International Workshop of Architecture(3rd)

The University of Seville + The University of Shiga Prefecture

2012.1.9-2012.1.11

UNIVERSIDAD DE SEVILLA

UNIVERSITY OF SEVILLE

WITH THE KIND SUPPORT OF
EXCMO. ATENEO DE SEVILLA

滋賀県立大学

the UNIVERSITY of SHIGA PREFECTURE

INTERNATIONAL WORKSHOP OF ARCHITECTURE(3rd)

第３回建築国際ワークショップ

A temporary emergency housing prototype in Spain

スペインでの災害用仮設住宅のプロトタイプ

In 1755, a tsunami hit the south coast of Spain. At present, and according to numerous researches, this disaster is likely to happen again, and, in spite of prevention systems that can warn population, they have to be reallocated in safe places. The topic of the third edition of the workshop between the University of Seville and the University of Shiga Prefecture is to propose a design for a prototype of a temporary housing unit, according to the needs of a Spanish family. Through cooperation between Spanish and Japanese students, this year's work will define a minimum standard for temporary living and the implementation of modular construction techiques, much more developed in Japan,

1755年に、津波はスペインの南海岸にヒット。現時点では、と数々の研究によると、この災害が再び発生する可能性があります、そして、人口に警告することができます防止システムにもかかわらず、彼らは安全な場所で再割り当てする必要があります。セビーリャと滋賀県立大学間のワークショップのこの第3版の話題は、スペインの家族のニーズに応じて、仮設住宅のユニットのプロトタイプの設計を提案することである。スペインと日本の学生との間の協力を通じて、今年の作品は、はるかに日本で開発された一時的な生活のための最低基準、およびモジュール構造の技術の実装を、定義します。

Working sessions

From Monday January 9

To Wednesday January 11

ワーキングセッション

01/09月—01/11水

International Workshop of Architecture(3rd)
The University of Seville + The University of Shiga Prefecture

WORKSHOP: EMERGENCY HOUSING FOR DISASTERS IN THE SOUTH OF SPAIN.

In November 1st 1755, and earthquake and a posterior tsunami hit the Southwest of the Iberian Peninsula. The most affected areas were the center and South of Portugal and the western part of Andalusia, in the South of Spain. It was estimated that the earthquake reached 9 points in Richter scale, and was responsible for between 60.00 and 10.000 victims. In the coasts of Cadiz, tsunami waves reached 12 meters in height. This sad disaster was a milestone for disaster prevention in Europe, leading to the beginning of the modern science of seismology.

At present, many scientific researches have demonstrated that earthquakes and tsunamis are likely to happen again, affecting densely populated regions, such as Cadiz and Huelva metropolitan areas. Nowadays, disaster prevention and simulation systems can detect them and inform population, so that they can be evacuated to safe areas. In Spain, architects and authorities do not have much experience in temporary emergency housing, contrary to Japan, where this type of construction has been commonly used. That' s why a knowledge transfer between these two countries can be very fructiferous.

The valuable experience lived this past September, with the edition held in Sendai and Shiga has posed the question about the convenience of deepen our knowledge in temporary emergency housing, this time applied to the South of Spain, an area where hazards derived from earthquakes and tsunamis are real, as demonstrated by historic records. For all the aforementioned, the topic for this third edition of the workshop between Shiga and Seville University will consist on the design of a prototype of emergency housing for disasters, which can be assembled in a short time, and will fit the necessities of Spanish inhabitants. Japanese and Spanish students will work on a design following these guidelines.

-The prototype will house a family between four and six people.
-The usable surface will be between 50m2 and 60 m2.
-Functional program will be. Living room, kitchen, bathroom, two bedrooms with a third optional, and a garden of about 20 m2. It will be organized according to common housing typologies.
-Use of modular construction systems will be considered, using assemblable modules which will fit this maximum dimensions: length 12 m, width 2,50 m, so that ordinary trucks will be able to transport them to the disaster zone.
-A very important issue is its adaptation to the climate of the South of Spain, profiting environmental conditions to provide comfort to their inhabitants, such as passive heating in winter and shadowing and natural ventilation in summer.
-Low embodied energy material and systems that diminish energy consumption, such as solar panels, will be considered.
-Prototypes will be assembled to form groups of 15 houses between 60 and 80 inhabitants.

Member

-Team A

Sigifredo Gómez Lemos, Luisa Daza Reyes, David Sánchez Martínez

Kenji Naruo, Moe Shirai

-Team B

Virgilio Campos Sanz, Lucía Guillén Rodriguez, José Pérez Fenoy

Teruyoshi Miyazaki, Tamra Natsumi - Satoko

-Team C

Isabel Alfonso Ramirez, Ezequiel Benitez Vazquez, Maria Jose Calderon Vazquez

Takahiro Ganse,Tamaki Hamada

-Team D

Daniela Arenas Rodriguez, Alejandro M. Coira Paradela, Alfonso Gallardo Nieto

Tomoki Kitaguchi, Rie Nagase

-Team E

Clara Fall, Lidia Weeh, Ana Moreno Sierra

Taihei Fujisawa, Ayumi Mizui

Schedule

From Monday Janurey 9 to Wednesday Janurey 11

9th Monday

10:00 Initial presentation,group formation and work group

14:00 Lunch break

16:00 Working shop

20:00 End of working shop

10th Tuseday

10:00 Working shop

14:00 Lunch break

16:00 Working shop

20:00 End of working shop

11th Wednesday

10:00 Working shop

14:00 Lunch break

16:00 Working shop

20:00 Common dinner and farewell party

Sigifredo Gómez Lemos
Luisa Daza Reyes
David Sánchez Martínez
Kenji Naruo
Moe Shirai

