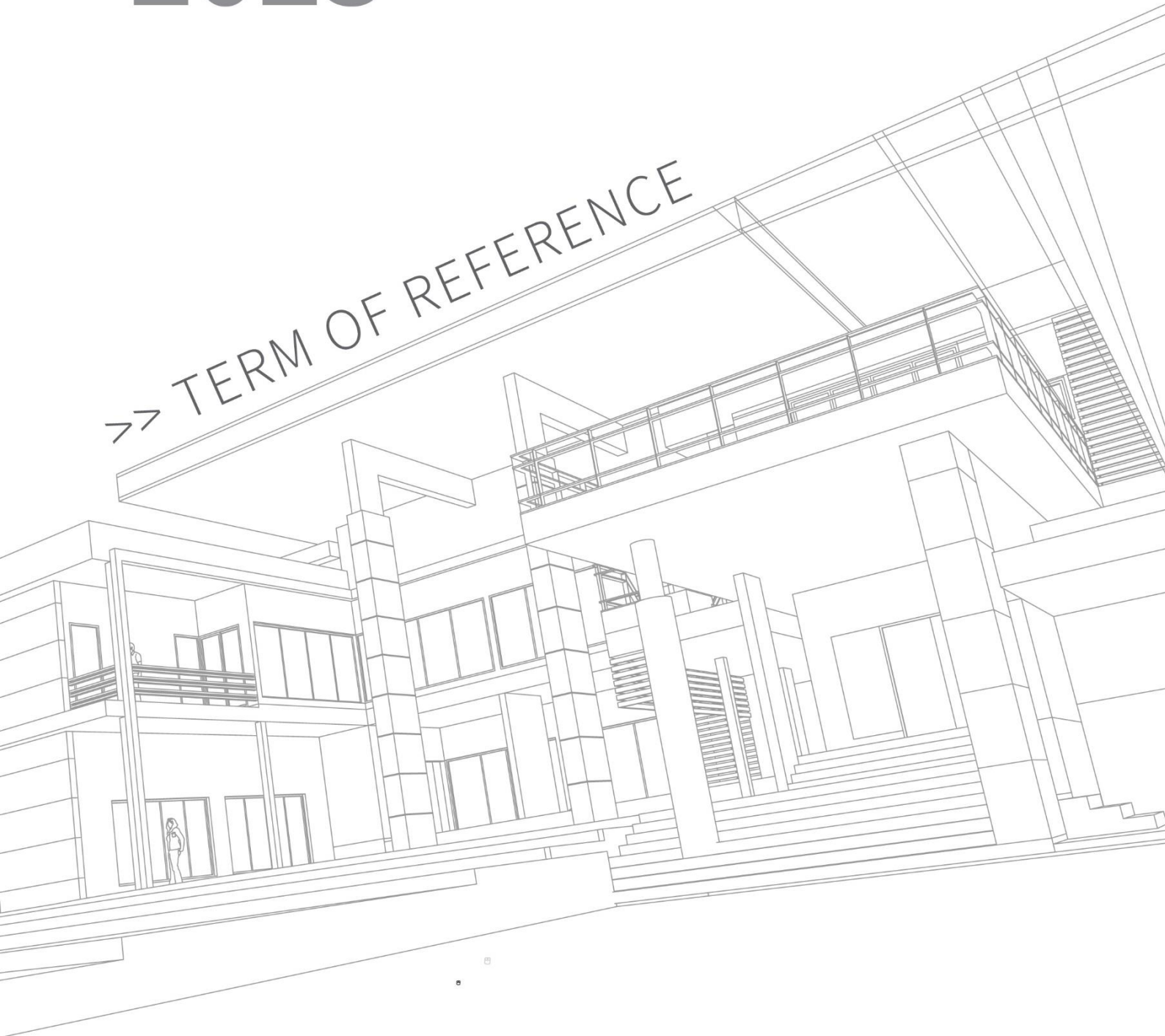




Onduline[®]
GREENROOF
2023 AWARD

>> TERM OF REFERENCE



TOR OGRA 2023 ASIA

Participant's version

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Background

Energy efficient homes are becoming increasingly popular in Asia for many reasons. First, as energy prices continue to rise, building energy efficient homes can significantly reduce energy costs over time. Second, with increasing concern for environmental sustainability, energy efficient homes can help reduce carbon emissions and contribute to a greener future. Finally, in many Asian countries, the need for energy security is increasing, and building energy-efficient homes can help address this problem.

According to a report from the International Energy Agency (IEA), Asia is expected to contribute more than half of the growth in world energy consumption by 2040. Thus, the need for energy efficiency in buildings is becoming increasingly urgent in this region. Additionally, in many Asian countries, energy security is a significant concern, with many relying on imported fossil fuels to meet their energy needs. By building energy-efficient homes, homeowners can reduce their dependence on the power grid and contribute to energy security.

