



Government of India  
Ministry of Environment, Forest and Climate Change  
(Issued by the State Environment Impact Assessment  
Authority(SEIAA), Orissa)

To,

The Founder President  
SIKSHA O ANUSANDHAN UNIVERSITY  
224, Dharma Vihar Khandagiri -751030

**Subject:** Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the SEIAA vide proposal number SIA/OR/MIS/216613/2021 dated 14 Jul 2021. The particulars of the environmental clearance granted to the project are as below.

- |  |   |
|--|---|
| 1. EC Identification No.                   | EC22B038OR192670  |
| 2. File No.                                | 216613/44-MIS/01-2021   |
| 3. Project Type                            | New   |
| 4. Category                                | B2  |
| 5. Project/Activity including Schedule No. | 8(a) Building and Construction projects   |
| 6. Name of Project                         | Construction and expansion of existing Clinical area from 13543 sqm to 69911sqm of "IMS & SUM HOSPITAL" within the premises of Campus- III having Institutional Area-78855.7 sqm, over Plot No. F1,F2,F3,C1,C2,C3.C4 & C5 at Mouza-Ghatikia under Bhubane |
| 7. Name of Company/Organization            | SIKSHA O ANUSANDHAN UNIVERSITY  |
| 8. Location of Project                     | Orissa  |
| 9. TOR Date                                | N/A   |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 11/01/2022

(e-signed)  
Sri Susanta Nanda  
Member Secretary  
SEIAA - (Orissa)

*Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH. Please quote identification number in all future correspondence.*

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सत्यमेव जयते

# STATE LEVEL ENVIRONMENT IMPACT ASSESSMENT AUTHORITY ODISHA, BHUBANESWAR

(Constituted under the EP Act, 1986 and EIA Notification, 2006 by the MoEF & CC, Govt. of India)  
5RF-2/1, Unit-IX, Bhubaneswar-751022, Tel: 0674-2541029, E-mail-seiaaorissa@gmail.com

Letter No \_\_\_\_\_

Dt. \_\_\_\_\_

**SEIAA File No. SIA/OR/MIS/216613/2021**

Project: Application of Siksha O Anusandhan University for Environmental Clearance for **expansion of existing Clinical area from 13,543 sqm upto 73511 sqm of "IMS & SUM HOSPITAL" within the premises of Campus-III** plot area-19.714 acres or 79,779.7275 sqm over an Plot No. F1, F2, F3, C1, C2, C3, C4 & C5 and drawing no. B/1277 at Mouza-Ghatikia under Bhubaneswar and the Project Proponent is Sri Bibekananda Pradhan (Deputy Manager), Sikha 'O' Anusandhan Deemed to be University-Environmental Clearance reg.

Ref: Your online application dated 24.06.2021 for issue of EC vide File No: SIA/OR/MIS/216613/2021.

Sir,

This has reference to your online proposal No. SIA/OR/MIS/216613/2021 dated 24.06.2021, submitted to State Environment Impact Assessment Authority (SEIAA), Odisha for grant of Environmental Clearance (EC) in terms of the provision of the Environmental Impact Assessment (EIA) Notification, 2006 under the Environment (Protection), Act, 1986.

2. The proposal for grant of environmental clearance to the project "for **expansion of existing Clinical area from 13,543 sqm upto 73,511 sqm of "IMS & SUM HOSPITAL" within the premises of Campus-III** plot area-19.714 acres or 79,779.7275 sqm over an Plot No. F1, F2, F3, C1, C2, C3, C4 & C5 and drawing no. B/1277 at Mouza-Ghatikia under Bhubaneswar was considered by State Expert Appraisal Committee in its meeting held on 08.11.2021 on the basis of the documents enclosed with the application, such as Form-1, Form-IA, Conceptual Plan (EMP), and clarifications & documents submitted by the project proponent.

3. The application for environmental clearance for campus-III building projects reveals that most the constructions have taken place before 14.09.2006 i.e. not coming under EIA Notification. Earlier the applicant had applied for prior Environmental Clearance to SEIAA, Odisha on dated 05.07.2013 for construction of IMS & SUM

Hospital (Campus-I) of Siksha O Anusandhan University with total built-up area 78,084.57sq.m. [68,012.05 sq.m of Built-up area was constructed before EIA notification 2006 and proposed built-up area after EIA notification 2006 is 10,072.52 sqm.]. The SEAC observed that the proposed built-up area after EIA notification, 14.09. 2006 is less than 20,000m<sup>2</sup>. Hence, EC was not required at that time. The project proponent was communicated the same vide letter no. 8741/SEIAA, dated 19.12.2013 by SEIAA, Odisha. From 22.12.2014 a Notification of the MoEF came into force which exempted buildings of educational institution and hostel buildings from the requirement of prior EC; but all such buildings are required to follow the standard environmental protection norms. However, hospital buildings are not covered by such exemption. From the information furnished by the applicant, it is revealed that they have constructed 81,345.67 sqm. (67,802.67 sqm Institutional area + 13,543 sqm Clinical area) of built up area before 14.09.2006, 7,129 sqm. institutional area on 2011 and 49,230.86 sqm. institutional after the Notification of dated 22.12.2014. The list of these buildings is annexed (**Annexure-I**). Further, the 49,230.86sqmtrs of buildings have been constructed as educational institution after the said notification of 22.12.2014. The construction of these buildings is therefore covered by the said exemption from (the requirement of taking) prior EC, but these are to comply with the standard environmental protection norms. The applicant specifically wants to convert some of these buildings or portions of buildings, adding to 47,833.00sqmtrs of built up area (**Annexure-I**) to clinical purposes. Further, the applicant has proposed to construct 12,135.92 sqmtrs of new hospital buildings (**Annexure-II**). Out of the constructed educational institution buildings, some of the buildings or portions of some buildings would change the usage to hospital purpose; and fresh new construction of 12,135.92 sqmtrs of hospital buildings would be taken up. No EC has been issued earlier for construction of existing building. The EC being issued now would cover (a) these proposed constructions, and (b) the structures of the educational institutions proposed to be converted to hospital buildings. It will also lay down standard updated environmental norms and safeguards for all the educational institution buildings as well as all the buildings earlier constructed earlier and presently use for institutional purposes.

**Background:**

1. The project is located at the mentioned Latitude and Longitude in plot no. F1, F2, F3, C1, C2, C3, C4 & C5 and drawing no. B/1277 at Mouza-Ghatikia under Bhubaneswar.

