

The Member Secretary

Infrastructure & Miscellaneous Projects & CRZ Committee (Infra-2)

Ministry of Environment, Forests and Climate Change, Govt. of India

Indira Paryavaran Bhavan,

Jor Bagh Road, New Delhi-110003

Reference: 15th EAC meeting (Infra-2) held on 14.04.2017

Subject: Reply to queries raised during Appraisal Meeting 15th EAC meeting (infra-2), for Environment Clearance of project Expansion of Group Housing "MAHAGUN MANTRA-II" at Plot No GH-01/A, Sector 10, Greater Noida, U.P. being developed by M/s Hebe Infrastructure Pvt. Ltd.

Dear Sir,

We are developing Group Housing at Plot No GH-01/A, Sector-10, Greater Noida, Uttar Pradesh. Due to Unavailability of SEIAA/SEAC, UP the application was submitted to MoEF&CC on 18-03-2017. Appraisal for grant of Environmental Clearance was done on in 15th EAC meeting held on 14/04/2017. Few queries were asked in the meeting, we are hereby submitting the required additional details for Grant of Environmental clearance.

S. No.	Queries raised	Reply
1	Certified compliance report issued by the Regional Office, Lucknow on the environmental conditions stipulated in earlier EC issued vide letter no. 522/Praya/SEAC/2481/2013- 14/AD(S) dated 08.12.2015.	A letter was submitted to Regional Office on 30/3/2017 for site visit of our project. Dr. Lal visited our site on 24/4/2017 as MoEF Representative. A Reminder Letter was submitted to RO, MoEF for issuing Certified Compliance Report. Copy of letters submitted to MoEF is attached as Annexure A .
2	Give a conformity status to conditions stipulated in Annexure XIV of the amended EIA Notification vide S.O. 3999 (E) dated 09.12.2016.	Conformity status to conditions stipulated in Annexure XIV of the amended EIA Notification vide S.O. 3999 (E) dated 09.12.2016 is enclosed as Annexure B .
3	Notarized affidavit of undertaking by Board of Director(s) that there is no violation with regards to the provisions as made in the amended EIA notification of 14.03.2017	Notarized affidavit of undertaking by Board of Director(s) that there is no violation with regards to the provisions as made in the amended EIA notification of 14.03.2017 is enclosed as Annexure C .
4	Full ECBC compliance.	3 no. of Towers are constructed as per Earlier EC granted. Construction is under process for the same. The condition for compliance of ECBC was

For Hebe Infrastructure Pvt. Ltd.
[Signature]
Authorised Signatory

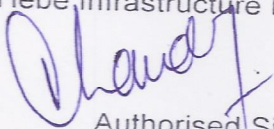
		not mandatory in earlier EC. Now, the vertical expansion is proposed in only 1 Tower, therefore, we can proceed with ECBC Compliance in this Tower Only. ECBC Compliance report is enclosed as Annexure D.
5	Excess treated sewage disposal plan/scheme to be submitted.	Excess treated water from the STP shall be discharge to the Sewer Line. Sewerage Plan is attached as Annexure E.
6	Details energy conservation measures to be taken. All points mentioned in the proposal such as orientation to support reduced heat gain, use of ASHRAE 90.1, use of ECBC compliant envelope measures to be supported through drawings and details in the proposal.	Energy Conservation Measures taken in constructed part and Measures to be taken in Proposed Expansion are attached as Annexure F.

Hope this will fulfil the Requirement and Environmental Clearance will be granted at the earliest.

Thanking you

Yours faithfully

For Hebe Infrastructure Pvt. Ltd.



Authorised Signatory

(Authorized Signatory)

PROJECT PROPONENT:

M/s Hebe Infrastructure PVT. LTD.

ENVIRONMENT CONSULTANT:

M/s PERFECT ENVIRO SOLUTIONS PVT. LTD.

Annexure A

Request to MoEF&CC for issuing

Certified Compliance Report

PROJECT PROPONENT:

M/s MAHAGUN REAL ESTATE PVT. LTD.

ENVIRONMENT CONSULTANT:

M/s PERFECT ENVIRO SOLUTIONS PVT. LTD.

Director
Ministry of Environment, Forest & Climate Change
Government of India
Regional Office (Central Region)
Kendriya Bhawan, 5th Floor, Sector-H, Aliganj
Lucknow- 226024

Sub: Request for Site Visit and thereby Issuance of Certified Compliance Report / Certificate of Environmental clearance received for the project – "Expansion of Group Housing Mahagun Mantra-II" at Plot No.GH-01/A, Sector-10, Greater Noida, U.P. being developed by M/s HEBE Infrastructure Pvt. Ltd.

Reference: Environmental Clearance vide letter No. 1522/Parya/SEAC/2481/2013-14/AD (S) dated 8/12/2015.

Dear Sir,

We wish to inform you that we had already been granted the Environmental clearance vide letter no. 1522/Parya/SEAC/2481/2013-14/AD(S) dated 8/12/2015 from SEIAA, Uttar Pradesh for the development of the "Group Housing-Mahagun Mantra II" at Plot No.GH-01/A, Sector-10, Greater Noida, U.P. for plot area 23,657.31 sqm & built up area of 1,35,405.18 sqm.

