

PLANNING & DESIGN
GUIDELINES FOR
STREET FURNITURE
FOR MUMBAI & ITS SUBURBS



MUNICIPAL CORPORATION OF GREATER MUMBAI

PLANNING & DESIGN GUIDELINES BY

A & A DESIGN ASSOCIATES
ARCHITECTS & INDUSTRIAL DESIGNERS

Anuprita Surve & Aparna Surve Shri. Karun C. Srivastava

Municipal Commissioner,

Mr. Ajit Kumar Jain,Additional Municipal Commissioner,
City

THE COMMITTEE

MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

Ms. Brinda Somaya Mr. P. K. Das Mr. Rahul Mehrotra

Ms. Kunti Oza



PLANNING & DESIGN
GUIDELINES FOR
POR MUMBAI & ITS SUBURBS

Municipal Corporation
of Greater Mumbai, 2001

Industrial Design consultants:
Anuprita Surve & Aparna Surve A & A Design Associates:
Architects & Industrial Designers

Shri. Karun C. Srivastava Municipal Commissioner, Municipal Corporation of Greater Mumbai.

Shri. Ajit Kumar Jain, Additional Municipal Commissioner, City Municipal Corporation of Greater Mumbai.

Mr. J. M. Ranadiye
Dy. Chief Engineer.(P. I. Cell)
Municipal Corporation of Greater Mumbai.

Ms. Brinda Somaya
Mr. P. K. Das
Mr. Rahul Mehrotra
Ms. Kunti Oza
The committee: Mumbai's initiative for the protection & improvement of streets & public spaces

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without the written permission of the M.C.G.M.

Published by

M. C. G. M.
(Municipal Corporation of Greater Mumbai)

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

PREFACE

The Metropolis of Mumbai, the capital of State of Maharashtra has since long been regarded as Commercial Capital of India. This lovely Island City has attracted citizens from all over India who in addition to original natives, have contributed in every possible way towards development of the original 7 islands. As the city of Mumbai continued to be an attraction to general populace in India to cope up with the ever-increasing populace, the limits were extended to Dahisar on Western Corridor and Mulund on Eastern Corridor. The population has already crossed the limit of 1 crore. The civic infrastructure is under tremendous pressure of ever growing population. This naturally has degraded the state of larger environment of Mumbai.

There was a long felt need to initiate intensive action to improve the architectural fabric at least on the arterial, sub-arterial, & major roads. The visual pollutants of incongruous & inconsistent signage, poorly designed and located street furniture, garbage bins, tree guards, benches etc. have created visual chaos & incongruity. Moreover, elements such as road dividers, barricades, bus stops, telephone booths and other city level infrastructure have never been consistent with the surroundings & have never been paid any attention as a part of the City, adding to the disharmony & eye sore. This has gone a long way in convincing citizens & visitors that there ought to be some concerted efforts made towards streamlining everything that is visible on street which can be termed as beautiful & consistent.

On this background, the Municipal Corporation under the leadership of the then Commissioner Shri Nalinakshan embarked upon the program of Beautification of Mumbai on micro as well as macro levels. Besides giving filip to the 'Project Clean Mumbai', a steering committee was constituted under the chairmanship of Shri Nalinakshan, the then M.C. with an idea to streamline beautification proposals consistently & uniformly all over Mumbai with active involvement of local residents' associations, Industrial houses, private parties etc. A Core Committee of eminent architects under the title 'Mumbai's initiative for the protection and Improvement of streets & spaces' was also formed to offer expertise on architectural aspects of beautification. This Committee was assigned the job of preparation of guidelines for installation of street furniture, signages & support structures of various kinds, and for pavements & landscapes. M/s. A & A Design Associates, appointed by M.C.G.M. on the recommendation of the Core Committee of Architects, has designed the street furniture elements and laid the planning guidelines in form of comprehensive catalogue for beautification projects.

We are very glad to offer this 'Street Furniture Manual' to citizens of Mumbai. I am sure, the publication of this manual, first in the series, will steer the beautification efforts a step forward towards a long cherished 'Beautiful Mumbai'. The following manuals in the series will also be published as soon as they are ready.

We take this opportunity to thank everybody who has endeavored towards dreaming of a beautiful Mumbai & to all the citizens of Mumbai. A special thanks is due, to Architects Mr.Rahul Mehrotra, Mr. P.K.Das, Ms. Brinda Somaiya, & Ms. Kunti Oza without whose efforts this catalogue would not have materialized. Ms. Aparna Surve and Ms. Anuprita Surve, the Surve Sisters of M/s. A & A Designs Associates have done a beautiful job in preparation of this manual.

Addl. Municipal Commissioner (City) Mr. A.K.Jain has taken pains to bring out this beautiful publication along with A.M.C.(E.S.) Shri Gautam Chatterji & A.M.C.(W.S.) Shri S.J.Kunte, Shri J.M. Ranadive, Dy.Ch.Eng. (P.I.Cell) and his staff.

Municipal Commissioner

For Greater Mumbai

CONTENTS

1	INTRODUC	TION TO DESIGN APPROACH AND PLANNING PRINCIPLES	1 -1
П	ELEMENTS	OF DESIGN	2 -4
	A B - C	PAVEMENTS & LANDSCAPE STREET FURNITURE SIGNAGE SYSTEM	
Ш	REGION AI	ND CATEGORY OF THE AREA	5 -5
IV	DEFINITIO	NS OF ROAD TYPES AND PLANNING GUIDELINES	6 -8
	A B C	ARTERIAL ROADS & JUNCTIONS SUB-ARTERIAL ROADS & JUNCTIONS LOCAL LANES & JUNCTIONS	
V	STREET FUI	RNITURE ELEMENTS	9 -9
	SPECIFICAT	TIONS (MATERIALS, PROCESSES & FINISHES)	10 -14
	ADVERTISI	NG SPECIFICATIONS	15 -15
	DESIGNS 8	R DETAIL DRAWINGS	
	1F	PAVEMENTS	16 -17
		details	18 -21
	2F	BARRIERS	22 -29
		details	30 -45
	3F	BOLLARDS	46 -48
		details	49 -52
	4F	TREE GUARDS	53 -56
		& GRILLS details	57 -62
	5F	LITTER BIN	63 -68
		details	69 -73
	6F	SEATING	74 -82
		details	83 -90

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

CONTENTS

INTRODUCTION TO DESIGN APPROACH AND PLANNING PRINCIPLES

This manual aims to create a set of parameters and general guidelines to enable systematic enhancement of the environment of the city. Keeping the central theme of Mumbai's image intact, the manual will enable the user to create variations for different contexts.

This manual also addresses the issue of variations in designs as per the context such as Primary arterial roads, Secondary roads, Neighbourhood roads, Precincts and it helps to create a few add-ons and variations in the basic proposed standardised designs for example pole designs or pole caps may vary as per the environment.

DESIGN FEATURES

The total development is broadly classified under three categories such as

- A Pavements and Landscape,
- **B** Street Furniture
- **C** Signage System

A Pavements and Landscape

- 1 Pavements are important elements that provide visual references to the outdoor spaces.
- 2 As far as possible pavements should be kept free for pedestrian traffic.
- 3 The surfaces should be easy to maintain and be replaced in case of periodic repairs.
- 4 Kerb details should provide ease of movement to senior citizens, children and the handicapped

B Street Furniture

- 1 Should be strong, vandal-proof and firmly rooted to the ground
- 2 Materials used should be such that they will require low maintenance
- 3 Manufacturing processes should facilitate quick mass production
- 4 Should be aesthetically responsive to Mumbai's rapidly changing image.

C Signage System

- 1 Should be designed on a systemic hierarchical guideline in terms of sizes, proportions and colour schemes.
- 2 Should have high legibility
- 3 Should bring order to pedestrian and vehicular traffic
- 4 Should be mounted on firm structures
- 5 Should bear efficient and modern image
- 6 Should be in at least two or three languages (English and local language)

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

INTRODUCTION
TO DESIGN
APPROACH
&
PLANNING
PRINCIPLES



ELEMENTS OF DESIGN

The design elements are divided in three main categories viz.

- Pavements & Landscape
- Street Furniture
- Signage System

A PAVEMENTS & LANDSCAPE

- 1 Pavement patterns
 - & Kerbs

- Footpaths with heavy pedestrian traffic
- Footpaths with light pedestrian traffic
- Traffic Islands with hard surfaces
- Kerb to footpaths and steps
- Road dividers

B STREET FURNITURE

- 2 Barriers and Railings
- Between footpath and road
- On centre medians
- Defining traffic islands
- Defining significant Public Open spaces
- Defining Parking zones
- 3 Bollards
- At entry points for pedestrians along the barriers & railings
- At entry points of maidans & parks.
- As demarcators between pedestrian and vehicular traffic.
- 4 Tree guards,
- -Tree guards / Tree grills (for saplings)
 -Seating around trees.
- Tree grills and Surrounds
- tree grills facilitating seepage of water.
- 5 Litter bins
- -extra large size
- -Large size
- -Medium size Litter bins mounted on Pedestal -Small size - Litter bins mounted on a post
- 6 Seating
- -Single seat
- -Single-pole bench
- -Double-pole bench
- -Single-sided bench with backrest
- -Double-sided bench with backrest continuous seats.

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

II ELEMENTS OF DESIGN

A	PAVEMENTS
	& STREET
	FURNITURE

STREET FURNITURE FOR MUMBAI & ITS SUBURBS M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES STREET **FURNITURE**

STREET FURNITURE (SHELTERS)

7 Bus Shelters

Single-post bus stops

Single-lane shelter Multiple-lane shelter

8 Drinking Water Fountains

In open areas

9 Traffic control Booths Stand-alone booth for single person Enclosed structure for traffic controllers

10 Police Booths

Semi-open structures

Enclosed structures

11 Telephone Booths Semi-covered PCO post

Covered multiple user booths

Booths run by individuals or by handicapped persons

12 Milk booths &

Milk booths

Food stalls

Food stalls

STREET FURNITURE **FOR MUMBAI & ITS SUBURBS** M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES SIGNAGE SYSTEM

C SIGNAGE SYSTEM

TRAFFIC SIGNS

Cautionary Signs Mandatory Signs Indication Signs Informatory Signs

Name boards indicating

- Arterial roads
- Sub-arterial roads
- Local lanes
- City squares / Chowks
- Monuments
- Important public buildings and open spaces and
- Public utilities such as hospitals, railway stations,
- Airports, playgrounds etc.

Direction Signs

- on arterial roads
- on sub-arterial roads
- on local lanes
- Guiding tourists to monuments and important places
- Leading to emergency facilities such as hospitals, fire stations, police stations

PEDESTRIAN SIGNS

Indication signs

- Guiding pedestrian traffic to public facilities such as railway stations
- Leading to emergency facilities such as hospitals, fire
- Stations and police stations.

Informatory Signs

- Maps guiding pedestrians.

ADVERTISING SIGNS

- Signs appearing on street furniture elements
- Signs for advertising.



CATEGORY

OF THE AREA

EXTENT OF REGION AND CATEGORY OF THE AREA

These planning guidelines and designs shall apply to the development work in the areas under the jurisdiction of Municipal Corporation of Greater Mumbai. In case of traffic sign designs, all regulations by Indian Road Congress should be referred to for details. All development work shall conform to the provisions made under these guidelines. However, development along heritage precincts, waterfronts or slum settlements or any such special category recognised by MCGM, could take place on area specific designs with the prior approval of MCGM and the committee.

With due reference to Development Control Rules regional planning should be made while creating Land-use plans.

CATEGORIES OF ZONES

Planning guidelines shall be applicable to the development of zones identified as residential, commercial, institutional, public, industrial, heritage etc., delineated by MMRDA or MCGM or any identifiable locality or by way of the activities, physical character, types of buildings along its stretch etc.

CATEGORIES OF SPACES

Categories of roads and spaces could be broadly classified as under.

Roads are classified as

Arterial roads
Sub-arterial roads

Local lanes.

Open spaces are classified as:

Playgrounds, Recreational Grounds

and Public Gardens.
Waterfronts etc.

The stretch of road or locality should be at least 500 meters in length and should cover an identifiable area.

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION &
IMPROVEMENT OF STREETS & PUBLIC SPACES

DEFINITIONS GUIDELINES

A & A DESIGN ASSOCIATES ARCHITECTS & INDUSTRIAL DESIGNERS

DEFINITIONS OF ROAD TYPES AND PLANNING GUIDELINES

A- Arterial Roads: These are identified as roads carrying traffic between different towns or linking different places within the same town. These roads have less junctions and curves.

In order to use the manual effectively it is important to identify the types of roads as arterial roads, sub-arterial roads and local streets in the area identified for the development. Types of

open spaces should also be identified and a land use pattern as it exists should be analysed

B- Sub-arterial roads: These roads link arterial roads with local lanes. They connect one part of the city to another. Pedestrian pathways are built along these and trees are planted. They have more junctions.

C- Local lanes: These roads give access to the premises and have speed breakers to calm traffic.

NETWORK OF ROADS AND JUNCTIONS:

before proposing new ideas.

Various types of junctions are formed at the crossing of any of the above mentioned roads. Depending upon the number of roads meeting, the junctions are classified as below. The nature and function of the junctions depends upon the type of roads meeting and the density of vehicles or pedestrians using it.

Some of the common junctions are as follows. They are formed with or without roundabouts.

"T" Junctions

"Y" Junctions

"X" Junctions

" Multiple" Junctions

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

A ARTERIAL

ROADS &

JUNCTIONS

A ARTERIAL ROADS AND JUNCTIONS

Roads connecting different parts of the city are included in the manual whereas highways and expressways do not form a part of this manual. Width of such roads admeasures 40 to 50 mts

Parking on arterial roads should be completely eliminated as far as possible and roads should be preserved for vehicular movements.

Pedestrian traffic on arterial roads should be put to order by providing central barriers on roads or barriers along the footpaths where pedestrian traffic is continuous and heavy.

JUNCTIONS ON ARTERIAL ROADS

Junctions between two arterial roads, or between arterial and sub-arterial roads are considered as part of the road network.

Pedestrian traffic should be completely restricted from crossing at the junction by introducing barriers at the corners of such junctions. Zebra crossings at junctions should be put to effective use.

Subways should be introduced at junctions where pedestrian traffic is continuous and heavy. Junctions should have required signage such as direction signs and chowk names to guide vehicular as well as pedestrian traffic.

Spaces under the flyovers at junctions should be used for car parking, traffic control booths, security booths, offices of the maintenance agency and should be kept free of encroachments that may lead to traffic congestion and pedestrian discomfort.

SUB- ARTERIAL ROADS AND JUNCTIONS

Roads connecting arterial roads to local lanes.

Parking on sub-arterial roads should be completely eliminated as far as possible and roads should be preserved for vehicular movements. Width of such roads admeasures 20 to 35 mts.

Pedestrian traffic on sub-arterial roads should be put to order by providing central barriers on roads or barriers along the footpaths where pedestrian traffic is continuous and heavy. Number of pedestrian crossings should be carefully planned to facilitate access to local lanes and premises. Such crossings should be duly marked with cautionary signs.

STREET FURNITURE **FOR MUMBAI & ITS SUBURBS** M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES SUB-ARTERIAL ROAD & **JUNCTIONS** LOCAL LANES & JUNCTIONS

B JUNCTIONS ON SUB- ARTERIAL ROADS

Junctions between arterial and sub-arterial roads, between two sub-arterial roads and between sub-arterial roads and local lanes are considered as part of the road network.

Pedestrian traffic should be restricted from crossing at the junction, by introducing barriers at the corners of such junctions. Zebra crossings near junctions should be put to effective use.

Spaces under the flyovers at junctions should be used for car parking, traffic control booths, security booths, offices of the maintenance agency and should be kept free of encroachments that may lead to traffic congestion and pedestrian discomfort.

C LOCAL LANES

Roads providing access to various premises are included in the manual.

Parking on local lanes should be carefully planned without creating hindrance to pedestrian traffic. Parking inside building compounds should be organised. Pay and park system should be organised along the setbacks and open spaces, dead ends of roads or neglected patches of land. Width of such roads admeasures 7 to 15 meters.

JUNCTIONS ON LOCAL LANES

Junctions between sub-arterial roads and local lanes, between two local lanes are considered as part of the road network.

Pedestrian traffic should be made safe before junctions by introducing speed breakers. Zebra crossings near junctions should be put to effective use.

Pavements should be made free of obstructions and structures such as food stall, pay and park Booths.

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES



STREET FURNITURE ELEMENTS

MATERIALS & PROCESSES

ADVERTISING SPECIFICATIONS

- **1F PAVEMENTS**
- **2F BARRIERS**
- F BOLLARDS
- 4F TREE GUARDS & TREE GRILLS
- **5F LITTERBINS**
- **6F SEATING**

MATERIALS AND PROCESSES

PRODUCT NUMBER 1F-A	PRODUCT TITLE PAVEMENTS &	
1F-B	TREE SURROUNDS	
2F-A	Barriers along footpath & centre median.	PA

MATERIAL &	R PROCESSES

TILES 25cms X 25cms Checkered Cement Tiles

TREE GRILLS

RCC or cast iron grills

for young saplings

TREE SURROUNDS

Cobbles of natural stone/ natural stone slabs/ PCC slabs surrounding fully grown trees.

PANELS

Panels should be made of A/B/C Class pipes of specified dimensions.(refer to drawings) approved by MCGM.

VERTICAL SUPPORTS

Vertical members could be made in A/B/C Class pipes or structural steel. (Similar materials should be used in other street furniture) (refer to drawings)

FINISHES

(Cement tiles)
Tiles of red and grey combination
with a vertical groove pattern & approved
make and quality

Natural finish of PCC or Cast Iron grill pattern designed in response to the character of the area under consideration

(RCC tree grills - Cast-iron)

(TREE SURROUNDS-TRIMS)

Natural stone finish to suit the area-specific needs and should be chosen with prior approval of the MCGM.

SURFACES FINISHES

Finished in Matt texture powder coating or Enamel paint/ Polyurethene paint/ with protective coating of Galvanising /Polymer paints or epoxy paints of approved quality.

COLOUR SCHEME

Shades of paint should be STEEL GREY (95% black) or PRUSSIAN BLUE (deep) and should be chosen with prior approval of the MCGM. STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

MATERIALS & PROCESSES

Materials & finishes should be chosen with prior approval of the MCGM.

PRODUCT NUMBER	PRODUCT TITLE	N
2F-B	Barriers along	P
2F-C	play grounds or railways tracks	Fr
	ranways nacks	<i>N</i>
		d
		V
		V
		m
		so U:
		(F
2F-D	Barriers along	P
	Traffic Islands	
		Fi
		N
		d
		V
		V
		m
		S
		Ų
		(F

DOODLICT TITLE

PRODUCT

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES MATERIAL & PROCESSES **FINISHES MATERIALS & PROCESSES** PANELS SURFACE FINISHES ramework should be made of Finished in matt texture with MS bars and plates of specified enamel paint/ polyurethene paint/ dimensions.(Refer to drawings) powder coating, with protective coating Galvanising, polymer paints or epoxy paints of approved quality. /ERTICAL SUPPORTS **COLOUR SCHEME** Vertical members should be Shades of paint should be STEEL GREY (95% black) or made of structural steel and the PRUSSIAN BLUE (deep) and same theme should be used in other street furniture. should be chosen with prior approval (Refer to drawings) of the MCGM. SURFACE FINISHES PANELS Finished in matt texture with Framework should be made of MS of bars and plates of specified Enamel paint/ Polyurethene paint/ powder coating, with protective coating dimensions.(Refer to drawings) Galvanising, Polymer paints or epoxy paints of approved quality. VERTICAL SUPPORTS COLOUR SCHEME Vertical members should be Shades of paint should be made of structural steel and the STEEL GREY (95% black) or PRUSSIAN BLUE (deep) and same theme should be Materials & finishes should be should be chosen with prior approval used in other street furniture. chosen with prior approval of of the MCGM. the MCGM. (Refer to drawings)

DESIGNS BY

A & A DESIGN ASSOCIATES
ARCHITECTS & INDUSTRIAL DESIGNERS

PRODUCT NUMBER	PRODUCT TITLE	MATERIAL & PROCESSES	FINISHES	M. C. G. M. & THE COMMITTEE FOR MUMBAYS INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES MATERIALS &
3F	BOLLARDS	Alternative 1	SURFACE FINISHES	PROCESSES
		Bollards could be made of A/B/C class pipes of specified dimensions.(Refer to drawings)	Finished in Matt texture with enamel paint/ polyurethene paint/ with protective coating Galvanising, polymer paints or powder coated.	
		Alternative 2	COLOUR SCHEME	3
		Bollards could also be made in structural steel with the same theme being used in other street furniture. (Refer to drawings) Alternative 3	Shades of paint should be STEEL GREY (95% black) or PRUSSIAN BLUE (deep) and should be chosen with prior approval of the MCGM.	
		Bollards could be made of PCC or natural stones. Natural stone should be chosen with prior approval of the MCGM.		
4F	TREE GUARDS	Alternative 1	SURFACE FINISHES	
		Framework could be made of A/B/C Class pipes of specified dimensions.(Refer to drawings)	Finished in matt texture with enamel paint/ polyurethene paint/ with protective coating of galvanising, polymer paints or epoxy paints of approved quality.	
		Alternative 2	COLOUR SCHEME	Materials & finishes should be chosen with prior approval of the MCGM.
		Vertical members could be made in structural steel and the same theme should be used in other street furniture. (Refer to drawings)	Shades of paint should be STEEL GREY (95% black) or PRUSSIAN BLUE (deep) or FOLIAGE GREEN and should be chosen with prior approval of the MCGM.	DESIGNS BY A & A DESIGN ASSOCIATES ARCHIECTS & INDUSTRIAL DESIGNERS

PRODUCT	PRODUCT TITLE	MATERIAL & PROCESSES	FINISHES	M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES
NUMBER				PROCESSES
5F	LITTER BINS	CAPS	SURFACE FINISHES	
		CAPS could be made of FRP or MS-GI Sheet metal (Refer to drawings)	Finished in Matt texture with pigments or enamel paint/ polyurethene paint/ with protective coating of galvanising, polymer paints Or epoxy paints of approved quality. or powder coated.	
		MAIN BODY	COLOUR SCHEME	
		Main body could be made in FRP or MS Sheet metal or RCC or Ferrocement with specified dimension (Refer to drawings.)	Colour shades as follows, GOLDEN YELLOW (Matt) for MAIN BODY STEEL GREY (95% black) Matt for CAPS Or PRUSSIAN BLUE (Matt) for MAIN BODY should be chosen with prior approval of the MCGM.	
		PEDESTAL Alternative 1 Pedestal could be made of A/B/C class pipes with specified dimensions (Refer to drawings.)		
		Alternative 2 Pedestal could be made of PCC or natural STONE of specified Dimensions (Refer to drawings.)		Materials & finishes should be chosen with prior approval of the MCGM.

DESIGNS BY

A & A DESIGN ASSOCIATES

ARCHITECTS & INDUSTRIAL DESIGNERS

					1 OK MOMBAI OLITS SUBURBS
	PRODUCT	PRODUCT TITLE	MATERIAL & PROCESSES	FINISHES	M. C. G. M. 8. THE COMMITTEE FOR MUMBAY'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES
	NUMBER		Walter at No cesses	THAISTIES	MATERIALS &
					PROCESSES
	6F	BENCHES OR	SUPPORT STRUCTURE	SURFACE FINISHES	
		SEATING	Alternative 1		
			Framework could be made of A/B/C class MS pipes of specified	Finished in Matt texture with enamel paint/ polyurethene paint/	
			dimensions.(refer to drawings)	with protective coating of galvanising, polymer paints	
				or epoxy paints of approved quality. Or powder coating.	
			Alternative 2	COLOUR SCHEME	
			Framework could be	Shades of the paint should be	
			made in structural steel and the same theme should be used in other street furniture	STEEL GREY (95% black) or PRUSSIAN BLUE (deep) or	
			(Refer to drawings)	FOLIAGE GREEN and should be chosen with prior approval of the	
				MCGM.	
			Alternative 3		
			Framework could be		
			made in stainless steel		
			SEATS		
			Seats could be made of FRP / PCC/ natural stone slabs or sheet/pipes metal (MS or SS) dimensions (Refer to drawings.)		Materials & finishes should be chosen with prior approval of the MCGM.& the Committee.
•					

DESIGNS BY

A & A DESIGN ASSOCIATES

ARCHITECTS & INDUSTRIAL DESIGNERS

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SPECIFICAT	TIONS FOR A	DVERTISING	G ON STREET FUR	RNITURE ELEMENTS		SPECIFICATIONS
PRODUCT NUMBER	PRODUCT TITLE	ADVERTISING AREA IN mm	FREQUENCY OF ADVERTISING	POSITIONS FOR ADVERTISING	GENERAL REMARKS	
1F	PAVEMENTS AND TREE SURROUNDS	To be worked out on case to case basis	To be worked out on case to case basis	To be worked out on case to case basis	Advertising of this kind should be worked out on case to case basis Eg.by offering advertising on toilet blocks erected as part of overall development plan.	
2F	BARRIERS	300 X 300 maximum	at 8.5 meters c/c	On either side of advertising plaque	The background colour of advertising plaque should be maintained as white and should be changed only with prior approval of the MCGM. Symbols and	
3F	BOLLARDS	nil	nil	nil	logos of Corporate bodies and public	
4F	TREE GUARDS	125 X 125 - 2nos maximum	Two signs per TREE GUARD	Should be placed on any two panels opposite each other	Symbols and Corporate signs should be displayed.	
5F	LITTER BINS	100 X 100 -	Two signs per LITTER BIN	Should be placed on opposite sides,	Advertising on litter bins should be	

perforations

bench

one of them with the shutter and

avoided as far as possible.

Should be placed on either side of the They should be placed on side supports

of the bench.

