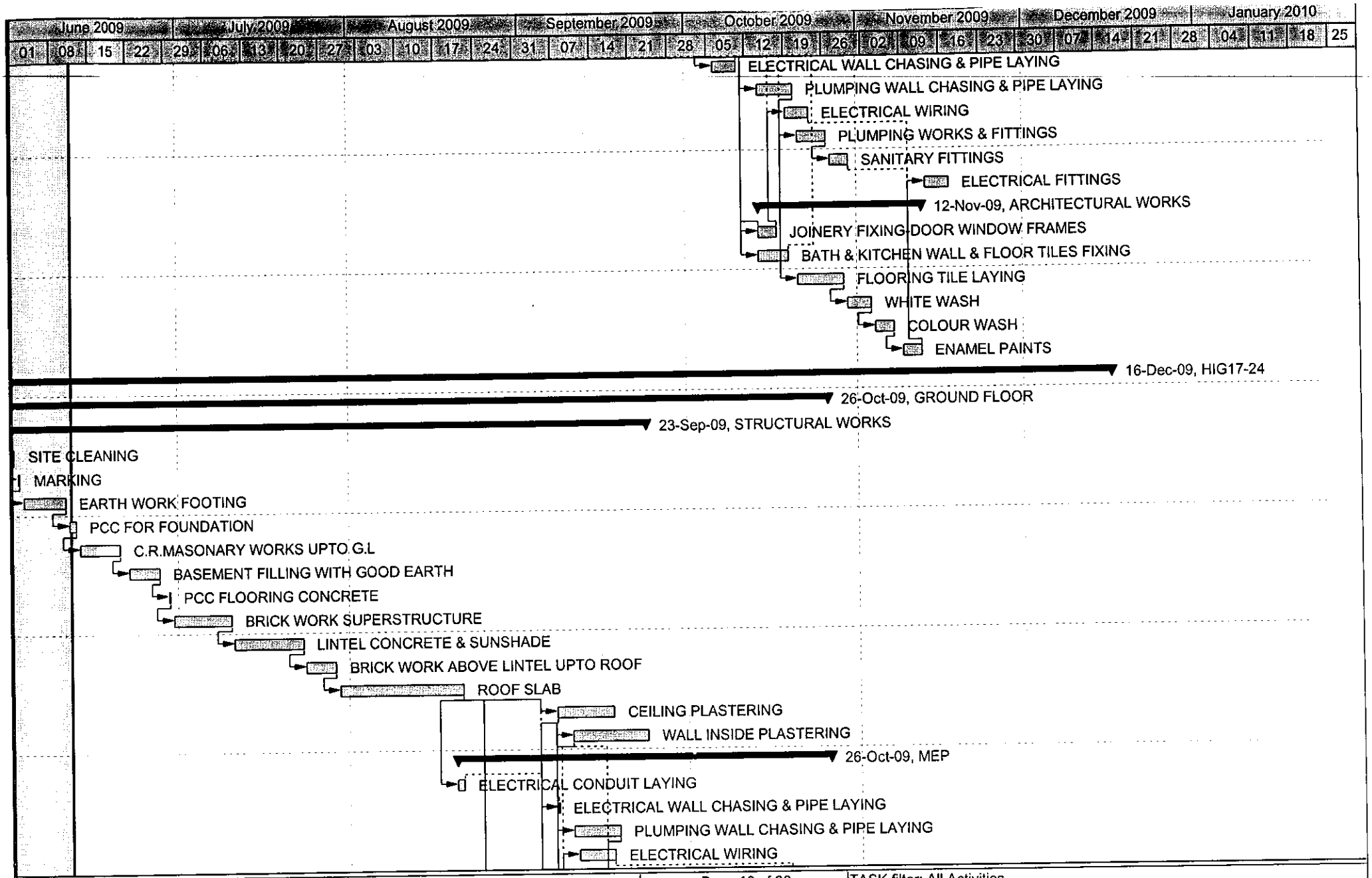


© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	ELECTRICAL WALL CHASING & PIPE LA...	5	5	0%	06-Oct-09	10-Oct-09	$320,000	870	880
	PLUMPING WALL CHASING & PIPE LAYING	6	6	0%	14-Oct-09	20-Oct-09	$48,000	880	950, 990
	ELECTRICAL WIRING	5	5	0%	19-Oct-09	23-Oct-09	$200,000	880, 980	970
	PLUMPING WORKS & FITTINGS	5	5	0%	21-Oct-09	26-Oct-09	$140,000	930	960
	SANITARY FITTINGS	4	4	0%	27-Oct-09	30-Oct-09	$128,000	950, 790, 1000	970
	ELECTRICAL FITTINGS	4	4	0%	13-Nov-09	17-Nov-09	$32,000	960, 940, 1030	
	ARCHITECTURAL WORKS	22	22	0%	14-Oct-09	12-Nov-09	$1,266,792		
	JOINERY FIXING-DOOR WINDOW FRAMES	4	4	0%	14-Oct-09	17-Oct-09	$840,000	870	880, 940
	BATH & KITCHEN WALL & FLOOR TILES ...	5	5	0%	14-Oct-09	19-Oct-09	$48,000	880	960
	FLOORING TILE LAYING	8	8	0%	21-Oct-09	29-Oct-09	$98,952	880, 930	1010
	WHITE WASH	4	4	0%	30-Oct-09	03-Nov-09	$80,000	990	1020
	COLOUR WASH	4	4	0%	04-Nov-09	07-Nov-09	$103,840	1010	1030
	ENAMEL PAINTS	4	4	0%	09-Nov-09	12-Nov-09	$96,000	1020	970
HIG17-24		143	143	0%	01-Jun-09	16-Dec-09	$20,651,952		
	GROUND FLOOR	106	106	0%	01-Jun-09	26-Oct-09	$11,273,432		
	STRUCTURAL WORKS	83	83	0%	01-Jun-09	23-Sep-09	$7,868,672		
	SITE CLEANING	1	1	0%	01-Jun-09	01-Jun-09	$3,400		1050
	MARKING	1	1	0%	02-Jun-09	02-Jun-09	$2,400	1040	1060
	EARTH WORK FOOTING	7	7	0%	03-Jun-09	10-Jun-09	$223,272	1050	1070
	PCC FOR FOUNDATION	2	2	0%	11-Jun-09	12-Jun-09	$600,000	1060	1080
	C.R.MASONARY WORKS UPTO G.L	7	7	0%	13-Jun-09	20-Jun-09	$1,792,000	1070	1090
	BASEMENT FILLING WITH GOOD EARTH	6	6	0%	22-Jun-09	27-Jun-09	$20,400	1080	1100
	PCC FLOORING CONCRETE	1	1	0%	29-Jun-09	29-Jun-09	$285,200	1090	1110
	BRICK WORK SUPERSTRUCTURE	10	10	0%	30-Jun-09	10-Jul-09	$1,760,000	1100	1120
	LINTEL CONCRETE & SUNSHADE	11	11	0%	11-Jul-09	23-Jul-09	$462,000	1110	1130
	BRICK WORK ABOVE LINTEL UPTO ROOF	5	5	0%	24-Jul-09	29-Jul-09	$880,000	1120	1140
	ROOF SLAB	20	20	0%	30-Jul-09	21-Aug-09	$880,000	1130	1290, 1150, 1300
	CEILING PLASTERING	10	10	0%	07-Sep-09	17-Sep-09	$288,000	1140, 1150	1170, 1160, 1180
	WALL INSIDE PLASTERING	12	12	0%	10-Sep-09	23-Sep-09	$672,000	1160, 1290, 1170	1190, 1200, 1220, ...
	MEP	48	48	0%	20-Aug-09	26-Oct-09	$1,171,600		
	ELECTRICAL CONDUIT LAYING	2	2	0%	20-Aug-09	21-Aug-09	$144,000	1140	1290
	ELECTRICAL WALL CHASING & PIPE LA...	1	1	0%	07-Sep-09	07-Sep-09	$120,000	1290	1180
	PLUMPING WALL CHASING & PIPE LAYING	8	8	0%	10-Sep-09	18-Sep-09	$96,000	1180	1200, 1230
	ELECTRICAL WIRING	6	6	0%	11-Sep-09	17-Sep-09	$360,000	1180, 1160	1250

TASK filter: All Activities

© Primavera Systems, Inc.



Actual Work | Critical Remaining Work | Summary

Remaining Work | Milestone

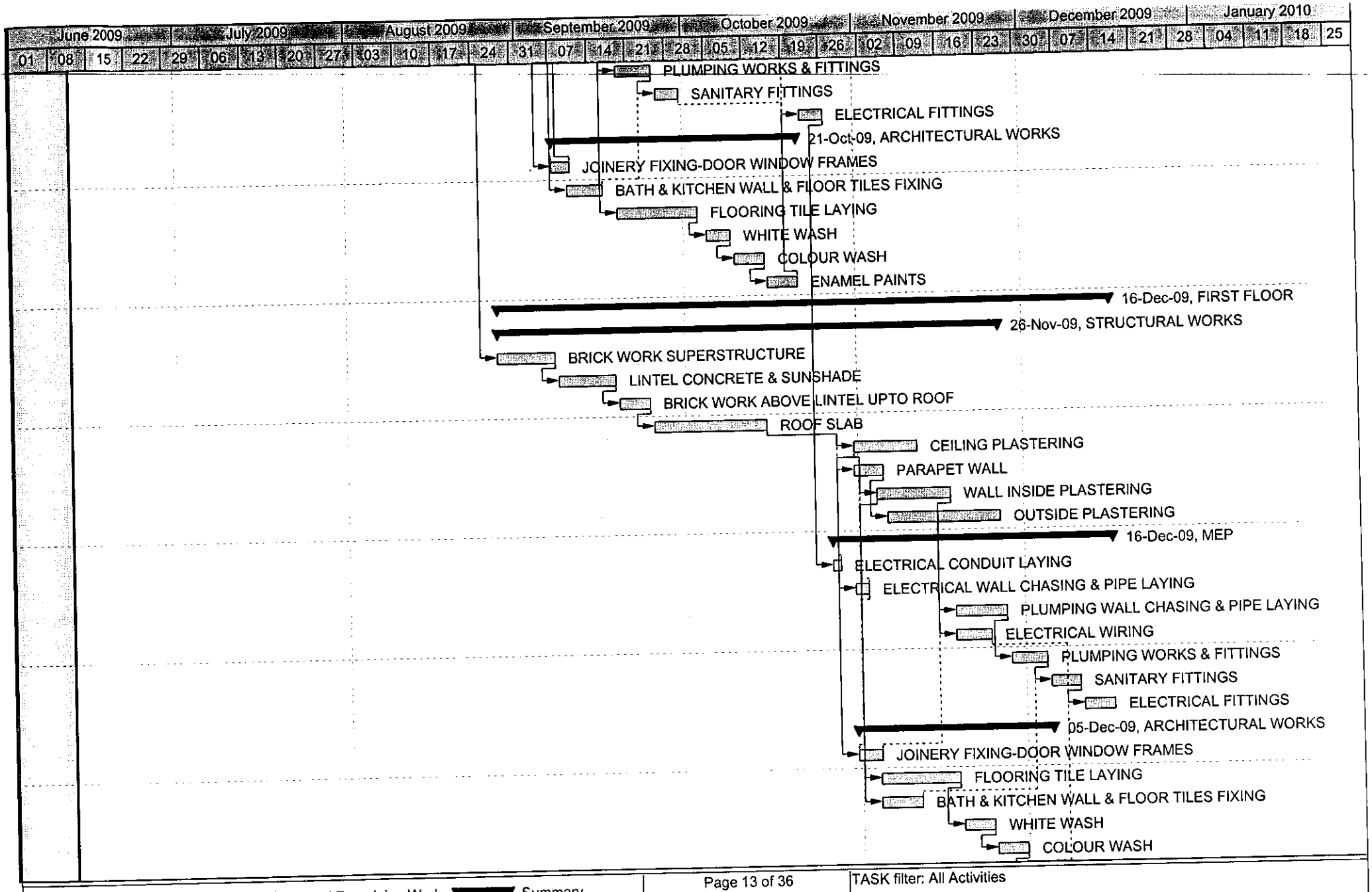
TASK filter: All Activities

© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	PLUMPING WORKS & FITTINGS	6	6	0%	19-Sep-09	25-Sep-09	$224,400	1190	1240
	SANITARY FITTINGS	4	4	0%	26-Sep-09	30-Sep-09	$179,200	1230, 1220	1250
	ELECTRICAL FITTINGS	4	4	0%	22-Oct-09	26-Oct-09	$48,000	1240, 1280, 1210	1360
	ARCHITECTURAL WORKS	33	33	0%	07-Sep-09	21-Oct-09	$2,233,160		
	JOINERY FIXING-DOOR WINDOW FRAMES	4	4	0%	07-Sep-09	10-Sep-09	$1,344,000	1290	1210, 1180
	BATH & KITCHEN WALL & FLOOR TILES ...	6	6	0%	10-Sep-09	16-Sep-09	$91,200	1180	1240
	FLOORING TILE LAYING	13	13	0%	19-Sep-09	03-Oct-09	$297,960	1190, 1180	1260
	WHITE WASH	5	5	0%	05-Oct-09	09-Oct-09	$140,000	1200	1270
	COLOUR WASH	5	5	0%	10-Oct-09	15-Oct-09	$180,000	1260	1280
	ENAMEL PAINTS	5	5	0%	16-Oct-09	21-Oct-09	$180,000	1270	1250
	FIRST FLOOR	79	79	0%	28-Aug-09	16-Dec-09	$9,378,520		
	STRUCTURAL WORKS	65	65	0%	28-Aug-09	26-Nov-09	$5,922,160		
	BRICK WORK SUPERSTRUCTURE	9	9	0%	28-Aug-09	07-Sep-09	$1,584,000	1140	1310
	LINTEL CONCRETE & SUNSHADE	10	10	0%	08-Sep-09	18-Sep-09	$420,000	1300	1320
	BRICK WORK ABOVE LINTEL UPTO ROOF	5	5	0%	19-Sep-09	24-Sep-09	$880,000	1310	1330
	ROOF SLAB	18	18	0%	25-Sep-09	15-Oct-09	$792,000	1320	1350, 1360
	CEILING PLASTERING	10	10	0%	31-Oct-09	11-Nov-09	$288,000	1330, 1360	1340, 1370, 1430, ...
	PARAPET WALL	5	5	0%	31-Oct-09	05-Nov-09	$600,000	1350	1500
	WALL INSIDE PLASTERING	12	12	0%	04-Nov-09	17-Nov-09	$672,000	1350, 1370, 1430	1380, 1390, 1440, ...
	OUTSIDE PLASTERING	18	18	0%	06-Nov-09	26-Nov-09	$686,160	1490	
	MEP	37	37	0%	27-Oct-09	16-Dec-09	$1,208,000		
	ELECTRICAL CONDUIT LAYING	2	2	0%	27-Oct-09	28-Oct-09	$144,000	1330, 1250	1350
	ELECTRICAL WALL CHASING & PIPE LA...	2	2	0%	31-Oct-09	02-Nov-09	$240,000	1350	1340, 1440
	PLUMPING WALL CHASING & PIPE LAYING	9	9	0%	18-Nov-09	27-Nov-09	$108,000	1340	1400
	ELECTRICAL WIRING	6	6	0%	18-Nov-09	24-Nov-09	$360,000	1430, 1340	1420
	PLUMPING WORKS & FITTINGS	6	6	0%	28-Nov-09	04-Dec-09	$72,000	1380	1410
	SANITARY FITTINGS	5	5	0%	05-Dec-09	10-Dec-09	$224,000	1400, 1450	1420
	ELECTRICAL FITTINGS	5	5	0%	11-Dec-09	16-Dec-09	$60,000	1410, 1390, 1480	
	ARCHITECTURAL WORKS	25	25	0%	31-Oct-09	05-Dec-09	$2,248,360		
	JOINERY FIXING-DOOR WINDOW FRAMES	4	4	0%	31-Oct-09	04-Nov-09	$1,344,000	1350	1390, 1340
	FLOORING TILE LAYING	13	13	0%	04-Nov-09	18-Nov-09	$297,960	1340, 1370	1460
	BATH & KITCHEN WALL & FLOOR TILES ...	7	7	0%	04-Nov-09	11-Nov-09	$106,400	1340	1410
	WHITE WASH	5	5	0%	19-Nov-09	24-Nov-09	$140,000	1440	1470
	COLOUR WASH	5	5	0%	25-Nov-09	30-Nov-09	$180,000	1460	1480

TASK filter: All Activities

© Primavera Systems, Inc.