SOUT-SPANISH COAST CLIMATIC PROPERTIES

West wind
Wet and Cold

East wind
Dry and Hot

Winter
4º - 23º

Summer
13º - 42º

PREFAB/HOUSES

ADVANTAGES

- Fast construction process.
- Qualified workers
- Best execution process and finishing
- Fast distribution in case of natural disaster

DISADVANTAGES

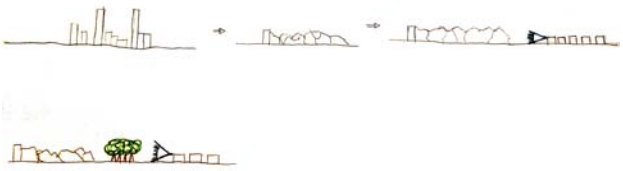
- If the industry doesn´t have enough houses in stock, the demand couldn´t be supported so fast

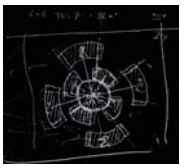
HOUSING PRIORITIES IN ACCIDENTAL SITUATION

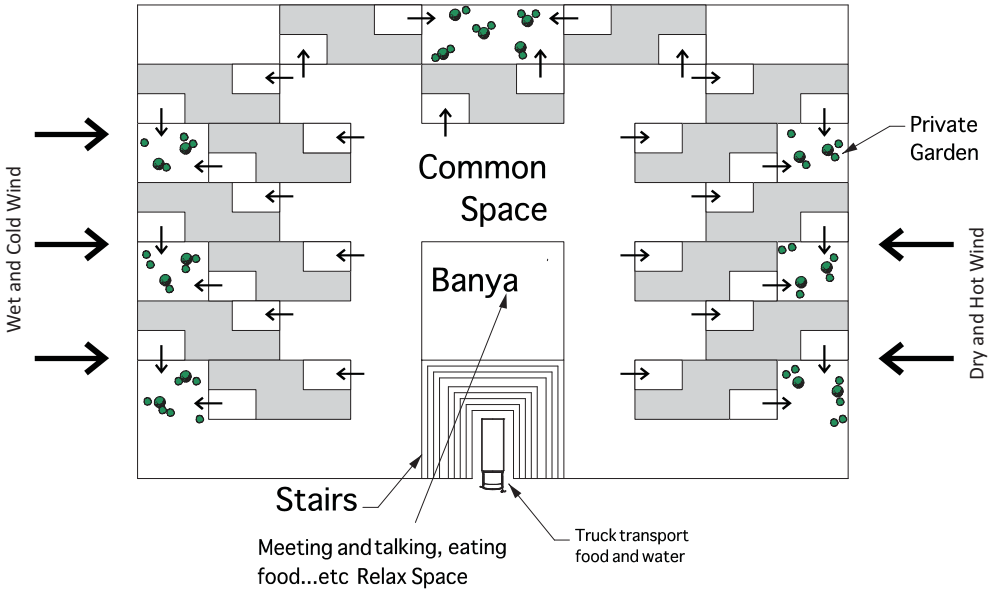
Fast Soluitions

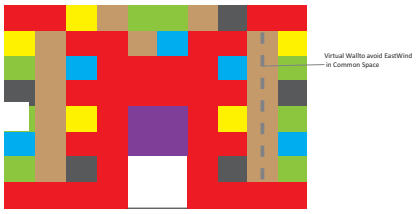
Design Meeting Points

GENERAL PLANNING

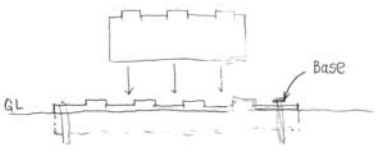


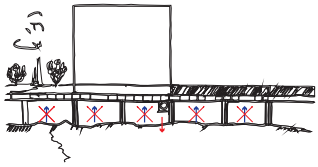






- Banya
- Common Space
- Kitchen-Garden
- House With Solar Panel Module
- House With Water Deposit
- House With Photo-Voltaic Module