2nos maximum

Two signs per BENCH

200 X 200

maximum

6F

BENCHES

STREET

PAVEMENTS

- PAVEMENT TILES
 GRID & PATTERNS
- KERB DETAILS
- TREE SURROUNDS
- SERVICE DUCT

PAVEMENTS

Payements in cities serve safe passage to pedestrians from the fast moving vehicular traffic on roads. They offer a system and direction to the flow of the pedestrian traffic in the busy parts of the city. Therefore it is important to keep them hard, levelled and free from obstacles. Pavements also accommodate various street furniture elements, signage poles and trees along their periphery and services such as electrical, telephone cables underneath the paved area.



STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

PAVEMENTS

PLANNING PRINCIPLES:

Pavements should demarcate the zone for walking from the zones for mounting of street furniture elements and for laying of service conduits.

The peripheral zone up to 75 cms wide should be used for mounting of various street furniture elements. This zone should be finished with different colour and should not be dug for laying of any conduits as far as possible.

Immediately after the "Street furniture Band" a channel of 100 cms should be reserved for laying of conduits and cable and should be finished with slabs of RCC. This zone should be carefully finished and levelled with the rest of the pavement and should be used as walking zone. Until the system of channels comes into practice, this zone should be finished with grey cement tiles. This zone should be kept free of any street furniture elements. plantation or hawkers.

The innermost zone should be paved in grey colour cement tiles matching with the colour of the RCC slabs. In case of wider footpaths along shopping streets or bazaars, the innermost zone of the footpath could be allotted as

A 50 cms wide band of brick red tiles should be laid at 8.5 metres c/c. across the width of the footpath. These bands should be aligned with the "Planning Grid" of street furniture. These bands could be eliminated in case of narrow footpaths or any other situation where they may seem



GENERAL GUIDELINES

Pavement under consideration for development should be identified as per its width, the category of road it is supporting, density and flow of pedestrian traffic and lastly the nature of locality it is serving. The type of parking adjacent to the pavement will determine the locations of street furniture elements within the boundary of the footpath.

In most parts of the suburbs due to open drainage system, and narrow access roads the pavements are found to be completely missing leading to a disorder in pedestrian traffic. An alternative system of pavements or pedestrian traffic should be proposed to take care of this problem.

Issue of hawkers on the pavements should be dealt with by proposing planned hawkers' zones in setbacks of pavements and identified open spaces.

Temporary structures such as public toilets, food stalls should be placed away form the main walking zones and preferably located in the building setback lines.

More and more zones should be identified exclusively for pedestrian activities to make their path safe, fast, uninterrupted and effective.

DESIGN FEATURES

Pavements comprise of elements such as paving, kerbs, tree surrounds and tree grills which are required to be laid in level with the other.

Pavements should be finished with checkered tiles of approved make and quality. The outermost band of tiles should be defined in different colour of checkered tiles. The width of this band should vary depending upon the width of the footpath under consideration and the nature of parking prevalent on the adjoining road. Since cars parked in "angular" manner tend to knock the street furniture on the pavements, the street furniture should be mounted at least 50 cms away from the edge of the footpath.

Kerbs are used to define edges of the footpath, as a small retaining wall that is raised, and acts as a physical barrier between vehicular and pedestrian traffic. It also serves as water channel for surface water. Kerb stones with curvilinear profile detracts traffic from driving over in heavy traffic situations.

If the existing kerbs are made of hard natural stones, efforts should be made to retain those and should be rearranged and strengthened only if required. Proposed kerb should be made in PCC and in the dimensions shown in the drawings.

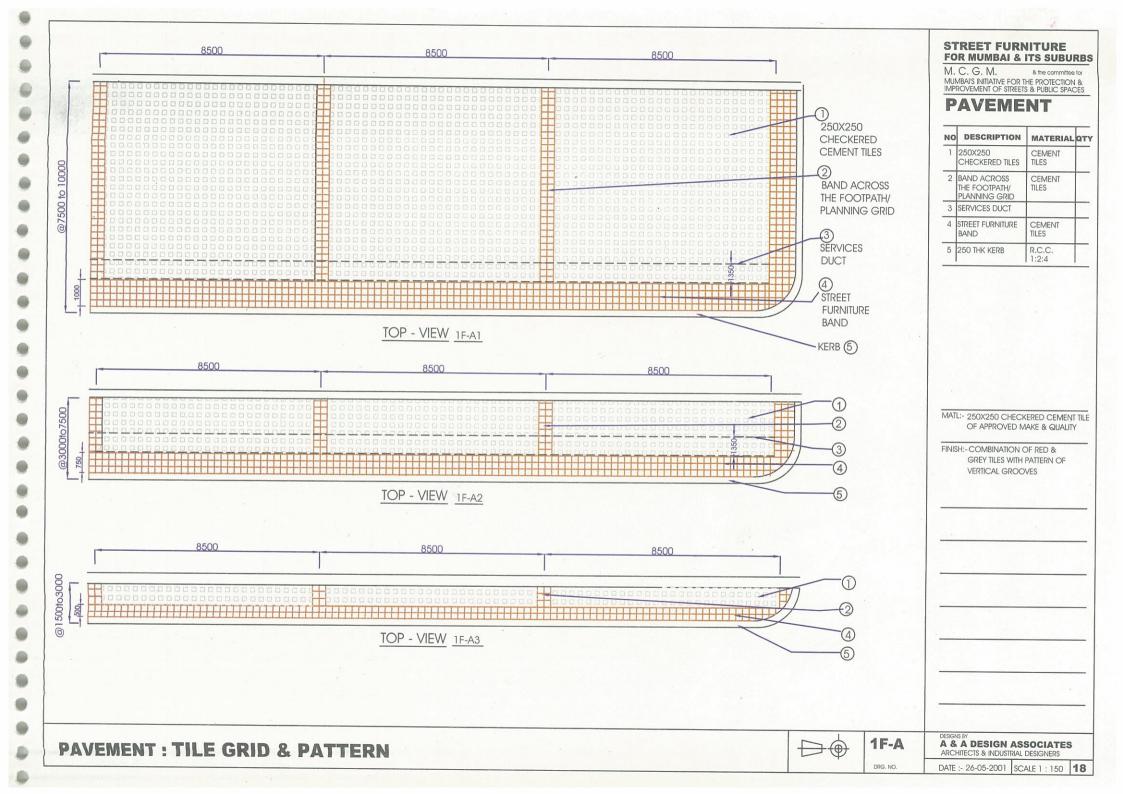
Any variation in the selection of paving material or kerb profiles is required to be carried out Due to area specific needs, should be done with the prior approval of the MCGM.

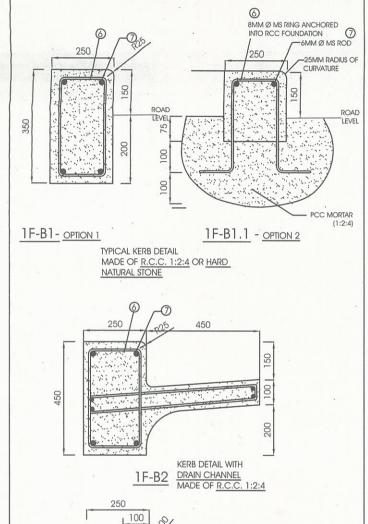
STREET FURNITURE FOR MUMBAI & ITS SUBURBS

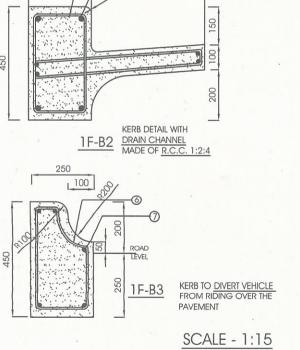
M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

PAVEMENTS

9







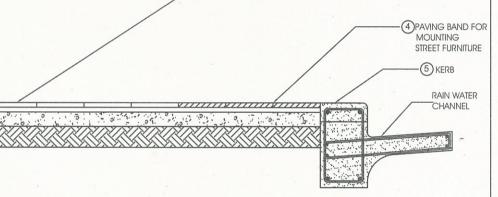
STREET FURNITURE **FOR MUMBAI & ITS SUBURBS** M. C. G. M.

1) 250X250 TILES

MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

PAVEMENT

NO	DESCRIPTION	MATERIAL QT
1	250X250 CHECKERED TILES	CEMENT TILES
2	BAND ACROSS THE FOOTPATH/ PLANNING GRID	CEMENT TILES
3	SERVICES DUCT	
4	STREET FURNITURE BAND	CEMENT TILES
5	250 THK KERB	R.C.C. 1:2:4
6	8MM Ø RING	M.S.
7	REINFORCEMENT 8MM Ø ROD	M.S.



MATL:- 250X250 CHECKERED CEMENT TILE OF APPROVED MAKE & QUALITY

FINISH:- COMBINATION OF RED & GREY TILES WITH PATTERN OF **VERTICAL GROOVES**

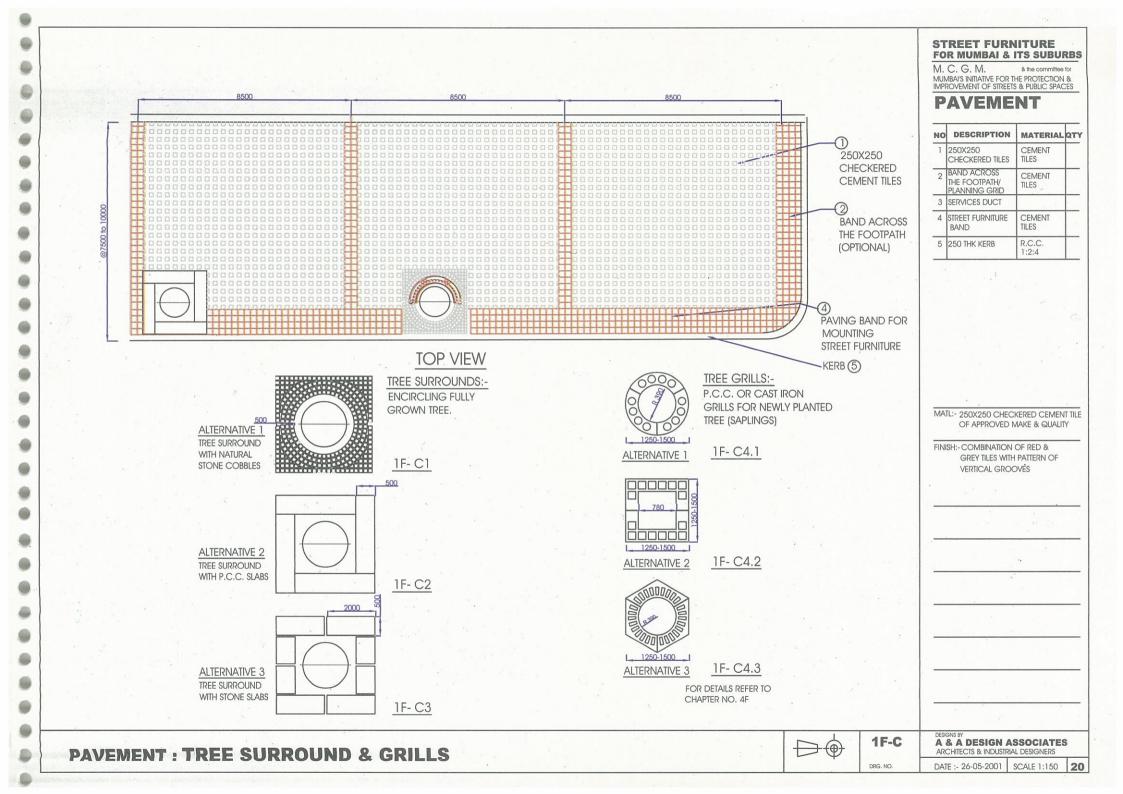
SECTION THROUGH PAVEMENT

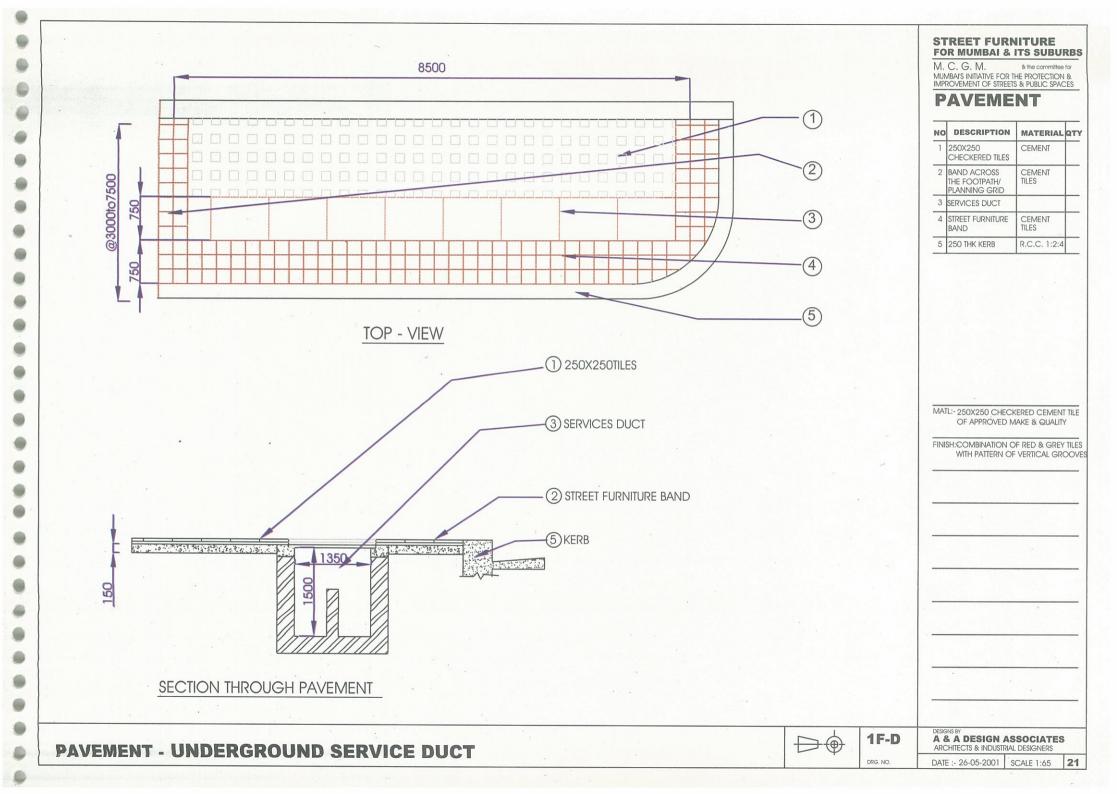
1F-B

A & A DESIGN ASSOCIATES
ARCHITECTS & INDUSTRIAL DESIGNERS

DATE :- 26-05-2001 | SCALE 1:30 | 19

PAVEMENT - KERB TYPES & DETAILS





2 FSTREET URNITURE

- SYSTEM OF BARRIERS
- TYPICAL MODULE
- ADD-ON FEATURES
- VARIATIONS IN VERTICAL POST
- RAILING TYPES & PANEL VARIATIONS
- VERTICAL POLE &
 CAP DETAILS FOR
 TALL & MEDIUM
 HEIGHT BARRIERS
- BARRIERS FOR TRAFFIC ISLANDS



BARRIERS

They are used to separate pedestrians from moving motor vehicles at points of particular danger, such as junctions, bends, brows of hills and so on. The standard rail has two types of panel heights one for use where sight line must not be obstructed and the other for all the usual locations where guard rails are needed (tall rails).

PLANNING PRINCIPLES

Proposed barriers can be used between pavement and carriageways.

Barriers can be placed in heavy vehicular traffic zones. These help discourage pedestrian crossing on prominent arterial roads and at major traffic junctions. These barriers should be used as 'centre medians' to discourage people from crossing over.

They should be used to enclose parking zones and other utility areas.

Heights and proportions of barriers can be altered for playgrounds, public places, statues & monuments, and traffic islands, without changing the basic aesthetic essence of the design.

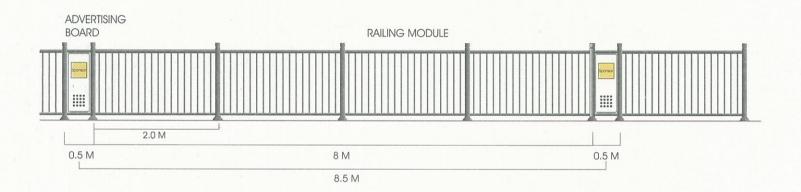
Any variation in design of vertical rail or any other element, not specified in the manual and found necessary while responding to the immediate surroundings of the area under consideration, should be presented to the MCGM for approval.

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

BARRIERS

			_		-	
						_
		_				
					35	
						_
				-	-	_
					-	-
						_
		- 6		-	-	-
- 5						
	(a) 4					
						_



GENERAL GUIDELINES

Vertical rail posts should be placed at 2 mt c/c.

Elements that come as part of barriers, such as sponsorship plaques, litter bins or tree guards should be placed at 8.5 mt c/c. This distance may vary for different areas depending upon pedestrian density, type of activities and importance of the road.

Requirement of different facilities for residential, commercial and arterial roads should be worked out. They should be arranged in multiples of 8.5 metres and their frequency should be based on a thorough study of the area under consideration.

All elements of the signage system should be aligned and integrated with the railing system.

End rails or other elements such as lamp-posts should be placed at the end of the barriers.

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

BARRIERS

For Pavements & Centre medians

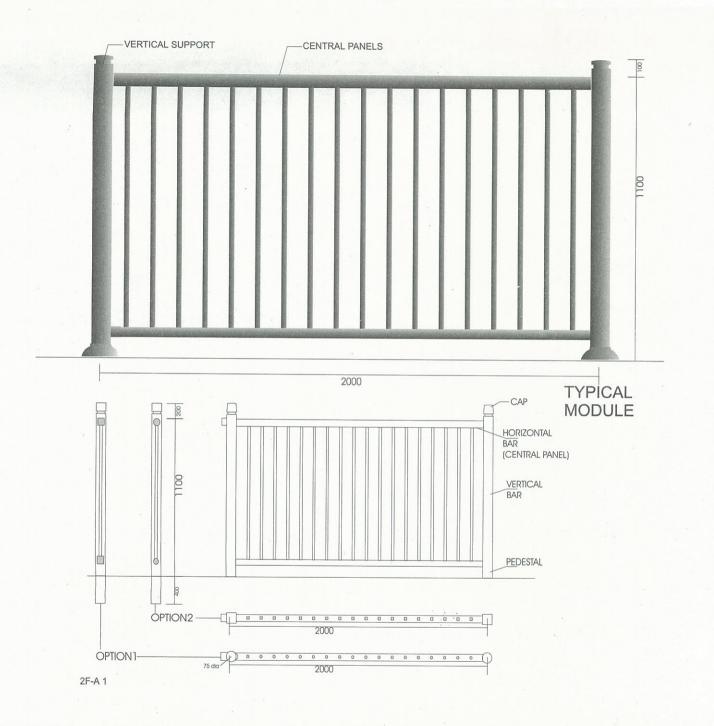
Materials
Proposed designs are made of MS/
galvanised/ Stainless Steel (SS)
round tubes or square pipes,
structural steel sections such as 'C'
channels and Precast RCC in various
combinations. Use of Structural steel
is promoted due to its easy
availability.

Colours
Steel Grey- 95% black or
Prussian blue.
Samples of all colours should be
produced for approval before
commencing the execution for the
approval.

Finish: MS/ Galvanised sections painted in Enamel paint or Polyurethene paint. with red oxide base on deoxidised

surface. Powder coating could be an alternative finish.

SYSTEM OF BARRIERS



M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

BARRIERS

For Pavements & Centre medians

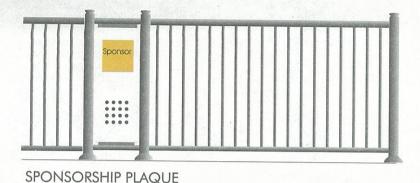
VERTICAL SUPPORT

Each module of 2 metres length comprises of vertical posts of varying designs on either side and central panel made of horizontal and vertical members.

CENTRAL PANELS

Size and proportion of central panel should be maintained as standard for the city of Mumbai and could be occasionally complemented with symbols and motifs with the prior approval of the MCGM. However sizes of such motifs and symbols is restricted to maximum of 450 X450 mm per panel.

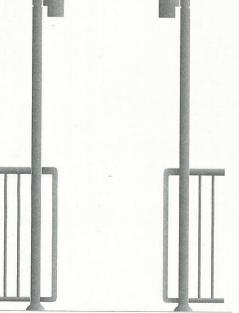
TYPICAL MODULE



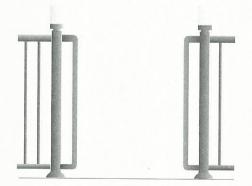




2F - A2



PEDESTRIAN CROSSING



PEDESTRIAN CROSSING 2F - A5

FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

STREET FURNITURE

BARRIERS

For Pavements & Centre medians

BARRIER SYSTEM AND OTHER STREET FURNITURE ELEMENTS

Barrier system provides a grid of 8.5 meters c/c along which elements such as Litter bins, sponsorship plaques and signage poles could be inserted at suitable locations and in desired frequency depending on area-specific needs

ADD-ONS

System of proposed barriers is conceived with add on features such as, end rails, end posts with light fixtures or motifs.

End rails should be used for defining the end points of barriers and for defining pedestrian access points. Such points could be marked by end posts in order to make them more visible to the pedestrians.

ADD-ON FEATURES

DESIGN FEATURES

Four designs of top and bottom cap for the vertical rail have been given in the manual. Any one design can be chosen for the area under consideration with due consent of the MCGM.

Any area-specific variation desired in the design of vertical support should be presented to the MCGM for approval.

Area-specific designs of add-on features such as light fixtures; motifs and symbols should be presented to the MCGM for approval.

Any variation for the display of sponsor name should be done with due consent of the MCGM.

Circular vertical post Circular vertical post Circular vertical post Square vertical post Vertical post 'C' with Flat cap suitable with Upright cap with Spherical cap with Spherical cap chanels with Curve for major arterial suitable for suitable for suitable for top suitable for roads & suburbs Residential areas Heritage areas Heritage areas Modern & Contemporary environments 1100 0 0 0 0 0 0 0 Circular vertical post Circular vertical post Circular vertical post Square vertical post & & bars with square & bars with square & bars with square bars with circular 2F - post 5 horizontal rail horizontal rail horizontal rail. horizontal rail

2F-post 3

2F - post 4

2F - post 1

2F - post 2

STREET FURNITURE **FOR MUMBAI & ITS SUBURBS**

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

BARRIERS

For Pavements & **Centre medians**

HOW TO CREATE AREA SPECIFIC VARIATIONS

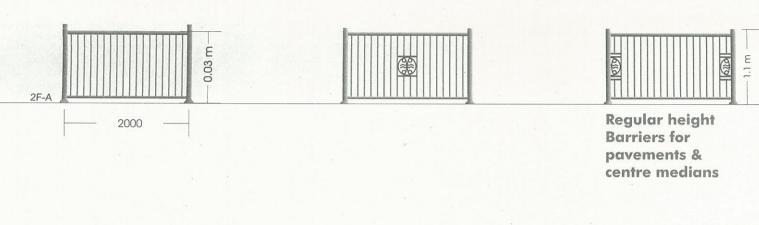
Variations in the proposed system of barriers could be created in following ways.

By changing Designs of " Cap" & Pedestal.

By changing the design of vertical post in case of heritage areas or water fronts or any other areas with strong architectural features.

By introducing motifs and symbols in the proposed design from the manual, without altering sizes and proportions.

VARIATIONS IN VERTICAL **POST**



2F-B

2F-C



Medium height Barriers along railway tracks



Tall Barriers for playgrounds & public spaces

M. C. G. M. & THE COMMITTEE FOR

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

STREET FURNITURE

BARRIERS

For pavements, public spaces & along railway tracks

CENTRAL PANELS

Size and proportion of central panel should be maintained as standard for the city of Mumbai and could be occasionally complemented with symbols and motifs with the prior approval of the MCGM. However, size of such motifs and symbols is restricted to maximum of 450 X450 mm per panel.

RAILING TYPES & PANEL VARIATIONS

STREET FURNITURE **FOR MUMBAI & ITS SUBURBS** M. C. G. M. & THE COMMITTEE FOR

MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

BARRIERS

Materials

Proposed designs are made of MS/ Galvanised/ Stainless Steel (SS) round tubes or square pipes, Structural steel sections such as 'C' channels and Precast RCC in various combinations. Use of structural steel is promoted due to its easy availability.

Colours

100

6 THK METAL

SPACERS

2F-B post 2

SHEETS WITH

Steel Grey- 95% black, Golden Yellow or Prussian blue. Samples of all colours should be produced for approval before commencing the execution.

Finish:

MS/ Galvanised sections painted in enamel paint/Polyurethene paint. with red oxide base on deoxidised surface. Powder coating could provide an alternative finish.

In case any modification in the proposed designs should be carried out, the proposal should be presented to the MCGM in the form of coloured picture/s or 3D model to obtain prior permission.