We wish to bring to your notice that we are in the process for Expansion in Environment Clearance from MoEF&CC for our project "Group Housing-Mahagun Mantra II" at Plot No.GH-01/A, Sector-10, Greater Noida, U.P. due to the revision of the built up area from 1,35,405.18 sqm to 1,38,294.52 sqm and as per the MoEF&CC Circular dated 30.05.2012 vide Circular no: J-11011/618/2010-IA-II (I), we need to submit the Certified Satisfactory Compliance Report / Certificate from MoEF Regional Office (Compliance of the conditions stipulated in the Environmental Clearance).

We hereby earnestly request you to kindly arrange / conduct the Site visit of our Project and thereby issue us the Certified Satisfactory Compliance Report / Certificate at the earliest so that the same can be submitted to MoEF&CC/SEIAA for our Case to be accepted and placed for consideration before the EAC (Expert Appraisal Committee).

Thanking You,
For Hebe Infrastructure Pvt. Ltd.

Yours Faithfully,

For, M/s HEBE Infrastructure Pvt. Ltd.

(Prayush Chaudhary)

(Authorized Signatory)

Enclosures:

1. Copy of the Environmental Clearance
2. Copy of the MoEF Circular dated 30.05.2012 vide Circular no: J-11011/618/2010-IA-II (I)



Director

Dated: 10.04.2017

Ministry of Environment, Forest & Climate Change Government of India
Regional Office (Central Region)
Kendriya Bhawan, 5th Floor, Sector-H, Aliganj Lucknow- 226024

Sub: Request for Site Visit and issuance of Certified Compliance Report/ Certificate of Environmental clearance received for the project - "EXPANSION OF group housing project "Mahagun Mantra-II" at PLOT NO. GH-01/A, SECTOR-10, GREATER NOIDA, Uttar Pradesh being developed by M/s Hebe infrastructure PVT. LTD
Reference: Environmental Clearance vide letter No. 1919/Parya/SEAC/1857/2013/AD(H) dated 12.10.2013.

Dear Sir,

We wish to inform you that we had already been granted the Environmental Clearance vide letter no. 1522/Parya/SEAC/2481/2013-14/AD(H) Dated 08/12/2015 from the MoEF for the development of the Group Housing at plot no.-GH-01/A, SECTOR-10, GREATER NOIDA, Uttar Pradesh for plot area 23657.3 sqm & built up area of 135405.18sqm.

We wish to bring in your kind notice that we are in the process for Expansion in Environment Clearance from MoEF&CC for our project EXPANSION OF group housing project "Mahagun Mantra-II" at PLOT NO.-GH-01/A, SECTOR-10, GREATER NOIDA, Uttar Pradesh due to the revision of the built-up area from 135405.18 sqm to 138294.52 Sqm and as per the MoEF&CC Circular dated 30.05.2012 vide Circular no: J-110111618/2010-IA-11 (I), we need to submit the Certified Satisfactory Compliance Report/ Certificate from MoEF Regional Office (Compliance of the conditions stipulated in the Environmental Clearance).

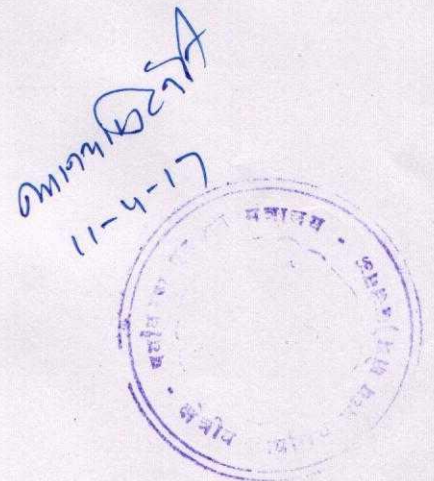
In view of the above we again request you that we have already submitted the request letter on 30.03.2017. Therefore, we shall be obliged if you could take timely action on the matter and do the needful so that we can be granted Environmental Clearance for the proposed expansion.

Thanking You,

Yours Faithfully,

For Hebe Infrastructure Pvt. Ltd.

For M/S Hebe Infrastructure Pvt. Ltd.



Annexure B

Annexure XIV of amended EIA Notification

PROJECT PROPONENT:

M/s MAHAGUN REAL ESTATE PVT. LTD.

ENVIRONMENT CONSULTANT:

M/s PERFECT ENVIRO SOLUTIONS PVT. LTD.

S.No	ENVIRONMENTAL CONDITIONS	Compliance
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. No construction is allowed 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.	Noted, Natural should be maintained. Noted Noted Noted
Water conservation - Rain Water Harvesting, and Ground Water Recharge		
2	A complete plan for rain water harvesting, water efficiency and conservation should be prepared. The local bye-law provisions on rain water harvesting should be followed. If local bye-law provisions are not available, adequate provision for storage and recharge should be followed as per the Ministry of Urban Development Model Building Bye- laws, 2016. A rain water harvesting plan needs to be designed where the recharge bores of minimum one recharge bore per 5,000 square meters of built up area and storage capacity of minimum one day of total fresh water requirement shall be provided. In areas where ground water recharge is not feasible, the rain water should be harvested and stored for reuse. The ground water shall not be withdrawn without approval from the Competent Authority. All recharge should be limited to shallow aquifer.	Proposal for Rain water harvesting pit has been proposed. 6 no. of Rainwater Harvesting shall be provided. Rain water will be collected in rainwater harvesting pit of size 3x3x3.5m effective depth. Also, daily fresh water requirement of the project is 503 KLD. No ground water will be withdrawal without taking prior permission from competent authority.
2(a)	At least 20% of the open spaces as required by the local building bye-laws shall be pervious. Use of Grass pavers, paver blocks with at least 50% opening, landscape etc. would be considered as pervious surface.	40.33% of total plot area shall be developed as green area.

