



GOVERNMENT OF MAHARASHTRA
(Urban Development and Public Health Department)

REPORT OF THE FLOOR SPACE INDICES COMMITTEE



CENTRAL PRESS, BOMBAY AND
PRINTING AND STATIONERY,
MAHARASHTRA STATE, BOMBAY-4

Price—Rs. 0.17 or 3d.

1964

**REPORT OF THE FLOOR SPACE
INDICES COMMITTEE**

Floor Space Indices Committee :
Report of —

GOVERNMENT OF MAHARASHTRA.

URBAN DEVELOPMENT AND PUBLIC HEALTH DEPARTMENT.

Resolution No. FSI. 1163/25457-C.

Sachivalaya, Bombay, 12th July 1963.

RESOLUTION

Government in Urban Development and Public Health Department *vide* Urban Development and Public Health Department, Resolution No. FSI. 1162-C, dated the 10th August 1962, had appointed a Committee to consider afresh the question of fixation of Floor Space Indices for the whole of Greater Bombay area and to suggest suitable criteria for fixing Floor Space Indices for the various Zones in the City. The Committee consisted of the following Gentlemen :—

- | | | |
|--|------------------------------|-----------|
| (1) Shri V. P. Naik, Minister for Revenue | ... | Chairman. |
| (2) Dr. Nagindas Shah, Mayor of Bombay | ... | Member. |
| (3) Shri D. R. Pradhan, Secretary, Revenue Department. | | Do. |
| (4) Dr. A. U. Shaikh, Municipal Commissioner, Bombay | | Do. |
| (5) Shri S. V. Desai, City Engineer, Bombay Municipal Corporation. | | Do. |
| (6) Shri G. B. Mhatre. | Nominees of Indian Institute | Do. |
| (7) Shri S. H. Parelkar | of Architects. | |
| (8) Shri J. H. Patwardhan | Secretary, Buildings and | Do. |
| Shri S. M. Kamruddin | Communications Department. | |
| (9) Shri Jivraj B. Shah, Chairman, Improvements Committee, Bombay Municipal Corporation. | | Do. |
| (10) Shri E. A. Bandukwala, Leader of the Congress Party Bombay Municipal Corporation. | | Do. |
| (11) Shri V. P. Bavat, Leader of the Opposition, Bombay Municipal Corporation. | | Do. |
| (12) Shri M. K. Jadhav, Architect to Government | | Do. |
| (13) Shri B. T. Talim, Consulting Surveyor to Government. | | Do. |

- (14) Shri M. V. Rajwade, Secretary, Urban Development and Public Health Department Member.
- (15) Shri P. N. Palnitkar, Under Secretary, Urban Development and Public Health Department. ... Member and Secretary.

2. The Committee was requested to submit its report to Government within a period of four months. The Committee was further requested to consider the question of fixation of Floor Space Indices in the Back Bay Reclamation Area and to submit its recommendation to Government in this regard within a period of one month. Accordingly, the Committee submitted its report with regard to this matter on the 10th September 1952. This report contained recommendation of the Committee with regard to the fixation of Floor Space Indices in the Back Bay Reclamation Area, Blocks III to VI. The Committee was granted time up to 9th April 1953 for submission of its report with regard to the area excluding Back Bay Reclamation Blocks Nos. III to VI. Accordingly, the Committee submitted its report on the question of fixation of Floor Space Indices in Greater Bombay (Excluding Back Bay Reclamation area Blocks III to VI) on the 9th April 1953.

3. The Government hereby wish to convey their appreciation of the useful work done by the Committee. The Government further convey their thanks to the Chairman and all the members of the Committee for giving their precious time and advice. The Government also convey their appreciation and thanks to the following members of the drafting Sub-Committee appointed by the Floor Space Indices Committee for the draft reports they had prepared for the consideration of the main committee.

- (1) Shri M. V. Rajwade, Secretary, Urban Development and Public Health Department.
- (2) Shri V. P. Bapat.
- (3) Shri Jivraj B. Shah.
- (4) Shri S. V. Desai, City Engineer, Bombay Municipal Corporation.
- (5) Shri P. N. Palnitkar, Under Secretary, Urban Development and Public Health Department and Secretary, Floor Space Indices Committee.

By order and in the name of the Governor of Maharashtra,

S. L. OGALE,
Deputy Secretary to Government.

PART I

Report of the Floor Space Indices Committee in regard to the fixation of Floor Space Indices in the Back-Bay Reclamation Area, Blocks III to VI

I. PREAMBLE.

The question of fixing the Floor Space Indices for various areas in Greater Bombay, particularly the Back Bay Reclamation Area which the Government proposes to develop in the foreseeable future, has been engaging the attention of the Government for some time. The existing Floor Space Indices, fixed by the Bombay Municipal Corporation some time ago with reference to the conditions then obtaining or foreseen and now become outdated, would have to be relaxed with suitable safeguards, taking into account the circumstances which prevail today and the heavy cost of reclamation of the land in Back Bay Reclamation area in particular. Government, therefore, appointed a Committee under the Chairmanship of the Minister for Revenue to consider afresh the question of fixation of Floor Space Indices for the whole of the Greater Bombay area and to suggest suitable criteria for fixing the Floor Space Indices for various Zones in the City. A copy of Government Resolution, Urban Development and Public Health Department, No. FSI-1162/C, dated the 10th August 1952 constituting the Committee, is appended as Appendix 'A'. The composition of the Committee was as follows :—

- | | | | | |
|---|-----|-----|-----|------------|
| (1) Minister (Revenue) | ... | ... | ... | Chairman. |
| (2) Secretary, Revenue Department. | | | | |
| (3) Secretary, Buildings and Communications Department. | | | | |
| (4) Secretary, Urban Development and Public Health Department. | | | | |
| (5) Commissioner, Bombay Municipal Corporation. | | | | Members. |
| (6) The Architect to Government. | | | | |
| (7) The City Engineer, Bombay Municipal Corporation. | | | | |
| (8) Two Nominees of the Indian Institute of Architects. | | | | |
| (9) The Consulting Surveyor to Government. | | | | |
| (10) The Under Secretary, Urban Development and Public Health Department. | | | | Secretary. |

2. The terms of reference of the Committee were to recommend the criteria for (1) the fixation of Floor Space Indices for various areas in Greater Bombay, excluding Back Bay Reclamation Area, Block Nos. III to VI; and (2) the fixation of Floor Space Indices in the Back Bay

Reclamation Area, Block Nos. III to VI. The Government had directed the Committee to submit its report on the first question within a period of four months and on the second question within a period of one month.

