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ಅಧಿಕೃತವಾಗಿ ಪ್ರಕಟಿಸಲಾದುದು

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GOVERNMENT OF KARNATAKA

Notification No. EN/171/VSC/2018

Karnataka Government Secretariat
Energy Department,Vikasa Soudha,
Bengaluru, Dated:25-11-2019

NOTIFICATION

In exercise of the powers conferred by section 18 of the Energy Conservation Act 2001 (52 of 2001)

Section 18

THE GAZETTE OF INDIA
MINISTRY OF LAW, JUSTICE AND COMPANY AFFAIRS
(Legislative Department)

New Delhi, the 1st October, 2001/Asvina 9, 1923 (Saka)
The ENERGY CONSERVATION ACT, 2001
(No 52 OF 2001 [29th September 2001])

Power of Central Government or State Government to issue directions

18. The Central Government or State Government may, in the exercise of its powers and performance of its functions under this Act and for efficient use of energy and its conservation, issues such directions in writing as it deems fit for the purposes of this Act to any person, office, authority or any designated consumer and such person, officer or authority or any designated consumer shall be bound to comply with such directions.

Explanation – For the avoidance of doubts, it is hereby declared that the power to issue directions under this section includes the power to direct –

a) Regulation of norms for process and energy consumption standards in any industry or building or building complex: or
b) Regulation of the energy consumption for equipment and appliances.

The Government of Karnataka in par with the Energy Conservation Building Code (ECBC)-2017 issued by Bureau of Energy Efficiency (BEE), Ministry of power, Government of India do hereby adopts the following code and issues directives for efficient use of energy and its conservation in the buildings or building complexes.

a. This Code and Rules is called as **Karnataka Energy Conservation Building Code (KECBC) – 2018 and the Karnataka Energy Conservation Building Code (KECBC) Rules – 2018, as detailed in Annexure- I and II respectively.**

b. **Urban Development Department (UDD) and Directorate of Municipal Administration (DMA),** as the enforcing authorities for implementation of the KECBC in respect of private and public buildings, duly incorporating in their "Model Building Bye Laws".

c. **Public Works Department (PWD) and Architecture Department Government of Karnataka,** as the enforcing authorities for implementation of the ECBC in respect of Government buildings.

d. Building constructed by all the **State Government Departments, Government Enterprises, Government Undertakings, all Boards and Corporations, Universities, and semi-Government Organizations etc.,** shall follow KECBC.

e. **Department of Electrical Inspectorate, Government of Karnataka,** to inspect the electrical installations for code compliance for the buildings considered under the purview of KECBC compliant.

f. **The Electricity Distribution Companies** shall ensure ECBC compliance of the buildings before servicing of the installations duly incorporating in their "The condition of supply of Electricity of Distribution licensees in the State of Karnataka".

g. **Karnataka Renewable Energy Development Limited,** as the nodal agency to monitor the implementation of the Code at the State level and also to create the awareness of the KECBC.

h. The Code and Rules shall come into force from the date of its publication in the official Gazette.

By Order And In The Name Of
Governor of Karnataka,

(Shantarama)
Under Secretary to Govt (I/c)
Energy Department
Ph:080-22034674

ANNEXURE - I

ಕರ್ನಾಟಕ ಇಂಧನ ಸಂರಕ್ಷಣಾ ಕಟ್ಟಡ ಸಂಹಿತೆ

(ಕೆ-ಇಸಿಬಿಸಿ) 2018

KARNATAKA ENERGY CONSERVATION BUILDING CODE (K-ECBC) 2018

K-ECBC 2018

Provides for a futuristic building performance standards which the building industry can work towards, irrespective of updates to ECBC

1 Purpose

In accordance with section 14(p) of the Energy Conservation Act 2001 the purpose of the Energy Conservation Building Code (ECBC) is to provide minimum requirements for the energy-efficient design and construction of buildings. The Code also provides

two additional sets of incremental requirements for buildings to achieve enhanced levels of energy efficiency that go beyond the minimum requirements.

2 Scope

The Code is applicable to buildings or building complexes that have a connected load of 100 kW or greater or a contract demand of 120 kVA or greater and are intended to be used for commercial purposes.

Buildings intended for private residential purposes only are not covered by the Code.

This code would become mandatory as and when it is notified by the central or state government in the official Gazette under clause (p) of Section 14 or clause (a) of Section 15 of the Energy Conservation Act 2001 (52 of2001)

2.1 Energy Efficiency Performance Levels

The code prescribes the following three levels of energy efficiency:

a) Energy Conservation Building Code Compliant Building (ECBC Building)

ECBC Buildings shall demonstrate compliance by adopting the mandatory and prescriptive requirements listed under ECBC Compliant Building requirements in §4 to §7, or by following the provisions of the Whole Building Performance (WBP) Method in §9.

b) Energy Conservation Building Code Plus Building (ECBC + Building)

ECBC+ Buildings shall demonstrate compliance by adopting the mandatory and prescriptive requirements listed under ECBC+ Compliant Building requirements in §4 to §7, or by following the provisions of the Whole Building Performance (WBP) Method in §9.

c) Super Energy Conservation Building Code Building (Super ECBC Building)

Super ECBC Buildings shall demonstrate compliance by adopting the mandatory and prescriptive requirements listed under Super ECBC Compliant Building requirements in §4 to §7, or by following the provisions of the Whole Building Performance (WBP) Method in §9.

2.2 Building Systems

The provisions of this code apply to:

(a) Building envelope,

(b) Mechanical systems and equipment, including heating, ventilating, and air conditioning, service hot water heating,

(c) Interior and exterior lighting, and

(d) Electrical power and motors, and renewable energy systems.

The provisions of this code do not apply to plug loads, and equipment and parts of buildings that use energy for manufacturing processes, unless otherwise specified in the Code.

2.3 Precedence

The following codes, programmes, and policies will take precedence over the Code in case of conflict:

(a) Any policy notified as taking precedence over this Code, or any other rules on safety, security, health, or environment by Central, State, or Local Government.

(b) BureauofEnergyEfficiency'sstandardsandlabellingforappliancesandstarratingprogramfor buildings provided both or either are more stringent than the requirements of this Code.

2.4 Reference Standards

The National Building Code of India 2016 (NBC) is the reference standard for lighting levels, heating, ventilating, and air conditioning (HVAC), thermal comfort conditions, natural ventilation, and any other building materials and system design criteria addressed in this Code.

2.5 Building Classification

Any one or more building or part of a building with commercial use is classified as per the functional requirements of its design, construction, and use. The key classification is as below:

(a) **Hospitality**: Any building in which sleeping accommodation is provided for commercial purposes, except any building classified under Health Care. Buildings and structures under Hospitality shall include the following:

i. No-star Hotels – Lodging-houses, dormitories, no-star hotels/motels
ii. Resort

iii. Star Hotel

(b) **Health Care**: Any building or part thereof, which is used for purposes such as medical or other treatment or care of persons suffering from physical or mental illness, disease, or infirmity; care of infants, convalescents, or aged persons, and for penal or correctional detention in which the liberty of the inmates is restricted. Health Care buildings ordinarily provide sleeping accommodation for the occupants. Buildings and structures like hospitals, sanatoria, out-patient healthcare, laboratories, research establishments, and test houses are included under this type.

(c) **Assembly**: Any building or part of a building, where number of persons congregate or gather for amusement, recreation, social, religious, patriotic, civil, travel and similar purposes. Buildings like theatres or motion picture halls, gathering halls, and transport buildings like airports, railway stations, bus stations, and underground and elevated mass rapid transit system are included in this group.

(d) **Business**: Any building or part thereof which is used for transaction of business, for keeping of accounts and records and similar purposes, professional establishments, and service facilities. There are two subcategories under Business – Daytime Business and 24-hour Business. Unless otherwise mentioned, Business buildings shall include both Daytime and 24-hoursubcategories.

(e) **Educational**: Any building used for schools, colleges, universities, and other training institutions for day-care purposes involving assembly for instruction, education, or recreation for students. If residential accommodation is provided in the schools, colleges, or universities or coaching/ training institution, that portion of occupancy shall be classified as a No-star Hotel. Buildings and structures under Educational shall include following types-

i. Schools

ii. All other types of institutes, e.g. – college, university, training institutes etc.

(f) **Shopping Complex**: Any building or part thereof, which is used as shops, stores, market, for display and sale of merchandise, either wholesale or retail. Buildings like shopping malls, stand- alone retails, open gallery malls, super markets, or hyper markets are included in this type.

(g) **Mixed-use Building**: In a mixed-use building, each commercial part of a building must be classified separately, and

i. If a part of the mixed-use building has different classification and is less than 10% of the total above grade floor area, the mixed-use building shall show compliance based on the building sub-classification having higher percentage of above grade floor area.

ii. If a part of the mixed-use building has different classification and one or more sub- classification is more than 10% of the total above grade floor area, the compliance requirements for each sub-classification, having area more than 10% of above grade floor area of a mixed-use building shall be determined by the requirements for the respective building classification in §4 to§7.

Any building which does not fall under any of the categories defined above shall be classified in a category mentioned above that best describes the function of the building.

Note 2-1 Building Typologies for Karnataka State Typologies for ECBC

Energy efficiency requirements for the Code were derived after analyzing 18 different non-residential building typologies (shown below), that in turn are broadly based on building classification in the National Building Code of India. Spatial layouts, material specifications, façade characteristics, and occupancy patterns have an impact on energy efficiency of a building and differ for these typologies. Potential for reducing energy use with technology and materials thus varies from building type to type. By analysing this potential, ECBC energy efficiency requirements are now sensitive to building typologies and, to the extent possible, only requirements that are feasible have been included.

Hospitality	1. **Star Hotel** 2. **No Star Hotel** 3. **Resort**

Educational	**1. College** **2. University** **3. Institution** **4. School**
Health Care	**1. Hospital** **2. Out-patient Healthcare**
Shopping Complex	**1. Shopping Mall** **2. Stand-alone Retails** **3. Open Gallery Malls** **4. Super Markets**
Business	**1. Day time use** **2. 24-hoursuse**
Assembly	**1. Multiplex** **2. Theatre** **3. Building used for Transport Services**

3 Compliance and Approach

3.1 General

To comply with the Code, buildings shall

(a) Have an Energy Performance Index Ratio (EPI Ratio) as defined in §3.1.2 that is less than or equal to 1and,

(b) Meet all mandatory requirements mentioned under §4.2, §5.2 , §6.2, and§7.2.

3.1.1 Energy Performance Index

The Energy Performance Index (EPI) of a building is its annual energy consumption in kilowatt-hours per square meter of the building. While calculating the EPI of a building, the area of unconditioned basements shall not be included. EPI can be determined by:

$$EPI = \frac{Annual\ energy\ consumption\ in\ kWh}{Total\ built\ up\ area\ (excluding\ unconditioned\ basements)\ \text{in}\ m^2}$$

To comply with the Code, EPI value shall be rounded off to two decimal places in accordance with IS 2:1960

'Rules for rounding off numerical values.

3.1.2 Determining EPI Ratio

The EPI Ratio of a building is the ratio of the EPI of the Proposed Building to the EPI of the Standard Building:

$$EPI\ Ratio = \frac{EPI\ of\ Proposedbuilding}{EPI\ of\ Standardbuilding}$$

where,

Proposed Building is consistent with the actual design of the building and complies with all the mandatory requirements of ECBC.

Standard Building is a standardized building that has the same building floor area, gross wall area and gross roof area as the Proposed Building, complies with the mandatory requirements §4.2, §5.2 , §6.2, and §7.2, and minimally complies with prescriptive requirements of §4.3, §5.3, and §6.3 for ECBC Buildings.

The EPI ratio of the Proposed Building shall be established through any one of the following two methods described in §3.2

(a) Prescriptive Method (see§3.2.2)

(b) Whole Building Performance Method (see§3.2.3)

3.1.3 EPI Ratio for Core and Shell Buildings

EPI for core and shell buildings shall be calculated for the entire building based on the final design of the common areas and the relevant mandatory undertaking(s) in the tenant lease agreement for the leased areas, as per §3.2.2.1 or §3.2.3.1.

3.1.4 EPI Ratio for Mixed-use Development

In a mixed-use building, each commercial part of a building must be classified separately, and EPI Ratio shall be calculated separately for each sub-classification, as per §3.2.2.1 or §3.2.3.1. The EPI Ratio of a mixed-use Proposed Building shall be calculated based on area- weighted average method. To calculate the reference maximum design EPI Ratio, listed in Table 9-5 through Table 9-9, applicable for the

mixed-use building, each commercial part of mixed-use building shall be classified separately, and,

(a) If a part of the mixed-use building has different classification and is less than 10% of the total above grade area (AGA), the EPI ratio of the mixed-use Proposed Building shall be less than or equal to Maximum Allowed EPI ratio listed in Table 9-5 through Table 9-9, for the building sub-classification having highest percentage of above grade floor area.

(b) If a part of the mixed-use building has different classification and is more than 10% of the total above grade floor area, the EPI ratio of the mixed-use Proposed Building shall be less than or equal to Maximum Allowed EPI ratio for compliance calculated based on area weighted average method for all building sub-classifications listed in Table 9-5 through Table 9-9.

Exceptions to the above: Any portion of a mixed-use building classified in a category which does not fall under the scope of ECBC is exempted from demonstrating compliance.

3.2 Compliance Approaches

Buildings that fall within the scope of the Code as mentioned in §2, shall comply with the Code by meeting all the mandatory requirements (see§3.2.1) and any of the compliance paths mentioned in §3.2.2, or
§3.2.3.

3.2.1 Mandatory Requirements

Buildings shall comply with all mandatory requirements mentioned under §4.2, §5.2, §6.2, and §7.2, irrespective of the compliance path.

3.2.2 Prescriptive Method

A building complies with the Code using the Prescriptive Method if it meets the prescribed minimum (or maximum) values for envelope components (§4.3), comfort systems and controls (§5.3, §5.3.12, §5.3.13), and lighting and controls (§6.3), in addition to meeting all the mandatory requirements.

3.2.2.1

EPI Ratio through Prescriptive Method

ECBC Buildings that demonstrate compliance through the Prescriptive Method (§3.2.2) shall be deemed to have an EPI equal to the Standard Building EPI, and therefore an EPI Ratio of 1. ECBC+ Buildings and Super ECBC Buildings that demonstrate compliance through the Prescriptive Method shall be deemed to have an EPI Ratio equal to the EPI Ratios listed in §9.5 under the applicable building type and climate zone.

3.2.2.2

Building Envelope Trade-off Method

To comply with the Prescriptive Method of Section §4, the Building Envelope Trade-off Method may be used in place of the prescriptive criteria of §4.3.1, §4.3.2 and §4.3.3. A building complies with the Code using the Building Envelope Trade-off Method if the Envelope Performance Factor (EPF) of the Proposed Building is less than or equal to the EPF of the Standard Building, calculated as per §4.3.5.

3.2.2.3

Total System Efficiency Method

For projects using central chilled water plants, the Total System Efficiency approach may be used to comply with the Prescriptive Method of §5. This approach may be used in place of the prescriptive criteria of chillers (§5.3.1 and §5.3.6), chilled water pumps (§5.3.2), condenser water pumps (§5.3.2), and cooling tower fan (§5.3.3). Per this approach, a building complies if the Total System Efficiency Thresholds are met as per Table 5-23 Maximum System Efficiency Threshold for ECBC, ECBC+, and Super ECBC Buildings. Compliance with other prescriptive requirements (§5.3), as applicable, shall be met.

3.2.2.4

Low Energy Comfort Systems

Low Energy Comfort Systems (§5.3.13) is a simplified approach that provides projects using Low Energy Comfort Systems an opportunity to achieve improved compliance levels of ECBC+ and Super ECBC. This approach is applicable to Prescriptive Method of Section §5. In addition to compliance with the applicable prescriptive requirements (§5.3), the projects must meet the sum of cooling and

heating requirement using approved list of low energy systems as per requirements in §5.3.13.

3.2.3 Whole Building Performance Method

A building complies with the Code using the Whole Building Performance (WBP) Method when the estimated annual energy use of the Proposed Design is less than that of the Standard Design, even though it may not comply with the specific provisions of the prescriptive requirements in §4 trough §7. The mandatory requirements of §4 through §7 (§4.2, §5.2, §6.2, and §7.2) shall be met when using the WBP Method.

3.2.3.1 EPI Ratio through Whole Building Performance Method

The EPI of buildings that demonstrate compliance through Whole Building Performance Method (§3.2.3) shall be calculated using the compliance path defined in §3.1.1 and detailed in §9. The EPI Ratio of a building that uses the Whole Building Performance Method to show compliance, should be less than or equal to the EPI Ratio listed in §9.5 for the applicable building type and climate zone.

3.3 Compliance Requirements

3.3.1 New Building Compliance

3.3.1.1 Full Building Compliance

New buildings with completed fit-outs shall comply with either the provisions of §3.2.1 and either the provision of §3.2.2 or §3.2.3

3.3.1.2 Core and Shell building Compliance

New core and shell building shall comply with the provisions of §3.2.1 and either the provision of §3.2.2 or

§3.2.3 following base building systems in the common areas:

(a) Building envelope

(b) Thermal comfort systems and controls (only those installed by developer/owner)

(c) Lighting systems and controls (only those installed by developer/owner)

(d) Electrical systems (installed by developer/owner)

(e) Renewable energy systems

Additionally, the tenant lease agreement shall have a legal undertaking clause to ensure interior fit-outs made by tenant shall be Code compliant. The legal undertaking shall mandate the relevant energy efficiency compliance requirements in accordance with the provisions of §3.2.1 and §3.2.2 for all interior fit-outs within the tenant leased area.

3.3.2 Additions and Alterations to Existing Buildings

If any existing building after additions or alterations changes its connected load to 100 kilo- Watt (kW) or above or a contract demand of 120 kilo-Volt Ampere (kVA) or above shall comply with the provisions of §4 through §7. Compliance may be demonstrated in either of the following ways:

(a) The addition shall comply with the applicable requirements, or

(b) The addition, together with the entire existing building, shall comply with the requirements of this Code that shall apply to the entire building, as if it were a new building.

Exceptions to §3.3.2: When space conditioning is provided by existing systems and equipment, the existing systems and equipment need not comply with this code. However, any new equipment installed must comply with specific requirements applicable to that equipment.

3.4 Approved Compliance Tools

A building following the whole building performance approach method of §9 or Total System Efficiency – Alternate compliance approach of §5.3.12 shall show compliance through online BEP- EMIS or whole building energy simulation software endorsed by BEE.

Compliance to the daylight requirements of §4.2.3, if calculated through software tools, shall be shown through online BEP-EMIS or day lighting software approved by BEE.

3.5 Administrative Requirements

Administrative requirements, including but not limited to, permit requirements, enforcement, interpretations, claims of exemption, approved calculation methods, and rights of appeal are specified by the authority having jurisdiction.

3.6 Compliance Documents

3.6.1 General Information

Construction drawings and specifications shall show all pertinent data and features of the building, equipment, and systems in sufficient detail to permit the authority having jurisdiction to verify that the building complies with the requirements of this code. Details shall include, but are not limited to:

(a) Building Envelope: opaque construction materials and their thermal properties including thermal conductivity, specific heat, density along with thickness; fenestration U-factors, solar heat gain coefficients (SHGC), visible light transmittance (VLT) and building envelope sealing documentation; overhangs and side fins, building envelope sealing details;

(b) Heating, Ventilation, and Air Conditioning: system and equipment types, sizes, efficiencies, and controls; economizers; variable speed drives; piping insulation; duct sealing, insulation and location; solar water heating system; requirement for balance report;

(c) Lighting: lighting schedule showing type, number, and wattage of lamps and ballasts; automatic lighting shutoff, occupancy sensors, and other lighting controls; lamp efficacy for exterior lamps;

(d) Electrical Power: electric schedule showing transformer losses, motor efficiencies, and power factor correction devices; electric check metering and monitoring system.

(e) Renewable energy systems: system peak installed capacity, technical specifications, solar zone area.

3.6.1 Supplemental Information

The authority having jurisdiction may require supplemental information necessary to verify compliance with

this code, such as calculations, worksheets, compliance forms, manufacturer’s literature, or other data.

4 Building Envelope

4.1 General

The building envelope shall comply with the mandatory provisions of §4.2, and the prescriptive criteria of

§4.3. In case alternative compliance path of Building Envelope Trade-off Method is used for compliance, requirements of §4.3.5 and relevant criteria of §4.3 shall be met.

4.2 Mandatory Requirements

4.2.1 Fenestration

4.2.1.1 U-Factor

U-factors shall be determined for the overall fenestration product (including the sash and frame) in accordance with ISO-15099 by an accredited independent laboratory and labeled or certified by the manufacturer. U-factors for sloped glazing and skylights shall be determined at a slope of 20 degrees above the horizontal. For unrated products, use the default table in Appendix A.

4.2.1.2 Solar Heat Gain Coefficient

SHGC shall be determined for the overall single or multi glazed fenestration product (including the sash and frame) in accordance with ISO-15099 by an accredited independent laboratory and labeled or certified by the manufacturer.

Exceptions to §4.2.1.2:

(a) Shading coefficient (SC) of the centre of glass alone multiplied by 0.86 is an acceptable alternate for compliance with the SHGC requirements for the overall fenestration area.

(b) Solar heat gain coefficient (SHGC) of the glass alone is an acceptable alternate for compliance with the SHGC requirements for the overall fenestration product.

4.2.1.3 Visible Light Transmittance

4.2.1 Visible light transmittance (VLT) shall be determined for the fenestration product in accordance with ISO- 15099 by an accredited independent laboratory and labeled or certified by the manufacturer. For unrated products, VLT of the glass alone shall be de-rate by 10% for demonstrating compliance with the VLT requirements for the overall

fenestration product. Opaque Construction

4.2.2.1 U-Factor

U-factors shall be calculated for the opaque construction in accordance with ISO-6946. Testing shall be done in accordance with approved ISO Standard for respective insulation type by an accredited independent laboratory and labeled or certified by the manufacturer. For unrated products, use the default tables in Appendix A.

4.2.2.2 Solar Reflectance

Solar reflectance for the external opaque roof construction shall be determined in accordance with ASTM E903-96 by an accredited independent laboratory and labeled or certified by the manufacturer.

4.2.2.3 Emittance

Emittance for the external opaque roof construction shall be determined in accordance with ASTM E408-71 (RA 1996) by an accredited independent laboratory and labeled or certified by the manufacturer.

4.2.2 Day lighting

Above grade floor areas shall meet or exceed the Useful Daylight Illuminance (UDI) area requirements listed in Table 4-1 for 90% of the potential day lit time in a year. For the purpose of day lighting compliance, the above grade floor area may exclude the wall thickness, columns and lift and building shafts. Mixed-use buildings shall show compliance as per the criteria prescribed in §2.5. Compliance shall be demonstrated either through day lighting simulation method in §4.2.3.1 or the manual method in §4.2.3.2. Assembly buildings and other buildings where day lighting will interfere with the functions or processes of 50% (or more) of the building floor area, are exempted from meeting the requirements listed in Table 4-1.

Exceptions to §4.2.3:

Assembly buildings and other buildings where day lighting will interfere with the functions or processes of 50% (or more) of the building floor area, are exempted from meeting the requirements listed in Table 4-1.

Table 4-1 *Daylight Requirement*

Building Category	***Percentage of above grade floor area meeting the UDI requirement***		
	ECBC	ECBC+	Super ECBC
Business, Educational	40%	50%	60%
No Star Hotel Star Hotel Healthcare	30%	40%	50%
Resort	45%	55%	65%
Shopping Complex	10%	15%	20%
Assembly	Exempted		

4.2.3.1

Day lighting Simulation Method

Only BEE approved software shall be used to demonstrate compliance through the day lighting simulation method. Buildings shall achieve illuminance level between 100 lux and 2,000 lux for the minimum percentage of floor area prescribed in Table 4-1 for at least 90% of the potential day lit time. Illuminance levels for all spaces enclosed by permanent internal partitions (opaque, translucent, or transparent) with height greater or equal to 2 m from the finished floor, shall be measured as follows:

(a) Measurements shall be taken at a work plane height of 0.8 m above the finished floor.

(b) The period of analysis shall be fixed for continuously 8 hours per day, anytime between 7:00 AM IST to 5:00 PM IST, resulting in 2,920 hours in total for all building types except for Schools. Schools shall be analyzed for continuously 7 hours per day, anytime between 7:00 AM IST to 3:00 PM IST.

(c) Available useful daylight across a space shall be measured based on point-by-point grid values. UDI shall be calculated for at least one point for each square meter of floor area.

(d) Fenestration shall be modeled with actual visible light transmission (VLT) as per the details provided in the material specification sheet.

(e) All surrounding natural or man-made daylight obstructions shall be modeled if the distance between the façade of the building (for which compliance is shown) and surrounding natural or man-made daylight obstructions is less than or equal to twice the height of the man-made or natural sunlight obstructers. If the reflectance of the surfaces is not known, default reflectance of 30% and 0% shall be used for all vertical surfaces of man-made and natural obstructers respectively.

(c) Interior surface reflectance shall be modeled based on the actual material specification. If material specification is not available, the default values in Table 4-2 shall be used.

Documentation requirement to demonstrate compliance are:

i. Brief description of the project with location, number of stories, space types, hours of operation and software used.

ii. Summary describing the results of the analysis and output file from simulation tool outlining point wise compliance for the analysis grid and compliance in percentage.

iii. Explanation of any significant modeling assumptions made.

iv. Explanation of any error messages noted in the simulation program output.

v. Building floor plans, building elevations & sections, and site plan with surrounding building details (if modeled).

vi. Material reflectance, analysis grid size, total number of grid size/resolution, total number of grid points.

Table 4-2 *Default Values for Surface Reflectance*

Surface Type	***Reflectance***
Wall or Vertical Internal Surfaces	50%
Ceiling	70%
Floor	20%
Furniture (permanent)	50%

4.2.3.2 Manual Day lighting Compliance Method

This method can be used for demonstrating compliance with day lighting requirements without simulation. Daylight extent factors (DEF) mentioned in Table 4-3 shall be used for manually calculating percentage of above grade floor area meeting the UDI requirement for 90% of the potential day lit time in a year.

Table 4-3 *Daylight Extent Factors (DEF) for Manually Calculating Daylight Area*

Shading	*Latitude*	*Window Type*	*VLT < 0.3*				*VLT ≥ 0.3*			
			North	South	East	West	North	South	East	West
No shading or PF < 0.4	≥ 15°N	All window types	2.5	2.0	0.7	0.5	2.8	2.2	1.1	0.7
	< 15°N		2.4	2.0	0.8	0.6	2.7	2.7	1.5	0.8
Shading with PF ≥ 0.4	All Latitudes	All window types without light shelf*	2.8	2.3	1.5	1.1	3.0	2.5	1.8	1.5
		Window with light shelf*	3.0	2.5	1.8	1.6	3.5	3.0	2.1	1.8
* To qualify as light shelf the internal projection shall meet the requirements specified under Exceptions to SHGC requirements in Table 4-10 and Table 4-11										

(a) To calculate the day light area:

i. In a direction perpendicular to the fenestration, multiply daylight extent factor (DEF) by the head height of the fenestration or till an opaque partition higher than head height of the fenestration, whichever is less.

ii. In the direction parallel to the fenestration, day lit area extends a horizontal dimension equal to the width of the fenestration plus either 1

meter on each side of the aperture, or the distance to an opaque partition of 2m high, or one-half the distance to an adjacent fenestration, whichever is least.

iii. For skylights, calculate the horizontal dimension in each direction equal to the top aperture dimension in that direction plus either the floor-to-ceiling height (H) for skylights, or 1.5 H for monitors, or H or 2H for the saw tooth configuration, or the distance to the nearest 1 meter or higher opaque partition, or one-half the distance to an adjacent skylight or vertical glazing, whichever is least.

iv. Glazed facades, with non-cardinal orientation, shall be categorized under a particular cardinal direction if its orientation is within ±45 degrees of that cardinal direction.

v. Day lit area overlap: For overlapping day lit areas such as windows on different orientation or in case of skylights the overlapping day lit area shall be subtracted from the sum of day lit area.

Documentation requirement:

i. A separate architectural plan shall be prepared with all day lit areas marked on the floor plans.

ii. A summary shall be provided showing compliance as per Table4-1.

4.2.2 Building Envelope Sealing

Following areas of the building envelope, of all except naturally ventilated buildings or spaces, shall be sealed, caulked, gasketed, or weather-stripped:

(a) Joints around fenestration, skylights, and door frames

(b) Openings between walls and foundations, and between walls and roof, and wall panels

(c) Openings at penetrations of utility services through roofs, walls, and floors

(d) Site-built fenestration and doors

(e) Building assemblies used as ducts or plenums

(f) All other openings in the building envelope

(g) Exhaust fans shall be fitted with a sealing device such as a self-closing damper

(h) Operable fenestration should be constructed to eliminate air leakages from fenestration frame and shutter frame

Note 4.1 Daylight Extent Factor and Useful Daylight Illuminance

Useful Daylight Illuminance (UDI) is defined as the annual occurrence of daylight between 100 lux to 2,000 lux on a work plane. This daylight is most useful to occupants, glare free and when available, eliminates the need for artificial lighting. Daylight extent factor provides a ratio of window sizes to floor area receiving UDI in accordance to window orientation.

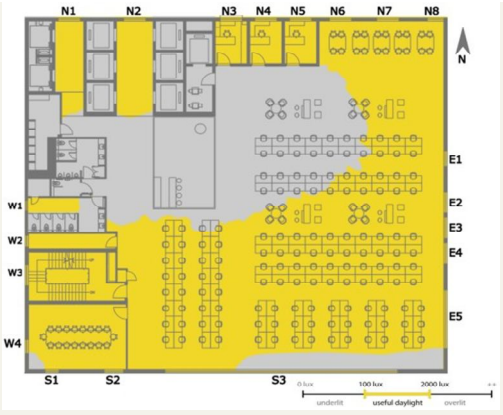
Calculating Useful Daylight Illuminance (UDI)

An office building located in Bengaluru, Karnataka is pursuing ECBC compliance. Table 4-1 lists the minimum daylight area requirements for compliance. The table specifies that for office buildings minimum 40% of its floor area shall receive daylight in range of 100 – 2,000 lux for at least 90% of the year.

This typical floor has a rectangular layout (33 m x 38 m) of 1,254 m^2. Visible light transmission (VLT) of glazing in all orientations is 0.39. Windows have light shelves and external shading devices with Projection Factor (PF) $\geq$ 0.4. Head height of fenestrations is 3.0 m.

For compliance at least 502 m^2 (40% of 1,254 m^2) of floor area shall fulfil the UDI requirements. Daylit area should be indicated in floor plans submitted to code enforcement authorities. Design guidelines on daylighting stated in NBC (Part 8: Building Services, Section 1: Lighting and Natural Ventilation, Subsection 4.2: Daylighting) should also be referred to achieve the ECBC, ECBC+, or Super ECBC requirement. Compliance with 4.2.3 Daylight Requirements can be checked for through two approaches.

(a) Analysis through software If the whole building performance approach is used, compliance for daylighting requirements can be checked by analysing the façade and floor plate design in an analytical software approved by BEE (3.4). The image below, developed through an approved software, specifies the lux levels and time-period of a year during which lighting levels would be available. With this information, designers can check if the required minimum area as per 4.2.3 has the required daylight levels.



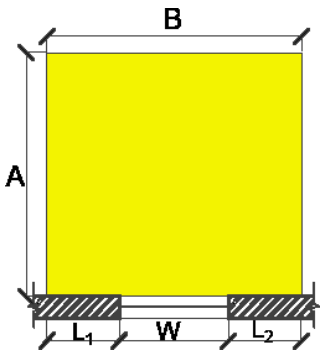
UDI Analysis with a Daylighting Analysis Software

(b) Manual method

For projects adopting the prescriptive compliance approach, manual calculation method can be used for UDI compliance.

1. From Table 4.3 determine the daylight extent factor (DEF) for each orientation. For a building located in Bengaluru (latitude < 15 degrees), with glazing of VLT≥0.39, shading PF ≥ 0.4 and light shelves in windows, DEFs for windows in North = 3.5, in South = 3.0, in East = 2.1, and in West = 1.8. Head height is 3.0 m.

2. For fenestration clear of any opaque obstructions calculate daylit floor area (AxB).



(a) A: In the direction perpendicular to the fenestration, daylit area extends to head height of the fenestration multiplied by the daylight extent factor (DEF) or distance till an opaque partition higher than head height of the fenestration, whichever is less.

(b) B: In the direction parallel to the fenestration daylit area extends a horizontal dimension equal to the width of the fenestration plus either one meter on each side of the aperture or the distance to an opaque partition, or one-half the distance to an adjacent fenestration, which ever is least.

3. For overlapping daylit areas such as corner windows. Subtract the overlapping daylit area from the sum of daylit area.

UDI Analysis with manual calculations

As per the calculations **616.5 m^2**of floor area will meet the UDI requirements during 90% of the year. This is **49.2 %** of the total above grade floor area of 1,254 m^2. Thus, the building floor will comply with UDI requirement. Following tables shows calculated Daylight Area Meeting UDI Requirement.

Table 4-1-1 Manual calculation for Daylight Area Meeting UDI Requirement

Orientation – NORTH, DEF-3.5, *Fenestration Head Height H-3m*				
Window without opaque obstructions	*Fenestration Width W (m)*	*A= H x DEF (m)*	*B=L_1+W+L_2(m)* *L_1 = L_2 = 1m*	*Area meeting the UDI requirements = AxB (m^2)*
N7	2.0	10.5	4.0	42.0
N6	2.0	10.5	4.0	42.0
N2	2.0	10.5	4.0	42.0
Window with opaque obstructions	*Fenestration Width W (m)*	*A= Distance till parallel Obstruction (m)*	*B=L_1+W+L_2(m)* *L_1 = L_2 = Distance to perpendicular obstructions*	*Area meeting the UDI requirements = AxB (m^2)*
N1	2.0	10.5	0.3+2+0.3=2.6	27.3
N3	2.0	4.0	0.4+2+0.4=2.8	11.2
N4	2.0	4.0	0.4+2+0.4=2.8	11.2
N5	2.0	4.0	0.4+2+0.4=2.8	11.2
N8	1.5	10.5	0+1.5+1.0=2.5	26.3
Daylight area meeting UDI requirement				**213.2**
Orientation – SOUTH, DEF-3, *Fenestration Head Height H-3m*				
Window without opaque obstructions	*Fenestration Width W (m)*	*A= H x DEF (m)*	*B=L_1+W+L_2(m)* *L_1 = L_2 = 1m*	*Area meeting the UDI requirements = AxB (m^2)*
S1	1.2	6.2	1.0+1.2+1.0=3.3	20.1
S2	1.7	6.2	1.0+1.7+0.3=3.0	18.6
S3	21.0	9.0	1.0+21.0+1.0=24	216.0
Daylight area meeting UDI requirement				254.7
Orientation – EAST, DEF-2.1, *Fenestration Head Height H-3m*				
Window without opaque obstructions	*Fenestration Width W (m)*	*A= H x DEF (m)*	*B=L_1+W+L_2(m)* *L_1 = L_2 = 1m*	*Area meeting the UDI requirements = AxB (m^2)*
E1	1.5	6.3	1.0+1.5+1.0=3.5	22.1
E5	5.5	6.3	1.0+5.5+1.0=7.5	47.3

Adjacent fenestration less than two meter apart	*Fenestration Width W (m)*	*A= H x DEF (m)*	*$B=L_1+W+L_2(m)$ $L_1 = L_2$ = one half of distance to adjacent fenestration*	*Area meeting the UDI requirements = AxB (m^2)*
E2	2	6.3	1.0+2.0+0.2=3.2	20.2
E3	2	6.3	0.2+2+0.2=2.4	15.1
E4	2	6.3	0.2+2+1=3.2	20.2
Daylight area meeting UDI requirement				124.9
Orientation – WEST, DEF-1.8, *Fenestration Head Height H-3m*				
Window without opaque obstructions	*Fenestration Width W (m)*	*A= H x DEF (m)*	*$B=L_1+W+L_2(m)$ $L_1 = L_2 = 1m$*	*Area meeting the UDI requirements = AxB (m^2)*
W3	2.0	5.4	1.0+2.0+1.0=4.0	21.6
W4	1.4	5.4	1.0+1.2+1.0=3.2	17.3
Window with opaque obstructions in daylit area	*Fenestration Width W (m)*	*A= H x DEF (m)*	*$B=L_1+W+L_2(m)$ $L_1 = L_2$ = Distance to perpendicular obstructions*	*Area meeting the UDI requirements = AxB (m^2)*
W1	1.0	5.4	0.3+1+0.3=1.6	8.6
W2	1.0	5.4	0.3+1+0.3=1.6	8.6
Daylight area meeting UDI requirement				56.1
Overlapping area calculations				
Window with overlap areas	*Width (m)*	*Depth (m)*	*Area (m^2)*	
N4 and S1	3.3	3.3	10.9	
S3 and E5	3.3	6.5	21.5	
Overlapping daylight area (b)			32.4	
Total Daylit area				
ORIENTATION	*Daylight area (m^2)*			
NORTH	213.2			
SOUTH	254.7			
EAST	124.9			
WEST	56.1			

Total daylight area (a)	648.9
Total overlapping daylit area (b)	32.4
Total daylit area meeting UDI requirement during 90% of the year (a-b)	616.5

4.3 Prescriptive Requirements

4.3.1 Roof

Roofs shall comply with the maximum assembly U-factors in Table 4-4 through Table 4-6. The roof insulation shall be applied externally as part of the roof assembly and not as a part of false ceiling.

Table 4-4 *Roof Assembly U-factor (W/m^2. K) Requirements for ECBC Compliant Building*

	Composite	***Hot and Dry***	***Warm and Humid***	***Temperate***	***Cold***
All building types, except below	0.33	0.33	0.33	0.33	0.28
School <10,000 m^2 AGA	0.47	0.47	0.47	0.47	0.33
Hospitality > 10,000 m^2 AGA	0.20	0.20	0.20	0.20	0.20

Table 4-5 *Roof Assembly U-factor (W/m^2. K) Requirements for ECBC+ Compliant Building*

	Composite	***Hot and Dry***	***Warm and Humid***	***Temperate***	***Cold***
Hospitality, Healthcare,	0.20	0.20	0.20	0.20	0.20
Business, Educational,	0.26	0.26	0.26	0.26	0.20

Table 4-6 *Roof Assembly U-factor (W/m^2. K) Requirements for Super ECBC Building*

	Composite	***Hot and Dry***	***Warm and Humid***	***Temperate***	***Cold***
All Building Types	0.20	0.20	0.20	0.20	0.20

4.3.1.1

Vegetated and Cool Roof

All roofs that are not covered by solar photovoltaic, or solar hot water, or any other renewable energy system, or utilities and services that render it unsuitable for the purpose, shall be either cool roofs or vegetated roofs.

(a) For qualifying as a cool roof, roofs with slopes less than 20° shall have an initial solar reflectance of no less than 0.70 and an initial emittance no less than 0.75. Solar reflectance shall be determined in accordance with ASTM E903-96 and emittance shall be determined in accordance with ASTM E408-71 (RA1996).

(b) For qualifying as a vegetated roof, roof areas shall be covered by living vegetation of >50mm high.

4.3.2 Opaque External Wall

Opaque above grade external walls shall comply with the maximum assembly U-factors in Table 4-7 through Table 4-9.

Table 4-7 *Opaque Assembly Maximum U-factor ($W/m^2.K$) Requirements for an ECBC compliant Building*

	Composite	***Hot and Dry***	***Warm and Humid***	***Temperate***	***Cold***
All building types, except below	0.40	0.40	0.40	0.55	0.34
No Star Hotel <10,000 m^2 AGA	0.63	0.63	0.63	0.63	0.40
Business < 10,000 m^2 AGA	0.63	0.63	0.63	0.63	0.40
School < 10,000 m^2 AGA	0.85	0.85	0.85	1.00	0.40

Table 4-8 *Opaque Assembly Maximum U-factor ($W/m^2.K$) Requirements for ECBC+ Compliant Building*

	Composite	***Hot and Dry***	***Warm and Humid***	***Temperate***	***Cold***

All building types, except below	0.34	0.34	0.34	0.55	0.22
No Star Hotel <10,000 m^2 AGA	0.44	0.44	0.44	0.44	0.34
Business <10,000 m^2 AGA	0.44	0.44	0.44	0.55	0.34
School <10,000 m^2 AGA	0.63	0.63	0.63	0.75	0.44

Table 4-9 *Opaque Assembly Maximum U-factor ($W/m^2.K$) Requirements for Super ECBC Building*

	Composite	***Hot and Dry***	***Warm and Humid***	***Temperate***	***Cold***
All Building Types	0.22	0.22	0.22	0.22	0.22

Exceptions to §4.3.2: Opaque external walls of an unconditioned building of No Star Hotel, Healthcare, and School categories in climatic zones except for cold climatic zone, shall have a maximum assembly U-factor of
0.8 W/m2.K.

4.3.3 Vertical Fenestration

For all climatic zones, vertical fenestration compliance requirements for all three energy efficiency levels, i.e. ECBC, ECBC+, and Super ECBC, shall comply with the following:

(a) Maximum allowable Window Wall Ratio (WWR) is 40% (applicable to buildings showing compliance using the Prescriptive Method, including Building Envelope Trade-off Method)
(b) Minimum allowable Visible Light Transmittance (VLT) is0.27.
(c) Assembly U-factor shall be determined for the overall fenestration product (including the sash and frame)

Vertical fenestration shall comply with the maximum Solar Heat Gain Coefficient (SHGC) and U-factor requirements of Table 4-10. For ECBC buildings and Table 4-11. For ECBC+ buildings and SuperECBC buildings. Vertical fenestration on non-cardinal direction, shall be categorized under a particular cardinal direction if its orientation is within ± 45° of that cardinal direction.

Table 4-10 *Vertical Fenestration Assembly U-factor and SHGC requirements for ECBC Building*

	Composite	***Hot and Dry***	***Warm and Humid***	***Temperate***	***Cold***
Maximum U-factor ($W/m^2.K$)	3.00	3.00	3.00	3.00	3.00
Maximum SHGC Non-North	0.27	0.27	0.27	0.27	0.62
Maximum SHGC North for latitude ≥ 15°N	0.50	0.50	0.50	0.50	0.62
Maximum SHGC North for latitude < 15°N	0.27	0.27	0.27	0.27	0.62
* See Appendix A for default values of unrated fenestration					

Table 4-11 *Vertical Fenestration U-factor and SHGC Requirements for ECBC+ buildings and Super ECBC buildings*

	Composite	***Hot and Dry***	***Warm and Humid***	***Temperate***	***Cold***
Maximum U-factor ($W/m^2.K$)	2.20	2.20	2.20	3.00	1.80
Maximum SHGC Non-North	0.25	0.25	0.25	0.25	0.62
Maximum SHGC North for latitude ≥ 15°N	0.50	0.50	0.50	0.50	0.62
Maximum SHGC North for latitude < 15°N	0.25	0.25	0.25	0.25	0.62

Exceptions to SHGC requirements in Table 4-10 and Table 4-11:

(a) For fenestration with a permanent external projection, including but not limited to overhangs, side fins, box frame, verandah, balcony, and fixed canopies that provide permanent shading to the fenestration, the equivalent SHGC for the proposed shaded fenestration may be determined as less than or equal to the SHGC requirements of Table 4-10 and Table 4-11. Equivalent SHGC shall be calculated by following the steps listed below:

i. Projection factor (PF) for the external permanent projection, shall be

calculated as per the applicable shading type listed in §8.2. The projection factor for using the SEF is PF >0.25. The SEF is applicable for both side fins shading only other than the overhangs. The projection factor shall be calculated for both side fins and the lower projection factor of each fin shall be considered. Other shading devices shall be modelled through the Whole Building Performance Method in§9.

ii. A shaded vertical fenestration on a non-cardinal direction, shall be categorized either under a particular cardinal direction or a primary inter-cardinal direction if its orientation is within the range of ±22.5 degrees of the cardinal or primary inter- cardinal direction.

iii. Any surrounding man-made or natural sunlight obstructers shall be considered as a permanent shading of PF equal to 0.4if

a. The distance between the vertical fenestration of the building, for which compliance is shown, and surrounding man-made or natural sunlight obstructers is less than or equal to twice the height of the surrounding man-made or natural sunlight obstructers; and

b. The surrounding man-made or natural sunlight obstructers shade the façade for at least 80% of the total time that the façade is exposed to direct sun light on a summer solstice. Compliance shall be shown using a sun path analysis for summer solstice for the vertical fenestration.

iv. An equivalent SHGC is calculated by dividing the SHGC of the unshaded fenestration product with a Shading Equivalent Factor (SEF). SEF shall be determined for each orientation and shading device type from Table 4-10 and Table4-11.

i. The maximum allowable SHGC is calculated by multiplying the prescriptive SHGC requirement for respective compliance level from Table 4-10 and Table 4-11 with the SEF

Table 4-12 *Shading Equivalent Factors for Latitudes greater than or equal to 15°N*

Shading Equivalent Factors (SEF) for latitudes greater than or equal to 15˚N									
	Projection Factor	**N**	**E**	**S**	**W**	**NE**	**SE**	**SW**	**NW**
	0.25	1.25	1.37	1.58	1.36	1.47	1.47	1.42	1.53
	0.3	1.29	1.48	1.72	1.43	1.54	1.65	1.57	1.58
	0.35	1.34	1.58	1.88	1.51	1.62	1.81	1.73	1.65
	0.4	1.39	1.67	2.06	1.61	1.70	1.97	1.89	1.75

	0.45	1.43	1.76	2.26	1.71	1.78	2.11	2.06	1.87
	0.5	1.47	1.85	2.47	1.83	1.86	2.25	2.23	2.00
	0.55	1.51	1.94	2.69	1.96	1.94	2.38	2.40	2.13
	0.6	1.55	2.03	2.92	2.09	2.02	2.51	2.58	2.27
	0.65	1.59	2.13	3.15	2.24	2.10	2.64	2.76	2.40
	0.7	1.63	2.24	3.18	2.39	2.18	2.77	2.94	2.53
	0.75	1.66	2.37	3.19	2.56	2.25	2.90	3.12	2.64
	0.8	1.70	2.52	3.20	2.72	2.33	3.04	3.18	2.73
	0.85	1.73	2.69	3.21	2.90	2.40	3.11	3.23	2.80
	0.9	1.76	2.89	3.24	3.07	2.46	3.15	3.25	2.84
	0.95	1.79	3.11	3.28	3.25	2.52	3.17	3.27	2.85
	≥1	1.80	3.30	3.33	3.33	2.57	3.23	3.30	2.82
Overhang	**0.25**	1.09	1.21	1.28	1.20	1.17	1.26	1.23	1.20
	0.3	1.11	1.26	1.34	1.27	1.22	1.32	1.27	1.24
	0.35	1.13	1.30	1.39	1.33	1.26	1.39	1.32	1.28
	0.4	1.15	1.35	1.46	1.38	1.30	1.46	1.38	1.32
	0.45	1.16	1.40	1.52	1.43	1.33	1.53	1.46	1.36
	0.5	1.18	1.45	1.59	1.48	1.35	1.60	1.54	1.40
	0.55	1.20	1.51	1.66	1.52	1.38	1.67	1.62	1.44
	0.6	1.21	1.56	1.73	1.57	1.40	1.74	1.70	1.47
	0.65	1.22	1.62	1.81	1.61	1.42	1.81	1.79	1.51
	0.7	1.24	1.68	1.88	1.66	1.45	1.88	1.87	1.55
	0.75	1.25	1.74	1.95	1.72	1.48	1.94	1.94	1.58
	0.8	1.26	1.80	2.02	1.77	1.51	2.00	2.01	1.61
	0.85	1.27	1.86	2.09	1.84	1.56	2.06	2.06	1.64
	0.9	1.28	1.92	2.15	1.91	1.61	2.11	2.10	1.67
	0.95	1.29	1.99	2.21	1.98	1.67	2.15	2.13	1.70
	≥1	1.30	2.06	2.26	2.07	1.75	2.19	2.14	1.72
Both side Fins	**0.25**	1.13	1.11	1.18	1.11	1.21	1.14	1.16	1.23
	0.3	1.15	1.13	1.22	1.13	1.22	1.17	1.22	1.27
	0.35	1.17	1.15	1.26	1.15	1.24	1.20	1.26	1.32
	0.4	1.19	1.17	1.29	1.17	1.27	1.23	1.29	1.36
	0.45	1.21	1.19	1.32	1.19	1.30	1.25	1.31	1.41
	0.5	1.22	1.20	1.35	1.20	1.34	1.27	1.33	1.46
	0.55	1.24	1.22	1.38	1.22	1.38	1.29	1.34	1.50
	0.6	1.25	1.23	1.40	1.23	1.42	1.31	1.35	1.55
	0.65	1.27	1.24	1.42	1.25	1.47	1.32	1.36	1.58
	0.7	1.28	1.26	1.44	1.26	1.51	1.34	1.36	1.61
	0.75	1.30	1.27	1.46	1.27	1.55	1.35	1.37	1.64
	0.8	1.31	1.28	1.48	1.29	1.59	1.37	1.38	1.65
	0.85	1.32	1.30	1.49	1.30	1.62	1.38	1.39	1.65
	0.9	1.34	1.31	1.51	1.31	1.65	1.40	1.40	1.64
	0.95	1.35	1.32	1.53	1.32	1.67	1.42	1.42	1.61
	≥1	1.36	1.33	1.55	1.33	1.69	1.44	1.45	1.57

Table4-13*ShadingEquivalentFactorsforLatitudeslessthan15°N*

Shading Equivalent Factors (SEF) for latitudes less than 15˚N									
	Projection Factor	**N**	**E**	**S**	**W**	**NE**	**SE**	**SW**	**NW**
	0.25	1.38	1.33	1.30	1.34	1.42	1.41	1.37	1.42
	0.3	1.44	1.42	1.35	1.42	1.49	1.46	1.41	1.52
	0.35	1.50	1.50	1.42	1.50	1.57	1.52	1.47	1.63
	0.4	1.56	1.59	1.50	1.59	1.66	1.59	1.54	1.73

	0.45	1.61	1.67	1.59	1.69	1.76	1.67	1.61	1.84
	0.5	1.67	1.76	1.68	1.80	1.87	1.75	1.70	1.94
	0.55	1.72	1.85	1.79	1.90	1.98	1.85	1.80	2.05
	0.6	1.77	1.94	1.89	2.02	2.09	1.94	1.89	2.15
	0.65	1.82	2.02	1.99	2.13	2.20	2.04	2.00	2.25
	0.7	1.86	2.11	2.08	2.24	2.31	2.15	2.10	2.36
	0.75	1.90	2.19	2.17	2.35	2.42	2.25	2.21	2.46
	0.8	1.94	2.28	2.25	2.46	2.53	2.35	2.31	2.55
	0.85	1.98	2.36	2.31	2.56	2.64	2.45	2.42	2.65
	0.9	2.02	2.44	2.35	2.66	2.74	2.54	2.52	2.74
	0.95	2.05	2.51	2.38	2.75	2.84	2.63	2.61	2.83
	≥1	2.08	2.58	2.38	2.83	2.93	2.71	2.70	2.91
Overhang	0.25	1.15	1.19	1.09	1.20	1.17	1.08	1.04	1.18
	0.3	1.17	1.23	1.07	1.24	1.22	1.12	1.08	1.21
	0.35	1.20	1.28	1.07	1.29	1.26	1.16	1.12	1.25
	0.4	1.22	1.32	1.07	1.33	1.30	1.19	1.17	1.29
	0.45	1.24	1.37	1.09	1.38	1.33	1.23	1.21	1.32
	0.5	1.26	1.42	1.12	1.42	1.37	1.28	1.25	1.35
	0.55	1.28	1.46	1.15	1.46	1.40	1.32	1.29	1.39
	0.6	1.30	1.51	1.18	1.50	1.43	1.36	1.33	1.42
	0.65	1.32	1.55	1.22	1.55	1.46	1.40	1.37	1.45
	0.7	1.33	1.60	1.26	1.59	1.48	1.43	1.40	1.48
	0.75	1.35	1.64	1.29	1.62	1.51	1.47	1.44	1.50
	0.8	1.37	1.67	1.32	1.66	1.53	1.51	1.47	1.53
	0.85	1.38	1.71	1.35	1.70	1.55	1.54	1.51	1.56
	0.9	1.39	1.74	1.37	1.73	1.57	1.56	1.54	1.58
	0.95	1.40	1.77	1.38	1.77	1.59	1.59	1.56	1.61
	≥1	1.41	1.79	1.38	1.80	1.61	1.61	1.59	1.63
Side Fins	**0.25**	1.17	1.10	1.06	1.10	1.15	1.14	1.16	1.16
	0.3	1.20	1.12	1.11	1.12	1.18	1.18	1.21	1.19
	0.35	1.23	1.13	1.16	1.14	1.21	1.20	1.25	1.22
	0.4	1.26	1.15	1.20	1.15	1.24	1.23	1.29	1.25
	0.45	1.28	1.16	1.23	1.17	1.27	1.25	1.31	1.28
	0.5	1.30	1.18	1.25	1.19	1.30	1.27	1.34	1.30
	0.55	1.32	1.19	1.27	1.20	1.33	1.29	1.36	1.33
	0.6	1.34	1.20	1.29	1.22	1.36	1.31	1.37	1.35
	0.65	1.36	1.21	1.30	1.23	1.38	1.34	1.38	1.38
	0.7	1.38	1.22	1.31	1.24	1.41	1.36	1.40	1.40
	0.75	1.40	1.23	1.33	1.26	1.43	1.38	1.41	1.42
	0.8	1.42	1.24	1.34	1.27	1.46	1.41	1.43	1.44
	0.85	1.43	1.25	1.35	1.28	1.48	1.44	1.45	1.47
	0.9	1.45	1.26	1.37	1.29	1.50	1.47	1..47	1.49
	0.95	1.46	1.27	1.39	1.31	1.52	1.50	1.50	1.51
	≥1	1.47	1.28	1.42	1.32	1.53	1.54	1.53	1.53

(a) Vertical fenestration, located such that its bottom is more than 2.2 m above the level of the floor, is exempt from the SHGC requirements in Table 4-10 and Table 4-11, if the following conditions are complied with:

i. The Total Effective Aperture (WWR X VLT) for the elevation is less than 0.25, including all fenestration areas more than 1.0 meter above the floor level;

and,

ii. An interior light shelf is provided at the bottom of this fenestration area, with a projection factor on interior side not less than:

a. 1.0 for E-W, SE, SW, NE, and NW orientations

b. 0.50 for S orientation, and

c. 0.35 for N orientation when latitude is less than15°N.

Note 4-2 Equivalent SHGC and Projection Factor

A 5,400 m^2 two story office building in Belgaum, Karnataka is trying to achieve ECBC level compliance. It has a rectangular layout (90 m x 30 m) with floor to floor height of 4.0 m and floor area is evenly distributed over the two floors.

Windows are either east or west facing and equally distributed on the two floors. The windows are all 1.85m in length and 2.165 m in height with an overhang of 0.85 m. Sill level is 1.385 m above floor level. The overall glazing area is 384 m^2.

SHGC of the glazing in the East/West Fenestration is 0.30; area weighted U-Factor is 3.0 W/m^2 K. VLT of the glazing in all orientation is 0.5. Will the vertical fenestration comply with the ECBC through prescriptive approach?

Solution:

Table 4-10 and §4.3.3 lists the U-factor, SHGC and VLT requirements for vertical fenestration for ECBC compliant buildings. The building is located in Belgaum (Latitude: 15°84' N, Longitude: 74°49'E), which falls under the composite climate. To fulfil prescriptive requirements, Window to Wall ratio ≤ 40%, SHGC ≤ 0.27, U-factor ≤ 3.0 W/m^2.K, and VLT ≥ 0.27.

Total Floor area = 5400 m^2

Total wall area = 2 x (2x ((90m x 4m) + (30m x 4m))) = 1,920 m^2 Total Fenestration area = 384 m^2 Window to Wall Ratio (WWR) = 384/1,920 = 20%

As per the calculations, the building has a WWR of 20%, thus complying with the requirement for WWR. The U- factor is also equal to 3.0 W/m^2.K. Similarly, the VLT is 0.45, which is greater than the minimum specified value of 0.27, thus complying with the U-factor and VLT requirement.

Equivalent SHGC Calculation

The window SHGC is 0.3 which is not meet the prescriptive requirement of Table 4-10 However, the windows have an overhang of 0.85 m.

As the windows have an overhang, this case will fall under the exception, and the equivalent SHGC value will be calculated by dividing fenestration SHGC by Shading Equivalent Factor (SEF).

For projection factor (PF) 0.34, the SEF for east, and west are taken from Table 4-12, as the latitude is greater than

15˚N.

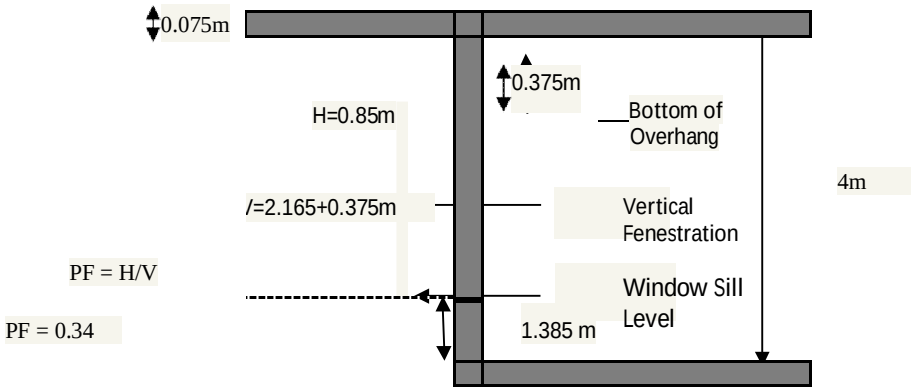
SEF for east for PF = 0.3 = 1.26

Therefore, equivalent $SHGC_{East}$ = 0.3 ÷ 1.296 = 0.24, hence the vertical fenestration on the east façade will comply as per prescriptive approach, as the equivalent SHGC is less than maximum allowed.

Similarly, for the west façade:

SEF for west for PF = 0.3 = 1.27

Therefore, equivalent $SHGC_{West}$ = 0.3 ÷ 1.27 = 0.24, hence the vertical fenestration on the west façade will comply as per prescriptive approach, as the equivalent SHGC is less than maximum allowed.



Exceptions to U-factor requirements in Table 4-10 and Table 4-11:

Vertical fenestration on all unconditioned buildings or unconditioned spaces may have a maximum U-factor of 5 W/m^2.K provided they comply with all conditions mentioned in Table 4-14.

Table 4-14 *U-factor (W/m^2.K) Exemption Requirements for Shaded Building*

Building Type	***Climate zone***	***Orientation***	***Maximum Effective***	***Minimum VLT***	***PF***
Unconditioned buildings or unconditioned spaces	All except cold	Non-North for all latitudes and North for latitude < 15°N	0.27	0.27	≥0.40
		North for latitude ≥ 15°N	0.27	0.27	≥0.0

4.3.1 Skylights

Skylights shall comply with the maximum U-factor and maximum SHGC requirements of Table 4-15. Skylight roof ratio (SRR), defined as the ratio of the total skylight area of the roof, measured to the outside of the frame, to the gross exterior roof area, is limited to a maximum of 5% for ECBC Building, ECBC+ Building, and Super ECBC Building, when using the Prescriptive Method for compliance.

Table 4-15 *Skylight U-factor ($W/m^2.K$) and SHGC Requirements*

Climate	***Maximum U-factor***	***Maximum SHGC***
All climatic zones	4.25	0.35

Exception to §4.3.4 Skylights in temporary roof coverings or awnings over unconditioned spaces.

4.3.2 Building Envelope Trade-Off Method

The building envelope complies with the code if the Envelope Performance Factor (EPF) of the Proposed Building is less than the EPF of the Standard Building, where the Standard Building exactly complies with the prescriptive requirements of building envelope. This method shall not be used for buildings with WWR>40%. Trade-off is not permitted for skylights. Skylights shall meet requirements of 4.3.4. The envelope performance factor shall be calculated using the following equations.

Equation 4.1: $EPF_{Total} = EPF_{Roof} + EPF_{Wall} + EPF_{Fenest}$

$$EPF_{ROOF} = C_{Roof} \sum_{s=1}^{n} Us * As$$

$$EPF_{WALL} = C_{Wall} \sum_{s=1}^{n} Us * As$$

$$EPF_{Fenest} = C_{1Fenest,\ North} \sum_{w=1}^{n} Uw * Aw + C_{2Fenest,\ north} \sum_{w=1}^{n} \frac{SHGCw}{SEFw} Aw$$

$$+C_{1Fenest,\ South} \sum_{w=1}^{n} Uw * Aw + C_{2Fenest,\ south} \sum_{w=1}^{n} \frac{SHGCw}{SEFw} Aw$$

$$+C_{1Fenest,\ East} \sum_{w=1}^{n} Uw * Aw + C_{2Fenest,\ East} \sum_{w=1}^{n} \frac{SHGCw}{SEFw} Aw$$

$$+C \sum^{n} Uw * Aw + C \sum^{n} \frac{SHGCw}{} Aw$$

EPF_{Roof} Envelope performance factor for roofs. Other subscripts include walls and fenestration.

A_s, A_w The area of a specific envelope component referenced by the subscript "s" or for windows the subscript "w".

$SHGC_w$ The solar heat gain coefficient for windows (w).

SEF_w A multiplier for the window SHGC that depends on the projection factor of an overhang or side fin.

U_s The U-factor for the envelope component referenced by the subscript "s".

C_{Roof} A coefficient for the "Roof" class of construction.

C_{wall} A coefficient for the "Wall".

C_{1Fenes} A coefficient for the "Fenestration U- factor"

C_{2Fenes} A coefficient for the "Fenestration SHGC".

Values of "C" are taken from Table 4-16 through 4-20 for each class of construction.

Table 4-16 *Envelope Performance Factor Coefficients – Composite Climate*

	Daytime Business, Educational, Shopping Complex		***24-hour Business, Hospitality, Health Care, Assembly***	
	$C\ factor_{U\text{-}factor}$	$C\ factor_{SHGC}$	$C\ factor_{U\text{-}factor}$	$C\ factor_{SHGC}$
Walls	24.3	-	48.1	-
Roofs	40.9	-	71.0	-
North Windows	21.6	201.8	41.0	367.6
South Windows	19.1	342.5	41.0	546.3
East Windows	18.8	295.6	38.4	492.2
West Windows	19.2	295.4	38.3	486.1

Table 4-17 *Envelope Performance Factor Coefficients – Hot and Dry Climate*

	Daytime Business, Educational, Shopping Complex		***24-hour Business, Hospitality, Health Care, Assembly***	
	$C_{U\text{-}factor}$	C_{SHGC}	$C_{U\text{-}factor}$	C_{SHGC}
Walls	27.3	-	55.9	-
Roofs	43.9	-	80.7	-
North Windows	23.7	238.2	49.1	414.4
South Windows	22.8	389.7	49.2	607.4
East Windows	21.6	347.4	46.2	556.2
West Windows	21.7	354.1	46.0	560.8

Table 4-18 *Envelope Performance Factor Coefficients – Warm and Humid Climate*

	Daytime Business, Educational, Shopping Complex		***24-hour Business, Hospitality, Health Care, Assembly***	
	$C_{U\text{-}factor}$	C_{SHGC}	$C_{U\text{-}factor}$	C_{SHGC}
Walls	24.5	-	51.2	-
Roofs	40.1	-	76.1	-
North Windows	20.7	230.7	43.6	401.5
South Windows	20.1	347.1	43.9	546.4
East Windows	19.0	301.8	41.1	490.6
West Windows	18.7	303.1	40.5	483.5

Table 4-19 *Envelope Performance Factor Coefficients – Temperate Climate*

	Daytime Business, Educational, Shopping Complex		***24-hour Business, Hospitality, Health Care, Assembly***	
	$C_{U\text{-}factor}$	C_{SHGC}	$C_{U\text{-}factor}$	C_{SHGC}
Walls	17.2	-	39.1	-
Roofs	32.3	-	76.1	-
North Windows	12.6	201.4	32.3	338.41
South Windows	11.8	287.3	31.9	448.52
East Windows	11.2	300.0	29.9	470.35
West Windows	10.9	303.4	30.0	462.64

Table 4-20 *Envelope Performance Factor Coefficients – Cold Climate*

	Daytime Business, Educational, Shopping Complex		***24-hour Business, Hospitality, Health Care, Assembly***	
	$C_{U\text{-factor}}$	C_{SHGC}	$C_{U\text{-factor}}$	C_{SHGC}
Walls	36.3	-	30.7	-
Roofs	38.7	-	46.0	-
North Windows	21.8	137.6	28.3	163.86
South Windows	20.8	114.3	21.7	295.24
East Windows	22.7	127.5	24.1	283.20
West Windows	23.4	133.2	25.2	270.33

4.3.5.1.1 Standard Building EPF Calculation

EPF of the Standard Building shall be calculated as follows:

a) The Standard Building shall have the same building floor area, gross wall area and gross roof area as the Proposed Building. For mixed-use building the space distribution between typologies shall be the same as the proposed Design.

b) The U-factor of each envelope component shall be equal to the criteria from §4 for each class of construction.

c) The SHGC of each window shall be equal to the criteria from §4.3.3.

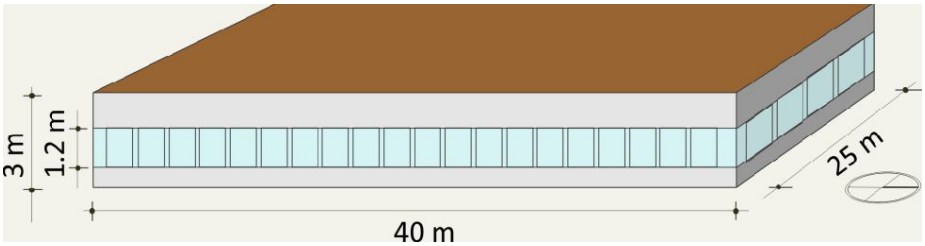
d) Shading devices shall not be considered for calculation EPF for standard building. (i.e, SEF=1)

Note 4-3 Building Envelope Trade-off Method

Application of Building Envelope Trade-off method

A 1,000 m^2 single story daytime use office building in Gulbarga, Karnataka is trying to achieve ECBC level compliance. Each side has a band of windows, without shading. The materials for the envelope have already been selected, prior to opting for ECBC compliance. Their thermal properties are: roof assembly U- value= 0.4 W/m².K, external wall assembly U-value = 0.25 W/m².K, glazing SHGC = 0.25, VLT = 0.27, area weighted U-value for glazing = 1.8W/m².K.

Dimensions of the building envelope are as follows:



According to Table 11-1, Appendix B, Gulbarga falls under the hot and dry climate zone. To prove compliance through the prescriptive approach, U values, and SHGC must comply with requirements listed in Table 4-4, Table 4-7, Table 4-10 and VLT and window to wall ratio with requirements in §4.3.3 for a daytime use building in the hot and dry climate zone. The table below lists thermal properties of the building envelope components and the corresponding prescriptive requirements for ECBC complaint buildings.

Table 4-3-1 *Prescriptive Requirements and Proposed Thermal Properties*

	Prescriptive U-factor ($W/m^2.K$)			***Proposed U-factor ($W/m^2.K$)***			***Area (m^2)***
Wall 1– North, South			=<0.63			0.25	90
Wall 2– East, West			=<0.63			0.25	144
Roof			=<0.33			0.4	1000
	U-factor	*SHGC*	*VLT*	*U-factor*	*SHGC*	*VLT*	
Window – South	=<3.0	=<0.27	=<0.27	1.8	0.25	0.27	30
Window – North	=<3.0	=<0.5	=<0.27	1.8	0.25	0.27	30
Window-East	=<3.0	=<0.27	=<0.27	1.8	0.25	0.27	48
Window-West	=<3.0	=<0.27	=<0.27	1.8	0.25	0.27	48

§4.3.3 requires the WWR to be less than 40%. This condition is fulfilled in the proposed buildings as can be seen in the calculations below.

Total Fenestration Area $_{North, South}$ = 2 x (25m x 1.2m) = 60 m^2 Wall Area $_{North, South}$ = 2 x (25m x 3m) = 150 m^2

Total Fenestration Area $_{East, West}$ = 2 x (40m x 1.2m) = 96 m^2 Total Wall Area $_{East, West}$ = 2 x (40m x 3m) = 240 m^2

Total Fenestration Area = 156 m^2, Total Wall Area = 390 m^2, WWR = 156/390= 0.4.

U-value of the roof of the proposed building, at 0.4 W/m².K does not fulfil prescriptive requirements.

Hence, this building will not be compliant if the prescriptive approach is followed. The compliance in prescriptive approach can also be demonstrated through building envelope trade-off.

Compliance through Building Envelope Trade-off method

Envelope performance factor (EPF) for the Standard Building and Proposed Building must be compared. As per the Building Envelope Trade-off method, the envelope performance factor (EPF) shall be calculated using the following equations:

Equation 11.1, EPF Total = EPFRoof + EPFWall + EPF Fenest

Where,

$$EPF_{Roof} = C_{Roof} \sum_{s=1}^{n} UsAs$$

$$EPF_{wall} = C_{Wall,} \sum_{s=1}^{n} UsAs$$

$$EPF_{Fenest} = C_{1\,Fenest,\,North} \sum_{w=1}^{n} Uw * Aw + C_{2\,Fenest,\,North} \sum_{w=1}^{n} \frac{SHGCw}{SEFw} Aw + C_{1\,Fenest,\,South} \sum_{w=1}^{n} Uw * Aw + C_{2\,Fenest,\,South} \sum_{w=1}^{n} \frac{SHGCw}{SEFw} Aw + C_{1\,Fenest,\,East} \sum_{w=1}^{n} Uw * Aw + C_{2\,Fenest,\,East} \sum_{w=1}^{n} \frac{SHGCw}{SEFw} Aw + C_{1\,Fenest,\,West} \sum_{w=1}^{n} Uw * Aw + C_{2\,Fenest,\,West} \sum_{w=1}^{n} \frac{SHGCw}{SEFw} Aw$$

Standard Building EPF will be derived from U-factors, SHGCs and VLTs of walls, roofs and fenestration, from Table 4-4, Table 4-7,Table 4-10 and § 4.3.3 for a daytime use building in the hot and dry climate zone. Values of C are from daytime Office building in hot and dry climatic zone for each class of construction from Table 4-17. Since, there is no shading for the windows, SEF_wwill not be considered.

Step 1: Calculation of EPF $_{Proposed\ Building}$ from actual envelope properties

$$EPF_{Roof,\,Actual} = C_{Roof} \sum_{s=1}^{n} Us * As$$

= 43.9 x 0.40 x 1,000 = 17,560

$$EPF_{wall,\,Actual} = C_{Wall,} \sum_{s=1}^{n} Us * As$$

= (27.3 x 0.25 x 90) + (27.3 x 0.25 x 144) = 1597.05

Hence,

$EPF_{Fenest,\,North}$ = 23.7 x 1.8 x 30 + 238.2 x 0.25 x 30 = 1,279.8 + 1,786.5 = 3,066.3

$EPF_{Fenest,\,South}$ = 22.8 x 1.8 x 30 + 389.7 x 0.25 x 30 = 1,231.2 + 2,922.75 = 4,153.95

$EPF_{Fenest,\,East}$ = 21.6 x 1.8 x 48 + 347.4 x 0.25 x 48 = 1,866.24 + 4,168.8 = 6,035.04

$EPF_{Fenest, West}$ = 21.7 x 1.8 x 48 + 354.1 x 0.25 x 48 = 1,874.88 + 4,249.2 = 6,124.08

Therefore,

EPF_{Fenest} = *19,379.37*

$EPF_{Proposed}$ = 17,560 + 1,597.05 + 19,379.37 = 38,536.42

Step 2: Calculating $EPF_{Standard\ building}$ from prescriptive envelope requirements

$EPF_{Roof, Actual} = C_{Roof} \sum_{s=1}^{n} UsAs$

= 43.9 x 0.33 x 1000 = 14,487

$EPF_{wall, Actual} = C_{Wall} \sum_{s=1}^{n} UsAs$

= (27.3 x 0.63 x 90) + (27.3 x 0.63 x 144) = 1,547.91 + 2,476.66 = 4,024.57

$EPF_{Fenest} = EPF_{Fenest, North} + EPF_{Fenest, South} + EPF_{Fenest, East} + EPF_{Fenest, West}$

Now,

$EPF_{Fenest, North}$ = 23.7 x 3.0 x 30 + 238.2 x 0.5 x 30 = 2,133 + 3,573 = 5,706

$EPF_{Fenest, South}$ = 22.8 x 3.0 x 30 + 389.7 x 0.27 x 30 = 2,052 + 3,156.57 = 5,208.57

$EPF_{Fenest, East}$ = 21.6 x 3.0 x 48 + 347.4 x 0.27 x 48 = 3,110.4 + 4,502.3 = 7,612.7

$EPF_{Fenest, West}$ = 21.7 x 3.0 x 48 + 354.1 x 0.27 x 48 = 3,124.8 + 4,589.14 = 7,713.94

Therefore,

EPF_{Fenest} = 26,241.21

$EPF_{Baseline}$ = 14,487 + 4,024.57 + 26,241.21 = 44,752.78

Since $EPF_{Baseline} \geq EPF_{Proposed}$, therefore the building is compliant with ECBC building envelope requirements.

5 Comfort Systems and Controls

5.1 General

All heating, ventilation, air conditioning equipment and systems, and their controls shall comply with the mandatory provisions of §5.2 and the prescriptive criteria of §5.3 for the respective building energy efficiency level. In case alternative compliance path of Total System Efficiency or Low Energy Systems is used for compliance, respective requirements of §5.3.12 or §5.3.13 and relevant criteria of §5.3 shall be met with.

5.2 Mandatory Requirements

5.2.1 Ventilation

(a) All habitable spaces shall be ventilated with outdoor air in accordance with the requirements of

§5.2.1 and guidelines specified in the National Building Code 2016 (Part 8: Building Services, Section 1: Lighting and Natural Ventilation, Subsection 5: Ventilation).

(b) Ventilated spaces shall be provided with outdoor air using one of the following:

i. Natural ventilation

ii. Mechanical ventilation

5.2.1.1 Natural Ventilation Design Requirements

Naturally ventilated buildings shall:

(a) Comply with guidelines provided for natural ventilation in NBC.

(b) Have minimum BEE 3-star rated ceiling fans, if provided with ceiling fans.

(c) Have exhaust fans complying with minimum efficiency requirements of fans in §5.3, if provided.

5.2.1.2 Mechanical Ventilation Air Quantity Design Requirements

Buildings that are ventilated using a mechanical ventilation system that are ventilated with a mechanical system, either completely or in conjunction with natural ventilation systems, shall:

(a) Install mechanical ventilation systems that provide outdoor air change rate as per NBC.

(b) Have a ventilation system controlled by CO sensors for basement carpark spaces with total car park

5.2.1.3 Demand Control Ventilation

Mechanical ventilation systems shall have demand control ventilation if they provide outdoor air greater than 1,500 litres per second, to a space greater than 50 m^2, with occupant density exceeding 40 people per 100 m^2 of the space and are served by one or more of the following systems:

(a) An air side economizer

(b) Automatic outdoor modulating control of the outdoor air damper

Exceptions to § 5.2.1.3:

(a) Classrooms in Schools, call centers category under Business

(b) Spaces that have processes or operations that generate dust, fumes, mists, vapors, or gases and are provided with exhaust ventilation, such as indoor operation of internal combustion engines or areas designated for unvented food service preparation, or beauty salons

(c) Systems with exhaust air energy recovering system

5.2.2 Minimum Space Conditioning Equipment Efficiencies

5.2.2.1 Chillers

a) Chillers shall meet or exceed the minimum efficiency requirements presented in Table 5-1 through Table 5-2 under ANSI/ AHRI 550/ 590conditions.

b) The application of air-cooled chiller is allowed in all buildings with cooling load less than 530 kW. For buildings with cooling load equal to or greater than 530 kW, the capacity of air-cooled chiller shall be restricted to 33% of the total installed chilled water capacity unless the authority having jurisdiction mandates the application of air-cooled chillers.

c) Minimum efficiency requirements under BEE Standards and Labelling Program for chillers shall take precedence over the minimum requirements presented in Table 5-1 through Table5-2.

d) To show compliance to ECBC, minimum requirement of both COP and IPLV requirement shall be met.

***Table 5-1** Minimum Energy Efficiency Requirements for water cooled Chillers*

Chiller Capacity (kWr)	COP	IPLV
<260	4.7	5.8
≥260 &<530	4.9	5.9
≥530 &<1,050	5.4	6.5

≥1,050 &<1,580	5.8	6.8
≥1,580	6.3	7.0

Table 5-2 *Minimum Energy Efficiency Requirements for air cooled Chillers*

Chiller Capacity (kWr)	COP	IPLV
<260	2.8	3.5
≥260	3.0	3.7

5.2.2.2

Unitary, Split, Packaged Air-Conditioners

Unitary air-conditioners shall meet or exceed the efficiency requirements given in Table 5-3. Window and split air conditioners shall be certified under BEE's star Labelling program. EER shall be as per IS 8148 for all unitary, split, packaged air conditioners greater than 10kWr.

Table 5-3 *Minimum Requirements for Unitary, Split, Packaged Air Conditioners in ECBC Building*

Cooling Capacity (kWr)	Water Cooled	Air Cooled
≤ 10.5	NA	BEE 3 Star
> 10.5	3.3 EER	2.8 EER

5.2.2.3

Variable Refrigerant Flow

Variable Refrigerant Flow (VRF) systems shall meet or exceed the efficiency requirements specified in Table5-4 as per the ANSI/AHRI Standard 1230 while the Indian Standard on VRF is being developed. BEE Standards and Labelling requirements for VRF shall take precedence over the current minimum requirement.

Table 5-4 *Minimum Efficiency Requirements for VRF Air conditioners for ECBC Building*

For Heating or cooling or both			
Type	**Size category (kWr)**	**EER (W/W)**	**IEER**
	< 40	3.28	4.36

VRF Air Conditioners, Air cooled	>= 40 and < 70	3.26	4.34
	>= 70	3.02	4.07
* The revised EER and IEER values as per Indian Standard for VRF corresponding to values in this table will supersede as and when the revised standards are published.			

5.2.2.4

Air Conditioning and Condensing Units Serving Computer Rooms

Air conditioning and condensing units serving computer rooms shall meet or exceed the energy efficiency requirements listed in Table 5-5.

Table 5-5 *Minimum Efficiency Requirements for Computer Room Air Conditioners*

Equipment type	Net Sensible Cooling Capacity [a]	Minimum SCOP-127 [b]	
		Down flow	Up flow
All types of computer room ACs Air/ Water/ Glycol	All capacity	2.5	2.5
a. Net Sensible cooling capacity = Total gross cooling capacity - latent cooling capacity – Fan power. b. Sensible Coefficient of Performance (SCOP-127): A ratio calculated by dividing the net sensible cooling capacity in watts by the total power input in watts (excluding re-heater and dehumidifier) at conditions defined in ASHRAE Standard 127-2012 Method of Testing for Rating Computer and Data Processing Room Unitary Air Conditioners).			

5.2.2.5

Boilers

Gas and oil fired boilers shall meet or exceed the minimum efficiency requirements specified in Table 5-6.

Table 5-6 *Minimum Efficiency Requirements Oil and Gas fired Boilers for ECBC building*

Equipment Type	Sub category	Size category	Minimum FUE
Boilers, Hot Water	Gas or oil fired	All capacity	80%
FUE – Fuel utilization efficiency			

5.2.3 Controls

To comply with the Code, buildings shall meet the requirements of §5.2.3.1 through §5.2.3.5.

5.2.3.1

Time clock

Mechanical cooling and heating systems in Universities and Training Institutions of all sizes and all Shopping Complexes with built up area greater than 20,000 m^2 shall be controlled by time clocks that:

(a) Can start and stop the system under different schedules for at least three different day-types per week,

(b) Are capable of retaining programming and time setting during loss of power for a period of at least 10 hours, and

(c) Include an accessible manual override that allows temporary operation of the system for up to 2 hours.

Exceptions to §5.2.3.1:

(a) Cooling systems less than 17.5kWr

(b) Heating systems less than 5.0kWr

(c) Unitary systems of all capacities

5.2.3.2

Temperature Controls

Mechanical cooling and heating equipment in all buildings shall be installed with controls to manage the temperature inside the conditioned zones. Each floor or a building block shall be installed with at least one control to manage the temperature. These controls should meet the following requirements:

(a) Where a unit provides both heating and cooling, controls shall be capable of providing a temperature dead band of 3.0°C within which the supply of heating and cooling energy to the zone is shut off or reduced to a minimum.

(b) Where separate heating and cooling equipment serve the same temperature zone, temperature controls shall be interlocked to prevent simultaneous heating and cooling.

(c) Separate thermostat control shall be installed in each

i. guest room of Resort and Star Hotel,

ii. room less than 30 m^2 in Business,

iii. air-conditioned class room, lecture room, and computer room of Educational,

iv. in-patient and out-patient room of Healthcare

5.2.3.3

Occupancy Controls

Occupancy controls shall be installed to de-energize or to throttle to minimum the ventilation and/or air conditioning systems when there are no occupants in:

(a) Each guest room in a Resort and Star Hotel

(b) Each public toilet in a Star Hotel or Business with built up area more than 20,000m^2

(c) Each conference and meeting room in a Star Hotel or Business

(d) Each room of size more than 30 m^2 in Educational buildings

5.2.3.4

Fan Controls

Cooling towers in buildings with built up area greater than 20,000 m^2, shall have fan controls based on wet bulb logic, with either:

(a) Two speed motors, pony motors, or variable speed drives controlling the fans, or

(b) Controls capable of reducing the fan speed to at least two third of installed fan power.

5.2.3.5

Dampers

All air supply and exhaust equipment, having a Variable Frequency Drive (VFD), shall have dampers that automatically close upon:

(a) Fan shutdown, or

(b) When spaces served are not in use

(c) Back draft gravity damper is acceptable in the system with design outdoor air of the system is less than 150 litres per second in all climatic zones except cold climate, provided backdraft dampers for ventilation air intakes are protected from direct exposure to wind.

(d) Dampers are not required in ventilation or exhaust systems serving naturally conditioned spaces.

(e) Dampers are not required in exhaust systems serving kitchen exhaust hoods.

5.2.4 Piping and Ductwork

5.2.4.1 Piping Insulation

Piping for heating, space conditioning, and service hot water systems shall meet the insulation requirements listed in Table 5-7 through Table 5-9. Insulation exposed to weather shall be protected by aluminium sheet metal, painted canvas or plastic cover. Cellular foam insulation shall be protected as above or be painted with water retardant paint.

Exceptions to § 5.2.4.1:

(a) Reduction in insulation R value by 0.2 (compared to values in Table 5-7, Table 5-8 and Table 5-9) to a minimum insulation level of R-0.4 shall be permitted for any pipe located in partition within a conditioned space or buried.

(b) Insulation R value shall be increased by 0.2 over and above the requirement stated in Table 5-7 through Table 5-9 for any pipe located in a partition outside a building with direct exposure to weather.

6 ***Table 5-7*** *Insulation Requirements for Pipes in ECBC Building*

7

Operating Temperature (°C)	Pipe size (mm)	
	< 40	≥ 40
	Insulation R value (m^2.K/W)	
Heating System		
>94°C to ≤121°C	0.9	1.2
>60°C to ≤94°C	0.7	0.7
>40°C to ≤60°C	0.4	0.7
Cooling System		
>4.5°C to ≤15°C	0.4	0.7
< 4.5°C	0.9	1.2
Refrigerant Piping (Split Systems)		
>4.5°C to ≤15°C	0.4	0.7
< 4.5°C	0.9	1.2

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9 ***Table 5-8*** *Insulation Requirements for Pipes in ECBC+ Building*

10

Operating Temperature (°C)	Pipe size (mm)	
	< 40	≥ 40
	Insulation R value (m^2.K/W)	
Heating System		
>94°C to ≤121°C	1.1	1.3
>60°C to ≤94°C	0.8	0.8
>40°C to ≤60°C	0.5	0.9

Cooling System		
>4.5°C to ≤15°C	0.5	0.9
< 4.5°C	1.1	1.3
Refrigerant Piping (Split Systems)		
>4.5°C to ≤15°C	0.5	0.9
< 4.5°C	1.1	1.3

Table 5-9 *Insulation Requirements for Pipes in Super ECBC Buildings*

Operating Temperature (°C)	**Pipe size (mm)**	
	< 40	**≥ 40**
	Insulation R value (m^2.K/W)	
Heating System		
>94°C to ≤121°C	1.5	1.5
>60°C to ≤94°C	1.0	1.3
>40°C to ≤60°C	0.7	1.1
Cooling System		
>4.5°C to ≤15°C	0.7	1.2
< 4.5°C	1.5	1.5
Refrigerant Piping (Split Systems)		
>4.5°C to ≤15°C	0.4	0.7
< 4.5°C	1.5	1.5

5.2.4.2

Ductwork and Plenum Insulation

Ductwork and plenum shall be insulated in accordance with Table 5-10.

Table 5-10 *Ductwork Insulation (R value in m^2. K/W) Requirements*

Duct Location	**Supply ducts**	**Return ducts**
Exterior	R -1.4	R -0.6
Unconditioned Space	R -0.6	None
Buried	R -0.6	None

10.2.1 System Balancing

5.2.5.1 General

System balancing shall be done for systems serving zones with a total conditioned area exceeding 500 m^2.

5.2.5.2

Air System Balancing

Air systems shall be balanced in a manner to first minimize throttling losses; then, for fans with fan system power greater than 0.75 kW, fan speed shall be adjusted to meet design flow conditions.

5.2.5.3

Hydronic System Balancing

Hydronic systems shall be proportionately balanced in a manner to first minimize throttling losses, then the pump impeller shall be trimmed, or pump speed shall be adjusted to meet design flow conditions.

10.2.2 Condensers

5.2.6.1 Condenser Locations

Condensers shall be located such that the heat sink is free of interference from heat discharge by devices located in adjoining spaces, and do not interfere with other such systems installed nearby.

10.2.3 Service Water Heating

5.2.7.1 Solar Water Heating

Hospitality and Healthcare in all climatic zones and all buildings in cold climate zone with a hot water system, shall have solar water heating equipment installed to provide for:

a) at least 20% of the total hot water design capacity if above grade floor area of the building is less than 20,000m^2
b) at least 40% of the total hot water design capacity if above grade floor area of the building is greater than or equal to 20,000m^2

Exception to § 5.2.7.1: Systems that use heat recovery to provide the hot water capacity required as per the building type and size.

5.2.7.2

Heating Equipment Efficiency

Service water heating equipment shall meet or exceed the performance and minimum efficiency requirements presented in available Indian Standards

a) Solar water heater shall meet the performance/ minimum efficiency level mentioned in IS 13129 Part(1&2)

b) Gas Instantaneous water heaters shall meet the performance/minimum efficiency level mentioned in IS 15558 with above 80% Fuel utilization efficiency.

c) Electric water heater shall meet the performance/ minimum efficiency level mentioned in IS2082.

d) For evacuated tube collector the storage tanks shall meet the IS 16542:2016, tubes shall meet IS 16543:2016 and IS 16544:2016 for the complete system.

5.2.7.3

Other Water Heating System

Supplementary heating system shall be designed to maximize the energy efficiency of the system and shall incorporate the following design features in cascade:

a) Maximumheatrecoveryfromhotdischargesystemlikecondensersofairconditioningunits,

b) Use of gas fired heaters wherever gas is available, and

c) Electric heater as last resort.

5.2.7.4

Piping Insulation

Piping insulation shall comply with § 5.2.4.1. The entire hot water system including the storage tanks, pipelines shall be insulated conforming to the relevant IS standards on materials and applications.

5.2.7.5

Heat Traps

Vertical pipe risers serving storage water heaters and storage tanks not having integral heat traps and serving a non-recirculating system shall have heat traps on both the inlet and outlet piping.

5.2.7.6 Swimming Pools

All heated pools shall be provided with a vapor retardant pool cover on or at the water surface. Pools heated to more than 32°C shall have a pool cover with a minimum insulation value of R-4.1.

5.3 Prescriptive Requirements

Compliance shall be demonstrated with the prescriptive requirements in this section. Supply, exhaust, and return or relief fans with motor power exceeding 0.37 kW shall meet or exceed the minimum energy efficiency requirements specified in Table 5-11 through Table 5-13 except the following need not comply with the requirement

(a) Fans in un-ducted air conditioning unit where fan efficiency has already been taken in account to calculate the efficiency standard of the comfort system.

(b) Fans in Health Care buildings having HEPA filters.

(c) Fans inbuilt in energy recovery systems that pre-conditions the outdoor air

Table 5-11 *Mechanical and Motor Efficiency Requirements for Fans in ECBC Buildings*

System type	Fan Type	Mechanical Efficiency	Motor Efficiency (As per IS 12615)
Air-handling unit	Supply, return and exhaust	60%	IE 2

Table 5-12 *Mechanical and Motor Efficiency Requirements for Fans in ECBC+ Buildings*

System type	Fan Type	Mechanical Efficiency	Motor Efficiency (As per IS 12615)
Air-handling unit	Supply, return and exhaust	65%	IE 3

Table 5-13 *Mechanical and Motor Efficiency Requirements for Fans in Super ECBC Buildings*

System type	Fan Type	Mechanical Efficiency	Motor Efficiency (As per IS 12615)
Air-handling unit	Supply, return and exhaust	70%	IE 4

5.3.1 Chillers

Chillers shall meet or exceed the minimum efficiency requirements for ECBC+ and SuperECBC Buildings are presented in Table 5-14 and Table 5-16 under ANSI/ AHRI 550/ 590 conditions.

Table 5-14 *Minimum Energy Efficiency Requirements for water cooled Chillers.*

	ECBC+ Building		***SuperECBC Building***	
Chiller Capacity	COP	IPLV	COP	IPLV
<260	5.2	6.9	5.8	7.1
≥260 &<530	5.8	7.1	6.0	7.9
≥530 &<1,050	5.8	7.5	6.3	8.4
≥1,050 &<1,580	6.2	8.1	6.5	8.8
≥1,580	6.5	8.9	6.7	9.1

Table 5-15 Minimum Energy Efficiency Requirements for air cooled Chillers

	ECBC+ Building		***SuperECBC Building***
Chiller Capacity (kWr)	COP	IPLV	COP/ IPLV
<260	3.0	*4.0*	NA
≥260	3.2	*5.0*	NA

5.3.2 Pumps

Chilled and condenser water pumps shall meet or exceed the minimum energy efficiency requirements specified in Table 5-16 through Table 5-18. Requirements for pumps in district chiller systems and hot water pumps for space heating are limited to the installed efficiency requirement of individual pump equipment only. To show compliance, calculate the total installed pump capacity in kilo watt and achieve the prescribed limits per kilo watt of refrigeration installed in the building.

Exceptions to § 5.3.2: Pumps used in processes e.g. service hot water, chilled water used for refrigeration etc.

Table 5-16 *Pump Efficiency Requirements for ECBC Building*

Equipment	***ECBC***
Chilled Water Pump (Primary and Secondary)	18.2 W/kWr with VFD on secondary pump
Condenser Water Pump	17.7 W/kWr
Pump Efficiency (minimum)	70%

Table 5-17 Pump Efficiency Requirements for ECBC+ Building

Equipment	***ECBC+ Building***
Chilled Water Pump (Primary and Secondary)	16.9 W/kWr with VFD on secondary pump
Condenser Water Pump	16.5 W/kWr
Pump Efficiency (minimum)	75%

Table 5-18 Pump Efficiency Requirements for Super ECBC Building

Equipment	***Super ECBC Building***
Chilled Water Pump (Primary and Secondary)	14.9 W/kWr with VFD on secondary pump
Condenser Water Pump	14.6 W/kWr
Pump Efficiency (minimum)	85%

5.3.3 Cooling Towers

Cooling towers shall meet or exceed the minimum efficiency requirements specified in Table 5-19. ECBC+ and SuperECBC Buildings shall have additional VFD installed in the cooling towers.

Table 5-19 *Cooling Tower Efficiency Requirements for ECBC, ECBC+, and SuperECBC Buildings*

Equipment type	Rating Condition	Efficiency
Open circuit cooling tower Fans	35°C entering water 29°C leaving water 24°C WB outdoor air	0.017 kW/kWr 0.31 kW/L/s

5.3.4 Boilers

Gas and oil-fired boilers shall meet or exceed the minimum efficiency requirements specified in Table 5-20.

Table 5-20 *Minimum Efficiency Requirements Oil and Gas fired Boilers for ECBC+ and SuperECBC buildings*

Equipment Type	Sub category	Size category	Minimum FUE
Boilers, Hot Water	Gas or oil fired	All capacity	85%
FUE – Fuel utilization efficiency			

5.3.5 Economizers

5.3.5.1 Economizer for ECBC, ECBC+, Super ECBC Building

Each cooling fan system in buildings with built up area greater than 20,000 m^2, shall include at least one of the following:

a) An air economizer capable of modulating outside-air and return-air dampers to supply 50% of the design supply air quantity as outside-air.

b) A water economizer capable of providing 50% of the expected system cooling load at outside air temperatures of 10°C dry-bulb/7.2°C wet-bulb and below.

Exception to §5.3.5.1:

a) Projects in warm-humid climate zones

b) Projects with only daytime occupancy in the hot-dry

c) Individual cooling or heating fan systems less than 3,200 litres per second

5.3.5.2 Partial Cooling

Where required by §5.3.5.1 economizers shall be capable of providing partial cooling even when additional mechanical cooling is required to meet the cooling load.

5.3.5.3 **Economizer Controls**

Air economizer shall be equipped with controls

a) That allows dampers to be sequenced with the mechanical cooling equipment and not be controlled by only mixed air temperature.
b) Capable of automatically reducing outdoor air intake to the design minimum outdoor air quantity when outdoor air intake will no longer reduce cooling energy usage.
c) Capable of high-limit shutoff at 24 °C dry bulb temperature.

5.3.5.4 **Testing**

Air-side economizers shall be tested in the field following the requirements in §12 Appendix C to ensure proper operation.

Exception to §5.3.5.4: Air economizers installed by the HVAC system equipment manufacturer and certified to the building department as being factory calibrated and tested per the procedures in §12.

5.3.6 Variable Flow Hydronic Systems

5.3.6.1 Variable Fluid Flow

HVAC pumping systems having a total pump system power exceeding 7.5 kW shall be designed for variable fluid flow and shall be capable of reducing pump flow rates to an extent which is lesser or equal to the limit, where the limit is set by the larger of:

a) 50% of the design flow rate, or
b) The minimum flow required by the equipment manufacturer for proper operation of the chillers or boilers.

5.3.6.2 **Isolation Valves**

Water cooled air-conditioning or heat pump units with a circulation pump motor greater than or equal to

3.7 kW shall have two-way automatic isolation valves on each water-cooled air-conditioning or heat pump unit that are interlocked with the compressor to shut off condenser water flow when the compressor is not operating.

5.3.6.3

Variable Speed Drives

Chilled water or condenser water systems that must comply with either §5.3.6.1 or §5.3.6.2 and that have pump motors greater than or equal to 3.7 kW shall be controlled by variable speed drives.

5.3.7 Unitary, Split, Packaged Air-Conditioners

Unitary air-conditioners shall meet or exceed the efficiency requirements given in Table 5-21 and Table 5-22. Window and split air conditioners shall be certified under BEE's Star Labelling Program. EER shall be as per IS 8148 for all unitary, split, packaged air conditioners greater than 10 kWr.

Table 5-21 *Minimum Requirements for Unitary, Split, Packaged Air Conditioners in ECBC+ Building*

Cooling Capacity (kWr)	Water Cooled	Air Cooled
≤ 10.5	NA	BEE 4 Star
> 10.5	3.7 EER	3.2 EER

Table 5-22 *Minimum Requirements for Unitary, Split, Packaged Air Conditioners in SuperECBC building*

Cooling Capacity (kWr)	Water Cooled	Air Cooled
≤ 10.5	NA	BEE 5 Star
> 10.5	3.9 EER	3.4 EER

5.3.8 Controls for ECBC+ and SuperECBC Buildings

ECBC+ building shall comply with requirements of § 5.3.8 in addition to complying with requirements of

§5.2.3.

5.3.8.1

Centralized Demand Shed Controls

ECBC+ and SuperECBC Buildings with built up area greater than 20,000 m^2 shall have a building management system. All mechanical cooling and heating systems in ECBC+ and SuperECBC Buildings with any programmable logic controller (PLC) to the zone level shall have the following control capabilities to manage centralized demand shed in noncritical zones:

(a) Automatic demand shed controls that can implement a centralized demand shed in non-critical zones during the demand response period on a demand response

signal.

(b) Controls that can remotely decrease or increase the operating temperature set points by four degrees or more in all noncritical zones on signal from a centralized control point

(c) Controls that can provide an adjustable rate of change for the temperature

setup and reset The centralized demand shed controls shall have additional

capabilities to

(a) Be disabled by facility operators

(b) Be manually controlled from a central point by facility operators to manage heating and cooling set points

5.3.8.2

Supply Air Temperature Reset

Multi zone mechanical cooling and heating systems in ECBC+ and SuperECBC Buildings shall have controls that automatically reset the supply-air temperature in response to building loads or to outdoor air temperature. Controls shall reset the supply air temperature to at least 25% of the difference between the design supply air temperature and the design room air temperature.

Exception to § 5.3.8.2: ECBC+ and SuperECBC Buildings in warm humid climate zone.

5.3.8.3

Chilled Water Temperature Reset

Chilled water systems with a design capacity exceeding 350kWr supplying chilled water to comfort conditioning systems in ECBC+ and SuperECBC Buildings shall have controls that automatically reset supply water temperatures by representative building loads (including return water temperature) or by outdoor air temperature.

Exceptions to §5.3.8.3 Controls to automatically reset chilled water temperature shall not be required where the supply temperature reset controls causes improper operation of equipment.

5.3.9 Controls for SuperECBC Buildings

SuperECBC Buildings shall comply with requirements of § 5.3.9 in addition to complying with requirements of § 5.2.3 and §5.3.8.

5.3.9.1

Variable Air Volume Fan Control

Fans in Variable Air Volume (VAV) systems in SuperECBC Buildings shall have controls or devices that will result in fan motor demand of no more than 30% of their design wattage at 50% of design airflow based on manufacturer's certified fan data.

5.3.10 Energy Recovery

All Hospitality and Healthcare, with systems of capacity greater than 2,100 litres per second and minimum outdoor air supply of 70% shall have air-to-air heat recovery equipment with minimum 50% recovery effectiveness.

At least 50% of heat shall be recovered from diesel and gas fired generator sets installed in Hospitality, Healthcare, and Business buildings with built up area greater than 20,000 m^2.

5.3.11 Service Water Heating

For compliance with ECBC+ and SuperECBC,

(a) Hospitality and Healthcare in all climatic zones shall have solar water heating equipment installed to provide at least 40% of the total hot water design capacity.

(b) All buildings in cold climate zone with a hot water system, shall have solar water heating equipment installed to provide at least 60% respectively of the total hot water design capacity.

Exception to §5.3.1 Systems that use heat recovery to provide the hot water capacity required as per the building type, size and efficiency level.

5.3.12 Total System Efficiency – Alternate Compliance Approach

Buildings may show compliance by optimizing the total system efficiency for the plant side comfort system instead of the individual equipment mentioned under the prescriptive requirement. This alternate compliance approach is applicable for central chilled water plant side system in all building types. The total installed capacity per kilo-watt refrigeration load shall be less than or equal to maximum threshold requirements as specified in Table 5-23.

Equipment that can be included in central chilled water plant side system for this alternate approach are chillers, chilled water pumps, condenser water pumps, and cooling tower fan. Compliance check will be based on annual hourly simulation refer Table 9-1 for developing the proposed design.

***Table 5-23** Maximum System Efficiency Threshold for ECBC, ECBC+ and SuperECBC Buildings*

Water Cooled Chilled Water Plant	Maximum Threshold (kW/kW_r)
ECBC	0.26
ECBC+	0.23
Super ECBC	0.20

5.3.12.1

Documentation Requirement

Compliance shall be documented, and compliance forms shall be submitted to the authority having jurisdiction. The information submitted shall include, at a minimum, the following:

(a) Summary describing the results of the analysis, including the annual energy use (kWh) of chilled water plant (chillers, pumps and cooling tower) and annual chilled water use (kW_rh)for the Proposed Design, and software used.

(b) Brief description of the project with location, number of stories, space types, conditioned and unconditioned areas, hours of operation.

(c) List of the energy-related building features of the Proposed Design.

(d) List showing compliance with the mandatory requirements of this code.

(e) The input and output report(s) from the simulation program including an energy and chilled water usage components: space cooling and heat rejection equipment, and other HVAC equipment (such as pumps). The output reports shall also show the number of hours any loads are not met by the HVAC system the Proposed Design.

(f) Explanation of any significant modelling assumptions made.

(g) Explanation of any error messages noted in the simulation program output.

The total system efficiency shall be calculated as follows:

$$Total\ System\ Efficiency = \frac{Chilled\ water\ plant\ use\ (kWh)}{eChilld\ water\ use\ (kWrh)}$$

5.3.13 Low-energy Comfort Systems

Alternative HVAC systems which have low energy use may be installed in place of (or in conjunction with) refrigerant-based cooling systems. Such systems shall be deemed to meet the minimum space conditioning equipment efficiency levels of §5.2.2, but shall comply with all other applicable mandatory provisions of §5.2 as applicable. Wherever applicable requirements of §5.3 and §5.3.12 will be complied with. The approved list of low energy comfort systems[1] is given below:

[1] This is not an all-inclusive list. The updated list of low energy comfort systems is available at BEE website (https://www.beeindia.gov.in/).

a) Evaporative cooling
b) Desiccant cooling system
c) Solar air conditioning
d) Tri-generation(waste-to-heat)
e) Radiant cooling system
f) Ground source heat pump
g) Adiabatic cooling system

Buildings with an approved low-energy comfort system installed for more than 50% of the sum of cooling and heating capacity requirement of the building shall be deemed equivalent to the ECBC+ building standard prescribed in § 5.2.2.

Buildings having an approved low energy comfort system installed for more than 90% of the sum of cooling and heating capacity requirement of the building shall be deemed equivalent to the Super ECBC building standard prescribed in §5.2.2.

5.3.13.1 Documentation Requirement

Compliance shall be documented and submitted to the authority having jurisdiction. The information submitted shall include, at a minimum, the following:

(a) Summary describing the low-energy comfort system type, capacity, and efficiency.

(b) List of showing compliance with the mandatory and prescriptive requirements other than exempted in

§5.3.13.

(c) Comparison of installed capacity of approved low-energy comfort system with other HVAC system to meet the comfort requirement of the building.

6 Lighting and Controls

6.1 General

Lighting systems and equipment shall comply with the mandatory provisions of § 6.2 and the prescriptive criteria of § 6.3. The lighting requirements in this section shall apply to:

a) Interior spaces of buildings,
b) Exterior building features, including facades, illuminated roofs, architectural features, entrances, exits, loading docks, and illuminated canopies, and,
c) Exterior building grounds lighting that is provided through the building's electrical service.

Exceptions to §6.1:

Emergency or security lighting that is automatically off during normal building operations.

6.2 Mandatory Requirements

6.2.1 Lighting Control

6.2.1.1 Automatic Lighting Shutoff

a) 90% of interior lighting fittings by wattage, in building or space of building larger than 300 m^2 shall be equipped with automatic control device.
b) Automatic control device shall function on either:
    i. A scheduled basis at specific programmed times. An independent program schedule shall be provided for areas of no more than 2,500 m^2 and not more than one floor, or,
    ii. Occupancy sensors that shall turn off the lighting fixtures within 15 minutes of an occupant leaving the space. Light fixtures controlled by occupancy sensors shall have a wall-mounted, manual switch capable of turning off lights when the space is occupied.

c) Additionally, occupancy sensors shall be provided in

i. All building types greater than 20,000 m^2 BUA, in

a. All habitable spaces less than 30m^2, enclosed by walls or ceiling height partitions.

b. All storage or utility spaces more than 15m^2

c. Public toilets more than 25 m^2, controlling at least 80 % of lighting by wattage fitted in
the toilet. The lighting fixtures, not controlled by automatic lighting shutoff, shall be uniformly spread in the area.

ii. Corridors of all Hospitality greater than 20,000 m^2 BUA, controlling minimum 70% and maximum 80% of lighting by wattage, fitted in the public corridor. The lighting fixtures, not controlled by automatic lighting shut off, shall be uniformly spread in the area.

iii. All conference or meeting rooms.

Exception to § 6.2.1.1: Lighting systems designed for emergency and firefighting purposes.

6.2.1.2

Space Control

Each space enclosed by ceiling-height partitions shall have at least one control device to independently control the general lighting within the space. Each control device shall be activated either manually by an occupant or automatically by sensing an occupant. Each control device shall

a) Control a maximum of 250 m^2 for a space less than or equal to 1,000 m^2, and a maximum of 1,000 m^2 for a space greater than 1,000m^2.

b) Have the capability to override the shutoff control required in § 6.2.1.1 for no more than 2 hours, and

c) Be readily accessible and located so the occupants can see the control.

Exception to § 6.2.1.2 (c): The required control device may be remotely installed if required for reasons of safety or security. A remotely located device shall have a pilot light indicator as part of or next to the control device and shall be clearly labelled to identify the controlled lighting.

6.2.1.3

Control in Daylight Areas

a) Luminaires, installed within day lighting extent from the window as calculated in §

4.2.3, shall be equipped with either a manual control device to shut off luminaires, installed within daylit area, during potential daylit time of a day or automatic control device that:

i. Has a delay of minimum 5 minutes, and

ii. Can dim or step down to 50% of total power.

b) Overrides to the daylight controls shall not be allowed.

6.2.1.4

Exterior Lighting Control

a) Lighting for all exterior applications shall be controlled by a photo sensor or astronomical time switch that is capable of automatically turning off the exterior lighting when daylight is available, or the lighting is not required.

b) Lighting for all exterior applications, shall have lamp efficacy not less than 80 lumens per watt, for ECBC unless the luminaire is controlled by a motion sensor or exempt under§6.1.

c) Façade lighting and façade non-emergency signage of Shopping Complexes shall have separate time switches.

Exemption to § 6.2.1.4: Lighting systems designed for emergency and firefighting purposes.

6.2.1.5

Additional Control

The following lighting applications shall be equipped with a control device to control such lighting independently of general lighting:

a) Display/ Accent Lighting: Display or accent lighting greater than 300 m^2area shall have a separate control device.

b) Hotel Guest Room Lighting: Guest rooms and guest suites in a hotel shall have a master control device at the main room entry that controls all permanently installed luminaires and switched receptacles.

c) Task Lighting: Supplemental task lighting including permanently installed under shelf or under cabinet lighting shall have a control device integral to the luminaires or be controlled by a wall- mounted control device provided the control device complies with §6.2.1.2.

d) Nonvisual Lighting: Lighting for nonvisual applications, such as plant growth and food-warming, shall be equipped with a separate control device.

e) Demonstration Lighting: Lighting equipment that is for sale or for demonstrations

in lighting education shall be equipped with a separate control device accessible only to authorized personnel.

6.2.2 Exit Signs

Internally-illuminated exit signs shall not exceed 5 Watts per face.

6.3 Prescriptive Requirements

6.3.1 Interior Lighting Power

The installed interior lighting power for a building or a separately metered or permitted portion of a building shall be calculated in accordance with §6.3.4 and shall not exceed the interior lighting power allowance determined in accordance with either §6.3.2 or §6.3.3.

