



Ms P Sitha MahaLakshmi

Green buildings – The GRIHA way

A webinar for students

May 1, 2020 (Friday)

4 pm to 5:30 pm

(Includes live chat and Q & A session)
Open to all, registration is free.

Reply to the queries raised during the webinar

Sr.No.	Question	Reply
1	Please mail the ppt.	The ppt will be available on the GRIHA website post webinar.
2	For an academic project, the Energy performance of the year is not known. Then, how do we calculate EPI?	By performing an Energy simulation on any software which can give you hour analysis for annual consumption of internal lighting and HVAC consumption. By submission of annual consumption of internal lighting and HVAC consumption project can find out the project EPI.
3	How size of chajja will affect the depth?	The current ECBC 2007 methodology for daylight area calculation does not take care of chajja height and only a thumb rule calculation for placement of window in design. For detailed and accurate day light area simulation should be performed.
4	Does the sill height a factor?	No.
5	If the width of the window is 1m, will it still provide daylight 1m on both sides?	Yes.
6	For academic projects-related help and queries, who is to be contacted?	Please refer to the help centre on GRIHA website for previously answered queries. You can also raise your queries through the help centre.
7	Does the same daylight formula apply in case we have a light shelf on a façade?	You need to perform daylight simulations for precise results. However, you can use the ECBC 2007 method for calculating the daylight area if there is a light shelf.
8	What should be the necessary day light area for GRIHA rating considering different types of building?	25% of regularly occupied spaces need to be daylight (mandatory requirement of GRIHA).
9	Is guidelines of NBC for light and ventilation are fulfilling the required optimum light and	Yes, If the project meets the NBC guideline for light and ventilation the



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	ventilation?	project will fulfill the requirement of optimum light and ventilation.
10	What is the difference between GRIHA rating and IGBC rating?	GRIHA rating has been developed by TERI with support from MNRE as a National rating system of the country. It has also been recognized as one of the tools to measure carbon mitigation in the built environment in the INDC's submitted by GOI to UNFCCC for attaining the Paris agreement goals.
11	How to calculate energy savings for Assembly buildings eg: Exhibition centers as the volume of the space is high and no base case is available?	The GRIHA base case needs to be extrapolated depending on the occupancy schedule of the building as per the DBR (Design base Report) provided by client.
12	If an atrium is provided in the centre of an office building and windows are placed along the North and South orientation of atrium and the periphery also how do we calculate the daylight area?	You need to perform daylight simulations for analysis.
13	What is the process to appear in the GRIHA-cp exam?	The process for appearing for the GRIHA CP can be referred at https://www.GRIHAindia.org/GRIHA-community
14	Is GGBS BIS recommended material?	Yes.
15	How is the waste generated calculated?	It would be calculated as per building typology
16	What software do you recommend for daylight simulations?	DIVA, Ecotect, Velux, IES
17	Is it mandatory in India that any project must fulfill the criteria of green building?	Many ministries have issued directive for meeting GRIHA threshold, however, ULB's and state government are offering incentives for projects achieving GRIHA rating, for more details please refer to https://www.GRIHAindia.org/GRIHA-incentive . The green buildings rating are yet voluntary for private



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		projects.
18	How these criteria can be met in small budget projects?	SVAGRIHA is a guidance-cum-rating system being developed for small stand alone buildings like residences, commercial offices, motels, dispensaries, schools etc. and/or set of buildings with a cumulative built-up area of 2,500 sq.m. or less.
19	Can you tell some of the newly discovered sustainable materials which GRIHA would suggest?	Construction and demolition waste, LC3 etc.
20	How can we measure the green performance of an existing building and can we convert a conventional building into a green building? I am asking this question for an old existing university building.	GRIHA Existing Building rating variant can be used to evaluate sustainability parameters in the project.
21	How far is bamboo considered as environmentally friendly material?	Bamboo is a rapidly renewable material as its growth rate is very rapid it is considered to be a sustainable building material.
22	How to calculate waste water generated in an academic project?	Wastewater generated from an academic project has to be calculated as per NBC.
23	How can these criteria be met in small budget projects in reference to labour safety and welfare?	Labour health and safety is a mandatory requirement as per Government of India.
24	Are these software's free?	Some software's are free while some can be procured on a chargeable basis, you may need to get in touch with software provided for more details.
25	Is daylight simulation done through Ecotect accepted or Ecotect-radiance simulation is required?	Daylight simulations done through Ecotect-radiance are recommended.
26	How do we identify any building whether it is a green building Or not from outside?	Detailed review is required to assess the building's greenness. GRIHA certification is one way to know that the project is green throughout the life cycle i.e. design, construction,



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		operational and maintenance.
27	Will the lifecycle of the products used in the project be considered for rating?	Yes lifecycle of the product used is considered in the latest rating variant of GRIHA V 2019.
28	Does this webinar cover information regarding GRIHA rules for existing buildings? Are the ratings for existing buildings different from buildings that are going to be constructed?	Yes for existing buildings the guidelines are different from new buildings. This webinar provides an overview on GRIHA v 2015 for new construction with built up area greater than 2500 sqm.
29	Use of AAC blocks is more beneficial over Fly Ash bricks from Green Building Perspective?	Yes it is.
30	For labour safety how many points as per GRIHA?	Labor Safety is Mandatory criterion no points are awarded for the same.
31	On what basis does GRIHA assess thermal comfort requirements in a building environment?	Thermal comfort can be assessed by using NBC 2005 OR ASHRAE 55 OR requirement of Indian Adaptive Comfort Model.
32	Which software is preferable for energy modeling?	Any energy simulation which can give hourly analysis of energy consumption such as HAP, Trace 700, E-Quest, Design builder, Energy Plus etc
33	I am GRIHA CP, I need to extend my certification, please share the procedure.	The process for extending the validity can be referred at https://www.GRIHAindia.org/GRIHA-community
34	How is demolition waste made into building material?	walling blocks, recycled aggregates, slabs can be made from C&D waste
35	Except flyash and GGBS, what are other materials recommended by GRIHA for replacement of cement for Civil activities?	Pond ash, waste silica, post industrial waste, agro waste, LC3, C&D waste etc.
36	Does installing Parametric Facades (example-parametric panel facade in Al Bahr, Doha) help in Energy Efficiency and Sustainability of a building?	Yes any design which has capability to reduce direct heat gain and indirect heat gain within the building can help increase in energy efficiency. It will be dependent on various external factors such as orientation, geology, topography,



