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OFFICE OF THE IMPHAL MUNICIPAL CORPORATION

NOTIFICATION

Imphal, the 14th October, 2022

No. IMC/E/529/2010: Whereas, the Imphal Municipal Corporation Building Bye-Laws (2nd Amendment), 2022 as notified by the Imphal Municipal Corporation under notification of even no. dated 22.08.2022 was published in the Manipur Gazette Extraordinary No. 255 dated 22.08.2022 as required under the provisions of Section 211(1) of the Manipur Municipalities Act, 1994.

And whereas, the Government of Manipur has confirmed the "Imphal Municipal Corporation Building Bye-Laws (2nd Amendment), 2022" under the provisions of Section 211(2) of the Manipur Municipalities Act, 1994 as conveyed vide Government letter No. AMS-1011/2/2022-MAHUD-MAHUD dated 14.10.2022 for publishing the said Bye-Law as "Imphal Municipal Corporation Building Bye-Laws (2nd Amendment), 2022".

Now, therefore, in pursuance of Section 212 of the Manipur Municipalities Act, 1994, the "Imphal Municipal Corporation Building Bye-Laws (2nd Amendment)" is hereby published in the Manipur Gazette Extraordinary as "Imphal Municipal Corporation Building Bye-Laws (2nd Amendment), 2022".

TH. HARIKUMAR SINGH,
Municipal Commissioner,
Imphal Municipal Corporation.

THE IMPHAL MUNICIPAL CORPORATION BUILDING BYE-LAWS (2nd AMENDMENT), 2022

1. Short title and commencement:

1) These Bye-Laws may be called the Imphal Municipal Corporation Building Bye-Laws (2nd Amendment), 2022.
2) It extends to the whole of Imphal Municipal Corporation Area.
3) It shall come into force on such date as the State Government may, by notification in the Official Gazette, appoint.

2. Amendment of Section 2:

(1) Section 2(7) of the Imphal Municipal Corporation Building Bye-Laws, 2013 (herein after referred to as Principal Law) may be substituted by the following, namely:

"**Bazar**" means a "market" which is defined under Section 2(32) of the Manipur Municipalities Act, 1994.

(2) After Sub-section (7) of Section 2 of the Principal Law, the following sub-section 7(a) shall be inserted, namely:

"**Bazar Area**" means the area bounded on the:
North: By Khuyathong Bazar and LIC Crossing
South: By the road from Nityaipat Chuthek to Keishampat Bridge
East: Imphal - Dimapur Road along Kangla Park
West: By Naga Nallah and Nambul River.

(3) After Sub-section (20) of Section 2 of the Principal Law, the following Sub-section (20aa) shall be inserted, namely:

"**EVCI**" means Electric Vehicle Charging Infrastructure.

(4) After Sub-section (22) of Section 2 of the Principal Law, the following sub-section (22a) shall be inserted, namely:

"**LTP**" means Licensed Technical Persons as per Section 2(22) of the Principal Law.

(5) After Sub-section (24c) of Section 2 of the Principal Law, the following sub-section (24cc) shall be inserted, namely:

"**OBPS**" means Online Building Permission System.

(6) sub-section (35) of section 2 of the Principal Law shall be deleted.

3. Substitution of section 3:

Section 3 of the principal law to be substituted by the following, namely:

3. "**OBPS**" Online Building Permission System:

1) All the applications for buildings located within Imphal Municipal Corporation Area shall be submitted through Licence Architects or Firms registered in the name of a Licence Architect who are registered with Imphal Municipal Corporation.

2) The LTP shall make necessary site verification, examine the documents and submit the Application online to IMC along with the Building Plans in AutoCAD format and documents required as per the Building Bye-law at Chapter II of the Principal Law. The Online Building Permission System (OBPS) shall auto scrutinize the proposals. On finding the proposal as per the provisions of the Building Bye-laws and the Master Plan for Greater Imphal, the system shall generate challan for requisite fees and penalty wherever applicable.

3) On payment of requisite fees etc. the system shall auto generate instant Planning Permit and Building Permit along with approved drawing and forward the same to empaneled LTP and the Applicant with SMS and email alert. The approved drawings, the Planning Permit and Building Permit shall be in a downloadable format by the empaneled LTP and Applicant.

4) In case the proposal is not as per the provisions of the Building Bye-laws and the Master Plan for Greater Imphal, the system shall return the same to empaneled LTP with email and SMS alert to the applicant with detail.

5) Authorities shall carry out post approval inspection of the proposals as and when required to ensure the adherence of the Building Bye-laws and Master Plan. Any discrepancies found during the inspection, shall be treated as unauthorized as per the provisions of this Bye-law, and the Planning Permit/ Building Permit issued shall be withdrawn.

6) The buildings constructed under these clauses shall also obtain instant Occupancy Certificate on submission of all the documents as per provisions given in these bye-laws duly certified by the empaneled LTPs.

4. Amendment of section 52:

(1) sub-section (i) of section 52 shall be substituted by the following, namely:

(i) No person shall erect a building intended to be use as cinema, theater or public assembly hall or convert the use of any existing building to any such purpose, unless such building is set back at least 9M from the regular line of the public road and 4.5M on rear end side.

After sub-section (ii) of section 52, the following sub-section shall will be inserted namely:

(iii) The Ground Coverage and FAR of such buildings shall be 40 and 125 respectively.

