8th HEALTHY HOUSING AWARDS 2013/2014

Universitat d'Alacant
Universidad de Alicante

Hogeschool van Amsterdam

BEUTH HOCHSCHULE FÜR TECHNIK BERLIN
University of Applied Sciences

Cátedra MARJAL HEALTHY

Fundación Marjal

CREDITS

_UNIVERSITY OF ALICANTE:
Depto. Construcciones Arquitectónicas
Cátedra Internacional Marjal Healthy

_EDITOR OF THE PUBLICATION:
Antonio Galiano Garrigós

_COLLABORATOR EDITORS:
Víctor Echarri Iribarren
Ángel González Avilés
Mª Isabel Pérez Millán
Carmina Revert

_DESIGN & LAYOUT:
Sara De Francisco Pascual
Jessica Martínez Esteve

_DOI:

_COORDINATORS:

/UA:

Antonio Galiano Garrigós (General coordinator)

/HVA:

Rene Leene

/BHFT:

Robert Demel

_CONTRIBUTOR TEACHERS:

/UA:

Miguel Salvador Landmann

Gema Ramírez Pacheco

/HVA:

Ed Melet

Hans ten Voorde

Abram de Boer

/BHFT:

Gisela Glass

_JURY:

Ángel González Avilés (UA)

Gisela Glass (BHFT)

Abram de Boer (HvA)

Sofía Blasco Gilabert (Fundación Marjal)

_SPECIAL THANKS TO:

Fundación Marjal

Universidad de Alicante - Escuela Politécnica Superior

Hogeschool van Amsterdam

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PRESENTATION

This years projects do not only show elaborated plans of sustainable houses, but also focus on new typologies for a holiday home on a specific location south of Alicante, called Las Colinas.

The search for a healthy house begins with the definition of the term healthy. In order to define a healthy house a statement is needed. A statement covering different scales, like landscape, architecture and detail.

The assignment, other than earlier years, focuses on not only the design of the house, but also of the surrounding landscape. The landscape is part of a total concept for a healthy holiday house. The relation between the house and the landscape defines the quality of the use. Certain spaces, like patio's, porches, pools and gardens become places to dwell. Furthermore a well-thought design of the landscape can contribute to the comfort and quality of the house itself.

The interdisciplinary character of the workshops contributes to the notion of what is the modern perspective of architecture in southern Spain. The Healthy Housing Award 8 shows, more than other years, a very contemporary view on architecture. And is therefore a real deal breaker in relation to vernacular architecture, in which the specific climate of Alicante is traditionally handled.

Building Technology and especially building physics determine the comfort of the building in a hot climate. When does a house is healthy in terms of ventilation, temperature, daylight. In this publication we can see some examples of building systems from shutters to green roofs, which make a comfortable house possible.

With students taking into account the landscape, and the given plot, integral designs were achieved. Especially the winners, the projects atrium and experimental patio, reveal the quality of new typologies in which the patio is reinterpreted. A new organisation of function and form indicates a useable, more comfortable, and healthy house.

Abram de Boer
Hogeschool van Amsterdam

ACKNOWLEDGMENTS

The 8th Healthy Housing Awards are the product of the effort and dedication of all the students, teachers and contributors.

All the works compiled in this edition were made possible by all the participant students and the lecturers from the University of Alicante, Hogeschool van Amsterdan and the Beuth Hochschule für Technik Berlin.

Thanks are also due to the Marjal Foundation and the representatives of Grupo Marjal for their support.

THE COMPETITION

OBJECTIVES

The Healthy Housing Awards are focused on research in the field of sustainable and healthy architecture looking for people comfort by designing constructions integrated in the landscape with a balanced relation between the environment and technology. The development of innovative approaches within this field is the main purpose of these awards. The integration of simulation tools for designing the buildings, following the European directives, has become one of the most demanded requirements while developing a project.

LOCATION

Las Colinas Golf Resort is an environmentally protected sport facility where some exclusive housing is permitted. It is placed in the southeast part of Spain, within the province of Alicante and belonging to the municipality of Orihuela. It is 4 km inland and inside the natural park of Sierra Escalona.

Within the limits of the Golf Resort, the Fundación Marjal provides a location where each participant can place their project. Any other site with similar characteristics to the above described, can be chosen for developing the project.

REQUIREMENTS

The influence of the location in the final design of the building makes the Healthy Awards require projects to be sited on special locations. Views, orientation or proximity to special environments could be the factors that condition the choice of the and the building designed.

The project will consist on designing a gated community inside a plot of 10.000 m^2 with both detached houses and blocks of apartments.

The project should contain at least five detached houses and a block of twelve apartments.

The built area must be around 200 m^2 for the detached houses and 100m^2 for the apartments. Flexibility of space and the possibility of adapting the house to the different requirements that the family could have, during the year or in the number of users throughout the year is an essential consideration. Integration in the landscape, low energy measures and healthy solutions are mandatory. It is important to consider the use of domotic systems with innovative ideas to develop integrated solutions using technology that make people's life easier.

The detached house must be placed inside the typology of courtyard houses and have two stories high plus an underground level. The apartment blocks can be up to four stories high. The later must also include all the mandatory equipment and facilities such as an elevator.

Complementary uses such as a swimming pool, sports facilities and social equipment must be included in the proposal.

Due to the international aim of this competition, all the proposals must be written in English.

THE COMPETITION

DOCUMENTS TO PRESENT

The documents to present will consist on the architectural part of the project (Basic Project), location floor plan, plot plan, different level house plans, elevations, sections and perspectives both from the single-family houses and the apartments block.

Only from the apartments block, documents from constructive side that justify the zero energy consumption of the building must be presented.

· Constructive sections, defining façade and roof typology.

· Energetic Efficiency.

· Efficient water use.

· Domotics applied to sustainability.

· Life Costing Cycle Analysis of materials and building techniques.

Other documents not listed above can be included in the proposal.

All the documents needed to explain the proposal must be gathered in a maximum of three A1 panels fixed on a rigid support.

A model will be specially considered.

PRICES

The jury will choose three finalist projects that will receive 500 euros, one from each participating institution. From these finalists, the jury will grant with an extra 500 euros the project that is considered the best one.

Projects intellectual property will belong to the authors. If the International Marjal Healthy Chair or Marjal Foundation would like to use any idea defined in the winning proposal or any other, in whole or in part, it will be always used under permission of the authors, signing an agreement, where the economic bases and responsibilities assumed by the team will be set out.

JURY

The jury will be integrated by one professor from the University of Alicante, one from the Hogeschool van Amsterdam, one from the Beuth Hoghschule für Technik Berlin, the head of Marjal Fundation and a guest Architect.

PARTICIPANTS:

_UA:

ROMERO NAVARRO, Victoria
EGLE, Jurgaityte
PORTO PORTERO, Adrián
ARANGUREN MIRANDA, Gonzalo
BELTRÁN MARTÍNEZ, Adrián
GIMÉNEZ MIRALLES, Pau
MAMMADZADA, Zarif
RENNO, Mari
PINEDA SÁNCHEZ, Alejandro
HERRERA QUISPE, Jorge
TURNU, Mattia
MORENO SEMPERE, Cristina
DE FRANCISCO PASCUAL, Sara
MARTÍNEZ ESTEVE, Jessica
RIVES MANRESA, Fco Javier
PARDO MILLA, Ana Teresa
HERNÁNDEZ TORNERO, Ana
JIMÉNEZ IRNÁN, Inmaculada
ZANOUSKI, Aleksei
KNOP, Amanda
BASSO RIAL, Mª Florencia
CALVO MORALES, Verónica
HERNÁNDEZ HARO, Oscar
ROMERO SÁNCHEZ, Alba
MARTIN MANZANARO, Laura
MAROZ, Veronika
GEORGESCU, Anamaria
PAUNESCU, Georgiana-Maria
RICO SANTACRUZ, Manuel
KOLEV, Georgi

_HVA:

JANSEN, Misjel
PALMBOOM, Stéphanie
HEGAZY, Shahenaz
KAKES, Teun
VAN DE KAMP, Ben
KLOK, Manon
SOL, Merjin
KOK, Robbert
LAMMERS, Bart
VAN DER VEN, Dorien

_BHFT Berlin:

ANDREEV, Eugeni
BORN, Steven
SAVINA, Valeriya
BEESE, Johannes
BROTONS BAEZA, Santiago
FERNÁNDEZ ZULOAGA, Enrique

EXPERIMENTAL PATIO.

//1st PRICE

HERRERA QUISPE, Jorge
PINEDA SANCHEZ, Alejandro
RENNO, Mari
TURNU, Mattia

8th HEALTHY HOUSING AWARDS

Residential Buildings in Orihuela, Spain

Alejandro Pineda Jorge Herrera Mari Renno Mattia Turnu

ABOUT THE PROJECT

LOCATION

The site is located at the southeast part of Spain, within the province of Alicante and belonging to the municipality of Orihuela. It is 4 km inland and inside the natural park called Sierra Escalona.

The project consist of apartment block and 5 single-family houses. Apartment block has 12 apartments and all the apartments are through 2 floors. The single family houses have 4 different levels in order to fit into natural terrain.

STRATEGY

Main purpose of the project was to use existing slopes and implant the buildings into it, keeping views to the landscape from and over the buildings.

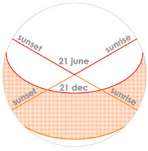
Both apartment block and single-family houses use the same strategy. There are two walls protecting the rooms from wind and direct sunlight. Inner part between these walls is divided into social block and private block. Every single house has a courtyard between the blocks, allowing to use the courtyard as protected outdoor space.

SITUATION PLAN 1:500

CHARACTERISTICS OF THE SITE

WATER COURSE

SUN JOURNEY

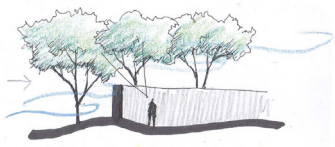


MAIN WINDS

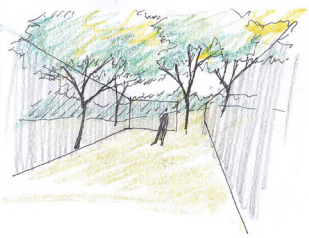
NATURAL SLOPE

CONCEPT AND DESIGN STRATEGIES

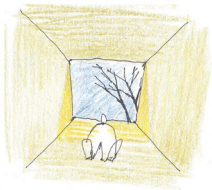
PROTECTING FROM WIND AND DIRECT SUNLIGHT



ADAPTING ARCHITECTURE INTO THE LANDSCAPE



FRAMING THE VIEWS



NATURAL VENTILATION

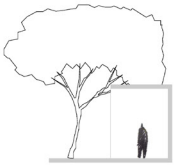
HEALTHY HOUSING STRATEGIES

NATURAL MATERIALS

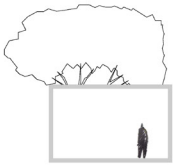
DIFFERENT SPACES

open space

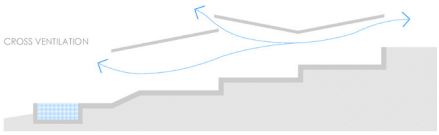
semi-open space



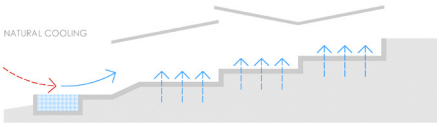
private space



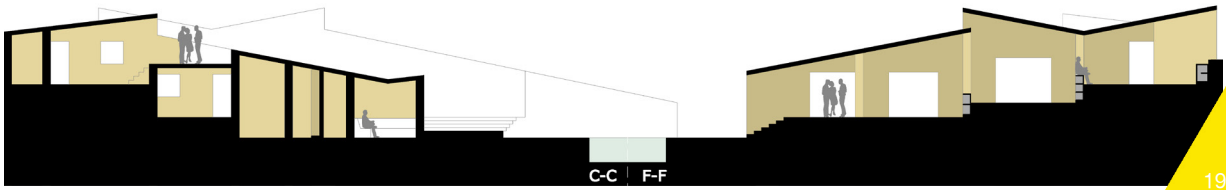
CROSS VENTILATION



NATURAL COOLING



SECTIONS

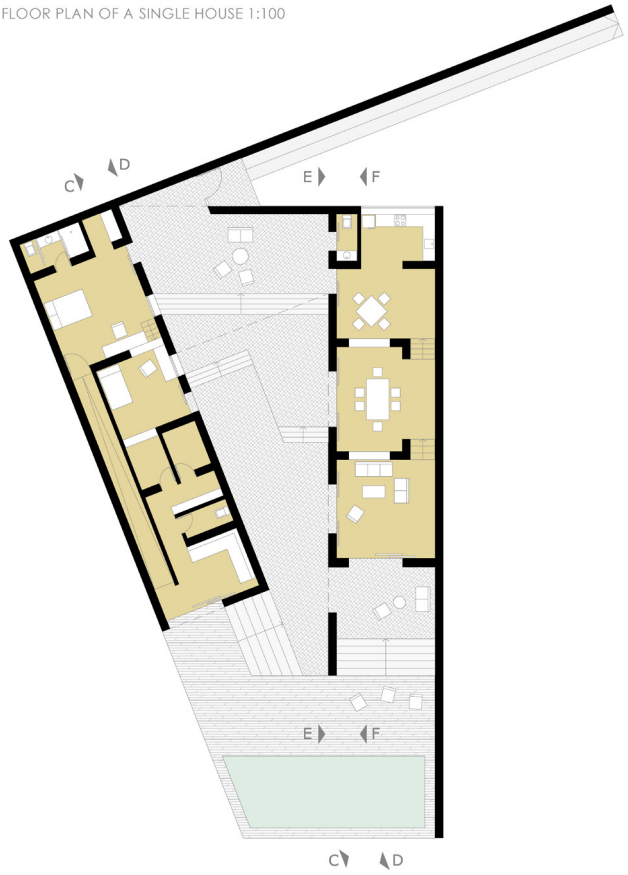


8th HEALTHY HOUSING AWARDS

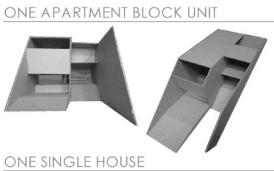
Residential Buildings in Orihuela, Spain

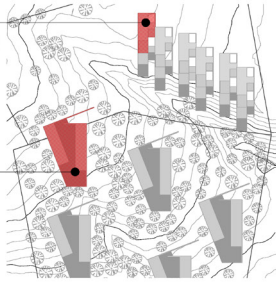
Alejandro Pineda Jorge Herrera Mari Renno Mattia Turnu

FLOOR PLAN OF A SINGLE HOUSE 1:100

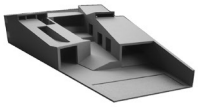


ONE APARTMENT BLOCK UNIT





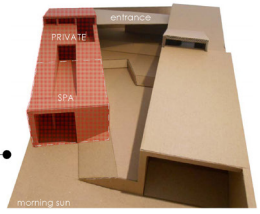
ONE SINGLE HOUSE

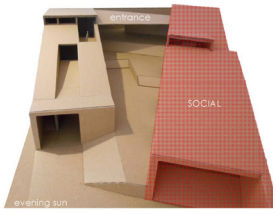


PLANS OF ONE APARTMENT BLOCK UNIT

ground floor

first floor

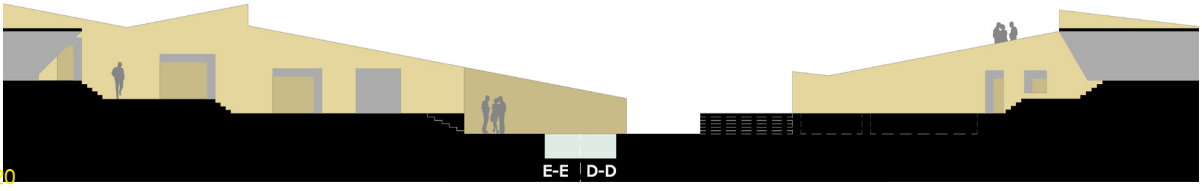




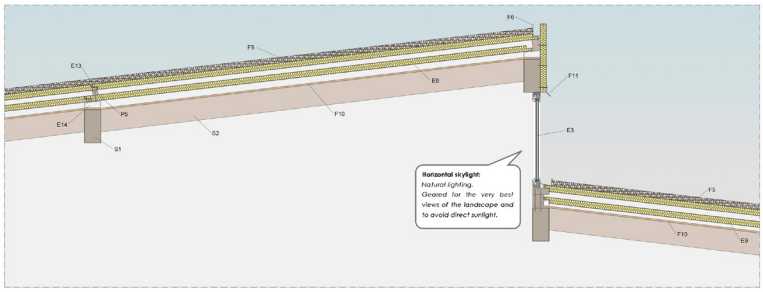
SINGLE HOUSE

Both blocks - social and private - have windows to the courtyard, in order to protect from direct horizontal sunlight. Private block has windows to the morning sun while social block to the evening sun.
Spa block is connected to the main bedroom for private use. But it can also be used together with the pool area, living room and covered terrace in front of the living room.

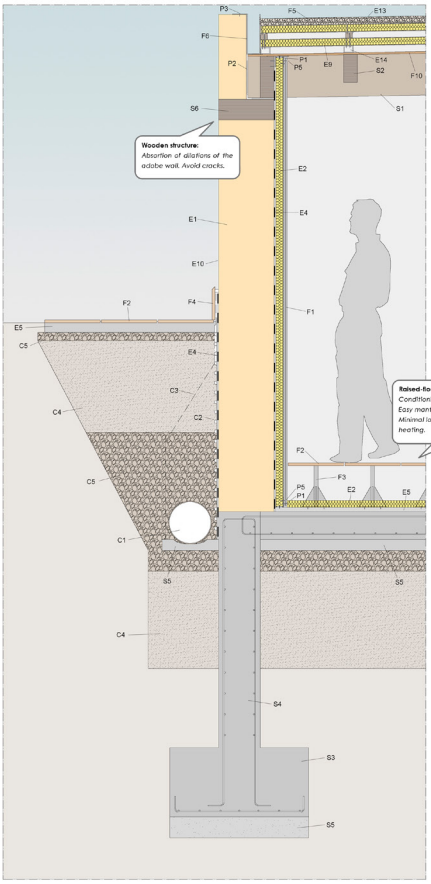
SECTIONS



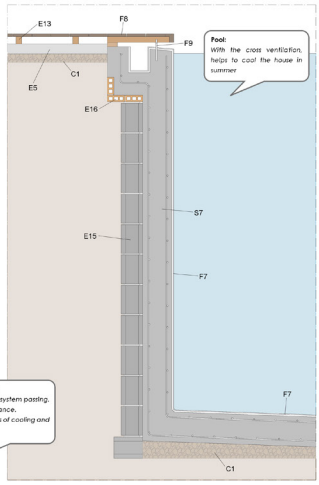
Constructive Details



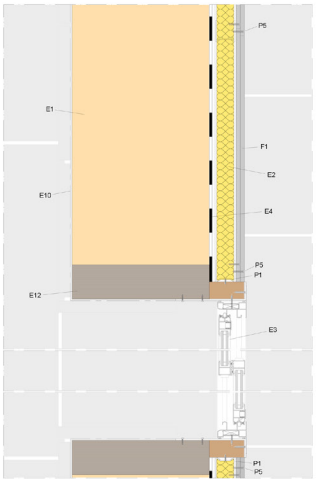
Detail 2: Skylight encounter, e 1:20



Detail 1: Ground and Roof encounter, e 1:20



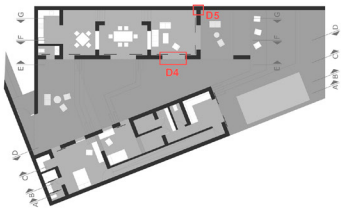
Detail 3: Pool encounter, e 1:20

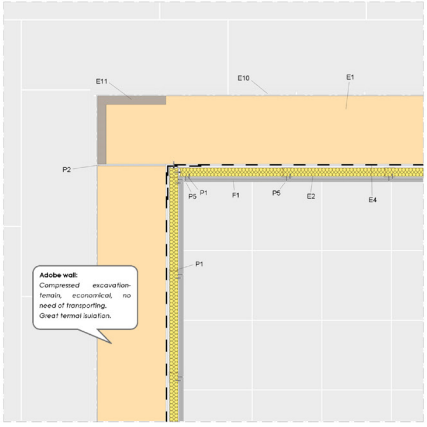


Detail 4: Hole encounter, e 1:10 (left)
Detail 5: Corner, e 1:20 (right)

Used Materials List

Structural system			
Code	Material	Use	Dimensions (mm)
S1	Wood	Main joist	300 x 150
S2	Wood	Secondary joist	200 x 100
S3	Reinforced concrete	Foundation joist	1000 x 500
S4	Reinforced concrete	Foundation wall	Thickness = 300
S5	Cleaning concrete	Regularization	Thickness = 80
S6	Wood	Main joist: wall encounter	400 x 150
S7	Reinforced concrete	Containment: pool	Thickness = 200
Skyn system			
Code	Material	Use	Dimensions (mm)
E1	Adobe	Main wall	Thickness = 400
E2	Mineral wool	Termal isulation	Thickness = 50
E3	Double laminated glass with chamber	Cavity	Thickness = 3+3/12/3+3
E4	Bituminous sheet	Waterproof layer	Thickness = 2 x 4
E5	Cement mortar	Regularization	Thickness = 30
E7	Cement mortar	Fixation	Thickness = 80
E8	Bituminous sheet	Impermeable backing	Thickness = 8
E9	Steel Panel	T. Is., waterproof layer	Thickness = 2 + 50 +2
E10	Bituminous printing	Impermeable backing	Thickness = 5
E11	Wood	Corner rastrel (L)	400 x 400 x 50
E12	Wood	Corner rastrel	400 x 100
E13	Wood	Rastrel	50 x 50
E14	Steel Profile	Fixation	70 x 50
E15	Concrete block	Permanent formwork	300 x 150 x 200
E16	Simple brick	Permanent formwork	250 x 120 x 45
Conditioning system			
Code	Material	Use	Dimensions (mm)
C1	PVC drainage tube	Drainage	Ø 310
C2	Polyethylene sheet	Drainage layer	-
C3	Geotextile	Filter sheet	-
C4	Filter filling (arid 30-50 mm)	Drainage	-
C5	Drainage filling (artificial gravel)	Drainage	-
Partitioning system			
Code	Material	Use	Dimensions (mm)
P1	U-Stainless steel profile	Fastening	60 x 71 x 3
P2	Elastomer	Joint filler	Thickness = 10
P3	Stainless steel screw	Fixation	Ø 4
P4	Stainless steel screw	Fixation	Ø 8
P5	Stainless steel screw, hidden head	Fixation	Ø 5
Finishing system			
Code	Material	Use	Dimensions (mm)
F1	Double plasterboard	Finishing interior layer	Thickness = 2 x 12
F2	Ceramic tile	Finishing interior, ground	400 x 400 x 15
F3	Steel-plot	Fixation	High = 300
F4	Ceramic tile	Baseboard	240 x 400 x 24
F5	Gravel	Exterior finishing	-
F6	Stainless Steel profile	Gutter	Thickness = 5
F7	Glazed ceramic tile	Finishing: pool	200 x 200 x 10
F8	Lacquered plywood	Finishing exterior, ground	130 x 500 x 20
F9	Steel Rood	Fixation	Ø 10
F10	Wooden mat	Finishing interior, roof	Thickness = 15
F11	Stainless steel Profile	Lintel	Thickness = 5



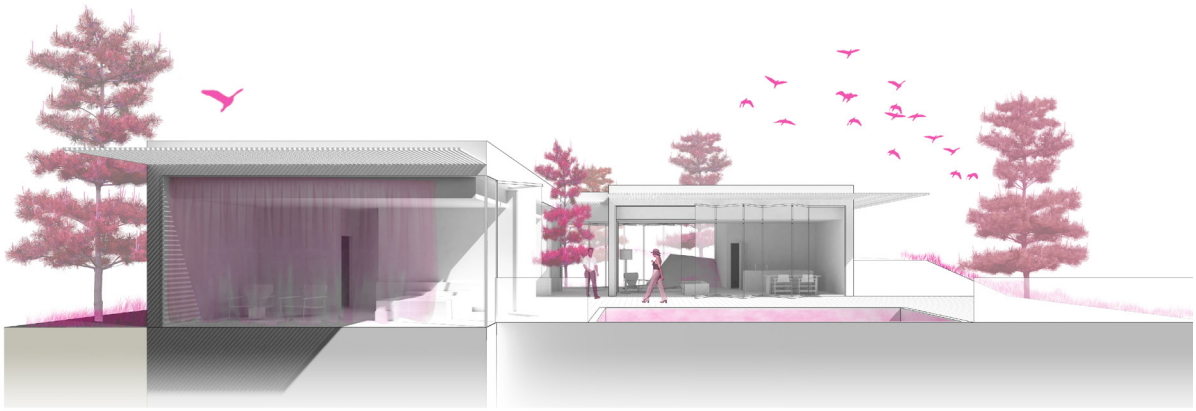


	Energy Performance					
	Design demand (MJules)	Design demand (KWh)	Building area (m2)	Design demand (KWh/m2)	Limit demand (KWh/m2, Spanish regulation)	Calification (Spanish regulation)
Heating	27221,43	7561,35	202,5	**37,34**	X < 44,6	A
Cooling	18874,43	5242,73	202,5	**25,89**	X < 44,6	A

JUNCAL-ALCARAVÁN.

//AMENTION

DE FRANCISCO PASCUAL, Sara
MARTINEZ ESTEVE, Jessica
MORENO SEMPERE, Cristina
RIVES MANRESA, Fco Javier

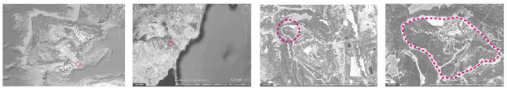


01 HEALTHY HOUSING 8 / FUNDACIÓN MARJAL

Juncal - Alcaraván

01 Location

The project is located in the area of Las colinas, near Torrevieja's natural reserves.



NAME

As the rest of the housing development, we used a name from a vegetal specie for the housing complex and a name from an animal for the house. In this way, we chose Juncal as name for the housing complex because it's a local specie and also the same with the house that it's a local bird.

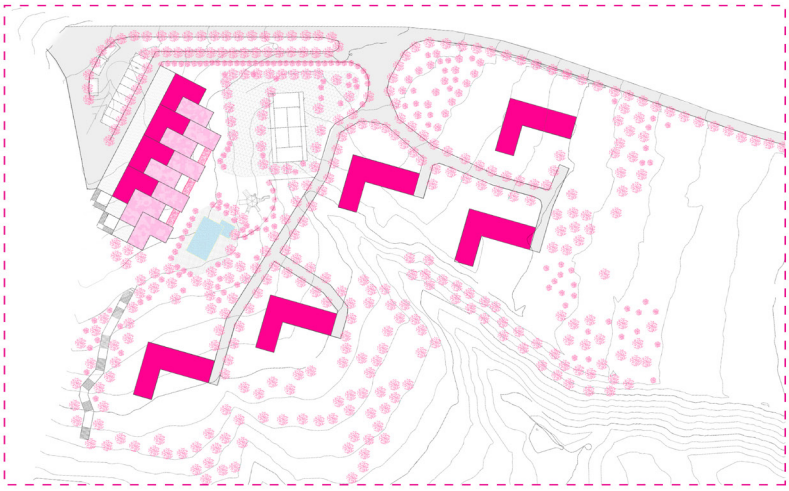
CONCEPT

Our main strategy to organize the master plan was to use the slope of the hill to take advantage of the views of the landscape. Thanks to this, we have been able to integrate the buildings in the natural landscape, merging with the nature of the place.

In the case of the single houses., we decided to place them in a lower lower level, but still using the great views of the site. The five houses are spread in the same level, all of them orientated to south. Thanks to the L shape, all the houses to keep their private part, enclosed by the pine tree wood. As the apartment building, the houses are buried too.

02 Masterplan

The program of the intervention is based on a Apartment block of 12 dwellings and also, 5 single family houses.



03 Certification methods

List of methods used from LEED and Passive House

Water efficiency
Promote smarter use of water, inside and out, to reduce potable water consumption.

Passive methods
Use of the natural sunlight to illuminate all spaces and passive sun protection.

Land use and ecology
ecological value of the placement and protection of elements with ecological value.

Energy & atmosphere
Promote better building energy performance through innovative strategies.

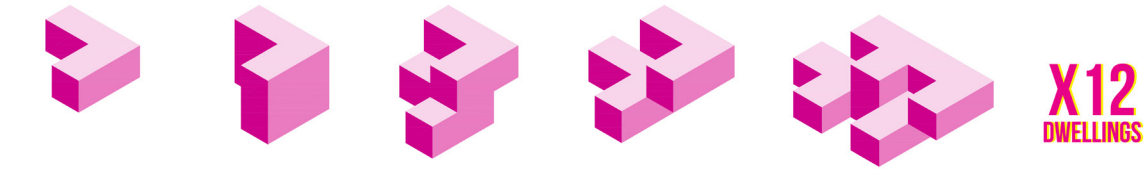
Sustainable site
Encourage that minimize the impact on ecosystems and water resources.

Indoor environmental quality
Promote better indoor air quality and access to daylight and views.

Materials & resources
Encourage using sustainable building materials and reducing waste.

04 Apartment block geometrical process

Graphic description of the apartment block.



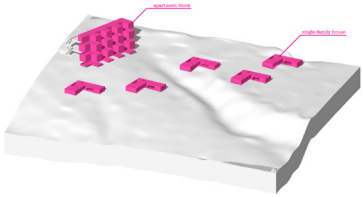
L module = 1 dwelling | **Stack 2 dwellings** | **Offset in x direction** | **Offset in y direction** | **Duplicate in x direction**

05 Apartment block sections

How the geometrical system helps to create cross ventilation, natural lighting and natural views.

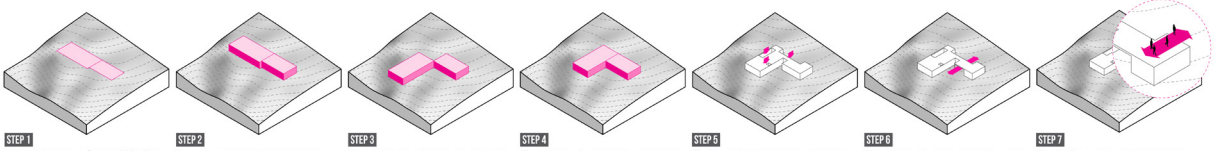
06 Housing complex

Landscape insertion of the single houses



07 Single house concept process

The programatical and spatial operation process to arrive to the project idea.



STEP 1
We split the house área of 200m2 in two differentiated áreas: one aimed to be the public space and the other one focused to hold the private áreas like bedrooms, bathrooms, dressroom etc.

