



1. Angra do Heroísmo



2. Parallel streets towards the sea (Grid model)



3. Main long street (Grid model)

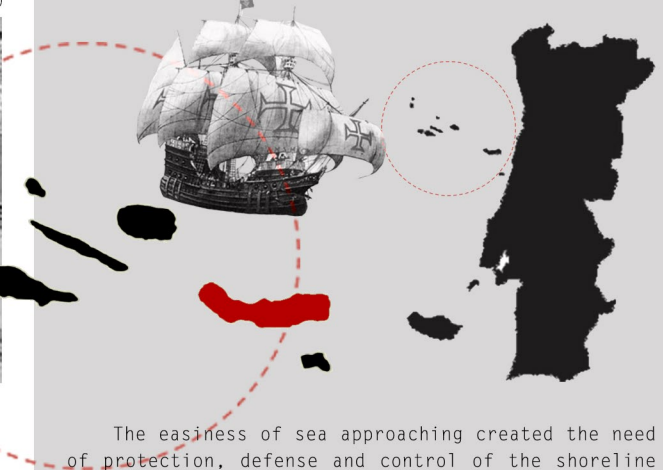


Location analysis: Limited by the Atlantic Ocean the city of Angra do Heroísmo is the most remarkable city of Azores due to its naval, economic and geo-cultural significance. Fertile land with abundant water, the cattle breeding and agricultural production became the main activities of the island. The existence of porous and friable clay in Terceira, led to a foundation of tile industries.



ANGRA DO HEROÍSMO, AZORES

Angra do Heroísmo is a city located in the south coast of Terceira Island, in Azores, limited by the Atlantic Ocean. Founded in the XV century, this Portuguese island soon revealed itself as the main port of Azores due to its' strategically location. Therefore, it was a mandatory stop during the great sea routes.



The easiness of sea approaching created the need of protection, defense and control of the shoreline quickly establishing Angra as the most appropriated place to settle the population. Due to the specific characteristics of the rugged ground, the city has grown according to the watercourses. The development of the urban space soon revealed a great sense of modernity through a simple model, but stiff that provide, until today, the siding of the main winds.

The city's urban plan is based on a proportional metric model from the distribution of perpendicular streets that defines the blocks of houses. The basis of these blocks is a plot of ground with 30 spans width, although with some differences in the interior and according to the construction period. Thus, they can diversify originating solutions based on the square, double square and rectangle.

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AVERAGE AFFECTED AREAS_LEVEL 2/3 OF DESTRUCTION

LESS AREAS_LEVEL 0/1 OF DESTRUCTION



DAMAGE LEGEND:

0
1
2
3
4

△ Limits

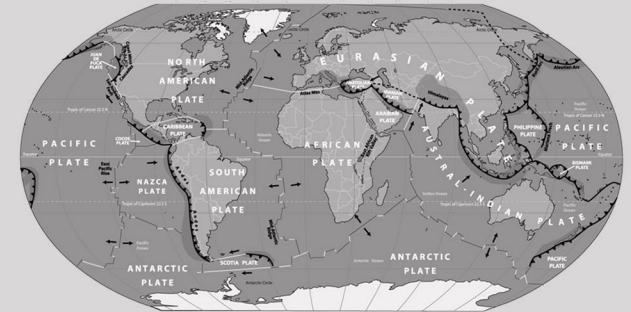


MOST AFFECTED AREAS_LEVEL 4 OF DESTRUCTION



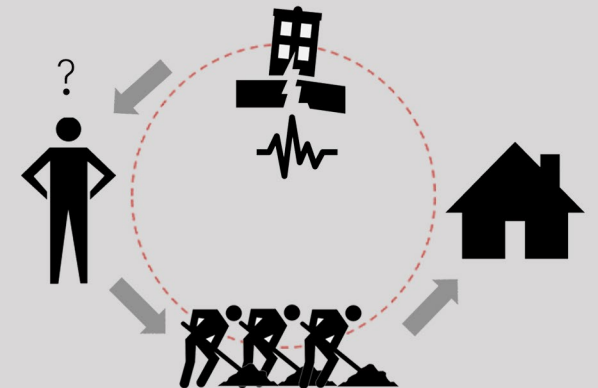
TARGET CITY, 1980 DISASTER

Located on a disaster risk zone, Angra do Heroísmo presents a geological constitution that is prone to seismic activity- junction of 3 tectonic plates: African, American and Eurasian.