5. Insertion of sections 54H, 54I and 54J:

After section 54G, the following sub-sections 54H, 54I and 54J shall be inserted, namely:

54H: FAR, Setbacks, Ground Coverage and Heights of Commercial/ Mixed Use Buildings

Proposed Setbacks and Heights of Commercial/Mixed Use Buildings other than Bazar Area									
No.	**Plot Area (sq.mt)**	**Maximum Ground Coverage**	**FAR**	**Maximum Height Permissible (in meters)**		**Minimum Setbacks proposed (in meters)**			
						Front	**Rear**	**Side 1**	**Side 2**
1	90-150	NIL	150	11	G+2	1.50	0.90	0.90	0.90
2	150-300	NIL	150	11	G+2	2.00	1.20	1.20	1.20
3	300-500	NIL	150	13	G+3	3.00	2.00	1.80	1.20
4	500-750	NIL	180	13	G+3	4.00	3.00	2.40	1.20
5	750-1000	NIL	180	16	G+4	5.00	4.50	4.20	2.50
Above 16 MTS									
6	1000-1500	NIL	200	19	G+5	6.00	4.50	4.50	3.00
7	Above 1500	45 %	200	22	G+6	7.00	4.50	4.50	3.50

Note:

1. Requirement for parking shall be governed by Chapter X of the Principal Law.
2. For Bazar Area, the existing Setbacks, 6 feet arcade at front, 2 feet 6 inches side setbacks and 5 feet rear setbacks shall continue. Maximum Ground Coverage permissible is 80%. FAR permissible is 300.

54I: FAR, Setbacks, Ground Coverage and Heights of Institutional/ Educational Buildings

Proposed Setbacks and Heights of Institutional/Educational Buildings									
No.	**Plot Area (sq.mt)**	**Maximum Ground Coverage**	**FAR**	**Maximum Height Permissible (in meters)**		**Minimum Setbacks proposed (in meters)**			
						Front	**Rear**	**Side 1**	**Side 2**
1	750-1000	NIL	180	16	G+4	6.00	4.50	4.20	2.50
2	1000-1500	NIL	200	19	G+5	7.50	4.50	4.50	3.00
3	Above 1500	40 %	220	22	G+6	10.00	4.50	4.50	3.50

Note:

1) For Government Institutions, regulations adopted by Education Department will be followed.
2) Requirement for parking shall be governed by Chapter X of the Principal Law.

54J: For the purpose of calculation of FAR, the following areas are exempted from FAR Calculations:

a) Balcony
b) Basement if not used for office or commercial purposes
c) Common Vertical Circulation viz., lifts, staircase, ducts/shafts
d) Corridor open on one side
e) Garages
f) Mumty and Lift Machine Room

6. Under chapter X of section 70 the sub section 7 of the principal Law is substituted by the following table:-

No.	**Type of use**	**Open parking space for a (four) wheelers**	**Open parking space for 2 (two) wheelers**
1	Residential building	1 car for every 60 sq. metre of floor space	1 for every 40 sq. metre of floor space
2	Theatres, cinemas, auditorium	1 car for every 10 seats	1 for every 5 seats
3	**Retail business**	**1 car for every 50 sq. metre of sales area**	**1 for every 30 sq. metre**
4	**Office building**	**1 car for every 50 sq. metre of floor space**	**1 for every 30 sq. metre of floor space**
5	Hospital	1 car for every cabin 1 car for every 10 beds 1 car for every 2 doctors	1 for every bed
6	Restaurants	1 car for every 5 seats	1 for every 4 seats

7. ***After Section 71 of the Principal Law, the following Section 71A shall be inserted, namely:***

71A: In-Building Solutions for Common Telecommunication Infrastructure: For installation of In-Building Solution (IBS) / Smart Connectivity infrastructure, the procedure laid down in **Annexure-C** shall be followed.

8. Insertion of a new Chapter XV:

After Chapter XIV of the Principal Law, the following new chapter XV shall be inserted, namely:

Chapter XV
Electric Vehicle Charging Infrastructure

91. Electric Vehicle Charging Infrastructure

Charging infrastructure (CI) shall be provided in the premises of the various building types for Electric Vehicles (EVs) for at least 20% of the total parking capacity.

Additionally, the building premise will have to have an additional power load, equivalent to the power required for all charging points to be operated simultaneously with a safety factor of 1.25 as referred in Annexure-A.

(a) Residential buildings (Plotted House)

Ownership of Station	**Private (Owner)**
Connection and Metering	Domestic Meter
Type of Charger	Slow Chargers as per owner's specific requirements.
Modes of Charging	AC (Single charging gun)
Norms of Provisions	Minimum one Slow Charger and additional provisions as per owner individual

(b) All other buildings (including Group Housing)

Any public charging stations installed at public/private areas or building premises of any category that caters to commercial mode of charging of EVs shall be deemed as a Public Charging Station and shall have to install the minimum requirement of chargers as specified in the guidelines issued vide No. 12/2/2018-EV dated 14.12.2018 by the Ministry of Power, Government of India, as referred in Annexure-B. However, in order to provide sufficient charging for the EV share in all vehicles, the Charging Infrastructure should be at least 20% of the parking capacity. The ratio of types of chargers shall be as specified in the Table below:

Building Type	Any building type			
Ownership of Station	Commercial Metering and Payment			
Types of Chargers	as per minimum requirements specified in Ministry of Power guidelines as referred in Annexure-B.			
Additional chargers	PCS service provider shall install additional number of kiosk or chargers beyond the minimum specified requirements to meet the ratio of charging points as prescribed below. (by the type of vehicles)			
Norms of Provisions for charging points	**4-Wheelers** (i) 1 Slow Charger(SC) each 3 EVs. (ii) 1 Fast Charger (FC) each 10 EVs	**3-Wheelers** (i) 1 Slow Charger (SC) each 2 EVs	**2-Wheelers** (i) 1 Slow Charger (SC) each 2 EVs	**PV (Buses)** (i) 1 Fast Charger (FC) each 10 EVs

Note:

1. Charging bays shall be planned currently at 20% capacity of all vehicles including 2-wheelers and 4-wheelers.
2. Open metering and on-spot payment options to be available for all users.
3. Provision of Fuel Cooled Battery Charging Station (FCB CS) and Battery Swap (BS) shall not be mandatory and will be at the discretion of the service provider."

"Annexure A"

Technology, options, specification of EV charging and PCS infrastructure.