STEP 2
Two volumes are created from the previous program areas.

STEP 3
In order to take the maximum profit of the views and also create a semiprivate terrace, the solid piece is broken into two and then the private area is rotated 90 degrees, leading the views of this spaces to the terrace

STEP 4
The second volume is moved to create an L shaped house wih a perimeter corridor.

STEP 5
The house is perforated in order to create different courtyards to take indirect illumination and cross ventilation.

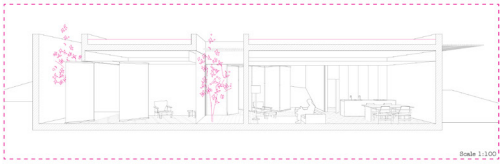
STEP 6
The public volume is opened by wide windows wich could extend the space and also create an efficient cross ventilation system

STEP 7
Finally the surrounding terrain is adapted to let the pedestrian acces to the green roof.

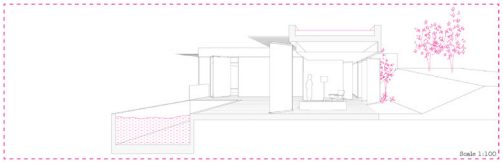
08 Sections

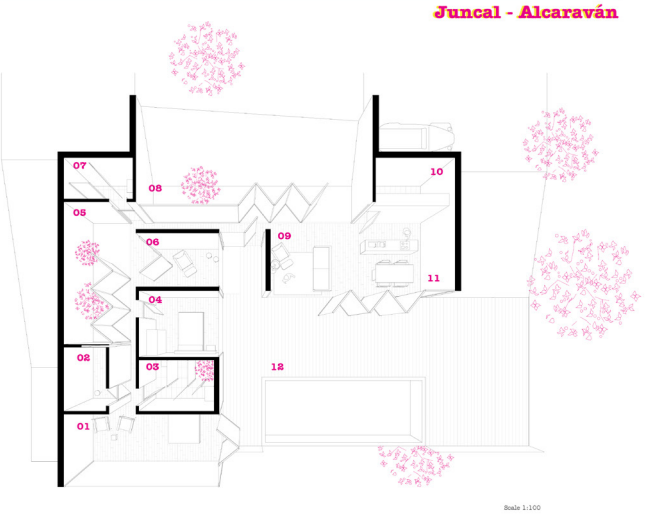
In this sections it can be seen the different courtyards along the house to ensure natural lighting on every space in the house. But also it can be seen the slope levels on the terrain to make a progressive access.

SOUTH



EAST



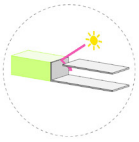


Plan 10

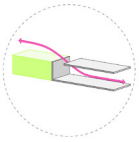
01/Main bedroom 02/Dressroom 03/Bathroom 04/Second bedroom 05/Courtyard 06/Office 07/WC
08/Courtyard 09/Living Room 10/Laundry 11/Kitchen 12/Terrace

09 Mechanisms

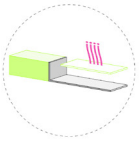
Different strategies to make ur house more energy efficient.



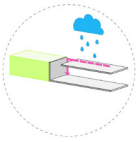
indirect isolation
The indirect isolation is taken by the differentinner courtyards in the house



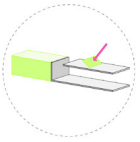
cross ventilation
This system of passive ventilation is made taking proffit of the courtyards, the height difference and the wide windows



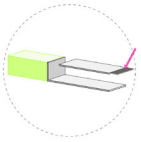
evaporative cooling
The green roofing helps with the vegetation and the humidity to cool the inner spaces.



grey water irrigation
The house use the water from the rain and the grey water to irrigate the trees and plants from the courtyards.



solar energy
The house is oriented to have the maximum performance in terms of isolation at the solar panels area.

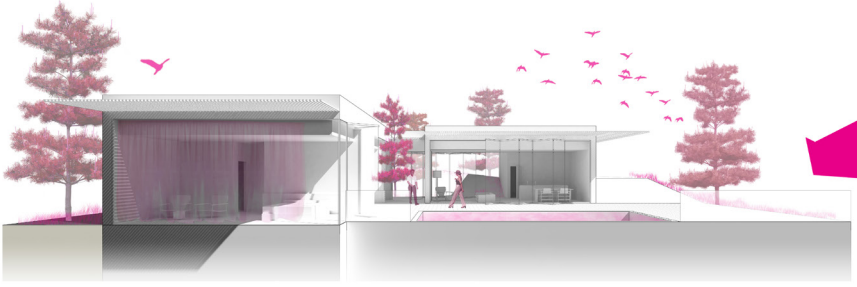


passive protections
In order to avoid problems at the hardest hours of isolation, the house has different passive systems to make shadows

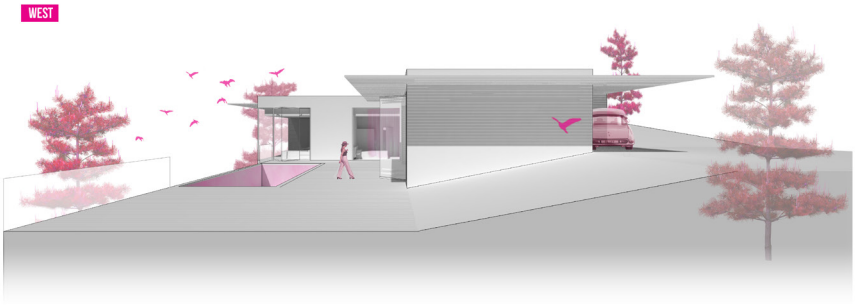
11 Elevation

In this elevations it can be seen how potential views the house has and also how the terrace can open the inner spaces to the outer natural landscape.

SOUTH

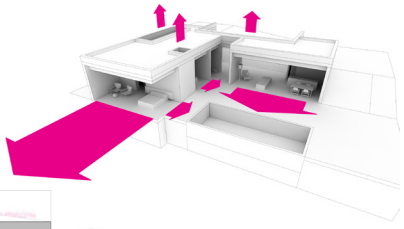


WEST



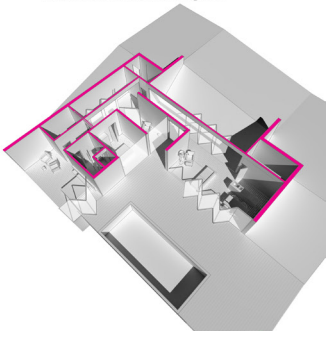
12 Visuals

The house has long distance visuals to the sea but also has visual relations between private spaces and the courtyards and also with the pool space.



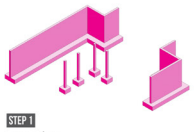
13 Inner spaces

Distribution of the inner spaces and how they are arrange. The spaces are splitted in two parts, the first one for the private área and the second one to the common spaces

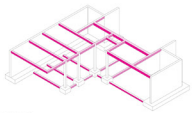


14 Constructive process

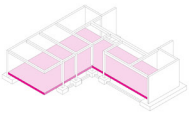
A global view of the systems used in the construction of the house. Scale 1:65



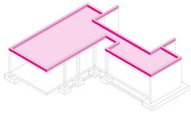
STEP 1
Fundation
Reinforced concrete retaining wall and reinforced concrete footings



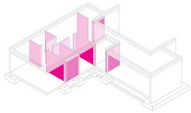
STEP 2
Structure
Reinforced concrete beams



STEP 3
Slab
Concrete platform over cupolex



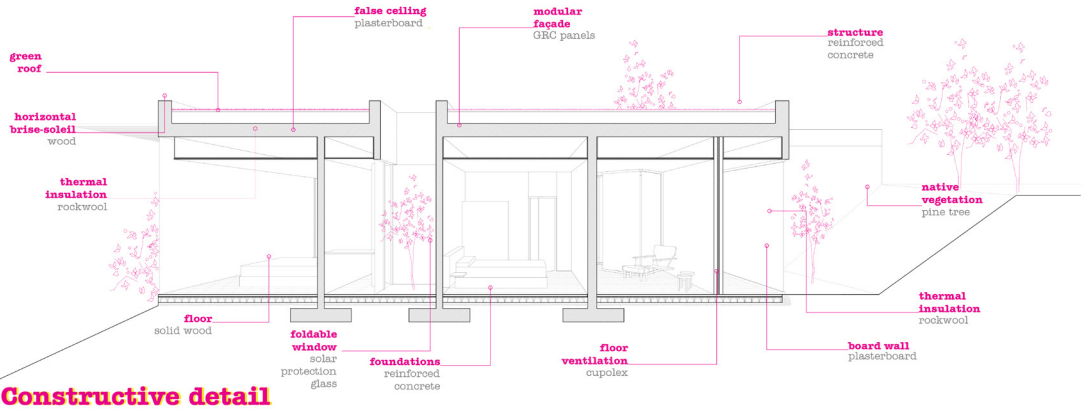
STEP 4
Roof
One way floor of concrete joists with ceramic hollow bricks



STEP 5
Partitions & walls
Partitios of plaster boards and ventilated wall with glass reinforced concrete panels

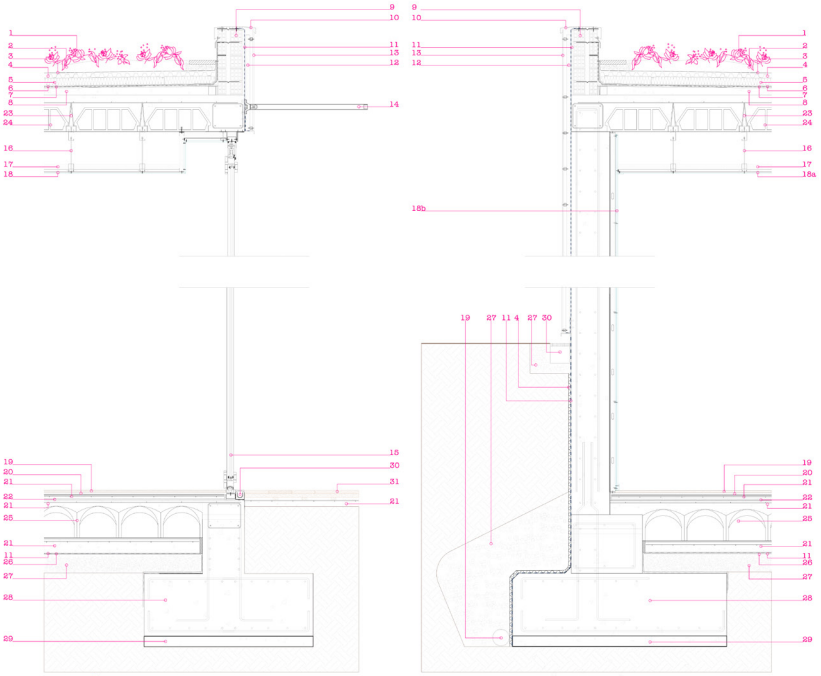
15 Constructive section

A global view of the systems used in the construction of the house. Scale 1:65



16 Constructive detail

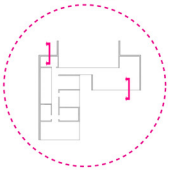
A detailed view of each constructive system. Scale 1:20

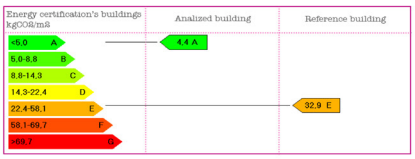


#	Element	Material
ROOF		
1	Vegetation	Native plants
2	Topsoil	Soil
3	Anti-root sheet	Geotextile
4	Drainage layer	
5	Thermal insulation	XPS
6	Separating layer	Geotextile
7	Waterproof sheet	EPDM
8	Made up slopes	Aerated concrete
9	Parapet	Ceramic brick
10	Cornice	Stainless steel
FAÇADE		
11	Waterproof sheet	PVC
12	Façade cassettes	Stainless steel
13	Façade coating	GRC
14	Brise-soleil horizontal	Wood
15	Foldable window	Glass and aluminum
INTERIOR FINISHES		
16	False ceiling mount	Metal profile
17	Thermal insulation	Rockwool
18a	False ceiling	Fibre and gypsum board
18b	Wall	Fibre and gypsum board
19	Flooring	Parquet
20	Pavement support	Adhesive
21	Concrete deck	Concrete and steel
22	Anti-impact protection	Polyethene
STRUCTURE		
23	Semi resistant Beam	Concrete
24	Joist	Ceramic
25	Cupolex	Plastic
26	Protection sheet	Geotextile
27	Drainage layer	Gravel
28	Reinforced concrete	
29	Leand concrete	
EXTERIOR FINISHES		
30	Gutter	
31	Exterior flooring	IPÉ wood
32	Drainage tube	Polypropylene

17 Energy calculations

sections

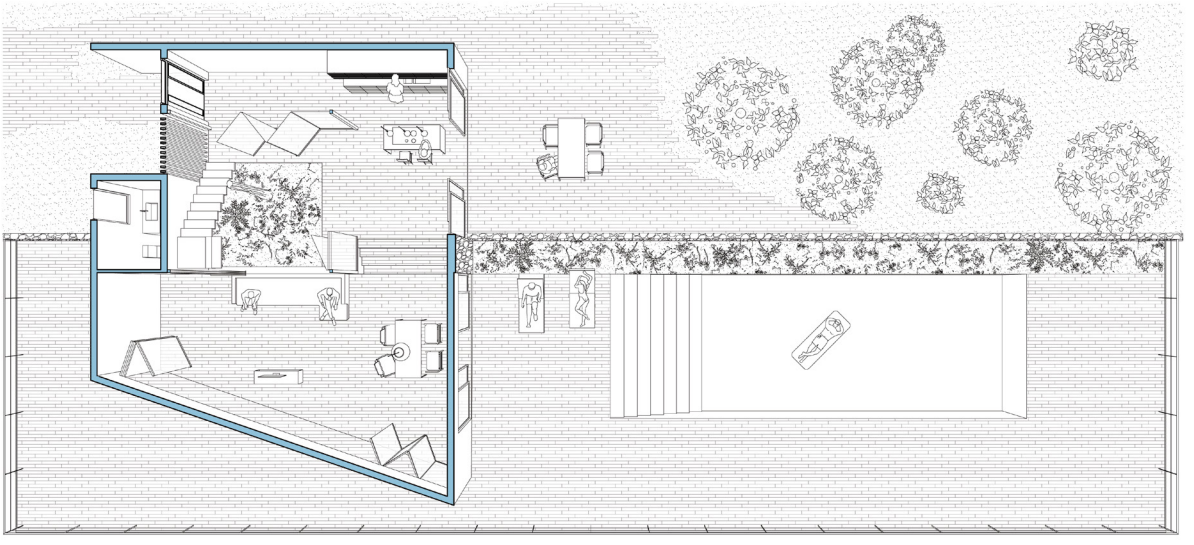




A= 201m2	REFERENCE BUILDING			ANALIZED BUILDING			
	CATEGORY	kWh/m2	kWh/year	CATEGORY	kWh/m2	kWh/year	kWh*area
HEATING DEMAND	D	30,9	5341,4	C	13,9	478,4	**96158,4**
COOLING DEMAND	G	55,2	9547,1	B	5,7	983,2	**197623,2**
	CATEGORY	kgCO2/m2	kgCO2/year	CATEGORY	kgCO2/m2	kgCO2/year	
CO2 heating emission	D	5,9	1711,9	C	5,4	933,8	
CO2 cooling emission	G	21,1	3648,6	C	4,8	830	
CO2 ACS emission	D	1,9	336	A	1,1	190,2	
CO2 TOTAL emission	E	32,9	5696,6	C	**11,3**	**1954**	
	CATEGORY	kWh/m2	kWh/year	CATEGORY	kWh/m2	kWh/year	
Primary energy consumption heating	D	44,8	7747,9	C	21,6	3741	
Primary energy consumption cooling	G	86,1	14893,4	C	19,1	3310,4	
Primary energy consumption ACS	D	8	1388,4	B	5,7	983,9	
TOTAL energy consumption	E	139	24029,6	C	**46,5**	**8035,3**	16

SMART-FAÇADE HOUSE.

ARANGUREN MIRANDA, Gonzalo
BELTRAN MARTINEZ, Adrián
GIMENEZ MIRALLES, Pau
MAMMADZADA, Zarif



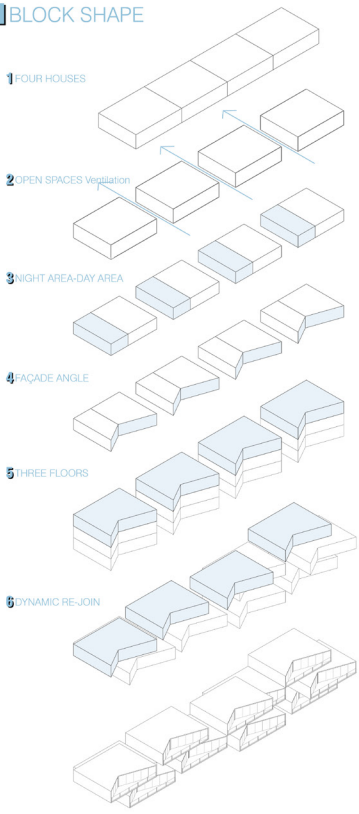
1

8TH HEALTHY HOUSING

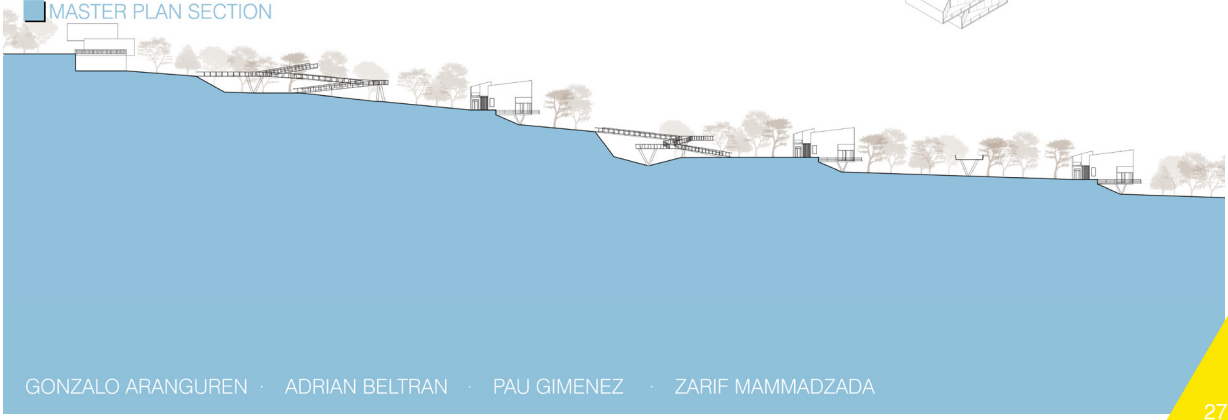
SMART-FAÇADE HOUSE

MASTER PLAN · 1/600

BLOCK SHAPE



MASTER PLAN SECTION



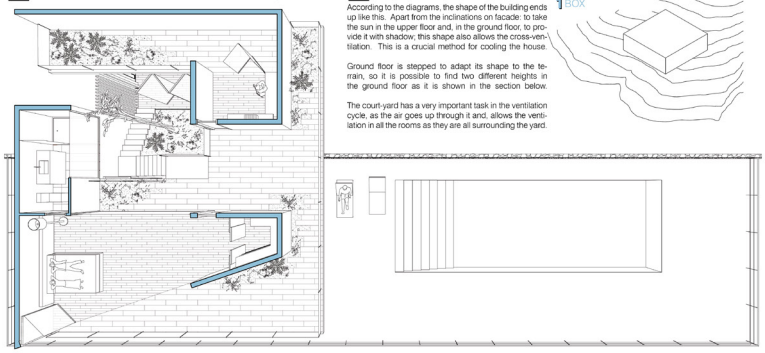
GONZALO ARANGUREN · ADRIAN BELTRAN · PAU GIMENEZ · ZARIF MAMMADZADA

2

8TH HEALTHY HOUSING

SMART-FAÇADE HOUSE

FIRST FLOOR PLAN · 1/100

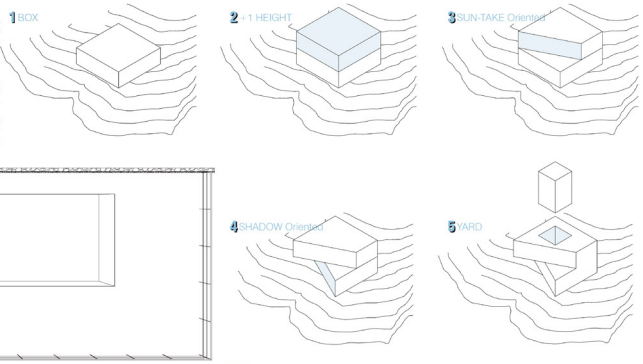


HOUSE SHAPE

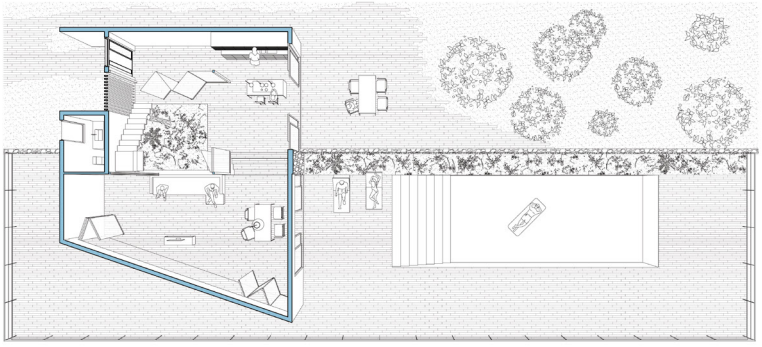
According to the diagrams, the shape of the building ends up like this. Apart from the inclinations on facade: to take the sun in the upper floor and, in the ground floor, to provide it with shadow; this shape also allows the cross-ventilation. This is a crucial method for cooling the house.

Ground floor is stepped to adapt its shape to the terrain, so it is possible to find two different heights in the ground floor as it is shown in the section below.

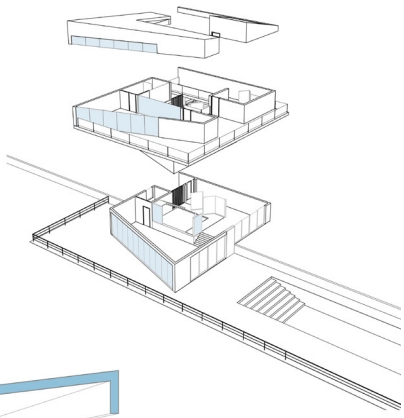
The court-yard has a very important task in the ventilation cycle, as the air goes up through it and, allows the ventilation in all the rooms as they are all surrounding the yard.



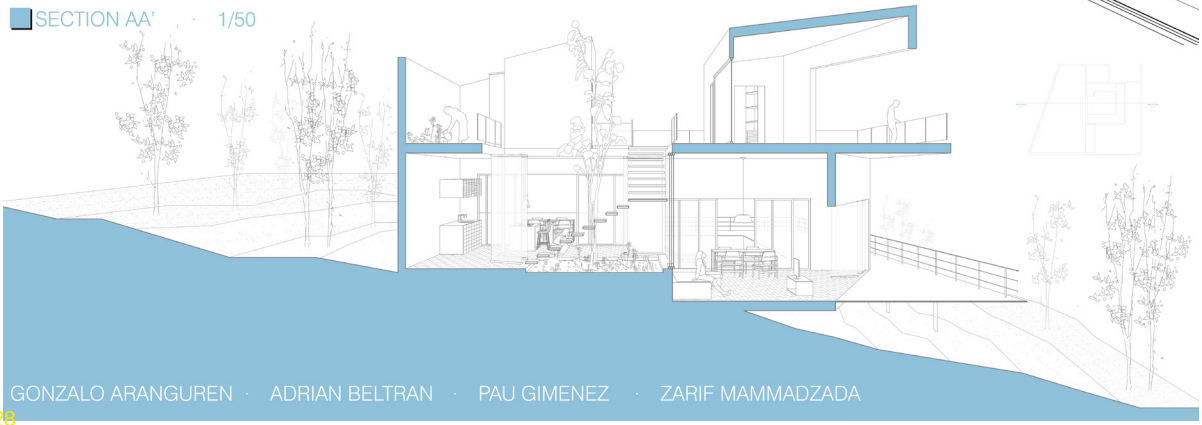
GROUND FLOOR PLAN · 1/100



CROSS VENTILATION



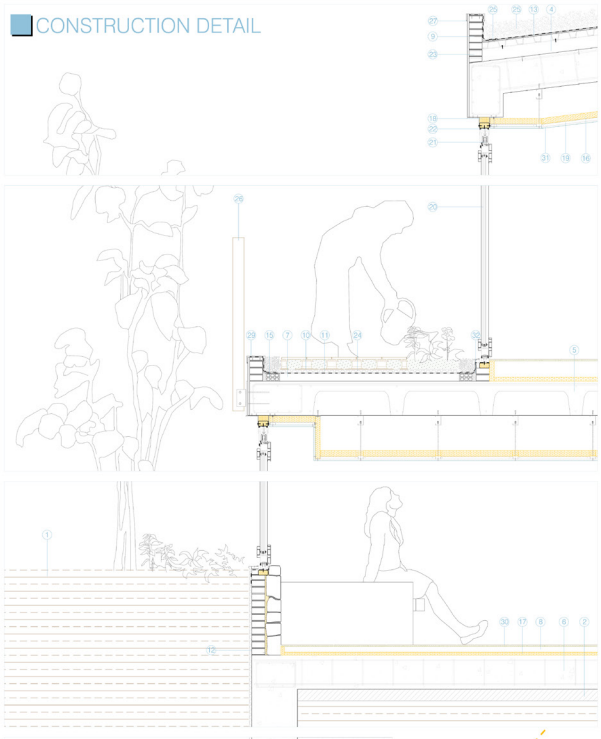
SECTION AA' · 1/50



GONZALO ARANGUREN · ADRIAN BELTRAN · PAU GIMENEZ · ZARIF MAMMADZADA

SMART-FAÇADE HOUSE

CONSTRUCTION DETAIL



Kw/h	January	February	March	April	May	June	July	August	September	October	November	December	Total year	Total/m2
Heating	-7982	-5647	-3063	-2828	0	0	0	0	0	0	-1421	-6990	-27976	-140
Cooling	0	0	0	0	0	4049	4049	4049	7228	0	0	0	31675	158

1 Terrain stratum composed by **ARTIFICIAL FILLING.**
2 CONCRETE LAYER. Concrete HL-150/B/20, Thickness = 10cm.
3 ISOLATED FOUNDATIONS. Reinforced concrete HA-30/P/20/IIa, steel B 500 SD, amount 50 kg / m³. The diameters of the bars used range from ⌀12, ⌀16 and ⌀ 20.
4 METAL SUPPORTS. Metal profiles IPN-100 STEEL S275JR.
5 RETICULAR SLAB 30cm. h = 45cm. By HA-30/P/20/ IIIa concrete manufactured in Central and pouring pump, general reinforcement steel B 500 SD. PVC (80x74x25cm), electro-welded mesh 200x200mm ME separation and 6 mm in diameter with steel B 500 T in compression layer.
6 SOLID SLAB. h = 30cm. By HA-30/B/20/IIa reinforced concrete. The diameters used to arm and range from Ø 6 Ø20.
7 SLOPE FORMATION. Foam concrete foam cement, cement-based CEM II / AP 32.5 R and aerating additive. Resistance greater than 0.2 MPa compression Minimum depth = 5.5 cm. Variable slope between 1% and 5%. Average thickness of 10cm. Density 350kg/ m3. Resistance comp. = 0.2MPa.
8 MORTAR. Mortar M-5. Thickness = 2cm. Resistance comp. 28 days = 20N/mm3. Bulk density 1.5 kg / liter Consistency = 200 +10 mm.
9 GRIP CHRTAR. Cement mortar M-5. Thickness = 1cm.
10 SEPARATING LAYER. GEOTEXTIL. Polyester nonwoven linked mechanically by needling. 2mm thickness. M.superficial = 150g/m2.
11 DRAINING LAYER. Print nodules High Density Polyethylene (HDPE) + GEOTEXTIL polyester on the outside in contact with the ground.
12 WATERPROOF IN FOUNDATION. Anionic bituminous emulsion without charges. Density 1 kg / l. Solids content of 60%. The surface to be treated must be clean and healthy. Gun shall apply.
13 WATERPROOF ON DECK. Synthetic sheet manufactured based on a homogeneous EPDM elastomer 2.28 mm thick. Resistance strain = 10.7 MPa.
14 REINFORCEMENT ON DECK WATERPROOFING. Synthetic sheet manufactured based on a homogeneous EPDM elastomer 2.28 mm thick. Resistance strain = 10.7 MPa.
16 THERMAL-ACOUSTIC INSULATION. ROCKWOOL.
17 THERMAL-ACOUSTIC INSULATION ON FLOOR. Plate of expanded polystyrene (EPS), Thickness = 3cm. Density = 30 kg / m³.
18 THERMAL INSULATION AGAINST THERMAL BRIDGES. Sprayed polyurethane foam. D = 15kg/m2 TYPE II.
19 BEARING STRUCTURE OF THE CEILING. GALVANIZED STEEL PROFILE S275JR
20 DOUBLE GLASS SYSTEM WITH AIR CHAMBER .. acoustic and thermal properties according to your location. High mechanical performance.
21 FRAMES A GLASS. Anodized aluminum joinery subframes galvanized steel.
22 Preframe GLASSES. Tubular profile 3x5cm rectangular section. Galvanized steel S257JR cold forming. e = 5mm. Galvanized = 6micras. They are used for anchoring the woodwork.
23 CERAMIC BRICK. Brick Perforated 5x11, 5x27cm. Compressive strength> 20N/mm2. Weight of each brick = 1.60 Kg.
24 SUB-STRUCTURE OF PLOTS. System height adjustable risers that support for floating floors. Son autoventilantes and can be installed on roofs with a slope of up to 5%.
FINISHINGS (F)
25 NON-PASSABLE FINISHING DECK. Boulders. Average = 5cm thick. Aggregate size 16mm.
26 HANDRAIL. 110cm tall anchored to the slab with anchor bolts.
27 JOINTS SEALING. NEUTRAL SILICONE PUTTY. About neoprene cord after cleaning and priming the edges of the board. SILL.
28 HOLES. Coping galvanized steel S275JR, cold formed. Galvanized 10 microns.
29 COPING GALVANIZED STEEL. S275JR, cold formed. Galvanized 10 microns.
30 PAVEMENT. WOODEN FLOORING. Posted on substructure plots leveled at the corresponding height. Wood treated with rot and flexible.
31 CEILING Gypsum boards continue
32 COMPRESSIBLE MATERIAL. Expanded polystyrene, class CS (10). Thickness = 20mm. Water absorption <5%. Compressive stress at 10% deformation 60kPa.

