

MANIPAL UNIVERSITY

FIFTH SEMESTER B. ARCH. DEGREE EXAMINATION – MAY 2017

SUBJECT: ARC 305 - BUILDING CODES AND BYELAWS
(2010 SCHEME)

Saturday, May 06, 2017

Time: 14:00 – 17:00 Hrs.

Max. Marks: 50

✍ Answer any FIVE full questions.

✍ Assume suitable data wherever necessary.

1. Draw site plan and site elevations indicating the building volume for the following:

Use : Assembly

Site : 40M x 60M (Longer side facing the access road)

R.O.W. : 15M

Maximise F.A.R. Consumption.

(10 marks)

2. Draw ground floor plan and typical floor plan showing fire exit requirements.

Use : Office

Site : 60m x 80m (shorter side abutting the road)

ROW: 18m

Maximize FAR and draw detailed plan and section of fire staircase in 1:50 scale. Height of the building should be above 15M.

(10 marks)

3. Draw toilet layout showing fixtures, doors and windows/ventilators

Use : Restaurant

Visitors : 400

Staff : 15

External Walls : 2

(10 marks)

- 4A. Illustrate with sketches the design guidelines for sight disabilities.

- 4B. List down the responsibilities of an Architect in obtaining building permit.

(5+5 = 10 marks)

5. Write short notes on the following with neat sketches:

5A. Setback and set back line

5B. Travel distance

5C. Basements

5D. Mumty

5E. CRZ IV

(2 marks × 5 = 10 marks)

- 6A. Classify the Urban roads and explain any one in detail.

- 6B. Explain in detail design considerations applicable for CRZ I.

(5+5 = 10 marks)

TABLE 6
(Bye-law 9.2 and 9.10)
**COVERAGE AND FAR FOR RESIDENTIAL, COMMERCIAL, PUBLIC AND SEMI-PUBLIC,
TRAFFIC & TRANSPORTATION, AND PUBLIC UTILITY BUILDING**

Plot Area in Sq. mtr.	Residential		Commercial		Public & Semi Public T&T & Public Utilities		Road width (Mtrs)
	Plot Coverage Max.	F.A.R. Max.	Plot Coverage Max.	F.A.R. Max.	Plot Coverage Max.	F.A.R. Max.	
A – INTENSELY DEVELOPED AREA							
Upto 240	65%	0.75	65%	1.00	60%	1.00	Upto 6
Over 240							
Upto 500	60%	0.75	60%	1.00	55%	1.00	Over 6 upto 9
Over 500							
Upto 750	60%	1.00	60%	1.25	50%	1.00	Over 9 upto 12
Over 750							
Upto 1000	60%	1.00	60%	1.25	50%	1.25	Over 12 upto 15
Over 1000	60%	1.25	55%	1.50	45%	1.25	Over 15

TABLE 4
(Bye-law 9.2)
**EXTERIOR OPEN SPACES/SETBACKS IN METRES FOR RESIDENTIAL, COMMERCIAL,
PUBLIC & SEMI-PUBLIC, TRAFFIC & TRANSPORTATION AND PUBLIC UTILITY BUILDINGS
UPTO 9.5 MTRS. IN HEIGHT**

Depth of site in mtrs.	Residential		Commercial		T & T. P.U. & Public and Semi-Public		Width of site in mtrs.	Residential		Commercial		T & T. P.U. & Public and Semi Public	
	Front	Rear	Front	Rear	Front	Rear		Left	Right	Left	Right	Left	Right
Upto 6	1.00	-	1.00	-	1.50	-	Upto 6	-	1.00	-	-	-	1.50
Over 6 upto 9	1.00	1.00	1.50	-	1.50	1.50	Over 6 upto 9	1.00	1.00	-	1.50	1.50	1.50
Over 9 upto 12	1.50	1.50	1.50	1.50	3.00	1.50	Over 9 upto 12	1.50	1.50	1.50	1.50	1.75	1.50
Over 12 upto 18	3.00	1.50	3.00	1.50	3.00	1.50	Over 12 upto 18	1.50	3.00	1.50	3.00	2.00	3.00
Over 18 upto 24	4.00	3.00	3.50	3.00	4.50	2.00	Over 18 upto 24	2.50	3.50	2.50	4.00	3.00	3.00
Over 24	5.00	3.50	4.50	3.00	6.00	3.00	Over 24	3.00	4.00	3.00	4.50	3.50	4.50

Abbreviations T & T = Traffic & Transportation, P.U. = Public utility.