1. EV Charging Technology

1.1 Electric Vehicle Supply Equipment (EVSE): An EVSE shall be a wall mounted box that supplies electric energy for recharging of electric vehicle batteries and shall have a safety lock-out feature that does not allow current to flow from the device until the plug is physically inserted into the car. EVSEs may be customized with added features as mentioned, namely:

a) Authentication;
b) Integrated payment gateways; and
c) Software for remote monitoring.

1.2 Types of EVSE:

(a) Charging speeds: Charging power, which determines the time required to charge a vehicle, may vary by orders of magnitude across charge points, as shown in Table 91.1. A small household outlet may charge as slowly as 1.2 KW, while the most advanced rapid charging stations can charge up to 350 KW. Charging infrastructure is broadly broken into three categories based on speed: Level 1, Level 2, and direct current (DC) fast-charging (sometimes referred to as Level 3).

(b) Private Charging: Charging batteries of privately owned cars through domestic charging points. Billing shall be part of home or domestic metering.

(c) AC-Slow Charging: The house private chargers are generally used with 230V/15A single phase plug which can deliver a maximum of up to about 2.5 KW of power. The EVSE supplies AC current to the vehicle's onboard charger which in turn shall convert the AC power to DC, allowing the battery to be charged.

(d) Public Charging: For charging outside the house premises, electric power shall be billed and payment shall be collected. The power drawn by these chargers shall be managed from time to time.

(e) DC-Fast Charging: DC current shall be sent to the electric car's battery directly via the charge port. FC chargers (usually 50 KW or more) may supply 100 or more kilometers of range per hour of charging. The fast

chargers shall be used as a top-up, rather than fully charging vehicles, for cab companies and corporate users who have a fleet of electric cars.

2. EV share in all vehicles

The charging infrastructure prescriptions in all urban development guidelines shall be at least 20%.

3. Power Load sanction to premises

While adding Charging Infrastructures to the proposed set of building types, enhanced Power Load shall be added for each such building type by the Power Electric Supply Companies ESCOMs, commensurate to the total additional power requirement of simultaneous operation of all the specified charging points in the premise. The load capacity assigned to each premise shall be kept with a safety factor of 1.25 with a long-term vision of thirty years.

Table 91.1
EVs charging modes and availability:

Vehicle type	Slow Charging	Fast Charging	Public CI
2-Wheelers	Y	N	Yes/Limited
3-Wheelers	Y	N	Yes/Limited
PVs (Cars)	Y	Y	Yes
PVs (Buses)	N	Y	Yes

Table 91.2
Charging options for EV types (by ownership)

Vehicle type	Private CI	Public CS	Predominant place of charging
2-Wheelers	SC/BS	SC	Point of residence / Work
3-Wheelers	SC/BS	SC/BS	Residence / Parking stations
PVs (Cars)	SC/BS	FC	Residence / Point of work / other public places
PVs (Buses)	SC/BS	FC/BS	Bus Terminals/Depots

1) The option of Battery Swapping (BS) for privately owned 2-Wheelers and PV(Cars) shall be limited to Private CI.

2) For 3-Wheelers, the BS shall be made available in PCS, for faster recharge experience only.

3) For PV (Buses), Captive Fast charging infrastructure for 100% internal use for fleets may be adopted by privately owned Depots/Garages.
4) The charging infrastructure, installed at every Public Charging Station (PCS), shall follow the guidelines and standards for setting up Charging Infrastructure for Electric Vehicles, dated 14.12.2018, issued by the Ministry of Power and the connectivity regulations and safety norms shall be defined by respective authorities such as Central Electric Authority or Ministry of Power for grid access to such PCS or any other charging station or infrastructure.

4. Charger Specifications and PCS Infrastructure:

1) Any installed PCS shall have one or more electric kiosk or boards with installation of all charger models as prescribed in the guidelines and standards notified by the Ministry of Power, dated 14 December 2018, for Charging Infrastructure for EVs (at Annexure-B), with other necessary arrangements as deemed necessary.
2) Public Charging Station service providers shall be free to create charging hubs and to install additional number of kiosk or chargers in addition to the minimum chargers prescribed vide the guidelines and standards notified by Ministry of Power, dated 14 December 2018, including options for installation of additional chargers, if required.

Note:

i. Minimum infrastructure requirements shall not apply to Private Charging Points which are meant for self-use of individual EV owners (non-commercial basis).

ii. Captive charging infrastructure for 100% internal use for a company's own fleet shall not be required to install all type of chargers and to have Network Service Providers (NSPs) tie ups.

5. Location of Public Charging Station (PCS)/ Fluid Cooled Batteries (FCBs) CS in local area/ building precincts.

In accordance with the guidelines and standards notified by the Ministry of Power, dated 14 December 2018, following minimum standards with regard to density of/distance between PCS in local level facilities in building premise/ urban precincts shall be followed, as per provisions in the Model Building Bye-Laws, namely:

(1) At the local levels, within the urban area, at least one Public Charging Station is to be available within a grid of 3Km x 3Km.

(2) At the building premise levels, for various building types:-

(a) Private charging infrastructure (non-commercial use) for individuals.
(b) For all commercial modes of charging EVs, at least one PCS, as per the minimum specifications laid under the guidelines and standards notified by the Ministry of Power, dated 14 December 2018.
(c) Stand-alone Battery Swapping Stations may be added with the PCs.

Annexure-B

Charging Infrastructure for Electric Vehicles - Guidelines and Standards (Issued by the Ministry of Power, Government of India vide letter No. 12/2/2018-EV dated 14.12.2018:

1. Private charging at residences or offices shall be permitted and ESCOMs may facilitate the same.

2. Setting up of Public Charging Stations (PCS) shall be a de-licensed activity and any individual or entity is free to set up public charging stations:

   Provided that, such stations shall meet the technical as well as performance standards and protocols laid down below, as well as any further norms, standards or specifications laid down by the Ministry of Power and Central Electricity Authority from time to time.

   (a) Any person seeking to set up a Public Charging Station may apply for connectivity and he shall be provided connectivity on priority by the Distribution Company licensee to supply power in the area.