3. The Indian Institute of Architects nominated Shri S. H. Parekar, F.R.I.B.A., F.I.I.A., and Shri G. B. Mhatre, F.R.I.B.A., F.I.I.A., as its representatives to work on the Committee.

4. The first meeting of the Committee was held at 2-30 p.m. on the 22nd August 1962, in the Chamber of the Chairman. This meeting of the Committee was attended, in addition, by the Minister for Finance, the Deputy Minister for Revenue and the Commissioner, Bombay Division, by special invitation. The representatives of the Indian Institute of Architects could not be present at this meeting. The second meeting of the Committee was held on the 29th August 1962, in the Chamber of the Chairman. The representatives of the Indian Institute of Architects were present at this meeting, which was also attended by the Minister for Finance and the Minister for Urban Development by special invitation. The third meeting of the Committee was held on the 8th September 1962 at 3 p.m. This meeting was also attended by the Minister for Finance and the Chief Secretary by special invitation. The Municipal Commissioner and the City Engineer did not attend this meeting although they were present in the first two.

5. In the first meeting of the Committee, the criteria for fixing the Floor Space Indices for various zones in Greater Bombay as well as the criteria for fixing the Floor Space Indices in the Back Bay Reclamation Area Block Nos. III to VI, was discussed in general. The Committee felt that for a detailed consideration of the subject the Municipal Commissioner, Bombay, should prepare a note indicating in detail the legal sanction behind the Indices already fixed and the bases on which such indices were fixed. The Municipal Commissioner agreed to submit a detailed note on the general question of fixing the Indices in Greater Bombay by the 18th September 1962. It was agreed that a meeting of the Committee should be held on the 21st September 1962 to consider this general question. As regards the question of fixing the Floor Space Indices in the Back Bay Reclamation Area, Block Nos. III to VI, it was decided that the Municipal Commissioner should send the necessary note giving details by the 27th August 1962, so that that question could be considered in the meeting to be held on the 29th August 1962. The note submitted accordingly by the Municipal Commissioner, Bombay, was circulated to the members. Another note prepared by the Consulting Surveyor on the subject was also circulated to the members.

II. Fixation of Floor Space Indices in the Back Bay Reclamation Area Blocks Nos. III to VI.

6. The Bombay Municipal Corporation defines "Floor Space Index" as the total area of all the floors within the building divided by the area of the plot. In other countries this ratio is known as the "plot ratio" and the Floor Space Index is obtained by dividing the total superficial area of all the floors within the building by the area of the land plus half the width of the adjoining roads. The Committee agreed to adopt the definition given by the Municipal Corporation, Bombay.

7. A tentative lay-out of the Back Bay Reclamation Area, Block Nos. III to VI has been prepared by the Government Architect and covers an area of about 556 acres. The break-up of land for various purposes under the lay-out would be as follows :—

	Acres
Building Plots	272
School and Markets	34
Roads	160
Open Spaces	90
Total	556

The Committee was informed that the Government has decided to fix the users for the residential and commercial purposes in the ratio of 60 : 40. According to this ratio, the area of plots available for residential and commercial users would be 162 acres and 110 acres respectively. It was accepted by the Committee that while fixing the Floor Space Indices in this area, the question of services such as water supply, drainage and roads would have to be given due consideration and that the Indices should be fixed with due regard to the adequacy of these services and the open spaces and space for schools and markets.

8. The Municipal Commissioner and the City Engineer stated that the present F.S.I. which is in force for about two years in Blocks Nos. I and II is 2.45 for residential user and 3.4 for commercial user including 1 for residential user. They further added that the Corporation allows an increase of 15 per cent. over the sanctioned F.S.I. in the case of buildings in large plots belonging to a single organisation. The above figures give an average F.S.I. of 2.8.

9. According to the figures given in the report of the Committee of the Bombay Municipal Corporation for Development Plan for Greater Bombay, published by the Corporation in 1961, the occupancy rate ranges

from 160 square feet to 220 square feet per person in Sion, Matunga and Shivaji Park areas to 350 square feet per person in Back Bay Reclamation Area Blocks Nos. I and II in the old buildings and 100 square feet per person in the new buildings. Taking into consideration the type of people who would be residing in the Back Bay Reclamation Area, Block Nos. III to VI, the Committee felt that it would be reasonable to assume an occupancy rate of 250 square feet per person in these blocks to come into being.

10. The cost of reclamation and development of the land is estimated at Rs. 25 crores or in other words at Rs. 150 per square yard of saleable land. The above estimates are likely to increase by the time actually taken for the development of the land before they are available for sale. Considering these circumstances, the Committee felt that it would be reasonable and necessary to liberalise the existing F.S.I. if people are to be induced to bid for this costly land.

11. In order to enable it to arrive at a decision on the question as to what extent the F. S. I. could be liberalised with due regard to the accepted standards regarding land for amenities, open spaces, etc., the Committee examined the provisions in the tentative lay-out for the Back Bay Reclamation area Blocks III to VI, assuming F.S.I. ranging from 2.45 to 4.5. The appended chart (Appendix "B") gives the results of the analysis. The chart is discussed below :—

11.1. *Land for amenities.*—According to the standard aimed at by the Corporation, an area of 0.16 acres per one thousand of population is required for amenities such as schools, markets, hospitals, dispensaries, local shops, service industries etc. The areas available for such amenities depending on the F. S. I. would be as follows :—

Range of F. S. I.				Area available
2.45	...	...	...	0.49
3.0	...	...	...	0.40
3.5	...	...	...	0.34
4.0	...	...	...	0.30
4.5	...	...	...	0.267

Even in the case of the maximum F. S. I. of 4.5, the area available for amenities would thus be much more than the standard aimed at.