Exception to §6.3: The following lighting equipment and applications shall not be considered when determining the interior lighting power allowance, nor shall the wattage for such lighting be included in the installed interior lighting power. However, any such lighting shall not be exempt unless it is an addition to general lighting and is controlled by an independent control device.

(a) Display or accent lighting that is an essential element for the function performed in galleries, museums, and monuments,

(b) Lighting that is integral to equipment or instrumentation and is installed by its manufacturer,

(c) Lighting specifically designed for medical or dental procedures and lighting integral to medical equipment,

(d) Lighting integral to food warming and food preparation equipment,

(e) Lighting for plant growth or maintenance,

(f) Lighting in spaces specifically designed for use by the visually impaired,

(g) Lighting in retail display windows, provided the display area is enclosed by ceiling- height partitions,

(h) Lighting in interior spaces that have been specifically designated as a registered interior historic landmark,

(i) Lighting that is an integral part of advertising or directional signage,

(j) Exit signs,

(k) Lighting that is for sale or lighting educational demonstration systems,

(l) Lighting for theatrical purposes, including performance, stage, and film or video production,

and

(m) Athletic playing areas with permanent facilities for television broadcasting.

6.3.2 Building Area Method

Determination of interior lighting power allowance (watts) by the building area method shall be in accordance with the following:

Determine the allowed lighting power density for each appropriate building area type from Table 6-1 for ECBC Buildings, from Table 6-2 for ECBC+ Buildings and from Table 6-3 for SuperECBC Buildings.

a) Calculate the gross lighted area for each building area type.

b) The interior lighting power allowance is the sum of the products of the gross lighted floor area of each building area times the allowed lighting power density for that building area type.

Table 6-1 *Interior Lighting Power for ECBC Buildings – Building Area Method*

Building Type	LPD (W/m^2)	Building Area Type	LPD (W/m^2)
Office Building	9.50	Motion picture theatre	9.43
Hospitals	9.70	Museum	10.2
Hotels	9.50	Post office	10.5
Shopping Mall	14.1	Religious building	12.0
University and Schools	11.2	Sports arena	9.70
Library	12.2	Transportation	9.20
Dining: bar lounge/leisure	12.2	Warehouse	7.08
Dining: cafeteria/fast food	11.5	Performing arts theatre	16.3
Dining: family	10.9	Police station	9.90
Dormitory	9.10	Workshop	14.1
Fire station	9.70	Automotive facility	9.00
Gymnasium	10.0	Convention center	12.5
Manufacturing facility	12.0	Parking garage	3.00
*In cases where both a general building area type and a specific building area type are listed, the specific building area type shall apply.			

Table 6-2 *Interior Lighting Power for ECBC+ Buildings – Building Area Method*

Building Type	LPD (W/m^2)	Building Area Type	LPD (W/m^2)
Office Building	7.60	Motion picture theatre	7.50
Hospitals	7.80	Museum	8.20
Hotels	7.60	Post office	8.40
Shopping Mall	11.3	Religious building	9.60
University and Schools	9.00	Sports arena	7.80
Library	9.80	Transportation	7.40
Dining: bar lounge/leisure	9.80	Warehouse	5.70
Dining: cafeteria/fast food	9.20	Performing arts theatre	13.0
Dining: family	8.70	Police station	7.90
Dormitory	7.30	Workshop	11.3
Fire station	7.80	Automotive facility	7.20
Gymnasium	8.00	Convention center	10.0
Manufacturing facility	9.60	Parking garage	2.40
*In cases where both a general building area type and a specific building area type are listed, the specific building area type shall apply.			

Table 6-3 *Interior Lighting Power for Super ECBC Buildings – Building Area Method*

Building Type	LPD (W/m^2)	Building Area Type	LPD (W/m^2)
Office Building	5.0	Motion picture theatre	4.7
Hospitals	4.9	Museum	5.1
Hotels	4.8	Post office	5.3
Shopping Mall	7.0	Religious building	6.0
University and Schools	6.0	Sports arena	4.9
Library	6.1	Transportation	4.6
Dining: bar lounge/leisure	6.1	Warehouse	3.5
Dining: cafeteria/fast food	5.8	Performing arts theatre	8.2
Dining: family	5.5	Police station	5.0
Dormitory	4.6	Workshop	7.1
Fire station	4.9	Automotive facility	4.5
Gymnasium	5.0	Convention center	6.3
Manufacturing facility	6.0	Parking garage	1.5
*In cases where both a general building area type and a specific building area type are listed, the specific building area type shall apply.			

6.3.1 Space Function Method

Determination of interior lighting power allowance (watts) by the space function method shall be in accordance with the following:

(a) Determine the appropriate building type and the allowed lighting power density from Table 6-4 for ECBC Buildings, Table 6-5 for ECBC+ Buildings and, Table 6-6 for Super ECBC Buildings. In cases where both a common space type and building specific space type are listed, building specific space type LPD shall apply.

(b) For each space, enclosed by partitions 80% or greater than ceiling height, determine the gross lighted floor area by measuring to the center of the partition wall. Include the area of balconies or other projections. Retail spaces do not have to comply with the 80% partition height requirements.

(c) The interior lighting power allowance is the sum of the lighting power allowances for all spaces. The lighting power allowance for a space is the product of the gross lighted floor area of the space times the allowed lighting power density for that space.

7 ***Table 6-4*** *Interior Lighting Power for ECBC Buildings – Space Function Method*

Category	LPD (W/m^2)	Lamp category	LPD (W/m^2)
Common Space Types			
Restroom	7.7	Stairway	5.5
Storage	6.80	Corridor/Transition	7.1
Conference/ Meeting	11.5	Lobby	9.1
Parking Bays (covered/ basement)	2.20	Parking Driveways (covered/ basement)	3.0
Electrical/Mechanical	7.1	Workshop	17.1
Business			
Enclosed	10.0	Open Plan	10.0
Banking Activity Area	12.6	Service/Repair	6.8
Healthcare			
Emergency	22.8	Recovery	8.6
Exam/Treatment	13.7	Storage	5.5
Nurse's Station	9.4	Laundry/Washing	7.5
Operating Room	21.8	Lounge/Recreation	8.0
Patient Room	7.7	Medical Supply	13.7
Pharmacy	10.7	Nursery	5.7
Physical Therapy	9.7	Corridor/Transition	9.1
Radiology/Imaging	9.1		
Hospitality			
Hotel Dining	9.1	Hotel Lobby	10.9
For Bar Lounge/ Dining	14.1	Motel Dining	9.1
For food preparation	12.1	Motel Guest Rooms	7.7
Hotel Guest Rooms	9.1		
Shopping Complex			
Mall Concourse	12.8	For Family Dining	10.9
Sales Area	18.3	For food preparation	12.1

Motion Picture Theatre	9.6	Bar Lounge/ Dining	14.1
Educational			
Classroom/Lecture	13.7	Card File and Cataloguing	9.1
For Classrooms	13.8	Stacks (Lib)	18.3
Laboratory	15.1	Reading Area (Library)	10.0
Assembly			
Dressing Room	9.1	Seating Area - Performing Arts Theatre	22.6
Exhibit Space - Convention Centre	14.0	Lobby - Performing Arts Theatre	21.5
Seating Area - Gymnasium	4.6	Seating Area - Convention Centre	6.4
Fitness Area - Gymnasium	13.7	Seating Religious Building	16.4
Museum - General Exhibition	16.4	Playing Area - Gymnasium	18.8
Museum - Restoration	18.3		

Table 6-5 *Interior Lighting Power for ECBC+ Buildings – Space Function Method*

Category	**LPD (W/m^2)**	**Lamp category**	**LPD (W/m^2)**
Common Space Types			
Restroom	6.1	Stairway	4.4
Storage	5.4	Corridor/Transition	3.6
Conference/ Meeting	9.2	Lobby	7.3
Parking Bays (covered/ basement)	1.8	Parking Driveways (covered/ basement)	2.5
Electrical/Mechanical	5.7	Workshop	13.7
Business			
Enclosed	8.6	Open Plan	8.6
Banking Activity Area	9.3	Service/Repair	5.5
Healthcare			
Emergency	18.2	Recovery	7.0
Exam/Treatment	10.9	Storage	4.4
Nurses' Station	7.5	Laundry/Washing	6.0
Operating Room	17.5	Lounge/Recreation	6.4
Patient Room	6.1	Medical Supply	10.9
Pharmacy	8.5	Nursery	4.6
Physical Therapy	7.8	Corridor/Transition	7.3
Radiology/Imaging	7.3		
Hospitality			
Hotel Dining	7.3	Hotel Lobby	8.8
For Bar Lounge/ Dining	11.3	Motel Dining	7.3
For food preparation	12.1	Motel Guest Rooms	6.1
Hotel Guest Rooms	7.3		
Shopping Complex			
Mall Concourse	10.2	For Family Dining	8.8
Sales Area	14.6	For food preparation	12.1
Motion Picture Theatre	10.3	Bar Lounge/ Dining	11.3
Educational			

Classroom/Lecture	10.9	Card File and Cataloguing	7.30
For Classrooms	11.0	Stacks (Library)	14.6
Laboratory	12.1	Reading Area (Library)	9.20
Assembly			
Dressing Room	7.3	Seating Area - Performing Arts Theatre	18.1
Exhibit Space - Convention Centre	11.2	Lobby - Performing Arts Theatre	17.2
Seating Area - Gymnasium	3.6	Seating Area - Convention Centre	5.1
Fitness Area - Gymnasium	7.9	Seating Religious Building	13.1
Museum - General Exhibition	11.3	Playing Area - Gymnasium	12.9
Museum - Restoration	11.0		

***Table 6-6** Interior Lighting Power for Super ECBC Buildings – Space Function Method*

Category	**LPD (W/m^2)**	**Lamp category**	**LPD (W/m^2)**
Common Space Types			
Restroom	3.8	Stairway	2.7
Storage	3.4	Corridor/Transition	2.3
Conference/ Meeting	5.7	Lobby	4.6
Parking Bays (covered/ basement)	1.1	Parking Driveways (covered/ basement)	1.5
Electrical/Mechanical	3.5	Workshop	8.6
Business			
Enclosed	5.4	Open Plan	5.4
Banking Activity Area	5.8	Service/Repair	3.4
Healthcare			
Emergency	11.4	Recovery	4.4
Exam/Treatment	6.8	Storage	2.7
Nurses' Station	5.0	Laundry/Washing	3.8
Operating Room	10.9	Lounge/Recreation	4.6
Patient Room	3.8	Medical Supply	6.8
Pharmacy	5.3	Nursery	2.9
Physical Therapy	4.9	Corridor/Transition	4.6
Radiology/Imaging	4.6		
Hospitality			
Hotel Dining	4.6	Hotel Lobby	5.5
For Bar Lounge/ Dining	7.0	Motel Dining	4.6
For food preparation	7.5	Motel Guest Rooms	3.8
Hotel Guest Rooms	4.6		
Shopping Complex			
Mall Concourse	6.4	For Family Dining	5.5
Sales Area	9.2	For food preparation	7.5
Motion Picture Theatre	6.5	Bar Lounge/ Dining	7.0
Educational			
Classroom/Lecture	6.8	Card File and Cataloguing	4.6
For Classrooms	6.9	Stacks (Lib)	9.2
Laboratory	7.5	Reading Area (Library)	5.7

Assembly			
Dressing Room	4.6	Seating Area - Performing Arts Theatre	11.3
Exhibit Space - Convention Centre	7.0	Lobby - Performing Arts Theatre	10.8
Seating Area - Gymnasium	3.4	Seating Area - Convention Centre	3.2
Fitness Area - Gymnasium	3.9	Seating Religious Building	8.2
Museum - General Exhibition	5.7	Playing Area - Gymnasium	6.5
Museum - Restoration	5.5		

Note 6-1 Calculating Interior Lighting Power – Space Function Method

A four-story building has retail on the ground floor and offices on the top three floors. Area is 3,598 m^2. Space types and their respective areas are mentioned below. Steps for calculating interior lighting power allowance using the space function method for a ECBC building is described below. For each of the space type, corresponding Lighting Power Density (LPD) values for Business and Shopping complex building type from Table 6-4 are used. Area is multiplied with the LPD values to estimate the lighting power allowance for the whole building. It is 40,242 W.

Table 6-1-1 *Space Types, Areas and Corresponding LPDs*

Space Function	LPD (W/ m²)	Area (m²)	Lighting Power Allowance (W)
Office			
Office - enclosed	10.0	720	7,200
Office – open plan	10.0	1,485	14,850
Meeting Rooms	11.5	120	1,380
Lobbies	9.1	93	846
Restrooms	7.7	51	393
Corridors	7.1	125	888
Electrical/ Mechanical	7.1	14	99
Staircase	5.5	84	462
Total			26,118
Retail			
General sales area	18.3	669	12,243
Offices - enclosed	10.0	28	280
Restrooms	7.7	9	69
Corridors	7.1	79	561
Active Storage	6.8	93	632
Food preparation	12.1	28	339
Total			14,124

Building Total			**40,242 W**

6.3.1 Installed Interior Lighting Power

The installed interior lighting power calculated for compliance with §6.3 shall include all power used by the luminaires, including lamps, ballasts, current regulators, and control devices except as specifically exempted in § 6.1.

Exception to §6.3.4: If two or more independently operating lighting systems in a space are controlled to prevent simultaneous user operation, the installed interior lighting power shall be based solely on the lighting system with the highest power.

6.3.4.1

Luminaire Wattage

Light output ratio shall be 0.7 or above. Luminaire wattage incorporated into the installed interior lighting power shall be determined in accordance with the following:

(a) The wattage of incandescent luminaires with medium base sockets and not containing permanently installed ballasts shall be the maximum labeled wattage of the luminaires.

(b) The wattage of luminaires containing permanently installed ballasts shall be the operating input wattage of the specified lamp/ballast combination. Operating input wattage can be either values from manufacturers' catalogs or values from independent testing laboratory reports.

(c) The wattage of all other miscellaneous luminaire types not described in (a) or (b) shall be the specified wattage of the luminaires.

(d) The wattage of lighting track, plug-in busway, and flexible-lighting systems that allow the addition and/ or relocation of luminaires without altering the wiring of the system shall be the larger of the specified wattage of the luminaires included in the system or 135 Watt per meter. Systems with integral overload protection, such as fuses or circuit breakers, shall be rated at 100% of the maximum rated load of the limiting device.

6.3.2 Exterior Lighting Power

Connected lighting power of exterior lighting applications shall not exceed the lighting power limits specified in Table 6-7 for ECBC Buildings, Table 6-8 for

ECBC+ Buildings and Table 6-9 for Super ECBC Buildings. Trade- offs between applications are not permitted.

Table 6-7 *Exterior Building Lighting Power for ECBC Buildings*

Exterior lighting application	Power limits
Building entrance (with canopy)	10 W/m^2 of canopied area
Building entrance (w/o canopy)	90 W/ linear m of door width
Building exit	60 W/linear m of door width
Building façade	5.0 W/m^2 of vertical façade area
Emergency signs, ATM kiosks, Security areas façade	1.0 W/m^2
Driveways and parking (open/ external)	1.6 W/m^2
Pedestrian walkways	2.0 W/m^2
Stairways	10.0 W/m^2
Landscaping	0.5 W/m^2
Outdoor sales area	9.0 W/m^2

Table 6-8 *Exterior Building Lighting Power for ECBC+ Buildings*

Exterior lighting application	Power limits
Building entrance (with canopy)	8.0 W/m^2 of canopied area
Building entrance (w/o canopy)	72 W/ linear m of door width
Building exit	48 W/ linear m of door width
Building façade	4.0 W/m^2 of vertical façade area
Emergency signs, ATM kiosks, Security areas façade	0.8 W/m^2
Driveways and parking (open/ external)	1.3 W/m^2
Pedestrian walkways	1.6 W/m^2
Stairways	8.0 W/m^2
Landscaping	0.4 W/m^2
Outdoor sales area	7.2 W/m^2

Table 6-9 *Exterior Building Lighting Power for Super ECBC Buildings*

Exterior lighting application	Power limits
Building entrance (with canopy)	5.0 W/m^2 of canopied area
Building entrance (w/o canopy)	45 W/ linear m of door width
Building exit	30 W/linear m of door width
Building façade	2.5 W/m^2 of vertical façade area
Emergency signs, ATM kiosks, Security areas façade	0.5 W/m^2
Driveways and parking (open/ external)	0.8 W/m^2
Pedestrian walkways	1.0 W/m^2
Stairways	5.0 W/m^2
Landscaping	0.25 W/m^2
Outdoor sales area	4.5 W/m^2

6.3.1 Controls for ECBC+ and SuperECBC Buildings

ECBC+ and SuperECBC Buildings shall comply with requirements of§ 6.3.6 in addition to complying with requirements of § 6.2.

6.3.6.1 Centralized Controls

ECBC+ and SuperECBC building shall have centralized control system for schedule based automatic lighting shutoff switches.

6.3.6.2 Exterior Lighting Controls

Lighting for all exterior applications, shall have lamp efficacy not less than 80 lumens per watt, 90 lumens per watt and 100 lumens per watt, for ECBC, ECBC+ and SuperECBC Buildings respectively, unless the luminaire is controlled by a motion sensor or exempt under §6.1.

7 Electrical and Renewable Energy Systems

7.1 General

All electric and renewable energy equipment and systems shall comply with the mandatory requirements of

§7.2.

7.2 Mandatory Requirements

7.2.1 Transformers

7.2.1.1 Maximum Allowable Power Transformer Losses

Power transformers of the proper ratings and design must be selected to satisfy the minimum acceptable efficiency at 50% and full load rating. The permissible loss shall not exceed to values listed in Table 7-1 for dry type transformers and Table 7-2 for oil type transformers.

Table 7-1 *Permissible Losses for Dry Type Transformers*

Rating kVA	Max. Losses at 50% loading W*	Max. Losses at 100% loading W*	Max. Losses at 50% loading W*	Max. Losses at 100% loading W*
	Up to 22 kV class		33 kV class	
100	940	2400	1120	2400
160	1290	3300	1420	3300
200	1500	3800	1750	4000
250	1700	4320	1970	4600
315	2000	5040	2400	5400
400	2380	6040	2900	6800
500	2800	7250	3300	7800
630	3340	8820	3950	9200
800	3880	10240	4650	11400
1000	4500	12000	5300	12800
1250	5190	13870	6250	14500
1600	6320	16800	7500	18000
2000	7500	20000	8880	21400
2500	9250	24750	10750	26500

*The values as per Indian Standard/BEE Standard & Labeling notification for dry type transformer corresponding to values in this table will supersede as and when the Indian standards/ BEE Standard & Labeling notification are published.

Table 7-2 Permissible Losses for Oil Type Transformers.

Rating (kVA)	Impedance (%)	Max. Total Loss (W) for transformers up to 11 kV class					
		ECBC Building		ECBC+ Building		SuperECBC Building	
		50% Load	100% Load	50% Load	100% Load	50% Load	100% Load
16	4.5	150	480	135	440	120	400
25	4.5	210	695	190	635	175	595
63	4.5	380	1250	340	1140	300	1050
100	4.5	520	1800	475	1650	435	1500
160	4.5	770	2200	670	1950	570	1700
200	4.5	890	2700	780	2300	670	2100
250	4.5	1050	3150	980	2930	920	2700
315	4.5	1100	3275	1025	3100	955	2750
400	4.5	1300	3875	1225	3450	1150	3330
500	4.5	1600	4750	1510	4300	1430	4100
630	4.5	2000	5855	1860	5300	1745	4850

1000	5	3000	9000	2790	7700	2620	7000
1250	5	3600	10750	3300	9200	3220	8400
1600	6.25	4500	13500	4200	11800	3970	11300
2000	6.25	5400	17000	5050	15000	4790	14100
2500	6.25	6500	20000	6150	18500	5900	17500

Total loss values given in above table are applicable for thermal classes E, B and F and have component of load loss at reference temperature according to Clause 17 of IS 1180 i.e., average winding temperature rise as given in Column 2 of Table 8.2 plus 30°C. An increase of 7% on total for thermal class H is allowed.

Permissible total loss values shall not exceed:

(a) 5% of the maximum total loss values mentioned in IS 1180 for oil type transformers in voltage class above 11 kV but not more than 22kV

(b) 7.5% of the maximum total loss values mentioned in above IS 1180 for oil type transformers in voltage class above 22 kV and up to and including 33kV

7.2.1.2

Measurement and Reporting of Transformer Losses

All measurement of losses shall be carried out by using calibrated digital meters of class 0.5 or better accuracy and certified by the manufacturer. All transformers of capacity of 500 kVA and above would be equipped with additional metering class current transformers (CTs) and potential transformers (PTs) additional to requirements of Utilities so that periodic loss monitoring study may be carried out.

7.2.1.3

Voltage Drop

Voltage drop for feeders shall not exceed 2% at design load. Voltage drop for branch circuit shall not exceed 3% at design load.

7.2.2 Energy Efficient Motors

Motors shall comply with the following:

(a) Three phase induction motors shall conform to Indian Standard (IS) 12615 and shall fulfil the following efficiency requirements:

i. ECBC Buildings shall have motors of IE 2 (high efficiency) class or a higher class

ii. ECBC+ Buildings shall have IE 3 (premium efficiency) class motors or higher class

iii. Super ECBC Buildings shall have IE 4 (super premium efficiency)class motors

(b) Motors of horsepower differing from those listed in the table shall have efficiency greater than that of the next listed kW motor.

(c) Motor horse power ratings shall not exceed 20% of the calculated maximum load being served.

(d) Motor nameplates shall list the nominal full-load motor efficiencies and the full- load power factor.

7.2.3 Diesel Generator (DG) Sets

BEE star rated DG sets shall be used in all compliant buildings. DG sets in buildings greater than 20,000 m^2 BUA shall have:

(a) minimum 3 stars rating in ECBC Buildings

(b) minimum 4 stars rating in ECBC+ Buildings

5 stars rating in Super ECBC Buildings

7.2.4 Check-Metering and Monitoring

At Building mains, installed meters must be capable of monitoring energy use (kWh), Energy Demand (kW) and total Power Factor on an hourly basis. For sub-meters installed at building services, the following metering requirements must be complied with:

(a) Services exceeding 1,000 kVA shall have permanently installed electrical metering to record demand (kVA), energy (kWh), and total power factor on hourly basis. The metering shall also display current (in each phase and the neutral), voltage (between phases and between each phase and neutral), and total harmonic distortion (THD) as a percentage of total current.

(b) Services not exceeding 1,000 kVA but over 65 kVA shall have permanently installed electric metering to record demand (kW), energy (kWh), and total power factor (or kVARh) on hourly basis.

(c) Services not exceeding 65 kVA shall have permanently installed electrical metering to record energy (kWh) on hourly basis.

Table 7-3 *Sub Metering: Minimum requirement for separation of electrical load*

Building Contract Demand		
	120 kVA to 250 kVA	**Greater than 250 kVA**
HVAC system and components	Required	Required
Interior and Exterior Lighting	Not required	Required
Domestic hot water	Not required	Required
Plug loads	Not required	Required
Renewable power source	Required	Required

In addition to requirements stated above, for building types identified in Table 7-4, respective services must be sub-metered.

Table 7-4 *Additional sub-metering requirements for specific building types*

Mandatory requirement of sub- metering of services for specific building types	
Shopping Complex	Façade lighting
Shopping Complex	Elevator, escalators, moving walks
Business	Data centers
Hospitality	Commercial kitchens

For tenant-based building, tenants must be provided with tap-off points to install electrical sub-meters.

7.2.5 Power Factor Correction

All 3 phase shall maintain their power factor at the point of connection as follows:

(a) 0.97 for ECBC Building

(b) 0.98 for ECBC+ Building

(c) 0.99 for Super ECBC Building

7.2.6 Power Distribution Systems

The power cabling shall be sized so that the distribution losses do not exceed

(a) 3% of the total power usage in ECBC Buildings

(b) 2% of the total power usage in ECBC+ Buildings

(c) 1% of total power usage in Super ECBC Buildings

Record of design calculation for the losses shall be maintained. Load calculation shall be calculated up to the panel level.

7.2.7 Uninterruptible Power Supply (UPS)

In all buildings, UPS shall meet or exceed the energy efficiency requirements listed in Table7-5. Any Standards and Labelling program by BEE shall take precedence over requirements listed in this section.

Table 7-5 *Energy Efficiency Requirements for UPS for ECBC, ECBC+, Super ECBC building*

UPS Size	Energy Efficiency Requirements at 100% Load
kVA < 20	90.2%
20 ≤ kVA ≤ 100	91.9%
kVA > 100	93.8%

7.2.8 Renewable Energy Systems

All buildings shall have provisions for installation of renewable energy systems in the future on rooftops or the site.

7.2.8.1 Renewable Energy Generating Zone (REGZ)

(a) A dedicated REGZ equivalent to at least 25 % of roof area or area required for generation of energy equivalent to 1% of total peak demand or connected load of the building, whichever is less, shall be provided in all buildings.

(b) The REGZ shall be free of any obstructions within its boundaries and from shadows cast by objects adjacent to the zone.

(c) ECBC+ and Super ECBC building shall fulfil the additional requirements listed in Table 7-6 and Table 7-7 respectively.

Table 7-6 Minimum Renewable Contribution towards meeting Contract Demand in ECBC+ Building

Building Type	Minimum Capacity to be Installed in REGZ
All building types except below	Minimum 2% of total Contract Demand
Star Hotel > 20,000 m² AGA Resort > 12,500 m^2 AGA University > 20,000 m² AGA Business>20,000 m² AGA	Minimum 3% of total Contract Demand

Table 7-7 *Minimum Renewable Contribution towards meeting Contract Demand in SuperECBC Building*

Building Type	Minimum Capacity to be Installed in REGZ
All building types except below	Minimum 4% of total Contract Demand
Star Hotel > 20,000 m² AGA Resort > 12,500 m^2 AGA University > 20,000 m² AGA Business>20,000 m² AGA	Minimum 6% of total Contract Demand

7.2.8.2

Main Electrical Service Panel

Minimum rating shall be displayed on the main electrical service panel. Space shall be reserved for the installation of a double pole circuit breaker for a future renewable electric installation.

7.2.8.3

Demarcation on Documents

The following shall be indicated in design and construction documents:

(a) Location for inverters and metering equipment,

(b) Pathway for routing of conduit from the REGZ to the point of inter connection with the electrical service,

(c) Routing of plumbing from the REGZ to the water-heating system and,

(d) Structural design loads for roof dead and live load.

8 Definitions, Abbreviations, and Acronyms

8.1 General

Certain terms, abbreviations, and acronyms are defined in this section for the purposes of this code. These definitions are applicable to all sections of this code. Terms that are not defined shall have their ordinarily accepted meanings within the context in which they are used.

8.2 Definitions

Above grade area (AGA): AGA is the cumulative floor area of all the floor levels of a building that are above the ground level. Ground level shall be as defined in building site plan. A floor level is above grade if one-third of the total external surface area of only the said floor level is above the ground level.

Accredited independent laboratory: testing laboratory not affiliated with producer or consumer of goods or products tested at the laboratory and accredited by national or international organizations for technical competence.

Addition: an extension or increase in floor area or height of a building outside of the existing building envelope.

Air conditioning and condensing units serving computer rooms: air conditioning equipment that provides cooling by maintaining space temperature and humidity within a narrow range. Major application is in data centers where dissipating heat generated by equipment takes precedence over comfort cooling for occupants.

Alteration: any change, rearrangement, replacement, or addition to a building or its systems and equipment; any modification in construction or building equipment.

Area weighted average (AWA) method: AWA method is based on the concept of weighted arithmetic mean where instead of each data point contributing equally to the final mean; each data point contributes more "weight" than others based on the size of the area the said data point is applicable to. To calculate the area weighted average mean, a summation of each data point multiplied with its respective area is divided with the total area.

$$AWA = \sum \left(\frac{(Data\ point * area)}{Total area} \right.$$

Astronomical time switch: an automatic time switch that makes an adjustment for the length of the day as it varies over the year.

Authority having jurisdiction: the agency or agent responsible for enforcing this code.

Balancing, air system: adjusting airflow rates through air distribution system devices, such as fans and diffusers, by manually adjusting the position of dampers, splitters vanes, extractors, etc., or by using automatic control devices, such as constant air volume or variable air volume boxes.

Balancing, Hydronic system: adjusting water flow rates through hydronic distribution system devices, such as pumps and coils, by manually adjusting the position valves, or by using automatic control devices, such as automatic flow control valves.

Ballast: a device used in conjunction with an electric-discharge lamp to cause the lamp to start and operate under proper circuit conditions of voltage, current, waveform, electrode heat, etc.

Boiler: a self-contained low-pressure appliance for supplying steam or hot water.

Building or building complex or complex: a structure wholly or partially enclosed within exterior walls, or within exterior and party walls, and a roof, affording shelter to persons, animals, or property. Building complex means a building or group of buildings constructed in a contiguous area for business, commercial, institutional, healthcare, hospitality purposes or assembly buildings under the single ownership of individuals or group of individuals or under the name of a co-operative group society or on lease and sold as shops or office space or space for other commercial purposes, having a connected load of 100 kW or contract demand of 120 kVA and above.

Building, base: includes building structure, building envelope, common areas, circulation areas, parking, basements, services area, plant room and its supporting areas and, open project site area.

Building, core and shell: buildings where the developer or owner will only provide the base building and its services.

Building, existing: a building or portion thereof that was previously occupied or approved for occupancy by the authority having jurisdiction.

Building envelope: the exterior plus the semi-exterior portions of a building. For the purposes of determining building envelope requirements, the classifications are defined as follows:

(a) Building envelope, exterior: the elements of a building that separate conditioned spaces from the exterior

(b) Building envelope, semi-exterior: the elements of a building that separate conditioned space from unconditioned space or that enclose semi-heated spaces through which thermal energy may be transferred to or from the exterior, or to or from unconditioned spaces, or to or from conditioned spaces

Building grounds lighting: lighting provided through a building's electrical service for parking lot, site,
roadway, pedestrian pathway, loading dock, and security applications.

Building material: any element of the building envelope through which heat flows and that heat is included in the component U-factor calculations other than air films and insulation.

Built up area (BUA): sum of the covered areas of all floors of a building, other than the roof, and areas covered by external walls and parapet on these floors.

24-hour Business Building: Business building operated and occupied for more than 12 hours on each weekday. Intensity of occupancy may vary.

Cardinal direction: cardinal directions or cardinal points are the four main directional points of a compass: north, south, east, and west.

Centralised control: single hardware/ software for observing and controlling operations of a group of equipment and devices with similar or different functions.

Circuit breaker: a safety device that automatically stops flow of current in electrical circuits. It protects the circuit from current surge.

Class of construction: classification that determines the construction materials for the building envelope, roof, wall, floor, slab-on-grade floor, opaque door, vertical fenestration, skylight.

Coefficient of Performance (COP) – cooling: the ratio of the rate of heat removal to the rate of energy input, in consistent units, for a complete refrigerating system or some specific portion of that system under designated operating conditions.

Coefficient of Performance (COP) – heating: the ratio of the rate of heat delivered to the rate of energy input, in consistent units, for a complete heat pump system, including the compressor and, if applicable, auxiliary heat, under designated operating conditions.

Common area: areas within a building that are available for use by all tenants in a building (i.e. lobbies, corridors, restrooms, etc.).

Commercial building: a building or a part of building or building complex which are used or intended to be used for commercial purposes and classified as per the time of the day the building is operational and sub classified, as per the functional requirements of its design, construction, and use as per following details:

(a) Group I – 24 hours building covering Type A Hospitality, Type B Health Care and Type C Assembly, Type D Business and,
(b) Group II – Regular building covering Type D Business, Type E Educational and Type F Shopping Complexes.

Compliance documents: the forms specified in ECBC Rules and Regulations to record and check compliance with these rules. These include but are not limited to EPI Ratio Compliance Report, Building Envelope Compliance Form, Mechanical Systems Compliance Form and Permit Checklist, Lighting System Compliance Form and Permit Checklist and certificates from Certified Energy Auditor for existing or proposed buildings.

Connected load: the sum of the rated wattage of all equipment, appliances and devices to be installed in the building or part of building or building complexes, in terms of kilowatt (kW) that will be allocated to all applicants for electric power consumption in respect of the proposed building or building complexes on their completion.

Contract demand: the maximum demand in kilo Volt Ampere (kVA) (within a consumer's sanctioned load) agreed to be supplied by the electricity provider or utility in the agreement executed between the user and the utility or electricity provider.

Construction documents: drawings or documents, containing information pertaining to building construction processes and approvals, building materials and equipment specification, architectural details etc. required by the authority having jurisdiction.

Controls or control device: manually operated or automatic device or software to regulate the operation of building equipment.

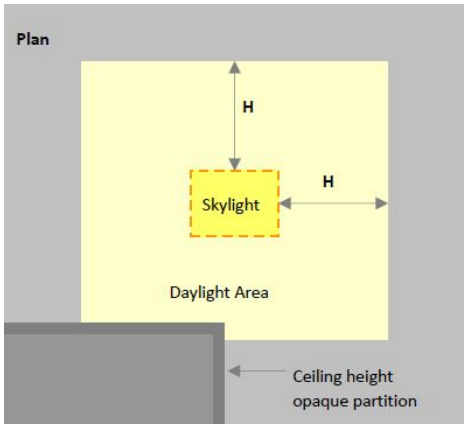
Cool roof: roof with top layer of material that has high solar reflectance and high thermal emittance properties. Cool roof surfaces are characterized by light colors so that heat can be rejected back to the environment.

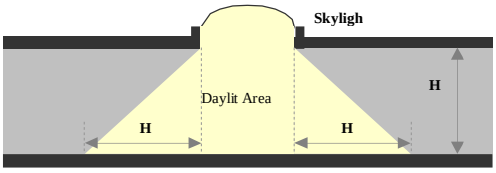
Cumulative design EPI: energy performance index for a building having two or more different functional uses and calculated based on the area weighted average (AWA) method.

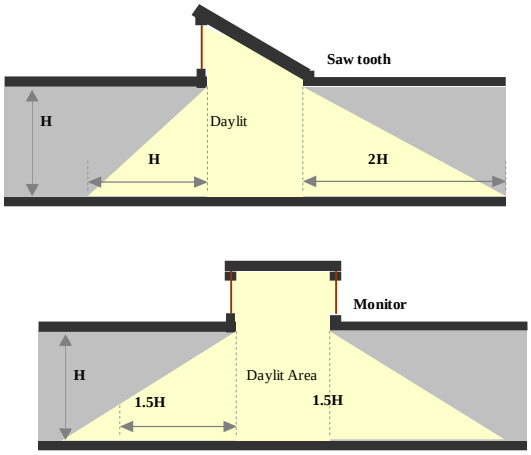
Daylight area: the daylight illuminated floor area under horizontal fenestration (skylight) or adjacent to vertical fenestration (window), described as follows:

(a) Horizontal Fenestration: the area under a skylight, monitor, or saw-tooth configuration with an effective aperture greater than 0.001(0.1%). The daylight area is calculated as the horizontal

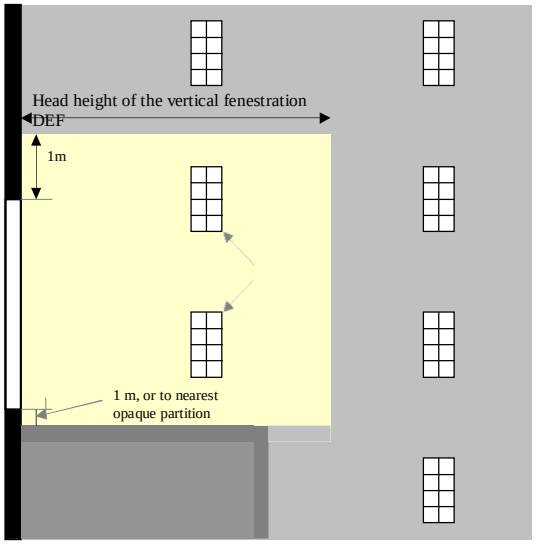
(b) dimension in each direction equal to the top aperture dimension in that direction plus either the floor-to-ceiling height (H) for skylights, or 1.5 H for monitors, or H or 2H for the saw-tooth configuration, or the distance to the nearest 1 meter or higher opaque partition, or one-half the distance to an adjacent skylight or vertical glazing, whichever is least, as shown in the plan and section figures.







(a) Vertical Fenestration: the floor area adjacent to side apertures (vertical fenestration in walls) with an effective aperture greater than 0.06 (6%). The daylight area extends into the space perpendicular to the side aperture a distance equal to daylight extension factor (DEF) multiplied by the head height of the side aperture or till higher opaque partition, whichever is less. In the direction parallel to the window, the daylight area extends a horizontal dimension equal to the width of the window plus either 1 meter on each side of the aperture, or the distance to an opaque partition, or one-half the distance to an adjacent skylight or window, whichever is least.



Daylight Extension Factor (DEF): factor to manually calculate the daylight area on floor plates. It is to be multiplied by the head height of windows. It is dependent on orientation and glazing VLT, shading devices adjacent to it and building location.

Daytime Business Building: Business building operated typically only during daytime on weekdays up to 12 hours each day.

Deadband: the range of values within which a sensed variable can vary without initiating a change in the controlled process.

Demand: maximum rate of electricity (kW) consumption recorded for a building or facility during a selected time frame.

Demand control ventilation (DCV): a ventilation system capability that provides automatic reduction of outdoor air intake below design rates when the actual occupancy of spaces served by the system is less than design occupancy.

Design capacity: output capacity of a mechanical or electrical system or equipment at design conditions.

Design conditions: specified indoor environmental conditions, such as temperature, humidity and light intensity, required to be produced and maintained by a system and under which the system must operate.

Demand factor: is the ratio of the sum of the maximum demand of a system (or part of a system) to the total connected load on the system (or part of the system) under consideration. Demand factor is always less than one.

Distribution system: network or system comprising controlling devices or equipment and distribution channels (cables, coils, ducts, pipes etc.) for delivery of electrical power or, cooled or heated water or air in buildings.

Door: all operable opening areas, that are not more than one half glass, in the building envelope, including swinging and roll-up doors, and access hatches.
Door area: total area of the door measured using the rough opening and including the door slab and the frame.

Economizer, air: a duct and damper arrangement with automatic controls that allow a cooling system to supply outdoor air to reduce or eliminate the need for mechanical cooling during mild or cold weather.

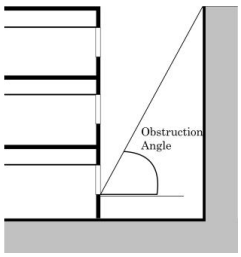
Economizer, water: a system by which the supply air of a cooling system is cooled indirectly with water that is itself cooled by heat or mass transfer to the environment without the use of mechanical cooling.

ECBC Building: a building that complies with the mandatory requirements of §4 to §7 and also complies either with the prescriptive requirements stated under the ECBC Building categories of §4 to §7, or, with the whole building performance compliance method of §9.

ECBC+ Building: a building that complies with the mandatory requirements of §4 to §7 and also complies either with the prescriptive requirements stated under the ECBC+ Building categories of §4 to §7, or, with the whole building performance compliance method of §9. This is a voluntary level of compliance with ECBC.

Effective aperture: Visible Light Transmittance x window-to-wall Ratio.

$$(EA = VLT \times WWR)$$



Efficacy: the lumens produced by a lamp plus ballast system divided by the total watts of input power (including the ballast), expressed in lumens per watt.

Efficiency: performance at a specified rating condition.

Efficiency, thermal: ratio of work output to heat input.

Efficiency, combustion: efficiency with which fuel is burned during the combustion process in equipment.

Emittance: the ratio of the radiant heat flux emitted by a specimen to that emitted by a blackbody at the same temperature and under the same conditions.

Energy: power derived from renewable or non-renewable resources to provide heating, cooling and light to a building or operate any building equipment and appliances. It has various forms such as thermal (heat), mechanical (work), electrical, and chemical that may be transformed from one into another. Customary unit of measurement is watts (W).

Energy Conservation Building Code (ECBC): The Energy Conservation Building Code as updated from time to time by the Bureau and displayed on its website (www.beeindia.gov.in).

Energy Efficiency Ratio (EER): the ratio of net cooling capacity in watt to total rate of electric input in watts
under design operating conditions.

Energy recovery system: equipment to recover energy from building or space exhaust air and use it to

treat (pre-heat or pre-cool) outdoor air taken inside the building or space by ventilation systems.

Envelope Performance Factor (EPF): value for the building envelope performance compliance option calculated using the procedures specified in 4.3.5 and 4.3.5.1.1. For the purposes of determining building envelope requirements the classifications are defined as follows:

a) Standard Building EPF: envelope performance factor calculated for the Standard Building using prescriptive requirements for walls, vertical fenestrations and roofs
b) Proposed Building EPF: the building envelope performance factor for the Proposed Building using proposed values for walls, vertical fenestrations and roofs

Energy Performance Index (EPI): of a building means its annual energy consumption in kilowatt-hours per square meter of the area of the building which shall be calculated in the existing or proposed building as per the formula below,

$$= \frac{\textit{Annual energy consumption in kWh}}{\textit{Total built-up area (excluding storage area and the parking in the basement) in } m^2}$$

EPI Ratio: of a building means the ratio of the EPI of the Proposed Building to the EPI of the Standard Building.

Equipment: mechanical, electrical or static devices for operating a building, including but not limited to those required for providing cooling, heating, ventilation, lighting, service hot water, vertical circulation.

Equipment, existing: equipment previously installed in an existing building.

Equivalent SHGC: SHGC for a fenestration with a permanent external shading projection. It is calculated using the Projection Factor (PF) of the permanent external shading projection and Shading Equivalent Factor (SEF) listed in §4.3.1.

Exemption: any exception allowed to compliance with ECBC requirements.

Fan system power: sum of the nominal power demand (nameplate W or HP) of motors of all fans that are required to operate at design conditions to supply air from the heating or cooling source to the conditioned space(s) and return it to the point where is can be exhausted to outside the building.

Fenestration: all areas (including the frames) in the building envelope that let in light, including windows, plastic panels, clerestories, skylights, glass doors that are more than one- half glass, and glass block walls.

(a) Skylight: a fenestration surface having a slope of less than 60 degrees from the horizontal plane. Other fenestration, even if mounted on the roof of a building, is considered vertical fenestration.
(b) Vertical fenestration: all fenestration other than skylights. Trombe wall assemblies, where glazing is installed within 300 mm of a mass wall, are considered walls, not fenestration.

Fenestration area: total area of the fenestration measured using the rough opening and including the glazing, sash, and frame. For doors where the glazed vision area is less than 50% of the door area, the fenestration area is the glazed vision area. For all other doors, the fenestration area is the door area.

Finished floor level: level of floor achieved after finishing materials have been added to the subfloor or rough floor or concrete floor slab.

Fossil fuel: fuel derived from a hydrocarbon deposit such as petroleum, coal, or Natural gas derived from living matter of a previous geologic time.

Fuel: a material that may be used to produce heat or generate power by combustion.

Fuel utilization efficiency (FUE): a thermal efficiency measure of combustion equipment like furnaces, boilers, and water heaters.

Gathering hall (Type of Assembly): any building, its lobbies, rooms and other spaces connected thereto, primarily intended for assembly of people, but which has no theatrical stage or permanent theatrical and/or cinematographic accessories and has gathering space for greater or equal to 100 persons, for example, stand-alone dance halls, stand-alone night clubs, halls for incidental picture shows, dramatic, theatrical or educational presentation, lectures or other similar purposes having no theatrical stage except a raised platform and used without permanent seating arrangement; art galleries, community halls, marriage halls, places of worship, museums, stand-alone lecture halls, passenger terminals and heritage and archaeological monuments, pool and billiard parlours, bowling alleys, community halls, courtrooms, gymnasiums, indoor swimming pools, indoor tennis court, any indoor stadium for sports and culture, auditoriums.

Grade: finished ground level adjoining a building at all exterior walls.

Guest room: any room or rooms used or intended to be used by a guest for sleeping purposes.

Habitable spaces: space in a building or structure intended or used for working, meeting, living, sleeping, eating, or cooking. Bathrooms, water closet compartments, closets, halls, storage or utility space, and similar areas are not considered habitable spaces.

Hospitals and sanatoria (Healthcare): Any building or a group of buildings under single management, which is used for housing persons suffering from physical limitations because of health or age and those incapable of self-preservation, for example, any hospitals, infirmaries, sanatoria and nursing homes.

HVAC system: equipment, distribution systems, and terminal devices that provide, either collectively or individually, the processes of heating, ventilating, or air conditioning to a building or parts of a building.

Hyper Markets (Type F of Shopping Complex): large retail establishments that are a combination of supermarket and department stores. They are considered as a one-stop shop for all needs of the customer.

Infiltration: uncontrolled inward air leakage through cracks and crevices in external surfaces of buildings, around windows and doors due to pressure differences across these caused by factors such as wind or indoor and outside temperature differences (stack effect), and imbalance between supply and exhaust air systems.

Installed interior lighting power: power in watts of all permanently installed general, task, and furniture lighting systems and luminaires.

Integrated part-load value (IPLV): weighted average efficiency of chillers measured when they are operating at part load conditions (less than design or 100% conditions). It is more realistic measurement of chiller efficiency during its operational life.

Kilovolt-ampere (kVA): where the term "kilovolt-ampere" (kVA) is used in this Code, it is the product of the line current (amperes) times the nominal system voltage (kilovolts) times 1.732 for three-phase currents. For single-phase applications, kVA is the product of the line current (amperes) times the nominal system voltage (kilovolts).

Kilowatt (kW): the basic unit of electric power, equal to 1000 W.

Labelled: equipment or materials to which a symbol or other identifying mark has been attached by the manufacturer indicating compliance with specified standard or performance in a specified manner.

Lamp: a device for giving light consisting of electric bulb with its holder and shade or cover.

Lighted floor area, gross: gross area of lighted floor spaces.

Lighting, emergency: battery backed lighting that provides illumination only when there is a power outage and general lighting luminaries are unable to function.

Lighting, general: lighting that provides a substantially uniform level of illumination throughout an area. General lighting shall not include decorative lighting or lighting that provides a dissimilar level of illumination to serve a specialized application or feature within such area.

Lighting system: a group of luminaires circuited or controlled to perform a specific function.

Lighting power allowance:

(a) Interior lighting power allowance: the maximum lighting power in watts allowed for the interior of abuilding
(b) Exterior lighting power allowance: the maximum lighting power in watts allowed for the exterior of a building.

Lighting Power Density (LPD): maximum lighting power per unit area of a space as per its function or building as per its classification.

Low energy comfort systems: space conditioning or ventilation systems that are less energy intensive then vapor compression-based space condition systems. These primarily employ alternate heat transfer methods or materials (adiabatic cooling, radiation, desiccant, etc.), or renewable sources of energy (solar energy, geo-thermal) so that minimal electrical energy input is required to deliver heating or cooling to spaces.

Luminaires: a complete lighting unit consisting of a lamp or lamps together with the housing designed to distribute the light, position and protect the lamps, and connect the lamps to the power supply.

Man-made daylight obstruction: any permanent man-made object (equipment, adjacent building) that obstructs sunlight or solar radiation from falling on a portion or whole of a building's external surface at any point of time during a year is called as a man-made sunlight obstructer.

Manual (non-automatic): requiring personal intervention for control. Non-automatic does not necessarily imply a manual controller, only that personal intervention is necessary.

Manufacturing processes: processes through which raw material is converted into finished goods for commercial sale using machines, labour, chemical or biological processes, etc.

Manufacturer: company or person or group of persons who produce and assemble goods or purchases goods manufactured by a third party in accordance with their specifications.

Mean temperature: average of the minimum daily temperature and maximum daily temperature.

Mechanical cooling: reducing the temperature of a gas or liquid by using vapor compression, absorption, and desiccant dehumidification combined with evaporative cooling, or another energy-driven thermodynamic cycle. Indirect or direct evaporative cooling alone is not considered mechanical cooling.

Metering: practice of installing meters in buildings to acquire data for energy consumption and other operational characteristics of individual equipment or several equipment grouped on basis of their function (lighting, appliances, chillers, etc.). Metering is done in buildings to monitor their energy performance.

Mixed mode air-conditioned building: building in which natural ventilation is employed as the primary mode of ventilating the building, and air conditioning is deployed as and when required.

Mixed use development: a single building or a group of buildings used for a combination of residential, commercial, business, educational, hospitality and assembly purposes.

National Building Code 2016 (NBC): model building code that provides guidelines for design and construction of buildings. In this code, National Building Code 2016 refers to the latest version by the Bureau of Indian Standards.

Natural daylight obstruction: any natural object, like tree, hill, etc., that obstructs sunlight from falling on part or whole of a building's external surface at any point of time during a year and casts a shadow on the buildingsurface.

Naturally ventilated building: a building that does not use mechanical equipment to supply air to and exhaust air from indoor spaces. It is primarily ventilated by drawing and expelling air through operable openings in the building envelope.

Non-cardinal directions: any direction which is not a cardinal direction, i.e. perfect north, south, east, or west, is termed as non-cardinal direction.

No Star hotel (Type of Hospitality): any building or group of buildings under the same management, in which separate sleeping accommodation on commercial basis, with or without dining facilities or cooking facilities, is provided for individuals. This includes lodging rooms, inns, clubs, motels, no star hotel and guest houses and excludes residential apartments rented on a lease agreement of 4 months or more. These shall also include any building in which group sleeping accommodation is provided, with or without dining facilities for persons who are not members of the same family, in one room or a series of adjoining rooms under joint occupancy and single management, for example, school and college dormitories, students, and other hostels and military barracks.

Occupant sensor: a device that detects the presence or absence of people within an area and causes lighting, equipment, or appliances to be dimmed, or switched on or off accordingly.

Opaque assembly or opaque construction: surface of the building roof or walls other than fenestration and building service openings such as vents and grills.

Opaque external wall: external wall composed of materials which are not transparent or translucent, usually contains the structural part of the building, and supports the glazed façade. This type may be composed of one or more materials.

Open Gallery Mall (Type of Shopping Complex): a large retail complex containing a variety of stores and often restaurants and other business establishments housed in a series of connected or adjacent buildings or in a single large building. The circulation area and atrium of the open gallery mall is an unconditioned space and is open to sky.

Orientation: the direction a building facade faces, i.e., the direction of a vector perpendicular to and pointing away from the surface of the facade. For vertical fenestration, the two categories are north- oriented and all other.

Outdoor (outside) air: air taken from the outside the building and has not been previously circulated through the building.

Out-patient Healthcare (Type of Healthcare): any building or a group of buildings under single management, which is used only for treating persons requiring treatment or diagnosis of disease but not requiring overnight or longer accommodation in the building during treatment or diagnosis.

Overcurrent: any current in excess of the rated current of the equipment of the ampacity of the conductor. It may result from overload, short circuit, or ground fault.

Owner: a person, group of persons, company, trust, institute, Registered Body, state or central Government and its attached or sub-ordinate departments, undertakings and like agencies or organization in whose name the property stands registered in the revenue records for the construction of a building or building complex.

Party wall: a firewall on an interior lot line used or adapted for joint service between two buildings.

Permanently installed: equipment that is fixed in place and is not portable or movable.

Plenum: a compartment or chamber to which one or more ducts are connected, that forms a part of the air distribution system, and that is not used for occupancy or storage.

Plug loads: energy used by products that are powered by means of an AC plug. This term excludes building energy that is attributed to major end uses specified in § 5, § 6, § 7 (like HVAC, lighting, water heating, etc.).

Pool: any structure, basin, or tank containing an artificial body of water for swimming, diving, or recreational bathing. The terms include, but no limited to, swimming pool, whirlpool, spa, hot tub.

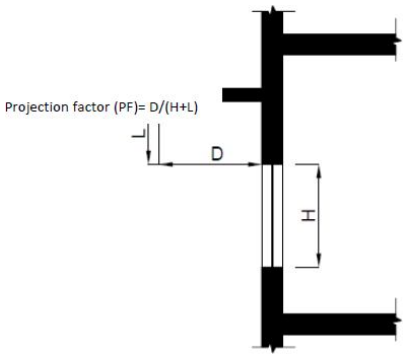
Potential daylit time: amount of time in a day when there is daylight to light a space adequately without using artificial lighting. Potential daylit time is fixed for 8 hours per day i.e. from 09:00 AM to 5:00 PM local time, resulting 2920 hours in total for all building types except for Type E-1 - Educational, which shall be analysed for 7hours per day i.e. from 08:00 AM to 3:00 PM local time.

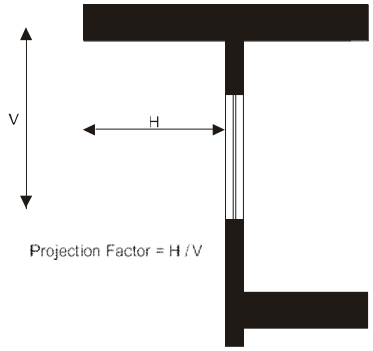
Primary inter-cardinal direction: any of the four points of the compass, midway between the cardinal points; northeast, southeast, southwest, or northwest are called primary inter- cardinal direction.

Process load: building loads resulting from the consumption or release of energy due to industrial processes or processes other than those for providing space conditioning, lighting, ventilation, or service hot water heating.

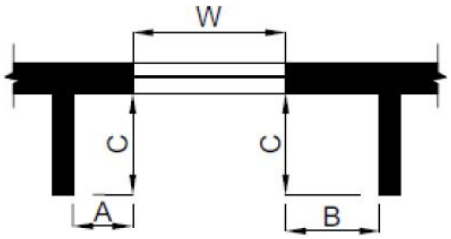
Projection factor, overhang: It is the ratio of the horizontal depth of the external shading projection to

the sum of the height of the fenestration and the distance from the top of the fenestration to the bottom of the farthest point of the external shading projection, in consistent units.





Projection factor, side fin: It is the ratio of the horizontal depth of the external shading projection to the distance from the window jamb to the farthest point of the external shading projection, in consistent units.



Projection factor Left Fin (PFL)=C/(A+W) Projection factor Right Fin (PFR)=C/(B+W)

Projection Factor, overhang and side fin: average of ratio projection factor for overhang only and projection factor of side fin only.

Proposed Building: is consistent with the actual design of the building and complies with all the mandatory requirements of ECBC.

Proposed Design: a computer model of the proposed building, consistent with its actual design, which complies with all the mandatory requirements of ECBC.

R-value (thermal resistance): the reciprocal of the time rate of heat flow through a unit area induced by a unit temperature difference between two defined surfaces of material or construction under steady- state conditions. Units of R value are m^2.K/W.

Readily accessible: capable of being reached quickly for operation, renewal, or inspections without requiring those to whom ready access is requisite to climb over or remove obstacles or to resort to portable ladders, chairs, etc. In public facilities, accessibility may be limited to certified personnel through locking covers or by placing equipment in locked rooms.

Recirculating system: a domestic or service hot water distribution system that includes a close circulation circuit designed to maintain usage temperatures in hot water pipes near terminal devices (e.g., lavatory faucets, shower heads) in order to reduce the time required to obtain hot water when the terminal device valve is opened. The motive force for circulation is either natural (due to water density variations with temperature) or mechanical (recirculation pump).

Renewable Energy Generating Zone: a contiguous or semi-contiguous area, either on rooftop or elsewhere within site boundary, dedicated for installation of renewable energy systems.

Resort (Type of Hospitality): commercial establishments that provide relaxation and recreation over and above the accommodation, meals and other basic amnesties. The characteristics of resort are as below –

i. Includes 1 or more recreation(s) facility like spa, swimming pool, or any sport;

ii. is located in the midst of natural and picturesque surroundings outside the city;

iii. Comprises of 2 or more blocks of buildings within the same site less than or equal to 3 floors (including the ground floor).

iv. **Reset:** automatic adjustment of the controller set point to a higher or lower value.

v.

vi. **Roof:** the upper portion of the building envelope, including opaque areas and fenestration, that is horizontal or tilted at an angle of less than 60° from horizontal. This includes podium roof as well which are exposed to direct sun rays.

vii. **Roof area, gross:** the area of the roof measured from the exterior faces of walls or from the centre line of party walls.

viii.

ix.

x. **Service:** the equipment for delivering energy from the supply or distribution system to the premises served.

xi. **Service water heating equipment:** equipment for heating water for domestic or commercial purposes other than space heating and process requirements.

xii. **Set point:** the desired temperature (°C) of the heated or cooled space that must be maintained by mechanical heating or cooling equipment.

xiii. **Shading Coefficient (SC):** measure of thermal performance of glazing. It is the ratio of solar heat gain through glazing due to solar radiation at normal incidence to that occurring through 3 mm thick clear, double-strength glass. Shading coefficient, as used herein, does not include interior, exterior, or integral shading devices.

xiv. **Shading Equivalent Factor:** coefficient for calculating effective SHGC of fenestrations shaded by overhangs or side fins.

Shopping Mall (Shopping Complex): a large retail complex containing a variety of stores and often restaurants and other business establishments housed in a series of connected or adjacent buildings or in a single large building. The circulation area and atrium of the mall is an enclosed space covered completely by a permanent or temporary structure.

Simulation program: software in which virtual building models can be developed to simulate the energy performance of building systems and daylighting analysis.

Single-zone system: an HVAC system serving a single HVAC zone.

Site-recovered energy: waste energy recovered at the building site that is used to offset consumption of purchased fuel or electrical energy supplies.

Slab-on-grade floor: floor slab of the building that is in contact with ground and that is either above grade or is less than or equal to 300 mm below the final elevation of the nearest exterior grade.

Solar energy source: source of thermal, chemical, or electrical energy derived from direction conversion of incident solar radiation at the building site.

Solar Heat Gain Coefficient (SHGC): the ratio of the solar heat gain entering the space through the fenestration area to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation, which is then reradiated, conducted, or convected into the space.

Solar Reflectance: ratio of the solar radiation reflected by a surface to the solar radiation incident upon it.

Space: an enclosed area within a building. The classifications of spaces are as follows for purpose of determining building envelope requirements:

(a) Conditioned space: a cooled space, heated space, or directly conditioned space.
(b) Semi-heated space: an enclosed space within a building that is heated by a heating system whose output capacity is greater or equal to 10.7 W/m^2 but is not a conditioned space.
(c) Non-conditioned space: an enclosed space within a building that is not conditioned space or a semi-heated space. Crawlspaces, attics, and parking garages with natural or mechanical ventilation are not considered enclosed spaces.

Star Hotels/motels (Star Hotel): any building or group of buildings under single management and accredited as a starred hotel by the Hotel and Restaurant Approval and Classification Committee, Ministry of Tourism, in which sleeping accommodation, with or without dining facilities is provided.

Stand-alone Retail (Shopping Complex): a large retail store owned or sublet to a single management which may offer customers a variety of products under self-branding or products of different brands. The single management shall have a complete ownership of all the spaces of the building and no space within the building is further sold or sublet to a different management.

Standard Building: a building that minimally complies with all the mandatory and prescriptive requirements of Energy Conservation Building Code and has same floor area, gross wall area, and gross roof area of the Proposed Building.

Standard Design: a computer model of a hypothetical building, based on actual building design that fulfils all the mandatory requirements and minimally complies with the prescriptive requirements of ECBC, as described in the Whole Building Performance method.

Story: portion of a building that is between one finished floor level and the next higher finished floor level or building roof. Basement and cellar shall not be considered a story.

Summer Solar Insolation: measure of solar radiation energy received on a given surface area from the month of March to October within the same calendar year. Units of measurement are watts per square meter (W/m^2) or kilowatt-hours per square meter per day (kW.h/ (m^2/day)) (or hours/day).

Super ECBC B**uilding:** a building that complies with the mandatory requirements of §4 to §7 and also complies either with the prescriptive requirements stated under the Super ECBC Building categories of §4 to §7, or, with the whole building performance compliance method of §9. This is a voluntary level of compliance with ECBC.

Super Market (Shopping Complex): supermarkets are large self-service grocery stores that offer customers a variety of foods and household supplies. The merchandise is organized into an organized aisle format, where each aisle has only similar goods placed together.

System: a combination of equipment and auxiliary devices (e.g., controls, accessories, interconnecting means, and terminal elements) by which energy is transformed so it performs a specific function such as HVAC, service water heating, or lighting.

System Efficiency: the system efficiency is the ratio of annual kWh electricity consumption of equipment of water-cooled chilled water plant (i.e. chillers, chilled and condenser water pumps, cooling tower) to chiller thermal kWh used in a building.

System, existing: a system or systems previously installed in an existing building.

Tenant lease agreement: The formal legal document entered into between a Landlord and a Tenant to reflect the terms of the negotiations between them; that is, the lease terms have been negotiated and agreed upon, and the agreement has been reduced to writing. It constitutes the entire agreement between the parties and sets forth their basic legal rights.

Tenant leased area: area of a building that is leased to tenant(s) as per the tenant lease agreement.

Terminal device: a device through which heated or cooled air is supplied to a space to maintain its temperature. It usually contains dampers and heating and cooling coils. Or a device by which energy form a system is finally delivered, e.g., registers, diffusers, lighting fixtures, faucets, etc.

Theatre or motion picture hall (Type of Assembly): any building primarily meant for theatrical or operatic performances and which has a stage, proscenium curtain, fixed or portable scenery or scenery loft, lights, mechanical appliances or other theatrical accessories and equipment for example, theatres, motion picture houses, auditoria, concert halls, television and radio studios admitting an audience, and which are provided with fixed seats.

Thermal block: a collection of one or more HVAC zones grouped together for simulation purposes. Spaces need not be contiguous to be combined within a single thermal block.

Thermal comfort conditions: conditions that influence thermal comfort of occupants. Environmental conditions that influence thermal comfort air and radiant temperature, humidity, and air speed.

Thermostat: device containing a temperature sensor used to automatically maintain temperature at a desirable fixed or adjustable set point in a space.

Tinted: (as applied to fenestration) bronze, green, or grey colouring that is integral with the glazing material. Tinting does not include surface applied films such as reflective coatings, applied either in the field or during the manufacturing process.

Transformer: a piece of electrical equipment used to convert electric power from one voltage to another voltage.

Transformer losses: electrical losses in a transformer that reduces its efficiency.

Transport Buildings (Assembly): any building or structure used for the purpose of transportation and transit like airports, railway stations, bus stations, and underground and elevated mass rapid transit system example, underground or elevated railways.

Unconditioned buildings: building in which more than 90% of spaces are unconditioned spaces.

Unconditioned space: mechanically or naturally ventilated space that is not cooled or heated by mechanical equipment.

Universities and all others coaching/training institutions (Educational): a building or a group of buildings, under single management, used for imparting education to students numbering more than 100 or public or private training institution built to provide training/coaching etc.

Useful Daylight Illuminance: percentage of annual daytime hours that a given point on a work plane height of 0.8 m above finished floor level receives daylight between 100 lux to 2,000 lux.

U-factor (Thermal Transmittance): heat transmission in unit time through unit area of a material or construction and the boundary air films, induced by unit temperature difference between the environments on each side. Unit of U value is $W/m^2.K$.

Variable Air Volume (VAV) system: HVAC system that controls the dry-bulb temperature within a space by varying the volumetric flow of heated or cooled air supplied to the space.

Vegetative roofs: also known as green roofs, they are thin layers of living vegetation installed on top of conventional flat or sloping roofs.

Ventilation: the process of supplying or removing air by natural or mechanical means to or from any space. Such air is not required to have been conditioned.

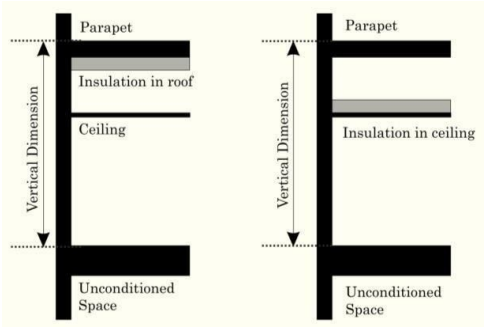
Vision Windows: windows or area of large windows that are primarily for both daylight and exterior views. Typically, their placement in the wall is between 1 meter and 2.2 meter above the floor level.

Wall: that portion of the building envelope, including opaque area and fenestration, that is vertical or tilted at an angle of 60° from horizontal or greater. This includes above- and below-grade walls, between floor spandrels, peripheral edges of floors, and foundation walls.

(a) Wall, above grade: a wall that is not below grade

(b) Wall, below grade: that portion of a wall in the building envelope that is entirely below the finish grade and in contact with the ground

Wall area, gross: the overall area off a wall including openings such as windows and doors measured horizontally from outside surface to outside surface and measured vertically from the top of the floor to the top of the roof. If roof insulation is installed at the ceiling level rather than the roof, then the vertical measurement is made to the top of the ceiling. The gross wall area includes the area between the ceiling and the floor for multi-story buildings.



Water heater: vessel in which water is heated and withdrawn for use external to the system.

Zone, HVAC: a space or group of spaces within a building with heating and cooling requirements that are sufficiently similar so that desired conditions (e.g., temperature) can be maintained throughout using a single sensor (e.g., thermostat or temperature sensor).

Zone, Critical: a zone serving a process where reset of the zone temperature set point during a demand shed event might disrupt the process, including but not limited to data centers, telecom and private branch exchange (PBX) rooms, and laboratories.

Zone, Non-Critical: a zone that is not a critical zone.

8.3 SI to IP Conversion Factors

SI Unit	IP Unit
1 cmh	1.7 cfm
1 Pa	0.0040 inch of water gauge
1m	3.28 ft
1m	39.37 in
1mm	0.039 in
1 l/s	2.12 cfm
1 m^2	10.76 ft^2
1 W/m^2	10.76 W/ ft^2

1 W/ lin m	3.28 W/ ft
1 W/m^2.K	5.678 Btu/ h-ft^2-°F
1 W/ l-s^{-1}	0.063 W/ gpm
1 m^2.K/W	0.1761 ft^2-h-°F/ Btu
1 °C	((°C X 9/5) + 32) °F
1 kWr	0.284 TR
1 kW	1.34 hp
1 kW	3412.142 Btu/hr

8.4 Abbreviations and Acronyms

AFUE	Annual fuel utilization efficiency
AHRI	Air-conditioning, Heating and Refrigeration Institute
ANSI	American National Standards Institute
ARI	Air-Conditioning and Refrigeration Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASTM	American Society for Testing and Materials
BIS	Bureau of Indian Standards
Btu	British thermal unit
Btu/h	British thermal units per hour
Btu/h-ft^2-°F	British thermal units per hour per square foot per degree Fahrenheit
BUA	Built Up Area
C	Celsius
cmh	cubic meter per hour
cm	centimetre
COP	coefficient of performance
DEF	daylight extent factor
EER	energy efficiency ratio
EPI	energy performance index
F	Fahrenheit
ft	foot
h	hour
h-ft^2-°F/Btu	hour per square foot per degree Fahrenheit per British thermal unit
h-m^2-°C/W	hour per square meter per degree Celsius per Watt
hp	horsepower
HVAC	heating, ventilation, and air conditioning
I-P	inch-pound
in.	inch
IPLV	integrated part-load value
IS	Indian Standard
ISO	International Organization for Standardization
kVA	kilovolt-ampere
kW	Kilowatt of electricity
kW_r	kilowatt of refrigeration
kWh	kilowatt-hour
l/s	Litre per second

LE	luminous efficacy
lin	linear
linft	linear foot
lin m	linear meter
lm	lumens
Lm/W	lumens per watt
LPD	lighting power density
m	metre
mm	millimetre
m^2	square meter
m^2.K/W	square meter Kelvin per watt
NBC	National Building Code 2016
Pa	pascal
PF	projection factor
R	R-value (thermal resistance)
SC	shading coefficient
SEF	Shading equivalent factor
SHGC	solar heat gain coefficient
TR	tons of refrigeration
UPS	uninterruptible power supply
VAV	variable air volume
VLT	visible light transmission
W	watt
W/ l-s^{-1}	watt per litre per second
W/m^2	watts per square meter
W/m^2.K	watts per square meter per Kelvin
W/m^2	watts per hour per square meter
W/m.K	watts per lineal meter per Kelvin
Wh	watthour

9 Whole Building Performance Method

9.1 General

9.1.1 Scope

The Whole Building Performance Method is an alternative to the Prescriptive Method compliance path contained in §4 through §7 of this Code. It applies to all building types covered by the Code as mentioned in §2.5.

9.1.2 Compliance

A building complies with the Code using the Whole Building Performance (WBP) Method, when the estimated EPI Ratio is equal to or less than 1, even though it may not comply with the specific provisions of the prescriptive requirements in §4 trough §7. The mandatory requirements of §4 through §7 (§4.2, §5.2, §6.2, and §7.2) shall be met when using the WBP Method.

9.1.3 Annual Energy Use

Annual energy use for the purposes of the WBP Method shall be calculated in kilowatt-hours (kWh) of electricity use per year per unit area. Energy sources other than electricity that are used in the building shall be converted to kWh of electric energy at the rate of 0.75 kWh per mega-joule.

Note: *The annual energy use calculation as per the Whole Building Performance Method is not a prediction of the actual energy use of the building once it gets operational. Actual energy performance of a building depends on a number of factors like weather, occupant behavior, equipment performance and maintenance, among others, which are not covered by this Code.*

9.1.4 Trade-offs Limited to Building Permit

The WBP Method may be used for building permit applications that include less than the whole building; however, any design parameters that are not part of the building permit application shall be identical for both the Proposed Design and the Standard Design. Future improvements to the building shall comply with both the mandatory and prescriptive requirements of concurrent code.

9.1.5 Documentation Requirements

Compliance shall be documented, and compliance forms shall be submitted to the authority having jurisdiction. The information submitted shall include, at a minimum, the following:

(a) Summary describing the results of the analysis, including the annual energy use for the Proposed Design and the Standard Design, and software used.

(b) Brief description of the project with location, number of stories, space types, conditioned and unconditioned areas, hours of operation.

(c) List of the energy-related building features of the Proposed Design. This list shall also document features different from the Standard Design.

(d) List showing compliance with the mandatory requirements of this code.

(e) The input and output report(s) from the simulation program including a breakdown of energy usage by at least the following components: lights, internal equipment loads, service water heating equipment, space heating equipment, space cooling and heat rejection equipment, fans, and other HVAC equipment (such as pumps). The output reports shall also show the number of hours any loads are not met by the HVAC system for both the Proposed Design and Standard Design.

(f) Explanation of any significant modelling assumptions made.

(g) Explanation of any error messages noted in the simulation programme output.

(h) Building floor plans, building elevations, and site plan.

9.2 Mandatory Requirements

All requirements of §4.2, §5.2, §6.2, and §7.2 shall be met. These sections contain the mandatory provisions of the Code and are prerequisites for demonstrating compliance using the WBP Method.

9.3 Simulation Requirements

9.3.1 Energy Simulation Program

The simulation software shall be a computer-based program for the analysis of energy consumption in buildings and be approved by the authority having jurisdiction. The simulation program shall, at a minimum, have the ability to model the following:

a) Energy flows on an hourly basis for all 8,760 hours of the year,
b) Hourly variations in occupancy, lighting power, miscellaneous equipment power, thermostat set points, and HVAC system operation, defined separately for each day of the week and holidays,
c) Thermal mass effects,
d) Ten or more thermal zones,
e) Part-load and temperature dependent performance of heating and cooling equipment,
f) Air-side and water-side economizers with integrated control.

In addition to the above, the simulation tool shall be able to produce hourly reports of energy use by energy source and shall have the capability to performing design load calculations to determine required HVAC equipment capacities, air, and water flow rates in accordance with §5 for both the proposed and Standard building designs.

The simulation program shall be tested according to ASHRAE Standard 140 Method of Test for the Evaluation of Building Energy Analysis Computer Programs (ANSI approved) and the results shall be furnished by the software provider.

9.3.2 Climate Data

The simulation program shall use hourly values of climatic data, such as temperature and humidity, from representative climatic data for the city in which the Proposed

Design is to be located. For cities or urban regions with several climate data entries, and for locations where weather data are not available, the designer shall select available weather data that best represent the climate at the construction site.

9.3.3 Compliance Calculations

The Proposed Design and Standard Design shall be calculated using the following:

a) Same simulation program,
b) Same weather data, and
c) Identical building operation assumptions (thermostat set points, schedules, equipment and occupant loads, etc.) unless an exception is allowed by this Code or the authority having jurisdiction for a given category.

9.4 Calculating Energy Consumption of Proposed Design and Standard Design

9.4.1 Energy Simulation Model

The simulation model for calculating the Proposed Design and the Standard Design shall be developed in accordance with the requirements in Table 9-1. The Standard Design is based on the mandatory and prescriptive requirements of the ECBC compliant building. The Standard Design will be the same for all compliance levels (ECBC, ECBC+, and Super ECBC).

Table 9-1 *Modelling Requirements for Calculating Proposed and Standard Design*

Case	*Proposed Design*	*Standard Design*
1. Design Model	(a) The simulation model of the Proposed Design shall be consistent with the design documents, including proper accounting of fenestration and opaque envelope types and area; interior lighting power and controls; HVAC system types, sizes, and controls; and service water heating systems and controls. (b) When the whole building performance method is applied to buildings in which energy-related features have not been designed yet (e.g., a lighting system), those yet-to-be-designed features shall be described in the Proposed Design so that they minimally comply with applicable mandatory and prescriptive requirements of §4.2, §5.2, §6.2, and §7.2 and §4.3, §5.3, and §6.3 respectively.	The Standard Design shall be developed by modifying the Proposed Design as described in this table. Unless specified in this table, all building systems and equipment shall be modelled identically in the Standard Design and Proposed Design
2. Space Use Classification	The building type or space type classifications shall be chosen in accordance with §2.5. More than one building type category may be used in a building if it is a mixed-use facility.	Same as Proposed Design.

3. Schedules	Operational schedules (hourly variations in occupancy, lighting power, equipment power, HVAC equipment operation, etc.). Suitable for the building and /or space type shall be modelled for showing compliance. Schedules must be modelled as per §9.6. In case a schedule for an occupancy type is	Same as Proposed Design. **Exception:** Schedules may be allowed to differ between the Standard and Proposed models wherever it is necessary to model nonstandard efficiency measures and/or measures
	missing in §9.6, appropriate schedule may be used. Temperature and humidity schedules and set points shall be identical in the Standard and Proposed Designs. Temperature control / thermostat throttling ranges shall also be modelled identically in both the Designs.	which can be best approximated by a change in schedule. Measures that may warrant a change in operating schedules include but are not limited to automatic controls for lighting, natural ventilation, demand-controlled ventilation systems, controls for service water heating load reduction. Schedule change is not allowed for manual controls under any category. This is subject to approval by the authority having jurisdiction.
4. Building Envelope	All components of the building envelope in the Proposed Design shall be modelled as shown on architectural drawings or as installed for existing building envelopes. Exceptions: The following building elements are permitted to differ from architectural drawings. **(a)** Any envelope assembly that covers less than 5% of the total area of that assembly type (e.g., exterior walls) need not be separately described. If not separately described, the area of an envelope assembly must be added to the area of the adjacent assembly of that same type. **(b)** Exterior surfaces whose azimuth orientation and tilt differ by no more than 45 degrees and are otherwise the same may be described as either a single surface or by using multipliers. **(c)** For exterior roofs, other than roofs with ventilated attics, the reflectance and emittance of the roof surface shall be modelled in accordance with§4.3.1.1. **(d)** Manually operated fenestration shading devices such as blinds or shades shall not be modelled. Permanent shading devices such as fins, overhangs, and light shelves shall be modelled. **(e)** The exterior roof surface shall be modelled using the solar reflectance in accordance with ASTM E903-96 and thermal emittance determined in	The Standard Design shall have identical conditioned floor area and identical exterior dimensions and orientations as the Proposed Design, except as noted in (a), (b), (c), (d) and (e) below. (a) Orientation. The Standard Design performance shall be generated by simulating the building with its actual orientation and again after rotatingtheentirebuilding90,180, 270 degrees, then averaging the results. The building shall be modelled so that it does not shade itself. (b) Opaque assemblies such as roof, floors, doors, and walls shall be modelled with the maximum U-factor allowed in §4.3.1 and§4.3.2.) Fenestration areas shall equal that in the Proposed Design or 40% of gross above grade wall area, whichever is smaller, and shall be distributed on each face in the same proportions as in the Proposed Design No shading projections are to be modelled; fenestration shall be assumed to be flush with the exterior wall or roof. Manually operated fenestration shading devices such as blinds or shades shall not be

	accordance with ASTM E408-71. Where cool roof is proposed, emittance and reflectance shall be modelled as per ASTM E408-71 and ASTM E903-96 respectively. Where cool roof is not proposed, the exterior roof surfaces shall	modelled. Fenestration U-factor shall be the maximum allowed for the climate, and the solar heat gain coefficient shall be the maximum allowed for the climate and orientation. (d) Skylight areas shall equal that in the Proposed Design or 5% of gross
	be modeled as per §4.3.1.1 the exterior roof surface shall be modeled with a solar reflectance of 0.30 and a thermal emittance of 0.75.	roof area, whichever is smaller. (e) Roof Solar Reflectance and Thermal Emittance: The exterior roof surfaces shall be modeled using a solar reflectance of 0.70 and a thermal emittance of 0.75 asper §4.3.1.1
5. Lighting	Lighting power in the Proposed Design shall be determined as follows: Where a complete lighting system exists, the actual lighting power shall be used in the model. Where a lighting system has been designed, lighting power shall be determined in accordance with either §6.3.4. Where no lighting exists, or is specified, lighting power shall be determined in accordance with the §6.3.2 or §6.3.3 for the appropriate building type. Lighting system power shall include all lighting system components shown or provided for on plans (including lamps, ballasts, task fixtures, and furniture-mounted fixtures). Lighting power for parking garages, exterior spaces and building facades shall be modelled. Minimum Lighting controls, as per the ECBC requirements of §6.2.1, shall be modelled in the Proposed case. Automatic daylighting controls shall be modelled directly in the software or through schedule adjustments determined by a separate daylight analysis approved by the authority having jurisdiction. Other automatic lighting controls shall be modelled directly in the software by adjusting the lighting power as per the table 9.3	Interior lighting power in the Standard Design shall be determined using the same categorization procedure (building area or space function) and categories as the Proposed Design with lighting power set equal to the maximum allowed for the corresponding method and category in either §6.3.2 or §6.3.3. Power for fixtures not included in the lighting power density calculation shall be modelled identically in the Proposed Design and Standard Design. Lighting controls shall be as per the ECBC requirements of §6.2.1. Exterior lighting power in the standard design shall be set equal to the maximum allowed in§6.3.5

6. *HVAC Thermal Zones*	HVAC Zones Designed: Where HVAC zones are defined on design drawings, each HVAC zone shall be modelled as a separate thermal block. Exception: Identical zones (similar occupancy and usage, similar internal loads, similar set points and type of HVAC system, glazed exterior walls face the same orientation or vary by less than 45°) may be combined for simplicity.	Same as Proposed Design
	HVAC Zones Not Designed: Where HVAC zones are not defined on design drawings, HVAC zones shall be defined based on similar occupancy and usage, similar internal loads, similar set points and type of HVAC system, glazed exterior walls that face the same orientation or vary by less than 45° in combination with the following rules: Perimeter Core Zoning: Separate thermal block shall be modelled for perimeter and core spaces. Perimeter spaces are defined as spaces located within 5 meters of an exterior or semi exterior wall. Core spaces are defined as spaces located greater than 5 meters of an exterior or semi exterior wall. Separate thermal blocks shall be modelled for floors in contact with ground and for floors which have a ceiling/roof exposure to the ambient.	
7. *HVAC Systems*	The HVAC system type and all related performance parameters, such as equipment capacities and efficiencies, in the Proposed Design shall be determined as follows: (a) Where a complete HVAC system exists, the model shall reflect the actual system type using actual component capacities and efficiencies. (b) Where an HVAC system has been designed, the HVAC model shall be consistent with design documents. Mechanical equipment efficiencies shall be adjusted from actual design conditions to the rating conditions specified in §5, if required by the simulation model. (c) Where no heating system has been specified, the heating system shall be assumed to be electric. The system characteristics shall be identical to the system modelled in the Standard Design. (d) Where no cooling system has been	The HVAC system type shall be as per Table 9-2 and related performance parameters for the Standard Design shall be determined from requirements of §9.4.2. Equipment performance shall meet the requirements of §5 for code compliant building.

	specified, the cooling system and its characteristics shall be identical to the system modelled in the Standard Design.	
8. *Service Hot Water*	The service hot water system type and all related performance parameters, such as equipment capacities and efficiencies, in the Proposed Design shall be determined as follows:	The service water heating system shall be of the same type as the Proposed Design. For residential facilities, hotels and hospitals the Standard Design shall have a solar hot
	(a) Where a complete service hot water system exists, the model shall reflect the actual system type using actual component capacities and efficiencies. (b) Where a service hot water system has been designed, the service hot water model shall be consistent with design documents. (c) Where no service hot water system exists, or is specified, no service hot water heating shall be modelled	water system capable of meeting 20% of the hot water demand. Systems shall meet the efficiency requirements of§5.2.7.2.
9. *Miscellaneous Loads*	Receptacle, motor, and process loads shall be modelled and estimated based on the building type or space type category. These loads shall be included in simulations of the building and shall be included when calculating the Standard Design and Proposed Design. All end-use load components within and associated with the building shall be modelled, unless specifically excluded by this Table, but not limited to, exhaust fans, parking garage ventilation fans, exterior building lighting, swimming pool heaters and pumps, elevators and escalators, refrigeration equipment, and cooking equipment.	Receptacle, motor and process loads shall be modelled the same as the Proposed Design.
10. *Modelling Limitations to the Simulation Program*	If the simulation program cannot model a component or system included in the Proposed Design, one of the following methods shall be used with the approval of the authority having jurisdiction: **(a)** Ignore the component if the energy impact on the trade-offs being considered is not significant. **(b)** Model the component substituting a thermodynamically similar component model. **(c)** Model the HVAC system components or	Same as Proposed Design.

	systems using the HVAC system of the Standard Design in accordance with Section 6 of this table. Whichever method is selected, the component shall be modelled identically for both the Proposed Design and Standard Design models.	

Table 9-2 *HVAC Systems Map for standard Design*

	Hotel/Motel, Hospital Patient Rooms, Hotel Guest Rooms, Resorts, Villas, Sleeping Quarters in Mixed- use Buildings, Schools, Classrooms/ Lecture Rooms[1]	**Buildings with Less than or Equal to 12,500 m² of Conditioned Area**	**Buildings with More than 12,500 m² of Conditioned Area**	**Data Centre/ Server/Computer Rooms**
Name	System **A**	System **B**	System **C**	System **D**
System Type[2]	Split AC	VRF: Variable Refrigerant Flow	VAV: Central cooling plant with variable volume AHU[3]	Computer Room air conditioners
Fan Control	Constant Volume	Constant volume	Variable volume	Constant volume
Cooling Type	Direct expansion with air cooled condenser	Direct expansion with air cooled condenser	Chilled Water with water cooled condenser	Direct expansion with air cooled condenser
Heating Type	1. Heat Pump: Where no heating system has been specified or where an electric heating system has been specified in the Proposed Design 2. Fossil Fuel Boiler, Fossil/Electric Hybrid: Where a heating system exists and a fossil fuel hot water boiler has been specified in the Proposed Design	1. Heat Pump: Where no heating system has been specified or where an electric heating system has been specified in the Proposed Design 2. Fossil Fuel Boiler, Fossil/Electric Hybrid:: Where a heating system exists and a fossil fuel hot water boiler has been specified in the Proposed Design	1. Electric resistance: Where no heating system has been specified or where an electric heating system has been specified in the Proposed Design 2. Fossil Fuel Boiler, Fossil/Electric Hybrid: Where a heating system exists and a fossil fuel hot water boiler has been specified in the Proposed Design	NA

Notes:
1. Buildings of the listed occupancy types or spaces in Mixed-use Buildings with the listed occupancy types.
2. Where attributes make a building eligible for more than one system type; use the predominant condition to determine the Standard Design system type provided the non-predominant conditions apply to less than 1,000 m^2 of conditioned floor area. Use additional system type for non-predominant conditions if those conditions apply to more than 1,000 m^2 of conditioned floor area.
   Use additional system type for any space which has a substantial difference in peak loads and/or operational hours compared to the predominant space type. Such spaces may include but are not limited to computer/server rooms, retail areas in residential, or office buildings.
3. One AHU per floor at a minimum.

Automatic Control Device	Daytime occupancy and area <300 m^2	All Others
Programmable Timing Control	10%	0%
Occupancy Sensor	10%	10%
Occupancy Sensor and Programmable Timing Control	15%	10%

9.4.2 HVAC Systems

The HVAC system type and related performance parameters for the Standard Design shall be determined from Table 9-2 and the following rules:

(a) Other components: Components and parameters not listed in Table 9-or otherwise specifically addressed in this subsection shall be identical to those in the Proposed Design.

Exception to § 9.4.2(a): *Where there are specific requirements in §5.2.2, the component efficiency in the Standard Design shall be adjusted to the lowest efficiency level allowed by the requirement for that component type.*

(b) All HVAC and service water heating equipment in the Standard Design shall be modeled at the minimum efficiency levels, both part load and full load, in accordance with§5.2.2.

(c) Where efficiency ratings, such as EER and COP, include fan energy, the descriptor shall be broken down into its components so that supply fan energy can be modeled separately.

(d) Minimum outdoor air ventilation rates shall be the same for both the Standard Design and the Proposed Design except for conditions specified in§9.4.2.1.

(e) The equipment capacity for the standard design shall be based on sizing runs for each orientation and shall be oversized by 15% for cooling and 25% for heating, i.e., the ratio between the capacities determined by the sizing runs shall be 1.15 for cooling and 1.25 for heating.

(f) Unmet load hours for the Proposed Design shall not differ from unmet load hours for the Standard Design by more than 50 hours. Maximum number of unmet hours shall not

exceed 300 for either case.

9.4.2.1

Minimum Outdoor Air Rates:

Minimum outdoor air rates shall be identical for both the Standard Design and Proposed Design, except

(a) when modelling demand-controlled ventilation (DCV) in the Proposed Design (DCV is not required in the Standard Design as per§5.2.1.3.

(b) when the Proposed Design has a ventilation flow higher than the minimum required by the applicable code, the Standard Design shall be modelled as per the minimum ventilation rate required by the applicable code and the Proposed Design shall be modelled as per actual design (higher than Standard Design) after actual

9.4.2.2

Fan Schedules

Supply and return fans shall operate continuously whenever the spaces are occupied and shall be cycled to meet heating and cooling loads during unoccupied hours.

9.4.2.3

Fan Power

(a) For Systems Types A, B and D,

P_{fan} = cmh x .51

Where, P_{fan} = Standard Design fan power in watts

cmh = Standard Design supply airflow rate auto-sized by the simulation software

(b) For System Type C Fan p

automatically calculate the Standard Design fan power based on the above inputs.

9.4.2.4

Design Airflow Rates

Design airflow rates for the Standard Design shall be sized based on a supply air to room air temperature difference of 11 °C for cooling and 18°C for heating. The Proposed Design airflow rates shall be as per design.

9.4.2.5

Economizers (airside and waterside)

Airside economizers shall be modelled in the Standard Design as per the requirements of §5.3.5.

Exception to §9.4.2.5: Airside economizer shall not be modelled for Standard Design HVAC System Type A.

9.4.2.6

Energy Recovery

Energy recovery shall be modelled in the standard design as per the requirement of §5.3.

9.4.2.7

Chilled Water Design Supply Temperatures

Chilled water design supply temperature shall be modelled at 6.7° C and return temperature at 13.3^{o} C.

9.4.2.8

Chillers

Only electric chillers shall be modelled in the Standard Design for System C. Chillers shall meet the minimum efficiency requirements indicated in Table 5-1 and Table 5-2. Chillers in the Standard Design shall be selected as per Table 9-4below:

Table 9-4 *Types and Number of Chillers for Standard Design*

Peak Building Cooling Load (kWr)	Chiller Type
< 1,055	1 Water Cooled Screw Chiller
1,055 to 2,110	2 Water Cooled Screw Chillers equally sized
> 2,110	2 or more Water Cooled Centrifugal Chillers equally sized such that no Chiller is greater than 2,813 kWr

Exception to 9.4.2.8: Air cooled chillers are allowed to be modelled in the Standard Design if the Proposed Design has air cooled chillers. If the proposed building has a mix of air and water-cooled chillers, then the Standard Design shall be modelled with a mix of air and water-cooled chillers in the same proportion as in the Proposed Design.

9.4.2.9

Chilled Water Pumps

Chilled and condenser water pumps for the Standard Design shall be modelled as per power and efficiency limits specified in Table 5-16.

Standard Design chilled water pumps shall be modelled as primary-secondary with variable secondary flow.

9.4.2.10

Cooling Tower

Standard Design cooling tower shall be modelled as an open circuit axial flow tower with power and efficiency as per §5.3.3. The fans shall be modelled as two speed.

Condenser water design supply temperature shall be 29.4°C or 5.6°C approach to wet bulb temperature, whichever is lower, with a design temperature rise of 5.6°C.

9.4.2.11

Boiler

Standard Design boilers shall be modelled as natural draft boilers and shall use the same fuel as the Proposed Design. Boiler efficiency shall be modelled as per the table 5.6.

9.4.2.12 Hot Water Design Supply Temperatures

Hot water design supply temperature shall be modelled at 82°C and return temperature at 54°C.

9.4.2.13 Hot Water Pumps

The Standard Design hot water pumps shall be modelled with a minimum efficiency of 70% and a pump power of 300 W/l-s^{-1}. Standard Design hot water pumps shall be modelled as primary-secondary with variable secondary flow.

9.4.2.14 Campus/District Cooling Systems

All district cooling plants shall be assumed to be on grid electricity, unless otherwise specified and supported through pertinent documents. New district plants shall comply with the mandatory requirements of ECBC irrespective of who owns and/or operates the district plant.

Projects may choose either option A or option B given below for modelling campus/district cooling systems.

Option A

The cooling source shall be modelled as purchased chilled water in both the Standard Design and Proposed Design. For the Standard Design, Table 9-2 shall be modified as follows:

(a) For System Type C; purchased chilled water shall be modelled as the cooling source.

(b) System Types A and B shall be replaced with a two-pipe fan coil system with purchased chilled water as the cooling source.

The chilled water/thermal energy consumption simulated by the software shall be converted to units of kWh and added to the overall building energy consumption. The following conversion factors shall be used to convert chilled water/thermal energy consumption to units of kWh.

1 ton hour = 0.85 kWh

1 MBtu = 1,000,000 Btu = 293 kWh

Option B

The Standard Design shall be modelled as per Table 9-2 HVAC Systems Map.
For the Proposed Design, model a virtual onsite chilled water plant with Chiller, Pumps and cooling towers modelled at minimum efficiency levels as per §9.4.2.7 to §9.4.2.10.
Airside/low side capacities shall be modelled as per design and the plant capacities shall be auto-sized by the software.

9.4.3 Compliance Thresholds for ECBC compliant, ECBC+ and Super ECBC Buildings

For buildings to qualify as ECBC+ and Super ECBC Buildings, the WBP Method shall be followed for the Standard Design as detailed above. The Proposed Design for

ECBC+ and Super ECBC Buildings shall meet the mandatory provisions of §4.2, §5.2, §6.2, and §7.2.

The EPI Ratio for ECBC+ and Super ECBC Buildings shall be equal to or less than the EPI Ratios listed under the applicable climate zone in Table 9-5 through Table 9-9 of§9.5.

9.5 Maximum Allowed EPI Ratios

Table 9-5 *Maximum Allowed EPI Ratios for Buildings in Composite Climate*

Building Type	**Composite**		
	ECBC	ECBC+	Super ECBC
Hotel (No Star and Star)	1	0.91	0.81
Resort	1	0.88	0.76
Hospital	1	0.85	0.77
Outpatient	1	0.85	0.75
Assembly	1	0.86	0.77
Office (Regular Use)	1	0.86	0.78
Office (24Hours)	1	0.88	0.76
Schools and University	1	0.77	0.66
Open Gallery Mall	1	0.85	0.76
Shopping Mall	1	0.86	0.74
Supermarket	1	0.81	0.70
Strip retail	1	0.82	0.68

Table 9-6 *Maximum Allowed EPI Ratios for Buildings in Hot and Dry Climate*

Building Type	**Hot and Dry**		
	ECBC	ECBC+	Super ECBC
Hotel (No Star and Star)	1	0.90	0.81
Resort	1	0.88	0.76
Hospital	1	0.84	0.76
Outpatient	1	0.85	0.75
Assembly	1	0.86	0.78
Office (Regular Use)	1	0.86	0.78
Office (24Hours)	1	0.88	0.76
Schools and University	1	0.77	0.66
Open Gallery Mall	1	0.85	0.77
Shopping Mall	1	0.84	0.72
Supermarket	1	0.73	0.69
Strip retail	1	0.82	0.68

Table 9-7 Maximum Allowed EPI Ratios for Buildings in Temperate Climate

Building Type	Temperate		
	ECBC	ECBC+	Super ECBC
Hotel (No Star and Star)	1	0.90	0.80
Resort	1	0.88	0.75
Hospital	1	0.82	0.73
Outpatient	1	0.85	0.75
Assembly	1	0.85	0.76
Office (Regular Use)	1	0.85	0.75
Office (24Hours)	1	0.87	0.74
Schools and University	1	0.77	0.66
Open Gallery Mall	1	0.83	0.74
Shopping Mall	1	0.84	0.71
Supermarket	1	0.81	0.69
Strip retail	1	0.81	0.67

Table 9-8 Maximum Allowed EPI Ratios for Buildings in Warm and Humid Climate

Building Type	Warm and Humid		
	ECBC	ECBC+	Super ECBC
Hotel (No Star and Star)	1	0.91	0.81
Resort	1	0.88	0.75
Hospital	1	0.86	0.77
Outpatient	1	0.86	0.76
Assembly	1	0.88	0.80
Office (Regular Use)	1	0.86	0.76
Office (24Hours)	1	0.88	0.76
Schools and University	1	0.77	0.66
Open Gallery Mall	1	0.86	0.77
Shopping Mall	1	0.85	0.72
Supermarket	1	0.82	0.70
Strip retail	1	0.83	0.68

Table 9-9 Maximum Allowed EPI Ratios for Buildings in Cold Climate

Building Type	Cold		
	ECBC	ECBC+	Super ECBC
Hotel (No Star and Star)	1	0.91	0.82
Resort	1	0.88	0.75
Hospital	1	0.88	0.80
Outpatient	1	0.85	0.75
Assembly	1	0.87	0.81
Office (Regular Use)	1	0.88	0.80
Office (24Hours)	1	0.87	0.75
Schools and University	1	0.85	0.73
Open Gallery Mall	1	0.82	0.73
Shopping Mall	1	0.96	0.93

Supermarket	1	0.80	0.68
Strip retail	1	0.80	0.66

Schedules

Table 9-10 *Schedules for Business - Office Buildings*

Business - Office							
Time Period	Elevator Schedules		External Lighting Schedule	Basement Ventilation		Basement Lighting	
	Daytime Business	24 Hours Business	7 Days / week	Daytime Business	24 Hours Business	Daytime Business	24 Hours Business
00:00-01:00	0.05	0.55	0.80	0.00	1.00	0.05	1.00
01:00-02:00	0.05	0.25	0.80	0.00	1.00	0.05	1.00
02:00-03:00	0.05	0.25	0.80	0.00	1.00	0.05	1.00
03:00-04:00	0.05	0.15	0.80	0.00	1.00	0.05	1.00
04:00-05:00	0.05	0.35	0.80	0.00	1.00	0.05	1.00
05:00-06:00	0.05	0.50	0.80	0.00	1.00	0.05	1.00
06:00-07:00	0.20	0.20	0.00	0.00	1.00	0.05	1.00
07:00-08:00	0.40	0.40	0.00	0.00	1.00	0.05	1.00
08:00-09:00	0.80	0.80	0.00	1.00	1.00	1.00	1.00
09:00-10:00	0.80	0.80	0.00	1.00	1.00	1.00	1.00
10:00-11:00	0.55	0.55	0.00	1.00	1.00	1.00	1.00
11:00-12:00	0.35	0.35	0.00	1.00	1.00	1.00	1.00
12:00-13:00	0.25	0.25	0.00	1.00	1.00	1.00	1.00
13:00-14:00	0.95	0.95	0.00	1.00	1.00	1.00	1.00
14:00-15:00	0.95	0.95	0.00	1.00	1.00	1.00	1.00
15:00-16:00	0.35	0.35	0.00	1.00	1.00	1.00	1.00
16:00-17:00	0.15	0.35	0.00	1.00	1.00	1.00	1.00
17:00-18:00	0.75	0.70	0.00	1.00	1.00	1.00	1.00
18:00-19:00	0.95	0.95	0.80	1.00	1.00	1.00	1.00
19:00-20:00	0.50	0.50	0.80	1.00	1.00	1.00	1.00
20:00-21:00	0.30	0.35	0.80	1.00	1.00	1.00	1.00
21:00-22:00	0.20	0.25	0.80	0.00	1.00	0.05	1.00
22:00-23:00	0.05	0.25	0.80	0.00	1.00	0.05	1.00
23:00-24:00	0.05	0.55	0.80	0.00	1.00	0.05	1.00

Table 9-11 *Schedules for Business - Office Building Daytime Business*

Business – Office Daytime Business										
Time Period	Occupancy Schedule			Lighting Schedule			Equipment Schedule		HVAC Fan Schedule (On/Off)	
	Office	Corridor / Lobby	Conference / Meeting	Office	Corridor / Lobby	Conference / Meeting	Office	Conference / Meeting	Office / Corridor /	Conference / Meeting

00:00-01:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0
01:00-02:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0
02:00-03:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0
03:00-04:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0
04:00-05:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0
05:00-06:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0
06:00-07:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0
07:00-08:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	1	0
08:00-09:00	0.20	0.70	0.00	0.90	0.90	0.00	0.10	0.00	1	1
09:00-10:00	0.95	0.80	0.00	0.90	0.90	0.00	0.90	0.00	1	1
10:00-11:00	0.95	0.70	0.75	0.90	0.90	0.90	0.90	0.90	1	1
11:00-12:00	0.95	0.30	0.75	0.90	0.90	0.90	0.90	0.90	1	1
12:00-13:00	0.95	0.30	0.75	0.90	0.90	0.90	0.90	0.90	1	1
13:00-14:00	0.50	0.80	0.5	0.50	0.90	0.50	0.80	0.50	1	1
14:00-15:00	0.95	0.50	0.75	0.90	0.90	0.90	0.90	0.90	1	1
15:00-16:00	0.95	0.30	0.75	0.90	0.90	0.90	0.90	0.90	1	1
16:00-17:00	0.95	0.30	0.75	0.90	0.90	0.90	0.90	0.90	1	1
17:00-18:00	0.95	0.80	0.75	0.95	0.90	0.90	0.90	0.90	1	1
18:00-19:00	0.30	0.70	0.50	0.50	0.90	0.90	0.50	0.90	1	1
19:00-20:00	0.00	0.30	0.00	0.30	0.90	0.00	0.10	0.00	1	0
20:00-21:00	0.00	0.00	0.00	0.10	0.10	0.00	0.10	0.00	1	0
21:00-22:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0
22:00-23:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0
23:00-24:00	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0	0

Table 9-12 *Schedules for Business - Office Building 24-hours Business*

Business – Office 24-hour Business									
Time Period	**Occupancy Schedule**			**Lighting Schedule**			**Equipment Schedule**		**HVAC Fan Schedule (On/Off)**
	Office	**Corridor/ Lobby**	**Conference/ Meeting Room**	**Office**	**Corridor/ Lobby**	**Conference/ Meeting Room**	**Office**	**Conference/ Meeting Room**	**Office/ Corridor/ Lobby/ Conference/ Meeting Room**
00:00-01:00	0.90	0.20	0.00	0.90	0.90	0.00	0.95	0.00	1
01:00-02:00	0.90	0.50	0.00	0.90	0.90	0.00	0.95	0.00	1
02:00-03:00	0.90	0.20	0.00	0.90	0.90	0.00	0.95	0.00	1
03:00-04:00	0.90	0.20	0.00	0.90	0.90	0.00	0.95	0.00	1
04:00-05:00	0.50	0.20	0.50	0.50	0.90	0.50	0.00	0.90	1
05:00-06:00	0.20	0.50	0.50	0.05	0.90	0.50	0.00	0.90	1
06:00-07:00	0.10	0.50	0.50	0.05	0.50	0.50	0.00	0.90	1
07:00-08:00	0.10	0.50	0.00	0.90	0.50	0.00	0.95	0.00	1
08:00-09:00	0.90	0.70	0.00	0.90	0.90	0.00	0.95	0.00	1
09:00-10:00	0.90	0.80	0.50	0.90	0.90	0.50	0.95	0.90	1
10:00-11:00	0.90	0.70	0.75	0.90	0.90	0.90	0.95	0.90	1
11:00-12:00	0.90	0.30	0.75	0.90	0.90	0.90	0.95	0.90	1
12:00-13:00	0.90	0.30	0.75	0.90	0.90	0.90	0.95	0.90	1

13:00-14:00	0.20	0.80	0.25	0.50	0.50	0.50	0.20	0.50	1
14:00-15:00	0.90	0.50	0.75	0.90	0.90	0.90	0.95	0.90	1
15:00-16:00	0.90	0.30	0.75	0.90	0.90	0.90	0.95	0.90	1
16:00-17:00	0.90	0.30	0.75	0.90	0.90	0.90	0.95	0.90	1
17:00-18:00	0.90	0.80	0.75	0.90	0.90	0.90	0.95	0.90	1
18:00-19:00	0.90	0.70	0.50	0.90	0.90	0.90	0.20	0.90	1
19:00-20:00	0.20	0.30	0.00	0.90	0.90	0.00	0.95	0.00	1
20:00-21:00	0.90	0.20	0.00	0.90	0.90	0.00	0.95	0.00	1
21:00-22:00	0.90	0.20	0.50	0.90	0.90	0.50	0.95	0.90	1
22:00-23:00	0.90	0.20	0.50	0.90	0.90	0.50	0.95	0.90	1
23:00-24:00	0.90	0.20	0.50	0.90	0.90	0.50	0.20	0.90	1

Table 9-13 *Schedules for Business - Server Room*

Business Building - Server Room						
Time Period	**Occupancy Schedule**		**Lighting Schedule**		**Equipment Schedule**	**HVAC Fan Schedule (ON/OFF)**
	Daytime Business	**24-hour business**	**Daytime Business**	**24-hour business**	**All time running**	
00:00-01:00	0.00	0.00	0.10	0.10	1.00	1
01:00-02:00	0.00	0.00	0.10	0.10	1.00	1
02:00-03:00	0.00	0.00	0.10	0.10	1.00	1
03:00-04:00	0.00	0.00	0.10	0.10	1.00	1
04:00-05:00	0.00	0.00	0.10	0.10	1.00	1
05:00-06:00	0.00	1.00	0.10	0.10	1.00	1
06:00-07:00	0.00	1.00	0.10	0.10	1.00	1
07:00-08:00	0.00	1.00	0.10	0.10	1.00	1
08:00-09:00	1.00	1.00	0.10	0.10	1.00	1
09:00-10:00	1.00	1.00	0.50	0.50	1.00	1
10:00-11:00	1.00	1.00	0.50	0.50	1.00	1
11:00-12:00	1.00	1.00	0.50	0.50	1.00	1
12:00-13:00	1.00	1.00	0.50	0.50	1.00	1
13:00-14:00	1.00	1.00	0.50	0.50	1.00	1
14:00-15:00	1.00	1.00	0.50	0.50	1.00	1
15:00-16:00	1.00	1.00	0.50	0.50	1.00	1
16:00-17:00	1.00	1.00	0.50	0.50	1.00	1
17:00-18:00	1.00	1.00	0.50	0.50	1.00	1
18:00-19:00	0.00	1.00	0.10	0.50	1.00	1
19:00-20:00	0.00	1.00	0.10	0.50	1.00	1
20:00-21:00	0.00	1.00	0.10	0.50	1.00	1
21:00-22:00	0.00	1.00	0.10	0.50	1.00	1
22:00-23:00	0.00	0.00	0.10	0.10	1.00	1
23:00-24:00	0.00	0.00	0.10	0.10	1.00	1

Table 9-14 *Schedules for Assembly Buildings (A)*

Assembly Buildings – Common Areas							
Time Period	Schedule	HVAC Fan Schedule (On/Off)			External Lighting	Basement Ventilation	Basement Lighting
		Seating / Public Space	Exhibit Space	Meeting/ Conference Room			
00:00-01:00	0.00	0	0	0	0.80	0.00	0.05
01:00-02:00	0.00	0	0	0	0.80	0.00	0.05
02:00-03:00	0.00	0	0	0	0.80	0.00	0.05
03:00-04:00	0.00	0	0	0	0.80	0.00	0.05
04:00-05:00	0.00	0	0	0	0.80	0.00	0.05
05:00-06:00	0.00	0	0	0	0.80	0.00	0.05
06:00-07:00	0.00	0	0	1	0.00	0.00	0.05
07:00-08:00	0.00	1	1	1	0.00	0.00	0.05
08:00-09:00	0.20	1	1	1	0.00	1.00	1.00
09:00-10:00	0.50	1	1	1	0.00	1.00	1.00
10:00-11:00	0.50	1	1	1	0.00	1.00	1.00
11:00-12:00	0.50	1	1	1	0.00	1.00	1.00
12:00-13:00	0.50	1	1	1	0.00	1.00	1.00
13:00-14:00	0.50	1	1	1	0.00	1.00	1.00
14:00-15:00	0.50	0	1	1	0.00	1.00	1.00
15:00-16:00	0.50	0	1	0	0.00	1.00	1.00
16:00-17:00	0.50	0	1	0	0.00	1.00	1.00
17:00-18:00	0.50	0	0	0	0.00	1.00	0.50
18:00-19:00	0.50	0	0	0	0.80	0.00	0.05
19:00-20:00	0.40	0	0	0	0.80	0.00	0.05
20:00-21:00	0.20	0	0	0	0.80	0.00	0.05
21:00-22:00	0.20	0	0	0	0.80	0.00	0.05
22:00-23:00	0.00	0	0	0	0.80	0.00	0.05
23:00-24:00	0.00	0	0	0	0.80	0.00	0.05

Table 9-15 *Schedules for Assembly Buildings (B)*

Assembly Buildings								
Time Period	Occupancy Schedule			Lighting Schedule			Equipment Schedule	
	Seating/ Public Space	Exhibit Space	Meeting/ Conference Room	Seating/ Public Space	Exhibit Space	Meeting/ Conference Room	Exhibit Space	Meeting/ Conference Room
00:00-01:00	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.00
01:00-02:00	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.00
02:00-03:00	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.00
03:00-04:00	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.00
04:00-05:00	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.00
05:00-06:00	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.00
06:00-07:00	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.00
07:00-08:00	0.00	0.00	0.00	0.10	0.10	0.10	0.00	0.00

08:00-09:00	0.50	0.50	0.00	0.90	0.90	0.10	0.00	0.00
09:00-10:00	0.60	0.50	0.50	0.90	0.90	0.90	0.90	0.80
10:00-11:00	0.70	0.80	0.75	0.90	0.90	0.90	0.90	0.80
11:00-12:00	0.70	0.80	0.75	0.90	0.90	0.90	0.90	0.80
12:00-13:00	0.70	0.80	0.75	0.90	0.90	0.90	0.90	0.80
13:00-14:00	0.90	0.25	0.50	0.90	0.50	0.50	0.50	0.50
14:00-15:00	0.90	0.25	0.75	0.90	0.50	0.90	0.90	0.80
15:00-16:00	0.70	0.80	0.75	0.90	0.90	0.90	0.90	0.80
16:00-17:00	0.70	0.80	0.75	0.90	0.90	0.90	0.90	0.80
17:00-18:00	0.70	0.80	0.75	0.90	0.90	0.90	0.90	0.80
18:00-19:00	0.80	0.50	0.50	0.90	0.90	0.50	0.00	0.00
19:00-20:00	0.80	0.00	0.00	0.90	0.10	0.10	0.00	0.00
20:00-21:00	0.80	0.00	0.00	0.90	0.10	0.10	0.00	0.00
21:00-22:00	0.70	0.00	0.00	0.90	0.10	0.10	0.00	0.00
22:00-23:00	0.60	0.00	0.00	0.90	0.10	0.10	0.00	0.00
23:00-24:00	0.50	0.00	0.00	0.90	0.10	0.10	0.00	0.00

