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Bioclimatic drawings: Climatological analysis (identify appropriate passive strategies)
BA-002 Bioclimatic drawings: Annual sunlight
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BA-011 Bioclimatic drawings: Design sunscreens as protective passive strategy
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DATE: 30/04/2014
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Case of urban refurbishment. Urban project

Aerial View of the City of Horfens

Refurbishment Scope Location

Nuria Sánchez

November 2013
SITE ANALYSIS - EXISTING BUILT UP AREA

Building occupancy classifications refer to categorizing structures based on their usage:
- Assembly (Group A): places used for public gathering for entertainment, services, and eating or drinking (with 10% or more inside occupants).
- Business (Group B): places where offices are provided.
- Educational (Group C): schools and day care centers.
- Factory (Group F): places where goods are manufactured or repaired – factories (united considered “high-risk”) (below).
- High-risk (Group H): places involving production or storage of very flammable or toxic materials. Includes plants handling hazardous and other toxic materials.
- Municipal (Group M): places where goods are displayed and sold – department stores, etc.
- Residential (Group R): places providing accommodations for overnight stay - apartment buildings.
- Storage (Group S): places where items are stored (united considered “high-risk”) - warehouses and parking garages.

Existing building analysis:
1. Office - heritage building (height 7m)
2. Storage - heritage building (height 5m)
3. Restaurant - heritage building (height 4m)
4. Factory, office building (height up until 18m)
5. Silos, storage for chemicals (height up until 20m)
7. Factory (height 8m)
8. Store for building materials (height 8m)
9. Store for building materials (height 5m)
10. School (height 3.5m)
11. Storage/offices building (height 3.5m)
12. Kindergarten (height 3.5m)
13. Dwellings (height 9m)

Site visualization
URBAN CONCEPT - WIND ANALYSIS
Harbour area, Horsens city, Denmark
55.858403, 9.865330

SPRING

SUMMER

AUTUMN

WINTER
URBAN CONCEPT - SHADOW ANALYSIS
Harbour area, Horsens city, Denmark
55.858403, 9.865330


09:00
12:00
15:00
18:00
URBAN CONCEPT - TRANSPORTATION PLAN
Harbour area, Horsens city, Denmark
55.858403, 9.865330

EXISTING ROADS

EXISTING BICYCLE PATHS

ACCESS TO PUBLIC TRANSPORTATION

SIDEWALKS AND PARKING AREAS

- Main road
- Public roads
- Private roads

- Bike roads

- Bus stops
- 300m walking distance
- 500m walking distance

- Existing sidewalks for pedestrians
- Parking
URBAN CONCEPT - MASTER PLAN
Harbour area, Horsens city, Denmark
55.858403, 9.865330

EXISTING BUILT UP AREA

PROPOSAL OF DEMOLISHED AND CHANGED AREA

Building occupancy classifications refer to categorizing structures based on their usage

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<th>Existing usage category</th>
<th>New usage category, application of E-Brick</th>
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<td>1. Office - heritage building (height 7m)</td>
<td>Restaurant</td>
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<td>2. Storage - heritage building (height 5m)</td>
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<td>3. Restaurant - heritage building (height 4m)</td>
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<tr>
<td>4. Factory, office building (height up until 18m)</td>
<td>Ground floor - shopping area, 1st and 2nd floor offices, E-Brick</td>
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<td>5. Silos, storage for chemicals (height up until 18m)</td>
<td>Demolished</td>
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<td>6. Gas station</td>
<td>Demolished</td>
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<td>7. Factory (height 8m)</td>
<td>Hotel, partly demolished</td>
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<td>8. Store for building materials (height 8m)</td>
<td>Multifunctional sport hall</td>
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<td>9. Store for building materials (height 5m)</td>
<td>Market</td>
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<td>10. School (height 3.5m)</td>
<td>Ground floor (existing) - offices, 3rd and 2nd floor (new construction) - dwellings E-Brick</td>
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<td>11. Storage/office building (height 3.5m)</td>
<td>Grocery, restaurant</td>
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<td>12. Kindergarten (height 3.5m)</td>
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PROPOSAL OF NEW MASTER PLAN

Usage category Application of E-Brick

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<td>Distributed around common allotment garden</td>
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<td>16. Dwellings E-Brick - 2 - 5 floors (height 9-15m)</td>
<td>Distributed in the rows with common greenery</td>
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<td>17. Dwellings E-Brick - 2 - 5 floors (height 9-15m)</td>
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<td>19. Dwellings E-Brick - 2 floors (height 6m)</td>
<td>Distributed on exiting building, common allotment garden</td>
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URBAN CONCEPT - proposal of E-Brick mounted on existing building facade

Harbour area, Horsens city, Denmark
55.858403, 9.865330
URBAN CONCEPT - proposal of E-Brick mounted on existing building facade
Harbour area, Horsens city, Denmark
55.858403, 9.865330
URBAN CONCEPT - proposal of E-Brick mounted on existing building facade

Harbour area, Horsens city, Denmark
55.858403, 9.865330
SITUATION CASTELLON

AERIAL VIEW OF THE CITY OF CASTELLON

DATE: November 2014
SCALE:
AUTHOR: Nuria Sánchez
DELIVERABLE: #7
SUBJECT: Case of building refurbishment. Building location
SPONSORSHIP:
www.equipe.via.uji.es

GE-30
"The TRAM is an electrified trolleybus transportation system, currently working in the town of Castellon, linking Universitat Jaume I in the west with Castellon's harbor to the east. Additional TRAM lines will interconnect the rest of the towns in the metropolitan area. TRAM electrified lines could be use as energy exchanger lines if connected to smartgrids we propose to create in several districs of the town"
ZONA YACIMIENTOS ARQUEOLOGICOS
"PUJOL DE GASSET"

R.E. ADSCRITA A 75-UE-R

Universidad Jaume I

UNBUILT SOLARS
ABANDONED BUILDINGS
SLEEPING STRUCTURES
PUBLIC BUILDINGS
ENERGY REHABILITATION
TRAM LINE

ZONE 1
ZONE 2
ZONE 3
ZONE 4
ZONE 5

DATE: 26/03/2014
SCALE: 1:50
AUTHOR: Beatriz Muñoz
Esther Compte

SUBJECT: DISTRIBUTION AREAS OF THE TRAM LINE IN CASTELLON
DELIVERABLE: #7
SPONSORSHIP:

GE - 302b
LEGEND

- ABANDONED BUILDING
- UNBUILT SOLAR
- SLEEPING STRUCTURE
- ENERGETIC REHABILITATION
- PUBLIC REHABILITATION
- TRAM

ZONE 1
ZONE 2
ZONE 3
ZONE 4
ZONE 5

UNBUILT SOLARS
ABANDONED BUILDINGS
SLEEPING STRUCTURES
PUBLIC BUILDINGS
ENERGY REHABILITATION
TRAM LINE

DATE: 26/03/2014
SCALE:
ZONA YACIMIENTOS ARQUEOLOGICOS

"PUJOL DE GASSET"

UNBUILT SOLARS
ABANDONED BUILDINGS
SLEEPING STRUCTURES
PUBLIC BUILDINGS
ENERGY REHABILITATION
TRAM LINE

ZONE 1
ZONE 2
ZONE 3
ZONE 4
ZONE 5

DATE: 26/03/2014
SCALE:
AUTHOR: Beatriz Muñoz
SUBJECT: AREAS OF THE TRAM LINE IN CASTELLÓN - ZONA 2
DELIVERABLE: #7
SPONSORSHIP: GE-304b
UNIVERSIDAD JAUME I

UNBUILT SOLARS
ABANDONED BUILDINGS
SLEEPING STRUCTURES
PUBLIC BUILDINGS
ENERGY REHABILITATION

ZONE 1
ZONE 2
ZONE 3
ZONE 4
ZONE 5

DATE: 26/03/2014
SCALE:
AUTHOR: Beatriz Muñoz
SUBJECT: AREAS OF THE TRAM LINE IN CASTELLÓN - ZONE 4
DELIVERABLE: #7
SPONSORSHIP: GE-306b

LEGEND
ABANDONED BUILDING
UNBUILT SOLAR
SLEEPING STRUCTURE
ENERGETIC REHABILITATION
PUBLIC BUILDING
TRAM

ZONE 4
INDICATOR’S GOAL: The indicator’s goal is to offer the possibility for the citizens to access to the public transport network (buses + renting bicycles) making them to choose this network instead a private way of transport, also promoted the transportation by bicycles as one of the most prominent into the urban area.