VERTICAL POLE CAP DETAILS FOR TALL & MEDIUM

A & A DESIGN ASSOCIATES
ARCHITECTS & INDUSTRIAL DESIGNERS

Vertical pole Alternative for

120

ROUND

PIPES

2F-B post 1

medium height Barriers

Vertical pole for Tall Barriers for public spaces

2F-C post 1

160

10 10 120

55

50 dla

"I" or 'C'

2F-C post 2

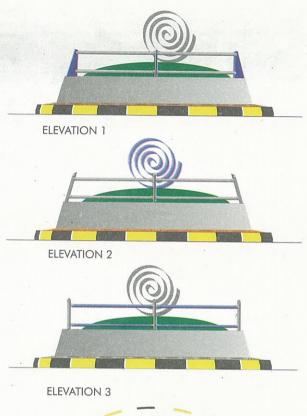
SECTIONS

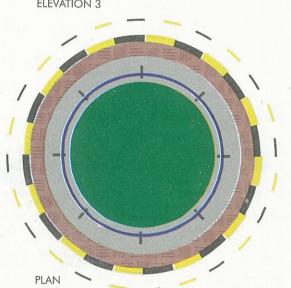
120

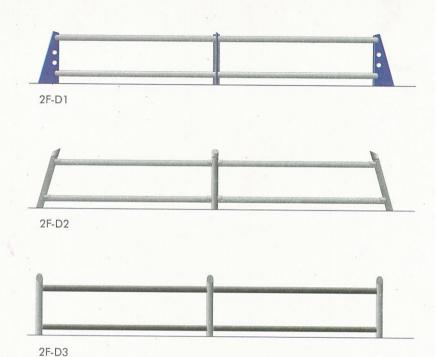
ROUND

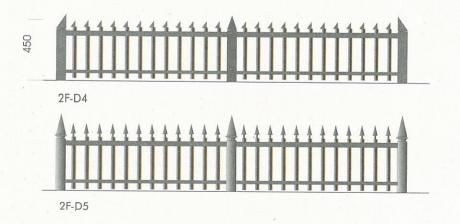
PIPES

28









M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

BARRIERS

Materials

Proposed designs are made of MS/ Galvanised/ Stainless Steel (SS) round tubes or square pipes, Structural steel sections such as 'C' channels and Precast RCC in various combinations. Use of structural steel is promoted due to its easy availability.

Colours

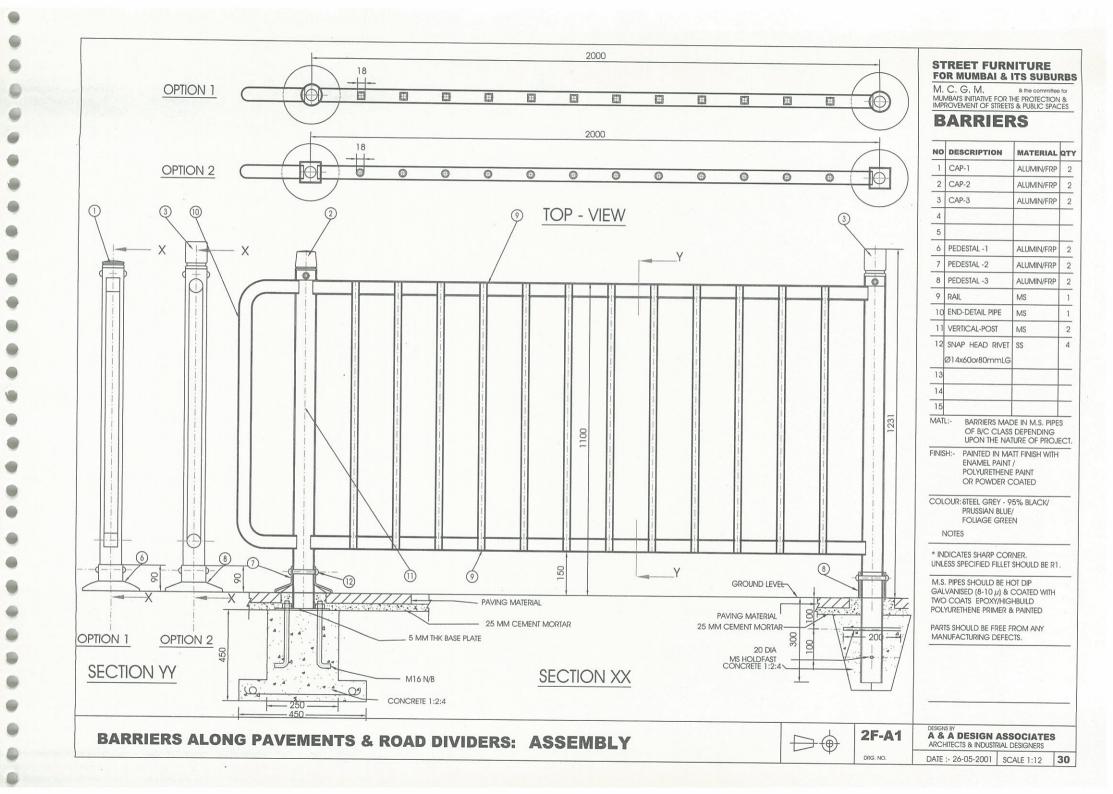
Steel Grey- 95% black, Golden Yellow or Prussian blue. Samples of all colours should be produced for approval before commencing the execution.

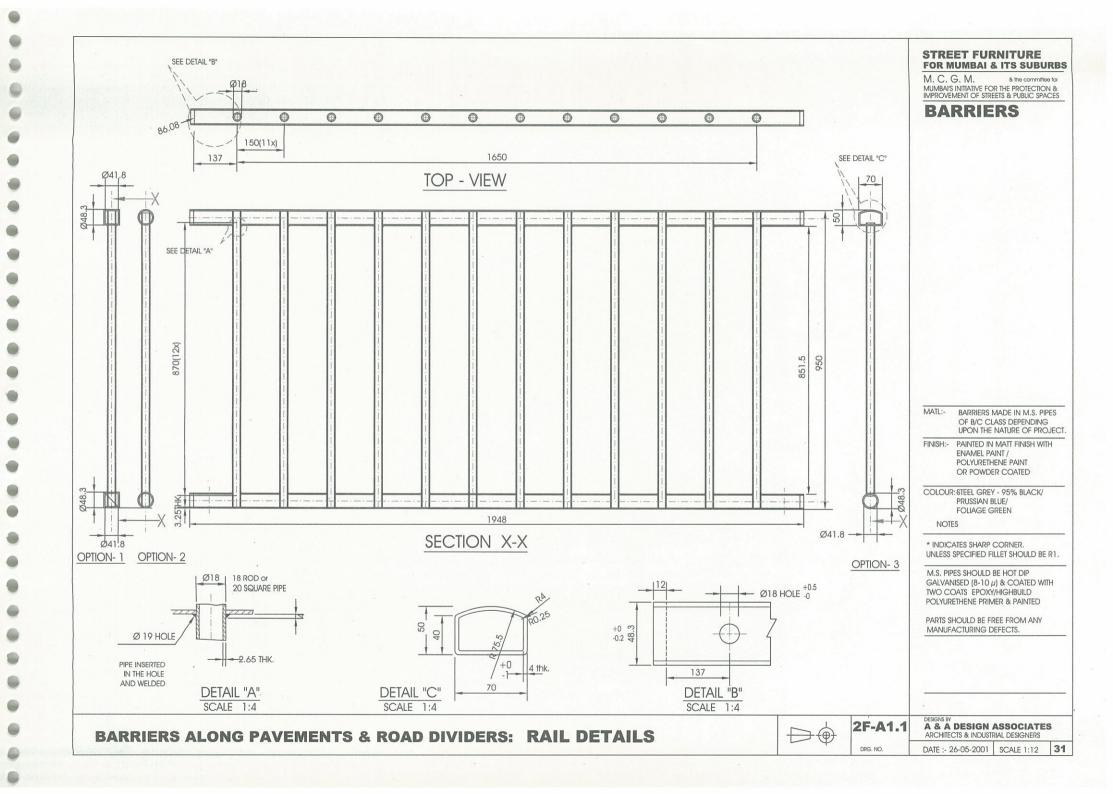
Finish:

MS/ Galvanised sections painted in enamel paint/Polyurethene paint. with red oxide base on deoxidised surface. Powder coating could provide an alternative finish.

In case any modification in the proposed designs should be carried out, the proposal should be presented to the MCGM in the form of coloured picture/s or 3D model to obtain prior permission.

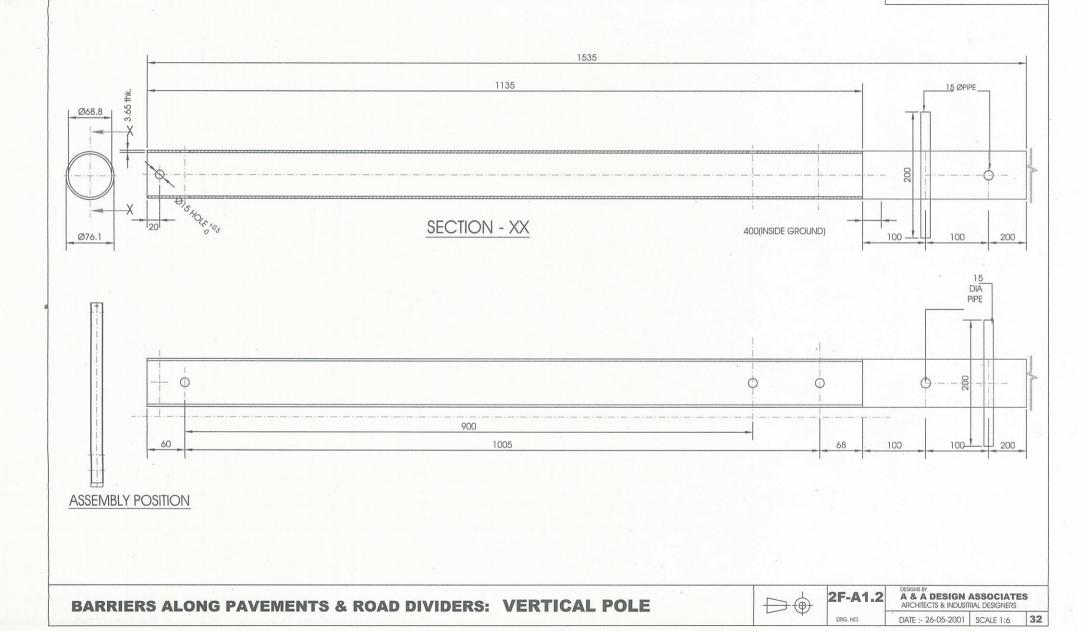
BARRIERS FOR TRAFFIC ISLANDS

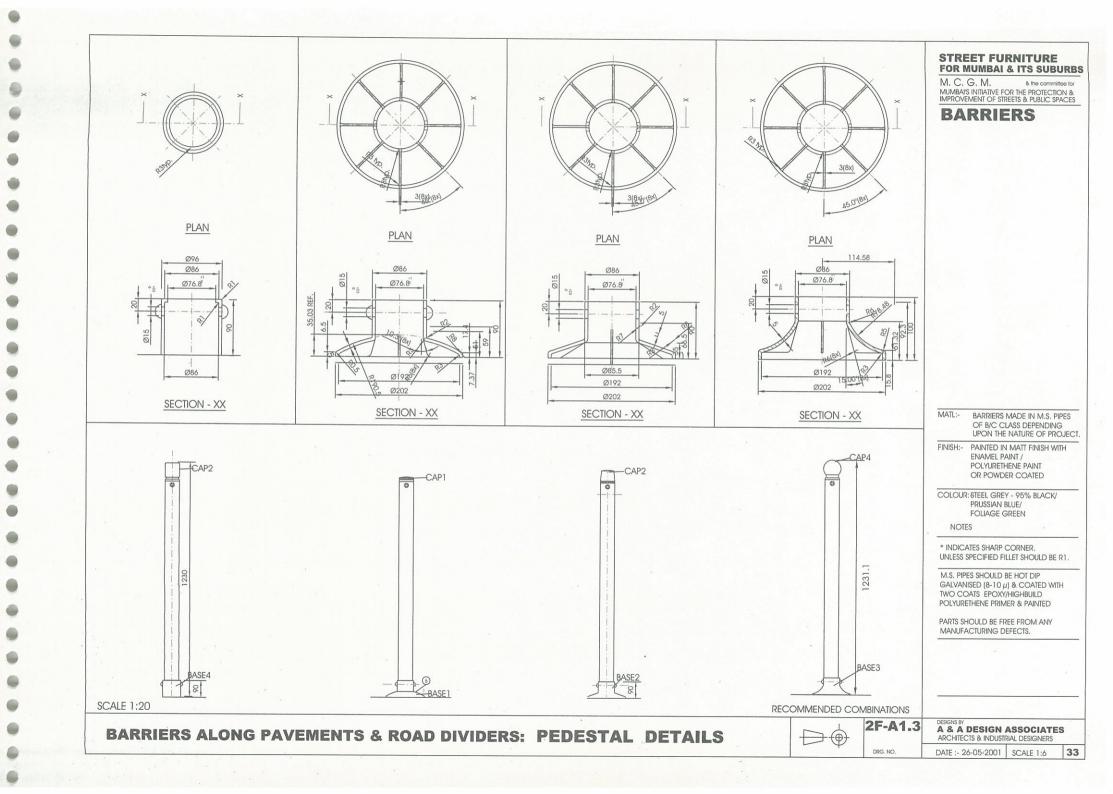


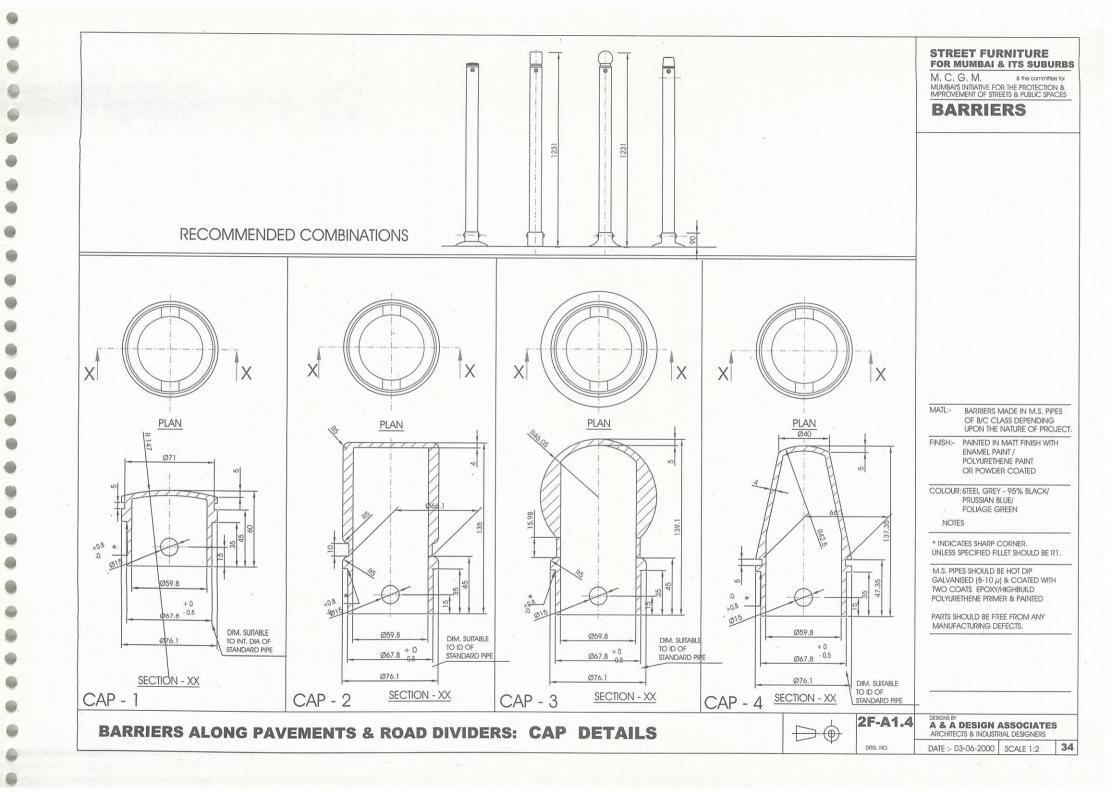


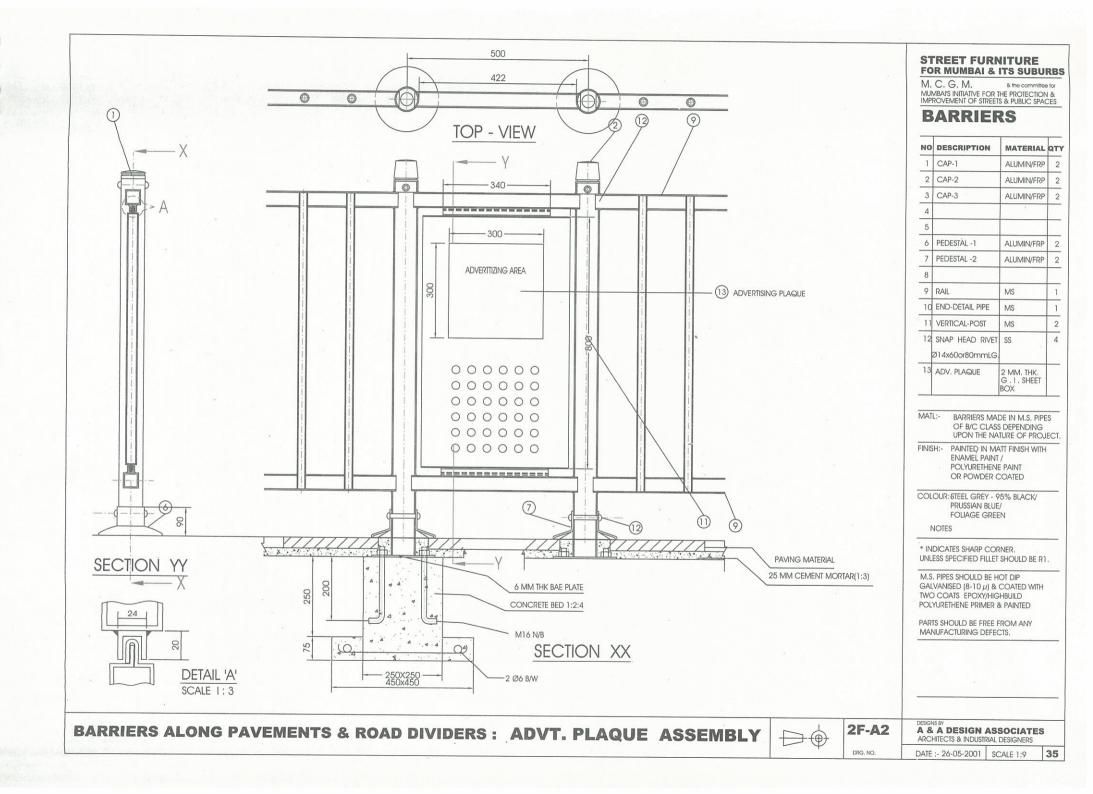
M. C. G. M. & the committee for MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