Table 9-16 *Schedules for Assembly Buildings (C)*

Assembly Buildings - Museum								
Time Period	**Occupancy Schedule**		**Lighting Schedule**		**Equipment Schedule**		**HVAC Fan Schedule (ON/OFF)**	
	Museum Exhibition	**Museum Restoration**	**Museum Exhibition**	**Museum Restoration**	**Museum Exhibition**	**Museum Restoration**	**Museum Exhibition**	**Museum Restoration**
00:00-01:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0
01:00-02:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0
02:00-03:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0
03:00-04:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0
04:00-05:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0
05:00-06:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0
06:00-07:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0
07:00-08:00	0.00	0.00	0.10	0.10	0.00	0.00	1	1
08:00-09:00	0.50	0.80	0.90	0.90	0.00	0.90	1	1
09:00-10:00	0.50	0.25	0.90	0.50	0.90	0.25	1	1
10:00-11:00	0.80	0.25	0.90	0.50	0.90	0.25	1	1
11:00-12:00	0.80	0.25	0.90	0.50	0.90	0.25	1	1
12:00-13:00	0.80	0.25	0.90	0.50	0.90	0.25	1	1
13:00-14:00	0.25	0.80	0.50	0.90	0.50	0.90	1	1
14:00-15:00	0.25	0.80	0.50	0.90	0.90	0.90	1	1
15:00-16:00	0.80	0.25	0.90	0.50	0.90	0.25	1	1
16:00-17:00	0.80	0.25	0.90	0.50	0.90	0.25	1	1
17:00-18:00	0.80	0.25	0.90	0.50	0.90	0.25	1	1
18:00-19:00	0.25	0.80	0.90	0.90	0.00	0.90	1	1
19:00-20:00	0.00	0.00	0.10	0.10	0.00	0.00	1	1
20:00-21:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0

21:00-22:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0
22:00-23:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0
23:00-24:00	0.00	0.00	0.10	0.10	0.00	0.00	0	0

Table 9-17 *Schedules for Assembly Buildings (D)*

Assembly Buildings – Gym and Transport								
Time Period	Occupancy Schedule		Lighting Schedule		Equipment Schedule		HVAC Fan Schedule (ON/OFF)	
	Gym	Transport Buildings	Gym	Transport Buildings	Gym	Transport Buildings	Gym	Transport Buildings
00:00-01:00	0.00	0.00	0.00	0.00	0.00	0.80	0	1
01:00-02:00	0.00	0.00	0.00	0.00	0.00	0.80	0	1
02:00-03:00	0.00	0.00	0.00	0.00	0.00	0.80	0	1
03:00-04:00	0.00	0.00	0.00	0.00	0.00	0.80	0	1
04:00-05:00	0.00	0.50	0.50	0.50	0.50	0.80	1	1
05:00-06:00	0.60	0.90	0.90	0.75	0.75	0.90	1	1
06:00-07:00	0.90	0.90	0.90	0.75	0.75	0.90	1	1
07:00-08:00	0.90	0.90	0.90	0.75	0.75	0.90	1	1
08:00-09:00	0.90	0.90	0.90	0.75	0.75	0.90	1	1
09:00-10:00	0.60	0.90	0.90	0.50	0.50	0.90	1	1
10:00-11:00	0.20	0.50	0.50	0.20	0.20	0.90	1	1
11:00-12:00	0.00	0.00	0.00	0.00	0.00	0.90	1	1
12:00-13:00	0.00	0.00	0.00	0.00	0.00	0.90	1	1
13:00-14:00	0.00	0.00	0.00	0.00	0.00	0.50	1	1
14:00-15:00	0.00	0.00	0.00	0.00	0.00	0.90	1	1
15:00-16:00	0.00	0.00	0.00	0.00	0.00	0.90	1	1
16:00-17:00	0.00	0.00	0.00	0.00	0.00	0.90	1	1
17:00-18:00	0.60	0.75	0.75	0.50	0.50	0.90	1	1
18:00-19:00	0.90	0.90	0.90	0.75	0.75	0.90	1	1
19:00-20:00	0.90	0.90	0.90	0.75	0.75	0.90	1	1
20:00-21:00	0.60	0.90	0.90	0.75	0.75	0.90	1	1
21:00-22:00	0.20	0.75	0.75	0.50	0.50	0.50	1	1
22:00-23:00	0.00	0.00	0.00	0.00	0.00	0.90	0	1
23:00-24:00	0.00	0.00	0.00	0.00	0.00	0.90	0	1

Table 9-18 *Schedules for Healthcare - Hospital Buildings (A)*

Healthcare - Hospital											
	Occupancy Schedule				Lighting Schedule				Equipment Schedule		
	In Patient & ICU	Public Spaces	OPD& Offices	Diagnostic, emergency &	Public Spaces	In Patient & ICU	Diagnostic, emergency, &	OPD& Offices	In Patient & ICU	Diagnostic, emergency, &	OPD& Offices

Time Period	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week
00:00-01:00	0.90	0.00	0.00	0.50	0.10	0.10	0.50	0.05	0.40	0.00	0.00
01:00-02:00	0.90	0.00	0.00	0.40	0.10	0.10	0.50	0.05	0.40	0.00	0.00
02:00-03:00	0.90	0.00	0.00	0.40	0.10	0.10	0.50	0.05	0.40	0.00	0.00
03:00-04:00	0.90	0.00	0.00	0.40	0.10	0.10	0.50	0.05	0.40	0.00	0.00
04:00-05:00	0.90	0.00	0.00	0.40	0.10	0.10	0.50	0.05	0.40	0.00	0.00
05:00-06:00	0.90	0.00	0.00	0.40	0.10	0.10	0.50	0.05	0.40	0.00	0.00
06:00-07:00	0.90	0.00	0.00	0.50	0.10	0.10	0.50	0.10	0.40	0.00	0.00
07:00-08:00	0.90	0.10	0.10	0.70	0.50	0.20	0.50	0.30	0.70	0.70	0.70
08:00-09:00	0.90	0.50	0.30	0.70	0.90	0.20	0.90	0.90	0.90	0.90	0.90
09:00-10:00	0.90	0.95	0.90	0.95	0.90	0.20	0.90	0.90	0.90	0.90	0.90
10:00-11:00	0.90	0.95	0.90	0.95	0.90	0.20	0.90	0.90	0.90	0.90	0.90
11:00-12:00	0.90	0.95	0.50	0.95	0.90	0.20	0.90	0.90	0.90	0.90	0.90
12:00-13:00	0.90	0.95	0.20	0.95	0.90	0.20	0.90	0.90	0.90	0.90	0.90
13:00-14:00	0.90	0.95	0.50	0.95	0.90	0.20	0.90	0.50	0.90	0.90	0.90
14:00-15:00	0.90	0.95	0.90	0.95	0.90	0.20	0.90	0.90	0.90	0.90	0.90
15:00-16:00	0.90	0.95	0.90	0.95	0.90	0.20	0.90	0.90	0.90	0.90	0.90
16:00-17:00	0.90	0.95	0.90	0.95	0.30	0.20	0.90	0.90	0.60	0.60	0.90
17:00-18:00	0.90	0.70	0.90	0.95	0.30	0.70	0.90	0.90	0.60	0.60	0.90
18:00-19:00	0.90	0.50	0.50	0.95	0.30	0.90	0.90	0.50	0.60	0.60	0.60
19:00-20:00	0.90	0.30	0.50	0.95	0.30	0.90	0.90	0.50	0.60	0.60	0.60
20:00-21:00	0.90	0.10	0.50	0.70	0.30	0.90	0.50	0.30	0.60	0.60	0.60
21:00-22:00	0.90	0.00	0.10	0.70	0.30	0.90	0.50	0.20	0.60	0.00	0.00
22:00-23:00	0.90	0.00	0.00	0.50	0.30	0.70	0.50	0.10	0.60	0.00	0.00
23:00-24:00	0.90	0.00	0.00	0.50	0.10	0.10	0.50	0.05	0.40	0.00	0.00

Table 9-19 Schedules for Healthcare - Hospital Buildings (B)

Healthcare - Hospital										
Time Period	HVAC Fan Schedule (On/Off)				External Lighting Schedule	Elevators	Service Hot Water		Basement Ventilation	Basement Lighting
	Public Spaces	Beds & ICU	Diagn, emerg, & OT	OPD & Offices			Building Summer	Building Winters		
	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week
00:00-01:00	0	1	1	0	1.00	0.20	0.00	0.30	0.50	0.50
01:00-02:00	0	1	1	0	1.00	0.20	0.00	0.30	0.50	0.50
02:00-03:00	0	1	1	0	1.00	0.20	0.00	0.30	0.50	0.50
03:00-04:00	0	1	1	0	1.00	0.20	0.00	0.30	0.50	0.50
04:00-05:00	0	1	1	0	1.00	0.20	0.00	0.30	0.50	0.50

05:00-06:00	0	1	1	0	1.00	0.20	0.00	0.30	0.50	0.50
06:00-07:00	0	1	1	0	0.00	0.20	0.00	0.30	0.50	0.50
07:00-08:00	1	1	1	0	0.00	0.50	0.00	0.20	0.50	0.50
08:00-09:00	1	1	1	1	0.00	0.75	0.20	0.60	1.00	1.00
09:00-10:00	1	1	1	1	0.00	1.00	0.30	0.60	1.00	1.00
10:00-11:00	1	1	1	1	0.00	1.00	0.30	0.80	1.00	1.00
11:00-12:00	1	1	1	1	0.00	1.00	0.30	0.80	1.00	1.00
12:00-13:00	1	1	1	1	0.00	0.75	0.25	0.70	1.00	1.00
13:00-14:00	1	1	1	1	0.00	1.00	0.25	0.80	1.00	1.00
14:00-15:00	1	1	1	1	0.00	1.00	0.25	0.80	1.00	1.00
15:00-16:00	1	1	1	1	0.00	1.00	0.25	0.70	1.00	1.00
16:00-17:00	1	1	1	1	0.00	1.00	0.25	0.70	1.00	1.00
17:00-18:00	1	1	1	1	0.00	1.00	0.10	0.50	1.00	1.00
18:00-19:00	1	1	1	1	1.00	0.50	0.00	0.35	1.00	1.00
19:00-20:00	1	1	1	1	1.00	0.50	0.00	0.35	1.00	1.00
20:00-21:00	1	1	1	1	1.00	0.50	0.00	0.35	1.00	1.00
21:00-22:00	1	1	1	0	1.00	0.30	0.00	0.30	0.50	0.50
22:00-23:00	0	1	1	0	1.00	0.20	0.00	0.30	0.50	0.50
23:00-24:00	0	1	1	0	1.00	0.20	0.00	0.30	0.50	0.50

Table 9-20 *Schedules for Shopping Complex – Strip Retail & Supermall Buildings (A)*

Healthcare – Out-patient Healthcare							
Time Period	**Occupancy Schedule**			**Lighting Schedule**		**Equipment Schedule**	
	Lobby	**Diagnostic & Emergency**	**OPD & Back Office**	**Diagnostic & Emergency**	**OPD & Back Office**	**Diagnostic & Emergency**	**OPD & Back Office**
	6 days/ week	**6 days/ week**	**6 days/ week**	**6 days/ week**	**6 days/ week**	**6 days/ week**	**6 days/ week**
00:00-01:00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
01:00-02:00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
02:00-03:00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
03:00-04:00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
04:00-05:00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
05:00-06:00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
06:00-07:00	0.00	0.20	0.20	0.10	0.10	0.00	0.00
07:00-08:00	0.10	0.20	0.20	0.50	0.30	0.50	0.00
08:00-09:00	0.50	0.30	0.20	0.90	0.90	0.95	0.95
09:00-10:00	0.80	0.90	0.90	0.90	0.90	0.95	0.95
10:00-11:00	0.80	0.90	0.90	0.90	0.90	0.95	0.95
11:00-12:00	0.80	0.90	0.90	0.90	0.90	0.95	0.95
12:00-13:00	0.80	0.90	0.50	0.90	0.90	0.95	0.95
13:00-14:00	0.80	0.90	0.20	0.90	0.50	0.95	0.95
14:00-15:00	0.80	0.90	0.50	0.90	0.90	0.95	0.95
15:00-16:00	0.80	0.90	0.90	0.90	0.90	0.95	0.95
16:00-17:00	0.80	0.90	0.90	0.90	0.90	0.95	0.95

17:00-18:00	0.80	0.90	0.90	0.90	0.95	0.95	0.95
18:00-19:00	0.80	0.90	0.50	0.90	0.95	0.95	0.95
19:00-20:00	0.80	0.90	0.50	0.90	0.30	0.95	0.95
20:00-21:00	0.20	0.65	0.20	0.90	0.30	0.80	0.80
21:00-22:00	0.20	0.20	0.20	0.50	0.20	0.00	0.00
22:00-23:00	0.00	0.00	0.00	0.30	0.00	0.00	0.00
23:00-24:00	0.00	0.00	0.00	0.10	0.00	0.00	0.00

Table 9-21 *Schedules for Healthcare – Out-patient Healthcare Buildings (B)*

Healthcare - Out-patient Healthcare							
Time Period	**Elevator Schedule**	**HVAC Fan Schedule (On/Off)**	**External Lighting Schedule**	**Service Hot Water (SHW)**		**Basement Ventilation**	**Basement Lighting**
		All Spaces		**Building Summer**	**Building Winters**		
	6 days/ week	**6 days/ week**	**7 Days/ week**	**6 days/ week**	**6 days/ week**	**6 days/ week**	**6 days/ week**
00:00-01:00	0.05	0	0.20	0.00	0.00	0.00	0.00
01:00-02:00	0.05	0	0.20	0.00	0.00	0.00	0.00
02:00-03:00	0.05	0	0.20	0.00	0.00	0.00	0.00
03:00-04:00	0.05	0	0.20	0.00	0.00	0.00	0.00
04:00-05:00	0.05	0	0.20	0.00	0.00	0.00	0.00
05:00-06:00	0.05	0	0.20	0.00	0.00	0.00	0.00
06:00-07:00	0.05	0	0.00	0.00	0.00	0.00	0.00
07:00-08:00	0.50	0	0.00	0.00	0.20	0.00	0.00
08:00-09:00	0.75	1	0.00	0.20	0.60	1.00	1.00
09:00-10:00	1.00	1	0.00	0.30	0.60	1.00	1.00
10:00-11:00	1.00	1	0.00	0.30	0.80	1.00	1.00
11:00-12:00	1.00	1	0.00	0.30	0.80	1.00	1.00
12:00-13:00	0.75	1	0.00	0.25	0.70	1.00	1.00
13:00-14:00	1.00	1	0.00	0.25	0.80	1.00	1.00
14:00-15:00	1.00	1	0.00	0.25	0.80	1.00	1.00
15:00-16:00	1.00	1	0.00	0.25	0.70	1.00	1.00
16:00-17:00	1.00	1	0.00	0.25	0.70	1.00	1.00
17:00-18:00	1.00	1	0.00	0.10	0.50	1.00	1.00
18:00-19:00	0.50	1	0.50	0.01	0.20	1.00	1.00
19:00-20:00	0.50	1	0.50	0.01	0.20	1.00	1.00
20:00-21:00	0.50	1	0.50	0.01	0.20	1.00	1.00
21:00-22:00	0.30	0	0.50	0.01	0.10	1.00	1.00
22:00-23:00	0.05	0	0.20	0.01	0.01	0.00	0.00
23:00-24:00	0.05	0	0.20	0.01	0.01	0.00	0.00

Table 9-22 *Schedules for Educational School Building (A)*

Educational – School Building							
Time Period	Elevator Schedule	HVAC Fan Schedule (On/Off)			External Lighting Schedule	Basement Ventilation	Basement Lighting
		Student Area	Back Office	Corridor/ Lobby			
	7 Days/ week	5 Days/ week	5 Days/ week	5 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week
00:00-01:00	0.00	0	0	0	0.80	0.00	0.05
01:00-02:00	0.00	0	0	0	0.80	0.00	0.05
02:00-03:00	0.00	0	0	0	0.80	0.00	0.05
03:00-04:00	0.00	0	0	0	0.80	0.00	0.05
04:00-05:00	0.00	0	0	0	0.80	0.00	0.05
05:00-06:00	0.00	0	0	0	0.80	0.00	0.05
06:00-07:00	0.05	0	0	1	0.00	0.00	0.05
07:00-08:00	0.80	1	1	1	0.00	0.00	0.05
08:00-09:00	0.80	1	1	1	0.00	1.00	1.00
09:00-10:00	0.25	1	1	1	0.00	1.00	1.00
10:00-11:00	0.25	1	1	1	0.00	1.00	1.00
11:00-12:00	0.25	1	1	1	0.00	1.00	1.00
12:00-13:00	0.25	1	1	1	0.00	1.00	1.00
13:00-14:00	0.90	1	1	1	0.00	1.00	1.00
14:00-15:00	0.60	0	1	1	0.00	1.00	1.00
15:00-16:00	0.20	0	1	0	0.00	1.00	1.00
16:00-17:00	0.30	0	1	0	0.00	1.00	1.00
17:00-18:00	0.40	0	0	0	0.00	1.00	0.50
18:00-19:00	0.00	0	0	0	0.80	0.00	0.05
19:00-20:00	0.00	0	0	0	0.80	0.00	0.05
20:00-21:00	0.00	0	0	0	0.80	0.00	0.05
21:00-22:00	0.00	0	0	0	0.80	0.00	0.05
22:00-23:00	0.00	0	0	0	0.80	0.00	0.05
23:00-24:00	0.00	0	0	0	0.80	0.00	0.05

Table 9-23 *Schedules for Educational - School Buildings (B)*

Educational – School Buildings								
Time Period	Occupancy Schedule			Lighting Schedule			Equipment Schedule	
	Student Zone	Back Office	Corridor/ Lobby	Student Zone	Back Office	Corridor/ Lobby	Student Zone	Back Office
00:00-01:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
01:00-02:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
02:00-03:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
03:00-04:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

04:00-05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
05:00-06:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
06:00-07:00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00
07:00-08:00	0.70	0.00	0.90	0.90	0.70	0.90	0.35	0.35
08:00-09:00	0.90	0.90	0.20	0.90	0.90	0.50	0.95	0.95
09:00-10:00	0.90	0.90	0.20	0.90	0.90	0.50	0.95	0.95
10:00-11:00	0.90	0.90	0.20	0.90	0.90	0.50	0.95	0.95
11:00-12:00	0.20	0.90	0.90	0.20	0.90	0.90	0.20	0.95
12:00-13:00	0.90	0.90	0.20	0.90	0.90	0.50	0.95	0.95
13:00-14:00	0.90	0.20	0.50	0.90	0.30	0.50	0.95	0.40
14:00-15:00	0.00	0.90	0.90	0.00	0.90	0.90	0.00	0.95
15:00-16:00	0.00	0.90	0.50	0.00	0.90	0.90	0.00	0.95
16:00-17:00	0.00	0.90	0.50	0.00	0.90	0.50	0.00	0.95
17:00-18:00	0.00	0.50	0.00	0.00	0.30	0.00	0.00	0.25
18:00-19:00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	0.00
19:00-20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20:00-21:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21:00-22:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22:00-23:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23:00-24:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 9-24 *Schedules for Educational - University Building (A)*

Educational – University Buildings									
Time Period	**Elevator Schedule**		**HVAC Fan Schedule (On/Off)**				**External Lighting Schedule**	**Basement Ventilation**	**Basement Lighting**
	Library & Comp. Centre	**Student and Back office**	**Student Area**	**Back Office**	**Library & Comp. Centre**	**Corridor/ Lobby**			
	7 days/ week	**7 days/ week**	**5 days/ week**	**5 days/ week**	**7 days/ week**	**5 days/ week**	**7 days/ week**	**7 days/ week**	**7 days/ week**
00:00-01:00	0.00	0.00	0	0	0	0	0.80	0.00	0.05
01:00-02:00	0.00	0.00	0	0	0	0	0.80	0.00	0.05
02:00-03:00	0.00	0.00	0	0	0	0	0.80	0.00	0.05
03:00-04:00	0.00	0.00	0	0	0	0	0.80	0.00	0.05
04:00-05:00	0.00	0.00	0	0	0	0	0.80	0.00	0.05
05:00-06:00	0.00	0.00	0	0	0	0	0.80	0.00	0.05
06:00-07:00	0.00	0.05	0	0	0	0	0.00	0.00	0.05
07:00-08:00	0.00	0.25	1	1	1	1	0.00	0.00	0.05
08:00-09:00	0.50	0.85	1	1	1	1	0.00	1.00	1.00
09:00-10:00	0.50	0.25	1	1	1	1	0.00	1.00	1.00
10:00-11:00	0.30	0.25	1	1	1	1	0.00	1.00	1.00
11:00-12:00	0.20	0.25	1	1	1	1	0.00	1.00	1.00
12:00-13:00	0.20	0.25	1	1	1	1	0.00	1.00	1.00
13:00-14:00	0.40	0.90	1	1	1	1	0.00	1.00	1.00
14:00-15:00	0.30	0.60	1	1	1	1	0.00	1.00	1.00
15:00-16:00	0.30	0.25	1	1	1	1	0.00	1.00	1.00

16:00-17:00	0.30	0.25	1	1	1	1	0.00	1.00	1.00
17:00-18:00	0.50	0.90	1	0	1	1	0.00	1.00	1.00
18:00-19:00	0.50	0.15	0	0	1	1	0.80	1.00	1.00
19:00-20:00	0.50	0.05	0	0	1	0	0.80	1.00	1.00
20:00-21:00	0.50	0.00	0	0	1	0	0.80	0.00	0.50
21:00-22:00	0.50	0.00	0	0	1	0	0.80	0.00	0.05
22:00-23:00	0.50	0.00	0	0	1	0	0.80	0.00	0.05
23:00-24:00	0.00	0.00	0	0	0	0	0.80	0.00	0.05

Table 9-25 *Schedules for Educational - University Buildings (B)*

Educational – University Buildings											
Time Period	**Occupancy Schedule**				**Lighting Schedule**				**Equipment Schedule**		
	Student Zone	**Back Office**	**Library & Computer**	**Corridor / Lobby**	**Student Zone**	**Back Office**	**Library & Computer**	**Corridor / Lobby**	**Student Zone**	**Back Office**	**Library & Computer**
	5 Days/ week	**5 Days/ week**	**7Days/ week**	**5 Days/ week**	**5 Days/ week**	**5 Days/ week**	**7 Days/ week**	**5 Days/ week**	**5 Days/ week**	**5 Days/ week**	**7 Days/ week**
00:00-01:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
01:00-02:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
02:00-03:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
03:00-04:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
04:00-05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
05:00-06:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
06:00-07:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10
07:00-08:00	0.40	0.00	0.00	0.00	0.90	0.00	0.00	0.00	0.35	0.35	0.10
08:00-09:00	0.90	0.90	0.30	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.70
09:00-10:00	0.90	0.90	0.40	0.30	0.90	0.90	0.90	0.50	0.95	0.95	0.70
10:00-11:00	0.90	0.90	0.50	0.30	0.90	0.90	0.90	0.50	0.95	0.95	0.70
11:00-12:00	0.90	0.90	0.50	0.30	0.90	0.90	0.90	0.50	0.95	0.95	0.70
12:00-13:00	0.90	0.90	0.50	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.70
13:00-14:00	0.10	0.20	0.20	0.50	0.60	0.30	0.20	0.90	0.20	0.40	0.70
14:00-15:00	0.90	0.90	0.50	0.30	0.90	0.90	0.90	0.50	0.95	0.95	0.70
15:00-16:00	0.90	0.90	0.50	0.30	0.90	0.90	0.90	0.50	0.95	0.95	0.70
16:00-17:00	0.90	0.90	0.50	0.70	0.90	0.90	0.90	0.50	0.95	0.95	0.70
17:00-18:00	0.40	0.00	0.50	0.90	0.90	0.50	0.90	0.90	0.95	0.10	0.80
18:00-19:00	0.00	0.00	0.60	0.00	0.00	0.00	0.90	0.00	0.00	0.10	0.80
19:00-20:00	0.00	0.00	0.60	0.00	0.00	0.00	0.90	0.00	0.00	0.10	0.80
20:00-21:00	0.00	0.00	0.60	0.00	0.00	0.00	0.90	0.00	0.00	0.10	0.80
21:00-22:00	0.00	0.00	0.60	0.00	0.00	0.00	0.90	0.00	0.00	0.10	0.80
22:00-23:00	0.00	0.00	0.60	0.00	0.00	0.00	0.90	0.00	0.00	0.10	0.80
23:00-24:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00

Table 9-26 *Schedules for Hospitality Buildings (A)*

Hospitality									
Time Period	Elevator Schedule		External Lighting Schedule	Service Hot Water (SHW)				Basement Ventilation	Basement Lighting
				Guest rooms		Kitchen	Laundry		
	Week Days	Weekends	7 Days/ week	Week Days	Weekends	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week
00:00-01:00	0.10	0.10	1.00	0.01	0.01	0.00	0.00	0.50	0.50
01:00-02:00	0.10	0.10	1.00	0.01	0.01	0.00	0.00	0.50	0.50
02:00-03:00	0.10	0.10	1.00	0.01	0.01	0.00	0.00	0.50	0.50
03:00-04:00	0.10	0.10	1.00	0.01	0.01	0.00	0.00	0.50	0.50
04:00-05:00	0.10	0.10	1.00	0.01	0.01	0.00	0.00	0.50	0.50
05:00-06:00	0.20	0.20	1.00	0.01	0.01	0.00	0.00	0.50	0.50
06:00-07:00	0.40	0.50	0.00	0.50	0.70	0.60	0.00	0.50	0.50
07:00-08:00	0.50	0.60	0.00	0.50	0.70	0.80	0.00	0.50	0.50
08:00-09:00	0.50	0.60	0.00	0.30	0.50	0.80	1.00	1.00	1.00
09:00-10:00	0.35	0.40	0.00	0.15	0.30	0.60	1.00	1.00	1.00
10:00-11:00	0.15	0.20	0.00	0.15	0.20	0.60	1.00	1.00	1.00
11:00-12:00	0.15	0.20	0.00	0.15	0.20	0.80	1.00	1.00	1.00
12:00-13:00	0.15	0.20	0.00	0.15	0.20	0.80	1.00	1.00	1.00
13:00-14:00	0.15	0.20	0.00	0.15	0.20	0.80	1.00	1.00	1.00
14:00-15:00	0.15	0.20	0.00	0.15	0.20	0.60	1.00	1.00	1.00
15:00-16:00	0.15	0.20	0.00	0.15	0.20	0.60	1.00	1.00	1.00
16:00-17:00	0.35	0.40	0.00	0.15	0.20	0.60	0.00	1.00	1.00
17:00-18:00	0.50	0.60	0.00	0.30	0.30	0.80	0.00	1.00	1.00
18:00-19:00	0.50	0.60	1.00	0.50	0.50	0.80	0.00	1.00	1.00
19:00-20:00	0.50	0.60	1.00	0.50	0.70	0.80	0.00	1.00	1.00
20:00-21:00	0.50	0.60	1.00	0.65	0.70	0.80	0.00	1.00	1.00
21:00-22:00	0.30	0.40	1.00	0.65	0.90	0.80	0.00	0.50	0.50
22:00-23:00	0.20	0.30	1.00	0.01	0.01	0.60	0.00	0.50	0.50
23:00-24:00	0.10	0.10	1.00	0.01	0.01	0.60	0.00	0.50	0.50

Table 9-27 *Schedules for Hospitality Buildings (B)*

Hospitality - Occupancy							
Time Period	Occupancy Schedule						
	Guest Room	Lobby	Public Spaces	Restaurant	Back Office	Conference/ Banquet	Kitchen

	Week Days	Weekends	Week Days	Weekends	Week Days	Weekends	Week Days	Weekends	Week Days	Weekends	7 Days/ week	7 Days/ week
00:00-01:00	0.65	0.90	0.10	0.10	0.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00
01:00-02:00	0.65	0.90	0.10	0.10	0.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00
02:00-03:00	0.65	0.90	0.10	0.10	0.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00
03:00-04:00	0.65	0.90	0.10	0.10	0.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00
04:00-05:00	0.65	0.90	0.10	0.10	0.00	0.00	0.00	0.00	0.20	0.20	0.00	0.00
05:00-06:00	0.65	0.90	0.10	0.10	0.20	0.50	0.00	0.00	0.20	0.20	0.00	0.00
06:00-07:00	0.50	0.70	0.20	0.20	0.40	0.70	0.00	0.00	0.20	0.20	0.00	0.50
07:00-08:00	0.50	0.70	0.30	0.40	0.40	0.70	0.30	0.30	0.20	0.20	0.00	0.80
08:00-09:00	0.30	0.50	0.40	0.70	0.40	0.70	0.30	0.30	0.20	0.20	0.20	0.80
09:00-10:00	0.15	0.30	0.40	0.70	0.40	0.70	0.30	0.30	0.95	0.50	0.50	0.50
10:00-11:00	0.15	0.20	0.40	0.70	0.40	0.70	0.30	0.30	0.95	0.50	0.90	0.50
11:00-12:00	0.15	0.20	0.40	0.70	0.20	0.30	0.30	0.30	0.95	0.50	0.90	0.80
12:00-13:00	0.15	0.20	0.40	0.70	0.20	0.30	0.80	0.80	0.95	0.50	0.90	0.80
13:00-14:00	0.15	0.20	0.20	0.20	0.20	0.30	0.80	0.80	0.50	0.30	0.90	0.80
14:00-15:00	0.15	0.20	0.20	0.20	0.20	0.30	0.80	0.80	0.95	0.50	0.90	0.50
15:00-16:00	0.15	0.20	0.20	0.20	0.40	0.70	0.30	0.30	0.95	0.50	0.90	0.50
16:00-17:00	0.15	0.20	0.20	0.20	0.40	0.70	0.30	0.30	0.95	0.50	0.90	0.50
17:00-18:00	0.30	0.30	0.40	0.40	0.40	0.70	0.30	0.30	0.95	0.50	0.50	0.80
18:00-19:00	0.50	0.50	0.40	0.40	0.50	0.70	0.50	0.50	0.30	0.30	0.20	0.80
19:00-20:00	0.50	0.70	0.40	0.40	0.80	0.70	0.80	0.90	0.20	0.20	0.20	0.80
20:00-21:00	0.65	0.70	0.30	0.30	0.90	0.70	0.80	0.90	0.20	0.20	0.00	0.80
21:00-22:00	0.65	0.90	0.20	0.20	0.80	0.70	0.80	0.90	0.20	0.20	0.00	0.80
22:00-23:00	0.65	0.90	0.10	0.10	0.60	0.60	0.80	0.90	0.20	0.20	0.00	0.50
23:00-24:00	0.65	0.90	0.10	0.10	0.30	0.30	0.50	0.90	0.20	0.20	0.00	0.50

Table 9-28 *Schedules for Hospitality Buildings (C)*

Hospitality – Lighting												
Time Period	Lighting Schedule											
	Guest Room		Lobby		Public Spaces		Restaurant		Back Office		Conference/ Banquet Room	Kitchen
	Week Days	Weekends	Week Days	Weekends	Week Days	Weekends	Week Days	Weekends	Week Days	Weekends	7 Days/ week	7 Days/ week
00:00-01:00	0.20	0.30	0.30	0.30	0.20	0.20	0.50	0.50	0.05	0.05	0.00	0.50
01:00-02:00	0.20	0.25	0.30	0.30	0.15	0.20	0.10	0.10	0.05	0.05	0.00	0.05
02:00-03:00	0.10	0.10	0.30	0.30	0.10	0.10	0.10	0.10	0.05	0.05	0.00	0.05
03:00-04:00	0.10	0.10	0.30	0.30	0.10	0.10	0.10	0.10	0.05	0.05	0.00	0.05
04:00-05:00	0.10	0.10	0.30	0.30	0.10	0.10	0.10	0.10	0.05	0.05	0.00	0.05

05:00-06:00	0.20	0.10	0.30	0.30	0.20	0.10	0.10	0.10	0.05	0.05	0.00	0.05
06:00-07:00	0.45	0.40	0.40	0.40	0.40	0.30	0.10	0.10	0.10	0.10	0.00	0.10
07:00-08:00	0.55	0.40	0.30	0.40	0.50	0.30	0.50	0.50	0.30	0.30	0.00	0.30
08:00-09:00	0.45	0.55	0.40	0.70	0.40	0.40	0.50	0.50	0.90	0.60	0.50	0.90
09:00-10:00	0.20	0.20	0.40	0.70	0.20	0.40	0.50	0.50	0.90	0.60	0.80	0.90
10:00-11:00	0.20	0.20	0.40	0.70	0.20	0.40	0.50	0.50	0.90	0.60	0.90	0.90
11:00-12:00	0.20	0.20	0.40	0.70	0.20	0.40	0.50	0.50	0.90	0.60	0.90	0.90
12:00-13:00	0.20	0.20	0.40	0.70	0.20	0.40	0.90	0.90	0.90	0.60	0.90	0.90
13:00-14:00	0.20	0.20	0.40	0.40	0.20	0.40	0.90	0.90	0.50	0.50	0.90	0.50
14:00-15:00	0.20	0.20	0.40	0.40	0.20	0.40	0.90	0.90	0.90	0.60	0.90	0.90
15:00-16:00	0.20	0.20	0.40	0.40	0.20	0.40	0.50	0.50	0.90	0.60	0.90	0.90
16:00-17:00	0.20	0.20	0.40	0.40	0.20	0.40	0.50	0.50	0.90	0.60	0.90	0.90
17:00-18:00	0.30	0.30	0.40	0.40	0.25	0.40	0.50	0.50	0.95	0.60	0.50	0.95
18:00-19:00	0.70	0.85	0.40	0.40	0.60	0.60	0.90	0.90	0.50	0.50	0.50	0.95
19:00-20:00	0.90	1.00	0.40	0.40	0.80	0.70	0.90	0.90	0.30	0.30	0.50	0.95
20:00-21:00	1.00	1.00	0.30	0.30	0.90	0.70	0.90	0.90	0.30	0.30	0.00	0.95
21:00-22:00	0.90	1.00	0.40	0.40	0.80	0.70	0.90	0.90	0.20	0.20	0.00	0.95
22:00-23:00	0.70	0.85	0.30	0.30	0.60	0.60	0.90	0.90	0.10	0.10	0.00	0.95
23:00-24:00	0.30	0.40	0.30	0.30	0.30	0.30	0.90	0.90	0.05	0.05	0.00	0.95

Table 9-29 *Schedules for Hospitality Buildings (D)*

Hospitality – Equipment									
Time Period	**Equipment Schedule**								
	Guest Room		**Public Spaces**	**Restaurant**		**Back Office**		**Conference/ Banquet Room**	**Kitchen**
	Week Days	**Weekends**	**7 Days/ week**	**Week Days**	**Weekends**	**Week Days**	**Weekends**	**7 Days/ week**	**7 Days/ week**
00:00-01:00	0.20	0.20	0.30	0.50	0.50	0.05	0.05	0.00	0.30
01:00-02:00	0.20	0.20	0.20	0.00	0.00	0.05	0.05	0.00	0.10
02:00-03:00	0.20	0.20	0.20	0.00	0.00	0.05	0.05	0.00	0.10
03:00-04:00	0.20	0.20	0.20	0.00	0.00	0.05	0.05	0.00	0.10
04:00-05:00	0.20	0.20	0.20	0.00	0.00	0.05	0.05	0.00	0.10
05:00-06:00	0.20	0.20	0.30	0.00	0.00	0.05	0.05	0.00	0.10
06:00-07:00	0.30	0.30	0.50	0.00	0.00	0.05	0.05	0.00	0.30
07:00-08:00	0.40	0.60	0.50	0.60	0.60	0.10	0.10	0.00	0.30
08:00-09:00	0.70	0.90	0.50	0.60	0.60	0.30	0.30	0.50	0.30
09:00-10:00	0.20	0.20	0.50	0.60	0.60	0.95	0.70	0.50	0.30
10:00-11:00	0.20	0.20	0.35	0.60	0.60	0.95	0.70	0.90	0.30
11:00-12:00	0.20	0.20	0.35	0.60	0.60	0.95	0.70	0.90	0.30
12:00-13:00	0.20	0.20	0.35	0.80	0.80	0.95	0.70	0.90	0.30
13:00-14:00	0.20	0.20	0.35	0.80	0.80	0.50	0.70	0.90	0.30
14:00-15:00	0.20	0.20	0.35	0.80	0.80	0.95	0.70	0.90	0.30
15:00-16:00	0.20	0.20	0.35	0.60	0.60	0.95	0.70	0.90	0.30

16:00-17:00	0.20	0.20	0.35	0.60	0.60	0.95	0.70	0.90	0.30
17:00-18:00	0.30	0.30	0.35	0.60	0.60	0.95	0.70	0.50	0.30
18:00-19:00	0.50	0.50	0.70	0.80	0.80	0.30	0.30	0.50	0.30
19:00-20:00	0.50	0.50	0.90	0.80	0.90	0.10	0.10	0.50	0.30
20:00-21:00	0.50	0.70	0.90	0.80	0.90	0.10	0.10	0.00	0.30
21:00-22:00	0.70	0.70	0.90	0.80	0.90	0.10	0.10	0.00	0.30
22:00-23:00	0.40	0.40	0.70	0.80	0.90	0.05	0.05	0.00	0.30
23:00-24:00	0.20	0.20	0.40	0.80	0.90	0.05	0.05	0.00	0.30

Table 9-30 *Schedules for Hospitality Buildings (E)*

Hospitality – HVAC Fan Schedules							
Time Period	**HVAC Fan Schedule**						
	Guest Room	**Lobby**	**Public Spaces**	**Restaurants**	**Back Office**	**Conference/Banquet Room**	**Kitchen**
	7 Days/ week	**7 Days/ week**	**7 Days/ week**	**7 Days/ week**	**7 Days/ week**	**7 Days/ week**	**7 Days/ week**
00:00-01:00	1	0	0	0	0	0	0
01:00-02:00	1	0	0	0	0	0	0
02:00-03:00	1	0	0	0	0	0	0
03:00-04:00	1	0	0	0	0	0	0
04:00-05:00	1	0	0	0	0	0	0
05:00-06:00	1	1	1	0	0	0	1
06:00-07:00	1	1	1	1	0	0	1
07:00-08:00	1	1	1	1	0	0	1
08:00-09:00	1	1	1	1	1	1	1
09:00-10:00	1	1	1	1	1	1	1
10:00-11:00	1	1	1	1	1	1	1
11:00-12:00	1	1	1	1	1	1	1
12:00-13:00	1	1	1	1	1	1	1
13:00-14:00	1	1	1	1	1	1	1
14:00-15:00	1	1	1	1	1	1	1
15:00-16:00	1	1	1	1	1	1	1
16:00-17:00	1	1	1	1	1	1	1
17:00-18:00	1	1	1	1	1	1	1
18:00-19:00	1	1	1	1	1	1	1
19:00-20:00	1	1	1	1	0	1	1
20:00-21:00	1	1	1	1	0	1	1
21:00-22:00	1	1	1	1	0	0	1
22:00-23:00	1	0	1	1	0	0	1
23:00-24:00	1	0	1	1	0	0	1

Table 9-31 *Schedules for Shopping Complexes Buildings (A)*

Shopping Complex								
Time Period	HVAC Fan Schedule (ON/OFF)			External Lighting Schedule	Basement Ventilation	Basement Lighting	Elevator Schedule	
	Retail	Corridors & Atrium	Special Zones					
	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	Weekdays	Weekends
00:00-01:00	0	0	0	1.00	1.00	1.00	0.20	0.20
01:00-02:00	0	0	0	0.50	0.00	0.05	0.05	0.20
02:00-03:00	0	0	0	0.50	0.00	0.05	0.05	0.05
03:00-04:00	0	0	0	0.50	0.00	0.05	0.05	0.05
04:00-05:00	0	0	0	0.50	0.00	0.05	0.05	0.05
05:00-06:00	0	0	0	0.50	0.00	0.05	0.05	0.05
06:00-07:00	0	0	0	0.00	0.00	0.05	0.05	0.05
07:00-08:00	0	0	0	0.00	0.00	0.05	0.10	0.10
08:00-09:00	0	0	0	0.00	0.00	0.05	0.10	0.10
09:00-10:00	0	1	1	0.00	1.00	1.00	0.20	0.20
10:00-11:00	1	1	1	0.00	1.00	1.00	0.40	0.40
11:00-12:00	1	1	1	0.00	1.00	1.00	0.70	0.70
12:00-13:00	1	1	1	0.00	1.00	1.00	0.70	0.80
13:00-14:00	1	1	1	0.00	1.00	1.00	0.70	0.95
14:00-15:00	1	1	1	0.00	1.00	1.00	0.70	0.95
15:00-16:00	1	1	1	0.00	1.00	1.00	0.70	0.95
16:00-17:00	1	1	1	0.00	1.00	1.00	0.70	0.95
17:00-18:00	1	1	1	0.00	1.00	1.00	0.80	0.95
18:00-19:00	1	1	1	1.00	1.00	1.00	0.80	0.95
19:00-20:00	1	1	1	1.00	1.00	1.00	0.80	0.95
20:00-21:00	1	1	1	1.00	1.00	1.00	0.80	0.95
21:00-22:00	0	1	1	1.00	1.00	1.00	0.80	0.80
22:00-23:00	0	1	1	1.00	1.00	1.00	0.50	0.60
23:00-24:00	0	1	1	1.00	1.00	1.00	0.30	0.40

Table 9-32 *Schedules for Shopping Complexes Buildings (B)*

Shopping Complex											
Time Period	Occupancy Schedule						Lighting Schedule			Equipment Schedule	
	Retail		Corridors & Atrium		Special Zone		Retail	Corridors & Atrium	Special Zone	Retail	Special Zone
	Weekday	Weekend	Weekday	Weekend	Weekday	Weekend	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week	7 Days/ week
00:00-01:00	0.00	0.00	0.00	0.10	0.00	0.00	0.05	0.05	0.05	0.05	0.05

01:00-02:00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05
02:00-03:00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05
03:00-04:00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05
04:00-05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05
05:00-06:00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05
06:00-07:00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05
07:00-08:00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.05
08:00-09:00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.05	0.50
09:00-10:00	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.05	0.50
10:00-11:00	0.40	0.40	0.40	0.40	0.20	0.20	0.50	0.50	0.40	0.90	0.90
11:00-12:00	0.60	0.60	0.60	0.60	0.30	0.50	0.95	0.50	0.60	0.90	0.90
12:00-13:00	0.60	0.70	0.60	0.70	0.50	0.70	0.95	0.50	0.60	0.90	0.90
13:00-14:00	0.60	0.90	0.60	0.90	0.50	0.70	0.95	0.50	0.60	0.90	0.90
14:00-15:00	0.70	0.90	0.70	0.90	0.50	0.70	0.95	0.50	0.60	0.90	0.90
15:00-16:00	0.70	0.90	0.70	0.90	0.50	0.80	0.95	0.50	0.40	0.90	0.90
16:00-17:00	0.70	0.90	0.70	0.90	0.50	0.80	0.95	0.70	0.40	0.90	0.90
17:00-18:00	0.70	0.90	0.70	0.90	0.50	0.80	0.95	0.95	0.40	0.90	0.90
18:00-19:00	0.90	0.95	0.90	0.95	0.60	0.95	0.95	0.95	0.80	0.90	0.90
19:00-20:00	0.90	0.95	0.90	0.95	0.60	0.95	0.95	0.95	0.80	0.90	0.90
20:00-21:00	0.90	0.95	0.90	0.95	0.60	0.95	0.95	0.95	0.80	0.50	0.90
21:00-22:00	0.00	0.00	0.40	0.40	0.60	0.95	0.05	0.50	0.80	0.05	0.90
22:00-23:00	0.00	0.00	0.30	0.30	0.60	0.95	0.05	0.30	0.80	0.05	0.90
23:00-24:00	0.00	0.00	0.10	0.10	0.30	0.95	0.05	0.30	0.80	0.05	0.90

Table 9-33 *Schedules for Shopping Complexes Buildings – Food Court*

Shopping Complex - Food Court												
Time Period	**Occupancy Schedule**			**Lighting Schedule**			**Equipment Schedule**			**HVAC Fan Schedule**		
	Family Dining	**Food Preparation**	**Bar Lounge**	**Family Dining**	**Food Preparation**	**Bar Lounge**	**Family Dining**	**Food Preparation**	**Bar Lounge**	**Family Dining**	**Food Preparation**	**Bar Lounge**
00:00-01:00	0.00	0.50	0.70	0.50	0.70	0.70	0.50	0.60	0.70	1	0	1
01:00-02:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
02:00-03:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
03:00-04:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
04:00-05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
05:00-06:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
06:00-07:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
07:00-08:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
08:00-09:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0
09:00-10:00	0.00	0.20	0.00	0.00	0.50	0.00	0.00	0.60	0.00	0	0	0
10:00-11:00	0.20	0.50	0.00	0.50	0.70	0.00	0.60	0.70	0.00	0	1	0
11:00-12:00	0.20	0.80	0.00	0.50	0.90	0.00	0.60	0.70	0.00	1	1	0
12:00-13:00	0.70	0.80	0.00	0.90	0.90	0.00	0.80	0.70	0.00	1	1	0
13:00-14:00	0.70	0.80	0.00	0.90	0.90	0.00	0.80	0.70	0.00	1	1	0
14:00-15:00	0.70	0.80	0.00	0.90	0.90	0.00	0.80	0.70	0.00	1	1	0

15:00-16:00	0.20	0.50	0.00	0.50	0.70	0.00	0.60	0.40	0.00	1	1	0
16:00-17:00	0.20	0.30	0.00	0.50	0.50	0.00	0.60	0.40	0.00	1	1	1
17:00-18:00	0.20	0.30	0.50	0.50	0.50	0.70	0.60	0.40	0.70	1	1	1
18:00-19:00	0.50	0.50	0.70	0.90	0.70	0.80	0.80	0.40	0.70	1	1	1
19:00-20:00	0.80	0.90	0.80	0.90	0.90	0.80	0.80	0.70	0.70	1	1	1
20:00-21:00	0.80	0.90	0.80	0.90	0.90	0.80	0.80	0.70	0.70	1	1	1
21:00-22:00	0.80	0.90	0.80	0.90	0.90	0.80	0.80	0.70	0.70	1	1	1
22:00-23:00	0.80	0.90	0.80	0.90	0.90	0.80	0.80	0.70	0.70	1	1	1
23:00-24:00	0.50	0.50	0.80	0.90	0.90	0.80	0.80	0.40	0.70	1	1	1

Table 9-34 *Schedules for Shopping Complex- Strip Retail & Supermall Buildings*

Strip Retail & Supermall										
Time Period	Occupancy Schedule		Lighting Schedule	Equipment Schedule	HVAC Fan Schedule (On/ Off)	Elevator Schedule		External Lighting Schedule	Basement Ventilation	Basement Lighting
	Retail & Circulation		All Spaces	All Spaces						
	Weekdays	Weekends	7 Days/ week	7 Days/ week	7 Days/ week	Weekdays	Weekends	7 Days/ week	7 Days/ week	7 Days/ week
00:00-01:00	0.00	0.00	0.05	0.05	0	0.00	0.00	0.20	0.00	0.05
01:00-02:00	0.00	0.00	0.05	0.05	0	0.00	0.00	0.20	0.00	0.05
02:00-03:00	0.00	0.00	0.05	0.05	0	0.00	0.00	0.20	0.00	0.05
03:00-04:00	0.00	0.00	0.05	0.05	0	0.00	0.00	0.20	0.00	0.05
04:00-05:00	0.00	0.00	0.05	0.05	0	0.00	0.00	0.20	0.00	0.05
05:00-06:00	0.00	0.00	0.05	0.05	0	0.00	0.00	0.20	0.00	0.05
06:00-07:00	0.00	0.00	0.05	0.05	0	0.00	0.00	0.00	0.00	0.05
07:00-08:00	0.00	0.00	0.05	0.05	0	0.10	0.10	0.00	0.00	0.05
08:00-09:00	0.00	0.00	0.05	0.05	0	0.10	0.10	0.00	0.00	0.05
09:00-10:00	0.20	0.20	0.20	0.05	1	0.20	0.20	0.00	1.00	1.00
10:00-11:00	0.40	0.40	0.50	0.90	1	0.40	0.40	0.00	1.00	1.00
11:00-12:00	0.60	0.60	0.95	0.90	1	0.70	0.70	0.00	1.00	1.00
12:00-13:00	0.60	0.70	0.95	0.90	1	0.70	0.80	0.00	1.00	1.00
13:00-14:00	0.60	0.90	0.95	0.90	1	0.70	0.95	0.00	1.00	1.00
14:00-15:00	0.70	0.90	0.95	0.90	1	0.70	0.95	0.00	1.00	1.00
15:00-16:00	0.70	0.90	0.95	0.90	1	0.70	0.95	0.00	1.00	1.00
16:00-17:00	0.70	0.90	0.95	0.90	1	0.70	0.95	0.00	1.00	1.00
17:00-18:00	0.70	0.90	0.95	0.90	1	0.80	0.95	0.00	1.00	1.00
18:00-19:00	0.90	0.95	0.95	0.90	1	0.80	0.95	1.00	1.00	1.00
19:00-20:00	0.90	0.95	0.95	0.90	1	0.80	0.95	1.00	1.00	1.00
20:00-21:00	0.90	0.95	0.95	0.50	1	0.80	0.95	1.00	1.00	1.00
21:00-22:00	0.00	0.00	0.05	0.05	0	0.00	0.00	1.00	0.20	0.50
22:00-23:00	0.00	0.00	0.05	0.05	0	0.00	0.00	0.20	0.00	0.05
23:00-24:00	0.00	0.00	0.05	0.05	0	0.00	0.00	0.20	0.00	0.05

10. Appendix A: Default Values for Typical Constructions

10.Procedure for Determining Fenestration Product U-factor and Solar Heat Gain Coefficient

§ 4.2.1.1 and § 4.2.1.2 require that U-factors and solar heat gain coefficients (SHGC) be determined for the overall fenestration product (including the sash and frame) in accordance with ISO 15099.

In several cases, ISO 15099 suggests that individual national standards will need to be more specific and in other cases the ISO document gives users the choice of two options. This section clarifies these specific issues as they are to be implemented for this code:

(a) § 4.1 of ISO 15099: For calculating the overall U-factor, ISO 15099 offers a choice between the linear thermal transmittance (4.1.2) and the area weighted method (4.1.3). The area weighted method (4.1.3) shall be used.

(b) § 4.2.2 of ISO 15099: Frame and divider SHGC's shall be calculated in accordance with § 4.2.2. The alternate approach in § 8.6 shall not be used.

(c) § 6.4 of ISO 15099 refers the issue of material properties to national standards. Material conductivities and emissivity shall be determined in accordance with Indian standards.

(d) § 7 of ISO 15099 on shading systems is currently excluded.

(e) §8.2ofISO15099addressenvironmentalconditions.Thefollowingaredefinedf

orIndia: For U-factor calculations:

$T_{in} = 24^oC$, $T_{out} =$
32^oC, $V = 3.35$ m/s,
$T_{rm,\,out} = T_{out,}$
$T_{rm,\,in} = T_{in}$
$I_s = 0$ W/m^2

For SHGC calculations:

$T_{in} = 24^oC$, $T_{out} =$
32^oC, $V = 2.75$ m/s
$T_{rm,\,out} = T_{out}$
$T_{rm,\,in} = T_{in}$
$I_s = 783$ W/m^2

f) § 8.3 of ISO 15099 addresses convective film coefficients on the interior and exterior of the window product.In§8.3.1ofISO15099,simulationsshallusetheheattransfercoefficientbasedon the

centre of glass temperature and the entire window height; this film coefficient shall be used on all indoor surfaces, including frame sections. In § 8.3.2 of ISO 15099, the formula from this section shall be applied to all outdoor exposed surfaces.

g) § 8.4.2 of ISO 15099 presents two possible approaches for incorporating the impacts of self- viewing surfaces on interior radiative heat transfer calculations. Products shall use the method in§

8.4.2.1 of ISO 15099 (Two-Dimensional Element to Element View Factor Based Radiation Heat Transfer Calculation). The alternate approach in § 8.4.3 of ISO 15099 shall not be used.

10.2 Default U-factors, Visible Light Transmittance and Solar Heat Gain Coefficients for Unrated Fenestration Products

All fenestration with U-factors, SHGC, or visible light transmittance determined, certified and labelled in accordance ISO 15099 shall be assigned those values.

10.2.1 Unrated Vertical Fenestration.

For unrated vertical fenestration, both operable and fixed, the glass VLT reported by manufacturer must meet or exceed 0.37 (as it accounts for framing). The SHGC values reported by glass manufacturer must meet or exceed the prescriptive requirements in Table 4-10 and Table 4-11 for compliance.

U-factors for unrated vertical fenestration, both operable and fixed, shall be assigned as per Table 10.1.

Table 10-1 *Defaults for Unrated Fenestration (Overall Assembly including the Sash and Frame)*

Frame Type	Glazing Type	U-Factor (W/m^2.K)
All frame types	Single Glazing	7.1
Wood, vinyl, or fiberglass frame or metal frame with thermal break	Double Glazing (COG U value >1.6 W/m^2.K)	3.4
Wood, vinyl, or fiberglass frame or metal frame with thermal break	Double Glazing (COG U value <1.6 W/m^2.K)	3.0
Metal and other frame type	Double Glazing	5.1

10.3 Typical Roof Constructions

For calculating the overall U-factor of a typical roof construction, the U-factors from the typical wall construction type and effective U-factor for insulation shall be combined according to the following equation:

$$U_{Total\ Roof} = \frac{1}{\frac{1}{U_{Typical\ Roof}} + \frac{1}{U_{Typical\ Insulation}}}$$

Where,

$U_{Total,\ Roof}$ Total U-factor of the roof with insulation

$U_{Typical\ Roof}$ U-factor of the roof

$U_{Typical\ Insulation}$ U-factor of the effective insulation

10.4 Typical Wall Constructions

For calculating the overall U-factor of a typical wall construction, the U-factors from the typical wall construction type and effective U-factor for insulation shall be combined according to the following equation:

$$U_{Total\ Wall} = \frac{1}{\frac{1}{U_{Typical\ Wall}} + \frac{1}{U_{Typical\ Insulation}}}$$

Where,

$U_{Total\ Wall}$ Total U-factor of the wall with insulation

$U_{Typical\ Wall}$ U-factor of the wall

$U_{Typical\ Insulation}$ U-factor of the effective insulation

Table 10-2 Typical Thermal Properties of Common Building and Insulating Materials [3,a]

Description of Class	Density	Conductivity k,	Resistance R,	Specific Heat
	kg/m^3	W/(m·K)	(m^2·K)/W	kJ/(kg-K)
Building Board and Siding				
Board				
Asbestos/cement board	1900	0.57	-	1
Cement board	1150	0.25	-	0.84
Fiber/cement board	1400	0.25	-	0.84
	1000	0.19	-	0.84
	400	0.07	-	1.88
	300	0.06	-	1.88
Gypsum or plaster board	640	0.16	-	1.15
Oriented strand board (OSB) 9 to 11 mm	650	-	0.11	1.88
Oriented strand board (OSB) 12.7 mm	650	-	0.12	1.88
Plywood (Douglas fir) 12.7 mm	460	-	0.14	1.88
Plywood (Douglas fir) 15.9 mm	540	-	0.15	1.88
Plywood/wood panels 19.0 mm	550	-	0.19	1.88
Vegetable fiber board				-
Sheathing, regular density [e] 12.7 mm	290	-	0.23	1.3
Intermediate density [e] 12.7 mm	350	-	0.19	1.3
Nail-base sheathing [e] 12.7 mm	400	-	0.19	1.3
Shingle backer 9.5 mm	290	-	0.17	1.3
Sound deadening board. 12.7 mm	240	-	0.24	1.26
Tile and lay-in panels, plain or acoustic	290	0.058	-	0.59
Laminated paperboard	480	0.072	-	1.38

Homogeneous board from re pulped paper	480	0.072	-	1.17
Hardboard [e]				
Medium density	800	0.105	-	1.3
High density, service-tempered	880	0.12	-	1.34
Grade and service grade				
High density, standard-tempered grade	1010	0.144	-	1.34
Particleboard [e]				
Low density	590	0.102	-	1.3
Medium density	800	0.135	-	1.3
High density	1000	0.18	-	-
Underlayment 15.9 mm	640	-	1.22	1.21
Wafer board	700	0.072	-	1.88
Shingles				
Asbestos/cement	1900	-	0.37	-
Wood, 400 mm, 190 mm exposure	-	-	0.015	1.3
Wood, double, 400 mm, 300 mm exposure	-	-	0.21	1.17
Wood, plus ins. backer board 8 mm	-	-	0.25	1.3
Asbestos/cement lapped 6.4 mm	-	-	0.037	1.01
Asphalt roll siding	-	-	0.026	1.47
Siding				
Asphalt insulating siding (12.7 mm bed)	-	-	0.26	1.47
Hardboard siding 11 mm	-	-	0.12	1.17
Wood, drop, 200 mm 25 mm	-	-	0.14	1.17
Wood, bevel 200 mm, lapped13 mm	-	-	0.14	1.17
Wood, bevel 250 mm, lapped19 mm	-	-	0.18	1.17
Wood, plywood, lapped 9.5 mm	-	-	0.1	1.22
Aluminium, steel, or vinyl, [j,k] over sheathing Hollow-backed	-	-	0.11	1.22
Aluminium, steel, or vinyl, [j,k] over sheathing Insulating- board-backed 9.5 mm	-	-	0.32	1.34
Aluminium, steel, or vinyl, [j,k] over sheathing backed Foil-backed 9.5 mm	-	-	0.52	-

Architectural (soda-lime float) glass	2500	1	-	0.84
Building Membrane				
Vapor-permeable felt	-	-	0.011	-
Vapor: seal, 2 layers of mopped 0.73 kg/m^2 felt	-	-	0.21	-
Vapor: seal, plastic film	-	-	Negligible	-
Finish Flooring Materials				
Carpet and rebounded urethane pad 19 mm	110	-	0.42	-
Carpet and rubber pad (one-piece) 9.5 mm	320	-	0.12	-
Pile carpet with rubber pad 9.5 to 12.7 mm	290	-	0.28	-
Linoleum/cork tile 6.4 mm	465	-	0.09	-
PVC/Rubber floor covering	-	0.4	-	-
Rubber tile 25 mm	1900	-	0.06	-
Terrazzo 25 mm	-	-	0.014	0.8
Insulating Materials				
Blanket and batt[c,d]				
Glass-fiber batts 85 to 90 mm	10 to 14	0.043	-	0.84
Glass-fiber batts 50 mm	8 to 13	0.045 to 0.048	-	0.84
Mineral fiber 140 mm	30	0.036	-	0.84
Mineral wool felted	16 to 48	0.04	-	-
	65 to 130	0.035	-	-

Slag wool	50 to 190	0.038	-	-
	255	0.04	-	-
	305	0.043	-	-
	350	0.048	-	-
	-	-	*0.21*	-
	-	-	*Negligible*	-
Finish Flooring Materials				
Carpet and rebounded urethane pad 19 mm	110	-	0.42	-
Carpet and rubber pad (one-piece) 9.5 mm	320	-	0.12	-
Pile carpet with rubber pad 9.5 to 12.7 mm	290	-	0.28	-
Linoleum/cork tile 6.4 mm	465	-	0.09	-
PVC/Rubber floor covering	-	0.4	-	-
Rubber tile 25 mm	1900	-	0.06	-
Terrazzo 25 mm	-	-	0.014	0.8
Insulating Materials				
Blanket and batt[c,d]				
Glass-fiber batts 85 to 90 mm	10 to 14	0.043	-	0.84
Glass-fiber batts 50 mm	8 to 13	0.045 to 0.048	-	0.84
Mineral fiber 140 mm	30	0.036	-	0.84
Mineral wool felted	16 to 48	0.04	-	-
	65 to 130	0.035	-	-

Slag wool	50 to 190	0.038	-	-
	255	0.04	-	-
	305	0.043	-	-
	350	0.048	-	-
	400	0.05	-	-
Board and slabs				
Cellular glass.	130	0.048	-	0.75
Cement fiber slabs, shredded wood with Portland cement binder	400 to 430	0.072 to 0.076	-	-
			-	
Cement fiber slabs, shredded wood with magnesia oxy sulfide binder	350	0.082	-	1.3
Glass fiber board	160	0.032 to 0.040	-	0.84
Expanded rubber (rigid)	70	0.032	-	1.67
Expanded polystyrene extruded (smooth skin)	25 to 40	0.022 to 0.030	-	1.47
Expanded polystyrene, molded beads	15 to 25	0.032 to 0.039	-	1.47
Mineral fiberboard, wet felted	160	0.038	-	0.84
Mineral fiberboard, core or roof insulation	255 to 270	0.049	-	-
Mineral fiberboard, acoustical tile [g]	290	0.05	-	0.8
	335	0.053	-	-
Mineral fiberboard, wet-molded, acoustical tile	370	0.061	-	0.59
Perlite board	160	0.052	-	-
Polyisocyanurate, aged unfaced	25 to 35	0.020 to 0.027	-	-
Polyisocyanurate, aged with facers	65	0.019	-	1.47
Phenolic foam board with facers, aged	65	0.019	-	-
Loose fill				
Cellulosic (milled paper or wood pulp)	35 to 50	0.039 to 0.045	-	1.38

Perlite expanded	30 to 65	0.039 to 0.046	-	1.09
	65 to 120	0.045 to 0.052	-	-
	120 to 180	0.052 to 0.061	-	-
Mineral fiber (rock, slag, or glass) [d] approx. 95 to 130 mm	10 to 30	-	1.92	0.71
Mineral fiber (rock, slag, or glass) [d] approx. 170 to 220 mm	11 to 30	-	3.33	-
Mineral fiber (rock, slag, or glass) [d] approx. 190 to 250 mm	12 to 30	-	3.85	-
Mineral fiber (rock, slag, or glass) [d] approx. 260 to 350 mm	13 to 30	-	5.26	-
Mineral fiber (rock, slag, or glass) [d] 90 mm (closed sidewall application)	30 to 55	-	2.1 to 2.5	-
Vermiculite exfoliated	110 to 130	0.068	-	1.34
	64 to 96	0.063	-	-
Spray-applied				
Cellulosic fiber	55 to 95	0.042 to 0.049	-	-
Glass fiber	55 to 70	0.038 to 0.039	-	-
Polyurethane foam (low density)	6 to 8	0.042	-	1.47
	40	0.026	-	1.47
Polyurethane foam (low density) aged and dry 40mm	30	-	1.6	1.47
Polyurethane foam (low density) 50 mm	55	-	1.92	1.47
Polyurethane foam (low density) 120 mm	30	-	3.69	-
Urea formaldehyde foam, dry	8 to 20	0.030 to 0.032	-	-
Roofing				
Asbestos/cement shingles	1120	-	0.037	1
	1600	0.43	-	-

Asphalt (bitumen with inert fill)	1900	0.58	-	-
	2300	1.15	-	-
Asphalt roll roofing	920	-	0.027	1.51
Asphalt shingles	920	-	0.078	1.26
Built-up roofing	920	-	0.059	1.47
Mastic asphalt (heavy, 20% grit)	950	0.19	-	-
Reed thatch	270	0.09	-	-
Roofing felt	2250	1.2	-	-
Slate 13 mm	-	-	0.009	1.26
Straw thatch	240	0.07	-	-
Wood shingles, plain and plastic-film-faced	-	-	0.166	1.3
Plastering Materials				
Cement plaster, sand aggregate	1860	0.72	-	0.84
Sand aggregate 10 mm	-	-	0.013	0.84
Sand aggregate 20 mm	-	-	0.026	0.84
Gypsum plaster	1120	0.38	-	-
	1280	0.46	-	-
Lightweight aggregate	720	-	0.056	-
Lightweight aggregate	720	-	0.066	-
Lightweight aggregate	-	-	0.083	-
Perlite aggregate	720	0.22	-	1.34
Sand aggregate	1680	0.81	-	0.84
Sand aggregate on metal lath 19 mm	-	-	0.023	-
Vermiculite aggregate	480	0.14	-	-
	600	0.2	-	-
	720	0.25	-	-
	840	0.26	-	-
	960	0.3	-	-
Perlite plaster	400	0.08	-	-
	600	0.19	-	-
Pulpboard or paper plaster	600	0.07	-	-
Sand/cement plaster, conditioned	1560	0.63	-	-
Sand/cement/lime plaster, conditioned	1440	0.48	-	-
Sand/gypsum (3:1) plaster, conditioned	1550	0.65	-	-
Masonry Materials				
Masonry units				
	2400	1.21 to 1.47	-	-
	2240	1.07 to 1.30	-	-

Brick fired clay	2080	0.92 to 1.12	-	-
	1920	0.81 to 0.98	-	0.8
	1760	0.71 to 0.85	-	-
	1600	0.61 to 0.74	-	-
	1440	0.52 to 0.62	-	-
	1280	0.43 to 0.53	-	-
	1120	0.36 to 0.45	-	-
Clay tile, hollow 1 cell deep 75 mm	-	-	0.14	0.88
Clay tile, hollow 1 cell deep 100 mm	-	-	0.2	-
Clay tile, hollow 2 cells deep 150 mm	-	-	0.27	-
Clay tile, hollow 2 cells deep 200 mm	-	-	0.33	-
Clay tile, hollow 2 cells deep 250 mm	-	-	0.39	-
Clay tile, hollow 3 cells deep 300 mm	-	-	0.44	-
Lightweight brick	800	0.2	-	-
	770	0.22	-	-
Concrete block [h,i] Limestone aggregate ~200 mm, 16.3 kg, 2200 kg/m3 concrete, 2 cores.	-	-	-	-
Concrete block [h,i] Limestone aggregate~200 mm, 16.3 kg, 2200 kg/m3 concrete with perlite-filled cores	-	-	0.37	-
Concrete block Limestone [h,i] aggregate ~300 mm, 25 kg, 2200 kg/m3 concrete, 2 cores	-		-	-
Normal-weight aggregate (sand and gravel) ~200 mm, 16 kg, 2100 kg/m3 concrete, 2 or 3 cores	-	-	0.20 to 0.17	0.92

Normal-weight aggregate (sand and gravel) ~200 mm, 16 kg, 2100 kg/m3 with perlite-filled cores	-	-	0.35	-
Normal-weight aggregate (sand and gravel) ~200 mm, 16 kg, 2100 kg/m3 with vermiculite-filled cores	-	-	0.34 to 0.24	-
Normal-weight aggregate (sand and gravel) ~200 mm, 16 kg, 2100 kg/m3 ~300 mm, 22.7 kg, 2000 kg/m3 concrete, 2 cores.	-	-	0.217	0.92
Medium-weight aggregate (combinations of normal and light weight aggregate) ~200 mm, 13 kg, 1550 to 1800 kg/m3 concrete, 2 or 3 cores	-	-	0.30 to 0.22	-
Medium-weight aggregate (combinations of normal and light weight aggregate) ~200 mm, 13 kg, 1550 to 1800 kg/m3 with perlite-filled cores	-	-	0.65 to 0.41	-
Medium-weight aggregate (combinations of normal and light weight aggregate) ~200 mm, 13 kg, 1550 to 1800 kg/m3 with vermiculite-filled cores	-	-	0.58	-
Medium-weight aggregate (combinations of normal and light weight aggregate) ~200 mm, 13 kg, 1550 to 1800 kg/m3 with molded-EPS-filled (beads) cores	-	-	0.56	-

Medium-weight aggregate (combinations of normal and light weight aggregate) ~200mm, 13 kg, 1550 to 1800 kg/m3 with molded EPS inserts in cores	-	-	0.47	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) ~150 mm, 7 1/2 kg, 1400 kg/m^{2}concrete, 2 or 3 cores	-	-	0.34 to 0.29	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) ~150 mm, 7 1/2 kg, 1400 kg/m^2 with perlite-filled cores	-	-	0.74	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) ~150 mm, 7 1/2 kg, 1400 kg/m^{2}with vermiculite-filled cores	-	-	0.53	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) 200 mm, 8 to 10 kg, 1150 to 1380 kg/m^2 concrete	-	-	0.56 to 0.33	0.88
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) 200 mm, 8 to 10 kg, 1150 to 1380 kg/m^2 concrete with perlite- filled cores	-	-	1.20 to 0.77	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) 200 mm, 8 to 10 kg, 1150 to 1380 kg/m^2 concrete with vermiculite-filled cores	-	-	0.93 to 0.69	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) 200 mm, 8 to 10 kg, 1150 to 1380 kg/m^2 concrete with molded- EPS-filled (beads) cores	-	-	0.85	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) 200 mm, 8 to 10 kg, 1150 to 1380 kg/m^2 concrete with UF foam-filled cores	-	-	0.79	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) 200 mm, 8 to 10 kg, 1150 to 1380 kg/m^2 concrete with molded EPS inserts in cores	-	-	0.62	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) 300 mm, 16 kg, 1400 kg/m3, concrete, 2 or 3 cores	-	-	0.46 to 0.40	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) 300 mm, 16 kg, 1400 kg/m3, with perlite-filled cores	-	-	1.6 to 1.1	-
Low-mass aggregate (expanded shale, clay, slate or slag, pumice) 300 mm, 16 kg, 1400 kg/m3, with vermiculite-filled cores	-	-	1	-
Stone, lime, or sand	2800	10.4	-	-
	2560	6.2	-	-

Quartzitic and sandstone	2240	3.46	-	-
	1920	1.88	-	0.88
Calcitic, dolomitic, limestone, marble, and granite	2880	4.33	-	-
	2560	3.17	-	-
	2240	2.31	-	-
	1920	1.59	-	0.88
	1600	1.15	-	-
Gypsum partition tile .75 by 300 by 760 mm, solid	-	-	0.222	0.79
Gypsum partition tile .4 cells	-	-	0.238	-
Gypsum partition tile .100 by 300 by 760 mm, 3cells	-	-	0.294	-
Limestone	2400	0.57	-	0.84
	2600	0.93	-	0.84
Concretes				
Sand and gravel or stone aggregate concretes (concretes with >50% quartz or quartzite sand have conductivities in higher end of range	2400	1.4 to 2.9	-	-
	2240	1.3 to 2.6	-	0.8 to 1.00
	2080	1.0 to 1.9	-	-
Low-mass aggregate or limestone concretes	1920	0.9 to 1.3	-	-
Low-mass aggregate or limestone concretes Expanded shale, clay, or slate; expanded slags; cinders; pumice (with density up to 1600 kg/m3); scoria (sanded concretes have conductivities in higher end of range)	1600	0.68 to 0.89	-	0.84
	960	0.30 to 0.36	-	-
	640	0.18	-	-
Gypsum/fiber concrete (87.5% gypsum, 12.5% wood chips)	800	0.24	-	0.84
Cement/lime, mortar, and stucco	1920	1.4	- -	- -
	1600	0.97	- -	- -
	1280	0.65	- -	- -
Perlite, vermiculite, and polystyrene beads	800	0.26 to 0.27	- -	- -
	640	0.20 to 0.22	- -	0.63 to 0.96
			- -	- -
	480	0.16	- -	- -
	320	0.12	- -	- -
Foam concretes	1920	0.75	- -	- -
	1600	0.6	- -	- -
	1280	0.44	- -	- -
	1120	0.36	- -	- -

Foam concretes and cellular concretes	960	0.3	- -	- -
	640	0.2	- -	- -
	320	0.12	- -	- -
Aerated concrete (oven-dried)	430 to 800	0.2	-0.84	-
Polystyrene concrete (oven-dried)	255 to 800	0.37	-	0.84
Polymer concrete	1950	1.64	-	-
	2200	1.03	-	-
Polymer cement	1870	0.78	-	-
Slag concrete	960	0.22	-	-
	1280	0.32	-	-
	1600	0.43	-	-
	2000	1.23	-	-
Woods (12% moisture content)				
Hardwoods	-	-	-	1.63
Oak	660 to750	0.16 to 0.18	-	-
Birch	680 to 725	0.17 to 0.18	-	-
Maple	635 to 700	0.16 to 0.17	-	-
Ash	615 to 670	0.15 to 0.16	-	-
Softwoods	-	-	-	1.63
Southern pine	570 to 660	0.14 to 0.16	-	-
Southern yellow pine	500	0.13	-	-
Eastern white pine	400	0.1	-	-
Douglas fir/larch	535 to 580	0.14 to 0.15	-	-
Southern cypress	500 to 515	0.13	-	-
Hem/fir, spruce/pine/fir	390 to 500	0.11 to 0.13	-	-
Spruce	400	0.09	-	-
Western red cedar	350	0.09	-	-
West coast woods, cedars	350 to 500	0.10 to 0.13	-	-

Eastern white cedar	360	0.1	-	-
California redwood	390 to 450	0.11 to 0.12	-	-
Pine (oven-dried)	370	0.092	-	1.88
Spruce (oven-dried)	395	0.1	-	1.88

[a.] Values are for mean temperature of 24°C. Representative values for dry materials are intended as design (not specification) values for materials in normal use. Thermal values of insulating materials may differ from design values depending on in-situ properties (e.g., density and moisture content, orientation, etc.) and manufacturing variability. For properties of specific product, use values supplied by manufacturer or unbiased tests.

[b]. Symbol λ also used to represent thermal conductivity.

[c.] Does not include paper backing and facing, if any. Where insulation forms boundary (reflective or otherwise) of airspace Conductivity varies with fiber diameter. Batt, blanket, and loose-fill mineral fiber insulations are manufactured to achieve specified R-values, the most common of which are listed in the table. Because of differences in manufacturing processes and materials, the product thicknesses, densities, and thermal conductivities vary over considerable ranges for a specified R-value.

[d]. Conductivity varies with fiber diameter. Batt, blanket, and loose-fill mineral fiber insulations are manufactured to achieve specified R-values, the most common of which are listed in the table. Because of differences in manufacturing processes and materials, the product thicknesses, densities, and thermal conductivities vary over considerable ranges for a specified R-value

[e]. Values are for aged products with gas-impermeable facers on the two major surfaces. An aluminum foil facer of 25mm thickness or greater is generally considered impermeable to gases. For change in conductivity with age of expanded poly-iso-cyanurate.

[f.] Cellular phenolic insulation may no longer be manufactured. Thermal conductivity and resistance values do not represent aged insulation, which may have higher thermal conductivity and lower thermal resistance.

[g.] Insulating values of acoustical tile vary, depending on density of board and on type, size, and depth of perforations.

[h.] Values for fully grouted block may be approximated using values for concrete with similar unit density.

[i.] Values for concrete block and concrete are at moisture contents representative of normal use.

[j.] Values for metal or vinyl siding applied over flat surfaces vary widely, depending on ventilation of the airspace beneath the siding; whether airspace is reflective or non-reflective; and on thickness, type, and application of insulating backing-board used. Values are averages for use as design guides and were obtained from several guarded hot box tests (ASTM *Standard* C236) or calibrated hot box (ASTM *Standard* C976) on hollow-backed types and types made using backing of wood fiber, foamed plastic, and glass fiber. Departures of ±50% or more from these values may occur.

[k.] Vinyl specific heat = 1.0 kJ/(kg·K)

[l.] See Adams (1971), MacLean (1941), and Wilkes (1979). Conductivity values listed are for heat transfer across the grain. Thermal conductivity of wood varies linearly with density, and density ranges listed are those normally found for wood species given. If density of wood species is not known, use mean conductivity value. For extrapolation to other moisture contents, the following empirical equation developed by Wilkes (1979) may be used:

$$k = 0.1791 + \frac{(1.874 * 10^{-2} + 5.733 * 10^{-4} * M) * \rho}{1 + 0.01 * M}$$

Where, ρ is density of moist wood in kg/m3, and M is moisture content in percent.

[m.] From Wilkes (1979), an empirical equation for specific heat of moist wood at 24°C is as follows:

$$C_p = \frac{(0.299 + 0.01 * M)}{(1 + 0.011 * M)} + \Delta C_p$$

Where, Δc_p accounts for heat of sorption and is denoted by:

$$\Delta C_p = M * (1.921 * 10^{-3} - 3.168 * 10^{-5} * M)$$

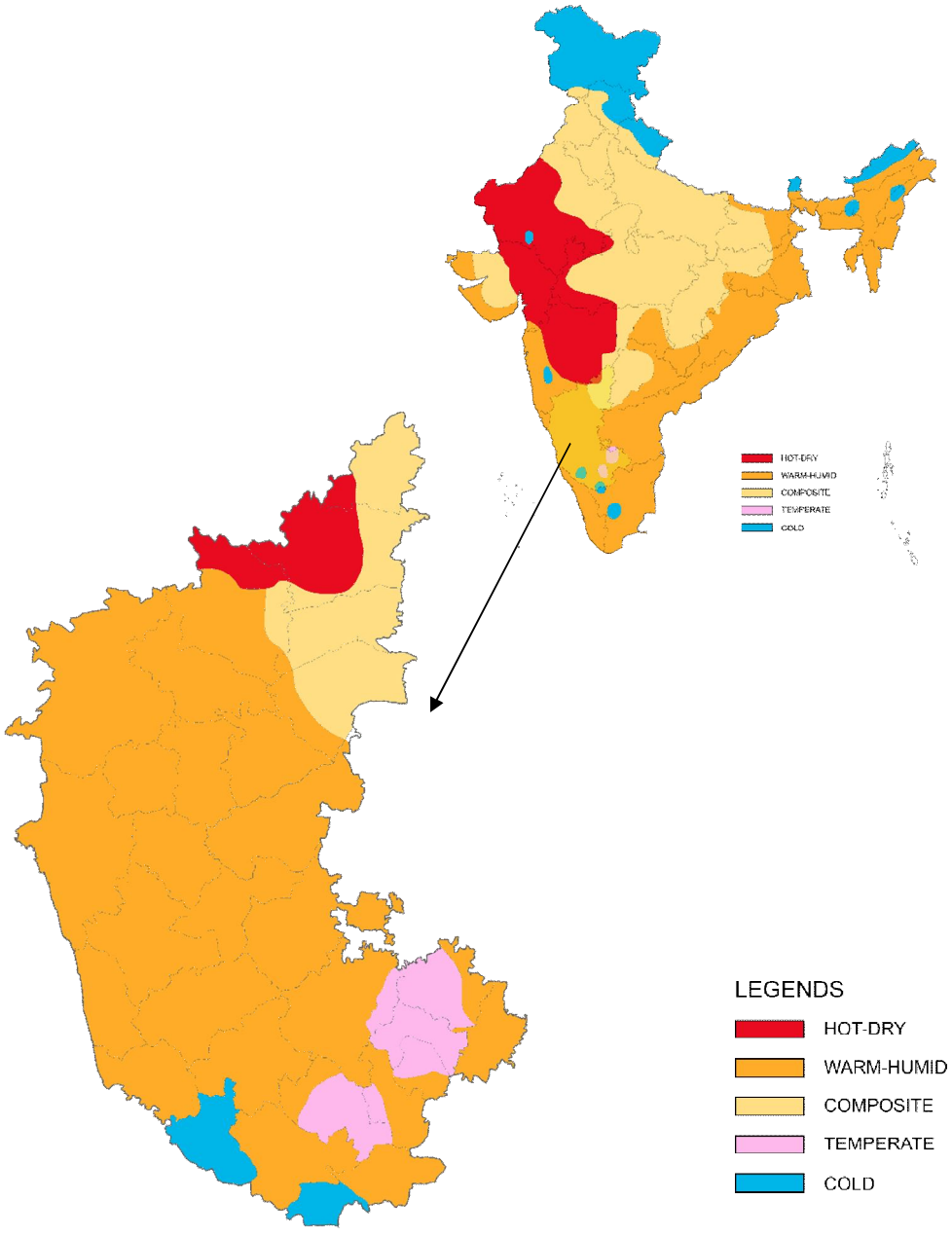
Where, M is moisture content in percent by mass.

[n.] Blank space in reference column indicates historical values from previous volumes of *ASHRAE Handbook*. Source of information could not be determined.

[3] ASHRAE – Handbook of Fundamentals

11 Appendix B: Climate Zone Map of India

11.1 Climate Zone Map of Karnataka



11.2 District wise details of Latitude and Longitude of Karnataka

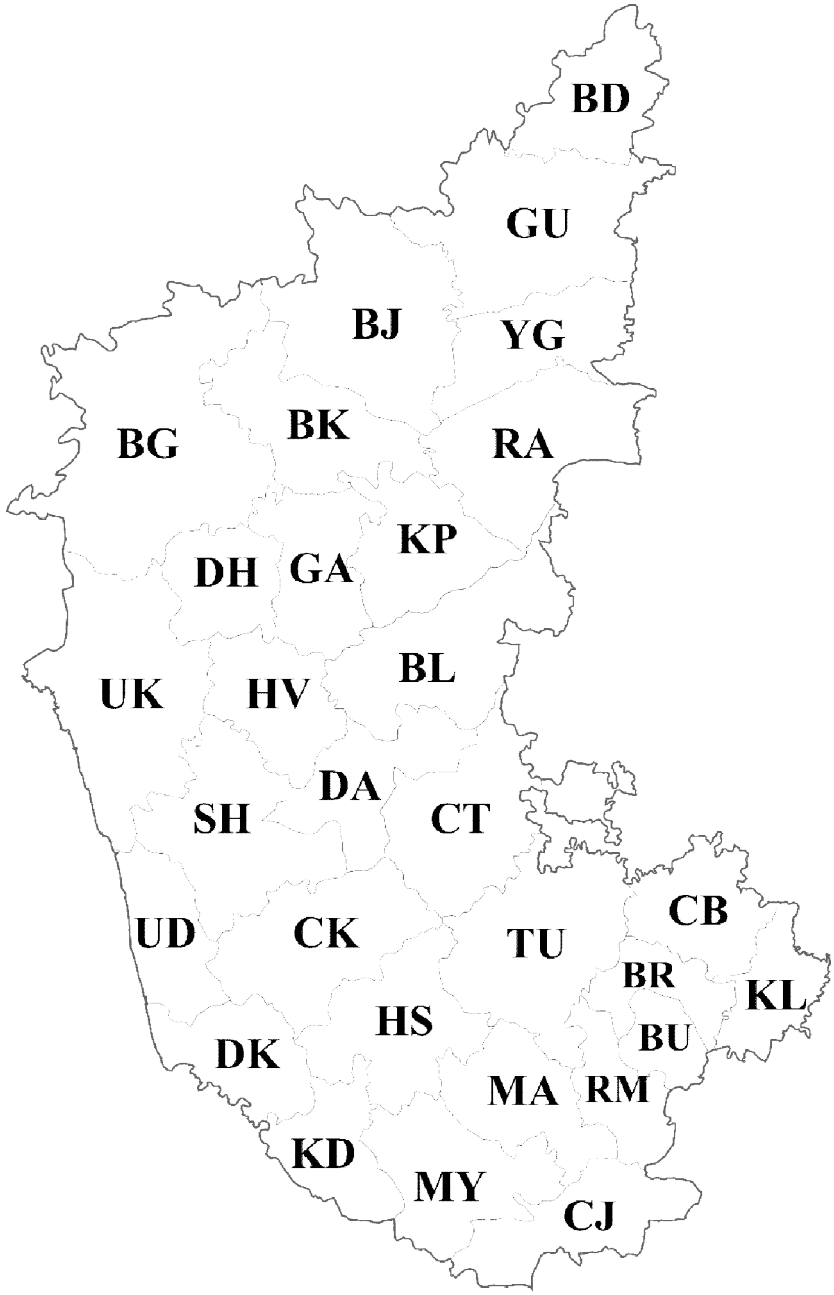


Table 11-1 *District wise details of latitude and longitude of Karnataka*

S. No.	Code	District	Headquarters	Latitude	Longitude
1.	BK	Bagalkot	Bagalkot	16° 10' 21.13''	75° 39' 20.59''
2.	BN	Bangalore Urban	Bangalore	12° 58' 12.09''	77° 39' 13.01''
3.	BR	Bangalore Rural	Bangalore	13° 17' 4.92''	77° 36' 28.03''
4.	BG	Belgaum	Belgaum	15° 50' 58.90''	74° 29' 51.63''
5.	BL	Bellary	Bellary	15° 8' 21.81''	76° 55' 17.19''
6.	BD	Bidar	Bidar	17° 54' 53.57''	77° 30' 16.59''
7.	BJ	Bijapur	Bijapur	16° 49' 48.62''	75° 42' 36.11''
8.	CJ	Chamarajnagar	Chamarajnagar	12° 3' 9.52''	77° 17' 11.36''

9.	CB	Chikkaballapur	Chikkaballapur	13° 25' 56.52''	77° 43' 40.94''
10.	CK	Chikamagalur	Chikmagalur	13° 18' 54.93''	75° 46' 31.45''
11.	CT	Chitradurga	Chitradurga	14° 13' 50.01''	76° 23' 54.43''
12.	DK	Dakshina Kannada	Mangalore	12° 50' 37.61''	75° 14' 52.46''
13.	DA	Davanagere	Davanagere	14° 27' 58.84''	75° 55' 25.82''
14.	DH	Dharwad	Dharwad	15° 27' 32.13''	75° 0' 28.11''
15.	GA	Gadag	Gadag	15° 25' 56.87''	75° 38' 16.92''
16.	GU	Gulbarga	Gulbarga	17° 19' 47.03''	76° 50' 3.47''
17.	HS	Hassan	Hassan	13° 0' 34.96''	76° 6' 10.43''
18.	HV	Haveri	Haveri	14° 39' 39.69''	75° 26' 4.10''
19.	KD	Kodagu	Madikeri	12° 20' 14.98''	75° 48' 24.87''
20.	KL	Kolar	Kolar	13° 8' 8.68''	78° 7' 57.22''
21.	KP	Koppal	Koppal	15° 20' 47.46''	76° 10' 1.38''
22.	MA	Mandya	Mandya	12° 31' 19.77''	76° 54' 3.31''
23.	MY	Mysore	Mysore	12° 17' 44.92''	76° 38' 21.77''
24.	RA	Raichur	Raichur	16° 12' 43.21''	77° 20' 38.14''
25.	RM	Ramanagara	Ramanagara	12° 42' 34.02''	77° 16' 50.67''
26.	SH	Shimoga	Shimoga	13° 55' 47.75''	75° 34' 5.16''
27.	TU	Tumkur	Tumkur	13° 20' 21.00''	77° 6' 50.39''
28.	UD	Udupi	Udupi	13° 20' 27.17''	74° 44' 31.71''
29.	UK	Uttara Kannada	Karwar	14° 49' 6.53''	74° 8' 29.80''
30.	YG	Yadgir	Yadgir	16° 45' 36.71''	77° 8' 33.95''

Table 11-2 *Latitude and longitude of Important locations in Karnataka*

Location	Latitude	Longitude	Location	Latitude	Longitude
Aland	17° 36' N	76° 35' E	Jog Falls	14° 18' N	74° 55' E
Anagundi	15° 21' N	76° 33' E	Kadur	13° 33' N	76° 03' E
Athani	16° 44' N	75° 06' E	Kallur	16° 12' N	77° 08' E
Bagalkot	16° 12' N	75° 45' E	Kalyani	17° 53' N	76° 59' E
Bagevadi	16° 33' N	76° 05' E	Karkala	13° 12' N	75° 00' E
Bangalore	12° 58' N	77° 38' E	Karwar	14° 48' N	74° 11' E
Bantwal	12° 53' N	75° 05' E	Khanapur	15° 42' N	74° 35' E

Location	Latitude	Longitude	Location	Latitude	Longitude
Belgaum	15° 52' N	74° 34' E	Kolar	13° 09' N	78° 11' E
Bellary	15° 09' N	76° 55' E	Kollegal	12° 09' N	77° 09' E
Bhadravati	13° 52' N	75° 40' E	Kollur	13° 53' N	74° 53' E
Bhalki	18° 04' N	77° 10' E	Koppal	15° 20' N	76° 13' E
Bidar	17° 55' N	77° 39' E	Kotturu	14° 49' N	76° 16' E
Bijapur	16° 50' N	75° 47' E	Krishnaraj Res.	12° 20' N	76° 32' E
Chamrajnagar	11° 56' N	77° 00' E	Kudremukh, Peak	13° 10' N	75° 15' E
Channapatna	12° 38' N	77° 13' E	Kumta	14° 26' N	74° 27' E

Chickballapur	13° 26' N	77° 46' E	Lingsugur	16° 07' N	76° 34' E
Chikmagalur	13° 18' N	75° 49' E	Londa	15° 60' N	74° 50' E
Chiknayakanhalli	13° 25' N	76° 40' E	Mangalore	12° 52' N	74° 53' E
Chitradurga	14° 14' N	76° 26' E	Manvi	19° 18' N	76° 30' E
Coondapoor	13° 38' N	74° 42' E	Mercara	12° 26' N	75° 47' E
Davangere	14° 31' N	75° 58' E	Muddebihal	16° 20' N	76° 10' E
Deodrug	16° 25' N	77° 00' E	Mudhol	16° 20' N	75° 20' E
Dharwar	15° 27' N	75° 05' E	Mulbagal	13° 11' N	78° 14' E
Dodballapur	13° 14' N	77° 23' E	Mysore	12° 18' N	76° 42' E
Gadag	15° 25' N	75° 42' E	Nanjangud	12° 07' N	76° 44' E
Gangawati	15° 30' N	76° 36' E	Puttur	12° 45' N	75° 1' E
Gersoppa (Jog) Falls	14° 18' N	74° 55' E	Ramanagaram	12° 54' N	78° 02' E
Gokak	16° 11' N	74° 52' E	Ramdurg	15° 58' N	75° 22' E
Gulbarga	17° 19' N	76° 54' E	Ranibennur	14° 33' N	75° 41' E
Hampi (Vijayanagar)	15° 20' N	76° 30' E	Robertsonpet	12° 58' N	78° 16' E
Hangal	14° 46' N	75° 12' E	Sagar	16° 37' N	76° 51' E
Harihar	14° 31' N	75° 52' E	Sandur	15° 02' N	76° 36' E
Harnahalli	13° 15' N	76° 12' E	Savanur	14° 58' N	75° 19' E
Harapanahalli	14° 47' N	75° 58' E	Shahabad	17° 1' N	78° 11' E
Hassan	13° 01' N	76° 10' E	Shahapur	15° 5' N	74° 34' E
Hiriyur	13° 57' N	76° 40' E	Shikaripur	14° 16' N	75° 24' E
Hole Narsipur	12° 47' N	76° 17' E	Shimoga	13° 56' N	75° 38' E
Humnabad	17° 43' N	77° 12' E	Talguppa	14° 10' N	74° 52' E
Honnavar	14° 17' N	74° 29' E	Tarikere	13° 42' N	75° 51' E
Honnali	14° 15' N	75° 41 W	Tumkur	13° 20' N	77° 08' E
Hosadurga	13° 48' N	76° 20' E	Udipi	13° 20' N	74° 45' E
Hospet	15° 16' N	76° 26' E	VanivilasSagar	13° 50' N	76° 25' E
Hubli	15° 20' N	75° 12' E	Vijayanagar (Hampi)	15° 20' N	76° 30' E
Hunsur	12° 18' N	76° 19' E	Wadi	17° 00' N	76° 57' E
Jamkhandi	16° 30' N	75° 20' E	Yelandur	12° 05' N	77° 00' E

Table 11-3 *Karnataka Districts Segregation according to Climatic Zones*

Climatic Zones	**Districts**				
Cold	Central Kodagu	South Chamrajanagar			
Hot-Dry	North-Bijapur/ Vijayapur	North-West Gulbarga/ Kalburgi			

Composite	East- Bijapur/ Vijayapur	Gulbarga/ Kalburgi	Yadgir	Raichur	Bidar
Temperate	Mandya	Bangalore Urban	Bangalore Rural	North-West &South-West Chikballapur	
Warm & Humid	South- West Bijapur/ Vijayapur	Bagalkot	Belgaum	Uttar kannada	Dharwad
	Koppal	Haveri	Bellary	Shimoga	Davanagere
	Udupi	Chikmangalur	Chitradurga	Kodagu	Hassan
	Tumkur	North-East & South- East Chikballapur	Mysore	Chamrajanagar	Kolar
	Gadag	Ramanagara	Shimoga	Dakshina Kannada	

12. Appendix C: Air-Side Economizer Acceptance Procedures

12.1 Construction Inspection

Prior to Performance Testing, verify and document the following:

(a) System controls are wired correctly to ensure economizer is fully integrated (i.e. economizer will operate when mechanical cooling is enabled).

(b) Economizer lockout control sensor location is adequate (open to air but not exposed to direct sunlight nor in an enclosure; away from sources of building exhaust; at least 8 meters away from cooling towers).

(c) System is provided with barometric relief, relief fan or return fan to control building pressure.

12.2 Equipment Testing

Step 1: Simulate a cooling load and enable the economizer by adjusting the lockout control set point. Verify and document the following:

(a) Economizer damper modulates opens to 100% outside air.

(b) Return air damper modulates closed and is completely closed when economizer damper is 100% open.

(c) Economizer damper is 100% open before mechanical cooling is enabled.

(d) Relief fan or return fan (if applicable) is operating or barometric relief dampers freely swing open.

Step 2: Continue from Step 1 and disable the economizer by adjusting the lockout control set point. Verify and document the following:

(a) Economizer damper closes to minimum ventilation position.

(b) Return air damper opens to at or near100%.

(c) Relief fan (if applicable) shuts off or barometric relief dampers close. Return fan (if applicable) may still operate even when economizer is disabled.

13 Appendix D: Compliance Forms

Envelope Summary

Karnataka Energy Conservation Building Code 2018 Compliance Forms

Project Info	Project Address	Date
		For Building Department Use
	Project Built-up Area [m^2]	
	Project Above-grade Area [m^2]	
	Project Conditioned Area [m^2]	
	Applicant Name and Address	
	Project Climatic Zone	

Building Classification	Hospitality	Business
	HealthCare	Educational
	Assembly	Shopping Complex

Project Description	New Building	Addition	Alteration
	Self-occupied	Core and Shell	Mixed-Use
Compliance is sought for Energy efficiency level	ECBC Compliant	ECBC+ Compliant	Super ECBC Compliant
		EPI Ratio	
Compliance Approach	Prescriptive Method	Whole Building Performance Method	Building Trade-off Method-Envelope Compliance

Building Envelope

Vertical Fenestration Area Calculation	Total Vertical Fenestration Area (rough opening)	/	Gross Exterior Wall Area	X 100 =	% Window to Wall Ratio (WWR)
				X 100 =	
Skylight Area Calculation	Total Skylight Area (rough opening)	/	Gross Exterior Roof Area	X 100 =	% Skylight to roof Ratio (WWR)
				X 100 =	

Opaque Assembly	
Wall (Minimum Insulation U-factor)	
Roof (Minimum Insulation U-factor)	

Cool Roof	
Solar Reflectance	
Emittance	

Wall Assembly		
Material	R-value	Assembly U-Factor

Daylighting Summary	
% above-grade floor area meeting the UDI requirement for 90% of the potential daylit time in a year	

Fenestration	
Vertical	
Maximum U-factor	
Maximum SHGC (or SC)	
Minimum VLT	
Overhang / Side fins / Box Frame Projection (yes or no)	
If yes, enter Projection Factor for each orientation and effective SHGC	
Skylight	
Maximum U-factor	
Maximum SHGC (or SC)	

Envelope Checklist

Karnataka Energy Conservation Building Code 2018 Compliance Forms

Project Address		Date	

Applicability			Code Section	Component	Information Required	Location on Plans	Building Department Notes
Yes	No	N/A					
Mandatory Provisions (Section 4.2)							
			4.2.1	Fenestration			

			4.2.1.1	U-factor	Specify reference standard		
			4.2.1.2	SHGC	Specify reference standard		
			4.2.1.3	Visible Light Transmittance	Specify reference standard		
			4.2.2	Opaque Construction			
			4.2.2.1	U-Factors	Specify reference standard		
			4.2.2.2	Solar Reflectance	Specify reference standard		
			4.2.2.3	Emittance	Specify reference standard		
			4.2.3	Daylighting	Specify simulation approach or prescriptive		
			4.2.4	Building envelope sealing	Indicate sealing, caulking, gasketing, and weather stripping		

Prescriptive Compliance Option (Section 4.3)							
			4.3.1	Roofs	Specify implemented U factor		
			4.3.1.1	Vegetated Cool Roof	Specify the solar reflectance, emittance, and reference standards		
			4.3	Opaque External Wall	Specify implemented U factor		
			4.3.3	Vertical fenestration	(1) Indicate U-factors on fenestration schedule. Indicate if values are rated or default. If values are default, then specify frame type, glazing layers, gap width, low-e. (2) Indicate SHGC or SC on fenestration schedule. Indicate if values are rated or default. (3) Indicate VLT of fenestration schedule. Indicate if values are rated or default. (4) Indicate if overhangs or side fins or box-frame projection are used for compliance purposes. If so, provide projection factor calculation and equivalent SHGC calculation		
			4.3.3(a)	fenestration U factor exemption	Specify if applicable, specify unconditioned space percentage, and specify incorporated specifications		
			4.3.4	Skylights	(1) Indicate U-factors on fenestration schedule. Indicate if values are rated or default. If values are default, then specify frame type, glazing layers, gap width, low-e. Indicate SHGC or SC on fenestration schedule. Indicate if values are rated or default.		

Building Envelope Trade-Off Option (Section 4.3.4)							
					Provide calculations		

Comfort Systems and Controls Summary

Karnataka Energy Conservation Building Code 2018 Compliance Forms

Project Info	Project Address:	Date
		For Building Department Use
	Project Built-up Area (m^2):	
	Project Above-grade area (m^2):	
	Project Conditioned Area (m^2):	
	Applicant Name and Address:	
	Project Climatic Zone:	

Project Description	
Briefly describe comfort system type and features.	Natural ventilation, mechanical Ventilation, Low energy comfort system, heating and cooling mechanical equipment. percentage area distribution for the installed system, and related information

Compliance Option	System efficiency	Prescriptive Method	Whole Building Performance Method

Equipment Schedules	The following information is required to be incorporated with the mechanical equipment schedules on the plans. For projects without plans, fill in the required information below.

Cooling Equipment Schedule								
Equip. ID	Brand Name	Model No.	Capacity kW	Testing Standards	OSA CFM Or Economizer?	COP	IPLV	Location

Heating Equipment Schedule								
Equip. ID	Brand Name	Model No.	Capacity kW	Testing Standards	OSA CFM or Economizer?	Input kW	Output kW	Efficiency

Fan Equipment Schedule								
Equipment ID	Brand Name	Model No.	Testing Standards	SP	Efficiency	Flow Control	Location of Service	

Comfort Systems & Controls Checklist

Karnataka Energy Conservation Building Code 2018 Compliance Forms

Project Address				Date:	
The following information is necessary to check a building permit application for compliance with the mechanical requirements in the Energy Conservation Building Code.					
Applicability			Code Section	Component	Information Required Location on Plan Building Department Notes
Yes	No	N/A			
Comfort Systems and Control					
Mandatory Provisions (Section 5.2)					
			5.2.1	Ventilation	Indicate all habitable spaces are ventilated with outdoor air in accordance with § 5.2.1 and guidelines specified in NBC
			5.2.2	Minimum Space Conditioning Equipment Efficiencies	Provide equipment schedule with type, capacity, efficiency
			5.2.3	Controls	
			5.2.3.1	Time clock	Indicate thermostat with night setback, 3 different day types per week, and 2-hour manual override, capable of retaining programming and time setting during loss of power for a period of at least 10 hours
			5.2.3.2	Temperature Controls	Indicate temperature control with 3°C dead band minimum if the system provides both heating and cooling.
					Indicate thermostats are interlocked to prevent simultaneous heating and cooling, where separate heating and cooling systems are there
					Indicate separate thermostat control for space types mentioned in § 5.2.3.2.(c)
			5.2.3.3	Occupancy Controls	Indicate occupancy controls for space types mentioned in § 5.2.3.3
			5.2.3.4	Fan Controls	Indicate two-speed motor, pony motor, or variable speed drive to control the fans and controls shall be capable to reduce the fan speed to at least two third of installed fan power
			5.2.3.5	Dampers	Indicate all air supply and exhaust equipment's having VFD shall have dampers that automatically close upon the situations mentioned in § 5.2.3.5
			5.2.4	Piping & ductwork	Indicate sealing, caulking, gasketing, and weather stripping
			5.2.4.1	Piping insulation	Indicate R-value of insulation

			5.2.4.2	Ductwork and Plenum insulation	Indicate R-value of insulation		
			5.2.5	System Balancing	Show written balance report for HVAC systems serving zones with a total conditioned area exceeding 500 m^2		
			5.2.6	Condensers	Indicate location of condenser and source of water used for condenser		
			5.2.9	Service Hot Water Heating			
			5.2.7.1	Solar Water Heating	Indicate all Hotels and hospitals have solar water heating equipment installed for hot water design capacity as per § 5.2.9.1		
			5.2.7.2	Heating Equipment Efficiency	Indicate service water heating equipment shall meet the performance and efficiency as per § 5.2.9.2		
			5.2.7.3	Other Water Heating System	Indicate supplementary heating system is designed in consideration with § 5.2.9.3		
			5.2.7.4	Piping Insulation	Indicate the Piping insulation is compliant with § 5.2.6.1.		
			5.2.7.5	Heat Traps	Indicate vertical pipe risers serving water heaters and storage tanks are as per § 5.2.9.5		
			5.2.7.6	Swimming Pools	Indicate the heated pools are provided with a vapor retardant pool cover on the water surface and temperature control and minimum insulation value as per § 5.2.9.6		
Prescriptive Compliance Option (Section 5.3)							
			5.3.1	Chillers	Indicate chiller type, capacity, &IPLV		
			5.3.2	Pumps	Indicate pump type (Primary, secondary, and condenser), its total installed capacity and efficiency		
			5.3.3	Cooling Towers	Indicate cooling tower type and installed capacity		
			5.3.4	Boilers	Indicate boiler type, capacity & efficiency		
			5.3.5.1	Air-Economizer (ECBC/ECBC+/Super ECBC)	Indicate air economizer is capable of modulating outside-air and return-air dampers to supply 50% of design supply air quantity as outside-air for respective building type.		
			5.3.5.1	Water-economizer (ECBC/ECBC+/Super ECBC)	Indicate water economizer is capable of providing 50% of the expected system cooling load at outside air temperatures of 10°C dry-bulb/7.2°C wet-bulb and below, if the designed building is a respective building type.		
			5.3.5.2	Partial Cooling	Indicate where required by § 5.3.4 economizers shall be capable of providing partial cooling even when additional mechanical cooling is required to meet the cooling load.		
			5.3.5.3	Economizer Controls	Indicate air economizers are equipped with controls as specified in § 5.3.4.4		
			5.3.5.4	Testing	Indicate air-side economizers have been tested as per the requirement specified		
			5.3.6	Variable Flow Hydronic Systems			
			5.3.6.1	Variable Fluid Flow	Indicate design flow rate of HVAC pumping system		
			5.3.6.2	Isolation Valves	Indicate water cooled air-conditioning have two-way automatic isolation valves and pump motors greater than or equal to 3.7 kW is controlled by variable speed drives		

			5.3.6.3	Variable Speed Drives	Indicate Chilled water or condenser water systems comply with either § 5.3.5.1 or § 5.3.5.2		
			5.3.7	Unitary, Split, Packaged Air-Conditioners	Indicate the type of system, cooling capacity.		
			5.3.8	Controls for ECBC+ & SuperECBC Building			
			5.3.8.1	Centralized Demand Shed Controls	Indicate the building has a Building Management System, with all Mechanical cooling and heating systems having PLC to the zone level shall have the control capabilities mentioned in § 5.2.4.1		
			5.3.8.2	Supply Air temperature reset	Indicate multi zone mechanical cooling and heating systems shall have controls to automatically reset supply air temperature in response to building loads or outdoor air temperature by at least 25% of the difference between design supply air temperature and the design room air temperature.		
			5.3.8.3	Chilled Water Temperature	Indicate chilled water systems exceeding 350 kW shall have controls to automatically reset supply water temperatures by representative building loads or by outdoor air temperature		
			5.3.9	Controls for SuperECBC Building	Indicate that the mechanical systems comply with § 5.2.4 and § 5.2.5		
			5.3.9.1	Variable Air Volume Fan Control	Indicate Fans in VAV systems shall have controls or devices to limit fan motor demand as per §5.2.5.1		
			5.3.10	Heat Recovery	Indicate for all Hospitality and Healthcare, heat recovery effectiveness, and efficiency of oil and gas fired boilers		
			5.3.11	Service Water Heating	Indicate all Buildings, Hotels and hospitals have solar water heating equipment installed for hot water design capacity as per § 5.3.11.		
			5.3.12	Total System Efficiency-Alternate Compliance approach	Attach simulation report		
			5.3.13	Low Energy Comfort Systems	Indicate system type and list the exemption claimed		

Lighting and Controls Summary

Karnataka Energy Conservation Building Code 2018 Compliance Forms

Project Info	Project Address:	Date
		For Building Department Use
	Project Built-up Area (m^2):	
	Project Above-grade area (m^2):	
	Project Conditioned Area (m^2):	
	Applicant Name and Address:	
	Project Climatic Zone:	

Compliance Option	☐ Space by Space method	☐ Whole Building Method

Maximum Allowed Lighting Power (Interior, Section 6.3.2 or 6.3.3)

Location (floor/room no.)	Occupancy Description	Allowed Watts per m²**	Area in m²	Allowed x Area
** Document all exceptions			Total Allowed Watts	

Proposed Lighting Power (Interior)

Location (floor/room no.)	Fixture Description	Number of Fixtures	Watts/ Fixture	Watts Proposed
Total proposed Watts may not exceed Total Allowed Watts for interior			Total Proposed Watts	

Maximum Allowed Lighting Wattage (Exterior, Section 6.3.5)

Location	Description	Allowed Watts per m² or lm	Area in m² (or lm for perimeter)	Allowed Watts x m² (or lm)
			Total Allowed Watts	

Proposed Lighting Wattage (Exterior)

Location (floor/room no.)	Fixture Description	Number of Fixtures	Watts/ Fixture	Watts Proposed
Total proposed Watts may not exceed Total Allowed Watts for interior			Total Allowed Watts	

Lighting & Controls Checklist

Karnataka Energy Conservation Building Code 2018 Compliance Forms

Project Address						Date	
The following information is necessary to check a building permit application for compliance with the lighting requirements in the Energy Conservation Building Code 2017.							
Applicability			Code Section	Component	Information Required	Location on Plans	Building Department Notes
Yes	No	N/A					
Lighting and Controls							

Mandatory Provisions (Section 6.2)							
			6.2.1	Lighting Controls			
			6.2.1.1	Automatic shutoff	Indicate automatic shutoff locations or occupancy sensors		
			6.2.1.2	Space control	Provide schedule with type, indicate locations		
			6.2.1.3	Control in Daylight Areas	Provide manual or automatic control device schedule with type and features, indicate locations		
			6.2.1.4	Centralised Control ECBC+ and Super ECBC Buildings	Provide centralised control system schedule with type and features, indicate locations		
			6.2.1.4	Ext. lighting control	Indicate photo sensor or astronomical time switch		
			6.2.1.5	Additional control	Provide schedule with type, indicate locations		

			6.2.2	Exit signs	Indicate wattage per face of Exit signs		
Prescriptive Interior Lighting Power Compliance Option (Section 6.3)							
			6.3.1	LPD compliance	Indicate whether project is complying with the Building Area Method (6.3.2) or the Space Function Method (6.3.3)		
			6.3.2	Building area method	Provide lighting schedule with wattage of lamp and ballast and number of fixtures. Document all exceptions.		
			6.3.3	Space function method	Provide lighting schedule with wattage of lamp and ballast and number of fixtures. Document all exceptions.		
			6.3.4.1	Luminaire wattage	Indicate the wattage of installed luminaires on the floor plan. In case of luminaires containing permanently installed ballasts, the operating input wattage has to be provided, either from manufacturer's catalogues or values from independent testing laboratory reports.		
			6.3.6	Controls ECBC+ and SuperECBC Buildings	Provide centralized control system schedule with type and features, indicate locations		
Prescriptive Exterior Lighting Power Compliance Option (Section 6.3.5)							
			6.3.5	External light power	Provide lighting schedule with wattage of lamp and ballast and number of fixtures. Document all exceptions.		