WHY IS IT HEALTHY?

CENTRAL YARD
There is a courtyard in the middle of the building that is surrounded by all the rooms of the house and that is why there is natural illumination in all of the stays.

SOLAR PANELS
There are also solar panels placed on the vertical wall that is located on the north side of the house, as this wall receives the solar radiation to reflect it into the office.

FACADE ROTATION
The main facade that faces the seaside has two different orientations to take the sun or protect the house from it. The one of the ground floor provides the interior with shade and the upper floor takes the sun.

OVERHANG
The ground floor is provided with an overhang that protects the inside from the sun creating a shade. This measure helps the one of the diferent orientation for both facades.

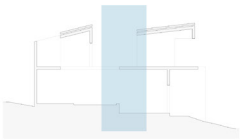
AIR CHAMBER
The ceiling is divided in two layers creating an air chamber between them, the warm air rises out of the building, creating a low-pressure cell, so it is replaced by cool air.

REFLECTIVE WALL
To provide the office with natural but not direct sunlight, a white wall is constructed on the north of the office to get the sun into it by reflection, making the office a healthy stay.

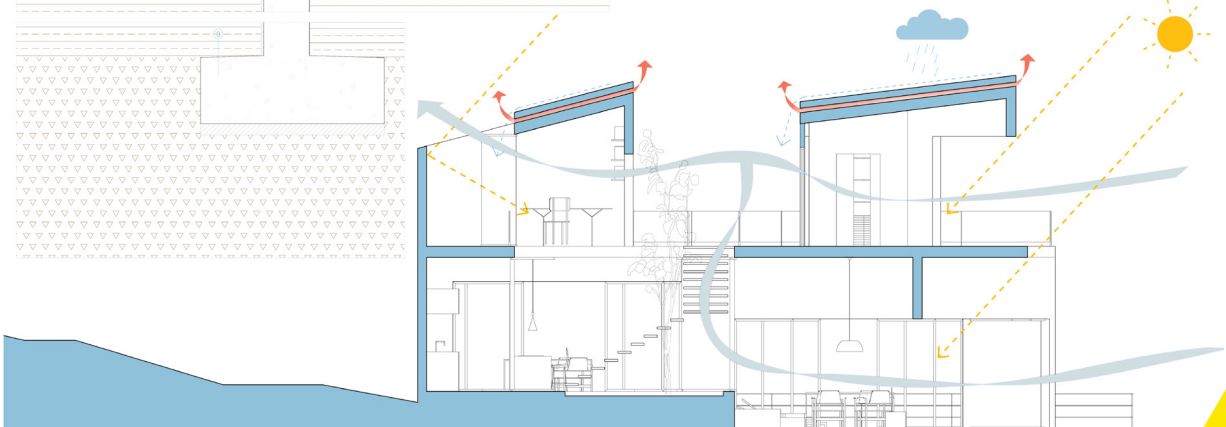
RAINWATER COLLECTION
Rainwater is collected thanks to the deck slope to water the central courtyard of the house and to save both energetically and economically in the toilets of the building.

CROSS VENTILATION
Because of the openings and windows that are all along the house it is possible to cool it by cross-ventilation. The air that the cross-ventilation uses for cooling the house is cooled by the trees that are located in front of the main facade.

DETAIL CONSTRUCTION PLACEMENT



CLIMATE SECTION



GONZALO ARANGUREN · ADRIAN BELTRAN · PAU GIMENEZ · ZARIF MAMMADZADA

THE COUTYAR HOUSE.

BASSO RIAL, Maria Florencia
CALVO MORALES, Veronica
KNOP, Amanda

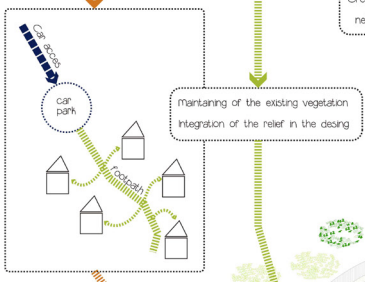
8TH HEALTHY HOUSING AWARDS 1/3

Amanda Knop, Veronica Calvo Morales, Maria Florencia Basso Rial

WHAT DOES A PLACE NEED TO BE HEALTHY?

SUSTAINABLE TOOLS

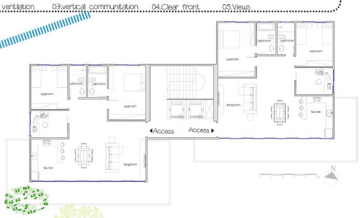
- Awarness & education
  - Awarness of social sustainable
  - Project idea
- Sustainable sites
  - -Landscape vegetation
  - -Relief
- Water efficiency
  - -Water captation for humidity control and reuse
- Energy & atmosphere
  - Pasive energy design
- Material & resources
  - Local material
- Indoor environmental quality
  - Isolation
  - Regulation of solar radiation
  - Thermal inercial
  - Humidity control
  - Flexibility of space
  - Confortable materials
- Innovation in design
  - Green roof
  - Natural pool

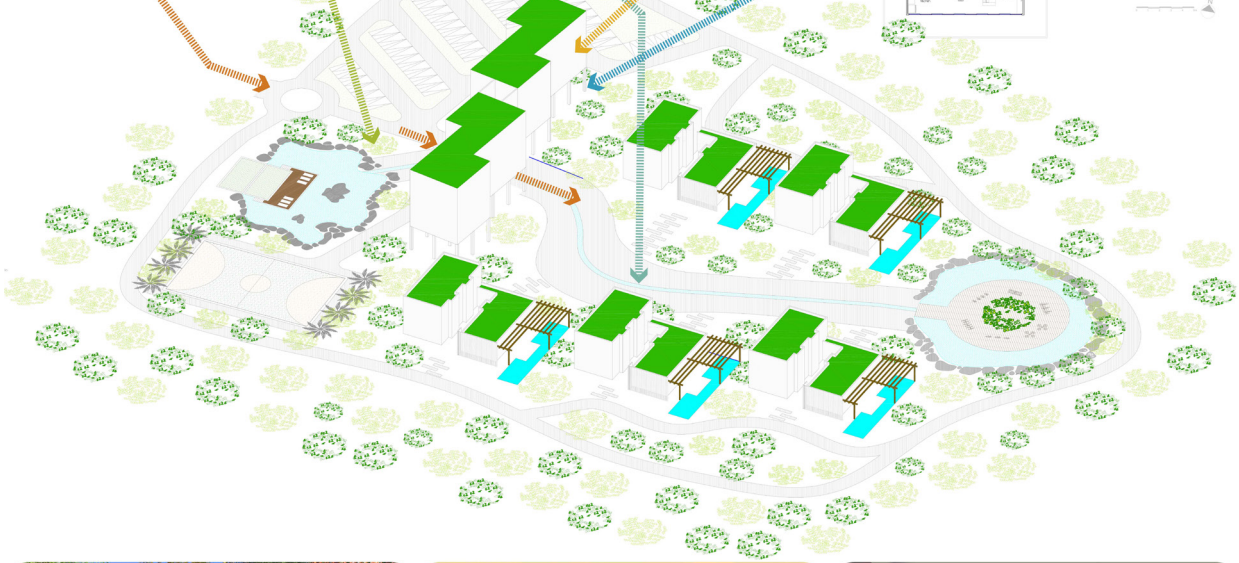


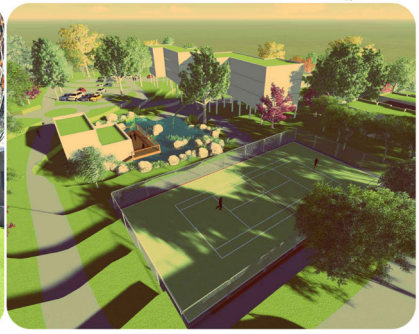
Maintaining of the existing vegetation integration of the relief in the desing

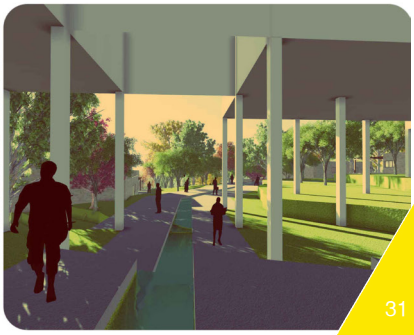
Creation of a continuous water network using the rain water

The apartment block doesn't genera-te shadows over the courtyard houses or comunity elements







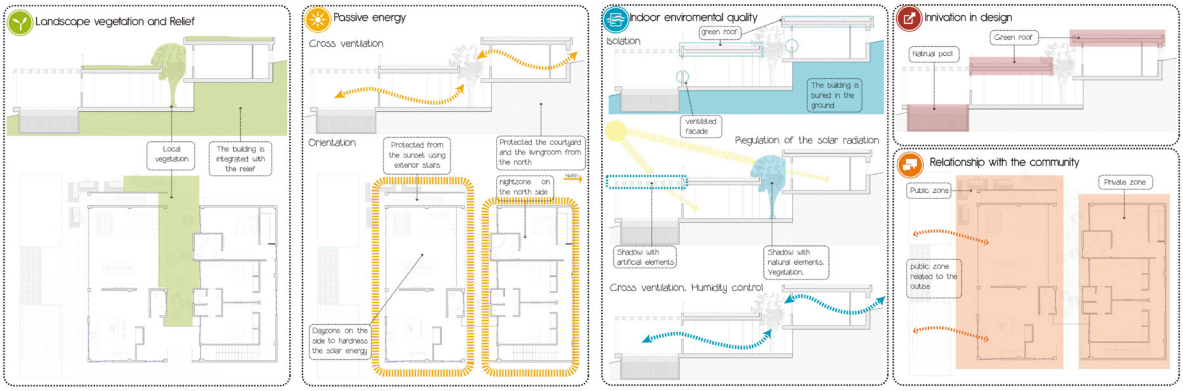


8TH HEALTHY HOUSING AWARDS 2/3

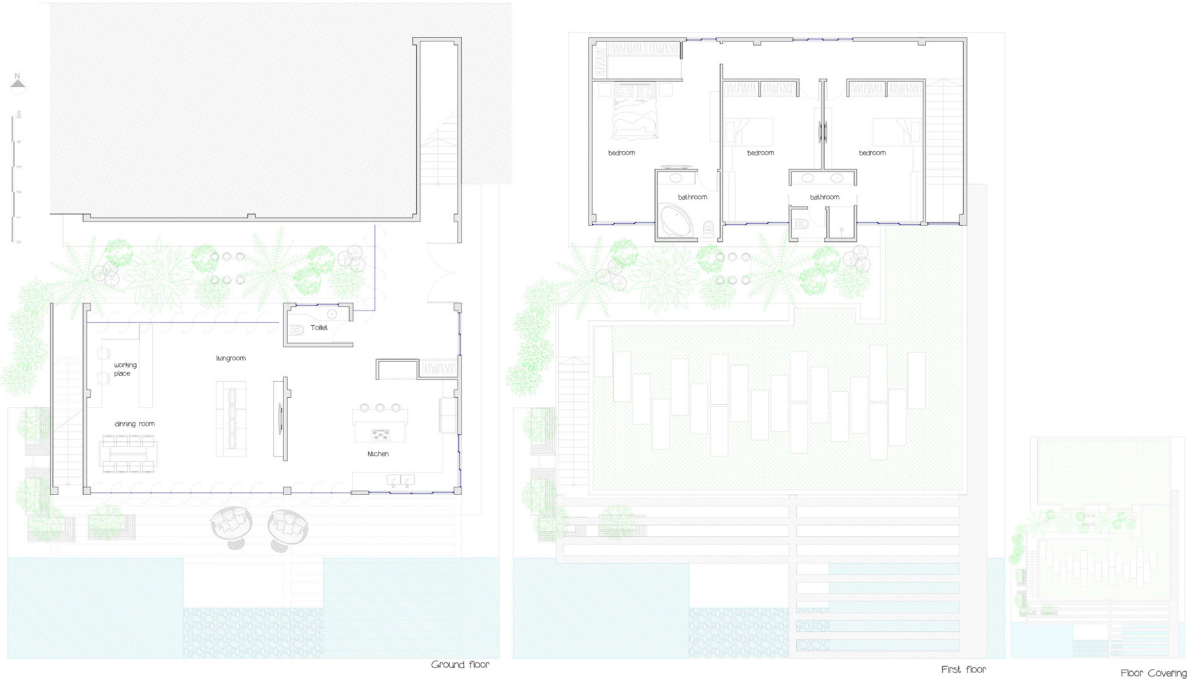
Amanda Knop, Veronica Calvo Morales, Maria Florencia Basso Rial

THE COURTYAR HOUSE

SUSTAINABLE TOOLS



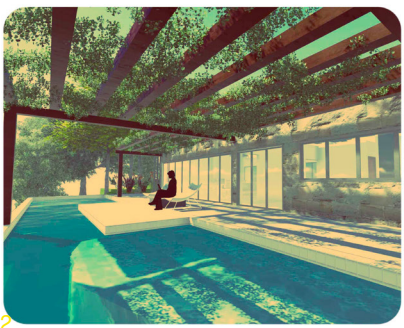
FLOOR PLANS

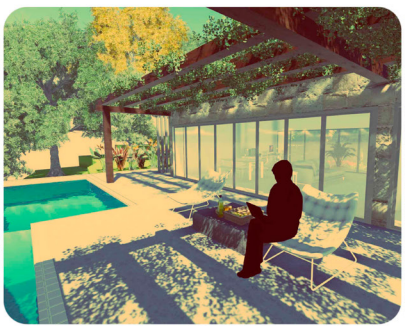


Ground floor

First floor

Floor Covering



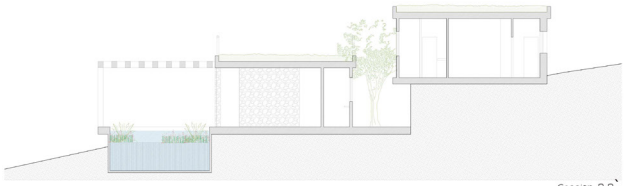


Amanda Knop, Veronica Calvo Morales, Maria Florencia Basso Rial

THE COURTYAR HOUSE

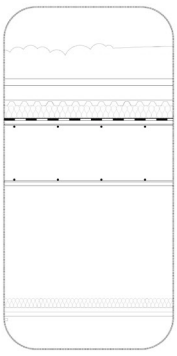
VERTICAL SECTIONS

Seccion C-C`

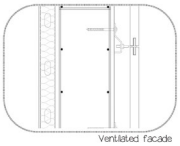


Seccion B-B`

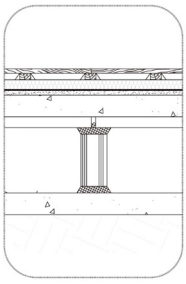
Seccion A-A`



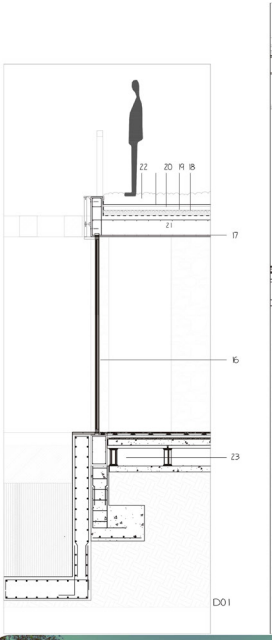
Green roof whit irrigated vegetation,

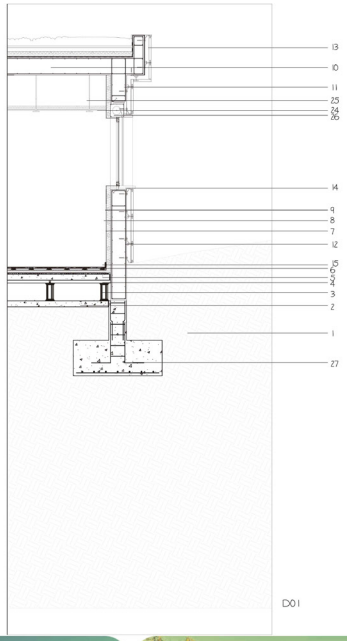


Ventilated facade



floor with non ventilated air chamber

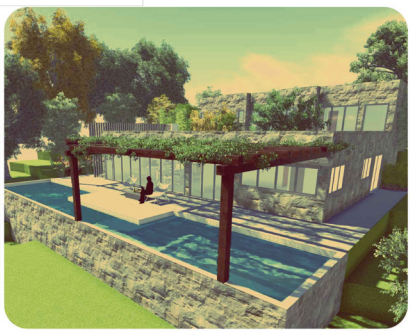




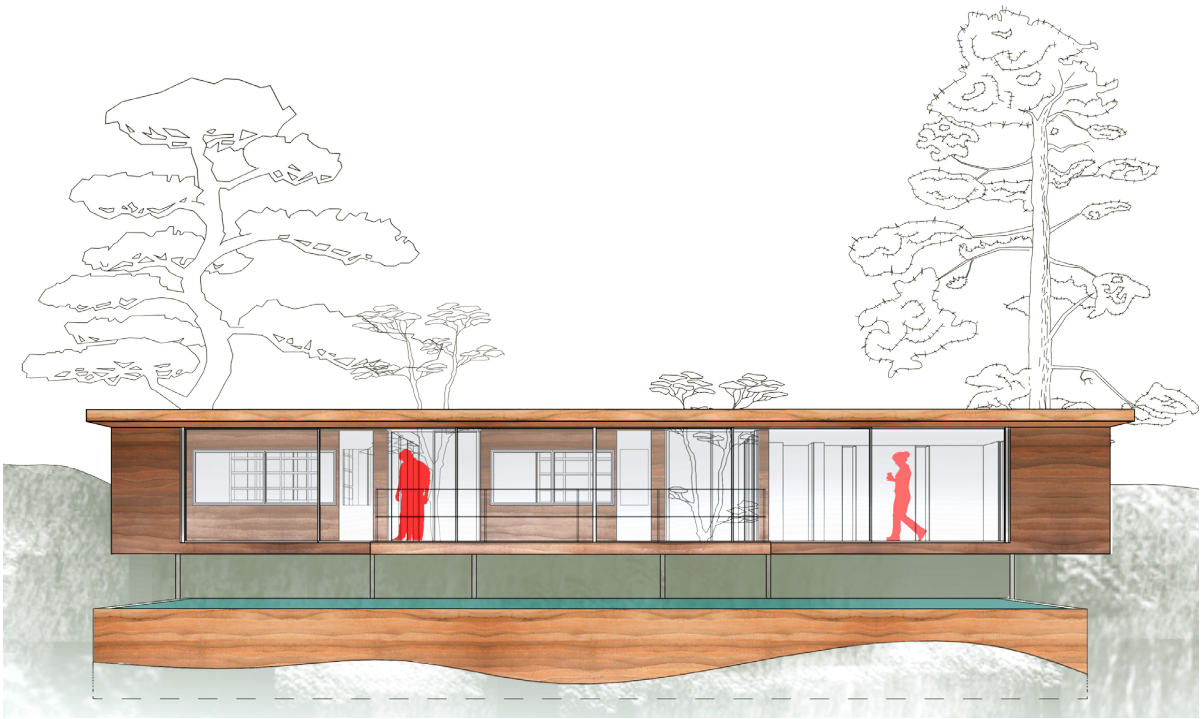
1. Compacted soil
2. Concrete 10cm
3. Brick
4. Prefabricated concret slab 1x1m 5cm
5. Compression layer
6. Wooden platform
7. Thermal insulation XPS 6cm
8. Plasterboard panels
9. Substructure
10. Structure reinfored concrete 30cm
11. Waterproofing sheet
12. Anchor
13. Stone veneer arenisca 4cm
14. Flashing
15. Rodapie
16. Aluminun carpentry climalit 4+6+4
17. Metal profile
18. Draining sheet HDPE
19. Filter layer. Geotextil 300gr/m2
20. Ground substrate 10cm
21. Protection layer
22. Vegetation
23. Air chamber
24. Plasterboard for ceiling
25. Ceiling profile
26. Blind hole
27. Concrete footing 60x40cm

ENERGY CERTIFICATION

	Clase	kWh/m²	kWh/año	Clase	kWh/m²	kWh/año
Demanda calefacción	D	27,1	6878,6	E	51,8	13130,1
Demanda refrigeración	B	13,2	3357,8	C	18,1	4595,9
	Clase	kgCO2/m²	kgCO2/año	Clase	kgCO2/m²	kgCO2/año
Emisiones CO2 calefacción	B	2,3	582,9	E	16,6	4207,2
Emisiones CO2 refrigeración	B	3,4	861,7	D	6,9	1748,8
Emisiones CO2 ACS	A	0,0	0,0	D	1,9	492,5
Emisiones CO2 totales	B	5,7	1444,6	E	25,4	6448,5
	Clase	kWh/m²	kWh/año	Clase	kWh/m²	kWh/año
Consumo energía primaria calefacción	A	9,4	2377,9	E	75,1	19038,6
Consumo energía primaria refrigeración	B	13,8	3486,2	D	28,3	7169,7
Consumo energía primaria ACS	E	14,2	3606,0	D	8,0	2034,9
Consumo energía primaria totales	B	37,4	9469,9	E	111,4	28243,2



PORTO PORTERO, Adrian
ROMERO NAVARRO, Victoria
JURGAITYTÈ, Eglè



HEALTHY HOUSING 8

// ADRIAN PORTO PORTERO // EGLĖ JURGAITYTĖ // VICTORIA ROMERO NAVARRO //

CONCEPT

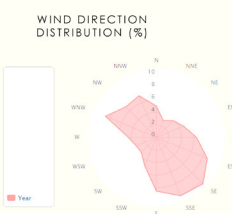
PLEASURE TO LIVE SUSTANABLE

GOAL

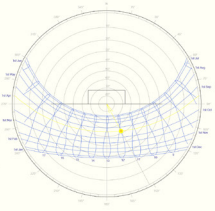
// efficient and integrated design according to natural conditions //

ANALYSIS

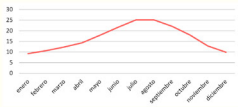
WIND DIRECTION DISTRIBUTION (%)



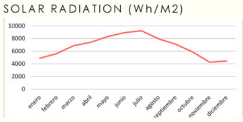
SOLAR PATH ANALYSIS



AVERAGE TEMPERATURE



SOLAR RADIATION (Wh/M2)



RAIN (mm)

WHAT?

// DISTRIBUTION OF TREES //

// TOPOGRAPHY //

// MATERIALS //

// PASSIVE COOLING METHODS //

// SUN PATH //

WHY?

The site is largely planted with trees (mostly pines) which provide shades, visual boundaries and also aesthetic pleasure. Therefore trees will be used to control temperature in the house, provide privacy and maintain natural ambient.

The design of the scheme seeks to achieve a balanced relation with the nature and reduce impact for the environment. Therefore, the construction of the buildings is integrated into the landscape, also benefiting thermally and visually .

Building materials influence not just building performance but also has an environmental impact due their production, transportation ability of recycling after demolition. Thus, local, natural materials will be used for the scheme.

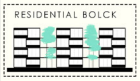
Considering climatic conditions of Spain, and use of the building during the summer period, natural ventilation becomes one of the crucial aspects of design seeking to create comfortable temperature and sufficient fresh air supply for inhabitants. As a result, the shape of the building and fenistration will serve natural ventilation methods.

To achieve maximum benefit of the sun, the shape and orientation of the buildings will be designed to provide natural light, reduce heat gain during the summer and create natural heating source during a winter period.

HOW?

// Tree integration in the design//

RESIDENTIAL BOLCK

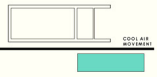


COMMUNITY CENTER

//Different levels//

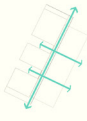
The houses are situated in different levels which provides undisturbed view to the landscape and provides conditions to use the swimming pool as a passive cooling method.

COMMUNITY CENTER



//Cross ventilation//

Cross ventilation across two axes creates a flexibility of the sufficient house ventilation through the year according to weather conditions and use of the house.

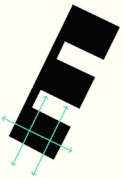


//HOUSE//

//Swimming pool//

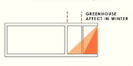
The swimming pool acts as a passive cooling system underneath the house structure. East-West wind direction which is most common in the site moves the cold air and cools the house from below.

//RESIDENTIAL BLOCK//



//Orientation//

The buildings are orientated to provide views (South East) but protect form direct sunlight.



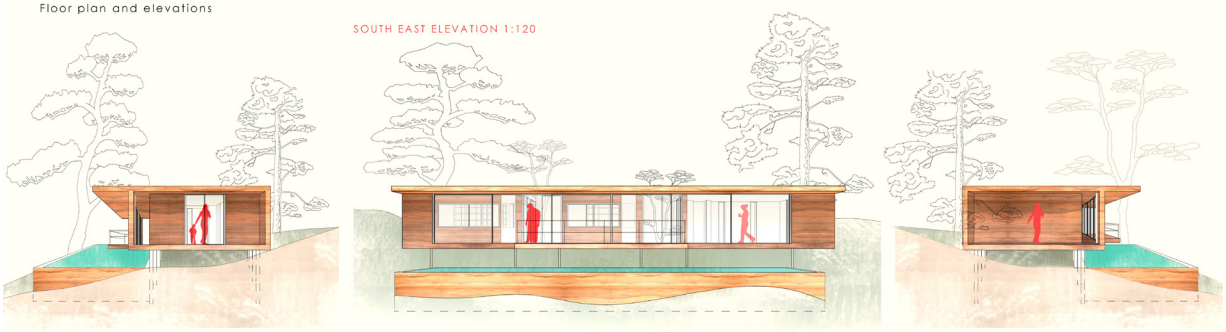
// Shape//

The volume of the building reduce sungain during the summer while during winter t heat is absorbed and relea in the interior space as natural heating.

HEALTHY HOUSING 8

// ADRIAN PORTO PORTERO // EGLĖ JURGAITYTĖ // VICTORIA ROMERO NAVARRO //

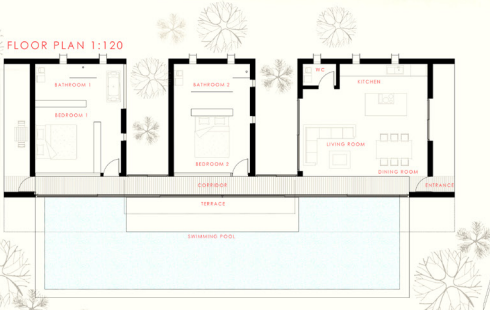
Floor plan and elevations



SOUTH EAST ELEVATION 1:120

NORTH EAST ELEVATION 1:120

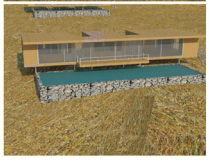
SOUTH WEST ELEVATION 1:120



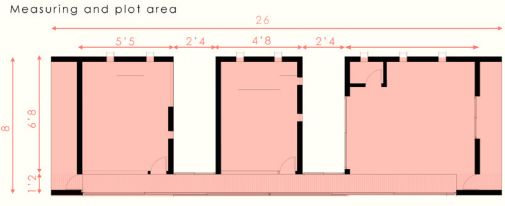
FLOOR PLAN 1:120

NORTH WEST ELEVATION 1:120

The house



Measuring and plot area



Certificate and energy value

Average Housing cnsumption = 15.513 kWH/año

Healthy House consumption = 9.617 kWH/year

61'99%

= 175'6 m²

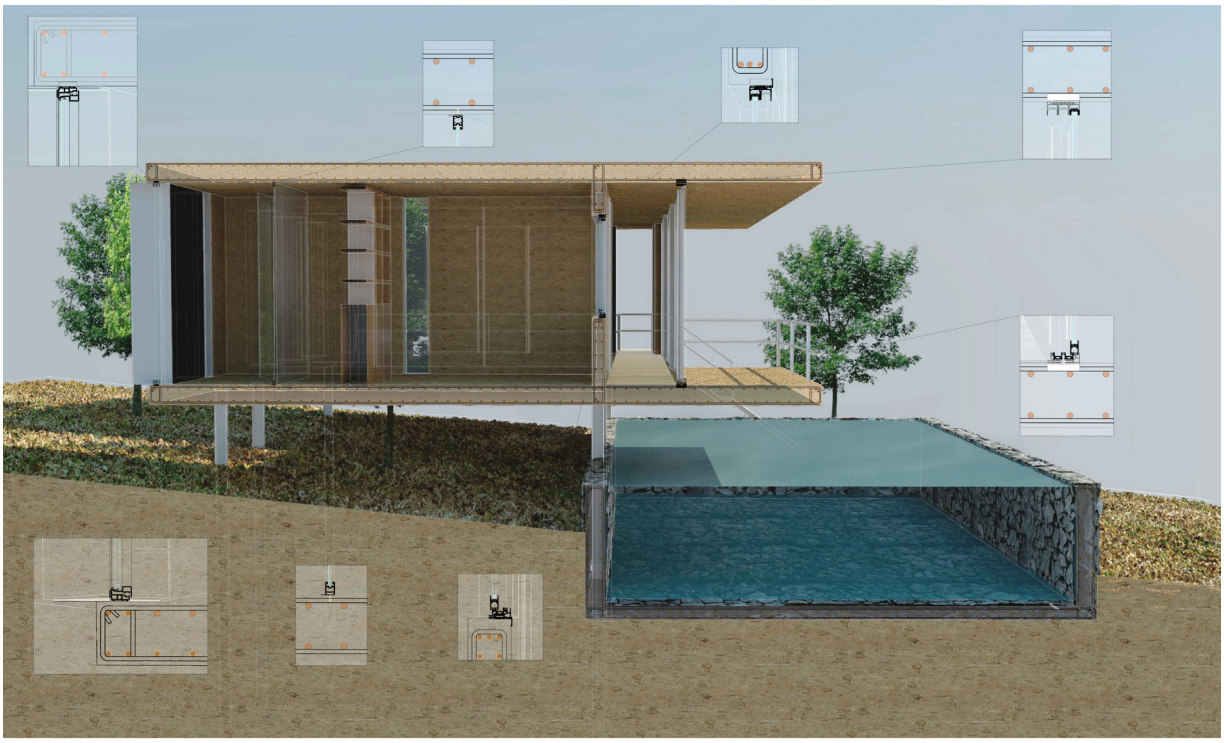
54,76 kWH/m2 year

B

Energy certificate

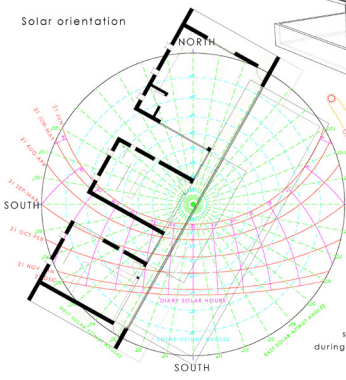
HEALTHY HOUSING 8

// ADRIAN PORTO // EGLĖ JURGAITYTĖ // VICTORIA ROMERO //

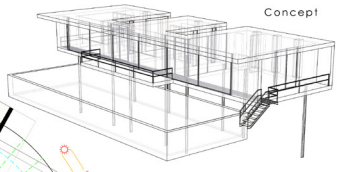


Explanation

Solar orientation



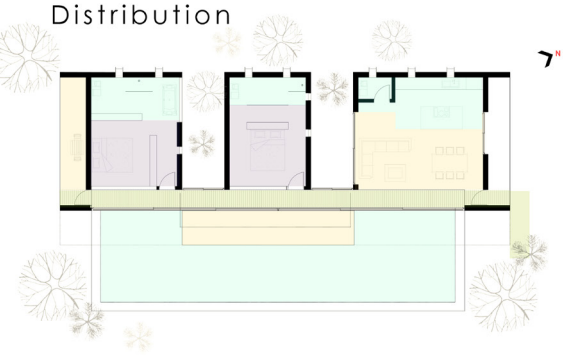
Concept



Idea

Horizon is the main concept that reigns in the house's design, the views and lineality work together for the user making that he feels staying in the middle of nature. The orientation and elevation over terrain try to get a warm look joined to passive cooling methods as ventilation, greenery and swimming pool. The house is divided in three modules connected by a corridor that works as an air chamber that blocks heat in summer making double glass façade. However the material used in house structure warms the hause in winter absorbing the heat during the day and expelling it during the night, coolest moment that happens inside