This city was stroked by a seism of 7,2 of magnitude (on Richter scale), on the 1st January 1980, that caused nearly 80% of destruction .The population became a key on reconstruction program, so that the destroyed architectonical heritage was well preserved.

Therefore, by the preservation and valuing of the local, UNESCO, declared Angra do Heroísmo as 'Cultural Heritage of Humanity' due to its exemplar historical preservation, but as well for the physical evidences in all the Atlantic navigation and the life of the first colonial and commercial empires on the history of the planet.



MADE IN. 02/08

PRE-DISASTER STRATEGY

WORKSHOPS

Learn how to build emergency shelters and temporary homes, re-using the same materials



REACTIVATE

"Canudo Tile" Industries.
Therefore the product may be used in the reconstruction of definitive homes



FUNDRAISE

with touristic activities.
Part of the raised money will be used on the reconstruction of the city homes'



POST-DISASTER STRATEGY

RE-USE OF THE SOLUTION'S MATERIALS

IMEDIATE SOLUTION
EMERGENCY/TEMPORARY SHELTER
Use of local resources



LONGTERM SOLUTION
TEMPORARY HOUSING

RE-USE OF THE PREVIOUS SOLUTION'S MATERIALS

DEFINITIVE SOLUTION
TRADITIONAL HOME



3 STEPS ACTION

The city's preservation is an essential point in this interventional proposal. The strategy focuses on the usage of local resources combined with some innovative components. The community participation was crucial to rebuild Angra's heritage after the 1980 earthquake. Therefore, the involvement of the population still has a decisive role on this strategy.

The strategy is based on 3 main steps. The first one and the most important step is to identify the main problem of the city in order to find possible solutions to overcome it. Since Angra do Heroísmo is an island the isolation is the main one.

1. Main PROBLEM IDENTIFICATION

By learning the place flows and the natural resources it already has.

2. PRE-DISASTER STRATEGY

Pre-think what can be done before the disaster happens. Inform the population about what is being done.

DISASTER

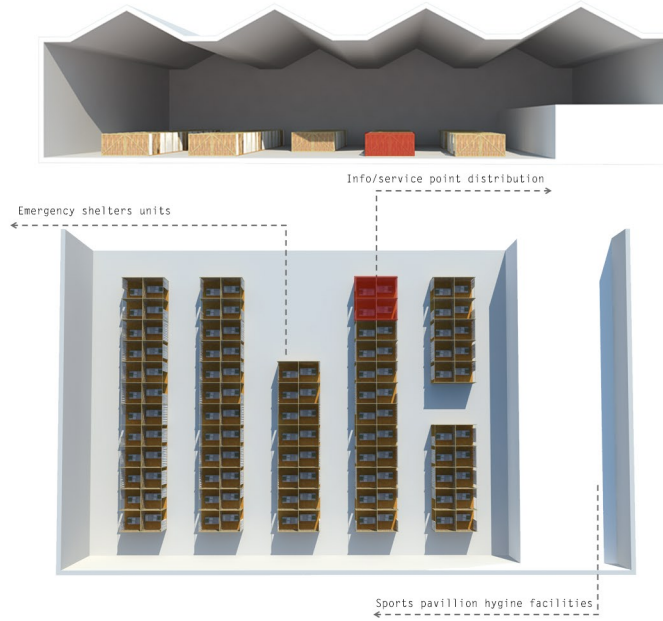
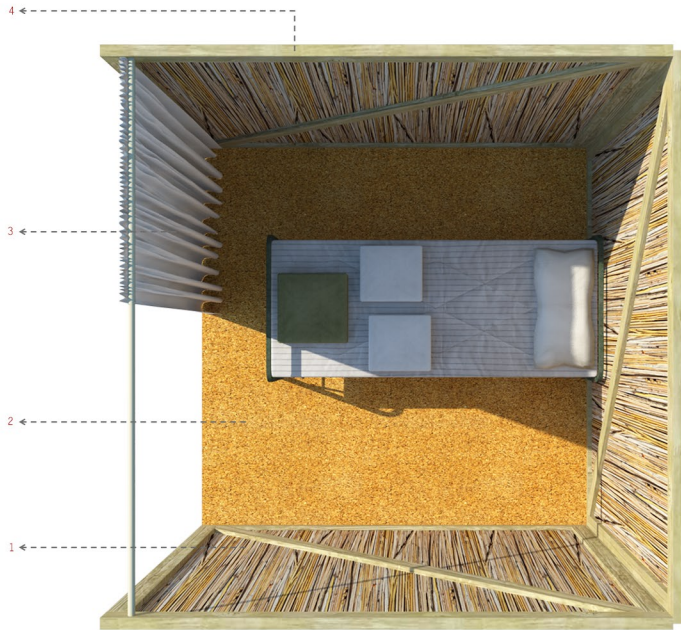
3. POST-DISASTER STRATEGY