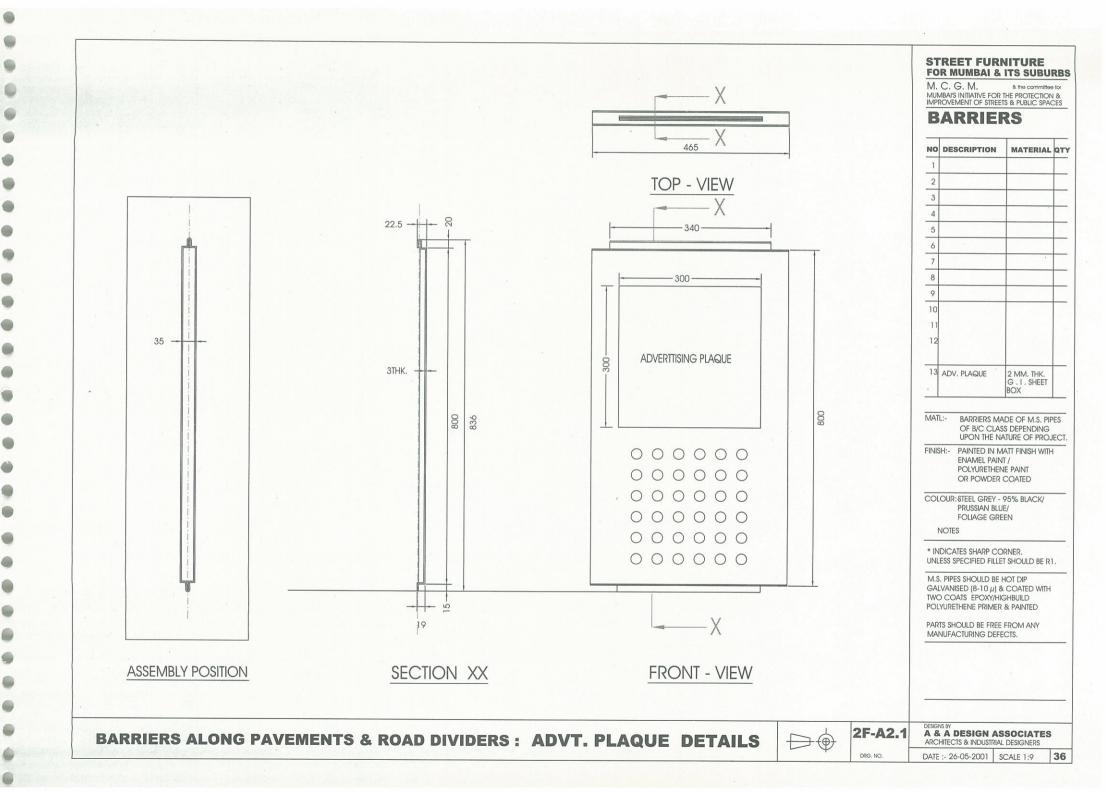
BARRIERS

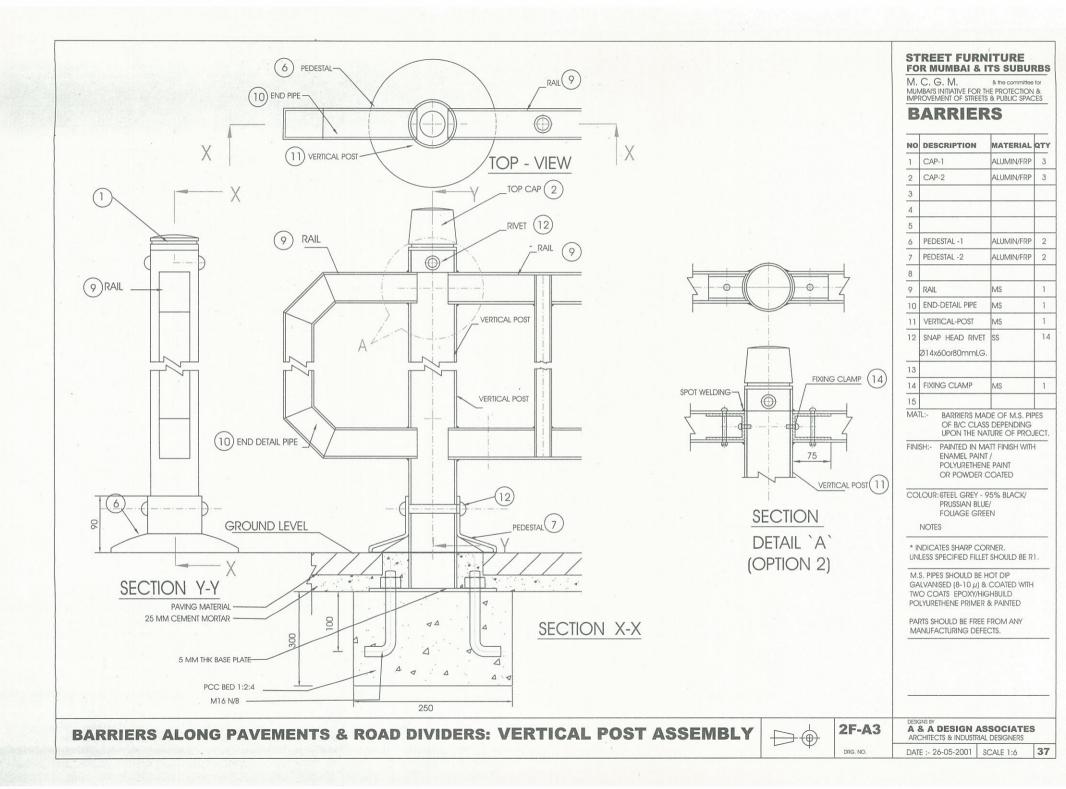


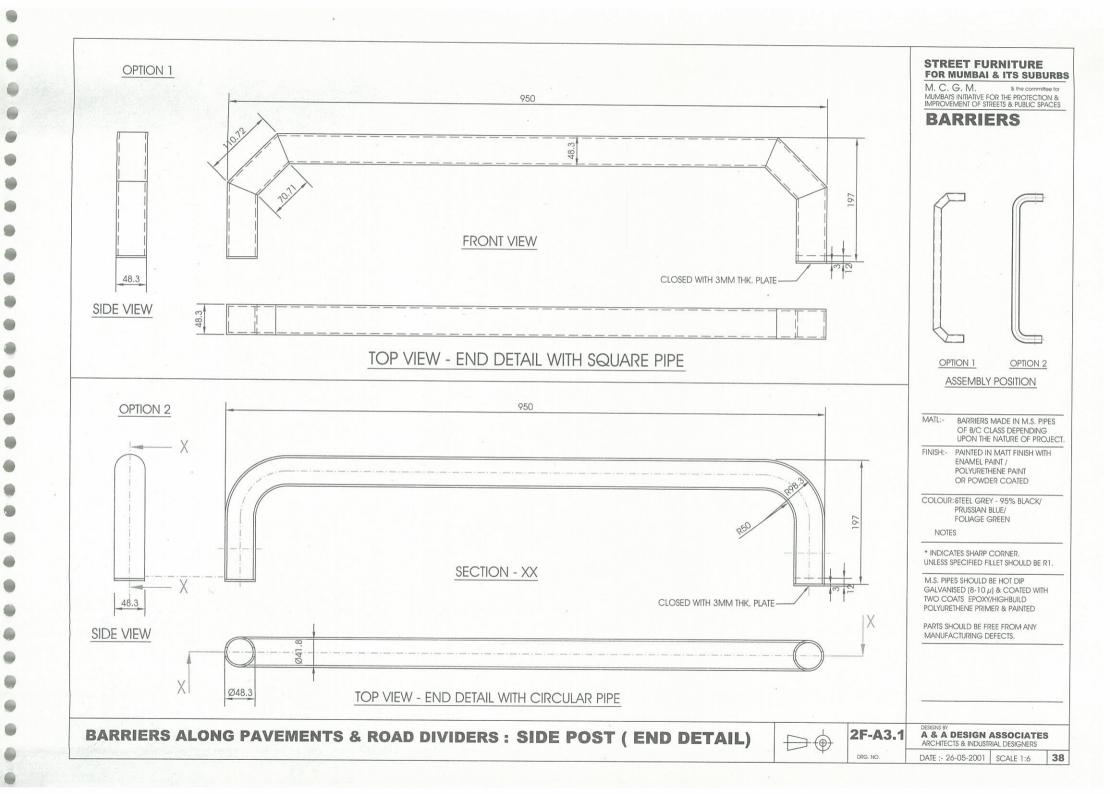


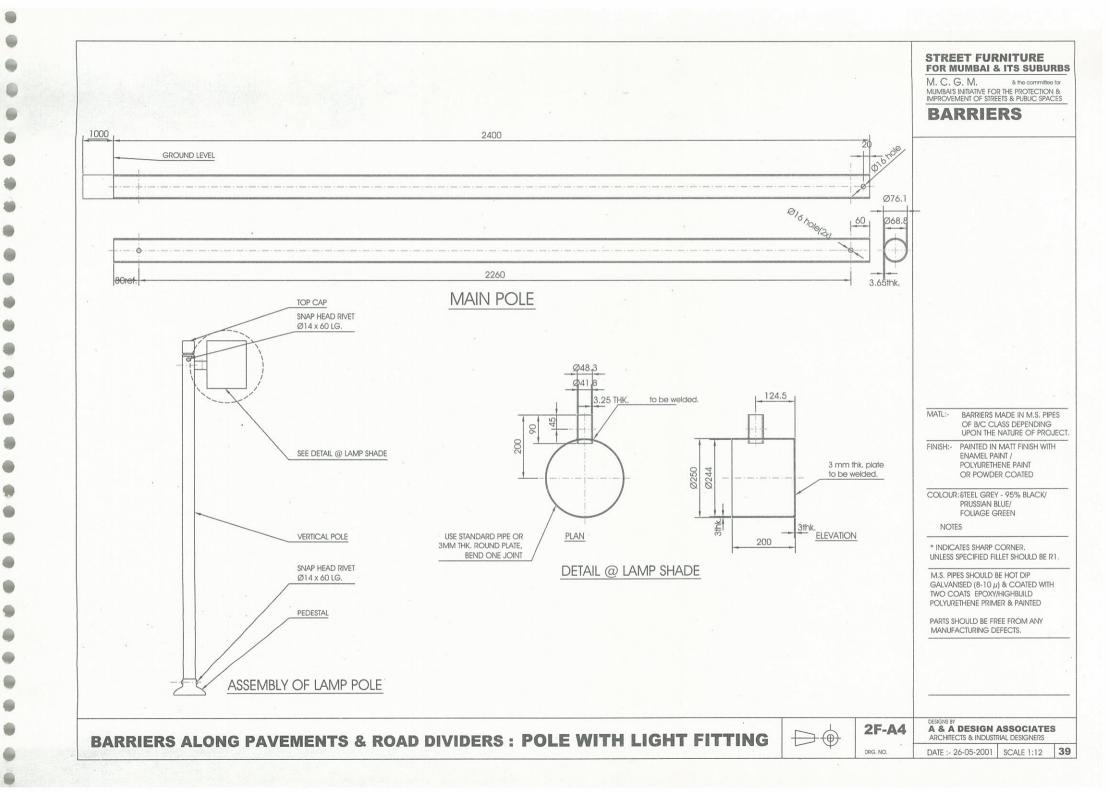


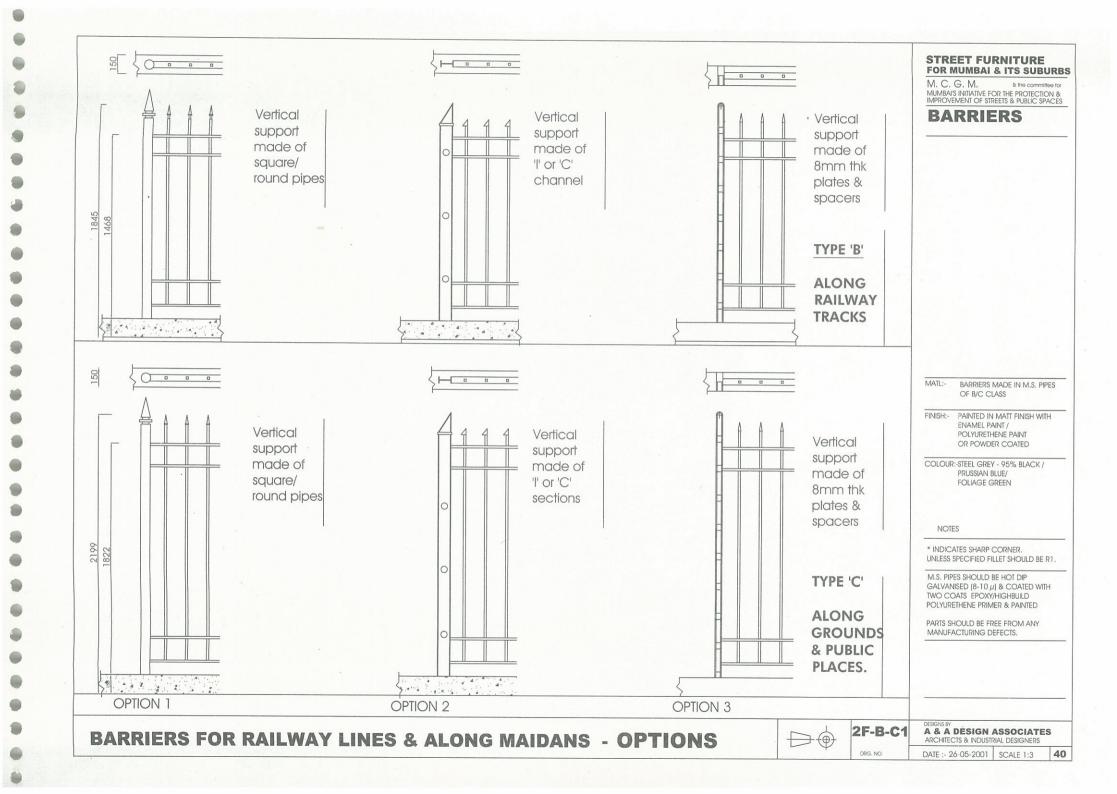


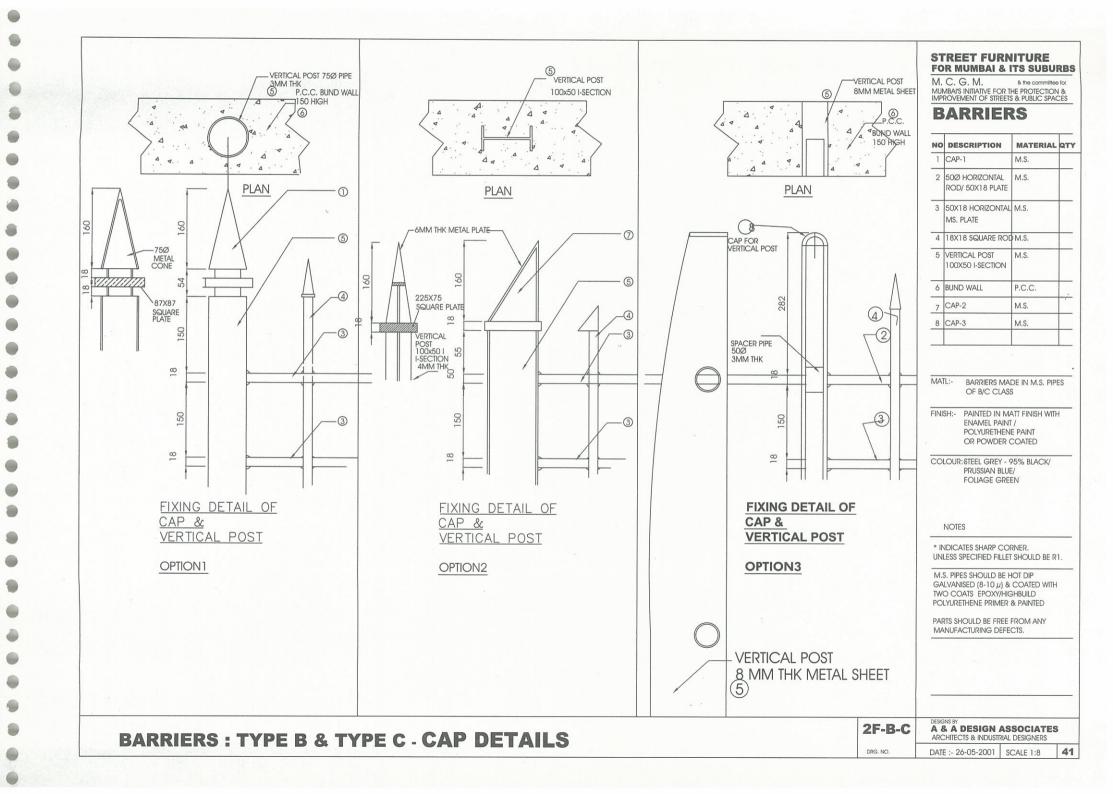


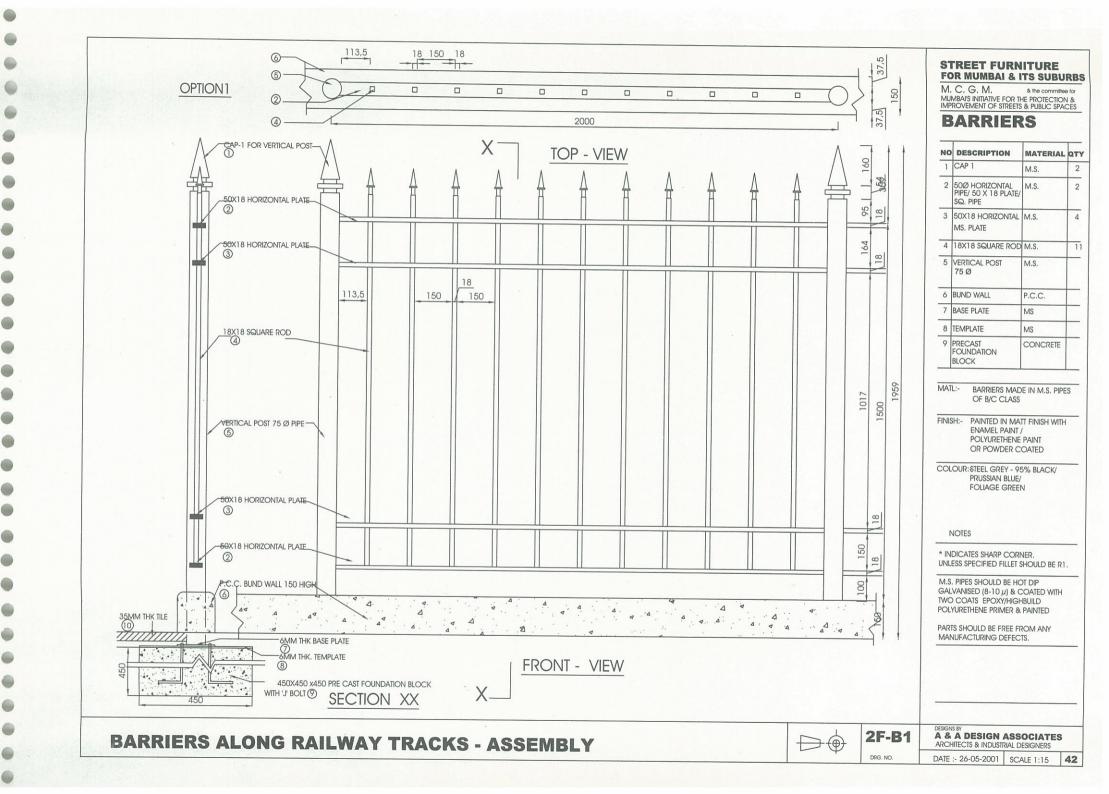


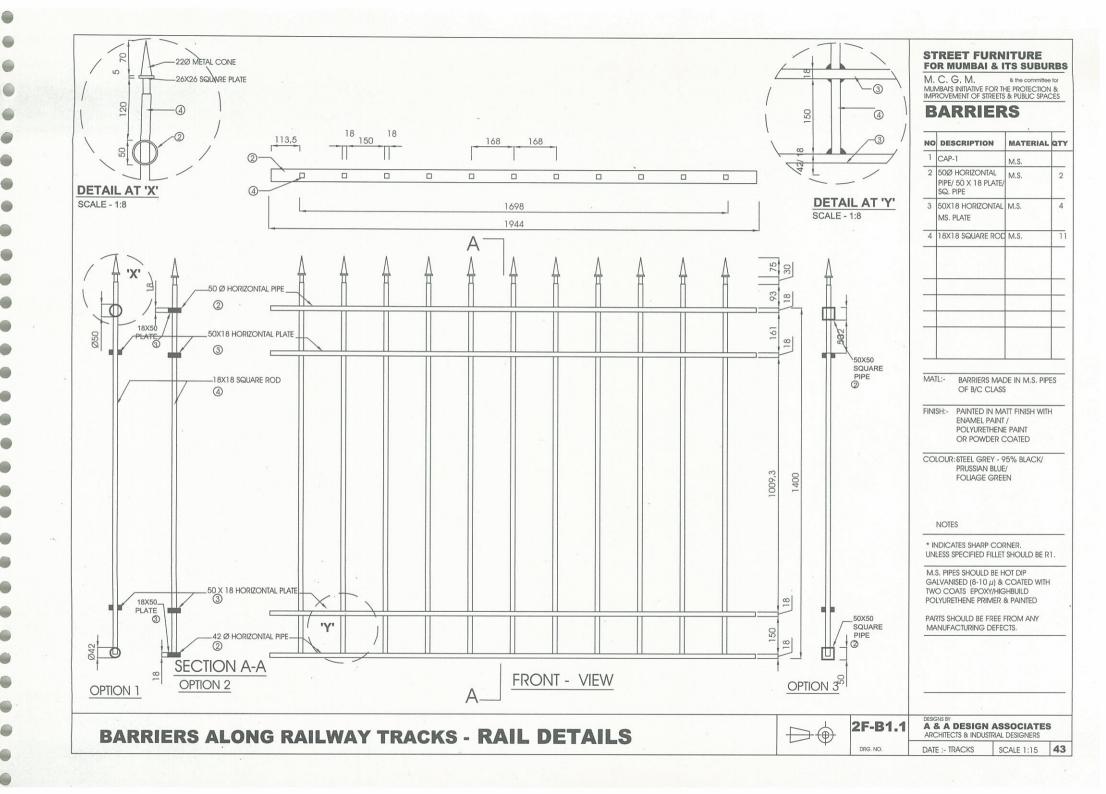


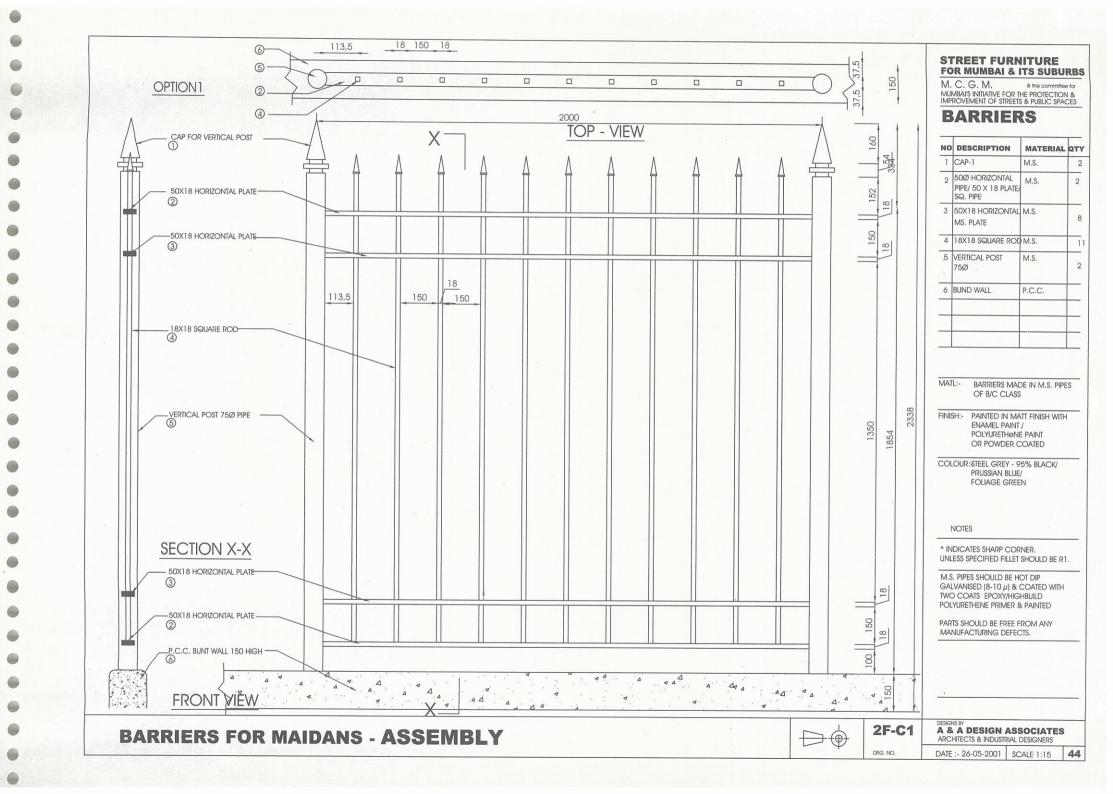


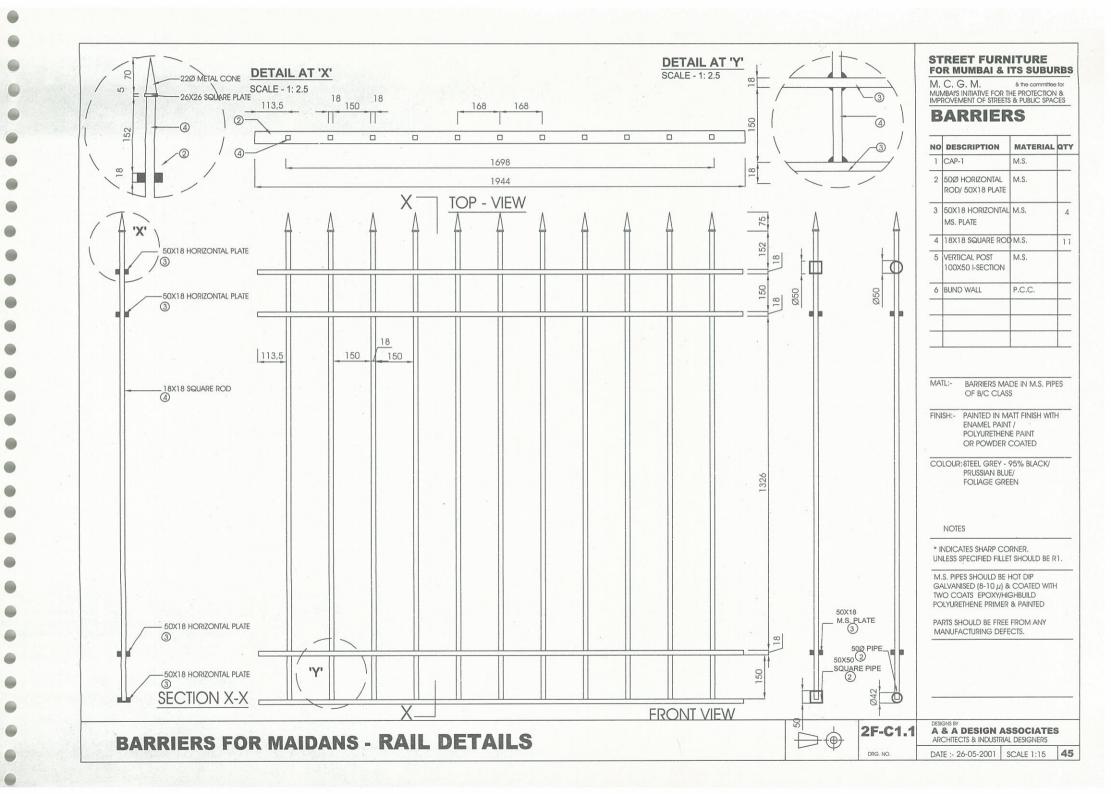












3 FSTREET URNITURE

BOLLARDS

- VARIATIONS IN VERTICAL POLES
- VARIATIONS IN HEIGHTS

BOLLARDS

pedestrians are allowed to access.

Bollards separate vehicles from pedestrians, buildings & stone work, visually or physically. In either case

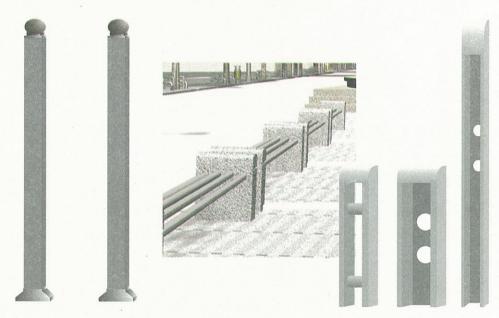
Trees serve as both visual or physical barriers. Hence wherever possible use of trees should be considered.

3F

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

BOLLARDS



PLANNING PRINCIPLES

- Proposed bollards should be used to demarcate pedestrian and vehicular zones and mainly to restrict vehicular entry into the identified pedestrian zones.
- Bollards can be effectively used to allow selective entry to two wheelers or bicycles.
- Bollards can define parking zones and pedestrian entrances to public spaces.
- Bollards should be used where barriers with lesser visual presence are required.
- Heights and proportions of bollards can be altered for playgrounds, statues, monuments and traffic islands without changing the basic aesthetic essence of the design and with prior approval of the MCGM.
- The designs of bollards and the system of their placement should harmonise with the system of other barriers such as railings or centre medians.

DESIGNS FEATURES.

Bollards should be installed at 2 mt c/c distance so that they harmonise with the barrier system.

Four designs of top and bottom cap for the vertical rail cap have been cited in the manual. Any one design can be chosen for the area under consideration with due consent of the MCGM.

Any variation proposed only in the design of the top cap and the base cap should be presented for approval.

Area specific designs of add-on features such as light fixtures; motifs and symbols could be mounted on bollards and should be presented to the MCGM for approval.

Any variation not specified in the manual and found necessary should be presented to the MCGM for approval.

Circular vertical post with flat cap suitable for major Arterial roads & Suburbs Circular vertical post with upright cap suitable for **Residential areas** Circular vertical post with spherical cap suitable for

Heritage areas

Square vertical post with spherical cap suitable for

Heritage areas

Vertical post 'C' channels with curved top suitable for **Modern &**

for Modern & Contemporary settings



FINIS

MS/ Galvanised sections painted in enamel paint/Polyurethene paint.

Samples of all colours should be produced before the committee for approval before commencing the

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR

BOLLARDS

Materials

availability.

Colours

execution.

MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

Proposed designs are made of M\$/

Galvanised/ Stainless Steel (SS)

structural steel sections such as 'C'

channels and Precast RCC in various combinations. Use of structural steel

round tubes or square pipes,

is promoted due to its easy

Steel Grey- 95% black,

Golden Yellow or Prussian blue.

with red oxide base on deoxidised surface. Powder coating could provide an alternative finish.

VARIATIONS IN VERTICAL POLE

Option-A 1 3F-bol 1



Option-A 2 3F-bol 2



Option-A 3 3F-bol 3



Option-B 3F-bol 4



Option-C 3F-bol 5

2000 2000

GENERAL GUIDELINES

Two bollards should be placed within 2 meters c/c with three equal gaps for pedestrian movement.

Bollards should be aligned with the barriers along footpaths or grounds.

Bollards should be used to mark pedestrian entry points to promenades and grounds.

Circular vertical post

with spherical cap

suitable for major

Arterial roads &

Suburbs

Square vertical post with spherical cap suitable for

Heritage areas

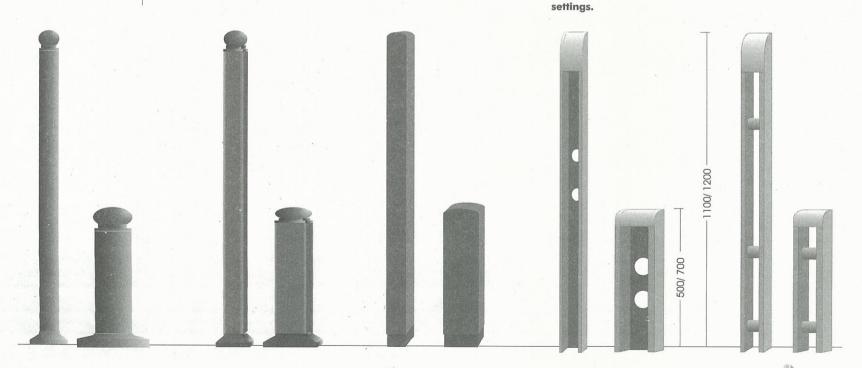
Square vertical post with rounded cap suitable for

Commercial areas

Vertical post 'C' channels with curved top suitable for Modern & Contemporary

Vertical post of flat plates with curved top suitable for Modern &

Contemporary settings.