Electrical and Renewable Energy Systems Summary

Karnataka Energy Conservation Building Code 2018 Compliance Forms

Project Info	Project Address		Date
			For Building Department Use
	Project Built-up Area [m^2]		
	Project Above-grade Area [m^2]		
	Project Conditioned Area [m^2]		
	Applicant Name and Address		
	Project Climatic Zone		

Project Description Briefly describe electrical systems and renewable energy installed in the facility	Transformers, Diesel Generator sets, Uninterruptible Power Supply, Renewable Energy Systems and related information

Compliance Approach	Prescriptive Method	Whole Building Performance Method
Transformers		
Type of Transformer	Dry Type Transformer / Oil Type Transformer	
	X 100 =	
Transformer Losses	kVA Rating of/ Losses at 50% Loading in kW / Losses at 100% Loading in kW Transformer	
Diesel Generator Sets		
Star Rating of DG set	3 Star / 4 Star / 5 Star	

Uninterruptible Power Supply	
Efficiency at 100% Load	
Renewable Energy Systems	
Capacity and Type of Renewable Energy Installed	

Electrical and Renewable Energy Systems Checklist

Karnataka Energy Conservation Building Code 2018 Compliance Forms

Project Address						Date	
The following information is necessary to check a building permit application for compliance with the lighting requirements in the Energy Conservation Building Code 2017.							
Applicability			Code Section	Component	Information Required	Location on Plans	Building Department Notes
Yes	No	N/A					
Electrical and Renewable Energy Systems							
MANDATORY PROVISIONS (Section 7.2)							
			7.2.1	Transformers	Provide schedule with transformer losses		
			7.2.1.1	Maximum Allowable Power Transformer Losses	Provide losses at 50% load and 100% load, capacity and efficiency		
			7.2.1.2	Measurement and Reporting of Transformer Losses	For less than 500 kVA transformer meters are calibrated of 0.5 class accuracy and digital meters		
					For above 500 kVA additional Ct's and PT's are installed		
			7.2.1.3	Voltage drop	Indicate the Voltage drop for feeders shall not exceed 2% at design load. Voltage drop for branch circuit shall not exceed 3% at design load.		
			7.2.2	Energy Efficient Motor	Indicate the motor class IE2/IE3/IE4.		
					Indicate the motors capacity more than 0.375 kW have efficiency according to the latest version of IS 12615.		
					Motor nameplate indicates nominal full-load motor efficiencies and full-load power factor.		
					Indicate the motor horsepower ratings does not exceed 20% of the calculated maximum load being served.		
			7.2.3	Diesel Generator Sets	Indicate the star rating of the Diesel Generator Set		

			7.2.4	Check-Metering and Monitoring	Indicate the services exceeding 1000 kVA have permanently installed electrical metering to record kVA, kWh and total power factor. And provision for display of current in each phase, voltage between each phase and between each phase and neutral and total harmonic distortion as a percentage of total current.		
					Indicate the services not exceeding 1000 kVA but over 65 kVA shall have permanently installed electric metering to record kW, kWh and power factor or kVARh on hourly basis.		
					Indicate the services not exceeding 65 kVA shall have permanently installed electric metering to record kWh on hourly basis.		
					Indicate in case of tenant-based building, for recording metering should be provided at a location from where each tenant could attach the services.		
			7.2.5	Power factor correction	Indicate that the power factor correction has been maintained at the point of connection.		
			7.2.6	Power Distribution System	Indicate the power cable has been sized so that the distribution losses do not exceed the values mentioned in the code.		
			7.2.7	Uninterruptible Power Supply	Indicate the UPS meets or exceed the energy efficiency requirements listed in the table 7-4.		
			7.2.8	Renewable Energy Systems	Indicate the buildings have provision for installation of renewable energy systems in the future on rooftop or the site.		
			7.2.8.1	Renewable Energy Generating Zone (REGZ)	Indicate a dedicated REGZ equivalent to at least 25 % of roof area or area required for generation of energy equivalent to 1% of total peak demand or connected load of the building, whichever is less, shall be provided in all buildings.		
					Indicate the REGZ shall is free of any obstructions within its boundaries and from shadows cast by objects adjacent to the zone		

			7.2.8.2	Main Electrical Service Panel	Indicate the minimum rating is displayed on the main electrical service panel. And space is reserved for the installation of double pole circuit breaker for future solar electric installation.		
			7.2.8.3	Demarcation on Documents	Location for inverters and metering equipment, Pathway for routing of conduit from the REGZ to the point of interconnection with the electrical service, Routing of plumbing from the REGZ to the water-heating system and, Structural design loads for roof dead and live load.		

14 Appendix E: BEE approved list of software to show compliance

Table 14-1 *Bureau of Energy Efficiency Approved Software for Demonstrating Compliance with ECBC*

Analysis	Software
Whole Building Performance Method	AECOsim Design Builder DOE2 EnergyPlus eQUEST HAP IDA-ICE IES-VE OpenStudio Simergy Trace700 TRNSYS Visual DOE BEP-EMIS
Daylighting	AGI32 (Licaso) Daysim Design Builder DIVA Groundhog IES-VE Open Studio Radiance Rhino-Grasshopper with Daylighting Plugins Sefaira Sensor Placement + Optimization Tool (SPOT)

**This is not an all-inclusive list. The current list of approved software is available at BEE website (https://www.beeindia.gov.in/)

Annexure- II

ಕರ್ನಾಟಕ ಇಂಧನ ಸಂರಕ್ಷಣಾ ಕಟ್ಟಡ

ಸಂಹಿತೆ ನಿಯಮಗಳು ೨೦೧೮

KARNATAKA ENERGY CONSERVATION BUILDING CODE (KECBC) RULES

2018

G.S.R.168(E). - In exercise of the powers conferred by clause (l) of sub-section (2) of section 56 read with clause (d) of sub-section (2) of section 13 and clause (p) of section 14 of the Energy Conservation Act, 2001 (52 of 2001), the Karnataka Government in consultation with the Bureau, hereby makes the following rules, namely:-

1. Short title and commencement

(1) These rules may be called the Karnataka Energy Conservation Building Code Rules, 2018.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. Definitions

(1) In these rules, unless the context otherwise requires,-

(a) "Act" means the Energy Conservation Act, 2001 (52 of2001);

(b) "best practices" means those measures that allow for optimisation of efficiencies in the identified components and systems to enhance the energy efficiency of the building; or

i) reduce the cost of construction having regard to the safety, stability of the building structure, health and environmental provisions of Central laws or Karnataka laws; and

ii) includes energy conservation measures approved by the Karnataka Energy Conservation Building Code Implementation Committee or Karnataka Energy Conservation Building Code Compliant Technical Grievances Redressal Committee or National Energy Conservation Building Code Implementation Committee;

(c) "building complex" means a building or group of buildings constructed in a contiguous area for business, commercial, institutional purposes or assembly of buildings under the single ownership of individuals or group of individuals or under the name of a co-operative group society or on lease and sold as shops or office space or space for other commercial purposes;

(d) "built-up area" means the total covered areas on all floors of a building from the basement to all storeys covered by walls and parapet measured at the floor levels excluding parking;

(e) "bye-laws" means the building bye-laws framed by a Karnataka Government or any authority under its control to regulate the building activities in its areas falling in the jurisdiction of-

i) all Municipal authorities or Committees or Councils;

ii) all Metropolitan areas or Nagar Panchayats;

iii) all areas covered under the Development or Planning authorities;

under various development plans notified by a Karnataka Government and enforced by such authority in its jurisdiction in which the Energy Conservation Building Code compliant building shall be located and includes any regulation or rule framed by the Karnataka Government or any other authority having jurisdiction established by the Karnataka Government;

(f) "Certified Energy Auditor (Building)" means a person who fulfills the eligibility criteria specified in the Energy Conservation (Minimum qualification for Energy Auditors and Energy Managers) Rules, 2006 and has qualified National Examination for Energy Conservation Building Codes Compliance;

(g) "Code"meanstheEnergyConservationBuildingCodeframedbytheBureauundertheAct;

(h) "compliance documents" mean the forms specified in Appendix D of the Code and includes certificates from

Empaneled Energy Auditors (Building) to conform compliance with these rules,

(i) "connected load" means the total of the rated wattage of all equipment, appliances and devices to be installed or installed in the building or part of the building or building complexes in terms of kiloWatt (kW) that will be allocated to all applicants for electric power consumption in respect of the proposed building or building complex, as the case may be, on their completion;

(j) "construction documents" mean drawings or documents containing information pertaining to building construction processes and approvals, building materials and equipment specification, architectural details required by the authority having jurisdiction;

(k) "contract demand" means the maximum demand in kilo Watt (kW) or kilo-Volt Ampere (kVA) (within a consumer's sanctioned load) agreed to be supplied by the electricity provider or utility in the agreement executed between the user and the utility or electricity provider;

(l) "Empaneled Energy Auditors (Building)" means a firm consisting of the Certified Energy Auditor certified under Bureau of Energy Efficiency (Certification Procedures for Energy Auditors and Energy Managers) Regulations, 2010 and Certified Energy Auditor (Building),

and empaneled with the Bureau;

(m) "energy conservation measures" mean the measures incorporated in the building design for saving energy, or enhancing comfort in peak electrical or thermal demand, or reducing cooling or heating load covering any element of a component with any other element of the same or other component of the Code and includes any such measure incorporated in the said building design of the proposed or existing building;

(n) "energy performance index" means annual energy consumption of a building in kilo Watt-hours per square meter of the area of the building which shall be calculated as per the following formula:

$$\text{Energy performance Index} = \frac{\text{Annual energy consumption in kWh}}{\text{Total built up area (excluding storage area and the parking in the basement) in } m^2}$$

(o) "energy performance index ratio" means the ratio of the energy performance index of the proposed building to the energy performance index of the standard baseline building;

(p) "establishment" means a business or other organization, or the place where an organization operates and includes a Government establishment and private establishment;

(q) "form" means the forms appended to these rules;

(r) "owner" means a person, group of persons, a company, a trust, an institute, registered body, Karnataka Government or Central Government and its attached or sub-ordinate departments, undertakings and such other agencies or organizations in whose name the property stands registered in the revenue records for the construction of a building or building complex;

(s) "proposed design" means the computerized design of a building consistent with the actual design of a building which complies with all the requirements of the Code either through prescriptive or whole building performance method;

(t) "standard baseline design" means the standard design that complies with all the mandatory and prescriptive requirements of the Code and has the same built-up area of the proposed building;

(2) Words and expressions used herein and not defined, but defined in the Act, or in the Code, shall have the meanings respectively assigned to them in the Act or in the said Code.

3. Application

These rules shall apply to every building, which is used or intended to be used for commercial purposes, having a connected load of 100 kiloWatt (kW) or above or a contract demand of 120 kilo-Volt Ampere (kVA) or above and such building shall cover the following components, namely: -

(a) Building envelope;
(b) comfort systems and controls (heating, ventilation and air conditioning service hot water system);
(c) lighting and controls;
(d) electrical and renewable energy systems;
(e) any other system, as may be specified from time to time by the Bureau:

Provided that these rules shall not apply to equipment, appliances, devices and parts of building that use energy primarily for manufacturing processes:

Provided further that wherever these rules are in conflict with safety, security, health or environmental codes, or Bureau of Energy Efficiency's Standard and Labelling for equipment or appliances and Star Rating Program for buildings and if they are more stringent than the requirement of these rules then they shall prevail over these rules:

Provided also that if any existing building after additions or alterations changes its connected load to 100kilo- Watt (kW) or above or a contract demand of 120 kilo-Volt Ampere (kVA) or above shall comply with the provisions referred to in clauses (a) to (e) of this rule.

4. Compliance mechanism.

(1) The compliance of energy performance of a building shall be ensured by the owner by following either of the following methods, namely:-

(a) Prescriptive Method. – The building shall comply with the mandatory requirements and prescriptive requirements as specified in the Code for envelope components, comfort systems and controls, lighting and controls, electrical and renewable energy systems;

(b) Whole Building Performance Method. – The building shall comply with all mandatory measures and the requirements specified in the whole building performance method of the Code and the energy performance index of the proposed design under this method shall be the same or less than the energy performance index of the standard baseline design of building as follows:

$$\textit{Energy Performance Index ratio} = \frac{\textit{Energy performance index of proposed design}}{\textit{Energy performance index of standard baseline design}} \leq 1$$

(2) The summary covering building envelope, comfort systems and controls, lighting and controls, and electrical and renewable energy systems and their checklists under Prescriptive Method and Whole Building Performance Method shall be as specified in the Appendix D of the Code.

5. Procedure for erection of Code compliant building

(1) Every owner who intends to erect or re-erect a building or make alterations or additions in any building under these rules shall submit to the concerned authority having jurisdiction, an application in Form I accompanied by-

(a) construction documents duly signed by the owner together with an undertaking in Form II;

(b) construction documents shall ensure–

(i) compliance with the applicable building bye-laws inforce;

(ii) building design incorporates energy conservation measures and best national and international practices having regard to the climatic conditions of the site and

specific needs of the building so as to optimise the energy performance index ratio of the building;

(iii) that all the data, building features, identified energy conservation measures under various building components and systems are shown in detail and in the manner specified in the applicable bye-laws;

(iv) the drawing of plan, colour of plan, dimensions of plan, scale of plan as per requirements of the applicable bye-laws inforce;

(c) compliance documents covering the construction of components and systems of the Code, duly certified by Empaneled Energy Auditors (Building) including the following, namely:-

(i) energy performance index ratio report in respect of the proposed building at the design stage;

(ii) certificate in Form III by Empaneled Energy Auditors (Building) certifying the compliance documents as specified in Appendix D of the Code;

(iii) have been scrutinized or verified in respect of the identified energy conservation measures; and

(iv) an application with heading super scribed "Application for permission to erect/re-erect an Energy Conservation Building Code Compliant Building", duly signed by the owner seeking building permit from the concerned authority having jurisdiction before starting construction work in respect of the proposed building.

(2) The authority having jurisdiction may require submission of documents in electronic form or hard copy of the documents, referred to in sub-rule(1).

(3) The Empaneled Energy Auditors (Building), at the design stage, shall follow the following procedure of inspection, namely: –

(a) scrutinize the construction documents with respect to–

(i) floor area;

(ii) window area;

(iii) wall area;

(iv) roof area of the building;

(v) built-up area of the proposed design of the building;

(b) scrutinize the Code compliance documents and the checklist as specified in the Appendix D of the Code and identify–

(i) the energy conservation measures that are applicable to the proposed design of building;

(ii) insulation quantities in walls and roof, and the construction assemblies, solar heat gain co- efficient, visible light transmittance and thermal transmittance (U-factor) for window assemblies;

(iii) heating, ventilation and air-conditioning component tables for air-handling equipment, refrigeration equipment, condensing equipment and air-flow summaries;

(iv) heating, ventilation and air-conditioning equipment efficiencies and control equipment;

(v) tables showing lighting equipment schedules;

(vi) lighting power density calculations in the design documents;

(vii) lighting controls;

(viii) motor efficiencies and controls;

(ix) findings of the document review to match with the energy model inputs for the proposed building by using the simulation tool approved by the Bureau;

(c) scrutinize energy performance index ratio projected at the design stage;

(d) verify and certify the items from (i) to (ix) of (b) and(c);

(e) fill the check list as specified in the Appendix D of the Code and issue correction list in case the design documents of the proposed design of building provide inadequate information or do not meet the requirements of these rules and shall-

(i) communicate his/her findings in Form IV to the owner of the building under intimation to the concerned authority having jurisdiction;

(ii) give specified time to the owner to implement its findings;

(iii) satisfy himself/herself that the communication received from the owner within the specified time, meet the findings and fulfill the shortcomings;

(f) record his/her approval and complete the checklist conforming compliance with the Code and these rules, and issue the certificate of approval in Form V to the owner under intimation to the concerned authority having jurisdiction and the Karnataka Renewable Energy Development Limited.

(4) The authority having jurisdiction on receipt of application under sub-rule (1) for issue of permit for construction of proposed building shall-

(a) approve the design and sanction building plan only after it has received a certificate in Form II or Form IV from the Empaneled Energy Auditors(Building);

(b) grant permit to erect or re-erect the building or add to or make alterations in the building to carry out the construction works subject to the following conditions in its sanction letter, namely:-

(i) the construction work shall be in accordance with the sanctioned plan and requirement under the Code and these rules;

(ii) the compliance with these rules shall be achieved during construction-in-progress;

(iii) the building shall not be occupied before issuance of occupancy certificate to the owner;

(iv) the authority having jurisdiction may, at any stage, revoke the permit on receipt of non- compliance report from the Empaneled Energy Auditors (Building) or on the notice of any misrepresentation of material facts in the application in respect of the provisions of these rules or the Code after giving a reasonable opportunity of being heard to the owner.

(5) After receiving the permit, the owner shall-

(a) give notice of his/her intention to start the construction work of the building in Form VI;

(b) undertake construction of energy conservation measures incorporated in the construction documents in terms of sub-clause (ii) of clause (b) of sub-rule (1);

(c) have flexibility in constructing the building components and systems covered in the construction documents referred to in clause (a) of sub-rule (1) to most effective use of energy by deploying best practices in such components and systems to optimize the energy performance index ratio;

(d) take the approval of the Empaneled Energy Auditors (Building) before undertaking such construction referred to in clause (c) if the components and systems proposed to be constructed are other than those incorporated in the construction and compliance document.

(6) The Empaneled Energy Auditors (Building), at construction stage, shall review, verify the specifications of the parameters specified in sub-rule (3)and,

(a) Fill out the checklist specified in the Appendix D of the Code, provide comments if the proposed design of building does not meet the construction requirements and specify the shortcomings in compliance to the Code, these rules and sanctioned plan, and shall-

(i) communicate its shortcomings and finding to the owner;

(ii) give specified time to the owner to implement its findings;

(iii) satisfy himself/herself that the communication received thereafter from the owner meets the specified findings and fulfill shortcomings;

(b) record his/her approval and complete the checklist indicating compliance with the Code and these rules, and issue a certificate of compliance in Form VII to the owner under intimation to the authority having jurisdiction;

(c) where it is determined at any stage that construction is not proceeding in accordance with the sanctioned plan or is in violation of any of the provisions of the Code and these rules, Empaneled Energy Auditors (Building) shall notify the owner, and request for additional information with respect to his/her findings or on the short comings identified by him as per Form VIII;

(d) in case the Empaneled Energy Auditors(Building) is satisfied with the additional information provided by the owner, he shall record the same in the certificate of compliance in Form VII and communicate the same to the owner under intimation to the authority having jurisdiction;

(e) in case the Empaneled Energy Auditors (Building) is not satisfied with the additional information submitted by the owner he shall report the same to the authority having jurisdiction to ensure that all further construction is stayed until correction has been effectuated and a certificate of compliance has been issued by Empaneled Energy Auditors(Building).

(7) Every owner shall submit a notice of completion of the building in Form IX to the authority having jurisdiction on the completion of work including the works related to energy conservation measures specified in the sanctioned permit along with the certificate in Form X issued by the Empaneled Energy Auditors (Building) certifying the completion of the building accompanied by-

(a) The duly completed compliance forms together with checklist of various components covered under rule

(3) at the completion stage which shall include the followings-

(i) review of heating, ventilation and air-conditioning component tables for air-handling equipment, refrigeration equipment, condensing equipment, air-flow summaries, tables showing lighting equipment specifications, and tables showing motor specifications;

(ii) inspection of lighting equipment like lamps, ballasts, to confirm fixture wattage and inspection shall include at least random check across according to the type of usage in the building to determine lighting power density;

(iii) review the required lighting controls such as manual switching off perimeter, day lighting circuits, automated occupancy based control, photo sensor controls, and automated timer based controls;

(iv) review of coefficient of performance values of installed heating, ventilation and air- conditioning equipment and control equipment;

(v) review of efficiencies of installed motor and controls;

(vi) review of power factor and power distribution losses;

(vii) review the required check metering and monitoring system.

(viii) a list of the energy related building features in the proposed design, if any, which are different from the sanctioned or standard baseline design;

(ix) all documents and invoices in support of the construction undertaken with respect to all energy conservation measures including insulation, fenestration, heating, ventilation and air-conditioning, lighting and electrical systems, water heating systems of the building.

(8) If the energy performance index ratio at the completion stage is less than or equal to one as compared to the sanctioned plan of the building, it shall be deemed to have complied with the Code and these rules.

(8) If there is deviation in the energy performance index ratio of the sanctioned plan that is it is more than one as compared to the sanctioned plan of the building, Empaneled Energy Auditors (Building) shall record its findings in Form XI and communicate the same to the owner and seek compliance of the same through incorporation of additional energy conservation measure. The Empaneled Energy Auditor (Building) shall render technical assistance to the owner to ensure that the proposed design of building becomes compliant with these rules.

(9) The owner shall neither occupy nor allow any other person to occupy the building or part of the building covered under these rules for any purpose until such building or such part thereof has been granted occupancy certificate under the bye-laws of the authority having jurisdiction.

(10) The owner shall give notice of completion of the building and seek permission for occupancy

(11) The authority having jurisdiction on receipt of such notice by the owner accompanied by a certificate by the Empaneled Energy Auditors (Building), issue the occupancy certificate in Form XII incorporating *inter alia* the following conditions, namely:-

(i) that the energy performance of the building shall be monitored and verified by the Karnataka Energy Conservation Building Code Implementation Committee;

(ii) that the owner through the Empaneled Energy Auditors (Building) shall submit to the Karnataka Renewable Energy Development Limited, an energy performance index report as per Form XIII under intimation to Bureau for two consecutive years after the building has been fully operational;

(iii) in case the energy performance index ratio of the building is more than one, the authority having jurisdiction may issue a provisional occupancy certificate subject to the condition that the owner shall undertake energy audit of the building to identify additional energy conservation measures to achieve the energy performance index ratio of the building approved in the sanctioned plan or permit within a period of three years;

(iv) if the owner fails to achieve the energy performance index ratio as specified in clause (iii) within a period of three years from the date of occupancy of the building the authority having jurisdiction shall place the matter before the Karnataka Energy Conservation Building Code Technical Grievances Redressal Committee, which shall hear the owner and the Empaneled Energy Auditors (Building) and make recommendations in the matter accordingly and the authority having jurisdiction shall comply with such recommendations.

(12) The process shall be continued repeatedly till energy performance index ratio of the building comes to less than one or equal to one and Empaneled Energy Auditors (Building) shall fill and submit the compliance documents, as specified in Appendix D of the Code, of various energy conservation measures at each stage namely, design, construction and completion, to achieve conformity with the Code and these rules.

(13) The simulation tool referred in sub-rule (3) shall be based on the standard method of test for the evaluation of building energy analysis computer program.

(14) The owner may approach the Karnataka Energy Conservation Building Code Compliant Technical Grievances Redressal Committee for redressal of any grievance under the provisions of these rules.

6. Committees

(1) Karnataka Renewable Energy Development Limited, shall constitute –

(a) Karnataka Energy Conservation Building Code Implementation Committee headed by Chief Secretary of the Karnataka or, his/her nominee and comprising of all stakeholders including a nominee from Bureau, to–

(i) promote energy efficiency standards through optimization of parameters in the various components and systems of the building in line with the provisions of these rules to enhance the building performance and provide every support to it to make it an effective instrument of promoting energy conservation and energy efficiency in the commercial buildings or establishment;

(ii) forward its recommendations to the Bureau to assist the National Energy Conservation Building Code Implementation Committee to develop and revise energy consumption standards for buildings, in terms of energy performance index, zone-wise - hot and dry, warm and humid, composite, temperate and cold climate zones, classification-wise;

(iii) create awareness about Karnataka Energy Conservation Building Code and procedure for erection of Code compliant building;

(iv) promote construction of energy efficient buildings ensuring quality and consistency in their constructions having regard to the climatic conditions and needs of the building projects;

(v) promote capacity building of building professionals, developers and contractors to promote energy efficient designs of buildings in close co-ordination with authorities having jurisdiction;

(vi) undertake performance review of annual work of all Empaneled Energy Auditors (Building) to check their credentials;

(b) prepare a summary of violations which shall be provided by Karnataka Renewable Energy Development Limited to the Bureau and review such violations for the purpose of evaluating his/her professional skills;

(c) prepare a yearly report and furnish the same to the Bureau indicating inter alia the progress made in compliance of these rules in Karnataka and the steps taken by the Karnataka Renewable Energy Development Limited to improve the rate of compliance of Code in Karnataka;

(d) create data base through compilation of data of energy performance index and its ratio achieved by each building constructed after coming into force of these rules;

(e) Karnataka Energy Conservation Building Code Compliant Technical Grievances Redressal Committee headed by an officer of the Urban Development Department of the Karnataka, with other members, not exceeding four, nominated by the Karnataka Energy Conservation Building Code Implementation Committee who are qualified by experience and training to pass judgment upon matters pertaining to construction of Code compliant building in Karnataka ,to–

(i) hear grievance filed by the owner of a Code complaint building within the specified time period given by the authority having jurisdiction relating to the building permit, completion certificate, occupancy certificate of building including determination of the energy performance index ratio at the completion stage and interpretation of these rules or any other grievance arising out of the implementation of the Code and these rules;

(ii) make recommendations to the authority having jurisdiction to reconsider such issue, or for implementation by the authority having jurisdiction, as the case may be.

(2) The Bureau shall establish a National Energy Conservation Building Code Implementation Committee under the Chairmanship of Director-General of the Bureau. The concerned programme manager in the Bureau shall be the Member-Secretary of the said Committee which shall consist of the following others members, namely:

(a) one representative each nominated by all state designated agencies preferably Empaneled Energy Auditors (Building) dealing with the Code compliant buildings in each state;

(b) a representative of Bureau of Indian Standards;

(c) a representative of Ministry of Housing and Urban Affairs;

(d) a representative of Central Public Works Department;

(e) a representative of Construction Industry;

(f) a representative of Council of Architecture;

(g) any other member, who may be nominated by the Chairperson.

(3) The National Energy Conservation Building Code Implementation Committee shall evaluate the recommendations of the Karnataka Energy Conservation Building Code Implementation Committee sent under sub-clause (ii) of clause (a) of sub-rule (1) and finalize its recommendations regarding formulation of national energy consumption norms and standards climate zone wise, classification-wise of Code compliant buildings.

(4) Where the subject has been so evaluated and the need of having a uniform standard is established, the Bureau, under sub-section (3) of section 8 of the Act, may constitute a Technical Committee comprising of persons having adequate knowledge in the area of building energy efficiency to have interaction with various stake holders for the purpose and prepare a draft standards, widely circulate the same including state designated agencies for a period of not less than forty-five days for critical review and suggestions and finalize the draft standards.

(5) The recommendations of the National Energy Conservation Building Code Implementation Committee shall be placed before the Governing Council through Management Advisory Committee for direction and approval.

(6) The Bureau after having received the approval of the Governing Council shall send its recommendations to the Central Government for consideration and approval.

(7) The recommendations approved by the Central Government may be used for updating the Code.

7. Responsibilities and duties of the owner

(1) The owner of the Code compliant building shall carry out the work of the said building in accordance with the requirements of the Code and these rules.

(2) Every owner shall-

(a) Engage Empaneled Energy Auditors (Building) in development of building design, installation of energy conservation measures and equipment to meet with the requirements of these rules and ensure following, namely:–

(i) Finalize the compliance approach relevant for his/her building project based on the complexity of the building, budget and time constraints;

(ii) finalize the energy conservation measures as per the Code as amended from time to time having regard to the location of the proposed building;

(iii) to integrate the energy conservation measures in the building design in accordance with the provisions of these rules;

that drawings, specifications and compliance forms are prepared and energy conservation measures are reflected in the building design documents and submitted to the authority having jurisdiction in compliance with the requirements of the rules accompanied by a certificate specifying the energy performance index ratio of the building by the Empaneled Energy Auditors (Building) that the documents are as per the requirement of these rules;

(iv) notice is given within the validity of sanction to the authority having jurisdiction of his/her intention to start the construction work at the building site;

(v) commence the work within the period specified by the authority having jurisdiction from the date of such notice or seek extension of time for starting the construction work, wherever necessary;

(vi) ensure that the designed energy conservation measures are deployed in the construction of the building and installation of its components and systems.

(b) Permit the Empaneled Energy Auditors (Building) to enter the building or premises at any reasonable time for the purpose of inspection to ensure compliance of building works with rules and regulations under the Act;

(c) give written notice to the authority having jurisdiction intimating the completion of the construction work alongwithacertificatefromtheEmpaneledEnergyAuditors(Building)totheeffectthat-

(i) the construction of the building has been done in accordance with the sanction of the building permit;

(ii) all the energy conservation measures have been installed and inspected, and they meet the requirements of the Code and these rules;

(iii) the building design meet with the provisions of the Code and these rules;

(d) give written notice to the authority having jurisdiction as well as to the Karnataka Renewable Energy Development Limited in case of termination of the services of Empaneled Energy Auditors (Building) and appointment of other Empaneled Energy Auditors (Building) in its place;

(e) obtain an occupancy permit from the authority having jurisdiction prior to any occupancy of the building or part thereof after completion of the building;

(f) report the practical difficulties to the Empaneled Energy Auditors (Building), if any, in carrying out the provisions of these rules, who shall take necessary action in consultation with Karnataka Renewable Energy Development Limited and Karnataka Energy Conservation Building Code Implementation Committee;

(g) on the receipt of the notice, if any, from the authority having jurisdiction, he shall discontinue such usage within reasonable time as specified in such notice and in no case he shall disregard the provisions of these rules;

(h) where he proposes to alter the installation of any system or material or equipment on account of improving the energy efficiency of the building contrary to the system, material or equipment as indicated in the sanction plan he shall use or install such system or material or equipment after obtaining the necessary approval of the Empaneled Energy Auditors(Building):

Provided that it does not violate the spirit and intent of the provisions of these rules:

Provided further that such change shall not compromise with the building requirements namely, structural stability, safety, health or environmental provisions of Central laws and Karnataka laws applicable to the buildings covered under these rules.

(3) The owner may approach the Karnataka Energy Conservation Building Code Compliant

Technical Grievances Redressal Committee for redressal of any grievance under the provisions of these rules.

8. Role, responsibilities and duties of the Empaneled Energy Auditors(Building)

The Empaneled Energy Auditors (Building), whose services are engaged by the owner, shall–

(a) verify and certify–

(i) the design of the building keeping in view the design criteria, energy goals of the project, energy systems performance verification plan, and the modeling approach;

(ii) the energy conservation measures based on the design approach for the project under consideration;

(iii) construction documents and compliance documents, compliance forms and checklists specified to ensure that the building complies with the Code and these rules;

(iv) energy performance index ratio of the proposed building;

(b) furnish a certificate under its seal and authorized signature to the effect that drawings, specifications, construction documents, compliance documents and forms prepared covering building envelope, comfort system and controls, lighting and electrical power systems, wherever applicable, and all other Code related documentation prepared for submission to the authority having jurisdiction ensuring compliance with these rules;

(c) inspect the building works from the design stage to its commissioning stage of buildings including their uses under these rules and based on his/her certification, the authority having jurisdiction shall issue building permit, approve construction of building, issue completion and occupancy certificates;

(d) the Empaneled Energy Auditors (Building) shall ensure that none of the professionals or employees working under him/her is engaged in any work in connection with the construction or alteration of the concerned building covered under these rules to ensure that there is no conflict of interest with his/her official duties with the interests of the authority having jurisdiction;

(e) report to Karnataka Renewable Energy Development Limited on such unusual technical issues that may arise due to issue of building permit or construction of building or during occupancy stage;

(f) provide inputs to the National and Karnataka Energy Conservation Building Code Implementation Committees to facilitate for better implementation of the Code and these rules;

(g) promote norms and standards specified in the Code.

9. Responsibilities and duties of Karnataka Renewable Energy Development Limited

The Karnataka Renewable Energy Development Limited established by Karnataka Government under clause (d) of section 15 of the Act, in consultation with Bureau, shall–

(a) coordinate, regulate and enforce provisions of the Code and these rules for efficient use of energy and its conservation under the Act in Karnataka;

(b) ensure every commercial building or establishment having a connected load of 100 kW or above, or contract demand of 120 kVA or above, be constructed in compliance with these rules;

(c) monitor the performance of the Empaneled Energy Auditors (Building) to improve the quality, consistency and rate of compliance of these rules with a view to make the cadre of Empaneled Energy Auditors (Building) as effective instruments for promotion of energy efficiency in the building sector in Karnataka;

(d) create a data bank in Karnataka to measure the compliance rates of the Code compliant buildings and accurately account for the energy savings resulting from the compliance of these rules;

(e) also create a data bank on energy use per square meter of area of the building under different zones namely, hot and dry, warm and humid, temperate, composite and cold, separately for each category in Karnataka;

(f) take necessary steps to make energy performance index as a measure to comply with these rules in the various categories of buildings and send its recommendations to the Bureau for the formulation of energy consumption norms and standards in respect of various categories of buildings constructed zone-wise in Karnataka;

(g) arrange conduct site visits, if considered necessary, to determine the accuracy of reporting by Empaneled Energy Auditors (Building) in Karnataka;

(h) prepare a report on performance of Empaneled Energy Auditors (Building) listing out the projects complying with these rules, projects in violation of compliance with these rules and the level of violation, and provide summary of such violations for each year to the Bureau of Energy Efficiency;

(i) coordinate with the authority having jurisdiction to amend their building bye-laws incorporating the provisions of these rules for the purpose of construction of buildings in compliance with the Code and these rules;

(ii) provide necessary support to the authority having jurisdiction to conform to the provisions of these rules with regard to matters concerning design construction including energy conservation measures and occupancy for improving the energy performance of Code compliant buildings and effectiveness in compliance of these rules.

10. Miscellaneous

(1) The use of any energy conservation measures or method or design or construction not specifically specified under these rules shall not be prevented by the authority having jurisdiction if such energy conservation measures or method or design or construction is found to be satisfactory by the Karnataka Energy Conservation Building Code Compliant

Technical Grievance Redressal Committee and such energy conservation measures or method or design or construction assist the owner in optimizing the energy performance index ratio in the use of energy on its occupancy.

(2) The Code shall be reviewed periodically, at least once in five years, to determine the need for revision or withdrawal of standards specified in the Code, and such standards which in the opinion of the Bureau need no revision or amendment shall be reaffirmed.

Form I

[See rule 5(1)]

Application for seeking building permit in respect of erection/ re-erection/making alteration in the Karnataka Energy Conservation Building Code Compliant Building

To

The Commissioner or (name of the

competent authority) Authority having

jurisdiction,

Name of the city

Name of the state Date: //_____

Subject: Application for erection of Karnataka Energy Conservation Building Code compliant building in premises of Plot no._____Block No._____Scheme_____Street_Name of the town/city

Sir/Madam,

I/We the undersigned hereby give you notice of my intention to erect /re- erect/alter Karnataka Energy Conservation Building Code Compliant Building under the Karnataka Energy Conservation Building Code Rules, 2018 in the premises of plot No._____Block No._____Scheme _____and request for issue of building permit for the construction of the Karnataka Energy Conservation Building Code compliant building. The following documents are enclosed

(i) Construction Documents and Compliance Forms together with check-lists incorporating the installation of Energy Conservations Measures specified in the aforesaid rules.

(ii) The Construction Documents and Compliance Forms together with check-lists have been verified by Shri/Smt Regd. number_____Empaneled Energy Auditors (Building). A certificate in Form II duly signed and sealed in this regard is enclosed.

Yours faithfully,

(Name of the owner)

Address_
Tel. No./Mobile No.

Form II

[See rule 5(1)(a)]

[Undertaking by owner for construction of the Karnataka Energy Conservation Building Code compliant building]

I/We am/are the owner(s) of the aforesaid Plot No._Block No. and the proposed building on completion of construction shall have a connected load/contract demand of 100 kW/120 kVA or above and is proposed to be constructed to use or intended to be used for commercial purposes.

The proposed building accordingly attract the provisions of Karnataka Energy Conservation Building Code Rules, 2018.

I/we undertake that the aforesaid building shall be constructed in accordance with the bye-laws of the Municipal Authority and the provisions of the Karnataka Energy Conservation Building Code Rules, 2018. In case any deviation is noticed during the construction of the Building, I/we shall indemnify the loss to the authority having jurisdiction.

I/we further undertake that the information supplied in the enclosed drawings and the application is accurate to the best of my/our knowledge and if any of the information supplied is found to be incorrect and such information result in loss to the Central or the Karnataka Government or any other authority under them. I/ we undertake to indemnify such loss.

Signature

(Name of the owner)

Address

Mobile No/ Tel No-----

Form III

[(See rule 5(1)(c)(ii) and 5(4)(a)(i)]

[Certificate from Empaneled Energy Auditors (Building) to be enclosed with the application for Building Permit for Karnataka Energy Conservation Building Code compliant building]

Certificate

I/We am/are Empaneled Energy Auditors (Building) having registration No./ _____under the Energy Conservation Act 2001 (52 of 2001) and am authorized to scrutinize and verify the design of Karnataka Energy Conservation Building Code compliant building. I/We certify that–

(a) I/We have scrutinized the construction documents, undertaking given by the owner duly signed by the owner/design professional showing all the pertinent data and features of the building, equipment and systems in sufficient details covering building envelop, heating, ventilation and air-conditioning, service hot water, lighting and electrical power in accordance with municipal bye-laws and with the Karnataka Energy Conservation Building Code rules,2018 in respect of building proposed to be constructed on plot on ---------- block no-----
---- scheme in the city of_____in the state of Karnataka;

(b) I/We have scrutinized the compliance forms with the check- lists to ensure compliance with the bye-laws and the Karnataka Energy Conservation Building Code Rules,2018.
(c) The compliance documents have been duly inspected by the undersigned.
(d) The energy performance index ratio of the building design as per compliance documents, at the design stage is equal to or less than one and is therefore in compliance with the Karnataka Energy Conservation Building Code Rules, 2018.
(e) It is certified that all required scrutiny and verification of the documents submitted have been carried out diligently, truthfully and all reasonable professional skill, care and diligence have been taken in scrutinizing and verifying the drawings of the buildings and compliance forms together with check–lists covering the various components of the Karnataka Energy Conservation Building Code rules, 2018.
(f) The contents of all the documents submitted along with the application are a true representation of the facts and nothing has been concealed

There is no objection for issue of building permit in respect of the aforesaid proposed building in so far as requirements of Karnataka Energy Conservation Building Code rules, 2018 are concerned.

Signature Name of the Empaneled
Energy Auditors (Building)
Registration No/SEAL

Date

Form IV

[See rule 5(3)(e)(i) & 5(4)(a)(i)]

[Certificate of Inspection by Empaneled Energy Auditors (Building) on review of Building Permit Application in respect of the proposed building -Communication of omissions and non-compliance to owner]

To

Shri/S

mt._____,Address

Subject: Application for erection of proposed Building in premises of Plot no._____

Block No. _____ Scheme_____Street

_____Name of the town/city- Details of omission /non-compliance with the Karnataka Energy Conservation Building Code rules, 2018 on design stage inspection

Sir/Madam,

I/We,……..(Name), being an authorised Empaneled Energy Auditors (Building) vide order No.__hereby state that I/we have reviewed and verified the undertaking given by you and have inspected the construction documents, compliance forms, check-lists, submitted along with building permit application in respect of the various elements specified in sub-rule (3) of rule 5 of the various components of the proposed building in respect of the subject building and inform that the following omission/non-compliance have been discovered on inspection –

(i)

(ii)

(iii)

(iv)

It is requested that the necessary energy conservation measure in consultation with your design team be carried out in order to bring them in compliance with the Karnataka Energy Conservation Building Code Rules, 2018. You are accordingly requested to take corrective action within a period of one month from the date of issue of this letter. Further action on your application for issue of building permit shall be taken after satisfactory compliance of the aforesaid omission/noncompliance.

Signature

Name of the Empaneled Energy Auditors (Building)

Registration No /SEAL

Date

Form V

[See rule 5(3)(f)]

[Certificate of Inspection by Empaneled Energy Auditors (Building) on review of building permit application enclosing construction documents and compliance forms in respect of Karnataka Energy Conservation Building Code compliant building]

I/We,…….(Name), being an authorised Empaneled Energy Auditors (Building) vide order No._____hereby state that I/we have reviewed and verified the undertaking given by the owner, and have inspected the construction documents, compliance forms, check-lists, submitted along with building permit application in respect of the various elements of the proposed Karnataka Energy Conservation Building Code compliant building in the premises of plot No._____Block No.____ Scheme_____Town/City_____,Karnataka and certify that the

(i) theomission/non-compliancepointedoutbytheundersignedinthecertificateofInspectiondated..... have been complied with satisfactorily;
(ii) the energy performance index ratio calculation match with the data given in the aforesaid documents and is in compliance with the Karnataka Energy Conservation Building Code

Rules,2018.

I/We further certify that –

(a) all reasonable professional skill, care, and diligence have been taken in verifying the compliance forms in respect of the various elements of the components covered in Karnataka Energy Conservation Building Code rules, 2018 and contents thereof are a true representation of the facts and meet the requirements of Karnataka Energy Conservation Building Code Rules,2018.

(b) There is no objection for issue of building permit in respect of the aforesaid proposed building in so far as requirements of Karnataka Energy Conservation Building Code Rules, 2018 are concerned.

The check-list duly completed and signed by the undersigned is enclosed.

Signature

Authorized/Empaneled

EnergyAuditors (Building)

Registration number/ Mobile

number

Seal

Form VI

[See rule 5(5)(a)]

Notice for commencement of construction work of Karnataka Energy Conservation Building Code compliant building

To

Date: //_____

The Commissioner or (name of the

competent authority) Authority having

jurisdiction,

Name of the City

Name of the State: Karnataka

Subject: Erection of Karnataka Energy Conservation Building Code compliant building on premises of Plot no. _____ Block No._____Scheme_____StreetName of the town/city-Notice for commencement of building construction works Sir/Madam,

I/We hereby give notice for commencement of building works including implementation of Karnataka Energy Conservation Measures for erection of Karnataka Energy Conservation Building Code compliant building in the aforesaid site i.e. Plot No. ……..scheme……..street in pursuance of the sanction granted by the Authority having jurisdiction/vide file No. /letter No…….

Yours faithfully

Signature of the owner (Name of the owner) Address of the owner

Form VII

[See rule 5(6)(b) and (d)]

[Certificate of Inspection by Empaneled Energy Auditors (Building) on review of construction works enclosing

construction documents and compliance forms in respect of Karnataka Energy Conservation Building Code compliant building-- Issue of certificate of compliance]

ToThe Owner, Address

I/We,…….(Name), being an authorised/ Empaneled Energy Auditors (Building) vide order No._____hereby state that I/we have reviewed the undertaking given by the owner, energy conservation measures installed during the construction works and have reviewed the construction documents, compliance forms, check-lists, submitted along with progress in construction works in respect of the various elements of the components referred to in sub rule (6) of Rule 5 of the proposed Karnataka Energy Conservation Building Code compliant building in the premises of plot No._____Block No.____scheme_____Town/City, Karnataka and certify that the energ performance index ratio calculation match with the data given in the aforesaid documents;

I/We further certify that all reasonable professional skill, care, and diligence have been taken in verifying the construction document and compliance forms in respect of the various elements of the components covered in Karnataka Energy Conservation Building Code rules, 2018 and contents thereof are a true representation of the facts and meet the requirements of Karnataka Energy Conservation Building Code rules, 2018.

The check-list duly completed and signed by the undersigned is enclosed.

Signature

Name Empaneled Energy Auditors(Building)

/Registration No./Mobile number.

Seal

Copy to: Commissioner, Authority having jurisdiction/Name of the City/Town

Managing Director, Karnataka Renewable Energy Development Limited/ Karnataka /Address

Form VIII
[See rule 5(6)(c)]

[Certificate of Inspection by Empaneled Energy Auditors (Building) on review of construction works enclosing construction documents and compliance forms in respect of Karnataka Energy Conservation Building Code compliant building- Issue of certificate of non-compliance]

To
Sh
ri/
S
mt
…
…
…
…
..
Owner
Address Date: //_____

Sub: Erection of Karnataka Energy Conservation Building Code Compliant Building on premises of plot No. block No._____scheme_____street____name of the town/city-Communication of findings by the Empaneled Energy Auditors (Building)

Sir/Madam,

I/We,…….(Name), being an authorised/ Empaneled Energy Auditors (Building)vide order No.__hereby state that I/we have reviewed the undertaking given by the owner, and energy conservation measures under construction and have reviewed the construction documents, compliance forms, check-lists, submitted along with progress in construction works in respect of the various elements of the components of the proposed Building in the premises of plot No. Block No._____Scheme_____Town/City_____, Karnataka and have to state that the construction has not proceeded in accordance with the sanctioned plan and has deviated/is deviating from the following provisions of Karnataka Energy Conservation Building Code rules, 2018 namely:-

(i)
(ii)
(iii)

1. None of the above deviations are covered in the best practices approved by the Karnataka Energy Conservation Building Code Implementation Committee.

Or

The following deviations are covered in the best practices by the Karnataka Energy Conservation Building Code Implementation Committee.

2. The building owner is requested to rectify the above deviations or take the approval of the Karnataka Energy Conservation Building Code Technical Grievance Redressal Committee.

3. The building owner after obtaining the approval provided in para 3 above or rectifying the deviations notified in para 1 above may inform the undersigned of the action taken in the matter within one month from the date of approval obtained or rectification completed along with the updated check- list to enable me to inspect the works in connection with the issue of certificate of

approval provided in clause (d)of sub-rule (6) of rule 5 of the Karnataka Energy Conservation Building Code Rules,2018.

Yours faithfully

Signature Name of Authorized/

Empaneled Energy Auditors(Building)

Number/Mobile number

Seal

Copy to: Commissioner, Authority having jurisdiction/Name of the City/Town/Karnataka

Form IX

[See rule 5(7)]

Notice of completion

To

TheCommssioner

Authority having

jurisdiction

Name of the Town/Karnataka

Subject: Construction of Karnataka Energy Conservation Building Code compliant building on plot No.in block No._____town_____Notice of completion of construction of Karnataka Energy Conservation Building Code compliant works

Sir/Madam,

I/We hereby give notice that the erection of the building on plot No……Block No..... including execution and implementation of the energy conservation measures have been completed in accordance with the plans sanctioned vide your office communication No.....datedThe following documents are enclosed:-

(i) A certificate of inspection on completion of the aforesaid building from Shri__ Empaneled Energy Auditors (Building) vide Municipal Authority Order No____dated__

The building is fit for use for which it has been erected/re-erected/constructed.

It is requested that permission to occupy or use the aforesaid building may be granted.

Yours faithfully,

Signature.....

Name of the owner Plot No., block No. Address

Form X

[See rule 5(7)]

[Certificate of Inspection by Empaneled Energy Auditors (Building) on review of completion of construction works enclosing construction documents and compliance forms in respect of Karnataka Energy Conservation Building Code compliant building -Issue of certificate of compliance]

To

Name……

Owner the

Building,

Address

Subject: Completion of Construction Works in respect of Karnataka Energy Conservation Building Code compliant building Certificate

I/We,…….(Name(s)),being the authorised Empaneled Energy Auditors (Building) vide order No._____hereby state that I have verified the undertaking given by the owner, and have inspected the construction documents, compliance forms, check-lists, submitted on completion of building of the proposed Karnataka Energy Conservation Building Code compliant building in the premises of plot No.___block No.schemtown/City, Karnataka and certify that the

(i) The works covered under the Karnataka Energy Conservation Building Code Rules, 2018 have been completed to the best of my satisfaction. The details of the various components/system completed as per Karnataka Energy Conservation Building Code rules, 2018 are given below:

Name of the component dated

1.

2.

3.

4.

5.

(ii) The energy performance index ratio of the said building match/with the data given in the aforesaid compliance documents specified in para 1 above.
(iii) A list of the energy conservation measures deployed in the construction of aforesaid building enclosed. Necessary approvals required have been taken by the owner.
(iv) The building in my/our view meets the requirements of Karnataka Energy Conservation Building Code Rules compliant building and is fit for occupancy for which it has been erected, Refer Rule2 (i).
(v) I further certify that all reasonable professional skill, care, and diligence have been taken in verifying the construction document and compliance forms in respect of the various elements of the components covered in the Karnataka Energy Conservation Building Code rules, 2018 and contents thereof are a true representation of the facts and meet the requirements of the Karnataka Energy Conservation Building Code rules, 2018.
(vi) The check-list duly completed, signed sealed by the undersigned is enclosed.

Empaneled Energy Auditors(Building)

Seal/Name/Regd. Number/

Certification number

A copy of the certificate is sent herewith to:

(i) Commissioner, authority having jurisdiction, Town /city/Karnataka
(ii) Managing Director, (By Name), Karnataka Renewable Energy Development Limited/Address/Karnataka

Form XI

[See rule 5(9)]

[Certificate of Inspection by Empaneled Energy Auditors (Building) on review of completion of construction

works in respect of Karnataka Energy Conservation Building Code compliant building- Communication of omissions and non-compliance to owner]

To

Shri/S

mt._____,Address

Subject: Application for erection of Karnataka Energy Conservation Building Code Compliant Building in premises of plot no. block No. scheme_____street_____name of the town/city- details of omission /non- compliance with the Karnataka Energy Conservation Building Code Rules, 2018 on design/completion stage inspection.

Sir,

I/We,…….(Name),being an authorised Empaneled Energy Auditors (Building)vide order No._____hereby state that I/we have reviewed and verified the undertaking given by you and have inspected the construction documents, compliance forms, check-lists, submitted on completion of the proposed Karnataka Energy Conservation Building Code compliant building in respect of the subject building and inform that the following omission/non-compliance have been found on inspection–

(i)

(ii)

(iii)

(iv)

You are accordingly requested to take corrective action within a period of three months from the date of issue of this letter. Further action on your application for issue of Completion Certificate shall be taken after satisfactory compliance of the aforesaid omission/non-compliance.

Signature

Empaneled Energy Auditors (Building) Registration number/Mobile number.

Form XII

[See rule 5(12)]

Occupancy Certificate

(to be issued by Authority having jurisdiction in their occupancy certificate)

To

Name of the owner….

Add ress

…
…

Subject: Issue of

Occupancy

Certificate

Sir/Madam,

With reference to your notice of completion of an Karnataka Energy Conservation Building Code compliant building construction dated……..on plot no…….block no…situated at I/we hereby certify that the said building
as per description annexed on plot No._____Block No._____Scheme_____whose plans were sanctioned vide No……dated
.....hasbeeninspectedwithreferencetorequirementsofKarnatakaEnergyConservatio nBuilding
Code Rules, 2018.

1. The building is declared fit for

occupancy as follows: Climate Zone

24-Hour use Building / Regular

Building Hospitals/Hotels/Call

Centre/Other Building Types

Annexure

Description of the building

Ground Floor	Usage	connected load
1. 1stfloor	……	……
2. 2ndfloor	……	……
3. 3rdfloor	……	……
4. 4thFloor	……	……
5. etc.	……	……

2. The energy performance index ratio of the building on the completion stage is as per the sanction plan. It has been decided by the authority having jurisdiction in consultation with the Karnataka Renewable Energy Development Limited that the building is declared fit for occupancy as specified above, subject to the condition that the owner shall undertake energy audit of the building and identify additional energy conservation measures to achieve the compliance with the energy performance index of the building approved in the sanctioned plan.

3. The energy performance of the Building shall be monitored and verified by the Karnataka Energy Conservation Building Code committee for the next two years.

Enclosures: copy of certified completion plan.

Yours faithfully,

(Signature of building official)

Authority having jurisdiction

Copy to Managing Director, Karnataka Renewable Energy Development Limited

Form XIII

[See rule 5(12)(ii)]

[Energy performance index Report Submission by Empaneled Energy Auditors (Building) to Karnataka Renewable Energy Development Limited after the building has become fully operational]

To

The Managing Director,

Karnataka Renewable Energy

Development Limited,

Government of Karnataka

Sub: Energy performance index Report for Karnataka Energy Conservation Building Code compliant building constructed on Plot no._____Block No._____Scheme_____Street _____Name of the town/city- Communication by the Empaneled Energy Auditors (Building)

Sir,

I/We,…….(Name),being the authorised/Empaneled Energy Auditors (Building) vide order No._____hereby state that I/we have reviewed the undertaking given by the owner, energy consumption for year …….. of the proposed building of type ……in the premises of plot No.____Block No.....____Scheme_____Town/City_____, Karnataka and certify that the energy performance index ratio is which is less than or equal to one. The EPI report is enclosed.

I further certify that all reasonable professional skill, care, and diligence have been taken to verify the energy consumption of the aforesaid building.

Copies of the electricity bills have been enclosed for your reference.

Yours faithfully

Signature Name of Authorized/
Empaneled Energy Auditors
(Building)

Number /Mobile number

Seal

Enclosure: Energy performance index ratio report as specified in the Appendix D of the Code.

PR-170

GOVERNMENT OF KARNATAKA

Rural Drinking Water and Sanitation Department

O/o. the Commissioner, RDW&SD,
2nd Floor, "E" Block, KHB Building, Cauvery Bhavan, K.G. Road,
Bangalore – 560 009, ☎ : 080-22240508, 🖷 : 22240509, Email : krwssd@gmail.com

No.RDWSD/123/SBM(G)/WASHADVOCACY/2019

The Karnataka Panchayat Raj (Management of Sanitation & Liquid Waste) Model Bye-laws, 2020

The Karnataka Panchayat Raj (Gram Panchayat Sanitation & Liquid Waste Management) Model Bye-laws, 2020 for management of Liquid Waste within the territorial limits of the Gram Panchayats which the government of Karnataka proposes to make in exercise of Section 316 of Karnataka Gram Swaraj and Panchayat Raj Act, 1993 and is hereby published as required by sub-section (1) of Section 316 of the said Act. This is for the information that Draft was published in Karnataka Gazette Part-IV-A on Date:12.03.2020, suggestion &

objections were sought from all persons likely to be affected by it, within 30 (thirty) days from the date of its publication in the Official Gazette

And the above said Gazette was made available to public from Date:12.03.2020.
Since, no suggestions and objections were received with respect to Bye-laws,

Hence under Karnataka Gram Swaraj and Panchayat Raj Act, 1993 of Section 316 as read The Karnataka Panchayat Raj (Management of Sanitation & Liquid Waste) Model Bye-laws, 2020 is framed under the section 311- Power of Government to make rules, and that is:-

Bye-laws

Name and commencement: 1**)** These Byelaws are called Karnataka Panchayat Raj (Management of Sanitation & Liquid Waste) Model Bye-laws, 2020.

Chapter I: GENERAL

1. Short title, **commencement and application**

a. These Bye-laws may be called Karnataka Panchayat Raj (Management of Sanitation & Liquid Waste) Model Bye-Laws, 2020.
b. These Bye-laws shall be operational from the date of their publication in the Official Gazette.
c. These Bye-laws shall come into force in accordance with Karnataka Gram Swaraj and Panchayat Raj Act, 1993.
d. These Bye-Laws shall not apply to wastewater from industrial units and Primary Healthcare Centres housed in the Gram Panchayat.

2. Definitions

a. In these Bye-laws, unless the context otherwise requires, capitalised words shall have the following meaning:

i. **"Act"** means the Karnataka Gram Swaraj and Panchayat Raj Act, 1993, as may be amended from time to time;
ii. **"Agency"** means any Person or entity, including any cooperative formed by individuals or organizations working in the sanitation sector, appointed or authorised by the Gram Panchayat or directed by the Government to act on behalf of the Gram Panchayat in accordance with an agreement, for the discharge of duties or functions under these Bye-laws.
iii. **"Blackwater"** means the wastewater coming from the Latrines including human faeces and flush/wash water, either at household level or in commercial establishments, anganwadis, schools, institutions;
iv. **"Biosolids"** mean nutrient-rich organic materials resulting from the treatment of domestic sewage in a treatment facility.
v. **"Bye-Laws"** means the Karnataka Panchayat Raj (Management of Sanitation & Liquid Waste) Model Bye-Laws, 2020 as amended from time to time;
vi. **"Compost"** means the product obtained by the controlled action of microbes /earthworms on biodegradable matter.

vii. **"CPCB"** means the Central Pollution Control Board;

viii. **"Cluster"** means two or more geographically contiguous Gram Panchayats that converge for setting up Faecal Sludge Treatment Plants

ix. **"Committee"** means the Village Water and Sanitation Committee (VWSC) and the Village Health, Sanitation and Nutrition Committees (VHSNC) formed under Section 61-A of the Act.

x. **"Containment System"** means an on-site sanitation system into which the User Interface discharges, once flushed. This can be either lined (Septic Tanks) or unlined (Leach Pits) or a combination of both (Septic Tank followed by Soak-pit), with varying levels of treatment as may be suitable.

xi. **"Drain"** means a conduit or channel for the carriage of storm water, sewage, wastewater or other waterborne wastes in a drainage system;

xii. **"Desludging"** means the operation of removing sludge (and septage) from septic/digestion tanks, pit latrines or any other containment systems.

xiii. **"Domestic Generator"** means Owner of the Premises listed under **Schedule I** of these Bye-laws where no commercial activity is carried out.

xiv. **"Effluent"** means liquid that leaves a system where the system can be a holding tank or a treatment system (e.g. supernatant liquid discharge from a septic tank);

xv. **"Faecal Sludge"** means the solid or settled contents of a containment (Leach pits and Septic Tanks) but shall not include Sludge produced in municipal waste-water treatment plants.

xvi. **"Faecal Sludge Treatment Plant or FSTP**" means an authorized independent septage and Faecal Sludge treatment facility for remediating the solid and liquid components of Faecal Sludge to prescribed standards for safe disposal and re-use;

xvii. **"Generator"** means Persons and Premises listed in **Schedule I** of these Bye-laws and any other Person or Premises as decided by the Gram Panchayat, and includes an aggregation of generators;

xviii. **"Gram Panchayat"** shall have the same meaning as set out in the Act;

xix. **"Gram Panchayat Development Plan**" means the development plan formulated by the Gram Panchayat in accordance with Section 309 and other applicable provisions of the Act;

xx. **"Greywater" or "Sullage"** means domestic wastewater not containing human excreta, such as household wastewater generated during bathing, cooking and washing activities from the kitchen, bathrooms and include wastewater from commercial establishments and activities such agriculture, dairy and animal rearing;

xxi. **"KSPCB"** means Karnataka State Pollution Control Board;

xxii. **"Liquid Waste"** means Blackwater and/or Greywater;

xxiii. "Latrine" means the user interface, mobile or immobile, from which excreta is flushed to a containment or sewer line, facilitating prevention from health hazards due to faecal contamination.

xxiv. "Manual Scavenging" shall have the same meaning as defined under sub-clause (g) of Section 2 of The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act of 2013;

xxv. "Non-domestic Generator" means Owner of the Premises listed under **Schedule I** of these Bye-laws where commercial activity is carried out.

xxvi. "Owner" means a person who for the time being is receiving or is entitled to receive, whether on his own account or as agent, trustee, guardian, manager or receiver for another person or for any religious or charitable purpose, the rent or profit of the property in connection with which the word is used and in whose name the approval for development is issued.

xxvii. "Occupier" means any person in actual possession of any land or building or part thereof and includes an owner in actual possession, and the tenant or licensee whether such tenant or licensee is liable to pay rent or not;

xxviii. "Passive Treatment Systems" mean systems which are designed using nature-based technologies and do not use electrical or mechanical energy for the process of treatment

xxix. "Person" means any person or association of persons and shall include any shop, commercial establishment, firm, company, association or body of individuals whether incorporated or not;

xxx. "Pit Latrine" includes a privy, water-closet and urinal, with one or two pits for collection and decomposition of excreta and from which liquid infiltrates into the surrounding soil;

xxxi. "Premises" includes buildings, tenements in a building, house, outhouse, stable, shed, hut, and any other structure whether open or enclosed whether built upon or not being used for the time being for purpose of residence, trade, industry, service, business, government or any other public or private purpose including weddings, banquets, meetings, exhibition or organised events;

xxxii. "Sanitation Motivator" means an individual engaged by the Gram Panchayat in accordance with the Swachhagrahi Guidelines, 2018, issued by the Government of India and/or any other subsequent applicable regulations, for sanitation related activities in the Gram Panchayat.

xxxiii. "Septage" means settled matter in semi-solid condition, including the liquids, solids (sludge) as well as fats, oils and grease (scum) that accumulates in Septic Tanks over a period of time;

xxxiv. "Septic Tank" means an underground tank that treats wastewater by a combination of solids settling and anaerobic digestion;

xxxv. "Sewage" means wastewater generated from Latrines containing human excreta and faecal matter

xxxvi. "Sewage Treatment Plant" or "STP" means authorized waste treatment plant consisting of a series of tanks, screens, filters and other processes by which pollutants are removed from sewage;

xxxvii. "Sewers" or "Under Ground Drains" means a system of pipes used for collecting domestic and non-domestic waste, as well as storm water run-off;

xxxviii. "Sludge" means the settled solid matter in semi-solid condition, including a mixture of solids and water deposited on the bottom of septic tanks and ponds.

xxxix. "Soakaway pit" or "Soak pit" means a pit through which influent is allowed to seep or leach into the surrounding soil; or porous-covered chamber that allows wastewater to soak into the ground.

xl. "Source" means the Premises in which the Liquid Waste is generated;

xli. "Storm Water Drain" means a pipeline or channel system that carries surface water and/or runoff to public waters, but does not feed into sewer system;

xlii. "Transportation" means conveyance of waste, either treated, partly treated or untreated from a location to another location in an environmentally sound manner through specially designed and covered transport system so as to prevent the foul odour, littering and unsightly conditions;

xliii. "Treatment" means the method, technique or process designed to modify physical, chemical or biological characteristics or composition of any waste so as to reduce its potential to cause harm;

xliv. "User Charge" means a charge imposed by the Gram Panchayat on the Generators to cover full or part cost of providing Liquid Waste collection, transportation, treatment and disposal services by the Gram Panchayat and/or the Agency as authorised by the Gram Panchayat in accordance with these Bye-laws.

Chapter II: FAECAL SLUDGE AND SEPTAGE MANAGEMENT- CONTAINMENT, COLLECTION, TREATMENT AND DISPOSAL

2. Construction and retrofitting of Latrines:

The Gram Panchayat shall be responsible for ensuring the construction of and access to Latrines for every household within its jurisdiction in order to ensure and maintain an Open Defecation Free status, as per Swachh Bharat Mission (Gramin) Guidelines.

The Gram Panchayat shall:

i. Ensure that all residents have access to scientifically designed Latrines as per the technical guidelines or design standards specified by the Karnataka Rural Drinking Water and Sanitation Department and other competent authorities from time to time.

ii. Ensure the construction of and access to community-planned and managed Latrines wherever necessary, for use by groups of households who have constraints of space, tenure or economic constraints in gaining access to individual facilities.

iii. Ensure that toilets, as required, are constructed at public places that are built and managed by Gram Panchayats such as bus stands, vegetable markets, shopping complexes.

iv. Ensure that all households that do not have space to construct Latrines have access to a community Latrine within a distance of 500 meters.

v. Undertake an annual survey, based on the sample form provided in **Schedule IV** of these Bye-laws, at village level to identify the insanitary Latrines, categorise them based on design and identified faults.

vi. Make provisions in the budget and identify sources of funds to subsidize/incentivize retrofitting and other correctional measures of insanitary Latrines.

vii. Ensure that every insanitary latrine is either retrofitted or rebuilt, by the owner at his own cost and/or through subsidies provided by the Gram Panchayat, within 3 (three) years of adoption of these Bye-laws by the Gram Panchayat.

Approvals: All owners shall obtain necessary approval from the Gram Panchayat before construction of new Containment Systems, so as to ensure compliance with the guidelines released by the Karnataka Rural Drinking Water and Sanitation Department and any other competent authority.

In the event that a Containment System is not adequate, the Gram Panchayat or its Designated Officer, shall issue a notice directing the Generator using or owning such inadequate Containment System to retrofit or undertake correctional measures within the period decided by the Gram Panchayat.

3. Containment of Faecal Sludge by Generators:

a. The maintenance of on-site Blackwater containment systems shall be the responsibility of the Owner of the Premises.

b. All Owners shall construct Containment Systems which may include twin pits, septic tanks or other appropriate Containment Systems based on the local conditions and in accordance with guidelines issued by the Karnataka Rural Drinking Water and Sanitation Department and other competent authorities.

c. Containment systems should be designed and constructed to ensure no contamination of soil surface, ground water or surface water, and the Faecal Waste should be inaccessible to flies or animals.

d. All such constructions, as specified under this section, shall be made only by masons trained in toilet construction.

4. Desludging of containment system:

No generator shall dispose or discharge sewage or effluents into storm water drains, water bodies, water ways, open lands, agricultural lands or any other public places.

The Generator shall not engage manual scavengers to de-sludge on-site Containment Systems within his or her premises. The desludging of Containment Systems shall only be done in compliance with Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 at all times.

The desludging and transportation of Faecal Sludge to a FSTP and the safe closure of containment system shall be carried out only by an Agency licensed by the Gram Panchayat or by the Gram Panchayat itself. The Generator shall pay the Agency or the authorized representative of the Gram Panchayat a desludging fee as prescribed in Schedule II of these Bye-laws.

Desludging of Containment Systems shall be carried out without manual intervention and only with the use of mechanical equipment, including vacuum tankers and sludge pipes with delivery valve to draw the sludge.

The desludging of containment systems shall be carried out in conformance with safety precautions mentioned in the "Standard Operating Procedure (SOP) for Cleaning Sewers and Septic Tanks" released by the Ministry of Housing and Urban Affairs, Nov 2018.

Depending on the capacity of the Containment System, and the amount of Sludge generated, the Containment System shall be desludged periodically.

In case of twin-pit latrines, emptying of filled pit shall be done after the sludge has stabilised for at least two years and is inert (composted completely).

The Gram Panchayat shall maintain sanitation records covering construction dates and desludging records of all the waste generators under its purview. The Gram Panchayat shall send reminders to owners of premises for desludging based on the periodicity specified for different types of containment systems.

The Gram Panchayat shall carry out the desludging operations either on its own or through licensing an Agency to carry out desludging operations in the villages under its jurisdiction after conducting due diligence on the operations, capacity and capability of the Agency.

6. Transportation of Faecal Sludge from Containment Systems:

a. The Gram Panchayat shall be responsible for the Desludging and Transportation of Faecal Sludge from Containment Systems, either by itself or through a licensed Agency.

b. The Gram Panchayat shall choose one of the following modes for Desludging and Transportation of Faecal Sludge:

   i. Procure and maintain equipment/vehicles to provide Desludging services; or

ii. Utilise the services of Desludging vehicles available at the Taluk level; or

iii. Authorize an Agency to provide desludging services.

c. The Gram Panchayat shall be responsible for Desludging on-site sanitation Containment Systems and transporting the Faecal Sludge only through appropriate desludging vehicles, either by itself or through a licensed Agency. The choice of the vehicle shall be made on the basis of accessibility and capacity of the Containment System.

d. The Gram Panchayat shall be responsible for ensuring that:

i. The vehicles used for transportation of Faecal Sludge are covered such that the collected Faecal Sludge is not exposed to the open environment.

ii. The effluents or Faecal Sludge or any matter emptied from on-site Containment Systems shall not be disposed into open grounds, water bodies, agricultural lands or any other public places, and are delivered and deposited in authorised sewage treatment facilities of the Gram Panchayat.

e. If the Gram Panchayat is in a peri-urban area where there is partially-laid sewer network and availability of STP nearby, both the streams of black and greywater may be connected to the combined Under Ground Drain.

7. Treatment and disposal of Faecal Sludge:

a. The Gram Panchayat shall be responsible for treating and disposing of Faecal Sludge and Septage, which shall be done in the following manner:

i. Within an existing STP located within the jurisdiction of the nearest Urban Local Body, provided that such STP is:

A. Located within 10km of the source of generation of the Faecal Sludge or Septage; and

B. Has adequate capacity to handle the Faecal Sludge or Septage generated within the Gram Panchayat.

C. The Gram Panchayat has carried out a detailed assessment of the existing STPs by current performance, and future expansions planned thereof, and other parameters as the Gram Panchayat may decide in consultation with the ULB, subject matter experts, Village Water and Sanitation Committee before linking to the STP of the ULB. The assessment shall be carried out periodically.

ii. Through constructing a FSTP for the treatment and disposal of Faecal Sludge and Septage, which may be shared by a Cluster of Gram Panchayats, in the event that it is not feasible to treat and dispose of Faecal Sludge and Septage within an existing FSTP, provided that the Gram Panchayat shall carry out a detailed assessment of the possible location, required capacity, distance from the other collaborating

Gram Panchayats in consultation with their representatives and with subject matter experts before finalizing the location and specifications of the FSTP. Details of financial planning shall be worked out to ensure sustainable operations and maintenance.

b. The planning and implementation of cluster-based treatment plants shall be facilitated by the Executive Officer at Taluk level.

i. In the event that co-treatment of Faecal Sludge at a Cluster level is not possible, the Gram Panchayat may set up FSTP at Gram Panchayat level.

ii. The selection of technology for the treatment solution shall be based on the guidelines issued by the Karnataka Rural Drinking Water and Sanitation Department from time to time.

c. Approvals: The Gram Panchayat shall be responsible for:

i. Notifying the details to be submitted for acquiring approval for setting up of a STP or FSTP, including but not limited to:

A. Technical diagram/design/details of technology and process used, pollution control mechanism (including noise reduction), disinfection technology (e.g., ultraviolet/chlorination) outflow meter on line leading to drains or natural water bodies;

B. Estimated electricity consumption and capacity of generator required;

C. Technical/maintenance manpower and equipment required;

D. Guarantee of operation from the technology provider of STP or FSTP, as fixed by the Gram Panchayat;

d. Providing approval for setting up of a FSTP/STP based on the guidelines issued by the Karnataka Rural Drinking Water and Sanitation Department to regulate the construction, operation and maintenance of such STP or FSTPs from time to time.

e. Regularly inspecting all FSTP/STP, their construction, operation, maintenance, equipment, quality and quantity of treated outflow, monitoring reports, where such inspection shall be carried out by an officer designated by the Gram Panchayat along with a representative from the VWSC, and such assessment reports shall be made available to the public.

f. Periodically monitoring and evaluating the effluents and emissions from the FSTP/STP, through personnel or Agencies authorised by the Gram Panchayat to ensure compliance with the effluent standards as prescribed by the CPCB or KSPCB or as notified by the State Government.

g. Granting permissions under the Water (Prevention & Control of Pollution) Act 1974, and other laws and regulations, wherever applicable.

h. It shall be the duty of the Gram Panchayat or any other prescribed authority to protect all waste handlers from the ill-effects of the occupation

i. Usage of recovered resources from treatment of Faecal Sludge:
   i. The owner of the premises housing a twin-pit Latrine may sell the stabilised sludge as a soil enhancer or conditioner.
   ii. The biosolids or compost from a FSTP or STP may be sold, after quality checks by the Gram Panchayat, or the Agency operating the FSTP.
   iii. The treated water can be sold by the Gram Panchayat or the Agency operating the FSTP or STP for agricultural or landscaping purpose after performing applicable treated water discharge quality checks as prescribed by KSPCB.

Chapter III: GREYWATER & COMBINED WASTEWATER MANAGEMENT

8. Decentralized management and treatment of Greywater:

a. Where the Greywater does not include any component of Blackwater, the Greywater shall be treated as close to the source of generation as possible.
b. It shall be the responsibility of the owner of the Premises to construct Passive Greywater Treatment Systems including soak pits or dispersion trenches and reuse the treated water for kitchen gardens.
c. In cases where the Owner is unable to construct the Passive Treatment Systems, due to financial or spatial restrictions, the Gram Panchayat shall be responsible for constructing treatment systems like soak pits, constructed wet lands or waste stabilization ponds as well as constructing appropriately covered surface drains connecting generators who are located in close proximity to such treatment systems.
d. These treatment systems shall be constructed and maintained in conformance with the guidelines provided in the Central Public Health and Environmental Engineering Organisation (CPHEEO) 'Manual on Sewage and Sewerage Treatment' or guidelines release by the Karnataka Rural Drinking Water and Sanitation Department from time to time.

9. Centralized treatment systems:

a. The Gram Panchayat may set up a combined treatment plant for the treatment of Blackwater and Greywater, in cases where it is unable to construct passive decentralised greywater treatment systems as specified above, taking into consideration factors of population density and spatial restrictions.
b. The technology for such treatment plants shall be based on the guidelines issued by the Karnataka Rural Drinking Water and Sanitation Department from time to time.
c. The combined treatment plant may be set up either by an individual Gram Panchayat, or a Cluster of Gram Panchayats where such Gram Panchayats are located in close proximity.

d. The Liquid Waste shall be conveyed to the combined treatment plant through existing Sewers, or through Sewers which shall be constructed by the Gram Panchayat for this purpose.

Provided that the Gram Panchayat shall build sewerage lines as close to the Premises of the Generators as possible.

10. Connections to Sewers:

a. All generators shall combine their Blackwater and Greywater outlets and make provision to connect them to the Sewers as per these Bye-Laws and other regulations issued by the competent authorities.

b. All generators shall obtain approval of the Gram Panchayat before making any connections to the Sewers.

c. All the connections shall comply with the applicable guidelines as released by the Karnataka Rural Drinking Water and Sanitation Department regarding diameter, material, depth, fall and direction of outfall, and shall be made only by trained masons.

d. The drainage line shall have proper slope to drain off the wastewater and provide sufficient number of manholes for maintenance of the drainage line.

e. The Gram Panchayat shall seek to provide, as far as possible, a public sewer line upto or near to the premises of all building / sewage generators within its jurisdiction.

f. The Gram Panchayat shall provision either wholly or in part, receptacles, fittings, pipes and other appliances whatsoever on or for the use of private premises for receiving and conducting the Liquid Waste into a Sewer under the control of the Gram Panchayat.

g. The Gram Panchayat shall, as stated in section 100 of the Act, give direction to carry any sewerage through, across or under any street after giving reasonable notice in writing to the owner or occupier, into, through or under any land whatsoever within the panchayat area, in accordance with the sanitation plan.

h. The Gram Panchayat shall cause any defective sewers to be rectified to handle Liquid Waste in accordance with the provisions of these Bye-Laws.

i. Level of buildings built in the Panchayat area shall not be lower than the level of drainage and sewer systems so as to prevent flooding during monsoons.

j. The Gram Panchayat shall charge a one-time fee from the Generator for connecting outlets to the sewer lines.

11. Provisions regarding Manhole cleaning:

a. The Gram Panchayat shall ensure that only mechanized cleaning is adopted for cleaning of manholes unless human intervention is absolutely necessary.

b. The Gram Panchayat shall mandatorily provide manhole workers with the necessary safety equipment such as uniforms; hand gloves; raincoats; appropriate gum boots; head cover; eye shades and face masks for cleaning operations.

c. The Gram Panchayat shall carry out inspection against poisonous and inflammable gases mandatorily before the manhole workers enter the manhole.

d. The Gram Panchayat shall ensure that all manhole workers attend the training on safety and health imparted to workers by the Gram Panchayat or the Agency.

e. The Gram Panchayat shall ensure that all manhole workers attend periodical medical check-up conducted by the Gram Panchayat or the Agency authorized by the Gram Panchayat to clean the manholes.

f. The Gram Panchayat or the Agency authorized by the Gram Panchayat to clean the manholes shall be liable for providing all safety equipment and for any injury or loss to workers.

g. The cleaning of manholes shall be carried out in conformance with safety precautions mentioned in the "Standard Operating Procedure (SOP) for Cleaning Sewers and Septic Tanks" released by the Ministry of Housing and Urban Affairs, Nov 2018.

12. Other waste generators:

a. Industrial units, Primary Health Centres, slaughter houses and meat markets shall set up, operate and maintain at their own cost treatment measures as per the standards prescribed in the Environment Protection Act, 1986, or as directed by CPCB or the KSPCB.

Chapter IV: PREVENTION OF WATER/VECTOR AND FOOD BORNE DISEASES

13. Prevention of water/vector breeding:

a. The Gram Panchayat shall, from time to time, issue directions for the prevention of water borne, vector borne and food borne diseases, which may include specifications regarding the construction, sanitary operation and maintenance of water storage/tanks, cisterns or drains or any other related matters.

b. The directions may be issued towards the general population of the Gram Panchayat or towards specific Generators.

c. All Generators shall undertake precautions to prevent vector breeding within their premises (including in any artificial water body therein) by preventing water logging, waste dumping, cracks in their walls and by

undertaking regular cleaning, maintenance and anti-larvae measures within their premises.

d. The Gram Panchayat shall direct for the filling up, cleansing or deepening of any water body, drainage, sewerage, etc. within the panchayat area which is injurious to health or offensive to the neighbourhood.

e. For the purpose of this section, "Vector borne diseases" mean diseases in which pathogenic micro-organisms are transmitted from an infected individual to another individual by an anthropoid or other agent, sometimes with other animals serving as intermediary hosts;

14. Prevention of vector breeding by specific Generators:

a. Generators occupying the Premises specified hereunder, shall comply with the following additional requirements:

b. Dairy and Cattle Sheds:

i. The Generator shall regularly clean the area of cattle sheds and spray insecticide to prevent the breeding of vectors.

ii. The Generator shall ensure that drinking water for cattle is not kept open and stagnant.

c. Slaughter houses and meat markets:

i. The Generators shall ensure that slaughter houses are properly ventilated and that surfaces are disinfected with non-poisonous disinfectant and aerobic deodorants.

d. Construction Sites:

i. The Owner or any Person constructing any building on their behalf shall provide clean drinking water and sanitary toilet facilities to all workers engaged in construction at the construction site and near the temporary dwellings, if any, constructed for the workers.

ii. The Owner or any Person constructing any building on their behalf shall ensure the sanitation and cleanliness of surroundings of the construction site and around temporary dwellings, if any, constructed for the workers.

Chapter V: POWERS AND FUNCTIONS OF DIFFERENT STAKEHOLDERS IN THE GRAM PANCHAYAT

15. The Gram Panchayat shall be primarily responsible for the collection, transportation, treatment and disposal of Liquid Waste in accordance with these Bye-Laws.

16. Planning and Management: The Village Water and Sanitation Committee or Village Health, Sanitation and Nutrition Committee of the Gram Panchayat formed under the Act, or in their absence, the Gram Panchayat shall be responsible for the following functions related to Liquid Waste management:

a. Identification and allocation of land within the Gram Panchayat for setting up of Liquid Waste treatment systems.

b. Preparation of the sanitation plan as a part of the Gram Panchayat Development Plan, detailed project report, annual budgets for sanitation and waste management systems which shall not be less than [25%] of the annual budget for Gram Panchayat and approval of such plans and budgets in the Gram Sabha.
c. Incentivising Generators to retrofit faulty individual household Latrines as per applicable guidelines.
d. Ensuring that no sanction maybe given to any building plan submitted to the Gram Panchayat, which has not conformed to these bye-laws relating to drainage, privy, urinal accommodation, within the premises.
e. Ensure that funds for discretionary functions of the Gram Panchayat have been allocated only after meeting the requirement of necessary funds for liquid waste management and other obligatory functions of the Gram Panchayat as per the Act;
f. Charging Generators for Liquid Waste management as per **Schedule II** of these Bye-laws which may be used towards operational expenditures of the Liquid Waste treatment systems.
g. Increasing awareness of and access to affordable and sustainable sanitary products, including bio-degradable sanitary pads and menstrual cups.
h. Approving works and expenditures for building infrastructure required for safely conveying Liquid Waste to treatment plants and for constructing and operating treatment plants for Liquid Waste.
i. Be responsible for the periodic cleaning of the drains and proper maintenance of the treatment systems, for which purposes it may utilise user charges collected as per **Schedule II** of these Bye-laws.
j. Conducting regular assessments of local health and environmental conditions to monitor the impact of the sanitation plans.
k. Reviewing annual budgets for Liquid Waste management activities against the expenditures every six months.
l. Preparing quarterly and annual reports on progress in implementation, and performance of Liquid Waste management activities in the Gram Panchayats.
m. Conducting a social audit of the sanitation plan developed by the Gram Panchayat in accordance with the guidelines issued by the State Government, through consultation with stakeholders, beneficiaries, vulnerable communities and other members of the Gram Panchayat.
n. Any other role and/or responsibility as may be directed in accordance with applicable law.
o. The transaction of business of the Gram Panchayat and its committees shall take place in the meetings of the Gram Panchayat or its committees, as per the procedure established under the Act.
p. Provided that the Gram Panchayat and/or the committees shall meet for the purposes of these Bye-Laws at least once every three months in a year.

17. Panchayat Development Officer: The Panchayat Development Officer shall be responsible for the following functions and responsibilities relating to Liquid Waste management:

a. Assist the Gram Panchayat and Village Water and Sanitation Committee or Village Health, Sanitation and Nutrition Committee in preparation of the sanitation plan as a part of the Gram Panchayat Development Plan, detailed project report, annual budgets for sanitation and waste management systems, and computation and finalisation of the User Charges.

b. Provide information to the Gram Panchayat members about various technologies and schemes relating to Waste management.

c. Supervise implementation, operation and maintenance of wastewater treatment plants, covered surface drains, sewer lines as applicable.

d. Assist Gram Panchayat in procuring suitable desludging vehicles and setting up decentralized treatment system.

e. Carry out Menstrual hygiene management activities including awareness generation in the usage of sustainable sanitary products, with a particular focus on women and adolescent girls.

f. Assist in daily financial management and maintenance of records of the FSTP, wherever applicable, including review of accounts, resources, assets and systems.

g. Assist the Gram Panchayat and Village Water and Sanitation Committee or Village Health, Sanitation and Nutrition Committee in preparing the reports, forms and other documents evidencing status and progress of waste management systems.

h. Any other role and/or responsibility as may be directed as per applicable law by the Gram Panchayat, district and state authorities.

18. Non-governmental and community-based organisations: The Gram Panchayat may entrust the following roles relating to wastewater management to non-governmental and/or community-based organisations and self-help groups:

a. Support the Gram Panchayat in planning, dissemination and execution of various awareness, information, educational and behavioural change activities involving the entire community.

b. Involvement in training and capacity building of the Gram Panchayat officials, Sanitation Motivators, Agencies and other Persons involved in waste management.

c. Assist the Gram Panchayat in implementation of sanitation plan and other waste management programs.

d. Carry out surveys and monitor the impact of the sanitation and waste management programs and assist in the social and other independent audits of wastewater treatment systems.

e. Building decentralized treatment systems for Blackwater and/or greywater.
f. Any other role as may be directed in accordance with applicable law by the Gram Panchayat, district and state authorities.

19. Sanitation Motivators: The Sanitation Motivators shall have the following functions as may be entrusted by the Gram Panchayat:

a. Assist Gram Panchayat in preparation of Gram Panchayat sanitation plan, Detailed Project Report, and other waste management plans.
b. Act as triggering agents to bring about behavioural change to ensure usage and maintenance of individual household Latrines by waste generators. Assist in planning, dissemination and execution of various awareness, information, educational and communication activities and facilitate sustained behaviour change.
c. Facilitate strengthening and capacity building of members of Village Water and Sanitation Committee and/or Village Health, Sanitation and Nutrition Committee, Agencies and other Persons involved in waste management activities.
d. Evaluate the quality of the infrastructure being built for wastewater treatment, desludging vehicles and other assets procured in this regard.
e. Raise awareness about the proper operations and maintenance of the assets created for safe sanitation and waste management.
f. Ensure sustainability of the waste management program by assisting the Panchayat Development Officer with monitoring activities and maintenance of records of data at the Gram Panchayat level.
g. Menstrual hygiene management activities including awareness generation in the usage of sustainable menstrual products, with a particular focus on women and adolescent girls.
h. Carry out surveys and monitor the impact of the sanitation and waste management programs and assist in the social and other independent audits of waste management systems.
i. Any other role as may be directed in accordance with applicable laws by the Gram Panchayat, district and state authorities.

Chapter VI: PLANNING AND MONITORING OF WASTEWATER MANAGEMENT SYSTEMS

20. Liquid Waste management planning and budgets:

a. The Gram Panchayat, either individually or as a Cluster, shall prepare a detailed five-year sanitation plan, which shall be composed of yearly plans, as a part of the Gram Panchayat Development Plan.
b. The Gram Panchayat sanitation plan shall contain details of the following:
    i. Implementation timelines and annual milestones to be achieved by the Gram Panchayat.

ii. assets and infrastructure relating to waste management, including Liquid Waste management
iii. funding requirements for capital and operational expenses including sources of the funds to cover such expenses,
iv. monitoring and evaluation parameters,
v. capacity building, awareness and behavioural change activities; and
vi. any other details that may be communicated by Karnataka Rural Drinking Water & Sanitation Department, from time to time.

c. The Gram Panchayat shall conduct a survey to map all the sources of drinking water, location, their type and status, outlets of water supply network, generators of wastewater, existing containment systems and their status, vulnerable communities and land use pattern.

d. The Gram Panchayat shall carry out a survey of insanitary latrines within 2 (two) months of adoption of these Bye-laws.

e. In Gram Panchayats where development is dense, the Gram Panchayat shall maintain a list of wastewater generators and categorize them into domestic and non-domestic generators based on nature of their activities.

f. The Gram Panchayat shall prepare Detailed Project Report (DPR) for management of Liquid Waste generated within the territorial limits of the Gram Panchayat based on the development density of the Gram Panchayat. Such DPR shall contain the following:

i. length and coverage map of covered surface drains, wherever applicable
ii. length and coverage map of sewer lines, wherever applicable,
iii. details of the FSTP/STP, wherever applicable
iv. details of the greywater treatment system, wherever applicable
v. details of the desludging vehicle to be procured, if the Gram Panchayat desires to provide the desludging services on its own
vi. details of individual household Latrines that the Gram Panchayat plans to build and/or retrofit
vii. details of community Latrines the Gram Panchayat plans to build
viii. other information required for effective implementation of the wastewater management that may be communicated by Karnataka Rural Drinking Water & Sanitation Department from time to time.

g. The Gram Panchayat shall prepare annual budgets as a part of the Gram Panchayat Development Plan which shall include

i. the capital costs required for initial investment in Liquid Waste transportation and treatment infrastructure and facilities;
ii. the recurrent expenditures required to operate and maintain the facilities and;
iii. the programme costs for activities such as capacity building including training, information education and communication, behavioural change and awareness activities. The Gram Panchayats

shall reserve at least [25%] of their total budget for sanitation and solid and Liquid Waste management activities every year.

h. The Gram Panchayat shall open a separate bank account for sanitation and waste management activities including management of Solid and Liquid Waste, into which all amounts collected as User Charges for LWM, grants and fund under various schemes from the central and state shall be deposited.

i. The funds from this bank account shall only be used towards the costs incurred by the Gram Panchayat in fulfilling its functions relating to Solid and Liquid Waste management.

ii. The transactions of this bank account shall be audited periodically in a manner determined by the Karnataka Rural Drinking Water & Sanitation Department in accordance with applicable law.

21. Monitoring of LWM systems:

a. **Periodic reporting:** The Gram Panchayat shall periodically report the status, progress and operations of Liquid Waste management systems within its territorial limits to the Executive Officer, Chief Executive Officer and state authorities in the formats and in accordance with the directions issued by the Karnataka Rural Drinking Water & Sanitation Department.

b. **Use of ICT:** The Gram Panchayat shall seek to maximize the use of Information and Communication Technology (ICT) such as web-based platforms, SMS, mobile applications etc. for effective monitoring, reporting and effective management of sanitation and liquid waste.

c. **Audits:** Independent third-party audits including social audits of the Gram Panchayat sanitation plan and wastewater management systems in the Gram Panchayat will be carried out in accordance with the guidelines issued by the Karnataka Rural Drinking Water & Sanitation Department.

d. **Review of Agencies**:

i. The Gram Panchayat and/or the Government shall regularly review the facilities and operations of the Agencies to ensure that they are in compliance with the provisions of these Bye-laws and other applicable regulations.

ii. In the event of any non-compliance, the Gram Panchayat and/or the Government can take action against the defaulting Agencies including notice of remedial action, cancellation of licenses, blacklisting, imposition of fines and penalties as set out in these Bye-laws.

e. **Regular checks and review of Detailed Project Report and Plan**:

i. The Panchayat Development Officer, Gram Panchayat members and other officers authorised by the Gram Panchayat shall conduct regular checks in various parts of the villages and other places of wastewater generation within its territorial limits to supervise compliance of various provisions of these Bye-laws.

ii. Such official(s) shall have right to enter, at all reasonable times, with such assistance as he/she considers necessary, any place for the purpose of

A. performing any of the functions entrusted to him by the Gram Panchayat under these Bye-laws, or

B. determine compliance of the provisions of these Bye-laws.

f. **Designated officers**: The Panchayat Development Officer and other authorised officials shall have the following responsibilities:

i. addressing grievances of the Waste Generators and suggesting improvements in the implementation of the Bye-laws,

ii. levying fines, spot fines and penalties,

iii. collecting User Charges, and

iv. implementing such responsibilities of the Gram Panchayat specified under these Bye-laws, as may be entrusted or delegated by the Gram Panchayat in accordance with these Bye-laws, Act and any other applicable law.

g. **Accident Reporting**: In case of an accident at any liquid waste processing or treatment or disposal facility or landfill site, the Officer- in- charge of the facility shall report to the Gram Panchayat in **Form-I** and the Gram Panchayat shall review and issue instructions if any, to the in- charge of the facility.

Chapter VII: USER CHARGES FOR WASTEWATER MANAGEMENT

22. Provisions with respect to user charges payable to Gram Panchayat:

a. The Gram Panchayat shall be responsible for operating and maintaining the Liquid Waste management systems in the Gram Panchayat through its own funds including through User Charges collected by the Gram Panchayat, with effect from 3 (three) years of the adoption of these Bye-Laws.

b. The Generator shall pay desludging charges towards emptying of on-site Containment Systems to the Gram Panchayat or the licensed Agency, as the case may be, as per **Schedule II** of these Bye-Laws.

c. In Gram Panchayats where the Greywater treatment is decentralized and which has a FSTP for Faecal Sludge treatment, the User Charges shall be payable by the Generator for the maintenance of covered surface drains and the operation and maintenance of treatment systems, including FSTP and the Greywater treatment system.

d. In Gram Panchayats that have a Sewer network and a centralized FSTP/STP connected to such Sewer, the Generator shall pay a one-time fee for connecting the Liquid Waste outlet from his/her premises to the Sewer network, as well as User Charges for maintenance of the UGD

network and operations and maintenance of the treatment plant, as specified in Schedule II of these Bye-Laws.

e. The User Charges mentioned in **Schedule II** shall increase automatically by 5% every three years (rounded off to the nearest multiple of Rs. 10) with effect from April 1 of such year. These rates shall be advertised in the Gram Panchayat office and other visible public areas within the jurisdiction of the Gram Panchayat.

f. The User Charges shall be combined with the water bill in Gram Panchayats, in cases where a water bill is payable by Generators.

g. The User Charges shall be collected by the Gram Panchayat, either in person and/or through any other method and on such days as may be specified by the Gram Panchayat, preferably in first week of each month.

h. The User Charges may also be collected by the Gram Panchayat by charging the amount through property tax or license fees under the provisions of Act.

i. The Gram Panchayat may evolve additional mechanisms for the billing, collection or recovery of User Charges, from time to time and these shall be notified through general or special order/notification.

j. The Gram Panchayat shall, by itself or through an Agency, prepare the database of all the Generators for the purpose of levying User Charge and shall regularly update such database.

k. In case of default of payment of User Charges for more than 6 (six) months, the Gram Panchayat or any other competent authority may recover the User Charges from the defaulter as taxes under the provisions of Act, as the case may be.

l. The Gram Panchayat may stop providing such services the Gram Panchayat may deem suitable, until such time that the User Charges are paid by the defaulter.

m. All amounts collected as User Charges by the Gram Panchayat shall be used towards the costs for operation and maintenance of wastewater management systems under these Bye-laws, salaries of personnel and other waste management related activities as may be considered appropriate by the Gram Panchayat from time to time.

Chapter VIII: OFFENSES UNDER THESE BYE-LAWS

23. Specific offences:

a. No Generator shall engage or employ, either directly or indirectly, a Manual Scavenger for emptying or cleaning of Faecal Sludge containment system present within his/her premises. Any generator found practicing the above will be penalized in accordance with Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013.

b. No Person shall:

i. Discharge or cause to discharge domestic sewage/sullage/effluents from his/her premises to storm water drains, road, open lands, water bodies, water ways, agricultural land or any other non-designated locations.

ii. Connect Containment Systems to the public sewer line without obtaining necessary permissions from the Gram Panchayat and in accordance with the standards and specifications as per these Bye-Laws.

iii. Allow the inflow of any substance likely to damage the drains (covered surface drains or Sewers), or to interfere with the flow of Liquid Waste to the public sewer-line or the drain system.

iv. Cause damage to the drains through illegal constructions or encroachments.

v. Discharge or cause to be discharged industrial effluents or any other effluents particular to the activity of any industry, household industry, slaughter house and meat market, dairy and cattle sheds, workshops or garage into the public drain or water bodies, except as may be prescribed by applicable laws.

vi. Spit, urinate or defecate in any public place, including water bodies, except in such public facilities or conveniences specifically provided for such purposes.

vii. Damage or remove without permission any infrastructure including vehicles, covers of surface drains, manhole covers, drains and equipment provided by the Gram Panchayat or any Agency appointed by it under these Bye-laws.

Chapter IX: PENALTIES AND GRIEVANCE REDRESSAL

24. Penalties:

a. Whoever contravenes or fails to comply with any of the provisions of these Bye-laws shall be punished with a fine as specified in **Schedule III.**

b. In case of second contravention or subsequent non-compliance, the Gram Panchayat shall have the power to levy a fine which could be the twice of the amount set out against the offence in **Schedule III**.

c. In case of third contravention or subsequent non-compliance, the Gram Panchayat shall have the power to levy a fine which could be the thrice of the amount set out against the offence in **Schedule III**.

d. In case of fourth contravention or subsequent non-compliance, the Gram Panchayat shall have power to:

i. cancel the relevant business license that is attached to the Generator (if any), and/or,

ii. recover the penalty amounts as per the different modes set out in the Act, and/or

iii. take any other appropriate action as may be determined by the Gram Panchayat by notification from time to time.

e. Whoever makes unauthorized connections to the sewerage system of the Gram Panchayat in contravention of these Bye-Laws shall, in addition to any other penalty and pro-rata charges payable, be liable to pay up to 50% of the pro-rata charges payable, as mentioned in the **Schedule III**.

f. Gram Panchayat shall have the power to levy spot fines for violations of provisions mentioned under these bye-laws; however, the amount of such spot fines shall not exceed the amount set out in Schedule III.

g. The fine or penalty mentioned in **Schedule III** shall stand automatically increased by 10% per year (to the nearest multiple of Rs. 10) with effect from April 1 of each successive year. In addition, the Gram Panchayat, in accordance with applicable law, may at any time increase the penalties as mentioned in **Schedule III** of these Bye-laws.

i. The Gram Panchayat shall take appropriate disciplinary action against the employees of Gram Panchayat or the licensed Agency, if they are found to employ Manual Scavengers or allowing the practice of Manual Scavenging within its jurisdiction, letting out the sewage/septage at undesignated places, indulging in acts of negligence that cause improper functioning of the treatment plants or any other practices that violate the provisions of these Bye-laws.

ii. In the event an Agency contravenes or fails to comply with any of the provisions of these Bye-laws, the Gram Panchayat shall have the power to terminate the services of, or revoke and suspend the license of such Agency for any function undertaken by it under these Bye-Laws or applicable regulations.

iii. The Gram Panchayat may initiate appropriate proceedings for violation of any provisions of these Bye-laws under any other law in addition to any action under these Bye-laws, including the Act, the Environment (Protection) Act, 1986, the Indian Penal code, 1860, the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981 and/or any other applicable regulations.

iv. All amounts collected as penalties shall be used towards the Gram Panchayat's operation and maintenance costs for providing wastewater management services under these Bye-laws, salaries of personnel, incentives and other waste management activities uses as may be considered appropriate by the Gram Panchayat from time to time.

25. Grievance redressal:

a. The Gram Panchayat shall develop public grievance redressal system(s) for registering complaints regarding violations of these Bye-Laws.

b. These systems may include a complaint center in each village and/or Gram Panchayat office, mobile application and/or any other mechanism which

the Gram Panchayat may consider appropriate keeping in mind the local conditions.

c. The grievance may be submitted in person by any citizen, through telephone, email, website, post, on the mobile application and/or any other appropriate method as determined by the Gram Panchayat.

d. The Gram Panchayat shall ensure that each grievance is redressed in a timely and efficient manner and in no event later than 15 (fifteen) days from the date of submission of the complaint.

e. The Gram Panchayat shall consider the type of grievance, environmental and/or health related consequences, inconvenience caused to public, associated financial costs and other relevant considerations, when determining the appropriate remedial action for the grievance.

CHAPTER X – OTHER RESPONSIBILTIES AND DUTIES OF THE GRAM PANCHAYAT

26. In addition to the responsibilities and duties set out in other Chapters of these Bye-laws, the Gram Panchayat shall also have the following duties:

a. **Publicity and citizen information services:** The Gram Panchayat shall publicise the provisions of the Bye-laws through interpersonal communication by Sanitation Motivators, community based organisations, signs, leaflets, announcement on radio, newspapers and through any other appropriate means, to raise awareness about the duties of the Gram Panchayat and residents of the Gram Panchayat in relation to maintaining personal and public hygiene, usage and maintenance of Latrines, prevention of exposure of human faeces, prevention of vector borne diseases, non-blocking of drains among others.

b. **Transparency and public accessibility:** To ensure greater transparency and public accessibility, the Gram Panchayat shall provide the following information, data and reports in relation to the activities under the Bye-laws in the offices of the Gram Panchayat during its working hours.

   i. Name and contacts of the officers who shall be responsible for implementing the responsibilities of Gram Panchayat specified under these Bye-Laws.

   ii. Annual data about the number of individual household Latrines and community Latrines present in the Gram Panchayat.

   iii. Statistics of complaints and actions taken by the Gram Panchayat address the complaints.

   iv. Details of User Charges, penalties collected by and on behalf of the Gram Panchayat and the manner in which these amounts have been utilised on a monthly basis.

c. **Creating Incentives**:

   i. The Gram Panchayat may consider creating systems for incentives to promote usage of the products from wastewater treatment.

ii. The Gram Panchayat shall incentivize farmers to buy the stabilized sludge from twin-pit latrines for use as soil enhancers and for usage of the treated water from the treatment plants.

iii. The Gram Panchayat may purchase any extra compost, if available, from the FSTP/STP, at a specified price as notified from time to time by the Gram Panchayat for its own use or for sale at remunerative prices.

d. **Training and public awareness**:

i. The Gram Panchayat may, by itself or through experts in the field undertake awareness and outreach programmes about management of wastewater, safe sanitation practices, grievance redressal mechanisms under the Bye-Laws.

ii. The Gram Panchayat shall make efforts encourage regular usage and maintenance of individual household Latrines, on-site treatment of greywater within the premises of the Generator, to the extent possible.

iii. The Gram Panchayat shall promote and organize focused information education and communication and behavioural change communication programs aimed at adoption of healthy sanitation practices, including technical training to masons and such personnel to correct the flaws from the toilet designs and to ensure community participation.

iv. The Gram Panchayat shall fund and organise technical training in retrofitting to the masons and such technical experts, who will be involved in retrofitting and other correction measures of insanitary Latrines.

CHAPTER XI – MISCELLANEOUS

27. Co-ordination with government bodies: The Gram Panchayat shall co-ordinate with other Government agencies and authorities, to ensure compliance of these Bye-Laws within areas under the jurisdiction or control of such bodies.

28. Review of implementation: The Gram Panchayat will review the effective implementation of these Bye-Laws, at least twice a year, and take appropriate steps to ensure the completion of its targets for implementing the same.

29. Amendments: Where it is expedient to do so, the Gram Panchayat may, by following the relevant procedure(s) in the Act, add to, or amend the Bye-Laws, with prior permission of the Government.

30. Repeal and saving of Orders

a. The coming into effect of these Bye-Laws shall not affect any actions taken according to applicable rules and regulations, unless such actions violate these Bye-Laws.

31. Interpretation: Where any discrepancy, in the interpretation of any clause or terms of these bye-laws arises, the interpretation as per this English version shall be final and shall supersede the Kannada version.

SCHEDULE I

List of Generators and their categories:

Domestic Generators:

1. Premises used solely for residential purposes.
2. Premises used as Hostels for students run by Educational Institutions including Hostels run on Co-operative basis.
3. Premises belonging to the statutory bodies established by the Central Government or State Government and used solely for residential purposes.
4. Premises belonging to Central and State Governments and used solely as residential quarters for Government Employees.
5. Premises used for used for housing the poor to whom no fees are charged, or where fees are charged but no profit is made for the occupation such as dharmshalas and musafirkhanas.
6. Dispensaries, sanitorial asylums.

All other waste generators shall be considered non-domestic generators, unless they have been listed under Domestic generators by a suitable notification by the Karnataka Rural Drinking Water & Sanitation Department.

SCHEDULE II

Desludging charges and User Charges: These charges are indicative. The Gram Panchayat and the cluster may decide on the charges applicable, not less than those indicated.

1. **Desludging charges** (payable to the Gram Panchayat or Agency providing desludging services):

Category of Generator	Location	Desludging charge (INR)
Domestic generator	Desludging vehicle available within the Gram Panchayat	1000
Domestic generator	Desludging vehicle available at Taluk	1500
Non-domestic generator	Desludging vehicle available within the Gram Panchayat	2500
Non-domestic generator	Desludging vehicle available at Taluk	3000

The charges may vary depending on the quantum of the sludge and the distance.

2. **User Charges for decentralized treatment system** (payable to the Gram Panchayat, for maintenance of drains and O&M of FSTP and greywater treatment systems):

Category of Generator	Monthly User Charges (INR)
Domestic generator (having own water source)	10
Domestic generator (using piped water supply provided by Gram Panchayat)	20% of water bill or 10, whichever is higher
Domestic generator (using piped water supply provided by Gram Panchayat + own source of water)	20% of water bill + 10
Non-domestic generator (having own water source)	250
Non-domestic generator (using piped water supply provided by Gram Panchayat)	25% of water bill
Non-domestic generator (using piped water supply provided by Gram Panchayat + own source of water)	25% of water bill + 250

3. **User Charges for centralized treatment system** (payable to the Gram Panchayat *****, for connection to UGD, maintenance of UGD, O&M of STP):

One-time fee for connection to UGD:

Category of Generator	One-time connection Fee (INR)
Domestic generator (having own water source)	500
Domestic generator (using piped water supply provided by Gram Panchayat)	1000
Domestic generator (using piped water supply provided by Gram Panchayat + own source of water)	1500
Non-domestic generator (having own water source)	1000
Non-domestic generator (using piped water supply provided by Gram Panchayat)	1500
Non-domestic generator (using piped water supply provided by Gram Panchayat + own source of water)	2500

User Charges:

Category of Generator	Monthly User Charges (INR)
Domestic generator (having own water source)	30
Domestic generator (using piped water supply provided by Gram Panchayat)	25% of water bill
Domestic generator (using piped water supply provided by Gram Panchayat + own source of water)	25% of water bill + 30
Non-domestic generator (having own water source)	500
Non-domestic generator (using piped water supply provided by Gram Panchayat)	25% of water bill
Non-domestic generator (using piped water supply provided by Gram Panchayat + own source of water)	25% of water bill + 500

* In cases where the FSTP/STP is servicing a cluster of Gram Panchayats, the Gram Panchayats shall collect the User Charges and pay the Gram Panchayat which is housing the treatment plant for the O&M. The Gram Panchayats shall retain a portion of the User Charges for maintenance of the drains.

SCHEDULE III

Penalties:

S.no	Non-compliance and type of Waste Generator	Penalty (INR)
1.	Discharge or cause to discharge domestic sewage/sullage/effluents from his/her premises to storm water drains, road, open lands, water bodies, water ways, agricultural land or any other non-designated locations.	200

2.	Connect domestic sewer to the public sewer line without obtaining necessary permissions from the Gram Panchayat and in accordance with the standards and specifications	1000
3.	Allow the inflow of any substance likely to injure the drains (covered surface drains or UGDs), or to interfere with the flow of wastewater to the public sewer-line or the drain system.	500
4.	Cause damage to the drains by illegal projection or encroachments	1000
5.	Discharge or cause to be discharged industrial effluents or any other effluents particular to the activity of any industry, household industry, slaughter house and meat market, dairy and cattle sheds, workshops or garage into the public drain before necessary prescribed treatment	2000
6.	Spit, urinate, defecate in any public place	100
7.	Damage or remove without permission any infrastructure including vehicles, covers of surface drains, manhole covers, drains and equipment	500
8.	Other places/activity not marked as above	As decided by Gram Panchayat by general or special order/notification.

SCHEDULE IV

Template of Survey form for compiling database of containment units:

Property Details	[These details can be readily obtained from the Property Tax Register of the Gram Panchayat]
Does the Household have a toilet	Yes/No
No. of Toilets in the Household	

Type of toilet	
Receptacle of the toilet	Single-pit/Twin-pit/Septic tank/drain/any other
Construction of the toilet & receptacle	Faulty/As per design
Physical condition of the toilet and receptacle	
Cleaning Frequency	Every 6 months / Every Year / Every 2 Years / Never
Who is contacted to provide Pit/Septic Tank Cleaning Services	(Name of Agent)
Actual Number of People Living in the Household	
Does the Household have water connection	
Distance between toilet/s and drinking water source	
Septic Tank/pit latrine Details	
Capacity as Per Plan	[Can be gained from the Gram Panchayat records]
Actual capacity	
Location of Pit/Septic Tank	Front of House Entrance / Back of House
Can a desludging truck easily reach the pit/ tank outlet	
Is grey water let out in the open	Yes/No
If no, is it let out into a drain?	Yes/No
Is there space around the house for a soak pit	Yes/No

Form-I [See Bye-Law 21(g)]

Accident Reporting

Sl. No	Particulars	Data
1.	**Date and time of accident**	
2.	**Sequence of events leading to accident**	

3.	**The waste involved in the accident**	
4.	**Assessment of the effects of the accidents on human health and the environment**	
5.	**Emergency measures taken**	
6.	**Steps taken to alleviate the effects of accidents**	
7.	**Steps taken to prevent the recurrence of such an accident**	

Date:	**Signature:**
Place:	**Designation:**

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G¥À¢ÜÀÀ

1. ºÉ¸gÀªÀvÀ¥Ágï¨sÀ (1) F G¥«zU¼£Ä **PÀ£ÁðlP¥ÀZÁAiÀÄvï gÁeï (£Éʲ®¸ ªÀÄvÀzÀÀvÁd¸ ¤ªÀðºÀuÉ ªÀiÁzÀ G¥À¢ÜÀÀ 2020** JAzÄ PgAiÄvP¸zÄ.