EMERGENCY/TEMPORARY SHELTER → TEMPORARY HOUSING

ORIGINAL HOUSES CONSTRUCTION

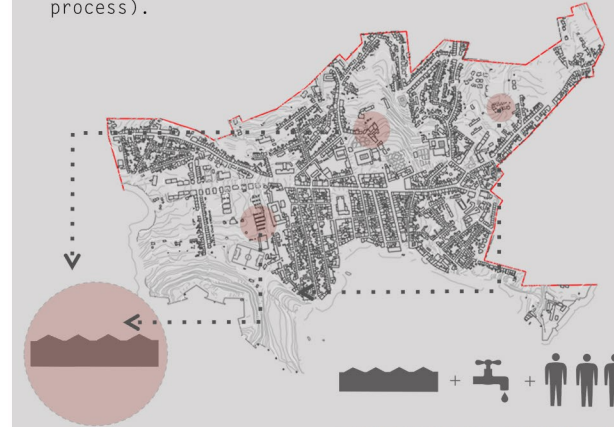
The second step is developing a pre-disaster strategy, thinking ahead the problems. The organization of Workshops, the reactivation of a local and traditional clay tile industries, and generate a fundraiser, are the three main points suggested as preventive measures to minimize the disaster effects. Finally, the third step is the development of a post-disaster strategy: an emergency/temporary shelter (1/2 week max. duration) and a temporary housing (2 years max. duration) to re-house the victims during the reconstruction program. This final step is based on the re-utilization of local materials to avoid waste and save resources, as well as to improve the time of assembling. The construction systems are simple in order to involve the population on the erecting works.



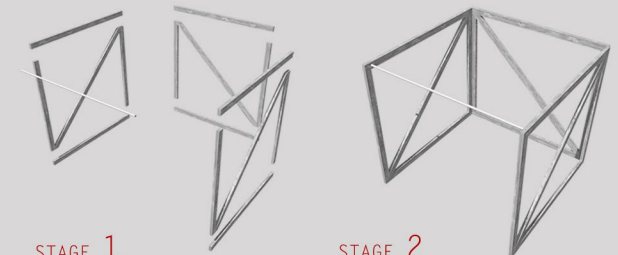


EMERGENCY/TEMPORARY SHELTER

The emergency shelters are located inside existing sports pavilions in the island. These facilities are prepared with sanitary infrastructures and other equipments to provide the population's basic needs. The assembly of this shelter can be easily done by the population (since they are already instructed thanks to the workshop suggested for the pre-disaster strategy, and due to the easiness of the assembling process).

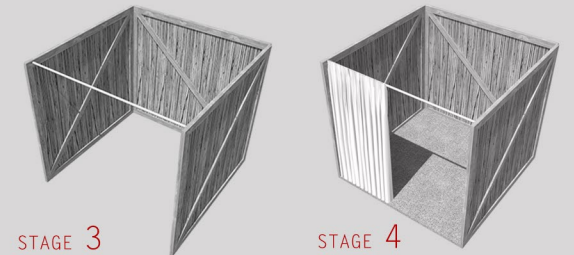


ASSEMBLY PROCESS



STAGE 1
_assembling the structure

STAGE 2
_screwing the structure



STAGE 3
_placing the panels

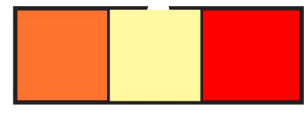
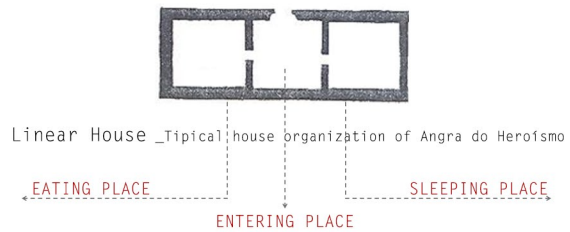
STAGE 4
_placing the cork and curtain

The shelters are organized considering issues as space-saving and the creation of information/service points to assist the population.