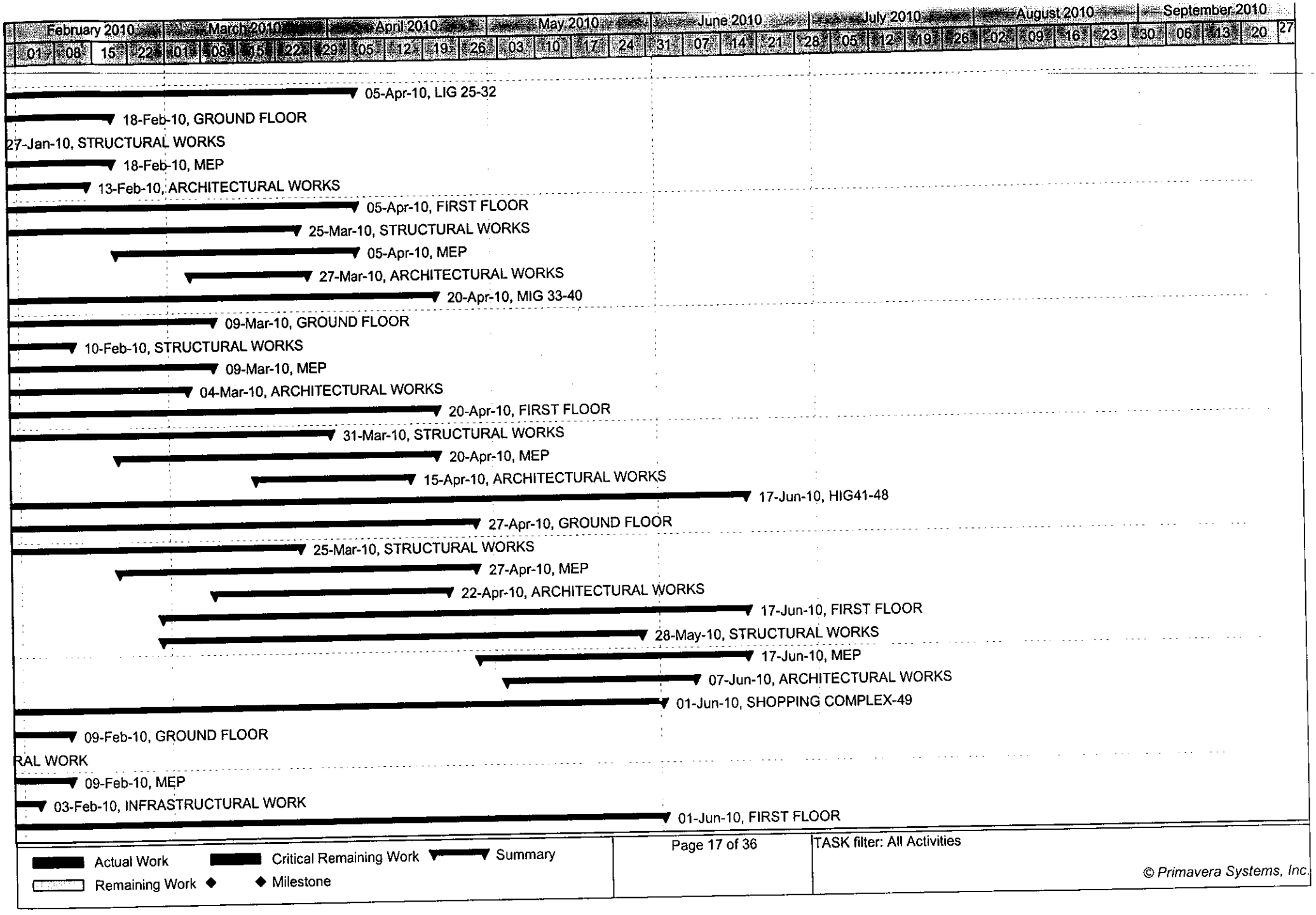
TASK filter: All Activities

© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	ENAMEL PAINTS	5	5	0%	01-Dec-09	05-Dec-09	$180,000	1470	1420
	LIG 25-32	**111**	**111**	**0%**	**02-Nov-09**	**05-Apr-10**	**$8,857,216**		
	GROUND FLOOR	79	79	0%	02-Nov-09	18-Feb-10	$4,776,848		
	STRUCTURAL WORKS	63	63	0%	02-Nov-09	27-Jan-10	$3,956,064		
	MEP	37	37	0%	30-Dec-09	18-Feb-10	$340,000		
	ARCHITECTURAL WORKS	20	20	0%	16-Jan-10	13-Feb-10	$480,784		
	FIRST FLOOR	63	63	0%	07-Jan-10	05-Apr-10	$4,080,368		
	STRUCTURAL WORKS	56	56	0%	07-Jan-10	25-Mar-10	$3,259,584		
	MEP	32	32	0%	19-Feb-10	05-Apr-10	$340,000		
	ARCHITECTURAL WORKS	16	16	0%	05-Mar-10	27-Mar-10	$480,784		
	MIG 33-40	**122**	**122**	**0%**	**02-Nov-09**	**20-Apr-10**	**$12,062,152**		
	GROUND FLOOR	92	92	0%	02-Nov-09	09-Mar-10	$6,493,312		
	STRUCTURAL WORKS	73	73	0%	02-Nov-09	10-Feb-10	$4,270,520		
	MEP	44	44	0%	07-Jan-10	09-Mar-10	$956,000		
	ARCHITECTURAL WORKS	29	29	0%	25-Jan-10	04-Mar-10	$1,266,792		
	FIRST FLOOR	72	72	0%	09-Jan-10	20-Apr-10	$5,568,840		
	STRUCTURAL WORKS	58	58	0%	09-Jan-10	31-Mar-10	$3,386,048		
	MEP	43	43	0%	19-Feb-10	20-Apr-10	$916,000		
	ARCHITECTURAL WORKS	22	22	0%	17-Mar-10	15-Apr-10	$1,266,792		
	HIG41-48	**143**	**143**	**0%**	**01-Dec-09**	**17-Jun-10**	**$20,651,952**		
	GROUND FLOOR	106	106	0%	01-Dec-09	27-Apr-10	$11,273,432		
	STRUCTURAL WORKS	83	83	0%	01-Dec-09	25-Mar-10	$7,868,672		
	MEP	48	48	0%	19-Feb-10	27-Apr-10	$1,171,600		
	ARCHITECTURAL WORKS	33	33	0%	09-Mar-10	22-Apr-10	$2,233,160		
	FIRST FLOOR	79	79	0%	27-Feb-10	17-Jun-10	$9,378,520		
	STRUCTURAL WORKS	65	65	0%	27-Feb-10	28-May-10	$5,922,160		
	MEP	37	37	0%	28-Apr-10	17-Jun-10	$1,208,000		
	ARCHITECTURAL WORKS	26	26	0%	03-May-10	07-Jun-10	$2,248,360		
	SHOPPING COMPLEX-49	**262**	**262**	**0%**	**01-Jun-09**	**01-Jun-10**	**$6,025,160**		
	GROUND FLOOR	182	182	0%	01-Jun-09	09-Feb-10	$3,243,280		
	STRUCTURAL WORK	155	155	0%	01-Jun-09	01-Jan-10	$2,109,000		
	MEP	65	65	0%	11-Nov-09	09-Feb-10	$745,680		
	INFRASTRUCTURAL WORK	56	56	0%	18-Nov-09	03-Feb-10	$388,600		
	FIRST FLOOR	150	150	0%	04-Nov-09	01-Jun-10	$2,781,880		

TASK filter: All Activities

© Primavera Systems, Inc.



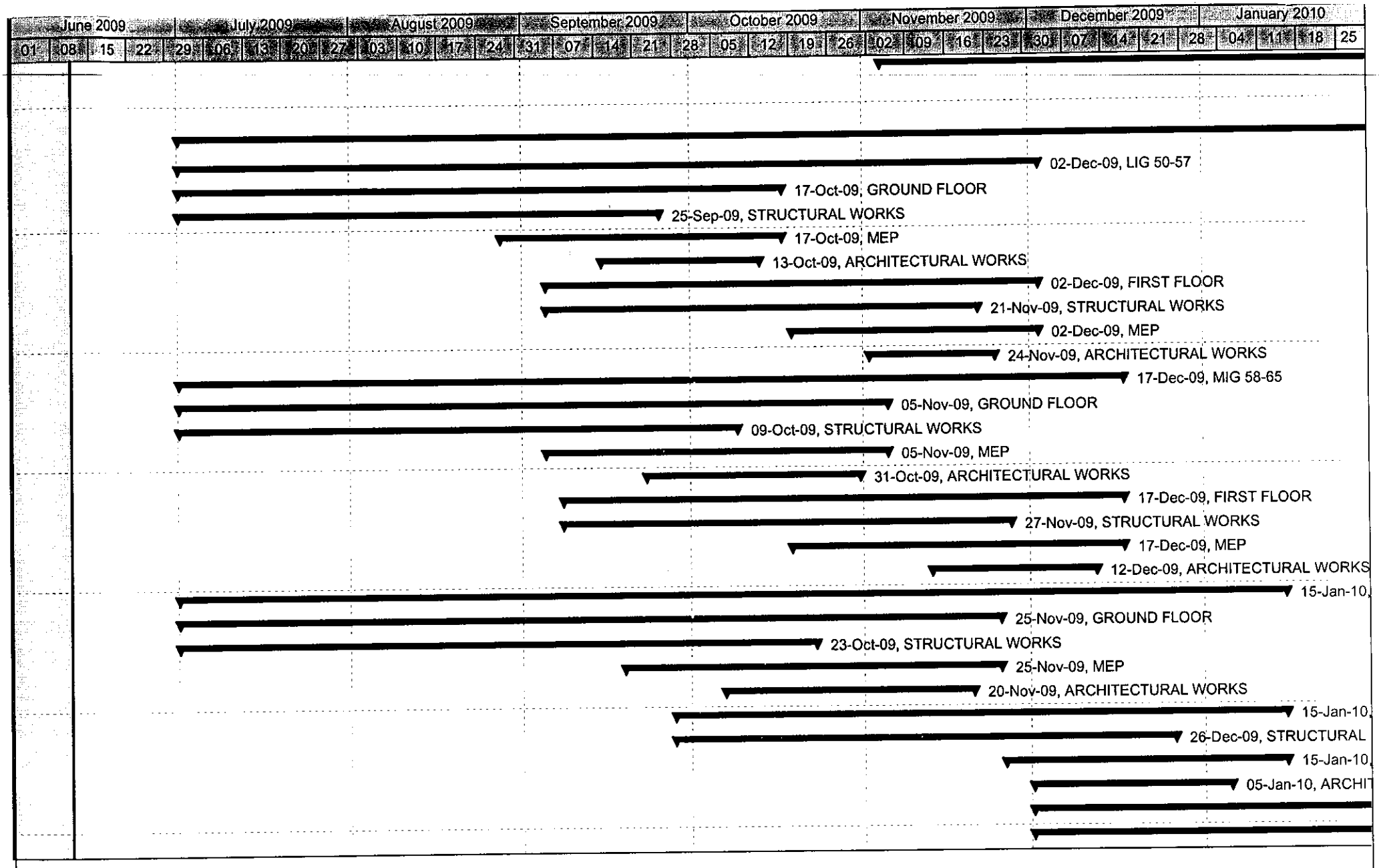
TASK filter: All Activities

© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	STRUCTURAL WORK	100	100	0%	04-Nov-09	23-Mar-10	$1,612,800		
	MEP	65	65	0%	08-Feb-10	08-May-10	$745,680		
	INFRASTRUCTURAL WORK	61	61	0%	09-Mar-10	01-Jun-10	$423,400		
	ZONE 2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		
	LIG 50-57	111	111	0%	01-Jul-09	02-Dec-09	$8,857,216		
	GROUND FLOOR	78	78	0%	01-Jul-09	17-Oct-09	$4,776,848		
	STRUCTURAL WORKS	63	63	0%	01-Jul-09	25-Sep-09	$3,956,064		
	MEP	36	36	0%	28-Aug-09	17-Oct-09	$340,000		
	ARCHITECTURAL WORKS	21	21	0%	15-Sep-09	13-Oct-09	$480,784		
	FIRST FLOOR	63	63	0%	05-Sep-09	02-Dec-09	$4,080,368		
	STRUCTURAL WORKS	55	55	0%	05-Sep-09	21-Nov-09	$3,259,584		
	MEP	33	33	0%	19-Oct-09	02-Dec-09	$340,000		
	ARCHITECTURAL WORKS	17	17	0%	02-Nov-09	24-Nov-09	$480,784		
	MIG 58-65	122	122	0%	01-Jul-09	17-Dec-09	$12,062,152		
	GROUND FLOOR	92	92	0%	01-Jul-09	05-Nov-09	$6,493,312		
	STRUCTURAL WORKS	73	73	0%	01-Jul-09	09-Oct-09	$4,270,520		
	MEP	44	44	0%	05-Sep-09	05-Nov-09	$956,000		
	ARCHITECTURAL WORKS	28	28	0%	23-Sep-09	31-Oct-09	$1,266,792		
	FIRST FLOOR	73	73	0%	08-Sep-09	17-Dec-09	$5,568,840		
	STRUCTURAL WORKS	59	59	0%	08-Sep-09	27-Nov-09	$3,386,048		
	MEP	44	44	0%	19-Oct-09	17-Dec-09	$916,000		
	ARCHITECTURAL WORKS	21	21	0%	13-Nov-09	12-Dec-09	$1,266,792		
	HIG66-73	143	143	0%	01-Jul-09	15-Jan-10	$20,651,952		
	GROUND FLOOR	106	106	0%	01-Jul-09	25-Nov-09	$11,273,432		
	STRUCTURAL WORKS	83	83	0%	01-Jul-09	23-Oct-09	$7,868,672		
	MEP	48	48	0%	19-Sep-09	25-Nov-09	$1,171,600		
	ARCHITECTURAL WORKS	33	33	0%	07-Oct-09	20-Nov-09	$2,233,160		
	FIRST FLOOR	80	80	0%	28-Sep-09	15-Jan-10	$9,378,520		
	STRUCTURAL WORKS	65	65	0%	28-Sep-09	26-Dec-09	$5,922,160		
	MEP	37	37	0%	26-Nov-09	15-Jan-10	$1,208,000		
	ARCHITECTURAL WORKS	26	26	0%	01-Dec-09	05-Jan-10	$2,248,360		
	LIG 74-81	111	111	0%	01-Dec-09	04-May-10	$8,857,216		
	GROUND FLOOR	79	79	0%	01-Dec-09	19-Mar-10	$4,776,848		

TASK filter: All Activities

© Primavera Systems, Inc.



