# Appendix – A
# Environmental Condition for Building and Construction.

**Category 1**
**(5000 to less than 20,000 sq.mt.)**

| Sr.No | Medium | Environmental Cell Member | Environmental Condition | Architect's Remarks | | Consultant's remarks | Attach clip | Recommendation by EC members |
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| | | | | Yes | No | | | |
| 1 | Topography and Natural Drainage | Water Conservation and Management. | a. The Natural drain system is maintained for ensuring unrestricted flow of water.<br>b. No construction is proposed obstructing the natural drainage through the site.<br>c. No construction is allowed on wetland and water bodies. Check dams, bioswales, landscape, and other sustainable urban drainage systems (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water. | | | | | |
| 2 | Water conservation, Rain Water Harvesting, and Ground Water Recharge | Water Conservation and Management. | a. The use of water efficient appliances shall be promoted.<br>b. The local bye-law provisions on rain water harvesting should be followed. If local bye-laws provisions are not available, adequate provision for storage and precharges should be followed as per Ministry of Urban Development Model Building Bye-Laws 2016. | | | | | |

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| | | | c. A rain water harvesting plan is designed where the recharge bores (minimum one recharge bore per 5,000 square meters of built up area) is recommended.<br>d. The Storage and reuse of the rain water harvested should be promoted.<br>e. In areas where ground water recharge is not feasible, the rain water should be harvested and reuse.<br>f. The ground water shall not be withdrawn without taking approval from the Competent Authority.<br>g. All recharge should be limited to shallow aquifer. | | | | | |
| 2(a) | -- | Recourse Efficiency Including Building Materials | a. At least 20% of the open spaces as required by the local building bye-laws shall be pervious. Use of Grass pavers, paver blocks with at least 50% opening, landscape etc. is considered as previous surface. | | | | | |
| 3 | **Waste Management** | Waste Management | **Solid waste**:<br>a. Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste.<br>**Sewag**e:<br>a. In areas where there is not Municipal sewage network, onsite treatment systems should be installed<br>b. Natural treatment systems which integrate with the landscape shall | | | | | |

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| | | | be promoted.<br>c. As far as possible treated effluent should be reuse.<br>d. The excess treated effluent shall be discharging following CPCB norms.<br>**Sludge:**<br>a. Sludge from onsite sewage treatment including septic tank shall be collected, conveyed and disposed as per the Ministry of Urban Development central public health and Environmental Engineering Organization (CPHEEO), Manual on sewerage and sewage treatment system 2013.<br>The provisions of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed. | | | | | |
| 4 | **Energy** | Energy Efficiency & Renewable Energy | a. Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured.<br>The buildings in the state which have notified their on ECBC shall comply with the State ECBC.<br>b. The outdoor and common area lighting is Light Emitting Diode (LED).<br>c. Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to | | | | | |

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| | | | 1% of the demand load or as per the state level/local building bye-laws requirement, whichever is higher.<br>d. Solar water heating shall be provided to meet 20% of the hot water demand of the commercial and institutional building or as per the requirement of the local building bye-laws, whichever is higher.<br>e. The residential buildings are also recommendation to meet its hot water demand from solar water heaters as far as possible.<br>f. The concept of passive solar design that minimize energy consumption in buildings by using design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass etc. shall be incorporated in the building design.<br>g. Wall, window, and roof u-values shall be as per ECBC specifications. | | | | | |
| 5 | **Air Quality and Noise** | Environmental Planning Including Air Quality Management. | a. The dust, smoke & other air pollution prevention measures shall be provided for the building as well as the site.<br>b. These measures shall include screens for the building under construction, continuous dust/wind breaking walls all around the site | | | | | |