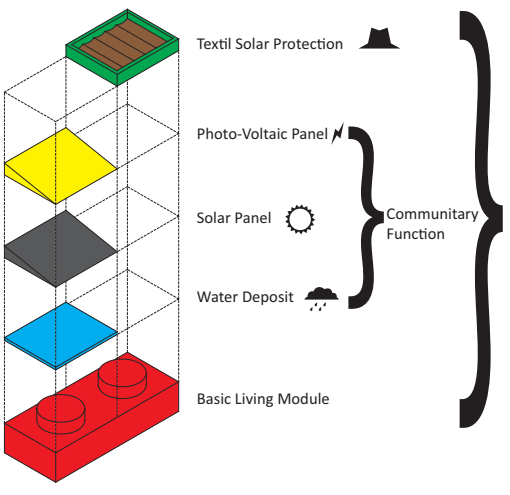


Panels 5×6m

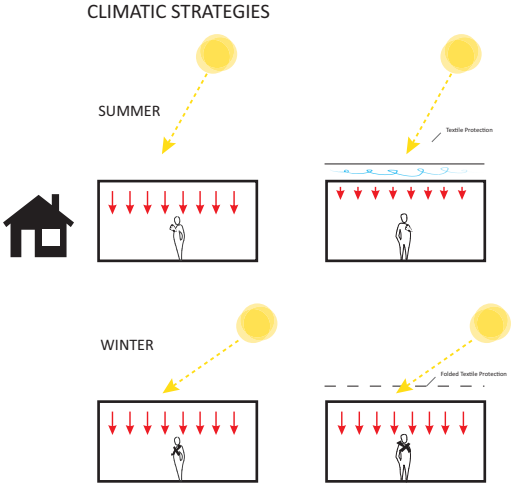
Concrete + Wood + Soil Panel + Structure(Tramex)

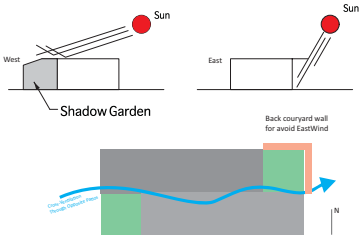
↓ Houses ↓ Common Space ↓ Garden

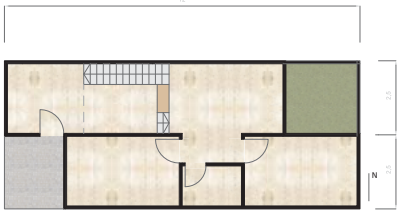
HOUSING BLOCKS



CLIMATIC STRATEGIES







A HOUSE FOR DUMMIES ! [Do it youself in disaster situation]

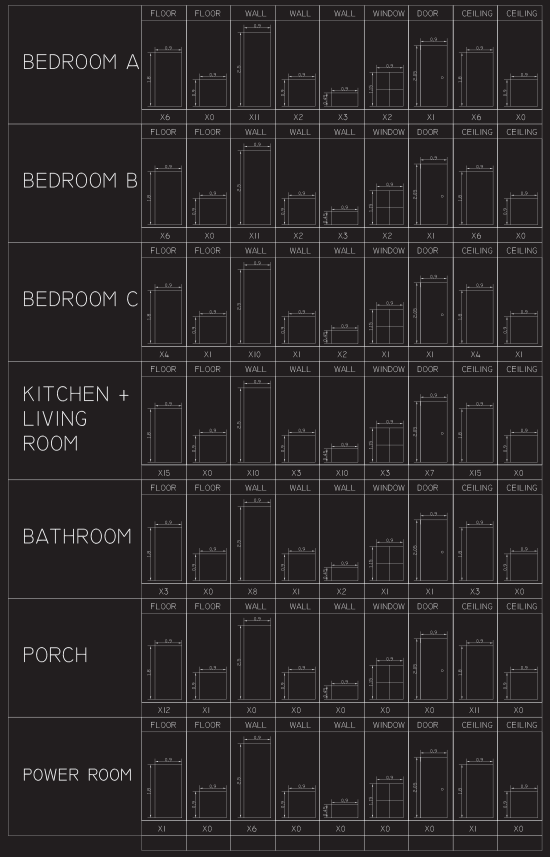
Team 02. Teruyoshi Miyazaki - Tamra Natsumi - Satoko - Virgilio Campos Sanz - Lucía Guillén Rodriguez - José Pérez Fenoy

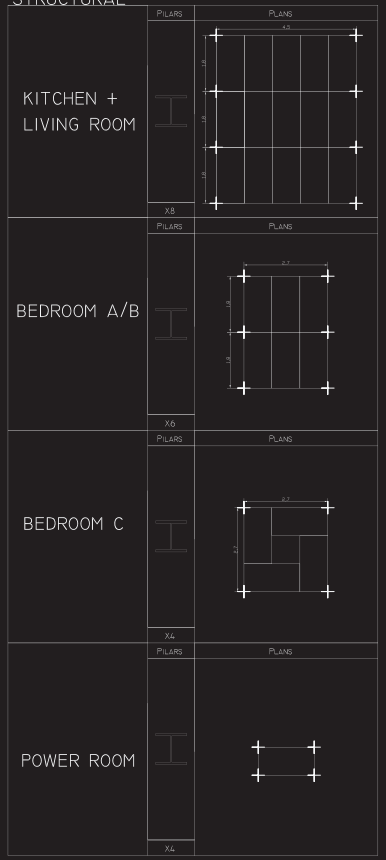
WORKSHOP: Emergency Housing for Disasters in the South of Spain