Option-A 3

Option-B

Option-C-2

Option-C-1

Option-D

STREET FURNITURE **FOR MUMBAI & ITS SUBURBS**

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

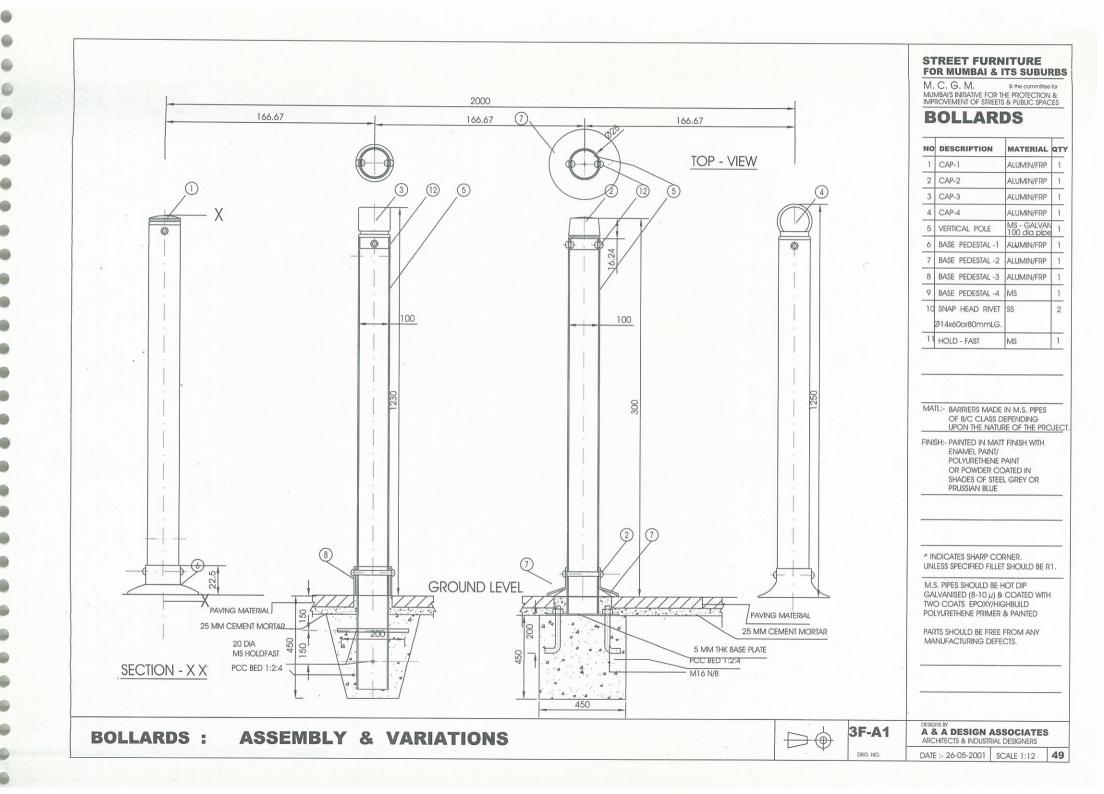
BOLLARDS

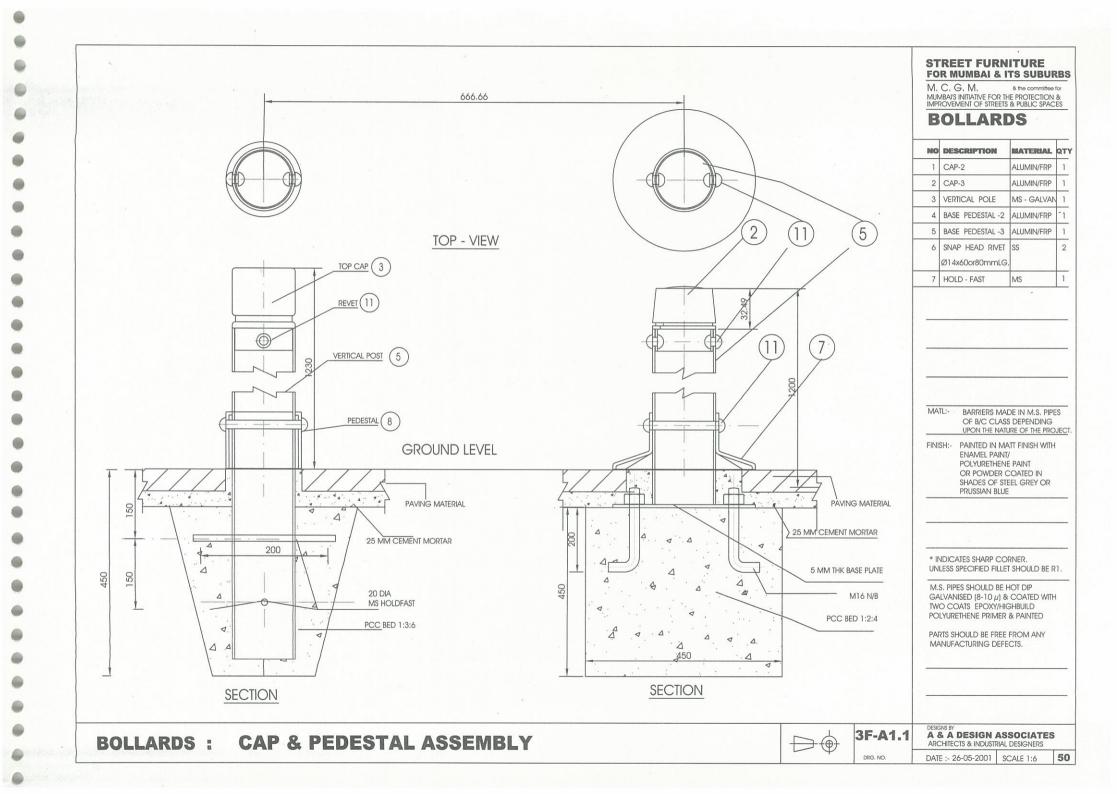
HOW TO CREATE AREA SPECIFIC VARIATIONS

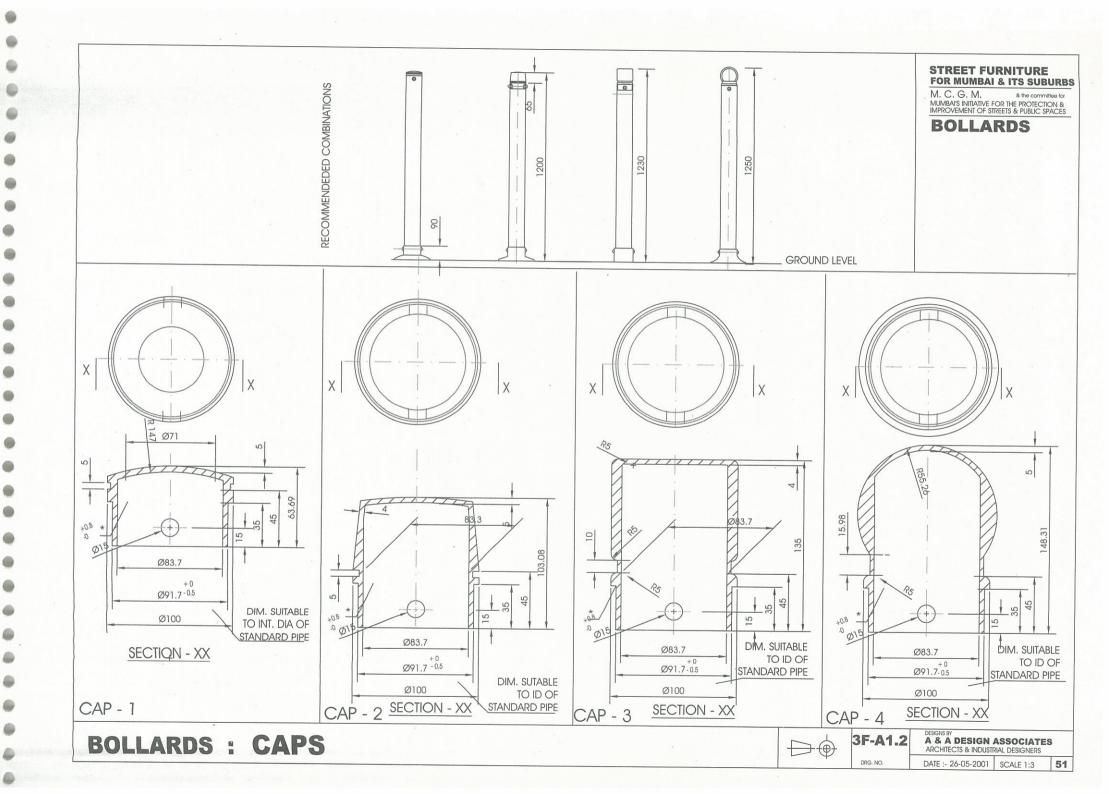
Variations in the proposed system of barriers could be created in following ways:

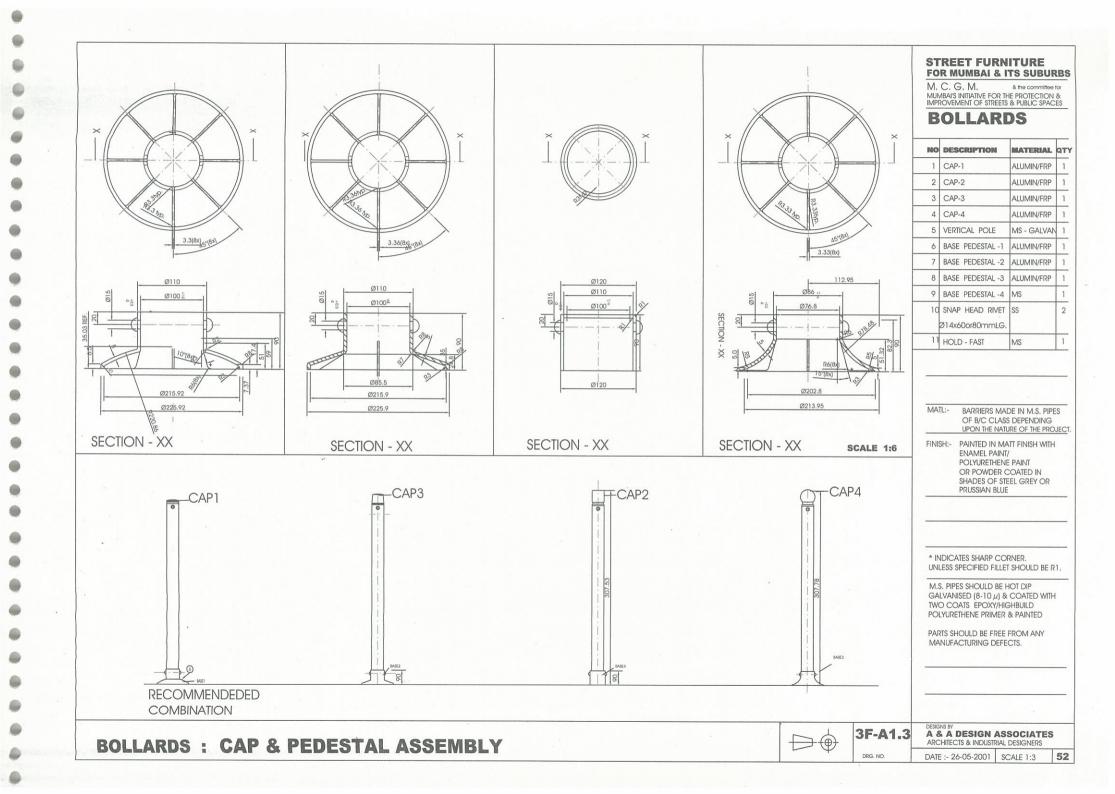
- By changing designs of " Cap" & Pedestal.
- By changing design of vertical post in case of heritage areas or water fronts or any other areas with strong architectural features.
- By introducing motifs and symbols in the proposed design from the manual, without altering sizes and proportions.

VARIATIONS IN HEIGHTS











- TYPES OF TREE GUARDS & GRILLS
- TREE GUARDS
 ALTERNATIVES
- TREE GRILL
 ALTERNATIVES

4F

<u>Tree guards</u> should be placed around saplings to guard them from vandalism. Tree grills are placed around trees to allow more ventilation at the tree base.

PLANNING PRINCIPLES

Proposed tree guards should be used for plants of about 3 years of age. After 3 to 4 years, tree guards should be removed.

Tree guard should be complemented with duly constructed pit, protected by tree grills made of RCC or cast iron. Trees should be protected with a lining of cobbles, stone slabs or PCC slabs. This system offers enough space for water & air to come in contact with the soil.

With the prior approval of the MCGM, heights and proportions of tree guards can be altered for applications such as playgrounds, public places, monuments and traffic islands without changing the basic aesthetics of the design.

Any variation in design of vertical posts, caps, material or any other elements not specified in the manual but found necessary while responding to the immediate surroundings of the Area under consideration, should be presented to the MCGM for approval.



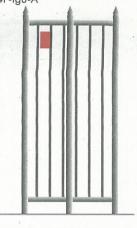
STREET FURNITURE FOR MUMBAI & ITS SUBURBS

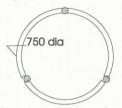
M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

TREE GUARDS TREE GRILLS & TREE SURROUNDS

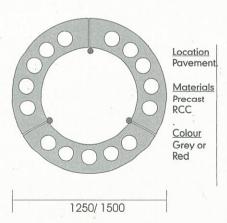
DESIGNS BY
A & A DESIGN ASSOCIATES
ARCHITECTS & INDUSTRIAL DESIGNERS

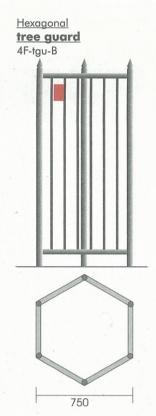
Circular tree guard 4F-tgu-A



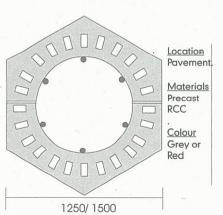


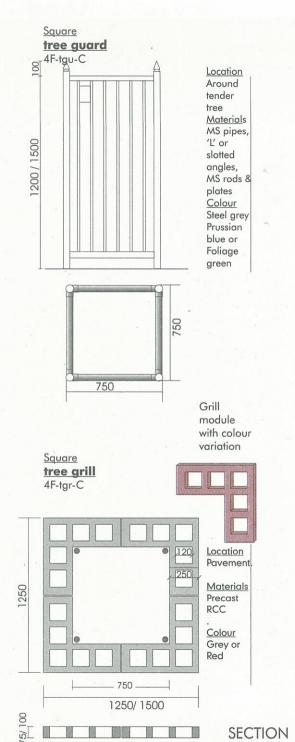
Circular tree grill 4F-tgr-A





Hexagonal tree grill 4F-tgr-B





M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

TREE GUARDS TREE GRILLS & TREE SURROUNDS

Materials

Proposed designs are made of MS/ Galvanised round tubes or square pipes/ structural steel section such as 'L' angles or precast RCC in various combinations. Use of structural steel sections is promoted due to its easy availability.

Colours

Steel Grey- 95% black/ Foliage green or Prussian blue.

Samples of all colours should be presented to the MCGM for approval before commencing the execution.

Finish:

SECTION

MS/ Galvanised sections painted in enamel paint/ Polyurethene paint, with red oxide base, on deoxidised surface.

Powder coating could provide an alternative finish.

TYPES OF TREE GUARDS & GRILLS

Tree guard with
Alternative
Materials & Style

DESIGN FEATURES

Tree guard designs given in the manual offer aesthetic variations to suit different environments.

Three designs of top and bottom caps are given in the manual. Any one design should be chosen for the area under consideration with due consent of the MCGM.

Any variation proposed in the design of the top cap and the bottom cap should be presented to the MCGM for approval.

Area-specific designs of add-on features such as, motifs and symbols should be Presented to the MCGM for approval.

GENERAL GUIDELINES

Tree guards should be firmly rooted into the ground.

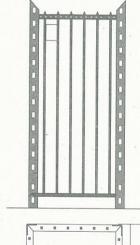
They should be integrated with the barriers and should be placed along the grids chosen for other street furniture elements.

OPTION1

Materials, GI / MS rods & plates

Colour Steel grey Prussian blue or Foliage green

Location Around tender trees

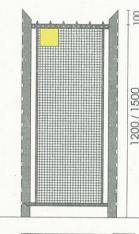


OPTION 2

Materials L or slotted angles, MS rods & plates

Colour Steel grey or Prussian blue or Foliage green

Location Around tender tree



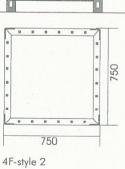
OPTION 3

Materials 60 X 60 Slotted angles, MS angles/ Slotted angles & .Grill with 1"x 1" gratting

Location Around tender trees



4F-style 1



750

4F-style 3

TREE GUARD ALTERNATIVES

STREET FURNITURE

M. C. G. M. & THE COMMITTEE FOR

MUMBAI'S INITIATIVE FOR THE PROTECTION &

IMPROVEMENT OF STREETS & PUBLIC SPACES

TREE GUARDS

TREE GRILLS & TREE SURROUNDS

HOW TO CREATE AREA SPECIFIC VARIATIONS

• By changing the designs

By changing the design of

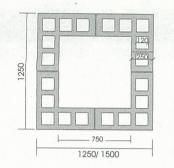
By introducing motifs and

of "Cap" & Pedestal.

the vertical post

symbols

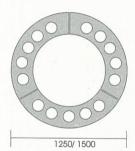
FOR MUMBAL & ITS SUBURBS



Square tree grill

Materials Precast RCC or Cast Iron

<u>Colour</u> Grey or Brick Red

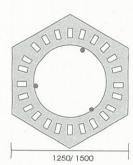


Circular tree grill

> Location Around tree

Materials Precast RCC

Colour Grey or Brick Red



Hexagonal tree grill

Location Around tree.

Materials Precast RCC

Colour Grey or Brick Red

TREE GRILLS & TREE SURROUNDS

Tree grills are installed along with tree guards, around newly planted, young trees (saplings/ up to three year old) or trees with delicate trunks.

Tree grills facilitate the seepage of surface water into the ground and the supply of air to the roots.

Tree surrounds serve as a lining between the tree trunk and the paved surface of footpath. They can be made of stone cobbles or slabs, PCC blocks or any material that provides a lining around and retains the soil below the paved surface.

PLANNING PRINCIPLES

Proposed tree grills are to be used for roadside plantations for newly planted as well as old trees.

Tree grills should be complemented with duly constructed plant pit protected by PCC ring beams. This offers enough space for water and air to come into contact with the soil.

Materials proposed in this manual can be altered as per paving schemes.

Sizes and proportions of tree grills can be altered for applications such as waterfronts, public places, statues & monuments and traffic island without changing the basic aesthetic essence of the design and with prior approval of the MCGM.

Any variation not specified in the manual but found necessary while responding to the immediate surrounding of the area under consideration, shall be presented to the MCGM for approval.

GENERAL GUIDELINES

Tree grills are to be put next to the inner edges of kerb.

It is assumed that the trees are planted at a distance of 8.5 mt c/c. This distance may vary for different areas due to the type of existing as well as proposed plantation.

DESIGN FEATURES

Tree grill designs offer formal variation.

Three designs of tree grill compatible with the proposed tree guards have been cited in the manual.

Assembly of tree guard and tree grill is conceived in such a way that after the plant grows, the guard can be removed without disturbing the grill.

Grills may be replaced if damaged or if there is an increase in the size of the tree trunk.

Any variation proposed in the design is to be presented for approval.

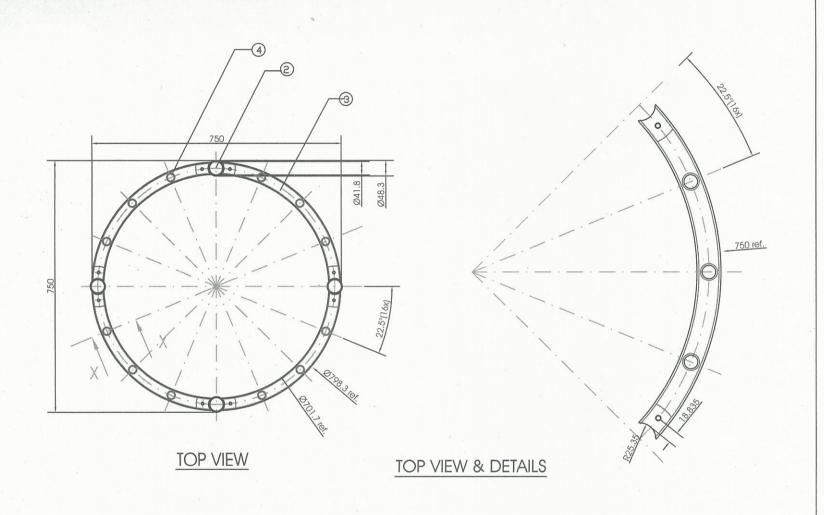
Area-specific designs to match with other grill structure, motifs, and symbols are to be presented to the MCGM for approval.

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

TREE GUARDS TREE GRILLS & TREE SURROUNDS

REE	GRILL	
ALTER	RNATIVES	



M. C. G. M. & the committee for MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES M. C. G. M.

TREE GUARD

NO	DESCRIPTION	MATERIAL	QTY	
1	CAP-1	ALUMIN/FRP	4	
2	VERTICAL POLE	MS-GALVAN.	4	
3	HORIZONTAL BAR	MS-GALVAN.	4	
4	DIVIDING PIPES	MS-GALVAN.	12	
5	RIVETS	SS	24	
6	HOLD FASTS	ALUMIN/FRP	6	

NOTE:- TREE GUARDS ARE USED TO PROTECT YOUNG PLANTS

> RCC TREE GRILLS FACILITATE BREATHING OF ROOTS

MATL:- M S PIPES/ STRUCTURAL 'L' ANGLES SLOTTED ANGLES/ GI PROFILES IN COMBINATION WITH SS/MS JALI

NOTES

* INDICATES SHARP CORNER. UNLESS SPECIFIED FILLET SHOULD BE R1.

M.S. PIPES SHOULD BE HOT DIP GALVANISED (8-10 µ) & COATED WITH TWO COATS EPOXY/HIGHBUILD POLYURETHENE PRIMER & PAINTED

PARTS SHOULD BE FREE FROM ANY MANUFACTURING DEFECTS.