2 (b)	Use of water efficient appliances should be promoted. Low flow fixture and fixtures or sensors be used to promote water conservation.	We are proposing all water efficient fixtures for water conservation.
2 (c)	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.	Dual Plumbing Plan has been proposed for the project to separate grey and black water and treated water will be reused in flushing, DG cooling, Gardening and Misc.
Solid Waste Management		
3	Solid waste: Separate wet and dry bins must be provided in each unit and at the ground level for facilitating segregation of waste. The provisions of the Solid Waste (Management) Rules 2016 and the e-waste (Management) Rules 2016, and the Plastics Waste (Management) Rules 2016 shall be followed.	Waste segregation has been proposed into Green and Blue colored bins for organic and Recyclable Wastes respectively. The solid waste will be handled as per the Solid Waste (Management) Rules 2016. The E-waste will be handled as per the E-waste (Management) Rules 2016. The Plastic waste will be handled as per the Plastic waste (Management) Rules 2016.
3 (a)	All non-biodegradable waste shall be handed over to authorized recyclers for which a written tie up must be done with the authorized recyclers.	All non-biodegradable waste will be handed over to authorized recyclers for which a written tie-up will be one with the authorized recyclers.
3(b)	Organic waste composter/Vermiculture pit with a minimum capacity of 0.3 kg/person/day must be installed.	1 number of Organic waste convertor shall be installed to treat the organic waste and to convert in manure.
Sewage Treatment Plant		
4	Onsite sewage treatment of capacity of treating 100% waste water to be installed. Treated waste water shall be reused on site for landscape, flushing, cooling tower, and other end-uses. Excess treated water shall be discharged as per CPCB norms. Natural treatment systems shall be promoted. 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.	STP of capacity 620 KLD will be installed. Treated waste water shall be reused on site for landscaping, flushing, DG cooling. Excess treated water will be discharged into sewer as per CPCB norms. Sludge generated will be properly handled as per the Ministry of Urban Development, Central Public Health and Environmental Engineering Organization (CPHEEO) Manual on Sewerage and Sewage Treatment Systems, 2013.
Energy		

5	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	The building will comply with Energy Conservation Building Code (ECBC) of Bureau of Energy Efficiency wherever feasible. Provision of LED lamp instead of GLS and HPSV lamp in the common area, and for Street light & Façade Light. Approx. 10% of energy will be saved by adopting energy conservation measures. Energy efficient materials will be used in wall and roof.
5 (a)	Solar, wind or other Renewable Energy shall be installed to meet electricity generation equivalent to 1% of the demand load or as per the state level/ local building bye-law's requirement, whichever is higher.	Solar Panels of 140 kW will be installed for generation of solar power.
5 (b)	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.	Solar water heating will be provided to meet 25% of the hot water demand.
5 (c)	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 provisions of the Fly Ash Notification of September, 1999 as amended from time to time.	Environment friendly materials in bricks, blocks and other construction materials, shall be used for construction material. Fly-ash bricks will also be used as building material in the construction as per the provisions of the Fly Ash Notification of September, 1999 as amended from time to time.
Air Quality and Noise		
6	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, murram and other construction materials prone to causing dust pollution at the site as well as taking out debris from the site. Wheel washing for the vehicles used be done. Sand, murram, 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. All construction and demolition debris shall be stored at the site (and not dumped on the roads or	Following measures shall be provided to reduce air pollution: 1) Buildings at the time of the construction will be properly covered with dust screens. 2) Proper barricading of the site upto a height of 3 m will be done at the time of the construction. 3) To prevent the dust, plastic/tarpaulin sheet covers shall be provided for vehicles bringing in sand, cement, murram and other construction materials. 4) Wheel washing for the vehicles will be done at the entry and exit gates. 5) All C&D debris will be sent to Approved C&D waste Management facility. 6) All the workers working at the construction site will be provided with all

	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. For indoor air quality, the ventilation provisions as per National Building Code of India.	the safety equipment.
6 (a)	The location of the DG set and exhaust pipe height shall be as per the provisions of the CPCB norms.	DG sets will be located on surface and adequate stack height will be provided as per the CPCB norms.
Green Cover		
7	A minimum of 1 tree for every 80 sq.mt. of land should be planted and maintained. The existing trees will be counted for this purpose. Preference should be given to planting native species.	A minimum of 1 tree for every 80 sq.mt. of land will be planted. Plot Area: $23657.3/80 = 296$ trees
7 (a)	Where the trees need to be cut, compensatory plantation in the ratio.	No trees will be cut.
Top Soil Preservation and Reuse		
8	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.	Topsoil excavated will be stockpiled appropriately in designated areas during plantation of the proposed vegetation on site.
Transport		
9	A comprehensive mobility plan, as per MoUD 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. 1. Hierarchy of roads with proper segregation of vehicular and pedestrian traffic. 2. Traffic calming measures. 3. Proper design of entry and exit points. 4. Parking norms as per local regulation.	Management of traffic will be properly done at the project site. Parking norms are as per the local by laws.
Environment Management Plan		
10	An environmental management plan (EMP) shall be prepared	Noted