CzsÁAiÀÄ- 1 : ¸ÁªÀiÁ£À

1. ¸ÀQ¥ÀºÉ¸gÀ¥ÁgÀ¨sÀªÀvÀÄC£ÀÄPÉ

J. F G¥«¢U¼£Ä P£ÁðlP ¥AZÁAiÄvï gÁeï (£Éʲ®¸ ªÄvÄ zª vÁd¸ ¤ªðºu) G¥«¢U¼Ä, 2020 JAzÄ PgAiÄ§ºÄzÁVz.

©. F G¥«¢U¼Ä C¢P¸v gÁd¸¥vz° ¥Pl ªÁz ¢£ÁAP¢Az eÁjU §gvP¸zÄ.

¹. F G¥«¢U¼Ä P£ÁðlP UÁªÄ ¸gÁeï ªÄvÄ ¥AZÁAiÄvï gÁeï C¢¤AiÄªÄ, 1993 g£AiÄ eÁjU §gvP¸zÄ.

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(i) **'C¢üAiÀÄªÀ** JAzg PÁ®PÁ®P¸ wzÄ¥rAiiÁU§ºÄzÁz P£ÁðlP ¥AZÁAiÄvï gÁeï C¢¤AiÄªÄ, 1993.

(ii) **'KeÉ'** JAzg UÁªÄ ¥AZÁAiÄw¬ÄAz £ÃªÄP ºÆA¢z CxªÁ ¥Á¢ÃPj¸¯Áz CxªÁ gÁd¸ ¸PÁðg¢Az UÁªÄ¥AZÁAiÄwAiÄ ¥gªÁV MAzÄ PgÁj£ ªÄÆ®P F G¥«¢U¼£AiÄ Pvðª¸U¼Ä CxªÁ PÁAiÄðª£Ä ¤ªð»¹ PªÄª»¸ÄªAv ¤zÃð²vªÁVgÄª AiiÁª¸zÃ ¸AWl£AiÄ£Ä M¼UÆAqAv AiiÁgÃ ª¸Q CxªÁ AiiÁª¸zÃ ¸A¸¶.

(iii)**'PÀÄ¤ãgÀ** JAzg ªÄ£AiÄ ±ËZÁ®AiÄU½Az, ªÁtd¸ PÃAzU¼Ä, CAU£ªÁrU¼Ä, ±Á¯U¼Ä, ¸A¸¶U¼Ä CxªÁ E£Á®ª¸zÃ ªÄÆ®U¼ ±ËZÁ®AiÄU½Az §gÄª ªiÁ£ª ªÄ® vÁd¸ ¤ÃgÄ.

(iv)**'eÉ¼PÀWÀÀ¸ÀÀ** JAzg zª vÁd¸ ¸A¸guÁ WlPz° ¤ªðºuAiÄ ¥°vªÁV GvwAiiÁUÄª C¢P ¥ÆÃµPÁA± ºÆA¢z ¸ÁªAiÄª ª¸ÄU¼Ä.

(v) **'G¥À¢ÜÀÀ** JAzg PÁ®PÁ®P¸ wzÄ¥r ªiÁq¯ÁUÄª P£ÁðlP ¥AZÁAiÄvï gÁeï (£Éʲ®¸ ªÄvÄ zª vÁd¸) ªiÁzj G¥«¢U¼Ä, 2020.

(vi)'¸ÁªÀiÁ£À(PÁA¥ÉÃ¸ï)' JAzg ¸ÆPï fÃ«U¼Ä(Microbes)/Jg ºÉ¼ÀU¼Ä ªÀvÀ ef«P ª¸ÀU½Az ¥qAiÀÄªÀvº Gv£ï.

(vii)'¹¦¹©' JAzg PÃAz ªiÁ°£ï ¤AiÀÄvt ªÀAq½

(viii)'¸ÀÄE º'(UÀ¥Á' JAzg ªiÁ£ª ªÀ® vÁdï ¤ªðºuÁ ¸A¸guAiÀ ¸®ÄªÁV ¨ËUÆÃ½PªÁV ¸«ÄÃ¥«gÄª Jgq Cxª Á ºa£ UÁªÄ ¥AZÁAiÀwU¼ MPÆl.

(ix)'¸ÀÄwUÀÄ JAzg C¢¤AiÀªÄz **¥ÀgÀ 61-J** CrAiÀ° UÁ«ÄÃt ¤ÃgÄ ªÀvÀ £ïªÀð®ï ¸«ÄwU¼Ä ªÀvÀ UÁ«ÄÃt DgÆÃUï, £ïªÀð®ï ªÀvÀ ¥Ë¶P DºÁg ¸«ÄwU¼Ä

(x)'¤AiÀÄvÀÛÁ ªÀÅÉ JAzg vÁdï GvwAiiÁUÄª ¸¼z° MAzÃ ¨Áj ¸ZÀUÆ½¸Äª £ïªÀð®ï ªïª¸ï. Ez£Äï ««z ºAvz° ¸ÆP jÃwAiÀ ¸A¸guÁV M¼¥zgÄ ºÆA¢gÄª gÆZÄ vÆn (Septic tank) Cxª Á M¼¥zgÄ ºÆA¢gz UÄArAiiÁVg§ºÄzÄ (leach pit) Cxª Á G¨AiÀ ªïª¸ï¼ ¸AAiÆÃd£AiÆA¢g§ºÄzÄ (gÆZÄUÄArAiÀ£Äï C£Ä¸gu ªiÁqÄªÀvº EAUÄUÄArU¼ (soak-pit).

(xi)'ZgÀr' JAzg PÆ¼PÄ ¤ÃgÄ, gÆZÄ ¤ÃgÄ Cxª Á Evg d¯ÁzÁjv vÁdïU¼£Äï ZgAr ªïª¸ïAiÀ ªÄÆ®P ºjAiÀ©qÄªïzÄ.

(xii)'gÉZÀ vÉÆÃ«PÉ JAzg gÆZÄ vÆn, PgUÄ vÆn, UÄAr ±ËZÁ®AiÀU¼Ä Cxª Á E¤ïvg AiiÁªïzÃ ¤AiÀÄAvuÁ (M¼UÆ¼Äª) ªïª¸ïU½Az gÆZ£Äï vUzÄ ºÁPÄª ¥QAiÀ.

(xiii)'UÀÉÃvÁzÀÀ JAzg F C¢¤AiÀªÄz G¥«¢U¼ **C£ÀÅa-1**g CrAiÀ° ªÁtdï ZlÄªnPU¼£Äï ºÆgvÄ ¥r¹z Dªgt U¼ ªiÁ°ÃP.

(xiv)'zÀÀºÀªÀÀ JAzg AiiÁªïzÃ ¸AUºuÁ vÆn CxªÁ ¸A¸guÁ ªïª¸ï¬ÄAz (GzÁ: gÆZÄvÆn¬ÄAz ºjAiÀÄªÀvº zªz ªÄÃ°£ ª¸Ä) ºjAiÀÄªÀ zª.

(xv) ªÀÅ£ÀÀªÀÅ® vÁdï' JAzg AiiÁªïzÃ ¤AiÀÄAvPz° (Jvï vÆn ªÀvÀ gÆZÄ vÆnAiÀ° ¸AU»vªÁVgÄª W£ ª¸Ä Dzg Ezg° ¥Äg¸¨Á vÁdï ¤ÃgÄ ¸A¸guÁ ¸ÁªgU¼Ä M¼UÆ¼Äªïª¢®.

(xvi)'ªÀÅ£ÀÀªÀÅ® vÁdï ¸ÀÀgÀÀÁ ¸ÁªgÀÀCxÀÁ J¥ÉJ¸ïn¦' JAzg ¤U¢v UÄtªÄlz° ¸ÄgQv «¯ÃªÁj ªÀvÀ ªÄgÄ§¼PUÁV ¤¢ðµ ªiÁ£ª ªÄ® vÁdï, W£ ªÄvÀ zªgÆ¥z U¹AiÀ£Äï ¥jºj¸Äª GzÃ±U½UÁV ¤¢ðµ ¥r¹z ¥Á¢ÃPïvªÁz ¸vAv gÆZÄ vÆn ªÀvÀ ªiÁ£ª ªÄ® vÁdï U¹ ¸A¸guÁ ¸Ë®¨ï.

(xvii)'GvÁzÀÀ JAzg F G¥«¢U¼ **C£ÀÅa-1**g° ¥n ªiÁrgÄªÀvº UÁªÄ ¥AZÁAiÀw¬ÄAz wÃªiÁð¤¸®ngÄª Evg AiiÁgÃ ªïQ Cxª Á AiiÁªïzÃ Dªgt U¼Ä ªÀvÀ Ezg° GvÁzPg ¸ªÄÆºª£Äï M¼UÆ¼ÄvzÀ.

(xviii)'UÁæÀ¥ÀZÁAiÀÄv' JA§ ¥zªï C¢¤AiÀªÄz°¤ÃrgÄª Cxðª£ÀÃ ºÆA¢gvPzÄ.

(xix)'UÁæÀ ¥ÀZÁAiÀÄv C©üªÀÄ AiÉÆÃd£É JAzg C¢¤AiÀªÄz **¥ÀgÀ-309** ªÀvÀ E¤ïvg C£¬Ä¸ÄªÀvº G¥§AzU¼£AiÀ UÁªÄ ¥AZÁAiÀwU½Az gÆ¦vªÁVgÄª C©ªï¢ï AiÆÃd£.

(XX)'§ÆzÀ ¤ÃgÀ CxÀÁ PÉ¼ÀÄ ¤ÃgÀ JAzg ªiÁ£ª ªÄ® vÁdïª£Äï M¼UÆ¼z vÁdï ¤ÃgÄ JAzg ¸Áï£ ªiÁqÄªÁU, CrU ªiÁqÄªÁU ªÀvÀ ¸ZÀUÆ½¸Äª PÁAiiðZlÄªnPU¼° CqÄU PÆÃu, ¸Áï£z ªÄ£¬ÄAz GvÁz£AiiÁUÄªÀvº vÁdï ¤ÃgÄ ªÀvÀ Ezg° Pï¶, ºï£ÄUÁjP ªÀvÀ eÁ£ÄªÁgÄ ¸ÁPu¬ÄAz GvwAiiÁUÄªÀvº ¤ÃgÄ ¸ÃjzAv ªÁtdï PÃAzU½Az GvÁz£AiiÁUÄªÀvº ¤Ãg£Æï ¸º M¼UÆ¼Ävz.

(xxi)P.J¸ï.¦.¹.©' JAzgÉÆÃðlPÀgÁdï ªÀÅ°£À¤AiÀÄvÀÛÁ ªÀÅqÀ

(xxii)'zÀÀvÁdï' JAzg P¥Ä ¤ÃgÄ ªÀvÄ/CxªÁ §ÆzÄ ¤ÃgÄ

(xxiii)'¸AZÁj CxªÁ ¸AZÁg g»v ±ËZÁ®AiÄU¼ §¼P, ªÄvÄ Ezg° vÁd¯ªÉÄ vÁd¯ªiÁ°£¯(P®Ä¶v)¢Az GAmÁU§ºÄzÁz DgÆÃU¯P C¥ÁAiÄªÉÄ ¤§ðA¢¸Äª ¸®ÄªÁV ¸AUÁºPP(¤AiÄAvP) CxªÁ ZgAr ºj«U ¸Z¯ªiÁr ©q¯ÁUÄª¯zÄ.

(xxiv)'ªÄÆ£ÀÀÄzÀ¸ÀÀÉ½¸À«PÉiÄ ªiÁ£ª ¸ZUÁggÁV £ÃªÄPÁw ¤µÃz ªÄvÄ CªgÄU¼ ¥Ä£ªð¸w C¢¤AiÄªÄ, 2013g **¥ÀÀÄ-2gÀ G¥ÀRAqÀf)**g° ¥j¨Á¶¹gÄª Cxðª£ÃºÆA¢gvP¯zÄ.

(xxv)'**UÀÉÃvÁ¢vÀÀzÀGvÁzPÀÄ** JAzg **C£Ã¸Àa-1gÀ** ¥n ªiÁrgÄªAvº ªÁtd¯ ZlÄªnPU¼Ä £qAiÄÄª DªgtU¼ ªiÁ°ÃP.

(xxvi)'**ªÄÄ°ÃPÀJAzgÀÉ**AiiÁª¯zÃ D¹U ¸A§A¢¹zAv v£¯ ¸AvPÃ DU°Ã CxªÁ ªÄvÆ§ ª¯QAiÄ ¥gªÁV CxªÁ zÁ«ÄðP CxªÁ zªÄðzwAiÄ ¥gªÁV KeAl£ÁV, ¥ÁgÄ¥v¯UÁg£ÁV, ¥ÆÃµP£ÁV, ª¯¸Á¥P£ÁV CxªÁ ¹ÃPvð£ÁV ¸zj D¹U ¸A§A¢¹z CAvº ¥zª£Ä AiiÁª GzÃ±PÁV §¼P ªiÁq¯ÁUÄvzAiÆÃ CAvº ¨ÁrU CxªÁ ¯Á¨ª£Ä vvÁ®P ¥qAiÄÄª CxªÁ ¥qAiÄÄª ºP¼ª£ÁVgÄª ª¯Q ªÄvÄ CAvº ª¯QAiÄ º¸j£° C©ª¯¢¯UÁV C£ÄªÆÃz£AiÄ£Ä ºÆgr¹gÄªAvº ª¯Q.

(xxvii)'¸Á¢Ì£Á£ÀÄ¨à' JAzg AiiÁª¯zÃ Plq CxªÁ ¨Æ«Ä CxªÁ Czg AiiÁª¯zÃ ¨ÁUz ªÁ¸ª ¸Á¢Ã£Á£Ä¨ªª£Ä ºÆA¢gÄªAvº ªÄvÄ ¨ÁrUzÁg CxªÁ ¯É¸£ÄzÁg, ªÄvÄ CAvº ¨ÁrUzÁg CxªÁ ¯É¸£ÄzÁg£Ä ¨ÁrUAiÄ£Ä ¥ÁªwªiÁq®Ä §z¥ÁVg° CxªÁ E®¢g° CAvº AiiÁgÃ ª¯Q.

(xxviii)'¤¶ÌAiÀÄ ¸À¸ÀgÀÁ ªÀÅÇÉÃÀ JAzg £É¸VðP DzÁjv vAveÁ£ª£Ä §¼¹PÆ¼Äª «zÁ£ª£Ä «£Á¸UÆ½¹gÄªAvº ªÄvÄ «zÄvï CxªÁ AiiÁAwP EAz£ª£Ä ¸A¸guÁ ¥QAiÄU G¥AiÆÃV¸z ª¯¸U¼Ä.

(xxix)'**ªÀÄ**' JAzg AiiÁgÃ ª¯Q CxªÁ ª¯QU¼ ¸AWl£ ªÄvÄ Ezg° AiiÁª¯zÃ CAUr, ªÁtd¯ PÃAz, ¸A¸I, PA¥¤, ¤U«ÄvªÁVgÄª CxªÁ DUzÃ EgÄª ª¯QU¼ ¸AW CxªÁ ¸ªÄºª£Ä M¼UÆ¼Ävz.

(xxx)'**UÀÄr ±ËZÁ®AiÀÄ**ª¯ ªiÁ£ª ªÄ® vÁd¯ª£Ä ¸AU»¸Äª ªÄvÄ «Wn¸Äª ¸®ÄªÁV MAzÄ CxªÁ JgqÄ UÄArU¼£Ä ºÆA¢gÄªAvº ªÄvÄ CzjAz zªª¯ ¸Äv°£ ªÄt¤Az »Ãg®qÄª AiiÁª¯zÃ MAzÄ ««P(privy), d®ªÄÄaP(¸AUºPÆÃu) ªÄvÄ ªÄÆvÁ®AiÄª£Ä M¼UÆ¼Ävz.

(xxxi)'**Dªgï¸ÀÀUÀÄ**PlqU¼Ä, Plqz ¨ÁU, ªÄ£, G¥ª£ (ºÆg ªÄ£)(outhouse) ¯ÁAiÄ, PÆnU, UÄr¹®Ä, ªÄvÄ vgz CxªÁ ªÄÄZ¯Áz CxªÁ ¤«Äðv CxªÁ ¤«Äðvª®z CxªÁ ªÁ¸z, ª¯Á¥Ágz, P¯UÁjPAiÄ, ¸ÃªAiÄ, ª¯ªºÁgz, ¸PÁðj CxªÁ Evg AiiÁª¯zÃ ¸Áªðd¤P CxªÁ SÁ¸V GzÃ±U½UÁV, «ªÁº, OvtPÆl, ¸¨U¼Ä, ª¸Ä¥z±ð£U¼Ä CxªÁ ¸AWnv ¸ªiÁgA¨U¼£Æ¯ M¼UÆAqAvº PlqU¼£Ä M¼UÆ¼Ävz.

(xxxii)'**£É¯Ãº®¯ ¥Ëgï**JAzg ¨Ágv ¸PÁðg¢Az ºÆgr¸¯ÁVgÄª ¸Z¯¨Ágv ªiÁUð¸ÆaU¼Ä, 2018g£AiÄ, ªÄvÄ/CxªÁ Evg AiiÁª¯zÃ vz£Avgz C£¬ÄP «¤AiÄªÄU¼£AiÄ UÁªÄ ¥AZÁAiÄwU¼°£ £É¯ªÄð®¯ ¸A§A¢v PÁAiÄðZlÄªnPU½UÁV UÁªÄ ¥AZÁAiÄwAiÄ ªw¬ÄAz ¤AiÆÃf¸®ngÄª AiiÁgÃ ª¯Q.

(xxxiii)'**gÉÆZÀ 'JAzgÀÉ** P®ª¯ PÁ®U¼ªgU gÆZÄ vÆnAiÄ° ¸AU»vªÁUÄªAvº zªU¼Ä, W£ª¸ÄU¼Ä (gÆZÄ), ªÄvÄ PÆ§ÄU¼Ä, Ju ªÄvÄ VÃ¸Ä Cg W£ gÆ¥z° ¸AUºªÁUÄª¯zÄ.

(xxxiv)**'gÉZÀ vÉn'** JAzg vÁd¸ ¤ÃgÄ W£ª ¸ÄU¼ ¸AAiÆÃd£AiÆA¢U ¸AUºªÁUÄª ªÄvÄ DªÄd£P PgUÄ«PAiÄ ¸A¸gu ªiÁqÄªAvº M¼(¨ÆU¨ðz°gÄª) vÆn.

(xxxv)**'ZgÀr gÉZÀ** JAzg ªiÁ£ª ªÄ® vÁd¸ ªÄvÄ P®± CA±U¼£Ä ºÆA¢gÄªAvº vÁd¸ ¤ÃgÄ GvÁzP.

(xxxvi)**'gÉZÀ ¸À¸gÀÁ ¸ÁªgÀCxÀÁ J¸ïn¦'** JAzg vÆnU¼Ä, ¥gzU¼Ä, ±ÆÃzPU¼Ä ªÄwvg gÆa¤Az P®±U¼£Ä vUzÄ ºÁP®Ä §¼P ªiÁqÄªAvº ¸A¸guÁ ª¸ÄU¼ ¸gtAiÄ£ÀÃ ºÆA¢gÄªAvº ¥Á¢ÃPÈv vÁd¸ ¸A¸guÁ ¸Áªg.

(xxxvii)**M¼ÀgÀr'** JAzg ªÁ¸z ªÄ£U¼ ªÄvÄ Evg vÁd¸U¼£Ä ºÁUÆ ºjª ¤Ãg£Ä ¸AU»¸®Ä §¼P ªiÁqÄªAvº PÆ¼ªU¼ MAzÄ ª¸ª¸.

(xxxviii)**'gÉZÀ** JAzg Cg W£ gÆ¥z° ¸AU»vªÁVgÄª d®«Ä²v W£ ª¸ÄU¼Ä ªÄvÄ gÆZÄ vÆnU¼Ä ªÄvÄ PÆ¼z CrAiÄ° ¸AUºªÁVgÄªAvº ¤Ãg£Ä M¼UÆAq W£gÆ¦ ª¸ÄU¼Ä.

(xxxix)**'£ÉÊ¸ÀÀUÀÀrUÀÀCxÀÁ EAUÀÀUÀÀrUÀÀ¼ÀºÉAqÀ** JAzg ¤Ãg£Ä ºj¸Äª CxªÁ ¸Äv°£ ªÄt£° EAV¸Äª CxªÁ gAzU½Az DªÈvªÁVgÄª vÆnAiÄÄ vÁd¸ ¤Ãg£Ä ¨Æ«ÄAiÄ° »AU®Ä C£Äª¸ ªiÁrPÆqÄªAvº ºÆAq.

(xl)**'ªÀÄE®'** JAzg zª vÁd¸ª¸ GvwAiiÁUÄª Dªgt.

(xli)**''¤Ãj£ÀºÀª¸ÀÀ** JAzg £®ªÄlz ¤Ãg£Ä ªÄvÄ/CxªÁ ¸Áªðd¤PjUÁV ºjª ¤Ãg£Ä PÆ¼ªU¼Ä CxªÁ PÁ®Äª ª¸ª¸AiÄ ªÄÆ®P ºj¸Äª ª¸ª¸, Dzg CzÄ PÆ¼Z ¤ÃgÄ ºjª ª¸ª¸U ¸A¥Pð P°¸Äª¸¢®.

(xlii)**'¸ÁUÁtÂÉ** JAzg ¸A¸j¸¯Áz CxªÁ ¨ÁU±B ¸A¸j¸¯Áz CxªÁ ¸A¸j¸¯Ágz vÁd¸ª£Ä AiiÁª¸zÃ MAzÄ ¸¼¢Az ªÄvÆAzÄ ¸¼P ¥j¸gÁvPªÁV GvªÄ «zÁ£z° «±ÃµªÁV «£Á¸UÆArgÄª ªÄvÄ ªÄÄZ®ngÄª ¸ÁUÁtP ª¸ª¸AiÄ ªÄÆ®P(ªÁº£z ªÄÆ®P) zÄªÁð¸£, ¸ÄjAiÄÄ«P ªÄvÄ C¸º¸ ¥j¹wAiÄ£Ä ¤§ðA¢¸Äª ¸®ÄªÁV vÁd¸z ¸ÁUÁtPU §¼P ªiÁq¯ÁUÄª ªÁº£U¼Ä.

(xliii)**'¸À¸gÀÉ** JAzg AiiÁª¸zÃ vÁd¸z ¨ËwP, gÁ¸ÁAiÄ¤P CxªÁ e¸«P UÄt ®PtU¼£Ä ªiÁ¥ðr¸Äª jÃwAiÄ° CzÄ C¥ÁAiÄª£Ä ¸¸f¸Äª ±QAiÄ£Ä E½P ªiÁqÄª ¸®ÄªÁV «£Á¸UÆ½¸¯ÁVgÄª «zÁ£, vAv CxªÁ ¥QAiÄ

(xliv)**'§¼ÀÉÁgÀ¼À®'** **JAzgÀÉ** UÁªÄ ¥AZÁAiÄw¬ÄAz zª vÁd¸ ¸AUºu, ¸ÁUÁtP, ¸A¸gu ªÄvÄ «¯ÃªÁjU ¸A§A¢¹zAv ¥Ætð CxªÁ ¨ÁU±B ªZª£Ä ªÁ¥UÆ½¹ GvÁzPg ªÄÃ¯ UÁªÄ ¥AZÁ¬Äw ªÄvÄ/CxªÁ UÁªÄ ¥AZÁAiÄw¬ÄAz ¥Á¢ÃPj¸®ngÄª Ke¤AiÄÄ F G¥«¢U¼£AiÄ «¢¸ÄªAvº ±Ä®.

CzÁAiÀ– II

ªÄ£ÀÀªÄ® vÁd¸ ªÄvÄgÉZÀ¤ªÀºÀÉ¤AiÀÄvÀæ, ¸ÀUÀæÀÉ¸À¸gÀÉªÄvÄ«¯ÉªÁj

2. ±ËZÁ®AiÀÄUÀÀ¤ªÄðt ªÄvÄªÀgÀªÄ¥ÁðqÀ

J. ¸Z¨Ágv C©AiiÁ£(UÁ«ÄÃt) ªiÁUð¸ÆaU¼£AiÄ §AiÄ®Ä ±ËZÁ®AiÄU½Az ªÄÄPUÆ½¸Äª ¸®ÄªÁV v£ PÁAiÄðªÁ¦AiÄ° ¥wAiÆAzÄ ªÁ¸z ªÄ£UÆ ¸º ±ËZÁ®AiÄU¼ ¤ªiÁðt ªÄvÄ §¼PAiÄ£Ä SÁw ¥r¸Äª¸zÄ UÁªÄ ¥AZÁAiÄwAiÄ ºÆuUÁjPAiiÁVgvPzÄ.

©. UÁªÄ ¥AZÁAiÄwAiÄÄ-

i. ¥wAiÆ§ UÁªÄ ¤ªÁ¹AiÄÆ ¸ºvÁAwP ªiÁUð¸ÆaAiÄ£AiÄ CxªÁ P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £ÉªÄð®Ì E¯ÁS ªÄvÄ Evg¸PªÄ ¥Á¢PÁgU¼Ä PÁ®PÁ®P¤¢ðµ ¥r¹z UÄtªÄlz «£Á¸z£AiÄ ªÉeÁ¤PªÁV «£Á¸UÆ½¹z ±ËZÁ®AiÄU¼£Ä PÉUlPÄªAv SÁw ¥r¸vPÌzÄ.

ii. ¸¼Á¨Áª, PÁ¯ÁªÇ CxªÁ DyðP CqZu¬ÄAzÁV ªÉAiÄQP ±ËZÁ®AiÄU¼£Ä ºÆAz®Ä CªPÁ±«gz ªÁ¸z ªÄ£U¼ ¤ªÁ¹U½UÁV CUv«z¸Az¨ðU¼°¸ªÄÄzÁAiÄ AiÆÃd£AiÄ ªÄvÄ ¤ªðºuAiÄ ±ËZÁ®AiÄU¼£Ä ¸ÁªÄÆ»P §¼PUÁV ¤ªiÁðt ªiÁqÄªÉz£Ä ªÄvÄ §¼PAiÄ£Ä SÁw ¥r¸vPÌzÄ.

iii. ¸Áªðd¤P ¸¼U¼Áz §¸ï ¤¯ÁtU¼Ä, vgPÁj ªiÁgÄPmU¼Ä, ±Á¦AUï ¸AQÃtðU¼° CUvÁ£Ä¸Ág ±ËZÁ®AiÄU¼£Ä UÁªÄ ¥AZÁAiÄw¬ÄAz ¤«Äð¹zAiÄÃ ªÄvÄ ¤ªðºu ªiÁq¯ÁUÄvzAiÄÃ JAzÄ SÁw ¥r¹PÆ¼ÄªÉzÄ.

iv. ±ËZÁ®AiÄU¼ ¤ªiÁðtP ¸ÁPµÄ ¸¼ÁªPÁ±«g¢gÄªAvº ¤ªÁ¹U½U 500 «ÄÃlgÄU¼ zÆgz ªÁ¦AiÄ° ±ËZÁ®AiÄU¼£Ä MzV¸ÄªÉz£Ä SÁw ¥r¸vPÌzÄ.

v. F G¥«¢U¼ **C£ÀÅ¥Àa-IV**g° G¥§A¢¹gÄªAvº ªiÁzj £ªÄÆ£AiÄ DzÁgz ªÄÃ¯ C±Äav¢Az PÆrz ±ËZÁ®AiÄU¼£Ä UÄgÄw¸Äª ¸®ÄªÁV, ªÄvÄ CªÉU¼£Ä «£Á¸ºÁUÆ UÄgÄw¸¯Áz zÆÃµU¼ DzÁgz ªÄÃ¯ ªVÄðPj¸Äª ¸®ÄªÁV ªÁ¶ðP ¸ªð PÁAiÄðª£Ä PÉUÆ¼vPÌzÄ.

vi. C±Äav¢Az PÆrz ±ËZÁ®AiÄU¼£Ä ªÄgÄªiÁ¥ÁðqÄ ªiÁq®Ä ªÄvÄ ¸j¥r¸Äª PªÄU¼£Ä PÉUÆ¼ÄªÄ ¸®ÄªÁV ¸ºÁAiÄz£/¥ÆÃvÁºPU¼£Ä ¤Ãq®Ä DAiÄªÉAiÄz° C£ÄzÁ£ª£Ä P°¸vPÌzÄ ªÄvÄ ºtPÁ¹£ ªÄÆ®ª£Ä UÄgÄw¸vPÌzÄ.

vii. ¥wAiÆAzÄ C±ÄaAiiÁz ±ËZÁ®AiÄU¼£Ä ªiÁ°ÃP¤Az¯Ã Dv£¸Av ªZz°AiiÁU°Ã ªÄvÄ/CxªÁ UÁªÄ ¥AZÁAiÄw¬ÄAz ¤Ãq¯ÁUÄª ¸ºÁAiÄz£z ªÄÆ®PªÁU°Ã F G¥«¢U¼Ä eÁjU §Az ªÄÆgÄ ªµðU¼Æ¼U ªÄgÄªiÁ¥ðr¸Ä«P CxªÁ ªÄgÄ ¤ªiÁðt ªiÁqÄªÉz£Ä Rav ¥r¸vPÌzÄ.

¹. C£ÀÅ¥ÁzÀ¯ÁÀ £Æv£ ¤AiÄAvuÁ ªÉª¸ÉAiÄ£Ä ¤ªiÁðt ªiÁqÄª ¥ÆªðzÀ°, J¯Á ªiÁ°ÃPgÄU¼Æ¸º P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £ÉªÄð®Ì E¯ÁSAiÄÄ ©qÄUq ªiÁrgÄª ªiÁUð¸ÆaAiÄ£Ä ¥Á®£ ªiÁrgÄªÉz£Ä Rav ¥r¹PÆ¼ÄªÄ GzÃ±PÁV UÁªÄ ¥AZÁAiÄwAiÄ C£ÄªÄÃz£AiÄ£Ä ¥qAiÄvPÌzÄ.

r. MAzÄ ªÃ¼ ¤AiÄAvuÁ ªÉª¸ÉAiÄÄ ¸ÁP¶g¢zÌ°, UÁªÄ ¥AZÁ¬ÄwU¼ÁU°Ã CxªÁ CzjAz ¥z£Á«Äv£Áz C¢PÁjAiiÁU°Ã CAvº GvÁzP£Ä CxªÁ CAvº C¸ªÄ¥ðP ¤AiÄAvt ªÉª¸ÉAiÄ£Ä §¼P ªiÁqÄwgÄª ªÉQU UÁªÄ ¥AZÁAiÄw¬ÄAz ¤tð¬Ä¸¯Áz ¢£ÁAPzÆ¼U C¸ªÄ¥ðP ¤AiÄAvt ªÉª¸ÉAiÄ ªiÁ¥ÁðqÄ CxªÁ ¸j¥r¸Äª PªÄU¼£Ä PÉUÆ¼¨ÃPAzÄ ¤zÃð²¹ £ÆÃnÃ¸ï£Ä UÁªÄ ¥AZÁAiÄw¬ÄAz eÁj ªiÁqvPÌzÄ.

3. **GvÁzÀ¸ÀjAzÀªÀ£ÀÀªÀ® ¤AiÀÄAvÀæ**

J. ¸¼z »¤ÃgÄ ¤AiÄAvuÁ ªÉª¸U¼ ¤AiÄAvtªÉ DªgtzªiÁ°ÃP£ ºÆuUÁjPAiiÁVgvPÌzÄ.

©. J¯Á ªiÁ°ÃPgÄU¼Æ¸º AiÄÄP ¤AiÄAvuÁ ªÉª¸ÉAiÄ£Ä ¸½ÃAiÄ ¥j¹w ªÄvÄ P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £ÉªÄð®Ì E¯ÁS ªÄvÄ E¤vg¸PªÄ ¥Á¢PÁgU¼Ä ºÆgr¹gÄª ªiÁUð¸ÆaU¼ DzÁgz ªÄÃ¯ ¤ªiÁðt ªiÁqvPÌzÄ.

1. ¤AiÄAvuÁ ª¦ª¸¦AiÄ£Ä§ AiiÁª¦zÃ ªÄt£ ªÄÃ¯ö£, CAvdð® CxªÁ ªÄÃ¯ö£ d®ª¦ P®Ä¶vªÁUzAv «£Á¸UÆ½¹ ¤ªiÁðt ªiÁqÄª¦z£Ä§ SÁw ¥r¸vPÌzÄ ªÄvÄ Cª¦U¼Ä £ÆtU¼Ä CxªÁ eÁ£ÄªÁgÄU½U ¤®ÄPÄªAwgvPÌz®.

r. CAvº J¯Á ¤ªiÁðtU¼Æ¸º, F G¥«¢AiÄ° ¤¢ðµ ¥r¹zAv, ±ËZÁ®AiÄ ¤ªiÁðtz° vg¨ÃwAiÄ£Ä§ ºÆA¢z ªÄÃ¹U¼Ã ¤ªiÁðt ªiÁqvPÌzÄ.

4. ¤AiÄÀvÀæÁ ª¦ÀÇÉiÀgÉZÀvÉÉiÀ«PÉ

J. AiiÁgÃ GvÁzP£Ä zª vÁd¦ª£Ä§ CxªÁ ºÆg¸Æ¸Ä«PAiÄ£Ä§ ºjª ¤Ãj£ PÆ¼ªU¼Ä, d®ªÄÆ®U¼Ä (Water bodies), d®ªiÁUðU¼Ä, ªÄÄP ¥zÃ±U¼Ä, P¦¶ ¨Æ«ÄU¼Ä CxªÁ E¤vg ¸Áªðd¤P ¥zÃ±U¼° «¯ÃªÁj ªiÁqvPÌz® CxªÁ ºj¸vPÌz®.

© GvÁzP£Ä AiiÁª¦zÃ ªiÁ£ª ¸ZÀUÁgg£Ä§ Dv£ CxªÁ DPAiÄ DªgtZ ¸¼z°£ ¤AiÄAvuÁ ª¦ª¸¦U¼£Ä§ vgª¦UÆ½¸®Ä £Ã«Ä¸vPÌz®. ¸zj ¤AiÄAvuÁ ª¦ª¸¦AiÄ vgª¦UÆ½¸Ä«PAiÄ£Ä§ ªiÁ£ª ¸ZÀUÁgg £ÃªÄP ¤§ðAz ªÄvÄ Cªg ¥Ä£ªð¸w C¢¤AiÄªÄ, 2013g G¥§AzU¼£Ä§ J¯Á ¸Az¨ðU¼°AiÄÆ ¸º ¥Á®£ ªiÁqvPÌzÄ.

1. ªiÁ£ª ªÄ® vÁd¦ gÆa£ vgª¦UÆ½¸Ä«P ªÄvÄ ¸ÁUÁtPAiÄ£Ä§ J¥ïJ¸ïn¦ ªÄvÄ ªÄÄaz ¸ÄgQv ¤ªðºuÁ ª¦ª¸¦AiÄ° ªiÁv UÁªÄ ¥AZÁAiÄw¬ÄAz ¥gªÁ£VAiÄ£Ä§ ¥q¢gÄª Ke¤ CxªÁ UÁªÄ¥AZÁAiÄwAiÄ ªw¬ÄAz¯Ã PÈUÆ¼vPÌzÄ.

r. AiiÁª¦zÃ ªiÁ£ª ªÄz¦¥ªÃ±g»vªÁz ¤AiÄAvuÁ ª¦ª¸¦AiÄ vgª¦UÆ½¸Ä«PAiÄ£Ä§ PÈUÆ¼vPÌzÄ ªÄvÄ PÃª® AiiÁAwP G¥PgtU¼ §¼P¬ÄAz ªiÁv JAzg ¤ªÁðv mÁ¦APgÄU¼Ä ªÄvÄ ©qÄUq ªÁ®ÄU¼£Æ¼UÆAq gÆZÄ PÆ¼ªU¼ ªÄÆ®PªÃ ªiÁ£ª ªÄ® vÁd¦ª£Ä§ vgª¦UÆ½¸vPÌzÄ.

E. ¤AiÄAvuÁ ª¦ª¸¦AiÄ vgª¦UÆ½¸Äª ¥QAiÄAiÄ£Ä§ ª¸w ªÄvÄ £UgÁ©ª¦¢¦ ª¦ªºÁgU¼ ªÄAvÁ®Aiªª¦ £ªA§gï 2018g° ©qÄUq ªiÁrgÄª ‘gÆZÄ ºjª¦ ªÄvÄ gÆZÄ vÆnU¼£Ä§ ¸ZÀUÆ½¸Äª UÄtªÄlz ZÁ®£Á «zÁ£ (Standard Operationing Procedure for Cleaning Sewers and Septic Tanks) z° £ªÄÆ¢¹gÄª ¸ÄgQv JZjPÁ PªÄU¼£Ä§ ¥Á°¹AiÄÃ PÈUÆ¼vPÌzÄ.

J¥ï.¤AiÄAvuÁ ª¦ª¸¦AiÄ ¸ÁªÄx¦ðz DzÁgz ªÄÃ¯, ªÄvÄ GvÁz£AiiÁz gÆa£ ¥ªiÁtz DzÁgz ªÄÃ¯ ¤AiÄvPÁ°PªÁV ªiÁ£ª ªÄ® vÁd¦ª£Ä§ vgª¦UÆ½¸vPÌzÄ.

f. C ª½ UÄArU¼ ±ËZÁ®AiÄU½U ¸A§A¢¹zAv, ¨wðAiiÁz ºÆAqª£Ä§ vgª¦UÆ½¸Äª ¥QAiÄAiÄ£Ä§ P¤µ Jgqª ªµðU¼ PÁ® ªiÁ£ª ªÄ® vÁd¦ W¤ÃPÈvªÁz vgÄªÁAiÄªÃ ªÄvÄ CzÄ dqªÁz(¥ÆtðªÁV ¸ÁªAiÄªªÁz) £Avg ªiÁqvPÌzÄ.

JZï.UÁªÄ ¥AZÁAiÄwAiÄÄ Czg ªÁ¦AiÄ°£ ¤ªiÁðt ¢£ÁAPU¼£Ä§ ªÄvÄ J¯Á vÁ¦eÆÃvÁzPgÄU¼Ä ªiÁ£ª ªÄ® vÁd¦ª£Ä§ vgª¦UÆ½¸Äª ¢£ÁAPU¼ zÁR¯U¼£Ä§ ¤ªð»¸vPÌzÄ. UÁªÄ ¥AZÁAiÄwU¼Ä DªgtU¼ ªiÁ°ÃPgÄU½U ««z ªiÁzjAiÄ ¤AiÄAvuÁ ª¦ª¸¦U½U ¤¢ðµ ¥r¹z ¤AiÄvPÁ°Pz DzÁgz ªÄÃ¯ ªiÁ£ª ªÄ® vÁd¦ª£Ä§ vgª¦UÆ½¸Ä® £¥ÆÃ¯U¼£Ä§ P¼Ä»¸vPÌzÄ.

L. UÁªÄ ¥AZÁAiÄwAiÄÄ v£§ C¢PÁg ªÁ¦AiÄ°£ UÁªÄU¼° ¸AiÄA vÁ£Ã ªiÁ£ª ªÄ® vÁd¦ª£Ä§ vgª¦UÆ½¸Äª CxªÁ Ke¤AiÄ ¥j±ªÄ, ZÁ®£, ¸ÁªÄx¦ð ªÄvÄ ±QU¼£Ä§ v¥Á¸u ªiÁrz £Avg ¥gªÁ£VAiÄ£Ä§ ºÆA¢z Ke¤AiÄ ªÄÆ®P ªiÁ£ª ªÄ® vÁd¦ª£Ä§ vgª¦UÆ½¸Äª ¥QAiÄAiÄ£Ä§ PÈUÆ¼vPÌzÄ.

5. ¤AiÄÀvÀæ ªÀÄÄzÀªÀÅ£ÀÄªÀ® vÁd¸ÁUÁtÉÆ

J. ¤AiÄAvuÁ ª¸ª¸ÀU½Az ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ AiÄA vÁ£Ã DU°Ã Cxª Á ¯Ë¸£Ä ºÆA¢z Ke¤AiÄ ªÄÆ®PªÁU° vgª¸UÆ½¸Äª ªÄvÄ ¸ÁUÁtP ªiÁqÄª ºÆuUÁjP UÁªÄ¥AZÁAiÄwAiÄzÁVgvPzÄ.

©. UÁªÄ ¥AZÁAiÄwAiÄÄ ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ vgª¸UÆ½¸®Ä ªÄvÄ ¸ÁUÁtP ªiÁq®Ä P¼PAq AiiÁª¸zÁzgÆAzÄ «zÁ£ª£Ä¸ DAiÄ ªiÁrPÆ¼vPzÄ.

i. ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ vgª¸UÆ½¸Äª ¸ÃªAiÄ£Ä¸ MzV¸®Ä CUv¸«gÄª G¥Pgt U¼Ä/ªÁºU¼£Ä¸ ºÆA¢gvPzÄ ªÄvÄ ¤ªð»¸vPzÄ.

ii. vÁ®ÆPÄ ª¸Älz° ®¨¸«gÄªÁvº vgª¸UÆ½¸Äª ªÁºz ¸ÃªAiÄ£Ä¸ §¼P ªiÁqvPzÄ.

iii. vgª¸UÆ½¸Äª ¸ÃªAiÄ£Ä¸ MzV¸Äª ¸®ÄªÁV Ke¤AiÄ£Ä¸ ¥Á¢ÃPj¸vPzÄ.

1. UÁªÄ ¥AZÁAiÄwAiÄÄ ¸AiÄA vÁ£Ã DU°Ã Cxª Á ¯Ë¸£Ä ºÆA¢z Ke¤¬ÄAz ¸¼z°£ £Ëª¸Äð®¸ ¤AiÄAvuÁ ª¸ª¸ÀU¼ ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ vgª¸UÆ½¸Äª ªÄvÄ AiÄÄP vgª¸UÆ½¸Äª ªÁºU¼ ªÄÆ®P ¸ÁUÁtP ªiÁqÄª ºÆuUÁjPAiÄ£Ä¸ ºÆA¢gvPzÄ. ªÁºz DAiÄAiÄ£Ä¸ ¤AiÄAvuÁ ª¸ª¸ÀAiÄ ¤®ÄPÄ«P ªÄvÄ ¸ÁªÄx¸ðz DzÁgz ªÄÃ¯ ªiÁqvPzÄ.

r. UÁªÄ ¥AZÁAiÄwAiÄÄ P¼PAq CA±U¼£Ä¸ Rav ¥r¸Äª ºÆuUÁjPAiÄ£Ä¸ ºÆA¢gvPzÄ.

i. ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ ¸ÁUÁtP ªiÁq®Ä §¼P ªiÁq¯ÁUÄª ªÁºU£ª Czg° ¸AU»¸¯ÁVgÄªÁvº ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ ¥j¸gP vgzÄPÆ¼zAv ªÄÄagvPzÄ.

ii. zª ºjª¸ Cxª Á ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ Cxª Á Evg AiiÁª¸zÃ CA±ª£Ä¸ ¸¼z ¤AiÄAvuÁ ª¸ª¸ÀU½Az vgª¸UÆ½¸Äª° Cz£Ä¸ ªÄÄP ªÄ£zÁ£U¼°, d®ªÄÆ®U¼Ä, P£¶ ¨Æ«ÄU¼Ä Cxª Á Evg AiiÁª¸zÃ ¸Áªðd¤P ¸¼U½U ©qÄª¸zg ªÄÆ®P «¯ÃªÁj ªiÁqvPz®. ªÄvÄ C¸U¼£Ä¸ UÁªÄ ¥AZÁAiÄwAiÄ ¥Á¢ÃP£v ªiÁ£ª ªÄ® vÁd¸ ¸A¸guÁ ¸Ë®¨¸U¼° §lªÁq ªiÁr «¯ÃªÁj ªiÁqvPzÄ.

E. MAzÄ ªÃ¼ UÁªÄ ¥AZÁAiÄwAiÄÄ ¨ÁU±B M¼ZgAr ª¸ª¸¬ÄgÄª ªÄvÄ ¸«ÄÃ¥z°AiÄÃ J¸ïn¦ ¸Ë®¨¸«z°, P¥Ä ºÁUÆ PAzÄ §tz G¨AiÄ d®z ºjª£Æ¸º CAvdð® ¸AAiÆÃd£AiÆA¢U ¸Ã¥ðq ªiÁq§ºÄzÄ.

7. ªÄ£ÀªÀ® vÁdzÀ¸À¸ÀÉªÀvÀ«¯ÉªÁj

J. ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ ºÁUÆ Evg vÁd¸ª£Ä¸ ¸A¸j¸Äª¸zÄ ªÄvÄ «¯ÃªÁj ªiÁqÄª¸zÄ UÁªÄ ¥AZÁ¬ÄwAiÄ ºÆuUÁjPAiiÁVgvPzÄ ªÄvÄ Cz£Ä¸ P¼PAq «zÁ£z° ªiÁq§ºÄzÄ

i. CwÃ ¸«ÄÃ¥z°gÄª ¸½ÃAiÄ ¸A¸AiÄ ªÁ¦AiÄ° C¹vz°gÄª J¸ïn¦AiÄ°-

A. GvÁz£AiÄ ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ Cxª Á Evg gÆZÄ GvÁz£AiiÁUÄª ªÄÆ®z 10 Q.«Ä ªÁ¦ ¥zÃ±zÆ¼VgÄª J¸ïn¦AiÄ°; ªÄvÄ

B UÁªÄ ¥AZÁAiÄwAiÄ° GvÁz£AiiÁUÄªÁvº ªiÁ£ª ªÄ® vÁd¸ª£Ä¸ Cxª Á Evg gÆZ£Ä¸ ¤ªð»¸Äª ¸Áªðx¸ð«gÄªÁvº J¸ïn¦.

C. UÁªÄ ¥AZÁAiÄwAiÄÄ C¹vz°gÄª J¸ïn¦AiÄ ¥¸P ¤ªðºuAiÄ ªÄÆ®P «ªgªÁz ¤zðgu ªÄvÄ AiÆÃf¹gÄª ¨«µiz «¸gu, ªÄwvg ªiÁ£zAqU¼ DzÁgz ªÄÃ¯ £Ug ¸½ÃAiÄ ¸A¸AiÄÄ J¸ïn¦AiÆA¢U eÆÃqu ªiÁqÄª ¥Æªðz° £Ug ¸½ÃAiÄ ¸A¸AiÆA¢U, «µAiÄ vdgÄ ªÄvÄ UÁ«ÄÃt ¤ÃgÄ ªÄvÄ £Ëª¸Äð®¸ ¸«ÄwAiÆA¢U UÁªÄ ¥AZÁAiÄwAiÄÄ ¸ªiÁ¯ÆÃZ£AiÄ£Ä¸ £q¸vPzÄ ªÄvÄ ¤zðguAiÄ£Ä¸ ¤AiÄvPÁ°PªÁV PËUÆ¼vPzÄ.

ii. MAzÄ ªÃ¼ C¹vz°gÄª J¥ïJ¸ïn¦AiÄ° ªiÁ£ª ªÄ® vÁd¦ª£Äß ªÄvÄ Evg gÆZÄU¼£Äß ¸A¸j¹ «¯ÃªÁj ªiÁqÄª¦zÄ PÁAiÄð¸Áz¦«®¢z¦°, UÁªÄ ¥AZÁAiÄwU¼ ¸ªÄÆ°¢Az ¥Á®ÄzÁjP ªiÁrPÆ¼§ºÄzÁzAv ªiÁ£ª ªÄ® vÁd¦ ªÄvÄ Evg gÆa£ ¸A¸gu ªÄvÄ «¯ÃªÁjUÁV J¥ïJ¸ïn¦AiÄ£Äß ¤ªiÁðt ªiÁq§ºÄzÄ, ¥gAvÄ UÁªÄ¥AZÁAiÄwAiÄÄ ¸Áz¦ªÁz ¸¼, CUv¦«gÄª ¸ÁªÄx¦ð, Evg ¸ºAiÆÃV UÁªÄ¥AZÁAiÄwU½Az Eg§ºÄzÁz zÆg PÄjvAv «ªgªÁz ¤tðAiÄª£Äß P£UÆAqÄ ªÄvÄ ¤ªiÁðt ªiÁq¨ÃPÁz ¸¼ª£Äß CAwªÄUÆ½¸Äª ¥Æªðz° ªÄvÄ J¥ïJ¸ïn¦AiÄ ¤¢ðµvU¼£Äß ¤tð¬Ä¸Äª ¥Æªðz° C¦U¼ ¥w¤¢U¼Ä, «µAiÄ vdgÄU¼ÆA¢U ¸ªiÁ¯ÆZÆAiÄ£Äß ªiÁqvPzÄ. ¹g ZÁ®£ ªÄvÄ ¤ªðºuAiÄ£Äß SÁw ¥r¸Äª ¤n£° «ªgªÁz DyðP AiÆÃd£U¼£Äß ¯P ªiÁqvPzÄ.

©. ¸ªÄÆº DzÁjv ¸A¸guÁ ¸Á¦ªgU¼£Äß vÁ®ÆPÄ ªÄlz ¤ªðºuÁ¢PÁjU¼Ä AiÆÃf¸vPzÄ ªÄvÄ ¸Ë®¨¦U¼£Äß P°¸vPzÄ.

i. MAzÄ ªÃ¼ ¸ªÄÆº ªÄlz° ªiÁ£ª ªÄ® vÁd¦ª£Äß ¸º-¸A¸guAiÄÄ ¸Áz¦ªÁU¢z¦°, UÁªÄ ¥AZÁAiÄwAiÄ ªÄlz° UÁªÄ ¥AZÁAiÄwAiÄÄ J¥ïJ¸ïn¦AiÄ£Äß ¸Á¦¸§ºÄzÄ.

ii. ¸A¸guAiÄ ¥jºÁgPÁV vAveÁ£z DAiÄAiÄÄ P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ¸g§gÁdÄ ªÄvÄ £¦ªÄð®¦ E¯ÁSAiÄ ªw¬ÄAz PÁ®PÁ®P ºÆgr¸¯Áz ªiÁUð¸ÆaU¼ DzÁgz ªÄÃ¯ EgvPzÄ.

¹. **C£ÄªÉÃzÀÉÀÄ** UÁªÄ ¥AZÁAiÄwAiÄÄ;

i. MAzÄ J¸ïn¦ CxªÁ J¥ïJ¸ïn¦AiÄ£Äß ¸Á¦¸®Ä ¥qAiÄ¨ÃPÁz C£ÄªÆÃz£AiÄ£Äß ¥qAiÄÄª ¸®ÄªÁV ¸°¸¨ÃPÁz «ªgU¼£Äß P¼PAq CA±U¼£Äß M¼UÆAqAv C¢¸Æa¸vPzÄ,

A. vÁAwP gÃSÁav/«£Á¸/ §¼P ªiÁq¯Áz vAveÁ£ ªÄvÄ ¸A¸gu, ªiÁ°£¦ ¤AiÄAvt PÁAiÄðvAv (±§ªiÁ°£¦z E½PAiÄÆ ¸ÃjzAv) ¸ÆÃAPÄ g»v vAveÁ£(C¯Á¦ª¯Ãmï /PÆÃj¤ÃPgt) ZgArU¼Ä CxªÁ £¦¸VðP d®ªÄÆ®U¼ ºjª¦

B. CAzÁdÄ «zÄZ¦Q §¼P ªÄvÄ CUv¦«gÄª d£gÃlgï£ ¸ÁªÄx¦ð

C. vÁAwP/ªiÁ£ª ¸A¥£Æ®z ¤ªðºu ªÄvÄ CUv¦«gÄª ¸®PguU¼Ä

D. J¸ïn¦ CxªÁ J¥ïJ¸ïn¦ vAveÁ£ª£Äß MzV¸Äªªjaz UÁªÄ ¥AZÁAiÄwAiÄÄ ¤U¢¥r¹gÄªAv ZÁ®£Á SÁw

r. P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ¸g§gÁdÄ ªÄvÄ £¦ªÄð®¦ E¯ÁSAiÄÄ CAvº J¸ïn¦/J¥ïJ¸ïn¦U¼ ¤ªiÁðt, ZÁ®£ ªÄvÄ ¤ªðºuAiÄ£Äß ¤AiÄAw¸Äª PÄjvAv PÁ®PÁ®P ºÆgr¹gÄªAvº ªiÁUð¸ÆaAiÄ DzÁgz ªÄÃ¯ J¸ïn¦/J¥ïJ¸ïn¦U¼£Äß ¸Á¦¸Äª ¸®ÄªÁV C£ÄªÆÃz£AiÄ£Äß ¤ÃqÄª¦zÄ.

E. J¥ïJ¸ïn¦/J¸ïn¦U¼ ¤ªiÁðt, ZÁ®£, ¤ªðºu, G¥PgtU¼Ä, ºÆgºj«£ ¸A¸guAiÄ UÄtªÄl ªÄvÄ ¥ªiÁt, ªg¢U¼ ªÄÃ°ZÁgu E¦U¼ ¤AiÄ«Äv v¥Á¸u, ªÄvÄ CAvº v¥Á¸uAiÄ£Äß P£UÆ¼®Ä UÁªÄ ¥AZÁAiÄwAiÄ ªw¬ÄAz £ÃªÄP ºÆA¢gÄª C¢PÁjAiÄÄ «q§Æö¸J¸ï¹AiÄ ¥w¤¢AiÆA¢U ªÄvÄ E¤¦vg ªg¢U¼ÆA¢U ¸Áªðd¤PjU ®¨¦ÁVgvPzÄ.

J¥ï. UÁªÄ ¥AZÁAiÄwAiÄ ¹§A¢U¼Ä CxªÁ UÁªÄ ¥AZÁAiÄwU½Az ¥Á¢ÃP¦vªÁz Ke¤AiÄ ªÄÆ®P J¥ïJ¸ïn¦/J¸ïn¦U½Az ¹¦¹©, PJ¸ï¦¹©U½Az ¤¢ðµ ¥r¹z CxªÁ gÁd¦ ¸PÁðg¢Az C¢¸Æa¸¯ÁVgÄª ºj«£ UÄtªÄlz ¥Á®£AiÄ£Äß SÁw ¥r¸Äª ¸®ÄªÁV ºÆgºjª¦U¼ ¤AiÄvPÁ°P ªÄÃ°ZÁgu.

f. d® (ªiÁ°£ ¤§ðAz ªÄvÄ ¤AiÄÄvt) C¢¤AiÄªÄ, 1974grAiÄ° ªÄvÄ E¤vg PÁAiÄU¼Ä ªÄvÄ «¤AiÄªÄU¼rAiÄ° EªU¼° AiiÁªzÄ C£AiÄªÇÃ CzgrAiÄ° C£ÄªÄwU¼£Ä ¤ÃqÄªzÄ.

JZï. J¯Á vÁd ¤ªÁðºPgÄU¼£Ä CªgÄU¼ ªwAiÄ ¸A§Azz ªwjP ¥juÁªÄU½Az ¸AgQ¸ÄªzÄ UÁªÄ ¥AZÁAiÄw CxªÁ Evg AiiÁªzÃ ¤¢ðµ ¥r¹z ¥Á¢PÁgz ºÆuUÁjPAiiÁVgvPzÄ.

L. ªiÁ£ª ªÄ® vÁd¢Az ¥qzAvº ¸A¥£Æ®U¼ §¼P

i. Cª½ UÄArU¼ ±ËZÁ®AiÄU¼£Ä ºÆA¢gÄª DªgtzªiÁ°ÄP£Ä W¤ÃPvªÁVgÄª gÆZ£Ä ªÄt£ ¸Ágª£Ä ºa¸Äª ¸Áz£ªÁV ªiÁgÁl ªiÁq§ºÄzÄ.

ii. J¥ïJ¸ïn¦ CxªÁ J¸ïn¦¬ÄAz e«P W£ª¸ÄU¼Ä CxªÁ PÁA¥ÆÃ¸ï£Ä UÁªÄ ¥AZÁAiÄwU¼Ä CxªÁ J¥ïJ¹n¦AiÄ£Ä ¤ªð»¸ÄwgÄª Ke¤AiÄÄ Czg UÄtªÄlª£Ä ¥j²Ã°¹z vgÄªÁAiÄ ªiÁgÁl ªiÁq§ºÄzÄ.

ii. ¸A¸j¸¯Áz ¤Ãg£Ä UÁªÄ ¥AZÁAiÄwAiiÁU°Ã CxªÁ J¥ïJ¸ïn¦/J¸ïn¦U¼ÁU°Ã P¶ CxªÁ vÆÃlUÁjPAiÄ GzÃ±U½UÁV PJ¸ï¦¹©¬ÄAz ¤¢ðµ ¥r¸¯Áz C£¬ÄP ¸A¸jv d® ºjª v¥Á¸uU¼£Ä ªiÁrz vgÄªÁAiÄ ªiÁgÁl ªiÁq§ºÄzÄ.

CzsÁAiÀIII

§ÆzÀ¤ÃgÀºÁUÀ ¸ÀAiÉÆfvÀvÁd¤ÃgÀ¤ªÀºÀÉ

8. §ÆzÀ¤Ãj£À«PÉÆ¢ÈÀ¤ªÀºÀÉªÀvÀ¸À¸ÀgÀÉ

J. §ÆzÄ ¤ÃgÄ P¥Ä¤Ãj£ AiiÁªzÃ CA±ª£Ä M¼UÆArgz ¸Az¨ðz°, CAvº §ÆzÄ ¤Ãg£Ä GvÁz£AiÄ ªÄÆ®P ¸Ázªáz ªÄnU ¤PlªwðAiÄA§Av ¸A¸j¸vPzÄ.

©. ¤¶AiÄ §ÆzÄ ¤ÃgÄ ¸A¸guÁ ª¸ª¸AiÄ£Ä »ÃgÄ ºÆAqU¼Ä CxªÁ ºÆg©qÄª PAzPU¼Æ M¼UÆAqAv ¤ªiÁðt ªiÁqÄªzÄ DªgtzªiÁ°ÄP£ Pvðª¸ÁVgvPzÄ ªÄvÄ P¸vÆÃlU½U ¸zj ¤Ãg£Ä ªÄgÄ§¼P ªiÁqvPzÄ.

¹. MAzÄ ªÃ¼ ªiÁ°ÃP£Ä ¤¶AiÄ ¸A¸guÁ ª¸ª¸AiÄ£Ä ¤ªiÁðt ªiÁq®Ä ºtPÁ¹£ CxªÁ ¸¼Á¨Áªz PÁgt¢Az ¸Áz¸ªÁU¢z°, »ÃgÄ ºÆAqU¼Ä, ¤«ÄðvºÆ¨Æ«Ä, CxªÁ vÁd W¤ÃPgt vÆnU¼Ä ºÁUÆ ªÄÄZ¯Áz ¸ÆP ªÄÃ¯ö¸ ZgArU¼£Ä CAvº ¸A¸guÁ ª¸ª¸U½U CwÃ ¸«ÄÃ¥«gÄª GvÁzPjU ¸Ãj¹ ¤ªiÁðt ªiÁqÄª ºÆuUÁjPAiÄ£Ä UÁªÄ ¥AZÁAiÄw ºÆA¢gvPzÄ.

r. ¸A¸guÁ ª¸ª¸AiÄ£Ä PÃAz ¸Áªðd¤P DgÆÃU¸ ªÄvÄ ¥j¸g EAf¤AiÄjAU ¸A¸AiÄÄ (¹¦JZïEEM) ºÆgr¹gÄª ªiÁUð¸Æa ªiÁ£ª ªÄ® vÁd ¤ÃgÄ ªÄvÄ M¼ZgAr ¸A¸guAiÄ P¦r CxªÁ P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £¸ªÄð®¸ E¯ÁSAiÄÄ PÁ®PÁ®P ºÆgr¹gÄª ªiÁUð¸ÆaAiÄ£AiÄ ¤ªiÁðt ªiÁqvPzÄ ªÄvÄ ¤ªð»¸vPzÄ.

9. PÉÆ¢ÈÀ¸À¸ÀgÀÉÁ ª¸ÀÀÉ

J. MAzÄ ªÃ¼ ªÄÃ¯ ¤¢ðµ ¥r¹zAv ¤¶AiÄ «PÄA¢P¸v §ÆzÄ ¤ÃgÄ ¸A¸guÁ ª¸ª¸U¼£Ä d£¸ASÁ¸ ¸ÁAzv ªÄvÄ ¸¼Á¨Áª¢Az ¤ªiÁðt ªiÁq®Ä ¸Áz¸ªÁU¢z°, UÁªÄ ¥AZÁAiÄwAiÄÄ P¥Ä ¤ÃgÄ ªÄvÄ §ÆzÄ ¤Ãg£Ä ¸A¸gu ªiÁqÄª ¸®ÄªÁV MAzÄ ¸AAiÆÃfv ¸A¸guÁ ¸Áªgª£Ä ¸Á¦¸§ºÄzÄ.

©. CAvº ¸A¸guÁ ¸Á ªgU½U C¼ªr¸¯ÁUÄª vAveÁ£ª¦ P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £¦ªÄð®¦ E¯ÁSAiÄÄ PÁ®PÁ®P¦ ºÆgr¹gÄª ªiÁUð¸ÆaU¼ DzÁjvªÁVgvP¦zÄ.

¹. ¸AAiÆÃfv ¸A¸guÁ ¸¼ª¦ KP¦P UÁªÄ ¥AZÁAiÄwAiiÁU°Ã CxªÁ Cv¦Av ¸«ÄÃ¥«gÄª UÁªÄ ¥AZÁAiÄwU¼ ¸ªÄÆº¢AzÁU°Ã ¸Á¦¸®q§ºÄzÃ.

r. zª vÁd¦ª£Ä ¸AAiÆÃfv ¸A¸guÁ ¸ÁªgP¦ C¹vz°gÄª ZgArU¼Ä CxªÁ F GzÃ±PÁVAiÄÃ UÁªÄ ¥AZÁAiÄwU½Az ¤ªiÁðtªÁUÄªAvº ZgArU¼ ªÄÆ®P ºjAiÄ©qvP¦zÄ. ¥gAvÄ UÁªÄ ¥AZÁAiÄwU¼Ä GvÁzPg DªgtU½U DzµÄ ¤PlªÁV ZgAr PÆ¼ªU¼£Ä C¼ªr¸vP¦zÄ.

10. ZgÀArU¼ÀUÉ¸À¥PÀÀ

J. J¯Á GvÁzPgÄU¼Æ ¸º vªÄ P¥Ä ¤ÃgÄ ªÄvÄ §ÆzÄ ¤ÃgÄ ºÆg ºjª£Ä ¸AAiÆÃf¸vP¦zÄ ªÄvÄ Cª¦U¼£Ä F G¥-«¢U¼£AiÄ ªÄvÄ ¸Pª¦ ¥Á¢PÁgU½Az ºÆgr¸¯Áz Evg «¤AiÄªÄU¼£AiÄ ZgArU ¸A¥Pðª£Ä P°¸vP¦zÄ.

©. J¯Á GvÁzPgÄU¼Ä ¸º ZgArU½U AiiÁª¦zÃ ¸A¥Pðª£Ä P°¸Äª ¥Æªðz° UÁªÄ ¥AZÁAiÄwAiÄ C£ÄªÆÃz£AiÄ£Ä ¥qAiÄvP¦zÄ.

¹. J¯Á ¸A¥PðU¼Æ ¸º P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £¦ªÄð®¦ E¯ÁSUAiÄÄ ªÁ¸, ª¸ÄU¼Ä, D¼, ºjª¦ ªÄvÄ ºÆg ºj«£ ¢PÄU¼ PÄjvAv ºÆgr¹gÄª C£AiÄªÁUÄª ªiÁUð¸ÆaU¼£Ä ¥Á®£ ªiÁqvP¦zÄ ªÄvÄ Cª¦U¼ PÁªÄUÁjU¼£Ä vg¨Ãw ¥qz ªÄÃ¹U½Az¯Ã ªiÁr¸vP¦zÄ.

r. ZgArAiÄ ªiÁUðª¦ ¤Ãj¤Az ZgArU AiÄÄPªÁz E½eÁg£Ä ºÆA¢gvP¦zÄ ªÄvÄ ¸ÆP ¸ASÁAiÄ D¼ÄUÄArU¼£Ä (Manhole) ZgAr ªiÁUðz ¤ªðºuUÁV MzV¹gvP¦zÄ.

E. UÁªÄ ¥AZÁAiÄwAiÄÄ v£Ä ªÁ¸¦AiÄ° ¸Áz¦ªÁz ªÄnU, J¯Á PlqU½U/zª vÁd¦ GvÁzPgÄU¼ DªgtU½U ¸«ÄÃ¥z° ¸Áªðd¤P ZgAr ªiÁUðª£Ä MzV¸vP¦zÄ.

J¥ï. UÁªÄ ¥AZÁAiÄwAiÄ ¤AiÄAvtz° zª vÁd¦ª£Ä ¹ÃPj¸®Ä ªÄvÄ ¤ªð»¸®Ä CªPÁ±ª£Ä P°¸®Ä ¸Áz¦ªÁz ªÄnU ¥Ætðª ÁV CxªÁ ¨ÁU±B ¹ÃP¦vU¼Ä, C¼ªrPU¼Ä, PÆ¼ªU¼Ä ªÄvÄ Evg G¥PgtU¼£Ä SÁ¸V DªgtU¼° §¼P ªiÁqvP¦zÄ.

f. UÁªÄ ¥AZÁAiÄwU¼Ä C¢¤AiÄªÄz **¥ÀgÀ-100gÀAiÀÄ** w½¹gÄªAv, AiiÁª¦zÃ ZgAr ª¦ª¸¦AiÄ£Ä g¸U¼ ªiÁUðz° CxªÁ CzgrAiÄ° PÆAqÆAiÄ®Ä ªiÁ°ÃP¤UÁU° CxªÁ Dªgtz ¸Á¢Ã£ ºÆA¢gÄªAvº ª¦QUÁU° °Tv gÆ¥z° ¸ÆP £ÆÃnÃ¸ï eÁj ªiÁrz £Avg UÁªÄ ¥AZÁAiÄwAiÄ ªÁ¸¦AiÄ° £¦ªÄð®¦ AiÆÃd£Á DzÁgz ªÄÃ¯ ¤zÃð±£U¼£Ä ¤ÃqvP¦zÄ.

JZï. "UÁªÄ ¥AZÁAiÄwAiÄÄ AiiÁª¦zÃ zÆÃµ¥Ætð" ZgArU¼£Ä zª vÁd¦ª£Ä ¤ªð»¸®Ä C£ÄªÁUÄªAv F G¥«¢U¼ G¥§AzU¼rAiÄ° ¸j¥r¸®Ä CUv¦ PªÄU¼£Ä ª»¸vP¦zÄ.

L. UÁªÄ ¥AZÁAiÄw ªÁ¸¦AiÄ° ªÄ¼UÁ®z° ¥ªÁº GAmÁUÄª¦z£Ä vqUlÄª GzÃ±U½Az PlqU¼ ªÄlª¦ ZgArU½VAv ªÄvÄ ZgAr ª¦ª¸U½VAv P¼ªÄlz°gvP¦z®.

e. UÁªÄ ¥AZÁAiÄwAiÄÄ GvÁzPjU ºÆg ºjª¦ ªiÁUðª£Ä ZgAr ªiÁUðP¦ ¸A¥Pð P°¸Äª ¸®ÄªÁV MAzÄ ¨Áj ±Ä®ª£Ä ª¸Æ° ªiÁqvP¦zÄ.

11. ªÀÄ£ÉÃ¯ïU¼À(Manhole) ¸ÀzÀÉ¸À§A¢üzÀvÉG¥ÀAzÀÀ

J. UÁªÄ ¥AZÁAiÄwAiÄÄ ªiÁ£ª ªÄz¦¥ªÃ± CUv¦«gz ºÆgvÄ ªiÁ£ÆÃ¯ïU¼ ¸ZvUÁV AiiÁAwÃP¦v ¸ZvAiÄ£Ä ªiÁv C¼ªr¹PÆ¼Ä¦z£Ä SÁw ¥r¸vP¦zÄ.

©. UÁªÄ ¥AZÁAiÄwAiÄÄ PqÁAiÄªÁV ªiÁ£ÆÃ¯ï¼ÀZÀvÁ ¹§A¢U ¸ªÄª¸À, PÈPªZU¼Ä, g£ïPÆÃlÄU¼Ä, ¸ÆP §ÆlÄU¼Ä, v¯ PªZ, P£ÀqPU¼Ä, ªÄvÄ ªÄÄRªÁqU¼Avº Cª±ÀP ¸ÄgPvÁ ¸®PguU¼£Ä ¸ZÀvÁ PÁAiÄð¤ªð»¸®Ä «vgu ªiÁqvPÀzÄ.

¹. ªiÁ£ÆÃ¯ï¼ M¼U ¹§A¢U¼£Ä E½¸Äª ¥Æªðz° UÁªÄ ¥AZÁAiÄwAiÄÄ «µPÁj C¤®U¼Ä ªÄvÄ CV® CªWq ¸A¨«¸Äª PÄjvAv v¥Á¸uAiÄ£Ä PÈUÆ¼vPÀzÄ.

r. UÁªÄ ¥AZÁAiÄwAiÄÄ J¯Á ªiÁ£ÆÃ¯ï PÁ«ÄðPgÄ UÁªÄ ¥AZÁAiÄw CxªÁ Ke¤AiÄ ªw¬ÄAz DAiÆÃf¸¯ÁUÄª ¸ÄgPv ªÄvÄ DgÆÃU¼ vg¨Ãw PÁAiÄðPªÄP PqÁAiÄªÁV ºÁdgÁUÄª¼z£Ä SÁw ¥r¸vPÀzÄ.

E. J¯Á ªiÁ£ÆÃ¯ï PÁ«ÄðPgÄU¼Ä UÁªÄ ¥AZÁAiÄw CxªÁ UÁªÄ ¥AZÁAiÄw¬ÄAz ªiÁ£ÆÃ¯ï¼ ±ÄaÃPgtPÁV ¥Á¢ÃPj¸¯Áz Ke¤¬ÄAz ¤AiÄvPÁ°P ªÉzÀQÃAiÄ ¥jÃPU M¼¥qÄª¼z£Ä Rav ¥r¸vPÀzÄ.

J¥ï.UÁªÄ ¥AZÁAiÄwAiiÁU°Ä CxªÁ ªiÁ£ÆÃ¯ï¼ ±ÄaÃPgtPÁV CzjAz ¥Á¢ÃPj¸¯Áz Ke¤AiÄÄ J¯Á PÁ«ÄðPjU J® jÃwAiÄ ¸ÄgQv G¥PgtU¼Ä ªÄvÄ PÁ«ÄðPjU GAmÁUÄª AiiÁª¼zÃ UÁAiÄ CxªÁ £µª£Ä vÄA©PÆqÄª¼zP §zªÁVgvPÀzÄ.

f. ªiÁ£ÆÃ¯ï¼À±ÄavªÉÄ ª¸w ªÄvÄ £Ug ª¼ªºÁgU¼ ªÄAvÁ®AiÄ¢Az £ªA§gï, 2018g° ºÆgr¹z ZgArU¼Ä ªÄvÄ gÆZÄ vÆnU¼ ¸ZÀvAiÄ UÄtªÄlz ZÁ®£Á «¢«zÁ£z° £ªÄÆ¢¹gÄªAvº ¸ÄgPvÁ JZjPÁ PªÄU½U ¹g¥qÄªAv PÈUÆ¼vPÀzÄ.

12. EvÀÀvÁ¼eÉÃvÁzÀÀÀ

J. PÈUÁjPÁ WlPU¼Ä, ¥Áx«ÄP DgÆÃU¼ PÃAz, P¸Á¬ÄSÁ£U¼Ä, ªÄvÄ ªiÁA¸ ªiÁgÄPmU¼Ä vªÄ ¸Av ªZz° ¥j¸g ¸AgPuÁ C¢¤AiÄªÄ, 1986g° CxªÁ ¹¦¹© CxªÁ PJ¸ï¦¹©¬ÄAz ¤¢ðµ ¥r¸¯Áz UÄtªÄlP£ÄUÄtªÁV ¸A¸guÁ PªÄU¼£Ä ¸Á¦¸vPÀzÄ, ZÁ®£ ªiÁqvPÀzÄ ªÄvÄ ¤ªð»¸vPÀzÄ.

CzÁAiÀ– IV

d®/ªÉÁtÄ ªÀvÀÀDºÁgÀÀªÀÆ®PÀºÀgÀqÀ¥ÁgÉÃUÀÀÀ¤§ðAzÀ

13. d®/ªÉÁtÄ GvÀÀAiÀ¤§ðAzÀ

J. UÁªÄ ¥AZÁAiÄwAiÄÄ, PÁ®PÁ®P, d¯ÁzÁjv, ªÉgÁtÄ DzÁjv ªÄvÄ DºÁg DzÁjv gÆÃUU¼£Ä ¤§ðA¢¸Äª GzÀ±ÀPÁV ¤zÃð±£U¼£Ä ºÆgr¸§ºÄzÄ, ªÄvÄ Ezg° d® ¸AUº/vÆnU¼Ä, ZgArU¼ ¤ªiÁðt, ¤ªðºuU¼ ¤¢ðµvU ¸A§A¢¹z CxªÁ Evg AiiÁª¼zÃ vvA§Az «µAiÄU¼£Ä M¼UÆArg§ºÄzÄ.

©. F ¤zÃð±£U¼£Ä UÁªÄ ¥AZÁAiÄwAiÄ ª¦AiÄ ¸ÁªiÁ£¦ d£gÄ CxªÁ ¤¢ðµ GvÁzPjU ¸A§A¢¹zAv ºÆgr¸§ºÄzÄ.

¹. J¯Á GvÁzPgÆ vªÄ DªgtU¼° (Czg°£ AiiÁª¼zÃ PÈvP d®ªÄÆ®U¼Æ M¼UÆAqAv) ªÉgÁtÄU¼ GvwAiÄ£Ä vqUl®Ä d® ¸AUºu, vÁd¦ª£Ä gÁ² ºÁPÄª¼zÄ, UÆÃqU¼°£ ©gÄPÄU¼£Ä vqUlÄª¼z®z ¤AiÄ«ÄvªÁV ¸ZÀUÆ½¸Ä«P, ¤ªðºu ªÄvÄ QÃl £Á±PU¼ §¼P PªÄU¼£Ä vUzÄPÆ¼vPÀzÄ.

r. UÁªÄ ¥AZÁAiÄwAiÄÄ v£Ä ª¦AiÄ° DgÆÃU¼P ºÁ¤PÁgPªÁz CxªÁ £gAiÄªjU vÆAzgAiÄ£ÄAlÄ ªiÁqÄª AiiÁª¼zÃ d®ªÄÆ®, ZgAr, M¼ZgAr EvÁ¢U¼£Ä ¨wð ªiÁq®Ä, ¸ZÀUÆ½¸®Ä ¤zÃð±£U¼£Ä ºÆgr¸§ºÄzÄ.

E. F «¢Aiä GzÃ±U½UÁV, 'ªÉgÁtä DzÁjv gÆÃUU¼Ä' JAzg, ¸ÆÃAPÄ EgÄª ªÀQ¬ÄAz ªÄvÆ§ ªÀQU AiiÁªÀzÃ £ggÆ¦ CxªÁ Evg ªÄÆ®U½Az ªÄvÄ P®ªÀ ¸Az¨ðU¼° ªÄzªÀwð CwxÃAiÄ£ gÆ¥z°gÄª gÆÃUÁtÄU¼Ä ¥¸j¸Äª ªÄÆ®P Gz«¸ÄªAvº gÆÃUU¼Ä.

14. ¤¢ðµÀGvÁzÀPÀjÀAzÀªÉgÁtÄ«£ÀGvÀÀAiÀÄ¤§ðAzÀ

J. F P¼U ¤¢ðµ ¥r¹gÄª DªgtU¼ ¸Á¢Ã£ ºÆA¢gÄªAvº GvÁzPgÄ P¼PAq ºZÄªj CUvÀU¼£Ä ¥Ægɸ¸vPÀzÄ.

©. ºÉ£ÄUÁjP ªÄvÄ z£z PÆnU

i. GvÁzP£Ä z£z PÆnUAiÄ£Ä ¤AiÄ«ÄvªÁV ¸ÀZÀUÆ½¸vPÀzÄ ªÄvÄ ªÉgÁtÄU¼£Ä ¤§ðA¢¸Äª ¸®ÄªÁV QÃl £Á±PU¼£Ä ¹A¥r¸vPÀzÄ.

ii. eÁ£ÄªÁgÄU½U PÄrAiÄÄª ¤Ãg£Ä vg¢qÄªÀzÁU°Ã CxªÁ ¸ÀVvUÆ½¸vPÀzÁU°Ã ªÀiÁq¨ÁgzA§ CA±ª£Ä GvÁzP£Ä SÁw ¥r¸vPÀzÄ

¹. P¸Á¬ÄSÁ£U¼Ä ªÄvÄ ªÀiÁA¸z ªÀiÁgÄPm

i. GvÁzPgÄU¼Ä P¸Á¬ÄSÁ£U ¸ÆP UÁ½ ¨¼Q£ ªÀª¸ÀAiÄ£Ä P°¸ÄªÀzÄ ªÄvÄ Czg ªÄÃ¯ÖÉ ¸ÆÃAPÄ ¤ªÁguU zÄUðAz £Á±P zªÀU¼Ä ºÁUÄ «µ g»v ¸ÆÃAPÄ ¤ªÁgPU¼£Ä §¼¸vPÀzÄ.

r. ¤ªÀiÁðt ¸À¼U¼Ä

i. ªÀiÁ°ÃP£ÁU°Ã CxªÁ Dv£ ¥gªÁV Plq ¤ªÀiÁðt PÁªÄUÁjAiÄ£Ä £q¸ÄwgÄª Evg AiiÁªÀzÃ ªÀQAiiÁU°Ã Plq ¤ªÀiÁðt PÁªÄUÁjAiÄ° vÆqVgÄª J¯Á PÁ«ÄðPjUÆ ¤ªÀiÁðt ¸À¼z° ªÄvÄ ¸«ÄÃ¥z° PÁ«ÄðPg ¸®ÄªÁV vÁvÁ°P ªÁ¸ ¸À¼U¼£Ä ¤ªÀiÁðt ªÀiÁrzÀ°, ¸ÀZÀ PÄrAiÄÄª ¤ÃgÄ ªÄvÄ ¸ÀZÀ ±ËZÁ®AiÄU¼£Ä MzV¸vPÀzÄ.

ii. ªÀiÁ°ÃP£ÁU°Ã CxªÁ Dv£ ¥gªÁV Plq ¤ªÀiÁðt PÁªÄUÁjAiÄ£Ä £q¸ÄwgÄª Evg AiiÁªÀzÃ ªÀQAiiÁU°Ã ¤ªÀiÁðt ¸À¼z° ªÄvÄ ¸«ÄÃ¥z° PÁ«ÄðPg ¸®ÄªÁV vÁvÁ°P ªÁ¸ ¸À¼U¼£Ä ¤ªÀiÁðt ªÀiÁrzÀ°, Czg ¸Äv°£ ¥zÃ±z £ªÄð® ªÄvÄ ¸ÀZÀvAiÄ£Ä SÁw ¥r¸vPÀzÄ.

CzsÁgÀAiÀÄv

UÁæªÀ¥ÀZÁAiÀÄwAiÀÄ£À«zsÀ¨sÁUÀzÁgÀgÀUÀ¼ÀÄC¢B¤gÀªÀÅPÀÈ¶ªÀÅ¼ÀÄ

15. F G¥«¢U¼£AiÄ UÁªÄ ¥AZÁAiÄwAiÄÄ ¥ªÄÄRªÁV zª vÁ¬dzÀ ¸AUºu, ¸ÁUÁtP, ¸A¸gu ªÄvÄ «¯ÃªÁjAiÄ ºÆuUÁjPAiÄ£Ä ºÆA¢gvPÀzÄ.

16. **AiÉÄd£É¬ÀÅ¤ªÀºÀÉ**– C¢¤AiÄªÄzrAiÄ° ga¸¯Áz **UÁæªÀ¥ÀZÁAiÀÄwAiÀÄ** UÁ«ÄÃt ¤ÃgÄ ªÄvÄ £ªÄð® ¸«ÄwAiiÁU°Ã CxªÁ UÁ«ÄÃt DgÆÃU¬, £ªÄð® ªÄvÄ ¥Ë¶P DºÁg ¸«ÄwAiiÁU°Ã CxªÁ C¬U¼ C£Ä¥¹wAiÄ°, UÁªÄ ¥AZÁAiÄwAiiÁU°Ã zª vÁ¬d ¤ªðºuU ¸A§A¢¹zAv P¼PAq Pvð¬U¼ dªÁ¨Á¬jAiÄ£Ä ºÆA¢gvPÀzÄ.

J. UÁªÄ ¥AZÁAiÄwAiÄ ª¬Á¦Aii° zª vÁ¬d ¤ªðºuÁ ª¬ª¸ÀU¼£Ä ¸Á¦¸Äª GzÃ±PÁV ¨Æ«ÄAiÄ£Ä UÄgÄw¸Äª¸ÀzÄ ªÄvÄ ºAaP ªÀiÁqvPÀzÄ.

©. UÁªÄ ¥AZÁAiÄw C©ª¢ AiÆÃd£AiÄ ¨ÁUªÁV £ªÄð® AiÆÃd£, «¸øv AiÆÃd£Á ªg¢, £ªÄð® ªÄvÄ vÁ¬d ¤ªðºuÁ ª¬ª¸ÀU½UÁV UÁªÄ ¥AZÁAiÄwAiÄÄ MmÁg DAiÄª¬AiÄz° ±Ã 25gµQAv PrªÄ EgzAv ªÁ¶ðP DAiÄª¬AiÄz vAiiÁjP ªÄvÄ Evg AiÆÃd£U¼£Ä UÁªÄ ¸¨Aiä° C£ÄªÆÃz£ ¥qAiÄª¬zÄ.

1. ªÁ¸z ªÄ£AiÄ° zÆÃµ¥Æjv gmÆ¦mï ±ËZÁ®AiÄU½U C£AiÄªÁUÄª ªiÁUð¸ÆaU¼ ¥PÁg GvÁzPjU ¥ÆÃvÁºPU¼£Ä¤ ¤ÃqÄªÀzÄ.

r. F G¥«¢U¼£AiÄ ZgAr ª¡ª¸¡, ±ËZÁ®AiÄ, ªÄÆvÁ®AiÄPÁV ¸¡¼ª£Ä¤ vªÄ DªgtzÀ ¥Ægè¸¢z¡°, UÁªÄ ¥AZÁAiÄwU½U ¸°¸¯Áz CAvº PlqU¼ £PU C£ÄªÆÃz£AiÄ£Ä¤ ¤ÃqvPÀz®ªA§ CA±ª£Ä¤ Rav ¥r¸vPÀzÄ.

E. UÁªÄ ¥AZÁAiÄwU¼° zª vÁ¡d¡ ¤ªðºu ªÄwvg ºÆuUÁjPAiÄ Pvðª¡U½U CUv¡«gÄª C£ÄzÁ£ª£Ä¤ ¥ÆgèP ªiÁrz £AvgªÃ «ªÃZ£Á Pvðª¡U½U C£ÄzÁ£ª£Ä¤ ©qÄUq ª¡iÁqÄª¡z£Ä¤ SÁw ¥r¸vPÀzÄ.

J¥ï. F G¥«¢U¼ **C£ÀÅÀa-II**g£AiÄ zª vÁ¡d¡ ¤ªðºuÁ GvÁzPjU «¢¸¯ÁUÄª zgª£Ä¤ zª vÁ¡d¡ ¤ªðºuÁ ª¡ª¸¡U¼ ZÁ®£Á ªZU½UÁV §¼P ªiÁq§ºÄzÄ.

f. è¡«P ¸Á¤lj ¥Á¡qÄU¼Ä ªÄvÄ ªiÁ¹P lÄvÄZP P¥ÄU¼£Æ¤ M¼UÆAqAv P¡UlPÄª ªÄvÄ ¸Ä¹g £¡ªÄð®¡ Gv£¡U¼ §¼P PÄjvAv ºa£ Cjª£Ä¤ ªÄÆr¸vPÀzÄ.

JZï. ¸ÄgQv zª vÁ¡d¡ ¸A¸guÁ ¸Á¹gU¼ ¤ªiÁðt ªÄvÄ ZÁ®£UÁV PÁªÄUÁjU¼Ä ªÄvÄ ªZU½U C£ÄªÆÃz£AiÄ£Ä¤ ¤ÃqvPÀzÄ.

L. F G¥«¢U¼ **C£ÀÅÀa-II**g£AiÄ ¸AU»¹zAvº §¼PzÁgg ±Ä®ª£Ä¤ ZgArU¼ ¤AiÄvPÁ°P ¸Zv ªÄvÄ ¸A¸guÁ ª¡ª¸¡U¼ ¸ÆP ¤ªðºuAiÄ GzÀ±U½UÁV §¼¸§ºÄzÄ.

e. £¡ªÄð®¡ AiÆÃd£U¼ ¥juÁªÄz ªÄÃ°ZÁgu £q¸Äª ¸®ÄªÁV ¸½ÃAiÄ DgÆÃU¡ ªÄvÄ ¥j¸gÁvP ¥j¹wU¼ ¤AiÄ«Äv ªiË®¡ªiÁ¥£ª£Ä¤ £q¸vPÀzÄ.

P. DgÄ wAU½UÆªÄ zª vÁ¡d¡ ¤ªðºuÁ PÁAiÄð ZlÄªnPU½UÁV ¨j¹z ªZU¼ ªÁ¶ðP DAiÄª¡AiÄz ¸«ÄÃP £q¸Ä¤ÀzÄ.

J¯ï.UÁªÄ ¥AZÁAiÄwAiÄ° zª vÁ¡d¡ ¤ªðºuÁ PÁAiÄðZlÄªnPU¼ C£ÄµÁ£ ªÄvÄ ¤ªðºuU ¸A§A¢¹zAv ¥UwAiÄ vè¡ªiÁ¹P ªÄvÄ ªÁ¶ðP ªg¢AiÄ£Ä¤ ¹zÀ ¥r¸vPÀzÄ.

JA. gÁd¡ ¸PÁðg¢Az ºÆgr¸¯ÁVgÄª ªiÁUð¸ÆaAiÄ£AiÄ ¨ÁVÃzgÁgÄU¼Ä, ¥¯Á£Ä¨«U¼Ä ¸APµz°gÄª ¸ªÄzÁAiÄU¼Ä ªÄwvg UÁªÄ ¥AZÁAiÄw ¸z¸gÆA¢U ¸ªiÁ¯ÆÃZ£AiÄ£Ä¤ £q¹ UÁªÄ ¥AZÁAiÄwAiÄ° C©ª¡¢À ¥r¸¯Áz £¡ªÄð®¡ AiÆÃd£AiÄ ¸ÁªiÁfP ¯P ¥j±ÆÃz£AiÄ£Ä¤ DAiÆÃf¸vPÀzÄ.

J£ï. C£AiÄªÁUÄª PÁAiÄAiÄrAiÄ° ¤zÃð²¸§ºÄzÁz E¤¡vg AiiÁª¡zÃ ¥Áv ªÄvÄ/CxªÁ ºÆuUÁjPU¼Ä.

M. UÁªÄ ¥AZÁAiÄw ªÄvÄ Czg ¸«ÄwU¼ ª¡ªºÁg ¤ªðºuAiÄÄ C¢¤AiÄªÄzrAiÄ° G¥§A¢¹gÄª «¢«zÁ£U¼£AiÄ UÁªÄ ¥AZÁAiÄw CxªÁ Czg ¸«ÄwU¼ ¸¨Ai Ä° £qAiÄvPÀzÄ.

¦. ¥gAvÄ, UÁªÄ ¥AZÁAiÄwU¼Ä ªÄvÄ/CxªÁ Czg ¸«ÄwU¼Ä F G¥«¢U¼ GzÀ±U½UÁV P¤µ ¥P ªµðz ¥w ªÄÆgÄ wAU½UÆªÄ ¸¨ £q¸vPÀzÄ.

17 ¥ÀZÁAiÀw C©ÀèÀ¢ C¢PÁj ¥AZÁAiÄw C©ª¡¢À C¢PÁjAiÄÄ P¼PAq Pvðª¡U¼Ä ªÄvÄ zª vÁ¡d¡ ¤ªðºuU ¸A§A¢¹zAv P¼PAq ºÆuUÁjPU dªÁ¨Ág£ÁVgvPÀzÄ.

J. UÁªÄ ¥AZÁAiÄwAiÄÄ C©ª¡¢À AiÆÃd£AiÄ ¨ÁUªÁV, £¡ªÄð®¡ AiÆÃd£, «ªgªÁz AiÆÃd£Á ªg¢, £¡ªÄð®¡ ªÄvÄ vÁ¡d¡ ¤ªðºuÁ ª¡ª¸¡U½UÁV DAiÄª¡AiÄ vAiiÁjP ªÄvÄ §¼PzÁgg ±Ä®U¼ ¯P ªÄvÄ CAwªÄUÆ½¸Äª ¤n£°, UÁªÄ ¥AZÁAiÄw ªÄvÄ UÁ«ÄÃt ¤ÃgÄ ªÄvÄ £¡ªÄð®¡ ¸«Äw CxªÁ UÁ«ÄÃt DgÆÃU¡, £¡ªÄð®¡ ¥Ë¶PÁA± DºÁg ¸«ÄwU½U ¸ºÁAiÄªÄ£Ä¤ MzV¸vPÀzÄ.

©. vÁd¦ ¤ªðºuU ¸A§A¢¹zAv UÁªÄ ¥AZÁAiÄwAiÄ ¸z¸¡jU ««z vAveÁ£U¼Ä ªÄvÄ AiÆÃd£U¼ PÀjvAv ªiÁ»wAiÄ£ß MzV¸vPÀzÄ.

¹. vÁd¦ d® ¸A¸guÁ ¸Á¨gU¼Ä, ªÄÃ¯ö¨ ªÁ¡v ZgArU¼Ä, C£AiÄªÁUÄª M¼ZgAr ªiÁUðU¼ ¸A§Az C£ÄµÁ£, ZÁ®£ ªÄvÄ ¤ªðºu PÀjvÁz ªÄÃ°ZÁguAiÄ£ß £q¸vPÀzÄ.

r. UÁªÄ ¥AZÁAiÄwU½U AiÄÄP gÆZÄ vgªÀUÆ½¸Äª ªÁº£U¼£ß ªÄvÄ «PÃA¢ÃPÀv ¸A¸guÁ ª¸ª¸AiÄ£ß ¥qAiÄÄª ¤n£° ¸ºPÁgª£ß ¤ÃqvPÀzÄ.

E. ª Ä»¼AiÄgÄ ªÄvÄ º¢ªAi¸g ¨Á®QAiÄg£ß UªÄ£z°lÄPÆAqÄ ¹g £¦ªÄð®¦ Gv£ÀU¼ §¼PAiÄ §Uì ¸ÆP w¼Äª½PAiÄ£Æß M¼UÆAqAv ªÄ»¼AiÄg lÄvÄZP ¸ZÀvÁ ¤ªðºuAiÄ£ß P¦ UÆ¼vPÀzÄ.

J¥ï. J¥ïJ¸ïn¦U ¸A§A¢¹zAv C£AiÄªÁUÄªqAiÄ° ¯P¥vU¼Ä,¸A¥£Æ®U¼Ä,D¹U¼Ä ªÄvÄ ª¸ª¸U¼Æ M¼UÆAqAv z¦£A¢£ ºtPÁ¸Ä ¤ªðºu ªÄvÄ zÁR¯U¼ ¤ªðºuAiÄ° ¸ºÁAiÄª£ß MzV¸vPÀzÄ.

f. vÁd¦ ¤ªðºuÁ ª¸ª¸AiÄ ¹w ªÄvÄ ¥UwU ¸ÁP¦ªÁUÄªAvº ªg¢U¼Ä, £ªÄÆ£U¼Ä ªÄwvg z¸ÁªÃdÄU¼ ¹z¹ ¥r¸Ä«PAiÄ° UÁªÄ ¥AZÁAiÄw ªÄvÄ £¦ªÄð®¦ ¸«Äw CxªÁ UÁ«ÄÃt DgÆÃU¦, £¦ªÄð®¦ ªÄvÄ ¥Ë¶PÁA± DºÁgU¼ ¸«ÄwU ¸ºÁAiÄª£ß MzV¸vPÀzÄ..

L. C£AiÄªÁUÄª PÁAiÄU¼rAiÄ° UÁªÄ ¥AZÁAiÄwU¼Ä, f¯Á ªÄvÄ gÁd¦ ¥Á¢PÁgU¼Ä ¤zÃð±£ ¤Ãq§ºÄzÁz Evg AiiÁª¦zÃ ¥Áv ªÄvÄ/CxªÁ ºÆuUÁjPAiÄ ¤ªðºu.

18. ¸ÀÄðgÉvÀªÀvÀ¸ÀÃzÁAiÀ-DzÁjvÀ¸AWÀ£ÉÀÄ UÁªÄ ¥AZÁAiÄwAiÄÄ vÁd¦ ¤ÃgÄ ¤ªðºuU ¸A§A¢¹zAv ¸PÁðgÃvg ªÄvÄ/CxªÁ ¸ªÄÄzÁAiÄ-DzÁjv ¸AWl£U½U ªÄvÄ ¸¸ºÁAiÄ ¸ªÄÆºU½U P¼PAq ¥ÁvU¼£ß ª»¸§ºÄzÄ.

J. ErÃ ¸ªÄÄzÁAiÄª£ÃÃ M¼UÆ¼ÄªÄ ««z w¼Äª½P ªÄÆr¸Äª, ªiÁ»w ±¦PtP ªÄvÄ £qª½PAiÄ°£ §z¯ÁªuAiÄ PÁAiÄðZlÄªnPU¼ AiÆÃd£, ¥¸gu ªÄvÄ C£ÄµÁ£z° UÁªÄ ¥AZÁAiÄwU ¨A§®ª£ß MzV¸vPÀzÄ.

©. UÁªÄ ¥AZÁAiÄw ¹§A¢ªUð, £¦ªÄð®¦ ¥ÃgPgÄ, Ke¤U¼Ä ªÄvÄ vÁd¦ ¤ªðºuAiÄ° M¼UÆ¼ÄªÄvº E¤¦vg ª¦QU½U vg¨Ãw ªÄvÄ ¸ÁªÄðxÁ©ª¦¢AiÄ° ¥Á¯Æ¼Ä«P.

¹. £¦ªÄð®¦ AiÆÃd£ ªÄwvg vÁd¦ ¤ªðºuÁ PÁAiÄðPªÄU¼ C£ÄµÁ£PÁV UÁªÄ ¥AZÁAiÄwU ¸ºÁAiÄª£ß MzV¸ÄªÀzÄ.

r. ¸ªÃð PÁAiÄð £q¸vPÀzÄ. £¦ªÄð®¦ ªÄvÄ vÁd¦ ¤ªðºuÁ PÁAiÄðPªÄz ¥jUÁªÄU¼ ªÄÃ°ZÁgu ªÄvÄ vÁd¦ ¤ÃgÄ ¸A¸guÁ ª¸ª¸U¼ ¸ÁªiÁfP ªÄvÄ Evg ¸vAv ¥j±ÆÃz£U½U ¸ºÁAiÄ MzV¸vPÀzÄ.

E. P¥Ä ¤ÃgÄ ªÄvÄ/CxªÁ §ÆzÄ ¤ÃjU ¸A§A¢¹zAv «PÃA¢ÃPÀv ¸A¸guÁ ª¸ª¸U¼ ¸Á¥£

J¥ï. C£AiÄªÁUÄª PÁAiÄU¼rAiÄ° UÁªÄ ¥AZÁAiÄwU¼Ä, f¯Á ªÄvÄ gÁd¦ ¥Á¢PÁgU¼Ä ¤zÃð±£ ¤Ãq§ºÄzÁz Evg AiiÁª¦zÃ ¥Áv ªÄvÄ/CxªÁ ºÆuUÁjPAiÄ ¤ªðºu.

19. £É®¦ GvÉÆÛgÀ£¦ªÄð®¦ ¥ÃgPjU UÁªÄ ¥AZÁAiÄwU¼Ä P¼PAq Pvðª¦U¼£ß ª»¸vPÀzÄ.

J. UÁªÄ ¥AZÁAiÄwAiÄ £¦ªÄð®¦ AiÆÃd£, «¸øv AiÆÃd£Á ªg¢ ªÄwvg vÁd¦ ¤ªðºuÁ AiÆÃd£U¼ vAiiÁjPAiÄ° UÁªÄ ¥AZÁAiÄwU ¸ÆP ¸ºÁAiÄª£ß MzV¸vPÀzÄ.

©. vÁd¦ ¤ªÁðºPgÄU¼Ä ª¦AiÄQP ªÁ¸z ªÄ£U¼ ±ËZÁ®AiÄU¼£ß §¼P ªiÁr ¤ªð»¸Äª PÀjvÄ £qª½PAiÄ° ªiÁ¥ÁðqÄU¼£ß ªiÁqÄª¦z£ß SÁw ¥r¸Äª ¸®ÄªÁV ¥ÆÃvÁºP KeAlgÄU¼ÁV PÁAiÄð ¤ªð»¸vPÀzÄ. ««z w¼Äª½P ªÄÆr¸Äª, ªiÁ»w MzV¸Äª, ±¦PtP ªÄvÄ ¸Aªº£ PÁAiÄðZlÄªnPU¼ AiÆÃd£, ¥¸gu ªÄvÄ C£ÄµÁ£z° ºÁUÆ ¹g £qª½PAiÄ ªiÁ¥ÁðqÄU½U C£Äª¦ ªiÁrPÆq®Ä ¸ºÁAii ªiÁqvPÀzÄ.

1. UÁ«ÄÃt ¤ÃgÄ ªÄvÄ £ËªÄð®¦ ¸«Äw ¸z¸ÀgÄU¼Ä ªÄvÄ/CxªÁ UÁ«ÄÃt DgÆÃU¦, £ËªÄð®¦ ªÄvÄ ¥Ë¶PÁA± DºÁg ¸«Äw, Ke¤U¼Ä ªÄvÄ vÁd¦ ¤ªðºuÁ PÁAiÄðZlÄªnPU¼° M¼UÆArgÄªAvº Evg ª¦QU¼ ¸§°ÃPgt ªÄvÄ ¸ÁªÄðxÁ©ªË¢¦U C£Ä¦ ªiÁrPÆqvP¦zÄ.

r. vÁd¦ ¤ÃgÄ ¸A¸¦guÁV ¤ªiÁðt ªiÁrgÄª ªÄÆ®¨Æv ¸ËPAiÄðU¼Ä, ªiÁ£ª ªÄ® vÁd¦ vgª¦UÆ½¸Äª ªÁº£U¼Ä ªÄvÄ F ¸A§Az ¥qAiÄÄªAvº Evg D¹U¼ UÄtªÄl PÄjv ¸«ÄÃP ªÄvÄ ¤gAvg ¥j²Ã®£.

E. ¸ÄgQv £ËªÄð®¦ ªÄvÄ vÁd¦ ¤ªðºuÁV ¸Ëf¹zAvº D¹U¼ ZÁ®£ ªÄvÄ ¤ªðºu PÄjvAv w¼Äª½P ªÄÆr¸vP¦zÄ.

J¥ï.¥AZÁAiÄw C©ªË¢¦ C¢PÁjU ªÄÃ°ZÁguÁ PÁAiÄðZlÄªnPU¼° ¸ºÁAiÄª£Ä¦ ¤ÃqÄª ªÄÆ®P vÁd¦ ¤ªðºuÁ PÁAiÄðPªÄz° ¹gvAiÄ£Ä¦ SÁw ¥r¸vP¦zÄ ªÄvÄ UÁªÄ ¥AZÁAiÄwU¼ ªÄlz° zvÁA±U¼ zÁR¯U¼ ¤ªðºu.

f. ªÄ»¼AiÄgÄ ªÄvÄ º¢ªAiÄ¸g ¨Á®QAiÄg£Ä¦ UªÄ£z°lÄPÆAqÄ ¹g £ËªÄð®¦ Gv£U¼ §¼PAiÄ §UÎ ¸ÆP w¼Äª½PAiÄ£Æ¦ M¼UÆAqAv ªÄ»¼AiÄg lÄvÄZP ¸ZvÁ ¤ªðºuAiÄ£Ä¦ PËUÆ¼vP¦zÄ.

JZï.¸ªÃð PÁAiÄð £q¸vP¦zÄ ªÄvÄ £ËªÄð®¦ ªÄvÄ vÁd¦ ¤ªðºuÁ PÁAiÄðPªÄz ¥juÁªÄU¼ ªÄÃ°ZÁgu ªÄvÄ vÁd¦ ¤ÃgÄ ¸A¸¦guÁ ª¦ª¸¦U¼ ¸ÁªiÁfP ªÄvÄ Evg ¸vAv ¥j±ÆÃz£U¼° ¸ºÁAiÄ MzV¸vP¦zÄ

(L) C£AiÄªÁUÄª PÁAiÄU¼rAiÄ° UÁªÄ ¥AZÁAiÄwU¼Ä, f¯Á ªÄvÄ gÁd¦ ¥Á¢PÁgU¼Ä ¤zÃð±£ ¤Ãq§ºÄzÁz Evg AiiÁª¦zÃ ¥Áv ªÄvÄ/CxªÁ ºÆuUÁjPAiÄ ¤ªðºu.

CzsÁAiÀÄ–VI

vÁd¦ ¤ÃgÀ¤ªÀðºÀÁ ª¦ÀÄÉÆÃAiÉÄd£ÉªÀvÀªÀÄ°ZÁgÀÉ

20. zÀÆÀvÁd¦ ¤ªÀðºÀÁ AiÉÄd£ÉªÀvÀDAiÀªÀiÀÄÀÄ

J. UÁªÄ ¥AZÁAiÄwAiÄÄ ªËAiÄQPªÁV CxªÁ MAzÄ ¸ªÄÆºªÁVAiiÁU°Ã, ¥AZ ªÁ¶ðP £ËªÄð®¦ AiÆÃd£AiÄ£Ä¦ vAiiÁj¸vP¦zÄ, ªÄvÄ EzÄ ªÁ¶ðP AiÆÃd£U¼ÁV UÁªÄ ¥AZÁAiÄwAiÄ D©ªË¢¦ AiÆÃd£AiÄ ¨ÁUªÁV ga¸vP¦zÄ.

©. UÁªÄ ¥AZÁAiÄw £ËªÄð®¦ AiÆÃd£AiÄÄ P¼PAq «ªgU¼£Ä¦ M¼UÆArgvP¦zÄ.

i. UÁªÄ ¥AZÁAiÄwU¼Ä C£ÄµÁ£ PÁ¯ÁªÇ ªÄvÄ ªÁ¶ðP ªÄË®ÄU®ÄU¼£Ä¦ ¸Á¢¸vP¦zÄ.

ii. zª vÁd¦ ¤ªðºuAiÄÆ M¼UÆAqAv vÁd¦ ¤ªðºuU ¸A§A¢¹z D¹U¼Ä ªÄvÄ ªÄÆ®¨Æv ¸ËPAiÄðU¼Ä.

iii. ªZU¼£Ä¦ ¨j¸®Ä C£ÄzÁ£z ªÄÆ®ª£Æ¦ M¼UÆAqAv §AqªÁ¼ ªÄvÄ PÁAiiÁðZguAiÄ ªZU¼ ¸A§Az C£ÄzÁ£z Cª±Pv

iv. ªÄÃ°ZÁgu ªÄvÄ ªiË®ªiÁ¥£z ªiÁ£zAqU¼Ä

v. ¸ÁªÄðxÁ©ªË¢¦, w¼Äª½P ªÄvÄ £qª½PU¼ §z¯ÁªuAiÄ PÁAiÄð ZlÄªnPU¼Ä;

vi. P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £ËªÄð®¦ E¯ÁSAiÄÄ PÁ®PÁ®P w½¸ÄªAvº Evg «ªgU¼Ä.

1. UÁªÄ ¥AZÁAiÄwAiÄÄ PÄrAiÄÄª ¤Ãj£ J¯Á ªÄÆ®U¼£Ä¦ CªU¼Ä ®¨¦«gÄª ¸¼, «zU¼Ä ªÄvÄ ¥j¹w, ¤ÃgÄ ¥ÆgËP eÁ®z ºÆgºjª¦, vÁd¦ £ GvÁzPgÄ, C¹vz°gÄª ¤AiÄAvuÁ

ª¸ª¸ÀU¼Ä ªÄvÄ C ª¸ÀU¼ ¹Ìw, ¸APµz°gÄª ¸ªÄÄzÁAiÄÀU¼Ä ªÄvÄ ¨Æ §¼PAiÄ «zÁ£U¼ £PUÁV MAzÄ ¸ªðAiÄ£Ãß £q¸vPÌzÄ.

r. UÁªÄ ¥AZÁAiÄwAiÄÄ £Ë ªÄð®¸ g»v ±ËZÁ®AiÄU¼ ¸ªð PÁAiÄðª£Ãß F G¥«¢U¼£Ãß C¼ª r ¹PÆAq JgqÄ wAU¼ÄU¼Æ¼U £q¸vPÌzÄ.

E. C©ª¸Ë¢¸AiÄÄ z l ªÁVgÄª UÁªÄ ¥AZÁAiÄwAiÄ°, UÁªÄ ¥AZÁAiÄwAiÄÄ vÁ¸d¸ ¤ÃgÄ GvÁzPg ¥nAiÆAz£Ãß ¤ªð»¸vPÌzÄ ªÄvÄ C ª¸ÀU¼£Ãß U¸ºÆÃvÁ¢v ªÄvÄ U¸ºÆÃvÁ¢v g»v GvÁzPgAzÄ C ªgÄU¼ PÁAiÄðZ l ÄªnPAiÄ DzÁgz ªÄÃ¯ ªVÃðPj¸vPÌzÄ.