11.2. *Open spaces.*—According to the standard aimed at by the Corporation, one acre of open space would be required for one thousand

of population. The area available for open spaces depending on the F. S. I. would be as follows :—

Range of F. S. I.				Open space (in acres)
2.45	...	...	...	1.3
3.0	...	...	...	1.06
3.5	...	...	...	0.90
4.0	...	...	...	0.80
4.5	...	...	...	0.70

The Committee felt that having regard to a number of open spaces such as the Azad Maidan, the Cross Maidan, the Oval, the Cooperage, Lloyds Reclamation Ground, the Brabourne Stadium, etc., covering an area of about 130 acres, and the immediate proximity of the sea along the western boundary of the blocks Nos. III to VI and the narrow width of land in this tip of the island, the standard aimed at could be suitably relaxed, if Floor Space Indices higher than 3 are chosen.

11.3. *Water-supply and drainage.*—The Committee considers that water-supply for this area should not present any problem, because the various schemes for augmenting the water-supply of the City under the consideration of the Corporation would meet all the needs. The Committee also feels that as a separate sewerage scheme is contemplated for this area, sewerage will not create any problems.

11.4. *Roads.*—The problem of the existing and resultant traffic congestion was also considered by the Committee. The Committee took note of the fact that the problem of traffic congestion in the City has been entrusted to a firm of experts who are currently carrying out a road traffic survey and that the results of the survey would be known by December 1963. The Committee also took a note of the proposal to construct a tunnel through the Malabar Hill to link the Marine Drive to the Napean Sea Road and the proposed construction of a Foreshore Road linking the tunnel with Hornby Vellard near Mahalaxmi in the first instance. The Committee felt that these proposals were bound to facilitate the rapid movement of traffic from the southern to the northern parts of the City. The Committee also noted that this area was favourably situated so far as traffic was concerned because traffic from it would not have to pass through any congested areas. There was also the likelihood of traffic position in the Fort area being eased due to shifting of commercial houses from their present congested places to this new developed area.

12. Taking into consideration all the criteria discussed above and particularly the cost of reclamation and development of the area, the Committee came to the conclusion that the proper index for this area would be 3.5 for residential user and 4.5 for commercial user. This would give an average overall F.S.I. of 3.9 over this area. At this F.S.I. and taking

an average occupancy rate of 250 square feet per person, the total residential population in this area would be in the neighbourhood of one lakh. The Committee, therefore, feels that there need be no fear of overcrowding in this area.

III. RECOMMENDATIONS

13. The Committee accordingly recommends to the Government that in the Back Bay Reclamation area, Blocks III to VI,—

- (i) an overall F.S.I. of 3.5 be allowed for residential user ; and
- (ii) an overall F.S.I. of 4.5 be allowed for commercial user.

The above figures would give an average F.S.I. of 3.9 over this area.

Chairman	(Signed) V. P. Naik. 10th September 1962.
Secretary, Revenue Department	(Signed) G. V. Bedekar. 10th September 1962.
Secretary, Buildings and Communications Department.	(Signed) J. H. Patwardhan. 10th September 1962.
Secretary, Urban Development and Public Health Department.	(Signed) M. V. Rajwade. 10th September 1962.
Commissioner, Bombay Municipal Corporation,	Not present.
The Architect to Government	(Signed) M. K. Jadhav. 10th September 1962.
The City Engineer, Bombay Municipal Corporation.	Not present.

Two nominees of the Indian Institute of Architects

(1) Shri S. H. Parelkar	(Signed) S. H. Parelkar. 10th September 1962.
(2) Shri G. B. Mhatre	(Signed) G. B. Mhatre. 10th September 1962.
The Consulting Surveyor to Government tions Department.	(Signed) B. T. Talim. 10th September 1962.
The Under Secretary to Government, Urban Development and Public Health Department, (Secretary of the Committee)	(Signed) P. N. Palnitkar. 10th September 1962,

APPENDIX "A".

Floor Space Indices in Bombay City.

Appointment of a Committee to consider the—

GOVERNMENT OF MAHARASHTRA.
URBAN DEVELOPMENT AND PUBLIC HEALTH DEPARTMENT.

Resolution No. FSI.1162-C.

Sachivalaya, Bombay, 10th August 1962.

RESOLUTION

The question of Floor Space Indices for various areas in the City, particularly the Back Bay Reclamation area, which Government proposes to develop in the near future, has been under the consideration of Government for some time. Government considers that the Floor Space Indices which were fixed by the Bombay Municipal Corporation some time ago with reference to conditions as were then obtaining or foreseen, are now out-dated and could be relaxed with suitable safeguards.

2. Government is accordingly pleased to appoint a Committee as follows, to consider afresh the question of fixation of Floor Space Indices for the whole of Greater Bombay Area and to suggest suitable criteria for fixing the Floor Space Indices for the various Zones in the City :-

- | | | | |
|---|--------|------------|------------|
| (1) Minister (Revenue) | | Chairman. | |
| (2) Secretary, Revenue Department | ... | } Members. | |
| (3) Secretary, Buildings and Communications Department. | ... | | |
| (4) Secretary, Urban Development and Public Health Department. | ... | | |
| (5) Commissioner, Bombay Municipal Corporation. | ... | | |
| (6) The Architect to Government | ... | | |
| (7) The City Engineer, Bombay Municipal Corporation. | ... | | |
| (8) Two Nominees of the Indian Institute of Architects. | ... | | |
| (9) The Consulting Surveyor to Government | ... | | |
| (10) The Under Secretary, Urban Development and Public Health Department. | ... | | Secretary. |

3. The Committee should be requested to submit its report to Government within a period of four months. The Committee is further requested to give top priority to the question of fixation of the Floor Space Indices in the Back Bay Reclamation Area and to submit its recommendations to Government in this regard within a period of one month.