Annexure C

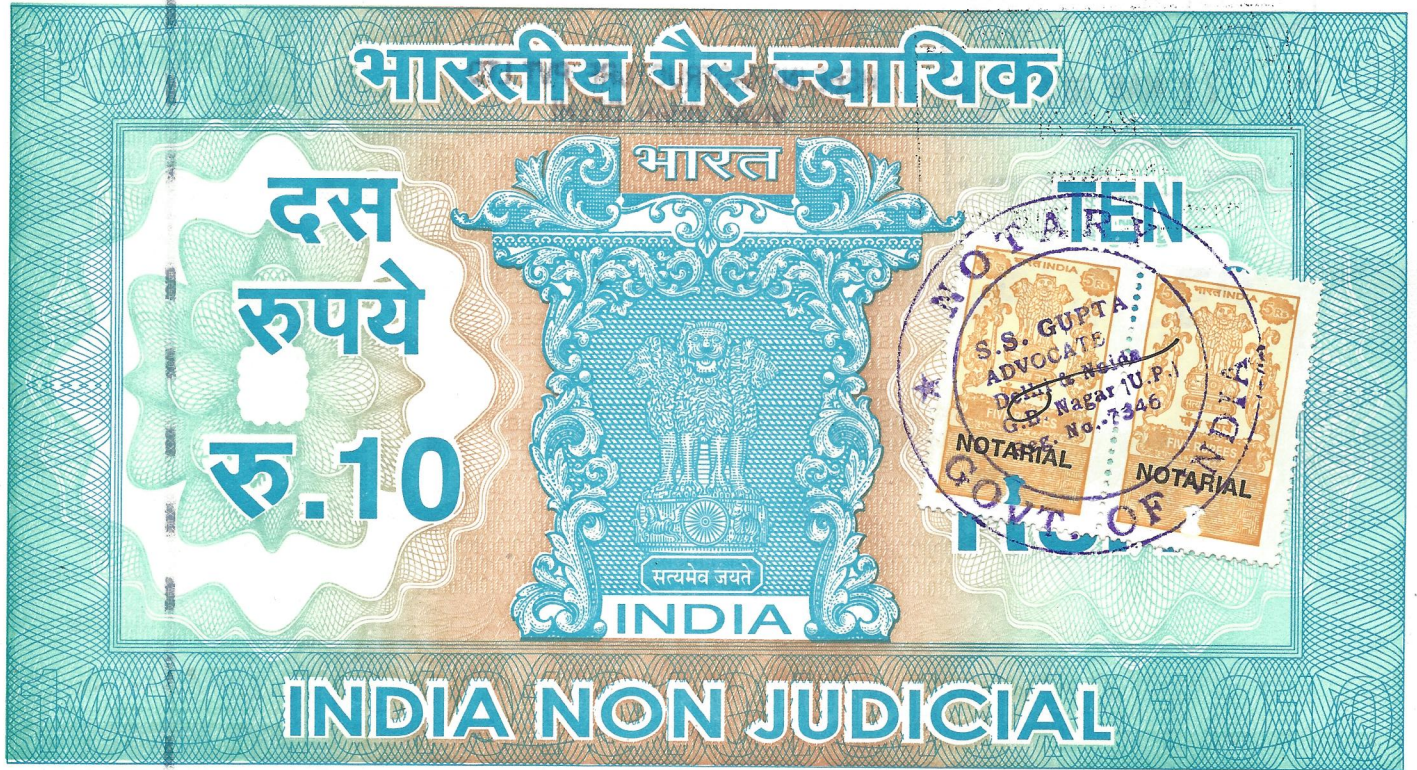
Affidavit for No-violation

PROJECT PROPONENT:

M/s MAHAGUN REAL ESTATE PVT. LTD.

ENVIRONMENT CONSULTANT:

M/s PERFECT ENVIRO SOLUTIONS PVT. LTD.



उत्तर प्रदेश UTTAR PRADESH

16AD 087007

Affidavit

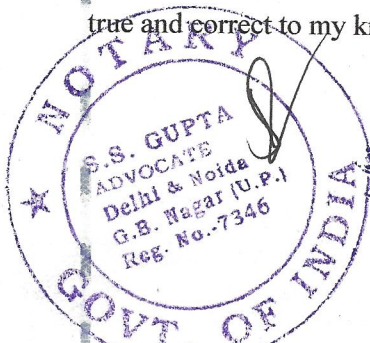
I Amit Jain, S/o P. K. Jain Director of Hebe Infrastructure Pvt Ltd. for project Expansion of Group Housing Complex "Mahagun Mantra-II" at Plot no. GH-01/A, Sector-10, Greater Noida, Uttar Pradesh, do hereby solemnly affirm and declare as under:

1. That we have obtained the Environmental Clearance of the project vide letter no. 1522/Praya/SEAC/2481/2013-14/AD(S) dated 08 December, 2015 for plot area 23,657.31 sqm and builtup area 1,35,405.18 sqm.
2. That we have complied all the Environmental Clearance conditions mentioned in the Environmental Clearance Letter.
3. That we have not done any violation of EIA Notification, 2006.