CURRENT SITUATION: In ZONE 1, the main road are prepared with special paths for bikes but the disadvantage is having just one point for renting the city bike which is not enough to cover the whole Zone 1.

PROPOSAL IMPROVEMENTS: The solution will require inserting a new renting point in a strategic place to cover the others parts of Zone 1. As we mentioned before we need to enhance the northern corner of Zone 1 to have a better connection with the others parts of the zone and also better connection with public transportation, so the second point will be countered near the northern corner of Zone 1.
**INDICATOR’S GOAL:**
In general, the main goal of this indicator is to make the pedestrians the center of attention, according to the area of the city where this figure is. The idea is to give the pedestrian priority, promoting the activities that are generated thanks to him.
In fast roads where the circulation with heavy transport is necessary, the objective is to create enough zebra crossings so that the road doesn’t constitute a barrier.

**CURRENT SITUATION:**
The ZONE 1 is insufficient for pedestrian circulation due to the relatively tight side walks and also the few crosswalks that are spaced from each.

**PROPOSAL IMPROVEMENTS:**
- The first improvement will be enhance and link the pedestrian circulation by adding new crosswalks in order to meet the requirement of the standard distances between two crosswalks as it is clarified below.
- Other improvement is changing the characteristics of the street of the width less than 8m to be a pedestrian street.

Minimum side walk width and distances between crosswalks

changing the street with less than 8m yo pedestrian street
2.2 Accessibility for pedestrians

INDICATOR’S GOAL:

In general, the main goal of this indicator is to make the pedestrians the center of attention, according to the area of the city where this figure is. The idea is to give the pedestrian priority, promoting the activities that are generated thanks to him.

In fast roads where the circulation with heavy transport is necessary, the objective is to create enough zebra crossings so that the road doesn’t constitute a barrier.

PROPOSAL IMPROVEMENTS:

- The second improvement is to assure that the pedestrian sidewalk is sufficient in terms of capacity, it means to have adequate width.
- The majority of the street don’t meet the standard requirement (as it is mentioned before), and are situated in a limited street space so it will be quite difficult to adapt any modification against the car lanes because that will generate more car traffic which means more CO₂ emissions.
- However, we can at least analyze the main axes and make improvement when it is necessary, an examples of that is shown downside.
3. Accessibility for disabled people.

**INDICATOR'S GOAL:** The indicator's goal is to guarantee the accessibility for disabled people to a quality public space, making easier their independence. In general, the main is to give the pedestrian priority, whatever its physical condition could be, overcoming the architectural barriers of the city.

**CURRENT SITUATION:**
The ZONE 1 in general is fitted well for the pedestrian with difficulties in their fiscal abilities.

**PROPOSAL IMPROVEMENTS:**
- Firstly, the study will suggest maintaining and fixing all the current curb ramps, also making sure that there are no sudden changes in the different levels of the sidewalk, so the pedestrian with a sight difficulty will be able to distinguish the difference in levels in a graded way.
- Secondly, facilitating a comfortable access for all the public building by providing the entrances by ramps that meet the standard length and slope.

1- Facilitating the pedestrian circulation by providing curb ramps as it is clarified below:

2- Facilitating the entrance of the different public facilities by providing ramps with appropriate slope, as it is shown below:

<table>
<thead>
<tr>
<th>Maximum slope</th>
<th>Maximum length</th>
<th>Maximum rise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:20 i.e., 9%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1:16 i.e., 6%</td>
<td>8 m</td>
<td>0.50 m</td>
</tr>
<tr>
<td>1:14 i.e., 7%</td>
<td>5 m</td>
<td>0.35 m</td>
</tr>
<tr>
<td>1:12 i.e., 8%</td>
<td>2 m</td>
<td>0.15 m</td>
</tr>
<tr>
<td>1:10 i.e., 10%</td>
<td>1.25 m</td>
<td>0.12 m</td>
</tr>
<tr>
<td>1:08 i.e., 12%</td>
<td>0.5 m</td>
<td>0.06 m</td>
</tr>
</tbody>
</table>
5. Citizens access to green areas.

**INDICATOR’S GOAL:** The indicator’s goal is to offer the possibility for the citizens to have the benefit of the green areas that are placed in the line of action. To get it, it will be essential to make nature get immerse into the urban area.

After applying the indicator in the zone 1, we can observe that the access to a green area bigger than 1000m² from a distance of less of 200 meters, fails in the west zone. Moreover we meet the requirements of guarantee the access to a green area bigger than 5000m² from a distance of less of 750 meters (Ferrandis Salvador Park), the access to a green area bigger than 1 Has, and access to a green passage from a distance of less of 2km (Litoral Park) and finally, access to a green area bigger than 10Has from a distance of less of 4km (Pinar Park).
URBAN INDICATOR : GREEN AREAS

6. Green areas and urban gardens resources Citizens access to green areas.
7. Connections with green areas.

INDICATOR’S GOAL:

The goal of indicator 6 is to offer the possibility for the citizens to have the benefit of the green areas that are placed in the line of action. To get it, it will be essential to make nature get immerse into the urban area.

The goal of indicator 7 is to create a logical link between the green areas, to make a good distribution in the area that need to be urbanized. Also, it would be necessary to create an indirect passage between all the green areas in the zone.

In this indicator we’ve made a study of existing green zones and lots that we may also use for public urban gardens. In this case, as in indicator 5, fails the access to a green area bigger than 1000m² from a distance of less than 200 meters, we propose to use the lot 6 as a green space to satisfy the needs.

Moreover, with these lots and green areas, we can make a logical and proportionate distribution of the spaces, so we have developed a communication and transport lines between different green areas, to allow the citizens to access in an easy way from one green area to another.

The communication lines are less than 400 meters between each other, and we guarantee the access to the disabled people and means of transportation, particularly bicycles.
8. Detect the needed equipment in each zone. Make an analysis of the neighbourhood’s capacity for equipment’s integration.

INDICATOR’S GOAL: The indicator’s goal is to determine which buildings (infrastructures) have priority to cover all citizens’ needs in the field of action. Also, it would be important to know the population’s needs and take advantage of the existing buildings to endow them with the new uses that the citizens demand.

SUPPLY AND CONSUMPTION

HEALTHCARE - CARE SERVICES

CULTURAL - RECREATIONAL

TEACHING

SPORTS

ADMINISTRATIVE
9. Detect abandoned structures, existing buildings, and abandoned lots to convert to new equipment.

**INDICATOR’S GOAL:** The indicator’s goal is to establish a scheme of the building and abandoned lots stock, so it can be used in an active way, creating on it public buildings and the infrastructures needed and demanded by and for the citizen.

**LOT**

<table>
<thead>
<tr>
<th>LOT</th>
<th>Surface (m²)</th>
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<tbody>
<tr>
<td>LOT 1</td>
<td>1506</td>
</tr>
<tr>
<td>LOT 2</td>
<td>6812</td>
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<tr>
<td>LOT 3</td>
<td>3106</td>
</tr>
<tr>
<td>LOT 4</td>
<td>1804</td>
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<tr>
<td>LOT 5</td>
<td>200</td>
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<td>1137</td>
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<tr>
<td>LOT 8</td>
<td>161</td>
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<tr>
<td>LOT 9</td>
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**ER**

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<td>ER06</td>
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<td>ER07</td>
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<tr>
<td>AB07</td>
<td>1182</td>
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<td>AB08</td>
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**SS**

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<tr>
<td>SS02</td>
<td>607</td>
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</table>

**LOT** - LOTS  
**AB** - ABANDONED BUILDINGS  
**SS** - SLEEPING STRUCTURES  
**ER** - ENERGY REHABILITATION
10. Creation of new building according to the new needs.