TABLE 5
(Bye-law 9.2)
**EXTERIOR OPEN SPACES/SET-BACKS FOR RESIDENTIAL, COMMERCIAL, PUBLIC AND
SEMI-PUBLIC, TRAFFIC & TRANSPORTATION, PUBLIC UTILITY BUILDINGS
– ABOVE 9.5 MTS. IN HEIGHT**

Sl. No.	Height of Building in mtrs.	Exterior open spaces / set-backs to be left on all sides (Front, Rear and Sides) in mtrs.
1	Above 9.5 upto 12	4.5
2	Above 12 upto 15	5.0
3	Above 15 upto 18	6.0
4	Above 18 upto 21	7.0
5	Above 21 upto 24	8.0
6	Above 24 upto 27	9.0
7	Above 27 upto 30	10.0
8	Above 30 upto 35	11.0
9	Above 35 upto 40	12.0
10	Above 40 upto 45	13.0
11	Above 45 upto 50	14.0
12	Above 50	16.0

Table 20 Occupant Load

(Clause 4.3)

Sl No.	Group of Occupancy	Occupant Load, Floor Area in m ² /Person
(1)	(2)	(3)
i)	Residential (A)	12.5
ii)	Educational (B)	4
iii)	Institutional (C)	15 (see Note 1)
iv)	Assembly (D)	
	a) With fixed or loose seats and dance floors	0.6 (see Note 2)
	b) Without seating facilities including dining rooms	1.5 (see Note 2)
v)	Mercantile (F)	
	a) Street floor and sales basement	3
	b) Upper sale floors	6
vi)	Business and industrial (E&G)	10
vii)	Storage (H)	30
viii)	Hazardous (J)	10

Table 21 Occupants per Unit Exit Width

(Clauses 4.4.2, 4.4.3 and C-1.6.2)

Sl No.	Group of Occupancy	Number of Occupants		
		Stairways	Ramps	Doors
(1)	(2)	(3)	(4)	(5)
i)	Residential (A)	25	50	75
ii)	Educational (B)	25	50	75
iii)	Institutional (C)	25	50	75
iv)	Assembly (D)	40	50	60
v)	Business (E)	50	60	75
vi)	Mercantile (F)	50	60	75
vii)	Industrial (G)	50	60	75
viii)	Storage (H)	50	60	75
ix)	Hazardous (J)	25	30	40

Table 18 Restaurants

(Clause 5.2.5.1)

Sl No.	Fixtures	Public Rooms		Non-Residential Staff	
		Male	Female	Male	Female
(1)	(2)	(3)	(4)	(5)	(6)
i)	Water-closets	1 per 50 seats up to 200 Over 200 add at 1 per 100 or part thereof	2 per 50 seats up to 200 Over 200 add at 1 per 100 or part thereof	1 for up to 15 2 for 16-35 3 for 36-65 4 for 66-100	1 for up to 12 2 for 13-25 3 for 26-40 4 for 41-57 5 for 58-77 6 for 78-100
ii)	Ablution tap	One in each water-closet 1 water tap with draining arrangements shall be provided for every 50 persons or part thereof in the vicinity of water-closets and urinals	One in each water-closet	One in each water-closet	One in each water-closet
iii)	Urinals	1 per 50 persons or part thereof	—	Nil up to 6 1 for 7 to 20 2 for 21-45 3 for 46-70 4 for 71-100	—
iv)	Washbasins	1 per WC	1 per WC	1 per WC	1 per WC
v)	Cleaner's sink			1 per each restaurant	
vi)	Kitchen sink/Dish washer			1 per kitchen	

NOTES

- 1 Some WC's may be European style if desired.
- 2 Male population may be assumed as two-third and female population as one-third.
- 3 Provision for additional and special fittings where required shall be made.