Amit Jain
Deponent

Verification

Verified at Noida on 09/05/2017 That the contents of Para's 1, 2, 3 of the above affidavits are true and correct to my knowledge and nothing has concealed there in it.



ATTESTED

S.S. GUPTA, ADVOCATE
NOTARY PUBLIC

Delhi & Noida G.B. Nagar (U.P.)

Amit Jain
Deponent

11 MAY 2017

Annexure D

ECBC compliance

PROJECT PROPONENT:

M/s MAHAGUN REAL ESTATE PVT. LTD.

ENVIRONMENT CONSULTANT:

M/s PERFECT ENVIRO SOLUTIONS PVT. LTD.

Mahagun Mantra II

ECBC Compliance
(Performance Method)

ARCHITECTURE

(a). SITE

Mahagun Mantra II at plot no. GH-01/A, Sector 10, Greater Noida, Uttar Pradesh situated at latitude 28°34'16.24" N and longitude 77°28'28.90" E at 210m above MSL.

(b). CLIMATOLOGY

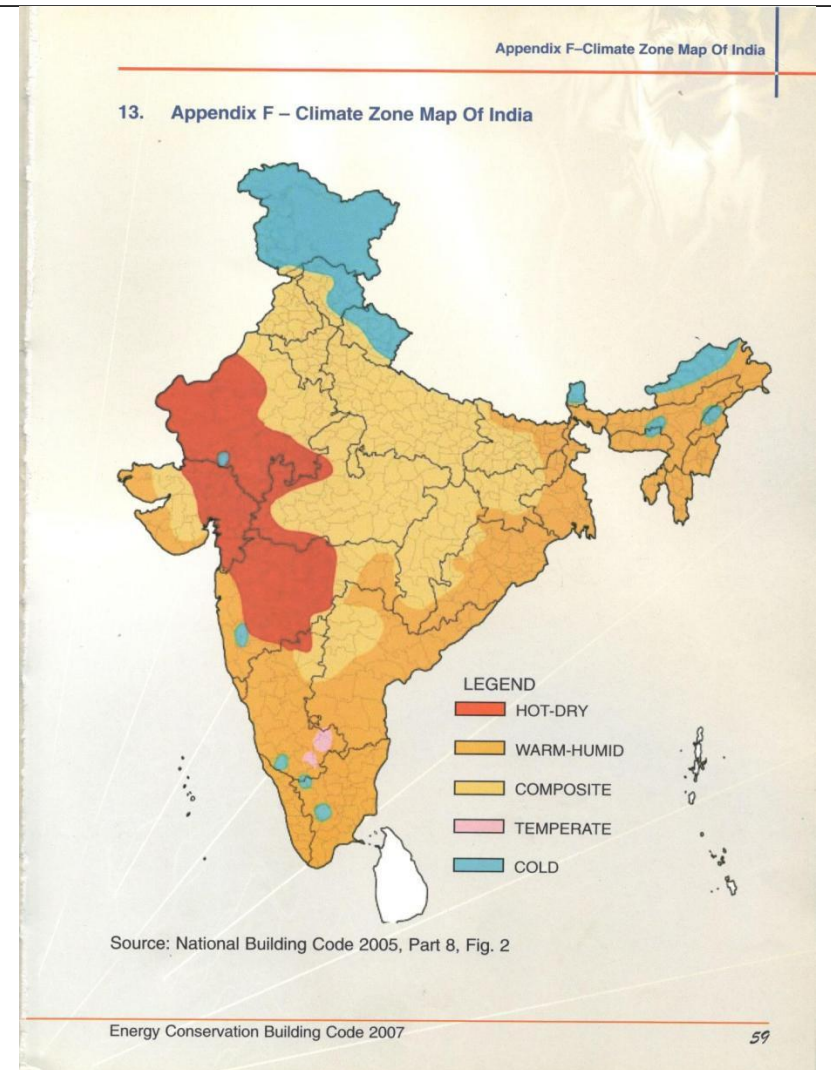
Greater Noida has **Composite Climate** (refer climate zone map of India). Composite climates are neither consistently hot-dry neither consistently warm-humid. Their characteristics changes from season to season, alternating between long hot, dry periods to shelter periods of concentrated rainfall and high humidity. Significant differences in temperature, humidity, wind, sky and ground conditions can easily be appreciated.

A third season can be considered having dry sunny days and uncomfortable cold nights which is referred to winter.

During the cold season the effective temperatures are much lower than in the two warmer seasons (warm-humid and hot-dry) and physical comfort will depend on the prevention of heat loss from the body, especially at night. In the warm seasons the heat dissipation is inadequate and our attempt should be to increase it as much as possible, but in cold season it may become excessive, creating a sensation of cold discomfort.

(c). DESIGN CRITERIA

Climate with changing seasons set a difficult task. In order to develop optimum



design standards which are appropriate to composite climate as a whole it is necessary to establish some form of weighting whereby priorities can be allocated. Such weighting system can be based on length of different seasons on relative severity of the condition and their correlation of living pattern.