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| | | | (at least 3-meter height).<br>c. The plastic/tarpaulin, sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site.<br>d. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution.<br>e. Wet jet shall be provided for grinding and stone cutting.<br>f. Unpaved surface and loose soil shall be adequately sprinkled with water to suppress dust.<br>g. All construction and demolition debris shall be stored at the site (and not dumped on the roads or open spaces outside) before they are properly disposed.<br>h. All demolition and construction waste shall be managed as per the provisions of the construction and demolition waste Rules 2016.<br>i. All workers working at the construction site and involved in loading, unloading, carriage of construction material and construction debris or working in any area with dust pollution shall be provided with dust mask.<br>j. For indoor air quality the ventilation provision as per National Building Code of India | | | | | |

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| | | | shall be made. | | | | | |
| 5(a) | - | Environmental Planning Including Air Quality Management. | a. The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms. | | | | | |
| 6 | **Green Cover** | Recourse Efficiency Including Building Materials | a. Minimum of 1 tree for every 80 square meters of land should be planted and maintained.<br>The existing trees will be counted for this purpose.<br>Preference should be given to planting native species. | | | | | |
| 6(a) | - | Recourse Efficiency Including Building Materials | a. Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained. | | | | | |

**Category 2**
**(20,000 to less than 50,000 sq.mt.)**

| Sr.No | Medium | Environmental Cell Member | Environmental Condition | Architect's Remarks | | Consultant's remarks | Attach clip | Recommendation by EC members |
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| | | | | Yes | No | | | |
| 1 | Topography and Natural Drainage | Water Conservation and Management. | a. The natural drain system should be maintained for ensuring unrestricted flow of water.<br>b. No construction shall be allowed to obstruct the natural drainage through the site.<br>c. No construction is allowed on wetland and water bodies. Checked dams, bioswales, landscape, and other sustainable urban drainage system (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water.<br>d. Building shall be designed to follow the natural topography as much as possible.<br>e. Minimum cutting and filling should be done. | | | | | |
| 2 | Water Conservation, Rain Water Harvesting, and Ground Water Recharge | Water Conservation and Management. | a. A complete plan for rain water harvesting, water efficiency and conservation should be prepared.<br>b. Use of water efficient appliances should be promoted with low flow fixtures or sensors.<br>c. If local bye-laws provision is not available, adequate provision for storage and recharge should be followed as per the Ministry of Urban | | | | | |

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| | | | Development Model Building Bye-Laws, 2016.<br>d. A rain water harvesting plan needs to be designed where the recharge bores (minimum one recharge bore per 5,000 square meters of built up area) are recommended.<br>e. Storage and reuse of the rain water harvested should be promoted.<br>f. In areas where ground water recharge is not feasible, the rain water should be harvested.<br>g. And stored for reuse.<br>h. The ground water shall not be withdrawn without approval of the Competent Authority.<br>i. All recharge should be limited to shallow aquifer. | | | | | |
| 2(a) | - | Recourse Efficiency Including Building Materials | a. At least 20% of the open spaces as required by the local building bye-laws shall be pervious.<br>b. Use of Grass pavers, paver blocks with at least 50% opening, landscape etc. would be considered as pervious surface. | | | | | |
| 3 | **Waste Management** | Waste Management | **Solid waste:**<br>a. Separate wet and dry bins are provided in each unit and at the ground level for facilitating segregation of waste.<br>**Sewage:**<br>a. Onsite sewage treatment of capacity of treating 100% waste water to be installed.<br>b. Treated waste water shall be reused on site for landscape, flushing, | | | | | |

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| | | | cooling tower, and other end-uses.<br>c. Excess treated water shall be discharged as per CPCB norms.<br>d. Natural treatment systems shall be promoted.<br>e. **Sludge** from the onsite sewage treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organization (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.<br>f. The provision of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed. | | | | | |
| 3(a) | - | Waste Management | a. All non-biodegradable waste shall be hand over to authorize recyclers for which a written tie up is done with the authorized recyclers. | | | | | |
| 3(b) | | Waste Management | a. Organic waste compost / Vermiculture pit with a minimum capacity of 0.3 kg/person/day must be installed. | | | | | |
| 4 | **Energy** | Energy Efficiency & Renewable Energy | a. Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured.<br>Buildings in the states which have notified their own ECBC, shall comply with the State ECBC. | | | | | |

