

List of GRIHA Documents with respect to Annexure III of Construction Manual, MoEF

This document enlist GRIHA documents required with respect to the categories motioned in **Annexure III Indicative - List of Submittals as Required to Fill in Form IA, Manual on Norms and Standards for Environment Clearance of Large Construction Projects (Construction Manual)**, Ministry of Environment and Forests, Government of India.

MoEF				GRIHA			
	topics	submittal	Form IA	Corresponding GRIHA Criterion	GRIHA compliance requirement	GRIHA appraisal	Remarks
1	Land and environment	Conformity of proposed land use with the Development/Master Plan	1.1	Criterion 1: site selection	1.2.1 Document to prove conformity to the development plan/master plan/UDPFI Guidelines	Mandatory clause	
		If there is no approved Plan, availability of consent from appropriate authority	1.1	Criterion 1: site selection			Additional information to be integrated into GRIHA
		If the area is outside municipal limits /outside planning area, full justification for the proposed Development and confirmation of the norms of UDPFI guidelines.	1.1	Criterion 1: site selection	1.2.1 Document to prove conformity to the development plan/master plan/UDPFI Guidelines	Mandatory clause	
		Surrounding features of the proposed site (within 500 meters)	1.1	Criterion 1: site selection	1.2.2 Site plan (one AutoCAD drawing) showing the site and its surrounding areas (up to 2km radius) <i>Aerial image from Google maps is also acceptable under this criteria</i>	Optional clause	
		Photographs showing the surrounding areas.	1.1	Criterion 4: Design to include existing site features	4.2.1 Provide drawings along with narrative to demonstrate that the zoning of areas on site is appropriate to existing site features. Support these with visual documentation such as photographs and land survey records before and after construction	Optional clause	
		Site plan with contours and levels	1.1	Criterion 2: preserve and protect landscape during construction	2.2.2 CAD drawing showing site plan of existing and proposed buildings, existing vegetations, existing slopes and drainage pattern	Optional clause	
				Criterion 4: Design to include existing site features	4.2.1 Provide drawings along with narrative to demonstrate that the zoning of areas on site is appropriate to existing site features. Support these with visual documentation such as photographs and land survey records before and after construction 4.2.2 Carry out detailed site analysis and provide	Optional clause	

					narrative to demonstrate sustainable site planning		
		Aerial image of site and immediate surroundings within 500 m	1.1	Criterion 1: site selection	1.2.2 Site plan (one AutoCAD drawing) showing the site and its surrounding areas (up to 2km radius)- <i>Aerial image from Google maps is also acceptable under this criteria</i>	Optional clause	
		Documents showing the following					
		Total site area	1.2	Criterion 1: site selection	1.2.1 Document to prove conformity to the development plan/master plan/UDPFI Guidelines Total site area is also asked during GRIHA registration process	Mandatory clause	
		Total built up area(provide area details)	1.2	Criterion 1: site selection	1.2.1 Document to prove conformity to the development plan/master plan/UDPFI Guidelines Total Built up area is also asked during GRIHA registration process	Mandatory clause	
		Water consumption	1.2	Criteria 10: Reduce Landscape water Requirement	10.2.3 Calculation of the water requirement after establishment for landscape in LPD (litres per day) for each month due to variation in PET (potential evapo-transpiration rate).	Optional clause	
	Criterion 11: reduce water use in the building			11.2.4: provide the design basis calculations demonstrating the reduction in the building's water demand as 25% or more	Optional clause		
	Criterion 28: Ensure water quality			28.2.1 Provide water optimization plan (water flow diagram giving the complete collection, treatment, and distribution for different applications).	Optional clause		
		Source of water supply	1.2	Criterion 28: Ensure water quality	28.2.1: provide water optimization plan (water flow diagram giving the complete collection, treatment and distribution for different applications)	Mandatory clause	
		Quality tests of water	1.2	Criterion 28: Ensure water quality	28.2.2: Provide the potable and treated waste water quality details from various sources before and after treatment	Mandatory clause	
		Sewage system of the site	1.2	Criterion 20: waste water treatment	20.2.1: narrative of the type of treatment system being employed. Drawings with specifications of the system indicating the capacity of water treated.	Optional clause	treated water should meet the disposal and/reuse application standards

		Power requirement	1.2	Criterion 14 : Optimize energy performance of building within specified comfort limits	14.2.2 Annual energy consumption data for the building, as per Tables 14.1 and 14.2, supported by the simulation results from the software used.		Power requirement is accounted for lighting and air conditioning only. However other loads will be incorporated into GRIHA later.
		Source of Power	1.2				Additional information to be integrated into GRIHA
		Back up systems, if any	1.2				Additional information to be integrated into GRIHA
		Connectivity to the city centre, utilities and transportation networks	1.2	Criterion 1: site selection	1.2.2 Site plan (one AutoCAD drawing) showing the site and its surrounding areas (up to 2km radius) <i>Aerial image from Google maps is also acceptable under this criteria</i>	Optional clause	
					1.2.3: Site plan (one AutoCAD drawing) showing the site connectivity to public transport corridors.	Optional clause	
		Community facilities	1.2	Criterion 1: site selection	1.2.2 Site plan (one AutoCAD drawing) showing the site and its surrounding areas (up to 2km radius) <i>Aerial image from Google maps is also acceptable under this criteria</i>	Optional clause	
		Air quality and ambient noise levels	1.2	Criterion 29: acceptable outdoor and indoor noise levels	29.2.1: A sound audit report in the format specified on measured average ambient noise level at site and indoor noise levels at different locations inside the building	Optional clause	
					29.2.2: the building site plan duly signed by the architect /applicant showing all the measures to control outdoor noise	Optional clause	
				Criterion 9: Reduce air pollution during construction	9.2.1 Narrative (not more than 300 words) explaining the air pollution preventive measures that have been adopted on-site. Site photographs showing different stages of construction along with preventive measures to support the claim.	Optional clause	