Sl. No.	Latitude	Longitude
1.	20° 16'56.89"N	85°45'57.44"E
2.	20° 16'54.09"N	85°45'57.81"E
3.	20° 16'54.27"N	85°46'30.66"E

4.	20° 16'55.19"N	85°46'80.08"E
5.	20° 16'55.70"N	85°46'13.80"E
6.	20° 17'20.78"N	85°46'13.06"E
7.	20° 17'10.72"N	85°46'80.21"E
8.	20° 16'59.27"N	85°46'20.24"E

2. The project falls under category "B" or activity 8 (a)-Building and Construction projects under EIA Notification dated 14<sup>th</sup> September 2006 as amended from time to time.
3. The project proponent had applied a proposal to SEIAA, Odisha on dated 05.07.2013 for construction of Siksha O Anusandhan University, IMS & SUM Hospital (Campus-I) bearing, khata no-Nil, plot no. C-2, C-3, C-4, C-5, C-1 & F-1 at village-Ghatikia, BBSR, Khordha of Mis Sikhya O Anusandhan University at Ghatikia, BBSR with total built-up area 78,084.57sq.m. [68,012.05 sq.m of Built-up area was constructed before EIA notification 2006 and proposed built-up area after EIA notification 2006 is 10,072.52 sqm.].
4. The SEAC observed that the proposed built-up area after EIA notification, 14.09.2006 is less than 20,000m<sup>2</sup>. Hence, EC was not required at that time. The project proponent was communicated the same vide letter no. 8741/SEIAA, dated 19.12.2013 by SEIAA, Odisha.
5. The land having Plot no. C-1 measuring 7.218 acres land allotted by Bhubaneswar Development Authority (BDA) to the President Sika 'O' Anusandhan vide BDA letter no. 3930/AI/BDA dt. 12.05.2004 and later change the plot area from 7.218 acres to 19.714 acres.
6. As per the BDA approval plan vide letter no. 27149/BDA dt. 16.11.2019 and letter no. 1345/BDA dt. 14.01.2020, the total built up area of different building located in Campus-III is 1,37,706.8 sqm (i.e. both Institutional and hospital building). Out of the total 1,37,706.8 sqm built up area, the area was used for Clinical purposes is 13,543sqm and rest of the area was used for institutional purposes.
7. The total plot area is **79,779.7275 sqm (19.714 Ac)** and total construction (built up) area of **1,49,841 sqm**.
8. The Building Details of the Project:
  - Total Plot Area: 79779.72 m<sup>2</sup>/ 19.714 Ac. + Additional area for green belt 2.16 Ac
  - Total proposed Built up Area: 1,49,841.5 m<sup>2</sup> (Existing Institutional area 1,24,253.8 m<sup>2</sup>+Existing Clinical area 13,543 m<sup>2</sup>).
  - Proposed for EC to convert existing teaching area 47,833 m<sup>2</sup> to clinical area) + Proposed newly Construction of Clinical area 12,135.92 m<sup>2</sup> )
  - Ground Coverage 27,879.2 m<sup>2</sup> (34.9 % of the Plot Area)
  - Maximum Height of Building = 21 mt
  - Parking Area—40,409 sqm (40 % of total FAR area for Clinical as per ODA planning standards)
  - Open parking —31,483.0 sqm (39.45 %)
  - Internal Roads =9,896.3 sqm (12.40 % of Plot Area)
  - Green belt Area =10,550.7 sqm (13.22% of the Plot Area)

9. Water requirement: Total water requirement for Clinical -718 KLD [493 KLD (Domestic) + 225 KLD (Flushing)], total water requirement for Institutional-175 KLD [107 KLD (Domestic) + 68 KLD (Flushing)], Source: PHD water supply. Waste water generation from clinical: 569 KLD + 32 KLD (from ETP), treated waste water recovered -541 KLD & to be reused-405 KLD. Waste water generation from Institutional area: 146.3 KLD, Treated Waste Water recover -132 KLD & to be reused-Zero Discharge. Capacity of Sewerage Treatment Plant for Clinical and Institutional Area -600 expand to 1500 KLD (MBBR Type). Capacity of Effluent Treatment Plant -50 KL (MBBR Type).
10. Power requirement: The total power requirement for Clinical, Institutional and Hostel Blocks are approx. 1425 KWH. MRS received power supply at 33KV from TPCODL. In order to provide 24 x 7 power supply for the clinical building and common area of campus-II, it is proposed to provide 100% emergency power back up in clinical area Common area enclosures. Emergency power back Capacity (Clinical)-2x1000 KVA. Emergency power back Capacity (Hostel and Institutional Area)-1x1000 KVA. Recommended stack height is  $=h+0.2*\sqrt{KVA}=28.7$  M (Highest Building), Stack height provided = 30 m
11. Rain Water Harvesting: Total Runoff from Storm Water from Site is 1007 m<sup>3</sup> so based on 1no. Harvesting pit volume 43 cum required 61 nos. Rain water Harvesting Pits.
12. Parking Requirement: The requirement of parking area is provided as per BDA guidelines. A total area of 40,409 sqm (40 % of total FAR Area as per ODA planning standards) is earmarked for post project scenario for parking vehicles, two wheelers and four wheelers. Parking areas for cycles are provided. Parking lots are properly demarcated for two wheelers and four wheelers. Total 1606 ECS has been provided.
13. Fire fighting Installations: Hospital block- As per clause 3.1.4 of NBC-2016, the said Hospital is classified under group C; Institutional Buildings. Hostel block-As per clause 3.1.4 of NBC-2016, the said Hostel is classified under group A; in subdivision A-3 dormitories.
14. Green Belt Development: Total green area measures 10,550.7 sqm (approx. 13.22 % of total plot area area).
15. Solid Waste Management: During the operation phase, waste will comprise domestic as well as Biomedical waste. The solid waste generated from the project shall be mainly MSW (Municipal solid waste) approx. 2885kg/day, Biodegradable solid waste = 1815.4 kg/day, Non-Biodegradable solid waste =1070.45 kg/day, Biomedical waste is 525 kg/day
16. As per submission by the project proponent and then recommended by SEAC, the details of the building already constructed and proposed for construction in Campus-III is follows:



## (Annexure-I)

Sl.No.	Name/Types of Building	Built up area in m <sup>2</sup> (Already Constructed)	Construction of Building before 14.09.2006	Construction of building in between 14.09.2006 to 22.12.2014	Buildings subsequently constructed after 22.12.2014	New Building to be constructed henceforth
1.	Hospital Building (Sub-Cellar+Cellar+G+4)	61376	31436.53 (2004) 13543 (2005)	Nil	16396.47 (2017)	Nil
2.	IMS Building (G+4)	18871	9569.01 (2004)	Nil	9301.99 (2017)	Nil
3.	IDS Building ( B+G+3)	13848	11362.23 (2005)	Nil	2485.77 (2018)	Nil
4.	IMS Hostel Building (Boys) (G+4)	5849.32	4724.77 (2005)	Nil	1124.55 (2018)	Nil
5.	IMS Hostel Building (Girls) ((G+4)	5308.55	4245.29 (2005)	Nil	1063.26 (2018)	Nil
6.	IDS Hostel Building (Boys) ( G+4)	2252	1798.97 (2005)	Nil	453.03 (2018)	Nil
7.	IDS Hostel Building (Girls) ( G+4)	2276	1823.04 (2005)	Nil	452.96 (2018)	Nil
8.	GYM Building (G+2)	762	Nil	Nil	762 (2015)	Nil
9.	Doctor's Enclave (S+6)	7129	Nil	7129 (2011)	Nil	Nil
10.	SUM Annex Building (S+G+4)	9390.28	Nil	Nil	9390.28 (2020)	Nil
11.	Staff Qrs-1 (G+4)	1616.25	1260.23 (2005)	Nil	354.77 (2018)	Nil
12.	Staff Qrs-2 (G+4)	1575.24	1292.46 (2005)	Nil	282.78 (2018)	Nil
13.	Multilevel Parking & Pharmacy (G)	7163	Nil	Nil	7163 (2017)	Nil
14.	Oxygen Room(Ground Floor)	69.42	69.42 (2004)	Nil		Nil
15.	Electric Panel Room (G+2)	220.72	220.72 (2004)	Nil		Nil
<b>Total Built up area already Constructed as per BDA letter 1345/BDA dt. 14.01.2020</b>		<b>137706.8</b>	<b>81345.67</b>	<b>7129</b>	<b>49230.86</b>	
<b>Proposed built up area to be construct</b>						
1.	SUM Extension will be use for Clinical purpose					10914.33 m <sup>2</sup>
2.	Oxygen Plant will be use for Clinical purpose					1221.59 m <sup>2</sup>
<b>Total proposed built up area will be newly construct</b>						<b>12135.92m<sup>2</sup></b>

