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## **OS-House competition brief**

### **The Design Competition**

The middle class in developing countries is rapidly growing and so is its demand for housing. While housing shortages are increasing every year, inefficient construction methods and expensive building materials result in high priced, low quality houses. Moreover, costly construction waste is being produced.

**Improve the quality of houses, extend their lifecycle and improve the overall living conditions of people from the emerging middle class in Ghana. That is what Enviu and architect Vincent van der Meulen want to achieve with the first Open Source House (OS-House) design competition.**

#### **...The challenge**

We are challenging participants from all over the world to design a house for a middle class family in a coastal region in Ghana. The framework for the design, development and implementation of the house and its elements is provided by OS-House's 8 principles. The principles enhance exchangeability of the components, contextual fit and overall sustainability of the design. The winning designs will be built in a housing project in Ghana.

#### **...Working together**

The heart of the competition is the online platform, where designers can interact with each other and with the local community in Ghana. On the platform you can exchange ideas with other users and team up with fellow designers to complement your skills. To

increase your design's fulfilments of local demands, the platform offers the opportunity to interact with local residents who are happy to share their knowledge on local conditions and the needs and wants of the local target group. We believe that the best results are achieved when people work together. However, it is up to you to decide!

After the competition, the OS-House platform will continue to improve the interaction between different stakeholders in the design and building process.

#### **...Why Ghana?**

Ghana has a politically stable climate and an emerging middle class associated with a growing demand for affordable housing. Ghana is considered to be a guiding country in African development. In addition, current building practice generates considerable and costly construction waste. The housing industry in Ghana presents tremendous opportunities for OS-House from a social, economical and environmental perspective.

The target group of OS-House is described as the lower part of the middle class, hereinafter referred to as the emerging middle class. In the Ghana context this group has an annual income of 11.000 to 20.000 Ghana Cedis (GHS); 3.6 million people (30% of the urban population) with an expected housing deficit of 300.000 houses in 10 years time. The target group is occupied as e.g. trained teachers, nurses, police, army, and junior civil servants.

The sociocultural, income and savings characteristics of the emerging middle class will be described further in the appendices.

### **Open Source House: More than a competition**

Open Source House is more than just a design competition. It is a revolutionary new idea. It aims to introduce affordable, flexible and sustainable housing needed to improve the living conditions of the emerging middle class in urban areas in developing countries. Designers are encouraged to come up with solutions that are specific to local situations. OS-House aims to generate a long-term positive social, economic and environmental impact on the housing sector in developing countries. This competition is the first step towards this process. The main features of OS-House are addressed below.

#### **...Open source sharing**

OS-House aims to make valuable information regarding affordable and sustainable housing design accessible to a large group of people. All ideas, concepts and plans on sustainable housing published on the platform are shared in an open source way. The platform will be a source on the internet which offers a huge diversity in smart and sustainable designs freely accessible for everyone; it will be a place where creativity is never lost. Furthermore, on the platform the designs can be upgraded, improved and adjusted according to the specific needs within a certain region or according to cultural needs, available materials or other circumstances. For designers it is a way to use and show their quality in a meaningful way, a way that can improve the world.

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### **...Improving urban living conditions**

OS-House aims to provide support to enhance the living conditions in developing countries. The use of 8 OS-House principles helps the designer to create designs which have a high degree of flexibility, are embeddable into the local context and make use of materials efficiently. In essence these aspects will reduce the negative environmental impact of house construction and use, favour affordability of housing and improve the living conditions of the emerging middle class in urban areas.

### **...Think big, start small, scale fast!**

The results of this project, together with the designs collected during the competition, will be used to explore possibilities to implement OS-House at a large scale and with a wide diversity of designs. After this pilot project OS-House will facilitate local entrepreneurs to make commercial use of the OS-House designs in their local context. The ambition for the long term is to have helped 100.000+ middle class households getting access to better and more sustainable housing by the year of 2020.

## **Competition rules**

### **...Eligibility**

The competition is open to anyone with an architecture, design or engineering background. Participation is for free; no fees is charged to the participants. OS-House team members and jury members are excluded from participation.

### **...OS-House design principles**

#### **1. Locally embedded**

The design is embedded in the local cultural context (e.g. socially, economically and technically); it can be produced locally, aims at improving local employment and know-how and strives to minimize the need for import and transportation.

#### **2. Design the whole life cycle**

The future disassembly and material-use are an integral part of the design. All organic and technical materials can be separated. Natural resources are renewable.

#### **3. Climate**

The design makes optimal use of its location and surrounding climate conditions in order to minimize energy consumption.