1 Project Memory

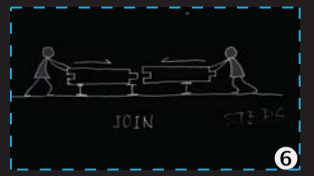
After a disaster people need routine. They need to know that they still have something to do even if there is nothing left.
That way, using that necessity for making something useful, we present a possibility to keep them 'busy', something that would be good for an after-disaster-shock.
There can be lack of builders and other technicians, so people have to find a way to build their own houses. The project we present is an easy solution for this kind of situation.
The main idea of the project is the use of a modular construction system. The modular system is adapted to the 'tatami' dimensions. The reason why is that the Japanese part of the team is more used to the modular system, so it will be easier to create habitable spaces.
We present the project as if it is a toy ready to be assembled.
Damaged people can follow steps to set their house as simple as an Ikea table. It has an inventory of all the pieces that will be necessary, the tools that may be needed and the way the pieces should be assembled in each step of the process.
In addition to the modular system we have thought about different ways of making the house environmentally friendly and diminishing energy consumption. We use inertial walls in those walls that gain more sun radiation, double glass windows, double roof that helps the hot-cold air process, green roof as a way of isolation that contain also a rain water collecting system that is possible due to the partially not-flat roof. Solar cells for electricity and water heating are set up in this part of the roof, facing south. Inside the house we find some little tips as crossed ventilation, recycle water for the toilet device and south facing windows that are protected by a jutting out.
The house plant is organized by the addition of squared rooms with a space that have multi-functional use. The orientation follows the sun, being the main façade looking to the south.
The plant is thought so that the house grows attending to the necessity of each family or group of people.
The organization of the area follows a line that looks at the public zone, where there are a community center and a vegetable garden that can supply the population with basic provides and a space for entertainment and an a school.
The space that is left between the houses and between the houses and the public spaces would be the gardened areas with playing grounds, too. The green area would be composed by planters.

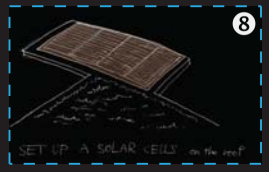
2 What do we need?

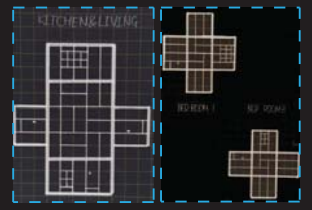


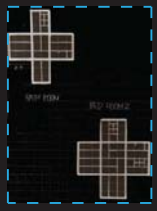


3 Steps

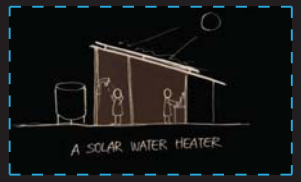


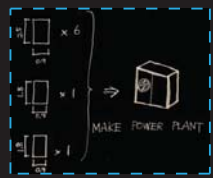




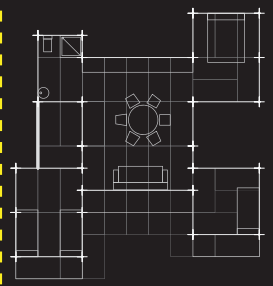


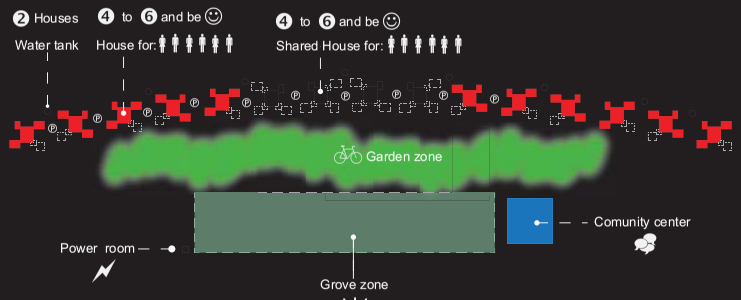
Details & Modules





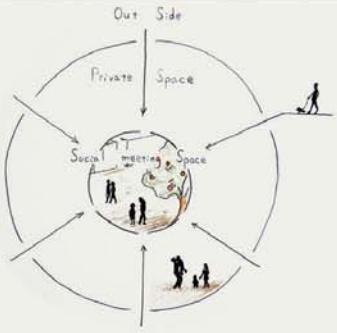
4 General Plan





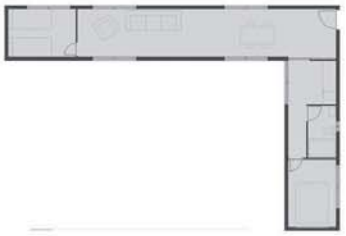
PATIO MEETING

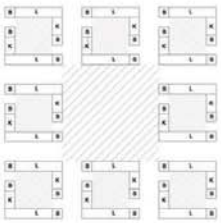
The proposal will aim to maintain and coordinate the social aspect characteristic of southern Spain in an extraordinary situation even temporarily, to the satisfaction of basic needs, understanding the social component as a necessity, as well as the reuse of product materials procedent of the destruction of existing buildings and the adaptation to an environment with specific climatic conditions through both passive housing system (orientation, openings, overhangs ...) and with the building system used.

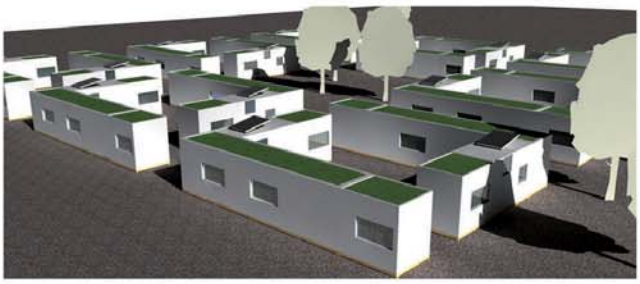


The idea is expressed through a proposed 'city' in which there is a gradation of space based on the living unit that defines a semi-private courtyard shared with another dwelling which turn to a space shared with the rest of the community.