4. The Indian Institute of architects should be requested to communicate to Government the names of its two nominees.

By order and in the name of the Governor of Maharashtra,

M. V. RAJWADE,
Secretary to Government.

APPENDIX " B "

Residential F. S. I.	Estimated Residential Population in thousands.	Amenities area (School, Markets, etc.) as per layout in acres/ 1000 population.	Open space as per layout in acres/1000 population.
2-45	69	0-49	1-3
3-00	85	0-40	1-06
3-50	99	0-34	0-90
4-00	113	0-30	0-80
4-50	127	0-267	0-70

PART II—SECTION A.

Report of the Floor Space Indices Committee on the fixation of Floor Space Indices for residential user in the City of Bombay Wards A to G excluding the Back Bay Reclamation Area, Blocks Nos. III to VI.

I. PREAMBLE.

In their Resolution No. FSI-1162-C, dated the 10th August 1962, the Government of Maharashtra in the Urban Development and Public Health Department appointed a Committee consisting of the following persons to consider afresh the question of fixation of Floor Space Indices for the whole of the Greater Bombay area and to suggest suitable criteria for (1) the fixation of Floor Space Indices for the various areas in the Greater Bombay excluding the Back-Bay Reclamation Area Blocks III to VI and (2) the fixation of Floor Space Indices in the Back-Bay Reclamation Area Blocks III to VI.

- | | | |
|---|-----|-----------|
| (1) Minister (Revenue) | ... | Chairman. |
| (2) Secretary, Revenue Department. | } | Members. |
| (3) Secretary, Buildings and Communications Department. | | |
| (4) Secretary, Urban Development and Public Health Department. | | |
| (5) Commissioner, Bombay Municipal Corporation | | |
| (6) The Architect to Government. | | |
| (7) The City Engineer, Bombay Municipal Corporation. | | |
| (8) Two Nominees of the Indian Institute of Architects. | | |
| (9) The Consulting Surveyor to Government. | | |
| (10) The Under Secretary, Urban Development and Public Health Department. |  |  | Secretary. |

2. The Government had directed the Committee to submit its report on the first question within a period of four months and the second question within a period of one month. Accordingly, the Committee submitted its report on the second question on 10th September 1962.

3. In their subsequent Resolution No. FSI-1162/C, dated the 31st October 1962, the Government was pleased to enlarge the Committee to add the following four members to the Committee earlier constituted by Government Resolution of 10th August, 1962 :—

- (1) Dr. Nagindas N. Shah, Mayor, Bombay Municipal Corporation.
- (2) Shri E. A. Bandukwala, the leader of the House, (Bombay Municipal Corporation).

- (3) Shri V. P. Bapat, the Leader of the Opposition (Bombay Municipal Corporation).
 (4) Shri Jivraj B. Shah, Chairman, Improvements Committee (Bombay Municipal Corporation).

3.1 The enlarged Committee held three meetings on the following dates :—

- (1) 8th November 1962.
- (2) 6th December 1962.
- (3) 29th December 1962.

3.2 In the first meeting of the Committee, the criteria for fixing the Floor Space Indices for various zones in the City of Bombay (Wards A to G) were reconsidered in view of the fact that the areas in question are already built upon.

3.3 The second meeting discussed the note prepared by the Corporation on the guiding principles, discussed in subsequent paragraphs, for the fixation of the floor space indices for various zones.

3.4 In the third meeting, the Committee discussed the residential densities for various zones in the Wards A to G on the basis of the further note submitted by the Corporation, giving the population estimates on the basis of the net area available for residential development.

II. GUIDING PRINCIPLES FOR FIXATION OF F. S. INDICES.

4. Guiding Principles are :—

- (i) Water Supply ;
- (ii) Drainage and Waste Disposal ;
- (iii) Transport and Communications
- (iv) Community facilities ; and
- (v) Living space standards.

5. *Water Supply*.—The Bombay Municipal Corporation estimates that after utilising to the maximum the capacity of the existing distribution reservoirs and the trunk-mains feeding the city and after laying an additional 96" diameter main from Pawai to Mahim and without having resort to any major project in regard to the city (Wards A to G) distribution system, the supply of water to the city can be augmented at the most to a total of 190 million gallons per day. Out of this total quantity, the Corporation estimates, that a supply of 130 million gallons per day would be available for domestic consumption in the Wards A to G. The Committee agrees that the population of the city be assured water supply at the rate of a minimum of 40 gallons per head per day. At this rate, this area can sustain a population of 32.50 lakhs

against the 1961 population of 28 lakhs. The supply of water to-day to the city is of the order of 165 m. g. p. d. which means that an additional supply of 25 m. g. p. d. would have to be found from new sources.

5.1 The present sources of water at the disposal of the Corporation make available to the city of Greater Bombay a total supply of 233 m. g. p. d., of which 165 m. g. p. d. are supplied to the city (Wards A to G). The Bombay Municipal Corporation proposes to step up the present supply of 233 m. g. p. d. to 559 m. g. p. d. as follows :—

(A) Present Sources	...	...	233 m. g. p. d.
(B) Dahisar Scheme	...	...	6 m. g. p. d.
(C) Upper Vaitarna Scheme	...	...	120 m. g. p. d.
(D) Kalu-Shahi Scheme	...	...	200 m. g. p. d.
			233 m. g. p. d.
			230 m. g. p. d.
			559 m. g. p. d.

5.2 The additional quantity of 25 m. g. p. d. required, would thus be made available out of this stepped up quantity.

6. *Drainage and waste disposal.*—The Committee considered the City's sewerage system comprising several independent districts having their own outfall points.

(1) *Coloba Plant.*—The present plant capacity of 1.50 million gallons per day can be increased at the most to 2.25 m. g. p. d. With this capacity the plant will cater for a population of 45,000 to 50,000. For any additional population, an additional plant will have to be provided in the vicinity.

(2) *Banganga Plant.*—The present capacity of the plant is 1 m. g. p. d. It can be increased to 2 m. g. p. d. in order to deal with a population of 40,000. For any additional population, an additional plant will have to be provided in the vicinity.

(3) *Love Grove Run.*—The present capacity of this plant is 112 m.g.p.d. With this capacity, it can handle a total flow from a population of 23.65 lakhs. This is considered to be adequate; but the sewerage system will have to be suitably augmented, as at present many sewers are running surcharged.

