



**School of Architecture, Meenakshi College of Engineering
WEBINAR on 'Green Buildings – The GRIHA Way'**

Q&A from the Session

Query	Response
Is it required to provide the facilities to the construction workers before the construction starts? If yes, then won't it delay the project, since it will consume some time?	<p>Construction workers are engaged either on daily or contractual basis. It is however not mandatory for the PMC to provide labour accommodation on site. If labour accommodation is being provided, the project team should ensure that the same is clean and hygienic.</p> <p>Drinking water facility and clean & hygienic sanitation facility should also be provided both on site and at the labour accommodation area (if it is provided). These facilities need to be in place as soon as the workers are being employed on site for work.</p>
What is the difference between LEED and GRIHA ratings?	<p>The essence or intent of all rating bodies is the same, which is to promote sustainability by addressing all its aspects associated with construction of a project. GRIHA is India's own rating system which takes into consideration the local context, climate zone and local bye-laws. GRIHA rating has been developed by TERI (The Energy and Resources Institute) with support from MNRE, GoI (Ministry of New and Renewable Energy, Government of India) 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 (Intended Nationally Determined Contributions) submitted by GOI to UNFCCC (United Nations Framework Convention on Climate Change) for attaining the Paris agreement goals.</p>
What materials would you suggest, if a project is on a low budget?	<p>There is a misconception that 'Green Buildings' are expensive to construct. If thought thoroughly and designed efficiently, then a high budget will not be needed. Emphasis should be given more on using renewable and locally produced materials, for instance, bamboo.</p>
What criteria should be taken into account while choosing materials for a	<p>GRIHA does not define or dictate the types of materials that a project should use. It is solely dependent on the project team. If the materials that are used meet the compliance requirements of the 'Sustainable Building Materials' section, a</p>



<p>small-scale project, like a residence?</p>	<p>project can claim points. Ideally, to make a project environmentally low impact, the project team should use BIS (Bureau of Indian Standards) recommended wastes (such as fly ash, blast furnace slag etc.), having properties similar to conventional construction materials for building construction or use low embodied energy materials, reducing the use of virgin materials and help keep waste away from landfills. For interior materials, the following is the list, from where if materials are procured, are considered to have a low environmental impact, among others:</p> <ul style="list-style-type: none"> • Stones from India • Composite wood-based products • FSC (Forest Stewardship Council) Chain of Custody certified products • Manufactured products with at least 5% recycled content • Products with EPD (cradle to gate) analyzed and published as per ISO 14025 / ISO 21930 • Products with water footprint (cradle to gate) analyzed and published as per ISO 14046
<p>In current scenario, monsoon periods have become quite erratic and unpredictable. How feasible is it to design a Net zero water buildings?</p>	<p>Net Zero in terms of water is not only about harvesting rainwater. It is about judicious balance of demand and supply, clubbed with the available resources. First, the demand should be reduced through optimized design and then alternate resources to supply water into the project should be looked at, of which rainwater is one component. Reusing of treated water, through different sources, clubbed with the amount of available rainfall in a site can help achieve a Net Zero water project. In places with extreme scarce rainfall, even if a project falls short on Net Zero water usage, it will still be at its best with regards to water consumption optimization.</p>
<p>Compared to a conventional construction, what is the cost impact of a green building?</p>	<p>There is a misconception that 'Green Buildings' are expensive to construct. If thought thoroughly and designed efficiently, then a high budget will not be needed to construct a Green Building.</p>
<p>Is there any particular time period when the ratings awarded to a project is revised or checked? If yes, what are</p>	<p>GRIHA rating is awarded in 2 steps. Firstly, the provisional rating is awarded when the building construction is complete but not necessarily occupied and the final rating is awarded on submission of post-occupancy (minimum 75% occupancy) audit data of 1 year. After every 5 years, the project team is</p>