**INDICATOR’S GOAL:** The indicator’s goal is to establish a scheme of the building and abandoned lots stock, so it can be used in an active way, creating on it public buildings and the infrastructures needed and demanded by and for the citizen.

**INDICATOR’S GOAL:**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Needs</th>
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<tr>
<td>1 Municipal Market</td>
<td>1 Municipal Market</td>
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<tr>
<td>4 Ordinary Trade</td>
<td>-</td>
</tr>
<tr>
<td>1 Municipal office</td>
<td>1 Post office</td>
</tr>
<tr>
<td>Cultural - Recreational</td>
<td>1 Central library</td>
</tr>
<tr>
<td>1 Tourism Center</td>
<td>1 Civic center</td>
</tr>
<tr>
<td>1 Museum</td>
<td>AB08</td>
</tr>
<tr>
<td>1 Young Casal</td>
<td>LOT7</td>
</tr>
<tr>
<td>2 Cultural Center</td>
<td></td>
</tr>
<tr>
<td>Teaching</td>
<td>1 Nursery school</td>
</tr>
<tr>
<td>1 Primary education center</td>
<td>1 Primary education center</td>
</tr>
<tr>
<td>1 Higher education center</td>
<td>AB02</td>
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<tr>
<td>1 Higher education center</td>
<td>LOT2</td>
</tr>
<tr>
<td>Sports</td>
<td>1 Multisports courts</td>
</tr>
<tr>
<td>2 Municipal center of sports</td>
<td></td>
</tr>
<tr>
<td>Healthcare - Care Services</td>
<td>2 Primary health care center</td>
</tr>
<tr>
<td>1 Day center</td>
<td>1 Social services center</td>
</tr>
</tbody>
</table>

**SUPPLY AND CONSUMPTION**

- **ZONE 1**
- **ZONE 2**
- **ZONE 3**
- **ZONE 4**
- **ZONE 5**

**HEALTHCARE - CARE SERVICES**

- **ZONE 1**
- **ZONE 2**
- **ZONE 3**
- **ZONE 4**
- **ZONE 5**

**CULTURAL - RECREATIONAL**

- **ZONE 1**
- **ZONE 2**
- **ZONE 3**
- **ZONE 4**
- **ZONE 5**

**TEACHING**

- **ZONE 1**
- **ZONE 2**
- **ZONE 3**
- **ZONE 4**
- **ZONE 5**

**SPORTS**

- **ZONE 1**
- **ZONE 2**
- **ZONE 3**
- **ZONE 4**
- **ZONE 5**

**ADMINISTRATIVE**

- **ZONE 1**
- **ZONE 2**
- **ZONE 3**
- **ZONE 4**
- **ZONE 5**

**NEW EQUIPMENT**

- **ADMINISTRATIVE**
- **SUPPLY AND CONSUMPTION**
- **CULTURAL - RECREATIONAL**
- **TEACHING**
- **SPORTS**
- **HEALTHCARE - CARE SERVICES**
11. Urban system efficiency

**INDICATOR'S GOAL:** The goal of this indicator is to attach in active way efficiency to the urban models.

The line of action is based in generate a Smartgrid in the city using the Tram Line, connected with elements that can be active fot it, for example, with public or private buildings, lots or green areas.

In this way, the buildings and the lots more representative which have been proposed before, to be intervened energetically, will be part of the SmartGrid of energy exchange with the Tram Line.

In this map we have identified the buildings, lots, public buildings and green areas which could be part of the SmartGrid in the zone 1.
INDICATOR’S GOAL: The goal of both indicators is to know the degree of efficiency of the existing buildings and public buildings. This will enable us to recognize which areas are more efficient to work in this line of continuous improvement. With this analysis we will be able to integrate these buildings as a part of the Smartgrid.

Depending on the rules applicable at the time of writing the project of the building, we can differentiate between three types of buildings.
- Buildings previous to 1979
- Buildings previous to 2006
- Buildings after 2006

In Spain, the first regulation aimed to save energy was the NBE-CTE-79 which appeared in 1979 and it was compulsory until 2006, when appears other regulation more restrictive, the CTE with his document about Save Energy.

So the buildings which were constructed before 1979 are not insulated, and they have low energy efficiency. The buildings which were built between 1979 until 2006, are insulated so they have average energy efficiency levels, and buildings built after 2006 will have a higher energy efficiency levels.
ANALYSIS OF THE USE OF EXISTING BUILDINGS

Buildings:
- State subsidized housing zone
- Residential zone
- Commercial zone
- Teaching zone
- Industrial zone
- Storage zone

ROUT AROUND THE STREETS

Strandpromenade Gade:
1. Hospital
2. Residential area - Family houses
3. Residential area - Multi-storey buildings
4. Commercial area - Restaurants and shops
Jens Hjernoes Gade:
1. Industrial
2. Industrial - Small house to store the materials for the boats
3. Industrial - Maritime clubs

Frederik Winthers Gade:
1. Office - cleaning company
2. Educational school
3. Storage and commercial

Langelinie Gade:
1. Educational - Kinder garden
2. Residential area - Multi-storey buildings
3. Boats clubs
4. Commercial area - Restaurant
Anders keses Vej and Jens Hjernoes Vej Gade:
1. Industrial
2. Commercial - petrol station
3. Industrial - cleaning factory
4. Commercial storage

Jens Hjernoes Vej Gade:
1. Boat storage
2. Commercial
3. Industrial

Protected buildings:
1. Varmestuen
2. Toldboden
3. Styggepakkhuset
Render 1 - Case of building refurbishment. Building Proposal

- Total surface: 3,386 m²
- Houses’ surface: 1,689 m²
- Greenhouses’ surface: 180 m²
- Green Areas: 270 m²
- Other Uses: 653 m²

Render 2 - Case of building refurbishment. Building Proposal
eBRICK MODULES

EXAMPLES OF BUILDINGS

Student dormitories
Office building
Residential buildings

PROTOTYPE

greenhouse greenhouse greenhouse
Place: La Cité Du Soleil - Versailles
Solar envelope plan

DATE: 23-04-2014

AUTHOR: Irene Ruiz Guillén

DELIVERABLE: #7

SPONSORSHIP:

SCALE: 1:700
LEGEND:

Demand: The architectural footprint cannot exceed 150 m²
Actual: 122 m².
External wall with tiles cladding
175mm Hemp insulation and ventilated facade anchors
30mm Air chamber
5mm Porcelanosa group tiles

VIVANIA Internal loadbearing wall
2x15mm Gypsum board
100mm Hemp insulation
0.43mm DPM
90mm Hemp insulation, steel profile
10mm Oriente strand board

External wall with "Krion" cladding
175mm Hemp insulation and ventilated facade anchors
10mm Profiles for cladding
10mm Krion wall finish

Exhibition wall
10mm Oriente strand board
90mm Hemp insulation
10mm Gypsum (Pladur)
175mm Interior finish - attached recycled Euro palets

Furniture wall
50mm Plywood, wood frame

Kitchen shaft wall
15mm Gypsum board
100mm Steel profile, hemp insulation
15mm Gypsum board (watertight)

Bathroom wall
50mm waterproof plasterboard
100mm Steel profile, hemp insulation
15mm Gypsum board (watertight)
10mm Tiles

External wall in garden
175mm Recycled pallets with hemp insulation inside
U-value
External wall system (inner leaf and outer leaf) reach - 0.105W/m²K