					9.2.2 Relevant sections of tender document showing that air pollution prevention measures are mandatory are to be adopted by contractors during construction.	Optional clause	
		Parking needs	1.2	Criterion 5: reduce hard paving on-site and/or provide shaded hard paved surfaces	5.2.3 : certificate by local architect to certify that total surface parking not to exceed as permitted by local bye-law	Mandatory if applicable (shares 1 point with other clauses)	Total parking to be additionally considered in GRIHA
		Provide details of impacts on existing facilities adjacent to existing site e.g. Storm water drainage, traffic, noise and air quality, ecology, open spaces, utilities etc. The answers should be suitably annexed with photographs, impact analysis and projections as required.	1.3	Criterion 4: Design to include existing site features	4.2.1 Provide drawings along with narrative to demonstrate that the zoning of areas on site is appropriate to existing site features. Support these with visual documentation such as photographs and land survey records before and after construction	Optional Clause	
					4.2.2 Carry out detailed site analysis and provide narrative to demonstrate sustainable site planning	Optional Clause	
		Provide details of soil type, slope analysis, vulnerability to subsidence, seismicity.	1.4	Criterion 2: preserve and protect landscape during construction	2.2.2 A CAD drawing showing the site plan of existing and proposed buildings; existing vegetation and slopes; and drainage pattern. Demarcate areas on the site plan to which site activities will be limited.	Optional clause	To be added to GRIHA as submittal
					2.2.3 Site plan showing existing vegetation, buildings, slopes, and site drainage pattern; staging and spill prevention measures; and erosion and sedimentation control measures.	Optional clause	
					2.2.4 One document to be submitted after construction of the building, giving a brief description along with photographic records to show that other areas have not been disrupted during construction. The document should also include a brief explanation and photographic records to show erosion and sedimentation control measures adopted. (A CAD drawing showing site plan details of existing vegetation, buildings, and slopes and site drainage pattern; staging and spill prevention measures; erosion and sedimentation control measures; and measures adopted for topsoil preservation during construction	Optional clause	
				Criterion 3: soil conservation (till post construction)	3.2.1 Site contour plan (one CAD drawing) showing drainage pattern and demarcating (1) areas where topsoil laying is done, and (2) Areas where vegetation cover is provided for topsoil protection.	Optional clause	

					<p>3.2.2 Narrative explaining the methods of soil stabilization used and, wherever required, accompanied by photographs with brief descriptions.</p> <p>3.2.3 Certificate from the landscape architect on topsoil laying, soil stabilization, and adequate primary soil nutrient and pH (supported by tests results performed at an ICAR [Indian Council of Agricultural Research] – accredited laboratory).</p>	Optional clause	
				Criterion 4: Design to include existing site features	<p>4.2.1 Provide drawings along with narrative to demonstrate that the zoning of areas on site is appropriate to existing site features. Support these with visual documentation such as photographs and land survey records before and after construction</p> <p>4.2.2 Carry out detailed site analysis and provide narrative to demonstrate sustainable site planning</p>	Optional clause	
		Provide details of mitigation options adopted to reduce impacts of proposed construction with respect to above factors.	1.4	Criterion 4: Design to include existing site features	<p>4.2.1 Provide drawings along with narrative to demonstrate that the zoning of areas on site is appropriate to existing site features. Support these with visual documentation such as photographs and land survey records before and after construction</p> <p>4.2.2 Carry out detailed site analysis and provide narrative to demonstrate sustainable site planning</p>	Optional clause	
		Provide details of erosion control plan.	1.4	Criterion 2: preserve and protect landscape during construction	<p>2.2.1 Certificate of architect in prescribed format confirming the proper timing of construction to ensure proper timing with respect to the construction.</p> <p>2.2.2 A CAD drawing showing the site plan of existing and proposed buildings; existing vegetation and slopes; and drainage pattern. Demarcate areas on the site plan to which site activities will be limited.</p> <p>2.2.3 Site plan showing existing vegetation, buildings, slopes, and site drainage pattern; staging and spill prevention measures; and erosion and sedimentation control measures.</p>	Optional clause	

					<p>2.2.4 One document to be submitted after construction of the building, giving a brief description along with photographic records to show that other areas have not been disrupted during construction. The document should also include a brief explanation and photographic records to show erosion and sedimentation control measures adopted. (A CAD drawing showing site plan details of existing vegetation, buildings, and slopes and site drainage pattern; staging and spill prevention measures; erosion and sedimentation control measures; and measures adopted for topsoil preservation during construction)</p>	Optional clause	
					<p>2.2.5 Site plan (one CAD drawing), along with a narrative, to demarcate areas on-site from which the topsoil has to be gathered, the designate area where it will be stored, the measures adopted for topsoil preservation. The plan should indicate areas where the topsoil will be reapplied after construction is complete</p>	Optional clause	
		Provide details of existing drainage plan, calculations of pre and post-construction run-off and detailed storm-water management plan with necessary drainage details.	1.5	<p>Criterion 2: preserve and protect landscape during construction</p>	<p>2.2.2 A CAD drawing showing the site plan of existing and proposed buildings; existing vegetation and slopes; and drainage pattern. Demarcate areas on the site plan to which site activities will be limited.</p>	Optional clause	
					<p>2.2.3 Site plan showing existing vegetation, buildings, slopes, and site drainage pattern; staging and spill prevention measures; and erosion and sedimentation control measures.</p>	Optional clause	
					<p>2.2.4 One document to be submitted after construction of the building, giving a brief description along with photographic records to show that other areas have not been disrupted during construction. The document should also include a brief explanation and photographic records to show erosion and sedimentation control measures adopted. (A CAD drawing showing site plan details of existing vegetation, buildings, and slopes and site drainage pattern; staging and spill prevention measures; erosion and sedimentation control measures; and measures adopted for topsoil preservation during construction)</p>	Optional clause	
				<p>Criterion 5: Reduce hard paving on-site and/or provide shaded Hard-paved surfaces</p>	<p>5.1.1 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>	Optional clause	