#### **4. Size**

The design adheres to local building standards. Elements are transportable and re-usable (e.g. elements of house 'A' are exchangeable with elements of house 'B').

#### **5. Structure**

The load-bearing structure is separated from the demountable building skin.

#### **6. Connections**

All connections between the components and the load-bearing structure are dry and demountable. This makes re-assembly easy and clean.

#### **7. Installations**

All installations must guarantee a flexible organization of the household and provide a sustainable way of living. The installations are smart, safe, upgradeable and adapted to the local ecology. They can function independently from the structure and skin.

### **8. Open Source Share**

All designs and ideas will be published and shared on [www.os-house.org](http://www.os-house.org) to inspire others. Others may use, improve and adapt them. For that purpose designs, drawings and presentations are made in a clear, reproducible manner.

### **...Design program**

A middle class family with two parents and two children are looking for a new house. The man works as a civil servant and his wife as a nurse. The children go to primary school. A female relative is staying with the family, she just finished her junior secondary school. She looks after the house and the children when the parents are working. In their current situation she sleeps on the couch in the living room.

In the future the family will grow towards a family size of 6-11 people, either by getting more kids or by relatives moving in.

The amount of money the family can spend on their house is indicated on 15.000 GHS to 25.000 GHS.

#### **Plot characteristics**

The family currently has a plot in mind for a new house. The plot is 15 by 30 meters (50 by 100 feet). The house must be 2,6 meters (8 feet 6") from the plot edge and 4,6 meters (15 feet) from the street. The maximum build area is 56% of total plot size. The plot has a flat surface and is connected to water (under sidewalk) and electricity (from poles aside the road). There is no sewage system available.

See location drawings on the platform.

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### Directions for the house

- The family should be able to afford the house.
- The house should have a minimum habitable area of 35 m<sup>2</sup>.
- The house should have at least:
  - o A living area
  - o A minimum of 2 sleeping areas
  - o Bath/toilet facilities
  - o Basic kitchen facilities
  - o A storage space
- The house is expected to grow to a size of 4-6 rooms. Consequently, the house should be designed in such a way that it can be expanded with a similar quality (horizontal and/or vertical) and improved in a modular way.
- This house must be designed according to the 8 OS house principles.
- The plot demarcations, installations of water, electricity supply and waste(water) must be an integral part of the design.

Please see the annexes for more information about the location and the socio-cultural and technical context of the emerging middle class in the Coastal Region.

After the competition the winning design(s) will be constructed. Before construction they will be adapted to the location that will be selected in the coming months together with local partners. The given situation is a generic one that is based on research in the coastal region in Ghana. Several possible locations for the execution of the winning designs (existing as well as projected situations) offer a very similar organizational and spatial configuration. The drawings

can be downloaded on the platform in \*.pdf and \*.dwg format.

### **...Submission criteria**

The following has to be submitted digitally:

- A PDF booklet, explaining and detailing your design. Name your design as follows:  
*YourProjectTitle\_OSHouse.pdf*.
- Your design in drawing format (.dwg). Name your design as follows:  
*YourProjectTitle\_OSHouse.dwg*

The PDF booklet should consist of 8 to 10 pages, should be sized A3 landscape and should contain the following:

- P0: Personal details. Your name, your platform user name, your project title and additional information you would like to share.\*
- P1: General concept. images and text (200 words max.). This page will represent your design on the platform and this is the first image that people will see.
- P2 Site planning, 1:200
- P3: Plan(s), scale 1:100 (or 1:50)
- P4: Section (s), scale 1:100 (or 1:50)
- P5: Climate concept, drawings and text
- P6: Detailing and materials (scale 1:10) + technical elaboration

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\* To ensure anonymity during the competition, this page will not be shown during the judging procedure. After the competition, this page will be shown on the platform. P0 will connect your name to your design and will be a personal introduction to the ones interested in your design.

- P7-P8: Explain how the design deals with every single principle, drawings and text (400 words max.)
- P9 + P10: (optional) Free to designers. Can be used to describe the project more in depth. (e.g. detailing of a demountable façade/roof element, garden design, explanation on how the building can expand over time, extensive life-cycle-analyses etc.)

**To ensure anonymity during the judging, your name must not be visible on all pages in the booklet except for the front page (P0). Displaying the author name in other pages than P0 will result in immediate exclusion from participation.**

It is further obligated to include a well-organized .dwg file, which should contain plans, sections and details (a 3D model if available). This will be added as a download on the platform and will make sure that if your design will be built, it will be done properly. At the same time it helps other designers to take your design and improve or adapt it to another context. If you make drawings by hand, please include a .pdf file of your drawings.