Window
1273mm x 2488mm, U-Value 0.75W/m²K

Glass doors
1088mm x 2488mm, U-Value 0.96W/m²K

Glass doors
1088mm x 2488mm, U-Value 0.96W/m²K

Window
588mm x 1998mm, U-Value 0.88W/m²K

Window
2188mm x 588mm, U-Value 0.97W/m²K

Glass doors
1088mm x 2088mm; 398mm x 2088mm, U-Value 0.89W/m²K

Glass doors
1068mm x 1978mm; 1068mm x 378mm, U-Value 1.39W/m²K

Curtain wall
50mm 115mm rectangular mullion
LEGEND:

- Roof Slope
- Gutter
- Down pipe

Roof Area: 63.85m²
Garden Roof Area: 18.205m²
PV Roof plan: estimation of the PV facilities

Author: Núria Sánchez
Movable PV

Solar protections

Openable Greenhouse windows

Architecture Footprint with solar protection deployed
Sup. : 125 m²
LEGEND:

Demand: The measurable area shall be at least 45 m², but shall not exceed 70 m² for 1 story houses and 110 m² for multi-story housing units.
Actual: 51.93 m²
EAST FACADE

WEST FACADE
**Floor construction**
- U-value: 0.096 W/m²K

**Floor finish**
- 13 mm Season 1L ETNA - natural wood
- 8mm Felt layer (leveling layer)
- 20mm Plywood
- 75 x 45 mm Wooden Battens
- 16 mm OSB

**Steel Frame**
- 100 mm Insulation
- 140 Steel Beam with Insulation
- 100 Insulation

**Wall construction**
- U-value: 0.105 W/m²K

**VIVANIA load-bearing wall**
- Steel Frame wall
- Insulation 100 mm
- Insulation 90 mm
- Gypsum Board 2x15mm

**External Attached wall**
- Ceramic Tile 11mm
- Air Chamber 30mm
- OSB 16mm
- Insulation 175mm

**Roof Construction**
- U-value: 0.079 W/m²K

**Attached on site**
- Zinc flashing
- PVC finish layer
- OSB 16mm
- Hempcrete 200mm
- Vapour Barrier

**Steel frame roof element**
- Hard Insulation (Isover Panel Roof) 150 mm
- OSB 16mm
- Insulation (Isover Arena Basic) 200mm

**Suspended ceiling**
- Gypsum Board 2x15mm

**Foundation**
- Adjustable pier Foundation 220 mm on concrete chocks 500 x 500 x 150mm

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**Section A-A**

DATE: 04/30/14

DELIVERABLE: #7

AUTHOR: Anna Rancane, Olga Sion

SPONSORSHIP: www.equipe.via.uji.es
Floor construction bathroom
U-value 0.096W/m²K

Floor finish
596x596x11mm tiles - Trafi cemento cauza
5 mm Plastic fixtures for tiles - 5 mm Leveling layer
20mm Plywood
100mm Hard insulation

Steel Frame
100 mm Insulation
140 Steel Beam with Insulation
150 Insulation

Wall construction bathroom
U-value 0.096W/m²K

Surface finish
596x596x11mm ceramic tiles - 5 mm tile adhesive
VIVANIA load-bearing wall
Steel Frame wall
Insulation 100 mm
Insulation 90 mm
Gypsum Board 2x15mm

Attached wall
175mm metal framing with insulation in between
Metal profile underneath the insulation
30 mm ventilation cavity
11 mm ceramic tiles

Floor construction
U-value 0.105W/m²K

Floor finish
13 mm Season 1L ETNA - natural wood
8mm Felt layer (leveling layer)
20mm Plywood
75 x 45 mm Wooden Battens
16 mm OSB

Steel Frame
100 mm Insulation
140 Steel Beam with Insulation
100 Insulation

Wall construction
U-value 0.105W/m²K

VIVANIA load-bearing wall
Steel Frame wall
Insulation 100 mm
Insulation 90 mm
Gypsum Board 2x15mm

External Attached wall
Ceramic Tile 11mm
Air Chamber 30mm
OSB 16mm
Insulation 175mm

Foundations
Adjustable pier Foundation 220 mm on concrete chocks 500 x 500 x 150mm

Roof Construction
U-value 0.079W/m²K

Attached on site
Zinc flashing
PVC finish layer
OSB 16mm
Hempcrete 200mm
Vapour Barrier

Steel frame roof element
Hard Insulation (Isover Panel Roof) 150 mm
OSB 16mm
Insulation (Isover Arena Basic) 200mm
Suspended ceiling
Gypsum Board 2x15mm
## Prototype Main Building

### South facade

- **W1** - 3554x2488 mm total opening
  - 2 fixed panels 1273 x 2100 mm
  - 1 opening 1008 x 2100 mm
  - 2 top hinged panels 1273x388mm
  - 1 top fixed panel 1008 x 388mm

- **W2** - 3554x2488 mm total opening
  - 2 fixed panels 1273 x 2100 mm
  - 1 opening 1008 x 2100 mm
  - 2 top hinged panels 1273x388mm
  - 1 top fixed panel 1008 x 388mm

### East facade

- **W3** - 1008x2100 mm side hinged door
  - 1 top fixed panel 1008x388 mm

### North facade

- **W4** - 588x1500mm fixed window
  - 1 top hinged panel 588x500 mm

- **W5** - 2188x588 mm hinged window

- **W6** - 1396x2088 total opening
  - 1 door opening 1008x2088mm
  - 1 window fixed 388x2088 mm

### Greenhouse entrance

- 1 door opening 1068x2100 mm
- 2 windows fixed 746x2100 mm
- 2 hinged panels 746x260mm
- 1 hinged panel 1068x260mm

---

### Table: Window and Door Schedule

<table>
<thead>
<tr>
<th>Pos</th>
<th>Type</th>
<th>Model</th>
<th>Width (x)</th>
<th>Height (y)</th>
<th>Quantity</th>
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<td>W1/W2</td>
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<td>746</td>
<td>260</td>
<td>2</td>
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</tr>
<tr>
<td>10</td>
<td>a2200</td>
<td>DOMUS Tophaagnt vindue</td>
<td>1068</td>
<td>260</td>
<td>1</td>
<td>Greenhouse Entrance</td>
</tr>
</tbody>
</table>
Prototype Main Building

South facade
W1 - 3519x2488 mm total opening
3 fixed panels 1173x2100mm
3 top hinged panels 1173x388mm
W2 - 3024x2488 mm total opening
1 fixed panel 1008x388 mm
2 fixed panels 1273x2100 mm
1 door opening 1008x2100 mm
2 fixed panels 1273x388 mm

East facade
W3 - 998x2478 mm fixed window

North facade
W4 - 2588x588mm fixed window

South facade
W5 - 2788x588mm fixed window
W6 - 1396x2088 mm total opening
1008x2088mm door opening
388x2088mm fixed window panel

Prototype - Garden Area

W7 - 3744x2498mm total size
3 fixed panels 1248x2100 mm
3 hinged panels 1248x398 mm
W8/W9 - 778x2498 total size
1 fixed panel 778x2100 mm
1 fixed panel 778x398 mm
W10 -2645x2500mm total size
2 fixed panels 823x2100mm
1 door opening 993x2100mm
2 fixed panels 823x378mm
1 fixed panel 993x398 mm
1 Door 912x2112 mm
1 Door 715x2112 mm

Door bottom connection

Door top connection

Door side connection
**WALL CONSTRUCTION**

**Surface finish**
- 596x596x11mm ceramic tiles
- 5 mm tile adhesive

**Vivania internal load bearing wall**
- 596x596x11mm ceramic tiles
- 5 mm tile adhesive
- 15mm 2x gypsumboard
- Metal profiles C/C 600mm with insulation in between 100mm
- Structural galvanized steel framing with insulation in between 90mm
- OSB board 10 mm