Actual Work | Critical Remaining Work | Summary

Remaining Work | Milestone

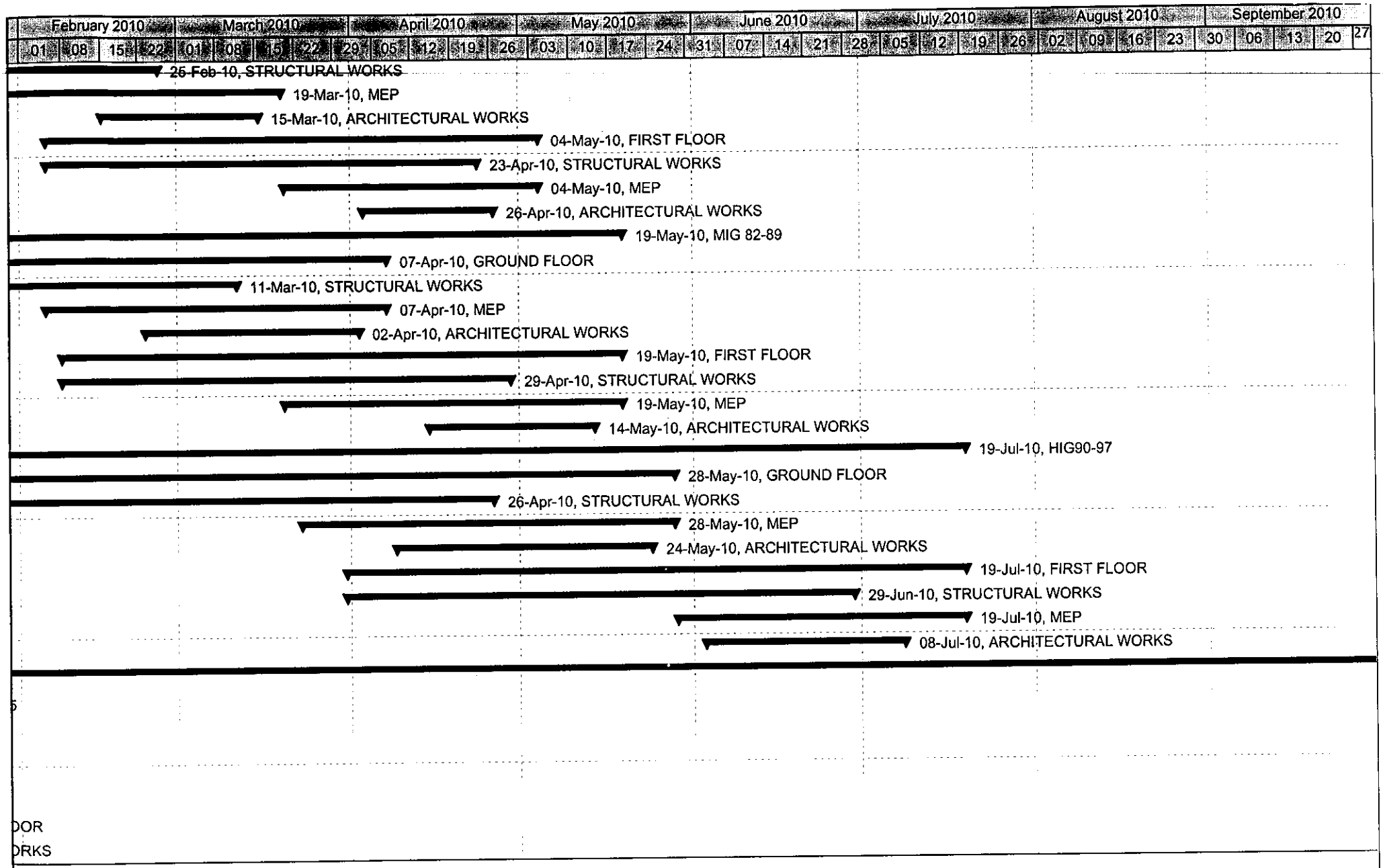
TASK filter: All Activities

© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	maining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	STRUCTURAL WORKS	63	63	0%	01-Dec-09	25-Feb-10	$3,956,064		
	MEP	37	37	0%	28-Jan-10	19-Mar-10	$340,000		
	ARCHITECTURAL WORKS	21	21	0%	15-Feb-10	15-Mar-10	$480,784		
	FIRST FLOOR	63	63	0%	05-Feb-10	04-May-10	$4,080,368		
	STRUCTURAL WORKS	56	56	0%	05-Feb-10	23-Apr-10	$3,259,584		
	MEP	32	32	0%	20-Mar-10	04-May-10	$340,000		
	ARCHITECTURAL WORKS	16	16	0%	03-Apr-10	26-Apr-10	$480,784		
MIG 82-89		**122**	**122**	**0%**	**01-Dec-09**	**19-May-10**	**$12,062,152**		
	GROUND FLOOR	92	92	0%	01-Dec-09	07-Apr-10	$6,493,312		
	STRUCTURAL WORKS	73	73	0%	01-Dec-09	11-Mar-10	$4,270,520		
	MEP	44	44	0%	05-Feb-10	07-Apr-10	$956,000		
	ARCHITECTURAL WORKS	29	29	0%	23-Feb-10	02-Apr-10	$1,266,792		
	FIRST FLOOR	73	73	0%	08-Feb-10	19-May-10	$5,568,840		
	STRUCTURAL WORKS	59	59	0%	08-Feb-10	29-Apr-10	$3,386,048		
	MEP	43	43	0%	20-Mar-10	19-May-10	$916,000		
	ARCHITECTURAL WORKS	22	22	0%	15-Apr-10	14-May-10	$1,266,792		
HIG90-97		**142**	**142**	**0%**	**01-Jan-10**	**19-Jul-10**	**$20,651,952**		
	GROUND FLOOR	106	106	0%	01-Jan-10	28-May-10	$11,273,432		
	STRUCTURAL WORKS	82	82	0%	01-Jan-10	26-Apr-10	$7,868,672		
	MEP	49	49	0%	23-Mar-10	28-May-10	$1,171,600		
	ARCHITECTURAL WORKS	32	32	0%	09-Apr-10	24-May-10	$2,233,160		
	FIRST FLOOR	79	79	0%	31-Mar-10	19-Jul-10	$9,378,520		
	STRUCTURAL WORKS	65	65	0%	31-Mar-10	29-Jun-10	$5,922,160		
	MEP	36	36	0%	29-May-10	19-Jul-10	$1,208,000		
	ARCHITECTURAL WORKS	26	26	0%	03-Jun-10	08-Jul-10	$2,248,360		
ZONE-3		**471**	**471**	**0%**	**01-Aug-09**	**23-May-11**	**$98,412,280**		
LIG 98-105		**110**	**110**	**0%**	**01-Aug-09**	**02-Jan-10**	**$8,857,216**		
	GROUND FLOOR	78	78	0%	01-Aug-09	18-Nov-09	$4,776,848		
	STRUCTURAL WORKS	62	62	0%	01-Aug-09	27-Oct-09	$3,956,064		
	MEP	37	37	0%	29-Sep-09	18-Nov-09	$340,000		
	ARCHITECTURAL WORKS	21	21	0%	16-Oct-09	13-Nov-09	$480,784		
	FIRST FLOOR	63	63	0%	07-Oct-09	02-Jan-10	$4,080,368		
	STRUCTURAL WORKS	56	56	0%	07-Oct-09	23-Dec-09	$3,259,584		

TASK filter: All Activities

© Primavera Systems, Inc.

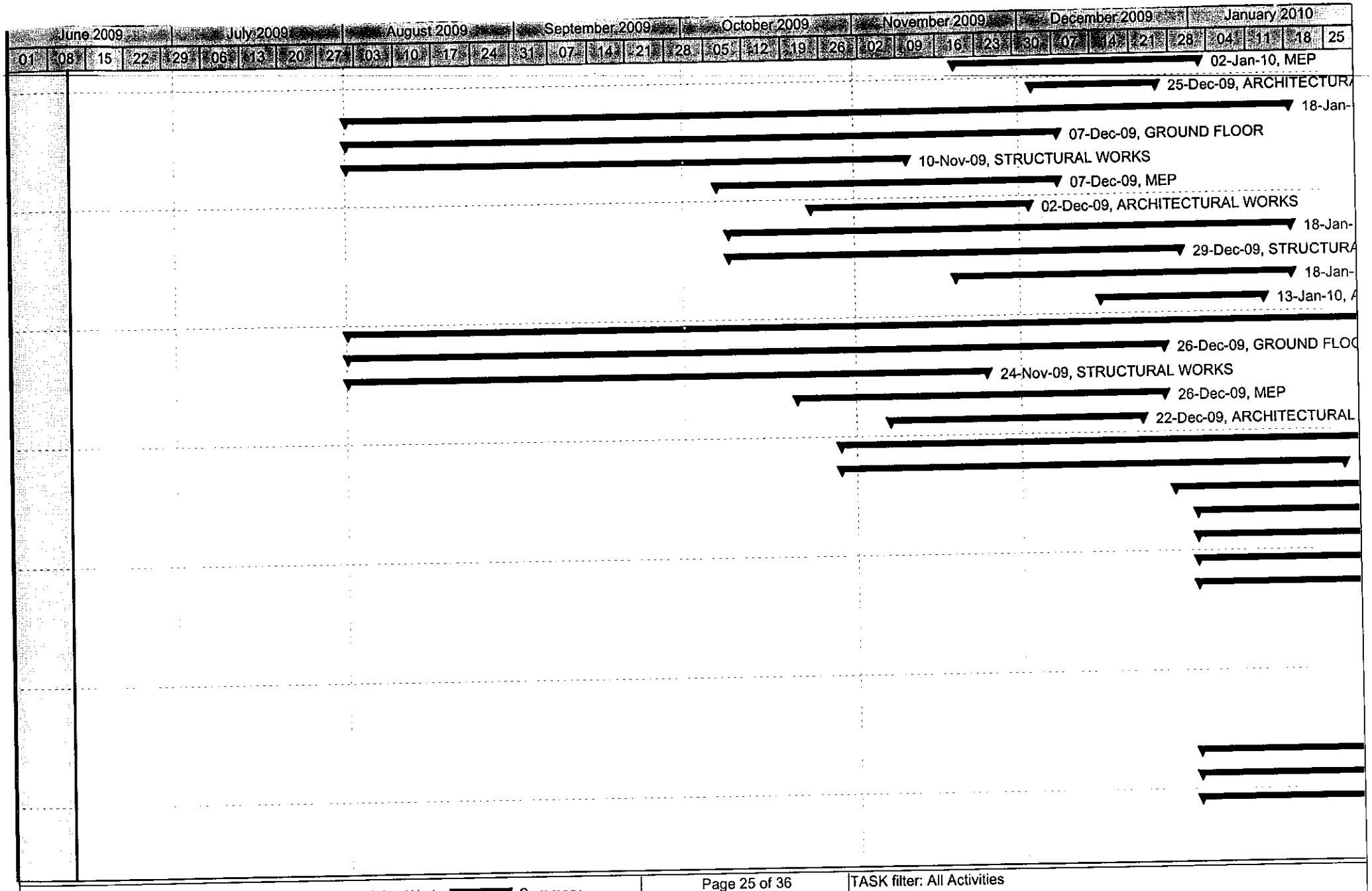


© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	MEP	32	32	0%	19-Nov-09	02-Jan-10	$340,000		
	ARCHITECTURAL WORKS	17	17	0%	03-Dec-09	25-Dec-09	$480,784		
	MIG 106-113	**121**	**121**	**0%**	**01-Aug-09**	**18-Jan-10**	**$12,062,152**		
	GROUND FLOOR	91	91	0%	01-Aug-09	07-Dec-09	$6,493,312		
	STRUCTURAL WORKS	72	72	0%	01-Aug-09	10-Nov-09	$4,270,520		
	MEP	44	44	0%	07-Oct-09	07-Dec-09	$956,000		
	ARCHITECTURAL WORKS	28	28	0%	24-Oct-09	02-Dec-09	$1,266,792		
	FIRST FLOOR	72	72	0%	09-Oct-09	18-Jan-10	$5,568,840		
	STRUCTURAL WORKS	58	58	0%	09-Oct-09	29-Dec-09	$3,386,048		
	MEP	43	43	0%	19-Nov-09	18-Jan-10	$916,000		
	ARCHITECTURAL WORKS	22	22	0%	15-Dec-09	13-Jan-10	$1,266,792		
	HIG114-121	**142**	**142**	**0%**	**01-Aug-09**	**16-Feb-10**	**$20,651,952**		
	GROUND FLOOR	105	105	0%	01-Aug-09	26-Dec-09	$11,273,432		
	STRUCTURAL WORKS	82	82	0%	01-Aug-09	24-Nov-09	$7,868,672		
	MEP	48	48	0%	21-Oct-09	26-Dec-09	$1,171,600		
	ARCHITECTURAL WORKS	32	32	0%	07-Nov-09	22-Dec-09	$2,233,160		
	FIRST FLOOR	79	79	0%	29-Oct-09	16-Feb-10	$9,378,520		
	STRUCTURAL WORKS	65	65	0%	29-Oct-09	27-Jan-10	$5,922,160		
	MEP	37	37	0%	28-Dec-09	16-Feb-10	$1,208,000		
	ARCHITECTURAL WORKS	26	26	0%	01-Jan-10	05-Feb-10	$2,248,360		
	LIG 122-129	**111**	**111**	**0%**	**01-Jan-10**	**04-Jun-10**	**$8,857,216**		
	GROUND FLOOR	78	78	0%	01-Jan-10	20-Apr-10	$4,776,848		
	STRUCTURAL WORKS	62	62	0%	01-Jan-10	29-Mar-10	$3,956,064		
	MEP	37	37	0%	01-Mar-10	20-Apr-10	$340,000		
	ARCHITECTURAL WORKS	21	21	0%	18-Mar-10	15-Apr-10	$480,784		
	FIRST FLOOR	64	64	0%	09-Mar-10	04-Jun-10	$4,080,368		
	STRUCTURAL WORKS	56	56	0%	09-Mar-10	25-May-10	$3,259,584		
	MEP	33	33	0%	21-Apr-10	04-Jun-10	$340,000		
	ARCHITECTURAL WORKS	17	17	0%	05-May-10	27-May-10	$480,784		
	MIG 130-137	**121**	**121**	**0%**	**01-Jan-10**	**19-Jun-10**	**$12,062,152**		
	GROUND FLOOR	91	91	0%	01-Jan-10	08-May-10	$6,493,312		
	STRUCTURAL WORKS	72	72	0%	01-Jan-10	12-Apr-10	$4,270,520		
	MEP	44	44	0%	09-Mar-10	08-May-10	$956,000		
	ARCHITECTURAL WORKS	28	28	0%	26-Mar-10	04-May-10	$1,266,792		

TASK filter: All Activities

© Primavera Systems, Inc.