17. In the above table it reveals that there are different types of building already constructed in Campus-III with total built up area **1,37,706.8 m<sup>2</sup>**. The building constructed before 14.09.2006 is **81,345.67 m<sup>2</sup>**, building constructed the year in between 14.09.2006 to 22.12.2014 is **7,129 m<sup>2</sup>** and the building constructed after 22.12.2014 is **49,230.86 m<sup>2</sup>**. As per the project proponent submission and BDA approval plan in the year 2020 all the building located in Campus-III are used for Institution except the built up area-13,543 m<sup>2</sup> only used for clinical purposes in Hospital Building (Sub-Cellar + Cellar +G+4).

18. Now, Proposal for prior Environmental Clearance (EC) for converting 47,833 m<sup>2</sup> institutional area (already constructed and used for teaching purposes as mentioned in the BDA plan dated 14.01.2020) to Clinical area + increasing 13,543 m<sup>2</sup> clinical area to 25,678.92 m<sup>2</sup>. The total built up area of different building in the Campus-III will be **1,49,841.5 m<sup>2</sup>** (i.e. **76,330.00 m<sup>2</sup>** built up area will be use of **clinical purpose** and **73,511.00 m<sup>2</sup>** area will be used for **Institutional/Hostel** building purposes). The details of building existing and proposed to construct are given below:

## (Annexure-II)

Sl.No.	Name/Types of Building	Built up area in m <sup>2</sup>	Institutional/Clinical
1.	Hospital Building (Sub-Cellar+Cellar+G+4)	61376	Clinical
2.	IMS Building (G+4)	18871	Institutional
3.	IDS Building ( B+G+3)	13848	Institutional
4.	IMS Hostel Building (Boys) (G+4)	5849.32	Institutional

5.	IMS Hostel Building (Girls) ((G+4)	5308.55	Institutional
6.	IDS Hostel Building (Boys) ( G+4)	2252	Institutional
7.	IDS Hostel Building (Girls) ( G+4)	2276	Institutional
8.	GYM Building (G+2)	762	Institutional
9.	Doctor's Enclave (S+6)	7129	Institutional
10.	SUM Annex Building (S+G+4)	9390.28	Institutional
11.	Staff Qrs-1 (G+4)	1616.25	Institutional
12.	Staff Qrs-2 (G+4)	1575.24	Institutional
13.	Multilevel Parking & Pharmacy (G+3)	7163	Institutional
14.	Oxygen Room(Ground Floor)	69.42	Institutional
15.	Electric Panel Room (G+2)	220.72	Institutional
	<b>Total Existing Built up area</b>	<b>137706.8</b>	
16.	SUM Extension	10914.33	Clinical
17.	Oxygen Plant	1221.59	Clinical
	<b>Total Proposed Built up area</b>	<b>12135.92</b>	

The SEAC has appraised the proposal and furnished their appraisal report, and recommended for grant of EC. The appraisal has been made on the basis of documents furnished by the PP i.e. Form-1, Form-1A, Conceptual Plan.

The State Environment Impact Assessment Authority (SEIAA), Odisha after considering the above in detail hereby accords Environmental Clearance to the project under the provisions of EIA Notification 2006 and subsequent amendments thereto, subject to strict compliance of all the following conditions. Detailed half yearly compliance report of the conditions stipulated below has to be submitted by the project proponent to SEIAA on the 1<sup>st</sup> June and 1<sup>st</sup> December each year.

**Part A - Specific Conditions:**

1. The Project proponent shall clearly mention the individual building name (as per Sl. No. of table in (Annexure-I)), its built up area, uses and year of EC obtained from SEIAA, Odisha through permanent sign board for Campus-III. The proponent shall follow the guidelines issued by ministry on 09.06.2015 for the existing institutional building project and ensure and practice sustainable environmental management in pursuance of Notification dated 22.12.2014 under EIA Notification, 2006 (copy enclosed).
2. The project proponent shall ensure that the guideline issued, regarding dust mitigation measure for construction and demolition activities for projects required Environmental Clearance, by MoEF & CC, vide Notification G.S.R. 94 (E) dated 25.01.2018, are to be followed.
3. The Environmental Clearance to the project is primarily under provision of EIA Notification, 2006. The Project proponent is under obligation to obtained approvals/clearances under any Acts/Regulations or Statues as applicable to the project.
4. The Project proponent should ensure that the facility fulfils all the provision of hazardous and other waste (Management and Transboundary Movement) Rules, 2016 & the Protocol for Performance Evaluation and Monitoring for the same as published by CPCB and Bio-Medical Waste Management Rules, 2016 and the revised guidelines issued by CPCB for Common Bio-Medical Waste Treatment and Disposal Facility.