The results show that, taken singly cold season is the most important for thermal design. It outweighs two hot seasons put together. However where the design solution are similar for the hot-dry and cold-dry seasons, their pre-dominance over warm-humid season is even more pronounced. On the basis of such an analysis design standards can be formulated for composite climate of Noida.

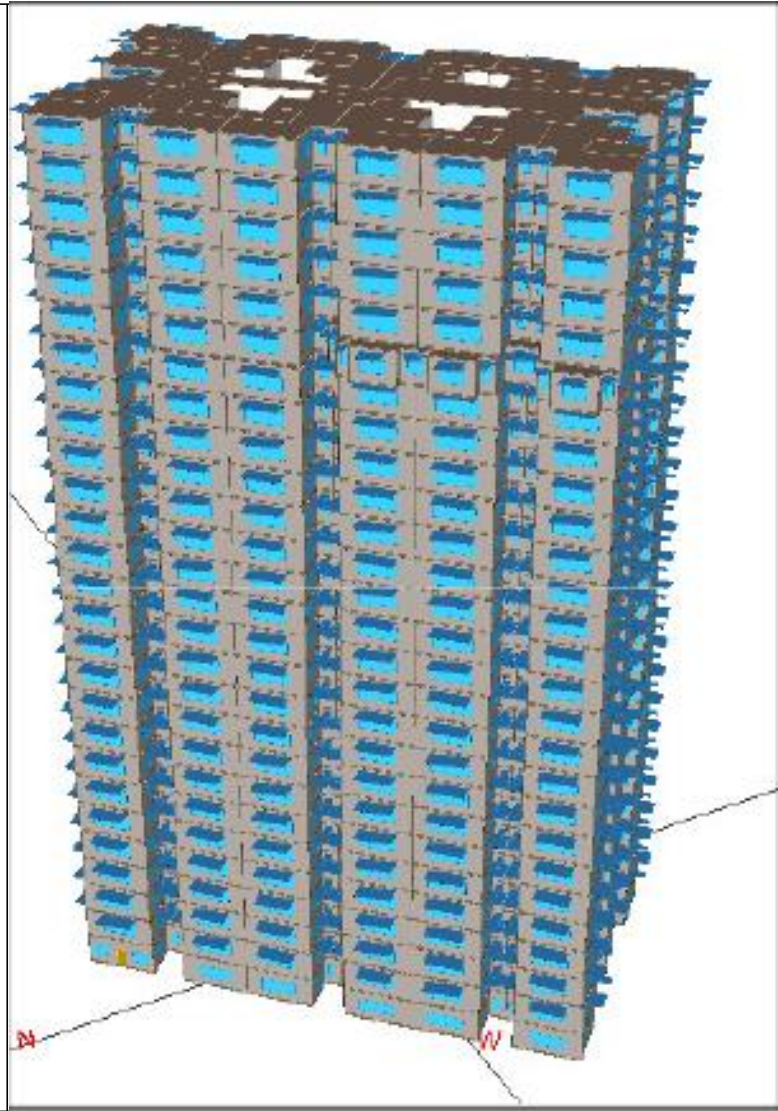
(d). FORM AND PLANNING

Orientation of building and of its major openings can greatly influence the solar heat gain, thus it is carefully considered. North and South facing vertical walls receive the least amount of radiation. Building under expansion have orientation to the north and south direction so that longer walls shall not faced east or west direction.

Openings are majorly covered by horizontal projection of balconies having 1.5 m wide. The arrangement would reduce incident solar radiation on fenestration.

(e). EXTERNAL SPACES

Larger projecting (wide) balconies have been suggested as outdoor living area which shall be useful for warm-humid (monsoon) season. It can also be asset in hot season as this shall protect fenestration from direct solar radiation and in cold season balconies can be used in day time to take advantage of the sun.



Landscape courtyard between the buildings shall be more pleasant outdoor space for most of the year to allow sun penetration during the winter months but provide shading in the hot season

(f). ROOFS AND WALLS

For continually occupied building the task in two folds

1. To limit the heat admitted during the strong sunshine hours.
2. To store some heat to be re-emitted during the cold period.

The retention of night time low wall temperature is desirable in the hot dry seasons but same thermal properties will be useful in cold season to retain the heat of the day for the uncomfortably cold nights.

External walls are therefore will be constructed of AAC blocks / RCC. AAC block with external plaster in cement motor has thermal insulation property which shall serve above purpose.