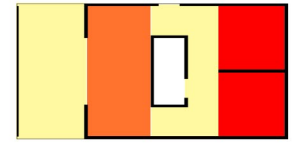
MATERIALS COUNTING

1. Straw panel (s)_ 3 uni.
2. Cork panel 60x60cm (s)_ 16 uni.
3. Curtain (s)_ 1 uni.
4. Wood beam 4cm (s)_ 16 uni.





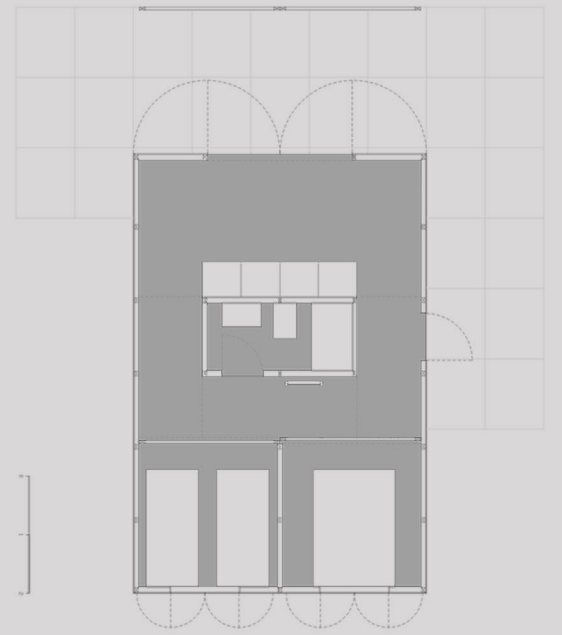
PUBLIC PRIVATE



TEMPORARY HOUSING, LINEAR HOUSE

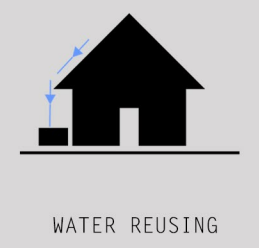
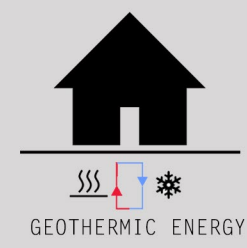
A careful study of the Angra's typical houses showed that the linear is the most traditional type of house in the island. It is composed by three different areas: eating place, entering place and sleeping place.

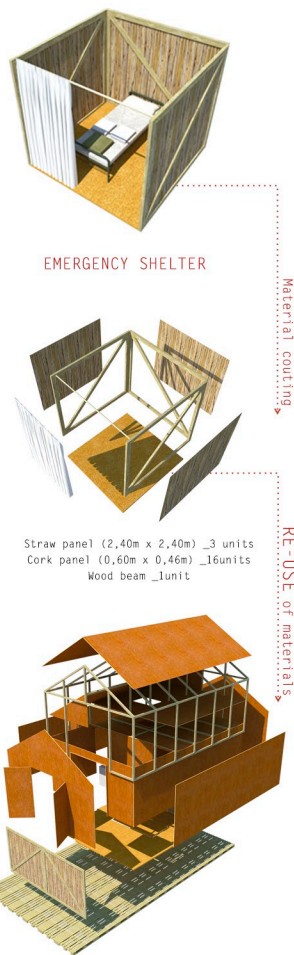
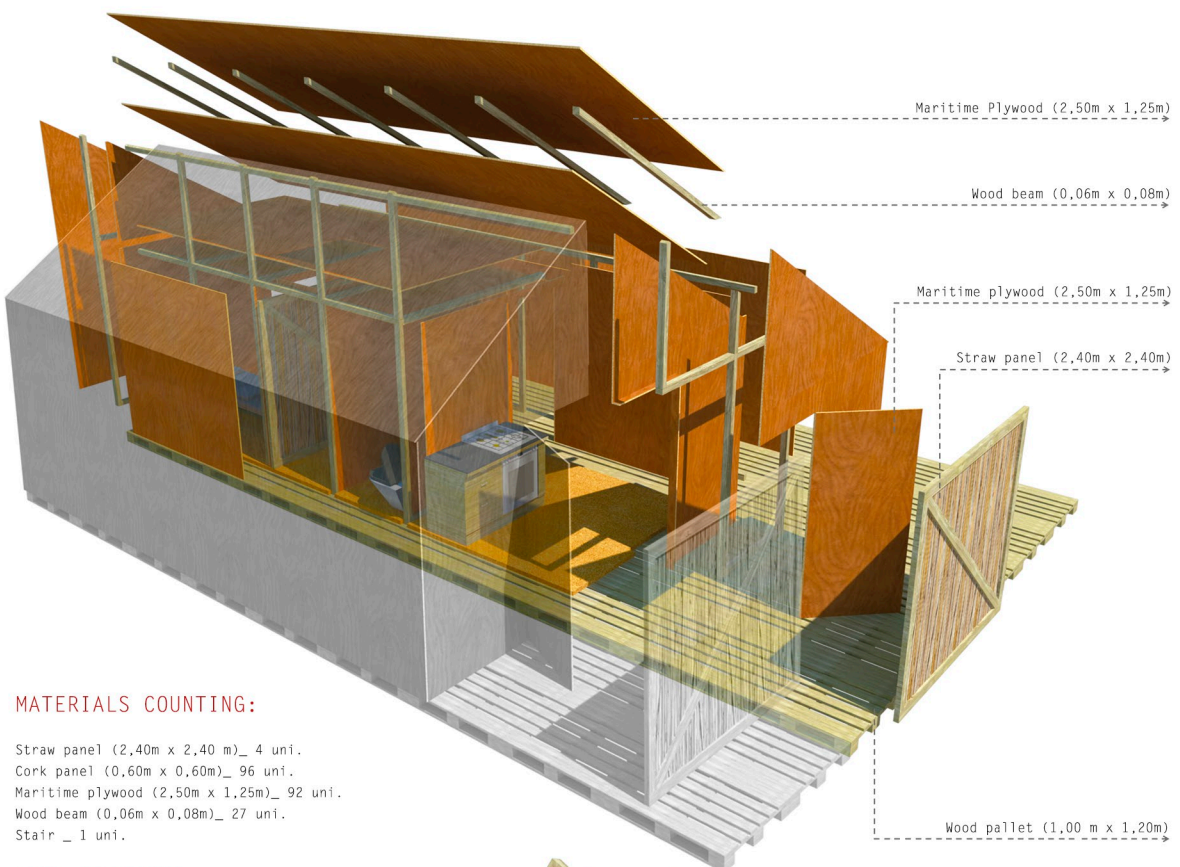
In order to maintain this type of living/housing the temporary unit created tries to recreate this model. The unit also provides t an outdoor semi-private area.



