

## TIME SHEET OF THE RESEARCH PROJECT

### PHASE I (February 2017 / September 2017)

- a. Concept and Innovation Design (definition, project, pre-manufacturing)
- b. Manufacturing Envelope  
(envelope prototyping, envelope testing, manufacturing)
- c. Report and dissemination results of I phase

### PHASE II (January 2019 / September 2019)

- d. Design Review and Selection of Type Module I phase
- e. Engineering of the structural module and the hybrid module
- f. Project engineering with factory and manufacturing drawings
- g. Process engineering with pre-prototyping and ecodesign, components, in-company models / manufacturing and experimentation sensing casing
- h. Report and dissemination results of II phase

### PROTOTYPE MANUFACTURING ACTIVITIES / MVP

in Officine De Masi in G.Tauro (RC) - LAUNCH October 2019

### CLIENT

Antonino De Masi

### TECHNICAL-SCIENTIFIC TEAM

#### Sustainability and Project / Process Innovation

Prof. Arch.Consuelo Nava (Team Manager)

Arch. Giuseppe Mangano (Assistant)

#### Hybrid Model (Envelope, Energy and Implants)

Arch.Raffaele Astorino

#### Structural model

Ing.Francesco Astorino

#### Additive Manufacturing, Pre-prototype, modelling and Sensoring - PMopenlab srls

Arch. Andrea Procopio, Arch.Francesca Autelitano,

Arch.Antonio Popone, Veronica Bruzzaniti

#### Architecture and Landscape (phase I)

University of Trento

Prof.Arch. Mosé Ricci, Ing.Arch. Gaia Sgaramella

#### Project engineering (phase II)

DARte - Mediterranean University of Reggio Calabria

Prof. Arch. Alberto De Capua, Prof. Arch.Francesca Giglio,

with Arch.ts Valentina Palco and Alessia Leuzzo

#### Integrative communication - PMopenlab srls

Arch.ts Danilo Emo and Alessia R.Palermi with Arch.Giuseppina Arena

#### Consultants

Angelo Marra, ENEA Trisaia (phase I)

# HOME S2

offSITE + offSHORE

The double **safety housing module**  
[seismic and environmental]





## A STRUCTURE FOR SENSITIVE CONTEXTS

Beyond an "emergency" structure but a housing system for "sensitive contexts" and "off shore" with respect to settlements already served by networks.

## FLEXIBLE LIVING MODULAR SYSTEM

A modular system according to the client's requests referring to the structural project and to the morphological and distribution type of the spaces, as well as to the usability from different types of users (couple, family, disabled / elderly) basic module 55 sqm - types of 85 sqm / 112 / 170 covered and open surface usable, at one / two levels.

## A METABOLISM OF NETWORKS

A module of a settlement system that optimizes certain relationships with networks, with the possibility of having architectural and operating variants (autonomous districts and smart grid operation).

## A COMPETITIVE SYSTEM AT ECONOMIC LEVEL

A system that is also sustainable from the economic point of view with the cost of the basic module from a min. of Euro 1400/sqm.

## ADVANCED INDUSTRIALIZATION

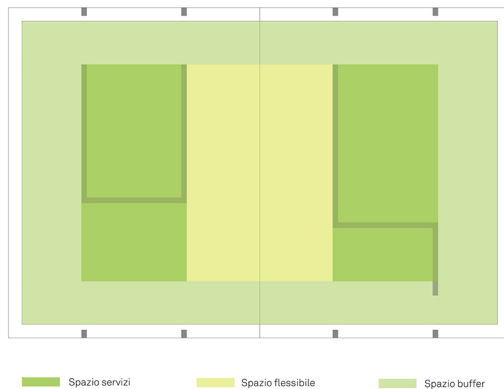
## ADVANCED ENGINEERING AND SENSING

A module born from an experimental prototype / MVP with a project designed for its advanced industrialization with a dry construction system.

A transportable Kit system disassembled, to be assembled in situ completely, with phases in the auto-assembly phase with automation and part in operative assembly.

A mobile home that travels like a container with ordinary transport (2 modules of 55 square meters of 20 tonnes) with a three-axe trailer.

## INTEGRATED CONCEPT



## AN "agile" KIT TO BE MOUNTED

A mountable box with partitions and tops and integrated systems as an intelligent "kit" of structural partitions, partitions and closing walls on the box-type structure, in steel and aluminum, with automation systems on the elements that cannot be moved manually and reduction of the systems of maximum connection (low maintenance).

## AN INTEGRATED ROOF

A structural roof that can be integrated for solar and photovoltaic technologies and is adjustable.

## A FUNCTIONAL PLATE

A base plate, which is also the support system for mounting the structure and the closing skin.

## IMPLANTS CAVEDIUM

A system of implants cavedium along the walls (in the structural space) and under the basic plan.

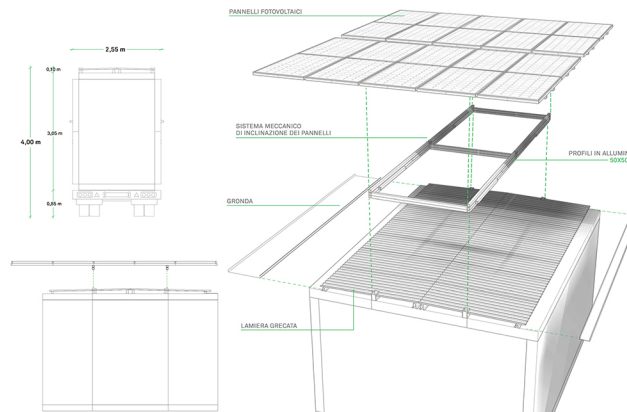
## A LOW / ZERO CONSUMPTION HOUSE

A model of energy-certifiable home also on some national and European protocols (Itaca/Leed). A low / zero energy consumption house (A, A+) with a casing system sized to perform efficiently for different energy zones. A house powered by solar technologies and water recycling systems (services and kitchen). Coverage of energy needs starts at 96.4% from PV and 3.6% from diesel for solar batteries, with a 2-day autonomy.

## AN INNOVATIVE ECOLOGICAL HOUSE

Energy-efficient, ecological materials compatible with dry construction and recycling processes.

## ENERGY, MATERIALS AND SEISMIC SAFETY



## ENERGY CLUSTER

The housing module HOME S2 self-sufficient, at the aggregative level configures that an "energy block" or energy cluster, realizing in it the concept of modularity: by combining different blocks / energy clusters you go to compose an aggregative order at the level of the neighborhood to build pieces of self-sufficient cities and disconnected from network logics; the only network will be constituted by the system of connections between housing modules and between energy clusters with the possibility of being able to be connected to an extranet system (connection to already existing network systems). Isolates dimensioned on the demand of 20,000 KWh, served by micro wind and photovoltaic.

Tested settlement systems on 360 ab/9 modules, 695ab / 17 modules, 220 ab/5 modules, for climate zones from A to F.

The energy cluster structures not only the energy connections but also those for the recovery of environmental resources (recovery of rainwater and/or wastewater) on the model of environmental smart energy grids (phytodepuration, PV, wind, park green).

## SMART GRID LANDSCAPE FOR ALL LATITUDES

These scenarios can also refer to the need to build new neighborhoods and new territories that are located in different areas site and landscape conditions.

The references to the different climatic zones allow to show the performances obtainable in different latitudes, but also to test the typological-technological model of Home-S2, conceived as "adaptive" to the different climates, with a reactive shell capable of changing skin and giving itself a new morphological configuration and scenery with the landscape that hosts it, with high permeability settlements.

## INSEDATIVE SYSTEMS