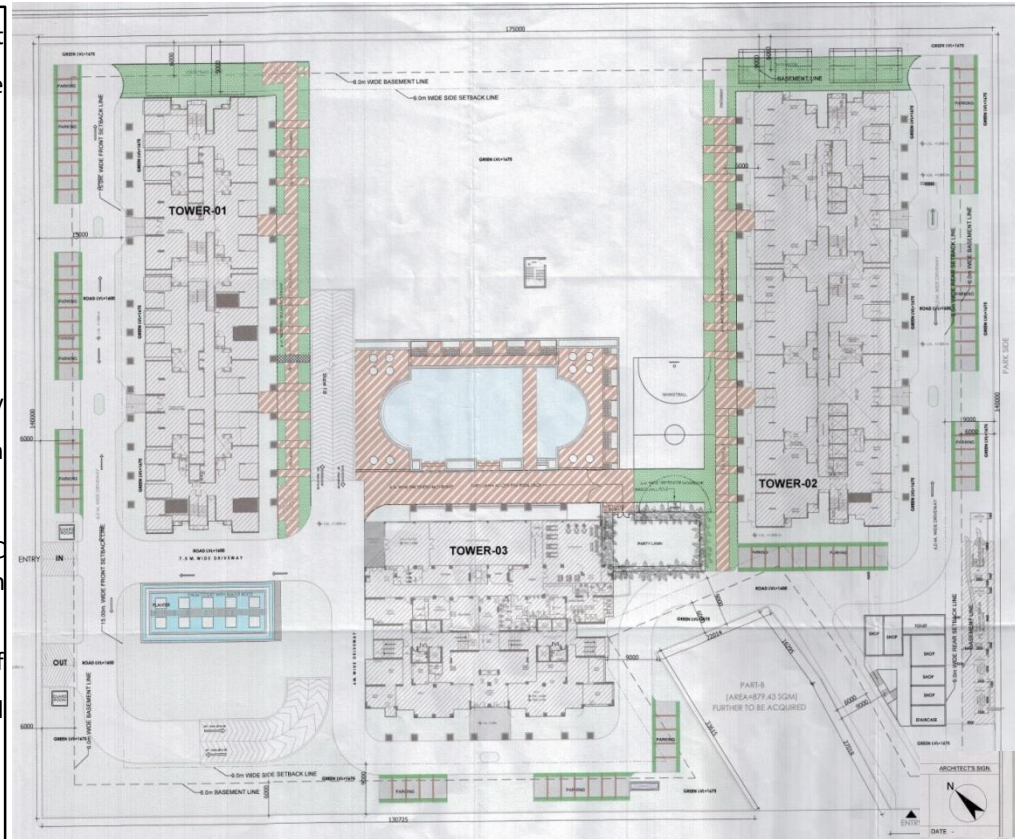
The roof is by far more important as it receives the greatest amount of radiation. Roofs shall be RCC with Reflective white color ceramic tiles and insulation.

(g). SURFACE TREATMENT

The prevention of heat entering through the outer surfaces of walls and roof at a fundamental rule. Walls exposed to sun during hot & warm shall be painted in light color.

(h). OPENINGS

Orientation of major openings are on north-south to utilize cooling effect of prevailing breezes during the warm humid seasons and it will also help to



Base Case Vs Proposed Case

Section 4 - Building Envelope

Sr. No.	Building Envelope Component	ECBC Base Case	Proposed Case
1	Roof	$U = 0.261 \text{ W/sqm K (max)}$ Initial Solar Reflectance = 0.7 (min) Initial Emittance = 0.75 (min)	$0.057 \text{ Btu/hr.ft}^2.\text{°F}$ (Plaster + 63.5 mm Expended Polystyrene insulation + RCC slab with plaster, Brick bat coba + Screed + Reflective Paint)
2	External Wall	$U = 0.077 \text{ Btu/hr.ft}^2.\text{°F (max)}$	$0.236 \text{ Btu/hr.ft}^2.\text{°F}$ (Plaster 20mm + 150mm RCC + Reflective paint)
3	Fenestration	$U = 0.58 \text{ Btu/hr.ft}^2.\text{°F};$ $\text{SHGC} = 0.25 \text{ (max)} ;$ $\text{VLT} = 0.27 \text{ (min)}$	$U = 0.99 \text{ Btu/hr.ft}^2.\text{°F}$ (Saint-Gobain ST 467 Glass) $\text{SHGC} = 0.5$ Balcony Shading
4	Fixed Shading Devices	None	For all the residential towers
5.	HVAC	As per ECBC	Default as per ECBC

Building Parameters (Base Case vs. Proposed Case)

– ELECTRICAL SYSTEMS & PROCESS LOADS

Sl. No.	Parameters	Base Case	Proposed Case
7	Average LPD	0.69 W/ft ²	0.33 W/ft ² (Additional savings due to occupancy sensors)
8	Exterior Facade lighting	0.20 W/ ft ²	0.20 W/ ft ²
9	Average LPD Basement Parking	0.2 W/ ft ²	0.16 W/ ft ²
10	Average EPD	1.0 W/ft ²	1.0 W/ft ² for residential
11	Process lighting	None	None
12	Lighting control	None	Occupancy Sensor in Common Areas
13	Day lighting Controls	None	None

Building Parameters (Base Case vs. Proposed Case) – MECHANICAL SYSTEMS

Sl. No.	Parameters	Proposed Case	Base Case
14	HVAC System Types	Same As Baseline.	PTAC for Residential
15	Cooling design temperature	24 deg. C	24 deg. C
16	Economizer	None	None
17	Demand Control Ventilation	None	None
18	Heat Recovery Wheels	None	None
19	Unitary Equipment COP	2.8	2.8
20	Chiller Type	None	None
21	HVAC Capacity	None	None
22	Fan Power	0.00030 kW/cfm	0.00030 kW/cfm
23	COP at ARI Condition	N.A.	N.A.
24	Cooling Tower	N.A.	N.A.
25	Domestic Hot Water system	N.A.	N.A.