   (b) Any Charging Station or Chain of Charging Stations may also obtain electricity from any generation company through open access.

3. Minimum requirements for Public Charging Infrastructure (PCI): Every Public Charging Station (PCS) shall have the following minimum infrastructure: an exclusive transformer with all related substation equipment including safety appliance;

   (i) 33 or 11 KV line or cables with associated equipment including as needed for line termination, metering etc.;
   (ii) appropriate civil works;

   (iii) adequate space for charging and entry or exit of vehicles;

   (iv) current international standards that are prevalent and used by most vehicle manufacturers internationally like CCS and CHadeMO. Hence, Public Charging Stations shall have one or more electric kiosk or boards with installation of all the charger models as follows:

Charger Type	Charger Connectors*	Rated Voltage (V)	No. of Charging Points/No. of Voltage (V) Connector guns (CG)
Fast	CCS (min. 50 kW)	200-1000	1/ 1 CG
	CHAdeMO (min. 50 kW)	200-1000	1/ 1 CG
	Type-2 AC (min. 22 kW)	380-480	1/ 1 CG
Slow/ Moderate	Bharat DC-00 I (15 kW)	72-200	1/ 1 CG
	Bharat AC-001 (JO kW)	230	3/3 CG of 3.3 kW each
*In addition, any other fast/slow/moderate charger as per approved BIS standards whenever notified.			

(v) the kiosk or board may have options for installation or additional chargers if required;

(vi) the Public Charging Station Providers shall be free to create Charging Hubs and to install additional number of Kiosk or Chargers in addition to the minimum number of chargers prescribed above; 6

(vii) tie-up with at least one online Network Service Providers (NSPs) to enable advance remote or online booking of charging slots by EV owners. Such online information to EV owners shall include information regarding location, types and numbers of chargers installed or available etc.;

(viii) share charging station data with appropriate ESCOM and to maintain appropriate protocols as prescribed by such ESCOM for this purpose. CEA shall have access to this database;

(ix) appropriate public amenities; and

(x) in addition to the above, fast charging facility are provided at the PCS by the PCI provider, the following additional infrastructure shall be provided, namely:

(a) appropriate Liquid Cooled cables, if High Speed Charging Facility for onboard charging of Fluid Cooled Batteries (FCBs) is provided; and

(b) appropriate Climate Control Equipment for Fast Charging of Batteries to be used for swapping (i.e. not onboard).

Every Public Charging Station (PCS) shall be operational only after inspection and clearance as communicated by a suitable clearance certificate, by the concerned electrical inspector or technical personnel, designated specifically by the respective ESCOM for this purpose. ESCOMs may also empanel one or more third party authorized technical agencies for this purpose.

4. Electric Vehicle Service Equipment (EVSE) shall be type tested by an appropriate reputed authority.

5. The above minimum infrastructure requirements shall not apply to Private Charging Points meant for self-use of individual EV owners (non-commercial basis).

6. Captive charging infrastructure for 100% internal use for a company's own or leased fleet for its own use shall not be required to install all type of chargers and to have NSP tie-ups.

7. Public Charging Station may have the option to add Stand-alone battery swapping facilities in addition to the above mandatory facilities, provided space and other conditions permit.

8. Public charging Infrastructure (PCI) for long distance EVs and/or heavy duty EVs like trucks, buses etc. shall have the following minimum requirements, namely:

i. at least two chargers of minimum 100 kW (with 200-1000 V), each of different specification (CCS & Chaderno) and with single connector gun, each in addition to the minimum charging infrastructure requirements as mandated for Public Charging Stations in para 3.

ii. appropriate Liquid Cooled Cables for high speed charging facility for on board charging of Fluid Cooled Batteries, currently available in some long range EVs.

iii. in addition to above, the Fast Charging Stations (FCS) for Long Distance EVs and/or Heavy Duty EVs may also have the option of swapping facilities for batteries, for meeting the charging requirements as per para 3. For Fast Charging or Long Distance use of EVs and/or for Heavy Duty Vehicles like buses/trucks etc. FCBs shall have higher charging rate and longer life. Such Fast Charging Stations (FCS) which are meant only for 100% in house/captive utilization, for example buses of a company, shall be free to decide the charging specifications as per requirement for its in-house company EVs.

9. Location of Public Charging Stations: In case of Public Charging Stations, the following minimum requirements are laid down with regard to density/distance between two charging points, namely

(i) at least one Charging Station shall be available in a grid of 3 km X 3 km. Further, one Charging Station shall be set up at every 25 km on both sides of highways or roads; and 7

(ii) for long range EVs, like long range SUVs and heavy duty EVs like buses, trucks etc., there shall be at least one Fast Charging Station with Charging Infrastructure Specifications at every 100 km, one on each side of the highway or road located preferably within or alongside the stations. Within cities, such charging facilities for heavy duty EVs shall be located within Transport Nagars, bus depots. Swapping facilities shall not be mandatory within cities for Buses, trucks, etc.

10. Additional public charging stations shall be set up in any area only after meeting the above requirements.

11. The above density or distance requirements shall be used by the state Governments or their Agencies for the twin purposes of arrangement of land in any manner for public charging stations, as well as for priority in installation of distribution network including transformers, feeders etc. This shall be done in all cases including where no central or state subsidy is provided.

12. The Central or State Government may also give priority to existing retail outlets (ROs) of Oil Marketing Companies (OMCs) for installation of Public EV Charging Stations, in compliance with safety norms including firewalls, etc., to meet the requirements. Further, within such ROs, Company Owned and Company Operated (COCO) ROs may be given higher preference.

13. Any deviation from above norms shall be admissible only after specific approval of State Nodal Agency, in consultation with the Central Nodal Agency.

14. Database of Public EV Charging Stations: Central Electricity Authority (CEA) shall create and maintain a national online database of all the Public Charging Stations through ESCOMs. Appropriate protocols shall be notified by ESCOMs for this purpose which shall be mandatorily complied by the PCS or BCS. This database shall have restricted access as finalized between CEA and Ministry of Power.