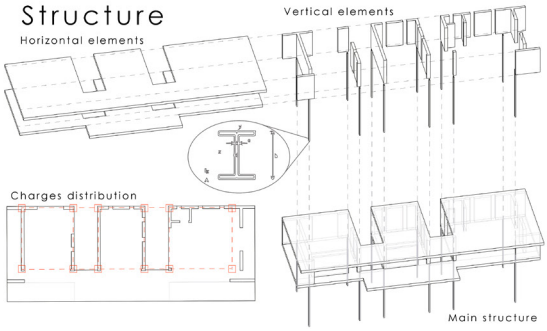
Distribution



Structure

Horizontal elements

Vertical elements



Materials

TAPIAL

WOOD

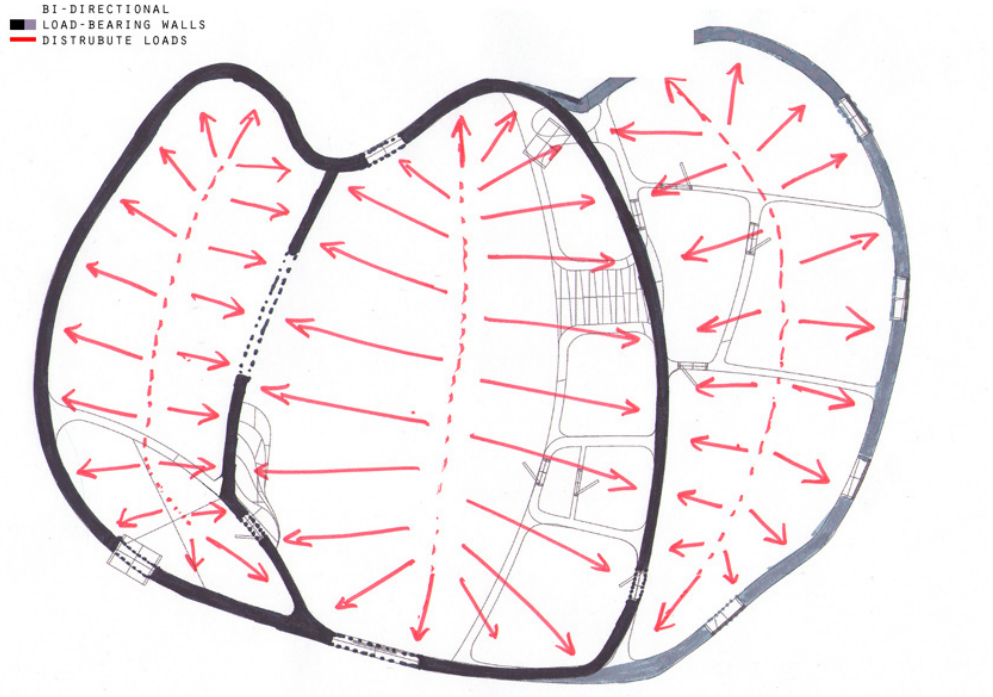
GLASS

GREENERY

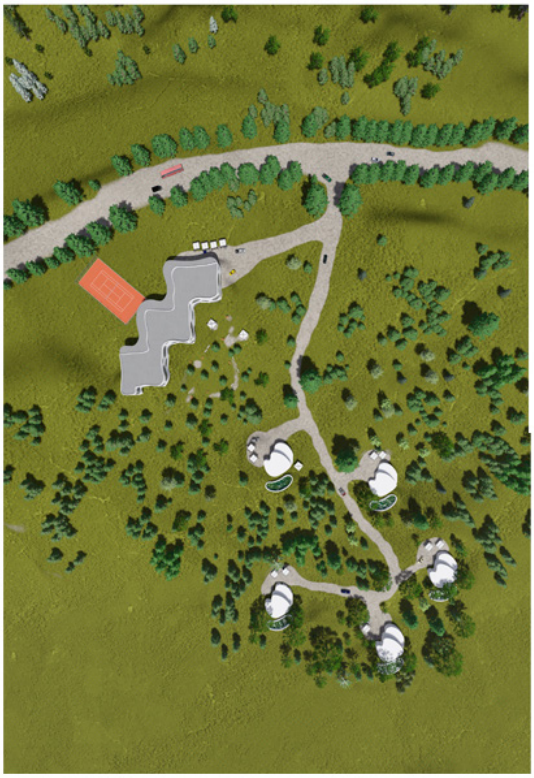
STEEL

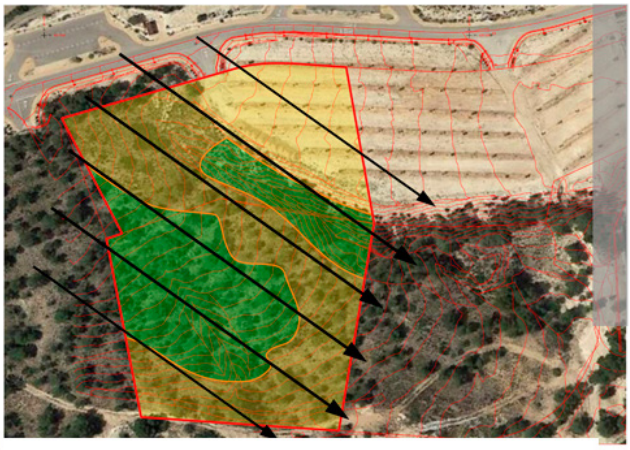
STONE

HERNÁNDEZ TORNERO, Ana Belén
JIMÉNEZ IRNÁN, Inmaculada
PARDO MILLA, Ana Teresa
ZANOUSKI, Aleksei

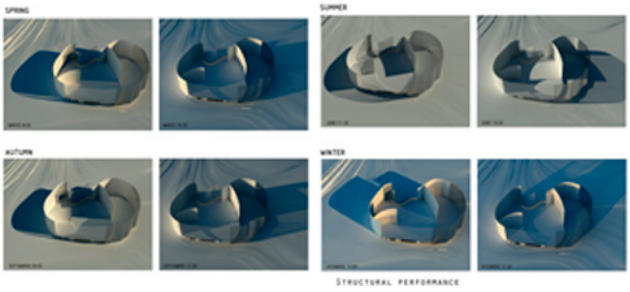


STRUCTURAL SYSTEM- LOAD BEARING WALLS

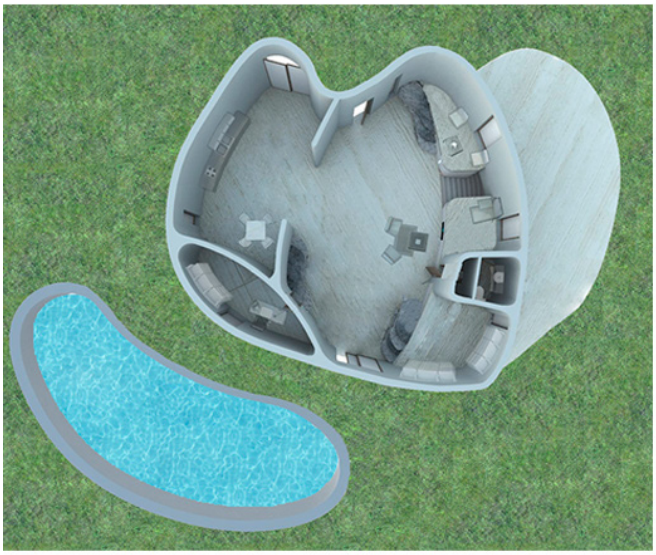




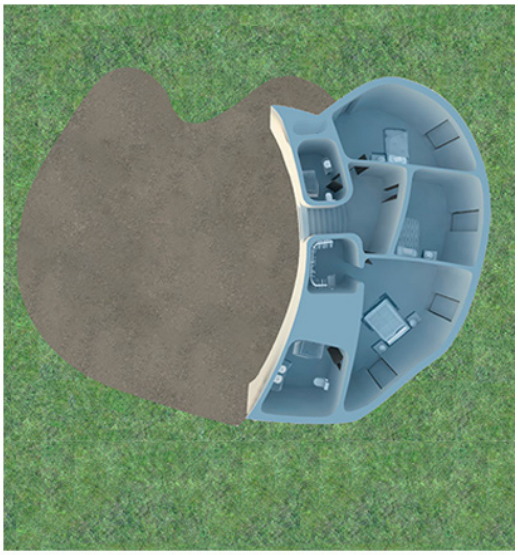
PLOT DESIGN



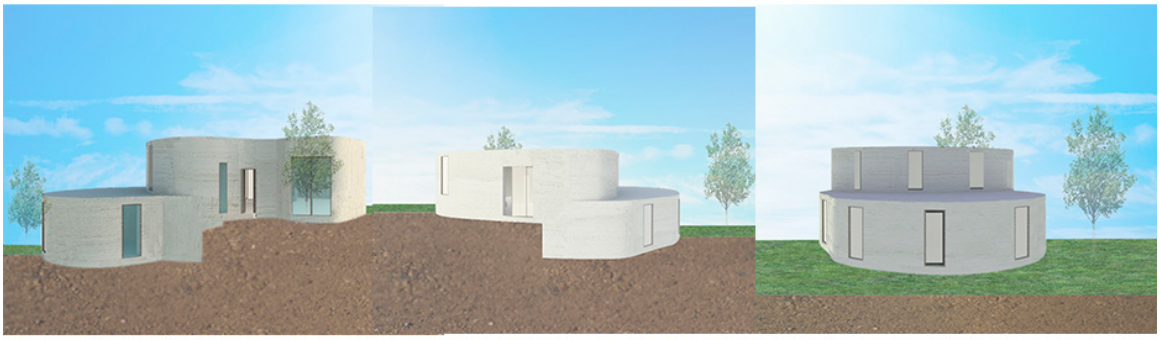
STRUCTURAL PERFORMANCE



UPPER FLOOR



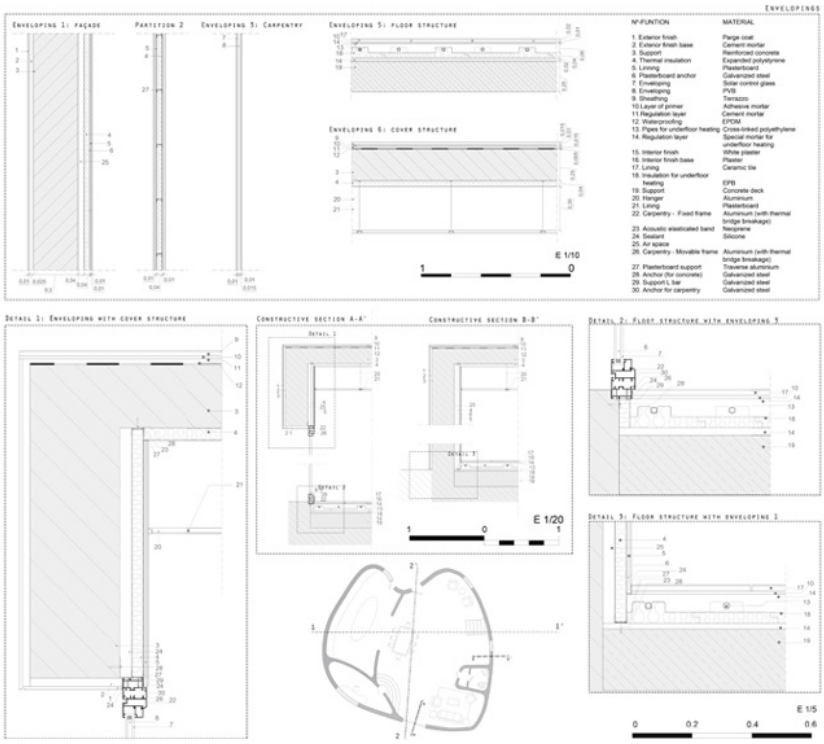
LOWER FLOOR



FAÇADES

SECTION 1

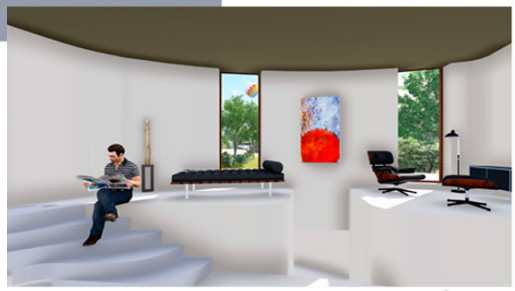
SECTION 2



ENERGY DEMAND:

THE SOUTH GLASS HAS A SOLAR FACTOR LOWER THAN NORTH GLASS.
TOTAL HOUSE'S AREA: 215 M2
HEATING ENERGY DEMAND: 30 KWH/M2
COOLING ENERGY DEMAND: 14.6 KWH/M2

CONSTRUCTIVE SECTIONS



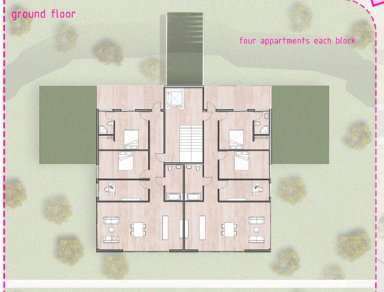
PASSIVE HOUSE.

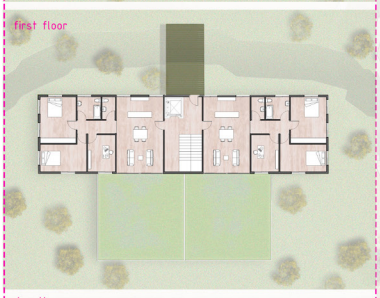
HERNÁNDEZ HARO, Óscar
ROMERO SÁNCHEZ, Alba Maria
MARTIN MANZANARO, Laura
MAROZ, Veronika

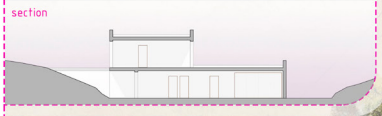
8th healthy housing awards

HERNÁNDEZ HARO,Óscar // MARTÍN MANZANARO, Laura // MOROZ, Veronika // ROMERO SANCHEZ, Alba

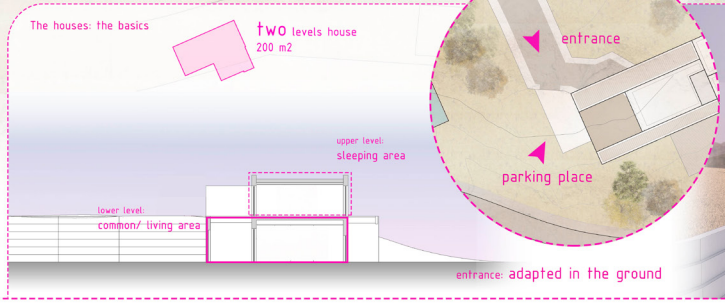
Appartments block

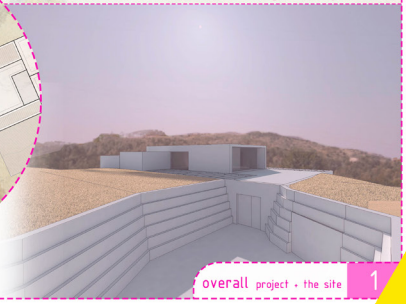






Single family houses





overall project + the site 1

8th healthy housing awards

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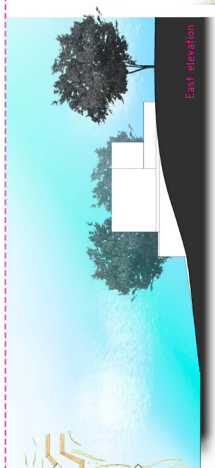
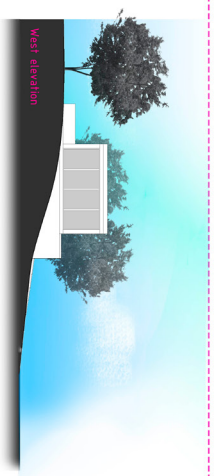
Program

The house has two bedrooms , one studio, two bathrooms, kitchen dining room. All the spaces are thought to different possibilities to live.

The user is who have the last decision about the project. And the project have to acomplish it.



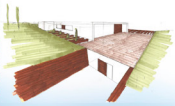


Design concepts:

-Integrate in landscape

-take an advantage of different levels

-open space



What things are good for users?

Why is the house healthy?

This house is been thought to get the most confort inside, and to be opened to the outside.

From the nature to the nature: beggining from the inner garden in the entrance until the south-east façade completly open to the landscape.

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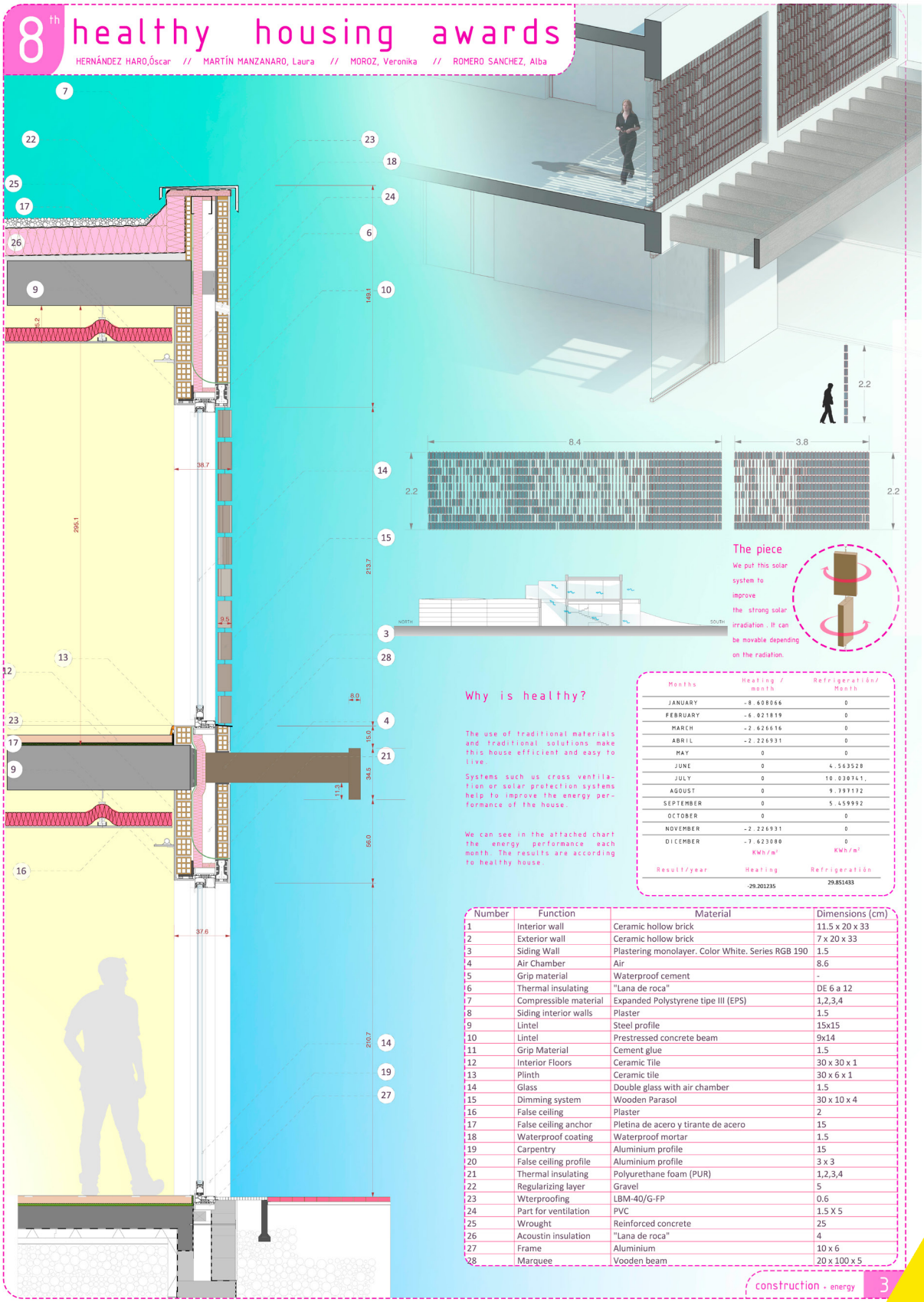
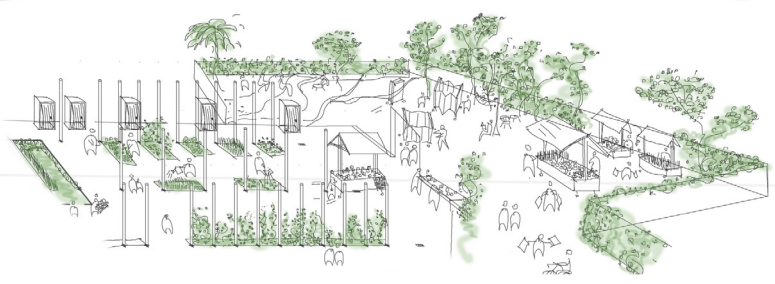


Months	Heating / month	Refrigeratión/ Month
JANUARY	-8.608066	0
FEBRUARY	-6.021819	0
MARCH	-2.626616	0
ABRIL	-2.226931	0
MAY	0	0
JUNE	0	4.563528
JULY	0	10.030741
AGOUST	0	9.797172
SEPTEMBER	0	5.459992
OCTOBER	0	0
NOVEMBER	-2.226931	0
DICEMBER	-7.623080	0
	KWh/m²	KWh/m²
Result/year	Heating	Refrigeratión
	-29.201235	29.851433

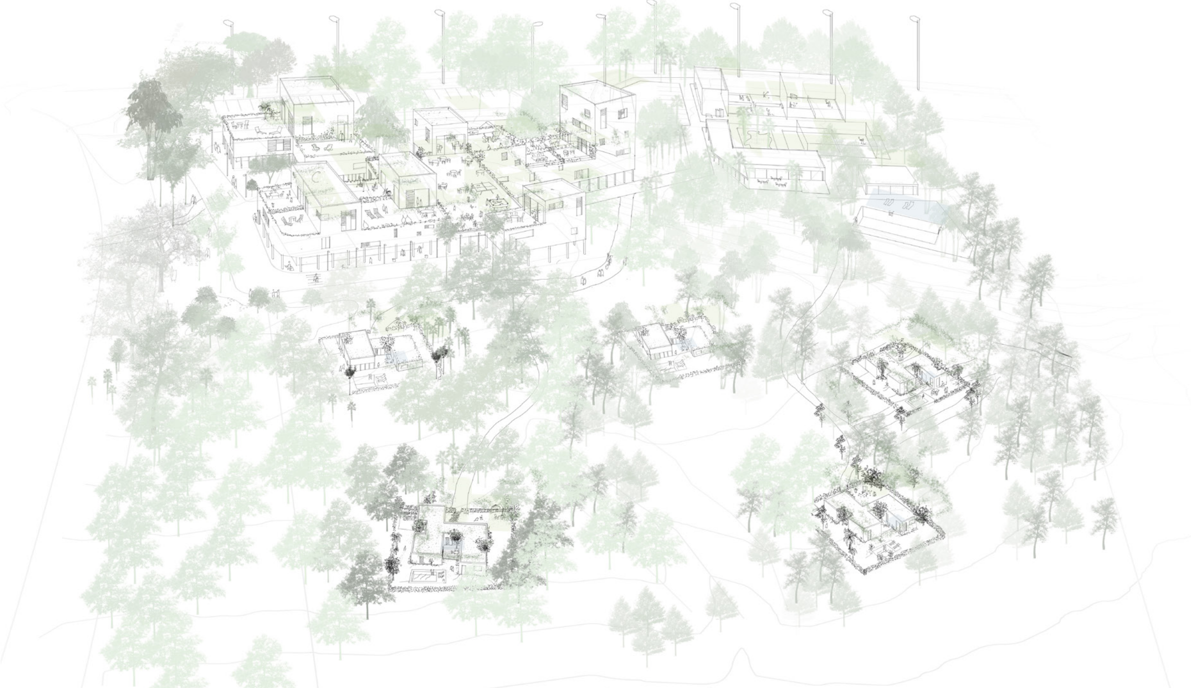
Number	Function	Material	Dimensions (cm)
1	Interior wall	Ceramic hollow brick	11.5 x 20 x 33
2	Exterior wall	Ceramic hollow brick	7 x 20 x 33
3	Siding Wall	Plastering monolayer. Color White. Series RGB 190	1.5
4	Air Chamber	Air	8.6
5	Grip material	Waterproof cement	-
6	Thermal insulating	"Lana de roca"	DE 6 a 12
7	Compressible material	Expanded Polystyrene tipe III (EPS)	1,2,3,4
8	Siding interior walls	Plaster	1.5
9	Lintel	Steel profile	15x15
10	Lintel	Prestressed concrete beam	9x14
11	Grip Material	Cement glue	1.5
12	Interior Floors	Ceramic Tile	30 x 30 x 1
13	Plinth	Ceramic tile	30 x 6 x 1
14	Glass	Double glass with air chamber	1.5
15	Dimming system	Wooden Parasol	30 x 10 x 4
16	False ceiling	Plaster	2
17	False ceiling anchor	Pletina de acero y tirante de acero	15
18	Waterproof coating	Waterproof mortar	1.5
19	Carpentry	Aluminium profile	15
20	False ceiling profile	Aluminium profile	3 x 3
21	Thermal insulating	Polyurethane foam (PUR)	1,2,3,4
22	Regularizing layer	Gravel	5
23	Wterproofing	LBM-40/G-FP	0.6
24	Part for ventilation	PVC	1.5 X 5
25	Wrought	Reinforced concrete	25
26	Acoustin insulation	"Lana de roca"	4
27	Frame	Aluminium	10 x 6
28	Marquee	Vooden beam	20 x 100 x 5

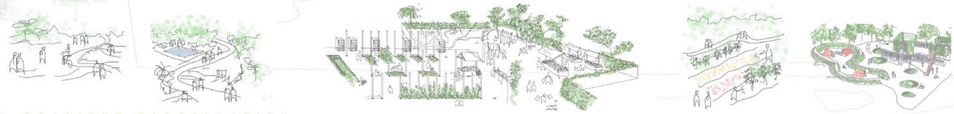
LAS COLINAS.

GEORGESCU, Anamaria
KOLEV, Georgi
PAUNESCU, Georgiana-Maria
RICO SANTACRUZ, Manuel



Las Colinas
SUSTAINABLE startups

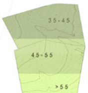




OUR CONCEPT : GRADIENT PARCELLATION

Client's profile according to the age

Different age - Different expectations



Age:35-45
Young couples, young families with children that would prefer living around others, to interact with them.This is a certain preference for both families with jobs and also families that are staying only for holidays.They would want their children to meet other persons and socialise.They would prefer a rather active life with places close to their homes where they can spend their time, doing different activities,meeting new people.

Age:45-55
Middle-aged couples, that no longer live with their children, who would prefer a rather bigger space than an apartment, a more comfortable home with more privacy and their own yard where they can grow their own groceries.They would be interested in a place with beautiful views.

Age: >55
Old couples, with grandchildren that would like a more accessible house, only ground floor, to be easier for them and safer for the children.Their house it's supposed to be their refuge from all the city chaos, a more private and quiet space, with their own garden where they could spend their time with their grandchildren or just gardening for their own relaxation.They would prefer a simple house.

TOP

- Less space
- Less privacy
- Fewer connections with nature
- Higher space density
- Long distance views
- Younger customers
- Closer to the main access
- Closer to the public spaces

BOTTOM

- More space
- More privacy
- More connections with nature
- Lower space density
- Short distance views
- Older customers
- Farther from the main access
- Farther from the public spaces

OUR PROPOSAL
We created three types of housing that should adapt to the three identified profiles of the possible clients: one type of collective housing with a close area of public spaces that should have as main purpose the entertainment of the clients and two types of individual houses that should adjust to the preferences of the other two main profiles of the future clients.

OUR AIM
Another objective that we want to achieve with this new environment is to create a continuous use and reuse of the three types of housing.One can change his taste in matter of type of housing during his lifetime, therefore one family can get to live in all three types.

Characteristics of the entire environment

In order to have better achievements in what concerns the integration into the nature and in order to offer our clients a comfortable environment that will simplify and beautify their lifes, we found it necessary to adopt these actions upon the site.