### **...Judging criteria**

During the judging process, the following questions are taken into account:

- How strong are the **8 principles** implemented in the design of the house?
- How well are aspects of ecological, social and economic sustainability incorporated in your design?

- Ecological sustainability: How well does your design reduce the negative impact of building on the environment?
- Social sustainability: How well does your design meet the needs and wants of the target group?
- Economical sustainability: How well does your design contribute to the economical possibilities for the inhabitants and other stakeholders?
- How feasible is your design? The jury will look at the economical feasibility and the technical feasibility.
  - Economical feasibility: Will the target group be able to afford the house?
  - Can the house be built with the materials and techniques available?
- To what extent does the design of the plot benefit the occupants?

## General competition information

### ...Submitting your design

Within a few weeks after the start of the competition, an upload function will be ready on the platform to submit your booklet and your design file.

Your booklet and design file will be connected to your profile on the platform. This connection will be visible after the competition. During the competition, the booklet and the design file will be presented to the jury anonymously. This will be done, by masking the front page of your booklet during the judging procedure.

### ...Judging procedure\*

All designs will first go through a pre-selection round, in which a pre-selection panel will select and present 5 nominees to the jury panel. The jury panel will propose the final ranking of the nominees. Designs will be presented anonymously to the pre-selection panel and jury panel.

#### Pre-selection panel

The pre-selection panel consists of an international mix of young and experienced professionals which are highly involved in the OS-House project and which have backgrounds in sustainable design, urbanism, building materials, real estate management (Ghana), façade technology and construction (Ghana). The names of the members of the pre-selection panel will soon be published on the OS-House website.

In the pre-selection round, the pre-selection panel will perform the following activities:

- Check if designs of contestants fulfill the submission criteria
- Select the best 5 designs based on the judging criteria
- Select the 10 early bird winners (see "Prizes") based on the submission date and the submission criteria

#### Jury panel

The jury is an appealing panel consisting of 5 members with diverse but relevant backgrounds:

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\* By entering the competition, all contest participants agree to all terms of the competition. Decisions of the jury will be final and binding.

- **Cameron Sinclair** (Executive director of Architecture for Humanity, San Francisco, U.S.A.)
- **Professor G.W.K. Intsiful** (Dean of Kwame Nkrumah University Of Science and Technology, Kumasi, Ghana)
- **Barbara Simons** (Master student Architecture at Kwame Nkrumah University Of Science and Technology, Kumasi, Ghana)
- Representative of an international development organization (to be announced)
- Technical expert (to be announced)

In the jury round, the jury will perform the following activities:

- Check if designs of contestants fulfill the submission criteria
- Rank the best 5 designs based on the judging criteria
- Write a short reflection on each design (5 to 10 lines)

### ...Timeline

Below is the time schedule of the design competition. All times are in GMT.

- 15 January 2010: Start of competition
- 15 February 2010: End of question round
- 21 February 2010: Publication of the answers to the questions submitted in the question round
- 17 May 2010: Submission deadline at 12:00 am
- End of May: Pre-selection round
- End of May or June 2010: Announcement of nominated designs (to be announced)
- June 2010: Jury round (to be announced)
- June or July 2010: Jury statement & prize-giving ceremony (to be announced)

## ...Prizes

Joining the competition is your chance to establish your name as an architect, seeing your design being built and used by its new residents.

Prizes will be awarded to the best 5 designs.

Place	Prize
1 <sup>st</sup>	<ul style="list-style-type: none"><li>- <b>Construction of design in Ghana</b> *</li><li>- A short trip to Ghana for the opening ceremony once construction is completed (in case the winner is not located in Ghana and to a maximum of 2 persons)</li><li>- A short trip to attend the awarding ceremony in The Netherlands (to a maximum of 2 persons and only when participant is located outside The Netherlands)</li></ul>
2 <sup>nd</sup>	- Construction* or <b>€2000,- (Euro incl. VAT)</b>
3 <sup>rd</sup>	- Construction* or <b>€1500,- (Euro incl. VAT)</b>
4 <sup>th</sup>	- Construction* or <b>€1000,- (Euro incl. VAT)</b>
5 <sup>th</sup>	- Construction* or <b>€500,- (Euro incl. VAT)</b>

Together with local partners, the OS-House organization will further develop and build the winning design(s) in a construction project in Ghana. This will be a test for the technical and economical feasibility as well as the social perception of OS-House. It is likely

\* Please note that this will not be a paid assignment. The winning design(s) will be used to build a house. A compensation would not be in proportion to the budget of the house and would not be in line with the aim of this project.

that design adjustments are needed to allow local implementation. The designers of these designs are invited to contribute in this process.