Initially, these courtyards have a semi-public character because are open to public space. These 'doors' serve as a way to come into the courtyard from the outside and also provides a possible extension of the house depending on the needs of future residents by the addition of a third room.



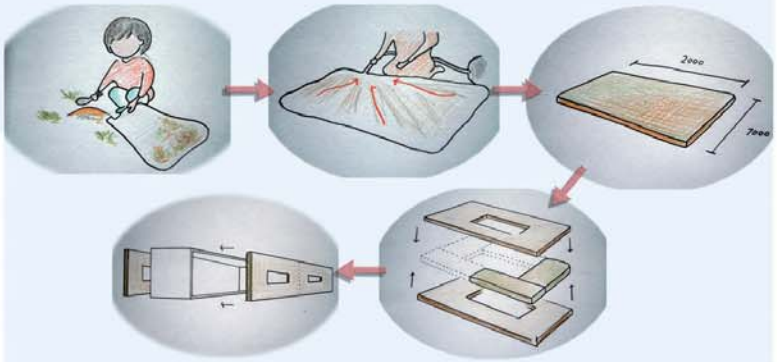


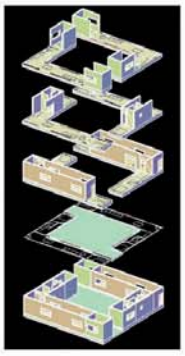


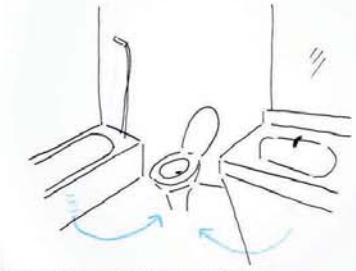
The housing development is a combination of three cores or boxes:
- Living Box
- Bedroom Box
- Wet Box (Kitchen + Bathroom)

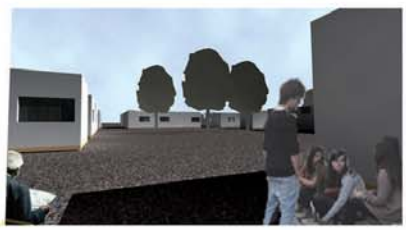
By giving materiality to the proposal wanted to combine modulation and prefabrication of a structure, made with rolled steel sections, with the laying of sandwich panels made of materials from the environment.

To manufacture these panels would be used compression bags, which would be filled with grass, dirt or other waste materials that can be easily found in the environment that subsequently would undergo a process of emptying, acquiring resistance and forming the insulating part of our panel. Finally, layers of wood were joined on both sides of the bags as a finish and protection.









The visual and ecological impact set in the environment will be minimal because it is a lightweight prefabricated insert whose base is raised above the ground, thus avoid possible damp from the rain and ensure the safety and ventilation of each dwelling. Vegetation cover is extended over the living room, adding freshness to the house in summer.
It also would provide the placement of solar panels on them that would take advantage of the many hours of sunshine that take place in this area, minimizing energy consumption, and a system for collection and reuse the water, in and out of the house. Collection of rainwater through gutters and downspouts attached to a small tank and reusing water from the sink and shower use by contacting the toilet cistern.

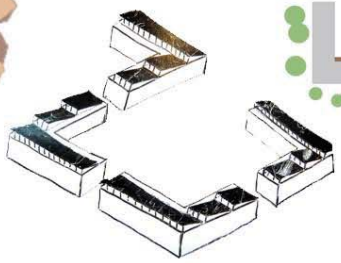
滋賀県立大学
THE UNIVERSITY OF SHIGA PREFECTURE

WORKSHOP BETWEEN SEVILLA AND SHIGA UNIVERSITY - 2nd EDITION
WORKSHOP EMERGENCY HOUSING FOR DISASTERS IN THE SOUTH OF SPAIN.

UNIVERSIDAD DE SEVILLA

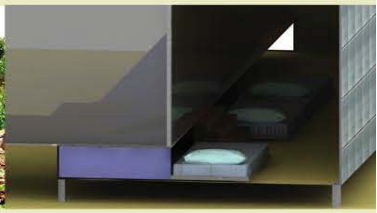
TAKAHIKO GANSE - ISABEL ALFONSO RAMIREZ - TAMAKI HAMADA - EZEQUIEL BENITEZ VAZQUEZ - TOMOHIRO SUKIKARA - MARIA JOSE CALDERON VAZQUEZ