Energy Saving

	ECBC Budget Building (kW-hr*1000)	Proposed Case (kW-hr*1000)
Space Cool	3824.348	5955.05
Heat Reject.	0	0
Refrigeration	0	0
Space Heat	1009.84	1290.77
HP Supp.	0	0
Hot Water	0	0
Vent. Fans	2625.075	912.53
Pumps & Aux.	0	0
Ext. Usage	163.52	140.16
Misc. Equip.	2660.92	2660.92
Task Lights	0	0
Area Lights	1806.6	1082.98
Total	12087	12039

Energy Saving

- Baseline energy consumption – 12087KWH*1000
- Proposed case energy consumption – 12039 KWH*1000

Energy Savings – 0.3%

Annexure E

Sewerage Plan

PROJECT PROPONENT:

M/s MAHAGUN REAL ESTATE PVT. LTD.

ENVIRONMENT CONSULTANT:

M/s PERFECT ENVIRO SOLUTIONS PVT. LTD.



NOTE	MANHOLE SIZE	MANHOLE DEPTH
	900x800mm	750-900mm
	1200 MM DIA	900-2300mm
	1500 MM DIA	2310-9000mm

LEGEND :-	DESCRIPTION
SYMBOL	SEWER LINE
SYMBOL	STORM LINE
SYMBOL	FIRE HYDRANT LINE
SYMBOL	GARDEN HYDRANT LINE
SYMBOL	MANHOLE LINE/TUBE WELL LINE
SYMBOL	900x1200x1200 SEWER MANHOLE
SYMBOL	SEWER MANHOLE 900x800mm
SYMBOL	STORM MANHOLE 900x800mm
SYMBOL	CATCH BASIN 500x450mm
SYMBOL	GARDEN HYDRANT
SYMBOL	TW TUBE WELL

SUBMISSION DRAWING

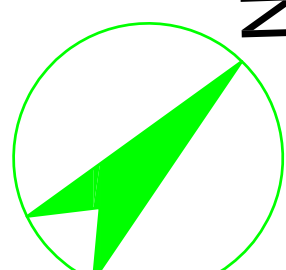
PROJECT:
**PROPOSED SUBMISSION DRAWINGS
FOR PROPOSED GROUP HOUSING AT
PLOT No:- GH-01/B, SECTOR-10,
GREATER NOKA WEST (U.P.) FOR
M/S HEBE INFRASTRUCTURE PVT. LTD.**

DRAWING TITLE :

**SEWERAGE LAYOUT
SITE PLAN**

OWNER'S SIGN

ARCHITECT'S SIGN



SCALE

1:350

DATE

MAY-2016

DESIGN BY

CHECKED BY

DRG. No.

SP-06

Annexure F

Energy Conservation Measures

PROJECT PROPONENT:

M/s MAHAGUN REAL ESTATE PVT. LTD.

ENVIRONMENT CONSULTANT:

M/s PERFECT ENVIRO SOLUTIONS PVT. LTD.

Existing Area:

13322.19 Sqm area has already been developed in 3 No. of towers with 5 floors (as per EC granted). As per Earlier EC, we were asked to design building with energy conservation measures, however the ECBC code was not mandatory at the time of earlier EC. Construction of 3 Tower 5 floor has been completed. The building material used with their U & R value are given below:

	Material	U	R
Wall	150mm RCC Wall + plaster	1.33 W/sqmK	0.747 sqmK/W
Roof	40mm Plaster + 125 mm RCC Slab +100mm Brick coba+ 40mm screed + Reflective Paint	1.7 W/sqm K	0.58 SqmK/W
Glass	Single Glazing Energy Efficient Glass	5.6 W/sqmK SHGC - 0.5	0.178 sqmK/W

Energy Conservation Measures already taken in existing constructed area are as follow:

- Maximum Daylight areas to reduce artificial lighting load in day hours
- UPVC windows for better thermal conductivity
- Balcony shading over windows to reduce effective SHGC
- VFD in Pumps and Motors
- Transformers will have efficiency as per ECBC
- Energy efficient elevators with Group control
- Capacitors for maintaining power factor 0.99
- Lifts with regenerative braking system, reducing power consumption

Now we have proposed an additional construction for 11708.33 sqm area in 1 tower & 4 floors.

As per prevailing condition, we are proposing the following details of Building material with their U & r values which will complies with ECBC code.

	Material	U	R
Wall	150mm RCC Wall + 40mm plaster + Paint	1.33 W/sqmK	0.747 sqmK/W
Roof	40mm Plaster + 63.5mm Expanded Polystyrene underdeck insulation + 125mm RCC Slab + 100mm Brick coba + 40mm screed + Reflective Paint	0.32 W/sqm K	3.1 SqmK/W
Glass	Single Glazing Energy Efficient Glass	5.6 W/sqmK SHGC - 0.5	0.178 sqmK/W

Apart from earlier Conservation already taken in existing part. The following measures will be additionally implemented in proposed part.

- High SRI finish over terrace for reflecting direct solar radiation
- Efficient envelope (Wall, Roof, and Glass) for reducing heat gain
- Solar water heaters to meet 25% of total hot water requirement
- LED in common areas for reducing lighting load
- BEE star rated Air-conditioners in common areas and clubhouse