Facilities

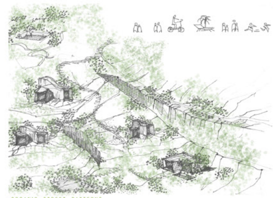
- Golf field
- Beach club
- Sushi bar
- Gym and fitness club
- Hiking routes
- Byciclе routes
- Children' Club
- Tennis and padel courtyards

Transportation From/To The Site

- Highways from Murcia,Alicante,Madrid
- Railways : future Ave train station.
- Airport: Alicante, San Javier and in the future in Murcia

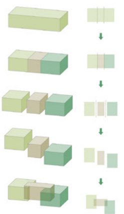
Site Specific Opportunities/Constraints

- Sunny-warm weather
- Precipitation: 200-300 mm/year
- Water deficit: 641 mm/year
- Fertile Soil
- Lemon and orange trees
- Unique landscape, open sea view
- Protected area



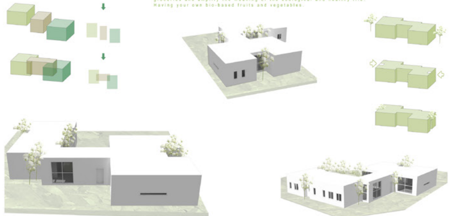
- ORGANIC STREET PATTERNS
- HOUSING ORIENTATION IN ORDER TO OBTAIN THE BEST VIEWS
- PROGRESSIVE INCLINE ARRANGEMENT OF THE INDIVIDUAL HOUSES

Individual house type 1 characteristics

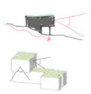


Integrating nature
Being inside a sustainable and friendly ecological environment it is necessary not only to integrate the house into the landscape but also to bring nature inside the house. With this purpose we created gaps so that the persons who will live there will feel permanently surrounded by nature.

Home gardening
Another advantage of living in a house is having your own garden where you can plant your own groceries and amplify the meaning of the ecological and healthy life.
Having your own bio-based fruits and vegetables.



Individual house type 2 characteristics



More benefits
This type of house is suopposed to adjust the second profile of the clients, for the middle-aged families who would prefer a high comfort house, with great views.
In comparison with the individual house type 1 , this one has one more level. The day zone has been lifted up one level ,mainly for two reasons: Better views and better adjustment to the inclined site.

More green
Another convenience that has been added to this house is the green roof that can been used as terraces.Who does not love waking up in the morning and having your coffee on the roof while enjoying the beautiful sea view?

Collective housing characteristics

Park - Housing
Our concept of collective houses consists in not an usual block of flats , but various blocks with 2 apartments each.With the purpose of integrating the 6 buildings into the nature, we thought of creating the design of a park. Starting from the typical rectangular parcellation with orthogonal streetscape and adding the organic tissue resulted the pleasant game of collective housing into the green landscape.

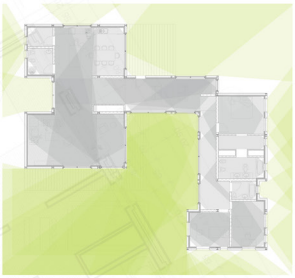
Facilities on the ground floor
The modules will be elevated on stilts so that it won't affect and interfere with the site. It also adjusts better to the landscape and creates new spaces, public spaces that can be of use for the residents.

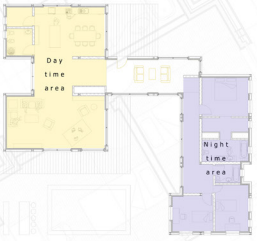
Public Spaces Characteristics

Areas for the clients' entertainment

- Children playgrounds
- Swimming pools
- Meeting halls
- Parks
- Rent-a-bike offices
- Common farming batchs
- Hiking areas
- Bike routes

namaria GEORGESCU | Georgi KOLEV | Georgiana PAUNESCU | Manuel RICO SANTACRUZ





The project searches the permanent contact with the nature as we all know that the environment helps the quality of life y producing healthy ambient.

With this prototype, the house is designed for the owner to be able to mantain the visual contact with the exterior from every corner of the house.

The daytime area is the one receiving more light and is more opened, so the visual contact is bigger.

The project brings together the daytime area from the night one uing a hallway.
One of the daytime areas combines the kitchen with the dinning room, and the living room with a small library.
the nature comes inside the house through a big windows from the left part of the house.
the nighttime area includes the beedrooms and the entrance is the union part a the distribution one.

Anamaria GEORGESCU | Georgi KOLEV | Georgiana PAUNESCU | Manuel RICO SANTACRUZ

One house type. a thousand combinations

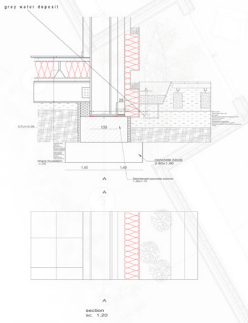




as long as you are home,you can do whatever you want




recycling was never so easy

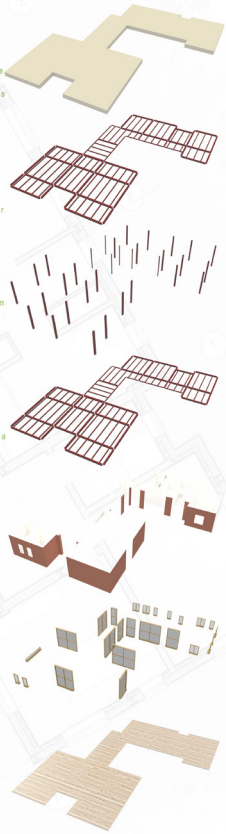


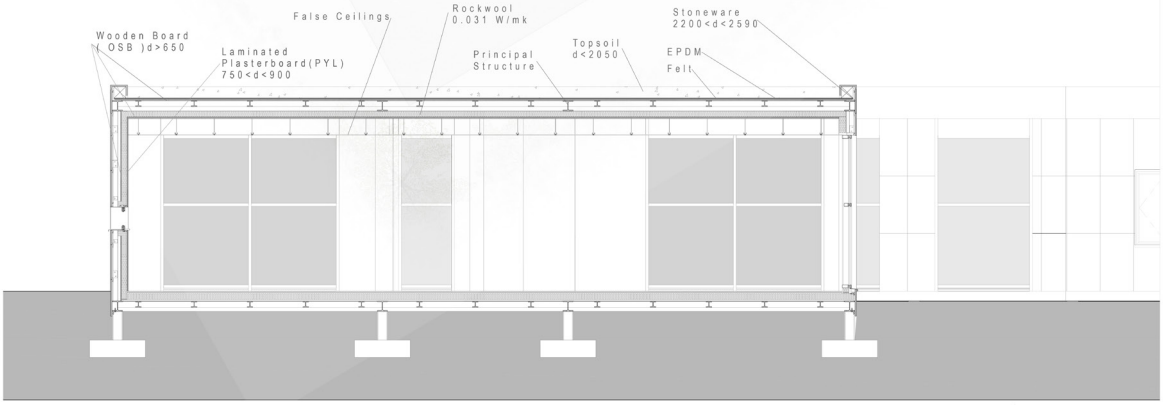
This Figure is a diagram explaining the proposed concept of the construction. As you can see, the main structural frame is metal. The exterior walls create a ther mal inertia for the building as well as providing security and acoustic properties.

We decided to use a metal structure because of its good capability and resistance ,in what concerns the section. Considering that it's a high-standards house, we didn't want to use concrete or wooden pillars that would destroy the design of the house by standing out of the building's closures.

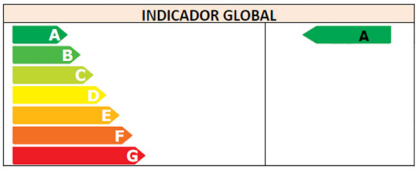
The metal structure also res ponds perfectly to the over loads determined by the green roof design of the house.

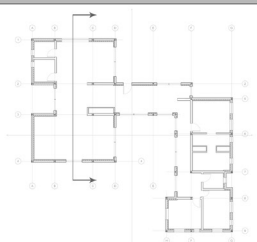
The house is organized on only one level, the ground floor, in order to be more comfortable and more accessible for the clients, which aresupposed to be mostly elders, with the profile of over 55 years old , who would prefer a ground level without stairs and ramps.





Demanda global de calefacción [kWh/m² año]	Demanda global de refrigeración [kWh/m² año]
2,10	41,17



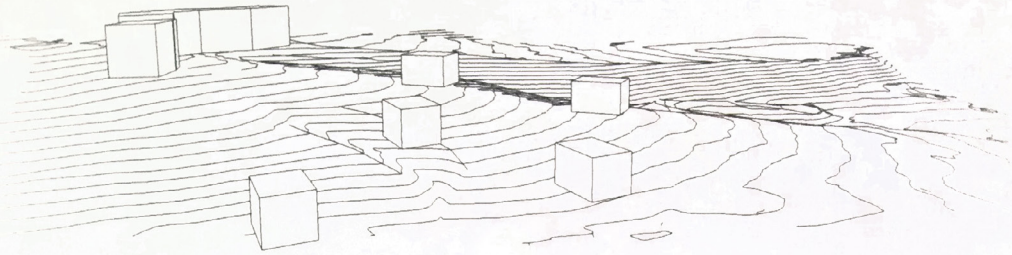


Anamaria GEORGESCU | Georgi KOLEV | Georgiana PAUNESCU | Manuel RICO SANTACRUZ

CASA LAMELLA.

//MENTION

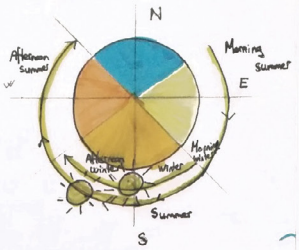
HEGAZY, Shahenaz
JANSEN, Misjel
PALMBOOM, Stéphanie



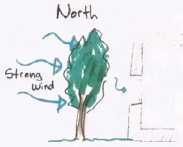
Analyses

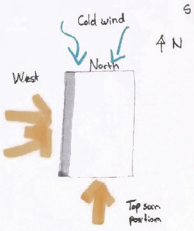
Area

Sun



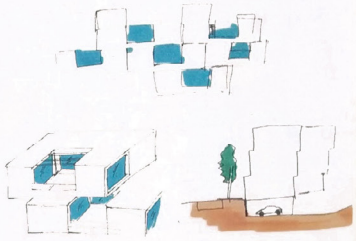
Wind



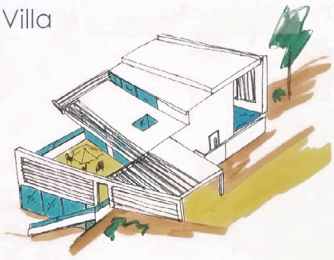


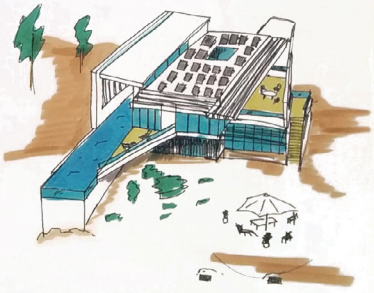
Concept

Appartments

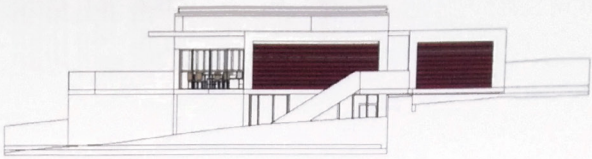


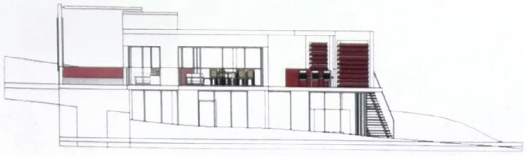
Villa

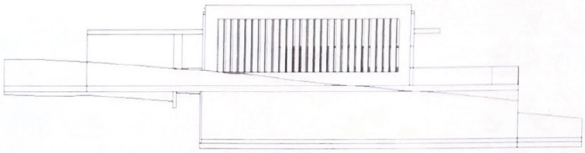




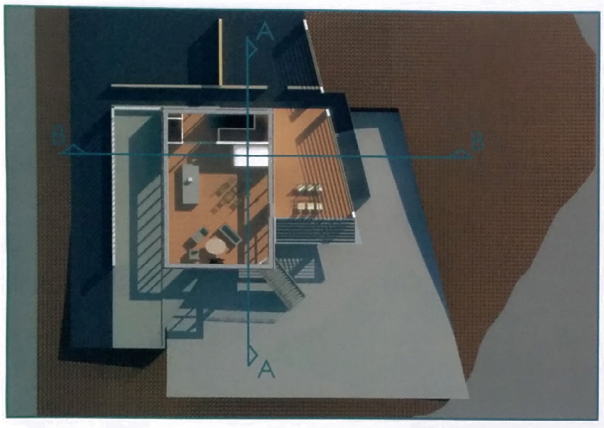
Elevations



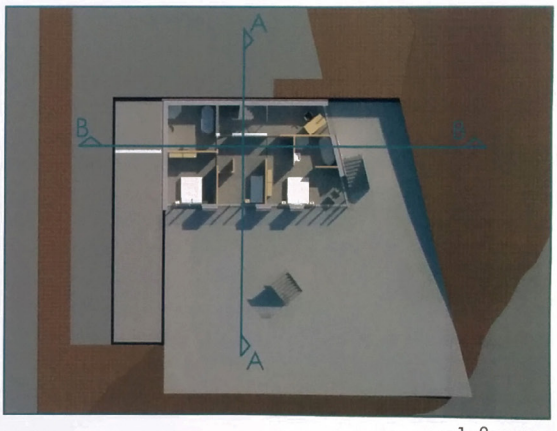




Floorplans



Ground floor



-1 floor

Sections

Section AA

Section BB

Renders

Winter sun (evening)

Summer sun (evening)

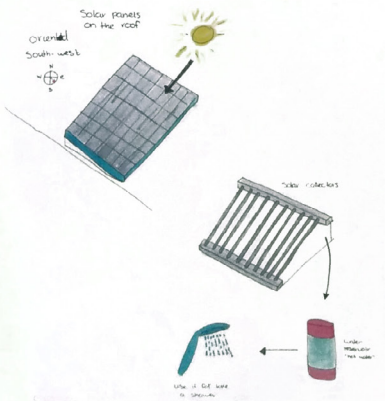
System concept

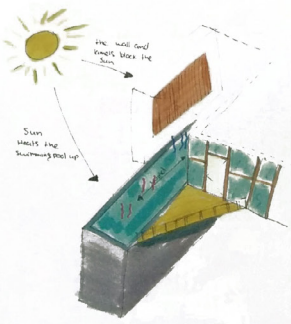
- *Building half sunk into the mountain. (ground floor thereby become cooler)*
- *Cross Ventilation*
- *Phase Change Material insulation*
- *Operation of Blinds in building concept provides shade and sun control*
- *Solar panels on the roof*
- *Swimming pool provides cooling effect and also ensures heating up the water of swimming pool*

Basic Materials

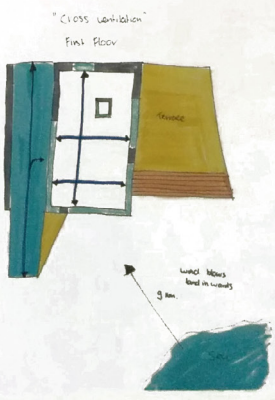
- *PCM insulation*
- *Concreet*
- *Wood*

Sun (systems)





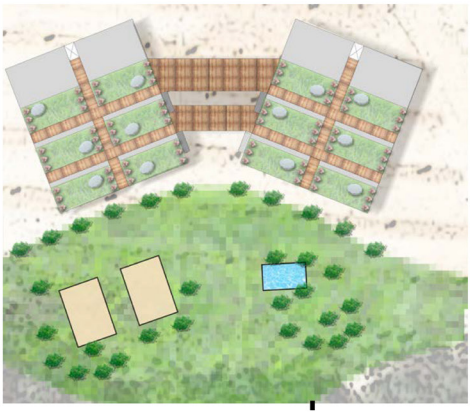
Wind (system)



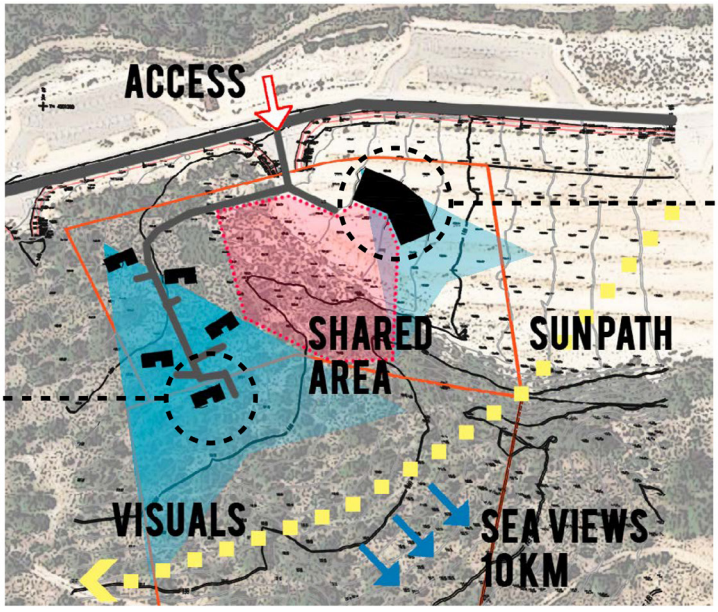
DesignTeam:
Shahenaz Hegazy
Misjel Jansen
Stephanie Palmboom
Anton Teeuw

KOK, Robbert
LAMMERS, Bart
VAN DER VEN, Dorien

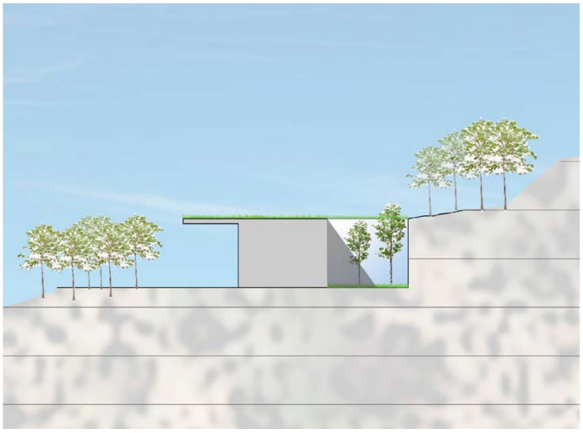
Healthy Housing



Family villa
- Sea view
- Green roof
- Private spaces
- One with the nature
- High comfort villa's

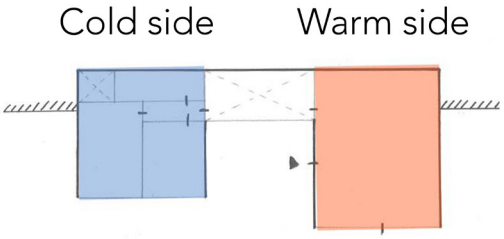


Apartments
- Intensive green roof
- Blocks
- Orientated enclosed the public square

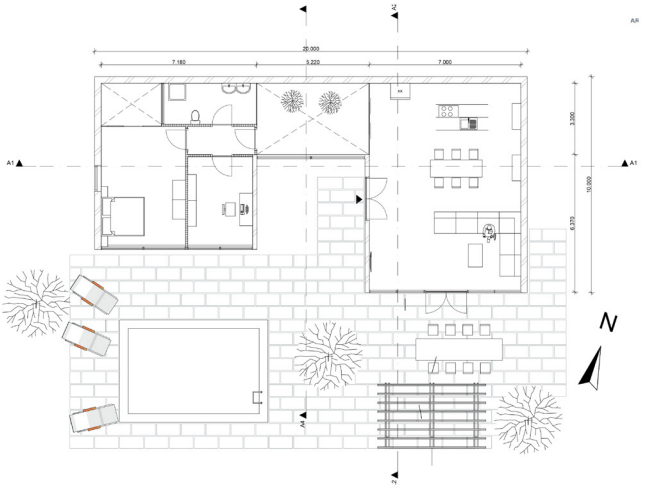


Concept

- Connection with nature
- Living outside
- Protecting the house against sunlight

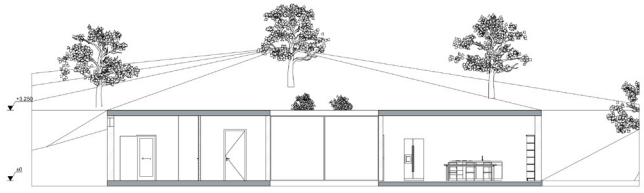


Drawings

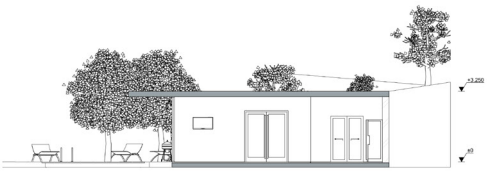


Design

- Courtyard
- Large windows
- Dug in
- Overhang

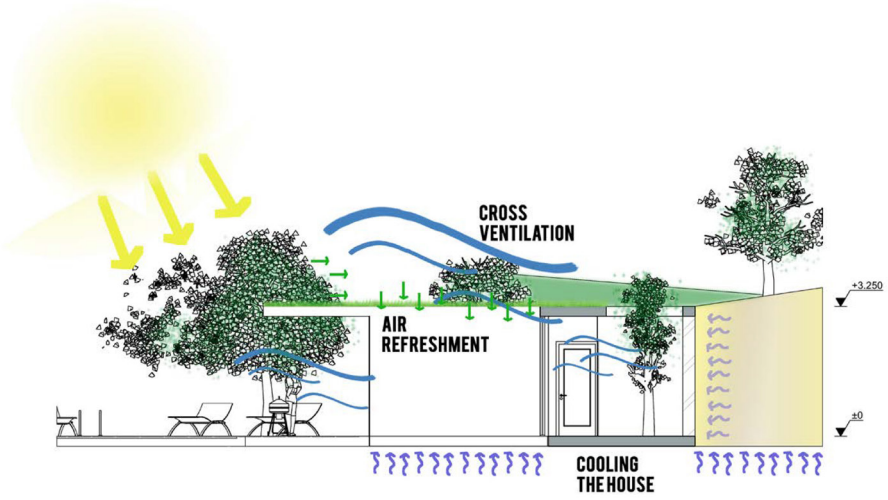


Section AA



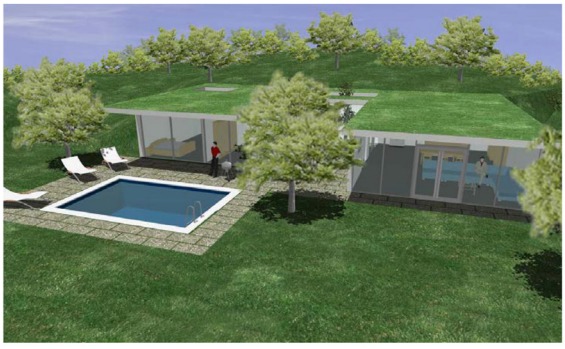
Section BB

Climate control



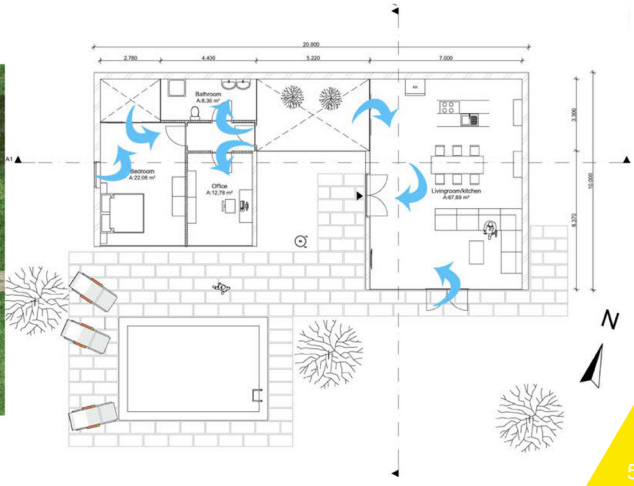
Sun Study

Winter

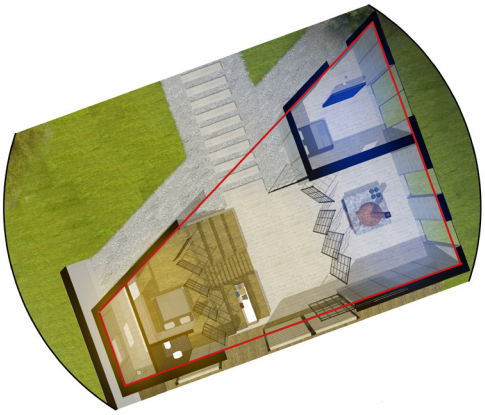


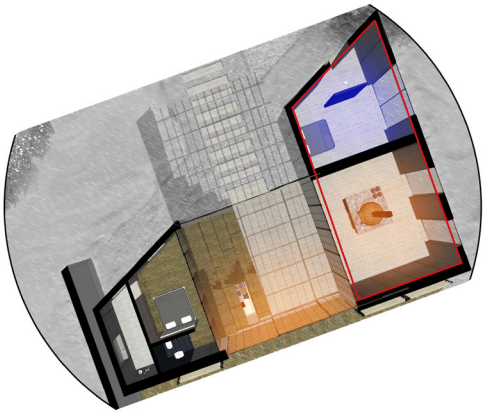
Summer

Crossed ventilation

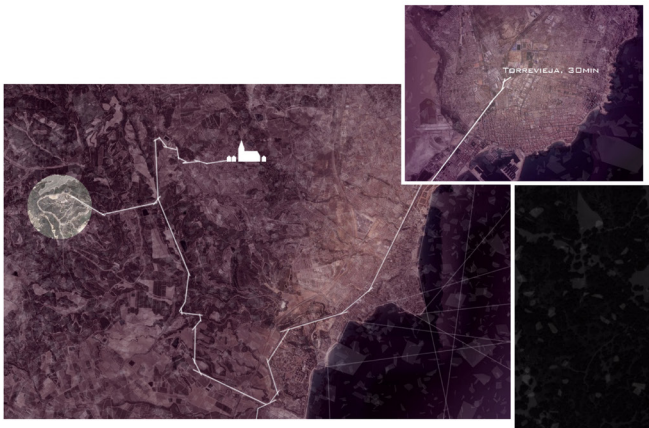


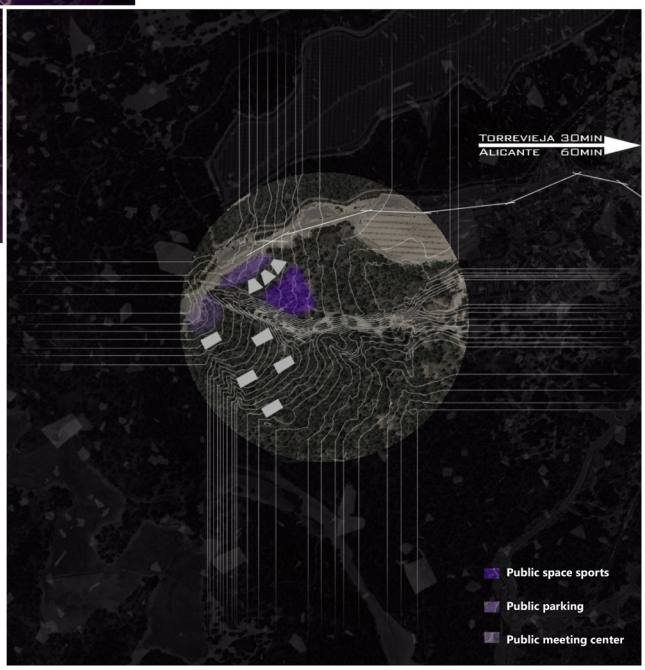
KAKES, Teun
KLOK, Manon
SOL, Merijn
VAN DE KAMP, Ben





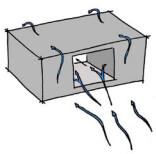
URBAN CONCEPT

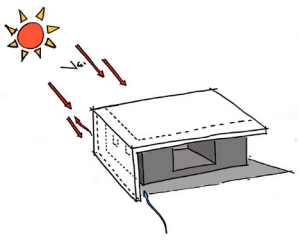




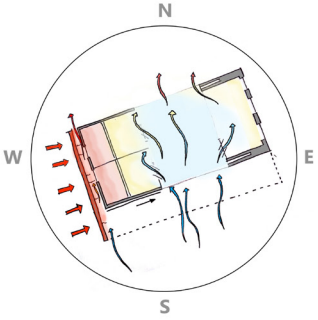
HEALTY HOUSING 8

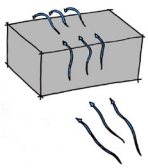
CLIMATE CONCEPT

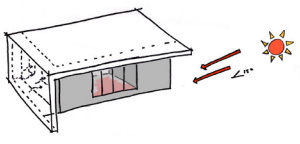




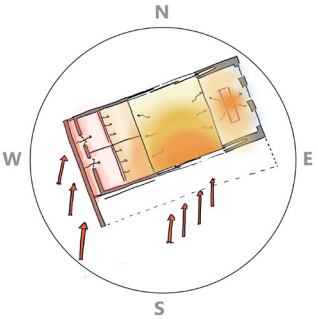
SUMMER







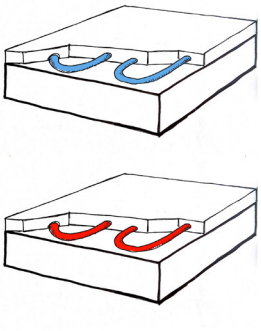
WINTER



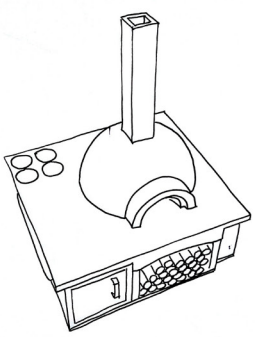
CLIMATE CONTROL

LAYERS

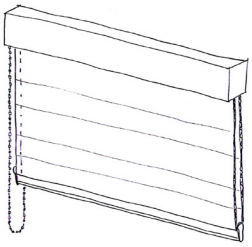
TUBING SYSTEM



FURNACE



INSULATING CURTAINS



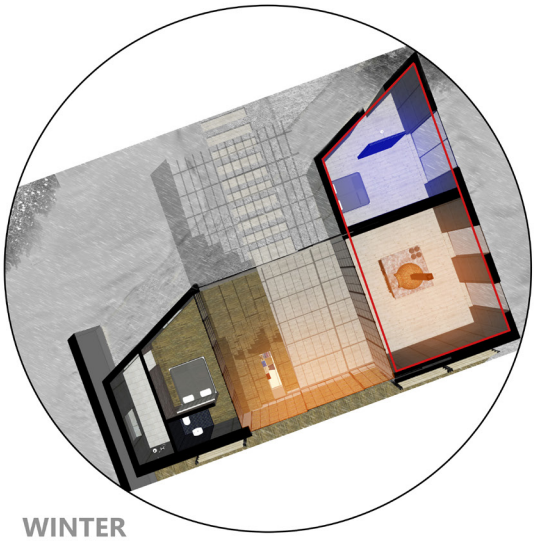
HUMAN = NATURE

FLOOR PLAN

N

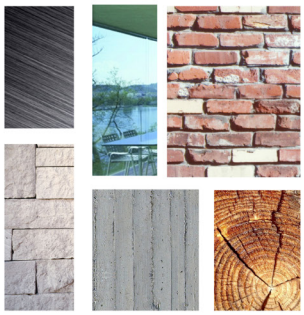
SUMMER

N



WINTER

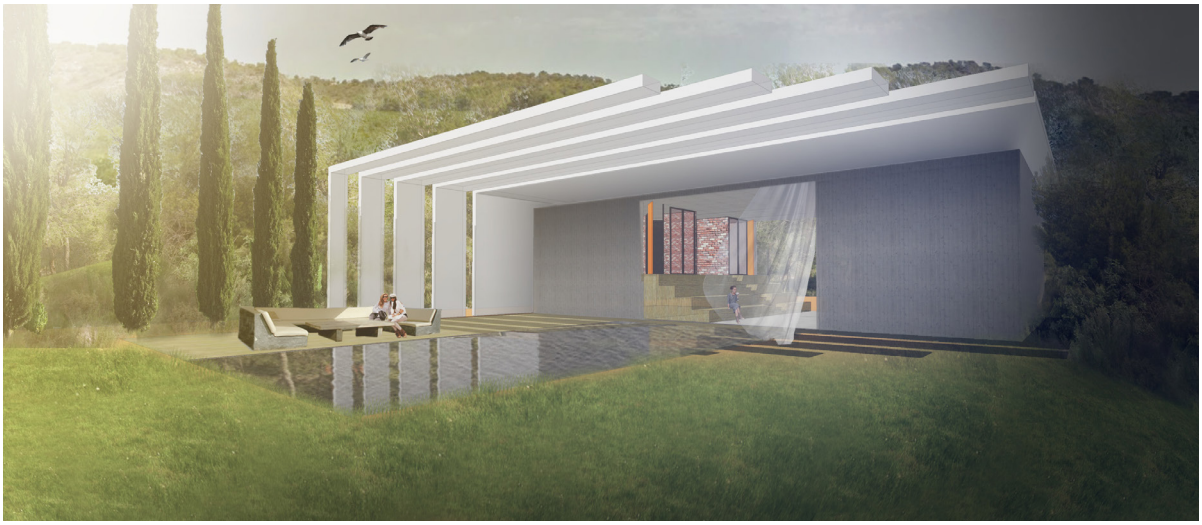
MATERIALIZATION



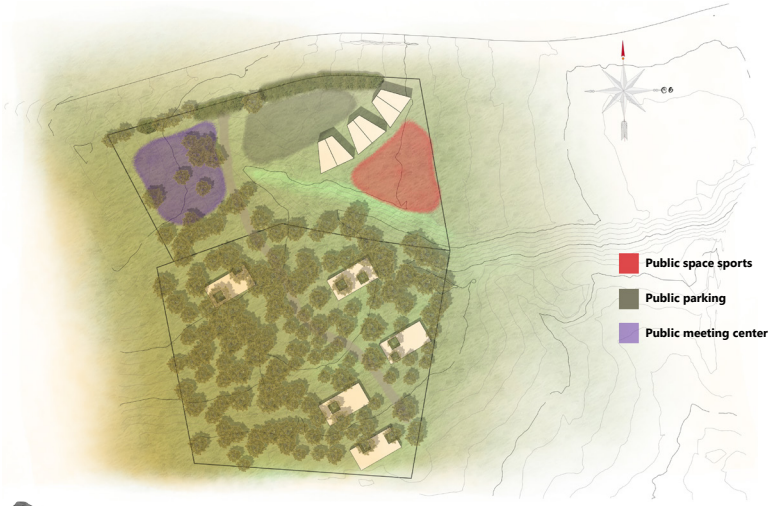
1	**Aluminum**	Alicante
2	**Glass**	Alicante
3	**Brick**	Agost
4	**Limestone**	Novelda
5	**Concrete**	Biar
6	**Wood**	Cuenca

RENDERS

HUMEN=NATURE.