				Criterion 21: Water recycle and reuse (including rainwater)	21.2.1 Narrative along with drawings and specifications of the type of treatment and harvesting system being employed.	Optional clause	
					21.2.3 Documents indicating the projected quality of water, as per specifications.	Optional clause	
					21.2.4 Drawings with specifications of the systems, along with delivery lines, indicating the capacity of water treated and harvested.	Optional clause	
					21.2.5 Calculation sheet (Table 21.2) representing the total quantity of water treated and harvested and the amount being used for different applications including use within the building, landscape, and fraction recharged into ground.	Optional clause	
					21.2.6 Details of filtration system to show that adequate preventative measures are being taken to avoid contamination of aquifer by the recharged rainwater (mandatory).	Mandatory clause	
		Details of quantities of earthwork involved, transport of fill materials from outside the site.	1.6				To be included in GRIHA
		Provide soil quality test of top soil. If top soil is proposed to be preserved, provide details of quantity of top soil stored, demarcated area on plan where top soil shall be stored and preservation plan.	1.6	Criterion 2: preserve and protect landscape during construction	2.2.5 Site plan (one CAD drawing), along with a narrative, to demarcate areas on-site from which the topsoil has to be gathered, the designate area where it will be stored, the measures adopted for topsoil preservation. The plan should indicate areas where the topsoil will be reapplied after construction is complete.	Optional clause	
		Water supply source during construction. Certificate from the local authority like Jal Board etc to confirm availability of water; indicate the groundwater level, yield of the tube well.	1.7	Criterion 12 : Efficient water use during construction	12.2.2 Narrative on the initiatives of water use minimization, indicating the various sources of water.	Optional clause	
		Quality test report to prove water is suitable for construction activity.	1.7	Criterion 12 : Efficient water use during construction			Needs to be included in GRIHA
		Narrative on waste handling mechanism installed on site for storage and transportation schedule to manage landfills and recyclers depending upon the type of waste.	1.7	Criterion 23 : Efficient waste segregation	23.2.1 Narrative along with photographs/ plan indicating space, locations, and capacity for multi-coloured bins.	Optional clause	
	Criterion 24: Storage and disposal of wastes			24.2.1 Narrative along with photographs/ plan indicating space, locations, and capacity of the storage area.	Optional clause		
	Criterion 25 : Resource recovery from waste			25.2.1 Narrative indicating the plan and arrangement with local dealers for recycling of materials generated.	Optional clause		

					25.2.2 Details of plan and design of the waste treatment plant along with capacity for the disposal of biodegradable waste.	Optional clause	
					25.2.3 Narrative indicating the generation and reuse of by-products from the waste treatment plant.	Optional clause	
		Provide details of how low lying and wetlands are getting modified from the proposed activity.	1.8	Criterion 1: site selection	1.2.1 Document to prove conformity to the development plan/master plan/UDPFI Guidelines complying with water body zones (in such zones, no construction is permitted in the water-spread and buffer belt of 30 m minimum around the FTL)	Mandatory clause	
				Criterion 2: preserve and protect landscape during construction	2.2.3 Site plan showing existing vegetation, buildings, slopes, and site drainage pattern; staging and spill prevention measures; and erosion and sedimentation control measures.	Optional clause	
					2.2.4 One document to be submitted after construction of the building, giving a brief description along with photographic records to show that other areas have not been disrupted during construction. The document should also include a brief explanation and photographic records to show erosion and sedimentation control measures adopted. (A CAD drawing showing site plan details of existing vegetation, buildings, and slopes and site drainage pattern; staging and spill prevention measures; erosion and sedimentation control measures; and measures adopted for topsoil preservation during construction.	Optional clause	
		Give quantities of various types of wastes generated during construction including the Construction labour and the means of disposal.	1.9	Criterion 22: Reduction in waste during construction	22.2.1 Narrative indicating the quantum of waste generated during the construction activity, and the storage facility for segregated inert and hazardous waste before recycling and disposal	Optional clause	
					22.2.2 Layout (showing the location) and photo of the storage facility for segregated inert and hazardous waste. The capacity of the storage facility has to be provided.	Optional clause	
2	Water environment	Document indicating the water demand of the building, landscape, construction and process water use through water balance chart; source of water supplies (Groundwater, municipal, tanker etc.) and the break up of the supply for each source	2.1	Criterion 21 : Water recycle and reuse (including rainwater)	21.2.5: Calculation sheet representing the total quantity of water treated and harvested and the amount being used for different applications including use within the building, landscape, and fraction recharged into ground.	Optional clause	
				Criterion 28: Ensure water quality	28.2.1 Provide water optimization plan (water flow diagram giving the complete collection, treatment, and distribution for different applications).	Mandatory clause	
				Criterion 10: Reduce landscape water requirement	10.2.3 Calculation of the water requirement after establishment for landscape in LPD (litres per day) for each month due to variation in PET (potential Evapo-transpiration rate).	Optional clause	