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

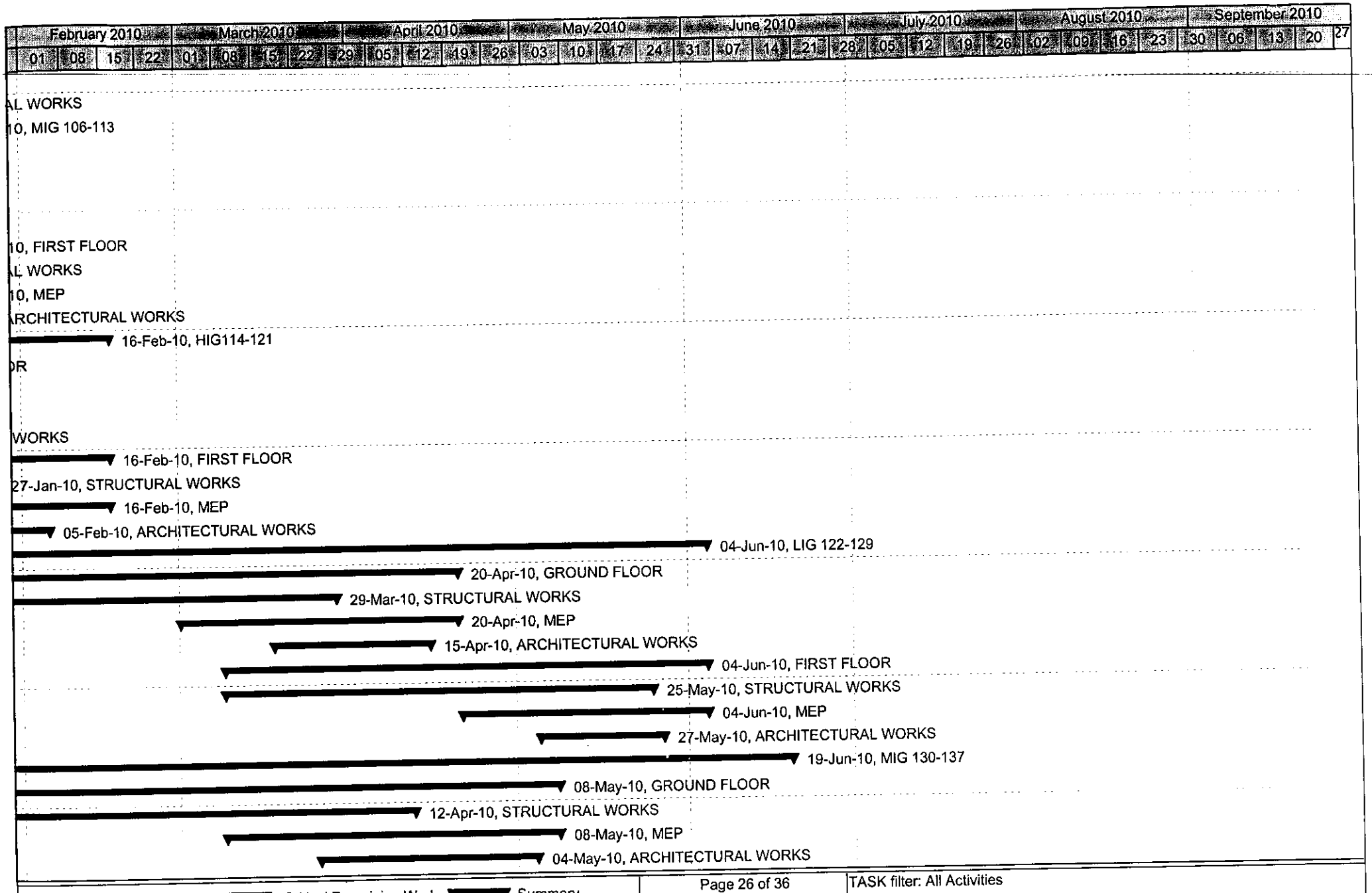
TASK filter: All Activities

© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	FIRST FLOOR	72	72	0%	11-Mar-10	19-Jun-10	$5,568,840		
	STRUCTURAL WORKS	58	58	0%	11-Mar-10	31-May-10	$3,386,048		
	MEP	43	43	0%	21-Apr-10	19-Jun-10	$916,000		
	ARCHITECTURAL WORKS	22	22	0%	17-May-10	15-Jun-10	$1,266,792		
	HIG138-145	**143**	**143**	**0%**	**01-Feb-10**	**18-Aug-10**	**$20,651,952**		
	GROUND FLOOR	106	106	0%	01-Feb-10	28-Jun-10	$11,273,432		
	STRUCTURAL WORKS	83	83	0%	01-Feb-10	26-May-10	$7,868,672		
	MEP	48	48	0%	22-Apr-10	28-Jun-10	$1,171,600		
	ARCHITECTURAL WORKS	33	33	0%	10-May-10	23-Jun-10	$2,233,160		
	FIRST FLOOR	79	79	0%	30-Apr-10	18-Aug-10	$9,378,520		
	STRUCTURAL WORKS	65	65	0%	30-Apr-10	29-Jul-10	$5,922,160		
	MEP	37	37	0%	29-Jun-10	18-Aug-10	$1,208,000		
	ARCHITECTURAL WORKS	25	25	0%	03-Jul-10	07-Aug-10	$2,248,360		
	HOSPITAL146	**255**	**255**	**0%**	**01-Jun-10**	**23-May-11**	**$5,269,640**		
	GROUND FLOOR	181	181	0%	01-Jun-10	08-Feb-11	$2,838,520		
	STRUCTURAL WORK	150	150	0%	01-Jun-10	27-Dec-10	$1,872,000		
	MEP	62	62	0%	11-Nov-10	05-Feb-11	$615,000		
	INFRASTRUCTURAL WORK	54	54	0%	25-Nov-10	08-Feb-11	$351,520		
	FIRST FLOOR	145	145	0%	02-Nov-10	23-May-11	$2,431,120		
	STRUCTURAL WORK	100	100	0%	02-Nov-10	21-Mar-11	$1,440,000		
	MEP	65	65	0%	09-Feb-11	10-May-11	$639,600		
	INFRASTRUCTURAL WORK	54	54	0%	09-Mar-11	23-May-11	$351,520		
	ZONE 4	**338**	**338**	**0%**	**01-Jun-09**	**15-Sep-10**	**$83,742,640**		
	LIG 147-155	**111**	**111**	**0%**	**01-Sep-09**	**02-Feb-10**	**$8,857,216**		
	GROUND FLOOR	79	79	0%	01-Sep-09	18-Dec-09	$4,776,848		
	STRUCTURAL WORKS	63	63	0%	01-Sep-09	26-Nov-09	$3,956,064		
	MEP	37	37	0%	29-Oct-09	18-Dec-09	$340,000		
	ARCHITECTURAL WORKS	21	21	0%	16-Nov-09	14-Dec-09	$480,784		
	FIRST FLOOR	63	63	0%	06-Nov-09	02-Feb-10	$4,080,368		
	STRUCTURAL WORKS	56	56	0%	06-Nov-09	22-Jan-10	$3,259,584		
	MEP	32	32	0%	19-Dec-09	02-Feb-10	$340,000		
	ARCHITECTURAL WORKS	16	16	0%	02-Jan-10	25-Jan-10	$480,784		
	MIG 156-163	**122**	**122**	**0%**	**01-Sep-09**	**17-Feb-10**	**$12,062,152**		

TASK filter: All Activities

© Primavera Systems, Inc.



Actual Work | Critical Remaining Work | Summary
Remaining Work | Milestone

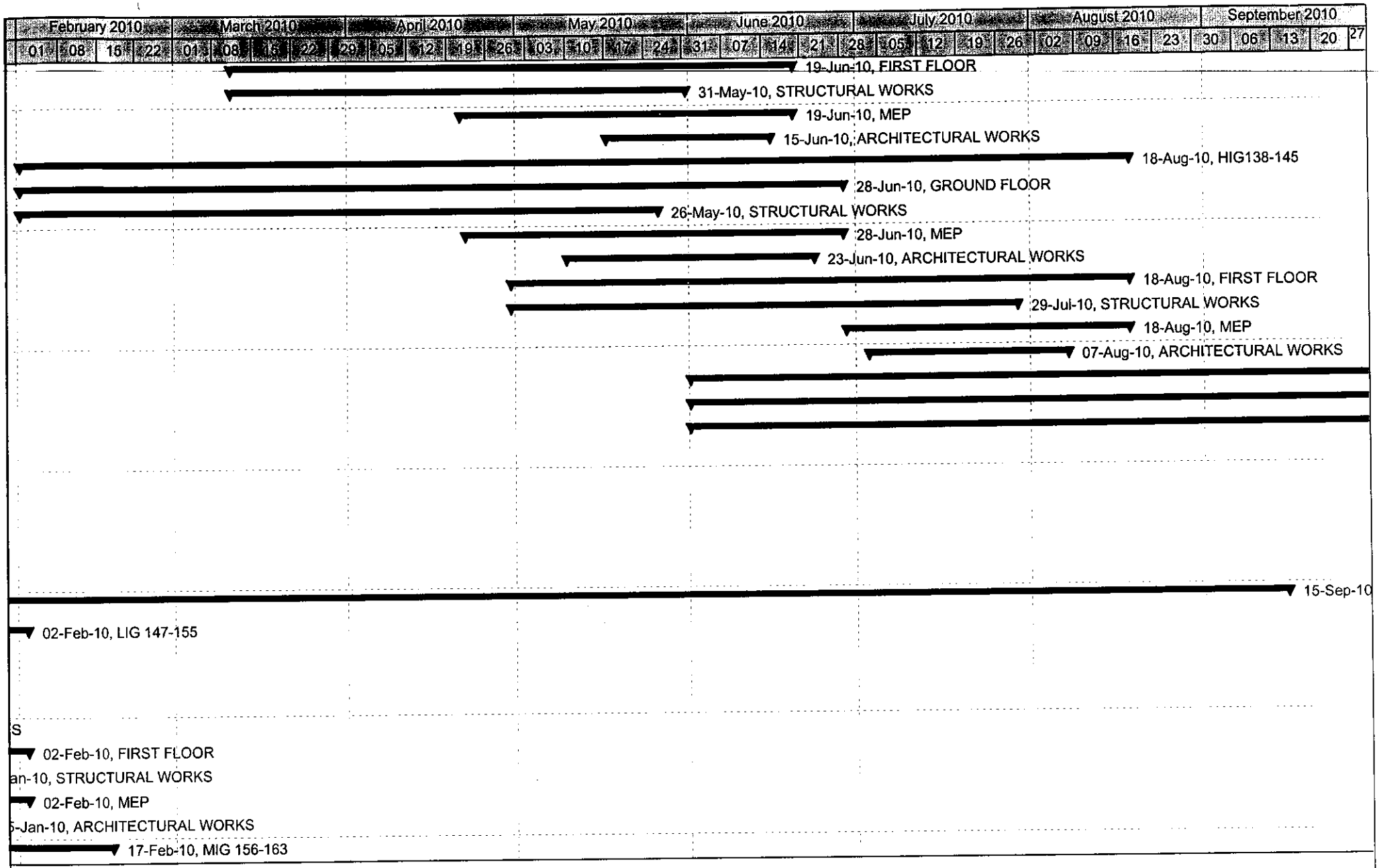
TASK filter: All Activities

© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	GROUND FLOOR	92	92	0%	01-Sep-09	06-Jan-10	$6,493,312		
	STRUCTURAL WORKS	73	73	0%	01-Sep-09	10-Dec-09	$4,270,520		
	MEP	44	44	0%	06-Nov-09	06-Jan-10	$956,000		
	ARCHITECTURAL WORKS	29	29	0%	24-Nov-09	01-Jan-10	$1,266,792		
	FIRST FLOOR	73	73	0%	09-Nov-09	17-Feb-10	$5,568,840		
	STRUCTURAL WORKS	59	59	0%	09-Nov-09	28-Jan-10	$3,386,048		
	MEP	43	43	0%	19-Dec-09	17-Feb-10	$916,000		
	ARCHITECTURAL WORKS	22	22	0%	14-Jan-10	12-Feb-10	$1,266,792		
HIG164-171		**143**	**143**	**0%**	**01-Sep-09**	**18-Mar-10**	**$20,651,952**		
	GROUND FLOOR	106	106	0%	01-Sep-09	26-Jan-10	$11,273,432		
	STRUCTURAL WORKS	83	83	0%	01-Sep-09	24-Dec-09	$7,868,672		
	MEP	48	48	0%	20-Nov-09	26-Jan-10	$1,171,600		
	ARCHITECTURAL WORKS	33	33	0%	08-Dec-09	21-Jan-10	$2,233,160		
	FIRST FLOOR	79	79	0%	28-Nov-09	18-Mar-10	$9,378,520		
	STRUCTURAL WORKS	65	65	0%	28-Nov-09	26-Feb-10	$5,922,160		
	MEP	37	37	0%	27-Jan-10	18-Mar-10	$1,208,000		
	ARCHITECTURAL WORKS	26	26	0%	01-Feb-10	08-Mar-10	$2,248,360		
LIG 172-179		**281**	**281**	**0%**	**01-Jun-09**	**28-Jun-10**	**$8,857,216**		
	GROUND FLOOR	249	249	0%	01-Jun-09	13-May-10	$4,776,848		
	STRUCTURAL WORKS	233	233	0%	01-Jun-09	21-Apr-10	$3,956,064		
	MEP	37	37	0%	24-Mar-10	13-May-10	$340,000		
	ARCHITECTURAL WORKS	20	20	0%	10-Apr-10	08-May-10	$480,784		
	FIRST FLOOR	63	63	0%	01-Apr-10	28-Jun-10	$4,080,368		
	STRUCTURAL WORKS	56	56	0%	01-Apr-10	17-Jun-10	$3,259,584		
	MEP	32	32	0%	14-May-10	28-Jun-10	$340,000		
	ARCHITECTURAL WORKS	16	16	0%	28-May-10	19-Jun-10	$480,784		
MIG 180-181		**122**	**122**	**0%**	**01-Feb-10**	**20-Jul-10**	**$12,062,152**		
	GROUND FLOOR	92	92	0%	01-Feb-10	08-Jun-10	$6,493,312		
	STRUCTURAL WORKS	73	73	0%	01-Feb-10	12-May-10	$4,270,520		
	MEP	44	44	0%	08-Apr-10	08-Jun-10	$956,000		
	ARCHITECTURAL WORKS	29	29	0%	26-Apr-10	03-Jun-10	$1,266,792		
	FIRST FLOOR	72	72	0%	10-Apr-10	20-Jul-10	$5,568,840		
	STRUCTURAL WORKS	58	58	0%	10-Apr-10	30-Jun-10	$3,386,048		
	MEP	43	43	0%	21-May-10	20-Jul-10	$916,000		

TASK filter: All Activities

© Primavera Systems, Inc.



Actual Work | Critical Remaining Work | Summary

Remaining Work | Milestone

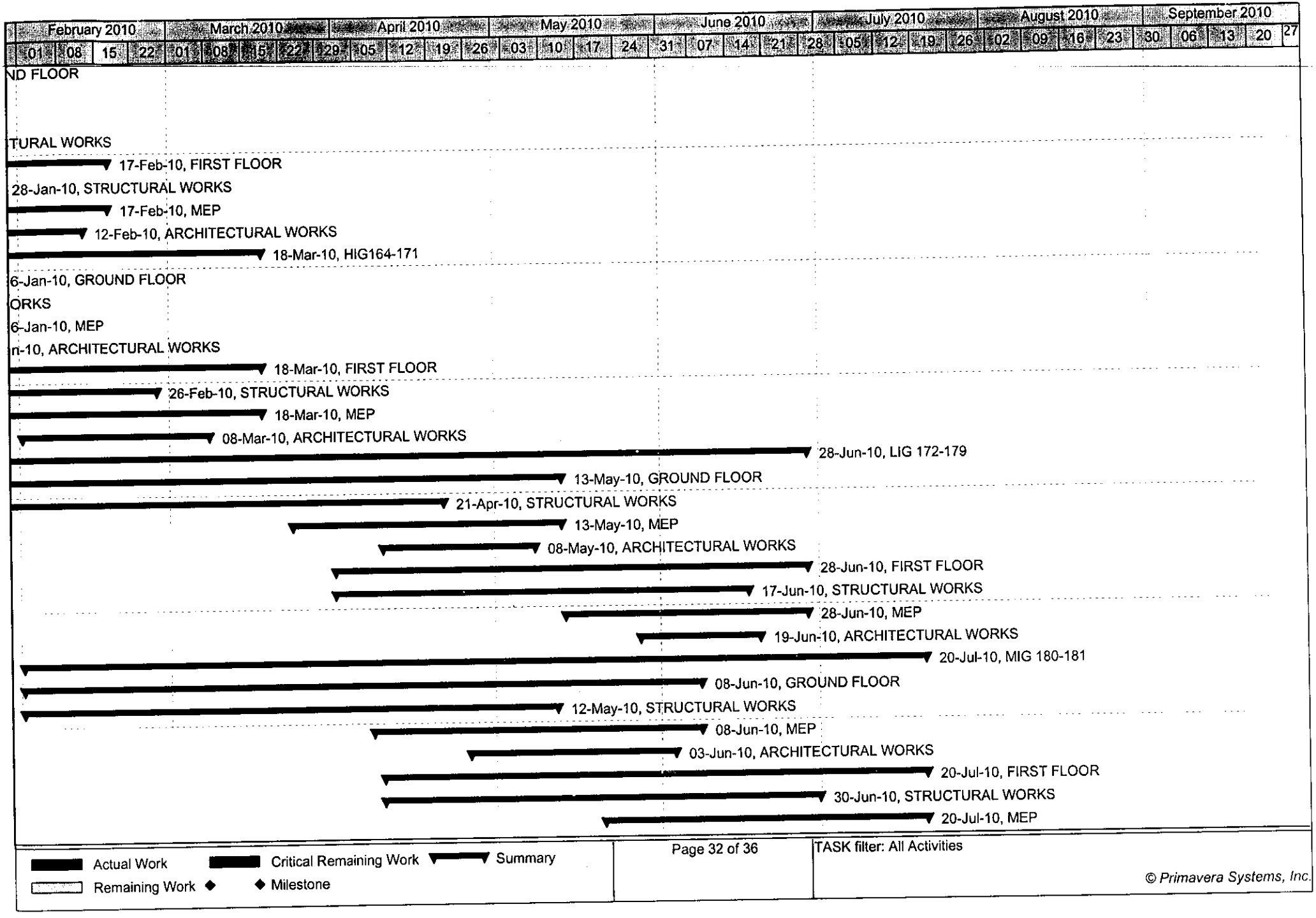
TASK filter: All Activities

© Primavera Systems, Inc.