The OS-House organization can only guarantee that the 1<sup>st</sup> place design will be built in the construction project. Depending on the amount of investment funding at the time of the awarding event, the runners-ups (2<sup>nd</sup> – 5<sup>th</sup> place) will either see their designs being realized in the construction project, or receive a money prize instead.

The money prizes will be rewarded to the architect (or team leader in case of a design team) when the design will not be realized. †

Apart from publication on the OS-House platform and on the Open Architecture Network, Enviu will do its best to publish the design(s) in magazines and press releases.

### Early birds

The first 10 entries that fulfill all submission criteria will be rewarded with a book about sustainable architecture. The winning 'early bird' designs will be selected in the pre-selection round and will be awarded at the awarding ceremony. ‡

### All participants

Even when you don't win there is something to win...

† All money prizes will be awarded before January 1st 2011.

‡ The goal of this additional reward in the competition is to help the OS-House organization gain insights into the status of participation of this competition.

- Make a difference: Be a first mover in a socially relevant project with great ambition and potential. All designs (with acceptable quality and to the sole discretion of Enviu) will be published on the OS-House platform and on the Open Architecture Network:

[www.openarchitecturenetwork.org](http://www.openarchitecturenetwork.org)

This creates the possibility that your design can be used in construction activities anywhere around the globe. Your name will always be connected to the design.

- Expand your network: The platform enables you to connect to and team up with other designers interested in sustainable architecture.

- Build your resume: The platform enables your designs to be showcased to anyone.

## ...Copyright

Copyright of your design will be according to the Terms of Use of the Open Source House platform (see [www.os-house.org](http://www.os-house.org)), which for an integral part is formed by the Creative Commons Attribution-Share Alike 3.0 license (see <http://creativecommons.org/licenses/by-sa/3.0/legalcode>)

This means that the designer will remain as the author and owner of the designs submitted, but everybody is allowed to alter, transform, or build upon the design and use it for commercial purposes. Every user of the designs is obliged to:

- Share modifications of the designs on the OS-House platform, and
- Properly attribute the previous author(s) or licensor(s) of the designs when using, modifying and uploading the designs

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You are free to decide whether other people can contact you. For more information on the Terms of Use of the OS-House platform, see [www.os-house.org](http://www.os-house.org).

### **...Publication**

After the Design Competition, all submitted designs will be published on the OS-house platform. Here they are available for further improvement as well as for local builders, who can implement them. No matter what your origin is, everyone will be invited to bring in new designs and improvements to designs already available.

All designs will also be published on the Open Architecture Network of Architecture for Humanity (<http://www.openarchitecturenetwork.org/>).

### **...Interim information**

It could be that during the competition you need additional information. Some examples: You have questions about the interpretation of something in the design case, you are looking for more background information regarding a certain topic or you experience difficulties with your platform account.

### Questions about the competition and the design case

The design case may raise new questions. During the first month of the competition, you have the options to submit your questions. Simply send a mail to [info@os-house.org](mailto:info@os-house.org) or submit your question on the platform. **Questions submitted after the 15<sup>th</sup> of February will not be processed.** The answers to the submitted questions will be published on the OS-House competition platform on February 21<sup>st</sup> 2010.

### Additional background information

There are different ways to obtain more background information that can help you to improve your design. The platform offers you the opportunity to post your questions to the OS-House community. Request information about the properties of materials, or pose questions about the specific socio-cultural or technical context in Ghana. If you don't mind sharing your design during the competition, just put it on the platform and see how it develops. Just realize that the platform brings together people with different backgrounds from all over the world. Make use of these opportunities for your benefit.

If you feel that you could do with some more creativity or with knowledge on specific subjects, you can request for a team partner. Found a partner? Create your own private group environment on the platform to stay in touch and exchange information.

### Troubleshooting

For problems with your OS-House platform account or other software problems, please contact us at [info@os-house.org](mailto:info@os-house.org).

### **...Information for teams**

Teams are required to appoint a team leader. The team leader is responsible for uploading the design and the main contact person during the competition. Unless otherwise requested during correspondence with the OS-House organization, a money prize will be deposited on the bank account of the team leader. In this case, the team leader is responsible for the proper allocation of the money among the team members. Please bear in mind that the team leadership is just an administrative matter. All team members will share

authorship of the design once it is published on the platform.

### **...Terms**

If you register on the platform, you are asked to agree with the terms of contributors and users. Please read both documents carefully, since you are bound by these terms of use.