15. Tariff for supply of electricity to EV Public Charging Stations.

(a) The tariff for supply of electricity to EV Public Charging Station shall be determined by the appropriate commission: Provided that, the tariff shall not be more than the average cost of supply plus fifteen percent.

(b) The tariff applicable for domestic consumption shall be applicable for domestic charging.

16. Service charges at PCS or BCS. Charging of EVs is a service, as clarified by Ministry of Power, Government of India, vide letter No. 23i08/2018-R&R, dated 13.04.2018. The State Nodal Agency shall fix the ceiling of the Service Charges to be charged by the Public Charging Stations.

17. Priority for rollout of EV Public Charging Infrastructure:

a) Phase-I (1-3 Years): All Mega cities with population of 4 million plus as per census 2011, all existing expressways connected to these Mega cities and important highways connected with each of these Mega Cities shall be taken up for coverage. A list of theses Mega Cities and existing connected expressways is attached at Annexure-1.

b) Phase-II (3-5 Years): Big cities like State Capitals, at head quarters shall be covered for distributed and demonstrative effect. Further, important Highways connected with each of these Mega Cities shall be taken up for coverage.

c) The above priorities for phasing of rollout shall be kept in mind by all concerned including, different agencies of Central/State Governments while framing of further policies/ guidelines for Public Charging Infrastructure if EVs, including for declaring further incentives/subsidies for such infrastructure and for such other purposes.

18. Implementation Mechanism for Rollout.-

a) The Ministry of Power shall designate a Central Nodal Agency for the rollout. All relevant agencies, including Central electricity Authority (CEA) shall provide necessary support to this nodal agency.

b) The State Government shall nominate a Nodal Agency for that State for setting up charging infrastructure. The State DISCOM shall generally be the Nodal Agency for such purposes. However, State Government shall be free to select a Central or State Public Sector Undertaking (PSU),

including Urban Local Bodies (ULBs), Urban or Area Development Authorities etc. as its Nodal Agency.

19. Selection of Implementation Agency for Rollout.-

a) The Central Nodal Agency shall finalize the cities and Expressways/Highways to be finally taken up from the above phasing, in consultation with the respective State Government.

b) An Implementation Agency shall be selected by the State Nodal Agency and shall be entrusted with responsibility of installation, operation and maintenance of PCS/FCS/BCS/BSF for designated period, as per parameters specified and as entrusted by the concerned Nodal Agency. The Implementation Agency may be an Aggregator as mutually decided between Central and State Nodal Agencies: Provided that, they may decide to choose different PCS/FCS providers for bundled packages or for individual locations as mutually decided. Provided further that, whenever bundled packages are carved for bidding, such packages shall necessarily include at least one identified expressway/highway or part thereof to prepare a cohesive regional package. The selected identified cities may be divided into one or more parts as necessary for such purposes.

c) Where Implementing Agency is selected by bidding, all bidding shall be conducted by the State Nodal Agency.

d) There shall be an upper cap on the Service Charges declared by the State Nodal Agency. Subsidy, if admissible from Central or State Government, shall be suitably factored in such calculations of Upper Cap or Bid Variable."

Annexure-C

In-Building Solutions for CTI

1. **Introduction: Communication System**

Data growth is exploding globally and in India as per Nokia MBiT 2021 Report, the average monthly data usage per user in India has increased almost 17 times over the past 5 years. Covid 19 has further pushed data consumption with people staying indoors. Government has facilitated Work from Home (WFH) guidelines with a Work from Anywhere (within India) permitted. Home consumption of data has therefore grown exponentially through 2020. According to the Tower and Infrastructure Providers Association, almost 85% data traffic and 70% voice traffic is now generated indoors.

The World Bank has clearly demonstrated that every 10% increase in broadband penetration leads to nearly 1.40% increase in GDP growth rate. While that is a global average, even the India specific study by the reputed quasi-Government research agency, ICRIER, has shown that every 10% increase in internet traffic delivers 3.1% increase in GDP per capita and a 10% increase in investment in Telecom Infrastructure will increase GDP by 3.3% The entire consumer pull today is focused on data and broadband now with the new digital services providing voice services free with the data services. Video and app-based services are driving the demand for broadband with Apps for e-commerce,

e-healthcare etc. in everyday use. It is very clear that internet traffic and Apps are contributing to GDP growth and for this to grow even further, conventional connectivity needs to be replaced with duct-sharing and fibre especially, which is an essential requirement In-Building as much as it is for FTTx and Tower Fibreization.

{Note - "Service Provider": an agency that provides any type of telecom / IT services in a building complex, as per scope defined by DOT i.e. TSP / ISP / IP1 etc.}

A broad variety of Information Communication Technology (ICT) systems are expected to be installed in buildings. In order to facilitate proper cabling and installation /up gradation of ICT systems and their cost effectiveness and maintenance, adequate physical infrastructure is required within buildings. This infrastructure will include common ducts, cable riser systems, conduits, cable trays and utility closets etc. among other things. The same can also be retrofitted into existing buildings wherever possible and feasible and must be designed in all new, re-developed and

renovated structures. This section describes the general and specific requirements of such an ICT infrastructure in Building specially in respect of cabling aspects.

Communication systems are general utility in much the same way as water, power, gas, cable TV & CCTV/Security. Unlike traditional communication systems which are constantly evolving, the recommended Digital infrastructure has to be designed to be flexible enough to accommodate a variety of ICT systems and emerging technologies and be future proof for the next 25-30 years. Space and power is required for installation of common ducts, optical fibre, small cells, antennas, smart sensors etc, space, power and earthing is required for electronic equipment installation for supporting the various digital technologies of now and the future. Most communication utilities can share the same space since the physical topology and wiring requirements are similar and no significant power is present in the cables. However, in some cases state-of-the – art communication cabling or equipment will involve new or more specific requirements for utility spaces such as:

- Cable routing layout and cable length restrictions between Work-Space and utility closet.
- Bending radius and working clearance requirements for different cable types, e.g. Fibreoptic cables, Cat-6 Cables and co-axial cables
- Isolated power circuits for permanent communication equipment,
- Protection, Safety, Grounding and environmental requirements of communication equipment.