<p>parameters that are considered at that time?</p>	<p>required to submit an audit report, based on which the project rating will be retained or revised. This audit includes reports of energy, water, waste and comfort parameters.</p> <p>Moreover, GRIHA rating versions are updated periodically to incorporate the latest norms in the industry and as benchmarked by the Government.</p>
<p>Does use of misting, or any alternate system to cool a project, impact the water demand of the project? If yes, how is the rating affected by it?</p>	<p>The rating to a project is awarded based on the holistic performance under various parameters. The amount of energy and water required for misting is much lower than the energy the project would have consumed if the cooling had to be done using air conditioners, especially, in a composite climate, as was the case for this HAREDA (Haryana Renewable Energy Development Agency) building in Panchkula, from where the question has stemmed. Hence, using water for misting would not have impacted the project's overall performance adversely, considering a project might have water demand for HVAC make-up water as well.</p>
<p>In the site selection criterion, it mentions having a few mandatory facilities, surrounding the site. Would that not mean that a project would have to be ideally located within city limits? And will this not lead to increase in population of a particular area, which will increase pollution and energy consumption? What is the solution for this problem?</p>	<p>Selecting a site is not usually something that is under the direct control of a buyer. GRIHA talks about availability of amenities, as per which a project should have at least 5 basic services located within 500 m walking distance from main entrance of the project or within the site. Project team can therefore look to providing basic amenities within the site boundary.</p> <p>The intent of the criterion is to either reuse a contaminated land, redevelop a site so that land use is optimized, and encroachment into agricultural land/bioreserves is eliminated. The next objective (of the second option) is to minimize the carbon footprint of building users by providing the 5 basic amenities required for day to day activity within 500 m walking distance and by promoting walking instead of vehicular movement. Therefore, the project team should aim at working towards the intent with whichever approach they want to adopt.</p>
<p>Do you think the traditional, heritage houses and the indigenous construction techniques, like the Chettinad style of houses, were sustainable, in</p>	<p>Traditional types of construction or indigenous construction were definitely environment friendly for the very reason that they were indigenous, meaning that it respected the local conditions of the place. Those techniques pertaining to a region have been achieved at, over generations through adaptation and resilience. Hence, it is safe to say that those were sustainable in their own ways. If traditional architecture</p>



<p>terms of materials and techniques? If so, how has it changed today?</p>	<p>is studied, we can infer that each strategy applied has a logic that cannot be copied and implemented in another region.</p> <p>The building industry has definitely changed a lot over times. With the rapid and mass scale migration that started taking place decades ago, people began to shift from smaller cities to metro cities. The demand to accommodate high density population and in the process, we have started blindly adopting architectural features from the countries which have very different climatic conditions from India. In the name of development, the construction industry, is now a major contributor of 40% GHG and CO₂ emissions.</p>
<p>While designing for a residential project in an urban space, if the architect's approach towards a sustainable design, through the incorporation of green spaces and buffer areas, are not in line with the requirements of the client, who might want more covered spaces, what can be the alternative approach of design? Also, the incorporation of these green spaces would require a higher initial investment, hence adding to the cost of the project. How can these issues be addressed?</p>	<p>GRIHA Council, strongly endorses on integrated design approach, for which an orientation workshop is organized for the registered project at the project initiation stage, which should be attended by all the stakeholders of the project (client, architect, HVAC consultant, landscape consultant, façade consultant, project management consultant, O&M, green building consultant, etc.). The intent is to ensure that each team member understands their roles and how their decisions will impact the final performance of the project. An architect should try to convince the client by showing how the alternate design approach is benefitting the client. Also, the designer should try and device solutions that address the client's concerns, by working around the principles to retain the strategies.</p> <p>As per NBC (National Building Code), different types of green spaces have been listed, which have different water requirements. While a lawn needs a very high amount of water consumption to retain the lush green lustre, planting native trees have huge water saving potential and native trees do not even require any additional treatment. In addition, these green spaces, will also add to reducing the UHIE (Urban Heat Island Effect) of the project. Further, it will also help reduce the water run-off from the site. Therefore, one simple strategy can have multiple positive impacts when it comes to sustainability. Hence, it is all about strategizing and designing the project efficiently.</p>