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		sunshine hours etc of the region.
37	Whether thermal performance is measured in GRIHA Assessment?	Yes.
38	What is the role of GRIHA CP?	Involvement of GRIHA CP in any project can earn the project 1 point under innovation.
39	Any reason why is the equipment load not considered in calculating the EPI?	Equipment load are very much specific to each building operation and cannot be standardized across various building typologies.
40	What type of renewable energy is used in India except solar energy in a green building?	All renewable energy system are accepted which are accepted by MNRE such Geothermal, wind power, solar hot water etc.
41	Is cut and fill method considered as a sustainable method in a sloped site?	Cut and fill is not considered as a sustainable method in a sloped site.
42	Any online 3 day program for lockdown?	The discussion in this regard is in process. We will update the same on GRIHA website and social media pages as and when it is finalized.
43	Would GRIHA recommend E- waste to be used as a building material?	If the product is approved by relevant authority as per the structural safety it can be accepted.
44	Do special concrete and grey water treatment with some naturally available plants using constructed wetlands have mire weightage in the rating by GRIHA?	Yes.
45	Can we join GRIHA as employees?	You may apply against open vacancies on GRIHA website.
46	How to calculate the total solid waste generated in an academic project to find out if organic waste has to be treated on site?	The waste generation can be calculated as per NBC.
47	Though Bamboo is a rapidly renewable material its embodied energy is high compared to other conventional materials... how can we take it as a sustainable material?	It might have high EE however if we look at its life cycle analysis it emits very low CO2.
48	Is Gypsum plaster considered as green building material?	Gypsum plaster with more than 5% waste content can be only be



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		considered as green building material.
50	Is Indoor Environment Quality as important for Green Buildings?	IAQ plays a very critical role in green buildings as it affects the productivity of the building users.
51	Can you suggest some case examples of GRIHA rated bus terminal projects in India?	Unfortunately there are no GRIHA rated bus terminal projects.
52	Can architect directly apply for the GRIHA rating or he needs to go to green building constants?	An architect can apply directly for project registration with GRIHA.
53	Can we win a certificate?	Since this is a free webinar, a certificate cannot be provided.
54	What is the advantage to get a higher green building rating for a private project?	A lot of ULB's and state government are offering incentives for projects achieving GRIHA rating, for more details please refer to https://www.GRIHAIndia.org/GRIHA-incentive
55	Is GRIHA rating required for masonry structures?	Query not clear. All buildings can be evaluated under various GRHA variants.
56	Can you tell me how local materials can be used for sustainable purposes for a building?	Local materials can be used for building construction and for internal as well as external finishes. They can also be used for making interior furniture.
57	Are monuments and historic structures considered for GRIHA rating?	Yes monuments and historic structures considered for GRIHA variants.
58	Best Alternate construction method for Cut and Fill in a sloped site?	The strategies vary as per various topologies of building and site locations. The integration of site responsive architecture helps minimize cut and fill and utilize various site features in proposed design.
59	How do you calculate the daylight area for a skylight?	For understanding of daylight analysis and manual calculation please refer SP41.



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60	Are GFRG panels come under green material?	Yes GFRG panels with more than 5% waste recycled content in them are considered as green material.
61	Is there any acceptance criteria defined by GRIHA for construction materials? If yes, kindly issue our information possibly.	Kindly refer the GRIHA manual for criteria details. There is specific section on green building materials which evaluates sustainability parameters for materials used in structural/non-structural and finishes.
62	How to calculate thermal comfort using Indian Adaptive Comfort model?	For understanding and details of using Indian Adaptive Comfort model please refer appendix 1 in GRIHA V 2015.
64	What kind of material is the most energy efficient? building*	Project team can choose those materials for building envelopes which have higher thermal resistance. It increases thermal comfort and reduces building heat gain as well. Hence, it affects the reduction of annual energy demand. It will also vary as per various climate zones.
65	Could you suggest some software to estimate thermal comfort in buildings?	All the validated software for energy simulation will do thermal comfort analysis as well.
66	What is the eligibility for GRIHA evaluator?	The eligibility criteria can be referred on https://www.GRIHAindia.org/GRIHA-community
67	How to calculate embodied energy?	Embodied energy is measured as the quantity of non-renewable energy per unit of building material, component or system. It is expressed in Mega Joules (MJ) or Giga Joules (GJ) per unit weight (kg or tonne) or area (m2) but the process of calculating embodied energy is complex and involves



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		numerous sources of data.
68	When is the next 3 day programme in Bangalore?	As per health advisory issued by Government of India, all GRIHA training programs have been postponed until further notice.
69	Will a naturally ventilated building be measured or calculated without CFD analysis?	Naturally ventilation affects and cross ventilation can be only accessed by CFD analysis.
70	Is demolition stage also come under GRIHA rating?	No