Activity ID	Activity Name	Original Duration	Remaining Duration	Schedule % Complete	Start	Finish	Budgeted Total Cost	Predecessors	Successors
	ARCHITECTURAL WORKS	22	22	0%	16-Jun-10	15-Jul-10	$1,266,792		
	HIG182-189	**143**	**143**	**0%**	**01-Mar-10**	**15-Sep-10**	**$20,651,952**		
	GROUND FLOOR	106	106	0%	01-Mar-10	26-Jul-10	$11,273,432		
	STRUCTURAL WORKS	83	83	0%	01-Mar-10	23-Jun-10	$7,868,672		
	MEP	48	48	0%	20-May-10	26-Jul-10	$1,171,600		
	ARCHITECTURAL WORKS	33	33	0%	07-Jun-10	21-Jul-10	$2,233,160		
	FIRST FLOOR	79	79	0%	28-May-10	15-Sep-10	$9,378,520		
	STRUCTURAL WORKS	65	65	0%	28-May-10	26-Aug-10	$5,922,160		
	MEP	37	37	0%	27-Jul-10	15-Sep-10	$1,208,000		
	ARCHITECTURAL WORKS	25	25	0%	31-Jul-10	04-Sep-10	$2,248,360		

TASK filter: All Activities

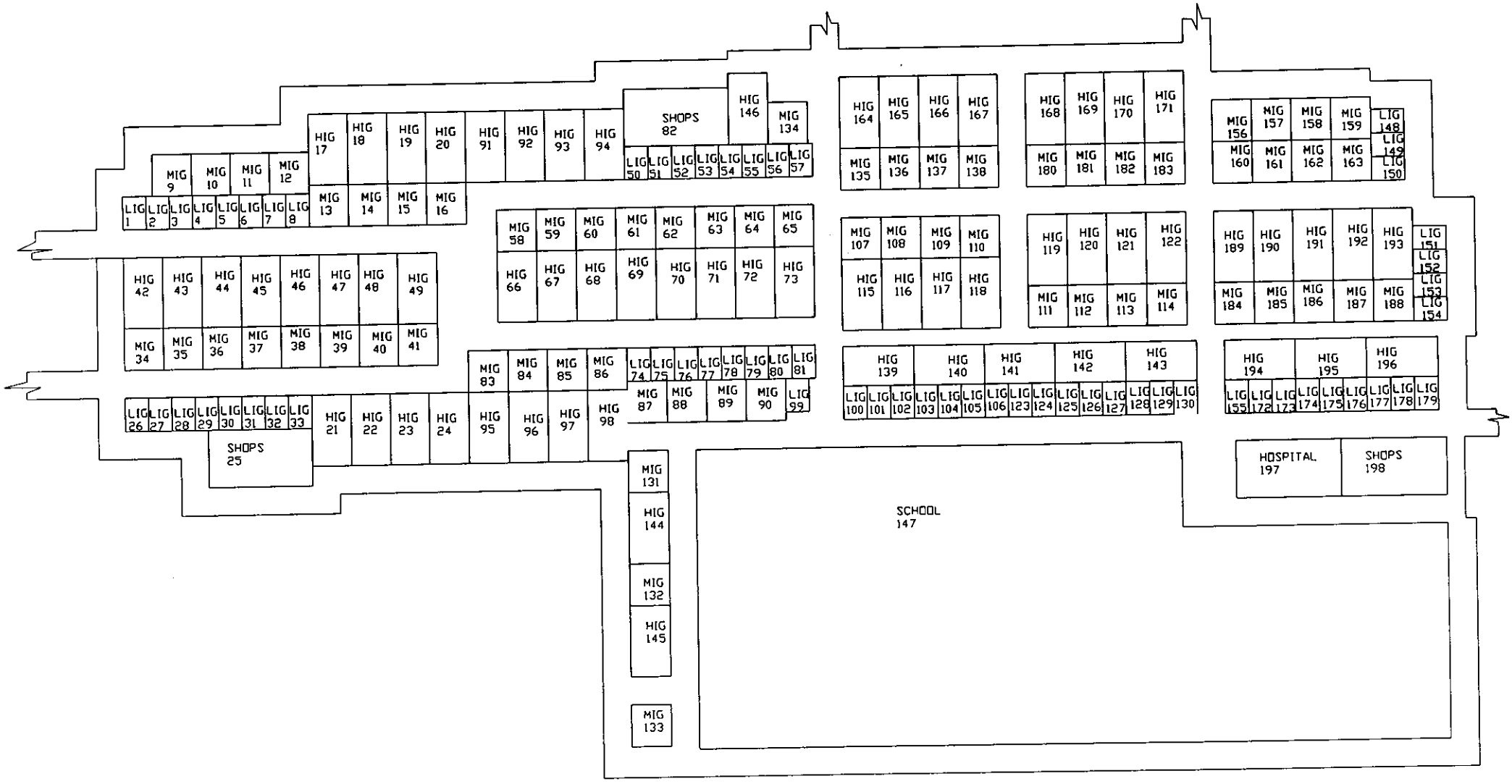
© Primavera Systems, Inc.



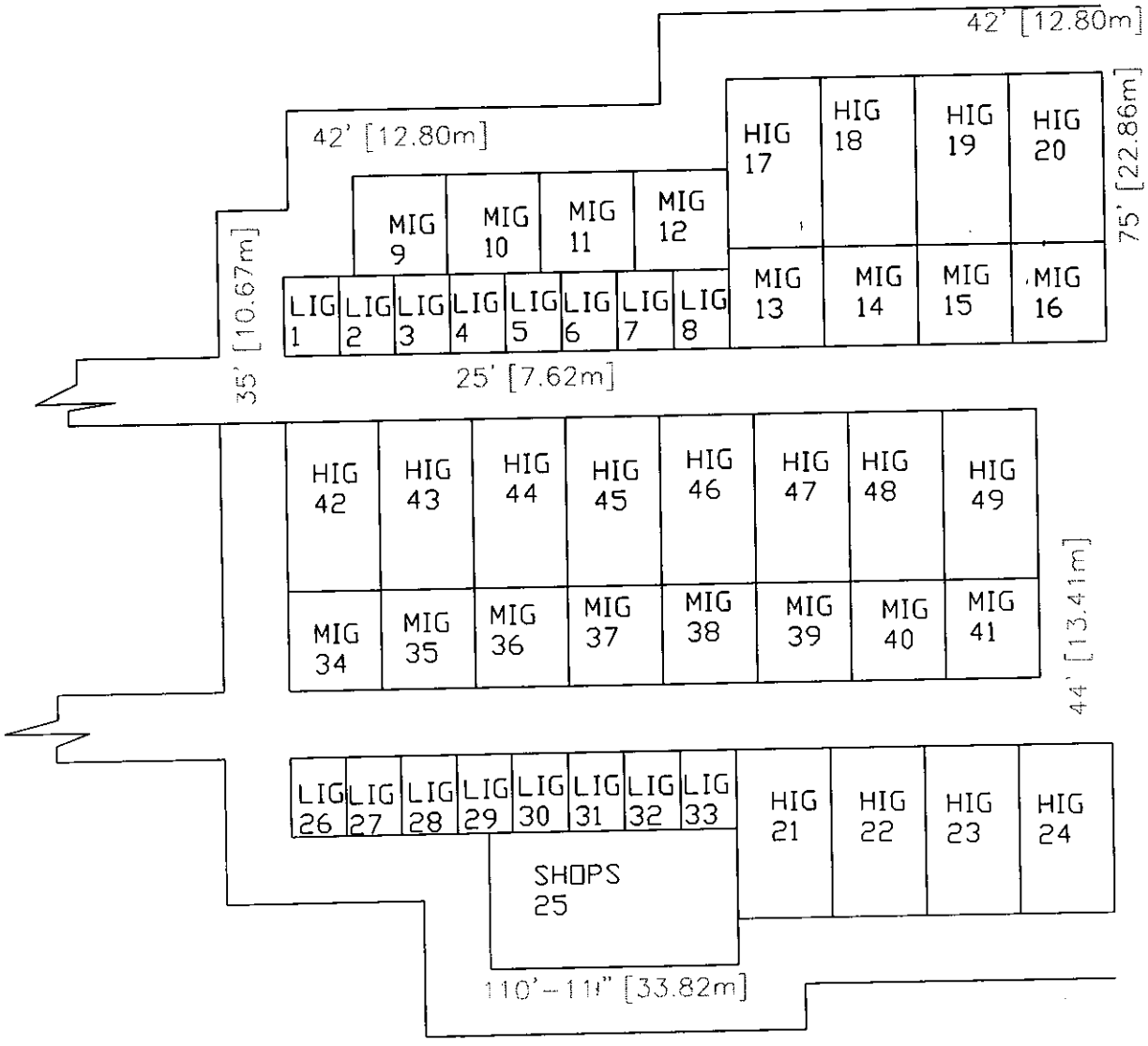
TASK filter: All Activities

© Primavera Systems, Inc.

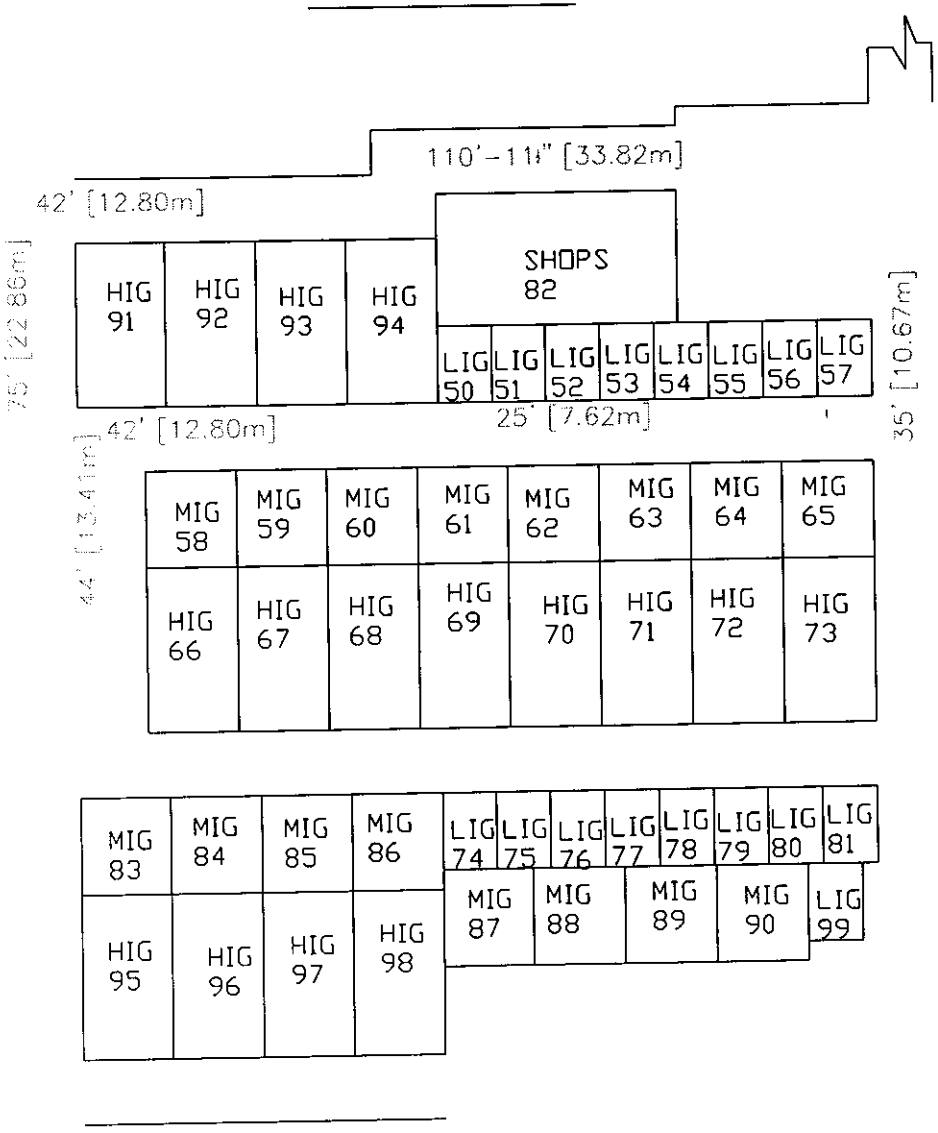
DRAWING DETAILS


SHOPS 82
SHOPS 25
SCHOOL 147
HOSPITAL 197
SHOPS 198

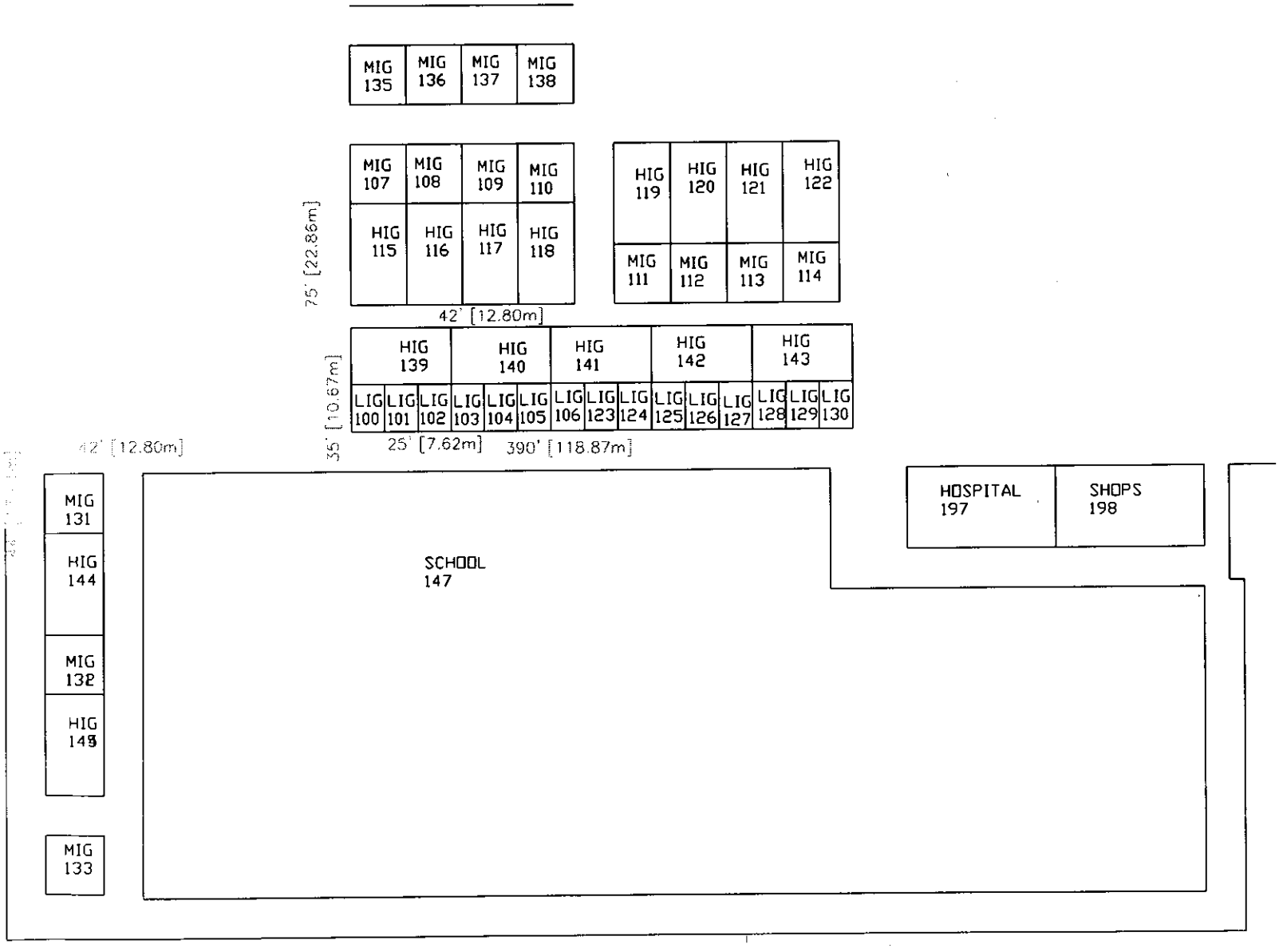
ZONE-1


42' [12.80m]
42' [12.80m]
75' [22.86m]
35' [10.67m]
25' [7.62m]
44' [13.41m]
110'-11" [33.82m]
HIG 17
HIG 18
HIG 19
HIG 20
MIG 9
MIG 10
MIG 11
MIG 12
MIG 13
MIG 14
MIG 15
MIG 16
LIG 1
LIG 2
LIG 3
LIG 4
LIG 5
LIG 6
LIG 7
LIG 8
HIG 42
HIG 43
HIG 44
HIG 45
HIG 46
HIG 47
HIG 48
HIG 49
MIG 34
MIG 35
MIG 36
MIG 37
MIG 38
MIG 39
MIG 40
MIG 41
LIG 26
LIG 27
LIG 28
LIG 29
LIG 30
LIG 31
LIG 32
LIG 33
SHOPS 25
HIG 21
HIG 22
HIG 23
HIG 24