**Attached wall**
- 175mm metal framing with insulation in between
- Metal profile underneath the insulation
- 30 mm ventilation cavity
- 5 mm ceramic tiles

**Floor construction**

**Floor finish**
- 596x596x11mm tiles-Trafic cemento cauza
- S-R Ston-ker ecolosic
- 5 mm Plastic fixtures for tiles
- 5 mm Leveling layer
- 20 mmPlywood
- 100mmHard insulation

**Deck element**
- 18 mm Trapezoidal wave plate
- DPM
- 300mm deck element
- 18mm Trapezoidal wave plate

**Foundation**
- C bracket connecting the structural part of the wall with deck element and RHS beam (100x200mm)
- L bracket fixed to the RHS beam to support the attached wall
- HEB beam 200x200mm underneath RHS beam
- Adjustable jack
**Floor construction**

**Floor finish**
- 13 mm Season 1L ETNA - natural wood
- 8 mm Felt layer (leveling layer)
- 20 mm Plywood
- 100 mm Hard insulation

**SKANDEK deck element**
- 18 mm Trapezoidal wave plate
- DPM
- 300 mm deck element
- 18 mm Trapezoidal wave plate

---

**Attached on site**
- 343x41 mm Connection covering
- 340x100 mm hard insulation
- Bracket and screws
**Roof Construction**

*Attached on site*
- PVC layer surface finish
- 300 mm Hard insulation 300 mm
- L bracket for fixing attached external wall element
- 100 mm gutter

**Roof element**
- Bitumen layer
- 18 mm Trapezoidal wave plate
- 200mm Deck element
- DPM
- 18 mm Trapezoidal wave plate

**Suspended ceiling**
- 15 mm Placo suspended ceiling

**Wall construction**

**Vivania load-bearing wall**
- 15 mm 2x gypsumboard
- Metal profiles C/C 600mm with insulation in between 100mm
- Structural galvanized steel framing with insulation in between 90mm
- 10 mm OSB board

**External wall**
- 175mm Metal framing with insulation in between
- Metal profile underneath the insulation
- 30 mm Ventilation cavity
- 5 mm Ceramic tiles

**Window**
- Rationel Auraplus
**Wall construction**

**Vivania load-bearing wall**
- 15mm 2x gypsumboard
- Metal profiles C/C 600mm with insulation in between 100mm
- Structural galvanized steel framing with insulation in between 90mm
- 10 mm OSB board

**External wall**
- 175mm Metal framing with insulation in between
- Metal profile underneath the insulation
- 30 mm Ventilation cavity
- 5 mm Ceramic tiles

**Roof Construction**

**Attached on site**
- PVC layer surface finish
- 300 mm Hard insulation 300 mm
- Bitumen layer
- L bracket for fixing attached external wall element

**Roof element**
- 18mm Trapezoidal wave plate
- 200mm deck element
- DPM
- 18 mm Trapezoidal wave plate

**Suspended ceiling**
- 15 mm Placo suspended ceiling
**Roof Construction**

**Attached on site**
PVC layer surface finish
300 mm Hard insulation 300 mm
Bracket and screws to fix elements together

**Skandek roof element**
Bitumen layer
18mm Trapezoidal wave plate
200mm deck element
DPM
18 mm Trapezoidal wave plate

**Suspended ceiling**
15 mm Placo suspended ceiling
Downpipe for roof drainage added before ceramic tile finish is applied.

Wall construction

Vivania load-bearing wall
15mm 2x gypsumboard
Metal profiles C/C 600mm with insulation in between 100mm
Structural galvanized steel framing with insulation in between 90mm
10 mm OSB board

External wall
175mm Metal framing with insulation in between
Metal profile underneath the insulation
30 mm Ventilation cavity
5 mm Ceramic tiles
Wall construction

Vivania load-bearing wall
- 15mm 2x gypsumboard
- Metal profiles C/C 600mm with insulation in between 100mm
- Structural galvanized steel framing with insulation in between 90mm
- 10 mm OSB board

External wall
- 175mm Metal framing with insulation in between
- Metal profile underneath the insulation
- 30 mm Ventilation cavity
- 5 mm Ceramic tiles
LOCATION: Versailles (Park)
Latitude: 48° 48' 1.75"
Longitude: 2° 6' 22.33"

OPTIMAL ORIENTATION TO SOUTH
PSYCHROMETRIC CHART PARIS
NOTE: HAS BEEN APPLIED AVERAGE MONTHLY TEMPERATURE AND MOISTURE MAXIMUM AND MINIMUM.

ANNUAL DESIGN STRATEGIES:
1. COMFORT
2. COMFORT AREA ALLOWABLE
3. RECOMMENDED BICOCLIMATIC ACTIONS
4. THERMAL MASS
5. EVAPORATIVE COOLING
6. PERMANENT NATURAL VENTILATION
7. NATURAL VENTILATION NIGHT
8. INTERNAL HEAT GAINS
9. PASSIVE SOLAR SYSTEMS
10. ACTIVE SOLAR SYSTEMS
11. HUMIDIFICATION
RECOMMENDED CONVENTIONAL CONDITION SYSTEMS
12. COOLING, ADD DE/HUMIDIFICATION IF NEEDED
13. HEATING, ADD HUMIDIFICATION IF NEEDED

GRAPHIC REPRESENTATION OF TEMPERATURES

GRAPHIC REPRESENTATION OF THE WINDS

LEND
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ANGLE OF INCIDENCE OF THE SUN

Winter Solstice
21 Dec

19°

Summer Solstice
21 Jun

65°

SOLAR RADIATION ON THE FAÇADES

South Façade

East Façade

North Façade

ANNUAL ANALYSIS OF SUNLIGHT

Winter Solstice - 21 Dec

Equinoxes - 21 Mar & 21 Sep

Summer Solstice - 21 Jun

radiation received
necessary sun protection

AUTHOR: Nuria Sánchez

SPONSORSHIP: PORCELANOSA

DATE: November 2013

DELIVERABLE: #7

SUBJECT: Bioclimatic drawings.
Annual sunlight
REPREGANTION OF THE SOLAR PROTECTION ON THE WINDOWS

Opening S-1

Opening S-2

Opening E-1
PASSIVE STRATEGIES:
- Take advantage of internal heat gains
- Solar protection on the windows (please refer BA-011)
- Crossed ventilation possibility
- Passive solar system in the greenhouse:
  uptake + accumulation + distribution

PASSIVE SOLAR SYSTEM WITH PHASE CHANGE MATERIAL (FCM)

BIOCLIMATIC OPERATION SCHEME WITH PCM

UPTAKE

ACCUMULATION

DISTRIBUTION

MAIN ELEMENTS OF THE SYSTEM

UPTAKE

ACCUMULATION

DISTRIBUTION

SECTION AA

SECTION BB

SECTION A
AVERAGE OUTDOOR TEMPERATURE
(Versele-Laga)
Winter: between 1 and 17 °C
Summer: between 13 and 26 °C

ANNUAL OPERATING STRATEGIES:
Winter
- Day: capturing energy through the greenhouse
- Night: energy distribution inside the house

Summer
- Day: depends on the temperature: capturing energy or natural ventilation.
- Night: normally energy distribution inside the house, but days with extreme temperatures, natural ventilation.

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Thermal envelope
1. Curtain wall (greenhouse effect) with external sun protection
2. Phase change Material (energy storage)
3. Fans (forced air circulation)
4. Insulation for the PCM
5. Ceiling
Nighttime interior solution:
Bed is folded down and the sliding wall separates the bed room from the living area.

Daytime interior solution:
Bed is folded up and the sliding wall is folded together to provide more space.

Nighttime interior solution:
Bed is folded down and the sliding wall separates the bed room from the living area.