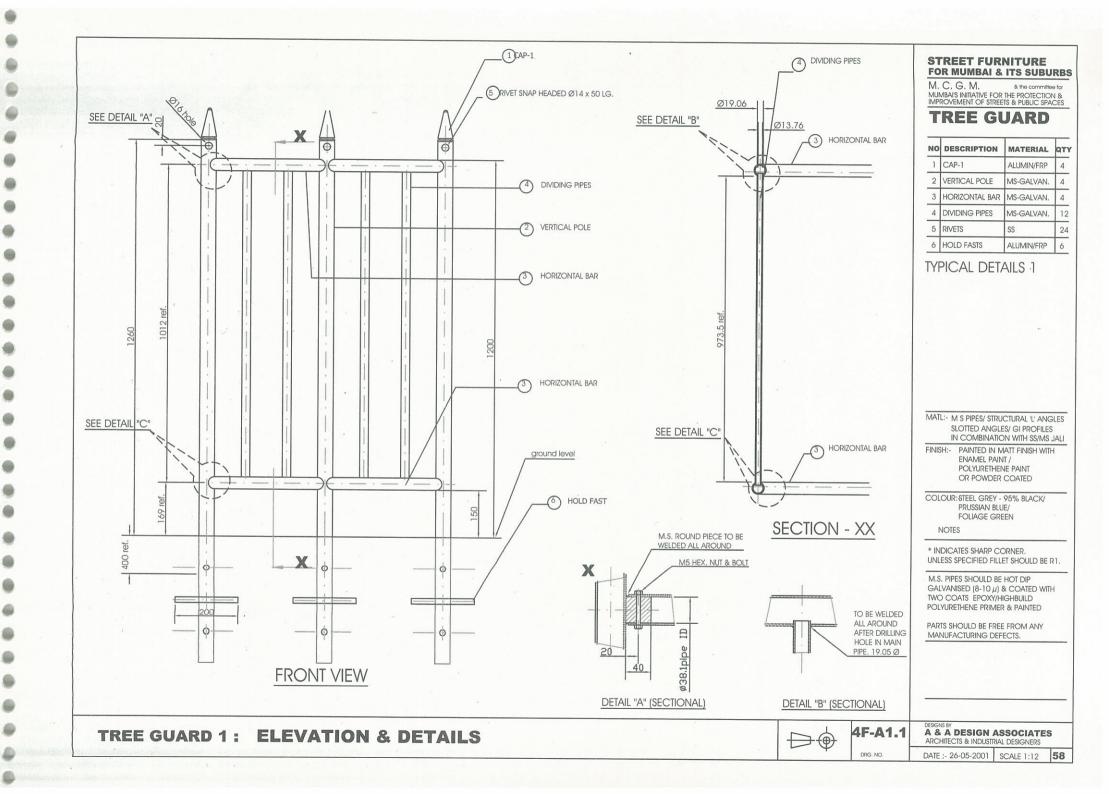
TREE GUARD 1: ROUND

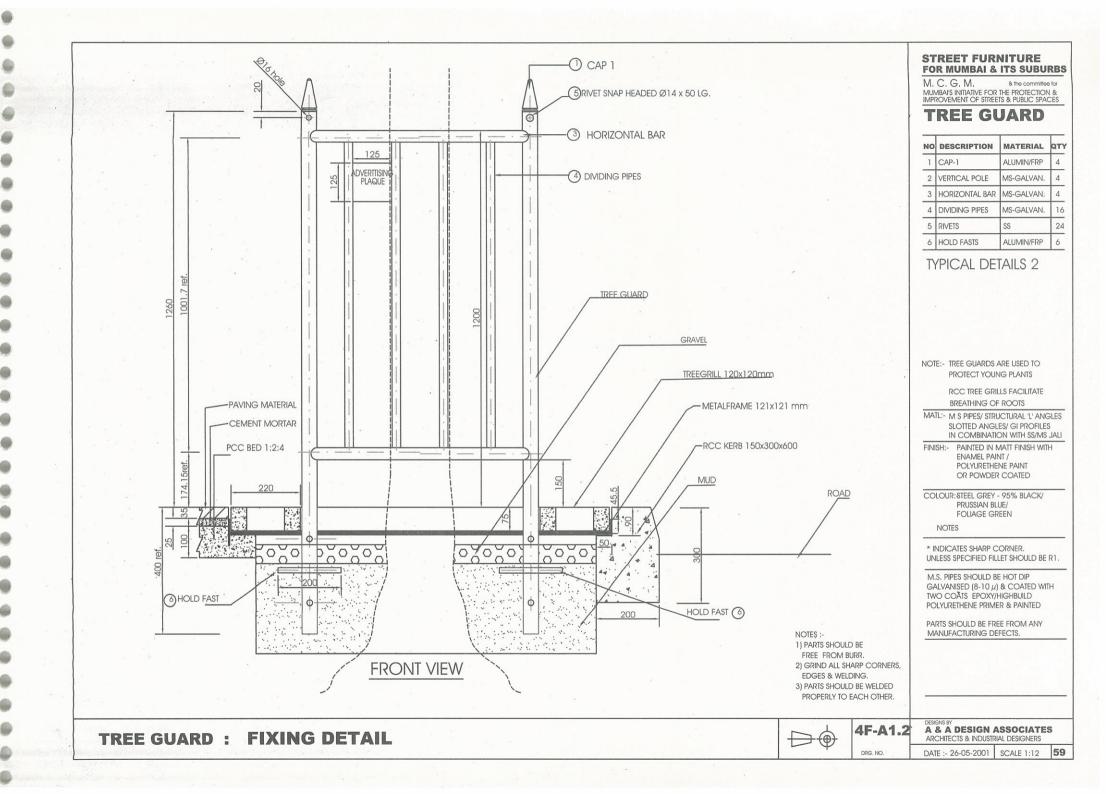


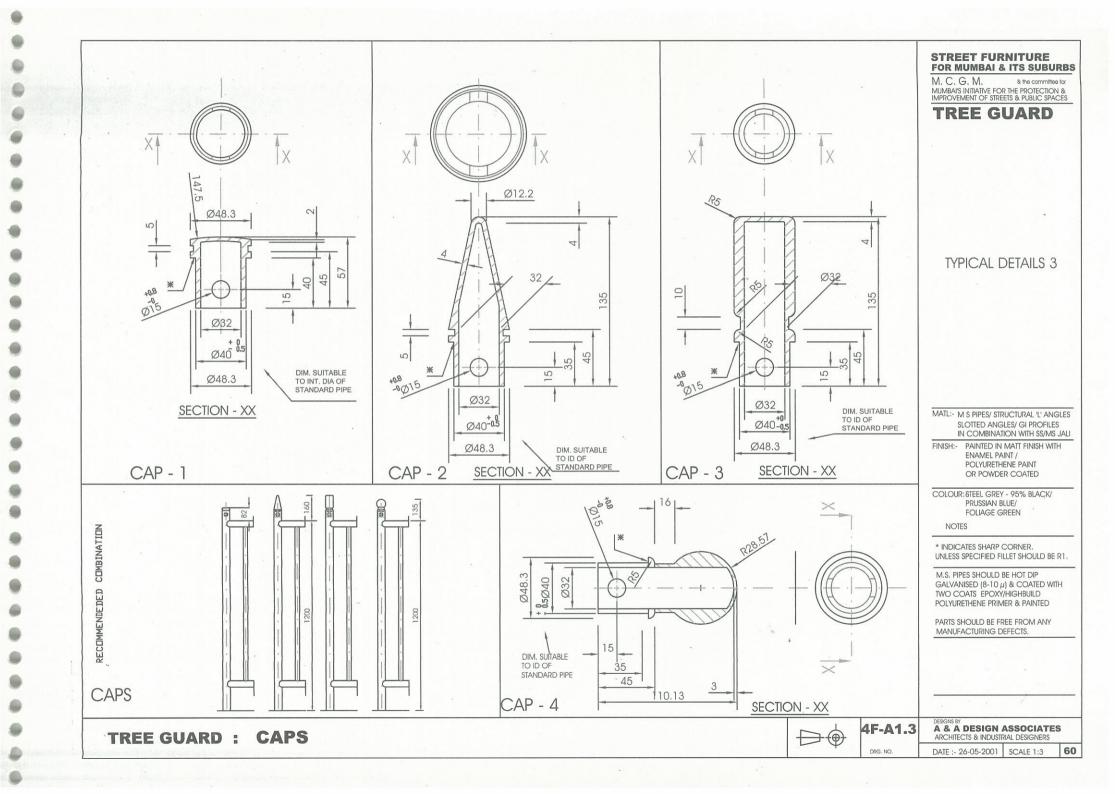
4F-A1

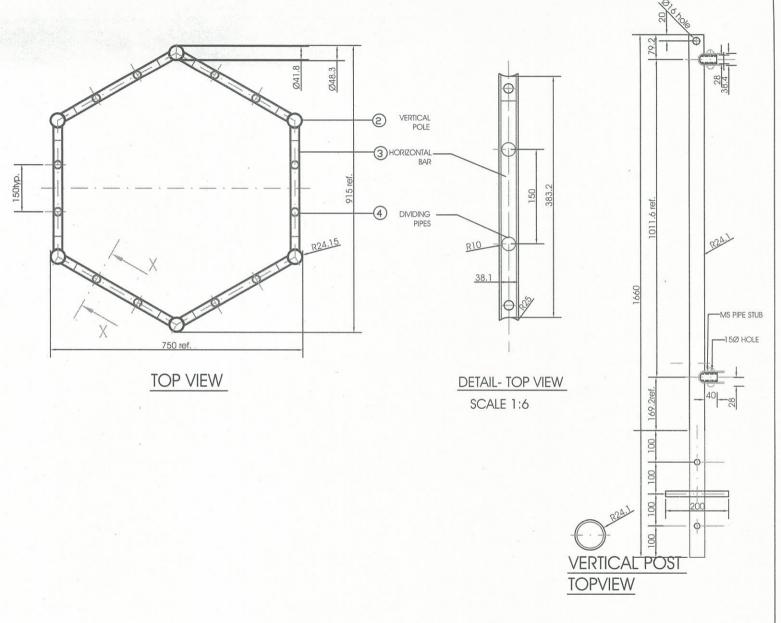
A & A DESIGN ASSOCIATES ARCHITECTS & INDUSTRIAL DESIGNERS

DATE :- 26-05-2001 | SCALE 1:12









M. C. G. M. MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

TREE GUARD

NO	DESCRIPTION	MATERIAL	QTY
1	CAP-1	ALUMIN/FRP	4
2	VERTICAL POLE	MS-GALVAN.	4
3	HORIZONTAL BAR	MS-GALVAN.	4
4	DIVIDING PIPES	MS-GALVAN.	12
5	RIVETS	SS	24
6	HOLD FASTS	ALUMIN/FRP	6

FOR DETAILS REFER TO 4F-A1.1, 4F-A1.2, 4F-A1.3

MATL:- M S PIPES/ STRUCTURAL 'L' ANGLES SLOTTED ANGLES/ GI PROFILES IN COMBINATION WITH SS/MS JALI

FINISH:- PAINTED IN MATT FINISH WITH ENAMEL PAINT / POLYURETHENE PAINT OR POWDER COATED

COLOUR: STEEL GREY - 95% BLACK/ PRUSSIAN BLUE/ FOLIAGE GREEN

* INDICATES SHARP CORNER. UNLESS SPECIFIED FILLET SHOULD BE R1.

M.S. PIPES SHOULD BE HOT DIP GALVANISED (8-10 µ) & COATED WITH TWO COATS EPOXY/HIGHBUILD POLYURETHENE PRIMER & PAINTED

PARTS SHOULD BE FREE FROM ANY MANUFACTURING DEFECTS.

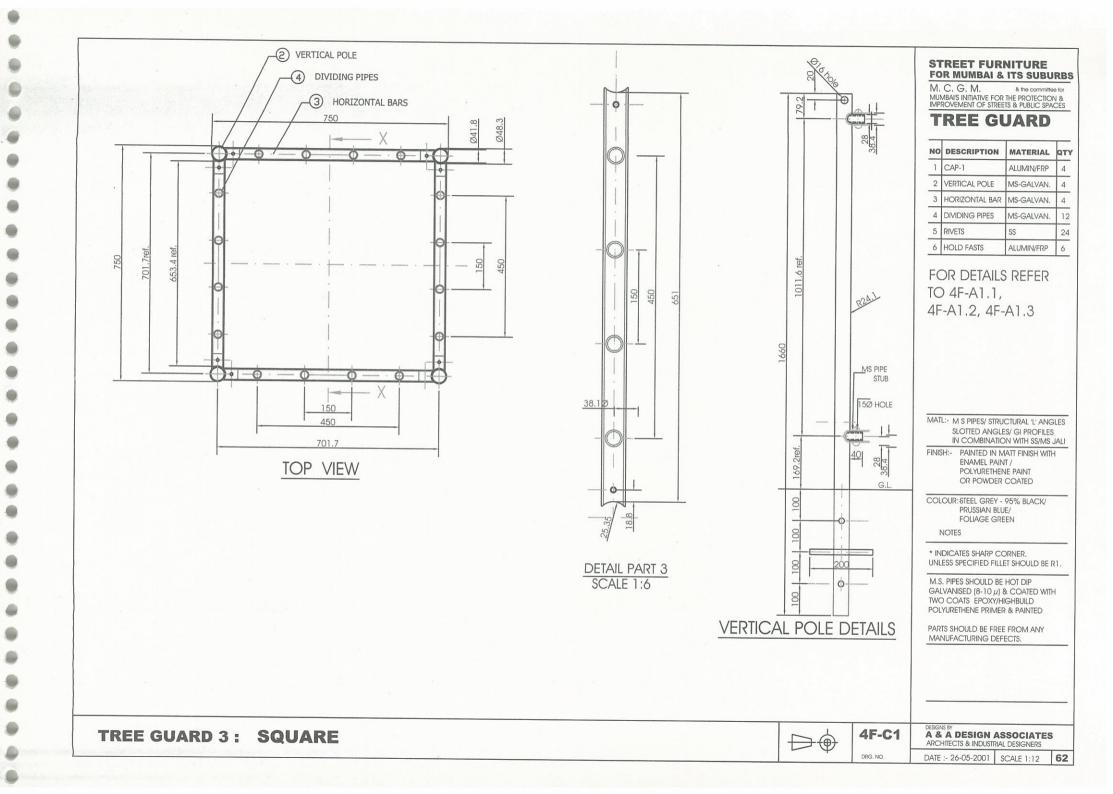
TREE GUARD 2: HEXAGONAL



4F-B1

A & A DESIGN ASSOCIATES ARCHITECTS & INDUSTRIAL DESIGNERS

DATE :- 26-05-2001 | SCALE 1:12 | 61



5 FURNITURE

- LITTER BINS IN VARYING SIZES
- COLOUR VARIATION
- LITTER BINS FOR PAVEMENTS
- LITTER BINS FOR GARDES & PUBLIC SPACES
- VARIATIONS FOR DIFFERENT ENVIRONMENTS

PLANNING PRINCIPLES

Proposed litter bins should be used on arterial roads, sub-arterial roads and in the local lanes of Mumbai

These litter bins are designed for pedestrians who need to throw dry litter while walking, waiting on streets or when inside public places such as playgrounds or parks. This section contains designs of litter bins of varying sizes such as big, medium and small.

Litter bins near food plazas, shopping centers or cinema halls should be big in size to accommodate large quantity of litter.

Sub-arterial roads and busy streets of the Business district should have medium size, pedestal-mounted bins as the pedestrian traffic here is heavy and continuous.

Smallest size litter bins should be primarily placed in local lanes where roads are narrow and they should be mounted on already existing poles such as light poles to avoid clutter on the footpath.

Density of pedestrian traffic should determine the frequency at which litter bins are installed on the street.

Heights, proportions and volumes of bins can be altered for applications such as public places and monuments, without changing the basic aesthetics of the design and with the prior approval of the MCGM

Separate colour code can be defined for biodegradable and non-biodegradable litter at suitable locations. This will allow separation of biodegradable and non-biodegradable waste at the source.





STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

LITTER BIN

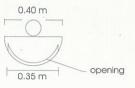
GENERAL GUIDELINES

Litter bins should be placed at a frequency determined after a detailed study of the area under consideration. However, the minimum distance between two litter bins should be maintained at 25.5 meters.

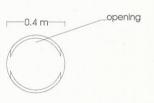
The precise location of bins shall be along the grid lines chosen for the system of barriers.

Requirement of litter bins for residential, commercial and arterial roads should be worked out after a thorough study of the area under Consideration.

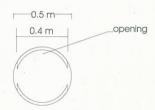
SIGNS BY



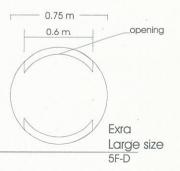
Small size

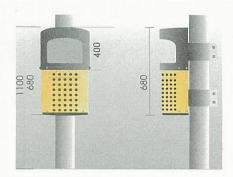


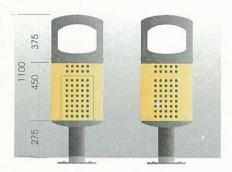
Medium size

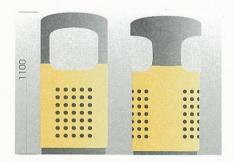


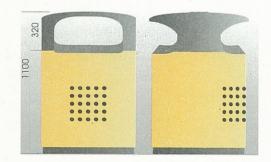
Large size











STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

LITTER BINS

Materials

Proposed designs are made of MS/ Galvanised/ Stainless Steel (SS) round tubes or square pipes, structural steel sections such as 'C' channels and precast RCC in various combination. Use of structural steel is promoted due to its easy availability.

Colours
Steel Grey- 95% black,
Golden Yellow or
Prussian blue.
Samples of all colours should be
produced before the committee for

Finish:

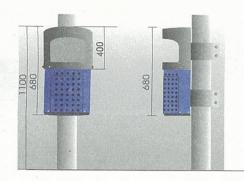
the execution.

MS/ Galvanised sections painted in enamel paint or Poly-urethene paint. with red oxide base on deoxidised surface. Powder coating could

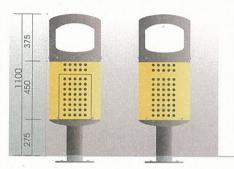
provide an alternative finish.

the approval before commencing

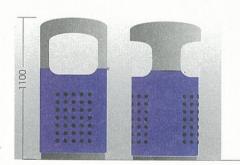
LITTER BINS IN VARYING SIZES



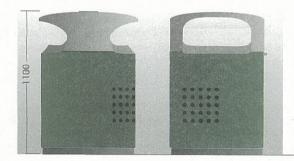
Small size



Medium size



Large size



Extra Large size

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

LITTER BINS

DESIGN FEATURES

Proposed range of litter bin designs offer flexibility of installation on site due to the types of attachment details they have been provided with.

This manual contains designs of litter bins of varying sizes such as big, medium and small and offers flexibility to users to choose depending upon the requirement of the area under consideration.

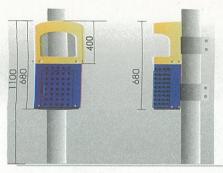
Litter bins should be fully fabricated and then taken to the site for installation.

Types of caps offer variety without changing the basic look of the product.

Any variation in the design of the top cap, if desired by the applicant should be presented to the MCGM for approval.

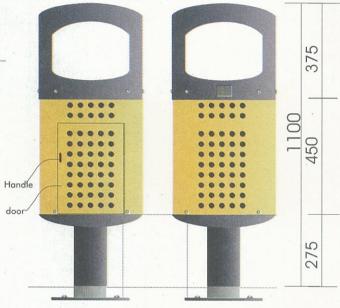
Any variation in the display area of the name of sponsor, should be done with due consent of the MCGM.

COLOUR VARIATION

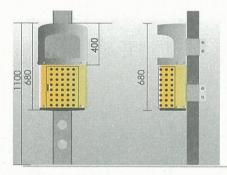


Pole-mounted bin Small size





Pedestal-mounted bin

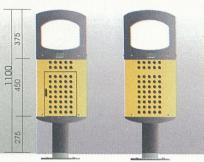


Pole-mounted bin Small size

5F-A1

MEDIUM SIZE LITTER BIN 5F-B2

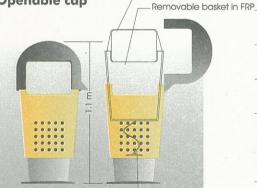
MOUNTING & CAP OPTIONS



Pedestal-mounted bin Medium size 5F-B1



Bin with pcc pedestal & Openable cap



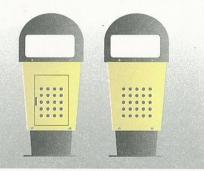
VARIATION IN PEDESTAL & CAP MOUNTING

STREET FURNITURE
FOR MUMBAI & ITS SUBURBS
M. C. G. M. & THE COMMITTEE FOR
MUMBAY'S INITIATIVE FOR THE PROTECTION &
IMPROVEMENT OF STREETS & PUBLIC SPACES

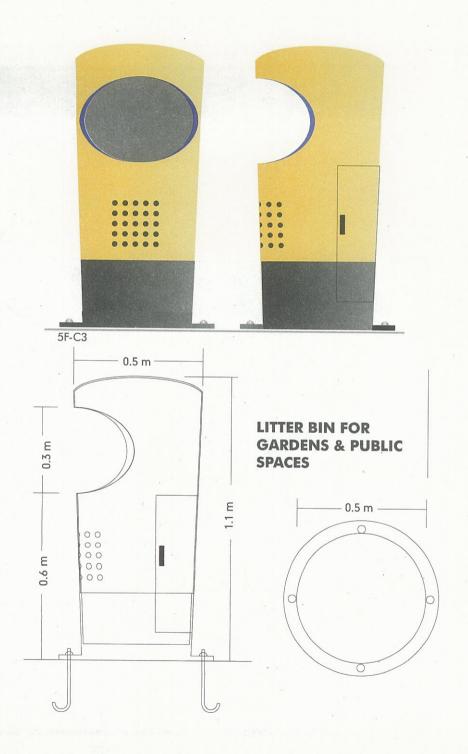
LITTER BINS

Small & Medium Size Litter bins

Basket fixed with chain

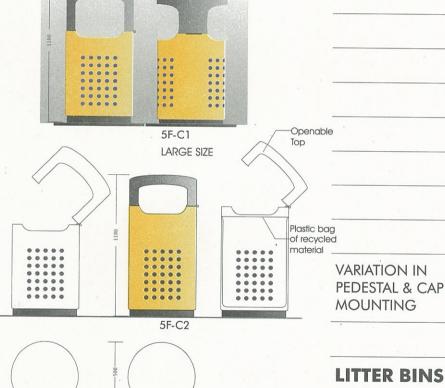


LITTER BINS FOR PAVEMENTS



WITH OPENABLE SHUTTER OPTION

LARGE SIZE LITTER BIN



STREET FURNITURE FOR MUMBAI & ITS SUBURB

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

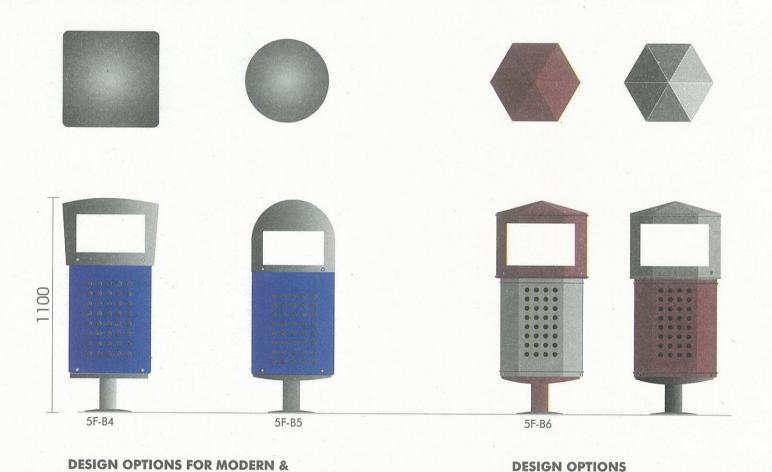
LITTER BINS

Large Size Litter bins

LITTER BINS FOR GARDENS & PUBLIC SPACES

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

LITTER BINS



FOR HERITAGE AREAS

CONTEMPORARY ENVIRONMENTS

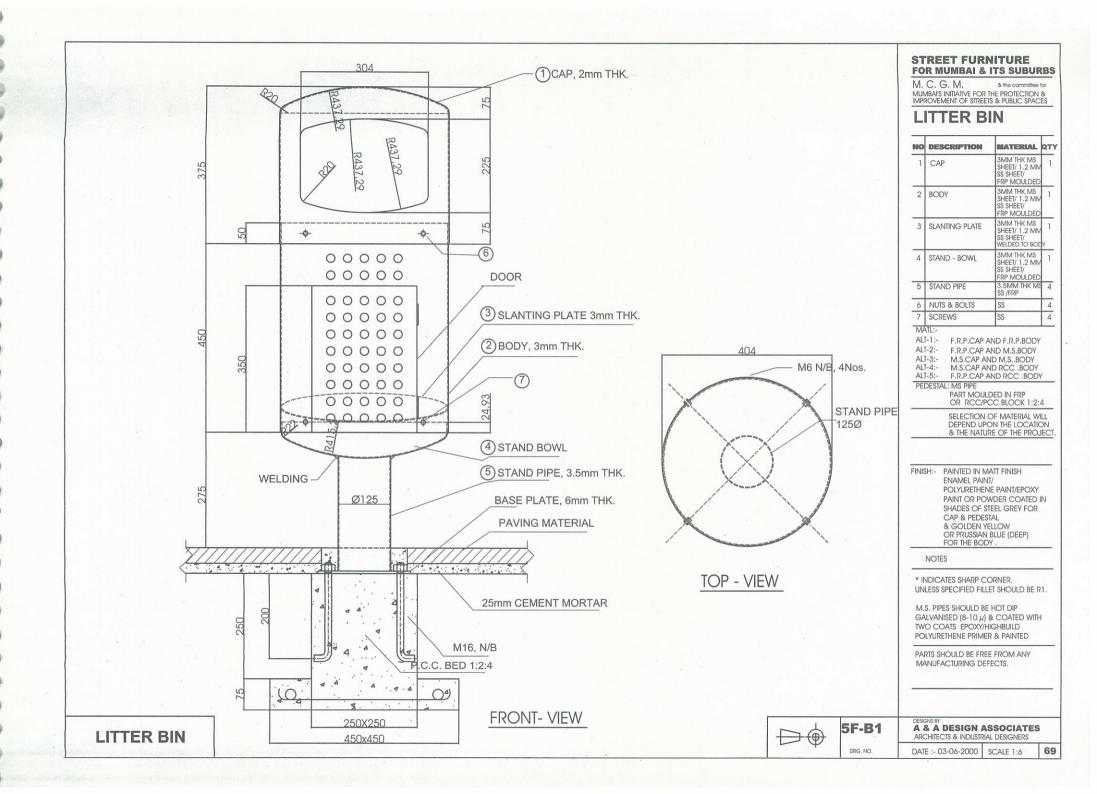
CREATE AREA-SPECIFIC VARIATIONS

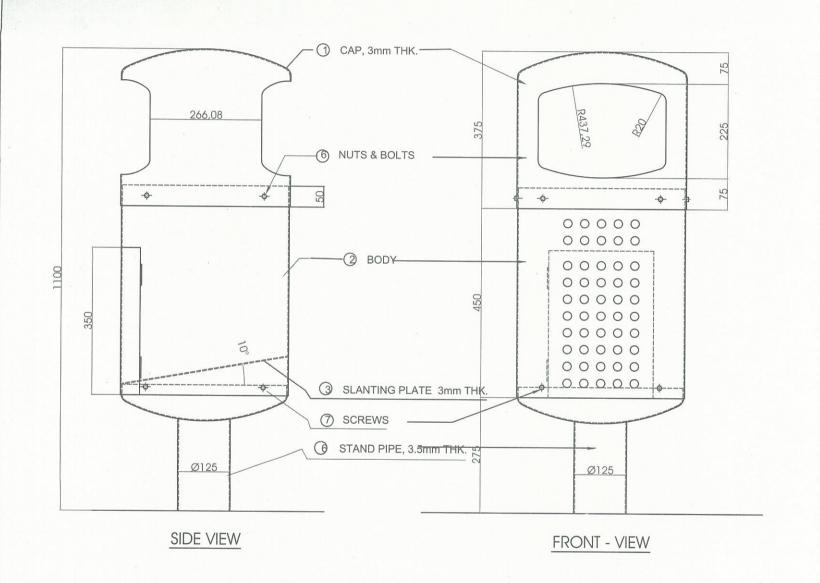
BY CHANGING

- CAP PROFILES
- BODY PROFILES
- COLOUR SCHEMES

WITH PRIOR PERMISSION OF MCGM

VARIATIONS FOR DIFFERENT ENVIRON-MENTS





M. C. G. M. & the committee for MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

LITTER BIN

NO	DESCRIPTION	MATERIAL	QTY
1	CAP	3MM THK MS SHEET/ 1.2 MM SS SHEET/ FRP MOULDED	1
2	BODY	3MM THK MS SHEET/ 1.2 MM SS SHEET/ FRP MOULDED	1
3	SLANTING PLATE	3MM THK MS SHEET/ 1.2 MM SS SHEET/ WELDED TO BOD	1 Y
4	STAND - BOWL	3MM THK MS SHEET/ 1.2 MM SS SHEET/ FRP MOULDED	1
5	STAND PIPE	3.5MM THK MS SS /FRP	4
6	NUTS & BOLTS	SS	4
7	SCREWS	SS	4

ALT-1:- F.R.P.CAP AND F.R.P.BODY ALT-2:-F.R.P.CAP AND M.S.BODY ALT-3:-M.S.CAP AND M.S. BODY M.S.CAP AND RCC .BODY ALT-5:-F.R.P.CAP AND RCC .BODY

PEDESTAL: MS PIPE

PART MOULDED IN FRP OR RCC/PCC BLOCK 1:2:4

SELECTION OF MATERIAL WILL DEPEND UPON THE LOCATION & THE NATURE OF THE PROJECT

FINISH:- PAINTED IN MATT FINISH ENAMEL PAINT/ POLYURETHENE PAINT/EPOXY PAINT OR POWDER COATED IN SHADES OF STEEL GREY FOR CAP & PEDESTAL & GOLDEN YELLOW OR PRUSSIAN BLUE (DEEP) FOR THE BODY .