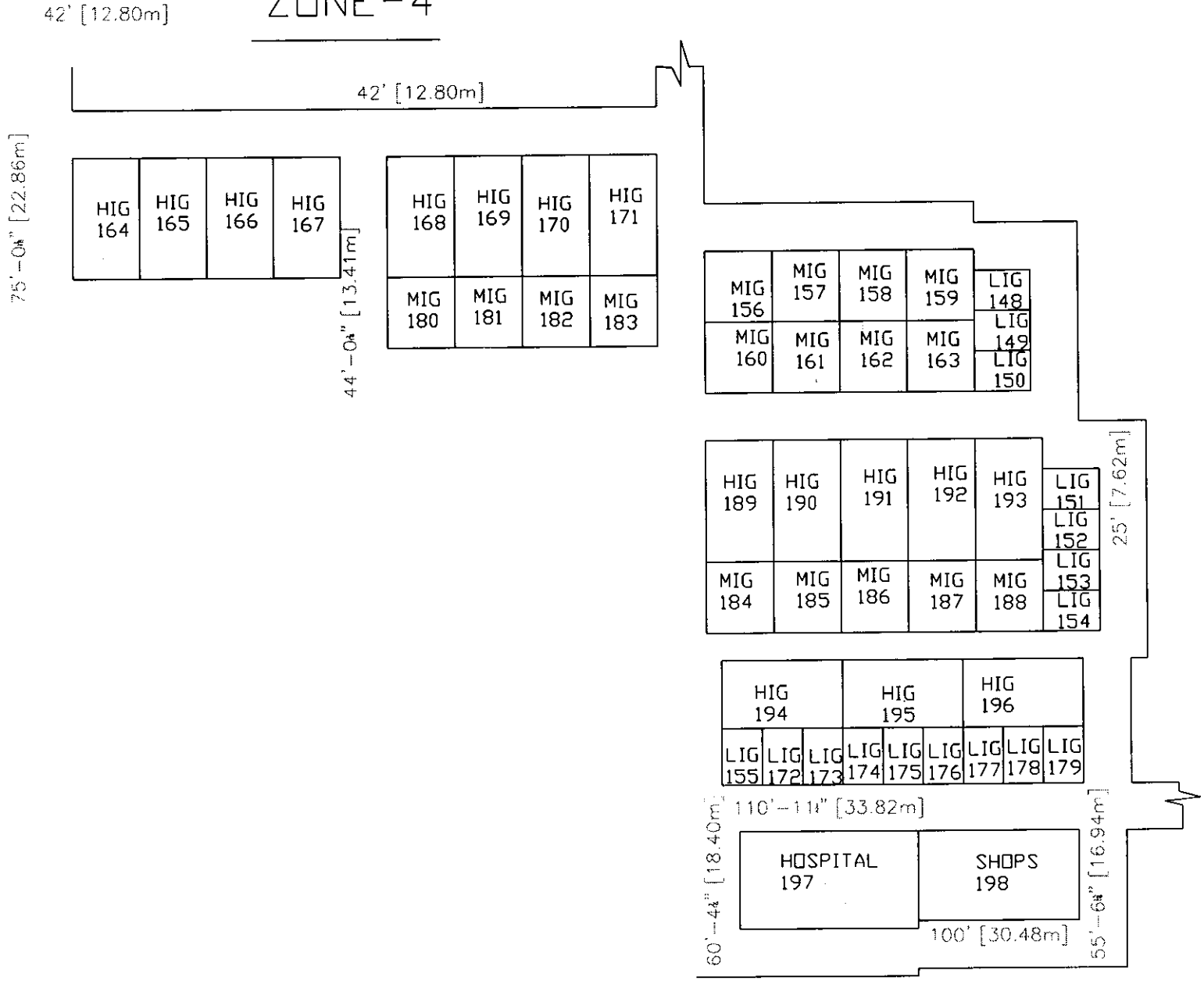
ZONE-2

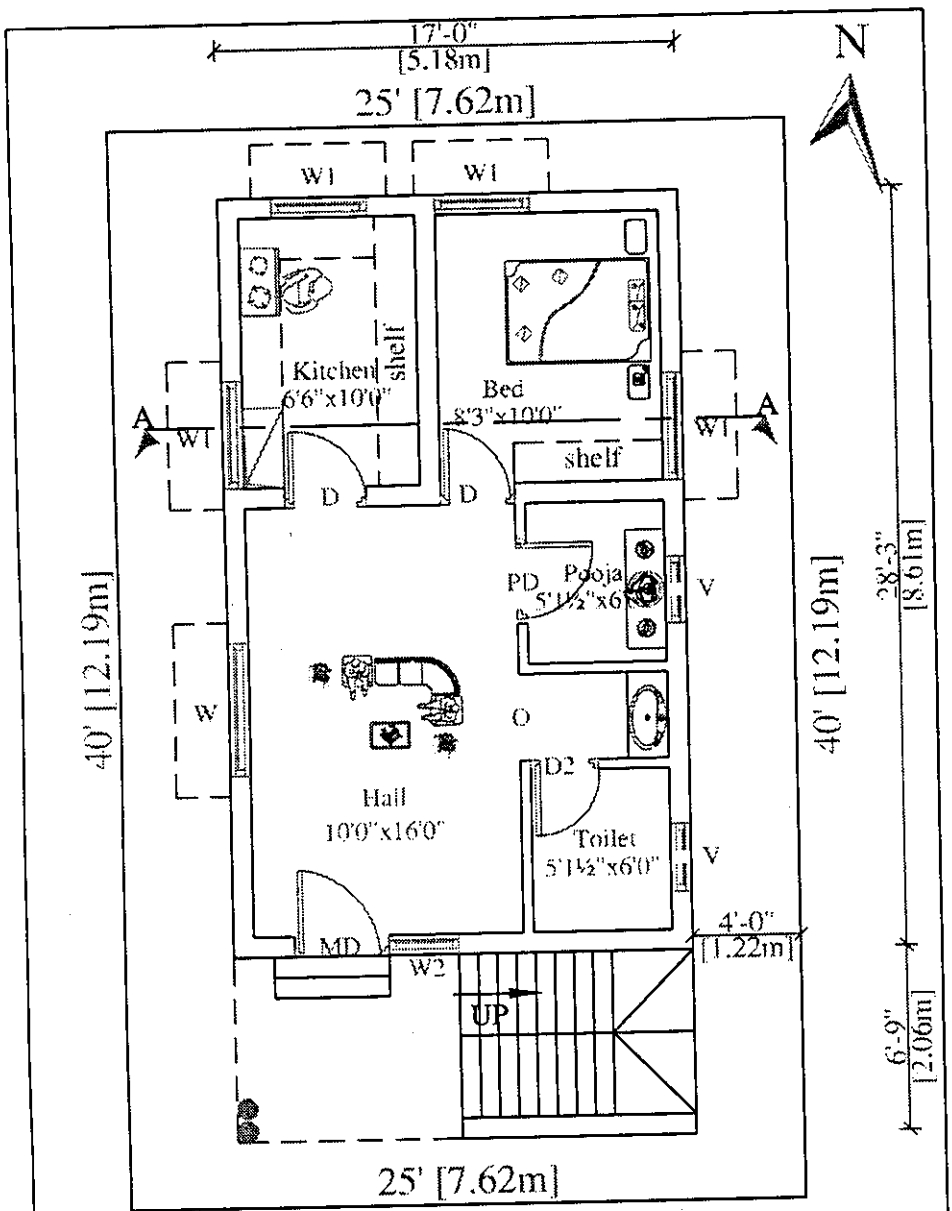

110'-11" [33.82m]
42' [12.80m]
75' [22.86m]
SHOPS
82
HIG 91
HIG 92
HIG 93
HIG 94
LIG 50
LIG 51
LIG 52
LIG 53
LIG 54
LIG 55
LIG 56
LIG 57
35' [10.67m]
25' [7.62m]
42' [12.80m]
44' [13.41m]
MIG 58
MIG 59
MIG 60
MIG 61
MIG 62
MIG 63
MIG 64
MIG 65
HIG 66
HIG 67
HIG 68
HIG 69
HIG 70
HIG 71
HIG 72
HIG 73
MIG 83
MIG 84
MIG 85
MIG 86
LIG 74
LIG 75
LIG 76
LIG 77
LIG 78
LIG 79
LIG 80
LIG 81
MIG 87
MIG 88
MIG 89
MIG 90
LIG 99
HIG 95
HIG 96
HIG 97
HIG 98

ZONE-3


MIG 135
MIG 136
MIG 137
MIG 138
MIG 107
MIG 108
MIG 109
MIG 110
HIG 115
HIG 116
HIG 117
HIG 118
HIG 119
HIG 120
HIG 121
HIG 122
MIG 111
MIG 112
MIG 113
MIG 114
75' [22.86m]
42' [12.80m]
HIG 139
HIG 140
HIG 141
HIG 142
HIG 143
LIG 100
LIG 101
LIG 102
LIG 103
LIG 104
LIG 105
LIG 106
LIG 123
LIG 124
LIG 125
LIG 126
LIG 127
LIG 128
LIG 129
LIG 130
35' [10.67m]
25' [7.62m]
390' [118.87m]
42' [12.80m]
MIG 131
HIG 144
MIG 132
HIG 145
MIG 133
SCHOOL 147
HOSPITAL 197
SHOPS 198

ZONE-4


42' [12.80m]
42' [12.80m]
75'-0" [22.86m]
HIG 164
HIG 165
HIG 166
HIG 167
HIG 168
HIG 169
HIG 170
HIG 171
MIG 180
MIG 181
MIG 182
MIG 183
44'-0" [13.41m]
MIG 156
MIG 157
MIG 158
MIG 159
LIG 148
LIG 149
LIG 150
MIG 160
MIG 161
MIG 162
MIG 163
HIG 189
HIG 190
HIG 191
HIG 192
HIG 193
LIG 151
LIG 152
LIG 153
LIG 154
MIG 184
MIG 185
MIG 186
MIG 187
MIG 188
25' [7.62m]
HIG 194
HIG 195
HIG 196
LIG 155
LIG 172
LIG 173
LIG 174
LIG 175
LIG 176
LIG 177
LIG 178
LIG 179
110'-11" [33.82m]
60'-4" [18.40m]
HOSPITAL 197
SHOPS 198
100' [30.48m]
55'-6" [16.94m]



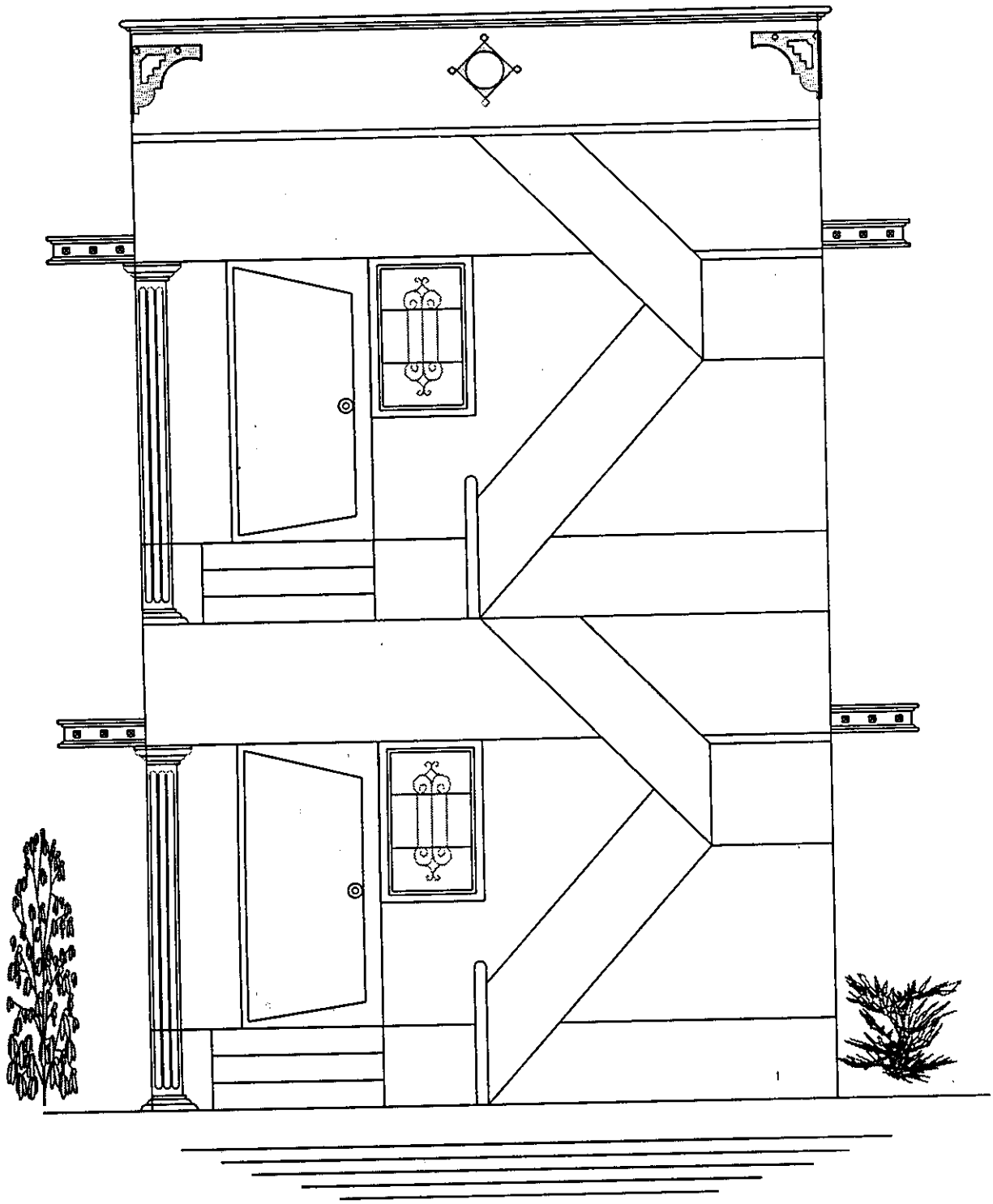
GROUND FLOOR PLAN

Reference:-	
Site plan	: 1000.00 Sqft
Ground floor Portico & Stair	: 595.00 Sqft
Area of open space	: 405.00 Sqft