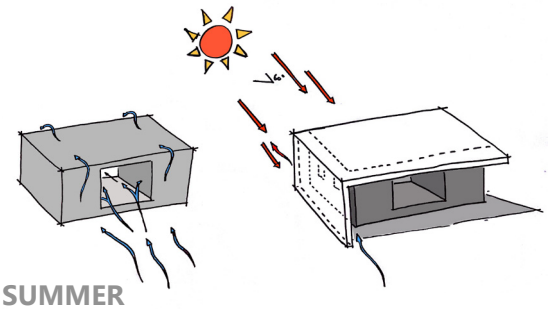


URBAN CONCEPT

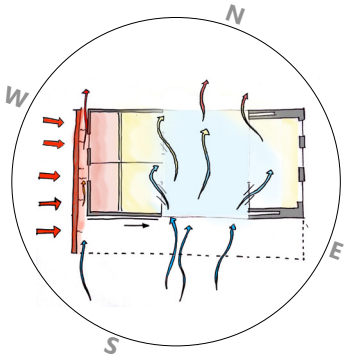


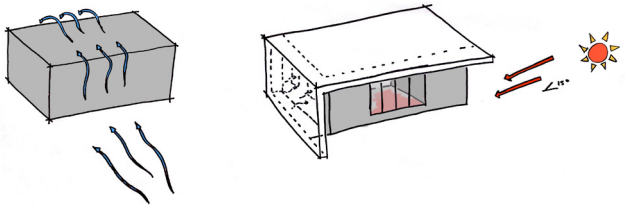
The ORIENTATION of the buildings is the **key** in the **climate concept**. The SE is the most windy area and the E has the orientation to the ***sea***. Avoiding the sun SW is decisive in order of creating the climate concept and the design.

HEALTY HOUSING 8

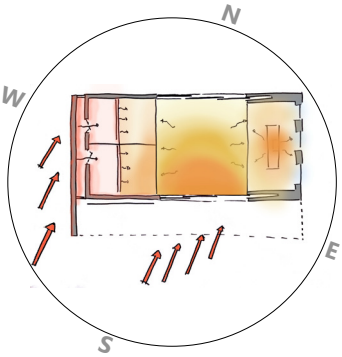


SUMMER



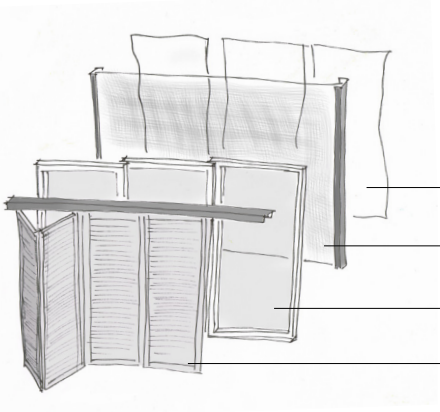


WINTER



CLIMATE CONCEPT

LAYER STRUCTURE



By forming a layer structure surrounding the open area of the building, we acquire the fluency that creates a flexible space. In this way we get the different indoor climates according to the season. Each layer is independent from the rest of the layers. This allows the user of the house to control the indoor climate and privacy according to his

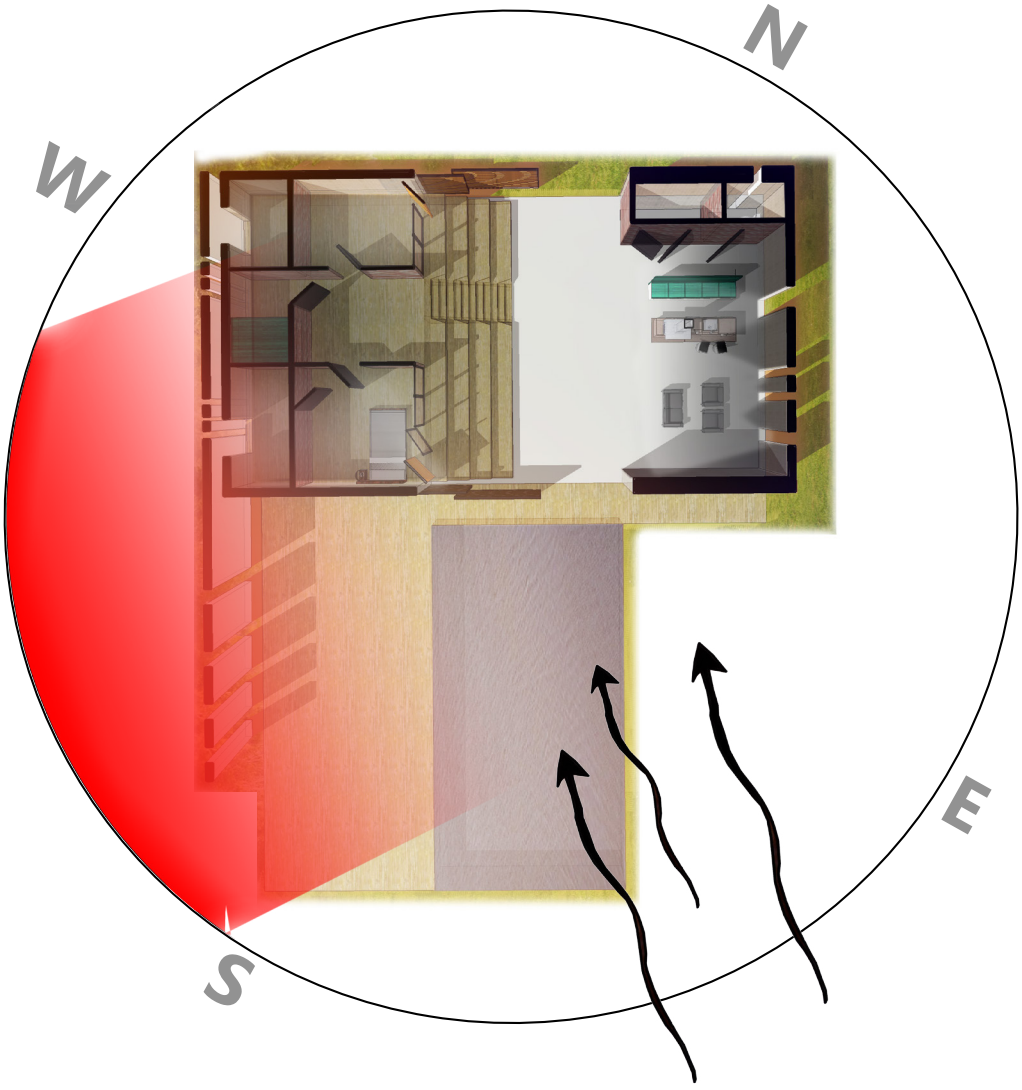
personal preferences.

1 Curtain
forming an adjustable layer that can be used to form an area of privacy inside the house and control the amount of light from the outsight.

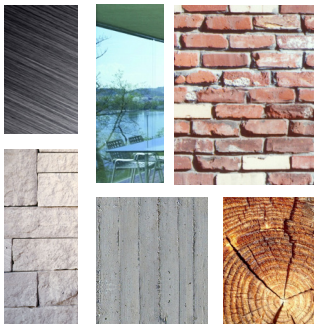
2 Mosquito net
forming a protecting layer that keeps out the uninvited wildlife.

3 Glass
forming a hard but transparent layer that gives isolation and withholds the wind if needed in the summer and can create a green house effect for heating in the winter.

4 Shutters
forming an adjustable layer that gives protection from the sun and control the wind flow.



MATERIALIZATION



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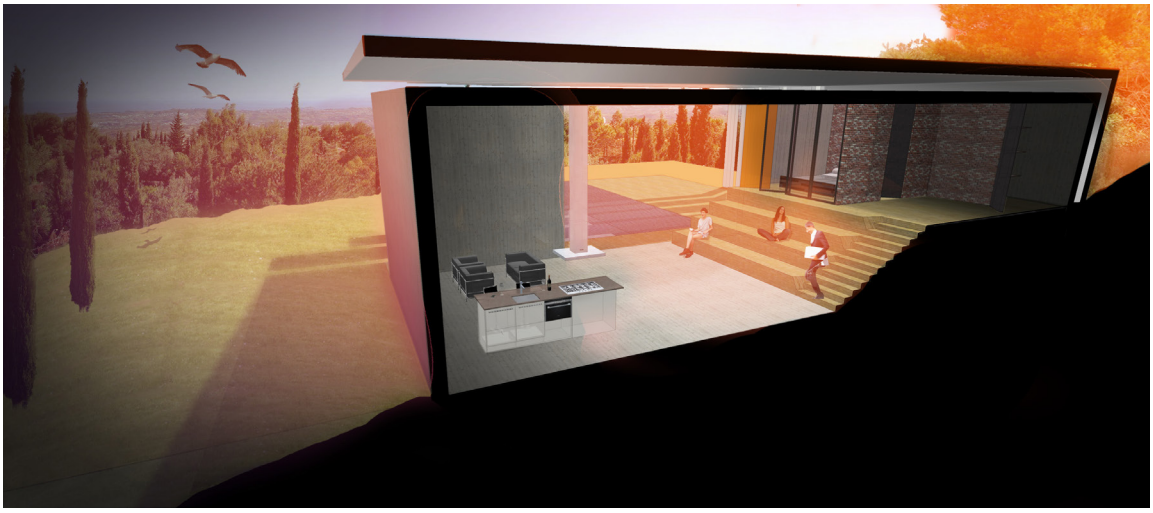
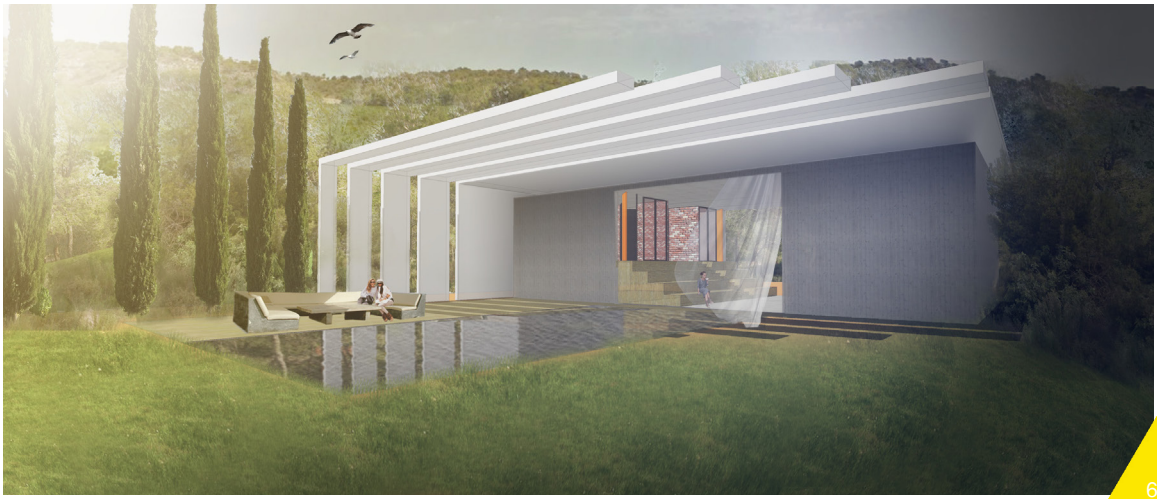
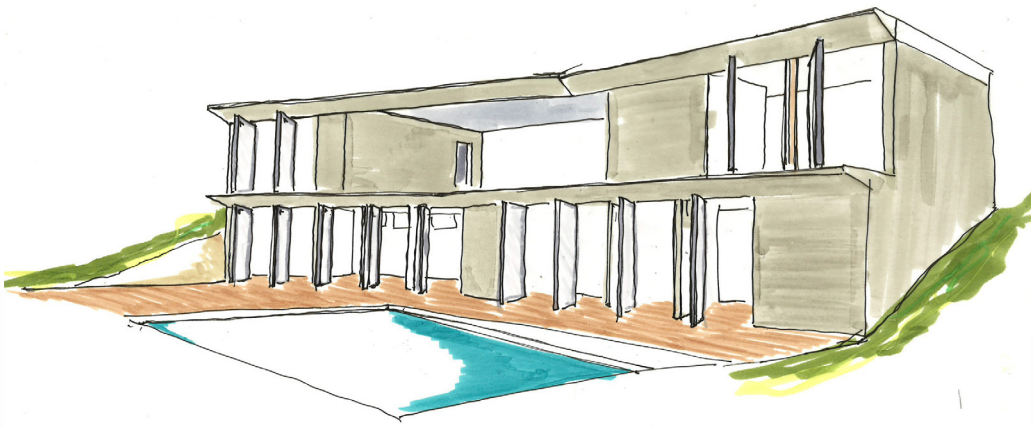
3	**Brick**	Agost
4	**Limestone**	Novelda
5	**Concrete**	Biar
6	**Wood**	Cuenca

DESIGN
HUMAN = NATURE



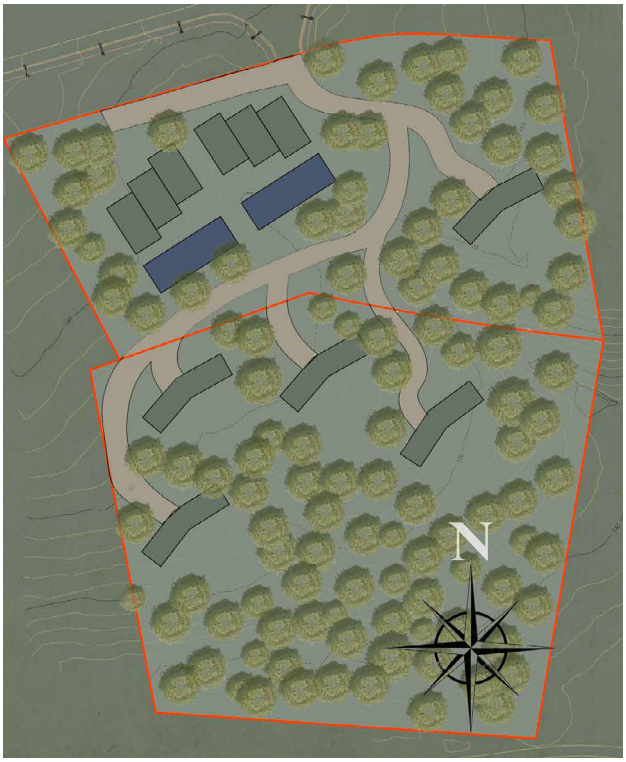


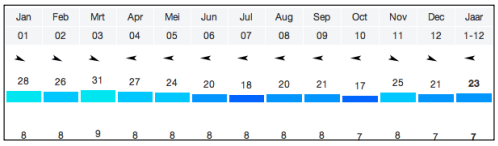
STEERING WINDOWS.

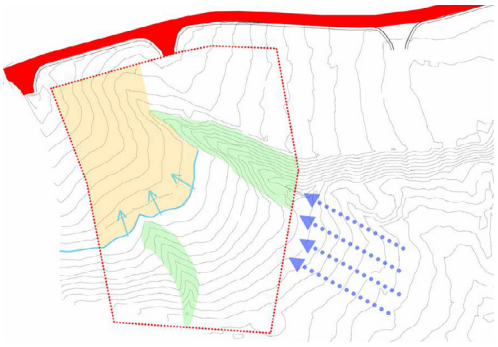


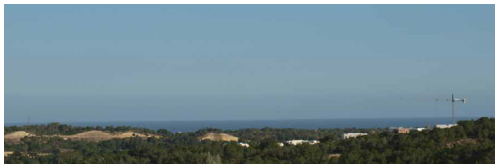
Steering Windows

— Analyse & Concept





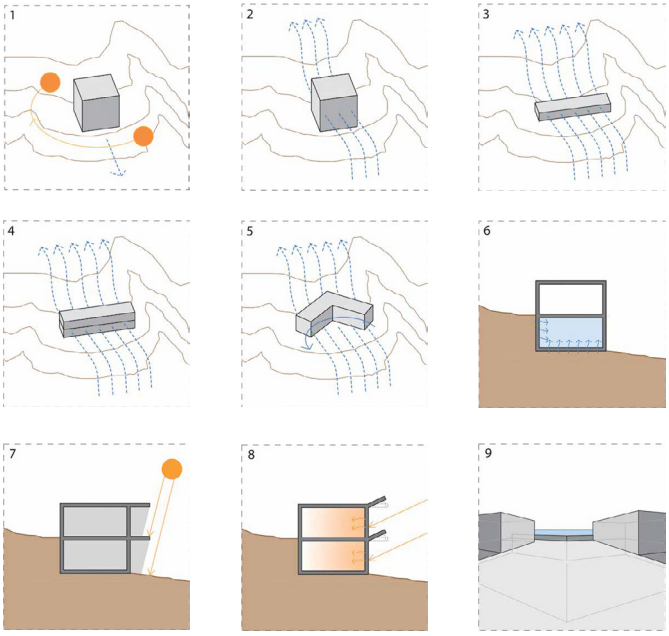




The project is located in Las Colinas Golf & Country Club, next to the town of Orihuela, in the province of Alicante. The main roads to access the plot of the project are: N-332, the CV-971 and the Highway AP-7. It is also possible to get to the plot by train as it is indicated in the location map. The plot is 40 min far from the Airport of Alicante.

The wind is what we most take in account to make this project. In summer, the main direction of the wind comes from the south-east, from the direction of the sea. It is because of that why it is very important to orientate properly the buildings to take advantage of it for the cross ventilation, as we will explain further in the next poster. The plot has some features that condition the design of the urbanization. Inside the plot we can find two watercourses, so we decide not to build on them. In the sketch it is possible to see the line from which one is able to have an ocean view. One of the ideas of our project is to provide the houses with this view.

The entrance to the plot is located taking advantage of the road that passes next by the north. This road will be connected with the apartments block and, in a more private way, with the five single-family houses. The block shape is conditioned by the idea of catching the most air possible, and it counts with the necessary facilities.



CONCEPT

(1) For designing the single-family houses, which are 200m2, we start placing a cube with the same volume. The cube is orientated facing the sea, south-east, to take advantage of the sunlight and to allow the ocean views.

(2) One of the main concepts of our design is the ventilation. The orientation of the building is to the direction of the main wind.

(3) As we already have the building facing the main wind, we make the shape larger so that we can catch more wind. The thickness of the building is also thiner to make the cross ventilation possible.

(4) We project a 2-floor building to get it integrated in the landscape, taking advantage of the slope of the mountain ground.

(5) The shape is changed again, making a L-shaped house in order to, apart from the cross ventilation, catch more wind. This concept also affects the shape of the apartments block.

(6) We bury the ground floor of the building into the mountain as a way to cool it. The cooler temperatures of the ground get into the building cooling it.

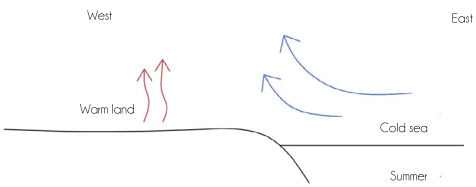
(7) Overhangs are very useful in summer. Thanks to them, the sun does not enter directly in the living areas, so they make the shadows that make the building more comfortable.

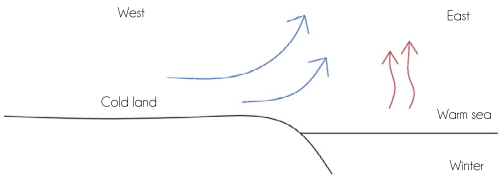
(8) There is the possibility of turning up the overhangs in winter to adapt their angle to the sun angle to allow the sun-rays to get into the building. That is an easy way to warm the house.

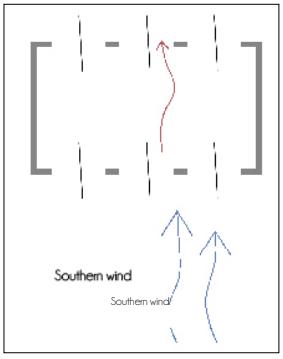
(9) The upper floor consists on two blocks separated by the entrance path that directs the user straight to a balcony from which can see the sea. This view makes the experience of living here, something amazing.

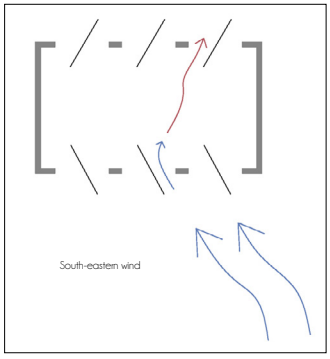
Steering Windows

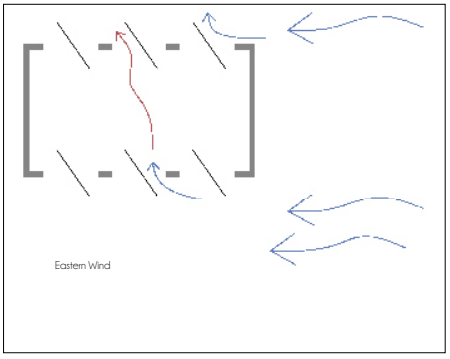
— Climate, plans & Sectoin

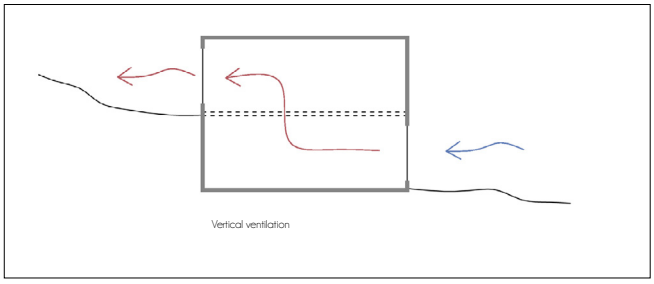


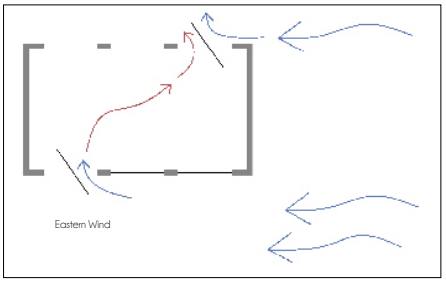


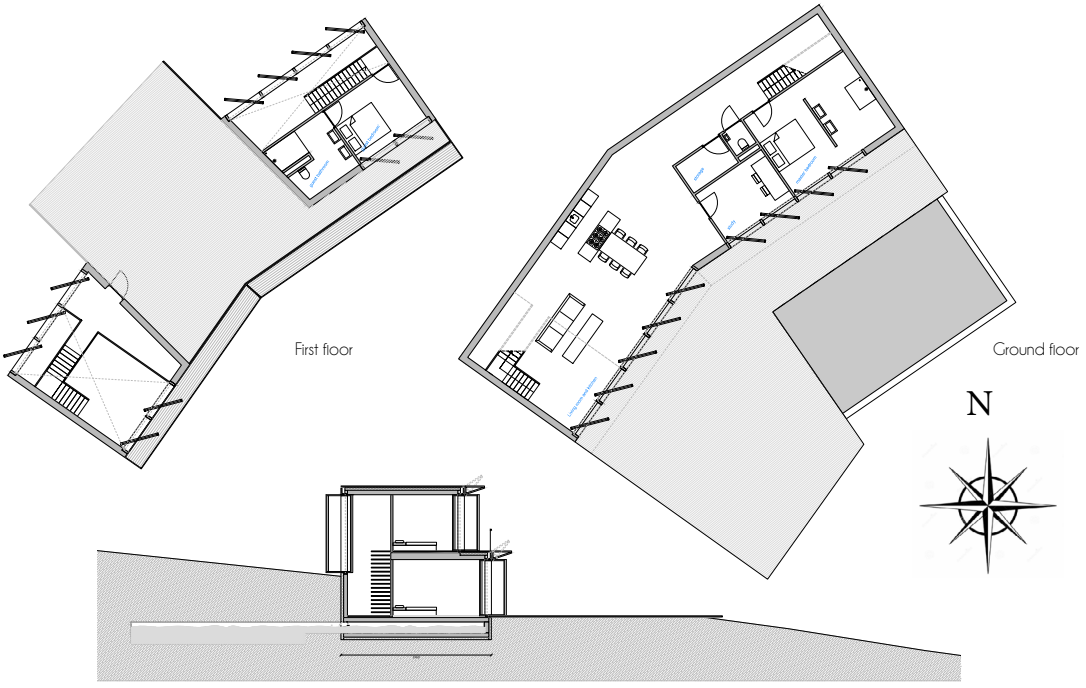






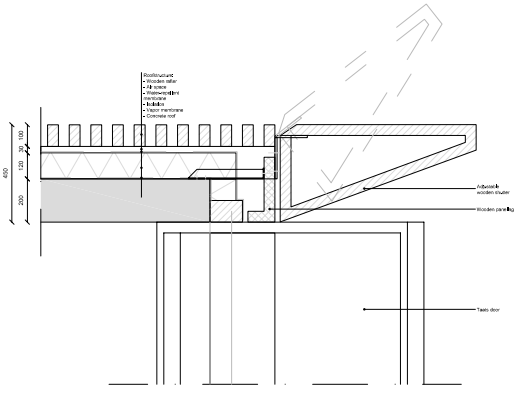




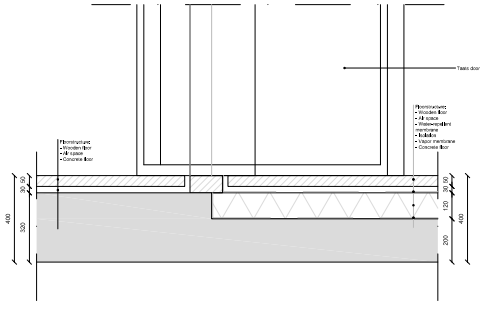


Steering Windows

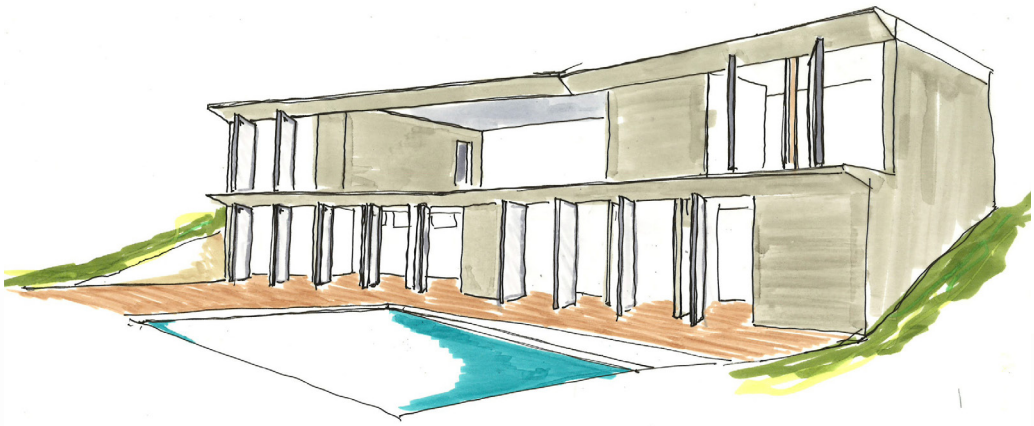
Materialisation & Details

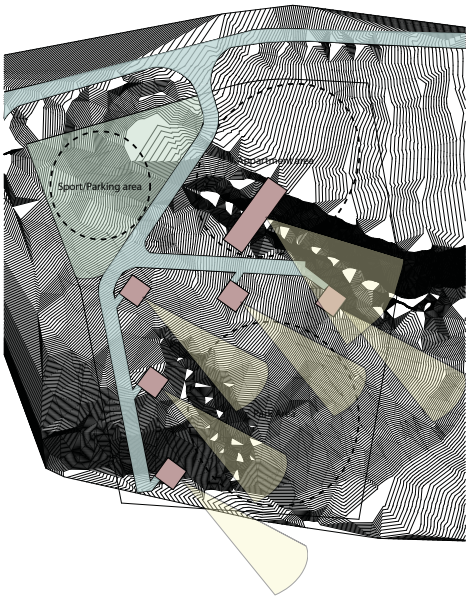


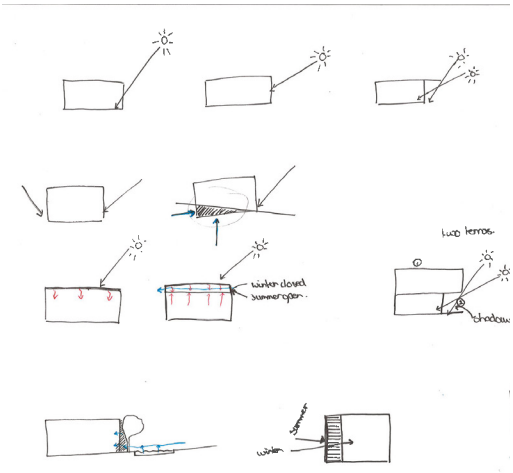
Roof - overhang



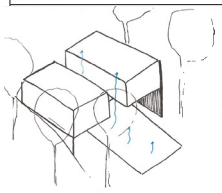
First floor - terrace

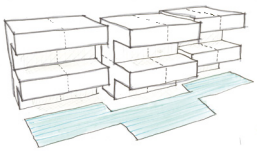




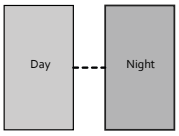


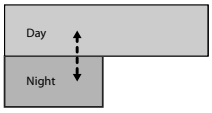
Problem	Solution
Heat - Solar radiation - Warm air	- Shades/shutters/overhangs - Swimmingpool & trees
Humidity	Ventilation
Slope	Sink building into ground
Daylight entry - Summer - Winter	Flexibility - Block direct sunlight - Make daylight entry possible
Orientation	Oriented toward sea
Ventilation	Cross ventilation possible in all rooms, windows in opposing walls. Open floor plans. Windows facing the sea.
Windows	Windows on all sides for ventilation, closable with shutters to keep the sun out