				Criterion 11: Reduce water use in the building	11.2.4 Provide design basis calculations demonstrating the reduction in the building's water demand as 25% or more (Table 11.1).	Optional clause	
		Details of the proposed development around the site; Certificate from the local authority (Jal Board) indicating the groundwater level, yield of the tube well; Certificate from the municipality indicating the capacity of the source of water supply for the region specifying the demand it will cater to.	2.2,2.5	Criterion 1: site selection	1.2.2 Site plan (one AutoCAD [computer aided design] drawing) showing the site and its surrounding areas (up to 2 km radius).	Optional clause	Certificates from local authority for capacity of water from various sources needs to be incorporated in GRIHA
		Impact on other users if any	2.2,2.5				Needs to incorporated in GRIHA
		Water quality certificate for each source from accredited lab	2.3	Criterion 28: Ensure water quality	28.2.3: Report or certificate from the local municipal authority for municipal water or certificate from an NABL accredited laboratory on the quality of portable water	Optional clause	
		Calculation indicating the amount of wastewater generated	2.4, 2.6, 2.13, 2.14	Criterion 20: Waste water treatment	20.2.1: Narrative on the type of treatment system being employed. Drawings with specifications of the system indicating the Capacity of water treated.	Optional clause	
		details of disposal of waste water	2.4, 2.6, 2.13, 2.14	Criterion 20: Waste water treatment	20.2.2 Indicate the quantum of treated water generated along with the use/disposal steps. 20.2.5 Narrative on disposal and reuse of other by-products such as sludge.	Optional clause	
		Treatment plant capacity and details of the treatment system	2.4, 2.6, 2.13, 2.14	Criterion 20: Waste water treatment	20.2.1: Narrative on the type of treatment system being employed. Drawings with specifications of the system indicating the Capacity of water treated.	Optional clause	
		Details and drawings of the dual plumbing system for separation of grey and black water or for recycling of treated water or other source of water	2.4, 2.6, 2.13, 2.14	Criterion 20: Waste water treatment	20.2.1: Narrative on the type of treatment system being employed. Drawings with specifications of the system indicating the Capacity of water treated.	Optional clause	
		Wastewater characteristics and Projected treated water quality	2.4, 2.6, 2.13, 2.14	Criterion 20: Waste water treatment	20.2.4: Quality checking frequency and sampling plan of the treatment plant. The testing should be done by any NABL accredited laboratory 20.2.3: Provide the characteristics of waste water and expected characteristics after treatment from the supplier	Optional clause	

	Details of the supply and storage system for reuse of the treated water	2.4, 2.6, 2.13, 2.14	Criterion 20: Waste water treatment	20.2.1: Narrative on the type of treatment system being employed. Drawings with specifications of the system indicating the Capacity of water treated.	Optional clause	
	Water balance indicating the various points and quantity of treated water application	2.4, 2.6, 2.13, 2.14	Criterion 21: water recycle and reuse(including rain water)	21.2.5: Calculation sheet representing the total quantity of water treated and harvested and the amount being used for different applications including use within the building, landscape, and fraction recharged into ground.	Optional clause	
	Quantity of wastewater generated during construction	2.10, 2.12				Needs to incorporated in GRIHA
	Characteristics of the waste stream including total suspended materials and list of chemicals from the construction site	2.10, 2.12	Criterion 2: preserve and protect landscape during construction	2.2.3 Site plan showing existing vegetation, buildings, slopes, and site drainage pattern; staging and spill prevention measures; and erosion and sedimentation control measures. Includes construction of temporary drainage and sedimentation basin	Optional clause	
Criterion 22: reduction in waste during construction			Click the link to see the list of materials available on construction site	Optional clause		
	Proposed treatment system along with the technical specifications and the capacity, storage plans for hazardous waste, if any.	2.10, 2.12	Criterion 22: reduction in waste during construction	22.2.1 Narrative indicating the quantum of waste generated during the construction activity, and the storage facility for segregated inert and hazardous waste before recycling and disposal	Optional clause	
22.2.2 Layout (showing the location) and photo of the storage facility for segregated inert and hazardous waste. The capacity of the storage facility has to be provided.				Optional clause		
	Site plan with contours showing location of _ Low lying areas	2.7,2.8 ,2.9, 2.11	Criterion 2: preserve and protect landscape during construction	2.2.3 Site plan showing existing vegetation, buildings, slopes, and site drainage pattern; staging and spill prevention measures; and erosion and sedimentation control measures.	Optional clause	
	_ Trees to be retained	2.7,2.8 ,2.9, 2.11		2.2.6 One CAD drawing showing proposed landscape plan with identification of trees (different colour coding for protected, preserved, transplanted, and removed trees) corresponding to the existing tree-survey table (to be included in the drawing), existing and new buildings, and proposed site drainage pattern. Explain in brief measures adopted for protecting existing landscape (limit to 250 words).	Optional clause	
	_ Building plans with extent of foundations	2.7,2.8 ,2.9, 2.11		2.2.2 A CAD drawing showing the site plan of existing and proposed buildings; existing vegetation and slopes; and drainage pattern. Demarcate areas on the site plan to	Optional clause	