Daytime interior solution:
Bed is folded up and the sliding wall is folded together to provide more space.
Dining table
Dimensions: length - 1800mm; width - 900mm; height - 750mm
Color: white
Model: "Gap" www.hojermobler.dk

Bar table
Dimensions: length - 1600mm; width - 600mm; height - 1050mm
Color: black
Model: "Gap" www.hojermobler.dk

Chair
Dimensions: length - 380mm; width - 530mm; height - 800mm
Color: dark gray - fabric; green - fittings
Model: "Rib" www.hojermobler.dk

Bar chair
Dimensions: length - 570mm; width - 540mm; height - 1080mm
Color: green - fabric; black - fittings
Model: "Rib" www.hojermobler.dk

Foldable bed
Dimensions: length - 2200mm; width - 1600mm; height - 400mm
Color: not defined

Bean chair
Dimensions: length - 960mm; width - 700mm; height - 800mm
Color: green and dark brown - fabric
Model: "Retro" www.hojermobler.dk

Commode/TV shelf
Dimensions: length - 1800mm; width - 400mm; height - 800mm
Color: not defined
Custom made (DIY)

Coffe table
Dimensions: diameter - 1200mm; height - 600mm
Color: not defined
Custom made (DIY)

Armchair
Dimensions: length - 630mm; width - 650mm; height - 850mm
Color: green - fabric; oak wood - fittings
Model: "Uni" www.hojermobler.dk

Sofa
Dimensions: length - 1430mm; width - 650mm; height - 850mm
Color: green - fabric; oak wood - fittings
Model: "Uni" www.hojermobler.dk
- **Dining table**: Dimensions: length - 2400mm; width - 900mm; height - 1050mm
  Color: white
  Model: "Gap" www.hojermobler.dk

- **Bar chair**: Dimensions: length - 570mm; width - 540mm; height - 1080mm
  Color: green - fabric; black - fittings
  Model: "Rib" www.hojermobler.dk

- **Foldable bed and wardrobe**: Dimensions: length - 2200mm; width - 1500mm; height - 450mm
  Color: oak wood
  Model: "Base+Match" www.smrtseng.dk

- **Bean chair**: Dimensions: length - 960mm; width - 700mm; height - 800mm
  Color: green and dark brown - fabric
  Model: "Retro" www.hojermobler.dk

- **Commode/ TV shelf**: Dimensions: length - 1800mm; width - 400mm; height - 800mm
  Color: not defined
  Custom made (DIY)

- **Coffe table**: Dimensions: diameter - 1200mm; height - 600mm
  Color: not defined
  Custom made (DIY)

- **Sofa element #1**: Dimensions: length - 935mm; width - 890mm; height - 395mm
  Color: dark grey - seat
  Model: "Manhatten" www.hojermobler.dk

- **Sofa element #2**: Dimensions: length - 935mm; width - 890mm; height - 1000mm
  Color: dark grey - seat; light grey - back
  Model: "Manhatten" www.hojermobler.dk

- **Sofa element #3**: Dimensions: length - 935mm; width - 890mm; height - 395mm
  Color: dark grey - seat
  Model: "Manhatten" www.hojermobler.dk

- **Sofa element #4**: Dimensions: length - 935mm; width - 890mm; height - 1000mm
  Color: dark grey - seat; light grey - back
  Model: "Manhatten" www.hojermobler.dk

**Visualisation of Sofa set**
VIVANIA STRUCTURAL WALL
- Plasterboard wall 2x15mm
- Hemp insulation 100mm
- Dam Proof Membran 0,43mm
- Structural wall compose for steel profiles and hemp insulation 90mm
- Oriente Srand Board 10mm

BUTECH DOBLE SKIN
- Hemp insulation 175mm and ventilated facade anchors
- Air chamber 30mm
- Porcelanosa group tiles 5mm

7.-Kitchen constructive/installation section west-east INT-517
8.-Kitchen constructive/installation section north-south INT-517
8.-Kitchen constructive/installation section north-south

7.-Kitchen constructive/installation section west-east

LEGEND
- Hot water
- Cold water
- Sewer system
- Insulation around
1.- Bathroom constructive section
West-East

INT-511

INT-514 Bathroom construction section north-south by the shaft

3.- Bathroom installation section East-West

INT-512

ø 1500 STON-KER Ecologic Traffic Cemento Tiles 596x596x11mm
Tiles adhesive 5mm
Plasterboard wall 2x15mm
Hemp insulation 100mm
Damp Proof Membrane 0.43mm
Structural wall compose for steel profiles and hemp insulation 90mm
Oriente Strand Board 10mm
Hemp insulation 175mm and ventilated facade anchors
Air chamber 30mm
Porcelanosa group tiles 5mm

BATHROOM FINISHING
VIVANIA STRUCTURAL WALL

SPONSORSHIP:

DATE: 11/05/13
SCALE: 1:20

AUTHOR: Sara Fraile

SUBJECT: Bathroom construction plan

DELIVERABLE: #7

www.equipe.via.uji.es
**STEEL FRAME ROOF**

**COVER LAYER**
- Asphalt with vapour membrane 5mm
- Insulation with bitum layer 300mm

**STRUCTURAL PART**
- Wave plate 18mm
- Steel beam and insulation in between 200mm
- Damp Proof Membrane 0.43mm
- Wave plate 18mm

**BATHROOM FLOOR FINISHING**
- STON-KER Ecologic Trafic Cemento Tiles 596x596x11mm
- Butech bathroom construction 5mm
- Leveling layer 5mm

**STEEL FRAME FLOOR**
- Plywood 20mm
- Hard insulation 100mm
- Steel beam and insulation in between 300mm
- Wave plate 18mm

**BATHROOM FINISHING**
- STON-KER Ecologic Trafic Cemento Tiles 596x596x11mm
- Tiles adhesive 5mm
- Plasterboard wall 2x15mm
- Hemp insulation 100mm
- Damp proof Membrane 0.43mm
- Structural wall composed for steel profiles and hemp insulation 90mm
- Oriente Strand Board 10mm

**VIVANIA STRUCTURAL WALL**
- Plasterboard wall 2x15mm
- Hemp insulation 100mm
- Damp Proof Membrane 0.43mm
- Structural wall composed for steel profiles and hemp insulation 90mm
- Oriente Strand Board 10mm

**BUTECH SECOND FACADE**
- Hemp insulation 175mm and ventilated facade anchors
- Air chamber 30mm
- Porcelanosa group tiles 5mm

**PLACO SUSPENDING CEILING**
- Suspending ceiling 15mm

**DATE:** 11/05/13

**SCALE:** 1:20

**AUTHOR:** Sara Fraile

**SPONSORSHIP:**

**DELIVERABLE:** #7

**SUBJECT:** Bathroom constructive section West

**www.equipe.via.uji.es**
STEEL FRAME ROOF

COVER LAYER
Asphalt with vapour membrane 5mm
Insulation with bitum layer 300mm

STRUCTURAL PART
Wave plate 18mm
Roof steel beam 250x200mm
Structural part 200mm composed by steel beam and insulation between
Damp Proof Membrane 0,43mm
Wave plate 18mm

BATHROOM FLOOR
STON-KER Ecologic Traffic Cemento Tiles 596x596x11mm
Butech bathroom construction 5mm
Leveling layer 5mm

STEEL FRAME FLOOR
Plywood 20mm
Hard insulation 100mm
Wave plate 18mm
Damp Proof Membrane 0,43mm
floor steel beam 250x300mm
Structural part 300mm composed by steel beam and insulation
Wave plate 18mm
Place: La Cité Du Soleil - Versailles
Place: La Cité Du Soleil - Versailles

DATE: 28/04/26

SCALE: IN '602

SPONSORSHIP:

AUTHOR: Mª José Roda

DELIVERABLE: #7

SUBJECT: Interior Renderings II
Place: La Cité Du Soleil - Versailles
Place: La Cité Du Soleil - Versailles
MODULE 1: FOUNDATION LAY OUT.
Pier Foundation Execution

1) Stake out of the area marking the points where the steel plates and the adjustable jacks are going to be placed.
2) Assemble the steel plate with the jack according with the detail.
3) Level the jacks.
4) Place the HEB profiles.
5) Check the levels.
6) Set the modules.