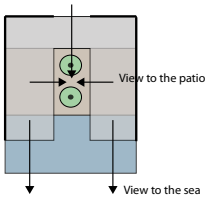


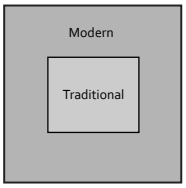


air + earth + sun + water

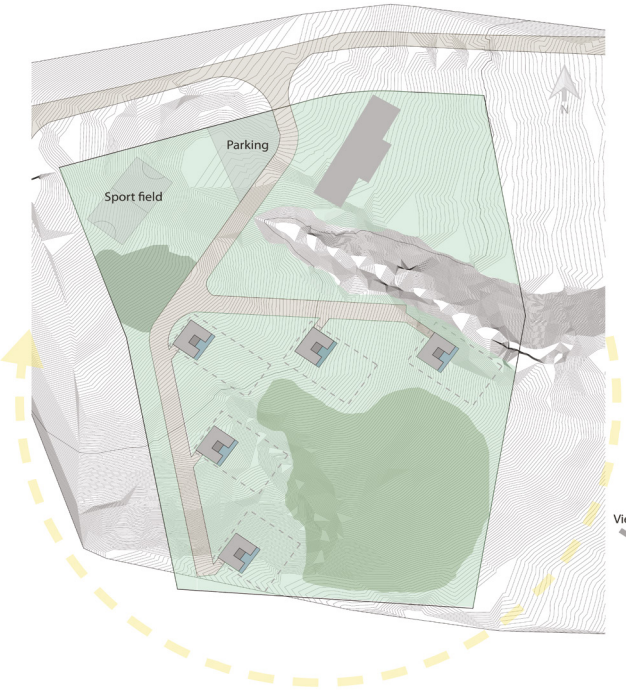




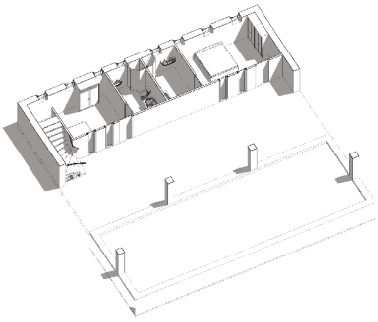


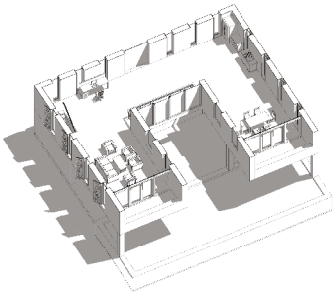


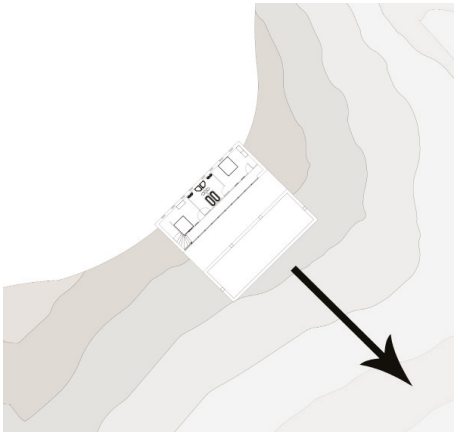
Traditional sustainable elements in a modern way

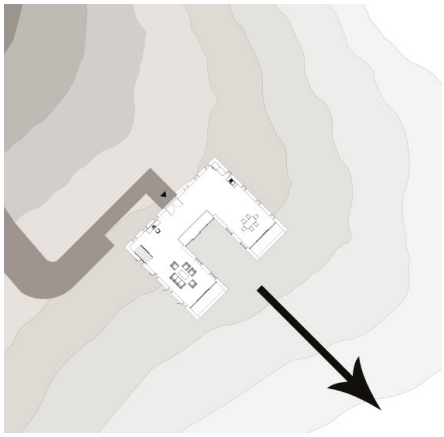


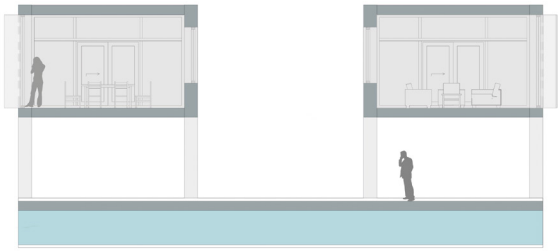
Viewing point to the sea

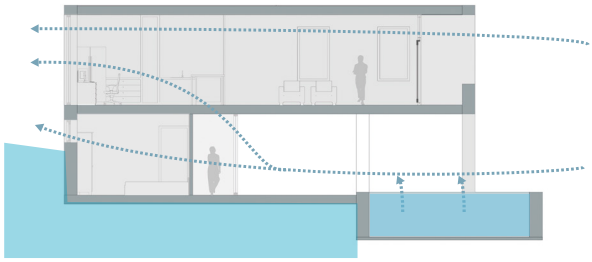


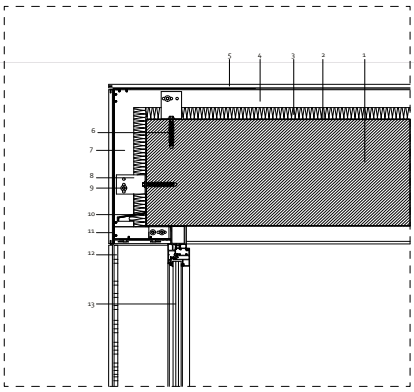




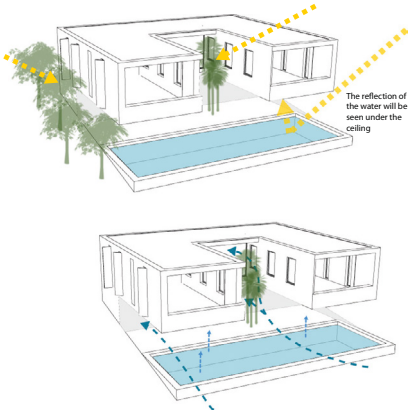


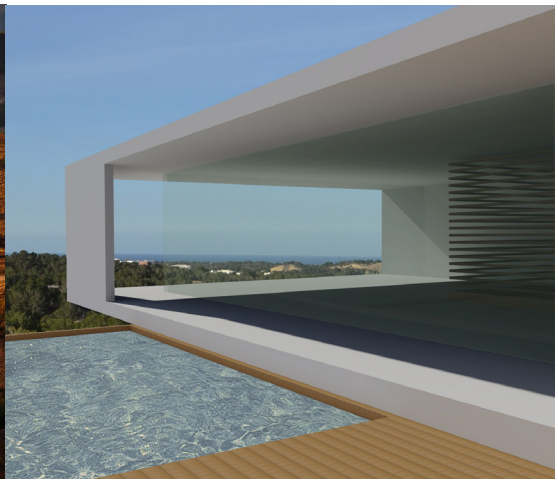






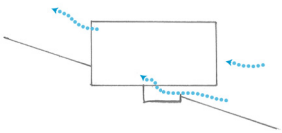
1. Main structure. Concrete 300mm
2. Impermeability layer. EPDM + separation layer
3. Thermal isolation. XPS 60mm
4. Ventilated chamber 50mm
5. Exterior finish. Ceramic tiles 900 x 450 x 10.5mm
6. Joining element. mechanical anchor
7. Substructure. T aluminum vertical profile
8. Secondary aluminum spacer
9. Self-drilling screw
10. Flashing
11. Stainless steel concealed fixing clip
12. Blind with holes (rotate). Ceramic
13. Window. Double glass



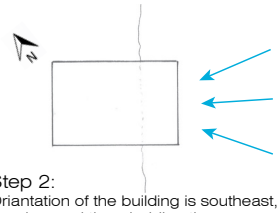


Healthy housing 8

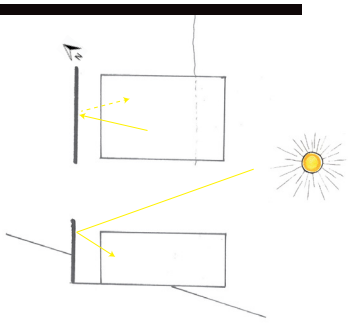
Design proces



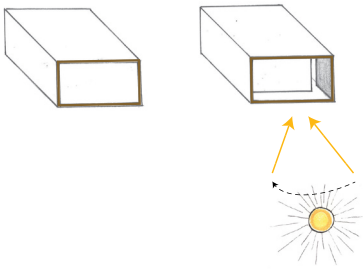
Step 1:
Use the concept of cross ventilation



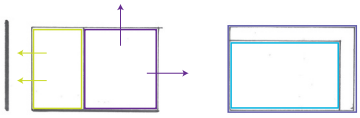
Step 2:
Oriantation of the building is southeast, due to the view and the winddirection



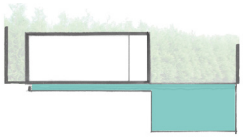
Step 3:
Use a high reflectionwall to increase the amount of light on the northside of the house.



Step 4:
Create large overhangs on the east- and southside of the building due to the sun

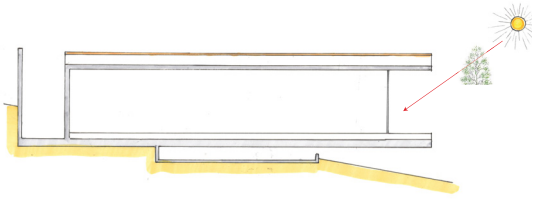


Step 5:
Make two different areas in the house. A closed part, on the north- and westside, and a open part, on the south- and eastside.
Use a box inside a box principle, a concrete box and a glass box

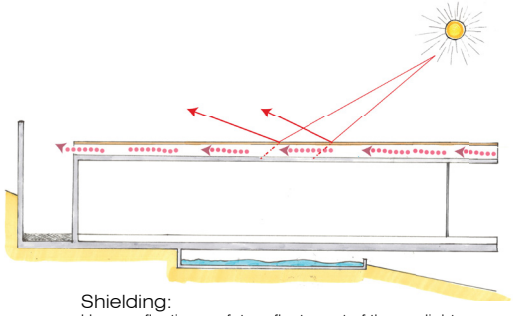


Step 6:
The water reservoir and swimmingpool cool down the air, which is used for the ventilation of the house

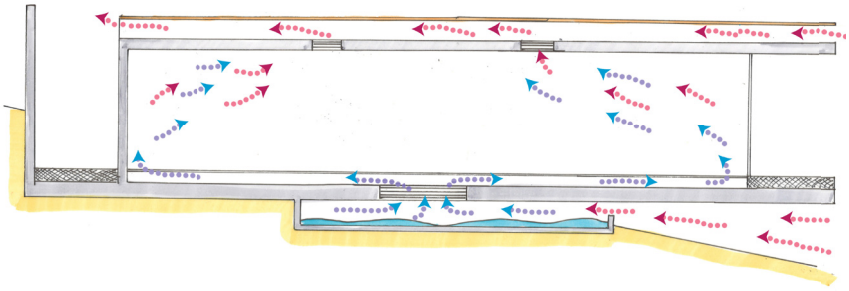
Ventilation principle



Shielding:
Use trees to block the sun

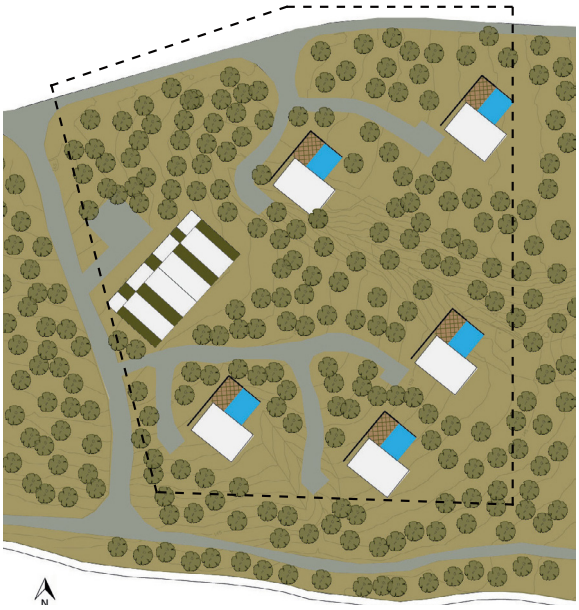


Shielding:
Use a reflecting roof, to reflect most of the sunlight.



Ventilation:
Use water underneath the house to cool down the incoming warm air.
Use a double floor with an airgrid to divide the cooled air through the house.
The cooled air is used to ventilate warm air, which is inside the house. The warm air rises to the ceiling, where it can leave the room through a double roof. When the air is trapped between the two roofs it will ventilate outside.

Situation



Situation:
All the buildings are positioned southeast. The view of the houses are not blocked by the large apartment building. Therefore we have decided to locate the apartment building on the northwest side. All the houses are equally devided over the terrain. The placing of the houses secures the privacy of each one.

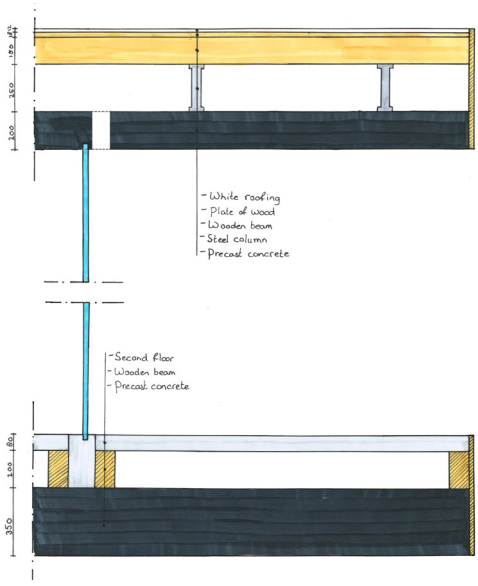
Floor plan

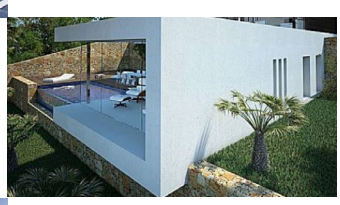
Section

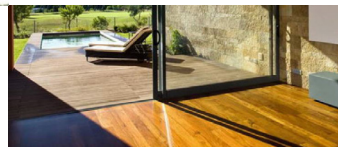
Building:
We have chosen to position the bed- and bathroom on the northside.
The livingroom is located on the southeast side of the house. In the center of the house we have chosen to locate the workspace. This is a glass box inside the middle of the room, which is finished with woodwork.

Detail and reference images

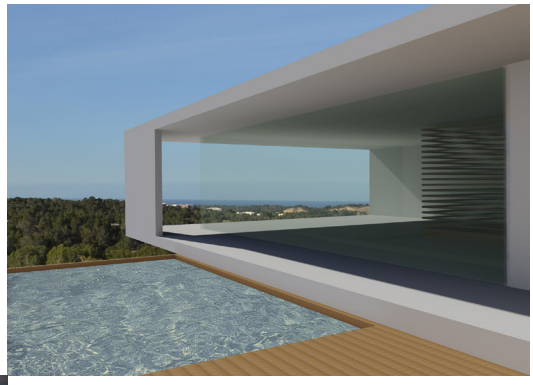
Materails:
We wanted to create a building with a modernistic look. We only used three main materials; concrete, wood and glass.
Concrete gives the building a tight look, the glass ensures the transparency of the building and the wood is used inside and for the terrace.







Renders



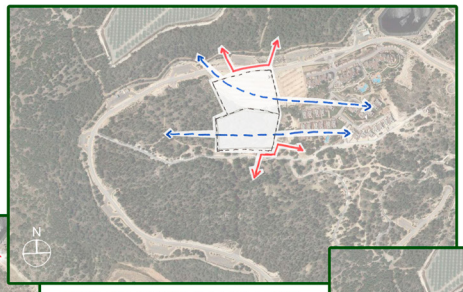
Renders:
These are some impression images. The point of view is on the terrace, and it shows the relation between the swimmingpool and the house. You can also see the incredeble view.

Renders:
The bottom image shows the entire terrain with all the houses, including the apartment building


HEALTHY
HOUSE

HEALTHY HOUSE

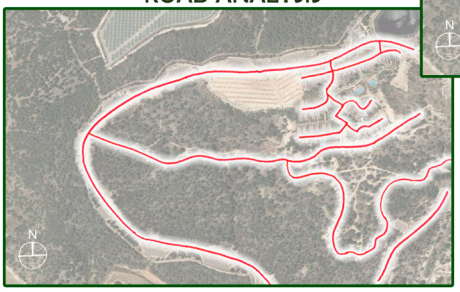
old river



PLOT RESEARCH

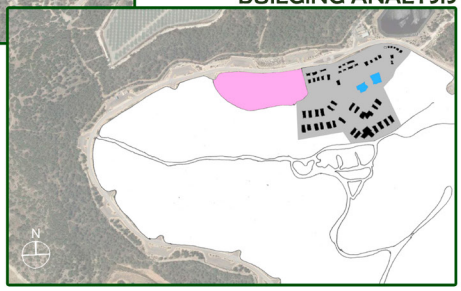
private forest for the residents

ROAD ANALYSIS



SIGHTLINES ANALYSIS

BUILGING ANALYSIS

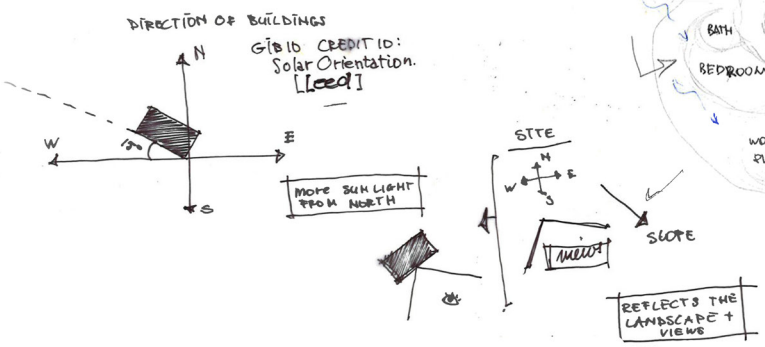


REFERENCES

CONCEPTS

floating buildings connected to the nature

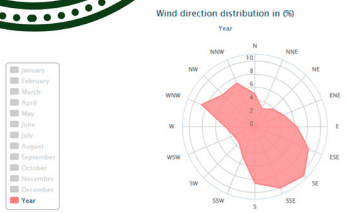
orientation of the sun and the surrounding area

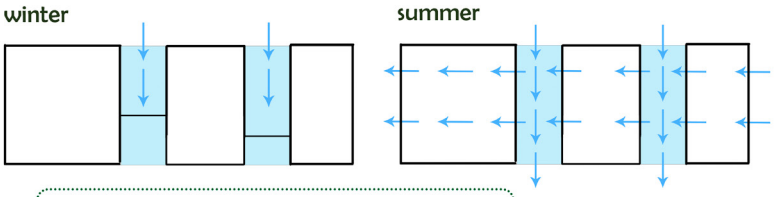


8

CONCEPTS

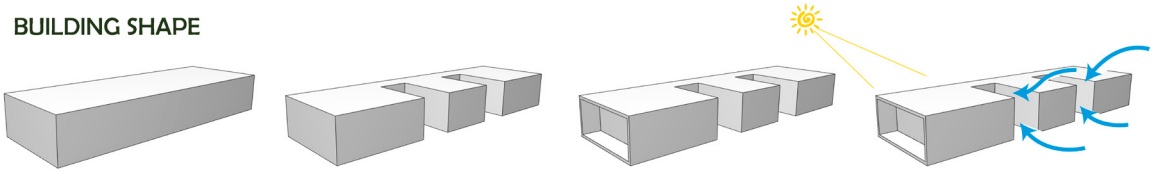
AIR-VENTILATION ANALYSIS





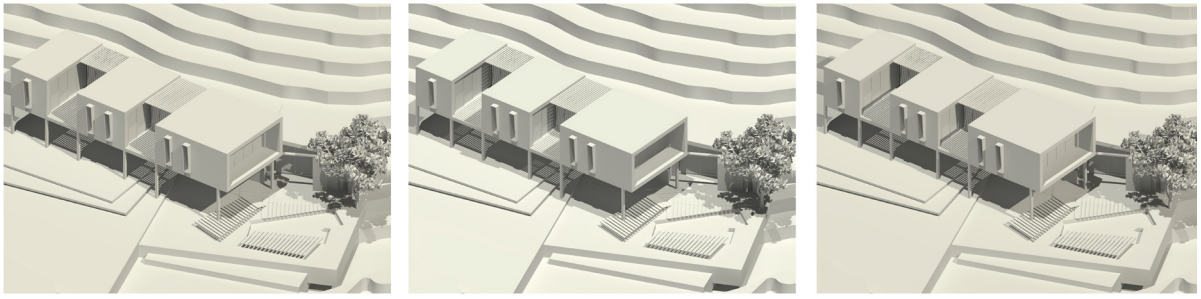
ventilation around and through the building

BUILDING SHAPE



SUN/SHADES MOVEMENT

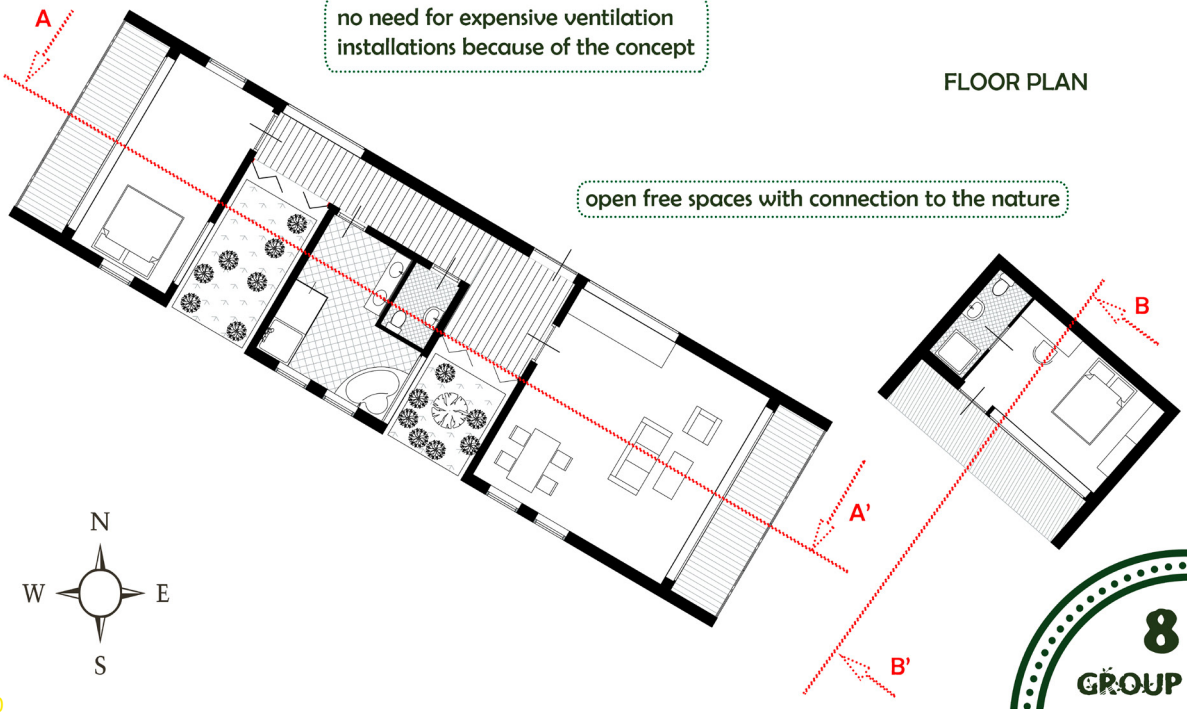
ventilation around and through the building



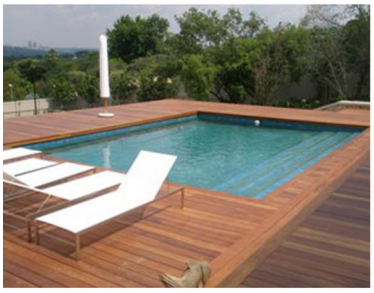
no need for expensive ventilation installations because of the concept

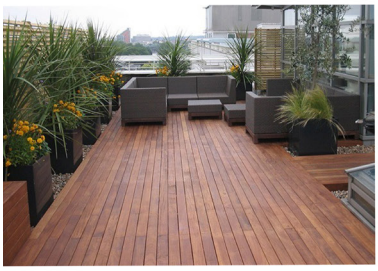
FLOOR PLAN

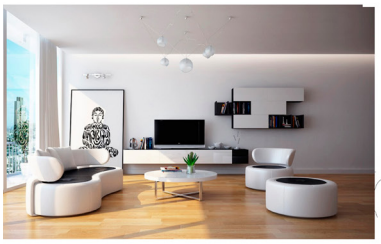
open free spaces with connection to the nature

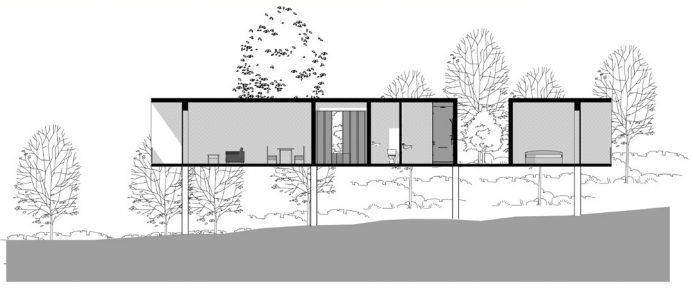


References

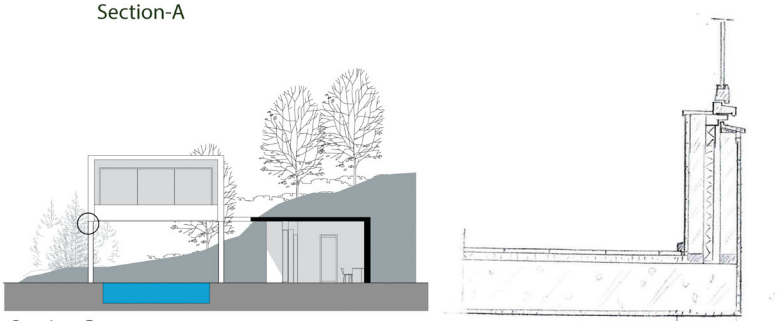




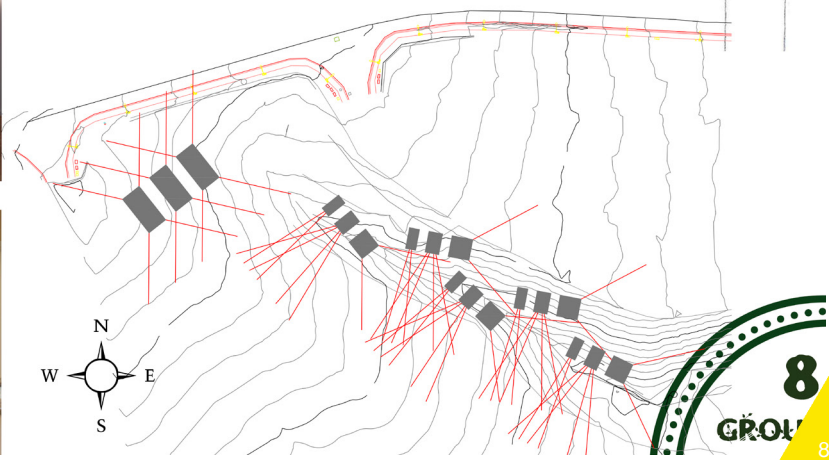




Section-A



Section-B

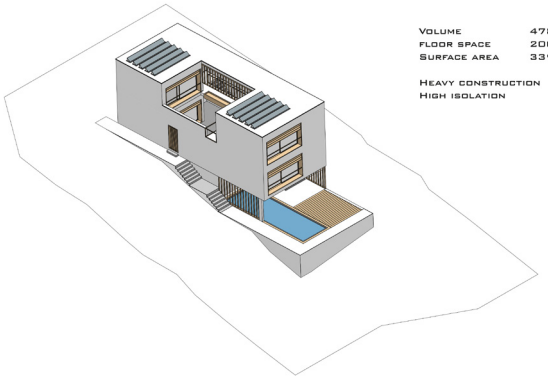


ATRIUM.