				which site activities will be limited.		
	_ Rainwater harvesting structures planned	2.7,2.8,2.9,2.11	Criterion 21: water recycle and reuse (including rain water)	21.2.1 Narrative along with drawings and specifications of the type of treatment and harvesting system being employed.	Optional clause	
	Hydrogeology information and map in case of ground water recharge structure showing the following	2.7,2.8,2.9,2.11	Criterion 3 : Soil conservation (till post-construction)	3.2.3 Certificate from the landscape architect on topsoil laying, soil stabilization, and adequate primary soil nutrient and pH (supported by tests results performed at an ICAR [Indian Council of Agricultural Research] – accredited laboratory).	Optional clause	
	<ul style="list-style-type: none"> Soil characteristics. Certificate showing soil analysis, soil structure indicating infiltration rate 		Criterion 21: water recycle and reuse (including rain water)	21.2.6 Details of filtration system to show that adequate preventative measures are being taken to avoid contamination of aquifer by the recharged rainwater (mandatory).	Mandatory clause	
	<ul style="list-style-type: none"> Aquifer profile including Groundwater potential of different hydro-geological units and the level of ground water development; Chemical quality of water in different aquifers 	2.7,2.8,2.9,2.11				To be additionally incorporated in GRIHA
	<ul style="list-style-type: none"> Total run-off from the site (reconstruction) and Total rainwater harvesting potential of the scheme from various land uses and catchments in the planned development including projected water quality concerns from various catchments. Also attach the rainfall data used. 	2.7,2.8,2.9,2.11	Criterion 5 : Reduce hard paving on-site and/or provide shaded hard-paved surfaces	5.2.1 Calculations to support design commitment that 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.	Optional clause	
			Criterion 21: water recycle and reuse (including rain water)	21.2.5 Calculation sheet representing the total quantity of water treated and harvested and the amount being used for different applications including use within the building, landscape, and fraction recharged into ground.	Optional clause	
	_ Total rainwater planned to be harvested as a percentage of the total demand	2.7,2.8,2.9,2.11	Criterion 21: water recycle and reuse (including rain water)	21.2.5 Calculation sheet representing the total quantity of water treated and harvested and the amount being used for different applications including use within the building, landscape, and fraction recharged into ground.	Optional clause	
	Detail design of rainwater harvesting structures	2.7,2.8,2.9,2.11	Criterion 21: water recycle and reuse (including rain water)	21.2.6 Details of filtration system to show that adequate preventative measures are being taken to avoid contamination of aquifer by the recharged rainwater (mandatory).	Optional clause	
	_ Proposed water quality remedial	2.7,2.8,2.9,	Criterion 21: water recycle and	21.2.3 Documents indicating the projected quality of water, as per specifications.	Optional clause	

		measures including details of filters to be used.	2.11	reuse (including rain water)	21.2.6 Details of filtration system to show that adequate preventative measures are being taken to avoid contamination of aquifer by the recharged rainwater (mandatory).	Optional clause	
		Approval certificates from Central/ State ground water board in case of ground water recharge structure	2.7,2.8 ,2.9, 2.11	Criterion 21: water recycle and reuse (including rain water)	21.2.6 Recharge system to be compliant with Central Ground water board specification	Mandatory	
		Approval certificates from Civil engineers/ Architect if storage tanks are being planned	2.7,2.8 ,2.9, 2.11	Criterion 21: water recycle and reuse (including rain water)	21.2.4 Drawings with specifications of the systems, along with delivery lines, indicating the capacity of water treated and harvested.	Optional clause	
		Plan indicating supply and delivery system from the storage facilities created and in case of ground water recharge structures, plan demonstrating adequacy of recharge structures during peak runoff. (Data of existing bore-wells should also be collected to determine the intake capacity of the recharge wells)	2.7,2.8 ,2.9, 2.11				To be specifically mentioned in GRIHA
		Post implementation Operations, maintenance & monitoring plan proposed. Eg: AMC offered in contractual document; instruction and user manual; signage planned.	2.7,2.8 ,2.9, 2.11				To be specifically mentioned in GRIHA
3	vegetation	Site plan along with a narrative showing existing vegetation, existing buildings, proposed buildings, existing slopes and existing site drainage pattern, staging and spill prevention measures, erosion and sedimentation control measures.	3.1, 3.2,3.3	Criterion 2: preserve: and protect landscape during construction	2.2.3 Site plan showing existing vegetation, buildings, slopes, and site drainage pattern; staging and spill prevention measures; and erosion and sedimentation control measures.	Optional clause	
		Tree survey plan in the table 1 indicating protected / preserved / transplanted / removed trees.	3.1, 3.2,3.3	Criterion 2: preserve: and protect landscape during construction	2.2.6 One CAD drawing showing proposed landscape plan with identification of trees (different colour coding for protected, preserved, transplanted, and removed trees) corresponding to the existing tree-survey table(to be included in the drawing),existing and new buildings, and proposed site drainage pattern. Explain in brief measures adopted for protecting existing landscape (limit to 250 words).	Optional clause	
		Provide proposed landscape plan with identification of trees (different colour coding for trees to be used for protected, preserved, transplanted, removed trees)	3.1, 3.2,3.3	Criterion 2: preserve: and protect landscape during	2.2.6 One CAD drawing showing proposed landscape plan with identification of trees (different colour coding for protected, preserved, transplanted, and removed trees) corresponding to the existing tree-survey table(to	Optional clause	