5. The project proponent shall file compliance of the stipulated conditions at six monthly intervals to the respective SPCB and Regional Office of the Ministry of MoEF & CC, Govt. of India. The compliance of stipulated conditions will be ensured by the respective SPCB and local urban bodies and the BDA while giving Consent to Operate and Occupancy Certificate. These Certificates should be submitted by the authorities to the Regional Office of MoEF & CC, Govt. of India. The Regional Office of MoEF & CC can assess / evaluate / monitor the compliance of conditions enumerated in the Guidelines through verification by Regional Office of MoEF & CC, Govt. of India.
6. As proposed, fresh water requirement from PHD supply water shall not exceed 893 KLD (718 KLD water for clinical and 175 KLD water for institutional) for operation of facility. The project proponent shall install water meter at drawl point to measure the quantum water use on daily basis.
7. The waste water will be treated in the STP of capacity 1500 KLD and ETP of 50 KLD capacity for Bio-Medical Liquid Waste. All treated water will be used within the campus for flushing, gardening and washing. As proposed, no treated/untreated effluent shall be discharged outside the premises.
8. The proponent shall operate STP and ETP separately as standalone system and both shall not be inter-connected. ETP outlet effluent shall not be discharged to outside the project premises i.e. "Zero Liquid Discharge" from ETP to outside the premises shall be maintained. Under no circumstances, treated waste water discharge from ETP shall be used for dual plumbing for flushing purpose.
9. The Project Proponent shall adhere to the revised and corrected layout submitted to maintain safety for fire-fighting activity when need arises.
10. The Project Proponent shall maintain all roads with clearances for movement of vehicles including the fire-fighting service road. Proponent shall also ascertain that no vehicles to be parked in passage area inside the hospital or on the road in front of the hospital.
11. Building heights to be restricted after the proposed expansion due to constraints in increase of stack heights of DG sets as per restriction imposed by Airport Authority.
12. Greenery to be developed surrounding the parking field (old play ground), proposed multi-storeyed parking and new playground proposed.
13. Parking, plantation and solar facilities to be implemented as proposed at appropriate time.
14. The proponent shall take the mitigation measures referring to the recommendations of traffic study as well as agreeing to the sub-committee suggestions (clearances in all internal roads, handing over to BMC the front parking area in future or managed by PP in a safe manner, remove parking from the front road etc.), to avoid congestions.
15. Permission from BMC/ PH Engg Department is required to take additional load of treated waste water from STP (excess) after the expansion.
16. The proponent shall explore the provision of Incinerator of adequate capacity and design must be there to handle infectious waste, organic waste and health hazardous wastes in a Medical college and hospital of this magnitude.

17. Consent to Establish/Operate for the project shall be obtained from the State Pollution Control Board as required under the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974.
18. The approval of the Competent Authority shall be obtained for structural safety of buildings due to earthquakes, adequacy of fire fighting equipment etc. as per National Building Code including protection measures from lightening etc.
19. The project proponent shall obtain all necessary clearance/ permission from all relevant agencies including town planning authority before commencement of work. All the construction shall be done in accordance with the local building byelaws.
20. Provision for electric point at each and every parking location for e-vehicle charging etc. shall be provided.
21. The Sub-Committee of SEAC will visit the site within 1 year from the date of issue of Environmental Clearance to verify the progress of the project as well as conditions stipulated in Environmental Clearance. However, either during the visit of the SEAC Sub-committee and/or at any time, if it is noticed that stipulated conditions on which EC is granted is not in place or found otherwise, steps will be taken for revocation of EC granted.

#### **Topography and Natural Drainage**

1. The natural drain system should be maintained for ensuring unrestricted flow of water. No construction shall be allowed to obstruct the natural drainage through the site, on wetland and water bodies. Check dams, bio-swales, landscape and other Sustainable Urban Drainage Systems (SUDS) are allowed for maintaining the drainage pattern and to harvest rain water. Buildings shall be designed to follow the natural topography as much as possible. Minimum cutting and filling should be done.
2. NOC from drainage department for discharge of treated water to readymade municipality drain shall be obtained.

#### **Water requirement, conservation, rain water harvesting, and ground water recharge**

1. As proposed, fresh water requirement from Ground water / PHED water supply shall not exceed Clinical -718 KLD and for Institutional-175 KLD.
2. A certificate shall be obtained from the local body supplying water, specifying the total annual water availability with the local authority, the quantity of water already committed, the quantity of water allotted to the project under consideration and the balance water available. This should be specified separately for ground water and surface water sources, ensuring that there is no impact on other users.
3. The quantity of fresh water usage, water recycling and rainwater harvesting shall be measured and recorded to monitor the water balance as projected by the project proponent. The record shall be submitted to the Regional Office, MoEF&CC and SEIAA, Odisha along with six monthly Monitoring reports.
4. Installation of dual pipe plumbing for supplying fresh water for drinking, cooking and bathing etc. and other for supply of recycled water for flushing, landscape irrigation, car washing, thermal cooling, conditioning etc. shall be done.
5. Use of water saving devices/ fixtures (viz. low flow flushing systems; use of low

- flow faucets tap aerators etc.) for water conservation shall be incorporated in the building plan.
6. Separation of grey and black water should be done by the use of dual plumbing system. In case of single stack system separate recirculation lines for flushing by giving dual plumbing system be done.
  7. Water demand during construction should be reduced by use of pre-mixed concrete, curing agents and other best practices referred.
  8. The local bye-law provisions on rain water harvesting should be followed. If local bye-law provision is not available, adequate provision for storage and recharge should be followed as per the Ministry of Urban Development Model Building Byelaws, 2016. As proposed 61 (six-one) nos. of rain water harvesting recharge pits shall be provided.
  9. Any ground water dewatering should be properly managed and shall conform to the approvals and the guidelines of the CGWA in the matter. Formal approval shall be taken from the CGWA for any ground water abstraction or dewatering. The proponent shall also obtain permission from Water Resources Department, Govt. of Odisha for drawal of water.

#### **Solid waste management**

1. The provisions of the Solid Waste (Management) Rules, 2016, E-Waste (Management) Rules, 2016, and the Plastics Waste (Management) Rules, 2016 shall be followed.
2. Bio-medical waste shall be collected, treated and disposed in accordance with Bio-medical Waste Management Rules, 2016.
3. Bio-Medical waste shall be disposed off through common bio-medical waste facility as per the agreement made with the nearby Common Bio-medical waste facility.
4. Disposal of muck during construction phase shall not create any adverse effect on the neighbouring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.
5. Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. Solid waste shall be segregated into wet garbage and inert materials. Wet garbage shall be composted in Organic Waste Converter. Adequate area shall be provided for solid waste management within the premises which will include area for segregation, composting. The inert waste from group housing project will be sent to dumping site.
6. Any hazardous waste generated during construction phase, shall be disposed off as per applicable rules and norms with necessary approvals of the State Pollution Control Board.
7. A certificate from the competent authority handling municipal solid wastes, indicating the existing civic capacities of handling and their adequacy to cater to the Municipal Solid Waste generated from project shall be obtained.

#### **Sewage treatment plant**

1. Sewage shall be treated in STP of capacity 1500KLD. The treated effluent from STP shall be recycled/re-used for flushing, gardening and washing purpose. Surplus treated waste water shall be discharged to the drain provided by BMC for this project.

2. Clinical waste water shall be treated in ETP of capacity 50 KLD.
3. A certificate from the competent authority shall be obtained for discharging treated effluent/ untreated effluents into the Public sewer/ disposal/drainage systems along with the final disposal point.
4. No sewage or untreated effluent water would be discharged through storm water drains.
5. The installation of the Sewage Treatment Plant (STP) shall be certified by an independent expert and a report in this regard shall be submitted to the SEIAA, Odisha before the project is commissioned for operation. Periodical monitoring of water quality of treated sewage shall be conducted. Necessary measures should be made to mitigate the odour problem from STP.
6. 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.