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| | | | b. Outdoor and common area lighting shall be Light Emitting Diode (LED).<br>c. Concept of passive solar design that minimize energy consumption in building by using design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass etc. shall be incorporated in the building design.<br>d. Wall, window, and roof u-values shall be as per ECBC specifications. | | | | | |
| 4(a) | - | Energy Efficiency & Renewable Energy | a. Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 1% of the demand load or as per the state level/local building by-requirement, whichever is higher. | | | | | |
| 4(b) | - | Energy Efficiency & Renewable Energy | a. Solar water heating shall be provided to meet 20% of the hot water demand of the commercial and institutional building or as per the requirement of the local building bye- laws, whichever is higher.<br>b. Residential buildings are also recommended to meet its hot water demand from solar water heaters as far as possible. | | | | | |
| 4(c) | - | Recourse Efficiency Including Building Materials | a. Use of environment friendly materials in bricks, blocks and other construction materials, shall be required for at least 20% of the construction material quantity. These include Fly ash bricks; hallow bricks, AACs, Fly Ash Lime Gypsum | | | | | |

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| | | | blocks, compressed earth blocks, and other environment friendly materials.<br>b. Fly ash should be used as building material in the construction as per the provision of the Fly Ash notification of Sept.1999 as amended from time to time. | | | | | |
| 5 | **Air quality and noise** | Environmental Planning Including Air Quality Management. | a. Dust, smoke and other air pollution prevention measures shall be provided for the building as well as the site.<br>b. These measures shall be included screens for the buildings under construction, continuous dust/wind breaking wall all around the site (at least 3-meter height).<br>c. Plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials prone to causing the dust pollution at the site as well as taking out debris from the site.<br>d. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution.<br>e. Wet jet shall be provided for grinding and stone cutting.<br>f. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust.<br>g. All construction and demolition debris shall be stored at the site (and not dumped on the roads or | | | | | |

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| | | | open spaces outside) before they are properly disposed.<br>h. All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Rules 2016.<br>i. All workers working at the construction site and involved in loading, unloading, carriage of construction materials and construction debris or working in any area with dust pollution shall be provided with dust mask.<br>j. For indoor air quality the ventilation provisions as per National Building Code or India shall be made. | | | | | |
| 5(a) | - | Energy Efficiency & Renewable Energy | a. The location of the DG set and exhaust pipe height is as per the provisions of the CPCB norms. | | | | | |
| 6 | **Green Cover** | Recourse Efficiency Including Building Materials | a. Minimum of 1 tree for every 80 sq. Mt. of land should be planted and maintained.<br>b. The existing trees will be counted for this purpose.<br>c. Preference shall be given to planting native species. | | | | | |
| 6(a) | - | Recourse Efficiency Including Building Materials | a. Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained. | | | | | |
| 7 | Top soil preservation and reuse | Environmental Planning Including Air Quality Management. | a. Topsoil should be stripped to a depth of 20 cm from the areas proposed for building, roads, pave areas and external services.<br>b. It should be stockpiled appropriately | | | | | |

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| | | | in designated areas and reapplied during plantation of the proposed vegetation on site. | | | | | |
| 8 | Transport | Transport Planning and management. | a. A comprehensive mobility plan, as per MoUD best practices guidelines (URDPFI), shall be prepared to include motorized, non-motorized, public, and private networks.<br>b. Road should be designed with due consideration for environment and safety of users.<br>c. The road system is designed with these basic criteria.<br>1. Hierarchy of roads with proper segregation of vehicular and pedestrian traffic.<br>2. Traffic calming measures.<br>3. Proper design of entry and exit points.<br>4. Parking norms as per local regulation. | | | | | |