//1st PRICE

ANDREEV, Eugeen
BORN, Steven
SAVINA, Valeriya

DATA

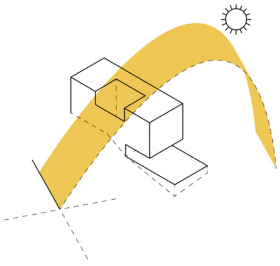


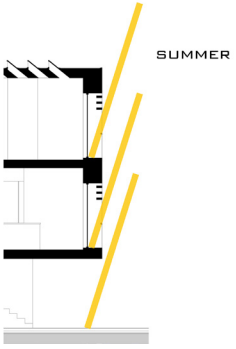
Volume	478m³
floor space	200m²
Surface area	339m²

Heavy construction
High isolation

CAUSE AND CONSEQUENCE

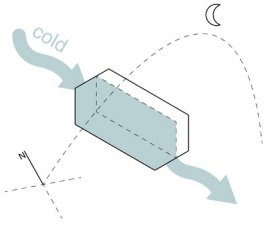
„ABOUT LIGHT AND SHADOW“

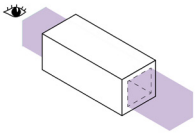




CAUSE AND CONSEQUENCE

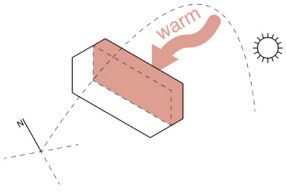
„FLOW“

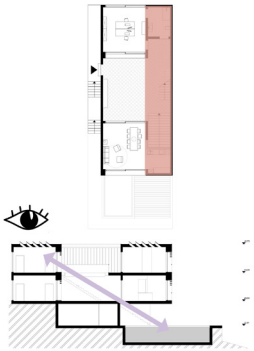




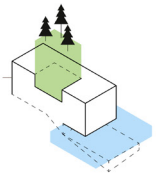
CAUSE AND CONSEQUENCE

„Connect and protect“





ATRIUM



SURROUNDINGS

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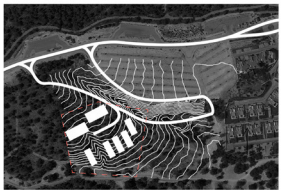

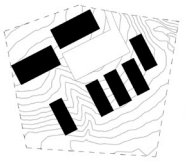

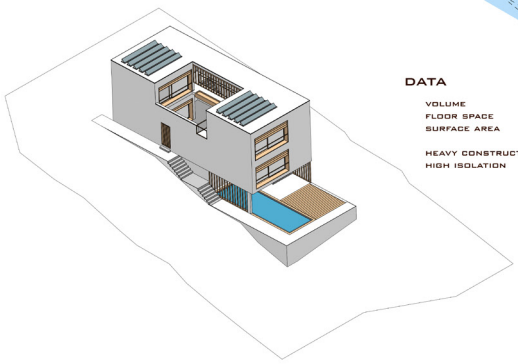

DATA

VOLUME	478M³
FLOOR SPACE	200M³
SURFACE AREA	339M³

HEAVY CONSTRUCTION
HIGH ISOLATION

NATURAL INFLUENCES

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INSPIRATION

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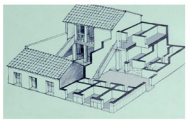
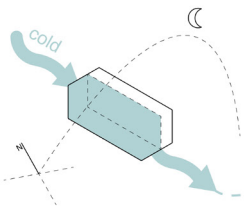
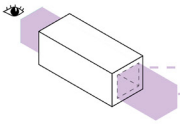


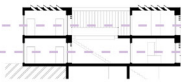
CAUSE AND CONSEQUNCE

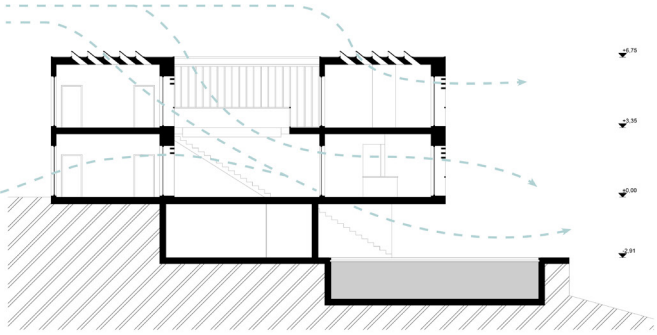
„FLOW“

At the nighttime cold north wind brings fresh air into the house and removes warm air, wich amassed at daytime. This natural event alowes us to cool the house down without adding a lot of technical equipment.









LONGITUDINAL SECTION | 1:100

CAUSE AND CONSEQUNCE

„CONNECT AND PROTECT“

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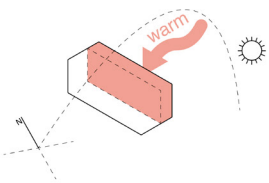
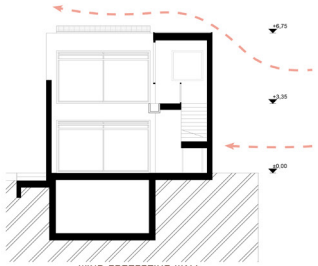
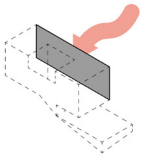
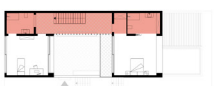




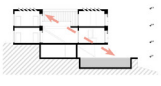
WIND PROTECTING WALL
CROSS SECTION | 1:100



WARM WIND FROM THE WEST IN DAYTIME



INFRASTRUCTURE BLOCK ON THE WESTSIDE CONTAINS THE BATHROOMS, KITCHEN AND STAIRCASES

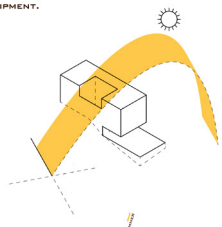


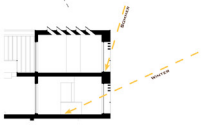
CONNECTION BETWEEN EVERY FLOOR

CAUSE AND CONSEQUNCE

„ABOUT LIGHT AND SHADOW“

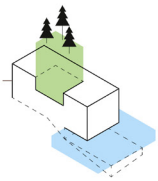
At the nighttime cold north wind brings fresh air into the house and removes warm air, wich amassed at daytime. This natural event alowes us to cool the house down without adding a lot of technical equipment.





CONNECTION BETWEEN EVERY FLOOR

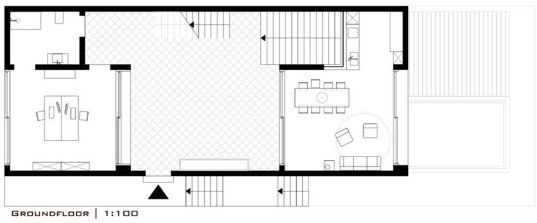
ATRIUM



GROUNDFLOOR

THE GROUNDFLOOR ENABLES YOU TO EXPAND YOUR ROOMS WITH THE OUTSIDE, WITHOUT BEEING ACTUALY IN PUPLIC SPACE. THE ATRIUM KEEPS THE AIR IN A COMFORTABLE TEMPERATURE

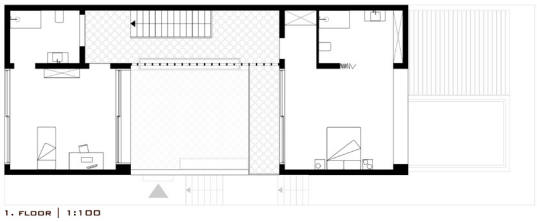
SCHEME OF THE EXTENSIBLE LIVINGAREA



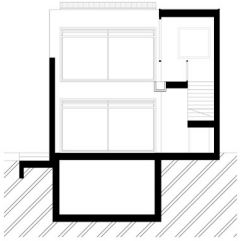
GROUNDFLOOR | 1:100

1 FLOOR

GA. ENIMINUS DOLORE IPSUM ID QUI AUT ULPARI OFFICIPICIA AM LAMET AUT ULPARUM QUISTRUME PREHEND AERIBUS, QUE SUSDANT REMQUAT EMOLUPTATEM QUAM LIQUISTE CUM FACEATE IDIGENI HILLUPTI OMMODIT ULLIQUAE SI IDI TEM VOLUPTI-

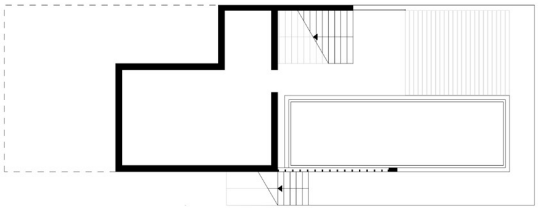


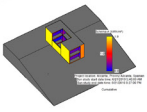
1. FLOOR | 1:100

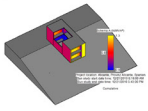


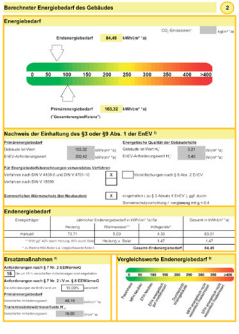
1 POOLAREA

GA. ENIMINUS DOLORE IPSUM ID QUI AUT ULPARI OFFICIPICIA AM LAMET AUT ULPARUM QUISTRUME PREHEND AERIBUS, QUE SUSDANT REMQUAT EMOLUPTATEM QUAM LIQUISTE CUM FACEATE IDIGENI HILLUPTI OMMODIT ULLIQUAE SI IDI TEM VOLUPTI-







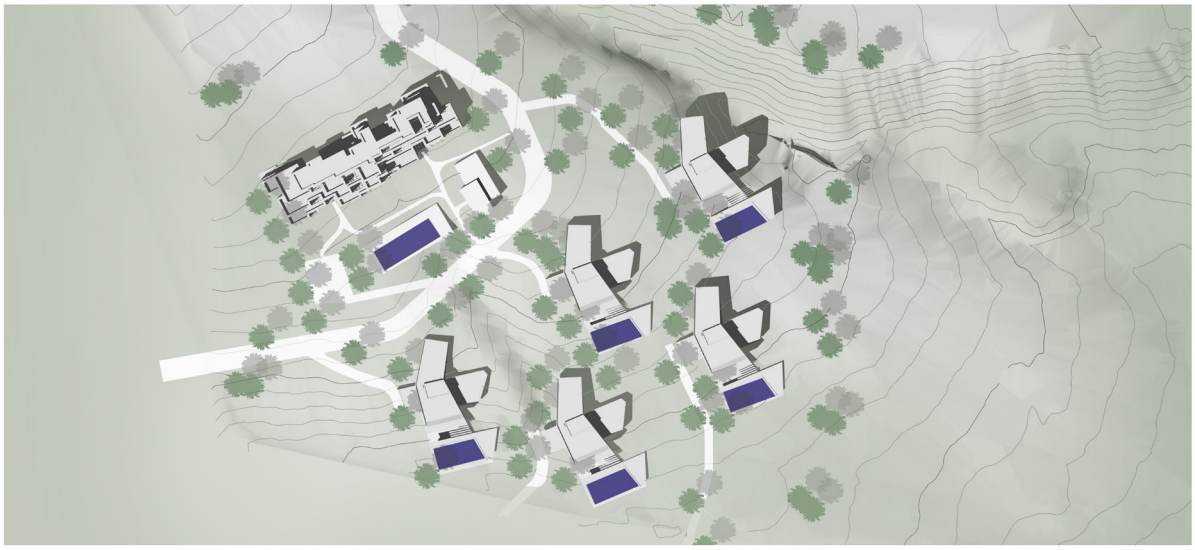


EL VERDECILLO.

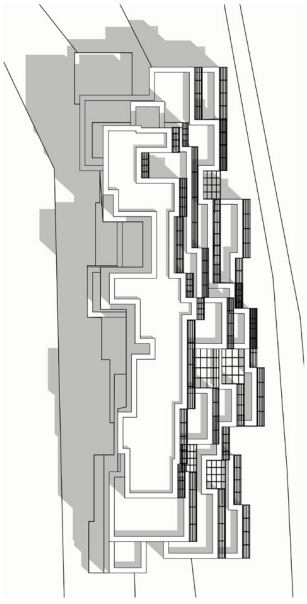
BEESE, Johannes
BROTONS BAEZA, Santiago
FERNÁNDEZ ZULOAGA, Enrique

EL VERDECILLO

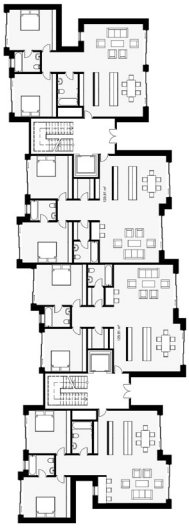
EL VERDECILLO



Masterplan
M1:500



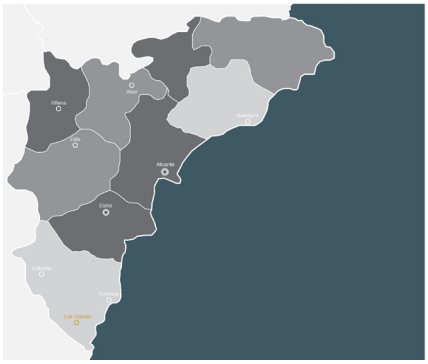
Apartment block
Top view

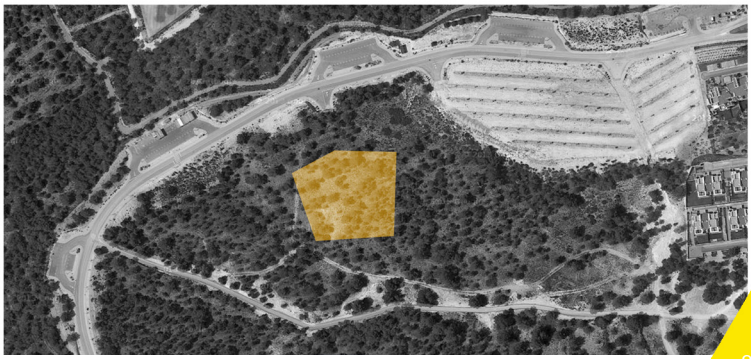


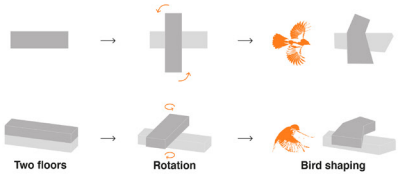
Apartment block
Floorplan

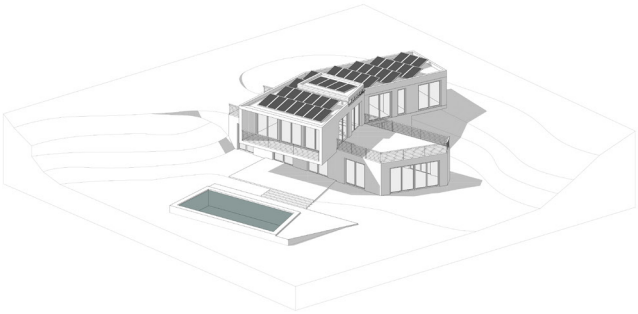
Apartment block
Perspective

References
Berggruen Gümüslück houses, Turkey





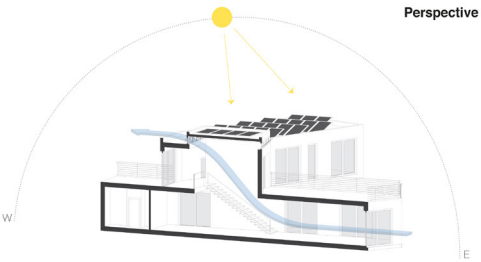


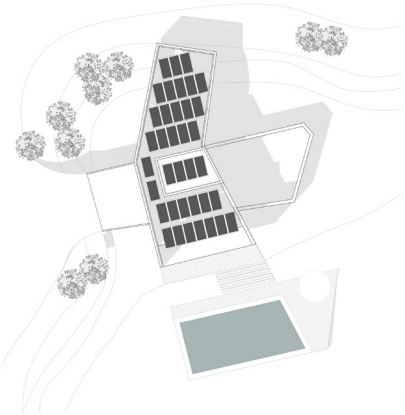


El Verdecillo is a small community located in the South East of Spain, in the province of Alicante. Due to its idyllic weather all year around, it's a very convenient and attractive location to own a holiday or a retirement property. In just a few minutes it is possible to reach the main cities of Elche and Alicante, as well as the airport and the most important, the beach. The different buildings of this complex are displayed in a way that they offer as much privacy as possible, as much free view as possible and as much space as possible. Right on top of the hill sits the big apartment block with 12 different apartments of about 100sqm each. Common areas such as a big pool area, gym and a small conference room are provided here. On the other side of the road, there .are 5 independent single family houses of about 200sqm that are energy efficient

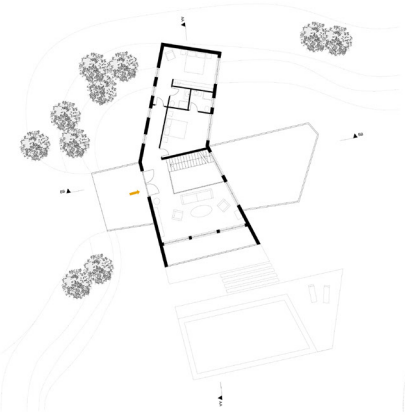
The single family typology house is inspired by the flight of a local bird called 'Verdecillo' and it adapts itself to the topography thanks to its flexible design. It´s conceived to work as a scissor, which means that the two volumes that conform it can be rotated until they fit perfectly with each other and also with the given landscape. This house is designed to be energy efficient as it features a central ventilation piece. This is a double height atrium with window openings at the top and it´s where the main ventilation of the building happens. Additionally, one of the rooftops would have installed among its 100sqm surface photovoltaic panels with a 15% of inclination that provide over 60% of the energy that the house uses. The orientation of the building itself is thought so that the different room functions get exactly the light that they need. The floor plans are thought to be as much open planned as .possible so that they can be adapted depending on the family that would live in it

Perspective

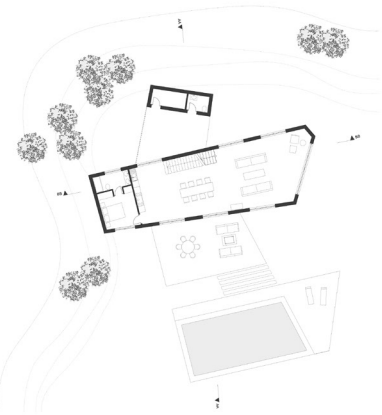




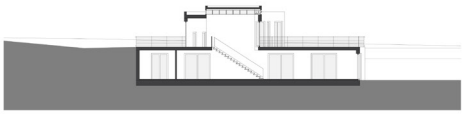
Floorplan Top View
M1:200



Floorplan 1. Floor
M1:200

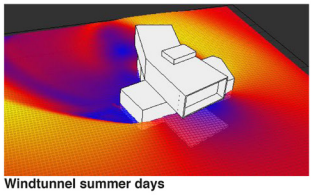


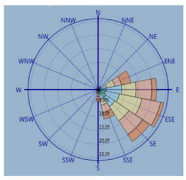
Floorplan Groundfloor
M1:200



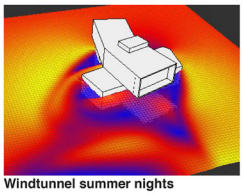
Section BB
M1:200

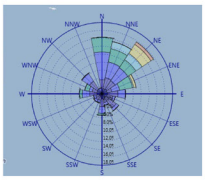
Section AA
M1:200



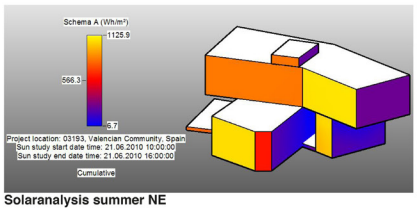


Windtunnel summer days

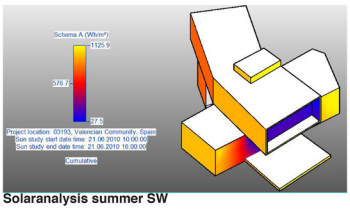




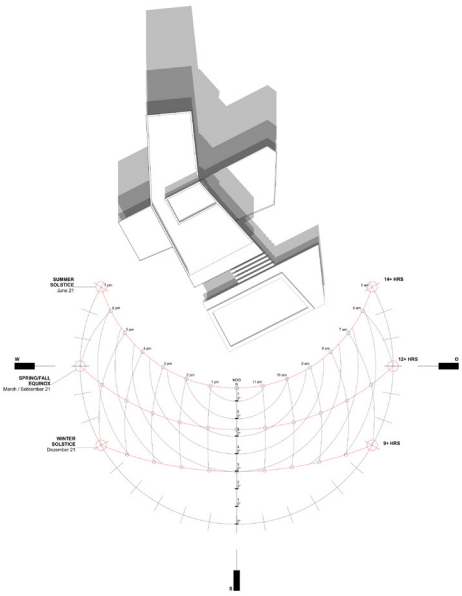
Windtunnel summer nights

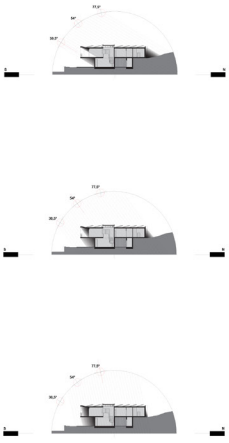


Solaranalysis summer NE



Solaranalysis summer SW



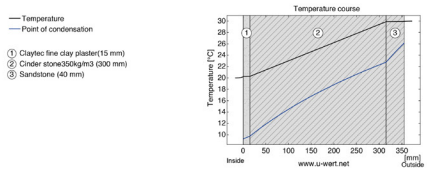


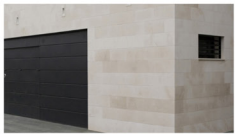
Detail section
M1:50

M3 Alicante - Porenbetowand: Außenwand, U=0,192 W/m²K

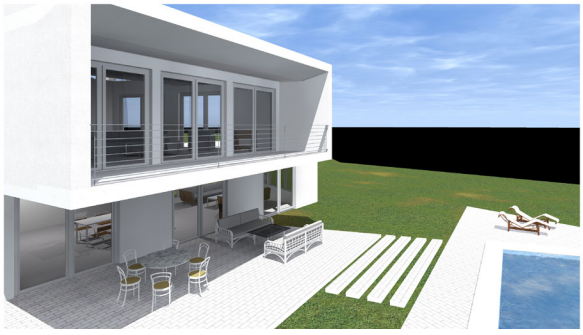
U Value = 0,192 W/m²K (Thermic isolation)	No Condesation (Hygrothermal protection)	TA-Damping: 95.2 (Heat protection)
0 EnEV Existing *: U<0,24 W/m²K 0.5	0 Condensation (kg) 1	Temperature amplitude attenuation: 95.2
	No Condensation	Phase shift: 18.7h
Room temperature: 20°C / 50%	Condensation: 0.00 kg/m²	Weight: 234 kg/m²
Outside temperature: 30°C / 80%	sd-value: 4.3 m	Thickness: 35.5 cm

Temperature course/ Condensation zone



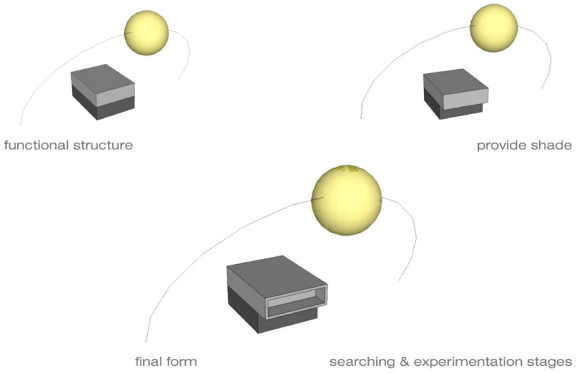


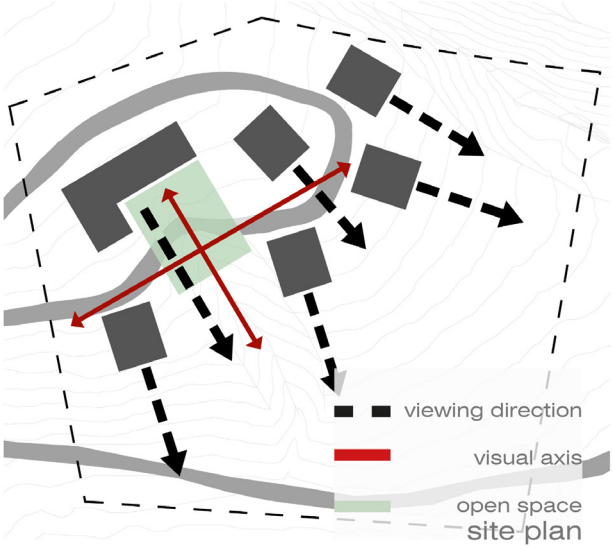
Refernces
Local sandstone and atrium-concept

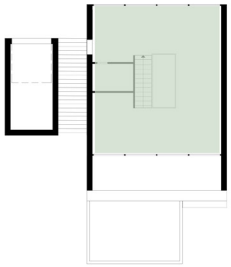


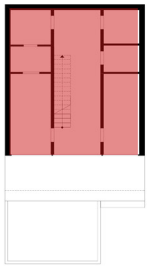
HILLSIDE HOUSE.

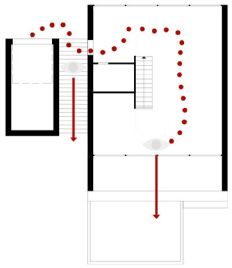
KINDER, Collette Anna
MANNSCHATZ, Laura
SOCHOR, Sandra Martina

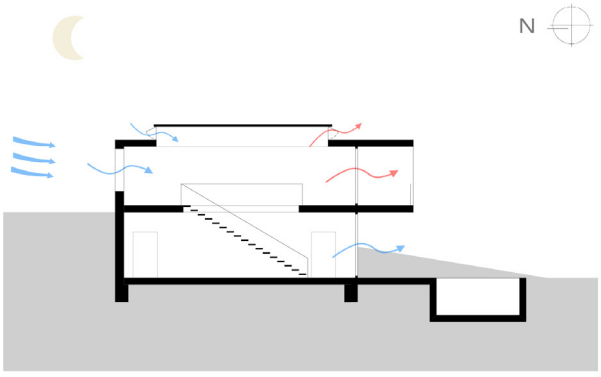




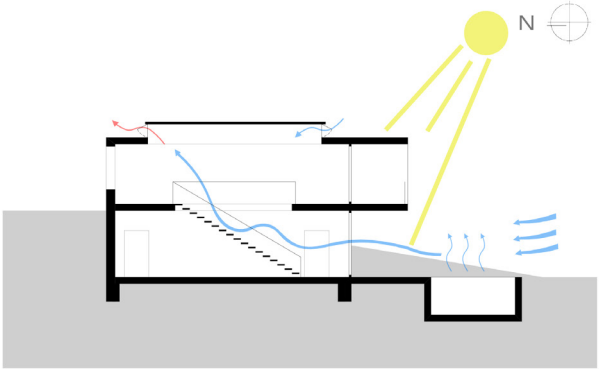

"public" area


"private" area

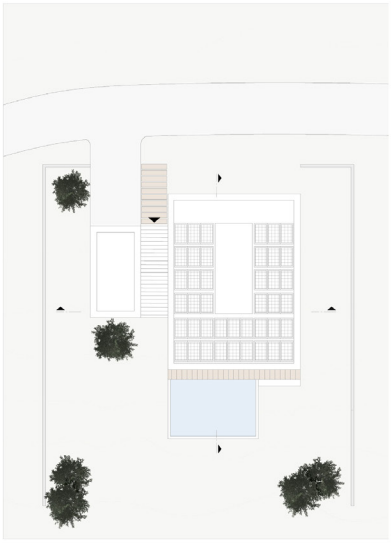

view



air circulation night

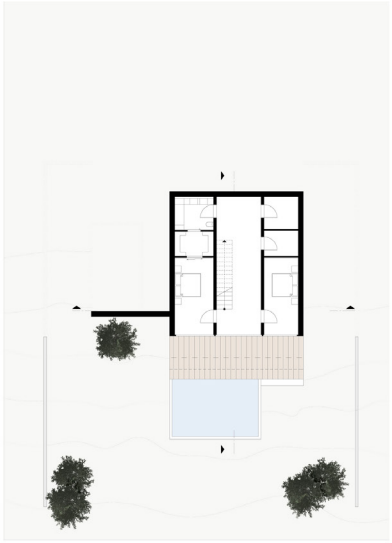


air circulation day

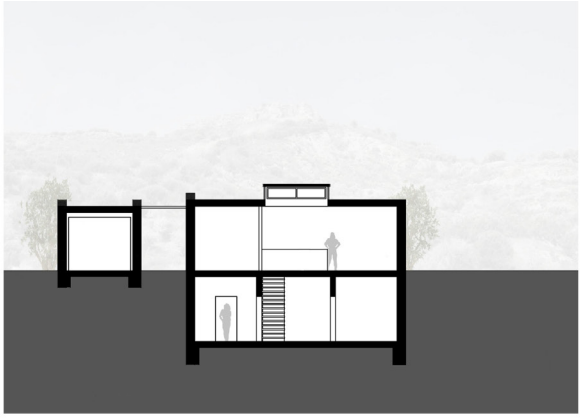


roof plan

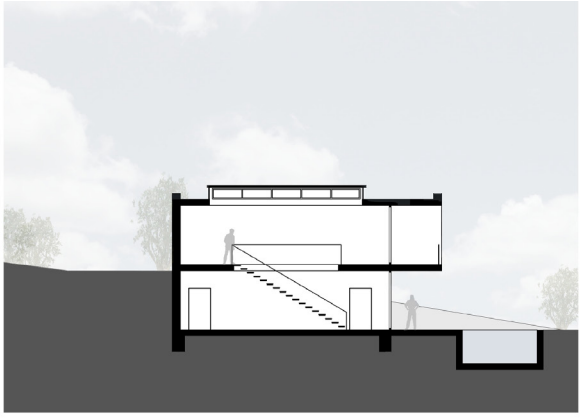
floor plan



gardenlevel



section a-a



section b-b

north

west

south

east

impressions

impressions

8th HEALTHY HOUSING AWARDS 2013/2014