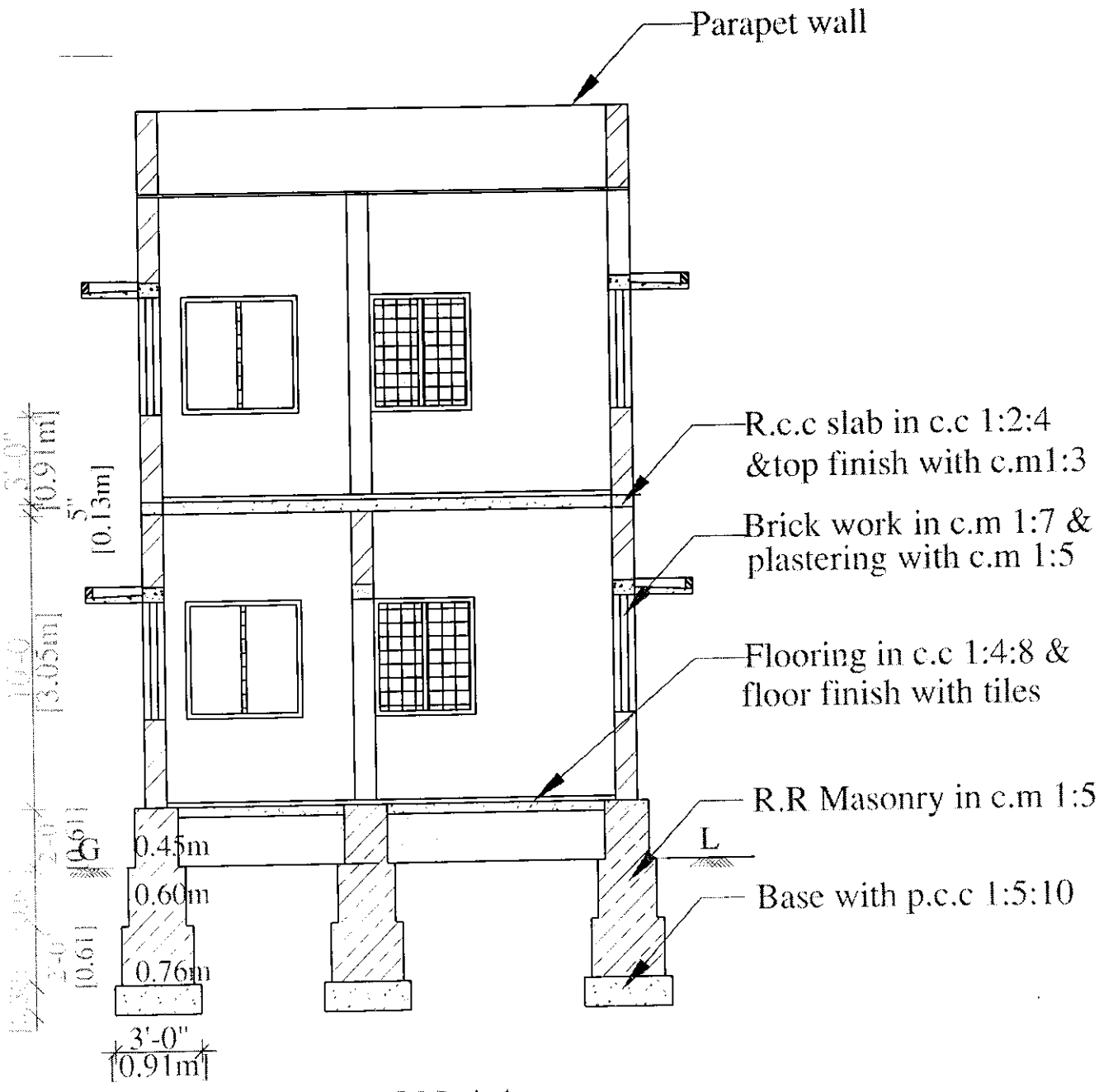
Joineries details :-		
MD	- Main door	3'6"x7'0"
D	- Door	3'0"x7'0"
D1	- Door	2'6"x7'0"
W	- Window	5'0"x4'0"
W1	- Window	4'0"x4'0"
V	- Ventilator	3'0"x2'6"

LOW CLASS

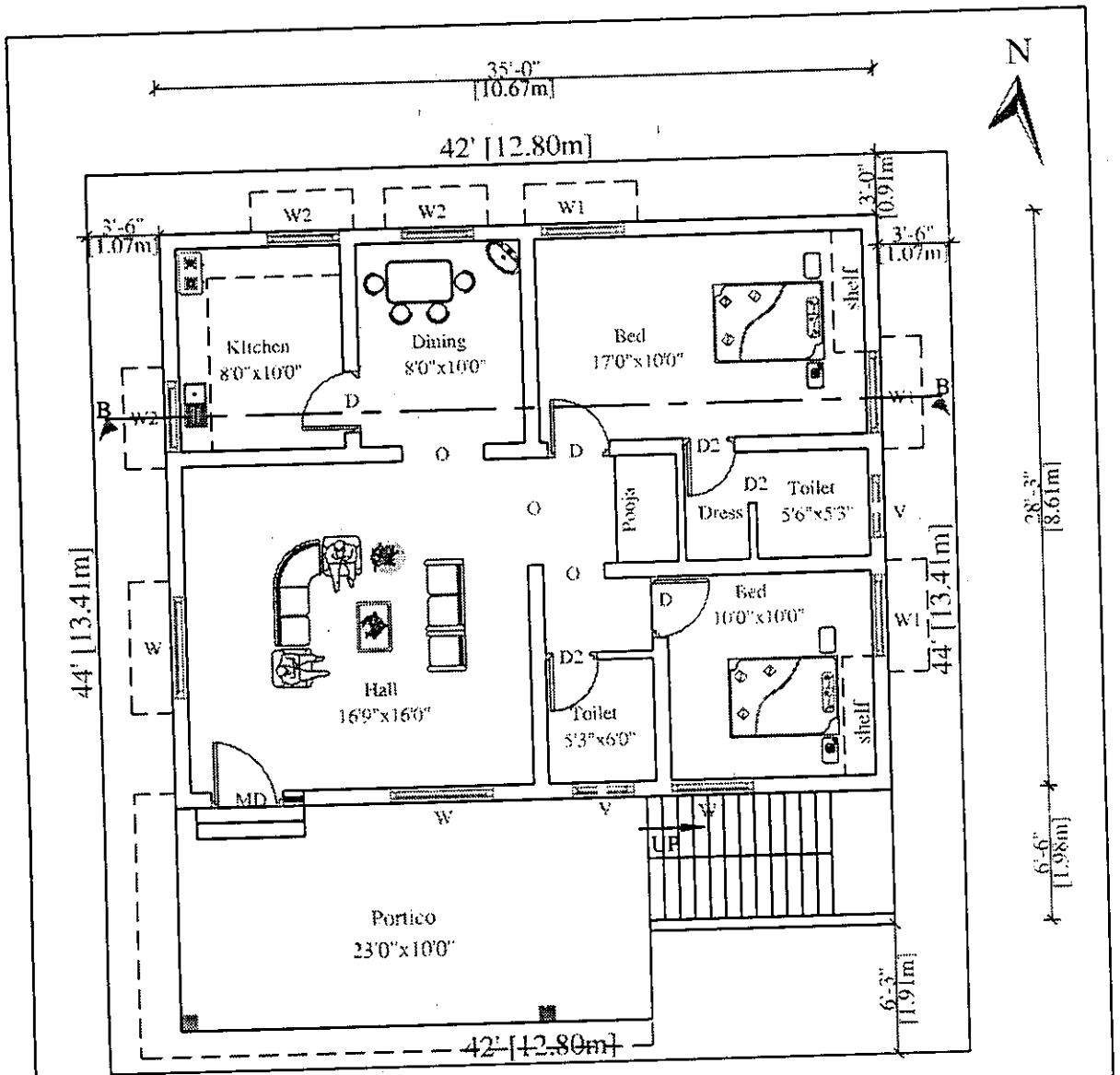
SINGLE BED ROOM



ELEVATION


Parapet wall
R.c.c slab in c.c 1:2:4
&top finish with c.m1:3
Brick work in c.m 1:7 &
plastering with c.m 1:5
Flooring in c.c 1:4:8 &
floor finish with tiles
R.R Masonry in c.m 1:5
L
Base with p.c.c 1:5:10
G
0.45m
0.60m
0.76m
3'-0"
[0.91m]
5"
[0.13m]
[0.91m]
[3.05m]
[0.61]
[0.61]

SECTION-AA



GROUND FLOOR PLAN

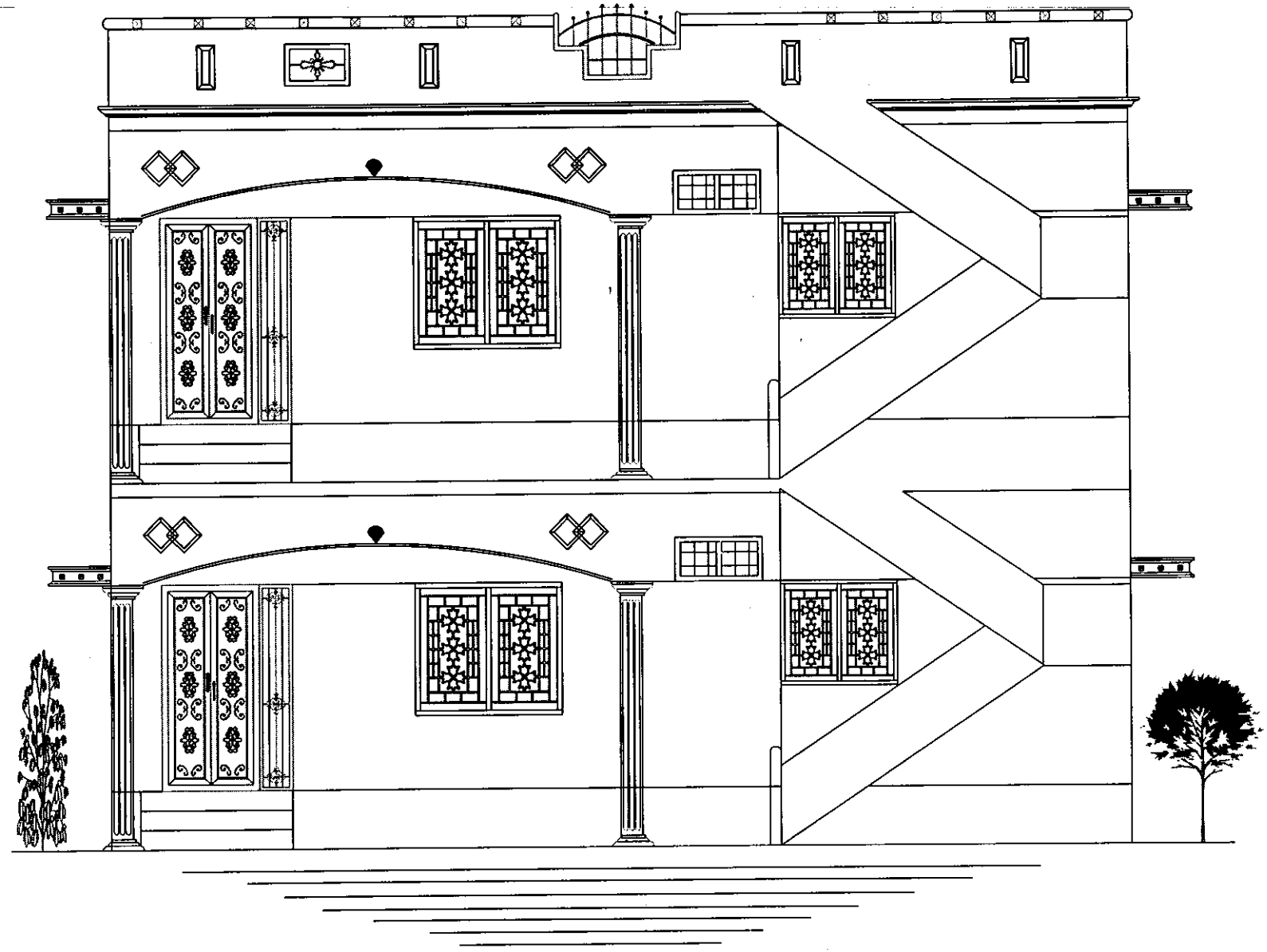
Reference:-	
Site plan	: 1848.00 Sqft
Ground floor Portico & Stair	: 1314.00 Sqft
Area of open space	: 534.00 Sqft

Joineries details :-

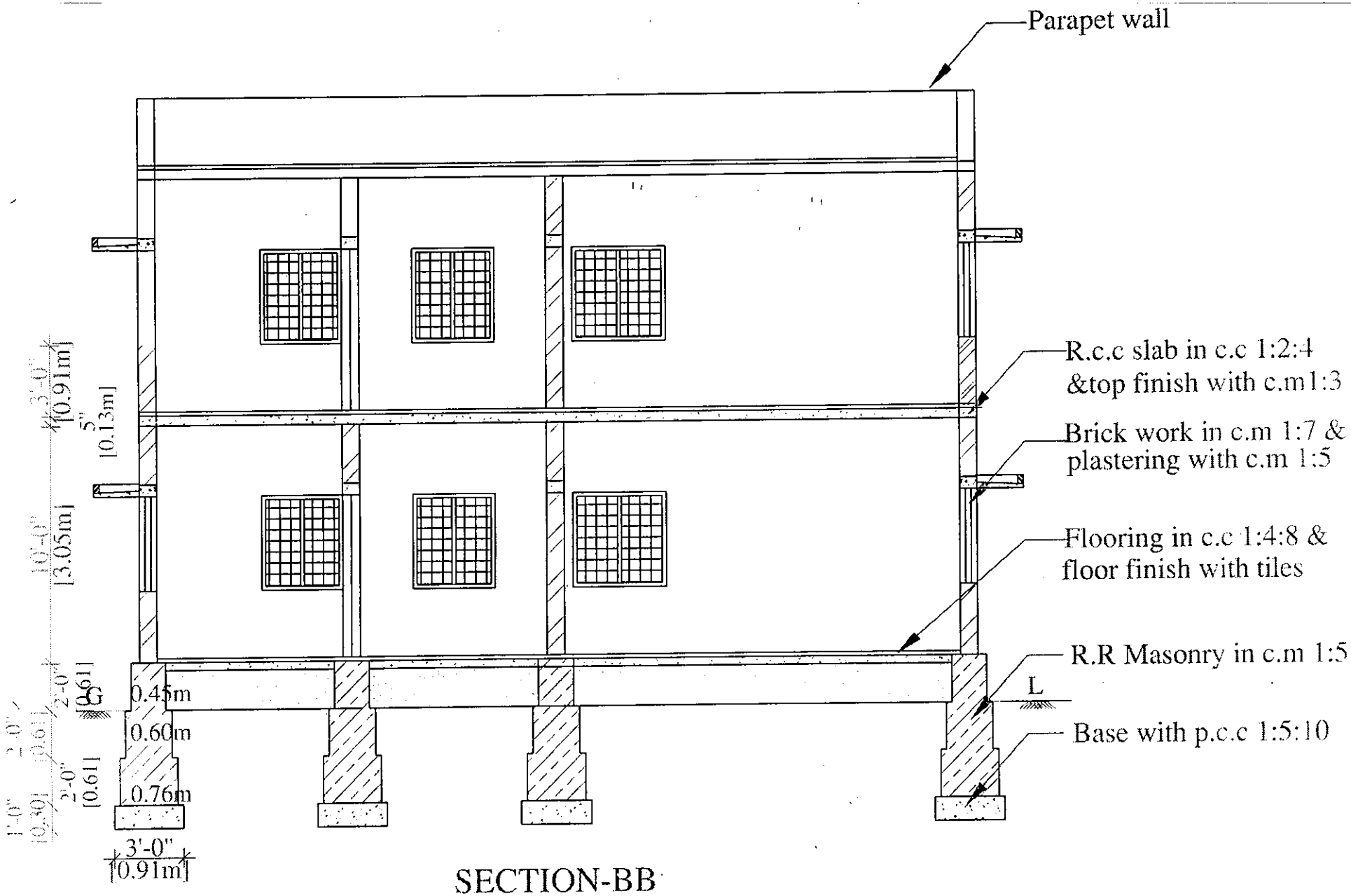
MD	- Main door	3'6"x7'0"
D	- Door	3'0"x7'0"
D1	- Door	2'6"x7'0"
W	- Window	5'0"x4'0"
W1	- Window	4'0"x4'0"
V	- Ventilator	3'0"x2'6"