LOCAL ENERGY RESOURCES

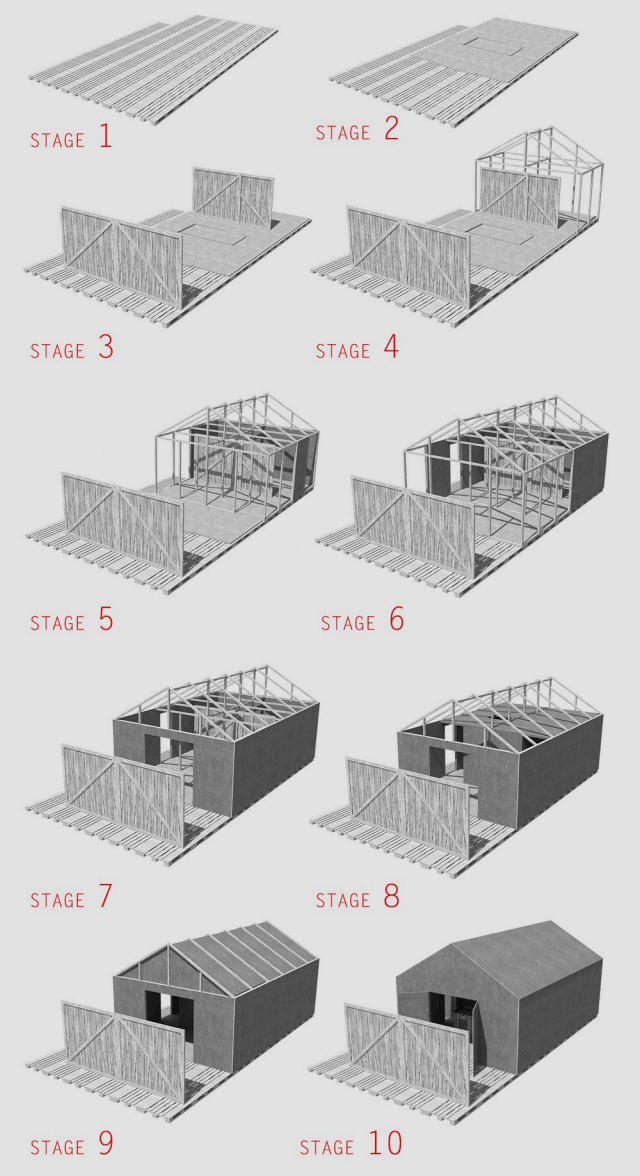
In order to improve the sustainability of the solution, it is suggested the utilization of geothermal energy (Angra has a great geothermal energy potential), and also rainwater harvesting.