		corresponding to the existing and new buildings and existing tree survey table. Explain in brief measures adopted for protecting existing landscape.		construction	be included in the drawing),existing and new buildings, and proposed site drainage pattern. Explain in brief measures adopted for protecting existing landscape (limit to 250 words).		
		Site plan along with a narrative to demarcate areas on site from which top soil has to be gathered, designate area where it will be store, measures adopted for top soil preservation and indicate areas where it would be reapplied after construction is complete.	3.1, 3.2,3.3	Criterion 2: preserve: and protect landscape during construction	2.2.5 Site plan (one CAD drawing), along with a narrative, to demarcate areas on-site from which the topsoil has to be gathered, the designate area where it will be stored, the measures adopted for topsoil preservation. The plan should indicate areas where the topsoil will be reapplied after construction is complete.	Optional clause	
		Indicate the time of construction with respect to rains.	3.1, 3.2,3.3	Criterion 2: preserve: and protect landscape during construction	2.2.1 Certificate of architect in prescribed format confirming the proper timing of construction.	Optional clause	
		Proposed landscape plan, clearly highlighting the trees removed (indicating the number of trees), if applicable, List details about species, which existed, and the species that have been replanted on site.	3.1, 3.2,3.3	Criterion 2: preserve: and protect landscape during construction	2.2.8 Landscape plan, if applicable, clearly highlighting the tree-removed areas (indicating the number of trees) with the number of replanted trees in the ratio of 1:3 in the proposed landscape design. A list with details about the species that existed and the species that have been replanted on-site.	Optional clause	
		Give details of proposal for tree plantation, landscaping, creation of water bodies etc along with a layout plan to an appropriate scale. A narrative over displacement of fauna-both terrestrial and aquatic or creation of barriers for their movement. Provide the details.	3.1, 3.2,3.3 4.1	Criterion 2: preserve: and protect landscape during construction	2.2.8 Landscape plan, if applicable, clearly highlighting the tree-removed areas (indicating the number of trees) with the number of replanted trees in the ratio of 1:3 in the proposed landscape design. A list with details about the species that existed and the species that have been replanted on-site. 2.2.9 Landscape plan to show that plantation in excess of 25% than minimum requirement has been done carried out.	Mandatory clause Optional clause	
4		A narrative over displacement of fauna-both terrestrial and aquatic or creation of barriers for their movement. Provide the details.	4.1				To be included in GRIHA
		A narrative on direct or indirect impacts on the avifauna of the area.	4.2				To be included in GRIHA
		A narrative describing mitigation options to overcome the adverse impacts on fauna	4.3				To be included in GRIHA
5	Air movement	A document showing the following The air quality parameters and pollution levels as analyzed as per IS-5182.	5.1, 5.2				To be included in GRIHA

	Mitigation measures adopted to reduce air pollution, dust generation due to construction activity.		Criterion 9: Reduce air pollution during construction	9.2.1 Narrative (not more than 300 words) explaining the air pollution preventive measures that have been adopted on-site. Site photographs showing different stages of construction along with preventive measures to support the claim.	Mandatory clause	
	Predicted values of air quality due to increased traffic (use dispersion model)			9.2.2 Relevant sections of tender document showing that air pollution prevention measures are mandatory are to be adopted by contractors during construction.	Mandatory clause	
	Provide mitigation options to reduce heat islands		Criterion 5 : Reduce hard paving on-site and/or provide shaded hard-paved surfaces	5.2.2 Site plan (one drawing) with area statements clearly showing all paved areas (paved areas should be labelled as per use; for example, walkways, driveways, parking, sit out) The following details as applicable. <ul style="list-style-type: none"> Demarcate areas that have vegetated roof. Provide details of vegetated roof. In case high reflectance surface is provided, submit details of reflectance of surface finish. Demarcate areas having pervious paving. 	Optional clause	
	Predict impacts of dust, fumes, smoke, hazardous gases on all meteorological parameters.					To be included in GRIHA
	Road sections showing facilities for pedestrians and bicyclists.	5-3	Criterion 7 : Plan utilities efficiently and optimize on-site circulation efficiency	7.2.1 A narrative (maximum 300 words) along with supporting drawings to prove that road lengths and building footprint are minimized and that all pedestrian roads have permanent shading. 7.2.3 Site plan (CAD file) showing that all services along with the pedestrian and vehicular paths are consolidated.	Optional with 2 points	
	Layout plan showing the entry and exit points, parking and circulation plan of vehicles.		Criterion 7 : Plan utilities efficiently and optimize on-site circulation efficiency	7.2.1 A narrative (maximum 300 words) along with supporting drawings to prove that road lengths and building footprint are minimized and that all pedestrian roads have permanent shading. 7.2.3 Site plan (CAD file) showing that all services along with the pedestrian and vehicular paths are consolidated.	Optional with 2 points	

	Architectural site plan showing all the buildings and surrounding roads and open spaces, confirming the guidelines given in section 3.2.2.2, geometric design improvement and road safety.					To be included in GRIHA
	Provide detailed parking place and provide detailed parking estimate vis-à-vis NBC norms and local bye-laws.(Cars, Two-wheelers, buses etc)					To be additionally incorporated in GRIHA
	Site plan showing buildings, roads and open spaces, confirming the hierarchy of roads as per the rules given by UDPFI guidelines	5-4	Criterion 1: site selection	1.2.1 Document to prove conformity to the development plan/master plan/UDPFI guidelines.	Mandatory clause	
	Site plan for construction management showing the layout of noise and dust barriers	5-5	Criterion 9: Reduce air pollution during construction	9.2.1 Narrative (not more than 300 words) explaining the air pollution preventive measures that have been adopted on-site. Site photographs showing different stages of construction along with preventive measures to support the claim.	Mandatory clause	
9.2.2 Relevant sections of tender document showing that air pollution prevention measures are mandatory are to be adopted by contractors during construction.				Mandatory clause		
Criterion 29 : Acceptable outdoor and indoor noise levels			29.2.2 The building site plan duly signed by the architect/applicant showing all the measures to control outdoor noise.	Optional clause		
	Proof of PUC check of vehicles and machinery between every 3 months period of construction work	5-5				To be included in GRIHA
	Give post construction estimate of increase in noise and mitigation options.	5-5	Criterion 29 : Acceptable outdoor and indoor noise levels	<p>29.2.3 The drawings and narratives showing measures as described in NBC 2005 (BIS 2005a), to control indoor noise.</p> <p>29.2.4 Cut sheets, specification sheets, commercial brochures of the sound absorbent materials, and bill of quantity demonstrating the use of sound absorbent materials in the building design.</p> <p>29.2.5 The report on measured indoor noise levels at different locations. Noise measurement should be conducted by organization recognized by the competent authority and it should follow procedures laid down by the competent authority (report to be submitted after the building is occupied).</p>	Optional clause	