MIDDLE CLASS

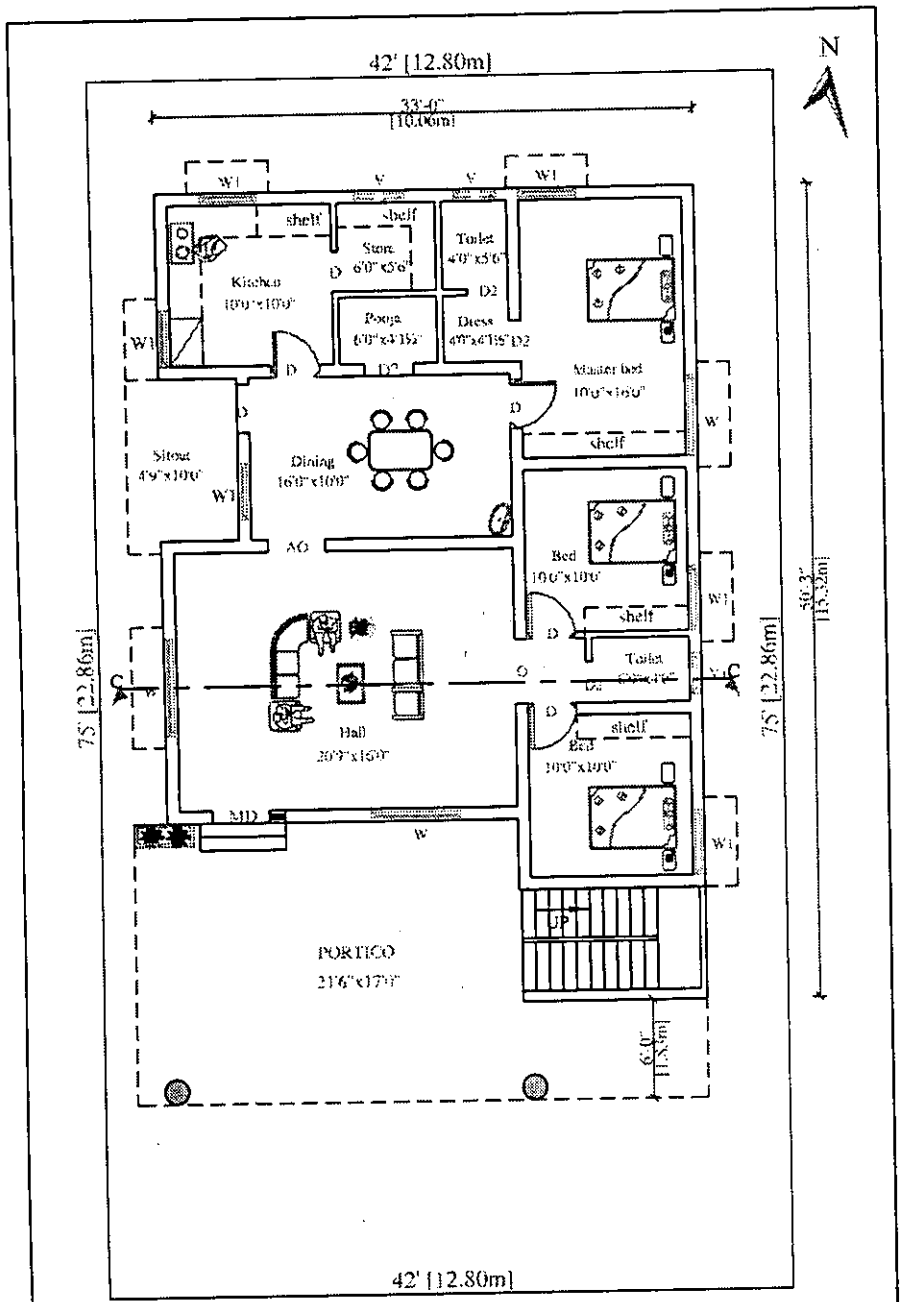
DOULBE BED ROOM



FRONT ELEVATION


Parapet wall
R.c.c slab in c.c 1:2:4
&top finish with c.m1:3
Brick work in c.m 1:7 &
plastering with c.m 1:5
Flooring in c.c 1:4:8 &
floor finish with tiles
R.R Masonry in c.m 1:5
L
Base with p.c.c 1:5:10
3'-0"
[0.91m]
5"
[0.13m]
10'-0"
[3.05m]
2'-0"
[0.61]
0.45m
0.60m
0.76m
2'-0"
[0.61]
1'-0"
[0.30]
3'-0"
[0.91m]

SECTION-BB



GROUND FLOOR PLAN

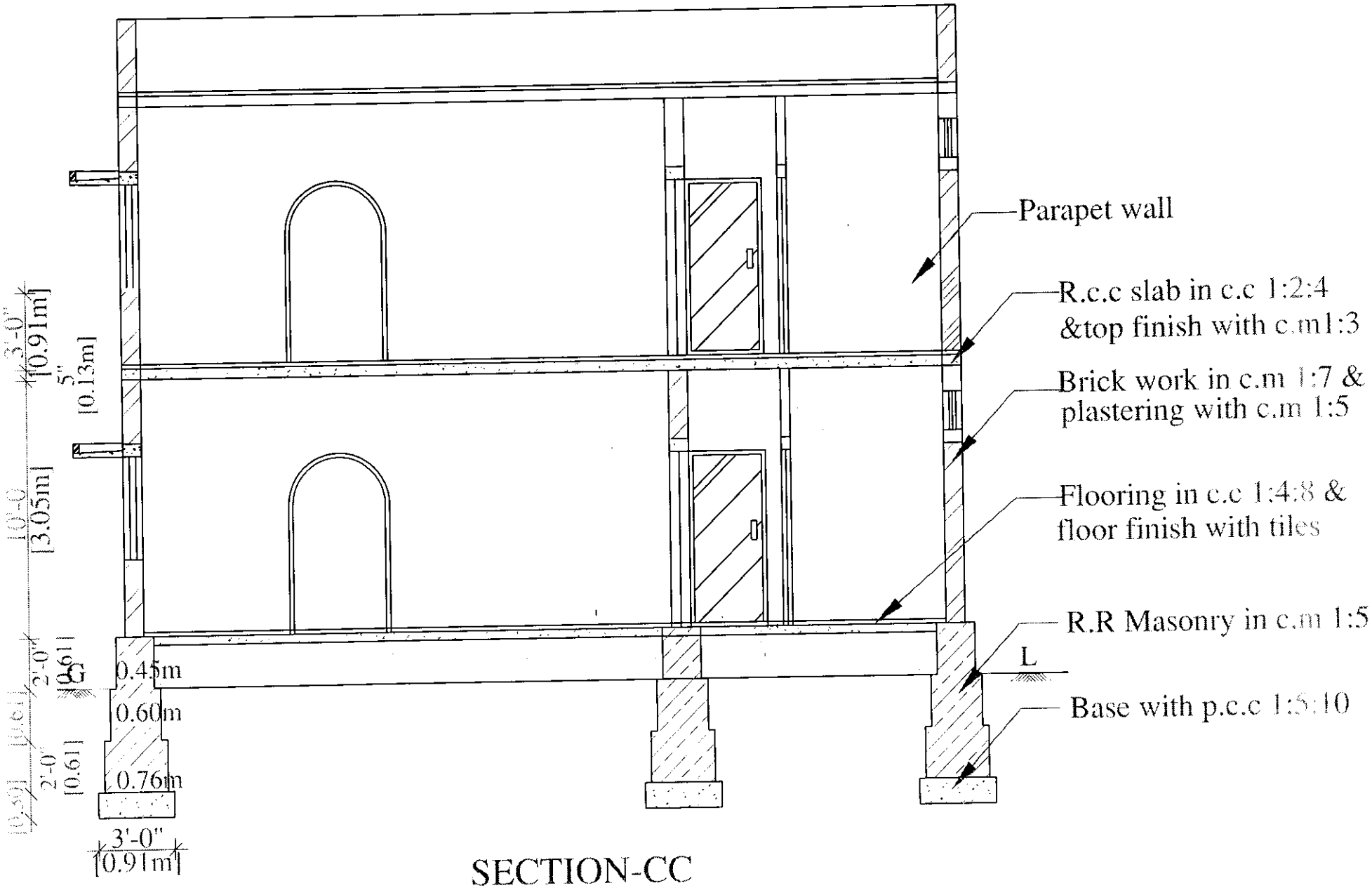
Particulars	
Site plan	: 5150.00 Sqft
Ground floor Portico & Stair	: 1740.91 Sqft
Area of open space	: 1409.09 Sqft

Joinaries details:-

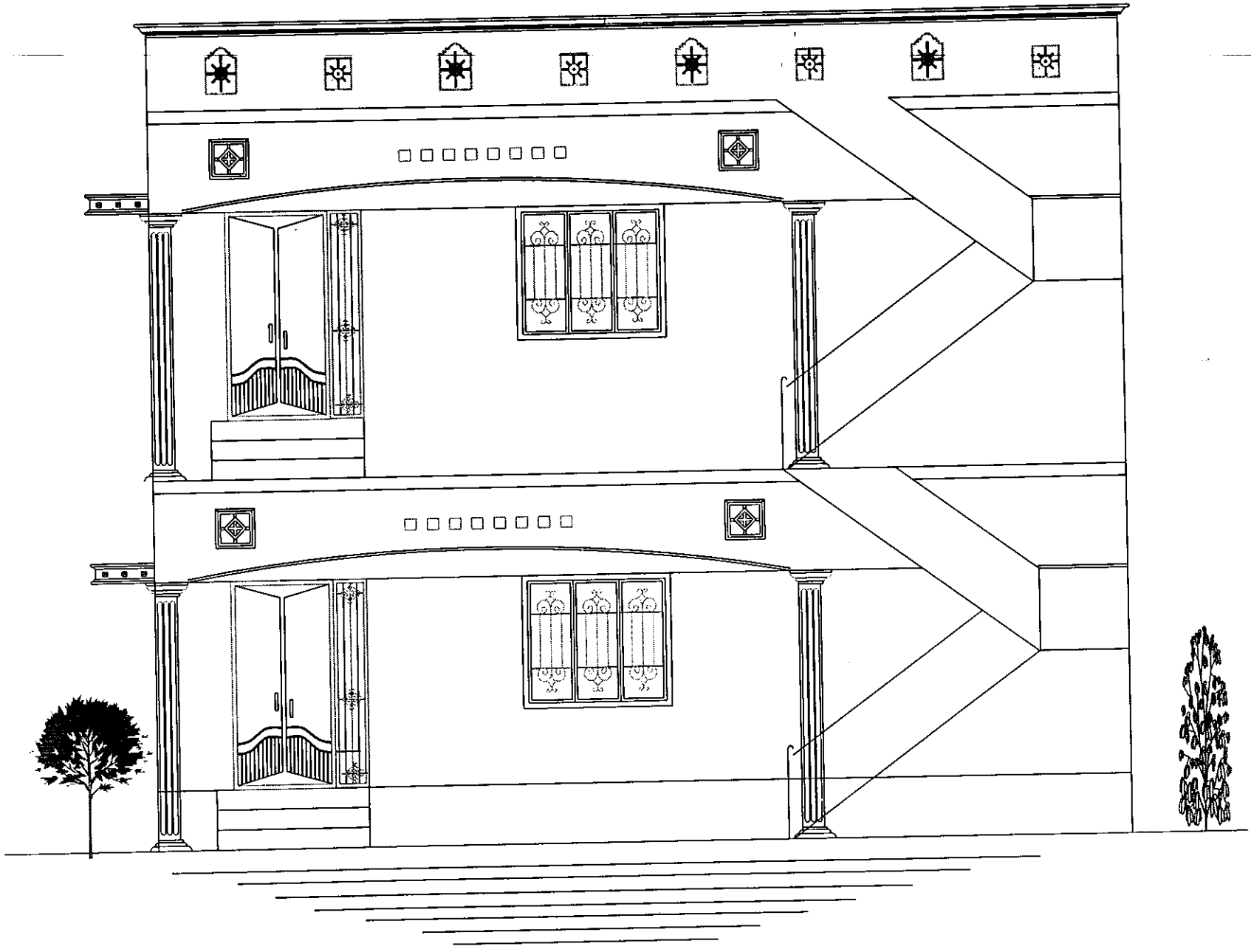
MD	- Main door	3'6"x7'0"	1.07 x 2.12
D	- Door	3'0"x7'0"	0.91 x 2.12
D1	- Door	2'6"x7'0"	0.75 x 2.12
W	- Window	5'0"x4'0"	1.52 x 1.22
W1	- Window	4'0"x4'0"	1.22 x 1.22
V	- Ventilator	3'0"x2'6"	0.91 x 0.75

HIGH CLASS

THREE BED ROOM

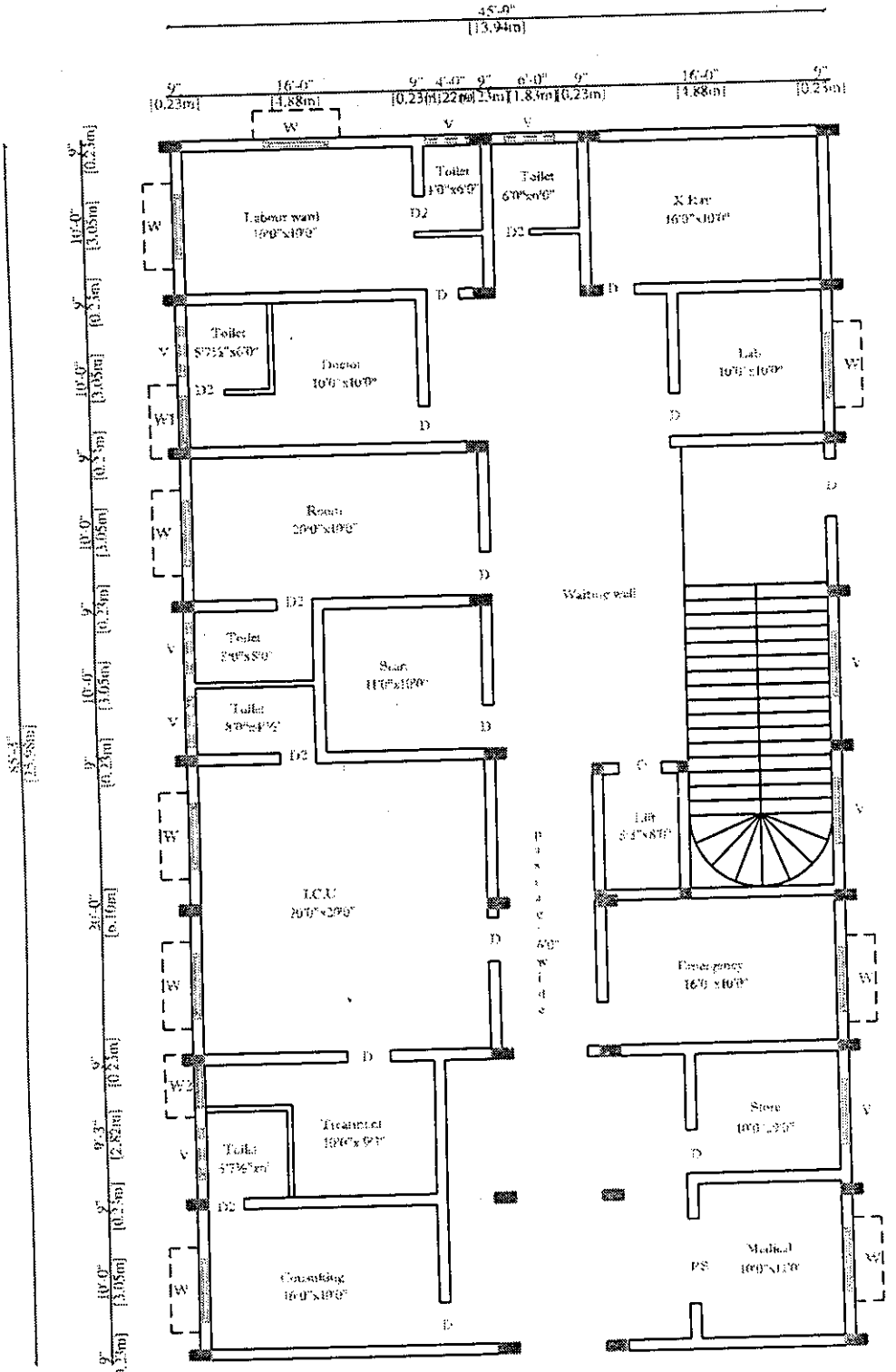

Parapet wall
R.c.c slab in c.c 1:2:4
&top finish with c.m1:3
Brick work in c.m 1:7 &
plastering with c.m 1:5
Flooring in c.c 1:4:8 &
floor finish with tiles
R.R Masonry in c.m 1:5
L
Base with p.c.c 1:5:10
3'-0"
[0.91m]
5"
[0.13m]
10'-0
[3.05m]
2'-0"
[0.61]
G.L
0.45m
0.60m
0.76m
2'-0
[0.61]
3'-0"
[0.91m]

SECTION-CC



FRONT ELEVATION

HOSPITAL



45'-0"
[13.94m]
Labour ward
Toilet
Toilet
X Ray
Toilet
Doctor
Lab
Room
Waiting wall
Toilet
Stair
Toilet
Lift
I.C.U
Emergency
Treatment
Store
Toilet
Consulting
Medical

REFERENCE

REFERENCE:

- National building code
- DCR
- Using Primavera

CONCLUSION

CONCLUSION

The planning of the housing units was done with primavera software.

The procedure for the desingning for the structural elements were studied thus the planning and scheduling and design of mass housing unit has been completed effectively.

- Planning of housing units-considering the development control regulation of national building code-NBC
- Desingning of the housing units as load bearing was done by the limit state method
- Detailed estimation of the entire project was done using primavera software.