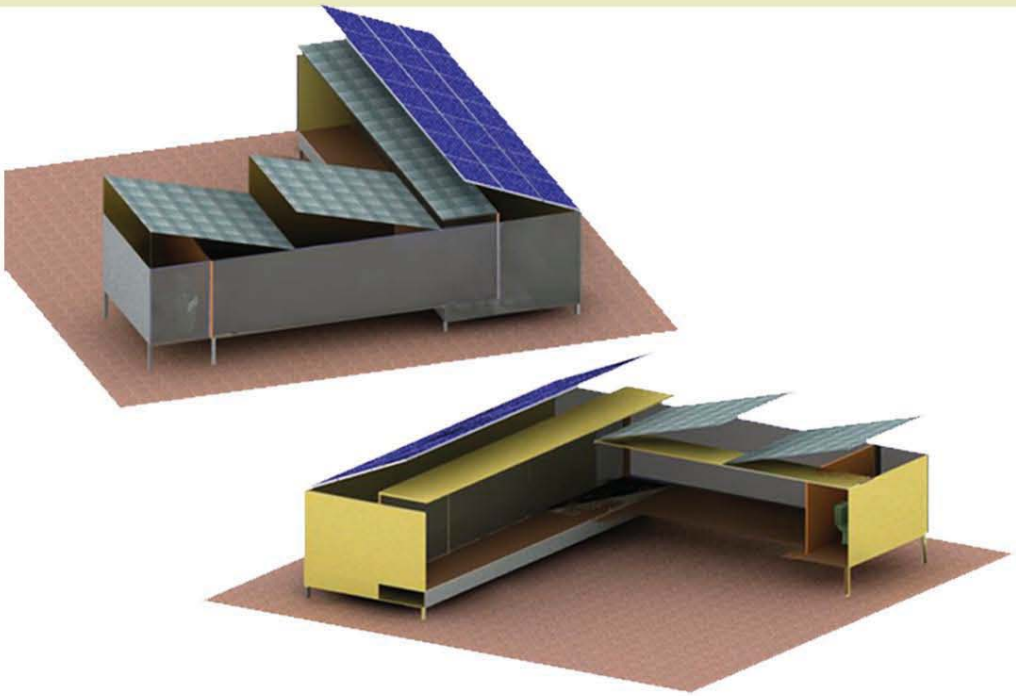
STRONG TOGETHER.
助け合い。









The main idea of our project, is the creation of a community, one where people live like a big family (which is perfectly possible, because they are only fifteen families). In order to create that, we think it' s very important to design spaces that everyone can use, public spaces with different uses, in our project there are a common dining room, an area reserved for communitarian farming, a public bathroom at Japanese style [Sentou], a big kitchen for cooking for all the neighborhood and many spaces reserved for personal relationship, this areas will be equipped with benches, shadows and green areas. All this solutions wanted to make the victims feel protected and in a new family.

Thanks to this experience, we decided to use and combine both cultures, occidental and oriental, from the Japanese culture, we have found really interesting concepts like Engawa (a kind of porch), Shouji (sliding paper doors) or Sentou (Japanese public baths), by the other hand, from Spanish culture we pick shelters (a protection of the window) and Urban Fields (little areas for farming in an urbanized area).

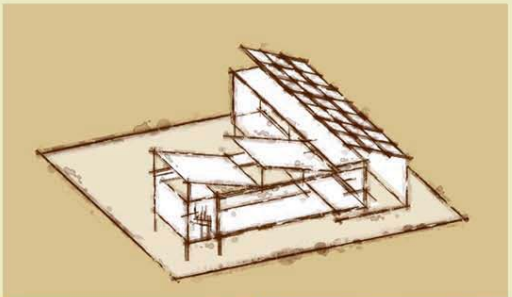
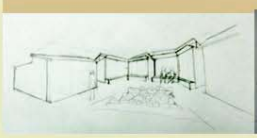
Our houses has an "L" shape, this form allow us combine different positions in the global situation keeping the better conditions of illumination and orientation. The houses has two different facades, the interior side, is opened by Engawa to the communitarian courtyard, and the exterior side, is much closer, and it' s covered by shelters that allow us more privacy.

Thinking on making a sustainable design, we decided to improve some measures for limit the energetic consume of our project, this is possible by the use of solar panels, which is the principal earning of energy of our design (we improve it by inclining the roof to the south). We also think in the air renovation, so we use the difference of level created by the inclined roof, to put a little window that give us light and new air. We also think in a system for recycle rain water and for the reutilization in the house later.

Another important issue was the choosing of materials, considering the ecological footprint we decided to use as main material cork, because of his availability and economic prize. The structure of the house will be of steel, which allow us to assemble and disassemble the house if it' s necessary.

At day

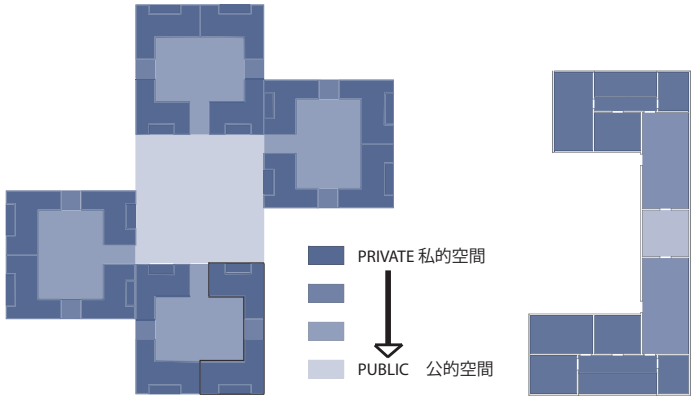
At nigth

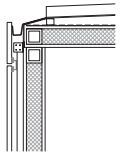



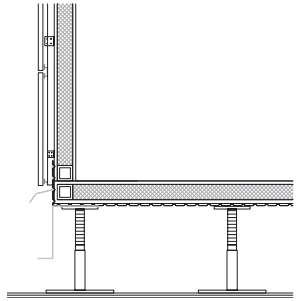

Daniela Arenas Rodriguez; Alejandro M. Coira Paradela; Alfonso Gallardo Nieto; Tomoki Kitaguchi; Rie Nagase.