Construction Phases

Connection Between Foundation and SKANDEK
LEGEND

ADJUSTABLE JACK  HBE 200 PROFILE
SKANDEK ELEMENT

HEB FEATURES

3D VIEW OF HEB PROFILES SET WITH THE JACKS

ST-003

DATE : 14/11/2013
SCALE : 1 : 50

www.equipe.via.uji.es

DELIVERABLE #7

SUBJECT : Foundation, Beams setting

AUTHOR : Ricardo Salazar

SPONSORSHIP :
The floor structure is made of 4 SkanDek modules. These modules are prefabricated, and they have load bearing capacity.

The connections are made according with the SkanDek drawings details.
All the Vivania slab structure is covered with a rockwool layer of 100 mm thickness. The duct to set the pipes is directly opened in this layer, since this is not a rigid material, and covered after by a OSB panel, where the final flooring is set.
DETAIL 1
Scale 1:10

Foundation
C bracket connecting the structural part of the wall
DPM
18 mm Trapezoidal wave plate
300 mm Skandek deck element
L bracket fixed to the RHS beam to support the attached wall
HEB beam 200x200 mm underneath RHS beam
Adjustable jack

DETAIL 2
Scale 1:10

Skandek deck element's connection
18 mm Trapezoidal wave plate
DPML
300 mm Skandek deck element
18 mm Trapezoidal wave plate

DATE: 14/11/2013
AUTHOR: Ricardo Salazar, Sofía Mora
SPONSORSHIP:
www.equipe.via.uji.es
DELIVERABLE: #7
SUBJECT: Structural floor details
ST-013
**Wall construction**

**Vivania load-bearing wall**
- 15mm 2x gypsumboard
- Metal profile C/C 80mm
- Structural galvanized steel framing
- with insulation in between 100mm
- 10 mm OSB board

**External wall**
- 175mm Metal framing with insulation in between
- Metal profile underneath the insulation
- 5 mm Ceramic tiles

**Roof Construction**
- Attached on site
- PVC layer surface finish
- 300 mm Hard insulation 300 mm
- L bracket for fixing attached external wall element
- 100 mm gutter

**Skandek roof element**
- Bitumen layer
- 18mm Trapezoidal wave plate
- 200mm Skandek deck element
- DPM
- 18 mm Trapezoidal wave plate

**Suspended ceiling**
- 15 mm Placo suspended ceiling

---

**DATE:**
14/11/2013

**AUTHOR:**
Ricardo Salazar,
Sofía Mora

**DELIVERABLE #:**
#7

**SUBJECT:**
Structural floor plan and details

**SPONSORSHIP:**

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**www.equipe.via.uji.es**
The structural part of the walls is located in the middle of the wall. This is made on galvanize steel profiles, as well as the roof element and the deck element.

Those walls are connected to the roof and the floor deck to conform the structural envelope of the building.

The design of the structure could change according with the demands of the companies which will provide the structural part of the prototype.

The actual design of the walls will be provide by VIVANIA which will provide details of connections.

### GALVANIZE PROFILES

![Galvanize Profiles Image]
MODULE 1: ROOF STRUCTURE
ELEVATION NORTH/SOUTH

ELEVATION WEST/EAST

TOP VIEW

MODULE 4: ROOF STRUCTURE
CROSS SECTION A-A'

TOP VIEW

TUBO DE ACERO LAMINADO EN FRIO 40 X 80

PERFIL "L" DE 80 X 80

UPN 120

MODULE 4: SET UP PLAN
SOUTH ELEVATION

MODULE 1: LAY OUT STEEL FRAME I
M1-W-SF -1

M1-E-SF -1

WEST ELEVATION

EAST ELEVATION

MODULE 1: LAY OUT STEEL FRAME II
M2-S-SF -1

M2-S-SF -2

M2-S-SF -3

M2-S-SF -4

M2-S-SF -5

SOUTH ELEVATION

MODULE 2: STEEL FRAME
MODULE 2: STEEL FRAME

WEST ELEVATION

M2-W-SF -1
M2-W-SF -2
M2-W-SF -3
M2-W-SF -4
M2-W-SF -5

EAST ELEVATION

M2-E-SF -1
M2-E-SF -2
M2-E-SF -3
M2-E-SF -4
M2-E-SF -5

DATE: 18/05/14
SCALE: 1:30
AUTHOR: Ricardo Salazar
SUBJECT: MODULE 2: STEEL FRAME
DELIVERABLE: #7
SPONSORSHIP: www.equipe.via.uji.es

M2-E-SF -4

M2-W-SF -5

M2-W-SF -4

M2-E-SF -3

M2-E-SF -1

M2-W-SF -2
M2-S-SF -1

M2-S-SF -2

M2-S-SF -3

M2-S-SF -4

M2-S-SF -5

SOUTH ELEVATION

MODULE 2: LAY OUT STEEL FRAME I
M2-E-SF -1

M2-E-SF -2

M2-E-SF -3

M2-E-SF -4

M2-W-SF -1

M2-W-SF -2

M2-W-SF -3

M2-W-SF -4

M2-W-SF -5

EAST ELEVATION

WEST ELEVATION

MODULE 2: LAY OUT STEEL FRAME II
ST-809

DATE: 18/05/14
SCALE: 1:30

AUTHOR: Ricardo Salazar
SUBJECT: MODULE 3: STEEL FRAME
DELIVERABLE: #7
SPONSORSHIP:

MODULE 3: STEEL FRAME
MODULE 3: LAY OUT STEEL FRAME II

WEST ELEVATION

M3-W-SF -1

M3-W-SF -2

M3-W-SF -3

EAST ELEVATION

M3-E-SF -1

M3-E-SF -2

M3-E-SF -3

SCALE: 1:20

DATE: 18/05/14

SPONSORSHIP:

www.equipe.via.uji.es

M3-W-SF -1

M3-W-SF -2

M3-W-SF -3

M3-E-SF -1

M3-E-SF -2

M3-E-SF -3

WEST ELEVATION

EAST ELEVATION

M3-W-SF -1

M3-W-SF -2

M3-W-SF -3

M3-E-SF -1

M3-E-SF -2

M3-E-SF -3

SCALE: 1:20

DATE: 18/05/14

SPONSORSHIP:
ST-812

SOUTH ELEVATION

EAST ELEVATION

WEST/EAST ELEVATION

M4-W-SF -2

M4-N-SF -5

M4-E-SF -2

M4-W-SF -1

M4-N-SF -1

M4-N-SF -2

M4-N-SF -3

M4-N-SF -4

M4-N-SF -5

M4-W-SF -2

M4-E-SF -1

WEST ELEVATION

NORTH ELEVATION

EAST ELEVATION

MODULE 4: STEEL FRAME

DATE: 18/05/14

SCALE: 1:30

AUTHOR: Ricardo Salazar

SUBJECT: MODULE 4: STEEL FRAME

SPONSORSHIP:

www.equipe.via.uji.es
NORTH ELEVATION

MODULE 4: LAY OUT STEEL FRAME
ST-814

M4-W-SF -2

M4-E-SF -2

M4-W-SF -1

M4-E-SF -1

WEST ELEVATION

EAST ELEVATION

MODULE 4: LAY OUT STEEL FRAME

DATE : 18/05/14

SCALE : 1:30

AUTHOR : Ricardo Salazar

SPONSORSHIP :
The main material of the installation is PEX, because its flexibility and avoiding special connection pieces. They will be in one piece from the manifold until the output. The water networks will run through the floor like is seen in the cross section beside. The turn ratio of pipes should be at least 100 mm (5xØtube).