TEMPORARY HOUSING, ASSEMBLY PROCESS

The materials' reutilization is a central issue of this solution. The materials used to erect the shelters are re-used to build the temporary houses.



MATERIALS COUNTING:

Straw panel (2,40m x 2,40 m)_ 4 uni.
Cork panel (0,60m x 0,60m)_ 96 uni.
Maritime plywood (2,50m x 1,25m)_ 92 uni.
Wood beam (0,06m x 0,08m)_ 27 uni.
Stair _ 1 uni.

TIME COUNTING:

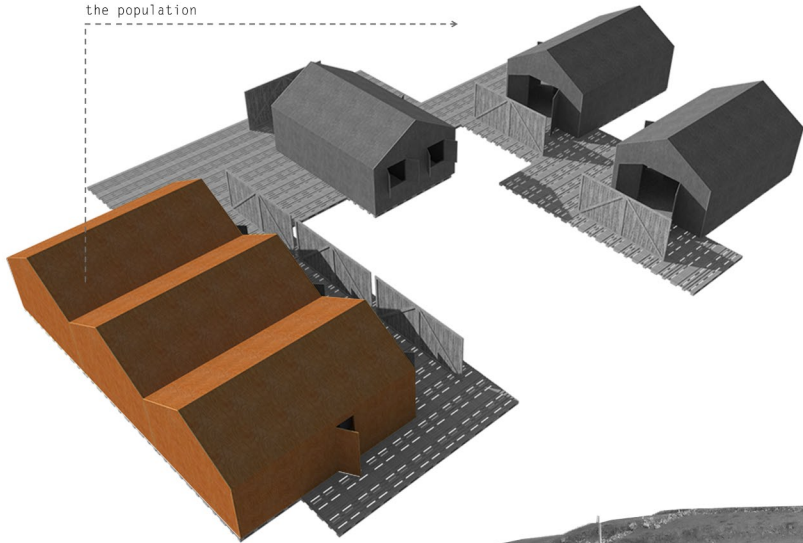
1 house = 50m2
2 persons * 10 hours = 500m2
2 persons = 10 houses



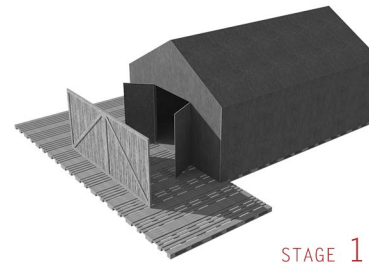


HOME-GARDENS population self-sustainability and time occupation

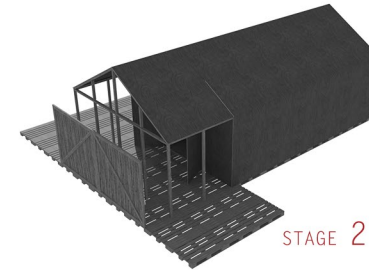
Creation of SOCIAL/RECREATIONAL spaces for the well being of the autot-esteem of the population



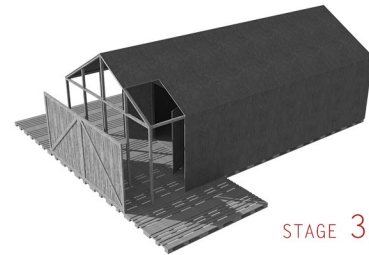
POSSIBILITY OF GROWING
By adding modular maritime plywood and wood beams at the existing housing



STAGE 1



STAGE 2

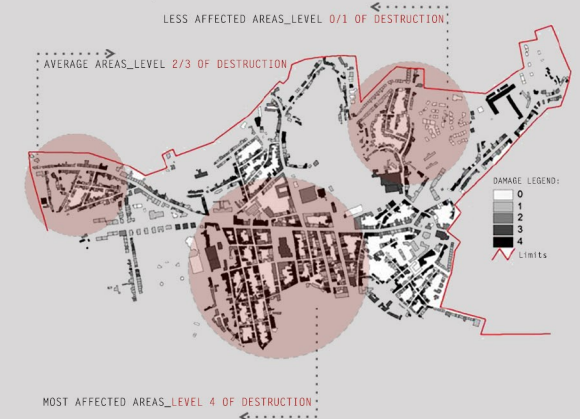


STAGE 3



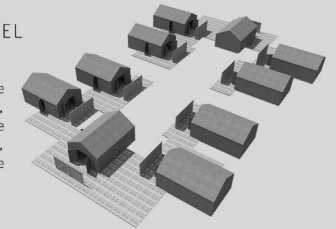
TEMPORARY HOUSING, HOW TO AGROUP

The type of grouping will change according to the level of destruction existing at the chosen place. On the other hand, it is common between them the possibility of social/recreational spaces construction based on the multiplication of the housing model. It is also stimulated the creation of home gardens to the population self-sustainability and time occupation.