Roof design plays an important role in achieving energy efficient housing in Asia. A well-designed roof can significantly reduce the amount of energy needed to cool a home, especially in hot and humid climates. For example, using light-coloured or reflective roofing materials can help reflect sunlight, reducing the amount of heat that enters the home. Additionally, a properly insulated roof can help prevent heat from escaping during the winter months, reducing the amount of energy needed to heat the home.

Low Energy House in Tropical Region

Energy efficient homes in the tropics are buildings designed to reduce energy consumption and promote natural cooling in hot and humid climates. It is designed to minimize the need for mechanical cooling systems and reduce dependence on fossil fuels, while still providing a comfortable and healthy living environment.

In the tropics, the focus of energy efficient home design is to minimize heat gain and maximize natural ventilation. This can be achieved through the use of shading devices, natural ventilation, reflective roofing materials, insulation and passive cooling techniques. Energy efficient homes in the tropics must also consider the local climate and environmental conditions, as well as the special needs and preferences of the occupants. It must be designed to provide adequate natural light, ventilation, and indoor air quality while minimizing the use of energy-intensive systems.

Passive Roof Design

Strategy	Description	Profit	Consideration
Solar PV	Photovoltaic panels that help generate energy and are placed on the roof.	Reducing the use of fossil energy.	Requires direct sunlight.
		Promote the use of Renewable Energy.	Possible need of additional structure.
			It may not be used in certain types of buildings.
Green Roof	A layer of plants and soil placed on the roof of a building.	Reducing the heat island effect.	Requires additional structural calculations.
		Improves cold insulation in buildings.	Requires regular irrigation and maintenance.
		Help evaporation.	
Cool Roof	A roof surface that can reflect sunlight and absorb less heat.	Reducing the temperature rise in the room.	Requires regular cleaning and maintenance.
		Increases thermal comfort.	Cannot be used on any type of building.
		Reducing energy use.	

Roof Ventilation	Combines roof and ventilation systems to increase air circulation.	Reduces indoor heat.	Must pay attention to the size and design of the building.
		Support passive design.	There is a possibility that it cannot be applied to every type of building.
Roofing Materials	Using a roofing material that has a low carbon embodied.	Reducing emissions generated from roofing materials.	Limited availability of materials.
			There may be difficulties in its application.

Work Requirements

1. Paper size must use A3 (42 x 29,7 cm) in landscape orientation with a maximum of 5 pages.
2. The image scale used is free.
3. The language used in the artwork should be in English.
4. The function of the land is as a private and single residence (detached) with an area of about 200 m².
5. Affordable housing for the middle class with a of BCR (Building Coverage Ratio) 60% and a maximum FAR (Floor Area Ratio) of 1.8 and a maximum building height of 3 floors.
6. Concept description Tropical Passive Roof Design for Low Energy House, must meet one of the criteria or a combination of criteria below:
 - a. The concept of Tropical Passive Roof Design or passive roof design that suits the climate and tropical environment, for example:
 - i. Utilization of the orientation, form and design of buildings that prioritize the principle of passive design,
 - ii. selection of materials and or vegetation (green roof) to help achieve low-energy buildings and reduce building cooling loads. Green roofs must be able to demonstrate good structural strength to support the green roof's load requirements (assuming roof strength is +-500 kg/m²), and the vegetation is in accordance with local climatic and environmental conditions.
 - iii. roof as a place for natural ventilation,
 - iv. support the comfort and health of occupants in the building.
 - v. a roof design that can reduce dust and clean the surrounding air while still being affordable.
 - vi. Climate change adaptation, especially in increasing the area of green areas (Green Plot Ratio), the quality of the microclimate around buildings to support and improve the quality of the indoor environment and the air comfort of building occupants.
 - b. Explanation of the building location and surroundings.
 - c. The concept of a roof for renewable energy regeneration, namely by utilizing renewable energy directly (wind, sunlight) produces comfort in buildings that aim to conserve energy.
 - d. Explanation of the performance of passive roof design concepts in accordance with tropical climate conditions can also be explained quantitatively (using simulations or formulas).
 - e. Roofs can reduce noise, with roof designs that become noise absorbers
 - f. Roof design as an area is useful for more than just a roof.

- g. Can minimize the cost of building roof maintenance.
- h. Environmentally Friendly Material: There is the use of materials that are renewable/Reuse/ISO 14001, green labels etc..
- i. Designs can use Ondusolar, Ondugreen products or other types of products on the market for design completion.
- j. The shape of the building must comply with the rules of good spatial organization so that space utilization and circulation can be optimum.
- k. Innovation in roof design with new methods and or technology.