(4) *Dadar Plant and Dharavi Plant.*—Dadar and Dharavi Plants together have at present a capacity of 19 million gallons per day. This capacity can be stepped up to 59 m. g. p. d. Together, these plants can deal with the flow from a population of about 12 lakhs. The sewer capacity here is considered to be adequate except for the main sewers in the Mahim Town Planning Scheme areas.

6.1 Although the existing plants, when up-graded and/or additional sewers when laid, will be in a position to deal with the flow from a total

population of about 36 lakhs, the Committee considers that the independent out-fall works would have to be provided in the new Reclamation areas at (i) Back Bay Blocks, (ii) Off Nepean Sea Road and Bhulabhai Desai Road and (iii) Wadala Salt Pans. In making this suggestion, the Committee has taken into consideration that connecting new areas to the existing plants would mean laying of additional sewers. The underground street capacity having already been choked up, laying of new sewers is an impracticable proposition and would also dislocate the city's normal life in a great measure for long periods.

7. *Transport and Communications.*—The Committee notes that there is traffic congestion on both the internal road system and the arterial roads. It has taken a note of the fact that alternative road systems are being contemplated to facilitate rapid movement of traffic from the southern to the northern parts of the city. Apart from the existing two north and south arterial roads, the Committee notes that a third new road is contemplated along the Western Sea-shore and also the fact that the Frere Road is being connected by the Municipal Corporation with the Kings' Circle in Matunga to create a fourth arterial link. The Committee does not possess any data regarding the intensity of traffic congestion on all roads but notes that a traffic survey is now being undertaken in the entire city of Greater Bombay by traffic Experts.

8. *Standards of Community facilities.*—The Committee notes that for large concentrations of population obtaining in cities and towns, community facilities are required to be provided according to certain minimum standards.

8.1. *Public open spaces.*—The County of London at one stage considered the standard of 7 acres per 1,000 persons for recreational purposes as desirable, but as it was impossible of achievement, it proposed to adopt a standard of 4 acres per 1,000 persons in the inhabited areas within the county. But this standard, it is impossible to adopt in the city of Bombay. The Bombay Municipal Corporation, therefore, has proposed to adopt a standard of 1 acre per thousand population in the city of which it proposed to achieve $\frac{1}{2}$ acre per 1,000 persons during the first 20 year period and the standard of 4 acres per 1,000 persons in the suburbs. To-day, the area for recreational facilities is just under 800 acres. This, spread over a population of 28 lakhs in the Wards A to G, gives an average of 0.29 acres per thousand of population. The Bombay Municipal Corporation's proposal to raise this percentage from 0.29 to 0.5 is reasonable in the light of the circumstances during the next 20 years and may be adopted as the minimum standard for the City of Bombay (Wards A to G). This would mean that the city needs about 1,400 acres for the present population. It will be difficult to reserve this additional area of 600 acres in the City.

8.2. *Area for Schools.*—The County of London has adopted a standard varying from $\frac{1}{2}$ acre for 25 pupils to 2 acres for 480 pupils. At the rate of $22\frac{1}{2}$ per cent. of the population, the school students in the City of Bombay (Wards A to G) would number approximately 6,30,000. If the County of London standard of 2 acres for 480 pupils is an ideal standard, the position in Bombay would be virtually desparate. Today the Bombay City (Wards A to G) has a total area of 103 acres under schools. The Bombay Municipal Corporation has proposed to adopt a standard of $4\frac{1}{2}$ square yards per pupil in the City (Wards A to G) for school students. At this rate, the City will require about 560 acres for schools. It is well-nigh impossible to carve out even this area in the City (Wards A to G).

8.3. *Markets.*—The existing area under the retail markets is approximately 13 acres. As the Corporation's standard of 3,000 square yards per lakh of population, the city needs an area of 17 acres for the present population. The area for retail markets would, therefore, have to be suitably increased and such an increase is feasible.

Wholesale markets.—The total area under wholesale markets is 8 acres. This is adequate for meeting future requirements also.

8.4. *Hospitals.*—The Committee feels that the present land area under the Hospitals and other medical buildings is adequate, but the bed strength has to be increased considerably, if the standard prescribed by the Bhoré Committee of 5.6 beds for every 1,000 persons is to be achieved. Against this standard the City (Wards A to G) has 2.6 beds for every 1,000 persons. The Corporation proposes to adopt for the present the standard of 4 beds per 1,000 persons. This could be achieved mostly by vertical expansion of the existing hospitals. Land requirements for a few new institutions would be small and can be found in the city.

8.5. The additional land area required for meeting the minimum community facilities for the existing population would be of the order of 1,200 acres or approximately 2 square miles. This area will have to be found in the next 20 year period for achieving the minimum standard.

9. *Living Space Standards.*—In the new Back Reclamation Areas Blocks III to VI, the Committee has proposed an occupancy rate of 250 square feet per person, considering its special nature. For obvious reasons the Committee cannot recommend this standard for adoption all over the City. According to the estimate made by a former City Engineer and supported by the present City Engineer, the residential area on the island is of the order of 10 square miles, out of the total 26 square miles. If 28 lakhs of population is living actually on 10 square miles, the average occupancy rate works to 160 square feet per person assuming an average F. S. I. of 1.66. According to the occupancy rate assumed for calculation of population by the Bombay Municipal Corporation, the rate varies from 60 in

certain wards to 240 in others. The Committee therefore, recommends that it would be safe to assume an average standard of 120 square feet per person as the occupancy rate for the City of Bombay (Wards A to G).

10. *Population Forecast.*—Assuming a residential area of 10 square miles and the occupancy rate of 120 square feet per person, the island would be capable of accommodating approximately 35 lakhs of population. This means an increase of about 8 lakhs over the existing population. Such an increase, however, is conditioned by the capacity to increase the amenities as discussed in the paragraphs above. Water supply can be stepped up to supply the needs of a population of 32 lakhs only. At present it does not appear feasible to increase the water supply beyond 559 m. g. p. d. The drainage and sewer works could however be stepped up to deal with an out-flow of the population of 36 lakhs approximately. But the position of open public spaces and open spaces available to schools admits no further increase. If, however, these open spaces can be found or are likely to be found in the next 20 years, the Committee recommends that the population of the city be limited to 32 lakhs inclusive of population increases in the new Reclamation areas.