2. Emerging Technologies in Telecommunication Services

The technologies used for telecommunications have changed greatly and over the past few years and particularly during the pandemic, India has experienced a massive surge in indoor voice and data consumption. According to the Tower and Infrastructure Providers Association, almost 85% data traffic and 70% voice traffic is now generated indoors. Telecommunication network architecture is changing to meet new requirements for a number of services/applications viz. 5G, massive Internet of things, Artificial Intelligence etc.

Choosing efficient and cost-effective and fast-deployment technologies such as wired and wireless networks will improve accessibility. Based on type of building and profile of customers in the buildings, the needs of wired and wireless may vary. Further, the architecture of the information and communication infrastructure is changing to accommodate the requirements of a growing number of ICT-enabled services/applications (broadband, IP, mobile, multimedia, surveillance, IoT etc.)

In line with the changing market needs, the Digital Service Providers (TSPs)/ISPs/IP-1'shave been scaling up the deployment of in-building solutions (IBS) and FTTx, covering active and/or passive infrastructure. Further, industry stakeholders are putting greater emphasis on sharing in-building infrastructure to save capex and capex, as well as to avoid the duplication of infrastructure deployment.

Moving forward, the humungous growth of data traffic riding on the use of the digital infrastructure during the pandemic and with the new WFH (Work-from-Home) and work-from-anywhere paradigms and with the emergence of 5G are expected to create huge opportunities for extension of ubiquitous, reliable and high speed digital infrastructure into the homes and inside residential buildings, and lead to huge growth of shared in-Building Solutions sites.

Theoretically, wireless services can be provided from outside the building. However, there are appreciable losses in signal strength when it penetrates building walls. While all wireless services can suffer from poor in-building coverage, this problem is particularly pronounced for the high-speed services. These services require a much better signal quality than their voice counterpart. Therefore, in order to improve in-building coverage and to offer better-quality high-speed data services, there is a definite need to install in- building solutions (IBS) for augmenting the wireless-based voice and data services. This is equally true for installing 5G and Wi-Fi hotspots along with Fibre to x(FTTX) distribution network of Fiber and Cat-6 Cables for seamless data connectivity.

Provisioning of telecom services and broadcasting services viz. Cable TV, DTH and Security Services viz. CCTV Cameras and futuristic services viz. IoT based sensors would require suitable wireline connectivity inside the buildings inside buildings are not confined to wireless medium only. Wireline services through cables such as copper cables, optical fibre cables (OFC), LAN Cat-6 cables are also equally important for having uninterrupted connectivity. Also, for services such as Cable TV, DTH and Smart Devices Solutions (IoT), suitable cabling within building premises is a pre- requisite and for that, shared duct space across the building riser and floors is critical to achieve the flexibility in the future.

Improved IBS coverage MNOs / Network operators should be allowed to install such appropriate instruments as provided by licensor/ Regulator from time to time.

3. Policy Efforts

The proliferation of in-building connectivity has become a key component of government policies. The National Digital Communications Policy, 2018 proposes to make the installation of

telecom infrastructure and associated cabling and in-building solutions mandatory in all commercial, residential and official buildings (including government buildings) by amending the National Building Code of India with the help of the Bureau of Indian Standards.

The Government has been taking a number of steps for promoting the sharing of in-building infrastructure, in line with TRAI recommendations.

a) In October 2019, the Digital Communications Commission (DCC) approved in-building access and sharing of infrastructure among TSPs, thereby allowing them to share infrastructure and, in the process, curbing TSPs' monopoly to install infrastructure through exclusive contracts with the owners/builders.

b) In November 2019, the Department of Telecommunications issued an advisory to encourage all TSPs/IP-1s to share their in-building infrastructure such as systems, optical fibre, other cables, ducts and boosters on government premises and other public places such as airports, railway stations, bus terminals and hospitals.

The government's policy and regulatory push coupled with the ever-expanding data usage has propelled TSPs/IP-1s to scale up the deployment of IBS. There is an urgent requirement to allow TSPs/IP-1s to own active built and manage active infrastructure in addition to passive infrastructure to help them cater to the ever-increasing data demand.

Bureau of Indian Standards (BIS) has framed National Building Code of India under which provision of Common Telecom Infrastructure (CTI) housed inside the buildings for convenient provision of telecom services has been envisaged.

Making cities smarter: Ministry of Housing and Urban Affairs led Smart Cities Mission is another key driver that is encouraging the adoption of in-building solutions (IBS) and FTTx/ IP networks covering Fiber and LAN cables. Since, the success of the mission relies on the underlying digital communications infrastructure, the cities identified under this programme have mandated to install common infrastructure inside buildings to enable seamless connectivity. To this end, certain smart cities have started collaborating with infrastructure providers to scale up the deployment of IBS and Fiber network. Moving forward, IBS and FTTx/ IP networks covering Fiber

and LAN cables should be included as one of the key parameters in the selection of smart cities for granting financial assistance.

4. In- Building and Gated Buildings Solutions

It is important to ensure quality telecom services inside a building – in residential, multi-story building, commercial complex, hotel or airport, police/Government offices/buildings etc. It is also essential for Telecommunication Service Providers/IP-1s to work on sharing of telecom infrastructure which may be made mandatory as they extend the services in the buildings.

Telecom Service Providers/IP-1s require a non-discriminatory and unhindered access inside the building / along the premises to install the telecom infrastructure or lay their cables.

At present, mobile operators and the building owner or building developer or Resident Welfare Associations (RWA) enter into commercial agreements for inbuilding deployment. Building owners or building developers delay the negotiations or request exorbitant rents — slowing down the speed of deployment. The Urban Local Body /Urban Development Authority may intervene in this regard wherein commercial agreements are insisted upon. TSPs/IP-1s should be given legal rights and permissions to use the Common Telecom Infrastructure (CTI) within the premises of Building / Gated Society free of charge or for a standardized nominal charge just like other essential services like water electricity and/or gas. Provision of CTI in a building should not be deemed as a revenue source in any way, much as the water and electricity utilities are not. Sufficient space should be provided within the premises to install telecom services by MNOs/ network operators.