**Category 3**
**(50,000 to 1,50,000 sq.mt.)**

| Sr.No | Medium | Environmental Cell Member | Environmental Condition | Architect's Remarks | | Consultant's remarks | Attach clip | Recommendation by EC members |
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| | | | | Yes | No | | | |
| 1. | **Topography and Natural Drainage** | Water Conservation and Management. | a. The natural drain system is maintained for ensuring unrestricted flow of water.<br>b. No construction shall be allowed to obstruct the natural drainage through the site.<br>c. No construction is allowed on wetland and water bodies.<br>d. Check dams, bio-swales, landscape and other sustainable urban drainage system (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water.<br>e. Buildings shall be designed to follow the natural topography as much as possible.<br>f. Minimum cutting and filling should be done. | | | | | |
| 2. | Water Conservation, Rain Water Harvesting and Ground Water Recharge. | Water Conservation and Management. | a. A complete plan for rain water harvesting, water efficiency and conservation is prepared.<br>b. Use of water efficient appliances, should be promoted with low flow fixtures or sensors.<br>c. If local bye-laws provisions are not available, adequate provision for storage and recharge should be | | | | | |

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| | | | followed as per the Ministry of Urban Development Model Building Bye-Law, 2016.<br>d. A rain water harvesting plan needs to be designed where the recharge bores (minimum one recharge before per 5,000 square meters of built up area) is recommended.<br>e. Storage and reuse of the rain water harvested should be promoted.<br>f. In areas where ground water recharge is not feasible, the rain water should be harvested and stored for reuse.<br>g. The ground water shall not be withdrawn without approval from the Competent Authority.<br>h. All recharge should limited to shallow aquifer. | | | | | |
| 2(a) | -- | Recourse Efficiency Including Building Materials | a. At least 20% of the open spaces as required by the local building bye-laws shall be pervious.<br>b. Use of Glass pavers, paver blocks with at least 50% opening, landscape etc. would be considered as previous surface. | | | | | |
| 2(b) | -- | Water Conservation and Management. | a. Use of water efficient appliances should be promoted.<br>b. Low flow fixtures or sensors be used to promote water conservation. | | | | | |
| 2(c) | -- | Water Conservation and Management. | a. Separation of grey and black water should be done by the use of dual plumbing system.<br>b. In case of single stack system, separate recirculation lines for | | | | | |

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| | | | flushing by giving dual plumbing system be done. | | | | | |
| 3. | **Solid Waste Management** | Waste Management | a. **Solid waste:**<br>a. Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste.<br>b. The provisions of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016 and the Plastics Waste (Management) Rules 2016 shall be followed. | | | | | |
| 3(a) | | Waste Management | a. All non-biodegradable waste shall be handed over to authorized recycles for which a written tie up must be done with the authorized recycles. | | | | | |
| 3(b) | | Waste Management | a. Organic waste compost / Vermiculture pit with a minimum capacity of 0.3 kg/person/day must be installed. | | | | | |
| 4. | **Sewage Treatment Plan** | Waste Management | **Sewage:**<br>a. Onsite sewage treatment of capacity of treating 100% waste water to be installed.<br>b. Treated waste water shall be reused on site for landscape, flushing, cooling tower and other end – uses.<br>c. Excess treated water shall be discharged as per CPCB norms.<br>d. Natural treatment system shall be promoted.<br>**Sludge :**<br>a. Sludge from the onsite sewage | | | | | |

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| | | | treatment, including septic tanks, shall be collected, conveyed and disposed as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organisation (CPHEEO) Manual on Sewerage and Sewage Treatment System, 2013. | | | | | |
| 5. | **Energy** | Energy Efficiency & Renewable Energy | a. Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured.<br>b. Buildings in the States which have notified their own ECBC, shall comply with the State ECBC.<br>c. Outdoor and common area lighting is of Light Emitting Diode (LED).<br>d. Concept of passive solar design that minimize energy consumption in buildings by using design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design and thermal mass etc. shall be incorporated in the building design.<br>e. Wall, window and roof u-values shall be as per ECBC specifications. | | | | | |
| 5(a) | -- | Energy Efficiency & Renewable Energy | a. Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 1% of the demand load or as per the state level / local building by- | | | | | |