NOTES

* INDICATES SHARP CORNER. UNLESS SPECIFIED FILLET SHOULD BE R1.

M.S. PIPES SHOULD BE HOT DIP GALVANISED (8-10 µ) & COATED WITH TWO COATS EPOXY/HIGHBUILD POLYURETHENE PRIMER & PAINTED

PARTS SHOULD BE FREE FROM ANY MANUFACTURING DEFECTS.

LITTER BIN

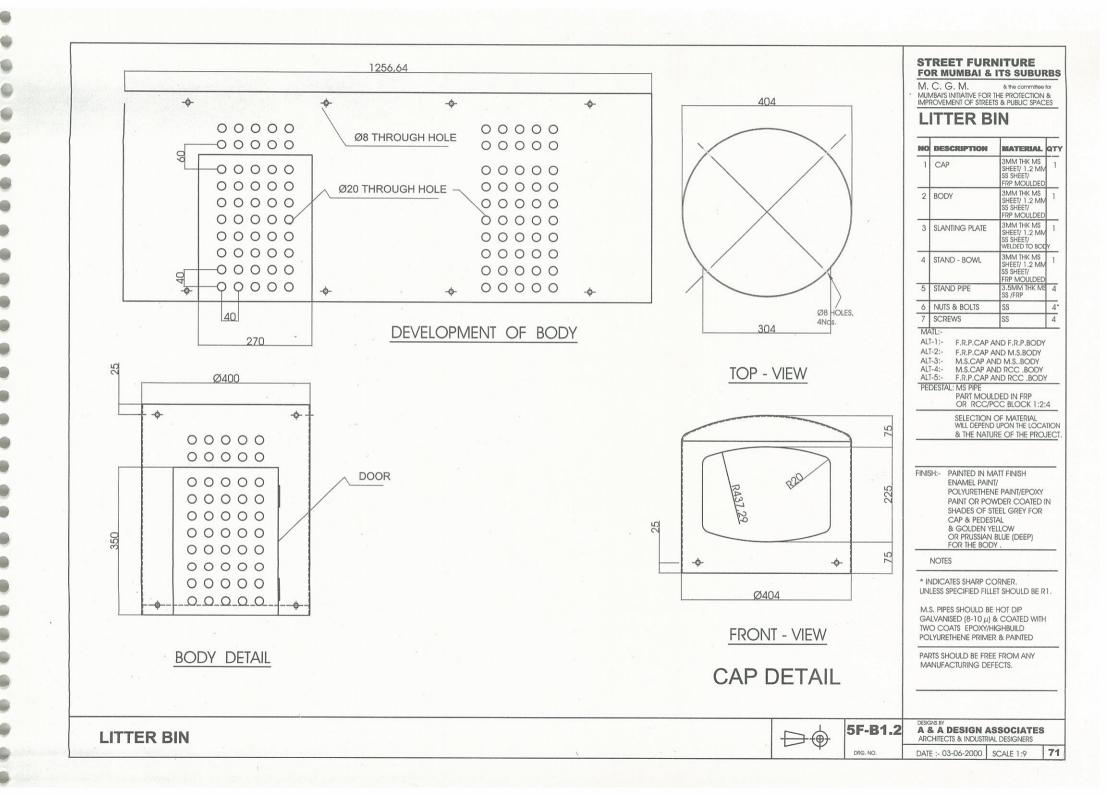


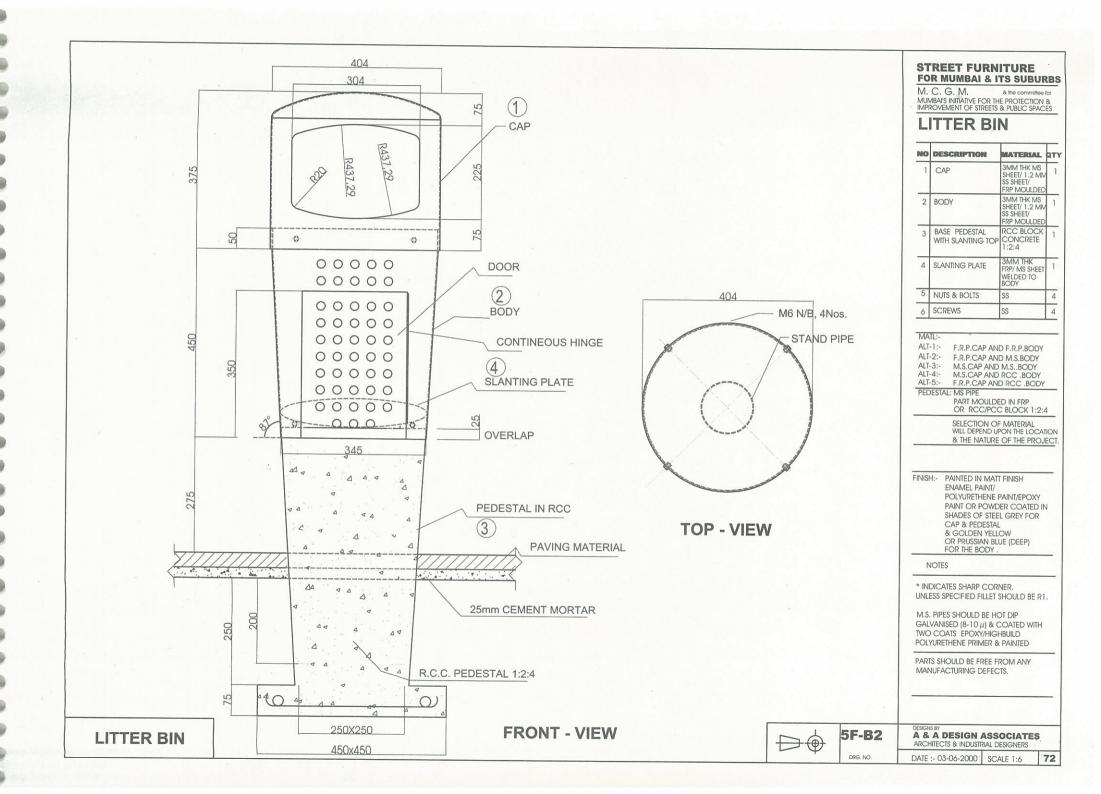
5F-B1.1

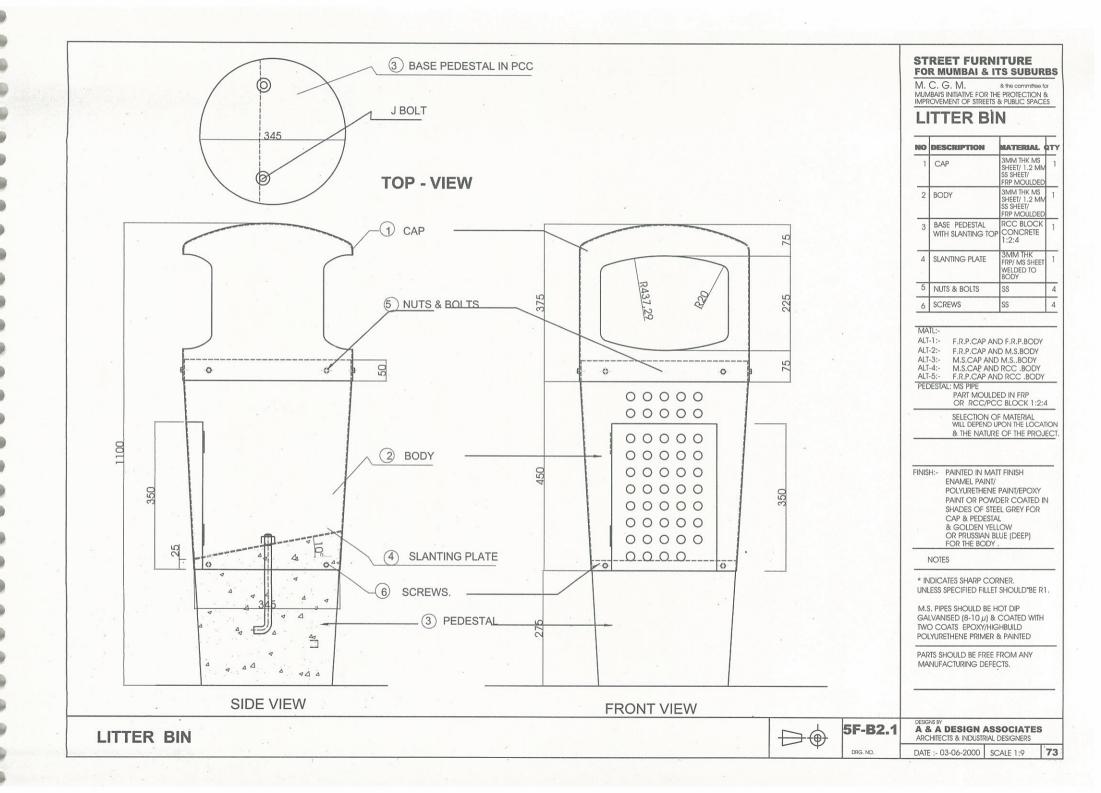
A & A DESIGN ASSOCIATES ARCHITECTS & INDUSTRIAL DESIGNERS

DATE :- 03-06-2000 | SCALE 1:9

70







6 FURNITURE

SEATING

- POLE BENCHES
 & SINGLE SEATERS
 MADE OF ROUND PIPES
- POLE BENCHES
 & SINGLE SEATERS
 MADE OF CHANNELS
- POLE BENCHES
 WITH BACKREST
- SEATING AROUND TREE
- SINGLE & DOUBLE SIDED BENCHES WITH BACKREST
- SINGLE & DOUBLE SIDED BENCHES WITH BACKREST -DETAILS
- SINGLE SEATS IN RCC

It is required that the environmental designer of the area will provide for spaces in which people might wish to linger and it is important that seating is provided in such areas so that people are able to relax.

Contrary to this; in areas such as crowded shopping streets with heavy traffic and areas with a high level of noise and air pollution comfortable seats should not be provided.

Two types of seating should be considered while planning, Long term & Short term

Long term seating needs ergonomically designed seats possibly with a backrest, so that one can sit comfortably for a longer time. These are mainly required in gardens & in public spaces

Short term seating should be nothing more than a simple straight bench for one to perch on for a few minutes.

There are two distinct short term needs viz.

Lean-on benches & Sit-on bench

Lean-on benches should be used for The "Nukkad"(lane) corners and any other places where such casual gathering is possible.

Sit on benches should be used where people are expected to linger around for a longer time.



STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. 8 THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

	111111111111111111111111111111111111111		
DESIGNS BY		-	
A & A DES	SIGN AS	SOCIA	TES
ARCHITECTS &			

PLANNING PRINCIPLES

Proposed benches should be placed where people are found waiting or relaxing. Places such as bus shelters, market places, authorised food plazas, public places and waterfronts can be considered for seating.

Benches or any other type of seating should preferably be placed in shaded areas or under trees.

Benches can also be installed in playgrounds, recreational grounds and other public spaces.

Special seating arrangement can also be proposed near police booths, traffic control booths, security booths and parking lots and such other places of amenities.

Heights and proportions of benches can be altered for applications such as children's playgrounds, places for the disabled and public places, without changing the basic aesthetics of the design and with prior approval of the MCGM.

Any variation in the design of benches or any seating element, not specified in the manual, but found necessary while responding to the immediate surrounding of the area under consideration, should be presented to the MCGM for approval.

DESIGN FEATURES

Proposed designs of benches can be used independently or in combination to suit the requirements.

The choice of bench, which should range from pole type to the ones with a backrest, should be done after closely observing the area under consideration.

Tall benches of the pole type should be used in places where people are not expected to rest or sit for a longer period.

Low benches of the pole type should be placed in busy areas where people wait for buses for a short while.

Benches with backrest are recommended at locations near police booths or protected public places.

Benches should be fully fabricated before installing on site.

Any variations proposed in the design of support legs or seating materials are to be presented to the MCGM for approval.

Area specific designs of add-on features such as integrated light fixtures should be presented to the MCGM for approval.

Any variation in the display of sponsor name should be done with the due consent of the MCGM.

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

GENERAL GUIDELINES

Benches should be placed in a grid demarcated for other street elements such as barriers.

When placed next to bus shelters, police booths or any other structure, benches should be suitably aligned with the adjoining structure.

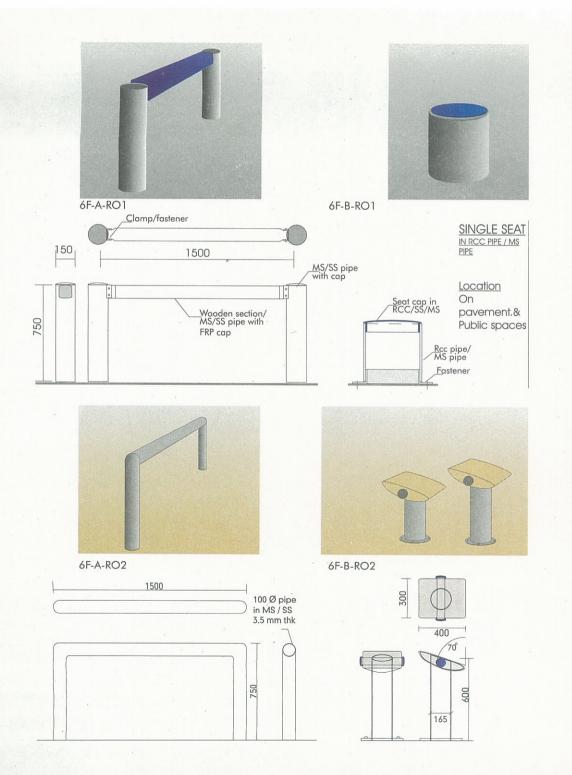
Different types of benches given in the MANUAL can be chosen for residential, commercial and arterial roads.

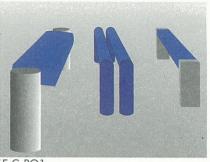
Frequency of seating should be based on a thorough study of the area under consideration.

Seating should preferably be accompanied by some form of street Lighting.

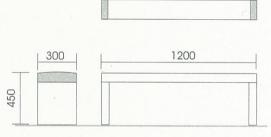
Modular of continuous seating should be interpreted to suit area specific requirement.

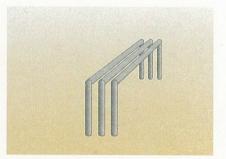
Continuous benches can also serve as tree surround or tree guard.





6F-C-RO1





6F-C-RO2

POLE
BENCH
IN METAL PIPES
& FRP

Location On pavement & Public spaces

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

SHORT TERM SEATING

<u>Materials</u>

Proposed designs are made of MS/ Galvanised/ Stainless Steel (SS) round Tubes or square pipes, Structural steel sections such as 'C' channels and Precast R C C in various combinations. Use of Structural steel is promoted for its easy availability.

Colours

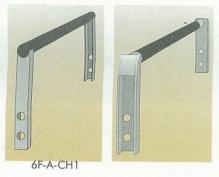
Steel Grey- 95% black,
Golden Yellow or
Prussian blue.
Samples of all colours should be
presented before commencing the
execution for the approval.

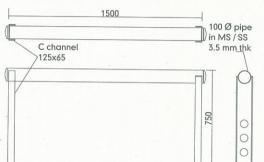
Finish

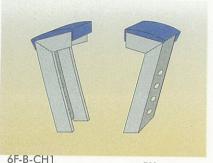
MS/ Galvanised sections painted in enamel paint/Polyurethene paint with Red oxide base on deoxidised surface. Powder coating could provide as alternative finish.

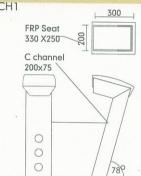
In case any modification in the proposed designs should be carried out, the proposal should be presented to the MCGM in the form of coloured picture/s or 3D model to obtain prior permission.

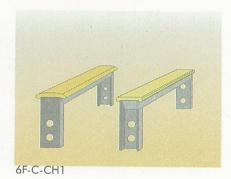
POLE BENCHES & SINGLE SEATERS MADE OF ROUND PIPES

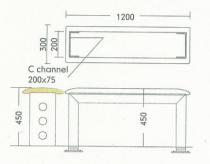


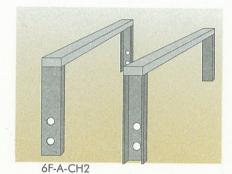






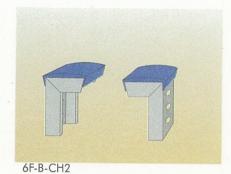


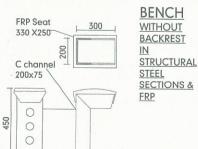


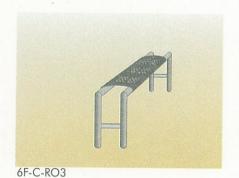


BENCH WITHOUT **BACKREST** IN

STRUCTURAL STEEL SECTIONS &







POLE **BENCH** IN METAL PIPES & FRP

Location On pavement.& Public spaces

STREET FURNITURE **FOR MUMBAI & ITS SUBURBS**

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

SHORT TERM SEATING

Materials

Proposed designs are made of MS/ Galvanised/ Stainless Steel (SS) round Tubes or square pipes, Structural steel sections such as 'C' channels and Precast R C C in various combinations. Use of Structural steel is promoted for its easy availability.

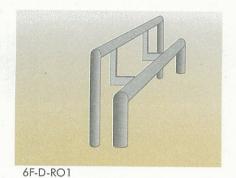
<u>Colours</u> Steel Grey- 95% black, Golden Yellow or Prussian blue. Samples of all colours should be presented before commencing the execution for the approval.

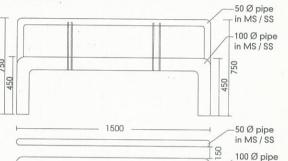
Finish:

MS/ Galvanised sections painted in enamel paint/Polyurethene paint with Red oxide base on deoxidised surface. Powder coating could provide as alternative finish.

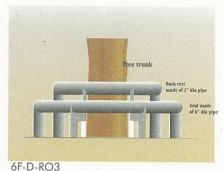
In case any modification in the proposed designs should be carried out, the proposal should be presented to the MCGM in the form of coloured picture/s or 3D model to obtain prior permission.

POLE BENCHES & SINGLE **SEATERS MADE OF CHANNELS**

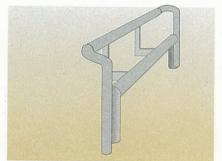


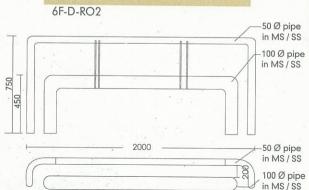


in MS / SS











SEATING AROUND TREE

IN STAINLESS STEEL OR MILD STEEL PIPES

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

SHORT TERM SEATING

Materials

Proposed designs are made of MS/ Galvanised/ Stainless Steel (SS) round Tubes or square pipes, Structural steel sections such as 'C' channels and Precast R C C in various combinations. Use of Structural steel is promoted for its easy availability.

Colours
Steel Grey- 95% black,
Golden Yellow or
Prussian blue.
Samples of all colours should be
presented commencing the
execution for the approval.

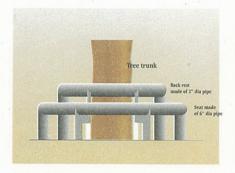
Finish:

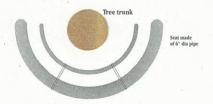
MS/ Galvanised sections painted in enamel paint/Polyurethene paint with Red oxide base on deoxidised surface. Powder coating could provide as alternative finish.

In case any modification in the proposed designs should be carried out, the proposal should be presented to the MCGM in the form of coloured picture/s or 3D model to obtain prior permission.

POLE BENCHES WITH BACKREST MADE OF ROUND PIPES









M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

SHORT TERM SEATING

Materials

Proposèd designs are made of MS/ Galvanised/ Stainless Steel (SS) round Tubes or square pipes, Structural steel sections such as 'C' channels and Precast R C C in various combinations. Use of Structural steel is promoted for its easy availability.

<u>Colours</u> Steel Grey- 95% black, Golden Yellow or

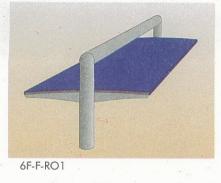
Prussian blue. Samples of all colours should be presented commencing the execution for the approval.

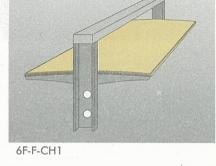
Finish:

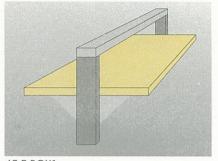
MS/ Galvanised sections painted in enamel paint/Polyurethene paint with Red oxide base on deoxidised surface. Powder coating could provide as alternative finish.

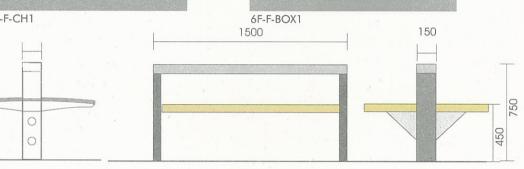
In case any modification in the proposed designs should be carried out, the proposal should be presented to the MCGM in the form of coloured picture/s or 3D model to obtain prior permission.

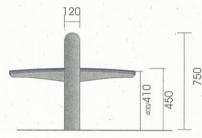
SEATING AROUND TREES

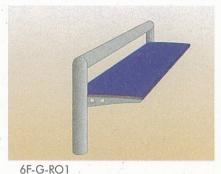


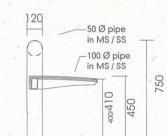


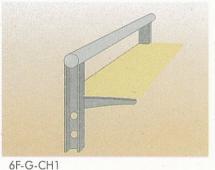


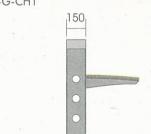


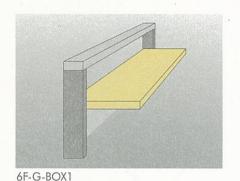












DOUBLE
SIDED
SEATING
&
SINGLE
SIDED
SEATING

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. & THE COMMITTEE FOR MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

LONG TERM SEATING

Materials

Proposed designs are made of MS/ Galvanised/ Stainless Steel (SS) round Tubes or square pipes, Structural steel sections such as 'C' channels and Precast R C C in various combinations. Use of Structural steel is promoted for its easy availability.

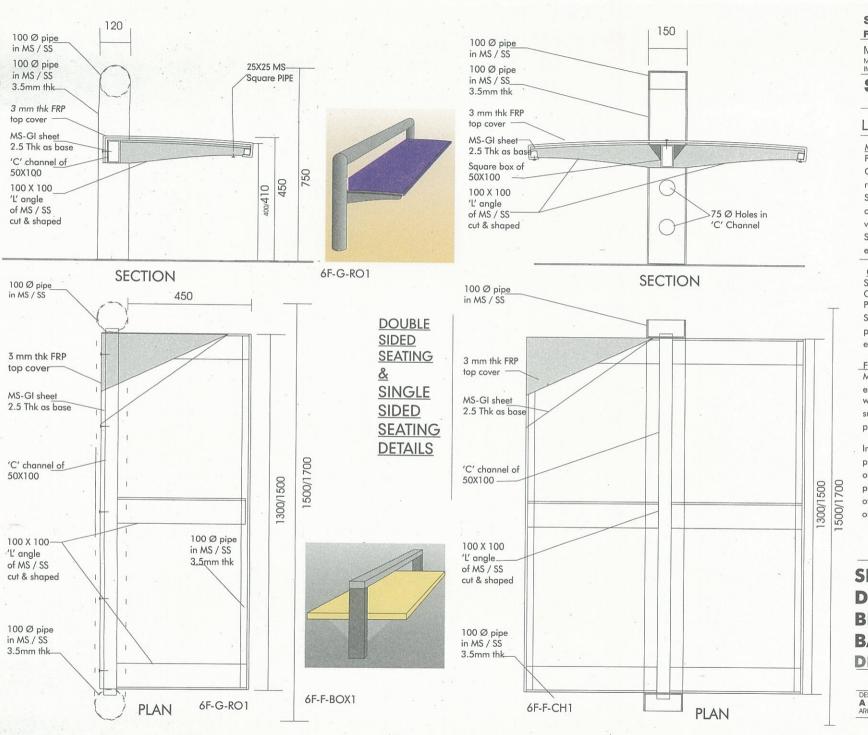
Colours
Steel Grey- 95% black,
Golden Yellow or
Prussian blue.
Samples of all colours should be
presented before commencing the
execution for the approval.

Finish:

MS/ Galvanised sections painted in enamel paint/Polyurethene paint with Red oxide base on deoxidised surface. Powder coating could provide as alternative finish.

In case any modification in the proposed designs should be carried out, the proposal should be presented to the MCGM in the form of coloured picture/s or 3D model to obtain prior permission.

SINGLE & DOUBLE SIDED BENCHES WITH BACKREST



M. C. G. M. & THE COMMITTEE FOR MUMBAY'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

LONG TERM SEATING

Materials

Proposed designs are made of MS/ Galvanised/ Stainless Steel (SS) round Tubes or square pipes, Structural steel sections such as 'C' channels and Precast R C C in various combinations. Use of Structural steel is promoted for its easy availability.

Colours

Steel Grey- 95% black,
Golden Yellow or
Prussian blue.
Samples of all colours should be
presented before commencing the
execution for the approval.