The issue is not limited to sharing of IBS/ Distributed Antenna System (DAS) systems only, but TSP should get access to all telecom infrastructures including Fiber Cable and LAN cables for provision of wired and wireless network, other telecom/ ICT and IoT services.

It is important for telecom service providers to provide mobile coverage / network presence/high speed connectivity inside big residential / commercial complexes to improve QoS of their networks. It may not be practical to install individual in-building infrastructure by TSPs/IP-1s as this will result in not only duplication of network resources but will also entail huge avoidable cost. It may also be not advisable to lay down cables again and again on the same land / building by several TSPs/IP-1s.

5. Incorporation in State /UT Building Bye Laws

The buildings are to be constructed in such a way that they are 'Digital Infrastructure deployment' / 'Digital Connectivity' ready. There should be provision of telecom ducts / common pathways / runways (digital access paths) to reach to the accessible parts of the buildings. The common ducts /digital access paths to access buildings from outside should invariably be part of the CTI, which could be used by TSPs/IP-1s for laying/deploying digital infrastructure including cables. While approving the building plans, it has to be ensured that plan for creation of CTI including the common duct to access the common space used as telecom room inside the building is also prepared and separate set of drawings showing the inter / intra connectivity access to the building with distribution network need to be furnished.

Occupancy-cum-Completion certificate to a building to be granted only after ensuring that the CTI as per the prescribed standards is in place and an undertaking by the Architect or Engineer to be insisted to certify that building has ensured common access to all digital infrastructure to all Service providers in accordance with plan of creation of CTI. Provision of visit from Department of Telecom (DoT) / TRAI officials along-with joint inspection with TSPs - who may suggest any relevant modification in the plan to be ensured.

As part of Building Bye-Laws, the builder/RWA should be mandated to ensure that

1. While preparing the building plans, there is a need to mandate to have properly demarcated sections within buildings and on rooftops for housing Broadband / digital connectivity infrastructure / antenna. These areas should have access to power supply for reliable, always-on services.
2. Access to building as well as CTI facilities inside the building should be available on a fair, transparent and non- discriminatory manner to all Service Providers /IP1's.
3. The Service Providers / IP1's should have unrestricted access for maintenance work.
4. The permission to in-building access and/or CTI facilities inside the building should not be seen as a source of revenue generation for builder(s)/RWA(s) but as a means for facilitating penetration of broadband access and thereby helping in socio-economic growth of all the residents.
5. Charges (rentals/power rates etc.) levied to the TSPs/IP-1s should be fair, transparent and non-discriminatory and should be on residential rates.

Suitable provision for the creation of Common Telecom Infrastructure (CTI) inside the newly constructed public places like Airports, commercial complexes and residential complexes, be incorporated in State/UT Building Bye Laws.

6. At Layout Level

While developing Greenfield cities/towns, the layout plans should clearly indicate the telecom as Utility infrastructure lines. Standards followed for Utility planning shall be published and work shall be done by the respective department for bringing in the standardization of the utility coding and sequences. The placement and sequence of above- and below-ground utilities at the appropriate location in the right-of-way to be ensured for unconstrained movement as well as easy access for maintenance. Telecommunication cables should be placed in a duct that can be accessed at frequent service points with sufficient spare capacity to enable scaling and future expansion, and empty pipes (large size hume pipes / HDPE pipes) should be laid before planting trees in order to accommodate additional infrastructure.

Digital Readiness Rating of Buildings / Society in line to the GREEN ratings shall be created where the existing and new buildings shall be rated on standardized parameters such as; but not limited to; Digital Infrastructure access, provisions for Emerging Technologies, Maintenance and Operational ease to TSPs / IPv1, Quality of Wireless Services, Quality / Interchangeability ease of Wireline Services till each Unit Security, redundancy and Expandability of the digital infrastructure etc. A detailed rating parameters and calculation mechanism of Points / Stars shall be devised and benchmarked for all new / retrofitting of buildings/ societies.

Digital Asset repository which will ensure Proper planning and mapping of utilities through GIS is necessary especially when the alignments of telecommunication cables are identified. Design criteria and standards Utilities should meet the following criteria:

- Telecommunication cables should ideally be placed below the parking area or service lane, which may be dug up easily without causing major inconvenience. Where this is not possible, the cables may be placed at the outer edge of the right-of-way.
- There is a need to reduce conflicts with pedestrian movements is to place telecom boxes in easements just off the right-of-way. Where this is not possible, they should be placed within parking or landscaping areas. If cables have to be located in the pedestrian path, a space of

at least 2m should be maintained for the through movement of pedestrians. Telecom boxes should never constrain the width of a cycle track.

- In order to minimize disruptions, cables should be installed with proper maintenance infrastructure.

7. **Other procedures for setting up In-Building Solution (IBS)/ Fiber Networks**

1. There is a need to promote installation of In-Building Solution (IBS) / Smart Connectivity infrastructure, where there is a poor connectivity in terms of weak signal strength inside the office, shopping mall, hospitals, multi-story building, education institutions and the objective has to be to strengthen quality of service of the voice & data of mobile and Fiber broadband network and access to digital services being offered by TSP And IP1's

A) Procedures of obtaining IBS-NOC during plan approval and completion:

a) While submitting the proposed Building plan seeking approval from the relevant sanctioning Authority, applicant shall also submit

i. A complete Service Plan for IBS-infrastructure along with required specifications (in consultation with, and certified by a credible Telecom Networking hardware-consultant)

ii. An undertaking that such IBS Infrastructure, when constructed shall be available for sharing by various TSPs/IP-Is.

iii. Such Service Plan (IBS) shall be forwarded by the concerned Local Authority to the Telecom Enforcement Resource and Monitoring (TERM) cell of the State (external NOC agency) – for approval NOC.

iv. During the Joint Site Inspection of the completed building structure the TERM cell shall undertake inspection of the constructed/installed IBS infrastructure – for issuance of NOC for OCC.

b) The Local Authority shall liaise with the TERM cell as per its relevant online/offline process of communication to seek the relevant NOCs within the specified time as per the Service Charter/ Service Guarantee Act and rules in place. Separate communication from the applicant shall be needed to secure the IBS NOC.