The Corporation has proposed the graded residential F. S. Is. for the various parts in the city as follows :—

(1) Northern part of the city beyond Clerk Road and Cannought Road.	1.33.
(2) New Reclamation areas of Dharavi etc.	... 2.00
(3) Southern Part.	... 2.00
(4) Churchagate Reclamation Blocks I and II.	... 2.45
(5) Reclamation area Blocks III to VI.	... 2.45

(The Committee has in its earlier report proposed the residential F. S. I. of 3.5, for this area on an occupancy rate of 250 square feet per person).

Based on these F. S. Is. the Corporation has arrived at a figure of maximum population of 34 lakhs in the city by 1980 as indicated below :—

Ward A	...	5,86,869
Ward B	...	1,44,543
Ward C	...	1,69,638
Ward D	...	5,27,430
Ward E	...	3,80,145
Ward F	...	7,18,875
Ward G	...	8,63,361

33,80,861 Say 34 lakhs.

The above F. S. Indices are generally acceptable except in Ward 'A' where the Corporation has estimated that the ultimate population would

be 5,86,869. This is an over estimate as the Corporation has taken the occupancy rate as 120 square feet per person for this area too. The Committee has already recommended in its earlier report that the occupancy rate in the reclamation areas should be 250 square feet per person. At this rate, in the Ward 'A' the population will not increase beyond 4 lakhs. With this correction, the Committee estimates that the total population of the city of Bombay would be in the vicinity of 32 lakhs. The Committee, therefore, recommends that the F. S. Indices as proposed above for various areas excluding B. B. R. Blocks III to VI may be adopted for the City of Bombay.

SECTION B.

Report of the Floor Space Indices Committee on the fixation of Floor Space Indices for commercial user in the City of Bombay—Wards A to G excluding the Back Bay Reclamation Area, Blocks III to VI.

The question generally discussed by the Committee were (1) the zoning of areas into commercial, mixed and residential and (2) the depth of commercial areas in buildings which abut on the roads. It was brought to the notice of the Committee that the depth of the commercial plots which abut on the roads is not uniform but variable and that the frontage of the plots is narrow at times. One view expressed in this connection was that it would be desirable to prescribe a depth of 80 feet from the road for commercial zone, including shops as this would ensure uniformity in the depth of the commercial area. Another suggestion was that the depth of the commercial area be extended so as to make it co-terminous with the depth of the plots. Yet another view was that it would be better, in order to avoid traffic congestion on the roads, to restrict the depth of the commercial areas to twice the average width of the road on which the plot abuts. After considering these views, the Committee recommends that the depth of the commercial area be restricted uniformly to 80 feet from the road. The Committee recommends that the question of dividing the City into various zones for commercial and other uses be left for consideration of the Corporation.

2. According to the standard laid down by the Bombay Municipal Corporation today, in South Bombay area i.e., in the area south of Clerk Road—Cannought Road, the F. S. I. is 3.00 for commercial user except in Ward 'A' where it is 3.4, out of which 1.00 must necessarily be reserved for residential user. On the other hand, in the North Bombay area the F. S. I. for commercial user is 2.00 though the demand for commercial user in North Bombay is comparatively very low. It was brought to the notice of the Committee that in the north of the City where higher F. S. I. is allowed for commercial user, experience showed that this concession was often being

misused for residential use. This point was considered arguable because commercial premises fetch a much higher rent than the residential ones and no landlord would be tempted to allow commercial premises to be used for residential purpose. The Committee also considered the view that in mixed localities i.e., residential-cum-commercial localities, no higher F. S. I. should be allowed for commercial use and that F. S. I. allowed for residential and/or commercial use should be uniform. The Committee, however, feels that as Bombay is the commercial hub of the country, it would only be proper to allow a higher F. S. I. for commercial user since the higher commercial F. S. I. does not cast additional burden on the services to be rendered by the Bombay Municipal Corporation. Although the demand for commercial user in the rest of North Bombay is not large, the Committee feels that in the area bounded by the Haines Road, Clerk Road and Cannought Road, Reay Road, Sewri New Road, Jijibhoy Road with its extension, Currey Road, Delisle Road Bridge and Fergusson Road, the demand for commercial user is more. The Committee therefore, feels that if the commercial F. S. I. in this area which immediately adjoins South Bombay was slightly increased, it would help in reducing the congestion of commercial user in South Bombay. The Committee accordingly recommends that the City of Bombay i.e., Wards 'A' to 'G' should be divided into four zones for the purposes of fixation of commercial F. S. Is. in such a way that the F. S. I. should be uniform in South Bombay and in the area up to Clerk Road—Cannought Road and should go on decreasing as one goes northwards as indicated below:—

(a) In Ward 'A' of South Bombay, the F. S. Is. should uniformly be 2.45 whether the user is residential or commercial. No additional F. S. I. of 1.00 should be allowed as at present for residential user in commercial buildings.

(b) In the rest of South Bombay, the commercial F. S. Is. should be reduced to 2.45, wherever it is 3 now; but in Walkeshwar area it should continue to be 2 as at present.

(c) In the portion of North Bombay as delineated above the commercial F. S. I. should be uniformly 2, the residential F. S. I. remaining at 1.33 as at present; and

(d) In other areas of North Bombay, excluding Dharavi and Wadala Salt Pans, the commercial F. S. I. be reduced to 1.67 uniformly. In the newly reclaimed areas of Dharavi and Wadala Salt Pans, however, where the costs of reclamation of land would be high, the commercial F. S. I. may be fixed at 2.45.

Note.—The Committee further recommends that these Commercial F. S. Is. as proposed above be applicable only to the commercial zones to be defined by the Corporation.

SECTION C.