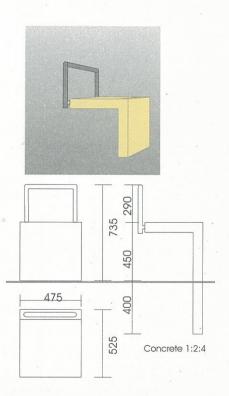
Finish:

MS/ Galvanised sections painted in enamel paint/Polyurethene paint with Red oxide base on deoxidised surface. Powder coating could provide as alternative finish.

In case any modification in the proposed designs should be carried out, the proposal should be presented to the MCGM in the form of coloured picture/s or 3D model to obtain prior permission.

SINGLE & DOUBLE SIDED BENCHES WITH BACKRESTDETAILS

255 450 290





SINGLE SEAT

Location On pavement.& Public spaces

STREET FURNITURE FOR MUMBAI & ITS SUBURBS

M. C. G. M. 8 THE COMMITTEE FOR MUMBA'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

LONG TERM SEATING

Materials
Proposed designs are made of
precast RCC in various
combinations with MS/ galvanised/
Stainless Steel (SS) round tubes or
square pipes.

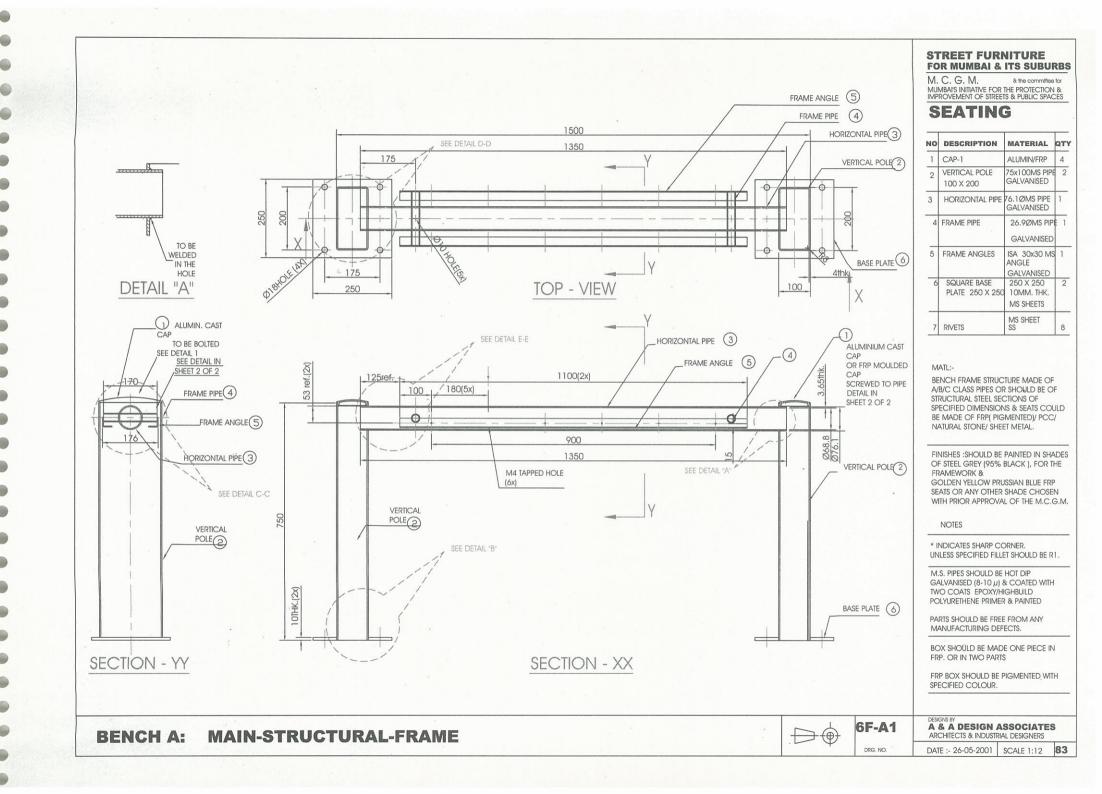
Colours
Steel Grey- 95% black or
Yellow.
Samples of all colours should be
produced for approval before
commencing the execution for the
approval.

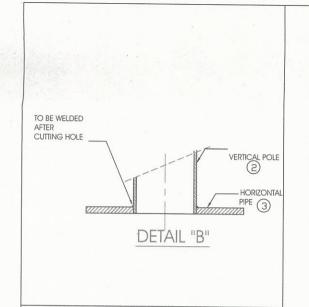
<u>Finish:</u>
MS/ Galvanised sections painted in
Enamel paint or Polyurethene paint.

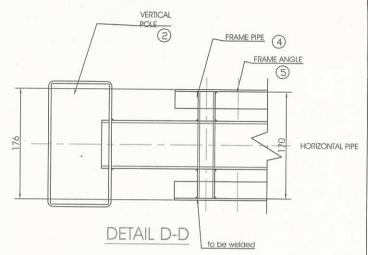
with red oxide base on deoxidised surface. Powder coating could be an alternative finish.

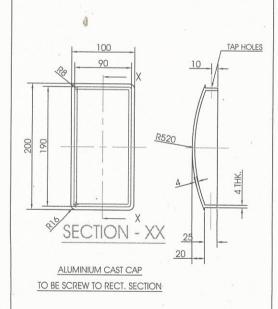
In case any modification in the proposed designs should be carried out, the proposal should be presented to the MCGM in the form of coloured picture/s or 3D model to obtain prior permission.

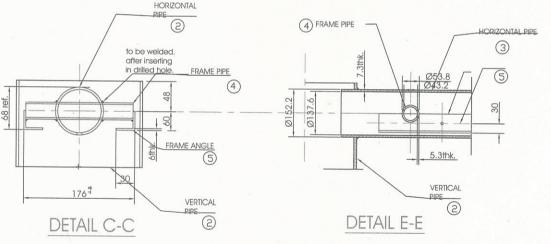
SINGLE SEATS IN RCC











M. C. G. M. & the committee for MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

NO	DESCRIPTION	MATERIAL	QTY
1	CAP-1	ALUMIN/FRP	2
2	VERTICAL POLE	75x100MS PIPE GALVANISED	2
3	HORIZONTAL PIPE	76.1ØMS PIPE GALVANISED	1
4	FRAME PIPE	26.9ØMS PIPI	2
		GALVANISED	
5	FRAME ANGLES	ISA30x30 MS ANGLE	2
_	0011405 0405	GALVANISED	
6	SQUARE BASE PLATE 250 X 250	200 x 200 10MM. THK. MS SHEETS	2
7	RIVETS	MS SHEET SS	2

MATL:-

BENCH FRAME STRUCTURE MADE OF A/B/C CLASS PIPES OR SHOULD BE OF STRUCTURAL STEEL SECTIONS OF SPECIFIED DIMENSIONS & SEATS COULD BE MADE OF FRP(PIGMENTED)/ PCC/ NATURAL STONE/ SHEET METAL.

FINISHES :SHOULD BE PAINTED IN SHADES OF STEEL GREY (95% BLACK), FOR THE FRAMEWORK & GOLDEN YELLOW PRUSSIAN BLUE FRP SEATS OR ANY OTHER SHADE CHOSEN WITH PRIOR APPROVAL OF THE M.C.G.M.

NOTES

* INDICATES SHARP CORNER. UNLESS SPECIFIED FILLET SHOULD BE R1.

M.S. PIPES SHOULD BE HOT DIP GALVANISED (8-10 μ) & COATED WITH TWO COATS EPOXY/HIGHBUILD POLYURETHENE PRIMER & PAINTED

PARTS SHOULD BE FREE FROM ANY MANUFACTURING DEFECTS.

BOX SHOULD BE MADE ONE PIECE IN FRP. OR IN TWO PARTS

FRP BOX SHOULD BE PIGMENTED WITH SPECIFIED COLOUR.

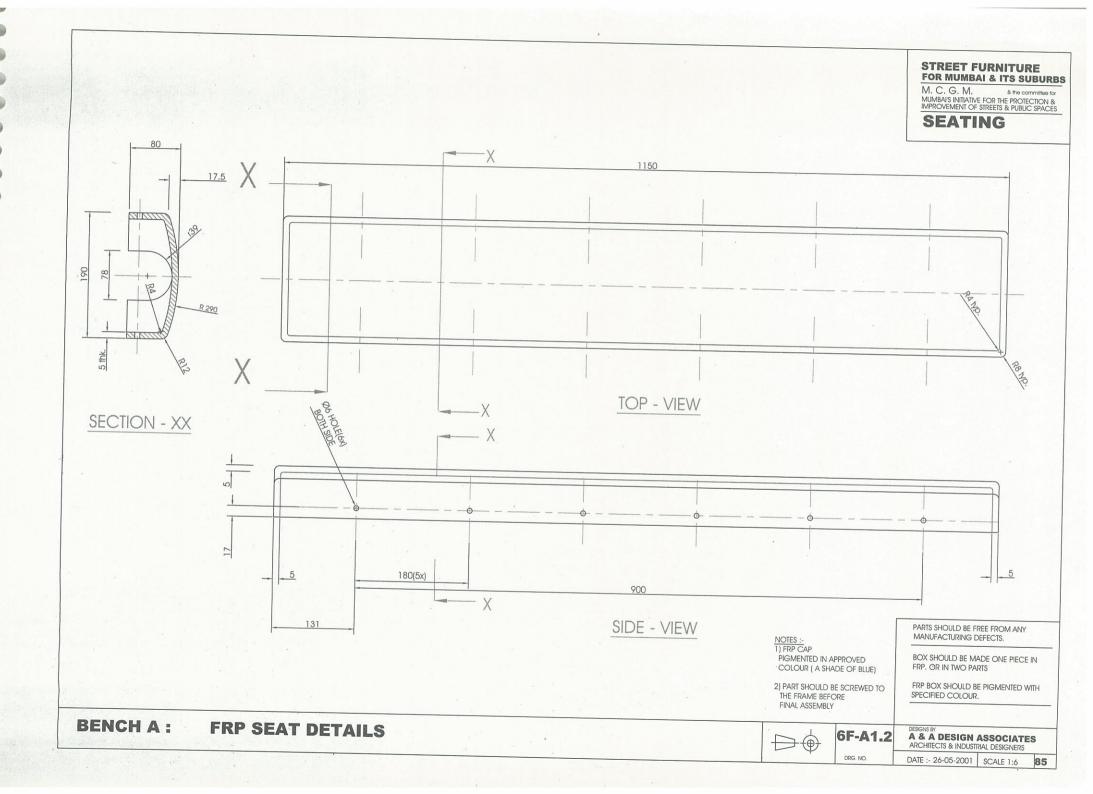
BENCH A: SECTION & DETAILS

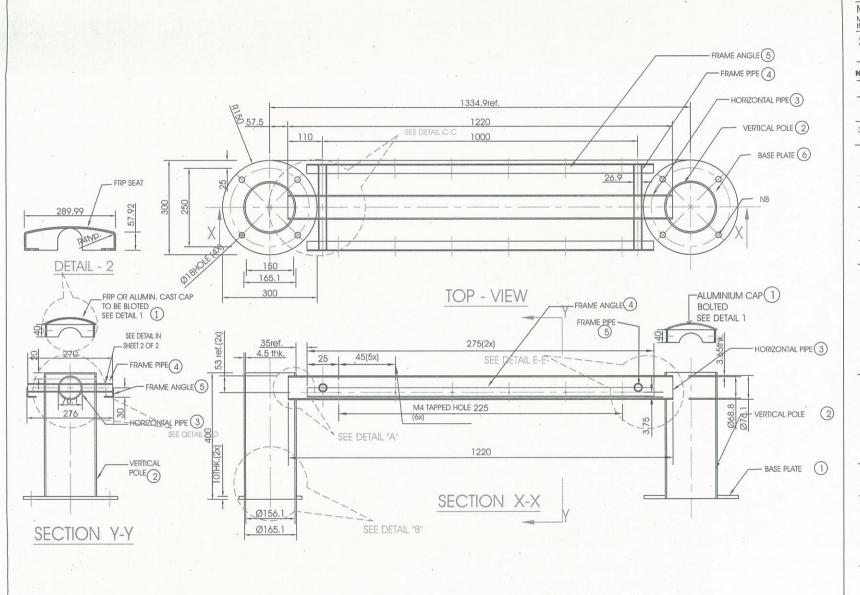


6F-A1.1

A & A DESIGN ASSOCIATES ARCHITECTS & INDUSTRIAL DESIGNERS

DATE :- 26-05-2001 | SCALE 1:6





M. C. G. M. MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

NO	DESCRIPTION	MATERIAL	QTY
1	CAP-1	ALUMIN/FRP	2
2	VERTICAL POLE	75x100MS PIPE GALVANISED	2
3	HORIZONTAL PIPE	76.1ØMS PIPE GALVANISED	1
4	FRAME PIPE	26.9ØMS PIPI GALVANISED	E 1
5	FRAME ANGLES	ISA 30x30 MS ANGLE GALVANISED	2
6	ROUND BASE PLATE	300 Ø 10MM. THK. MS SHEETS	2
7	RIVETS SCREWS, BOLTS	SS	2

MATL:-

BENCH FRAME STRUCTURE MADE OF A/B/C CLASS PIPES OR SHOULD BE OF STRUCTURAL STEEL SECTIONS OF SPECIFIED DIMENSIONS & SEATS COULD BE MADE OF FRP(PIGMENTED)/ PCC/ NATURAL STONE/ SHEET METAL.

FINISHES : SHOULD BE PAINTED IN SHADES OF STEEL GREY (95% BLACK), FOR THE FRAMEWORK & GOLDEN YELLOW PRUSSIAN BLUE FRP SEATS OR ANY OTHER SHADE CHOSEN WITH PRIOR APPROVAL OF THE M.C.G.M.

NOTES

* INDICATES SHARP CORNER. UNLESS SPECIFIED FILLET SHOULD BE R1.

M.S. PIPES SHOULD BE HOT DIP GALVANISED (8-10 µ) & COATED WITH TWO COATS EPOXY/HIGHBUILD POLYURETHENE PRIMER & PAINTED

PARTS SHOULD BE FREE FROM ANY MANUFACTURING DEFECTS.

BOX SHOULD BE MADE ONE PIECE IN FRP. OR IN TWO PARTS

FRP BOX SHOULD BE PIGMENTED WITH SPECIFIED COLOUR.

STEEL FRAME

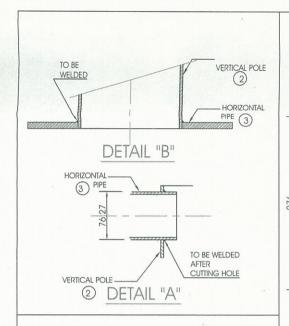
BENCH C:

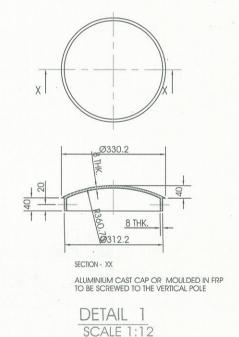


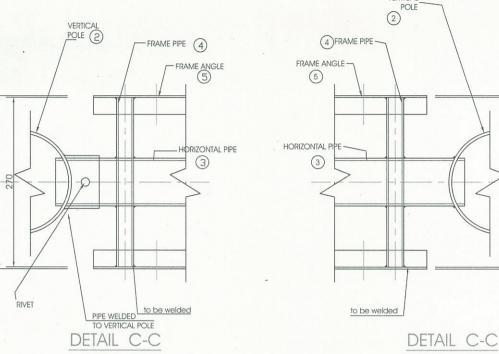
6F-C1

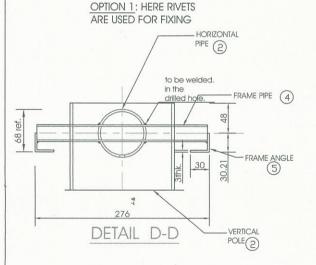
A & A DESIGN ASSOCIATES ARCHITECTS & INDUSTRIAL DESIGNERS

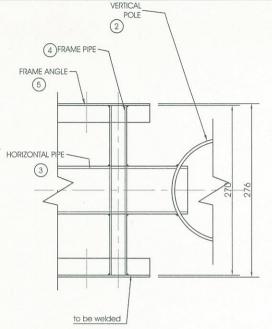
DATE :- 26-05-2001 | SCALE 1:12 | 86



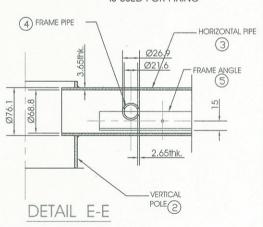








OPTION 2: HERE WELDING IS USED FOR FIXING



STREET FURNITURE **FOR MUMBAI & ITS SUBURBS**

M. C. G. M. & the committee for MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

NO	DESCRIPTION	MATERIAL	QTY
1	CAP-1	ALUMIN/FRP	2
2	VERTICAL POLE	75x100MS PIPE GALVANISED	2
3	HORIZONTAL BAR	76.1ØMS PIPE GALVANISED	1
4	FRAME PIPE	26.9ØMS PIPE GALVANISED	1
5	FRAME ANGLES	ISA30x30 MS ANGLE GALVANISED	1
6	SQUARE BASE PLATE PLATE	200 x 200 10MM, THK, MS SHEETS	2
7	SCREWS, BOLTS RIVETS	MS SHEET SS	2

MATL:-

BENCH FRAME STRUCTURE MADE OF A/B/C CLASS PIPES OR SHOULD BE OF STRUCTURAL STEEL SECTIONS OF SPECIFIED DIMENSIONS & SEATS COULD BE MADE OF FRP(PIGMENTED)/ PCC/ NATURAL STONE/ SHEET METAL.

FINISHES :SHOULD BE PAINTED IN SHADES OF STEEL GREY (95% BLACK), FOR THE FRAMEWORK & GOLDEN YELLOW PRUSSIAN BLUE FRP SEATS OR ANY OTHER SHADE CHOSEN WITH PRIOR APPROVAL OF THE M.C.G.M.

NOTES

* INDICATES SHARP CORNER. UNLESS SPECIFIED FILLET SHOULD BE R1

M.S. PIPES SHOULD BE HOT DIP GALVANISED (8-10 µ) & COATED WITH TWO COATS EPOXY/HIGHBUILD POLYURETHENE PRIMER & PAINTED

PARTS SHOULD BE FREE FROM ANY MANUFACTURING DEFECTS.

BOX SHOULD BE MADE ONE PIECE IN FRP. OR IN TWO PARTS

FRP BOX SHOULD BE PIGMENTED WITH SPECIFIED COLOUR.

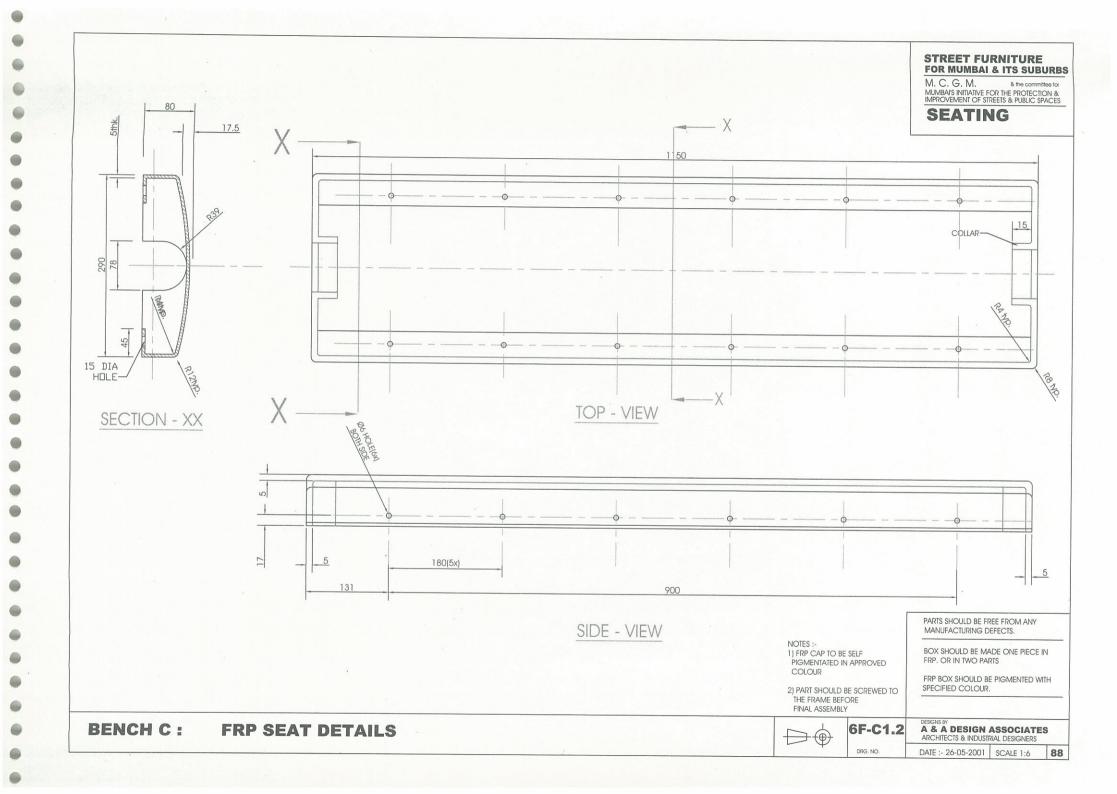
BENCH C: **SECTIONS & DETAILS**

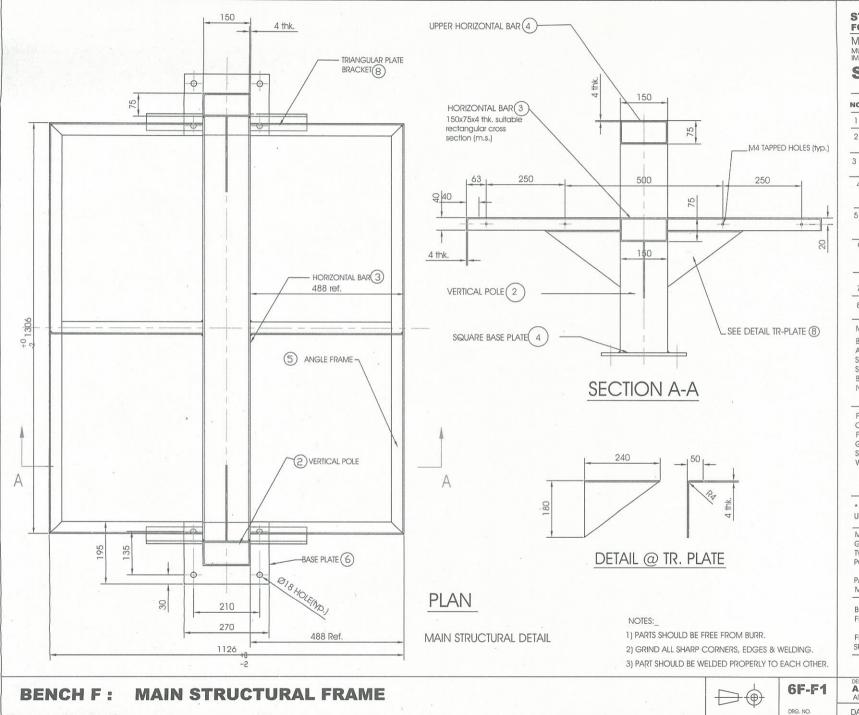


6F-C1.1

A & A DESIGN ASSOCIATES ARCHITECTS & INDUSTRIAL DESIGNERS

DATE :- 26-05-2001 | SCALE 1:6





M, C, G, M, & the committee for MUMBAI'S INITIATIVE FOR THE PROTECTION & IMPROVEMENT OF STREETS & PUBLIC SPACES

SEATING

NO	DESCRIPTION	MATERIAL	QTY
1	CAP-1	ALUMIN/FRP	4
2	VERTICAL POLE	75x100MS PIPE GALVANISED	2
3	HORIZONTAL BAR	76.1ØMS PIPE GALVANISED	1
4	UPPER HORIZONTA	. 26.9ØMS PIPI	ī
	BAR .	GALVANISED	
5	FRAME ANGLES	40x40 MS ANGLE GALVANISED	2
6	SQUARE BASE PLATE	200 x 200 10MM. THK.	2
	PLATE	MS SHEETS	
7	SCREWS, BOLTS RIVETS	SS	8
8	TRIANGULAR BRACKET PLATE	MS	4

MATL:-

BENCH FRAME STRUCTURE MADE OF A/B/C CLASS PIPES OR SHOULD BE OF STRUCTURAL STEEL SECTIONS OF SPECIFIED DIMENSIONS & SEATS COULD BE MADE OF FRP(PIGMENTED)/ PCC/ NATURAL STONE/ SHEET METAL.

FINISHES :SHOULD BE PAINTED IN SHADES OF STEEL GREY (95% BLACK), FOR THE FRAMEWORK & GOLDEN YELLOW PRUSSIAN BLUE FRP SEATS OR ANY OTHER SHADE CHOSEN WITH PRIOR APPROVAL OF THE M.C.G.M.

NOTES

* INDICATES SHARP CORNER. UNLESS SPECIFIED FILLET SHOULD BE R1.

M.S. PIPES SHOULD BE HOT DIP GALVANISED (8-10 μ) & COATED WITH TWO COATS EPOXY/HIGHBUILD POLYURETHENE PRIMER & PAINTED

PARTS SHOULD BE FREE FROM ANY MANUFACTURING DEFECTS.

BOX SHOULD BE MADE ONE PIECE IN FRP. OR IN TWO PARTS

FRP BOX SHOULD BE PIGMENTED WITH SPECIFIED COLOUR.

F1 A & A DESIGN ASSOCIATES
ARCHITECTS & INDUSTRIAL DESIGNERS

DATE :- 26-05-2001 | SCALE 1:12 | 89