J¥ï. UÁªÄ ¥AZÁAiÄwAiÄÄ ¨ËUÆÃ½P ªÁ¸¦AiÄ° GvÁz£AiiÁz zª vÁ¸d¸ ¤ªðºu PÄjvAv UÁªÄ ¥AZÁAiÄwAiÄÄ C©ª¸Ë¢¸AiÄ z l vAiÄ DzÁgz ªÄÃ¯ «ªgªÁz AiÆÃd£Á ªg¢AiÄ£Ãß ¹z¸ ¥r¸vPÌzÄ. CAvº «ªgªÁz AiÆÃd£Á ªg¢U¼Ä P¼PAq CA±U¼£Ãß ºÆA¢gvPÌzÄ.

i. CUv¸«gÄª° ªÄÄZ¯ÁVgÄª ªÄÄ¯ß Ë ZgArU¼ Gz¸ ªÄvÄ ªÁ¸¦¸Äª £P.

ii. ¤ÃgÄ ºjª ªiÁUðz Gz¸ ªÄvÄ ªÁ¸¦AiÄ £P, C£AiÄªÁVgÄª°

iii. J¥ïJ¸ïn¦/J¸ïn¦U¼ «ªgU¼Ä, C£AiÄªÁUÄª°

iv. §ÆzÄ ¤ÃgÄ ¸A¸guÁ ª¸ª¸ÀU¼ «ªgU¼Ä, C£AiÄªÁUÄª°

v. MAzÄ ªÃ¼ UÁªÄ ¥AZÁAiÄwAiÄÄ v£ÌzÃ Dz ªiÁ£ª ªÄ® vÁ¸d¸ vgª¸ UÆ½¸Äª ¸ÃªAiÄ£Ãß MzV¸®Ä C¥ÃQ¹z°, ¥qAiÄ¨ÃPÁz ªiÁ£ª ªÄ® vÁ¸d¸ vgª¸ ªÁº£z «ªgU¼Ä.

vi. UÁªÄ ¥AZÁAiÄwAiÄÄ ¤ªiÁðt ªiÁq®Ä/ ªiÁ¥ÁðqÄ ªiÁq®Ä GzÁ²¸Ägª ª¸AiÄQP ªÁ¸z ªÄ£U¼ ±ËZÁ®AiÄU¼ «ªgU¼Ä

vii. UÁªÄ ¥AZÁAiÄwAiÄÄ ¤«Äð¸®Ä GzÁ²¹gÄª ¸ªÄÄzÁAiÄ ±ËZÁ®AiÄU¼ «ªgU¼Ä

viii. P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £Ë ªÄð®¸ E¯ÁSAiÄÄ PÁ®PÁ®P ºÆgr¸Äª vÁ¸d¸ ¤ÃgÄ ¤ªðºuAiÄ ¥juÁªÄPÁj C£ÄµÁ£PÁV CUv¸«gÄª E¤Ìvg ªiÁ»wU¼Ä.

f. UÁªÄ ¥AZÁAiÄwAiÄÄ UÁªÄ ¥AZÁAiÄwAiÄ C©ª¸Ë¢¸ AiÆÃd£AiÄ ¨ÁUªÁV ªÁ¶ðP DAiÄª¸AiÄª£Ãß ¹z¸ ¥r¸vPÌzÄ ªÄvÄ Ezg°;

i zª vÁ¸d¸ ¸ÁUÁtP ªÄvÄ ¸A¸guÁ ªÄÆ®¨Æv ¸ËPAiÄðU¼Ä ªÄvÄ ¸Ë®¨¸PÁV CUv¸«gÄª §AqªÁ¼ ªZ.

ii. ¸zj ¸Ë®¨¸U¼£Ãß ZÁ®£ ªiÁq®Ä ªÄvÄ ¤ªð»¸®Ä CUv¸«gÄª DªvðP ªZ ªÄvÄ

iii. vg¨Ãw, ªiÁ»w ²Pt ªÄvÄ ¸Aªº£, £qª½PU¼° §z¯Áªu ªÄvÄ w¼Äª½P ªÄÆr¸Äª PÁAiÄð ZlÄªnPU¼Ä M¼UÆAqAv ¸ÁªÄðxÁ©ª¸Ë¢¸AiÄAvº PÁAiÄðZlÄªnPU½UÁV PÁAiÄðPªÄz ªZU¼Ä.

JZï. UÁªÄ ¥AZÁAiÄwAiÄÄ W£ ªÄvÄ zª vÁ¸d¸ ¤ªðºuU¼gq£Æß M¼UÆAqAv £Ë ªÄð®¸ ªÄvÄ vÁ¸d¸ ¤ªðºuÁ PÁAiÄð ZlÄªnPU½UÁV MAzÄ ¥vÌÃP ¨ÁUAPï SÁvAiÄ£Ãß vgAiÄvPÌzÄ ªÄvÄ Czg° ª¸Æ° ªiÁq¯Áz zª vÁ¸d¸ ¤ªðºuÁ §¼PzÁgg ±Ä®ª£Ãß, PÃAz ªÄvÄ gÁd¸U½Az ««z AiÆÃd£U½U §gÄª C£ÄzÁ£ ªÄvÄ ¤¢U¼£Ãß Ezg° oÃªt Ej¸vPÌzÄ.

i. F ¨ÁUAPï SÁvAiÄ ¤¢AiÄ£Ãß W£ ªÄvÄ zª vÁ¸d¸ ¤ªðºuU ¸A§A¢¹z PvðªU¼£Ãß ¥Æ tðUÆ½¸Ä ªiÁq¯Áz ªZª£Ãß ªiÁv Ezg° ¨j¸vPÌzÄ.

ii. F ¨ÁUAPï SÁvAiÄ ª»ªÁlÄU¼£Ãß ¤AiÄvPÁ°PªÁV ¥j±ÆÃz£U P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £Ë ªÄð®¸ E¯ÁSAiÄÄ C£AiÄªÁUÄª PÁAiÄÄAiÄrAiÄ° ¤tð¬Ä¹z «zÁ£z° M¼¥r¸vPÌzÄ.

21. J¯ïqÀÆ¸JA ªÀÄÄzÀÞvÀªÀÄ°ZÁgÀÉ

C. ¤AiÀÄvÀÄ°PÀªÀgÀÄUÀÄ UÁªÄ ¥AZÁAiÄwAiÄÄ Czg ¨ËUÆÃ½P ªÁ¦AiÄ°£ ¤AiÄvPÁ°PªÁV zª vÁd¸ ¤ªðºuÁ ª¸ª¸U¼ ¹w, ¥Uw ªÄvÄ PÁAiiÁðZguU¼ ªg¢Ai£Ä PÁAiÄð¤ªÁðºP C¢PÁj, ªÄÄR¸ PÁAiÄð¤ªÁðºP C¢PÁj ªÄvÄ gÁd¸ ¥Á¢PÁgU½U ¤U¢v £ªÄÆ£U¼° P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £¸ªÄð® E¯ÁS¬ÄAz ºÆgr¸¯Áz ¤zÃð±£z£Aiİ¸°¸vPÌzÄ.

©. **L¹nUÀÀ¼ÀÉ** UÁªÄ ¥AZÁAiÄwAiÄÄ ª¨ï DzÁjv ªÃ¢PU¼Ä,
ªiÁ»w ªÄvÄ ¸Aªº£ vAveÁ£z ¥juÁªÄPÁj ªÄÃ°ZÁgu, ªg¢ ªiÁqÄ«P ªÄvÄ £¸ªÄð® ªÄvÄ zª vÁd¸z ¥juÁªÄPÁj ¤ªðºuÁV Ujµ ªÄlz° §¼P ªiÁq®Ä C¥ÃQ¸vPÌzÄ

¹. ¥ÀjÃ±ÉÃzsÀÉÀÄ ¸ÁªiÁfP ¥j±ÆÃz£AiÄÆ M¼UÆAqAv UÁªÄ ¥AZÁAiÄwAiÄÄ £¸ªÄð® AiÆÃd£ ªÄvÄ vÁd¸ ¤ÃgÄ ¤ªðºuÁ ª¸ª¸U¼£Ä ¸vAv ªÄÆg£AiÄ ª¸Q¬ÄAz P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £¸ªÄð® E¯ÁSAiÄ ªiÁUð¸ÆaU¼£AiÄ P¸UÆ¼vPÌzÄ.

r. Ke¤U¼ ¥j²Ã®£

i. UÁªÄ ¥AZÁAiÄw ªÄvÄ/CxªÁ ¸PÁðgª¸ ¤AiÄ«ÄvªÁV Ke¤U¼ ¸Ë®¨¸U¼Ä ªÄvÄ PÁAiiÁZguU¼£Ä F G¥«¢U¼£AiÄ ªÄvÄ Evg C£AiÄªÁUÄª «¤AiÄªÄU¼£AiÄ ªiÁq¯ÁVzAiÄA§Äz£Ä SÁw ¥r¸Äª GzÃ±U½UÁV ¥j²Ã°¸vPÌzÄ.

ii. MAzÄ ªÃ¼ AiiÁª¸zÃ ¥Á®£AiiÁU¢z°, UÁªÄ ¥AZÁAiÄw ªÄvÄ /CxªÁ ¸PÁðgª¸ CAvº v¦v¸¸ Ke¤U¼ «gÄz¸ ¥jºÁgÁvÌP PªÄz £ÆÃnÃ¸ï M¼UÆAqAv, ¯É¸£ÄU¼ gz¸w, P¥Ä ¥nU ¸Ãj¸Ä«P, dÄ¯Á£ ºÁUÆ zAq£AiÄ£Ä F G¥«¢U¼£AiÄ «¢¸vPÌzÄ.

E. ¤AiÀÄ«ÄvÀvÀÄÀ¸ÀÉÀÄªÀÄvÀÄ«¸ÀÄAiÉÄd£Á ªÀgÀÄ ºÁUÀÄ AiÉÄd£ÉÃ¥ÀÄ²Ã®£É

i. ¥AZÁAiÄw C©ª¸¢¸ C¢PÁj, UÁªÄ ¥AZÁAiÄw ¸z¸gÄ ªÄvÄ UÁªÄ ¥AZÁAiÄw¬ÄAz ¥Á¢ÃPj¸®l C¢PÁjU¼Ä UÁªÄU¼ ««z ¨ÁUU¼° ªÄwvg ¨ËUÆÃ½P ªÁ¦ ¥zÃ±z° F G¥«¢U¼ ««z G¥§AzU¼ C£Ä¥Á®£AiÄ ªÄÃ°ZÁguAiÄ£Ä £q¸®Ä vÁd¸ ¤ÃgÄ GvÁz£AiÄ PÄjv ¤AiÄ«Äv v¥Á¸uAiÄ£Ä P¸UÆ¼vPÌzÄ.

ii. CAvº C¢PÁjU¼Ä Cª±ªªAzÄ ¥jUt¸ÄªAvº ¸ºÁAiÄª£Ä AiiÁª¸zÃ ¸¼z°

J. F G¥«¢U¼rAiÄ° UÁªÄ ¥AZÁAiÄwAiÄÄ «¢¹z AiiÁª¸zÃ Pvðª¸ª£Ä ¤ªð»¸®Ä CxªÁ

©. F G¥«¢U¼ G¥§AzU¼ C£Ä¥Á®£AiÄ£Ä ¤zðj¸Äª GzÃ±U½UÁV ¥qAiÄ®Ä, J¯Á £Á¸Ai¸ªÄvªÁz ¸ªÄAiÄU¼° ¥ªÃ²¸Äª ºP£Ä ºÆA¢gvPÌzÄ.

J¥ï. **¥ÀÀÄ«ÄvÀC¢PÁj-** ¥AZÁAiÄw C©ª¸¢¸ C¢PÁj ªÄwvg ¥Á¢ÃP¸v **C¢PÁjUÀÄ PÉÀÄqÀ dªÁ¨ÁjUÀÄÀÄ ºÉA¢gÀÄÀÄ**

i. vÁ¸eÆÃvÁzPgÄU¼ PÄAzÄPÆgvU¼ ¥jºÁg ªÄvÄ G¥-«¢U¼£Ä C£ÄµÁ£UÆ½¸Äªº ¸ÄzÁguU¼ PÄjv ¸®º ¤ÃqvPÌzÄ.

ii. dÄ¯Á£U¼Ä, ¸¼z°AiÄÃ dÄ¯Á£U¼Ä ªÄvÄ zAq£U¼£Ä «¢¸Äª¸zÄ

iii. §¼PzÁgg ±Ä®U¼ ¸AUºu

iv. F G¥«¢U¼rAiÄ° ¤¢ðµ ¥r¸¯Áz, ªÄvÄ UÁªÄ ¥AZÁAiÄwU¼Ä F G¥«¢U¼£AiÄ, C¢¤AiÄªÄz£AiÄ ªÄvÄ Evg AiiÁª¸zÃ C£AiÄªÁUÄª PÁAiÄAiÄ£AiÄ ª»¸§ºÄzÁz CxªÁ ¥vÆÃf¸§ºÄzÁz ºÆuUÁjPU¼ C£ÄµÁ£

f. **C¥ÀWÁvÀÀÀªÀgÀÀ ¸À¸ÀA¢PÉ–** MAzÄ ªÃ¼ zª vÁd¸ ¸A¸gu CxªÁ «¯ÃªÁj ¸Ë®¨¸ PÃAz CxªÁ ¨Æ ¨wð ¸¼z° AiiÁª¸zÃ C¥WÁvU¼Ä ¸A¨«¹z°, ¸zj ¸Ë®¨¸z ¥¨Ágª£Ä ºÆA¢gÄªAvº C¢PÁjAiÄÄ **£ÀÀÆ£ÉlgÀ** UÁªÄ ¥AZÁAiÄwU ªg¢Ai£Ä ¸°¸vPzÄ ªÄvÄ UÁªÄ ¥AZÁAiÄwAiÄÄ ¥j²Ã°¸vPzÄ ªÄvÄ ¥¨Ág ¹§A¢U AiiÁª¸zÁzgÆ ¸ÆZU¼£Ä ºÆgr¸vPzÄ.

CzÁAiÀ–VII

vÁd¸ d® ¤ªÀºÀÉÁV §¼ÉÁggÀ±Ë®.

22. UÁæªÀ¥ÀZÁAiÀwUÉ¸ÀzÁAiÀªÀqÀÉPÁzÀ§¼ÉÁggÀ±Ë®UÀUÉ¸À§A¢üzÀG¥ÀAzÀÀ

J. F G¥«¢U¼£Ä C¼ªr¹PÆAq ªÄÆgÄ ªµðU¼° UÁªÄ ¥AZÁAiÄwAiÄ ¸Av ¤¢¬ÄAz CxªÁ v£Ä ªw¬ÄAz ¸AU»¸¯Áz §¼PzÁgg ±Ä®¢Az UÁªÄ ¥AZÁAiÄwAiÄÄ zª vÁd¸ ¤ªðºuÁ ª¸ª¸U¼ PÁAiiÁðZgu ªÄvÄ ¤ªðºuAiÄ dªÁ¨Á¸jAi£Ä ºÆA¢gvPzÄ.

©. GvÁzP£Ä ¸¼z°£ ¤AiÄAvuÁ ª¸ª¸U¼£Ä vgª¸ ªiÁqÄª ¸A§Az ªiÁ£ª ªÄ® vÁd¸z vg«£ ±Ä®ª£Ä UÁªÄ ¥AZÁAiÄwUÁU°Ã CxªÁ ¸Az¨Áð£Ä¸Ág ¯Ë¸£Ä ºÆA¢z Ke¤UÁU° F G¥«¢U¼ **C£ÀÀ¸ÀÀa-IIgÀ**AiÄ ¥ÁªwªiÁqvPzÄ.

¹. §ÆzÄ ¤Ãj£ ¸A¸guAiÄ£Ä «PÃA¢ÃPj¹gÄªAvº ªÄvÄ ªiÁ£ª ªÄ® vÁd¸ ¸A¸guÁV J¥ïJ¸ïn¦ ¸Ë®¨¸U¼£Ä ºÆA¢gÄªAvº UÁªÄ ¥AZÁAiÄwAiÄ° §¼PzÁgg ±Ä®ª¸ GvÁzP¤Az ª¸ÄÃ¯ïË ª¸ÄagÄª ZgArU¼ ¤ªðºuÁV ªÄvÄ ¸A¸guÁ ª¸ª¸UAiÄ PÁAiiÁðZgu ªÄvÄ ¤ªðºuÁ ªZª¸ J¥ïJ¸ïn¦ ªÄvÄ §ÆzÄ ¤ÃgÄ ¸A¸guÁ ª¸ª¸UAiÄ£Ä M¼UÆAqAv ¸AzÁAiÄzÁAiÄPªÁVgvPzÄ.

r. M¼ZgAr eÁ®U¼Ä ªÄvÄ CAvº M¼ZgArAiÄÄ PÃA¢ÃP¸v J¥ïJ¸ïn¦/J¸ïn¦U eÆÃqUAiiÁVgÄª UÁªÄ ¥AZÁAiÄwU¼° GvÁzP£Ä Dv£ Dªgt¢Az §gÄª vÁd¸ ºÆgºjª£Ä M¼ZgAr eÁ®P eÆÃr¹gÄª ¸A§Az, MAzÄ ¨ÁjAiÄ ±Ä®ª£Ä ºÁUÆ AiÄÄfr eÁ®z ¤ªðºuÁV ºÁUÆ ¸A¸guÁ ¸Á¸gz PÁAiiÁðZgu ªÄvÄ ¤ªðºuAiÄ §¼PzÁgg ±Ä®ª£Ä F G¥«¢U¼ **C£ÀÀ¸ÀÀa-IIgÀ** ¤¢ðµ ¥r¹gÄªAv ¥ÁªwªiÁqvPzÄ.

E. **C£ÀÀ¸ÀÀa-IIgÀ** ¤¢ðµ ¥r¹gÄª §¼PzÁgg ±Ä®¸ ¥w ªÄÆgÄ ªµðU½UÆªÄ ¸AiÄAZÁ°vªÁV ±Ã.5gµÄ (¸«ÄÃ¥z gÆ 10.00P ¥ÆuÁðAPUÆ½¸vPzÄ) CAvº ªµðz K¦¯ï 1jAz ºZ¼ªÁUvPzÄ. F zgU¼£Ä UÁªÄ ¥AZÁAiÄwAiÄ PZÃjAi°° ºÁUÆ UÁªÄ ¥AZÁAiÄwAiÄ ª¸Á¦Aiİ£ ªÄwvg PtU UÆÃZgªÁUÄª ¸¼U¼° ¥ZÁgz ¸®ÄªÁV ¥z²ð¸vPzÄ.

J¥ï. MAzÄ ªÃ¼ §¼PzÁggÄ ¤Ãj£ Pgª£Ä ¥ÁªwªiÁq¨ÃPÁVz°, Cz£Ä ¤Ãj£ Pgz ©°£ÆA¢U ¸Ãj¸vPzÄ.

f. §¼PzÁgg ±Ä®ª£Ä UÁªÄ ¥AZÁAiÄwAiİ° RÄzÁV ªÄvÄ/CxªÁ Evg Aiiª¸zÃ «zÁ£z° UÁªÄ ¥AZÁAiÄwAiÄÄ ¤¢ðµ ¥r¸Äª AiiÁª¸zÃ ¢£zAzÄ ¸ÁªiÁ£ªÁV ¥w wAU¼ ªÆz®£AiÄ ªÁgz° UÁªÄ ¥AZÁAiÄw PZÃjAi°° ª¸Æ° ªiÁqvPzÄ.

JZï.§¼P zÁgg ±Ä®ª£Ä UÁªÄ ¥AZÁAiÄwAiÄÄ D¹ vjUU ºÁPÄª ªÄÆ®P CxªÁ ¯Ë¸£Ä ±Ä®z gÆ¥z° C¢¤AiÄªÄz G¥§AzU¼£AiÄ ¸AU»¸§ºÄzÄ.

L. UÁªÄ ¥AZÁAiÄwAiÄÄ §¼PzÁgg ±Ä®P ¸A§A¢¹zAv ©®Ä ªiÁq®Ä, ºt ¸AUºu ªiÁq®Ä ºZÄªj vÁAwPvAiÄ£Ä PÁ®PÁ®P gÆ¦¸§ºÄzÄ ªÄvÄ Eª¸U¼£Ä ¸Áªiİ£ CxªÁ «±Ãµ DzÃ±/C¢¸ÆZ£AiÄ ªÄÆ®P C¢¸Æa¸§ºÄzÄ.

e. UÁªÄ ¥AZÁAiÄwAiÄÄ ¸AiÄA vÁ£Ã DU°Ã CxªÁ Ke¤AiÄ ªÄÆ®PªÁU°Ã §¼PzÁgg ±Ä®ª£Ä «¢¸Äª GzÀ±PÁV J¯Á GvÁzPg zvÁA±ª£Ä ¹z¦ ¥r¸vPzÄ ªÄvÄ F zvÁA±ª£Ä ¤AiÄ«ÄvªÁV C¥ïqÃmï ªiÁqvPzÄ

P. MAzÄ ªÃ¼ DgÄ wAU½UÆ C¢P CªU §¼PzÁgg ±Ä®ª£Ä ¥ÁªwÄ ªiÁq®Ä «¥®gÁz°, UÁªÄ ¥AZÁAiÄw CxªÁ Evg AiiÁªÀzÃ ¸PªÄ ¥Á¢PÁgªÀ CAvº ±Ä® ¥ÁªwÄ ªiÁq®Ä «¥®£ÁUÄª ªÀQ¬ÄAz ¸Az¨Áð£Ä¸Ág C¢¤AiÄªÄz G¥§AzU¼rAiÄ° vjUAiÄA§Av ª¸Æ®Ä ªiÁqvPzÄ.

J¯ï. ¥ÁªwÄ ªiÁrgÄª ªÀQAiÄÄ §¼PzÁgg ±Ä®ª£Ä ¥ÁªwÄ ªiÁqÄªªgU UÁªÄ ¥AZÁAiÄwAiÄÄ ¥j¨Á«¸Äª CAvº ¸ÃªU¼£Ä ¸Az¨Áð£Ä¸Ág C¢¤AiÄªÄz G¥§AzU¼rAiÄ° ¸ÀVvUÆ½¸vPzÄ

JA. UÁªÄ ¥AZÁAiÄw ªw¬ÄAz §¼PzÁgg ±Ä®ªAzÄ ¸AU»¸¯Áz J¯Á ªÆvU¼£Ä ¸º F G¥«¢U¼rAiÄ° vÁ¬d¦ ¤ÃgÄ ¤ªðºuÁ ª¦ª¸ÀAiÄ PÁAiiÁðZgu ªÄvÄ ¤ªðºu, ¹§A¢U¼ ªÃv£ ªÄvÄ UÁªÄ ¥AZÁ¬ÄwAiÄÄ ¸ÆPªAzÄ ¥jUt¹z vÁ¬d¦ ¤ªðºuÁ PÁAiÄðZlÄªnPU½U PÁ®PÁ®P §¼P ªiÁrPÆ¼vPzÄ.

CzÁ§AiÀÄ–VIII

F G¥À¢UÀ¼ÀAiÀÄ C¥ÀgÁzÀ¸ÀÄ

23. ¤¢ðµÀC¥ÀgÁzÀ¸ÀÄ

J. AiiÁgÃ GvÁzPÄ £ÃgªÁVAiiÁU° CxªÁ ¥gÆÃPªÁVAiiÁU°Ã, Dv£/ DPAiÄ Dªgtz°gÄª ªiÁ£ª ªÄ® vÁ¬d¦ ¤AiÄAvuÁ ª¦ª¸ÀAiÄ£Ä ¸ZÀUÆ½¸®Ä CxªÁ vgªÀUÆ½¸®Ä ªiÁ£ª ¸ZÀUÁgg£Ä £ÃªÄP ªiÁrPÆ¼vPz®. AiiÁgÃ GvÁzPÄ F jÃw ªiÁqÄwgÄª¦zÄ PAqÄ §Az°, CAvº ªÀQAiÄÄ ªiÁ£ª ¸ZÀUÁgg £ÃªÄPÁw ¤µÃz ªÄvÄ Cªg ¥Ä£ªð¸w D¢¤AiÄªÄ, 2013g G¥§AzU¼£AiÄ zAq¤ÃAiÄ£ÁUvPzÄ.

©. AiiÁgÃ ªÀQAiÄÄ

i. Dv£/DPAiÄ Dªgt¢Az PÆ¼PÄ ¤ÃgÄ/ ºÆ®¸Ä gÁr/ZgAr ºjª£Ä ¤Ãj£ ºj«U, g¸U, ªÄÄP ¥zÃ±P, ¤Ãj£ ªÄÆ®U½U, d®ªiÁUð, P¦¶ ¨Æ«Ä CxªÁ Evg AiiÁª¦zÃ «ÄÃ¸°gzAvº ¥zÃ±P ©l° CxªÁ ©q®Ä ¥Ãgu ¤ÃqvPz®.

ii. ¤AiÄAvuÁ ª¦ª¸ÀU¼£Ä ¸Áªðd¤P ZgAr ªiÁUðP UÁªÄ ¥AZÁAiÄw¬ÄAz CUv¦ C£ÄªÆÃz£AiÄ£Ä ¥qAiÄz ªÄvÄ F G¥«¢U¼ UÄtªÄl ªÄvÄ ¤¢ðµvAiÄrAiÄ° eÆÃqu ªiÁqvPz®.

iii. ZgArU½U ºÁ¤ ªiÁq§ºÄzÁz AiiÁª¦zÃ ª¸Ä«£ ºj«U (ªÄÃ¯ÖÉ ªÄÄaz ZgArU¼Ä CxªÁ M¼ZgArU¼Ä) CªPÁ± ¤ÃqÄª¦zÄ CxªÁ zª vÁ¬d¦ª¦ ¸Áªðd¤P ZgAr ªiÁUðz° CxªÁ ZgAr ª¦ª¸ÀU¼£Ä £Á± ¥r¸vPz®.

iv. PÁ£Æ£Ä ¨Á»g ¤ªiÁðtU¼ ªÄÆ®P CxªÁ MvÄªj ªiÁqvPz®.

v. P¦UÁjPÁ PÆ¼PÄ ¤Ãg£Ä CxªÁ AiiÁª¦zÃ P¦UÁjPÁ PÁAiÄðZlÄªnPU½U, U¦º P¦UÁjPU¼Ä, P¸Á¬ÄSÁ£U¼Ä, º¦£ÄUÁjP ªÄvÄ eÁ£ÄªÁgÄU¼ PÆnU, PÁAiiÁðUÁgU¼Ä ªÄvÄ UgÁdÄU½U ¤¢ðµªÁz Evg AiiÁª¦zÃ PÆ¼PÄ ¤Ãg£Ä ¸Áªðd¤P ZgArU¼Ä CxªÁ d®ªÄÆ®U½U C£AiÄªÁUÄª PÁAiÄU¼° ¤¢ðµ ¥r¹gÄª¦z£Ä ºÆgvÄ¥r¹ ©qvPz®.

vi. d®ªÄÆ®U¼Ä M¼UÆAqAv AiiÁª¦zÃ ¸Áªðd¤P ¸¼U¼° F GzÀ±U½UÁVAiÄÄ ¤¢ðµªÁV MzV¹gÄª CAvº ¸Áªðd¤P ¸Ë®¨¦U¼Ä CxªÁ C£ÄPÆ®vU¼ ¸¼U¼£Ä

ºÆgvÄ ¥r¹ GUÄ¼Äªà¸zÁU°Ã Cxª Á ªÄÆv Cxª Á ª Ä®«¸dð£ ªiÁqÄªà¸zÁU°Ã ªiÁqvPÌz®.

vii C£Äª ÄwA¬Ä®z ª Áº£U¼£Æ M¼UÆAqAv ª ÄÃ¯ïë ª ÄÄaz ZgArU¼Ä, ª iÁ¥£ÆÃ¯ï ª ÄÄZ¼U¼Ä, UÁª Ä ¥AZÁAiÄwAiÄ ªw¬ÄAzÁU°Ã Cxª Á F G¥«¢U¼rAiÄ° £Ãª ÄP ª iÁq¯Áz AiiÁª à¸zÃ Ke¤¬ÄAzÁU°Ã MzV¸¯ÁVgÄª ZgArU¼Ä ª ÄvÄ G¥Pgt U¼£Ä vgª à¸UÆ½¸vPÌz® Cxª Á ºÁ¤ ª iÁqvPÌz®.

CzÁ¸AiÀÄ– IX

zÀqÀ¯ÉÀÄÀªÀvÀÄPÀÄzÀRÉgÀ¯ÉÀÄÀ¤ªÁgÀÄÉ

24. zÀqÀ¯ÉÀÄÀ

J. F G¥«¢U¼ G¥§AzU¼£Ä G®AX¸Äª Cxª Á ¥Á®£ ªiÁqzAvº AiiÁgÃ ª à¸QAiÄÄ **C£ÀÄ¸Àa-III** g° ¤U¢ ¥r¹zAv zAq¤ÃAiÄ£ÁUvPÌzÄ.

©. Jgq£AiÄ ¨ÁjU Cxª Á vz£Avgz G®AW£AiiÁz° Cxª Á C£Ä¥Á®£ ªiÁq¢zÌ° **C£ÀÄ¸Àa-III** g° ¤U¢ ¥r¹z zgz dÄ¯Á£AiÄ zÄ¥lÄ ªÆvz dÄ¯Á£AiÄ£Ä «¢¸Äª C¢PÁgª £Ä UÁª Ä ¥AZÁAiÄwAiÄÄ ºÆA¢gvPÌzÄ.

¹. MAzÄ ª Ã¼ ª ÄÆg£AiÄ ¨ÁjU Cxª Á vz£Avgz G®AW£AiiÁz° Cxª Á C£Ä¥Á®£ ªiÁq¢zÌ°, **C£ÀÄ¸Àa-III**g° ¤U¢ ¥r¹z zgz dÄ¯Á£AiÄ ª ÄÆgÄ ¥lÄ ªÆvz dÄ¯Á£AiÄ£Ä «¢¸Äª C¢PÁgª £Ä UÁª Ä ¥AZÁAiÄwAiÄÄ ºÆA¢gvPÌzÄ.

r.MAzÄ ª Ã¼ £Á®£AiÄ ¨ÁjU Cxª Á vz£Avgz G®AW£AiiÁz° Cxª Á C£Ä¥Á®£AiiÁU¢zÌ°, UÁª Ä ¥AZÁAiÄwAiÄÄ

i. GvÁzPÌ£Ä ºÆA¢gÄªAvº (AiiÁª à¸zÁzgÄ EzÌ°) ª Á¥Áj ¯Ë¸£Ä gzÄ¥r¸Äª; ª ÄvÄ/Cxª Á

ii. C¢¤AiÄª Äz° G¥§A¢¹gÄªAv ««z ª iÁzjAiÄ zAqz ª Ævª £Ä ª ¸Æ®Ä ª iÁqÄª ª ÄvÄ/Cxª Á

iii. UÁª Ä ¥AZÁAiÄwAiÄÄ C¢¸ÆZ£AiÄ ª ÄÆ®P PÁ®PÁ®P ¤tð¬Ä¸Äª Avº Evg AiiÁª à¸zÃ ¸ÆP PªÄª £Ä PÌUÆ¼Äª C¢PÁgª £Ä ºÆA¢gvPÌzÄ.

E. F G¥-«¢U¼ G¥§AzU¼£Ä G®AX¹z AiiÁgÃ ª à¸QAiÄÄ UÁª Ä ¥AZÁAiÄwAiÄ ZgAr ª à¸ª ¸U C£¢PÌv ¸A¥Pðª £Ä P°¹z°, Evg AiiÁª à¸zÃ zAq ª ÄvÄ CzÃ zgz° (zÁª iÁ¥) zgz° (pro-rata) ±Ã 50gµÄ zgª £Ä **C£ÀÄ¸Àa-III**g° £ª ÄÆ¢¹gÄªAv ¥Áªw ª iÁq®Ä zAq¤ÃAiÄ£ÁUvPÌzÄ.

J¥ï. AiiÁgÃ ª à¸QAiÄÄ F G¥-«¢U¼rAiÄ° G¥§AzU¼£Ä G®AX¹z° ¸¼z°AiÄÄ zAq «¢¸Äª C¢PÁgª £Ä UÁª Ä ¥AZÁAiÄwAiÄÄ ºÆA¢gvPÌzÄ. DzÁUÆ¸º, **C£ÀÄ¸Àa-III**g° ¤U¢ ¥r¹gÄª zgª £Ä «ÃgvPÌz®.

f. **C£ÀÄ¸Àa-III**g° £ª ÄÆ¢¹gÄª dÄ¯Á£ Cxª Á zAqz ª Ævª à¸AiÄAZÁ°vª ÁV ¥w ª µðª Ç ¸º ±Ã 10gµgAv (¸«ÃÄ¥z gÆ 10/-P ¥ÆuÁðAPUÆ¼vPÌzÄ) ª ÄÄA¢£ ª µðz K¦¯ï 1£Ã ¢£ÁAP¢Az eÁjU §gÄªAv ºZ¼ª ÁUvPÌzÄ. EzgÆA¢U, UÁª Ä ¥AZÁAiÄwAiÄÄ C£Aiª ÁUÄª PÁAiÄU¼£AiÄ AiiÁª à¸zÃ ¸ª ÄAiÄz° F G¥«¢U¼ **C£ÀÄ¸Àa-III**g° ¤U¢ ¥r¹gÄª zAqª £Ä ºa¸§ºÄzÄ.

i. UÁªÄ ¥AZÁAiÄwAiÄÄ v£ C¢PÁg ªÁ¦AiÄ° v£ AiiÁgÃ ¹§A¢ CxªÁ ¯É¸£Ä ºÆA¢z Ke¤AiÄÄ ªiÁ£ª ¸ZUÁgg£ £ÃªÄP ªiÁrgÄª¦zÄ CxªÁ ªiÁ£ª ¸ZUÁggÄ PÁAiÄð ¤ªð»¸®Ä CªPÁ± ¤Ãrgª¦zÄ PAqÄ §Az°, ¤AiÄ«ÄvªÁUz ¸¼U¼° PÆ¼PÄ ¤ÃgÄ/gÁrAiÄ£ º jAiÄ ©l°, ¤®ðPz QAiÄU¼° vÆqVz° ªÄvÄ ¸A¸guÁ ¸ÁªgU¼ C¸ªÄ¥ðP PÁAiiÁðZguAiÄ° ¥°vªÁz°, CxªÁ E¤vg AiiÁª¦zÃ PªÄU½Az F G¥«¢U¼ G¥§AzU¼Ä G®AW£AiiÁz° CAvº ¹§A¢ ªÄvÄ ¯É¸£Ä ºÆA¢z Ke¤U¼ «gÄz² ¸Ä PªÄª£ dgÄV¸vPzÄ.

ii. MAzÄ ªÃ¼ AiiÁª¦zÃ Ke¤AiÄÄ F G¥«¢U¼ AiiÁª¦zÃ G¥§AzU¼£ G®AX¹z° CxªÁ ¥Á®£ ªiÁq®Ä «¥®ªÁz°, CAvº Ke¤AiÄÄ G¥«¢U¼ CxªÁ C£AiÄªÁUÄª «¤AiÄªÄU¼rAiÄ° PÉUÆArgÄª AiiÁª¦zÃ Pvðª¦U½Az vUzÄ ºÁPÄª CxªÁ ¯É¸£Ä gzÄ¥r¸Äª CxªÁ CªiÁ£w£°qÄª C¢PÁgª£ UÁªÄ ¥AZÁAiÄwAiÄÄ ºÆA¢gvPzÄ.

iii. UÁªÄ ¥AZÁAiÄwAiÄÄ F G¥«¢U¼ AiiÁª¦zÃ G¥§Azz G®AW£U ¸A§A¢¹zAv £qÁª½U¼£ ¥ÁgA©¸§ºÄzÄ ªÄvÄ F G¥«¢U¼rAiÄ°£ PªÄzÆA¢U ¥j¸g(¸AgPuÁ) C¢¤AiÄªÄ-1986, ¨ÁgwÃAiÄ zAq ¸A»v-1860, d®(ªiÁ°£ ¤§ðAz ªÄvÄ ¤AiÄAvt) C¢¤AiÄªÄ-1974, ªÁAiÄÄ(ªiÁ°£ ¤§ðAz ªÄvÄ ¤AiÄAvt)C¢¤AiÄªÄ-1981 ªÄvÄ/CxªÁ C£AiÄªÁUÄª Evg AiiÁª¦zÃ «¤AiÄªÄU¼rAiÄ° ¸º PªÄ ª»¸Äª C¢PÁgª£ ºÆA¢gvPzÄ.

iv. dÄ¯Á£(zAq)AiiÁV ¸AU»¸¯Áz J¯Á ªÆvª£Æ ¸º F G¥«¢U¼rAiÄ° vÁd¦ ¤ÃgÄ ¤ªðºuÁ ¸ÃªU¼£ MzV¸Äª GzÃ±U½UÁV UÁªÄ ¥AZÁAiÄwAiÄÄ PÁ®PÁ®P ¸ÆPªAzÄ ¥jUt¸¯ÁUÄª PÁAiiÁðZgu ªÄvÄ ªZPÁV, ¹§A¢U¼ ªÃv£, §ºÄªiÁ£U¼Ä, ªÄwvg vÁd¦ ¤ªðºuÁ PÁAiÄð ZlÄªnPU½U §¼P ªiÁrPÆ¼vPzÄ.

25. PÄAzÄPÉgvÄÉÄÀ¤ªÁgÀÉ

J. F G¥§AzU¼ G®AW£AiÄ ¸A§Azz zÆgÄU¼£ £ÆAzt ªiÁqÄª ¸®ÄªÁV UÁªÄ ¥AZÁAiÄwAiÄÄ ¸Áªðd¤P PÄAzÄPÆgvU¼ ¤ªÁguÁ ª¦ª¸¦AiÄ£ (U¼£) C©ª¦¢¦ ¥r¸vPzÄ.

©. F ª¦ª¸U¼Ä ¥wAiÆAzÄ UÁªÄz°AiÄÆ ªÄvÄ/CxªÁ UÁªÄ ¥AZÁAiÄwAiÄ PZÃjAiÄ° MAzÄ zÆgÄ PÃAz, ªÆ¨É¯ï D¥ï ªÄvÄ/CxªÁ ¸½ÃAiÄ ¥j¹wU¼£ UªÄ£z°lÄPÆAqÄ UÁªÄ ¥AZÁAiÄwAiÄÄ ¸ÆPªAzÄ ¥jUt¸ÄªAvº Evg AiiÁª¦zÃ PÁAiÄðvAvª£ M¼UÆArg§ºÄzÄ.

¹. PÄAzÄPÆgvU¼ CfðAiÄ£ AiiÁgÃ £ÁUjÃP£Ä RÄzÁV, zÆgªÁt ªÄÆ®P, «ÄAZAZ, ª¨ï¸Émï, CAZ, ªÆ¨É¯ï D¥ï, ªÄvÄ/CxªÁ UÁªÄ ¥AZÁAiÄwAiÄÄ ¤tð¬Ä¹zAvº Evg AiiÁª¦zÃ «zÁ£z° ¸°¸§ºÄzÄ.

r. UÁªÄ ¥AZÁAiÄwAiÄÄ ¥wAiÆAzÄ PÄAzÄPÆgvAiÄ£Æ ¸º PÁ®«ÄwAiÄ° ªÄvÄ zPv¬ÄAz ¤ªÁj¸Äª¦z£ SÁw ¥r¸vPzÄ ªÄvÄ AiiÁª¦zÃ PÁgtPÆ ¸º CfðAiÄ£ ¸°¹z 15 ¢£U¼ Cª¢AiÄ£ «ÄÃgvPz®.

E. UÁªÄ ¥AZÁAiÄwAiÄÄ PÄAzÄPÆgvU¼ «z, ¥j¸gÁvP ªÄvÄ/CxªÁ Evg DgÆÃU¦ ¸A§A¢ ¥juÁªÄU¼Ä, ¸Áªðd¤PjU GAmÁz C£Á£ÄPÆ®v, DyðP ªZU¼Ä ªÄwvg ¸ÆPªAzÄ ¥jUt¸§ºÄzÁz PÄAzÄPÆgvU ¸A§A¢¹z ¸ÆP ¤ªÁguÁ PªÄU¼£ ª»¸Äª ¸Az¨ðz° ¥jUt¸vPzÄ.

CzÁAiÀÄ–X

UÁæªÀ¥ÀZÁAiÀÄwAiÀÄEvgÀºÉuÉÁjPÉÆÃ¸ÀvÀPÀæªÀÄzÀÄ

26. F G¥«¢U¼ E¤vg CzÁAiÀU¼° ¤U¢ ¥r¹gÄª dªÁ¨ÁjU¼Ä ªÄvÄ PvðªU¼ÆA¢U UÁªÄ ¥AZÁAiÄwAiÄÄ P¼PAq PvðªU¼£Æ ¸º ºÆA¢gvPÀzÄ.

J. ¥ÀæzÁgÀªÀvÀÄ£ÁUÀÄPÀªÀÄ»w ¸ÉªÉÄÃ F G¥«¢U¼ G¥§AzU¼£Ä £ÉªÄð®¥ÃgPgÄ ¸ªÄÄzÁAiÄ DzÁjv ¸AWl£U¼Ä, ¸APÃvU¼Ä, Pg¥vU¼Ä, ¨Á£Ä°, ªvðªiÁ£ ¥wPU¼ ªÄÆ®P ªÄwvg AiÄÄP ªiÁUðU¼ ªÄÆ®P ¥ZÁg ¤ÃqÄªÀzÄ UÁªÄ ¥AZÁAiÄw ªÄvÄ UÁªÄ ¥AZÁAiÄw ¤ªÁ¹U¼Ä ªÉAiÄQP ªÄvÄ ¸Áªðd¤P ¸ZÀvAiÄ£Ä PÁ¥ÁqÄª ¸®ÄªÁV ±ËZÁ®AiÄU¼ §¼P ªÄvÄ ¤ªðºu, ªiÁ£ª ªÄ® vÁdÀU¼£Ä §»gAUªÁV ºÆg©qÄªÀz£Ä vqAiÄÄªÀzÄ, ªÉgÁtÄ DzÁjv gÆÃUU¼£Ä vqAiÄÄªÀzÄ, ZgArU¼£Ä ¤§ðA¢¸ÄªÀzÄ ªÄvÄ Evg PvðªU¼ PÄjvÁz w¼Äª½P ªÄÆr¸vPÀzÄ.

©. ¥ÀæzÁgÀªÀvÀÄ£ÁUÀÄPÀªÀÄ»w ¸ÉªÉÄÃ ¸Áªàd¤PÀ¼ÉÉPÀ«PÉ- Cw ºa£ ªÄlz ¥Ágz±ðPv ªÄvÄ ¸ÁªðD¤P PÉUlPÄ«PAiÄ£Ä Rav ¥r¸Äª ¸®ÄªÁV, UÁªÄ ¥AZÁAiÄwAiÄÄ P¼PAq ªiÁ»wU¼Ä, zvÁA± ªÄvÄ ªg¢U¼£Ä F G¥«¢U¼rAiÄ°£ PÁAiÄðZlÄªnPU½U ¸A§A¢¹zAv UÁªÄ ¥AZÁAiÄw PZÃjAiÄ P®¸z ªÃ¼Aiħ° MzV¸vPÀzÄ.

i. F G¥§AzU¼rAiÄ° ¤¢ðµ ¥r¸¯Áz UÁªÄ ¥AZÁAiÄwAiÄ ºÆuUÁjPAiÄ£Ä C£ÄµÁ£UÆ½¸Äª dªÁ¨ÁjAiÄ£Ä ºÆA¢gÄª C¢PÁjAiÄ º¸gÄ ªÄvÄ ¸A¥PðU¼Ä.

ii. UÁªÄ ¥AZÁAiÄwAiħ° C¹vz°gÄª ªÉAiÄQP ªÁ¸z ªÄ£U¼ ±ËZÁ®AiÄU¼Ä ªÄvÄ ¸ªÄÄzÁAiÄ ±ËZÁ®AiÄU¼ ¸AS¦ PÄjvAv ªÁ¶ðP zvÁA±.

iii. zÆgÄU¼ ªÄvÄ zÆgÄU¼£Ä ¤ªÁj¸®Ä UÁªÄ¥AZÁ¬ÄwAiÄÄ PÉUÆAq PªÄU¼ PÄjv CAQ CA±U¼Ä.

iv. UÁªÄ ¥AZÁAiÄw ªÄvÄ UÁªÄ ¥AZÁAiÄwAiÄ ¥gªÁV ¸AU»¸¯Áz §¼PzÁgg ±Ä® ªÄvÄ zAqz ªÆv ªÄvÄ ªiÁ¹P DzÁgz ªÄÃ¯ F ªÆvU¼£Ä §¼P ªiÁq¯Áz «zÁ£.

1. ¥ÉÃ¤ºÁPÀÄ¼ÀÀ¸ÀÄd£É

i. UÁªÄ ¥AZÁAiÄwAiÄÄ AiiÁªÀzÄ vÁdÀ ¤Ãj£ ¸A¸gu¬ÄAzÁz Gv£U¼ §¼PU GvÃd£ ¤ÃqÄª ¸®ÄªÁV ¥ÆÃvÁºPU¼ ª¸ª¸ P°¸®Ä ¥jUt¸§ºÄzÄ.

ii. UÁªÄ ¥AZÁAiÄwAiÄÄ Cª½UÄAr ±ËZÁ®AiÄU½Az vUz W¤ÃPÉv ªiÁ£ª ªÄ® vÁdÀU¼£Ä ªÄt£ ¥®ªvvAiÄ£Ä ºa¸Äª ¸®ÄªÁV ªÄvÄ ¸A¸j¸¯Áz ¤Ãg£Ä ¸A¸guÁ ¸ÁªgU½Az §¼P ªiÁrPÆ¼®Ä P¦¶PjU ¥ÆÃvÁºPU¼£Ä ¤Ãr GvÃf¸vPÀzÄ.

iii. J¥ïJ¸ïn¦/J¸ïn¦U¼° ºZÄªj PÁA¥ÆÃ¸ï ®¨¦«zÀ°, UÁªÄ ¥AZÁ¬ÄwAiÄÄ PÁ®PÁ®P C¢¸Æa¹zAv ¤¢ðµ zgU¼° ¸Av §¼PUÁV RjÃ¢¸§ºÄzÄ CxªÁ ¯Á¨zÁAiÄP ¨¯Aiħ° ªiÁgÁl ªiÁq§ºÄzÄ.

r. vÀÀÄÉÃw ªÄvÄ¸ÁªÀd¤PÀ¼ÀªÀÄ

i. UÁªÄ ¥AZÁAiÄwAiÄÄ ¸AiÄA vÁ£Ã DU°Ã CxªÁ «µAiÄ vdjAz vÁdÀ ¤ÃgÄ ¤ªðºu, ¸ÄgQv £ÉªÄð®¥ PªÄU¼Ä, PÄAzÄPÆgvU¼ ¤ªÁguÁ PÁAiÄðvAvU¼ PÄjvAv w¼Äª½P ªÄÆr¸Äª ªÄvÄ ¥juÁªÄPÁj PÁAiÄðPªÄU¼£Ä DAiÆÃf¸§ºÄzÄ.

ii. UÁªÄ ¥AZÁAiÄwAiÄÄ ªÉAiÄQP ªÁ¸z ªÄ£U¼° ±ËZÁ®AiÄU¼ ¤AiÄ«Äv §¼P ªÄvÄ ¤ªðºu, GvÁzP£ DªgtzÆ¼U ¸Ázɪ Áz ªÄnU ¸ɼz°AiÄÃ §ÆzÄ ¤Ãj£ ¸A¸guU¼£Ä GvÃf¸Äª ¸®ÄªÁV ¸ÆP ±ªÄª£Ä ª»¸vPzÄ.

iii. UÁªÄ ¥AZÁAiÄwU¼Ä PÃA¢PÉv ªiÁ»w, ²Pt ªÄvÄ ¸Aªº£ ªÄvÄ £qª½PU¼ §z¯ÁªuAiÄ ¸Aªº£ PÁAiÄðPªÄU¼£Ä, DgÆÃUPg £ɪÄð®ɪ PªÄU¼£Ä C¼ªr¹PÆ¼Äª UÄjAiÄ£Ä ºÆA¢ ªÄÃ¹U¼Ä ªÄvÄ CAvº ¹§A¢U½U ±ËZÁ®AiÄU¼ «£Á¸U¼°£ zÆÃµU¼£Ä ¸j¥r¹PÆ¼Äª ¸®ÄªÁV vÁAwP vg¨Ãw ºÆAz®Ä ªÄvÄ ¸ªÄzÁAiÄz ¥Á¯Æ¼Ä«PAiÄ£Ä SÁw ¥r¸Äª ¸®ÄªÁV GvÃd£ ¤ÃqvPzÄ.

iv. UÁªÄ ¥AZÁAiÄwAiÄÄ £ɪÄð®ɪ g»v ±ËZÁ®AiÄU¼ ªiÁ¥ÁðqÄ ªiÁqÄª ªÄvÄ Evg zÄg¹ QAiÄAiÄ° ¥Á¯Æ¼ÄªAvº ªÄÃ¹U¼Ä ªÄvÄ vÁAwP vdjU ªiÁ¥ÁðqÄ ªiÁqÄª° vÁAwP vg¨Ãw PÁAiÄðPªÄU¼£Ä DAiÆÃf¹, C£ÄzÁ£ª£Ä MzV¸vPzÄ.

CzÁAiÀ– XI
EvgÉ

27. **¸Áðj ¸À¸ÉÀÉA¢UÉ ¸ÀÄ£ÀiÀ** UÁªÄ ¥AZÁAiÄwAiÄÄ Evg ¸PÁðj Ke¤U¼Ä ªÄvÄ ¥Á¢PÁgU¼ÆA¢U, CAvº ¸A¸U¼ C¢PÁg ªÁ¦ ¥zÃ±U¼° CxªÁ F ¸A¸U¼ ¤AiÄAvtz°gÄª ¥zÃ±U¼° F G¥«¢U¼ ¥Á®£AiÄ£Ä SÁw ¥r¸Äª ¸®ÄªÁV ¸ª£AiÄª£Ä ¸Á¢¸vPzÄ.

28. **C£ÀµÁ£ÀÀ¥À²Ã®£É** UÁªÄ ¥AZÁAiÄwAiÄÄ F G¥«¢U¼ C£ÄµÁ£ª£Ä P¤µ ªµðP Jgq¨Áj ¥j²Ã°¸vPzÄ ªÄvÄ Ez£Ä C£ÄµÁ£UÆ½¸Äª ¸®ÄªÁV Czg UÄjAiÄ£Ä ¥ÆtðUÆ½¸Äɪz£Ä SÁw ¥r¸®Ä AiÄÄP PªÄª£Ä PɪÆ¼vPzÄ.

29. **wzÀ¥ÀUÀÀ** UÁªÄ¥AZÁAiÄwU¼Ä, C¢¤AiÄªÄz AiÄÄP «¢«zÁ£U¼£Ä C£Ä¸j¹, D jÃw ªiÁqÄɪzÄ C¤ªÁAiÄðªÁz°, ¸PÁðgz ¥ÆªÁð£ªÄwAiÆA¢U F G¥«¢U¼£Ä wzÄ¥r ªiÁq§ºÄzÄ ªÄvÄ CzP ¸Ã¥ðq ªiÁq§ºÄzÄ.

30. **DzÉ±ÀÀ¤gÀÀªÀÀG½¸À«PÉ**

J. F G¥«¢U¼Ä eÁjU §Az vgÄªÁAiÄ, C£AiÄªÁUÄªAvº ¤AiÄªÄU¼Ä/«¤AiÄªÄU¼£AiÄ AiiÁɪzÃ PªÄª£Ä, F G¥«¢U¼£Ä G®AX¸z ºÆgvÄ PɪÆ¼§ºÄzÄ.

31. **ªÁSÁ£À** F G¥«¢U¼ AiiÁɪzÃ RAq Cxª Á ±§U¼ ªÁSÁ£z° AiiÁɪzÃ ɪvÁ¸U¼Ä Gz«¹z ¸Az¨ðz°, EAVÃµï DɪwAiÄ£AiÄ ¸zj ªÁSÁ£ɪ CAwªÄªÁVgvPzÄ ªÄvÄ CzÄ P£q DɪwAiÄ£Ä(¨ÁµÁAvg) C¢P«Ä¸vPzÄ.

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C£ÀÄß-1

GvÁzÀPÀgÀ ªÀiÁvÀÄC ªÀgÀUÀÄ¼À ªÀÄvÀÄÛ ¥ÀæPÀgÀtzÀ.

UÀÄ¼ÀÉÃvÁzÀPÀgÀ

1. ªÁ¸z GzÀÃ±ÀUÁV ªiÁv §¼P ªiÁq¯ÁUÄªÀ DªgtU¼Ä
2. ¸ÀºPÁj DzÁgz ªÄÃ¯ £q¸¯ÁUÄwgÄªÀ «zÁåyð ¤®AiÄU¼Ä M¼UÆAqAv ²Pt ¸À¸ÀU¼ ªw¬ÄAz «zÁåyðUÀ½UÁV £q¸¯ÁUÄwgÄªÀ «zÁåyð ¤®AiÄU¼ DªgtU¼Ä
3. PÃAz ¸PÁðg CxªÁ gÁdå ¸PÁðg¢Az ¸Á¦¸¯ÁVgÄªÀ ±Á¸£§zÀ ¸À¸ÀU½U ¸Ãjg ÄªÀAvº ªÄvÄ ¸A¥ÆtðªÁV ªÁ¸z GzÀÃ±ÀUÁV §¼¸¯ÁUÄwgÄªÀ DªgtU¼Ä
4. PÃAz ¸PÁðg ªÄvÄ gÁdå ¸PÁðgU½U ¸Ãjg ÄªÀAvº ªÄvÄ ¸A¥ÆtðªÁV ¸PÁðj £ËPggÄU¼ ªÁ¸z ª¸wUºU½UÁV §¼P ªiÁq¯ÁUÄwgÄªÀ DªgtU¼Ä
5. PqÄ §qªg ªÁ¸PÁV ±Ä®g»vªÁV §¼P ªiÁq¯ÁUÄªÀ, CxªÁ MAzÄ ªÃ¼ ±Ä®ª£Ä «¢¹zÁUÆ ¸º, AiiÁªÀzÃ ¯Á¨ª£Ä U½¸z ¸Á¢Ã£Á£Ä¨ªPÁVAiÄÃ ªiÁq¯ÁVgÄª zªÄð±Á¯U¼Ä ªÄvÄ ªÄÄ¸Á¦gï SÁ£ÁU¼ DªgtU¼Ä.
6. OµzÁ®AiÄU¼Ä ªÄvÄ £ªÄð®å D±AiÄvÁtU¼Ä (Sanitorial asylums)

EvgÀJ¯Á vÀÄeÉÃvÁzÀPÀgÀÄ PÀÄðlPÀUÁæªÄt PÀrAiÀÄªÀ¤ÃgÀ ªÀÄvÀÄ £ÉÆÃ®å E¯ÁSÉÃ MAzÀ¸ÀPÀC¢üÀZÀÉÃ ºÉgÀ¹ C ªÀgÀUÀÄ¼À UÀÄ¼ÀÉÃvÁzÀPÀgÀ JA§ ªÀÄðPÀ¸ÀºÉgÀ C ªÀgÀUÀÄ¼À UÀÄ¼ÀÉÃvÁzÀPÀgÀ JAzÀ¥ÀUÀ¸ÀÄÀ

C£ÀÄß-11

ªiÁ£ª ªÄ® vÁdz vg«£ ±Ä®U¼Ä ªÄvÄ §¼PzÁgg ±Ä®U¼Ä. F ±Ä®U¼Ä PÃª® ¸ÆZ£ÁvPU¼Ä. UÁªÄ ¥AZÁAiÄw ªÄvÄ ¸ªÄÆºÀå ¸Æa¹gÄªÀåzQAv PrªÄ¬Ä®zAv C£AiÄªÁUÄª ±Ä®U¼£Ä¤tð¬Ä¸vPzÄ.

1. **ªÀÄ£ÀÄªÀ® vÁdªÀÄ vÉÆÃÉ½¸À±Ä®UÀÄ**(gÆZÄ vgÀå ¸ÃªAiÄ£Ä MzV¸ÄwgÄª UÁªÄ ¥AZÁAiÄw CxªÁ Ke¤U ¥Áªw ªiÁqvPzÄ)
2.

GvÁzÀPÀgÀÄ	¸À	gÆZÄ vgÀÄ ±Ä® (gÀ¥Á¬ÄUÀÄ)
UºÆAvÁzPgÄ	UÁªÄ ¥AZÁAiÄwAiÄ ªÁ¦AiÄº ªiÁ£ª ªÄ® vÁdz vg«£ ªÁºÉz ®¨v	1000
UºÆAvÁzPgÄ	vÄ®ÆPÄ ªÄIz º ªiÄ£ª ªÄ® vÁdz vgªÀUÆ½¸Aª ªÄºÉz ®¨v	1500

UÉºÆÃvÀzÀPÀvggÀ	UÀªÀ ¥ÀZÀAiÀwÀiÀ ªÀiÁ¦AiÀ° ªiÁ£ª ªÀÄ® vÁ¬dz vg«£ ªÁºÀ£z ®¨v	2500
UÉºÆÃvÀzÀPÀvggÀ	vÀ®ÆPÀ ªÀÅ¨z° ªiÁ£ª ªÀÄ® vÁ¬dz vgªÁUÆ½¸Aª ªÀºÀ£z ®¨v	3000

ªiÁ£ª ªÀÄ® vÁ¬dz ¥ªiÁt ªÀvÀ zÆgª£Ä C®A©¹ F ±Ä®U¼° ªÁvÁ¸ªÁmÁU§ºÀzÀ.

3. «PÃA¢ÃP¬v ¸A¸guÁ ª¬ª¸U §¼PzÁgg ±Ä®(UÁªÀ ¥ÀZÁAiÀwU ZgArU¼Ä ªÀvÀ J¥ïJ¸ïn¦AiÄ M ªÀvÀ JA ªÀvÀ §ÆzÄ ¤ÃgÄ ¸A¸guÁ ª¬ª¸AiÄ ¤ªð°uUÁV ¥Áªw ªiÁqvP¬zÄ)

GvÀzÀPÀgÀªÀÅ	ªÀÄ¹PÀ§¼ÀÆgÀÄ±À®(gÀ¥Á¬ÄUÀÀ)
UÉºÆÃvÀzÀPgÀ (¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	10
UÉºÆÃvÀzÀPgÀ (UÀªÀ ¥ÀZÀAiÀw¬ÀAz ¥ÆgÉP ªiÀq¯ÁUÀwgÀª PÆ¼Á¬Ä ¤Ãg£Ä §¼P ªiÁqÄªªgÄ)	¤Ãj£ §°£ zgz ±À 20 % gµÀ Cxª Á 10, Ezg° AiÀiÁª¬zÄ C¢PªÇÃ CzÄ
UÉºÆÃvÀzÀPgÀ (UÀªÀ ¥ÀZÀAiÀw¬ÀAz ¥ÆgÉP ªiÀq¯ÁUÀwgÀª PÆ¼A¬A ¤Ag£Ä §¼P ªiÁqªªgÀ + ¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	¤Ãj£ ©°£ zgz ±Ã 20% +10
UÉºÆÃvÀzÀPÀvggÀ (¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	250
UÉºÆÃvÀzÀPÀvggÀ (UÀªÀ ¥ÀZÀAiÀw¬ÀAz ¥ÆgÉP ªiÁq¯ÁUÄwg PÆ¼Á¬Ä ¤Ãg£Ä §¼P ªiÁqÄªªgÄ)	±Ã 25%gµÄ ¤Ãj£ ©°£ zg
UÉºÆÃvÀzÀPÀvggÀ (UÀªÀ ¥ÀZÀAiÀw¬ÀAz ¥ÆgÉP ªiÁq¯ÁUÄwgÄª PÆ¼Á¬Ä ¤Ãg£Ä §®P ªiÁqÄªªgÄ + ¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	±Ã 25%gµÄ ¤Ãj£ ©°£ zg + 250

4. PÉÆÃA¢ãÀZÀ¸À¸ÀgÀÁ ªÀÅ¢ÃÉ¸ÀSÁ¢üzÀvÉ §¼PÁgÀÀ±À®(UÁªÀ ¥ÀZÁAiÀwU AiÄÄfr, AiÄÄfrAiÄ ¤ªðºu, J¸ïn¦AiÄ M ªÀvÀ JAU ¥Áªw ªiÁqvP¬zÄ)

One time fee for connection to UGD

GvÁzÀPÀgÀªÀÅ	MAzÀ¨ÁjAiÀÄeÉÁqÀÉ±À®(gÀ¥Á¬ÄUÀÀ)
UÉºÆÃvÀzÀPgÀ(¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÀ)	500
UÉºÆÃvÁzÀPgÀ (UÁªÀ ¥ÀZÁAiÄw¬ÄAz ¥ÆgÉP ªiÁq¯ÁUÄwgÄª PÆ¼A¬A ¤Ag£Ä §¼P ªiÁqªªgÀ)	1000
UÉºÆÃvÁzÀPgÀ (UÁªÀ ¥ÀZÁAiÄw¬ÄAz ¥ÆgÉP ªiÁq¯ÁUÄwgÄª PÆ¼Á¬Ä ¤Ãg£Ä §¼P ªiÁqÄªªgÄ + ¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÀ)	1500
UÉºÆÃvÁzÀPÃvggÀ (¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	1000

U£ºÆÃvÁzPÅvggÄ (UÁªÄ ¥AZÁAiÄw¬ÄAz ¥ÆgïP ªiÁq¯ÁUÄwgÄª PÆ¼Á¬Ä ¤Ãg£Ä§¼P ªiÁqÄªªgÄ)	1500
U£ºÆÃvÁzPÅvggÄ (UAªA ¥AZAAiÄw¬ÄAz ¥ÆgïP ªiAq¯AUÄwgÄª PÆ¼Á¬Ä ¤Ãg£Ä§¼P ªiÁqÄªªgÄ + ¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	2500

§¼ÀÉÁgÀ¸À±Á®UÀ¼ÀÀ

GvÁzÀ¸ÀªÀ ¸ÀA	MAzÀ¨ÁjAiÀeÉÄqÀ£Á® (gÀ¥Á¬ÄUÀ¼ÀÀ)
U£ºÆÃvÁzPgÄ (¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	30
U£ºÆÃvÁzPgÄ (UÁªÄ ¥AZÁAiÄw¬ÄAz ¥ÆgïP ªiÁq¯ÁUÄwgÄª PÆ¼A¬A ¤Ag£Ä§¼P ªiAqÄªªgÄ)	¤Ãj£ ©°£ ±Ã 25%
U£ºÆÃvÁzPgÄ (UÁªÄ ¥AZÁAiÄw¬ÄAz ¥ÆgïP ªiÁq¯ÁUÄwgÄª PÆ¼Á¬Ä ¤Ãg£Ä§¼P ªiÁqÄªªgÄ + ¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	¤Ãj£ ©°£ ±Ã 25% + 30
U£ºÆÃvÁzPÅvggÄ (¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	500
U£ºÆÃvÁzPÅvggÄ (UÁªÄ ¥AZÁAiÄw¬ÄAz ¥ÆgïP ªiÁq¯ÁUÄwgÄª PÆ¼A¬A ¤Ag£Ä§¼P ªiAqÄªªgÄ)	¤Ãj£ ©°£ ±Ã 25%
U£ºÆÃvÁzPÅvggÄ (UÁªÄ ¥AZÁAiÄw¬ÄAz ¥ÆgïP ªiÁq¯ÁUÄwgÄª PÆ¼Á¬Ä ¤Ãg£Ä§¼P ªiÁqÄªªgÄ + ¸Av d®ªÄÆ®ª£Ä ºÆA¢gÄªªgÄ)	¤Ãj£ ©°£ ±Ã 25% + 500

***MAzÀ ªÉÆJ¥sÀJ¸ïn¦/J¸ïn¦AiÀÄ UÁæªÀ ¥ÀZÁAiÀÄwUÀ¼À ¸ÀÆº¸É¸ÉªÉÄÃ MzÀ¸ÀvzÀ, UÁæªÀ ¥ÀZÁAiÀÄwUÀ¼À §¼ÀÉÁgÀ¸À±Á®ªÀ¸À ¸ÀUæ¸ÀwÀ¼À ªÀÄvÀÄ AiÀÄªÀUÁæªÀ ¥ÀZÁAiÀÄwAiÀÄ ¸À¸ÀgÀ¼À ¸Áªgï¼ÀªÀ ºÉA¢gÀvÀÉÆÃ CAvÀUÁæªÀ ¥ÀZÁAiÀÄwUÉ¥Áªï ªÀqÀ¼ÀªÀ UÁæªÀ ¥ÀZÁAiÀÄwUÀ¼À §¼ÀÉÁgÀ¸À±Á®zÀMAzÀ¨ÁUÀ¸ÀÀ ZgÀr UÀ¼ªÀºÀÉÆG½¹PÉ¼ÀªÀ**

C£ÀÄ¸Àa -III
zÀqÀÉÀ¼ÀÀ

PæÀ¸À	C£ÀÄ¥Á®£Ïªï ªÀqÀgÀªÀ ¥ÀvÀæeÉÄvÀzÀ¸ÀªÀ¸ÀÀ	zÀqÀÉ(gÀ¥Á¬ÄUÀ¼ÀÀ)
1	ªÀ£ÀAiÀ°¹ GvÀz£ÀiïÀUÀªÀ PÆ¼PÀ ¤AgÀ/gÀr/Evg ¤AgÀU¼£Ä Dv£/DPAiÀ DªgÀt¢Az ¤Aj£ ºÀjªÀ, d®ªÄÆ®U¼A, d®ªiÀUðU¼A, PË¶ ¨Æ«À CxªÀ Evg AiïÁªÀ¸zÀ ¤U¢ ¥Àr¸Àz ¸¼U½U ©qªÀ CxªÁ ©q®Ä ¥Ãgu ¤ÃqÄªªgÄ	200
2	ªÀ£ÀAiÀ°¹ GvÀz£ÀiïÀUÀªÀvº PÆ¼PÀ ¤Ãg£Ä UAªA ¥AZAAiÄw¬ÄAz CUv¹ C£ÄªÄwAiÄ£Ä ¥qAiÄzÃ AiÄÄP¹ UAtªAl ªÄvÄ ¤¢ðµv¬Ä®z ¸Aªðd¤P ZgÀr ªiÁUðP¹ eÆÃqu ªiÁrz ¸Az¨ðz°¹	1000

3	ZgArU½U(ªÀÄ ¸ÀÉ ªÀÄagÀª ZgArU¼À CxªÀ AiÀÄfrU¼À) C¥ÀAiÀªÉÃAlÀ ªiÁq§ºÀzÁz AiiÁªÀ¸zÃ ª¸ÀªÉÃ ºjAiÀ®À CªPÁ± ¤Ãrz° CxªÁ vÀ¤d¸ ¤AgÀ ¸ªðd¤P ZgAr ªiAUðz° CxªÀ ZgAr ºjAiÄªº ªÀz¸¥ªÃ± ªiÁrzg	500
4	PÉÆÆÉÀ ¨Á»g MvÀªjAiÀ ªÀÄ®P ZgArU½U ºÁ¤AiÄÉÃAlÄ ªiÁrz°	1000
5.	PÉUAjPÀ zª vÀ¤dªÉÃ CxªÀ PÉUAjPÀ ZlÀªnPU½U, UÉº PÉUAjPU¼À, P¸À¬À SÉÆ ªÀvÄ ªiÁA¸z ªiÁgÄPm, ºÉÆÃUÁjP ªÀvÀ eÁÉÄªÁgÄU¼ PÆnU, PÁAiiÀðUAgU¼À CxªÀ UgÁdÄU½U ¸À§A¢¹z AiiÀªÀ¸zÀ zª vÁ¤dªÉÃ ¸ÆP ¸À¸gu ªiAqÀª ªÀÄÉ®ªÀ ¸ªðd¤P ZgArU ºj¹z° CxªÀ ºj¸®À ¥Ãgu ¤Ãrz°	2000
6	AiiÀªÀ¸zÀ ¸ªðd¤P ¸¼U¼° GUÁ¼ÀªÀ¸zÀ, ª®À ªÄÆv «¸dð£ ªiÁrz°	100
7	CÉÀªÀw¬À®z ªÀºÉU¼À, ªÀÄaz ZgArU¼ ªÄÃ¯ÉÆ, ªiÁ¤£ÆÃ¯ï ªÀÄZ¼U¼À, ZgArU¼À ªÀvÀ G¥PgtU½U AiiÀªÀ¸zÀ ºÀ¤AiÀÉÃAlÀ ªiÁrz° CxªÁ vgªÀUÆ½¹z°	500
8	ªÀÄ UÀgÀw¸ Àgz Evg ¸¼U¼Ä/PÁAiÄðZlÄªnPU¼Ä	¸ªÀiÁ£¤/DxªÀ «±Àµ DzÀ±/C¢¸ÆZ£AiÀ ªÀÄ®P UAªÀ ¥AZÁAiÄwAiÄÄ wÃªiÁð¤¹zAv

C£ÀÄ¸Àa –IV

¤AiÀÄvÀæ WÀPÀëvÀzÀ±ÀÐ ¸ÀºÀ£ÀªÀqÀ¸À®ªÁV ¸ÀÆÕ £ÀÄÆÉÀ¥ÀæÃt ¥ÀPÀ

D¹AiÀÄ«ªÀgÀÄ	**(F «ªÀgÀÄ¸ÀÄÁªÀ¥ÀZÁAiÀÄwAiÀÄ D¹ jf¸À¤AzÀ ¹zÀÁV ¥ÀqÉÃSºÀzÀ)**
ªÀ¸z ªÀ£AiÀÄ ±ÉZÀ®AiÀªÀ£ÀÉ ºÆA¢gÀªÀzÀ	ºÉzÀ/É®
ªÀ¸z ªÀ£AiÀ°gÀª ±ÉZÀ®AiÀU¼ ¸ÀS¸	
±ÉZÀ®AiÀz ªiÀzj	
±ÉZÀ®AiÀz vÆn (ºÆAq)	KPUÀÀr/¢UÀÀr/ ªiÀ£ª ªÀ® vÀ¤dz vÆn/Evg AiiÁªÀ¸zÃ «z
±ÉZÀ®AiÀ ºÀUÆ vÆnAiÀ ¤ªiÀðt	zÆAµ¥Ætð/«£À¸z jÀv¸
±ÉZÀ®AiÀ ªÀvÀ vÆnAiÀ ¨ÉwP ¥j¹w	
¸ÀÛUÆ½¸ªÀ C¢AiÀ CAvg	¥w DgÀ wAU¼À/¥w ªµð/¥w JgqÀ ªµð/É®ªÀ É®
ºÆAq/ ªiÀ£ª ªÀ® vÀ¤dz UÀÀrAiÀ ¸ÀÛvÀ ¸ÃªU½U AiiÁg£ÀÄ ¸À¥Qð¸¯ÁUÄvz	(KeAl£ º¸gÀ)
ªÀ£AiÀ°ªÀ¸ÀªÀV ªÀ¸ ªiÁqÀwgÀª ª¸QU¼ ¸ÀS¸	

ªÁ£ÁiÄÁ ¤Ãj£ ¸Á¥PðªÁ£Á ºÆA¢gÁªÀzÁ	
±ËZÁ®AiÄ ªÁvÁ PÁrAiÄÁª ¤Ãj£ ªÁÆ®z £qÄ«£ zÆg	
ªïÁ£ª ªÁ® vÁd¯z UÁAr/ºÆAqª¼ ±ËZÁ®AiÄz «ªgU¼Ä	
AiÆÁd£AiÄ jÁv¯ ¸ÁªÁx¯ð	UÁªÁ ¥ÁZÁAiÄwAiÄ zÁR¯ U½Az ¥qAiÁ§ºÁzÁ
ªÁ¸ª ¸ÁªÁx¯ð	
ºÆAq/ ªïÁ£ª ªÁ® vÁd¯z UÁAr EgÁª ¸¼	ªÁ£ÁiÄ ¥ªÁ±z ªÁÁ¨ÁUzº/ªÁ£ÁiÄ »A¨ÁUzº
ªïÁ£ª ªÁ® vÁd¯ªÁ£Á vgªÁUÆ½¸Áª ÌPÁ ¸Ä®¨ªÁV ºÆAq/gÆZÄ UÁArAiÁ£Á v®Á¥®Á ¸Áz¯ªÁUÄªÁ¼zÃ	
§ÆzÁ ¤Ág£Á ªÁÁPªÁV ºjAiÁ©q ÁUÁªÁ¼zÁ	ºÉzÁ/E®
E®¢z¯°, Cz£Á ZgArU ºjAiÁ ©q¯ÁUÄwzAiÄÃ	ºÉzÁ/E®
ªÁ£ÁiÄ ¸Áv EÁUÁUÁAr ¤ªïÁðtPÁV ¸¼ÁªPÁ±«zAiÄ	ºÉzÁ/E®

£ÀÄß£É 1 (G¥À¢ü 21(f)
C¥ÀWÁvÀªÀgÀ ªÀiÁqÀ®Ä ¸ÀzÀ

PÀæªÀÄ ¸ÀA	«ªÀgÀuÁ	zÀÆj¹
1	C¥WAv £qz ¢£ÁAP ªÁvÁ ¸ªÁAiÁ	
2	C¥WAvP¯ PÁgtªÁz WÌ£U¼ ¸gt	
3	C¥WAvz° M¼UÆAq vÁd¯	
4	ªïÁ£ª£ DgÆAU¯ ªÁvÁ ¥j¸gz ªÁÁ C¥WAvªÁ ©ÃgÄª ¥juÁªÄU¼ ¤zðgu	
5	PÉUÆ¼ Áz vÁvÁð Pªª	
6	C¥WAvz ¥juÁªÁU¼£Á Prª ªïÁq®Á PÉUÆAq PªÄU¼Ä	
7	CAvº C¥WAvU¼Á ªÁgÁP½¸Áª¼z£Á vqUÌ®Á PÉUÆ¼¯Áz PªÄU¼Ä	

¢£ÁAPÀ	¸ÀA
¸¼	¥ÀÆtðªÀ

PR-171

GOVERNMENT OF KARNATAKA
Rural Drinking Water and Sanitation Department
O/o. the Commissioner, RDW&SD,
2nd Floor, "E" Block, KHB Building, Cauvery Bhavan, K.G. Road,
Bangalore – 560 009, ☎ : 080-22240508, 🖷 : 22240509, Email : krwssd@gmail.com

No.RDWSD/123/SBM(G)/WASHADVOCACY/2019

The Karnataka Panchayat Raj (Management of Solid Waste) Model Bye-laws, 2020

The Karnataka Panchayat Raj (Management of Solid Waste) Model Bye-laws, 2020 for handling and management of Solid Waste within the territorial limits of the Gram Panchayats which the government of Karnataka proposes to make in exercise of Section 316 of Karnataka Gram Swaraj and Panchayat Raj Act, 1993 along with provisions of the Solid Waste Management Rules, 2016 is hereby published as required by sub-section (1) of Section 316 of the said Act. This is for the information that Draft was published in Karnataka Gazette Part-IV-A on Date:12.03.2020, suggestion & objections were sought from all persons likely to be affected by it, within 30 (thirty) days from the date of its publication in the Official Gazette

And the above said Gazette was made available to public from Date:12.03.2020. Since, no suggestions and objections were received with respect to Bye-laws,

Hence under Karnataka Gram Swaraj and Panchayat Raj Act, 1993 of Section 316 as read The Karnataka Panchayat Raj (Management of Solid Waste) Model Bye-laws, 2020 is framed under the section 311- Power of Government to make rules, and that is:-

Bye-laws

Name and commencement: 1**)** These Byelaws are called Karnataka Panchayat Raj (Management of Solid Waste) Model Bye-laws, 2020

CHAPTER I – GENERAL

1. **Short title, commencement and application**

1.1. These are the Karnataka Panchayat Raj (Management of Solid Waste) Model Bye-laws, 2020 and shall come into operation from the date of their publication in the Official Gazette.

1.2. These Bye-laws shall come into force in accordance with the procedure laid down under the Karnataka Gram Swaraj and Panchayat Raj Act, 1993.

2. **Definitions**

In these Bye-laws, unless the context otherwise requires -

2.1. "**Act**" means the Karnataka Gram Swaraj and Panchayat Raj Act, 1993, as may be amended from time to time.

2.2. "**Agency**" means any person or entity, including any registered organisation of Waste Pickers or Waste Traders, appointed or authorised by the Gram Panchayat or directed by the Government to act on behalf of the Gram Panchayat in accordance with an agreement, for the discharge of duties or functions under these Bye-laws.

2.3. "**Bio-degradable Waste**" means any organic material that can be degraded by micro-organisms into simpler stable compounds, an illustrative list which is specified in **Part A of Schedule I**.

2.4. "**Bio-medical Waste**" shall have the same meaning as set out in the Bio-medical Waste Management Rules, 2016.

2.5. **"Building"** means any temporary or permanent structure which may be mobile or immobile that generates solid waste.

2.6. "**Bulk Waste Generator**" means and includes

(i) Buildings occupied by the Central government departments or undertakings, State government departments or undertakings, Gram Panchayat, Market Associations, hospitals, nursing homes, schools, colleges, universities, other educational institutions, hostels, hotels, restaurants, shops, households, commercial establishments, places of worship, marriage halls, railway stations, bus stations etc., each generating an average of 50kg or more of Solid Waste(from all waste streams) per day;
(ii) residential, apartment and housing complexes and Resident Welfare Associations, each generating an average of 50 kg or more of Solid Waste (from all waste streams) per day;
(iii) gated communities, corporate campus, technology parks and institutions with an area of more than 5000 sqm; and
(iv) any other Bulk Waste Generator as notified by the Gram Panchayat in accordance with these Bye-laws from time to time.

2.7. "**Bye-laws**" shall mean the Karnataka Panchayat Raj (Management of Solid Waste) Model Bye-laws, 2020, as amended from time to time.

2.8. "**Chief Executive Officer**" shall have the same meaning as set out in the Act.

2.9. "**Cluster**" means two or more geographically contiguous Gram Panchayats that converge for processing of Solid Waste.

2.10. **"Committees"** means the Village Water and Sanitation Committees and the Village Health, Sanitation and Nutrition Committees formed under Section 61-Aof the Act.

2.11. "**CPCB**" means the Central Pollution Control Board.

2.12. "**Domestic Hazardous Waste**" means household waste that can catch fire, react, contaminate or explode under certain circumstances, or that is corrosive or toxic, an illustrative list of which is specified in **Part C of Schedule I**.

2.13. **"Door to Door Collection"** means collection of Solid Waste from the door step of households, shops, commercial establishments, offices, institutional or any other Premises occupied by Waste Generators.

2.14. "**Dry Waste Collection Centre or DWCC**" means a decentralised waste management facility to aggregate, store, sort and handle Non-Biodegradable Waste that is operated by the Gram Panchayat and/or the Agency.

2.15. "**E-Waste**" shall have the same meaning as set out in the E-Waste Management Rules 2016.

2.16. "**Executive Officer**" shall have the same meaning as set out in the Act.

2.17. "**Government**" shall have the same meaning as set out in the Act.

2.18. "**Gram Panchayat**" shall have the same meaning as set out in the Act.

2.19. "**Gram Panchayat Development Plan**" means the development plan formulated by the Gram Panchayat in accordance with Section 309 and other applicable provisions of the Act.

2.20. "**KSPCB**" means the Karnataka State Pollution Control Board.

2.21. **"Market Associations**" means any registered or unregistered group or association of sellers, shop owners, shop keepers, traders, businessmen, dealers, merchants, vendors, brokers or other Persons of a particular market or locality including Agricultural Produce Market Committees.

2.22. "**Micro-plan**" means the plan for collection and transportation of Solid Waste for the smallest unit of management of the Gram Panchayat which includes allocation of the manpower and vehicles and schedule of Street Sweeping in such unit.

2.23. "**Non-biodegradable Waste**" means any Solid Waste that cannot be degraded by microorganisms into simpler stable compounds.

2.24. "**Panchayat Development Officer**" shall have the same meaning as set out in the Act.

2.25. "**Person**" includes any individual or association of individuals whether incorporated or not.

2.26. "**Point to Point Collection**" means the system wherein segregated Solid Waste is deposited by the Waste Generator at such places and storage points which may be designated by the Gram Panchayat for onward delivery provided by the Gram Panchayat or Agency.

2.27. "**Premises**" means any land, building or part of a building and includes any gardens and grounds appertaining to a building or part thereof and structures constructed on the land, used for purposes of residence, trade, industry, business, government or any other public or private purpose including weddings, meetings, exhibitions, organized events etc.

2.28. "**Receptacle**" means container, including bins and bags, used for the storage of any category of Solid Waste.

2.29. **"Recyclable Non-biodegradable Waste"** means Non-biodegradable Waste that can be transformed through a process into raw materials for producing new products, which may or may not be similar to the original products, an illustrative list of which is specified in **Schedule Part B of Schedule I**.

2.30. "**Resident Welfare Associations**" means a group or association of owners and/or occupiers of residential premises of a particular neighborhood or locality that may or may not be registered with the Registrar of Co-operative Societies.

2.31. "**Sanitation Motivator**" means an individual engaged by the Gram Panchayat in accordance with the Swacchagrahi Guidelines, 2018, issued by the Government of India and/or any other subsequent applicable regulations, for sanitation related activities in the Gram Panchayat.

2.32. "**Sanitary Landfill**" means the final and safe disposal facility of residual Solid Wastes and inert waste which is designed in accordance with various applicable regulations to prevent the pollution of ground water, surface water, air fugitive dust, wind-blown litter, bad odour, fire hazard, animal menace, bird menace, pests or rodents, greenhouse gas emissions, persistent organic pollutants, slope instability.

2.33. "**Sanitary Waste**" means wastes comprising of used diapers, sanitary towels or napkins, menstrual cloth and cups, incontinence sheets, tampons, condoms, ear buds, toilet paper, bandage, cotton swabs, syringes from households and any other similar waste.

2.34. **"Solid Waste"** means and includes solid or semi-solid domestic waste, Sanitary Waste, commercial waste, institutional waste, catering and market waste and other non-residential wastes, Street Sweepings, silt removed or collected from the surface drains, horticulture waste, agriculture waste, excluding industrial waste, Bio-medical Waste, E-waste, battery waste and radio-active waste generated within the Gram Panchayat.

2.35. "**Street Sweeping**" means the sweeping and collection of Solid Waste from public streets, parks and other public areas and cleaning of surface drains/ trenches abutting public streets and related activities.

2.36. "**SWM Rules**" means the Solid Waste Management Rules, 2016, as may be amended from time to time.

2.37. "**SWM User Fee**" means a fee imposed by the Gram Panchayat on the Waste Generator to cover the whole or part of the cost of providing Solid Waste collection, transportation, processing and disposal services by the Gram Panchayat and/or the Agency in accordance with these Bye-laws.

2.38. "**Waste Generator**" means and includes Persons or group of Persons, every Building, residential premise and non-residential establishment including Indian Railways and defence establishments, which generate Solid Waste.

2.39. "**Waste Picker**" means a person or groups of persons informally engaged in collection and recovery of Non-Biodegradable Waste from the source of waste generation, streets, bins, dumping areas, public areas etc. for sale to recyclers directly or through intermediaries such as Waste Traders to earn their livelihood.

2.40. "**Swachatha Worker**" or "Sanitary Worker" means a person employed by the Gram Panchayat or Agency, either directly or indirectly who is responsible for

(i) Street Sweeping including drain cleaning;
(ii) Door-to-Door Collection such as collection of Solid Waste using pushcarts/small auto-tippers (excluding night soil);
(iii) operations in waste processing units such as composting, bio-methanation, Dry Waste Collection Centres and other waste processing units; and/or
(iv) other sanitation and waste management activities as required by the Gram Panchayat from time to time.

2.41. "**Waste Traders**" means Persons and entities who are involved in the sorting, sale and purchase of Non-biodegradable Waste including scrap dealers, itinerant buyers, and traders.

Any words or expressions not defined in these Bye-laws shall have the same meaning as in the Solid Waste Management Rules, 2016.

CHAPTER II – SOLID WASTE MANAGEMENT PLANNING

3. Solid Waste management planning and budgets:

3.1. The Gram Panchayat, either individually or as a Cluster, shall prepare a detailed five year sanitation plan, which shall be composed of yearly plans, as a part of the Gram Panchayat Development Plan.

3.2. The Gram Panchayat sanitation plan shall contain details of the following:

(i) implementation timelines and annual milestones to be achieved by the Gram Panchayat,

(ii) assets and infrastructure relating to Solid Waste management,
(iii) human resources required for Solid Waste management activities in the Gram Panchayat,
(iv) funding requirements for capital and operational expenses including sources of the funds to cover such expenses,
(v) monitoring and evaluation parameters,
(vi) capacity building, awareness and behavioural change activities; and
(vii) any other details that may be communicated by Karnataka Rural Drinking Water & Sanitation Department, from time to time.

3.3. The Gram Panchayat shall, either individually or as a Cluster, prepare a detailed project report for management of Solid Waste generated within the territorial limits of the Gram Panchayat or the Cluster, as the case may be, on the basis of Micro-plans relating to collection mechanism and processing of Solid Wastes

3.4. Such detailed project report and Micro-plan shall contain details for each of the following:

(i) collection times for different categories of Solid Waste,
(ii) details of the collection vehicles and points,
(iii) map of the village(s) in the Gram Panchayat or the Cluster,
(iv) roads/public streets for Street Sweeping,
(v) personnel required for carrying out Solid Waste management activities,
(vi) other information required for effective implementation of the Solid Waste management that may be communicated by Karnataka Rural Drinking Water & Sanitation Department from time to time.

3.5. The Gram Panchayat shall prepare annual budgets as a part of the Gram Panchayat Development Plan which shall include:

(i) the capital costs required for initial investment in Solid Waste infrastructure and facilities,
(ii) the recurrent expenditures required to operate and maintain the facilities and,
(iii) the programme costs for activities such as capacity building including training, information education and communication, behavioural change and awareness activities.

The Gram Panchayats shall reserve at least 25% of their total budget for all sanitation and solid and liquid waste management infrastructure, operations and activities every year.

3.6. The Gram Panchayat shall open a separate bank account for sanitation and waste management activities including management of Solid Waste, in which all amounts collected as SWM User Fees, grants and fund under various schemes from the central government and state shall be deposited. The funds from this bank account shall only be used towards the costs incurred by the Gram Panchayat in fulfilling its functions relating to sanitation and waste management. The transactions of this bank account will be audited periodically and in a manner determined

by the Karnataka Rural Drinking Water & Sanitation Department in accordance with applicable law.

CHAPTER III – POWERS AND FUNCTIONS

4. Powers and Functions of Different stakeholders in the Gram Panchayat

4.1. The Gram Panchayat shall be primarily responsible for the collection, processing and disposal of Solid Waste in accordance with these Bye-laws.

4.2. **Planning and Management**: The Village Water and Sanitation Committee and/or Village Health, Sanitation and Nutrition Committee formed under the Act, or, in their absence, the Gram Panchayat, shall be responsible for the following functions related to Solid Waste management:

(i) Identification and allocation of land within the Gram Panchayat for Solid Waste management activities such as processing of Bio-degradable Waste and storage of Non-Biodegradable Waste in a Dry Waste Collection Centre.

(ii) Preparation of the sanitation plan as a part of the Gram Panchayat Development Plan, detailed project report, micro-plans, annual budgets for sanitation and waste management systems and approval of such plans and budgets in the Gram Sabha.

(iii) Ensure that funds for discretionary functions of the Gram Panchayat have been allocated only after meeting the requirement of necessary funds for Solid Waste management and other obligatory functions of the Gram Panchayat as per the Act.

(iv) Enforcement and collection of SWM User Fees for Solid Waste management services.

(v) Approve works and expenditures for Solid Waste Management activities, procure capital infrastructure such as machinery, vehicles and equipment and organise for agencies for capital infrastructure such as DWCC, waste collection vehicles and composting or bio-methanation units.

(vi) Engage personnel and/or Agency for different activities such as collection, transportation and processing of Solid Waste and for various awareness, information, educational and behavioural change activities within the Gram Panchayat.

(vii) Provide logistical support for transportation of Non-recyclable Non-Biodegradable Waste to nearest aggregation centre in Taluk Panchayat and/or Zilla Panchayat, as may be necessary.

(viii) Help create a system to recognise organisations (including self help groups) of Waste Pickers and promote and establish a system for integration of these authorised Waste-Pickers to facilitate their participation in Solid Waste management including door to door collection of waste.

(ix) Assessment of quantifiable impacts such as improvement in source segregation, reduced dumping and burning of Solid Waste, increased recovery of resources from Solid Waste, improvement in local health and environment due to proper waste management systems through itself and/or other qualified agencies.

(x) Half yearly review of annual budgets for Solid Waste management activities against the expenditures and quarterly and annual reports on implementation progress and operational performance of Solid Waste management activities.

(xi) Facilitate social audit of the sanitation plan developed by the Gram Panchayat in accordance with the guidelines issued by the state by involving all primary stakeholders, beneficiaries, vulnerable communities and other members of the Gram Panchayat as may be required for a comprehensive review of the sanitation plan.

(xii) Compliance with all the duties listed for Gram Panchayats in Plastic Waste Management Rules, 2016 and enforcement of the ban on use of plastic issued by Forest, Ecology and Environment Department, Government of Karnataka as per Notification No. FEE 17 EPC 2012, Bangalore dated March 11, 2016.

(xiii) Any other role and/or responsibility as may be directed in accordance with applicable law by the Gram Panchayat, district and state authorities.

4.3. The transaction of business of the Gram Panchayat and its Committees, shall take place in the meetings of the Gram Panchayat or its Committees as per the procedure established under the Act, provided that the Gram Panchayat and/or the Committees shall meet for the purposes of these Bye-laws at least once every three months in a year.

4.4. **Panchayat Development Officer**: The Panchayat Development Officer shall be responsible for the following functions and responsibilities related to Solid Waste management:

(i) Assist the Gram Panchayat and Village Water and Sanitation Committee and/or Village Health, Sanitation and Nutrition Committee in preparation of the sanitation plan as a part of the Gram Panchayat Development Plan, detailed project report, micro-plans, annual budgets for sanitation and waste management systems, and computation and finalisation of the SWM User Fees.

(ii) Provide information to the Gram Panchayat members about various technologies, schemes etc. relating to Solid Waste management.

(iii) Supervise implementation, operation and maintenance of Solid Waste management systems such as Door to Door Collection, Street Sweeping, construction of compost pits, bio-methanation plants and DWCC, Sanitary Landfills (if applicable) and operations of such processing and disposal facilities.

(iv) Assist the Gram Panchayat in procuring suitable vehicles and equipment for Solid Waste management.

(v) Menstrual hygiene management activities, including awareness generation among the general public, with particular focus on women and adolescent girls, and safe disposal of Sanitary Waste.

(vi) Daily financial management and maintenance of records of the Solid Waste management systems, including review of accounts, resources, assets and systems.

(vii) Assisting the Gram Panchayat and the Committees in preparing the reports, forms and other documents evidencing status and progress of Solid Waste management systems.

(viii) Any other role and/or responsibility as may be directed as per applicable law by the Gram Panchayat, district and state authorities.

4.5. **Non-governmental and community based organisations**: The Gram Panchayat may entrust the following roles relating to Solid Waste Management to non-governmental and/or community based organisations and self-help groups:

(i) Support the Gram Panchayat in planning, dissemination and execution of various awareness, information, educational and behavioural change activities involving the entire community.
(ii) Involvement in training and capacity building of the Gram Panchayat officials, Sanitation Motivators, Swachatha Worker, Agencies and other Persons involved in Solid Waste management.
(iii) Assist the Gram Panchayat in implementation of sanitation plan and other waste management programs.
(iv) Carry out surveys and monitor the impact of the sanitation and waste management programs and assist in the social and other independent audits of Solid Waste management systems.
(v) Door to door collection, transportation and processing of Solid Waste generated in the Gram Panchayat as may be entrusted by the Gram Panchayat.
(vi) Any other role as may be directed by the Gram Panchayat, district and state authorities, in accordance with applicable law.

4.6. **Sanitation Motivators**: The Sanitation Motivators shall have the following functions, as may be entrusted by the Gram Panchayat:

(i) Assist Gram Panchayat in preparation of Gram Panchayat sanitation plan, detailed project report, Micro plans and other waste management plans.
(ii) Facilitate strengthening and capacity building of members of Committees, Swachatha Worker, Agencies and other Persons involved in Solid Waste management activities.
(iii) Assist in planning, dissemination and execution of various awareness, information, educational and communication activities and facilitate sustained behaviour change.
(iv) Evaluate the quality of the infrastructure being built for Solid Waste management, equipment and other assets procured in this regard.
(v) Raise awareness about the proper operations and maintenance of the assets created for safe sanitation and Solid Waste management.
(vi) Ensure sustainability of the Solid Waste management program by assisting the PDO with monitoring activities and maintenance of records of data at the Gram Panchayat level.
(vii) Menstrual hygiene management activities including awareness generation and safe disposal of Sanitary Waste.
(viii) Carry out surveys and monitor the impact of the sanitation and waste management programs and assist in the social and other independent audits of Solid Waste management systems.
(ix) Any other role as may be directed by the Gram Panchayat, district and state authorities, in accordance with applicable laws.

CHAPTER IV – SEGREGATION OF SOLID WASTE

5. **Segregation of Solid Waste into different categories at source by the Waste Generator**

5.1. Every Waste Generator, including Bulk Waste Generators, shall be required to segregate Solid Waste at source of generation into the following categories:

(i) Bio-degradable Waste, also referred to as Wet Waste,
(ii) Non- biodegradable Waste, also referred to as Dry Waste,
(iii) Domestic Hazardous Waste, including Sanitary Waste,

5.2. The Sanitary Waste shall be securely wrapped in pouches provided by the manufacturers or brand owners or in appropriate wrapping which shall clearly indicate its nature and all Sanitary Waste shall be stored with the Domestic Hazardous Waste.

5.3. The Bio-degradable Waste, Non- biodegradable Waste and Domestic Hazardous Waste (along with Sanitary Waste) shall each be stored separately, without mixing them, in specified Receptacles for handing over or delivery to Gram Panchayat and/or Agency, as the case may be.

5.4. The colour of the Receptacles where the following segregated Solid Waste shall be stored before eventual handover to Gram Panchayat and/or Agency, as the case may be, shall be:

(i) Green for Bio-degradable Waste, in the event the Gram Panchayat is carrying out Door to Door Collection of Bio-degradable Waste;
(ii) Blue for Non-biodegradable Waste or high density polyethylene (HDPE) bag, and
(iii) Red for Domestic Hazardous Waste including Sanitary Waste.

5.5. **Duty of specific categories of Waste Generators:**

(i) The Waste Generators such as street vendors shall segregate the Solid Waste generated during the course of its activity such as food waste, disposable plates, cups, cans, wrappers, coconut shells, leftover food, vegetables, fruits and similar items in accordance with the categories set out in Bye-law 5.1.
(ii) Every occupier of any Premises who generates poultry, fish and slaughter waste as a result of any commercial activity, shall store such waste separately in a closed and hygienic condition and such waste shall not be mixed with any other category of Solid Waste.

CHAPTER V – COLLECTION AND TRANSPORTATION OF SOLID WASTE

6. **Door to Door Collection of segregated Solid Waste**

6.1. The Gram Panchayat shall be responsible for Door to Door Collection of segregated Solid Waste at such times and in such manner as shall be notified by the Gram Panchayat in accordance with these Bye-laws.

6.2. The Gram Panchayat shall notify the area-wise time slots including the relevant day of the week, the frequency and the manner (through pushcarts or automated vehicles) of Door to Door Collection of different categories of Solid Waste in accordance with Bye-law 6.3, provided that the Gram Panchayat shall collect Non-biodegradable Waste at least once a week subject to the payment of SWM User Fee under Chapter X of the Bye-laws. Such notifications shall be published in the Gram Panchayat office and other prominent and visible areas of the Gram Panchayat.

6.3. The Gram Panchayat shall take into account the following factors while determining the frequency and manner of Door to Door Collection as per Bye-Law 6.2:

(i) density of population,
(ii) characteristics of the Solid Waste,
(iii) width of the streets, and
(iv) manpower and funds available with the Gram Panchayat.

6.4. The Waste Generators may handle the Bio-degradable Waste onsite or offsite by feeding it to livestock, through home composting, bio-methanation or any other forms of treatment as permitted under applicable laws or guidelines, instead of handing over such waste for Door-to-Door Collection.

6.5. In addition to Door to Door Collection of Solid Waste under Bye-law 6.1, the Gram Panchayat and/or Agency, as the case may be, shall also collect Solid Waste from public places such as roads, public streets, common areas, playgrounds, parks, markets, gardens, tourist areas and similar areas at specified times and days.

6.6. The Gram Panchayat may designate an Agency in accordance with applicable laws to implement Door to Door Collection of all and/or certain categories of segregated Solid Waste, from Waste Generators in all villages of the Gram Panchayat.

6.7. The Gram Panchayat shall designate a specific days in a week and vehicles for collection of slaughterhouse waste and the relevant occupier/owner shall ensure that such waste is ready for collection on the designated days and times.

6.8. The Gram Panchayat shall assess the number of vehicles, push-carts and **Swachatha**/Sanitary Workers that will be allotted to each village for efficient collection of Solid Waste and to ensure that there is no inter-mixing of segregated Solid Waste.

6.9. The ratio of number of Swachatha/Sanitary Workers and vehicles with respect to number of Waste Generators shall be computed in accordance with the methodology as may be specified by the Karnataka Rural Drinking Water & Sanitation Department from time to time.

6.10. It shall be the duty of every Waste Generator to assist the Gram Panchayat and/or Agency in collection of the segregated Solid Waste by ensuring the Solid Waste is segregated and deposited in correct Receptacles and is ready for collection at the appointed time in accordance with the time-slots published by the Gram Panchayat or Agency.

6.11. The Door to Door Collection of segregated Solid Waste shall be implemented in the following manner:

(i) The Gram Panchayat or Agency shall publicly announce its arrival at the specified area for Door to Door Collection.
(ii) The Waste Generator shall handover the Solid Waste to the Gram Panchayat and/or Agency upon its arrival at the specified area.
(iii) In the event the Waste Generator is not available to handover the Solid Waste, such Waste Generator shall ensure that the Solid Waste is stored in a segregated manner at a prominently visible, convenient and accessible place for the Gram Panchayat and/or Agency to collect the Solid Waste. The segregated Solid Waste should not be left in the open without an enclosure where they are susceptible to be wind, water or animals.

6.12. There shall be no mixing of segregated Solid Waste during the collection and transportation of the Solid Waste.

6.13. The collected Bio-degradable Waste will be transported to composting units, bio-methanation plants or any other processing unit which complies with SWM Rules and/or applicable CPCB and KSPCB guidelines.

6.14. The Non-biodegradable Waste and/or Domestic Hazardous Waste (including Sanitary Waste) will be transported to the Dry Waste Collection Centre of the Gram Panchayat or any other authorised site designated by the Gram Panchayat.

6.15. The different streams of Solid Waste shall be processed in accordance with provisions contained in Chapter VI of the Bye-laws.

7. **Point to Point Collection of Solid Waste**

7.1. Until Door to Door Collection is implemented by the Gram Panchayat, the Gram Panchayat may, through notification, designate certain areas and collection points within its jurisdiction for Point to Point Collection, where segregated Solid Waste shall be deposited by Waste Generators.

8. **Vehicles for transportation of Solid Waste**:

8.1. The Gram Panchayat will deploy suitable vehicles for the collection of Solid Waste including auto-tippers or vehicles having separate compartments for carrying Bio-degradable, Non-biodegradable Waste and Domestic Hazardous Waste.

8.2. In the event it is not feasible to have three compartments for different streams of Solid Waste, separate days shall be designated for collection of Bio-degradable, Non-biodegradable Waste and Domestic Hazardous Waste to ensure that there is no mixing of different categories of Solid Waste.

8.3. The vehicles used for transportation of Solid Waste shall be covered in such a manner that the collected waste is not

(i) exposed to the open environment, or
(ii) visible to the public and
(iii) scattered on the road and/or open areas during transportation.

CHAPTER VI – PROCESSING AND DISPOSAL OF SOLID WASTE

9. **Facilities to be provided by the Gram Panchayat:**

9.1. The Gram Panchayat shall, either individually or as a Cluster, comply with the following provisions with respect to processing and disposal of Solid Waste:

(i) The Gram Panchayat shall identify suitable site(s) for storage and processing of different streams of Solid Waste within one year from the date of coming into force of these Bye-laws.
(ii) The Gram Panchayat shall construct, operate and maintain solid waste processing facilities and associated infrastructure on its own or through an Agency.
(iii) The Gram Panchayat shall utilise suitable technology as per the guidelines issued by Karnataka Rural Drinking Water & Sanitation Department, KSPCB, CPCB and/or any other appropriate authority, in order to minimise the use of Sanitary Landfills.
(iv) The facilities shall have adequate utilities to ensure clean & hygienic conditions including provision of water and toilets, for the avoidance of adverse health and environmental conditions.
(v) All processing facilities shall comply with any additional standards, specifications and guidelines notified by KSPCB, CPCB, Karnataka Rural Drinking Water & Sanitation Department and/or relevant authority or prescribed by any law for the time being in force.

9.2. **Dry Waste Collection Centres:**

(i) The Gram Panchayat shall provide for Dry Waste Collection Centre(s)for collection and sorting of Non-biodegradable Waste, either by itself or through an Agency, which shall be operational within one year of notification of these Bye-Laws.
(ii) The Gram Panchayat may identify suitable existing buildings or sheds for use as Dry Waste Collection Centres.
(iii) Recyclable Non-Biodegradable Waste from the Dry Waste Collection Centres shall be sold to Waste Traders and/or recyclers authorised by competent authorities.

(iv) Non-Recyclable Non-Biodegradable Waste and Domestic Hazardous Waste from the Dry Waste Collection Centres shall be aggregated at the hobli or taluka level for appropriate processing and disposal such as waste-to-energy technologies, co-processing at cement plants, disposal at Sanitary Landfills and any other processing/disposal method prescribed by KSPCB and/or CPCB.

9.3. **Bio-degradable Waste processing unit**:

(i) The Gram Panchayat will provide, by itself or through an Agency, processing units for composting, vermi-composting, microbial composting, aerobic compositing, anaerobic digestion, bio-methanation or any other KSPCB and/or CPCB approved process for stabilisation of Bio-degradable Waste.

(ii) The processing units shall be operational in each Gram Panchayat within one year of notification of these Bye-Laws.

9.4. **Disposal of Sanitary Waste:**

(i) The Gram Panchayat shall ensure that Sanitary Waste, is processed along with Bio-medical Waste, at the nearest common biomedical treatment facility and/or incinerators.

(ii) Until the common biomedical treatment facility and/or incinerators are not available, the Gram Panchayat shall dispose the Sanitary Waste in safe local incinerators and/or by any other appropriate method that complies with the relevant standards issued by the CPCB, KSPCB and/or any other appropriate authority.

9.5. **Disposal of slaughterhouse waste:**

Waste generated from slaughterhouses, poultry, meat and fish markets/commercial shops will be processed or disposed through controlled incineration or deep burial where stipulated scientific standards are followed and/or any other method approved by CPCB, KSPCB and/or any other appropriate authority.

9.6. **Disposal at Sanitary Landfills**:

(i) The Gram Panchayat shall, on its own or through an Agency, construct, operate and maintain Sanitary Landfills and associated infrastructure in accordance with standards prescribed under SWM Rules, for disposal of residual waste (i.e. Solid Waste which cannot be processed in accordance with Bye-laws 9.2 to 5) and inerts.

(ii) The Gram Panchayat and/or Cluster of Gram Panchayats shall establish, operate and maintain Sanitary Landfills in accordance with SWM Rules, guidelines issued by CPCB, KSPCB, Karnataka Rural Drinking Water & Sanitation Department and/or any other competent authority after carrying out appropriate pre-feasibility studies and other required tests/pilot projects.

(iii) The residual Solid Waste and inerts which cannot be processed by any of the methods set in Bye-laws 9.2 to 5 above shall be disposed in Sanitary Landfills in a scientific manner by the Gram Panchayat.

(iv) The Gram Panchayat shall ensure that the Solid Waste disposed in Sanitary Landfills does not exceed 15% of the Solid Waste generated within the territorial jurisdiction of the Gram Panchayat.

9.7. **Waste management in tourist spots:** The Gram Panchayat will have the following responsibilities when it comes to management of Solid Waste in the tourist areas:

(i) The Gram Panchayat will ensure that tourists comply with provisions of Bye-law 12 relating to prohibition of littering and they shall be directed to deposit Solid Waste in the Receptacles that shall be placed by the Gram Panchayat at all tourist destinations.

(ii) Gram panchayat shall arrange to convey the provisions of waste management under these Bye-laws and generally provide information regarding Solid Waste management to all tourists visiting these areas at the entry point or in any other manner deemed fit by the Gram Panchayat.

(iii) Gram panchayat may levy waste management charges from the tourist at the entry point or in any other manner to make the waste management services in such tourist areas sustainable.

9.8. **Prohibition on Open dumping and burning of Solid Waste:** Open dumping of Solid Waste and disposal by burning of any type of Solid Waste is prohibited. The Gram Panchayat shall handle instances of open dumping or burning of Solid Waste in the following manner:

(i) The Gram Panchayat shall serve a notice to the relevant Waste Generator and/or occupier of the Premises, as the case may be, requiring such Person to clear any waste on such premises in a manner and within a time specified in such notice.

(ii) If the Person on whom the notice has been served fails to comply with the requirements imposed by the notice, the Gram Panchayat shall take all or any of the following actions:

(a) enter the premises and clear the waste and recover from the Person the expenditure incurred in having done so; or

(b) impose penalties for dumping of Solid Waste in accordance with these Bye-laws.

9.9. **Occupational safety**: The Gram Panchayat shall ensure occupational safety of its own staff including Swachatha/Sanitary Workers and staff of the Agency involved in Solid Waste management activities by providing appropriate and adequate personal protective equipment including uniforms, hand gloves, raincoats, appropriate foot wear and masks to all workers handling Solid Waste and ensuring that these are used by the workforce.

9.10. **Compliance with extended producer responsibility**: All manufacturers, producers and brandowners who introduce products in the Gram Panchayat that generate plastic waste shall directly or indirectly through government, comply with all its extended producer responsibility obligations as set out in Plastic Waste Management Rules, 2016.

CHAPTER VII – IDENTIFICATION OF BULK WASTE GENERATORS AND THEIR OBLIGATIONS

10. **Identification of a Bulk Waste Generator**

10.1. **Public notice and verification:**

(i) Within thirty days of these Bye-laws coming into force, the Gram Panchayat shall issue a public notice in the format set out in **Schedule II,** informing the public about the provisions relating to Solid Waste management which are applicable to Bulk Waste Generators.

(ii) The Gram Panchayat shall also carry out field surveys as per its own records to identify individual Bulk Waste Generators and issue notices to them as per the format set out in **Schedule III,** with instructions or for complying with the applicable provisions of these Bye-laws.

10.2. **Responsibilities of Bulk Waste Generators:** All Bulk Waste Generators shall:

(i) to the extent possible, manage the Bio-degradable Waste in their Premises by themselves and handle Non-biodegradable Waste through their own arrangement in accordance with these Bye-laws;

(ii) directly deposit their segregated Solid Waste to Bio-degradable Waste processing facilities and Dry Waste Collection Centres upon payment of processing fees component of the SWM User Fees to Gram Panchayat; and/or

(iii) avail the services of Gram Panchayat for the collection, transport and processing of Solid Waste generated as a part of the Door to Door Collection system upon payment of SWM User Fees set out in **Schedule V**.

10.3. The Bulk Waste Generators who do not use the services of the Gram Panchayat under these Bye-laws shall be required to submit an annual return on the amount of Solid Waste generated at its Premises which is collected, processed and disposed in the form set out in **Schedule IV**.

CHAPTER VIII – STREET SWEEPING AND PROHIBITION OF LITTERING

11. **Regular cleaning and Street Sweeping**:

11.1. The Gram Panchayat shall:

(i) Within its territory, be responsible for the cleaning of all public places including markets, parks, public streets and gardens, as well as ensuring regular Street Sweeping through Swachatha/Sanitary Workers.

(ii) By notification, determine the frequency of Street Sweeping, the location of community bins and related activities, having regard to vehicular and pedestrian traffic, density of population, extent of commercial activity, labour welfare/safety and local situation in any public street or public areas, as stipulated by the normative standards which may be

notified by the Karnataka Rural Drinking Water & Sanitation Department, from time to time.

11.2. The Gram Panchayat shall provide adequate and appropriate cleaning tools and equipment such as brooms and collection plates among others to the Swachatha/Sanitary Workers.

11.3. The Solid Waste collected from these street sweepings shall not be mixed with the segregated waste collected from the Waste Generators through Door to Door Collection. The Solid Waste collected from these Street Sweepings shall be segregated if required and the Gram Panchayat shall provide for transportation of:

(i) Bio-degradable Waste to a convenient Bio-degradable processing facility; and
(ii) Non-Biodegradable Waste to DWCC and/or any other processing facility as may be notified by the Gram Panchayat from time to time.
(iii) Inert and residual waste to Sanitary Landfill, if available within the Gram Panchayat and/or Cluster of Gram Panchayats.