Report of the Floor Space Indices Committee on the fixation of Floor Space Indices for industrial user in the City of Bombay—Wards A to G — excluding the Back Bay Reclamation Area, Blocks III to VI.

1. PREAMBLE.

In considering the criteria for the fixation of F. S. I. for light as well as heavy industrial user, the Committee took into consideration the position of water supply, drainage, transport facilities and road system.

2. According to the data furnished by the City Engineer, Bombay Municipal Corporation, the employment per acre of industrial land is about 160 persons, which is considered to be on the high side because of the high employment in cotton and textile mills which accounts for roughly 50 per cent. of the industrial employment in the city. The Committee feels that it would be desirable to reduce the density of industrial workers per acre in order that facilities like water supply, drainage etc., do not become inadequate.

3. At present 30 m. g. p. d. of water are supplied to the industries in the City. Because of the difficulty in augmenting the water supply in the City, the Committee is of the opinion that the industrial growth should be controlled in such a way that it should not be necessary at any stage to exceed the optimum quantum of supply of water to the industries.

4. At present the F. S. I. allowed by the Bombay Municipal Corporation for light industrial zones and heavy industrial zones is 2.5 and 3.00 respectively. Heavy industries would generally include industries which require a large area and use heavy machinery causing a lot of noise, vibrations, fumes or waste and are generally sources of public nuisance. The above definition is a general one and industries which do not come in the above category would be treated as light industries.

5. Experience has shown that although an F. S. I. of 2.5 is allowed for light industries and 3.00 for heavy industries, no industry in the City, whether light or heavy, has used on F. S. I. exceeding 2.00. The Committee, therefore, recommends that the F. S. I. for heavy and light industries should be uniformly 2.00. This would also ensure that the existing industries as well as the new ones will not aggravate the present shortage of water supply or transport and communications difficulties.

6. The question whether the F. S. I. for "flatted" industries should be allowed to exceed 2.00 was also considered. "flatted" industries, a large number of which is accommodated in a storeyed building, cause

ground level congestion as they need space in the compound for loading and unloading, storage and traffic needs. The Committee, therefore, recommends that the F. S. I. for "flatted" industries also should not exceed 2.00 in the City.

SECTION D.

Report of the Floor Space Indices Committee on the fixation of Floor Space Indices for the residential user in the Suburbs and extended Suburbs of Greater Bombay, i.e., the area beyond Sion and the Mahim Creeks up to Mulund and Dahisar.

I. PREAMBLE.

The total area of Suburbs and extended Suburbs is 142.8 square miles as compared with the area of 26.80 square miles of the City. The Suburbs are in the process of development and large tracts of land are still lying vacant and therefore available for development. The factors such as water supply, drainage, transport and community facilities, open spaces etc., governing the F. S. I., requirement of this area were considered by the Committee as in the case of the F. S. Is. for the City. The Committee's observations are given in paragraphs below :—

(a) *Water Supply*.—After implementation of the various new schemes for water supply, the details of which have been furnished in Part I of the Report of the Committee, the maximum water available for the Suburbs and the extended Suburbs is estimated as under :—

190 m. g. p. d.	for domestic supply.
70 m. g. p. d.	for industries.
25 m. g. p. d.	for public utility concerns.
34 m. g. p. d.	losses.

Total ... 319 m. g. p. d.

On the basis of 40 gallons of water per head per day, 190 m. g. p. d. would support a residential population of 47.5 lacs.

(b) *Drainage*.—The Committee was advised by the City Engineer, Bombay Municipal Corporation, that the drainage facilities would not present any difficulty because four disposal works already exist in this area and the Corporation would be able to provide more pumping stations and disposal works as and when needed. The Committee accordingly considers that the drainage will not be a deciding factor in the fixation of residential densities in the suburbs.

(c) *Transport and Communications.*—In view of the fact that two new express Highways are already under construction and it is proposed to join these Express Highways to each other eventually by four feeder roads, the Committee feels that transport and communications will not present any difficulties in determining the densities of population.

(d) *Standards of Community facilities.*—In part II-A of this Report, the Committee has recommended a lower rate of open spaces i.e., 1 acre per 1,000 population in the City on grounds of existing congestion and consequent non-availability readily of more lands. But in the Suburbs, where large areas of land are still lying vacant and land values are comparatively lower, it is possible to prescribe a much higher standard for open spaces. The Corporation has proposed a standard of 4 acres per 1,000 population. The Committee feels that this standard is reasonable and is capable of being achieved.

(e) *Schools.*—As regards Schools, the standard proposed by the Corporation is 6 sq. yards per pupil out of which 3 square yards per pupil will be for the school site proper and the remaining 3 square yards will be for play grounds. The Committee feels that the above standards are reasonable and capable of being achieved.

(f) *Living Space Standards.*—The land available for residential development in the Suburbs and the extended Suburbs would be of the order of 58 square miles excluding the marshy areas measuring about 24 square miles, out of which 50 per cent. can be reasonably expected to be available in course of time for residential purposes. With a total area thus of about 70 square miles in the Suburbs and the extended Suburbs and an average F. S. I. of 1·00, the ultimate total population that could be sustained in this area would be of the order of 100 lacs. But as the maximum amount water that can ultimately be made available for domestic supply is only 190 m. g. p. d. the Committee feels that it would be desirable to restrict the growth of the population to 47·5 lacs only even if a higher population can be accommodated on other grounds. The Committee, therefore, recommends that the F. S. I. for the Suburbs and the extended Suburbs should be 1.

SECTION E

Report of the Floor Space Indices Committee on the fixation of floor space indices for commercial and industrial user in the suburbs and extended suburbs of Greater Bombay i.e., the area beyond Sion and the Mahim Creeks up to Mulund and Dahisar.

I. COMMERCIAL F. S. I.

The existing F. S. I. fixed by the Corporation for commercial user in the Suburbs and extended Suburbs is 1·00.