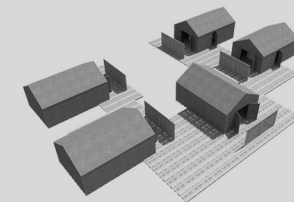
LESS AFFECTED AREAS_LEVEL 0/1 OF DESTRUCTION

The first one (related to the levels 0/1 of destruction, according to the map) has large areas to develop the grouping, highlighting the social/nature character.



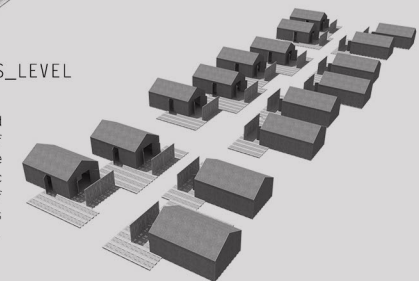
AVERAGE AFFECTED AREAS_LEVEL 2/3 OF DESTRUCTION

The second one (related to the levels 2/3 of destruction) has a similar character but with less space to develop itself.



MOST AFFECTED AREAS_LEVEL 4 OF DESTRUCTION

The third one (related to the level 4 of destruction) respects the original type of geometric and gridded structure of the city, since it is placed at the center of it.

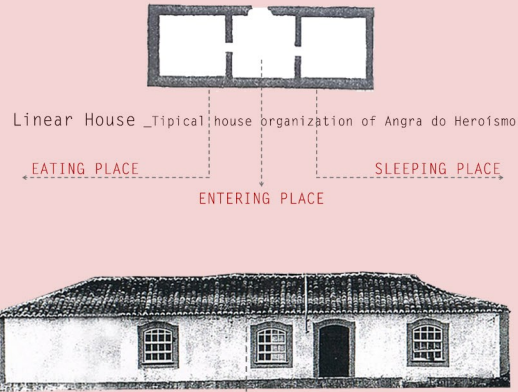


REACTIVATION

"Canudo Tile" Industries.