### **Energy**

1. Compliance with the Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency shall be ensured. Buildings in the States which have notified their own ECBC, shall comply with the State ECBC. Outdoor and common area lighting shall be LED. 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. Wall, window, and roof u-values shall be as per ECBC specifications.
2. Energy conservation measures like installation of CFLs/ LED for the lighting the area outside the building should be integral part of the project design and should be in place before project commissioning. Used CFLs, TFL and LED shall be properly collected and disposed off/sent for recycling as per the prevailing guidelines/rules of the regulatory authority to avoid mercury contamination.
3. Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 2-5% of the demand load or as per the state level/ local building bye-laws requirement, whichever is higher. Follow super ECBC requirement of ECBC 2017 and provide compliance report.
4. Solar power shall be used for lighting in the apartment to reduce the power load on grid. Separate electric meter shall be installed for solar power. 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. Residential buildings are also recommended to meet its hot water demand from solar water heaters, as far as possible.
5. 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, hollow bricks, AACs, Fly Ash Lime Gypsum blocks, Compressed earth blocks, and other environment friendly materials. Fly ash should be used as building material in the construction as per the provision of Fly Ash Notification of September, 1999 and amended as on 27th August, 2003 and 25th January, 2016. Ready mixed concrete must be used in building construction.

6. A certificate of adequacy of available power from the agency supplying power to the project along with the load allowed for the project shall be submitted.

#### **Air quality and noise**

1. Construction site shall be adequately barricaded before the construction begins. Dust, smoke & other air pollution prevention measures shall be provided for the building as well as the site. These measures shall include screens for the building under construction, continuous dust/ wind breaking walls all around the site (at least 3 meter height). Plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, murrum and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site. Sand, murrum, loose soil, cement, stored on site shall be covered adequately so as to prevent dust pollution. Wet jet shall be provided for grinding and stone cutting. Unpaved surfaces and loose soil shall be adequately sprinkled with water to suppress dust.
2. 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. All demolition and construction waste shall be managed as per the provisions of the Construction and Demolition Waste Rules, 2016. 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.
3. Notification GSR 94(E) dated 25.01.2018 of MoEF&CC regarding Mandatory Implementation of Dust Mitigation Measures for Construction and Demolition Activities for projects requiring Environmental Clearance shall be complied with.
4. The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Low sulphur diesel shall be used. The location of the DG set and exhaust pipe height shall be as per the provisions of the Central Pollution Control Board (CPCB) norms.
5. For indoor air quality the ventilation provisions as per National Building Code of India shall be provided.
6. Ambient noise levels shall conform to residential standard both during day and night as per Noise Pollution (Control and Regulation) Rules, 2000. Incremental pollution loads on the ambient air and noise quality shall be closely monitored during construction phase. Adequate measures shall be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB / SPCB.

#### **Green cover**

1. No tree cutting/transplantation of existing trees has been proposed in the instant project. A minimum of 1 tree for every 80 m<sup>2</sup> of land should be planted and maintained. The existing trees will be counted for this purpose. The landscape planning should include plantation of native species. The species with heavy foliage, broad leaves and wide canopy cover are desirable. Water intensive and/or invasive species should not be used for landscaping. As proposed approx. 10550.7 sqm (approx. 13.22 %) of the plot area shall be provided for green area development.

### **Top soil preservation and reuse**

1. Topsoil should be stripped to a depth of 20 cm from the areas proposed for buildings, roads, paved areas, and external services. It should be stockpiled appropriately in designated areas and reapplied during plantation of the proposed vegetation on site.

### **Transport**

1. A comprehensive mobility plan, as per Ministry of Urban Development best practices guidelines (URDPFI), shall be prepared to include motorized, non-motorized, public, and private networks. Road should be designed with due consideration for environment, and safety of users. The road system can be designed with these basic criteria.
  - Hierarchy of roads with proper segregation of vehicular and pedestrian traffic.
  - Traffic calming measures
  - Proper design of entry and exit points.
  - Parking norms as per local regulation
2. A detailed traffic management and traffic decongestion plan shall be drawn up to ensure that the current level of service of the roads within a 05 kms radius of the project is maintained and improved upon after the implementation of the project.
3. This plan should be based on cumulative impact of all development and increased habitation being carried out or proposed to be carried out by the project or other agencies in this 05 Kms radius of the site in different scenarios of space and time and the traffic management plan shall be duly validated and certified by the State Urban Development department and the P.W.D./ competent authority for road augmentation and shall also have their consent to the implementation of components of the plan which involve the participation of these departments.
4. Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate and should conform to applicable air and noise emission standards be operated only during non-peak hours.

### **Environment Management Plan**

1. An Environmental Management Plan (EMP) shall be prepared and implemented to ensure compliance with the environmental conditions specified above. A dedicated Environment Monitoring Cell with defined functions and responsibility shall be put in place to implement the EMP. 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. The environmental cell shall also keep the record of environment monitoring and those related to the environment infrastructure.

### **Others**

1. Provisions shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, creche etc. The housing may be in the form of temporary structures to be removed after the completion of

- the project.
2. A First Aid Room shall be provided in the project both during construction and operations of the project.
  3. The company shall draw up and implement corporate social Responsibility plan as per the Company's Act of 2013.
  4. As per the MoEF&CC, Govt. of India Office Memorandum F.No.22-65/2017-IA.III dated 1st May 2018, the project proponent is required to prepare and implement Corporate Environment Responsibility (CER) Plan. As per para 6(II) of the said O.M. appropriate funds shall be earmarked for the activities such as infrastructure creation for drinking water supply, sanitation, health, education, skill development, roads, cross drains, electrification including solar power, solid waste management facilities, scientific support and awareness to local farmers to increase yield of crop and fodder, rain water harvesting, soil moisture conservation works, avenue plantation, plantation in community areas etc. The activities proposed under CER shall be restricted to the affected area around the project. The entire activities proposed under the CER shall be treated as project and shall be monitored. The monitoring report shall be submitted to the regional office as a part of half yearly compliance report, and to the District Collector. It should be posted on the website of the project proponent.

#### **Part B – General conditions**

1. A copy of the Environmental Clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed at the Regional Office, District Industries centre and Collector's Office/ Tehsildar's office for 30 days.
2. The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to the SEIAA, Odisha and MoEF&CC, Govt. of India and its concerned Regional Office.
3. Officials from the Regional Office of MoEF&CC, Bhubaneswar who would be monitoring the implementation of environmental safeguards should be given full cooperation, facilities and documents/data by the project proponents during their inspection.
4. In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by the SEIAA, Odisha.
5. The SEIAA, Odishareserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environmental (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
6. All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, the Forest Conservation Act, 1980 and the Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.