Requirements for Works and Judging References

The judging reference is a standard or measure used to evaluate and assess the expected results of a competition. Therefore, the judging references in this competition are:

No	Judging Reference	Work Requirements	Rating Percentage Weight
1	Can display an innovative passive roof system strategy.	The function of the land is as a private and single residence (detached) with an area of about 200 m2. Affordable housing for the middle class with a BCR of 60% and a maximum FAR of 1.8 and a maximum building height of 3 floors.	30
		The level of clarity and quality of presentation of the concept and the effectiveness of the passive roof design strategy.	
		The degree of innovation and roof design includes the possibility of being a useful area beyond just a roof.	
		The overall design must prioritize aesthetic design as well.	

2	The design can systematically link the passive roof system with the overall passive design strategy of the house	<p>Utilization of the orientation, shape, and design of buildings that prioritize passive design principles, energy conservation, water conservation, material selection and improving the quality of the microclimate around buildings to help achieve low-energy buildings.</p> <p>The quality of the description of the integration of the roof design with the overall building and site design.</p> <p>Roofs can reduce noise, with roof designs that become noise absorbers.</p> <p>Healthy Building: A roof design that can provide comfort, safety, and health for building occupants.</p>	20
3	Able to associate between the design performance, maintenance method, and O&M costs reduction of the roof design	<p>The performance of passive roof design concepts that are suitable for tropical climate conditions must also be explained well quantitatively (using simulations and/or formulas).</p> <p>Energy cost reduction estimates.</p> <p>Estimated reduction in roof maintenance costs.</p> <p>Clarity of roof care methods. Including considering the strength of a good structure to support the needs of the roof load. The roof design can also minimize the cost of building roof maintenance.</p>	25

4	A description of the material's carbon footprint includes the locality of the material, emissions during production, and emissions during delivery of the material	The use of materials that are Renewable/Reuse/ISO 14001, green labels and so on. Notes: The roof material design can use Ondusolar, Ondugreen or other types of products on the market.	20
		The use of supporting alternative technologies such as renewable energy can add value to the design and creativity factor.	
5	Applicability and Feasibility of the building as a residence	Even though the focus is on roof design, the overall design of the building can explain the principles of good spatial organization, construction techniques and sustainable principles so that the building can be built properly.	5



General Information About the Competition

In tropical countries, the best adoption for passive roof designs is to maximize shading and ventilation to reduce solar radiant heat exposure and increase natural cooling. Several approaches and criteria in organizing passive roof design competitions in tropical conditions are as follows:

Characteristic

1. This event is internationally held for Indonesia, India, Malaysia, Philippines, Thailand, and Vietnam.
2. The design idea may be a concept and is the participant's original work and has never been published or entered into any competition. For works that have been implemented in the form of a finished (real) building with a maximum construction time limit of 1 year.
3. Entries will not be returned, which will be published by Onduline and GBCI.
4. The copyright for the work remains with the designer.
5. The works included are individual works that have never been published for any purpose.

Participant Criteria

Participants are individual professionals in the field of architecture, developers, planning consultants, contractors who have worked for at least 1 year (non-students).

Disclaimer: OGRA may terminate the competition result if the selected participant fails to prove their credibility.

Registration & Deadline Submission

Participants must register on ogra-contest.com. The deadline for submission is Wednesday, 30th of August 2023.

Entry of Works

To submit the project, participants must upload the document under the profile account at ogra-contest.com following below requirements:

1. The submission document must be maximum of 5MB on single (1) PDF Format.
2. The participants may present in the file: Exterior/Interior 3Ds, texts, diagrams, calculations tables, drawings, or information as they seem fit.



Honorary

- All the designs submitted on OGRA 2023 will be included on a special project of Exclusive Edition OGRA 2023 E-Book that will be launched and distributed after the event.
- All participants who submitted designs will be mentioned as the contributor of the book.
- OGRA ASIA presents an appreciation certificate for every design submitted.
- The publication of the event will be covering all OGRA 2023 ASIA Countries via digital media.
- 1st and 2nd winners will be invited as guest speakers on Onduline's future upcoming events.

Award

- 1st Winner: 3.300 USD
- 2nd Winner: 2.300 USD
- 3rd Winner: 1.600 USD
- 4th & 5th Winner: 1.000 USD each

Contact

For further information, please contact your local PIC:

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India, Malaysia & Thailand : social@onduline.com.my
Philippines : jdizon@onduline.ph
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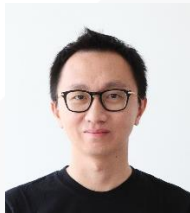
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Onduline[®]

Board of jury



Iwan Prijanto, Chairman of GBC Indonesia



Ivan Priatman, Principal Architect ARCHIMETRIC



Felino "Jun" Palafox, Jr., "Principal Architect - Urban Planner at Palafox Associates"



Olivier Guilluy, Onduline Asia Pacific Director

PARTNER:



MEDIA PARTNER:



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