LINEAR HOUSE CONSTRUCTION



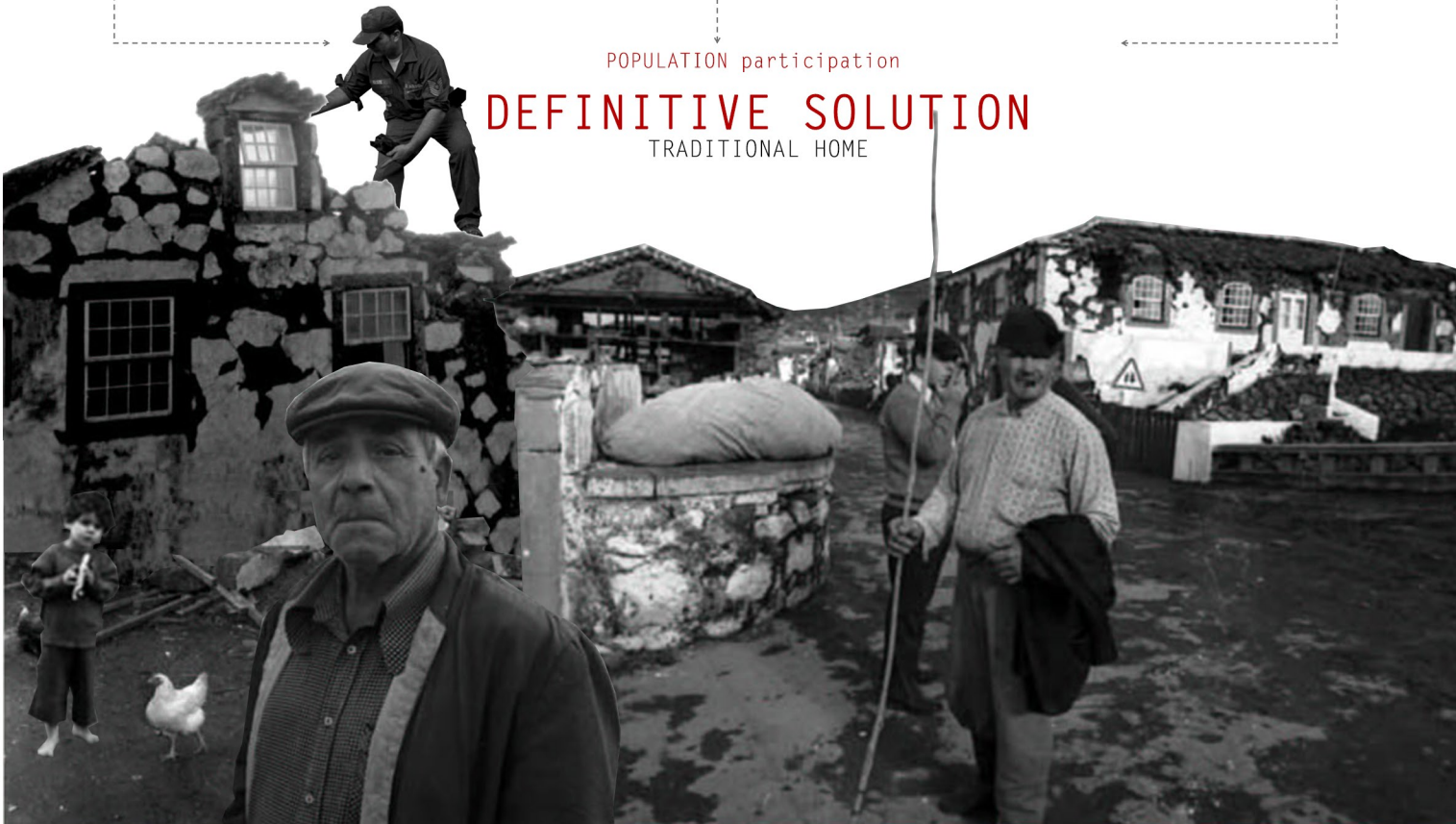
REAPPLICATION OF THE MATERIALS



POPULATION participation

DEFINITIVE SOLUTION

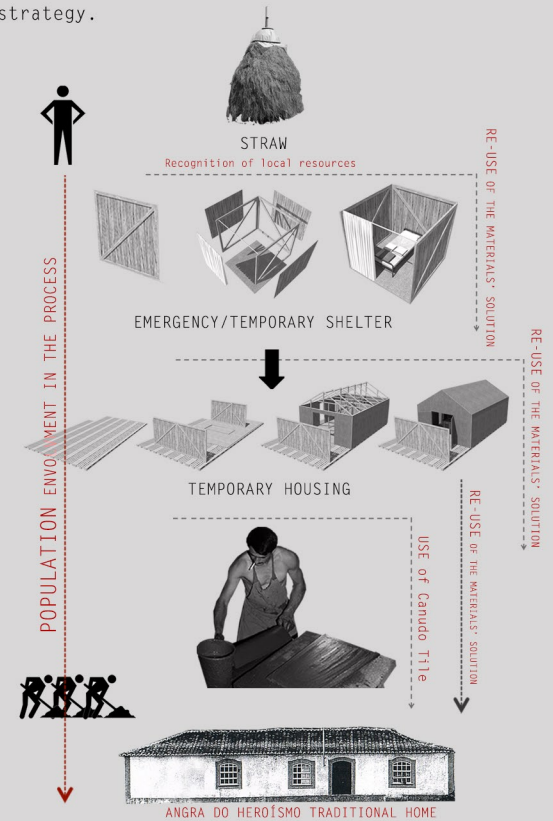
TRADITIONAL HOME



DEFINITIVE SOLUTION, A HOME

Over the centuries caravels and ships have been passed by Angra do Heroísmo's port contributing for the progress and improvement of the city and its people. Today, the city maintains its original aspects, offering spaces and buildings that conserve its history and spirit

Thereby, an eventual reconstruction of the city must respect these parameters to keep the city as 'Cultural Heritage of Humanity' by UNESCO. The strategy suggested over these pages aims to achieve more than a post-disaster reconstruction program. Thinking ahead, the strategy suggests preventive measures to improve the city's resilience, offering temporary accommodation solutions based on the use and re-use of local materials. The community participation has a decisive role on the whole strategy.



Thus, with the intervention it will always be a reading of the Portuguese's past and future, never forgetting the essential values that have founded the city of Angra do Heroísmo.