7. These stipulations would be enforced among others under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and the EIA Notification, 2006.
8. The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the SEIAA, Odisha. The advertisement shall be made within Seven days from the date of receipt of the Clearance letter and a copy of the same shall be forwarded to the Regional Office of MoEF&CC, Bhubaneswar.
9. A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, ZillaParisad/Municipal Corporation, Urban Local Body and the Local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.
10. The proponent shall submit/upload six monthly reports on the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; SPM, RSPM, SO<sub>2</sub>, NO<sub>x</sub> (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain. The project proponent shall also upload the six monthly compliance report in the website of Ministry ([www.parivesh.nic.in](http://www.parivesh.nic.in)) for monitoring.
11. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF&CC by E-mail.
12. Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

Yours faithfully,

  
Member Secretary

**Copy to**

1. **Joint Secretary (Environment)**, Ministry of Environment, Forests and Climate Change Govt. of India, Indira Paryavaran Bhavan, Jor Bagh Road, Aliganj, New Delhi-110003 for kind information.

2. **Additional Chief Secretary**, Forest Environment Dept& CC., Government of Odisha for kind information.
3. **Member Secretary**, State Pollution Control Board, Odisha, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-8, Bhubaneswar for information.
4. **Additional Director General, Forests** of Forests, Regional Office (EZ), Ministry of Environment & Forests, A-31, Chandrasekharpur, Bhubaneswar for kind information.
5. **Collector& District Magistrate**, Khordha, for information and necessary action.
6. **Secretary**, SEAC, Paribesh Bhawan, A/118, Nilakantha Nagar, Unit-VIII, Bhubaneswar for kind information.
7. Guard file for record.

  
**Member Secretary**



**GUIDELINES TO BE FOLLOWED FOR BUILDING AND CONSTRUCTION PROJECTS  
TO ENSURE SUSTAINABLE ENVIRONMENTAL MANAGEMENT  
IN PURSUANCE OF NOTIFICATION No. S.O. 3252 (E) OF 22nd DECEMBER, 2014  
UNDER ENVIRONMENT IMPACT ASSESSMENT NOTIFICATION, 2006  
[INDUSTRIAL SHED AND EDUCATIONAL INSTITUTIONS]**

The Notification dated 22nd December, 2014 has taken out the industrial shed\*, school, college, hostel for educational institution from the requirement of prior Environment Clearance (EC) under EIA Notification, 2006 and stipulated that such buildings shall ensure sustainable environmental management, solid and liquid waste management, rain water harvesting and may use recycled materials such as fly ash bricks. These Guidelines will be applicable to all buildings and constructions which come under the ambit of Notification No. S.O. (E ) 3252 of 22nd. December 2014. To ensure sustainable environment management these guidelines as suited will be applicable on the projects under Item 8 (a) of EIA Notification in addition to the conditions stipulated in the EC.

Land, Air, Noise, Water, Energy, Biological, Socio-economic, and Solid & other Waste Management are the main environment facets to be considered in relation to pre, during & post building construction, therefore, it is necessary to ascertain the baseline data of these environmental facets.

The project proponent should file the information about description of project as per points described below prior to start of the project. Information pertaining to compliance on other points be filed at six monthly interval to the respective State Pollution Control Board and the Regional Office of the Ministry of Environment, Forests and Climate Change.

The compliance of the following will be ensured by the respective State Pollution Control Board before giving 'Consent-to-Operate' to industries and by the Local Urban Bodies and the Development Authorities while giving the 'Occupancy Certificate' to the buildings and constructions. These Certificates should be submitted by the above authorities to the Regional Office of MoEFCC. Ministry of Environment, Forest and Climate Change can assess/evaluate/monitor the compliance of conditions enumerated in the Guidelines through verification by Regional Offices or deputed organisations / person.

S. No.	Environmental Parameters	Implementation and monitoring parameters to be included in local by-laws.
a.	Pre-requisites	<p><b>Brief description of the project</b></p> <p>01. Name of the Project, Survey number, Village, Taluka, District, State to be mentioned with Google Earth Image and GPS Co-ordinates of the plot to be submitted.</p> <p>02. Location &amp; distance from nearby landmark places / services to be mentioned.</p> <p>03. Total Built-up area (FSI and Non- FSI) should be mentioned with detailed calculations certified by local planning and sanctioning authority.</p> <p>04. Form 1, Form 1A and Consolidated statement as per Environment Notification dated September 14, 2006 to be submitted to local planning and sanctioning authority, Regional Office, MoEFCC and SPCB</p>
b.	Environment Impacts on Project Land	<p>05. The building layout, set-back/side margin, podium, basement ventilation etc. is prepared based on local building bye-laws and is approved by local competent authorities. The Project Proponent shall obtain all necessary clearance/ permission from all relevant agencies including Town Planning Authority before commencing the work.</p> <p>06. Provisional fire NOC to be obtained from local CFO ( Chief Fire Officer)</p> <p>07. "Consent-to-Establish and Consent-to-Operate" shall be obtained as required from State Pollution Control Board as provided in the Air (Prevention and Control of Pollution) Act, 1981 and Water (Prevention and Control of Pollution) Act, 1974</p> <p>08. The project proponent shall put in place a credible enforcement mechanism for compliance of energy conservation measures with its allottees, as projected, in perpetuity. This would be monitored by the designated Energy Conservation/ efficiency Authority in the State.</p> <p>09. Soil and ground water samples will be tested to ascertain that there is no</p>

threat to ground water quality by leaching of heavy metals and other toxic contaminants.

10. Top fertile soil to be preserved and to be later used in landscape.
11. The excavation/demolition debris must be disposed off in designated landfill areas or to be used within site for levelling purpose. Under no circumstance, the debris will be disposed in river bed/lakes etc.
12. Undertaking to be given by project proponent that occupancy will be given only after drainage and water connections are in place.
13. Dust/smoke prevention measures such as wheel washing, water sprinkler, screening, barricading and debris chute must be installed.
14. This should comply with the provisions of eco-sensitive zone regulations, coastal zone regulations, heritage areas (identified in the master plan or issued separately as specific guidelines), water body zones (in such zones, no construction is permitted in the water-spread and buffer belt of 30 m minimum around the FTL [full tank level]), various hazard prone area regulations, and others if the site falls under any such area.
15. The site planning should take into account heat island effect, size and density of the built-up areas cause heat island effect, wherein higher air temperatures are created in the dense urban areas as against the low-rise surrounding built-up areas. The solar access in the morphology of clusters can be understood in terms of utilization of direct (and not reflected or diffused) solar radiation, mainly for day lighting and heat gain. This defines the minimal distances between the buildings and the relations between built-up volume and open spaces.
16. The proportion of open spaces and built-up edges should be designed such that it ensures winter solar access and summer ventilation.

c. Water

17. Proponent shall obtain permission for ground water withdrawal from State Ground Water Authority.
18. Storm water control and its re-use as per CGWB and BIS standards for various applications.
19. The natural flow of existing storm water channel should not be altered or diverted.
20. Keeping in view the use of large quantities of water in curing, measures for reducing water demand during construction should be followed. Curing water should be sprayed on concrete structures; free flow of water should not be allowed for curing. After liberal curing on the first day, all concrete structures should be painted with curing chemical to save water. Concrete structures should be covered with thick cloth/gunny bags and then water should be sprayed on them. This would avoid water rebound and will ensure sustained and complete curing. Ponds should be made using cement and sand mortar to avoid water flowing away from the flat surface while curing.
21. The developer should ensure groundwater and municipal water meet the water quality norms as prescribed in the Indian Standards for various applications (Indian Standards for drinking [IS 10500-1991], irrigation applications [IS 11624-1986]).
22. The use of potable water during construction should be minimized.
23. Separation of grey and black water should be done by the use of dual plumbing line for separation of grey and black water.
24. Source of water to be identified.
25. Water treatment measures such as filtration, softeners, RO etc should be implemented.
26. Low flow fixtures and sensors to be used to promote water conservation.
27. Water meters to be installed to monitor consumption of water.
28. Water balance table/chart should be prepared.