2. Bombay is essentially a commercial city and in view of the existing congestion in the City proper, there has been a tendency on the part of commercial houses and industries to start their concerns in or to transfer them to the Suburbs and the extended Suburbs from the City. Since it is proposed to relieve the existing congestion in the City, the Committee feels that it will be necessary to give greater incentive to commercial and industrial concerns to shift to this area by prescribing a F. S. I. much higher than the present 1.00. The Committee, therefore, discussed at great length the question of what maximum F. S. I. should be allowed for commercial user. In all, three views were expressed. One view was that it would be reasonable to allow a F. S. I. of 2.45 for commercial user in the new reclaimed areas like Mahim Creek, Bandra-Kurla reclamation, Chembur Reclamation and Bandra Slaughter House area proposed to be developed and a F. S. I. of 1.33 in other areas. The second view was that the F. S. I. in these areas should not exceed 2 as it is double of the existing F. S. I. of 1. The third view was that F. S. I. for these areas should be the same as for the adjoining areas of the City i.e., 1.67 as recommended by the Committee in Part II-B of this report. The lower F. S. Is. not exceeding 1.67 and 2 were suggested with the object of ensuring that the congestion which is present in the City today should not occur in the new areas. After detailed discussion, the Committee came to the conclusion and accordingly recommends to the Government that the commercial F. S. I. in the new areas described earlier in the paragraph should not exceed 2.45. The Committee also recommends that the commercial F. S. I. in areas other than the above areas should not exceed 1.33.

II. INDUSTRIAL F. S. I.

The F. S. I. prescribed by the Corporation at present for the industrial user in this area is 1.00. The Committee feels that as large areas are available in the Suburbs for development, it is not necessary to prescribe a F. S. I. higher than 1.00 for industrial user in the Suburbs and the extended Suburbs. The Committee accordingly recommends that the industrial F. S. I. for the whole area of the Suburbs and the extended Suburbs should remain at 1.00.

The Committee thanks the members of the drafting Sub-Committee for their detailed study of various aspects of the problems involved and the useful reports that they had submitted for its consideration.

Signed on 9th April 1963 by—

V. P. Naik.

Nagindas Shah.

D. R. Pradhan.

A. U. Shaikh

S. V. Desai.

G. P. Mhatre.

S. H. Parelkar.

S. M. Kamruddin.

Jivraj B. Shah.

E. A. Bandukwala.

V. P. Bapat.

D. A. Jayawant.

B. T. Talim.

M. V. Rajwade.

P. N. Palnitkar.

No. FSI. 1163/15936-C.

URBAN DEVELOPMENT AND PUBLIC
HEALTH DEPARTMENT

Sachivalaya, Bombay, 18th April 1963.

From

THE SECRETARY,
Floor Space Indices Committee.

To

- (1) Shri V. P. Naik, Minister (Revenue).
- (2) Dr. Nagindas N. Shah, Ex-Mayor, Bombay Municipal Corporation.
- (3) Shri E. A. Bandukwala, Mayor, Bombay Municipal Corporation.
- (4) Shri V. P. Bapat (The Leader of the Opposition, Bombay Municipal Corporation).
- (5) Shri Jivraj B. Shah, Chairman, Improvement Committee, Bombay Municipal Corporation.
- (6) The Secretary, Revenue Department.
- (7) The Secretary, Buildings and Communications Department.
- (8) The Secretary, Urban Development and Public Health Department.
- (9) The Municipal Commissioner, Bombay Municipal Corporation.
- (10) The Architect to Government, Bombay.
- (11) The City Engineer, Bombay Municipal Corporation.
- (12) Shri S. H. Parelkar, C/o Messrs. Parelkar and Dallas, Meadows House, Meadows Street, Bombay-1.
- (13) Shri B. T. Talim, Director of Town Planning and Valuation Department, Maharashtra State, Poona.
- (14) Shri G. P. Mhatre, Prospect Chambers, Annexe, D. Nowroji Road, Bombay-1.

Sir,

I am directed to forward herewith the minutes of the meeting of the Floor Space Indices Committee held on the 9th April 1963 and Part II of the report of the said Committee on the fixation of Floor Space Indices for Residential, Commercial and Industrial user in Greater Bombay Wards A to G (excluding the Back Bay Reclamation area, Block Nos. III to VI).

Yours faithfully.

(Signed) P. N. PALNITKAR,
Secretary,
Floor Space Indices Committee.

Minutes of the meeting of the Floor Space Indices Committee held in the Chamber of Minister (Revenue) at 11-00 a.m. on the 9th April 1963.

PRESENT

- | | | |
|--|-----|------------|
| (1) Shri V. P. Naik, Minister (Revenue) | ... | (in Chair) |
| (2) Dr. Nagindas N. Shah (Mayor, Bombay Municipal Corporation). | | Member. |
| (3) Shri E. A. Bandukwala (the Leader of the House, Bombay Municipal Corporation). | | " |
| (4) Shri V. P. Bapat (the Leader of the Opposition, Bombay Municipal Corporation). | | " |
| (5) Shri Jivraj B. Shah, Chairman, Improvement Committee (Bombay Municipal Corporation). | | " |
| (6) Shri R. D. Pradhan, Secretary, Revenue Department. | | " |
| (7) Shri S. M. Kamruddin, Secretary, Buildings and Communications Department. | | " |
| (8) Shri M. V. Rajwade, Secretary, Urban Development and Public Health Department. | | " |
| (9) Dr. A. U. Shaikh, Municipal Commissioner, Bombay Municipal Corporation. | | " |
| (10) Shri Jayavant (representative of Architect to Government, Bombay). | | " |
| (11) Shri S. V. Desai, City Engineer, Bombay Municipal Corporation. | | " |
| (12) Shri S. H. Parelkar, representative of the Indian Institute of Architects. | | " |
| (13) Shri B. T. Talim, Director of Town Planning and Valuation Department, Maharashtra State, Poona. | | " |
| (14) Shri G. P. Mhatre, representative of the Indian Institute of Architects. | | " |
| (15) Shri P. N. Palnitkar, Under Secretary, Urban Development and Public Health Department. | | Secretary. |

The Committee considered the various draft reports submitted by the drafting Sub-Committee. After detailed discussion and careful consideration of the issues involved, the draft reports were approved with suitable modifications.

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