12. **Prohibition of littering and provision of community bins**

12.1. No Person shall throw, deposit or cause to be thrown or deposited any Solid Waste in any public place including agricultural fields, playgrounds, common areas, streets, market areas, drains and sewage system, any type of water body (natural or manmade) or open areas, except in the manner provided for in these Bye-laws, or any other applicable law.

12.2. **Community bins in public places**:

(i) The Gram Panchayat shall provide and maintain suitable community bins/Receptacles in public places such as roads, public streets, playgrounds, gardens, parks, tourist areas and similar places, through itself or through an Agency where litter can be deposited by the public.
(ii) The Gram Panchayat and/or the Agency shall ensure that the community bins/ Receptacles are not overflowing or exposed to the open environment and take steps to prevent their scattering by stray animals or birds.
(iii) There shall be separate community bins/ Receptacles for Bio-degradable Waste and Non Bio-degradable Waste.

CHAPTER IX – EVENTS AND PUBLIC GATHERINGS

13. **Public gatherings and events in public places**:

13.1. **Obligations of organizers:**

(i) The organiser of events or gatherings of more than one hundred Persons at any licensed or unlicensed place and events in public places for any reason (including for processions, exhibitions, circus, fairs, political rallies, commercial, religious, socio-cultural events or demonstrations.) shall ensure that Solid Waste is segregated, collected

and processed in accordance with these Bye-laws no later than 24 hours after the completion of the event.

(ii) In case the organizer of such event wish to avail the services of Gram Panchayat for the cleaning, collection and transport of Solid Waste generated as a result of that event, they shall apply to the concerned authority at the Gram Panchayat and pay the necessary charges in advance as may be fixed for this purpose by Gram Panchayat.

13.2. **Refundable Cleanliness Deposit**:

(i) The organiser of the public gatherings and events, as set out in Bye-law 13.1, shall, prior to the gathering or event, deposit such amount with the Gram Panchayat, as may be determined by the Gram Panchayat having regard to the size of the event and the amount of Solid Waste likely to be generated.

(ii) Any amount deposited with the Gram Panchayat under this Bye-law shall be refundable on the completion of the event, after the Gram Panchayat has determined that the Solid Waste generated as a result of the event has been segregated, collected and transported to designated sites in accordance with these Bye-laws.

(iii) In the event the public space is not restored to a clean state within twenty four hours of the completion of the event, the cleanliness deposit paid to the Gram Panchayat shall be forfeited and the organiser shall be penalized as per these Bye-laws.

CHAPTER X –USER FEES FOR MANAGEMENT OF SOLID WASTE

14. **Provisions with respect to user fees payable to Gram Panchayat**

14.1. The Gram Panchayat shall operate and maintain the Solid Waste management system within its territory through its own funds, including SWM User Fees generated by the Gram Panchayat, within 2 (two) years of these Bye-laws being adopted by the Gram Panchayat.

14.2. The SWM User Fee shall be payable by the Waste Generator to Gram Panchayat and/or the Agency, as the case may be, for services of collection, transportation, processing and disposal of Solid Waste.

14.3. The SWM User Fee shall be payable as per the rate specified under **Schedule V** of these Bye-laws. The SWM User Fees shall be proportionately reduced in the event the Waste Generator is managing its Bio-degradable Waste, through community initiatives and/or any other manner in accordance with applicable law, and is not handing over such waste to the Gram Panchayat for processing.

14.4. The SWM User Fee mentioned in **Schedule V** shall stand automatically increased by 15% every three years (to the nearest multiple of Rs. 10),with effect from the first day of April of each year. These rates shall be advertised in the Gram Panchayat office and other visible public areas within the jurisdiction of the Gram Panchayat.

14.5. **Collection of SWM User Fee**:

(i) The SWM User Fee shall be collected by the Gram Panchayat in person and/or through any other method and on such days as may be specified by the Gram Panchayat, preferably in first week of each month.

(ii) The SWM User Fee may also be collected by the Gram Panchayat by charging the amount through property tax or license fees under provisions of the Act.

(iii) The Gram Panchayat may evolve additional mechanisms for billing/collection/ recovery of SWM User Fees, from time to time and these shall be notified through general or special order/notification.

14.6. The Gram Panchayat by itself or through an Agency shall prepare the database of all the Waste Generators for the purpose of levying SWM User Fee and shall regularly update such database.

14.7. A surcharge at the rate of 10% of the SWM User Fee per month shall be charged if the fees are not paid within 30 (thirty) days of raising the demand for the amount by the Gram Panchayat.

14.8. In case of default of payment of SWM User Fee for longer than three months, the Gram Panchayat or any other competent authority may recover the SWM User Fee from the defaulter as taxes under the provisions of the Act.

14.9. Notwithstanding anything contained in these Bye-laws, the Gram Panchayat may stop providing Solid Waste management services till such SWM User Fees are paid by the defaulter.

14.10. All amounts collected as SWM User Fee by the Gram Panchayat shall be used towards the Gram Panchayat's operation and maintenance costs for providing Solid Waste management services under these Bye-laws, salaries of personnel and other waste management related activities as may be considered appropriate by the Gram Panchayat from time to time.

CHAPTER XI–MONITORING OF SOLID WASTE MANAGEMENT SYSTEMS

15. **Provisions with respect to solid waste management systems**:

15.1. **Periodic reporting**: In addition to the responsibilities as may be specified in these Bye-laws, the Gram Panchayat shall periodically report the status, progress, operations of Solid Waste management systems within its territorial limits to the Executive Officer, Chief Executive Officer and state authorities in such formats and in accordance with the directions as may be issued by the Karnataka Rural Drinking Water & Sanitation Department.

15.2. **Audits**: Independent third party audits including social audits of the Gram Panchayat sanitation plan and Solid Waste management systems in the Gram Panchayat will be carried

out in accordance with the guidelines issued by the Karnataka Rural Drinking Water & Sanitation Department.

15.3. **Review of Agencies**:

(i) The Gram Panchayat and/or the Government shall regularly review the facilities and operations of the Agencies to ensure that they are in compliance with the provisions of SWM Rules, these Bye-laws and other applicable regulations.

(ii) In the event of any non-compliance, the Gram Panchayat and/or the Government may take action against the defaulting Agencies including notice of remedial action, cancellation for Solid Waste management services, blacklisting, imposition of fines and penalties as set out in these Bye-laws.

15.4. **Regular checks and review of Detailed Project Report and Plan:**

(i) The Panchayat Development Officer, Gram Panchayat members and other officers authorised by the Gram Panchayat shall conduct regular checks in various parts of the villages and other places of collection, transportation, processing and disposal of Solid Waste within its territory to supervise compliance of various provisions of these Bye-laws.

(ii) Such official(s) shall have right to enter, at all reasonable times, with such assistance as he considers necessary, any place for the purpose of

(a) performing any of the functions entrusted to him by the Gram Panchayat under these Bye-laws,

(b) determining compliance of the provisions of these Bye-laws.

15.5. **Designated officers:** The Panchayat Development Officer and other authorised officials shall have the following responsibilities:

(i) addressing grievances of the Waste Generators and suggestions for improvements in the implementation of the Bye-laws;

(ii) levying fines and penalties;

(iii) collecting SWM User Fees; and

(iv) implementing such responsibilities of the Gram Panchayat specified under these Bye-laws, as may be entrusted or delegated by the Gram Panchayat in accordance with these Bye-laws, Act and any other applicable law.

CHAPTER XII – PENALTIES AND GRIEVANCE REDRESSAL

16. **Penalties:**

16.1. Whoever contravenes or fails to comply with any of the provisions of these Bye-laws shall be punished with a fine levied by the Gram Panchayat, as specified in **Schedule VI**.

16.2. In case of second contravention or non-compliance, the Gram Panchayat shall have the power to levy a fine which shall be twice the amount set out against the offence in **Schedule VI**.

16.3. In case of third contravention or non-compliance, the Gram Panchayat shall have the power to levy a fine which shall be thrice the amount set out against the offence in **Schedule VI**.

16.4. In the event of any contravention after the third contravention or non-compliance, the Gram Panchayat shall have power to cancel the relevant business license that is attached to the Waste Generator (if any), recover the penalty amounts as per the different modes set out in the Act and/or take any other appropriate action as may be notified from time to time.

16.5. The fine or penalty mentioned in **Schedule VI** shall stand automatically increased by 10% per year(to the nearest multiple of Rs. 10) with effect from April 1 of each successive year.

16.6. The Gram Panchayat may, in accordance with applicable law, alter or amend or vary any of the entries as mentioned in **Schedule VI** of these Bye-laws which shall in any event not be less that the amounts set out in **Schedule VI**.

16.7. The Gram Panchayat shall take appropriate disciplinary action against the employees of Gram Panchayat or the Agency or Swachatha/Sanitary Workers, if any of them mix segregated Solid Waste at any point of collection or transportation, fail to pick up Solid Waste during the specified time-slots, or otherwise, violate the provisions of these Bye-laws.

16.8. In the event an Agency contravenes or fails to comply with any of the provisions of these Bye-laws, the Gram Panchayat shall have the power to take any one or more of the following actions:

(i) suspension or revocation of any license given to the agency to operate any Solid Waste collection, transportation or processing facility under these Bye-laws and/or applicable regulations.
(ii) termination of Solid Waste management services being provided by the agency for the Gram Panchayat under the relevant contract, and/or
(iii) any other permissible remedial or penal action authorized under the act and/or other applicable laws.

16.9. The Gram Panchayat may initiate appropriate proceedings for violation of any provisions of these Bye-laws under any other law in addition to any action under these Bye-laws, including the Act, the Environment (Protection) Act, 1986, the Indian Penal code, 1860, the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981 and/or any other applicable regulations.

16.10. All amounts collected as penalties shall be used towards the Gram Panchayat's operation and maintenance costs for providing Solid Waste management services under these Bye-laws, salaries of personnel, incentives and other waste management activities as may be considered appropriate by the Gram Panchayat from time to time.

17. **Grievance redressal**:

17.1. The Gram Panchayat shall develop public grievance redressal system(s) for registering complaints regarding non-collection of Solid Waste or violations of these Bye-laws among

others. These systems may include a complaint centre in each village and/or Gram Panchayat office, mobile application and/or any other mechanism which the Gram Panchayat may consider appropriate keeping in mind the local conditions of the Gram Panchayat. The grievance may be submitted in person by any citizen, through telephone, email/website, post, on the mobile application and/or any other appropriate method as determined by the Gram Panchayat.

17.2. The Gram Panchayat shall ensure that each grievance is redressed in a timely and efficient manner and in no event later than 15 (fifteen) days from the date of submission of the complaint. The Gram Panchayat shall consider the type of grievance, environmental and/or health related consequences, inconvenience cause to public, associated financial costs and other relevant considerations when determining the appropriate remedial action for the grievance.

18. **Accident Reporting**: In case of an accident at any Solid Waste processing or disposal facility or landfill site, the Person - in- charge of the facility shall report to the Gram Panchayat in **Schedule VII** and the Gram Panchayat shall review and issue instructions if any, to the in-charge of the facility.

CHAPTER XIII – OTHER RESPONSIBILITIES AND DUTIES OF THE GRAM PANCHAYAT

19. In addition to the responsibilities and duties set out in other Chapters of these Bye-laws, the Gram Panchayat shall also have the following additional duties:

19.1. **Publicity and citizen information services**:

(i) The Gram Panchayat shall publicise the provisions of the Bye-laws through interpersonal communication by Sanitation Motivators, community based organisations, and through signs, leaflets, announcements on radio, newspapers and any other appropriate means, so that all citizens are made aware of the Gram Panchayat's duties and their own duties in relation to segregation, littering, penalties and fines.

(ii) The Gram Panchayat shall provide information about segregation, composting, bio-gas generation, recycling and menstrual hygiene management at community level by conducting training classes, seminars and workshops.

(iii) The Gram Panchayat may, by itself or through experts in the field undertake awareness and outreach programmes about management of Solid Waste, reduction and minimising of Solid Waste, grievance redressal mechanisms under the Bye-Laws etc.

(iv) The Gram Panchayat shall make efforts to minimise and reduce the generation of Solid Waste by publicising the ban of plastic bags and other materials issued by the state, discouraging the production, sale and consumption of other single use disposable products through awareness programs and provision of incentives.

19.2. **Transparency and public accessibility**: To ensure greater transparency and public accessibility, the Gram Panchayat shall make available the following information, data and

reports in relation to the activities under the Bye-laws in the offices of the Gram Panchayat during its working hours:

(i) Name and contacts of the officers who shall be responsible for implementing the responsibilities of Gram Panchayat specified under these Bye-laws.

(ii) Annual data about the quantity of Solid Waste collected and processed

(iii) Statistics of complaints and actions taken by the Gram Panchayat to address the complaints.

(iv) Details of SWM User Fee, penalties collected by and on behalf of the Gram Panchayat and the manner in which these amounts have been utilised on a monthly basis.

19.3. **Creating Incentives**:

(i) The Gram Panchayat may create incentive systems for adoption of decentralised processing of Bio-degradable Waste such as bio-methanation and composting such as through waivers of SWM User Fees, awarding and recognising the relevant Waste Generator by giving certificates and publishing their names on Gram Panchayat's office.

(ii) The Gram Panchayat may purchase any extra compost, if available, from the Waste Generator, at a specified price as notified from time to time by the Gram Panchayat for its own use or for sale at remunerative prices.

CHAPTER XIII – MISCELLANEOUS

20. **Co-ordination with government bodies**: The Gram Panchayat shall co-ordinate with other government agencies and authorities, to ensure compliance of these Bye-laws within areas under the jurisdiction or control of such bodies.

21. **Review of implementation**: The Gram Panchayat shall review the implementation of these Bye-laws at least twice a year, and shall take appropriate remedial steps to ensure the effective implementation of and execution of the benchmarks under the Solid Waste Management plan.

22. **Amendments**: Where it is expedient to do so, the Gram Panchayat may, by following the relevant procedure(s) in the Act, add to, or amend the Bye-laws with the prior permission of the Government.

23. **Repeal and saving of Orders**

23.1. The coming into effect of these Bye-laws shall not affect any actions taken according to the applicable rules/regulations, unless such actions violate these Bye-laws.

24. **Interpretation**: Where any discrepancy, in the interpretation of any clause or terms of these bye-laws arises, the interpretation as per this English version shall be final and shall supersede the Kannada version.

SCHEDULE I

ILLUSTRATIVE LIST OF BIO- DEGRADABLE WASTE, RECYCLABLE NON BIO-DEGRADABLE WASTE AND DOMESTIC HAZARDOUS WASTE

Part A – Illustrative list of Bio-degradable Waste:

- Kitchen waste including tea leaves, egg shells, fruit and vegetable peels, meat, bones leftover and/or stale food
- Organic market waste such as fruit and vegetable peels, rotten and/or spoilt vegetables and fruits
- Garden and leaf litter, including flowers
- Coconut shells
- Wood/ leaf ashes

Part B – Illustrative list of Recyclable Non Bio-degradable Waste*:

- Newspapers
- Paper, books and magazines
- Glass
- Metal objects and wire
- Plastic
- Aluminum cans
- Rexene
- Rubber
- Wood /furniture
- Packaging
- Fabrics
- Styrofoam
- Thermocol
- Tetrapak

**The above are sample lists and will be customized (i.e. items to be added or removed) by each Gram Panchayat based on the identified processing and recycling destinations for each item.*

Part C – Illustrative list of Domestic Hazardous Waste:

- Aerosol cans
- Batteries
- Bleaches and household kitchen and drain cleaning agents
- Car batteries, oil filters and car care products and consumables
- Oils, Chemicals and solvents and their empty containers
- Cosmetic items, chemical-based Insecticides and their empty containers
- Medicines including expired medicines
- Paints, oils, lubricants, glues, thinners, and their empty containers
- Pesticides and herbicides and their empty containers
- Photographic chemicals
- Soft foam packaging from new equipment
- Thermometers and mercury-containing products

SCHEDULE II

PUBLIC NOTICE NOTIFYING BULK WASTE GENERATOR

The Gram Panchayat hereby directs all Bulk Waste Generators of Solid Waste defined as generating 50 kg or more of Solid Waste (from all waste streams) per day to implement the provisions of the Bye-laws thereof notified by the Gram Panchayat not later than 60 days(by date.....) from the date of this notice, including segregation of Solid Waste into 3 (three) categories/streams (Bio-degradable, Non-Biodegradable and Domestic Hazardous Waste (including Sanitary Waste) at source and onsite processing of Bio-degradable Waste and other obligations relating different streams of the Solid Waste. Detailed instructions are available in the Bye-laws available at website at _ _ _ _ _ _)

All Waste Generators falling within the definition of Bulk Waste Generators will be classified as such unless they submit within the notice period, a self- declaration of generating less than 50 kg of waste from their premises. Such self-declaration will be subject to verification and applicable penal costs if found untrue. Such self-declarations shall be submitted to the Gram Panchayat within 20 days (by date.....) of this notice for enabling verification. Self-declarations sent/submitted after the due date will be summarily rejected.

Any violation of these Bye-laws for Bulk Waste Generators after 60 days of this notice (after date .....) will attract applicable penal charges/fines as stated in the Bye-laws of the Gram Panchayat.

The declaration if found false at a later date will attract penalties as per the Bye-laws of the Gram Panchayat.

Place:

Authorised Signatory on behalf of the Gram Panchayat

SCHEDULE III

INDIVIDUAL NOTICE FORMAT

To <Insert name of the proposed Bulk Waste Generator>
Subject: Categorization as Bulk Waste Generator

Considering the activities/ business carried out at your premises and the amount of Solid Waste generated by you, the Gram Panchayat has designated you as a **Bulk Waste Generator**.
Accordingly, you are directed to comply with the provisions of the Bye-laws and implement segregation of waste at source, segregated storage within premises and onsite processing of Bio-degradable Waste within Premises and other obligations contained in the Bye-laws.
In case you claim not to be a Bulk Waste Generator, you are required to submit a self-declaration to that effect within 20 days otherwise it will be deemed that you have no objection to be classified as a Bulk Waste Generator. In case your self-declaration is found untrue, the same will be cancelled and penalties in accordance with the Bye-laws will be levied.

_____

Authorised Signatory on behalf of the Gram Panchayat

SCHEDULE IV

FORM OF ANNUAL RETURN BY A BULK WASTE GENERATOR WHO DOES NOT USE THE SERVICES OF THE GRAM PANCHAYAT

S.no	Headings	Details
1.	Name and address of the Bulk Waste Generator Phone no:	
2.	**Type of Bulk Waste Generator (c**ommercial shop or establishment/ marriage halls/ place of worship/educational institutions, school, college and research institutes/government offices, courts and other Premises occupied by the local, state or central governments/ any other type of Bulk Waste Generator)	
3.	**Total quantity of Solid waste generated per year** (i) Bio-degradable Waste (ii) Non-biodegradable Waste (iii) Domestic Hazardous Waste (including Sanitary Waste)	
4.	**Whether Bio Degradable Waste is processed on site or through any other Person**	Yes/No
5.	**If Bio Degradable Waste is processed through any other Person, provide name, address and phone number of such Person**	
6.	**Details of technologies adopted for processing Bio Degradable Waste**	
(i)	Composting	Qty. of compost produced per year Quantity of residual waste generated per year
(ii)	Bio-methanation	Qty. of biogas produced per year Quantity of residual waste generated per year
(iii)	Any other manner	
7.	**Quantity of the Non-Biodegradable Waste collected per year**	
8.	**Name, address and phone number of the Person handling and processing the Non-Biodegradable Waste**	
9.	**Manner/method/technology of handling and processing the Non-Biodegradable Waste (sale to Waste Traders/ Recycling/Co-Processing**	

	in cement plants/any other manner) including names, addresses and phone numbers of such processing destinations	
10.	**Quantity of the Domestic Hazardous Waste (including Sanitary Waste) collected per year**	
11.	**Name, address and phone number of the Person handling and processing the Domestic Hazardous Waste (including Sanitary Waste)**	
12.	**Manner/method/technology of handling and processing Domestic Hazardous Waste (including Sanitary Waste) including names, addresses and phone numbers of such processing destinations**	

SCHEDULE V

SWM USER FEES IN INDIAN RUPEES

PART A: SWM USER FEES FOR WASTE GENERATORS EXCEPT BULK WASTE GENERATORS

S.no	**Type of Waste Generator except Bulk Waste Generator**	**User Fee per month (in INR) from each Waste Generator except Bulk Waste Generator to be not less than[1]:**		
		Population of the Gram Panchayat>= 50 and < 500	**Population of the Gram Panchayat>= 500 and < 2000**	**Population of the Gram Panchayat>2000**
1.	Houses up to 200 sq.ft. built-up area	20	20	20
2.	Houses over 200 sq.ft. built-up area up to 500 sq.ft	30	30	30
3.	Houses with over 500 sq.ft built up area	40	50	60
4.	Small commercial establishments, shops and eating places (such as hotels, dhabas, messes, tiffin rooms, canteens and sweet shops) having an area less than 200 sqft and generating less than 50 kgs of Solid Waste per day	60	75	90

[1] The SWM User Fees shall be reduced by 50% in the event the Waste Generator processes its entire Biodegradable Waste by itself and does not use the services of the Gram Panchayat.

5.	Large shops, commercial establishments and eating places (such as hotels, dhabas, messes, tiffin rooms, canteens and sweet shops) having an area more than 200 sqft and generating less than 50 kgs of Solid Waste per day	100	150	200
6.	Guesthouse, lodges, dharamshalas having an area less than 1000 sqft and generating less than 50 kgs of Solid Waste per day	150	200	250
7.	Hospitals, clinic, dispensary up to 20 beds)	110	130	150
8.	Hospitals, clinic, dispensary (more than 20 beds)	200	300	500
9.	Small and cottage industry units, factories and similar units (only non-hazardous)and generating less than 50 kgs of Solid Waste per day	200	250	300
10.	Vegetable and other markets generating less than 50 kgs of Solid Waste per day	150	200	250
11.	Institutions such as schools, colleges, places of worship tourist attractions etc. generating less than 50 kgs of Solid Waste per day.	200	250	300

12.	Cleanliness Refundable Deposit for events and gatherings in public places (one time)	3000	4500	6000
13.	User Fee for collection, transport and processing of Solid Waste generated for events and gatherings in public places (one time)	2500	4000	5000
14.	Other places/activity not marked as above	As decided by Gram Panchayat by general or special order/notification.	As decided by the Gram Panchayat by general or special order/notification.	As decided by Gram Panchayat by general or special order/notification.

PART B: SWM USER FEES FOR BULK WASTE GENERATORS

S.no	**Type of Bulk Waste Generator**	**User Fee per month (in INR) from each Bulk Waste Generator to be not less than[2]:**		
		Population of the Gram Panchayat>= 50 and < 500	**Population of the Gram Panchayat>= 500 and < 2000**	**Population of the Gram Panchayat>2000**
1.	Vegetable and other markets	200	250	300
2.	Guesthouse, lodges and dharamshalas having an area more than 1,000 sqft	200	300	500
3.	Large shops and commercial establishments	300	500	700
4.	Institutions such as schools, colleges, places of worship tourist attractions etc.	300	500	700
5.	Halls for marriage and festivals with area over 1,000 sq.ft **per event**	1200	1500	2000
6.	Hospitals, clinic, dispensary (more than 20 beds)	300	500	700
7.	Cottage industry units, factories and similar units generating	300	500	700

[2]The SWM User Fees shall be reduced by 50% in the event the Bulk Waste Generator processes its entire Biodegradable Waste by itself and does not use the services of the gram panchayat.
The SWM User Fees shall be reduced by 40% in the event the Bulk Waste Generator deposits segregated Solid Waste at the Bio-degradable Waste processing unit and the DWCCsby itself and does not use the transportation provided by the gram panchayat.

	more than 50 kgs of Solid Waste per day.			

SCHEDULE VI

FINES AND PENALTIES

S.no	Non-compliance and type of Waste Generator	Fines (in INR) to be not less than:		
		Population of the Gram Panchayat>= 50 and < 500	**Population of the Gram Panchayat>= 500 and < 2000**	**Population of the Gram Panchayat>2000**
1.	Littering, spitting, urinating in open areas	500	700	1,000
2.	Failure to segregate Solid Waste by the Bulk Waste Generators.	2000	3000	5000
3.	Failure to segregate and/or handover Solid Waste by Waste Generators who are not Bulk Waste Generators.	500	700	1000
4.	Disposal of Solid Waste by burning, dumping and/or unauthorised burial by a Bulk Waste Generator	2000	3000	5000
5.	Disposal of Solid Waste by burning, dumping and/or unauthorised burial by any Waste Generator who is not a Bulk Waste Generator	500	700	1000
6.	False declaration by the Bulk Waste Generator	2000	3000	5000
7.	Other places/activity not marked as above	As decided by Gram Panchayat by general or special order/notification.	As decided by the Gram Panchayat by general or special order/notification.	As decided by Gram Panchayat by general or special order/notification.

SCHEDULE VII

ACCIDENT REPORTING

S.no	Particulars	
1.	Date and time of accident	
2.	Sequence of events leading to accident	
3.	The waste involved in the accident	
4.	Assessment of the effects of the accidents on human health and the environment	
5.	Emergency measures taken	
6.	Steps taken to alleviate the effects of accidents	
7.	Steps taken to prevent the recurrence of such an accident	

Date:…….	Signature:…….
Place:……	Designation:…….

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(1) F G¥«¢U¼° E£Á®ªÀzÃ ¥Á¸AVP ¸¤ªÃ±ªÀ C¥ÃQ¸z ¸Az¨ðz° –

2.1. **'C¢üAiÀÄ'** JAzg PÁ®PÁ®P wzÄ¥rAiiÁU§ºÄzÁz P£ÁðlP ¥AZÁAiÄvï gÁeï C¢¤AiÄªÄ, 1993.

2.2. **'KeÉ'** JAzg UÁªÄ ¥AZÁAiÄw¬ÄAz £ÃªÄP ºÆA¢z CxªÁ ¥Á¢ÃPj¸¯Áz CxªÁ gÁdå ¸PÁðg¢Az UÁªÄ¥AZÁAiÄwAiÄ ¥gªÁV MAzÄ PgÁj£ ªÄÆ®P F G¥«¢U¼£AiÄ PvðªÀU¼Ä CxªÁ PÁAiÄðª£Ä ¤ªð»¹ PªÄ ª»¸ÄªAv ¤zÃð²vªÁVgÄª vÁdå ¸AU»¸ÄªªgÄ CxªÁ vÁdå ªÁ¥ÁjU¼£Æ¼UÆAqAv £ÆÃAztAiiÁz AiiÁªÀzÃ ¸AWl£AiÄ£Ä M¼UÆAqAv AiiÁªÀzÃ ªÀQ CxªÁ AiiÁªÀzÃ ¸A¸À.

2.3. **'eÉ¢PÀvÁdå'** JAzg ¸ÆPÀö fÃ«U½Az (micro-organisms) ¸g¼ ¹g ¸AAiÄÄP ª¸ÄU¼ÁV «WnvªÁUÄª eÉ«P ª¸Ä. Ezg zÉµÁAvz ¥nAiÄ£Ä **C£ÀÄ¸Àa-1gÀ¨ÁUÀ(K)**g° ¤¢ðµ ¥r¸¯ÁVz.

2.4. **'eÉ¢PÀªÉÆÃQÃAiÀÄ vÁdå'ªÀ** eÉ«P ªÉzÀQÃAiÄ vÁdå ¤ªðºuÁ ¤AiÄªÄU¼° ¤ÃrgÄª Cxðª£Ä ºÆA¢gvPÀzÄ.

2.5. **'PÀqÀvÀÄ'** JAzg W£ vÁdåªÄ£Ä GvÁ¢¸ÄªAvº ¸AZÁj CxªÁ ¹gªÁz AiiÁªÀzÃ vÁvÁ°P CxªÁ SÁAiÄA ¤ªiÁðtªÁz Plq.

2.6. **§ºÀvï vÁeÉÃvÁzÀ** JAzg

(i) PlqU¼Ä, PÃAz ¸PÁðj E¯ÁSU¼Ä CxªÁ ¸PÁðj ¸ÁªÄ¥z ¸A¸ÀU¼Ä, gÁd¥ ¸PÁðj E¯ÁSU¼Ä CxªÁ ¸ÁªÄ¥z ¸A¸ÀU¼Ä, UÁªÄ ¥AZÁAiÄw, ªiÁgÄPm ¸AWU¼Ä, D¸vU¼Ä, £¹ðAUï ºÆÃAU¼Ä, ±Á¯U¼Ä ªÄvÄ PÁ¯ÃdÄU¼Ä, «zÁ¥yð ¤®AiÄU¼Ä, ºÆÃm®ÄU¼Ä, G¥ºÁg ªÄA¢gU¼Ä, CAUrU¼Ä, ªÁ¸z ªÄ£U¼Ä, ªÁtd¥ ¸Á¥£U¼Ä, ¥ÆeÁ ¸¼U¼Ä, P¯Á¥t ªÄAl¥U¼Ä, g¥®Ä ¤¯Á¥tU¼Ä, §¸ï ¤¯Á¥tU¼Ä EvÁ¢U¼£Ä¥ ¥wAiÆAzÆ ¸º ¢£ªÇAzP¥ ¸gÁ¸j 50 Pf CxªÁ CzPÆ ºZÄ W£ vÁd¥ªÄ£Ä¥ GvÁ¢¸ÄªAvº ¸¼U¼£Ä¥ ;

(ii) ªÁ¸z, C¥ÁmïðªÄAlÄU¼Ä ªÄvÄ ªÁ¸z ªÄ£AiÄ ¸AQÃtðU¼Ä ªÄvÄ ¤ªÁ¹U¼ P¯Á¥t ¸AWU¼ ¥¥Q ¥wAiÆAzÆ ¸º ¢£ªÇAzP¥ 50 Pf CxªÁ CzPÆ ºZÄ W£ vÁd¥(J¯Á vÁd¥ ªÄÆ®U½Az) GvÁ¢¸Äwz¥°;

(iii) 5000 Zzg «ÄÃlgÄU½UÆ ºagÄª ¸AAiÄÄP ¸ªÄÄzÁAiÄU¼Ä, ¤U«Äv ¸AQÃtðU¼Ä, vAveÁ£ ¥ÁPÁðU¼Ä(¸AQÃtð) ªÄvÄ ¸A¸ÀU¼Ä; ªÄvÄ

(iv) F G¥«¢U¼£AiÄ PÁ®PÁ®P¥ UÁªÄ¥AZÁAiÄw¬ÄAz C£Ä¸Æa¸¯ÁUÄª Evg AiiÁª¥zÃ §¥ºvï ¥ªiÁt vÁ¥eÆÃvÁzP£Ä¥ M¼UÆ¼Ävz

2.7. '**G¥À«¢UÀ¼À** JAzg P£ÁðlP ¥AZÁAiÄvï gÁeï (W£ vÁd¥ ¤ªðºuÁ) ªiÁzj G¥-«¢U¼Ä, 2020, PÁ®PÁ®P¥ wzÄ¥rAiiÁzAv;

2.8. **ªÀÄR¥ PÁAiÀÄð ¤ªÀºÀÁ¢PÁj'**AiÄÄ C¢¤AiÄªÄz° ¤ÃrgÄª Cxðª£ÄÃ ºÆA¢gvP¥zÄ.

2.9. '**¸ÀÆºÀ(UÀ¥Á)**' JAzg W£ vÁd¥ ¤ªðºuÁ ¸A¸guAiÄÄ ªÁ¦¸Äª ¸®ÄªÁV ¨ËUÆÃ½PªÁV ¥g¸g MlÄUÆrgÄª Jgq¥ CxªÁ ºa£ UÁªÄ ¥AZÁAiÄwU¼Ä

2.10 '**¸ÀÄwUÀ¼À** JAzg UÁ«ÄÃt ¤ÃgÄ ªÄvÄ £¦ªÄð®¥ ¸«ÄwU¼Ä ªÄvÄ UÁ«ÄÃt DgÆÃU¥, £¦ªÄð®¥ ªÄvÄ ¥Ë¶P DºÁg ¸«ÄwU¼£Ä¥ C¢¤AiÄªÄz **¥ÀÀ¼À 61-J**grAiÄ° gÆ¦¸¯ÁVz

2.11. '**¹¦¹©**' JAzg PÃAz ªiÁ°£¥ ¤AiÄAvt ªÄAq½

2.12. **UÀÉÃvÁ¢vÀC¥ÁAiÀÄÁj vÁd¥**' JAzg P®ª¥ ¸Az¨ðU¼° ¨AQ ºÆwPÆ¼Äª, P®¶vUÆ¼Äª, CxªÁ ¸ÆÃn¸Äª CxªÁ «£Á±PÁj (corrosive) CxªÁ «µPÁjAiiÁU§ºÄzÁz U¦ºÆÃvÁ¢v vÁd¥ Ezg z¦µÁAvz ¥nAiÄ£Ä¥ **C£ÀÄ¸Àa-1gÀ¨sÁUÀ(¹)**AiÄ° ¤Ãq¯ÁVz.

2.13. '**ªÀÉªÀÉÄAzÀ¸ÀÀÉ**JAzg ªÁ¸z ªÄ£U¼Ä, CAUrU¼Ä, ªÁtd¥ ¸Á¥£U¼Ä, PZÃjU¼Ä, ¸ÁA¹P CxªÁ vÁ¥eÆÃvÁzPgÄU¼Ä ¸Á¢Ã£ª£Ä¥ ºÆA¢gÄª Evg AiiÁª¥zÃ DªgtU¼ ¨ÁV°¤Az¯Ã W£ vÁd¥ ¸AUºu.

2.14. '**Mt vÁd¥ ¤ªÀºÀÁ WÀPÀCxÀÁ r.qÀÆ¥.¹.¹**' JAzg UÁªÄ ¥AZÁ¬ÄwU½Az ªÄvÄ/CxªÁ Ke¤¬ÄAz ¤ªð»¸®qÄªAvº Ce¦«P vÁd¥ ¸AUºu, zÁ¸Á£Ä ªiÁqÄ«P «AUqu ªÄvÄ ¤ªðºuAiÄ «PÄA¢ÃP¦v vÁd¥ ¤ªðºuÁ ¸Ë®¨¥ PÃAz.

2.15. '**E-vÁd¥**'ª¥ E-vÁd¥ ¤ªðºuÁ ¤AiÄªÄU¼Ä, 2016g° CzP¥ ¤ÃrgÄª Cxðª£ÄÃ ºÆA¢gvP¥zÄ.

2.16. '**¤ªÀºÀÁ¢PÁj**' JA§ ¥zª¥ C¢¤AiÄªÄz° ¤ÃrgÄª Cxðª£ÄÃ ºÆA¢gvP¥zÄ.

2.17. '**¸ÀÁðgÀ**'¥ C¢¤AiÄªÄz° CzP¥ ¤ÃrgÄª Cxðª£ÄÃ ºÆA¢gvP¥zÄ.

2.18. '**UÁæÀ¥ÀZÁAiÀÄ**'AiÄÄ C¢¤AiÄªÄz° CzP¥ ¤ÃrgÄª Cxðª£ÄÃ ºÆA¢gvP¥zÄ.

2.19. 'UÁæªÀ¥ÀZÁAiÀÄw C©üªÀr AiÉÄÃd£É JAzg UÁªÄ ¥AZÁAiÄwAiÄ° C¢¤AiÄªÄz ¥ÀæPÀgÀ-309g£AiÄ ºÁUÆ C¢¤AiÄªÄz Evg C£AiÄªÁUÄªAvº G¥§AzU¼£AiÄ gÆ¦¸¯Áz C©¢¢ AiÆÃd£.

2.20 'PÉ¸ï¦¹©' JAzg P£ÁðlP gÁd¢ ªiÁ°£¢ ¤AiÄAvuÁ ªÄAq½

2.21. 'ªÄgÀRÀÉ¸ÀW'ÀÀ JAzg ªiÁgÁlUÁgg, CAUr ªiÁ°ÄPgÄU¼, CAUr £q¸Äªªg, ªÁ¥ÁjU¼, ª¢ºÁg £q¸Äªªg, ¤ªðºu ªiÁqÄªªg, ªÁ¥ÁgÆÃz«ÄU¼, z¼Á½U¼ CxªÁ ¤¢ðµ ªiÁgÄPm CxªÁ ¸½ÃAiÄ ¥zÃ±z Evg ª¢QU¼£Æ¼UÆAq £ÆÃAzÁ¬Äv CxªÁ £ÆÃAztg»v UÄA¥Ä CxªÁ ¸AW.

2.22. '¸ÀPÀ-AiÉÄÃd£É (Micro Plan) JAzg UÁªÄ ¥AZÁAiÄwAiÄ Cw ¸t ¤ªðºuÁ WlPP W£ vÁd¢ªÄ£Ä¢ ¸AU»¹ ¸ÁUÁtP ªiÁqÄª¢zÄ ªivÄ Ezg° ªiÁ£ª ¸A¥£Æ® ªÄvÄ ªÁº£U¼ ºAaP ªÄvÄ CAvº WlPU¼° ©Ã¢ P¸ UÄr¸Äª C£Ä¸ÆaAiÄ£Ä¢ ¸º M¼UÆArgÄvz.

2.23. 'CeÉ«PÀvÁd¢' JAzg AiiÁª¢zÃ ¸ÆPï fÃ«U½Az ¸g¼ ¹g ¸AAiÄÄP ª¸ÄU¼ÁV «WnvªÁUzAvº AiiÁª¢zÃ W£ vÁd¢.

2.24. '¥ÀZÁAiÀÄw C©üªÀr C¢ßÁj'AiÄÄ C¢¤AiÄªÄz° CzP ¤ÃrgÄª Cxðª£ÃºÆA¢gvPzÄ.

2.25. 'ª¢À'AiÄÄ ¤U«Äv CxªÁ ¤U«Ävª®z AiiÁª¢zÃ ª¢Q CxªÁ ª¢QU¼ ¸AWª£Ä¢ M¼UÆ¼Ävz.

2.26. 'MAzÉÆAzÀ¸ÀÀAzÀvÁd¢ ¸ÀUÀÀÉ JAzg vÁ¢eÆÃvÁzP¤Az «AUqu ªiÁq¯Áz W£ vÁd¢ªÁ¢ CAvº ¸¼U¼Ä ªÄvÄ zÁ¸Á£Ä ªiÁqÄª ¸¼U¼° Ej¸¯ÁUÄª¢zÄ ªÄvÄ Cª¢U¼Ä UÁªÄ ¥AZÁAiÄw¬ÄAz CxªÁ Ke¤¬ÄAz MzV¸¯Áz ªÄÄA¢£ §lªÁq ¸¼P vUzÄPÆAqÄ ºÆÃUÄª ª¢ª¸¢.

2.27 'DªÀÀUÀÀ JAzg AiiÁª¢zÃ Plq CxªÁ Plqz MAzÄ ¨ÁU ªÄvÄ CzP ºÆA¢PÆArgÄªAvº AiiÁª¢zÃ GzÁ£ª£U¼Ä ªÄvÄ ªÄ£zÁ£ª£Ä¢ ªÄvÄ ¸zj ¨Æ«ÄAiÄ°(d«ÄÃ£Ä) ¤ªiÁðt ªiÁrgÄªAvº ªÁ¸z ªÄ£, ªÁ¥Ág, P£UÁjPU¼Ä, ª¢ºÁg, ¸ÁªðdPCxªÁ Evg AiiÁª¢zÃ SÁ¸V Gz±U½UÁV, «ªÁº, ¸¨U¼Ä, ª¸Ä ¥z±ð£U¼Ä ªÄvÄ ¸ªiÁgA¨U¼ ¸AWl£ EvÁ¢U¼£Ä¢ M¼UÆAqAv AiiÁª¢zÃ Plqª£Ä¢ M¼UÆ¼Ävz.

2.28. 'vÉn' CxÀÁ §Än' JAzg AiiÁª¢zÃ ªUðz W£vÁd¢ªÁ¢ zÁ¸Á£Ä ªiÁq®Ä §¼P ªiÁqÄªAvº §ÄnU¼Ä CxªÁ aÃ®U¼£Ä¢ M¼UÆArgÄªAvº zÁgPU¼Ä.

2.29. '¥ÀÆgÀÁªÀwðvÀ¸ÀºÀ¼ÀzÁzÀCeÉ«PÀvÁd¢' JAzg ¸A¸guU¼ ªÄÆ®P £Æv£ Gv£U¼£Ä¢ GvÁ¢¸Äª ¸®ÄªÁV, ¸A¸guAiÄ ªÄÆ®P PZÁ¢ª¸ÄU¼ÁV ¥jªwð¸§ºÄzÁz Ce«P vÁd¢. ªÄvÄ F Gv£U¼Ä ªÄÆ® Gv£U¼ jÃwAiÄ°AiÄÄ Eg§ºÄzÄ CxªÁ Eg¢g®Æ §ºÄzÄ. Ezg z¢µÁAv ¥nAiÄ£Ä¢ C£ÀÄ¸Àa-1 gÀ¨ÁUÀ(©)AiÄ° ¤Ãq¯ÁVz.

2.30. ¤ªÁ¹UÀÀPÀÁ¢t ¸ÀWÀÀ (Resident Welfare Association) JAzg ¤¢ðµ £gAiÄ CxªÁ ¥zÃ±z ªÁ¸z ªÄ£U¼ DªgtU¼ ªiÁ°ÄPgÄU¼Ä ªÄvÄ/CxªÁ ¸Á¢Ã£Á£Ä¨ªª£Ä¢ ºÆA¢gÄª ª¢QU¼ ¸ªÄÆº CxªÁ CzÄ ¸ºPÁg ¸AWU¼ ¤§AzPg° £ÆAzÁ¬Ä¹z CxªÁ £ÆAzÁ¬Ä¹gz ¸AW

2.31. '£ÉÆÃ®¸ÀÄ ¥ÀæPÀÀ(GvÉÛPÀ JAzg UÁªÄ ¥AZÁAiÄw¬ÄAz ¨Ágv ¸PÁðg¢Az ºÆgr¸¯Áz ¸ZÁU» ªiÁUð¸ÆaU¼Ä, 2018 grAiÄ° ªÄvÀ/CxªÁ Evg AiiÁªÀzÃ vz£Avg C£AiÄªÁUÄªAvº «¤AiÄªÄU¼rAiÄ° UÁªÄ ¥AZÁAiÄw ªÁ¦Ai° £ÉªÄð® ¸A§A¢ PÁAiÄðZlÄªnPU½UÁV £ÃªÄP ºÆA¢gÄª ª¸Q.

2.32. '£ÉÆÃ®¸ÀÄ ¨Á¸À¨sÁð' JAzg CAvdð®, ªÄÄ¯É¤ ¤ÃgÄ, ªÁAiÄÄ«£° ¨gAiÄÄª zÆ¼Ä Pt, UÁ½ ©Ã¸Äª ªÄÆ®P ºgqÄª P¸, zÄªÁð¸£, CV¸ CªWqU¼ C¥ÁAiÄ, ¥Át vÁd¸ ©Ãw, ¥Q vÁd¸ ©Ãw, QÃl £Á±PU¼Ä CxªÁ zA±PU¼Ä (rodents), º¹gÄ ªÄ£ C¤® ºÆg¸Æ¸Ä«P, ¤gAvg eÉ«P ªiÁ°£¸U¼Ä E½eÁgÄ C¹gvAiÄAvº ªiÁ°£¸U¼£Ä¸ ¤§A¢¸Äª ««z C£AiÄªÁUÄª «¤AiÄªÄU¼rAiÄ° «£Á¸UÆ½¹gÄªAvº G½P W£ vÁd¸z ªÄvÀ dq vÁd¸z CAwªÄ ªÄvÀ ¸ÄgQv «¯ÃªÁj ¸Ë®¨¸ PÃAzU¼Ä.

2.33. '£ÉÆÃ®¸ÀÄ vÁd¸' JAzg §¼P ªiÁq¯Áz qÉ¥gÄU¼Ä, £ÉªÄð®¸ lª®ÄU¼Ä CxªÁ £Á¥ïQ£ÄU¼Ä, lÄvÀ¸Áª §mU¼Ä ªÄvÀ P¥ÄU¼Ä, C¸AAiÄªÄ ºÁ¼, ¸Áªª£Ä¸ »ÃgÄª §m (tampons), U¨ð¤gÆÃzP, g§gÄ aÃ®, Q« ¸Z¸UÆ½¸Äª ºwAiÄ ¸Áz£, ±ËZ PÁUz, ºwAiÄ GAqU¼Ä, ªÄ£U¼ ¹gAdÄU¼Ä ªÄwvg CzÃ ªiÁzjAiÄ vÁd¸U¼£Ä¸ M¼UÆ¼Ävª.

2.34 'W¼ÀÄÁd¸' JAzg UÁªÄ ¥AZÁAiÄwAiÄ ªÁ¦AiÄ° GvÁ¢vªÁz W£ CxªÁ Cg W£ UÉºÆÃvÁ¢v vÁd¸, ¸Á¤lj vÁd¸, ªÁtd¸ vÁd¸, ¸ÁA¹P vÁd¸, DºÁg MzV¸Äª ªÄvÀ ªiÁgÄPm vÁd¸ ªÄvÀ Evg ªÁ¸z ªÄ£ g»v vÁd¸, ©Ã¢ P¸ UÄr¹z vÁd¸, ªÄÃ®zgz ZgArU½Az ºÆ¼wz P¸gÄ, vÆÃlU½Az GvÁ¢vªÁz vÁd¸, P¶ vÁd¸, PÉUÁjPÁ vÁd¸U¼£Ä¸ ºÆgvÄ ¥r¹z eÉ«P ªÉzÀQÃAiÄ vÁd¸, E-vÁd¸, ¨Ál j vÁd¸ ªÄvÀ «Qgt ²Ã® vÁd¸ (Radio active waste)

2.35. '©Ã¢ PÀÀUÀr¸À«PÉ JAzg ¸Áªðd¤P ©Ã¢U¼Ä, GzÁ£ªÉU¼Ä ªÄvÀ ¸Áªðd¤P ¥zÃ±U¼ P¸ UÄr¸Äª ªÄÆ®P ¸AU»¸¯Áz ªÄvÀ ªÄÃ®zg ZgArU¼Ä/¸Áªðd¤P g¸U½U ºÆA¢PÆArgÄª UÄArU¼Ä(PAzPU¼Ä) ªÄwvg ¸A§A¢v PÁAiÄðZlÄªnPU¼ ªÄÆ®P ¸AU»¸¯ÁUÄª W£ vÁd¸.

2.36.'J¸ïqÀÆ¸JA ¤AiÄªÀÀÀ JAzgÉÆÁ®PÁ®P wzÄ¥r ªiÁq§ºÄzÁz W£ vÁd¸ ¤ªðºuÁ ¤AiÄªÄU¼Ä, 2016.

2.37. 'J¸ïqÀAiÄÀJA §¼ÀÆÁgÀÀ±À®' JAzg W£ vÁd¸ ¸AUºu, ¸ÁUÁtP, ¸A¸gu, ªÄvÀ «¯ÃªÁj ¸ÃªU¼£Ä¸ MzV¸Äª ¸®ÄªÁV GAmÁUÄª ªZz ¥Ætð ¨ÁU CxªÁ Czg ¨ÁUª£Ä¸ ªÁ¦¸Äª ¸®ÄªÁV UÁªÄ ¥AZÁAiÄw¬ÄAz CxªÁ Ke¤¬ÄAz vÁeÆÃvÁzP£ ªÄÃ¯ F G¥«¢U¼£AiÄ «¢¸ÄªAvº ±Ä®¸.

2.38. 'vÁeÉÆÃvÁzÀÀ JAzg W£ vÁd¸ª£Ä¸ GvÁ¢¸Äªº ª¸Q CxªÁ ª¸QU¼ ¸ªÄÆº ¥wAiÆAzÄ Plq, ªÁ¸z ªÄ£AiÄ Dªgt ªÄvÀ ªÁ¸Ävg Dªgt U¼Ä, ¨ÁgwÃAiÄ gÉ¯, gPuÁ E¯ÁSAiÄ£Æ¸ M¼UÆAqAv ¥wAiÆAzÄ Plqª£Æ¸ º M¼UÆ¼Ävz.

2.39 'vÁd¸ DAiÄªÀÀ JAzg, CeÉ«P vÁd¸ª£Ä¸ vÁeÆÃvÁz£Á ªÄÆ®U½Az, ©Ã¢U½Az, vÆnU½Az, w¥ gÁ²U½Az, ¸Áªðd¤P ¥zÃ±U¼Ä EvÁ¢U½Az ªiÁgÁlPÁU°Ã CxªÁ ¥Ä£gÁªwðvjUÁU°Ã £ÃgªÁV CxªÁ vÁd¸ ªÁ¥ÁjU¼Avº ªÄz¡ªwðU¼ ªÄÆ®P vªÄ fÃª£ÆÃ¥ÁAiÄPÁV ªiÁgÁl ªiÁqÄª C£Ë¥ZÁjP ª¸Q CxªÁ ª¸QU¼ ¸ªÄÆºU¼Ä.

2.40. '¸ÀÀÁ PÉ¸ÀÁgÀ¸Á¤lj PÉ¸ÀÁgÀ JAzg UÁªÄ ¥AZÁ¬Äw¬ÄAzÁU°Ã CxªÁ Ke¤AiÄ ªÄÆ®PªÁV £ÃgªÁV CxªÁ ¥gÆÄPªÁV £ÃªÄPUÆArgÄªAvº ªÄvÀ

(i) ZgAr ¸ZÀUÆ½¸Ä¹z£Æ M¼UÆAqAv ©Ã¢ UÄr¸Ä¹zÄ

(ii) ªÄ£U½Az vÁd¸AUºu JAzg v¼ÄUÁr/¸t wZP ªÁº£U¼£Ä §¼P ªiÁr W£vÁd¸AUºu (Ezg° ªÄ®¹ M¼UÆArgÄ¹¢®)

(iii) vÁd¸A¸guÁ WlPU¼° JAzg PÁA¥ÆÃ¸ï vAiiÁjP, e£«P «Äx££¸Ãµ£ï, Mt vÁd¸AUºuÁ PÃAzU¼Ä ªÄvÄ Evg vÁd¸A¸guÁ WlPU½Az EvÁ¢U¼ PÁAiiÁðZguAiÄ ºÆuUÁjPAiÄ£Ä ºÆA¢gÄªAvº ¹Q.

(iv) PÁ®PÁ®P UÁªÄ ¥AZÁAiÄwAiÄ CUvÁ£Ä¸Ág Evg ££ªÄð®¹ ªÄvÄ vÁd¸ ¤ªðºuÁ PÁAiÄðZlÄªnPU¼Ä.

2.41 'vÁd¸ ªÁ¥ÁjUÀÀ JAzg UÄdj ªÁ¥ÁjU¼Ä, ¸AZÁj RjÃ¢zÁggÄ ªÄvÄ ªÁ¥ÁjU¼£Æ M¼UÆAqAv Ce£«P vÁd¸U¼ «AUqu, ªiÁgÁl ªÄvÄ RjÃ¢AiÄ° M¼UÆArgÄªAvº ¹QU¼Ä ªÄvÄ ¸A¸U¼Ä.

(2) F G¥«¢U¼° ¥j¨Á¶¸¯Ágz AiiÁ¹zÃ ¥zU¼Ä CxªÁ C©¹QU½U W£ vÁd¸ ¤ªðºuÁ ¤AiÄªÄU¼Ä, 2016g° ¤ÃrgÄª CxðªÃ ºÆA¢gvÀzÄ.

CzsÁiÀII - WÀÀvÁd¸ ¤ªÀºÀÁ AiÉÄd£É

3. WÀÀvÁd¸ ¤ªÀºÀÁ AiÉÄd£ÉªÀvÀDAiÀªÀiÀÀÀ

3.1 UÁªÄ ¥AZÁAiÄwAiÄÄ ª£AiÄQPªÁVAiiÁU°Ã CxªÁ MAzÄ ¸ªÄÆºªÁVAiiÁU°Ã, ªÁ¶ðP AiÆÃd£U¼£Ä M¼UÆAq LzÄ ªµðU¼ ££ªÄð®¹ AiÆÃd£AiÄ£Ä UÁªÄ ¥AZÁAiÄw C©£¢¹ AiÆÃd£AiiÁV gÆ¦¸vÀzÄ.

3.2. UÁªÄ ¥AZÁAiÄw ££ªÄð®¹ AiÆÃd£AiÄÄ P¼PAq CA±U½U ¸A§A¢¹zAv «ªgU¼£Ä M¼UÆArgvÀzÄ:

(i) UÁªÄ ¥AZÁAiÄw¬ÄAz PÁ®«ÄwAiÄ° ªÄvÄ ¸Á¢¸¨ÃPÁz ªÁ¶ðP ªÄ£°U®ÄU¼ C£ÄµÁ£

(ii) W£ vÁd¸ ¤ªðºuU ¸A§A¢¹zAv D¹ ªÄvÄ ªÄÆ®¨Æv ¸Ë®¨¹

(iii) UÁªÄ ¥AZÁAiÄwAiÄ ªÁ¦AiÄ° W£ vÁd¸ ¤ªðºuÁ PÁAiÄðZlÄªnPU½U CUv¹«gÄª ªiÁ£ª ¸A¥£Æ®U¼Ä

(iv) §Aqª Á¼ ªÄvÄ PÁAiiÁðZguAiÄ ªZU½U CAvº ªZª£Ä¸¨j¸®Ä ªÄÆ®U¼Æ M¼UÆAqAv CUv¹«gÄª C£ÄzÁ£.

(iv) ªÄÃ°ZÁgu ªÄvÄ ªiË®¹iÁ¥£ ªiÁ£zAqU¼Ä

(v) ¸ÁªÄxÁ©£¢¹, Cj¹ ªÄvÄ £qª½PAiÄ §z¯ÁªuAiÄ PÁAiÄð ZlÄªnPU¼Ä; ªÄvÄ

(vii) P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ ££ªÄð®¹ E¯ÁSAiÄ ªw¬ÄAz PÁ®PÁ®P w½¸§ºÄzÁz Evg AiiÁ¹zÃ «ªgU¼Ä

3.3 UÁªÄ ¥AZÁAiÄwAiÄ ¨ËUÆÃ½P ªÁ¦AiÄ° GvÁz£AiiÁUÄªAvº W£ vÁd ¤ªðºuU ¸A§A¢¹zAv ¸ÆPö AiÆÃd£U¼ DzÁgz ªÄÃ¯ ª£AiÄQPªÁV CxªÁ ¸ªÄÆ»PªÁV W£ vÁd¸z ¸AUºu ªÄvÄ ¸A¸guÁ vAv PÄjvAv UÁªÄ ¥AZÁAiÄwAiÄÄ ª£AiÄQPªÁV CxªÁ ¸ªÄÆ»PªÁV «ªgªÁz AiÆÃd£Á ªg¢Ai£Ä vAiiÁj¸vÀzÄ ªÄvÄ Ezg° W£ vÁd¸ ¤ªðºuAi£Ä M¼UÆArgvÀzÄ.

3.4. CAvº «ªgªÁz AiÆÃd£Á ªg¢ ªÄvÄ ¸ÆPï AiÆÃd£U¼Ä P¼PAqªÀ½U ¸A§A¢¹zAv «ªgU¼£Ä M¼UÆArgvPÀzÄ:

(i) ««z ªUðU¼ W£ vÁ¬dz ¸AUºuÁ PÁ®«Äw

(ii) ¸AUºuÁ ªÁº£U¼Ä ªÄvÄ ¸¼z «ªgU¼Ä;

(iii) UÁªÄ ¥AZÁAiÄwAiÄ° Cxª Á ¸ªÄÆºz° UÁªÄz(U¼) ¨Æ¥l(£P)

(iv) ©Ã¢ P¸ UÄr¸Äª ¸®ÄªÁV g¸U¼Ä/¸Áªðd¤P ©Ã¢U¼Ä

(v) W£ vÁ¬dï ¤ªðºuÁ PÁAiÄðZlÄªnPU¼£Ä PÈUÆ¼®Ä CUv«gÄª ¹§A¢.

(vi) W£ vÁ¬dï ¤ªðºuAiÄ ¥juÁªÄPÁj C£ÄµÁ£PÁV P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £È¬ªÄð®Ì E¯ÁSAiÄ ªw¬ÄAz PÁ®PÁ®Pï w½¸§ºÄzÁz Evg AiiÁª¬zÃ ªiÁ»wU¼Ä.

3.5. UÁªÄ ¥AZÁAiÄwU¼Ä UÁªÄ ¥AZÁAiÄw C©ª¬¢ AiÆÃd£AiÄ ¨ÁUªÁV ªÁ¶ðP C©ª¬¢ AiÆÃd£AiÄ£Ä vAiiÁj¸vPÀzÄ, ªÄvÄ:

(i) W£ vÁ¬dï ªÄÆ®¨Æv ¸Ë®¨ï ªÄvÄ ¸ËPAiÄð PÃAzU¼ ¥ÁgA©P ºÆrPU½U CUv«gÄª §AqªÁ¼ªZ;

(ii) ¸Ë®¨ï PÃAzU¼ PÁAiiÁðZgu ªÄvÄ ¤ªðºuUÁV CUv«gÄª ¥vÁªvð£Á (recurrent) ªZU¼Ä.

(iii) vg¨Ãw, ªiÁ»w ²Pt ªÄvÄ ¸Aªº£, £qª½PU¼° §z¯Áªu ªÄvÄ eÁUÌw PÁAiÄðPªÄU¼Avº PÁAiÄðZlÄªnPU½U PÁAiÄðPªÄ ªZ. UÁªÄ ¥AZÁAiÄwU¼Ä vªÄ ªÁ¶ðP DAiÄªÀiÄz° P¤µ (±Ã 25%) gµ£Ä ¥w ªµðªÇ J¯Á £È¬ªÄð®Ì ªÄvÄ W£ ªÄvÄ zª vÁ¬dï ¤ªðºu, ªÄÆ®¸ËPAiÄð, PÁAiÄðZgu ªÄvÄ PÁAiÄðZlÄªnPU½U PÁ¢j¸vPÀzÄ.

3.6. UÁªÄ ¥AZÁAiÄwU¼Ä W£ vÁ¬dï ¤ªðºuAiÄ£Æ M¼UÆAqAv, £È¬ªÄð®Ì ªÄvÄ vÁ¬dï ¤ªðºuÁ PÁAiÄðZlÄªnPU½UÁV ¥vÃP ¨ÁAPï SÁvÁAiÄ£Ä vgAiÄvPÀzÄ, ªÄvÄ Czg° J¸ïq§Æ¬JA §¼PzÁgg ±Ä®U¼Ä, PÃAz ¸PÁðg ªÄvÄ gÁd¬ ¸PÁðg¢Az ««z AiÆÃd£U¼rAiÄ°£ C£ÄzÁ£ ªÄvÄ ¤¢U¼£Ä Czg° dªiÁ ªiÁqvPÀzÄ.

(i) F ¨ÁAPï SÁv¬ÄAz ºtª£Ä PÃª® £È¬ªÄð®Ì ªÄvÄ vÁ¬dï ¤ªðºuU ¸A§A¢¹z PÁAiÄðZlÄªnPU¼Ä ªÄvÄ PÁAiÄðU½U vU®Äª ªZª£Ä ªiÁv ¨j¸vPÀzÄ.

(ii) F ¨ÁAPï SÁv¬ÄAz £q¸¯ÁUÄª ª¬ºÁgU¼£Ä ¤AiÄvPÁ°PªÁV ªÄvÄ P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £È¬ªÄð®Ì E¯ÁSAiÄÄ ¤zðj¹z «zÁ£z° C£AiÄªÁUÄª PÁ¬ÄzAiÄ jÃv¬¯Pï ¥j±ÆÃz£ £q¸vPÀzÄ.

CzsÁiÄIII- C¢PÁgÀ¼ÀªÀÄvÀÄPÀ¼ÀªÀÄzÀÄ

4. UÁæªÀ¥ÀZÁAiÀÄwAiÀÄ «««zsÀ¨sÁvÁzÁgÀ¼ÀÄ C¢PÁgÀ¼ÀªÀÄvÀÄPÀ¼ÀªÀÄzÀÄ

4.1. F G¥«¢U¼£AiÄ, UÁªÄ ¥AZÁAiÄwAiÄÄ ¥ªÄÄRªÁV W£ vÁ¬dï ¸AUºu, ¸A¸gu ªÄvÄ «¯ÃªÁjAiÄ ºÆuUÁjPAiÄ£Ä ºÆA¢gvPÀzÄ.

4.2 AiÉÄÃd£É ªÀvÀÄ ¤ªðºÀÉ C¢¤AiÄªÄzrAiÄ° ga¸¯ÁVgÄª UÁ«ÄÃt ¤ÃgÄ ªÄvÄ £È¬ªÄð®Ì ¸«Äw ªÄvÄ/CxªÁ UÁ«ÄÃt DgÆÃU¬, £È¬ªÄð®Ì ªÄvÄ ¥Ë¶PÁA± ¸«ÄwAiÄÄ CxªÁ C¬U¼ C£Ä¥¹wAiÄ°, UÁªÄ ¥AZÁAiÄwAiÄÄ W£ vÁ¬dï ¤ªðºuU ¸A§A¢¹zAv P¼PAq PÁAiÄðZlÄªnPU¼ dªÁ¨ÁjAi£Ä ºÆA¢gvPÀzÄ.

(i) W£ vÁd¸ ¤ªðºuÁ PÁAiÄðZlÄªnPU¼Áz e£«P vÁd¸ ¸A¸gu ªÄvÄ Ce£«P vÁd¸ª£Ä Mt vÁd¸ ¸AUºuÁ PÃAzz° zÁ¸Á£Ä ªiÁqÄª ¸®ÄªÁV UÁªÄ ¥AZÁAiÄwAiÄ ªÁ¦AiÄ° ¨Æ«ÄAiÄ£Ä UÄgÄw¸Äª¸zÄ ªÄvÄ ºAaP ªiÁqvPzÄ.

(ii) UÁªÄ ¥AZÁAiÄw C©ª¢ AiÆÃd£AiÄrAiÄ° £ªÄð® AiÆÃd£AiÄ vAiiÁjP, «ªgªÁz AiÆÃd£Á ªg¢, J¸ïq§Ä¢JA ¸ÆPö AiÆÃd£U¼Ä, £ªÄð® ªÄvÄ vÁd¸ ¤ªðºuÁ ª¸ª¸U½U ªÄvÄ CAvº AiÆÃd£U¼Ä ªÄvÄ DAiÄª¸AiÄª¸ UÁªÄ ¸¨U¼ C£ÄªÆÃz£AiÄ£Ä ¥qAiÄvPzÄ.

(iii) UÁªÄ ¥AZÁAiÄwU¼ «ªÃZ£Á Pvðª¸U½U W£ vÁd¸ ¤ªðºuAiÄ ºÁUÆ C¢¤AiÄªÄzrAiÄ° UÁªÄ ¥AZÁAiÄwU¼ E¤¶vg ºÆuUÁjPAiÄÄP GzÄ±U½UÁV Cª±P C£ÄzÁ£ª£Ä ºAaP ªiÁrz £AvgªÃ C£ÄzÁ£ª£Ä ©qÄUq ªiÁqÄª¸z£Ä SÁw ¥r¸vPzÄ.

(iv) W£ vÁd¸ ¤ªðºuÁ ¸ÃªU½UÁV J¸ïq§Æ¢JA §¼PzÁgg ±Ä®ª£Ä eÁjUÆ½¸vPzÄ ªÄvÄ ¸AU»¸vPzÄ.

(v) W£ vÁd¸ ¤ªðºuÁ PÁAiÄðZlÄªnPU½UÁV PÁªÄUÁjU¼Ä ªÄvÄ ªZU¼ C£ÄªÆÃz£ §Aqª¼ ªÄÆ®¸Ë®¨¸U¼Áz AiÄAvÆÃ¥PgtU¼Ä, ªÁº£U¼Ä ªÄvÄ G¥PgtU¼ ¥qAiÄÄ«P ªÄvÄ Ke¤U½UÁV rq§Æ¢¹¹U¼Avº §Aqª¼ ªÄÆ®¨Æv ¸Ë®¨¸U¼ ¸AWn¸Ä«P, vÁd¸ ¸AUºuÁ ªÁº£U¼Ä ªÄvÄ PÁA¥ÆÃ¸ï vAiiÁjP Cxª£ e£«P «Äx£¸Ãµ£ï WlPU¼ ¸Á¥£.

(vi) W£vÁd¸ ¸AUºu, ¸ÁUÁtP, ¸A¸guAiÄAvº ««z PÁAiÄðZlÄªnPU½UÁV ªÄvÄ UÁªÄ ¥AZÁAiÄwAiÄ ªÁ¦ ¥zÃ±z° ««z ªiÁ»w, ±PtP ªÄvÄ £qª½PU¼° §z¯ÁªuAiÄAvº PÁAiÄðZlÄªnPU¼Ä ¹§A¢ ªÄvÄ/CxªÁ Ke¤U¼ £ÃªÄP.

(vii) ªÄgÄDªwð¸¯ÁgzAvº Ce£«P vÁd¸U¼£Ä Cw ¸«ÄÃ¥z vÁ®ÆPÄ ¥AZÁAiÄw ªÄvÄ/CxªÁ f¯Á ¥AZÁAiÄwAiÄ ¸AUºuÁ PÃAzP CUv«gÄªAv ¸ÁUÁtP ªiÁqÄª ¸®ÄªÁV ¸ÁUuAiÄ ¨A§®ª£Ä MzV¸Äª¸zÄ.

(viii) vÁd¸ DAiÄªªg ¸AWl£U¼£Ä UÄgÄw¸Äª (¸¸ºÁAiÄ UÄA¥ÄU¼£Æ M¼UÆAqAv) ¸ºÁAiÄ ªiÁqvPzÄ ªÄvÄ F ¥Á¢ÃP£v vÁd¸ DAiÄªªgÄ ªÄ£ ªÄ£¬ÄAz®Ä vÁd¸ ¸AUºuAiÄÄ M¼UÆAqAv W£ vÁd¸ ¤ªðºuÁ PÁAiÄðz° ¨ÁVAiiÁU®Ä C£ÄªÁUÄªAvº ª¸ª¸AiÄ£Ä gÆ¦¸vPzÄ ªÄvÄ GvÃf¸vPzÄ.

(ix) ¥ªiÁtv ¥jUÁªÄU¼Áz ªÄÆ®z°AiÄÃ «AUquAiÄ° ¸ÄzÁgu, W£ vÁd¸z gÁ² ºÁPÄ«P ªÄvÄ ¸ÄqÄª ¥QAiÄAiÄ° E½P, W£ vÁd¸¢Az ¸A¥£Æ®U¼£Ä ¥qAiÄÄª° ºZ¼, AiÄÄP vÁd¸ ¤ªðºuÁ ª¸ª¸AiÄ PÁgt¢AzÁV ªÄvÄ v£Æ®PªÃ ªÄvÄ/CxªÁ Evg CºðvAiÄÄ¼ Ke¤U¼ ªÄÆ®P ¸½ÃAiÄ DgÆÃUª ªÄvÄ ¥j¸gz° ¸ÄzÁgu.

(x) W£ vÁd¸ ¤ªðºu PÁAiÄðZlÄªnPU½U ¸A§A¢¹zAv ªZz JzÄgÄ Cg ªÁ¶ðP DAiÄª¸AiÄz ¥j²Ã®£ W£ vÁd¸ ¤ªðºuÁ PÁAiÄðZlÄªnP PÄjvAv C£ÄµÁ£z°£ ¥Uw ªÄvÄ PÁAiiÁðZguAiÄ ¤ªðºuAiÄ vÀª¸iÁ¹P ªÄvÄ ªÁ¶ðP ªg¢U¼Ä.

(xi) gÁd¸¢Az ºÆgr¸¯Áz ªiÁUð¸ÆaAiÄ£AiÄ ¥ªÄÄR ¨ÁVÃzÁggÄU¼Ä, ¥¯Á£Ä¨«U¼Ä, ¸APµz°gÄª ¸ªÄÄzÁAiÄU¼Ä ªÄvÄ £ªÄð® AiÆÃd£AiÄ ¥j²Ã®£UÁV CUv«§ºÄzÁz Evg UÁªÄ ¥AZÁAiÄw ¸z¸g£Ä M¼¥r¹ UÁªÄ ¥AZÁAiÄw¬ÄAz C©ª¢ ¥r¸¯Áz £ªÄð® AiÆÃd£AiÄ£Ä ¸ÁªiÁfP ¥j±ÆÃz£U M¼¥r¸Äª ¸Ë®¨¸P°¸Äª¸zÄ

(xii) ¥Á¹Pï vÁd¸ ¤ªðºuÁ ¤AiÄªÄU¼Ä, 2016g° UÁªÄ ¥AZÁAiÄwU½U ¥n ªiÁrgÄªAvº J¯Á Pvðª¸U¼£Ä ¤ªð»¸vPzÄ ªÄvÄ Cgt¸, fÃ«±Á¸¦ ªÄvÄ ¥j¸g E¯ÁS, P£ÁðlP ¸PÁðg, EªjAz ºÆgr¸¯ÁVgÄª C¢¸ÆZ£ ¸A; J¥ïEE 17 E¦¹ 2012, ¨AU¼ÆgÄ, ¢£ÁAP 11£Ã ªiÁZïð, 2016g C¢¸ÆZ£AiÄ£AiÄ ¥Á¹Pï §¼PAiÄ ¤µÃzª£Ä eÁjUÆ½¸vPzÄ.

(xiii) UÁªÄ ¥AZÁAiÄw, f¯ ªÄvÄ gÁd¸ ¥Á¢PÁgU½Az C£AiÄªÁUÄª PÁAiÄU£Ä¸ÁgªÁV ¤zÃð²¸®q§ºÄzÁz Evg AiiÁª¸zÃ ¥Áv ªÄvÄ/CxªÁ ºÆuUÁjPU¼Ä.

4.3 UÁªÄ ¥AZÁAiÄwU¼Ä ªÄvÄ Czg ¸«ÄwU¼ ª¸ºÁg ¤ªðºuAiÄÄ UÁªÄ ¥AZÁAiÄwU¼ CxªÁ ¸«Äw ¸¨U¼° C¢¤AiÄªÄzrAiÄ° ga¸¯Áz «¢«zÁ£U¼£AiÄ £qAiÄvPzÄ, ¥gAvÄ, UÁªÄ ¥AZÁAiÄwU¼Ä

ªÄvÄ/CxªÁ ¸«ÄwU¼Ä F G¥-«¢U¼ GzÀ±U½UÁV MAzÄ ªµðz CªÀ¢AiÄ° P¤µ ªÄÆgÄ wAU¼ÄU½UÆªÄ ¸¨ ¸ÃgvPÀzÄ.

4.4 ¥ÀZÁAiÀÄw C©ü¥Àr¹ C¢üPÁj: ¥AZÁAiÄw C©ªÀ¢ C¢PÁjAiÄÄ W£ vÁ¬Ä ¤ªðºuU ¸A§A¢¹zAv P¼PAq Pvðª¼U dªÁ¨Ág£ÁVgvPÀzÄ:

(i) UÁªÄ ¥AZÁAiÄw ªÄvÄ UÁ«ÄÃt ¤ÃgÄ ªÄvÄ £ªÄð® ¸«Äw ªÄvÄ/CxªÁ UÁ«ÄÃt DgÆÃU¬, £ªÄð® ªÄvÄ ¥Ë¶PÁA± ¸«ÄwU UÁªÄ ¥AZÁAiÄw C©ªÀ¢ AiÆÃd£AiÄ ¨ÁUªÁV £ªÄð® AiÆÃd£U¼Ä, «ªgªÁz AiÆÃd£Á ªg¢, J¸ïq§Æ¤JA ¸ÆPï AiÆÃd£U¼Ä, £ªÄð® ªÄvÄ vÁ¬ ¤ªðºuÁ ª¬¸U ªÁ¶ðP DAiªÄAiÄ vAiiÁj¸Äª ¸A§Az ªÄvÄ J¸ïq§Æ¤JA §¼PzÁgg ±Ä® ¯P ºÁPÄª ªÄvÄ CAwªÄUÆ½¸Äª PÁAiÄðU¼° £gª ¤ÃqvPÀzÄ.

(ii) W£ vÁ¬ ¤ªðºuU ¸A§A¢¹z ««z vAveÁ£U¼Ä, AiÆÃd£U¼Ä EvÁ¢ PÄjvAv UÁªÄ ¥AZÁAiÄw ¸z¸gÀU½U ªiÁ»wAiÀ£Ä MzV¸vPÀzÄ.

(iii) W£ vÁ¬ ¤ªðºu ª¬¸U¼Áz ªÄ£ ªÄ£¬ÄAz P¸ ¸AUºu, ©Ã¢ P¸ UÄr¸Ä«P, PÁA¥ÆÃ¸ï UÄArU¼ ¤ªiÁðt, e¬«P «x£¬Ãµ£ï ¸Á¬gU¼Ä ªÄvÄ rq§Æ¤¹¹, £ªÄð® ¨Æ ¨wðU¼Ä (C£¬Ä¹z° ªiÁv) ªÄvÄ CAvº ¸A¸guÁ ªÄvÄ «¯ÃªÁj ¸Ë®¨¬ PÃAzU¼ PÁAiiÁðZguAiÄ C£ÄµÁ£ ªÄvÄ ¤ªðºuAiÄ ªÄÃ°ZÁgu £q¸vPÀzÄ.

(iv) W£ vÁ¬ ¤ªðºuUÁV ¸ÆP ªÁº£U¼Ä ºÁUÆ G¥PgtU¼£Ä ¥qAiÄ®Ä UÁªÄ ¥AZÁAiÄwU £gª£Ä ¤ÃqvPÀzÄ.

(v) ¸ÁªiÁ£¬ d£g° Cjª¬ ªÄÆr¸Äª PÁAiÄðZlÄªnPU¼ÆA¢U ªÄ»¼AiÄgÄ ºÁUÆ º¢ªAiÄ¸ ¨Á®QAiÄgv «±Ãµ UªÄ£ ºj¹ lÄvÄ¸Áª £ªÄð® ¤ªðºuÁ ZlÄªnPAiÄ PÄjvAv ªÄvÄ lÄvÄ¸Áª ¸Á¤lj vÁ¬z «¯ÃªÁj PÄjvAv Cjª¬ ªÄÆr¸Äª¬zÄ.

(vi) W£ vÁ¬ ¤ªðºuÁ ª¬¸U ¸A§A¢¹zAv ¯P¥vU¼, ¸A¥£Æ®U¼ D¹U¼Ä ªÄvÄ ª¬¸U¼£Æ M¼UÆAqAv z£A¢£ ºtPÁ¸Ä ¤ªðºu ªÄvÄ W£ vÁ¬ ¤ªðºuÁ ª¬¸UAiÄ zÁR¯U¼ ¤ªðºu.

(vii) W£ vÁ¬ ¤ªðºuAiÄ ¹w ªÄvÄ ¥UwU ¸ÁPï ªÁUÄªAvº ªg¢U¼Ä, £ªÄÆ£U¼Ä ªÄwvg z¸ÁªÃdU¼£Ä vAiiÁj¸Äª° UÁªÄ ¥AZÁAiÄw ªÄvÄ ¸«ÄwU½U £gª¬ MzV¸Äª¬zÄ

(viii) UÁªÄ ¥AZÁAiÄw, f¯ ªÄvÄ gÁd¬ ¥Á¢PÁgU½Az C£AiÄªÁUÄª PÁAiÄU£Ä¸ÁgªÁV ¤zÃð²¸®q§ºÄzÁz Evg AiiÁª¬zÃ ¥Áv ªÄvÄ/CxªÁ ºÆuUÁjPU¼Ä.

4.5 **¸ÀÄðgÉÊvÀÀªÀvÀÄ ¸ÀÄzÁAiÀÄ DzsÁjvÀ¸ÀWÀ£ÉÀÄ** UÁªÄ ¥AZÁAiÄwAiÄÄ W£ vÁ¬ ¤ªðºuU ¸A§A¢¹zAv ¸PÁðgÃvg ªÄvÄ/CxªÁ ¸ªÄÄzÁAiÄ DzÁjv ¸AWlÉU¼Ä ªÄvÄ ¸¸ºÁAiÄ UÄA¥ÄU½U P¼PAq ¥ÁvU¼£Ä ª»¸§ºÄzÄ.

(i) UÁªÄ ¥AZÁAiÄwU½U ««z Cjª¬, ªiÁ»w, ±ÀPtP ªÄvÄ £qª½PU¼ §z¯Áªu PÁAiÄðZlÄªnPU¼° ¸A¥Ætð ¸ªÄÄzÁAiÄª£Ä M¼¥r¸Äª° AiÆÃd£U¼ vAiiÁjP ªÄvÄ ªiÁ»w ¥ZÁg PÁAiÄðZlÄªnPU½U ¨A§® ¤ÃqvPÀzÄ.

(ii) W£ vÁ¬ ¤ªðºuÁ PÁAiÄðZlÄªnPU¼° M¼UÆArgÄªAvº UÁªÄ ¥AZÁAiÄw C¢PÁjU¼Ä, £ªÄð® ¥ÃgPgÄ (GvÃdPgÄ), ¸ZÀvÁ P®¸UÁggÄ, Ke¤U¼Ä ªÄwvg ª¬QU¼£Ä vg¨Ãw ªÄvÄ ¸ÁªÄxÁ©ªÀ¢AiÄ° M¼¥r¸Ä«P

(iii) £ªÄð® AiÆÃd£ ªÄwvg vÁ¬ ¤ªðºuÁ PÁAiÄðZlÄªnPU¼ C£ÄµÁ£z° UÁªÄ ¥AZÁAiÄwU ¸ºPÁg ¤ÃqvPÀzÄ.

(iv) ¸«ÄPU¼£Ä £q¸Äª¬zÄ ªÄvÄ £ªÄð® ªÄvÄ W£ vÁ¬ ¤ªðºuÁ PÁAiÄðPªÄU¼ ªÄÃ°ZÁgu ªÄvÄ W£ vÁ¬ ¤ªðºuÁ ª¬¸U¼° ¸ÁªiÁfP ªÄvÄ Evg ¸vAv ¯P ¥j±ÆÃz£AiÄ° ¸ºPÁg MzV¸vPÀzÄ.

(v) ªÄ£ ªÄ£¬ÄAz vÁd¸ÀAUºu, UÁªÄ ¥AZÁAiÄwAiÄ° GvÁ¢¸À¯Áz W£ vÁd¸Àz ¸ÁUÁtP ªÄvÄ ¸A¸Àgu ªÄvÄ UÁªÄ ¥AZÁAiÄw¬ÄAz ª»¸À§ºÄzÁz PÁAiÄðZlÄªnPU¼Ä

(vi) UÁªÄ ¥AZÁAiÄw, f¯ ªÄvÄ gÁd¸À ¥Á¢PÁgU½Az C£AiÄªÁUÄª PÁAiÄU£Ä¸ÁgªÁV ¤zÃð²®q§ºÄzÁz Evg AiiÁª¸ÀzÃ ¥Áv ªÄvÄ/CxªÁ ºÆuUÁjPU¼Ä.

4.6 £ÉÃ®¸À ¥ÉgPgÀ (Sanitation Motivators): UÁæªÀ ¥AZÁAiÄw ªÀ¬ÄAz ª»¸À§ºÄzÁz F P¼PAq Pvðª¸ÀU¼£Ä£¸ÀªÄð®¸À ¥ÃgPgÄ ºÆA¢gvÀPÀzÄ.

(i) UÁªÄ ¥AZÁAiÄw £¸ÀªÄð®¸À AiÆÃd£U¼Ä, «ªgªÁz AiÆÃd£Á ªg¢, J¸ïq§Ä¸ÀJA ¸ÆPÀ¸À AiÆÃd£U¼Ä ªÄvÄ Evg vÁd¸À ¤ªðºuÁ AiÆÃd£U¼£Ä ¹z¸À ¥r¸Äªº UÁªÄ ¥AZÁAiÄwU £gª¸À ¤ÃqvÀPÀzÄ.

(ii) ¸«ÄwU¼ ¸z¸ÀgÄU¼Ä, ¸ZÀvÁ P®¸UÁggÄ, Ke¤U¼Ä ªÄvÄ W£ vÁd¸À ¤ªðºuÁ PÁAiÄðZlÄªnPU¼° PÁAiÄð¤ªð»¸Äª ªÀQU¼ §®¥r¸Ä«P ªÄvÄ ¸ÁªÄxÁ©ª¸À¢¯U C£Äª¸À ªiÁrPÆqvÀPÀzÄ.

(iii) ««z Cjª¸À ªÄÆr¸Äª PÁAiÄðPªÄU¼Ä, ªiÁ»w ªÄvÄ ±ÉPtP ªÄvÄ ¸Aªº£ PÁAiÄðZlÄªnPU¼£Ä AiÆÃf¸®Ä, ¥ZÁg ªiÁq®Ä ªÄvÄ C£ÄµÁ£UÆ½¸Äªº ¸ºPÁg MzV¸Äª¸ÀzÄ ªÄvÄ ¸Ä¹g £qª½PAiÄ §z¯ÁªuU C£Äª¸À ªiÁqvÀPÀzÄ.

(iv) W£ vÁd¸À ¤ªðºuU gÆ¦¹gÄªAvº ªÄÆ®¨Æv ¸Ë®¨¸À, G¥PgtU¼Ä, ªÄvÄ F ¸A§Az ¥q¢gÄªAvº Evg D¹U¼ UÄtªÄlz ªiË®¸ÀªiÁ¥£ ªiÁqvÀPÀzÄ.

(v) ¸ÄgQv £¸ÀªÄð®¸À ªÄvÄ W£ vÁd¸À ¤ªðºuU ¸A§A¢¹z GzÃ±U½UÁV ¸Éf¸¯ÁVgÄª ¸A¥£Æ®U¼ ¸ªÄ¥ðP PÁAiiÁðZgu ªÄvÄ ¤ªðºu PÄjvÄ Cjª£Ä ºa¸vÀPÀzÄ.

(vi) W£ vÁd¸À ¤ªðºuÁ PÁAiÄðPªÄU¼ ¸Ä¹gvAiÄ£Ä SÁw ¥r¸Äª ¸®ÄªÁV ªÄÄ°ZÁguÁ PÁAiÄðZlÄªnPU¼° ªÄvÄ zÁR¯U¼ ¤ªðºuÁ PÁAiÄðz° ¥AZÁAiÄw C©ª¢¸À C¢PÁjU £gª¸À MzV¸vÀPÀzÄ.

(vii) lÄvÄZPÀ ¸A§A¢¹zAv Cjª¸À ªÄÆr¸Äª¸ÀzÄ ªÄvÄ ¸Á¤lj vÁd¸Àz ¸ÄgQv «¯ÃªÁjAiÄÆ M¼UÆAqAv lÄvÄZP £¸ÀªÄð®¸À ¤ªðºuÁ PÁAiÄðZlÄªnPU¼Ä.

(viii) ¸«ÄÃPU¼£Ä £q¸Äª¸ÀzÄ ªÄvÄ £¸ÀªÄð®¸À ªÄvÄ W£ vÁd¸À ¤ªðºuÁ PÁAiÄðPªÄU¼ ªÄÄ°ZÁgu ªÄvÄ W£ vÁd¸À ¤ªðºuÁ ª¸ÁªU¼° ¸ÁªiÁfP ªÄvÄ Evg ¸vAv ¯P ¥j±ÆÃz£AiÄ° ¸ºPÁg MzV¸vÀPÀzÄ.

(ix) UÁªÄ ¥AZÁAiÄw, f¯ ªÄvÄ gÁd¸À ¥Á¢PÁgU½Az C£AiÄªÁUÄª PÁAiÄU£Ä¸ÁgªÁV ¤zÃð²®q§ºÄzÁz Evg AiiÁª¸ÀzÃ ¥Áv ªÄvÄ/CxªÁ ºÆuUÁjPU¼Ä.

CzsÁAiÀIV- WÀÀvÁd¸À «AUÀqÀÉ

5. vÁeÉÃvÁzPÀÀzÀªÀÆ®zÀAiÉÄ ««zsÀ¥ÀÀÀUÀÀWÀÀvÁd¸ÀzÀ«AUÀqÀÉ

5.1 §¸ºvï vÁeÆÃvÁzPg£Æ M¼UÆAqAv, ¥wAiÆ§ vÁeÆÃvÁzP£Æ ¸º W£ vÁd¸ª£Ä ªÄÆ®z°AiÄÄ P¼PAq ¥ªUðU¼° «AUqu ªiÁqvÀPÀzÄ.

(i) º¹ vÁd¸ªAzÆ ¸º G¯ÃT¸¯ÁUÄª e¸«P vÁd¸À

(ii) Mt vÁd¸ªAzÆ ¸º G¯ÃT¸¯ÁUÄª Ce¸«P vÁd¸À

(iii) ¸Á¤lj vÁd¸ª£Æ M¼UÆAqAv U¸ºÆÃvÁ¢v C¥ÁAiÄPÁj vÁd¸À.

5.2. ¸Á¤lj vÁd¸ª£Ä ¸ÄgQvªÁV GvÁzP¤Az Cxª¸Á ¸ÆP ¨ÁUÄAqï (brand) ªiÁ°ÄPgÄU¼Ä MzV¹z ¸t aÃ®U¼°, ¸ÆP jÃwAiÄ° ¸µªÁV v£Ä ¸gÆ¥ª£Ä ¸Æa¸ÄªAv ªÄÄZvÀPÀzÄ ªÄvÄ J¯Á £¸ÀªÄð®¸À vÁd¸ª£Æ ¸º U¸ºÆÃvÁ¢v C¥ÁAiÄPÁj vÁd¸ÀzÆA¢U zÁ¸Á£Ä ªiÁqvÀPÀzÄ.

5.3. eÉ«P vÁdÄ, CeÉ«P vÁdÄ ªÄvÄ UÉºÆÃvÁ¢v C¥ÁAiÄPÁj vÁdÄªÉÃ (¸Á¤l j vÁdÄzÆA¢U) CªÀU¼£Ã ¨g¸z UÁªÄ ¥AZÁAiÄwU ªÄvÄ/CxªÁ ¸Az¨Áð£Ä¸Ág Ke¤U §lªÁq ªiÁq®Ä ¤¢ðµ ¥r¹z zÁgPz° (§Än, vÆn) ¥wAiÆAz£Æ ¥vÀPªÁV zÁ¸Á£Ä ªiÁqvPÀzÄ.

5.4. UÁªÄ ¥AZÁAiÄw ªÄvÄ /CxªÁ ¸Az¨Áð£Ä¸Ág Ke¤U §lªÁq ªiÁqÄª ¥ÆªðZ°, P¼PAqAv «AUr¸¯Áz W£ vÁdÄªÉÃ zÁ¸Á£Ä ªiÁqÄª zÁgPz (§Än/vÆn) ªtðªÀ P¼PAqAwgvPÀzÄ.

(i) MAzÄ ªÃ¼ UÁªÄ ¥AZÁAiÄwAiÄÄ ªÄ£ ¨ÁV°¤Az¯Ã eÉ«P vÁdÄªÉÃ ¸AU»¹z°, eÉ«P vÁdÄPÁV º¹gÄ ªtðz zÁgP (§Än/vÆn)

(ii) CeÉ«P vÁdÄ CxªÁ GZÀ ¸ÁAzvAiÄÄ¼ ¥Á°y£ï aÃ® ¸AUºuU ¤Ã° ªtðz zÁgP (§Än/vÆn), ªÄvÄ

(iii) £ÉªÄð®Ä vÁdÄªÇ M¼UÆAqAv UÉºÆÃvÁ¢v C¥ÁAiÄPÁj vÁdÄPÁV PA¥Ä ªtðz (§Än/vÆn) zÁgP.

5.5. ¤¢ðµ ªUðz vÁeÆÃvÁzPg PvðªÀU¼Ä

(i) ©Ã¢ §¢AiÄ ªiÁgÁlUÁggAvº vÁeÆÃvÁzPgÄ CªÀg PÁAiÄðZlÄªnPAiÄ ¸Az¨ðz° GvÁ¢¸¯Áz DºÁg vÁdÄ, «¯ÃªÁj ªiÁqÄªAvº vmU¼Ä, ¯ÆÃlU¼Ä, ¤Ãj£ PÁ£ÄU¼Ä, ªÄÃ®Ä ºÆ¢PU¼Ä (glÄ), vAV£ a¥Ä ªÄvÄ £ÁgÄU¼£Ã, ¸Ã«¸zÃ ©ngÄª DºÁg ¥zÁxðU¼£Ã, vgPÁjU¼£Ã, ºtÄU¼Ä ªÄwvg CzÃ ªiÁzjAiÄ ª¸ÄU¼£Ã F G¥«¢U¼° gÆ¦¸¯ÁVgÄª ªUðz£AiÄ «AUr¸vPÀzÄ.

(ii) AiiÁªÀzÃ DªgtzÀ ¸Á¢Ã£ªÉÃ ºÆA¢gÄª ªÀQAiÄÄ, AiiÁªÀzÃ ªÁtdÄ PÁAiÄðZlÄªnPAiÄ ¨ÁUªÁV PÆÃ½, «ÄÃ£Ä ªÄvÄ P¸Á¬Ä vÁdÄU¼£Ã GvÁz£ ªiÁrz°, CAvº vÁdÄªÉÃ ¥vÀPªÁV ªÄvÄ ªÄÄaz ªÄvÄ ¸ZÀ ªÁvÁªgtz° ¸AU»¸vPÀzÄ ªÄvÄ CAvº vÁdÄªÉÃ Evg AiiÁªÀzÃ ªUðz W£ vÁdÄzÆA¢U «Ä±t ªiÁqvPÀz®.

CzÁAiÀÄv- WÀÀvÁdÄzÀ¸ÀÀUÀæÀÉªÀÄvÀÄ¸ÁUÁtÂÉ

6. ªÀÄÉªÀÄÉÄAzÀ«AUÀvÀWÀÀvÁdÄ¸ÀÀUÀæÀÉ

6.1 **F G¥À«¢UÀÀÄiÀ** UÁªÄ ¥AZÁAiÄw¬ÄAz C¢¸Æa¹z ¸ÄAiÄ ªÄvÄ CAvº «zÁ£z° UÁªÄ ¥AZÁAiÄwAiÄÄ ªÄ£ ªÄ£¬ÄAz®Æ «AUr¸¯Áz W£ vÁdÄªÉÃ ¸AU»¸Äª ºÆuUÁjPAiÄ£Ã ºÆA¢gvPÀzÄ.

6.2 UÁªÄ ¥AZÁAiÄwAiÄÄ ¥zÃ±ªÁgÄ ¸ÄAiÄª£Ã ªÁgz° ¸ÆP ¢£ª£Æ M¼UÆAqAv, Czg ¤gAvgv ªÄvÄ «zÁ£ªÉÃ (v¼ÄUÁr CxªÁ ¸AiÄAZÁ°v ªÁº£U¼ ªÄÆ®P) ««z ªUðU¼ «AUrv W£ vÁdÄªÉÃ ªÄ£ ªÄ£¬ÄAz®Æ ¸AU»¸Äª PÄjvAv G¥«¢-6.3g£AiÄ C¢¸Æa¸vPÀzÄ. UÁªÄ ¥AZÁAiÄwAiÄÄ CeÉ«P vÁdÄªÉÃ P¤µ ªÁgPÆªÄAiiÁzgÆ ¸º G¥«¢U¼°£ CzÁAiÄ-XgrAiÄ°£ J¸ïq§ÆJA §¼PzÁgg ±Ä®z ª¸Æ¯ÁwU M¼¥lÄ ¸AU»¸vPÀzÄ. CAvº C¢¸ÆZ£U¼£Ã UÁªÄ ¥AZÁAiÄw PZÃjU¼°AiÄÆ ªÄvÄ UÁªÄ ¥AZÁAiÄwAiÄ Evg ¥ªÄÄR ªÄvÄ PtU UÆÃZgªÁUÄªÄAvº ¸¼U¼°AiÄÆ ¥Pn¸vPÀzÄ.

6.3 UÁªÄ ¥AZÁAiÄwAiÄÄ ªÄ£ ªÄ£¬ÄAz®Æ vÁdÄ ¸AUºuAiÄ ¤gAvgv ªÄvÄ «zÁ£ªÉÃ G¥«¢U¼-6.2g£AiÄ ¤zðgu ªiÁqÄª ¸Az¨ðz° P¼PAq CA±U¼£Ã Ut£U vUzÄPÆ¼vPÀzÄ:

(i) d£¸ASÁ¸ ¸ÁAzv

(ii) W£ vÁ¸dz UÄt ®PtU¼Ä

(iii) g¸U¼ CU® ªÄvÄ

(iv) UÁªÄ ¥AZÁAiÄwAiÄ° ®¨«gÄª ªiÁ£ª ±Q ªÄvÄ C£ÄzÁ£

6.4. vÁ¸eÆÃvÁzPgÄ e¸«P vÁ¸dª£Ä ªÄ£ ªÄ£¬ÄAz ¸AUºu ªiÁqÄªªjU ¤ÃqÄª §z®Ä eÁ£ÄªÁgÄU¼Ä, ªÄ£AiÄ°AiÄÄ PÁA¥ÆÃ¸ï vAiiÁjP, e¸«P «Äx£¸Ãµ£ï CxªÁ Evg AiiÁª¸zÃ «zz gÆrAiÄ ªÄÆ®P C£AiÄªÁUÄª PÁAiÄAiÄ° CxªÁ ªiÁUð¸ÆaAiÄ° C£ÄªÄw¹gÄªAv ¤ªð»¸§ºÄzÄ.

6.5 G¥«¢AiÄrAiÄ° W£ vÁ¸dª£Ä ªÄ£ ªÄ£¬ÄAz ¸AU»¸Ä¸zgÆA¢U **UÁæªÀ ¥ÀZÁAiÀw ªÀvÀ** /CxªÁ ¸Az¨Áð£Ä¸Ág Ke¤AiÄÄ ¸Áªðd¤P ¸¼U¼Áz g¸U¼Ä, ¸ÁªðD¤P ©Ã¢U¼Ä, ¸ÁªiÁ£¸ ¥zÃ±U¼Ä, Dlz ªÄ£zÁ£U¼Ä, GzÁ£ª£U¼Ä, ªiÁgÄPmU¼Ä, vÆÃlU¼Ä, ¥ªÁ¹ vÁtU¼Ä ªÄvÄ CzÃ ªiÁzjAiÄ ¥zÃ±U½Az ¤¢ðµ ¥r¹z ¸ªÄAiÄ ªÄvÄ ¢£zAzÄ vÁ¸dª£Ä ¸AU»¸§ºÄzÄ.

6.6. UÁªÄ ¥AZÁAiÄwAiÄÄ C£AiÄªÁUÄªAvº PÁAiÄU¼rAiÄ° AiiÁª¸zÃ MAzÄ Ke¤AiÄ£Ä J¯Á ªÄvÄ/ CxªÁ P®ª¸ ªUðU¼ «AUrv W£ vÁ¸dª£Ä ¥AZÁAiÄwAiÄ J¯Á UÁªÄU¼ vÁ¸eÆÃvÁzPg ªÄ£ ªÄ£¬ÄAz®Æ ¸AU»¸ÄªAv £Ã«Ä¸§ºÄzÄ.

6.7 UÁªÄ ¥AZÁAiÄwAiÄÄ ªÁgz° ¤¢ðµ ¢£ ªÄvÄ ªÁº£ª£Ä P¸Á¬ÄSÁ£AiÄ vÁ¸dU¼£Ä ¸AU»¸Äª ¸®ÄªÁV ¤AiÄ«Ä¸vPzÄ ªÄvÄ CAvº ¸ÆP ¸Á¢Ã£Á£Ä¨«/ªiÁ°ÃP£Ä CAvº vÁ¸dª¸ ¤U¢v ¢£ÁAPzAzÄ ªÄvÄ ¸ªÄAiÄz° ¸AUºuU ¹z¸ªÁVgÄª¸z£Ä SÁw ¥r¸vPzÄ.

6.8 UÁªÄ ¥AZÁAiÄwAiÄÄ zP W£ vÁ¸d¸ AUºuUÁV ªÄvÄ «AUrv W£ vÁ¸dz £qÄª AiiÁª¸zÃ «Ä±t«gÄª¸¢®ªAzÄ SÁw ¥r¸Äª ¸®ÄªÁV ¥wAiÆAzÄ º½U ºAaP ªiÁqÄªAvº ªÁº£U¼Ä, v¼ÄUÁrU¼Ä ªÄvÄ ¸ZvÁ/¸Á¤lj vÁ¸d¸ P®¸UÁggÄU¼ ¸ASÁAiÄ£Ä ¤zðj¸vPzÄ.

6.9 P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £¸ªÄð®¸ E¯ÁSAiÄÄ PÁ®PÁ®P ¤¢ðµ ¥r¸§ºÄzÁz PªÄz£Aiİ ¸ZvÁ/¸Á¤lj P®¸UÁggÄ, ªÁº£U¼Ä ªÄvÄ vÁ¸eÆÃvÁzPg ¸ASÁU C£Ä¥ÁvªÁV ¯P ªiÁqvPzÄ.

6.10 «AUrv W£ vÁ¸dª£Ä ¸AU»¸Äª ¥QAiÄAiÄ° ¥wAiÆ§ vÁ¸eÆÃvÁzP£Æ ¸º UÁªÄ ¥AZÁ¬Äw ªÄvÄ/CxªÁ Ke¤U W£ vÁ¸dª£Ä ¸ª¥ðPªÁV «AUr¹ ¸ÆP zÁgPU¼° (§Än/vÆn) ¸AU»¹qÄª¸z£Ä SÁw ¥r¸Äª ªÄÆ®P ªÄvÄ CzÄ UÁªÄ ¥AZÁAiÄw CxªÁ Ke¤¬ÄAz ¥Pn¸¯Áz ªÃ¼Á ¥nAiÄ£AiÄ ¸AUºP AiÆÃU¸ªÁVzAiÄA§Äz£Ä SÁw ¥r¸Äª ªÄÆ®P £gª¸ ¤ÃqÄª¸zÄ ¥wAiÆ§ vÁ¸eÆÃvÁzP£ PvðªÁVgvPzÄ.

6.11 ªÄ£ ªÄ£¬ÄAz®Æ W£ vÁ¸d¸ AUºuAiÄ£Ä P¼PAq «zÁ£z° C£ÄµÁ£UÆ½¸vPzÄ;

(I) UÁªÄ ¥AZÁAiÄw CxªÁ Ke¤AiÄÄ ¤¢ðµ ¥r¹z ¥zÃ±U¼° ªÄ£ ªÄ£¬ÄAz ¸AUºuUÁV §gÄwgÄª «µAiÄª£Ä ¸Áªðd¤PªÁV ¥Pn¸vPzÄ.

(II) vÁ¸eÆÃvÁzP£Ä W£ vÁ¸dª£Ä ¤¢ðµ ¥r¹z ¥zÃ±z° W£ vÁ¸dª£Ä ¤ÃqvPzÄ.

(III) MAzÄ ªÃ¼ vÁ¸eÆÃvÁzP£Ä W£ vÁ¸dª£Ä §lªÁq ªiÁq®Ä ®¨«g¢z¸°, CAvº vÁ¸eÆÃvÁzP£Ä vÁ¸dª£Ä «AUrv «zÁ£z° PtU UÆÃZgªÁUÄªAv Ej¸vPzÄ ªÄvÄ EzjAzÁV UÁªÄ ¥AZÁAiÄw CxªÁ Ke¤U W£ vÁ¸dª£Ä ¸AU»¸®Ä ¸Ä®¨ªÁUÄvz. «AUqu ªiÁrzAvº W£ vÁ¸dª£Ä ªÄÄZzAiÄÄ vg¢qvPz®, KPAzg C¸ª UÁ½, ¤ÃgÄ CxªÁ ¥ÁtU½Az ªiÁ°£¸ ºgqÄª ¸Ázv¬ÄgÄvz.

6.12. ¸AUºuAiÄ ªÄvÄ ¸ÁUÁtPAiÄ ¸ªÄAiÄz° «AUr¹z vÁd¦ªÉÃ ¨g¸vPÀz®.

6.13. F jÃwAiiÁV ¸AU»¸¯Áz e¦«P vÁd¦ªÉÃ J¸ïq§ÆïJA ¤AiÄªÄU¼Ä ªÄvÄ / CxªÁ C£AiÄªÁUÄªAvº ¹¦¹© CxªÁ PJ¸ï¦¹© ªiÁUð¸ÆaAiÄ£Ã ¥Á°¸ÄªAvº PÁA¥ÆÃ¸ï WlPU½U, e¦«P «Äx£¸Ãµ£ï WlPU¼Ä CxªÁ E¤vgÃ AiiÁª¦zÃ ¸A¸guÁ WlPU½U ¸ÁUÁtP ªiÁqvPÀzÄ.

6.14. Ce¦«P vÁd¦ ªÄvÄ/CxªÁ U¦ºÆÃvÁ¢v C¥ÁAiÄPÁj vÁd¦ (£¦ªÄð® vÁd¦ªÇ M¼UÆAqAv) ª£Ã UÁªÄ ¥AZÁAiÄwAiÄ Mt vÁd¦ ¸AUºuÁ PÃAzP CxªÁ UÁªÄ ¥AZÁ¬Äw¬ÄAz £Ã«Ä¹z Evg AiiÁª¦zÃ C¢P¦v ¸¼P¦ ¸ÁUÁtP ªiÁqvPÀzÄ.

6.15. W£ vÁd¦ ¤ªðºuAiÄ ««z ªUðU¼£Ã G¥«¢U¼ CzÁAiÄ VI g° G¥§AzU¼£AiÄ ¸A¸j¸vPÀzÄ.

7. ¸ÀÀÄAzÀ¸ÀÄÀÀ WÀÀvÁd¦ ¸ÁUÀÀÉ (Point to point collection)

7.1 UÁªÄ ¥AZÁAiÄwAiÄÄ ªÄ£ ªÄ£¬ÄAz®Æ ¸AUºuAiÄ£Ã C£ÄµÁ£UÆ½¸ÄªªjU, UÁªÄ ¥AZÁAiÄwAiÄÄ C¢¸ÆZ£AiÄ ªÄÆ®P P®ª¦ ¥zÃ±U¼£Ã ªÄvÄ ¸AUºuÁ ¸¼U¼£Ã v£ ªÁ¦AiÄ°£ ¸¼¢Az ¸¼z° ¸AUºuUÁV ¤U¢ ¥r¸§ºÄzÄ, ªÄvÄ EAvº ¸¼U¼° vÁeÆÃvÁzPgÄ «AUrv W£ vÁd¦ªÉÃ ¤ÃqÄªgÄ.

8. WÀÀvÁd¦ ¸ÁUÁtÊÉÉªÁºÀÀÀÀ

8.1. UÁªÄ ¥AZÁAiÄwU¼Ä DmÆÃ n¥gÄU¼Ä CxªÁ ¥vÀP «¨ÁUU¼£Ã (Compartment) ºÆA¢gÄªAvº ªÁº£U¼Æ ¸ÃjzAv ¸ÆP ªÁº£U¼£Ã e¦«P vÁd¦, Ce¦«P vÁd¦ ªÄvÄ U¦ºÆÃvÁ¢v C¥ÁAiÄPÁj vÁd¦ªÉÃ ¸ÁUÁtP ªiÁq®Ä W£ vÁd¦ ¸AUºuUÁV ¤AiÆÃf¸vPÀzÄ.

8.2 ««z ªUðU¼ W£ vÁd¦ªÉÃ ¸ÁUÁtP ªiÁq®Ä ªÄÆgÄ «¨ÁUU¼Ä¼ ªÁº£ª£Ã MzV¸Äª¦zÄ ¸Áz¦ªÁU¢zÀ°, e¦«P, Ce¦«P vÁd¦ ªÄvÄ U¦ºÆÃvÁ¢v C¥ÁAiÄPÁj vÁd¦ªÉÃ ¸AU»¸®Ä ««z ªUðU¼ W£ vÁd¦ªÉÃ ¨g¸¯ÁUÄª¦¢®ªAzÄ SÁw ¥r¸®Ä ««z ¢£ÁAPU¼£Ã ¤U¢ ¥r¸§ºÄzÄ.

8.3. W£ vÁd¦ ¸ÁUÁtPU §¼P ªiÁq¯ÁUÄª ªÁº£U¼Ä AiiÁª jÃwAiÄ° ªÄÄag¨ÃPAzg ¸AU»¸¯Áz W£ vÁd¦ª¦

(i) ªÄÄP ¥j¸gP vgzÄPÆ¼vPÀz® CxªÁ

(ii) ¸Áªðd¤Pg PtU PÁt¸vPÀz® ªÄvÄ

(iii) ¸ÁUÁtP ªiÁqÄª ¸Az¨ðz° g¸AiÄ ªÄÃ¯/CxªÁ vgz ¥zÃ±U¼° Z®vPÀz®.

CzÁAiÀÄVI- W£ vÁd¦ ¸A¸gu ªÄvÄ «¯ÃªÁj

9. UÁªÀÀ¥ÀZÁAiÀÄwU¼ÀÀªÀ¬ÄAzÀMzÀ¸ÀÀÉÆzÀ¸Ë®¨ÀÀÀ

9.1 UÁªÄ ¥AZÁAiÄwAiÄÄ ª¦AiÄQPªÁV CxªÁ ¸ªÄÆºz° W£ vÁd¦ ¸A¸gu ªÄvÄ «¯ÃªÁjU ¸A§A¢¹zAv P¼PAq G¥§AzU¼£Ã ¥Á®£ ªiÁqvPÀzÄ.

(i) F G¥«¢U¼Ä eÁjU §Az ¢£ÁAP¢Az MAzÄ ªµðzÆ¼U UÁªÄ ¥AZÁAiÄwU¼Ä ««z «zU¼ vÁd¦z zÁ¸Á£Ä ªÄvÄ ¸A¸guUÁV ¸ÆP ¸¼ (U¼£Ã) UÄgÄw¸vPÀzÄ.

(ii)UÁªÄ ¥AZÁAiÄwAiÄÄ ¸AiÄA vÁ£Ã DU°Ã CxªÁ Ke¤AiÄ ªÄÆ®PªÁU°Ã W£ vÁd¸A¸guÁ ¸Ë®¨¸ PÃAzU¼Ä ªÄvÄ vvA§A¢v ªÄÆ®¸Ë®¨¸U¼£Ä¤ ªiÁðt ªiÁqvPzÄ, PÁAiiÁðZgu £q¸vPzÄ ªÄvÄ ¤ªð»¸vPzÄ.

(iii)P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £Ë¸ªÄð®¸ E¯ÁS, PJ¸ï¦¹©, ¹¦¹©U¼Ä ªÄvÄ/CxªÁ Evg AiiÁª¸zÃ ¸ÆP ¥Á¢PÁgª¸ ºÆgr¹z ªiÁUð¸ÆaAiÄrAiÄ° ¸Æa¹gÄª vAveÁ£ª£Ä¤ £®/¨Æ ¨wðU¼ §¼PAiÄ£Ä¤ PrvUÆ½¸Äª ¸®ÄªÁV §¼P ªiÁrPÆ¼vPzÄ.