		Drawings and specification of DG room and DG sets with acoustic enclosure and stack height details.	5.6	Criterion 29 : Acceptable outdoor and indoor noise levels	29.2.2 The building site plan duly signed by the architect/applicant showing all the measures to control outdoor noise.	Optional clause	
6	Aesthetics	Site location along with panoramic view of the project site and vicinity.	6.1, 6.2, 6.3, 6.4	Criterion 4: Design to include existing site features	4.2.1 Drawings along with a narrative to demonstrate that the zoning of areas on-site is appropriate to the existing site features (such as slopes, vegetation, water bodies, and other natural formations). Support these with visual documentation such as photographs and land survey records (before and after construction). 4.2.2 Carry out detailed site analysis and provide narrative to demonstrate sustainable site planning as elaborated in Box 4.2.	Optional clause	
		Surrounding features of the proposed site (within 500 meters).					
		Buildings sited near potential views, monumental, natural, city views, narrative and details of design considerations incorporated in building design to preserve the views should be provided.					
		Provide a detailed narrative with photos addressing the queries in 6.1 to 6.4.					
7	Socio-economic Aspects	The density and projected demographic profile of the proposed development	7.1, 7.2				To be included in GRIHA
		A narrative over the detail of the existing social infrastructure around the proposed project.	7.1, 7.2				To be included in GRIHA
		Give details as requested for in questions 7.1 to 7.3.	7.1, 7.2				To be included in GRIHA
		Details of recycled materials used in roads and structures	7.1, 7.2				To be included in GRIHA
8	Building materials	Site plan showing construction management plan presenting the material storage spaces, layout of machinery and waste disposal	8.2	Criterion 22 : Reduction in waste during construction	22.2.2 Layout (showing the location) and photo of the storage facility for segregated inert and hazardous waste. The capacity of the storage facility has to be provided.	Optional clause	
		Specifications of materials used in each component part of the building and landscape (envelope, superstructure, openings and roads and surrounding landscape), Plans and sections of buildings showing effective methods of construction, Justification of the water saving methods in		Criterion 16: Reduce volume, weight, and construction time by adopting efficient technologies (such	16.2.1 Cut sheets, specification sheets and bill of quantity demonstrating the percentage reduction in high-energy materials with the use of low-energy technologies. 16.2.2 Document to demonstrate the use of the aforesaid technologies in the relevant floor plans, with clear dimensions and enlisting of specifications.	Optional clause	

		construction techniques,		as pre-cast systems)	16.2.3 Narrative showing how the selected technology has amounted to reduction in high energy materials or regional availability when compared with equivalent products for the same application. On-site photographs and construction project management plan, which would clearly demonstrate the use/ construction/specifications of low-energy technologies	Optional clause	
				Criterion 12: Efficient water use during construction	12.2.1 Certificate from architect confirming the initiatives taken to minimize the use of potable water during construction.	Optional clause	
					12.2.2 Narrative on the initiatives of water use minimization, indicating the various sources of water.	Optional clause	
		Details of the new technologies or non-conventional materials used		Criterion 15: Utilization of fly ash in building structure	15.2.1 Fly ash use in RC: Minimum 15% replacement of cement with fly ash (by weight of cement used) in the total structural concrete. Provide supporting document from the manufacturer of cement specifying the fly ash content in PPC used in reinforced concrete	Optional clause	
					15.2.2 Fly ash use in building blocks of load bearing and non-load-bearing walls: Minimum 40% replacement of cement with fly ash (by weight of cement used), for 100% load bearing and non-load-bearing walls. Provide supporting document from the manufacturer of the pre-cast building blocks specifying the fly ash content of the blocks used in an infill wall system.	Optional clause	
					15.2.3 Fly ash use in plaster and masonry mortar: Minimum 30% use of fly ash in place of cement (by weight) in overall plaster and mortar requirements. Provide supporting document from the manufacturer of the cement/ready-mix concrete specifying the fly ash content in the PPC used in plaster and masonry mortar.	Optional clause	
					15.2.4 Certificate from the architect specifying overall replacement of cement in the RC and pre-cast building blocks plaster and masonry in the specified format (in prescribed certificate format).	Optional clause	
				Criterion 16: Reduce volume, weight, and construction time by adopting efficient technologies (such	16.2.1 Cut sheets, specification sheets and bill of quantity demonstrating the percentage reduction in high-energy materials with the use of low-energy technologies.	Optional clause	
					16.2.2 Document to demonstrate the use of the aforesaid technologies in the relevant floor plans, with clear dimensions and enlisting of specifications.	Optional clause	

				as pre-cast systems)	16.2.3 Narrative showing how the selected technology has amounted to reduction in high energy materials or regional availability when compared with equivalent products for the same application. On-site photographs and construction project management plan, which would clearly demonstrate the use/construction/specifications of low-energy technologies	Optional clause	
		Review and detailed survey and documentation of waste generated at the demolition site and quantities of the elements to be taken out and preserved before demolition, e.g. door and window frames, glass pans, wooden panels, grills, floor tiles trees, steel members and other recyclables.	8.4				To be included in GRIHA
9	Energy Conservation	A document showing the following Details of total power requirements in KVA _ Source of supply _ Back up source and capacity _ Back up sizing _ Fuel consumption by the backup source _ Energy consumption per sqm using the BEPI method as elaborated in section 6.5 _ Narrative on energy conservation techniques (solar passive, building materials, systems, renewable energy sources)	9.1 & 9.2	Criterion 13, 14 and 18	The link describes the compliances		
		Fenestration schedule and provide details in conformance to ECBC recommendations as highlighted in Table 4.1.3		Criterion 13: Optimize building design to reduce conventional energy demand	13.2.3 Detail window and skylight schedule of the proposed building	Mandatory clause	
		U factor and SHGC of glass. Indicate if overhangs or side fins are used for compliance purposes. If so, provide projection factor calculations	9.3	Criterion 13: Optimize building design to reduce conventional energy demand	13.2.2 Perform a sun path analysis for each exposed fenestration or use shading norms (prescribed in the table 9 and 10 in SP41- Handbook on functional requirements of buildings other than industrial buildings) to demonstrated the optimum shading requirement.	Mandatory clause	