B) Provision of IBS components in building premises: (as per NBC 2016)

Entrance Facilities (EF) /Lead-in conduits: (clause 3.1.4, of Part 8: Sec 6) min. 1.2m x 1.83m space to be allocated for each TSP adjacent to the EF.

Underground conduits/pipes to MDF room: min 100mm dia encased conduits.

Main Distribution Frame (MDF)/Equipment Room(ER):
(clause 3.1.2, Part 8: Sec 6)

- prescribed size with L:W ratio between 1:1 to 2:1
- appropriate ventilation of MDF room
- proper Lighting for vision of equipments,
- located at a level above from the Natural Ground lvl to avoid incidence of flooding

Electric distribution panels, isolaters, sockets and earthing as per specific requirements w.r.t the area proposed for coverage (DUs/ service subscribers)

Telecommunications Room (TR) at each building block unless provided with MDF room:
(all provisions of space to be as per clause 3.1.3.2, Part 8: Sec 6)

Appropriate nos. of Service/Telecom risers (vertical shafts) for all multi storeyed buildings w.r.t the area proposed for coverage (DUs/ service subscribers):

- of appropriate nos and size (width & depth) to accommodate cable trays
- with of access door at each floor.

Telecommunications Enclosures(TE) at each floor of a block or TR
(clause 3.1.5, Part 8: Sec 6)
Telecom Media and Connecting Hardware(TE):(clause 3.2, Part 8: Sec6)
Various cabling system and trays:(clause 3.2.4, Part 8: Sec6)
Wireless systems:(clause 3.2.5, Part 8: Sec6)
Backbone Cabling Media Distribution and Bldg. pathways
(clause 3.3, Part 8: Sec6)
Horizontal Cabling Media Distribution and Bldg. pathways
(clause 3.4, Part 8: Sec6)

IBS installation spaces: area for rooms or systems (e.g. antennas, base stations, remote units, power distribution boxes etc.) to be provided as per requirements w.r.t the area proposed for coverage/ no. of proposed users (as per clause 3.1.3.2, Part 8: Sec6, table stated below)

1 Telecom room space norm for buildings with Built-up area >465 sqmt

Sl.	Area to be covered by IBS	Size of Telecom Room (all dimension in m)
1	Upto 465 sqmt	3.0 x 2.4
2	465.0 sqmt to 930.0 sqmt	3.0 x 3.4
3	More than 930.0 sqmt	Additional TR required with same space norms

Space requirements for smaller buildings with Built-up area <465 sqmt

1	Area to be covered by IBS	Space provisions (all dimensions in m)
2	Upto 93.0 sqmt	Wall cabinets, self-contained enclosed cabinets.
3	93.0 sqmt to 465.0 sqmt	Shallow Room (0.6 x 2.6)
		Walk-in Room (1.3 x 1.3)

IBS installation spaces, so provided, should be:

- not susceptible to flooding
- not exposed to water, moisture, fumes, gases or dust
- able to withstand designed equipment load (to be specified in design)
- located away from any vibrations to avoid dislocation/dislodgement

For any other necessary detailing of building components and service installations with respect to common Telecom/Digital connectivity Infrastructure, architects/ developers and other service consultants involved in preparing building and service drawings may refer Part 8 – Section 6: Information and Communication Enabled Installations of Volume 2 of the National Building Code, 2016

(2) Mode of deployment of In-Building, FTTx/IP Solution: There shall be various mode of deployment of In Building solutions such as: The possible modes are deployment by a neutral host infrastructure provider or build and managed by mobile operator and sharing with other service providers on non-

discriminatory basis. The In-Build Solutions (IBS), FTTx/IP Solutions can also be deployed by TSPs/ IPs. Moreover, if TSP/ IP1 requires to install optical fiber for connecting In-Building Solution (IBS)/ Distributed Antenna System (DAS) nodes/ FTTx solutions, RoW/ permissions should be granted by the road owning agency through online mode (if same is working seamlessly) or offline mode till online system is established. For deploying indoor solutions these companies should have deemed permissions from the premises owners for installation of Distribution Network within the utility shafts / common spaces with provisions for common / shared Points of Interconnect for Connectivity to individual units. Moreover, if the TSP/IP requires to install optical fiber for connecting In-Building Solution (IBS) / Distributed Antenna System (DAS) nodes , FTTx/ IP Solutions . for which RoW / permissions should be granted by the road owning agency through online mode.

(3) Permissibility: The IBS, FTTx/ IP component being small equipment can be installed on any type of land/building/utility pole and shall be exempted from obtaining the permission for installation of these components from the respective Urban Local Body/Urban Development Authority but should get permission from the Administrative Authority of the concerned premises.

(4) Procedure for submitting application for obtaining clearance: TSP/ IP-1 will apply to the administrative authority of the building/ head of the office with layout diagram for implementing IBS in the building as mentioned in the RoW Rules 2016 or State notified RoW Policy

(5) Fees: No fee will be charged for IBS/ FTTx Network. However, charges may be levied for power (as per Industry tariffs), fixtures, etc. provided by building owners to TSP/ IP-1s as per actuals.

(6) Access and Distribution Fiber and IP/LAN networks for connectivity for the Shopping Malls, Multi-Storey Residential Buildings, Cooperative Housing Societies, Residential Welfare Association and Commercial Buildings to be planned and deployed by TSP/IP-1s as per standard requirement of providing high bandwidth and adequate indoor coverage to each unit/apartment in these complexes.