d. Waste Water Treatment

29. Sewage treatment plant of capacity capable of treating 100% waste water to be installed on site.
30. Tertiary treatment such as dual media filter, activated carbon filter and ozonization/ chlorination to be provided so that the treated water

		<p>characteristics are as per Central Pollution Control Board (CPCB) norms.</p> <p>31. If STP and pump room are installed in basement, adequate ventilation as per NBC air changes norms should be provided.</p> <p>32. Treated waste water to be recycled for flushing and gardening.</p>
e.	Drainage Pattern	<p>33. Excess treated water disposal plan to be submitted.</p> <p>34. Total paved area of the site under parking, roads, paths or any other use should not exceed 25% of the site area or net imperviousness of the site not to exceed the imperviousness factor as prescribed by the NBC 2005 (BIS 2005b), whichever is more stringent.</p> <p>35. The final disposal point for excess treated water discharge will be municipal sewer for areas where sewerage network is present.</p> <p>36. In areas where sewerage network is absent, the excess treated water can be used for agriculture or can be disposed off as per CPCB rules.</p> <p>37. Storm water disposal plan to be submitted.</p> <p>38. The final disposal point for storm water will be municipal storm drain for areas where storm water network is present.</p> <p>39. In areas where storm water network is absent, the storm water surface runoff can be disposed off in nearby natural water streams/ nallas.</p>
f.	Ground Water	<p>40. Hydro-geological survey for ground water analysis shall be submitted.</p> <p>41. Aquifer capacity and Ground water yield shall be determined.</p> <p>42. Rain water harvesting plan shall be submitted indicating the number of recharge pits and bores and total rain water to be harvested.</p> <p>43. Rain water to be harvested and as a safety precaution, rainwater on-line filters be provided as per NBC norms.</p>
g.	Solid Waste Management	<p><b>A) During construction phase:</b></p> <p>44. Disposal of muck during construction phase should not create any adverse effect on the neighbouring communities and be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority. The Rules on the Solid Waste Management including Construction Waste issued by the MoEFCC as amended will be applicable.</p> <p>45. Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dump sites for such material must be secured so that they should not leach into the ground water.</p> <p>46. Any hazardous waste generated during construction phase, should be disposed off as per applicable rules and norms with necessary approvals of the State Pollution Control Board.</p> <p>47. Miscellaneous site debris such as broken tiles etc shall be used on site for leveling /backfilling purpose.</p> <p>48. Packaged STP /mobile toilets shall be provided for labour camp.</p> <p>49. Polymer bags used for cement and gypsum shall be handed over to authorized recyclers.</p> <p>50. Cardboard boxes and other packaging material will be handed over to authorized recyclers.</p> <p><b>B) Post construction phase:</b></p> <p>51. Organic waste composter (OWC) or Vermiculture pits shall be installed on site for biodegradable waste treatment (capacity calculated at 0.3kg/tenement/day) The manure generated shall be used for landscaping.</p> <p>52. The non-biodegradable waste or e-waste shall be handed over to authorized recyclers.</p> <p>53. STP sludge shall be removed using filter press or centrifuge mechanism. The dried sludge cakes shall be used as manure in landscaping.</p> <p>54. Minimize waste generation; streamline waste segregation, storage, and</p>

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disposal; and promote resource recovery from waste.

55. Resource recovery from waste: Employ resource recovery systems for biodegradable waste as per the Solid Waste Management and Handling Rules, 2000 of the MoEFCC. Make arrangements for recycling of waste through local dealers.
56. Use of covering sheets should be done for trucks to prevent dust dispersion from the trucks and washing of tyres when trucks with soil / debris coming on road.
57. Hazardous Waste Management: Products, such as paints, cleaners, oils, batteries, and pesticides that contain potentially hazardous ingredients require special care when being disposed. Improper disposal of household hazardous wastes can include pouring them down the drain, on the ground, into storm sewers, or in some cases putting them out with the trash.

The hazardous wastes from construction and demolition activities are centering oil, formwork oil, tar and tar products (bitumen, felt, waterproofing compounds, etc.), wood dust from treated wood, lead containing products, chemical admixtures, sealants, adhesive solvents, Explosives and related products and equipment used in excavation, acrylics, and silica, etc.

h. Air Quality and Noise Levels.

**A) During construction phase:**

58. The diesel required for operating DG sets shall be stored in underground tanks and clearance from Chief Controller of Explosives shall be taken, as applicable.
59. Ambient noise levels should conform to residential standards both during day and night as per Noise Pollution (Control and Regulation) Rules, 2000. Incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB/ SPCB.
60. Burning of waste to be banned.
61. The construction site DG to be maintained regularly so that the smoke emission and noise levels are as per permissible norms.
62. Regular P.U.C check for all construction machinery coming on site be done.
63. Noise cancellation and insulation devices such as mufflers, barricades etc to be used to avoid noise propagation to adjoining areas.

**B) Post construction phase:**

64. DG to be regularly maintained so that the smoke emission and noise levels are as per permissible norms. It shall be at least 6 meters away from the boundary.
65. Air quality monitoring to be done quarterly.
66. STP and water pumps, air blowers etc should be installed with noise cancellation devices or suitable acoustical enclosures to be given so that the noise levels as per NBC norms are maintained.

**C) During Construction & Operation**

67. The provisions of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981) and the rules made thereunder be complied for control of noise pollution during construction and operation.
68. Setting up the barriers: National Building Code 2005 suggests that design solutions such as barrier blocks should be used to reduce external LA10 noise levels to at least 60-70 dB (A) at any point 1.0 m from any inward looking façade. Green belts and landscaping could act as an effective means to control noise pollution. In case of railway tracks, a minimum distance of 50m to 70m may be provided between the buildings and the tracks.

i. Energy

69. Appropriate processes and material be used to encourage reduction in carbon foot print.
70. Use of glass be reduced by up-to 40% to reduce the electricity consumption and load on air-conditioning. If necessary, use high quality double glass with special reflective coating in windows.
71. Solar water heater to be provided adequately.