					13.2.4 Submit the detail calculation in the prescribed of WWR for window details to support that all proposed fenestration meet the SHGC requirement as mentioned in ECBC 2007.	Mandatory clause	
		<p>_ One drawing showing the following 9.4 Topic Submittals Form IA Site plan with north line. Building plan with internal layouts showing all functional spaces. Building section and detailed typical wall sections indicating the material and thickness of each material. Narrative on solar passive architectural techniques used Provide Bill of Quantities indicating the selected building materials.</p>	9.4	Criterion 13: Optimize building design to reduce conventional energy demand	<p>13.2.1 Site plan in 1:500 scale giving north line, all the building plans, with internal layout showing all functional spaces and interior layout, four side elevations, building sections and fenestration details (if available)(the drawings shall be referred to post occupation review)</p> <p>13.2.2 Perform a sun path analysis for each exposed fenestration or use shading norms (prescribed in the table 9 and 10 in SP41- Handbook on functional requirements of buildings other than industrial buildings) to demonstrated the optimum shading requirement.</p> <p>13.2.3 Detail window and skylight schedule of the proposed building</p> <p>13.2.4 Submit the detail calculation in the prescribed of WWR for window details to support that all proposed fenestration meet the SHGC requirement as mentioned in ECBC 2007.</p> <p>13.2.5 submit the calculated daylight area in the following format (table 13.5.1 and 13.5.2) to show tht the total day lighted area is greater than equal to 25% of the living area of the proposed building (as specified in 13.2) and provide the calculated DF in the format for daylight factor calculation (table 13.5.3) to demonstrate that all the living areas comply with IS-2440-1975</p> <p>13.2.6 Daylight simulation result outputs, for all areas to demonstrate compliance with BIS.</p>	<p>Mandatory clause</p> <p>Mandatory clause</p> <p>Mandatory clause</p> <p>Mandatory clause</p> <p>Mandatory clause</p> <p>Mandatory clause</p>	
		<p>_ Provide details of renewable energy systems including system sizing and design energy delivered , building costs and integration details.</p>		Criterion 18: Renewable energy utilization	<p>18.2.1: detailed listing of load for lighting and space conditioning in the prescribed format</p> <p>18.2.3: List of all loads that being powered by renewable energy sources (other than lighting load) and their energy requirements</p> <p>18.2.4: design calculations for renewable energy system sizing and performance, including annual energy generation</p>	<p>Mandatory clause</p> <p>Optional clause</p> <p>Optional clause</p>	

					18.2.5: cut sheet of renewable energy systems with details	Optional clause	
					18.2.6: drawings in CAD format to show location of renewable energy systems	Optional clause	
				Criterion 19: Renewable- energy-based hot water system	19.2.1 Detailed calculations of hot water requirements.	Optional clause	
					19.2.2 Detailed calculations on energy required for heating water for all needs except for space heating (in kWh or litres of fossil fuel)	Optional clause	
					19.2.3 Detailed design calculations for renewable energy system sizing and performance including annual energy generation.	Optional clause	
					19.2.4 Layout of the proposed renewable energy system.	Optional clause	
					19.2.5 Test reports from approved test centre for system performance and efficiency.	Optional clause	
		Cut sheet for each window and shading size clearly dimensioned. Along with each window cut sheet, the orientation should be marked.	9.6	Criterion 13: Optimize building design to reduce conventional energy demand	13.2.5 Provide cut sheet for each window, with shading size and type with clear dimension. The orientation should be marked along with each window cut sheet.	Mandatory clause	
		Provide window details in the format given in Table 2	9.6		13.2.4 Provide the window details in the following format (Table 13.1), along with floor plans (1:200 scale).	Mandatory clause	
		Provide details of shading on East, West walls and roof.	9.6		13.2.5 Provide cut sheet for each window, with shading size and type with clear dimension. The orientation should be marked along with each window cut sheet.	mandatory clause	
		Narrative demonstrating the measures incorporated to mitigate negative impacts on the Microclimate of the site due to building activity.	9.8	Criterion 4: Design to include existing site features	4.2.1 Provide drawings along with narrative to demonstrate that the zoning of areas on site is appropriate to existing site features. Support these with visual documentation such as photographs and land survey records before and after construction	Optional clause	

					4.2.2 Carry out detailed site analysis and provide narrative to demonstrate sustainable site planning	Optional clause	
				Criterion 5: Reduce hard paving on-site and/or provide shaded hard-paved surfaces	5.2.2 Site plan (one drawing) with area statements clearly showing all paved areas (paved areas should be labelled as peruse; for example, walkways, driveways, parking, sit out) The following details as applicable. <ul style="list-style-type: none"> • Demarcate areas that have vegetated roof. Provide details of vegetated roof. • In case high reflectance surface is provided, submit details of reflectance of surface finish. • Demarcate areas having pervious paving. 	Optional clause	
		Compliance document demonstrating conformance to prescriptive requirement of energy conservation building code or building envelope tradeoff options	9.9, 9.7, 9.11	Criterion 13: Optimize building design to reduce conventional	13.2.4 Submit the detail calculation in the prescribed of WWR for window details to support that all proposed fenestration meet the SHGC requirement as mentioned in ECBC 2007.	Mandatory clause	