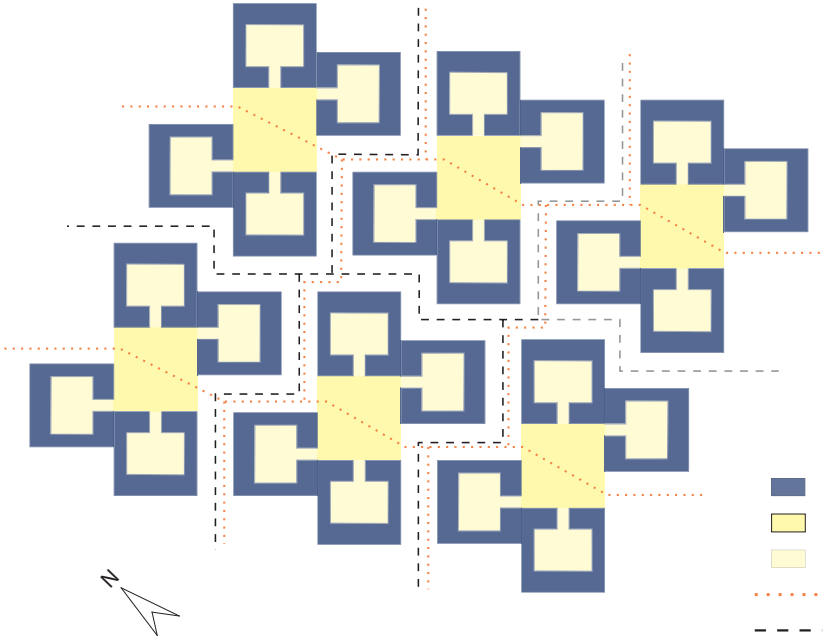
滋賀県立大学

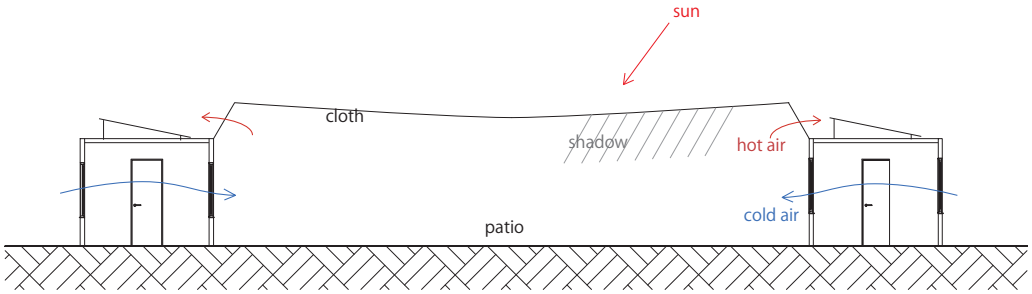
FIND A WAY TOGETHER 顔を合わせて住む仮設住宅の提案











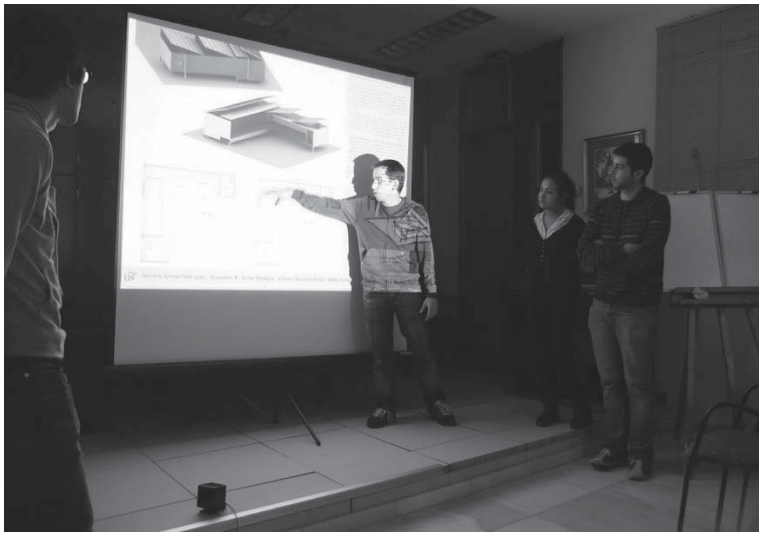
EMERGENCY HOUSING FOR DISASTERS IN THE SOUTH OF SPAIN
南スペインにおける災害時の仮設住宅