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| | | | laws requirement, whichever is higher. | | | | | |
| 5(b) | -- | Energy Efficiency & Renewable Energy | a. Solar water heating shall be provided to meet 20% of the hot water demand of the commercial and institutional building or as per the requirement of the local building bye-laws, whichever is higher.<br>b. Residential buildings are also recommended to meet its hot water demand from solar water heaters, as far as possible. | | | | | |
| 5(c) | -- | Recourse Efficiency Including Building Materials | a. Use of environmental friendly materials in bricks, blocks and other construction materials, shall be required for at least 20% of the construction material quantity.<br>b. These are include fly ash bricks, hollow bricks, AACs, Fly Ah Lime Gypsum blocks, Compressed earth blocks, and other environment friendly materials.<br>c. Fly ash should be used as building material in the construction as per the provisions of the Fly Ash Notification of September, 1999 as amended from time to time. | | | | | |
| 6. | **Air Quality and Noise** | Environmental Planning Including Air Quality Management. | a. Dust,, smoke & other air pollution prevention measures shall be provided for the building as well as the site.<br>b. These measures shall include screens for the building under construction, continuous dust / wind breaking walls all around the | | | | | |

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| | | | site (at least 3-meter height).<br>c. Plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site. Wheel washing for the vehicle used be done.<br>d. Sand, murram, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution.<br>e. Wet jet shall be provided for grinding and stone cutting.<br>f. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust.<br>g. All construction and demolition debris shall be stored at the site (and not dumped on the roads or open spaces outside) before they are properly disposed.<br>h. All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Rules 2016.<br>i. All workers working at the construction site and involved in loading, unloading, carriage or construction material and construction debris or working in any area with dust pollution shall be provided with dust mask.<br>j. For indoor air quality the ventilation provisions as per National Building | | | | | |

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| | | | Code of India shall be made, | | | | | |
| 6(a) | -- | Energy Efficiency & Renewable Energy | a. The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms. | | | | | |
| 7 | **Green Cover** | Recourse Efficiency Including Building Materials | a. Minimum of 1 tree for every 80 square meters of land should be planted and maintained.<br>b. The existing trees will be counted for this purpose.<br>c. Preference should be given to planting native species. | | | | | |
| 7(a) | -- | Recourse Efficiency Including Building Materials | a. Where the trees need to be cut, compensatory plantation in the ratio of 1:3 (i.e. planting of 3 trees for every 1 tree that is cut) shall be done and maintained. | | | | | |
| 8 | **Top soil preservation and reuse** | Environmental Planning Including Air Quality Management. | a. Top soil should be stripped to a depth of 20 cm from the areas proposed for buildings, roads, paved areas and external services.<br>b. It should be stockpiled appropriately in designated areas and reapplied during plantation of the proposed vegetation on site. | | | | | |
| 9. | **Transport** | Transport Planning and management. | a. A comprehensive mobility plan, as per MOUD best practices guidelines (URDPFI) shall be prepared to include motorized, non-motorized, public and private networks.<br>b. Road should be designed with due consideration for environment and safety of users.<br>c. The road system can be designed | | | | | |

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| | | | with following basic criteria.<br>1. Hierarchy of roads with proper segregation of vehicular and pedestrian traffic.<br>2. Traffic claiming measures.<br>3. Proper design of entry and exit points.<br>4. Parking norms as per local regulation. | | | | | |
| 10. | **Environment and management Plan** | Environmental Planning Including Air Quality Management. | a. An environment management plan (EMP) shall be prepared and implemented to ensure compliance with the environmental conditions specified in item number 1 to 9 above.<br>b. A dedicated Environment Monitoring Cell with defined functions and responsibility shall be put in place to implement the EMP.<br>c. The environmental cell shall ensure that the environment infrastructure like Sewage Treatment Plant, Landscaping, Rain Water Harvesting, Energy efficiency and conservation, Water efficiency and conservation, Solid waste management, Renewable energy etc. are kept operational and meet the required standards.<br>d. The environmental cell shall also keep the record of environment monitoring and those related to the environment infrastructure. | | | | | |