72. Common area lighting should be Solar / LED.
73. Install energy meters to monitor overall consumption, and timer-switch for all common area lighting, and other consumption of measurable energy.
74. Fly ash should be used as building material in the construction as per the provisions of Fly Ash Notification of September, 1999 and amended as on 27th August, 2003 and 3rd November, 2009.
75. Wherever possible recycled materials having low embodied energy be used.
76. Use of light coloured, reflective roofs having an SRI (solar reflectance index) of 50% or more should be promoted. The dark coloured, traditional roofing finishes have SRI varying from 5% to 20%.
77. Optimize use of energy systems in buildings that should maintain a specified indoor environment conducive to the functional requirements of the building by following mandatory compliance measures (for all applicable buildings) as recommended in the Energy Conservation Building Code (ECBC) 2007 of the Bureau of Energy Efficiency, Government of India. The energy systems include air conditioning systems, indoor lighting systems, water heaters, air heaters, and air circulation devices.
78. Use the concept of passive solar design of buildings using architectural design approaches that minimize energy consumption in buildings by integrating conventional energy-efficient devices, such as mechanical and electrical pumps, fans, lighting fixtures, and other equipment, with the passive design elements, such as building orientation, landscaping, efficient building envelope, appropriate fenestration, increased day lighting design, and thermal mass.
79. The building should be oriented optimally based on Sun-path and engineering analysis to curtail excessive solar radiations.
80. Lighting systems should comply with the ECBC 2007 and applicable to interior spaces of buildings, exterior building features, including facades, illuminated roofs, architectural features, entrances, exits, loading docks, and illuminated canopies, exterior building grounds etc. except emergency lighting and lighting in dwelling units.
81. All the point light sources installed in the building for general lighting shall be LEDs or LEDs or equivalent. All the linear light sources installed in the building for general lighting shall be T-5 or at least 4 Star BEE rated TFLs or equivalent. The installed interior lighting power shall not exceed the LPD (Lighting Power Density) value as recommended by ECBC 2007.
82. Automatic Lighting shutoff control be installed: Interior lighting/Exterior Lighting systems shall be equipped with an automatic control device in accordance with ECBC 2007. Occupancy sensors that shall turn the lighting off within 30 minutes of occupant leaving the space. It should also have option for manual turning on lights when the space is occupied. ECBC requires controls in day lit areas that are capable of reducing the light output from luminaries by at least half and Controlling of exterior lighting with photo-controls where lighting can be turned off after a fixed interval.
83. The tapping of renewable sources of energy for lighting, heating, cooling and ventilation needs, deserve special attention. For captive solar power generation, a minimum of 15 percent of sanctioned load is the requirement.
84. Solar photovoltaic (SPV) systems are direct energy conversion systems that convert solar radiation into electric energy. SPV systems should be installed to reduced use of conventional sources of energy. Roof tops of buildings as well as other exposed areas such as of parking shades should be utilized for installation of SPV systems.
85. Hot water requirement in buildings should be met through use of various types of solar water heating systems, viz. flat plate collector: single glazed double glazed; evacuated tube collectors; and Water heating with solar concentrators.
86. The Project Proponent should ensure regular energy audit.
  - i. To validate the predicted energy consumption, thermal comfort, and visual comfort criteria by an energy auditor approved by the BEE, Government of India.

		<p>ii. To ascertain continued safety in the operation of the electrical and mechanical systems of the building through proper maintenance by the owner or the occupants.</p> <p>87. This will be ensured in the contract document by providing for the commissioning of all electrical and mechanical systems by the respective supplier or builder. Moreover, the respective facility management group, assigned by the owner or the occupants themselves, will carry out the maintenance facilities.</p> <p>88. Energy conservation measures like installation of CFLs/LEDs for the lighting the areas outside the building should be integral part of the project design and should be in place before project commissioning. Used CFLs and TFLs should be properly collected and disposed off /sent for recycling as per the prevailing guidelines/ rules of the regulatory authority to avoid mercury contamination. Use of solar panels may be done to the extent possible.</p>
j.	Traffic Movement System	89. Width of driveways, parking provision, ramp width and slope to be kept as per local bye laws.
k.	Provisions for Differently able	<p>90. The Project Proponent should provide at least the minimum level of accessibility for persons with disabilities.</p> <ul style="list-style-type: none"> <li>• Ensure accessibility and usability of the facilities in the building by employees, visitors and clients with disabilities.</li> <li>• Ensure access to facilities and services by adopting appropriate site planning to eliminate barriers as per the recommended standards (NBC 2005 [BIS 2005f]).</li> <li>• Layout and designing of interior and exterior facilities as per principles of universal design such as prescribed by the National Building Code of India, building management policies and procedures, provision of auxiliary aids &amp; appliances, and staff training in disability awareness.</li> </ul>
l.	Green Belt/Green Cover	<p>91. Provide minimum 1 tree for every 80 sq.mt of plot area.</p> <p>92. Wherever trees are cut or transplanted, compensatory plantation in the ratio of 1:3 to be done in the premise.</p> <p>93. Native species of trees to be planted.</p> <p>94. Vegetation to provide as shading and promote evaporative cooling. In hot and dry climates, evaporative cooling through appropriately sized wet surfaces or fountains have a desirable effect. It should be planned for maximum benefit.</p> <p>95. The project should have detail proposal for tree plantation, landscaping, creation of water bodies etc along with a layout plan to an appropriate scale.</p>
m.	Disaster/Risk Assessment Plan	<p>96. Fire tender movement plan to be submitted.</p> <p>97. Firefighting system to be provided as per the fire NOC.</p> <p>98. Turning radius to be kept as per Fire NoC or as prescribed in the local by-laws.</p> <p>99. Public address system to be installed as per the Fire Safety norms.</p> <p>100. Place of assembly to be indicated.</p>
n.	Socio Economic Impact and CSR	<p>101. Biodegradable and non-biodegradable waste bins to be provided for every household to promote waste segregation at source.</p> <p>102. Importance of environment and various environment drives to be initiated.</p> <p>103. Importance of maintenance of environment infrastructure to be showcased by issuing pamphlets etc.</p> <p>104. Provision for health care, medical kit, crèche, First-Aid room shall be given during construction phase for the construction workers.</p> <p>105. Adequate shelter for resting hours, crèche, clean and potable drinking water to be provided to construction workers.</p> <p>106. All local labour welfare laws must be complied.</p> <p>107. Concerns of the communities being affected by the Project are to be responded on priority, and all possible CSR is to be rendered to make the responses effectively beneficial..</p>

*Manoj*

o. Environment Management Plan (EMP)

108. Detailed environment management plan comprising of estimated capital cost and O&M cost for the following environment infrastructure should be submitted:

- a. Sewage Treatment Plant
- b. Landscaping
- c. Rain Water Harvesting
- d. Power backup for environment infrastructure.
- e. Environment Monitoring
- f. Solid Waste Management
- g. Solar and Energy Conservation

109. Environment Monitoring Cell with defined functions and responsibility shall be set up and its details be submitted.

END NOTE:

Industrial Shed\*: The word 'industrial shed' implies building (whether RCC or otherwise) which is being used for housing plant and machinery of industrial units and shall include godowns and buildings connected with production related and other associated activities of the unit in the same premise.

Manaf

Signature Not Verified

Digitally signed by Sri Susanta Nanda  
Member Secretary

Date: 1/11/2022 11:18:15 AM