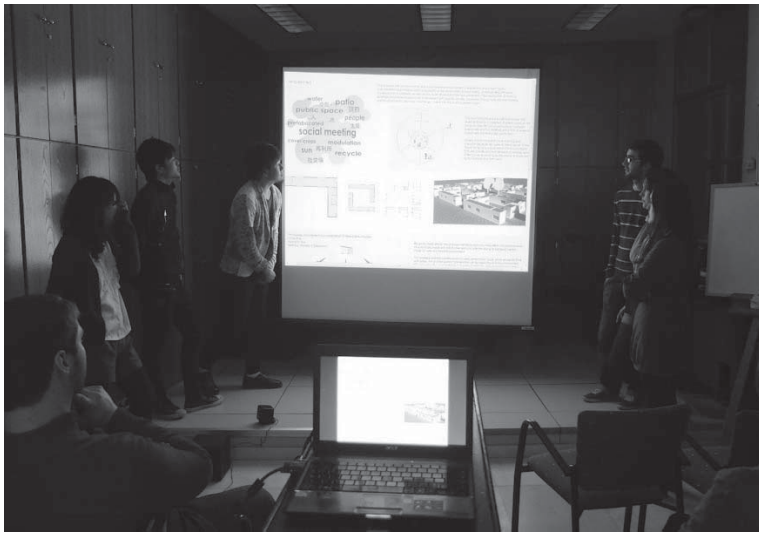
THE UNIVERSITY OF SHIGA PREFECTURE

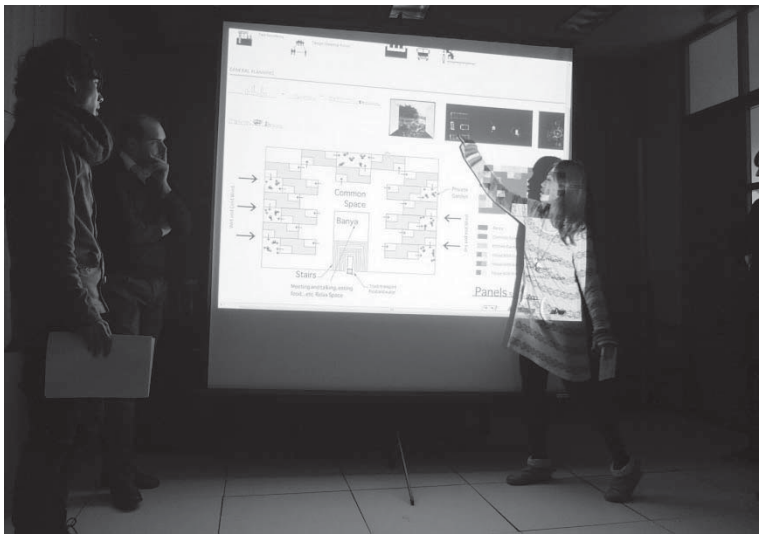
WORKSHOP BETWEEN SHIGA AND SEVILLA UNIVERSITY 2ND EDICION: GROUP 5 滋賀セリビア大学共同ワ-クショップ 2 5 班

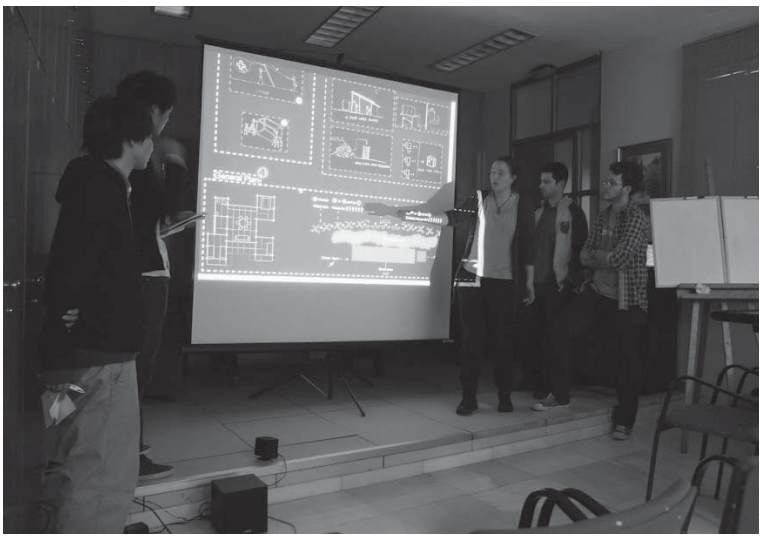

RAIN WATER → HOUSE
WASTE WATER → TOILET
HARA HETTA
ECOLOGICAL FOOT PRINT
YARIMASHO-!

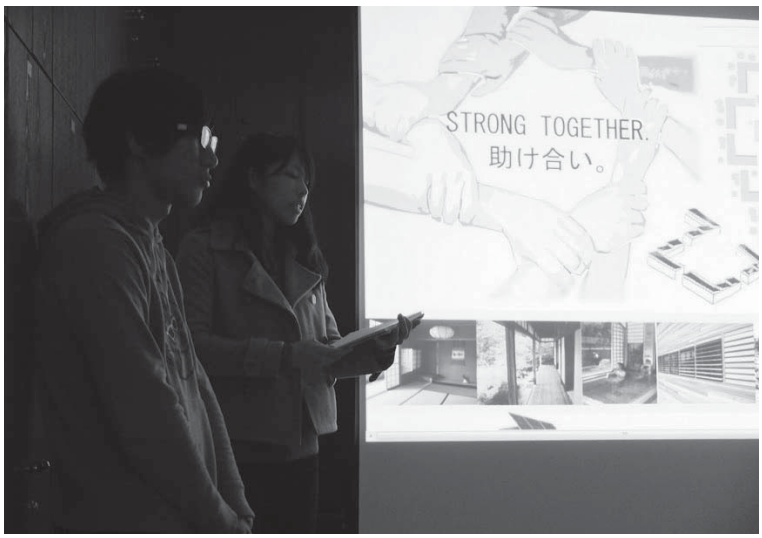

TOSHIBA




social meeting


Common Space
Banyo
Stairs
Panels




STRONG TOGETHER.
助け合い。