(iv)F ¸Ë®¨¸PÃAzU¼Ä ¤ÃgÄ ¥ÆgË¸P ªÄvÄ ±ËZÁ®AiÄU¼£Æ¤ M¼UÆAqAv, DgÆÃU¸ ªÄvÄ ¥j¸gz ªÄÃ¯ ©ÃgÁª ª¸wjP ¥juÁªÄU¼£Ä¤ ¤§ðA¢¸®Ä £Ë¸ªÄð®¸ ¥j¹¸wAiÄ£Ä¤ SÁw ¥r¸Äª ¸®ÄªÁV ¸ÁPµÄ ¸Z¤ ªÄvÄ ±Äav ¸ËPAiÄðU¼£Ä¤ ºÆA¢gvPzÄ.

(v)J¯Á ¸A¸guÁ ¸Ë®¨¸ PÃAzU¼Æ ¸º ºZÄªj UÄtªÄl, PJ¸ï¦¹©, ¹¦¹©, P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £Ë¸ªÄð®¸ E¯ÁS ªÄvÄ /CxªÁ ¸ÆP ¥Á¢PÁgU¼Ä CxªÁ vvÁ®P eÁjAiÄ°gÄª Evg AiiÁª¸zÃ PÁAiÄAiÄrAiÄ° ¤¢ðµ ¥r¹ C¢¸Æa¹zAvº ¤¢ðµv ªÄvÄ ªiÁUð¸ÆaU¼£Ä¤ ¥Á®£ ªiÁqvPzÄ.

9.2. Mt vÁd¸ À¸ÀUÀ¼ÀÁ PÉÆzÀ¯ÀÀ

(i) UÁªÄ ¥AZÁAiÄwU¼Ä Ce£«P vÁd¸z ¸AUºu ªÄvÄ «AUquAiÄ£Ä¤ ªiÁqÄª ¸®ÄªÁV Mt vÁd¸ ¸AUºuÁ PÄAz (U¼£Ä¤) vÁ£Ã DU°Ã CxªÁ Ke¤AiÄ ªÄÆ®PªÁU°Ã MzV¸vPzÄ ªÄvÄ CªU¼Ä F G¥«¢U¼Ä C¢¸Æa¸®l MAzÄ ªµðz CªC¢AiÆ¼U PÁAiiÁðZgu £q¸vPzÄ.

(ii) UÁªÄ ¥AZÁAiÄwAiÄÄ Mt vÁd¸ ¸AUºuÁ PÃAzU¼ÁV G¥AiÆÃV¸®Ä C¹vz°gÄª ¸ÆP PlqU¼Ä CxªÁ µqÄU¼£Ä¤ UÄgÄw¸§ºÄzÄ.

(iii) ¥Ä£gÁªwðv Ce£«P vÁd¸ª£Ä¤ Mt vÁd¸ ¤ªðºuÁ PÃAzU½Az ¸Pª¸ ¥Á¢PÁg¢Az ¥Á¢ÃPj¸¯Áz vÁd¸ ªÁ¥ÁjU½U ªÄvÄ/CxªÁ ªÄgÄ DªvðPjU ªiÁgÁl ªiÁqvPzÄ.

(iv) ¥Ä£gÁªwð¸¯ÁUz Ce£«P vÁd¸ ªÄvÄ U£ºÆÃvÁ¢v C¥ÁAiÄPÁj vÁd¸U¼£Ä¤ Mt vÁd¸ ¸AUºuÁ PÃAzU½Az ºÆÃ§½ CxªÁ vÁ®ÆPÄ ªÄlz° ¸ÆP ¸A¸gu ªÄvÄ «¯ÄªÁjUÁV, JAzg vÁd¸¢Az EAz£ vAveÁ£, ¹ªÄAmï ¸Á¸ªgU¼° ¸º-¸A¸gu, £Ë¸ªÄð®¸ ¨Æ ¨wðU¼° «¯ÄªÁj ªÄvÄ PJ¸ï¦¹© ªÄvÄ/CxªÁ ¹¦¹©¬ÄAz ¤¢ðµ ¥r¸¯Áz Evg AiiÁª¸zÃ ¸A¸gu/«¯ÄªÁj PªÄª£Ä¤ ª»¸vPzÄ.

9.3. eÉ¼PÀvÁd¸ À¸ÀgÀÀÁ WÀPÀ

(i) UÁæªÀ¥ÀZÁAiÄwAiÄÄ ¸AiÄA vÁ£Ã DU°Ã CxªÁ Ke¤AiÄ ªÄÆ®PªÁU°Ã PÁA¥ÆÃ¸ï vAiiÁjP, Jg ºÄ¼ PÁA¥ÆÃ¸Ä vAiiÁjP, ¸ÆPö e£«P PÁA¥ÆÃ¸Ä vAiiÁjP, ªÁAiÄÄ ¸»v e£«P PÁA¥ÆÃ¸ï vAiiÁjP, (aerobic composting), ªÁAiÄÄ g»v e£«P PÁA¥ÆÃ¸Ä vAiiÁjP (anaerobic composting) e£«P «Äx£Ë¸Ãµ£ï CxªÁ PJ¸ï¦¹© ªÄvÄ /CxªÁ ¹¦¹©¬ÄAz C£ÄªÆÃ¢vªÁVgÄª e£«P vÁd¸z ¹gvUÁV Evg AiiÁª¸zÃ ¸A¸guU CªPÁ±ª£Ä¤ MzV¸vPzÄ.

(II) F G¥«¢U¼Ä eÁjU §Az ¢£ÁAP¢Az MAzÄ ªµðz CªC¢AiÆ¼U ¥w UÁªÄ ¥AZÁAiÄwU¼°AiÄÆ ¸º ¸A¸guÁ WlPU¼Ä PÁAiiÁðZguAiÄ£Ä¤ £q¸vPzÄ.

9.4. £ÉÆÃ®¸ vÁd¸zÀ«¯ÉªÁj

(i) UÁªÄ ¥AZÁAiÄwAiÄÄ £Ë¸ªÄð®¸ vÁd¸ª£Ä¤ e£«P-ª£zÀQÃAiÄ vÁd¸zÆA¢U CwÃ ¸«ÄÃ¥z e£«P ª£zÀQÃAiÄ ¸A¸guÁ ¸Ë®¨¸ PÃAz ªÄvÄ/CxªÁ zº£ PÃAzU¼° ¸A¸j¸Äª£z£Ä¤ SÁw ¥r¸vPzÄ.

(ii) ¸ÁªiÁ£¸ e£«P ª£zÀQÃAiÄ ¸A¸gu ¸Ë®¨¸ PÃAz ªÄvÄ/CxªÁ zº£ PÃAzU¼Ä ®¨¸ªÁUÄªªgU UÁªÄ ¥AZÁAiÄwAiÄÄ £Ë¸Vðv vÁd¸ª£Ä¤ ¸½ÃAiÄ zº£ PÃAzU¼° ªÄvÄ/CxªÁ ¹¦¹©, PJ¸ï¦¹© ªÄvÄ/CxªÁ Evg AiiÁª¸zÃ ¸ÆP ¥Á¢PÁgª¸ ºÆgr¹zAvº MAzÄ ¸ÆP UÄtªÄlz «zÁ£z° «¯ÄªÁj ªiÁqvPzÄ.

9.5. PÀÁ¬ÄSÁ£ÉvÁd¸zÀ«¯ÉªÁj

P¸Á¬ÄSÁ£U¼Ä, PÆÃ½ ¸ÁPu PÃAzU¼Ä, ªiÁA¸ ªÄvÄ «ÄÃ£Ä ªiÁgÄPmU¼Ä/ªÁtd¦ CAUrU½Az GvÁ¢¸¯Áz vÁd¦ª£Ä ª£eÁ¤P UÄtªÄlU¼£AiÄ ¤¢ðµ ¥r¹gÄªAvº ¤AiÄAwv jÃwAiÄ°¸ÄqÄª¦zÁU°Ã CxªÁ D¼ªÁz UÄArAiÄ° ºÆ¼Ä/ ºÄVAiÄÄª¦zÁU°Ã ªÄvÄ /CxªÁ ¹¦¹©/PJ¸ï¦¹© ªÄvÄ/CxªÁ Evg AiiÁª¦zÃ ¥Á¢PÁg¢Az C£ÄªÆÃ¢¸¯Áz Evg «zÁ£U¼°¸A¸j¸Ä¦zÄ CxªÁ «¯ÃªÁj ªiÁqvPzÄ.

9.6. £ÉÆÃ®¦ ¨Á¨ÀðU¼ÀÀ «¯ÉªÁj

(i) UÁªÄ ¥AZÁAiÄwAiÄÄ, ¸AiÄA vÁ£Ã DU°Ã CxªÁ Ke¤AiÄ ªÄÆ®PªÁU°Ã £ÉªÄð®¦ ¨Æ ¨wðU¼£Ä ªÄvÄ vvA§AzªÁz ªÄÆ®¨Æv ¸ËPAiÄðU¼£Ä J¸ïq§Æ¦JA ¤AiÄªÄU¼° ¤¢ðµ ¥r¹gÄª UÄtªÄlz£AiÄ G½P vÁd¦ª£Ä (JAzg G¥«¢U¼-9.3 ªÄvÄ 9.5g£AiÄ ¸A¸gu ªiÁq®Ä ¸Áz¦«gzAvº) ªÄvÄ ¤¸v/ dq vÁd¦U¼£Ä «¯ÃªÁj ªiÁqÄª ¸®ÄªÁV ¤ªiÁðt ªiÁqvPzÄ, PÁAiiÁðZgu ªiÁqvPzÄ ªÄvÄ ¤ªð»¸vPzÄ.

(ii) UÁªÄ ¥AZÁAiÄwU¼Ä ªÄvÄ/CxªÁ UÁªÄ ¥AZÁAiÄwU¼ ¸ªÄÆºª¦ £ÉªÄð®¦ ¨Æ ¨wðU¼£Ä J¸ïq§Æ¦JA ¤AiÄªÄU¼ ¹¦¹©, PJ¸ï¦¹© P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £ÉªÄð®¦ E¯ÁS ªÄvÄ/CxªÁ Evg AiiÁª¦zÃ ¸PªÄ ¥Á¢PÁgª¦ ºÆgr¹zAvº ªiÁUð¸ÆaU¼£AiÄ ¸ÆP PÁAiÄð¸Áz¦vAiÄ Cz¦AiÄ£ ªÄwvg CUv¦ ¥jÃPU¼Ä/ ¥ÁAiÆÃVP AiÆÃd£U¼£Ä PÉUÆAq vgÄªÁAiÄ ¸Á¦¸vPzÄ, PÁAiiÁðZgu ªiÁqvPzÄ ªÄvÄ ¤ªð»¸vPzÄ.

(iii) G¥«¢U¼Ä-9.3 ªÄvÄ 9.5g° gÆ¦vªÁz AiiÁª¦zÃ «zÁ£U¼°¸A¸gu ªiÁq¯ÁUzAvº G½P vÁd¦ ªÄvÄ dq vÁd¦U¼£Ä ª£eÁ¤P «zÁ£z°¨Æ ¨wðU¼° UÁªÄ ¥AZÁAiÄwU¼Ä «¯ÃªÁj ªiÁqvPzÄ.

(iv) UÁªÄ ¥AZÁAiÄwU¼Ä ¨Æ¨wðU¼° «¯ÃªÁj ªiÁq¯Áz W£ vÁd¦ª¦ UÁªÄ ¥AZÁAiÄwAiÄ ¨ËUÆÃ½P ªÁ¦AiÄ° GvÁ¢¸¯Áz W£ vÁd¦z ±Ã 15%£Ä «ÄgvPz®ªAzÄ SÁw ¥r¸vPzÄ.

9.7 ¥ÀæºÁ¹ vÁtUÀÀ vÁd¦ ¤ªÀºÀÉ¥ªÁ¹ vÁtU¼° W£ vÁd¦ ¤ªðºuAiÄ CA±U¼Ä Gz«¹z° UÁªÄ ¥AZÁAiÄwAiÄÄ P¼PAq ºÆuUÁjPAi£Ä ºÆA¢gvPzÄ.

(i) UÁªÄ ¥AZÁAiÄwAiÄÄ vÁd¦ ºÁPÄª¦zP ¸A§A¢¹zAv G¥«¢U¼ G¥§AzU¼£Ä ¥ªÁ¹UgÄ ¥Á®£ ªiÁqÄª¦z£Ä SÁw ¥r¸vPzÄ ªÄvÄ CªgÄ J¯Á ¥ªÁ¹ vÁtU¼° UÁªÄ ¥AZÁAiÄw¬ÄAz Ej¸¯Áz vÁd¦ ¸AUºuÁ vÆnAiÆ¼U ºÁP¨ÃPAzÄ ¤zÃð±£ ¤ÃqvPzÄ.

(ii) UÁªÄ ¥AZÁAiÄwAiÄÄ vÁd¦ ¤ªðºu PÄjvAv F G¥«¢U¼rAiÄ°£ G¥§AzU¼£Ä w½¸Äª ª¦ª¸¦AiÄ£Ä ªiÁqvPzÄ ªÄvÄ ¸ÁªiÁ£¦ªÁV W£ vÁd¦ ¤ªðºu PÄjvAv F ¥zÃ±U½U ¨Ãn ¤ÃqÄª J¯Á ¥ªÁ¹UjU ¸ÁªiÁ£¦ ªiÁ»wAiÄ£Ä ¥ªÃ±zÁgz°AiiÁU°Ã CxªÁ UÁªÄ ¥AZÁAiÄwAiÄÄ ¸ÆPªAzÄ ¥jUt¹zAv MzV¸vPzÄ.

(iii) UÁªÄ ¥AZÁAiÄwAiÄÄ ¥ªÃ± zÁgz°AiÄÃ CxªÁ Evg AiiÁª¦zÃ «zÁ£z° vÁd¦ ¤ªðºuÁ ±Ä®ª£Ä ¥ªÁ¹UjU ¥ªÁ¹ vÁtU¼° vÁd¦ ¤ªðºuÁ ¸ÃªU¼ ¸Ä¹gvUÁV «¢¸vPzÄ.

9.8. WÀÀvÁd¦ªÀÀ vÉÉÀ¸ÀÀÀÀ gÁ² ºÁPÄª¦zÀÀªÀÀ ¸ÀqÄª¦zÆ¤µÉ¢üªÀÀ W£ vÁd¦ª£Ä vgz ¸¼U¼° (ªÄÄP ¸¼U¼Ä) gÁ² ºÁPÄª¦zÁU°Ã CxªÁ ¸ÄqÄª¦z£ÁU°Ã ¤µÃ¢¸¯ÁVz. UÁªÄ ¥AZÁAiÄwU¼Ä W£ vÁd¦ª£Ä vgz ¸¼U¼° gÁ² ºÁPÄª¦zÄ ªÄvÄ ¸ÄqÄª ¥QAiÄU¼ GzÁºguU¼£Ä P¼PAq «zÁ£z° ¤ªð»¸vPzÄ.

(i) UÁªÄ ¥AZÁAiÄwAiÄÄ ¸A§Az ¥l vÁ¢eÆÃvÁzPjU ªÄvÄ/CxªÁ ¸Az¨Áð£Ä¸Ág DªgtU¼ ¸Á¢Ã£ ºÆA¢gÄªAvº ª¢QU CAvº DªgtU¼° EgÄª AiiÁªÄzÃ vÁd¦ª£Ä£ ÆÃnÃ¹£° £ªÄÆ¢¹z ¸ªÄAiÄ ªÄvÄ «zÁ£z° ¸ZÀUÆ½¸¨ÃPAzÄ ¸Æa¹ £ÆÃnÃ¸ï£Ä£ eÁj ªiÁqvPÌzÄ.

(ii) MAzÄ ªÃ¼ AiiÁª ª¢QAiÄ ªÄÄ¯ £ÆÃnÃ¸ï£Ä£ eÁj ªiÁq¯ÁVzAiÆÃ, CAvº ª¢QAiÄÄ £ÆÃnÃ¸ï£° «¢¹gÄª CUv¢U¼£Ä£ ¥Ægɸ®Ä «¥®£Áz° UÁªÄ ¥AZÁAiÄwAiÄÄ P¼PAq J¯Á CxªÁ AiiÁª¢zÃ PªÄª£Ä£ P¢UÆ¼§ºÄzÄ.

(J) DªgtªÄ£ ¥ªÃ²¹ vÁd¦ª£Ä£ vUzÄ ¸ZÀUÆ½¸vPÌzÄ ªÄvÄ F jÃw ªiÁq®Ä ¨j¹z ªZª£Ä£ ¸A§Az ¥l ª¢Q¬ÄAz ª¸Æ®Ä ªiÁqvPÌzÄ; CxªÁ

(©) F G¥«¢U¼£AiÄ W£ vÁd¦ª£Ä£ gÁ² ºÁQz ¸A§Az zAqª£Ä£ «¢¸vPÌzÄ.

9.9 OzÉÃVPÀ¸ÀgÀÀ¼ÉÃ UÁªÄ ¥AZÁAiÄwAiÄÄ W£ vÁd¦ ¤ªðºuÁ PÁAiÄðZlÄªnPU¼° ¤gvªÁVgÄª v£Ä£ ¹§A¢, ¸ZvÁ/ ¸Á¤lj vÁd¦ P®¸UÁggÄ ºÁUÆ Ke¤AiÄ ¹§A¢U¼£Ä£ M¼UÆAqAv CªgÄU½U ¸ªÄª¸U¼Ä, P¢ PªZU¼Ä, g£ï PÃlÄU¼Ä, ¸ÆP §ÆlÄU¼Ä ªÄvÄ ªÄÄRªÁqU¼£Ä£ ¸ÆP ªÄvÄ ¸ÁPµÄ ¸ÄgPvÁ G¥PgtU¼£Ä£ «vj¸Äª ªÄÆ®P W£ vÁd¦ ¤ªðºuAiÄ° PÁAiÄð ¤ªð»¸Äª PÁ«ðPjU OzÆÃVP ¸ÄgPvU¼£Ä£ SÁw ¥r¸vPÌzÄ ªÄvÄ EªU¼£Ä£ PÁAiÄðz°gÄª ¸Az¨ðz° §¼P ªiÁqÄªz£Ä£ SÁw ¥r¸ÄªzÄ.

9.10. **«¸À¸ÀÁzÀGvÁzÀÀºÉuÉÁjPÉÀÀ¥Á®£É** UÁªÄ ¥AZÁAiÄwU¼° ¥Á¹Pï vÁd¦ª£Ä£ GvÁ¢¸ÄªAvº ¸gPÄU¼£Ä£ §¼PU vgÄª J¯Á vAiiÁgPgÄU¼Ä, GvÁzPgÄU¼Ä ªÄvÄ ¨ÁAqï ªiÁ°ÃPgÄ £ÃgªÁVAiiÁU°Ã CxªÁ ¥gÆÃPªÁVAiiÁU°Ã ¸PÁðgz ªÄÆ®P, J¯Á GvÁzP dªÁ¨ÁjAiÄ ºÆuÁjPAiÄ£Ä£ ¥Á¹Pï vÁd¦ ¤ªðºuÁ ¤AiÄªÄ, 2016g° gÆ¦¹zAv ¥Á®£ ªiÁqvPÌzÄ.

CzÁAiÀÀVII - §¸ºÀÄ vÁ¢eÉÃvÁzPÀgÀÀ¼ÀÀUÀgÀÀ¸À«PÉ ªÀÀCªgÀÀUÀÀºÉuÉÁjPÉ

10. §¸ºÀÄ vÁ¢eÉÃvÁzPÀgÀÀ¼ÀÀUÀgÀÀ¸À«PÉ

10.1 ¸Áªàd¤PÀ£ÉÃn¸ï ªÀÀvÀÀ¥À²Ã®£É

(i) F G¥«¢U¼Ä eÁjU §Az ªÄÆªvÄ (30) ¢£zÆ¼U, UÁªÄ ¥AZÁAiÄwAiÄÄ **C£À¸Àa-V**g° ¤U¢ ¥r¹z £ªÄÆ£Aiª° ¸Áªðd¤P £ÆÃnÃ¸ï eÁjUÆ½¹ W£ vÁd¦ ¤ªðºuU ¸A§A¢¹z §¸ºvï vÁ¢eÆÃvÁzPjU C£AiÄªÁUÄªAvº G¥§AzU¼ PÄjvAv ¸Áªðd¤PjU w¼Äª½PAiÄ£Ä£ ¤ÃqvPÌzÄ.

(ii) Czg£AiÄ, UÁªÄ ¥AZÁAiÄwAiÄÄ v£ÀzÃ Dz zÁR¯U¼ ¥PÁg ªÉAiÄÀQP §¸ºvï vÁ¢eÆÃvÁzPg£Ä£ UÄgÄw¸Äª ¸®ÄªÁV PÃv ¸ªðAiÄ£Ä£ £q¸vPÌzÄ ªÄvÄ **C£À¸Àa-IV**g° gÆ¦¹gÄªAvº £ªÄÆ£AiÄ° CªgÄU½U ¸ÆZ£U¼£Ä£ CxªÁ F G¥«¢U¼rAiÄ° C£AiÄªÁUÄª G¥§AzU¼£Ä£ ¥Á®£ ªiÁqÄªAv ¸Æa¸vPÌzÄ.

10.2 **§¸ºÀÄ vÁ¢eÉÃvÁzPÀgÀÀ¼ÀÀºÉuÉÁjPÉÀÀ** J¯Á §¸ºvï vÁ¢eÆÃvÁzPgÄU¼Æ ¸º:

(i) ¸Áz¦ªÁz ªÄnU, vªÄ DªgtU¼° ¸vÀ vÁªÃ e¦«P vÁd¦ª£Ä£ ¤ªð»¸vPÌzÄ ªÄvÄ vªÄzÃ Dz ª¦ª¸AiÄrAiÄ° Ce¦«P vÁd¦ª£Ä£ F G¥«¢U¼£AiÄ ¤ªð»¸vPÌzÄ.

(ii) CªgÄU¼ «AUr¹z W£ vÁd¦ª£Ä£ £ÃgªÁV e¦«P vÁd¦ ¸A¸guÁ ¸Ë®¨¦ PÃAzU½U £ÃgªÁV J¸ïq§ÆöJA ¤AiÄªÄU¼ §¼PzÁgg ±Ä®ªÁz ¸A¸guÁ ±Ä®ª£Ä£ UÁªÄ ¥AZÁAiÄwU½U ¥Áªw ªiÁqÄª ªÄÆ®P ¤ÃqvPÌzÄ ªÄvÄ/CxªÁ

(iii) **C£ÀÄa-V**g° «¢¹gÄªÁvº J¸ïq§Æ¢JA §¼PzÁgg ±Ä®ªÉÃ¥Áªw ªiÁr GvÁz£AiiÁz W£ vÁd¸z ªÄ£ ªÄ£AiÄ ¸AUºuÁ ª¸ª¸AiÄ ¨ÁUªÁV ¸AUºu, ¸ÁUu ªÄvÄ ¸A¸guAiÄ ¸®ÄªÁV UÁªÄ ¥AZÁAiÄwAiÄ ¸ÃªAiÄ£Ã ¥qAiÄ§ºÄzÄ.

10.3 F G¥«¢U¼rAiÄ° UÁªÄ ¥AZÁAiÄwAiÄ ¸ÃªAiÄ£Ã ¥qAiÄzAvº §¸ºvï vÁ¸eÆÃvÁzPgÄU¼Ä v£Ã DªgtzÀ° GvÁ¢¸¯Áz ªÄvÄ ¸AU»¸¯Áz, ¸A¸j¸¯Áz ªÄvÄ «¯ÃªÁj ªiÁq¯Áz W£ vÁd¸ PÄjvAv **C£ÀÄa-IV**g° gÆ¦¹gÄªÁvº £ªÄÆ£AiÄ° ªÁ¶ðP ªg¢AiÄ£Ã ¸°¸vPzÄ.

CzÁsAiÀÄVIII - ©Ã¢ PÀÀUÀr ¸ÀªÀzÀªÀvÀPÀÀ¸ÀjAiÀªÀzÀgÀ¤µÉÆzsÀ

11. ¤AiÀÄ«ÄvÀ¸ÀÆÀÀÉ½¸À«PÉªÀvÀ©Ã¢ PÀÀUÀr ¸À«PÉ

11.1 UÁªÄ ¥AZÁAiÄwAiÄÄ:

(i) v£Ã C¢PÁg ªÁ¦AiÄ°, ªiÁgÄPmU¼Ä, GzÁ£ª£U¼Ä, ¸Áªðd¤P g¸U¼Ä ªÄvÄ vÆÃlU¼£Ã M¼UÆAqAv, ¸Áªðd¤P ¸¼U¼£Ã ¸ZÀUÆ½¸Äª dªÁ¨ÁjAiÄ£Ã ºÆA¢gvPzÄ ªÄvÄ ¸ZvÁ/ ¸Á¤lj PÁ«ÄðPg ªÄÆ®P ¤AiÄ«ÄvªÁV ©Ã¢ P¸ UÄr¸Äªz£Ã SÁw ¥r¸vPzÄ.

(ii) MAzÄ C¢¸ÆZ£AiÄ ªÄÆ®P d£g ªÄvÄ ªÁº£U¼ zlu, d£¸ÁAzv, ªÁtd¸ ZlÄªnPU¼ ªÁ¦, PÁ«ÄðPg P¯Á¸t/ ¸ÄgPv AiiÁªÁzÃ ¸Áªðd¤P g¸ CxªÁ ¸Áªðd¤P ¥zÃ±U¼ ¥j¹wAiÄ£Ã ¥jUt¹ F ©Ã¢ P¸ UÄr¸Äª QAiÄ¬ÄAz ¸AUºªÁUÄªAvº W£ vÁd¸ª£Ã ªÄ£ ªÄ£¬ÄAz®Æ vÁ¸eÆÃvÁzPjAz ¸AU»¸¯Áz «AUqu ªiÁrzAvº vÁd¸zÆA¢U ¨g¸vPz®.

11.2 UÁªÄ ¥AZÁAiÄwAiÄÄ ¸ÆP ªÄvÄ ¸ÁPµÄ ¸ZÀvÁ G¥PgtU¼Ä ªÄvÄ ¸Áz£U¼Áz ¥ÆgPU¼Ä, ªÄvÄ ¸AUºuÁ vmU¼Ä ªÄvÄ ¸ZÀvÁ ¸ÁªÄVU¼£Ã ¸ZvÁ/¸Á¤lj PÁ«ÄðPjU MzV¸vPzÄ.

11.3 F ©Ã¢ P¸ UÄr¸Äªzjz ¸AUºªÁUÄª W£ vÁd¸ª£Ã ªÄ£ªÄ£¬ÄAz®Æ vÁ¸eÆÃvÁzPjAz ¸AU»¸¯Áz «AUqu ªiÁrzAvº vÁd¸zÆA¢U ¨g¸vPz®. F ©Ã¢ P¸ UÄr¸Ä«P¬ÄAz ¸AU»¸¯Áz W£ vÁd¸ª£Ã CUv«z° «AUr¸vPzÄ ªÄvÄ UÁªÄ ¥AZÁAiÄwAiÄÄ Eª¼£Ã

(J) e¸«P vÁd¸ª£Ã C£ÄPÆ®PgªÁz ¸A¸guÁ ¸Ë®¨¸ PÃAzP, ªÄvÄ

(©) Ce¸«P vÁd¸ª£Ã rq§Æ¸¹ ªÄvÄ/CxªÁ UÁªÄ ¥AZÁAiÄw¬ÄAz PÁ®PÁ®P C£Ä¸Æa¸§ºÄzÁz Evg AiiÁª¸zÃ ¸Ë®¨¸ PÃAzU½U ¸ÁUu ªiÁq®Ä C£Äª¸ ªiÁrPÆqvPzÄ.

(¹) UÁªÄ ¥AZÁAiÄw ªÄvÄ/ CxªÁ UÁªÄ ¥AZÁAiÄwU¼ ¸ªÄÆºz° ¤¸v/ dq ªÄvÄ G½P vÁd¸U¼Ä, AiiÁª¸zÁzgÆ ®¨¸«z°, Cª¼U¼£Ã £¸ªÄð®¸ £®/ ¨Æ ¨wðAiÄ° «¯ÃªiÁqvPzÄ.

12. PÀÀ¸ÀjAiÀªÀzÀÆÉ¤µÉÆzsÀªÀvÀ¸ÀÄzÁAiÀvÉnUÀÉCªÀ±ÀPÀ¸ÀªÀzÀ

12.1 AiiÁgÃ ª¸QAiÄÄ AiiÁª¸zÃ vÁd¸ª£Ã P¸¶ ¨Æ«ÄU¼Ä, Dlz ªÄ¸zÁ£U¼Ä, ¸Áªðd¤P ¸Áªi£¸ ¸¼U¼Ä, ©Ã¢U¼Ä, ªiÁgÄPm ¥zÃ±U¼Ä, ZgArU¼Ä ªÄvÄ M¼ZgAr ª¸ª¸U¼° AiiÁª¸zÃ jÃwAiÄ d®ªÄÆ®z° (£¸VðP CxªÁ ªiÁ£ª ¤«Äðv) CxªÁ ªÄÄP ¥zÃ±U¼°, F G¥«¢U¼° G¥§A¢¹z CxªÁ Evg AiiÁª¸zÃ C£AiÄªÁUÄª PÁAiÄAiÄrAi° G¥§A¢¹gÄª «zÁ£ª£Ã ºÆgvÄ¥r¹ J¸AiÄª¸zÁU°Ã, gÁ² ºÁPÄª¸zÁU°Ã ªiÁqvPz®.

12.2. ¸ÁªÀðd¤PÀ¸ÀÄvÀÛÃ ¸ÀÄzÁAiÀÄvÉnU¼ÀÄ

(i) UÁªÄ ¥AZÁAiÄwU¼Ä ¸ÆP ¸ªÄÄzÁAiÄ vÆnU¼£Ä/zÁgPU¼£Ä ¸ÁªðD¤P ¸¼U¼Áz g¸U¼Ä, ¸ÁªðD¤P ©Ã¢U¼Ä Dlz ªÄÉzÁ£U¼Ä, GzÁ£ª£U¼Ä, ¥ªÁ¹ ¸¼U¼Ä ªÄwvg AiiÁªÀzÃ jÃwAiÄ ¸¼U¼° ¸AiÄA DU° CxªÁ Ke¤AiÄ ªÄÆ®PªÁU°Ã ¸ÁªðD¤PgÄ P¸ª£Ä ºÁP®Ä C£ÄªÁUÄªAv MzV¸vPzÄ.

(ii) UÁªÄ ¥AZÁAiÄw ªÄvÄ/CxªÁ Ke¤AiÄÄ ¸ªÄÄzÁAiÄ vÆnU¼Ä/zÁgPU¼° ªÄÃ¯ ¸ÄjAiÄÄªAv CxªÁ ªÄÄP ªÁvÁªgtP vg¢qzAv ¤ªð»¸ÄªÀz£Ä SÁw ¥r¸vPzÄ ªÄvÄ ¥ÁtU¼Ä CxªÁ ¥QU½Az ºgqÄªÀz£Ä ¤§ðA¢¸vPzÄ.

(iii) eË«P ªÄvÄ CeË«P vÁdU½UÁV ¥vÀP ¸ªÄÄzÁAiÄ vÆnU¼Ä/zÁgPU¼Ä EgvPzÄ.

CzsÀAiÀIX - ¸ÀÄgÀ¨ÀÛÃªÀvÀ¸ÁªÀðd¤PÀ¸ÉgÀ«PÉ

13. ¸ÁªÀðd¤PÀ¸ÀÄvÀÛÃ ¸ÁªÀðd¤PgÀ¸ÉgÀ«PÉªÀvÀ¸ÀÄgÀ¨ÀÛÃ

13.1 DAiÉÄdPgÀºÉuÉÁjPÉÃ

(i) AiiÁªÀzÃ ¯Ë¸£Ä ºÆA¢gÄª CxªÁ ¯Ë¸£Ä ºÆAz¢gÄªAvº ¸¼zº ªÄvÄ ¸ÁªðD¤P ¸¼U¼° AiiÁªÀzÃ PÁgtPÁV (ªÄgªtUU¼Ä, ª¸Ä ¥z±ð£U¼Ä, ¸Pð¸ï, eÁvU¼Ä, gÁdQÃAiÄ ¸¨U¼Ä, ªÁtdÌ, zÁ«ÄðP, ¸ÁªiÁfP-¸ÁA¸ÌwP ¸ªiÁgA¨U¼Ä CxªÁ ªÄgªtUU¼Æ M¼UÆAqAv) MAzÄ £ÆgPÉ ºa£ ¸ASÌAiÄ d£U¼Ä ¸ÃgÄªAvº ¸ªiÁgA¨U¼Ä ªÄvÄ ¸ÁªðD¤P ¸ÃgÄ«PU¼ DAiÆÃdPgÄ W£ vÁdÌª£Ä ¸AUºu, «AUqu, ªÄvÄ ¸A¸guAiÄ£Ä F G¥«¢U¼£AiÄ CAvº ¸ªiÁgA¨U¼Ä ªÄÄPÁAiÄªÁz 24 UAmAiÆ¼U ªiÁqÄªÀz£Ä SÁw ¥r¸vPzÄ.

(ii) MAzÄ ªÃ¼ ¸ªiÁgA¨U¼ DAiÆÃdPgÄ ¸ªiÁgA¨z PÁgt¢AzÁV GvÁz£AiiÁz W£ vÁdÌz ¸AUºu, ¸ZÌUÆ½¸Ä«P, ªÄvÄ ¸ÁUÁtPUÁV UÁªÄ ¥AZÁAiÄwAiÄ ¸ºÁAiÄª£Ä C¥ÃQ¹z°, CªgÄ UÁªÄ ¥AZÁAiÄwU CfðAiÄ£Ä ¸°¸vPzÄ ªÄvÄ F GzÃ±PÁV UÁªÄ ¥AZÁAiÄw¬ÄAz ¤U¢ ¥r¸ÄªÄ Cª±P ±Ä®ª£Ä ªÄÄAUqªÁV ¥ÁªwªiÁqvPzÄ.

13.2. ªÀgÀ¥ÁªÀ¸ÀÄ¸ÀºÀzÁzÀ¸ÀÛÁ oÉªÀÂ

(i) ¸ÁªðD¤P ¸ÃgÄ«P ªÄvÄ ¸ªiÁgA¨U¼ DAiÆÃdPgÄ, G¥«¢-13.1g° ¤gÆ¦¹gÄªAv, ¸ÃgÄ«P CxªÁ ¸ªiÁgA¨PÉ ªÄÄ£Ä, UÁªÄ ¥AZÁAiÄw¬ÄAz ¸ªiÁgA¨z ¥ªiÁt ªÄvÄ GvÁ¢¸®q§ºÄzÁz W£ vÁdÌz ¥ªiÁtª£Ä Ut£U vUzÄPÆAqÄ ¤zðj¸§ºÄzÁz ±Ä®ª£Ä UÁªÄ ¥AZÁAiÄwAiÄ° oÃªt Ej¸§ºÄzÄ.

(ii) F G¥«¢AiÄrAiÄ° UÁªÄ ¥AZÁAiÄwAiÄ° oÃªt Ej¸¯Áz AiiÁªÀzÃ ªÆvªÀ, ¸ªiÁgA¨z ªÄÄPÁAiÄz £Avg ªÄvÄ ¸ªiÁgA¨z PÁgt¢AzÁV GvÁ¢¸¯Áz W£ vÁdÌª£Ä F G¥«¢U¼rAiÄ° «AUr¸¯ÁVz, ¸AU»¸¯ÁVz ªÄvÄ ¤U¢v ¸¼U½U ¸ÁV¸¯ÁVz JAzÄ wÃªiÁð¤¹z £Avg ¸zj ªÆvª£Ä ªÄgÄ¥ÁªwªiÁq§ºÄzÄ.

(iii) ¸ªiÁgA¨ªÀ ªÄÄPÁAiÄªÁz 24 UAmU¼Æ¼U ¸zj ¸ÁªðD¤P ¸¼ª£Ä ¸ZÌ¹wU ªÄgÄ¸Á¦¸¢z°, UÁªÄ ¥AZÁAiÄwU½U ¥ÁªwªiÁq¯Áz ¸ZÌvÁ oÃªtAiÄ£Ä UÁªÄ ¥AZÁAiÄwAiÄÄ ªÄÄlÄUÆÃ®Ä ºÁQPÆ¼vPzÄ ªÄvÄ F G¥«¢U¼£AiÄ DAiÆÃdPjU zAqª£Ä «¢¸vPzÄ.

CzsÁAiÀÄx - WÀÀvÁd¸ï ¤ªÀðºÀÉÁV §¼ÀÉÁggÀÀ±ÀPï

14. UÁæªÀ¥ÀZÁAiÀÄwUÀUÉ¸ÀzÁAiÀÄªÀqÀðºÀzÁzÀ§¼ÀÉÁggÀÀ±ÀPÉ¸ÀA¢üzÀ¤AzÀÉÀ

14.1 UÁæªÀ¥AZÁAiÄwAiÄÄ v£ï C¢PÁg ªÁ¦AiÄ° ¥qz §¼PzÁgg ±Ä®ªÇ ¸ÃjzAv v£ïzÃ ¤¢AiÄ ªÄÆ®P F G¥«¢U¼£ï C¼ªr¹PÆAq JgqÄ ªµðU¼ C ª¢AiÆ¼U W£ vÁd¸ï ¤ªðºuÁ ª¦ª¸AiÄ PÁAiiÁðZgu ªÄvÄ ¤ªðºuAiÄ£ï ªiÁqvPïzÄ.

14.2 J¸ïq§Æ¢JA §¼PzÁgg ±Ä®ª£ï vÁeÆÃvÁzPgÄ UÁªÄ ¥AZÁAiÄwU½U ªÄvÄ/CxªÁ ¸Az¨Áð£¸Ág Ke¤U W£ vÁd¸ï ¸AUºu, ¸ÁUÁtP, ¸A¸gu ªÄvÄ «¯ÃªÁjAiÄ ¸ÃªU½UÁV ¥ÁªwªiÁqvPïzÄ. F G¥«¢U¼ **C£ÀÄa-V**g° ¤¢ðµ ¥r¹zAv J¸ïq§ÄJA §¼PzÁgg ±Ä®ª£ï ¥ÁªwªiÁqvPïzÄ.

14.3 vÁeÆÃvÁzP£Ä v£ï e¢«P vÁd¸ïª£ï, ¸ªÄÄzÁAiÄ £Ãv¢v ªÄvÄ/CxªÁ Evg AiiÁª¦zÃ «zÁ£z° C£AiÄªÁUÄª PÁAiÄÁAiÄAv, ¤ªð»¸Äwz°, ªÄvÄ CAvº vÁd¸ïª£ï ¸A¸guUÁV UÁªÄ ¥AZÁAiÄwU ¤Ãq¢z° J¸ïq§ÄJA §¼PzÁgg ±Ä®ª£ï C£Ä¥ÁvªÁV E½P ªiÁqvPïzÄ.

14.4 **C£ÀÄa-V**g° £ªÄÆ¢¸¯Áz §¼PzÁgg ±Ä®ª£ï ¥w ªµðz K¦¯ï 1£Ã ¢£ÁAP¢Az ¥w ªÄÆgÄ ªµðU½UÆªÄ ±Ã 15% gµÄ ºZ¼ªÁUvPïzÄ (¸«ÃÃ¥z gÆ 10/-P ¥ÆuÁðAPUÆ½¸vPïzÄ). F zgU¼£ï UÁªÄ ¥AZÁAiÄwAiÄ PZÃjAiÄ° CxªÁ ªÄwvg ¸µªÁV PÁtÄª UÁªÄ ¥AZÁAiÄwAiÄ ªÁ¦AiÄ°£ ¸Áªðd¤P ¸¼U¼° ¥Pn¸vPïzÄ.

14.5 J¸ïq§Æ¢JA §¼PzÁgg ±Ä® ¸ÀUÀÀÉ

(i) J¸ïq§Æ¢JA §¼PzÁgg ±Ä®ª£ï UÁªÄ ¥AZÁAiÄw¬ÄAz RÄzÁV CxªÁ Evg AiiÁª¦zÃ «zÁ£¢Az ªÄvÄ UÁªÄ ¥AZÁAiÄw¬ÄAz ¤¢ðµ ¥r¸§ºÄzÁz AiiÁª¦zÃ ¢£ÁAPzAzÄ, Czg°AiÄÆ ¥w wAU¼ ªÆz®£AiÄ ªÁgz° ª¸Æ®Ä ªiÁqvPïzÄ.

(ii) J¸ïq§Æ¢JA §¼PzÁgg ±Ä®ª£ï UÁªÄ ¥AZÁAiÄw ªw¬ÄAz C¢¤AiÄªÄz G¥§AzU¼rAiÄ° D¹ vjUAiÄ° CxªÁ ¯¢¸£Ä ±Ä®z° ¸Äj¸Äª ªÄÆ®P ¸AU»¸§ºÄzÄ.

(iii) UÁªÄ ¥AZÁAiÄwAiÄÄ J¸ïq§Æ¢JA ±Ä®z ©®Ä vAiiÁjP/¸AUºu/ª¸Æ¯ÁwUÁV PÁ®PÁ®P ºZÄªj vAvª£ï PAqÄ »rAiÄ§ºÄzÄ ªÄvÄ Eª¼U¼£ï ¸ÁªiÁ£¢ CxªÁ «±Ãµ DzÃ±/C¢¸ÆZ£AiÄ ªÄÆ®P C£Ä¸Æa¸vPïzÄ.

14.6 UÁªÄ ¥AZÁAiÄwAiÄÄ ¸AiÄA vÁ£Ã DU°Ã CxªÁ Ke¤AiÄ ªÄÆ®PªÁU°Ã J¯Á vÁeÆÃvÁzPgÄU¼ zvÁA± ¸AUºuAiÄ£ï J¸ïq§Æ¢JA §¼PzÁgg ±Ä® ª¸Æ¯ÁwAiÄ GzÃ±U½UÁV vAiiÁj¸vPïzÄ ªÄvÄ ¸zj zvÁA± ¸AUºª£ï ¤AiÄ«ÄvªÁV C¥ïqÃmï ªiÁqvPïzÄ.

14.7 MAzÄ ªÃ¼ UÁªÄ ¥AZÁAiÄwAiÄÄ ±Ä®PÁV ¨ÃrPAiÄ£ï ªÄAr¹z 30 ¢£zÆ¼U ªÆvª£ï ¥Áªw ªiÁq¢z°, ¥w wAU¼ J¸ïq§AiÄÆJA §¼PzÁgg ±Ä®z ±Ã 10%g zgz° Pgª£ï «¢¸vPïzÄ

14.8. ªÄÆgÄ wAU½UÆ C¢P Cª¢U J¸ïq§Æ¢JA §¼PzÁgg ±Ä® ¥Áªw ªiÁq®Ä «¥®gÁz°, UÁªÄ ¥AZÁAiÄwAiiÁU°Ã CxªÁ Evg AiiÁª¦zÃ ¸Pª Ä ¥Á¢PÁgª¦ F C¢¤AiÄªÄzrAiÄ° vjU ªAZ£ ªiÁq¯ÁVzAiÄA§Av «¥®£Áz ª¦Q¬ÄAz J¸ïq§Æ¢JA §¼PzÁgg ±Ä®ª£ï ª¸Æ° ªiÁqvPïzÄ.

14.9. F G¥«¢U¼° K£Ã M¼UÆArzÁUÆ¸º, UÁªÄ ¥AZÁAiÄwAiÄÄ F jÃw ¥Áªw ªiÁq®Ä «¥®£Áz ª¦QU CAvº J¸ïq§Æ¢JA §¼PzÁgg ±Ä®ª£ï ¥Áªw ªiÁqÄªªgU W£ vÁd¸ï ¤ªðºuÁ ¸ÃªU¼£ï MzV¸Äª¦z£ï ¸ÍvUÆ½¸§ºÄzÄ.

14.10 UÁªÄ ¥AZÁAiÄwAiÄ ªw¬ÄAz ¸AU»¸¯Áz J¯Á J¸ïq§Æö¸JA §¼PzÁgg ±Ä®ªÉÃ W£ vÁd¸ ¤ªðºuÁ ¸ÃªU¼£Ã MzV¸®Ä PÁAiiÁðZgu ªÄvÄ ¤ªðºuAiÄ ªZU½UÁV, ¹§A¢ ªÃv£ ªÄvÄ Evg vÁd¸ ¤ªðºuÁ PÁAiÄðZlÄªnPU½U ¥Áªw ªiÁq®Ä PÁ®PÁ®P UÁªÄ ¥AZÁAiÄwAiÄÄ ¸ÆPªAzÄ ¥jUt¹zAv RZÄð ªiÁq§ºÄzÄ.

CzÁsAiÀÄXI- W¼ÀÄvÁd¸ ¤ªÀðºÀuÁ ªÀÄÄzÉêÀªÀ¸Ëº ZÁgÀÉ

15. W¼ÀÄvÁd¸ ¤ªÀðºÀuÁ ªÀÄÄzÉêÉ¸À§A¢üzÀÄvÉ¤§AzsÁ£ÀÄ

15.1. ¤AiÀÄvÀÄÁ°PÀªÀgÀÄ¼ÀUÀÄÀ UÁªÄ ¥AZÁAiÄwAiÄÄ v£Ã PÁAiÄð ªÁ¦AiÄ° W£ vÁd¸ ¤ªðºuÁ ª¡ª¸AiÄ ¹wUw, ¥Uw, PÁAiiÁðZguU¼ ªg¢AiÄ£Ã ¤AiÄvPÁ°PªÁV ¤ªðºuÁ¢PÁj, ªÄÄR¸ ¤ªðºuÁ¢PÁj ªÄvÄ gÁd¸z ¥Á¢PÁgU½U P£ÁðlP UÁ«ÄÃt ¤ÃgÄ ªÄvÄ £¦ªÄð®¸ E¯ÁSAiÄÄ ºÆgr¸Äª ¤zÃð±£U¼£AiÄ ªÄvÄ ¤U¢v £ªÄÆ£U¼° ¸°¸vPzÄ.

15.2. **¥Àj±ÉÃzsÁ£ÀÄ¼ÀUÀÄÀ** ¸vAv ªÄÆg£AiÄ ¯P ¥j±ÆÃz£ ºÁUÆ ¸ÁªiÁfP ¥j±ÆÃz£ M¼UÆAqAv UÁªÄ ¥AZÁAiÄwAiÄ £¦ªÄð®¸ ªÄvÄ W£ vÁd¸ ¤ªðºuÁ AiÆÃd£AiÄ ¥j±ÆÃz£AiÄ£Ã P£ÁðlP UÁ«ÄÃt PÄrAiÄÄª ¤ÃgÄ ªÄvÄ £¦ªÄð®¸ E¯ÁSAiÄÄ ºÆgr¸Äª ªiÁUð¸ÆaAiÄ£AiÄ P¦UÆ¼vPzÄ.

15.3. **KeÉÆUÀ¼À¥ÀjÀ²Ã®£É**

(i) Ke¤AiÄÄ ¸Ë®¨¦U¼£Ã ªÄvÄ PÁAiiÁðZguU¼£Ã ¤AiÄ«ÄvªÁV, J¸ïq§Æö¸JA ¤AiÄªÄU¼, F G¥«¢U¼ ªÄvÄ Evg ¤AiÄªÄU¼ ¤§Az£U¼£AiÄ ¥Á®£ ªiÁqÄwªAiÄAzÄ SÁw ¥r¸Äª ¸®ÄªÁV UÁªÄ ¥AZÁAiÄw ªÄvÄ/CxªÁ ¸PÁðgª¦ ¥j²Ã°¸vPzÄ.

(ii) MAzÄ ªÃ¼ AiiÁª¦zÃ ¤AiÄªÄU¼ ¥Á®£AiÄ£Ã ªiÁrg¢z¦°, UÁªÄ ¥AZÁAiÄw ªÄvÄ/CxªÁ ¸PÁðgª¦ CAvº «¥®ªÁz (¥Á®£ ªiÁq¢gÄªÁvº) Ke¤U¼ «gÄz¦, F G¥«¢U¼° gÆ¦vªÁVgÄª ¥jºÁg PªÄU½UÁV £ÆÃnÃ¸ï, W£ vÁd¸ ¤ªðºuÁ ¸ÃªU¼ gz¦w, P¥Ä ¥nU ¸Ãj¸Äª¦zÄ, dÄ¯Á£ ªÄvÄ zAqU¼ «¢¸Ä«P EvÁ¢ PªÄ P¦UÆ¼§ºÄzÄ.

15.4. «ªgÀÄvÀÁzÀAiÉÄÃd£Á ªÀgÀÄ¼ÀUÀÄÀªÀÄvÀÄÀAiÉÄd£ÉÀÄ¼À¤AiÀÄ«ÄvÀvÀÄÀ¸ÀÄÉêÀªÀ¸ÀÄvÀÄÀ¥ÀjÀ²Ã®£É

(i) ¥AZÁAiÄw C©ª¦¢¦ C¢PÁj, UÁªÄ ¥AZÁAiÄw ¸z¸gÄU¼Ä ªÄwvg UÁªÄ ¥AZÁAiÄw¬ÄAz ¥Á¢ÃPj¸®l C¢PÁjU¼Ä vªÄ ªÁ¦AiÄ UÁªÄU¼ ««z ¨ÁUU¼° ªÄwvg W£vÁd¸ ¸AUºu, ¸ÁUÁtP, ¸A¸gu ªÄvÄ «¯ÃªÁj ¸¼U¼° ¤AiÄ«Äv v¥Á¸uAiÄ£Ã ªÄvÄ F G¥«¢U¼ ««z ¤§Az£U¼ ¥Á®£AiÄ ªÃÄ°ZÁguAiÄ£Ã £q¸vPzÄ.

(ii) CAvº C¢PÁjAiÄÄ (U¼Ä) J¯Á £ÁAiÄ¸ªÄvªÁz ¸ªÄAiÄz°, CUv¦AzÄ ¥jUt¸ÄªAvº £g«£ÆA¢U AiiÁª¦zÃ ¸¼PÁzgÆ/PÁgtPÁzgÆ P¼PAqAv ¨ÁUª»¸Äª C¢PÁg«gÄvz,

(J) CªjU F G¥«¢U¼rAiÄ° UÁªÄ ¥AZÁAiÄwAiÄÄ ª»¹zAvº AiiÁª¦zÃ PvðªU¼£Ã ¤ªð»¸®Ä.
(©) F G¥«¢U¼ G¥§AzU¼ ¥Á®£AiÄ£Ã ¤zðj¸®Ä.

15.5. **¤UÀÄvÀ(¥ÀÄÀÄ«ÄvÀÄÀ C¢PÁjU¼ÀÄÀ** ¥AZÁAiÄw C©ª¦¢¦ C¢PÁj ªÄvÄ Evg ¥Á¢ÃPj¸®l C¢PÁjU¼Ä P¼PAq ºÆuUÁjPAiÄ£Ã ºÆA¢gvPzÄ

(i) vÁ¦eÆÃvÁzPg PÄAzÄPÆgvU¼ ¤ªÁgu ªÄvÄ G¥«¢U¼ C£ÄµÁ£z ¸ÄzÁguUÁV ¸®ºU¼Ä

(ii) dÄ¯Á£ ªÄvÄ zAqU¼ «¢¸Ä«P

(iii) J¸ïq§Æ¢JA §¼PzÁzg ±Ä®; ªÄvÄ

(iv) F G¥«¢U¼£AiÄ ¤¢ðµ ¥r¸¯Áz UÁªÄ ¥AZÁAiÄwAiÄ ºÆuUÁjPU¼ C£ÄµÁ£, ªÄvÄ UÁªÄ ¥AZÁAiÄwU½Az F G¥«¢U¼£AiÄ, C¢¤AiÄªÄ ªÄvÄ Evg AiiÁªÀzÃ C£AiÄªÁUÄª PÁAiÄAiÄrAiÄ° ª»¸¯Áz CxªÁ ¤AiÆÃf¸¯Áz Pvðª¼Ä.

CzÁAiÀÄ- XII- zÀqÉÀÄ¥ÀªÀvÀÄPÀzÀRÉgÀÉÀ¥ÀºÁgÀ

16. zÀqÉÀÄ¥À¸À

16.1 AiiÁªÀzÃ ª¢QAiiÁzgÆ F G¥«¢U¼ ¤§AzU¼£Ä¢ ¥Á®£ ªiÁqz G®AX¹z° CxªÁ ¥Á®£ ªiÁq®Ä «¥®£Áz°, **C£ÀÄ¸ÀÀa-VIg°** ¤¢ðµ ¥r¹gÄªAv UÁªÄ ¥AZÁAiÄwAiÄ ªw¬ÄAz «¢¸¯Áz zAqª£¢ ¥Áªw ªiÁqÄª ²PU M¼¥qvPzÄ.

16.2 MAzÄ ªÃ¼ Jgq£AiÄ ¨ÁjU G®AW£ CxªÁ ¥Á®£ ªiÁq¢z°, **C£ÀÄ¸ÀÀa –VIg°** ¤U¢ ¥r¹z zAqz ªÆvz JgqÄ ¥lÄ ªÆvª£¢ dÄ¯Á£AiiÁV «¢¸®Ä UÁªÄ ¥AZÁAiÄwAiÄÄ C¢PÁgª£¢ ºÆA¢gvPzÄ.

16.3 MAzÄ ªÃ¼ ªÄÆg£AiÄ ¨ÁjU G®AW£ CxªÁ ¥Á®£ ªiÁq¢z°, **C£ÀÄ¸ÀÀa –VIg°** ¤U¢ ¥r¹z zAqz ªÆvz ªÄÆgÄ ¥lÄ ªÆvª£¢ dÄ¯Á£AiiÁV «¢¸®Ä UÁªÄ ¥AZÁAiÄwAiÄÄ C¢PÁgª£¢ ºÆA¢gvPzÄ.

16.4 ªÄÆg£AiÄ ¨ÁjU G®AW£AiiÁz vgÄªÁAiÄ ªÄvÆªÄ AiiÁªÀzÃ G®AW£ CxªÁ C£Ä¥Á®£AiiÁU¢z°, UÁªÄ ¥AZÁAiÄwAiÄÄ vÁ¢eÆÃzP£Ä ºÆA¢gÄªAvº AiiÁªÀzÃ (AiiÁªÀzÁzgÆ Ez°) ¸ÆP ªÁ¥Áj ¯É¸£¢ ªeÁUÆ½¸Äª C¢PÁgª£¢ ºÆA¢gvPzÄ, C¢¤AiÄªÄz° gÆ¦¹gÄª Evg AiiÁªÀzÃ zAqz ªÆvª£¢ ª¸Æ®Ä ªiÁqvPzÄ ªÄvÄ/CxªÁ PÁ®PÁ®P C¢¸Æa¹zAv Evg AiiÁªÀzÃ PªÄª£¢ P¢UÆ¼§ºÄzÄ.

16.5 **C£ÀÄ¸ÀÀa-VIg°** £ªÄÆ¢¹gÄªAvº dÄ¯Á£ CxªÁ zAqª¢ ¥w ªÄÄA¢£ C£Ä¸guAiÄ ªµðz ¢£ÁAP K¦¯ï-1 jAz ªµðP¢ ±Ã 10%gAv (Cw ¸«ÄÃ¥z gÆ 10/-P¢ ¥ÆuÁðAPUÆ½¸vPzÄ) KjPAiiÁUvPzÄ.

16.6. UÁªÄ ¥AZÁAiÄwAiÄÄ F G¥«¢U¼ **C£ÀÄ¸ÀÀa-VIg°** £ªÄÆ¢¹gÄªAvº £ªÄÆzÄU¼£Ä¢ C£AiÄªÁUÄª PÁAiÄAiÄrAiÄ° ªiÁ¥ÁðqÄ ªiÁq§ºÄzÄ, CxªÁ wzÄ¥r ªiÁq§ºÄzÄ CxªÁ «©£¢ªÁz zgª£¢ «¢¸§ºÄzÄ, Dzg C¢U¼Ä **C£ÀÄ¸ÀÀa-VIg°** £ªÄÆ¢¹gÄª ªÆvQAv PrªÄAiiÁUvPz®.

16.7 UÁªÄ ¥AZÁAiÄwAiÄÄ v£¢ ¹§A¢U¼ ¥¯Q AiiÁgÃ DzgÆ ¸AUºu, CxªÁ ¸ÁUtP, «AUqu ªiÁqÄª ºAvz° W£ vÁ¢dª£¢ AiiÁªÀzÃ ¸ªÄAiÄz° ¨g¹z°, ¤U¢ ¥r¹z ¸ªÄAiÄz° W£ vÁ¢dª£¢ ¸AU»¸®Ä «¥®£Áz°, CxªÁ C£¦xÁ F G¥«¢U¼ ¤§Az£U¼£Ä¢ G®AX¹z°, CAvº ¹§A¢U¼ «gÄz¦ CxªÁ Ke¤ CxªÁ ¸ZvÁ/¸Á¤l j vÁ¢d¦ PÁ«ÄðPg «gÄz¦ UÁªÄ ¥AZÁAiÄwAiÄÄ ²¸Ä PªÄª£¢ dgÄV¸§ºÄzÄ.

16.8 Ke¤AiÄÄ F G¥«¢U¼ ¤§Az£U¼£Ä¢ G®AX¹z° CxªÁ ¥Á®£ ªiÁq®Ä «¥®ªÁz°, UÁªÄ ¥AZÁ¬ÄwAiÄÄ P¼PAq AiiÁªÀzÃ CxªÁ J¯Á PªÄU¼£Ä¢ P¢UÆ¼Ä ª C¢PÁgª£¢ ºÆA¢gvPzÄ.

(i) Ke¤U ¤Äq¯ÁVgÄª AiiÁªÀzÃ W£ vÁ¢d¦ ¸AUºu, ¸ÁUÁtP CxªÁ ¸A¸guÁ ¸Ë®¨¦U½UÁV F G¥«¢U¼r ªÄvÄ/CxªÁ C£AiÄªÁUÄª ¤AiÄªÄU¼rAiÄ° ªÄAdÆgÄ ªiÁrgÄªAvº ¯É¸£ÄU¼£Ä¢ CªiÁ£w£°q§ºÄzÄ CxªÁ gzÄ ¥r¸®Æ§ºÄzÄ.

(ii) ¸ÆP PgÁj£¢AiÄ Ke¤U ¤Äq¯ÁVgÄª W£ vÁ¢d¦ ¤ªðºuÁ ¸ÃªU¼£Ä¢ gzÄ¥r¸Ä«P ªÄvÄ/CxªÁ

(iii) C¢P¢v CxªÁ C£¬Ä¸Äª AiiÁªÀzÃ PÁAiÄAiÄrAiÄ° C£ÄªÄw¸Äª AiiÁªÀzÃ ¥jºÁg CxªÁ zAqz PªÄ.

16.9 UÁªÄ ¥AZÁAiÄwAiÄÄ F G¥«¢U¼ AiiÁªÀzÃ ¤§Az£U¼ CxªÁ Evg AiiÁªÀzÃ PÁAiÄU¼ G®AW£U C¢¤AiÄªÄzrAiÄ°, ¥j¸g (¸AgPuÁ) C¢¤AiÄªÄ, 1986, ¨ÁgwÃAiÄ zAq ¸A»v, 1860, d® (ªiÁ°£À ¤§ðAz ªÄvÄ ¤AiÄAvt) C¢¤AiÄªÄ, 1974, ªÁAiÄÄ (ªiÁ°£À ¤§ðAz ªÄvÄ ¤AiÄAvt) C¢¤AiÄªÄ, 1981 ªÄvÄ/CxªÁ Evg AiiÁªÀzÃ C£AiÄªÁUÄª ¤AiÄªÄU¼Æ M¼UÆAqAv F G¥«¢U¼rAiÄ°, ¸ÆP PªÄU¼£Ä vUzÄPÆ¼§ºÄzÄ.

16.10. F jÃwAiiÁV ¸AU»¸¯Áz J¯Á zAqU¼£Ä F G¥«¢U¼£AiÄ W£ vÁ¬d¬ ¤ªðºuÁ ¸ÃªU¼£Ä MzV¸Ä ¸®ÄªÁV UÁªÄ ¥AZÁAiÄwAiÄ PÁAiiÁðZgu ªÄvÄ ¤ªðºuÁ ªZU½UÁV, ¹§A¢U¼ ªÃv£, ¥ÆÃvÁºPU¼Ä, ªÄwvg vÁ¬d¬ ¤ªðºuÁ PÁAiÄðZlÄªnPU½U UÁªÄ ¥AZÁAiÄwAiÄÄ PÁ®PÁ®P ¸ÆPªAzÄ ¥jUt¹zAv §¼P ªiÁq§ºÄzÄ.

17 PÀAzÀÄRÉgÀÉÀÀ¥ÀºÁgÀ

17.1 UÁªÄ ¥AZÁAiÄwAiÄÄ W£ vÁ¬d¬ ¸AUºu ªiÁq¢gÄªÀzÄ CxªÁ F G¥«¢U¼ G®AW£ PÄjvÁz zÆgÄU¼£Ä £ÆÃAzt ªiÁrPÆ¼Äª ¸®ÄªÁV ¸ÁªðdPÄAzÄPÆgvU¼ ¥jºÁg ª¬ª¸ÀAiÄ£Ä C©ª¬¢ ¥r¸vPÀzÄ. F ª¬ª¸ÀU¼Ä ¥wAiÆAzÄ UÁªÄz°AiÄÆ ªÄvÄ/CxªÁ UÁªÄ ¥AZÁAiÄw PÁAiiÁð®AiÄz° MAzÄ zÆgÄ PÃAz, ªÆ¨É¯ï D¥ï, ªÄvÄ/CxªÁ Evg vAvU¼£Ä UÁªÄ ¥AZÁAiÄwAiÄÄ ¸½ÃAiÄ ¥j¹wAiÄ£Ä UªÄ£z°lÄPÆAqÄ ¸ÆPªAzÄ ¥jUt¹z vAvª£Ä M¼UÆArg§ºÄzÄ. AiiÁgÃ ªQAiÄÄ PÄAzÄPÆgvU¼£Ä RÄzÁV, zÆgªÁt, E-ªÄÃ¯ ªÄÆ®P/ ª¨ï¸émï, CAZ, ªÆ¨É¯ï D¥ï ªÄÆ®P ªÄvÄ CxªÁ UÁªÄ ¥AZÁAiÄwAiÄÄ ¸ÆPªAzÄ ¤zðj¹z Evg AiiÁªÀzÃ ªiÁUð¢Az ¸°¸§ºÄzÄ.

17.2. UÁªÄ ¥AZÁAiÄwAiÄÄ ¥wAiÆAzÄ PÄAzÄPÆgvAiÄ£Ä ¤¢ðµ PÁ¯ÁªÁ¢AiÄ° ªÄvÄ zP «zÁ£z° ¥jºj¸®qÄvzAiÄAzÄ SÁw ¥r¸vPÀzÄ ªÄvÄ AiiÁªÀzÃ ¸Az¨ðz°AiÄÆ zÆgÄ ¸°¹z º¢£ÀzÄ ¢£U½VAv ºa£ «¼A§ªÁUvPÀz®. UÁªÄ ¥AZÁAiÄwAiÄÄ PÄAzÄPÆgvU ¸ÆP ¥jºÁgÁvP PªÄª£Ä ¤zðj¸Äª ¸Az¨ðz° PÄAzÄPÆgv «z, ¥j¸g ªÄvÄ/CxªÁ DgÆÃU¬ ¸A§A¢ ¥juÁªÄU¼Ä, ¸ÁªðdPjU GAmÁz C£Á£ÄPÆ®v, EzP ºÆA¢PÆAq ºtPÁ¸Ä ªZU¼Ä ªÄwvg ¸ÆP CA±U¼£Ä ¥jUt¸vPÀzÄ.

18. **C¥ÀWÁvÀÀÀ ªÀgÀ ªÀÄqÀØ¼ÀzÀ** MAzÄ ªÃ¼ W£vÁ¬d¬ ¸A¸gu CxªÁ «¯ÃªÁj ¸Ë®¨¬ PÃAzU¼ CxªÁ ¨Æ ¨wð ¸¼z° AiiÁªÀzÃ C¥WÁvU¼Ä ¸A¨«¹z°, CAvº ¸Ë®¨¬ PÃAzz ¥¨Ágª£Ä ºÆA¢gÄªAvº ª¬QAiÄÄ, UÁªÄ¥AZÁAiÄwU **C£ÀÄ¸À¯a–VIIg°** ªg¢Ai£Ä ¸°¸vPÀzÄ ªÄvÄ UÁªÄ ¥AZÁAiÄwAiÄÄ Cz£Ä ¥j²Ã°¸vPÀzÄ ªÄvÄ ¸Ë®¨¬ PÃAzz ¥¨Ágª£Ä ºÆA¢gÄª ª¬QU ¸ÆZ£U¼£Ä, AiiÁªÀzÁzgÆ Ez¬°, ºÆgr¸vPÀzÄ.

CzÁAiÀÄXIII- UÁæªÀ¥ÀZÁAiÀÄwAiÀÄEvgÀºÉuÉÁjPÉÄÀªÀvÀÄPÀÀªÀÅzÀÄ

19. F G¥«¢U¼ E¤¬vg CzÁ¬AiÄU¼° ¤¢ðµ ¥r¹gÄª ºÆuUÁjPU¼Ä ªÄvÄ Pvðª¬U¼ÆA¢U UÁªÄ ¥AZÁAiÄwU¼Ä P¼PAq ºZÄªj Pvðª¬U¼£Ä ¸º ºÆA¢gvPÀzÄ.

19.1 **¥ÀæÁgÀªÀvÀÄ¸ÁªÀðd¤PÀªÀÄ»w ¸ËªÉÄÀÀ¸À**

(i) UÁªÄ ¥AZÁAiÄwU¼Ä G¥«¢U¼ ¤§Az£U½U £ÀªÄð®¬ ¥ÃgPg, ¸ªÄzÁAiÄ DzÁjv ¸AWl£U¼ CAvº ª¬AiÄQP ¸Aªº£z ªÄÆ®P, ªÄvÄ ¥®PU¼Ä (¸À£ï ¨ÆÃqÄðU¼Ä), Pg ¥vU¼Ä, ¨Á£Á° PÃAz, ª¬v ¥wPU¼Ä E¤¬vg ¸ÆP ªiÁz¬ªÄU¼ ªÄÆ®P ¥ZÁg ¥r¸vPÀzÄ,

EzjAzÁV J¯Á £ÁUjÃPgÄ ¸ºUÁªÄ ¥AZÁAiÄwU¼ PvðªÄ PÄjvÁz Cjª, «AUqu, P¸ ¸ÄjAiÄÄ«P, vÆAzg, zAq£U¼Ä ªÄvÄ dÄ¯Á£U¼ PÄjvAv vªÄ PvðªÄz §UÀAiÄÆ ¸º w¼ÄªÀ½PAiÄ£Ä ºÆAzÄªgÄ.

(ii) UÁªÄ ¥AZÁAiÄwAiÄÄ ¸ªÄÄzÁAiÄ ºAvz° «AUqu, PÁA¥ÆÃ¸ï vAiiÁjP, eÉ«P C¤® GvÁz£, ªÄgÄ DªvðÉ ªÄvÄ lÄvÄZP £ÉªÄð®Ä ¤ªðºu PÄjvAv vg¨Ãw PÁAiÄðPªÄU¼Ä, «ZÁg¸AQgtU¼Ä ªÄvÄ PÁAiiÁðUÁgU¼£Ä DAiÆÃf¸Äª ªÄÆ®P ªiÁ»wAiÄ£Ä MzV¸vPÌzÄ.

(iii) UÁªÄ ¥AZÁAiÄwAiÄÄ ¸AiÄA vÁ£Ã DU°Ã CxªÁ F PÃvz vdgÄU¼ ªÄÆ®PªÁU°Ä Cjª ªÄÆr¸Äª ªÄvÄ ¸A¸U¼£Ä vÆqV¸Äª ªÄÆ®P W£ vÁdÌ¤ªðºu W£ vÁdÌz° E½P ªÄvÄ PrªÄ ªiÁqÄ«P, PÄAzÄPÆgvU¼ ¤ªÁguÁ vAvU¼ PÄjvAv F G¥«¢U¼rAiÄ° Cjª ªÄÆr¸vPÌzÄ.

(iv) UÁªÄ ¥AZÁAiÄwU¼Ä ¥Á¹Pï aÃ®U¼ ¤µÃz ªÄwvg ª¸ÄU¼ PÄjvAv gÁdÌ ¸PÁðgª ºÆgr¹z PÄjvAv ¥ZÁg ¤ÃqÄª ªÄÆ®P W£ vÁdÌ GvÁz£AiÄ£Ä E½P ªiÁq®Ä Cjª ªÄÆr¸Äª PÁAiÄðPªÄU¼ ªÄÆ®P ªÄvÄ ¥ÆÃvÁºPU½U CªPÁ±ª£Ä MzV¸Äª ªÄÆ®P KP §¼P «¯ÃªÁj Gv£ÌU¼ GvÁz£, ªiÁgÁl ªÄvÄ §¼PAiÄ£Ä ¥ÆÃvÁ»¸vPÌz®.

19.2. ¥ÁgÀÆ¥ÀPÀÆÉªÀÄvÀÄ¸ÁªÀðd¤PÀ¸À¥PÀÀ¸Á¢üPÁ¬ÄzÀÄ Cw ºa£ÀªÄlz ¥Ágz±ðPv ªÄvÄ ¸Áªðd¤PjU ¤®ÄPÄª ¸ÁzÌvAiÄ£Ä SÁw ¥r¸Äª ¸®ÄªÁV, UÁªÄ ¥AZÁAiÄwAiÄÄ F G¥«¢U¼rAiÄ° PÁAiÄðZlÄªnPU½U ¸A§A¢¹zAv P¼PAq ªiÁ»wU¼Ä, zvÁA± ªÄvÄ ªg¢U¼£Ä UÁªÄ ¥AZÁAiÄw PZÃjAiÄ° P®¸z ªÃ¼Aiħ° ®¨Ì«j¸vPÌzÄ.

(i) F G¥«¢U¼rAiÄ° ¤¢ðµ ¥r¸¯Áz UÁªÄ ¥AZÁAiÄwAiÄ dªÁ¨ÁjU¼£Ä C£ÄµÁ£UÆ½¸ÄªAvº ºÆuUÁjPAiÄ£Ä ºÆA¢gÄª C¢PÁjU¼ º¸gÄ ªÄvÄ ¸A¥Pð

(ii) ¸AU»¸¯Áz ªÄvÄ ¸A¸j¸¯Áz W£ vÁdÌz ¥ªiÁt PÄjv ªÁ¶ðP zvÁA±

(iii) zÆgÄU¼ PÄjvAv ªÄvÄ zÆgÄU½U ¥jºÁg MzV¸Äª PÄjvAv UÁªÄ ¥AZÁAiÄwU½Az ª»¸¯Áz PªÄ PÄjvÁz CAQ CA±

(iv) J¸ïq§ÆÌJA §¼PzÁgg ±Ä®, UÁªÄ ¥AZÁAiÄw¬ÄAz ªÄvÄ Czg ¥gªÁV ª¸Æ° ªiÁq¯Áz zAqz ªÆv ªÄvÄ F ªÆvª£Ä ªiÁºAiiÁ£ §¼P ªiÁq¯Áz «zÁ£ PÄjvÁz «ªgU¼Ä.

19.3 **¥ÉÆÃ¸ÁºPÀÀªÀÄÀÇÉ¸ÀÄ¸ÁªÀÄÀ**

(i) UÁªÄ ¥AZÁAiÄwAiÄÄ eÉ«P vÁdÌU¼Áz eÉ«P «Äx£É¸Ãµ£ï ªÄvÄ PÁA¥ÆÃ¸ï vAiiÁjPAiÄÄvº ¸A¸guÁ «PÃA¢ÄPgt ªÌª¸ÌAiÄ£Ä C¼ªr¹PÆAq ¸Az¨ðz° J¸ïq§ÆÌJA §¼PzÁgg ±Ä®ª£Ä ªÄ£Á ªiÁqÄª ¸ÆP vÁeÆÃvÁzPgÄU¼£Ä UÄgÄw¸Äª ªÄvÄ CªgÄU½U ¥ªiÁt ¥vª£Ä «vj¸Äª ªÄvÄ CªgÄU¼ º¸g£Ä UÁªÄ ¥AZÁAiÄw PZÃjAiÄ° ¥Pn¸ÄªAvº ¥ÆÃvÁºP ªÌª¸ÌAiÄ£Ä ¸Éf¸§ºÄzÄ.

(ii) UÁªÄ ¥AZÁAiÄwAiÄÄ ®¨Ì«zÌ°, ºZÄªj PÁA¥ÆÃ¸ï£Ä vÁeÆÃvÁzP¤Az PÁ®PÁ®P UÁªÄ ¥AZÁAiÄw¬ÄAz C£Ä¸Æa¹zAv ¤¢ðµ ¥r¹z zgz° v£¸Av G¥AiÆÃUPÁV CxªÁ Gvª¨¯U ªiÁgÁl ªiÁqÄª ¸®ÄªÁV RjÃ¢¸§ºÄzÄ.

CzÁAiÀXIII- EvgÉ

20. ¸Áðj ¸À¸ÉÀÉA¢UÉ¸ÀÄ¸ÁÀAiÀÄ UÁªÄ ¥AZÁAiÄwAiÄÄ Evg ¸PÁðj Ke¤U¼Ä ªÄvÄ ¥Á¢PÁgU¼ÆA¢U, CAvº ¸A¸U¼ C¢PÁg ªÁ¦ ¥zÃ±U¼° CxªÁ F ¸A¸U¼ ¤AiÄAvtz°gªÄ ¥zÃ±U¼° F G¥«¢U¼ ¥Á®£AiÄ£Ä SÁw ¥r¸Äª ¸®ÄªÁV ¸ªÄ£AiÄª£Ä ¸Á¢¸vPÌzÄ.

21. **C£ÀµÁ£ÀÀ¥À²Ã®£É** UÁªÄ ¥AZÁAiÄwAiÄÄ F G¥«¢U¼ C£ÄµÁ£ªÄ£Ä P¤µ ªµðP Jgq Ä ¨Áj ¥j²Ã°¸vPzÄ ªÄvÄ W£ vÁd ¤ªðºuÁ AiÆÃd£AiÄrAiÄ° ¥juÁªÄPÁj C£ÄµÁ£ ªÄvÄ Czg CqvqU¼ ¤ªðºuUÁV ¸ÆP PªÄU¼£Ä PÈUÆ¼vPzÄ.

22. **wzÀÝ¥ÀUÀÀ** UÁªÄ¥AZÁAiÄwU¼Ä, C¢¤AiÄªÄz ¸ÆP «¢«zÁ£U¼£Ä C£Ä¸j¹, D jÃw ªiÁqÄªÁzÄ C¤ªÁAiÄðªÁz°, ¸PÁðgz ¥ÆªÁð£ÄªÄwAiÆA¢U F G¥«¢U¼£Ä wzÄ¥r ªiÁq§ºÄzÄ ªÄvÄ CzP ¸Ã¥ðq ªiÁq§ºÄzÄ.

23. **DzÉÃ±ÀWÀÀgÀÀ ªÀiÁvÀÄG½¸ÀĪÉ**

23.1 **F G¥ÀAiÀÄUÀÀ** eÁjU §Az vgÄªÁAiÄ, C£AiÄªÁUÄªÁvº ¤AiÄªÄU¼Ä/¤§Az£U½U AiiÁªÁzÃ PªÄª£Ä, F G¥«¢U¼£Ä G®AX¸z ºÆgvÄ PÈUÆ¼§ºÄzÄ.

24 **ªÁ¸ÀSÁ¸À£ÀÄ** F G¥«¢U¼ AiiÁªÁzÃ µgvÄU¼ ªÁ¸ÀSÁ¸À£z° AiiÁªÁzÃ ªÁvÁ¸U¼Ä Gz«¹z ¸Az¨ðz°, EAVÃµï DªÁ¸ÀwAiÄ£Ai ¸zj ªÁ¸ÀSÁ¸À£ªÁ CAwªÄªÁVgvPzÄ ªÄvÄ CzÄ P£Äq DªÁ¸ÀwAiÄ£Ä (¨ÁµÁAvg) ¸Æ¥gï¹ÃqÏ ªiÁqvPzÄ.

C£ÀÄ¸ÀÆa -1

eÉÆÃ¥PÀ vÁd¸Ä, CeÉÆÃ¥PÀ vÁd¸Ä, UÀÀÉÆÃvÁ¢vÀ C¥ÁAiÀÄÁj vÁd¸Ä ªÀiÁvÀ £ÉÆÃ®¸Ä vÁd¸UÀÀ «ªÀgÀÀÁvÀÀ¥À

¨ÁUÀ-J eÉÆÃ¥PÀvÁd¸UÀÀ«ªÀgÀÀÁvÀÀ¥À

ºtÄU¼Ä ªÄvÄ vgPÁjU¼ ¹¥U¼Æ M¼UÆAqAv, CqÄU PÆÃu/ ªiÁgÄPm vÁd¸U¼Ä, ¸Ã«¸zÃ©l ªÄvÄ/Cxªá º¼¹z DºÁg, ZºÁ ¸Æ¥Ä ªÄvÄ ªÆmAiÄ a¥ÄU¼Ä (ªÄÃ®Ä ¹¥)
ªiÁA¸ ªÄvÄ ªÄÆ¼U¼Ä
ºÆU¼Ä M¼UÆAqAv J¯AiÄ P¸ (vÁd¸)
vAV£ a¥ÄU¼Ä
ªÄg/J¯U¼ §Æ¢

¨ÁUÀ-©-CeÉÆÃ¥PÀ¥ÀÆgÁwðvÀvÁd¸UÀÀ«ªÀgÀÀÁvÀÀ¥À

¸Ä¢¸ ¥wPU¼Ä
PÁUz, ¥Ä¸PU¼Ä ªÄvÄ ¤AiÄvPÁ°PU¼Ä
UÁdÄ
¯ÆÃºz ª¸ÄU¼Ä ªÄvÄ vAwU¼Ä
¥Á¹Pï
C®Æ«Ä¤AiÄªïï PÁ¸£ïU¼Ä
ªÄg/¦ÃoÆÃ¥Pgt U¼Ä
¥Á¸PÃeï ª¸ÄU¼Ä
§mU¼Ä
¸ï¸gÆÃ¥ÆÃªïï
xªÆÃðPÆÃ¯ï
mmÁ¥Á¸Pï

¨ÁUÀ¹-UÀÆÉÃvÁ¢vÀC¥ÁAiÀÄÁj vÁdÄUÀ¼À«ªÀgÀÀÁvÀÀ¥ÀÀ

¨ÁUÀ¹: 1 - UÀÆÉÃvÁ¢vÀC¥ÁAiÀÄÁj vÁdÄUÀ¼À«ªÀgÀÀÁvÀÀ¥ÀÀ

KgÆÃ¸Á¯ï PÁ£ïU¼Ä
ªÄ£U¼ CqÄUPÆÃu ªÄvÄ ªÆÃj ¸ZÄUÆ½¸Äª ª¸ÄU¼Ä
¨Á¼ljU¼Ä, Ju ±ÆÃzPU¼Ä (oil filters) ªÄvÄ PÁgÄU¼ ¸ZÄvAiÄ Gv£ÄU¼Ä ªÄvÄ §¼P ª¸ÄU¼Ä
JuU¼Ä, gÁ¸ÁAiÄ¤PU¼Ä ªÄvÄ PgUÄª ª¸ÄU¼Ä ªÄvÄ C ªÄU¼ SÁ° q©U¼Ä
C®APÁjP ª¸ÄU¼Ä, gÁ¸ÁAiÄ¤P DzÁjv QÃl£Á±PU¼Ä ªÄvÄ C ªÄU¼ SÁ° q§U¼Ä
C ª¢ ªÄÄVz OµzU¼Æ M¼UÆAqAv OµzU¼Ä
§tU¼Ä, JuU¼Ä, QÃ¯u, CAlÄ (glues), v¼Ä zÁªP ªÄvÄ C ªÄU¼ SÁ° q§U¼Ä
QÃl£Á±PU¼Ä ªÄvÄ ¸¼£Á±PU¼Ä (herbicides) ªÄvÄ C ªÄU¼ SÁ° q§U¼Ä
bÁAiiÁUºtz gÁ¸ÁAiÄ¤PU¼Ä
xªiÁð«ÄÃlgÄ ªÄvÄ ¥Ázg¸ª£Ä ºÆA¢gÄª Gv£ÄU¼Ä

¨ÁUÀ¹ 2-£ÉÆÃ®Ä vÁdÄzÀ«ªÀgÀÀÁvÀÀ¥ÀÀ

 # §¼PÉªÄrzÀqÉgÀÀÀ
 # ¸Á¤lj lªÀÀUÀÀÀCxÀÁ £Á¥ïQ£ïUÀÀÀ lÄvÀÀ¸Áæ¢ÀÀ §¼PÉªÄqÀÁzÀ§mÉÀÀÀªÄvÀÀ±ÁjÃjPÀzÀÀÀÀÀ
M¼UÆAqAvº CzÃ ªiÁzjAiÄ ª¸ÄU¼Ä
#. U¨ð¤gÆÃzP aÃ®U¼Ä
¨ÁAqïKqï, Uºº§¼PAiÄ UË¸ÄU¼Ä ªÄvÄ PÆ¼PÄ ºw
ªÄ£U½Az ¹jAeïU¼Ä

C£À¸Àa II- §ºÀï vÁeÉÃvÁzPÀÀÀÀC¢üÀa¸ÀªÀ¸Áªà¤PÀÉÃnÃ¸À

UÁªÄ ¥AZÁAiÄwAiÄÄ F ªÄÆ®P ¢£ªÇAzP 50 Pf CxªÁ CzPÆ ºa£ ¥ªiÁtz vÁdªÄ£Ä GvÁ¢¸ÄªAvºªgAzÄ (J¯Á vÁdª ªÄÆ®U½Az) ªÁSÁ¤¸¯Áz J¯Á §ºvï vÁeÆÃvÁzPgÄU¼Ä UÁªÄ ¥AZÁAiÄwAiÄ G¥«¢U¼£Ä C£Ä¸Æa¹z F £ÆÃnÃ¸Ä eÁjAiiÁz 60 ¢£U½VAv «¼A§ªÁUz Cª¢AiÆ¼U (---- ¢£ÁAPzÆ¼U) ¸zj G¥«¢U¼ ¤§Az£U¼£Ä ªÄÆgÄ «zU¼ W£ vÁdªÄ£Ä, ¸¼z°AiÄÃ «AUr¸Äªz£Æ M¼UÆAqAv (eº«P, Ceº«P, UºÆÃvÁ¢v C¥ÁAiÄPÁj vÁdÄU¼£Ä (£ªÄð®ª vÁdªÇ ¸ÃjzAv) C£ÄµÁ£UÆ½¸¨ÄPAzÄ ªÄvÄ ««z ªUð½U ¸Ãjz dªÁ¨ÁjAiÄÆ ¸ÃjzAv ¸¼z°AiÄÃ eº«P vÁdªz ¸A¸guAiÄ£Æ ¸º ªiÁq¨ÄPAzÄ ¤zÃð²¸Ävz. «ªgªÁz ¸ÆZ£U¼Ä------ ª¨ï¸ªmï£° ®¨ª«gÄª G¥«¢U¼° ®¨ª«gÄvz.

§ºvï vÁeÆÃvÁzPg ªÁSÁ£z ªÁ¦AiÄ° §gÄªAvº J¯Á vÁeÆÃvÁzPgÄU¼Æ ¸º CªgÄU¼Ä £ÆÃnÃ¸ï£ Cª¢AiÆ¼U vªÄ DªgtU½Az 50 PfUÆ PrªÄ vÁdªÄ£Ä GvÁz£ ªiÁqÄwgÄªzÁV ¸AiÄA WÆÃµuAiÄ£Ä ¸°¸z ºÆgvÄ, CªgÄU¼£Ä §ºvï vÁeÆÃvÁzPgAzÄ ¥jUt¸¯ÁUÄªzÄ. CAvº ¸AiÄA WÆÃµuU¼Ä MAzÄ ªÃ¼ ¸vªÄ®ªAzÄ PAqÄ §Az°, ¥j²Ã®£U ªÄvÄ zAq ªÆv ª¸Æ¯ÁwU M¼¥qvPzÄ. CAvº ¸AiÄA WÆÃµuAiÄ£Ä F £ÆÃnÃ¸ï v®Ä¦z ¢£ÁAP¢Az 20 ¢£U¼Æ¼U (----- ¢£ÁAPzÆ¼U) ¥j²Ã®£U C£Äª ªiÁrPÆqªª ¸®ÄªÁV ¸°¸vPzÄ. ¤U¢v ¢£ÁAPz £Avg P¼Ä»¸¯Áz/¸°¸¯Áz ¸AiÄA WÆÃµuAiÄ£Ä wg¸j¸¯ÁUÄªzÄ.

F £ÆÃnÃ¹£ 60 ¢£U¼ £Avg (----¢£ÁAPz £Avg) §¼ºvï vÁ¼eÆÃvÁzPjAz G¥«¢U¼ AiiÁª¼zÃ G®AW£AiiÁz° C£AiÄªÁUÄª zAq ªÆvª£Ä/ dÄ¯Á£AiÄ£Ä UÁªÄ ¥AZÁAiÄwAiÄ G¥«¢U¼° w½¹gÁªAv «¢¸¯ÁUÄvz.

MAzÄ ªÃ¼ £Avgz ¢£ÁAPzAzÄ WÆÃµuAiÄÄ ¸Ä¼AzÄ PAqÄ §Az°, UÁªÄ ¥AZÁAiÄwU¼ G¥«¢U¼£AiÄ zAq£AiÄ£Ä «¢¸¯ÁUÄvz.

¸¼ :

UÁªÄ ¥AZÁAiÄwAiÄ ¥jªÁV C¢P¼v ¸»zÁg

C£ÀÄ¸Àa-III ªÉÄiÀÄPÀ¼ªÀÄÀUÀÀ£ÉÃnÃ¸ï£ÀÄÀÄ£É

EªÀUÉ(¥¸Á«v §¼ºvï vÁ¼eÆÃvÁzP£ º¸g£Ä ¸Ãj¹j)

«µÀiÀÄ §¼ºvï vÁ¼eÆÃvÁzP£ÁV ªVÃðPj¸ÄªÄ §UÍ

vªÄ DªgtzÀ° P¼UÆArgÄªÁvº PÁAiÄðZlÄªnPU¼Ä/ª¼ªºÁgª£Ä ªÄvÄ v«ÄAz GvÁ¢¸¯ÁUÄwgÄª W£ vÁ¼dªz ¥ªiÁtª£Ä ¥jUt¹ UÁªÄ ¥AZÁAiÄwAiÄÄ vªÄ£Ä **§¼ºvï vÁ¼eÆÃvÁzP£ÁV** ¥jUt¹z. Czg£AiÄ, vÁª¼ F G¥«¢U¼ ¤§Az£U¼£Ä ¥Á®£ ªiÁqvP¼zÄ ªÄvÄ ªÄÆ®z°AiÄÃ vÁ¼d¼ «AUquAiÄ£Ä, DªgtzÀ°AiÄÃ «AUqu ªiÁrz vÁ¼dªz zÁ¸Á£Ä ªÄvÄ DªgtzÀ°AiÄÃ e¼«P vÁ¼dªz ¸A¸¼guAiÄ£Ä ºÁUÆ F G¥«¢U¼° M¼UÆArgÄªÁvº Evg dªÁ¨Á¼jU¼£Ä ¤ªð»¸vP¼zÄ.

MAzÄ ªÃ¼ vÁª¼ §¼ºvï vÁ¼eÆÃvÁzPg®ªAzÄ PÃªÄÄ ªiÁrz°, vÁª¼ F PÄjvAv 20 ¢£U¼Æ¼U MAzÄ ¸AiÄA WÆÃµuAiÄ£Ä ¸°¸vP¼zÄ, v¦z°, vªÄ£Ä §¼ºvï vÁ¼eÆÃvÁzP£AzÄ ªVÃðPj¸ÄªÄ §UÍ vªÄU AiiÁª¼zÃ DPÃ¥u¬ÄgÄª¼¢®ªAzÄ ¥j¨Á«¸¯ÁUÄª¼zÄ. MAzÄ ªÃ¼ vªÄ ¸AiÄA WÆÃµuAiÄÄ ¸v¼®ªAzÄ PAqÄ §Az°, Cz£Ä gzÄ¥r¸¯ÁUÄª¼zÄ ªÄvÄ G¥«¢U¼£AiÄ zAq£AiÄ£Ä «¢¸¯ÁUÄª¼zÄ.

UÁªÄ ¥AZÁAiÄwAiÄ ¥gªÁV C¢P¼v ¸»zÁg

C£ÀÄß a - IV UÁæªÀ¥ÀZÁAiÀiÁvÀAiÀÄ ¸ÉêÀéAiÀÄ §¼ÀÉªÀÅrPÉ¼ÀÀvÀÀ§ºÀÄ vÁeÉÆvÁzÀPÀÄAzÀ ¸À¸ÀÄÉÁzÀªÁ¶ðPÀªÀgÀÀAiÀÄ£ÀÄß£É

PæÀ¸A	²Ã¶ðPÉ	«ªgÀ¼Å
1.	§ºvï vÁeÆÃvÁzP£ ºÀ¸gÁ ªÁvÁ «¼Á¸ zÆgªÁt ¸A;	
2	**§ºÀÄ vÁeÉÆvÁzÀPÀÄAªÀÅzÀ («z)** ªÁtdì CAUr Cxªá ªÀ½U/ P¯Át ªÀAl¥U¼Ä/¥ÆeÁ ¸¼U¼Ä/ ²Pt ¸A¸ÀU¼Ä/ ±Á¯, PA¯AdAU¼A ªÁvÁ ¸A±ÆÃz£Á ¸A¸ÀU¼Ä/ ¸PÁðj PZÁjU¼Ä, £ÁAiiA®AiÀU¼A, ¸½AAiÀ, gAdì CxªÁ PÁAz ¸PÁðg¢Az ¸Á¢Ã£ª£Ä ºÆA¢gÁªÁvº ªÀwvg DªgtU¼Ä/ Evg AiiÁªÀzÃ «zz §ºvï vÁeÆÃvÁzP)	
3	**MAzÀªÀgÀzÀCªÀÅÀiÁ GvÁ¢¸ÁAz WÀÀvÁdìzÀMlÄ ¥ÀæÃt** **(i)** eÉ«P vÁdì **(ii)** CeÉ«P vÁdì **(iii)** UÉºÆÃvÁ¢v C¥ÁAiÀPÁj vÁdì (£ÉªÀð® vÁdìª£Æ M¼UÆAqAv)	
4	**eÉ¥PÀvÁdìªÀÅ ¸ÀÀAAiÉÆ ¸À¸ÀÀAUÀzÀÉÆÉ CxÀÀ EvÀÀiÀÄgÉ ªÀÄ¬ÄAzÀ¸À¸ÀÀÁUÀzÀÉÆÉ?**	**ºÉzÀÄ®**
5	**MAzÀ ªÉÆeÉ¥PÀvÁdìªÀÅ EvÀÀAiÀÄgÉ ªÀÄ¬ÄAzÀ ¸À¸ÀÀUÉ½¹zÀ, CAvÀÀªÀÄÀiÀ ºÉÆÀÀ «¼Á¸À ªÀÄÀ zÀÀgÀÁtÂ¸ÀSÉiÀÄ£ÀÄß¢¹j**	
6.	**eÉ¥PÀvÁdìªÀÅ ¸À¸ÁA¸ÀA C¼AA¹PÉ¼AzÀvÀÀÀ£ÀA «ªÀgÀÀÀ**	
(i)	PAA¥ÆA¸ï vÁiiÁjP	ªÁ¶ðP GvÁ¢¸Áz PAA¥ÆA¸ï£ ¥ªÁt ªÁ¶ðP GvÁ¢¸¯Áz G½P vÁdìz ¥ªÁt
(ii)	eÉ«P-«x£É¸Aµ£ï	ªÁ¶ðP GvÁ¢¸Áz eÉ«P C¤®z ¥ªÁt ªÁ¶ðP GvÁ¢¸¯Áz G½P vÁdìz ¥ªÁt
(iii)	Evg AiiÁªÀzÁ «zÁ£	
7	ªµðz°¸AU»¸Áz CeÉ«P vÁdìz ¥ªÁt	
8	CeÉ«P vÁdìz ¸A¸guÁiÁ£Ä ¤ªð»¸AwgÁª ªÀQÁiÁ ºÀ¸gÄ, «¼Á¸ ªÀÄvÀ zÆgªÁt ¸AS¸	
9	CeÉ«P vÁdìª£Ä ¤ªð»¸Áª ªÀvÁ ¸A¸Ãj¸Áª «zÁ£/jAw/vAveÁ£ (vÁdì ªÁ¥ÁjU½U ªÁiÁgÁl/ªÀgÀDªvð£/¹ªÀAlÄ ¸Áªgz° ¸º-¸A¸gu/Evg AiiÁªÀzÁ «zÁ£) ªÀvÁ CAvº ¸A¸guÁ ¸¼U¼ ºÀ¸gÄU¼Ä, «¼Á¸U¼Ä ªÀÄvÀ zÆgªÁt ¸ASU¼Ä	

10	ªµðªÇAzPï ¸ÀU»¸ À z UÉºÆÃvÀ¢v C¥ÀAiÀPÀj vÁdÀz ¥ªiÁt (£ÉªÀðPÀ® vÁdÀªÇ M¼UÆAqÀv)	
11	UÉºÆÃvÀ¢v C¥ÀAiÀPÀj vÀdÀz (£ÉªÀðPÀ® vÀdÀªÇ M¼UÆAqÀv) ¸À¸ÀguÁiÀ£À¤ªð»¸ÀwgÀª ÀQAiÀ º¸gÀ, «¼Á¸ ªÀvÀ zÆgªÁt ¸ÀS	
12	UÉºÆÃvÀ¢v C¥ÀAiÀPÀj vÀdÀ£À¤ªð»¸Àª ªÀvÀ ¸À¸Àj¸Àª «zÁ£/ jÃw/ vÀveÁ£ (vÀdÀ ªÀ¥ÀjU½U ªiÁgÁl/ ªÀgÀDªvð£/¹ªÀÄlÄ ¸Á ªgz º ¸º-¸À¸Ågu/Evg AiiÀªÀzÀ «zÀ£) ªÀvÀ CAvº ¸À¸ÀguÀ ¸¼U¼ º¸gÀU¼Ä, «¼Á¸U¼Ä ªÀvÀ zÆgªÁt ¸ASU¼Ä	

C£ÀÄ¸Àa –V(Schedule –V)

¨ÁgwÃAiÀÄgÀ¥Á¬ÄUÀ¼À J¸ïqÀÆ¥JA §¼ÉÁgÀ¼ÀÎ®UÀ¼À

PART A: SWM USER FEE FOR WASTE GENERATORS EXCEPT BULK WASTE GENERATORS

PªÀ ¸À;	vÀeÆÀvÀzPg «z	¥wÀiÆ§ vÀeÆÀvÀzP¤Az ªiÀºÀiiÀ£ §¼PzÀgg ±À®ªÀ P¼PÀqªÀ½VÀv PrªÀ EgvPÀz®[1].		
		d£ÀASÉ>=50 ªÀvÀ<=500	d£¸ASÉ>=500 ªÀvÀ <=2000	d£¸ASÉ >2000
1	200 ZzgrU¼ªgV£ Pnz ¥zÃ±ª£Æ¼ UÆArgÀªÀvº ªÁ¸z ªÀ£U¼Ä	**20**	20	20
2	200 ZzgrU¼£À «ÀjzDzg 500 ZzgrU¼ªgU Pnz ¥zÃ±ª£Æ¼UÆArgÀª ªÁ¸z ªÀ£U¼Ä	**30**	30	30
3	500 ZzgrU¼£À «ÀjPnz ¥zÃ±ª£Æ¼UÆAq ªÁ¸z ªÀ£U¼Ä	**40**	50	60
4	200 ZzgrU½VÀv PrªÀ ¥zÀ±ª£À ºÆA¢gÀª 50 PfVÀv®Æ PrªÀ ¥ªiÀtz¸t ªÁtdÉ ¸ÀQÃtðU¼À, CAUrU¼À ªÀvÀ G¥ºÁg UÉº (JAzg ºÆÀm®AU¼À, qÁ¨AU¼À, ªÀ¸ïU¼À, G¥ºÁg ªÀA¢gU¼Ä PÀÄnÃ£ÄU¼Ä ªÀvÀ ¹» w¤¹£ CAUrU¼Ä)	**60**	75	90
5	zÆq ªÀ½UU¼À, ªÀtdÉ ªÀ½UU¼Ä ªÀvÀ G¥ºÁg UÉºU¼Ä (JAzg 200 ZzgrU¼£À «ÀjzªÀvÀ	**100**	150	200

	50 PfU½VAv PrªA W£ vÀ¤dªÀ£ÀÄ GvÀz£ ªÀiÁqÀªÀv° °ÆAm®AU¼A, qÁ¨AU¼A, ªÀ¸ïU¼A, G¥°Ag ªÀA¢gU¼Ä PÁ¤AnÃ£ÄU¼Ä ªÄvÄ ¹» w¤¹£ CAUrU¼Ä			
6	1000 ZzgrAiÆ¼V£ ¸¼ªÀ£ÀÄ °ÆA¢gÀª ªÀvÀ 50 PfVAv PrªÄ W£ vÀ¤dªÀ£ÀÄ GvÀz£ ªÀiÁqÀª Cwy U¦°U¼A, ¯ÁqÄU¼Ä, zªÄð±Á¯U¼Ä	**150**	200	250
7	20 °Á¹UU¼ ªgV£ ¸Ë®¨¤ªÀ£Ä °ÆA¢gÄª D¸vU¼A, OµzA®AiÀU¼A ªÄvÄ Oµz «vguÁ PÃAzU¼Ä	**110**	130	150
8	20 °Á¹UU½VAv °a£ ¸E®¨¤ªÀ£ÀÄ °ÆA¢gÀª D¸vU¼A, OµzA®AiÀU¼A ªÄvÄ Oµz «vguÁ PÃAzU¼Ä	**200**	300	500
9	¸t ªÀvÀ UÀr P¦UÀjPA WlPU¼Ä (C¥ÀAiÀPAj g»vªÀz WlPU¼A ªiÁv) ªÀvÀ ¢£ªÇAzP 50 PfVAv PrªA W£ vÀ¤dªÀ£ÀÄ GvÀz£ ªÀiÁqÀª PÃAzU¼Ä	**200**	250	300
10	¥w ¢£ªÇ 50 PfVAv PrªA vÀ¤dªÀ£ÀÄ GvÀ¢¸ÀªÀv° vgPAj ªÀvÀ Evg ªiÁgÀPmU¼Ä	**150**	200	250
11	¥w ¢£ªÇ 50 PfVAv PrªA vÀ¤dªÀ£ÀÄ GvÀz£ ªÀiÁqÀª ±Á¯U¼Ä, PÁ¯ÃdÄU¼Ä, ¥ÆeÁ ¸¼U¼Ä, ¥ªÁ¹ DPµðP PAAzU¼A EvÀ¤¢U¼Av° ¸À¸¼U¼Ä	**200**	250	300
12	ªÀÄ°£ AiiÀªÀ¤zÀ ªÀUðzrU ¨ÁgzAv° Evg ¸¼U¼Ä/ ZlÄªnPU¼Ä	**UÀæªÀ¥ÀAZÀAiÀÄv AiÀÄ MAzÀ ¸ÁªÀÄ£ÀCxÀÁ «±ÉµÀDzÉÃ±À C¢üÀZÀÉÀ ªÀÄÆ®PÀ wÃªÀÄð¤¹zÀvÉ**	**UÀæªÀ¥ÀAZÀAiÀÄv AiÀÄ MAzÀ ¸ÁªÀÄ£ÀCxÀÁ «±ÉµÀDzÉÃ±À C¢üÀZÀÉÀ ªÀÄÆ®PÀ wÃªÀÄð¤¹zÀvÉ**	**UÀæªÀ¥ÀAZÀAiÀÄv AiÀÄ MAzÀ ¸ÁªÀÄ£ÀCxÀÁ «±ÉµÀDzÉÃ±À C¢üÀZÀÉÀ ªÀÄÆ®PÀ wÃªÀÄð¤¹zÀvÉ**

PART B: SWM USER FEE FOR BULK WASTE GENERATOR

PÀæªÀÄ ¸À¸À	vÁ¬ÄeÉÆÃvÁzÀPÀgÀ«zsÀ	¥ÀæªÀiÁ£ÀªÀ§ vÁ¬ÄeÉÆÃvÁzÀPÀ¸ÀzÀ°è ªÀiÁ£ÀªÀ£ÀÄß ¸ÁªÀiÁfPÀ ¥ÀæPÁgÀzÀ ªÀÄÆ®PÀ PÉÆÃqÀ¯ÁV¸ÀÄvÀÛzÀÄ ªÀÄÆgÀÄ ¥ÀæPÁgÀ[2].		
		d£ÀAiÀÄ£ÀÄß>=50 ªÀiÁvÀÄ<=500	d£ÀAiÀÄ£ÀÄß>=500 ªÀiÁvÀÄ<=2000	d£ÀAiÀÄ£ÀÄß>2000
1.	vgPÀj ªÀwvg ªÀiÁgÀPmÜ¼À	**200**	250	300
2	1000 ZzgrÜ¼£Ä« «ÄÃjz «¹Atðz ª¸w Ü¼ºÜ¼À, AqÀÜ¼À ªÀvÀ zªÀðd±Á¯Ü¼Ä	**200**	300	500
3	zÆq CAÜrÜ¼À ªÀvÀ ªÁtd¦ ªÀ½ÜÜ¼Ä	**300**	500	700
4	±À Ü¼À, PÀ ÀdÀÜ¼ÀvºÀ¸À¸Ü¼Ä, ¥ÆeÁ¸Ü¼À ªÀvÀ ¥ªÀ¹ DPµðP PÃAzÜ¼Ä EvÁ¢	**300**	500	700
5	¥w ¸ªÀiÁgÀ¨P¦ 1000 ZzgrÜ¼£Ä« ¥w PÁAiÄðPªÀP¦ «ÄgÀªÀvº «ªÀºÀ ªÀÄAl¥Ü¼À ªÀvÀ º§¦ DZgu PÃAzÜ¼Ä	**1200**	1500	2000
6	D¸vÜ¼À, OµzÀ®AiÀÜ¼À ªÀvÀ £¹ðAÜï ºÆÃªÀÄÜ¼Ä (20 ºÁ¹ÜÜ¼£Ä« «ÄÃjz)	**300**	500	700
7	¢£ªÇAzP¦ 50 PÍVÀv®Æ C¢P W£ vÁ¬d¦ªÀ£Ä« GvÀz£ ªÀiÁqÀwgÀªÀ UÀr P¦UÀjPÀ WÍPÜ¼À, PÀSÀð£Ü¼À ªÀvÀ CÀvº WÍPÜ¼Ä	**300**	500	700

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[2] The SWM User Fees shall be reduced by 50% in the event the Bulk Waste Generator processes its entire Biodegradable Waste by itself and does not use the services of the gram panchayat.
The SWM User Fees shall be reduced by 40% in the event the Bulk Waste Generator deposits segregated Solid Waste at the Bio-degradable Waste processing unit and the DWCCsby itself and does not use the transportation provided by the gram panchayat.

d¯Á£ÉÆÃ ªÀiÁvÀzÀqÀ¯ÁV

PÀæªÀÄ ¸À¸À	C£ÀÄ¥Á®£É ªÀiÁqÀgÀÄ ªÀiÁvÀzÀPÀ vÁ¬ÄeÉÆÃvÁzÀPÀgÀ«zsÀ	zÀqÀ¯ÁV¸ÀÄvÀÛzÀÄ ªÀÄÆgÀÄ ¥ÀæPÁgÀ(LJ£ïDgï£À) PÀ ªÀiÁ£ÀªÀ£ÀÄß		
		d£ÀAiÀÄ£ÀÄß>=50 ªÀiÁvÀÄ<=500	d£¸ÀAiÀÄ>=500 ªÀiÁvÀÄ <=2000	d£¸ÀAiÀÄ >2000
1	vgz¸Ü¼ºÀ P¸ÀjAiÀÄªÀÅzÄ, GVAiÀÄªÀÅzÀ ªÀvÀ ªÀÆv «¸ð£	**500**	700	1000

2	§Eºvï vÁeÆÃvÁzPgÁ W£ vÁdì «AUqu ªiÁq®Ä «¥®gÁVzÀ°	2000	3000	5000
3	§Eºvï vÁeÆÃvÁzPg®z vÁeÆÃvÁzPjAz W£vÁdìªÁ£Á «AUqu ªiÁr¸ÁªÀ° ªiv Á /CxªÁ vÁdìªÁ£Á ¤ÃqÄªÀ° ªÉ¥®ì	500	700	1000
4	§Eºvï vÁeÆÃvÁzP¤Az W£ vÁdìz¸ÁqÁ«P, CxªÁ P¸ºÁPÄ«P ªÄvÄ/ CxªÁ ºÆ¼Áª ªÁÆ®P «¯ÃªÁj	2000	3000	5000
5	§Eºvï vÁeÆÃvÁzP£®z vÁeÆÃvÁzP¤Az vÁdìz¸ÁqÁ«P, CxªÁ P¸ºÁPÄ«P ªÄvÄ/ CxªÁ ºÆ¼Áª ªÁÆ®P «¯ÃªÁj	500	700	1000
6	§Eºvï vÁeÆÃvÁzP¤Az ¸Á¼A WÆÃµu	2000	3000	5000
7	ªÁA°£ AiiÁªÀzÁ ªÁUðzrU ¨AgzÁvº Evg ¸¼U¼Ä/ZlÄªÀnPU¼Ä	UÁæªÀ¢AZÁAiÀÄvÁiÀÄ MAzÀÄ ¸ÁªÀÄ£ÀCxÀÁ «±ÉµÀÄzÉÃ±À C¢üÃZÀÉéiÀÄ ªÀÄÆ®PÀ wÃªÀÄð¤¹zÀÄvÉ	UÁæªÀ¢AZÁAiÀÄvÁiÀÄ MAzÀÄ ¸ÁªÀÄ£ÀCxÀÁ «±ÉµÀÄzÉÃ±À C¢üÃZÀÉéiÀÄ ªÀÄÆ®PÀ wÃªÀÄð¤¹zÀÄvÉ	UÁæªÀ¢AZÁAiÀÄvÁiÀÄ MAzÀÄ ¸ÁªÀÄ£ÀCxÀÁ «±ÉµÀÄzÉÃ±À C¢üÃZÀÉéiÀÄ ªÀÄÆ®PÀ wÃªÀÄð¤¹zÀÄvÉ

C£ÀÄ¸Àa –VII
C¥ÀWÁvÀÀ¸ÀªÀgÀÄ ªÀÄqÀªÀ¸ÀÀ

PÀæªÀ¸Á	«ªÀgÀuÁA¥À	
1	C¥WÁv £qz ¢£ÁAP ªÁvÁ ¸ªÁAiÁ	
2	C¥WÁvP PÁgt ªÁz WlÉU¼ ¸gt	
3	C¥WÁvz° M¼UÆAq vÁdì	
4	ªiÁ£ª£ DgÆÁUì ªÁvÁ ¥j¸gz ªÁA C¥WÁvªÀ ©ÃgÄª ¥juÁªÄU¼ ¤zðgu	

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5	PÉUÆ¼ Az vAvAð PªA	
6	C¥WAvz ¥juAªAU¼£Aß PrªA ªiÁq®Ä PÉUÆAq PªÄU¼Ä	
7	CAvº C¥WÁvU¼Ä ªÄgÄP½¸ÄªÀz£Äß vqUl®Ä PÉUÆ¼¯Áz PªÄU¼Ä	

¢£AAP:	¸À:
¸À¼:	¥ÀæAªÀ:

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