Phases:
1. All stopcock valves have to be closed until the whole installation is set and connected, finished.
2. Connecting pipes to manifolds (hot or cold water). The connection is made through specific connection pieces.
3. Pipes network setting, avoiding intersection between them.
4. Pipe-device joint. The connections are made directly from the floor to the tap (previous stopcock vale). The pipes are outside the walls, covered by furniture, except the shower, where the pipes are rising through the shaft next to the shower. The pipes are rising to the tap by the final layer of the wall, fixed to this wall by braces.
5. Connection between hot manifold and DHW tank inside the compact unit, output provided by stopcock valve and check valve.
6. The supply tank is outside the envelope, just next to the shaft and below the platform.
7. The tanks for irrigate the garden (recycled water and rainwater) are also below the platform and next to the garden.
8. The pump is not defined yet.

All the installation is accesible, so it allow us to assemble and disassemble without problems. Once all installation is finished and connected the stopcocks can be opened.

SYSTEM COMPONENTS:
- Vivania slab structure
- Insulation sheet
- Final wood flooring
- Rockwool insulation
- PEX pipes
- Manifolds
- DHW tank
- T-connection
- PRE-INSULATED PIPES

**LEGEND:**
- Outside general stopcock
- Input water from tank
- Cold water network distribution
- Hot water network distribution
- Faucet/input DHW or DCW devices
- Manifold
- Water meter box 500x600x100
- Check valve
- Stopcock
- T connection
The components of the sewer system are flexible PVC pipes, recycle tank for greywater and wastewater tank. Flexible PVC pipes will make the installation easier to set up and avoid some possible issues like too many connections, elbows or random issues.

To make the recycling water circulating it is necessary to add one pump to the system, creating pressure in the irrigation network.

The water that it is not possible to be recycled will be stored in a wastewater tank located under the plot in the North according with the drawing. Because the conditions during the competition, the sewer tank is going to collect the greywater coming from the kitchen sink and the dishwashing machine. The WC won’t be connected to the sewer network, neither the recycling water in the WC tank. In theory the recycled water could be also used to fill WC tank.
GREY WATER SYSTEM. LONGITUDINAL SECTION

SECTION KITCHEN AND GARDEN

SECTION BATHROOM
SYSTEM DESCRIPTION:

PVC elements:
- Gutters (A, D, E) taking the water from the roof, by gravity through the slope.
- Downpipes (B, F) in the corners. Lead the water from the roof to the bottom, PVC.
- Collectors (C and G) to gather the water from the different downpipes together. Flexible PVC.
- Size: Ø110 mm gutters, Ø50mm downpipes and collectors.
- PVC connection pieces in joints.
- Tank: under the platform, which irrigates the garden in collaboration with the recycled water tank. A valve is placed in the connection pipe of them tanks to allow the use of only one of them in the case it would be enough.

LEGEND:
- Gutter
- Downpipes Ø50mm (B y F)
- Collector down the prototype
- Slope direction

SYSTEM COMPONENTS:
- Connection F-C
- Connection F-C-G
- Tap in garden for irrigation
- Irrigation system (hosepipe)
- Gutter
**GUTTER IN ROOF**

- Gutter Ø110mm
- Waterproof layer
- Airtight layer
- Final roof layer
- Slope 2.5%

*The gutter is set into the roof second skin, which is forming the slope*

**RAINWATER SYSTEM SECTION Y-Y’**

- Downpipe through bathroom shaft
- Rainwater tank
- T-connection
- Ø20 mm PEX

**RAINWATER SYSTEM SECTION X-X’**

- To module roof (D)
- To garden roof (E)
- To garden roof (E)
- F downpipe
- G to tank
- C collector pipe

**NOTES**

- Rainwater System Section
- Sponsorship:
- Sofia Mora
- Date: 30/04/2014
- Scale: 1:50
**SCHEME AND DIAMETERS**

**LEGEND:**
- Outside general stopcock
- Faucet/ Input DHW or DCW devices
- Check valve
- Stopcock
- T connection
- Input water from tank
- Cold water network distribution
- Hot water network distribution
- Sewer network
- Rainwater network
- Irrigation network

*The WC is not connected in the competition*

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**PLUMBING INSTALLATION IN SHAFT**

scale 1:30

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**Sponsorship:**

**Plumbing Schematic Diagram**

**Author:** Sofia Mora

**Date:** 30/04/2014

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**Water Meter Box**

**Cross**

1. Main shutoff valve
2. Filter
3. Water meter
4. Checking tap
5. Check valve

---

**Waste Water Tank**

**Rainwater Tank**

**Recycle Tank**

---

**Water Meter Box**

**Cross**

1. Main shutoff valve
2. Filter
3. Water meter
4. Checking tap
5. Check valve

---

**Legend:**

- Input water from tank
- Cold water network distribution
- Hot water network distribution
- Sewer network
- Rainwater network
- Irrigation network

---

**Legend:**

- Outside general stopcock
- Faucet/ Input DHW or DCW devices
- Check valve
- Stopcock
- T connection
- Input water from tank
- Cold water network distribution
- Hot water network distribution
- Sewer network
- Rainwater network
- Irrigation network

*The WC is not connected in the competition*
SYSTEM DESCRIPTION

The panel is taking solar energy, and heating the brine inside the solar closed network between the panel in the roof and the DHW tank in the shaft (inside Compact unit). This brine takes the heat solar energy from the panel to the tank, where the energy is delivered to the water, rising up the temperature of the cold water coming to the tank from the fresh water tank.

From the tank the hot water is going to be distributed to the different devices in the prototype, as is described in PL-001 and PL-101. In the network there are one pump to allow the brine circulation, and several valves to allow the maintenance works. The panel is in the roof of the bathroom, close to the shaft in order to reduce amount of materials in the network.

This solar panel (provided by Butech) in combination with the Compact-P heat recovery in the tank, will supply the whole DHW prototype needs.
SYSTEM DESCRIPTION:

The idea is to use the mechanical ventilation as cooling and heating system.

1) The air is coming in from the outside through the "Compact P" system. That one is recovering the heat or cool from the exhaust air and also from the water tank. Thank to that and also because of the heat pump it is possible to reach the temperature demand having a low consumption.

2) The air is going through the duct set in the floor as we can see in the plan and going out through the air terminal set close to the window. It will make the air terminals work as thermal wall.

3) To create a flow inside the house, an exhaust is set in the ceiling in the opposite side of the supply. As we can see in the scheme the air is flowing all through the house help by the difference of pressure because of the temperature.

SYSTEM COMPONENTS:

1. COMPACT SYSTEM
2. FLOOR AIR TERMINAL
3. CEILING AIR TERMINAL
4. FLEXIBLE DUCT TO OUTSIDE
5. FLEXIBLE DUCT (INTERNAL NETWORK)
6. AIR SUPPLY TERMINAL
7. AIR EXHAUST TERMINAL
8. AIR EXHAUST PIPES
9. AIR SUPPLY PIPES
10. NILAN COMPACT P
11. PIPES COLLECTOR

NOTES
- Calculation for the flow are in the document ME-012
- The internal air terminals are defined by architecture department
- For further information of the ventilation elements check the annex bs 3.
Victor duct system are made of corrugated recycling plastic convince with their high mechanical strength (31,5 kN/m²). The tube can with their large flexibility be provided in the desired course.

The tubes are externally corrugated to highest flexibility, and inside lined with a smooth antistatic sock. This building warrant:
- Small flow resistance.
- Noise reduction.
- Minimal soil soil sediment.

The tube consist of the hygienic HDPE material of high quality and is odor neutral and antistatic treated.

COMPACT - P

MOUNTING OPTIONS

For both, supply and extraction should be used a special box FRS - VK. From these boxes you can, without the use of additional silencers conduct the various rooms.
In the prototype supply area, which is a large space, the supply air will be through parallel pipes, to achieve the desired amount of air.
There are valves framework for ceiling, wall and floor.
DEMAND ACCORDING WITH DIFFERENT METHODS

JUSTIFICATION:

- Calculation made base on the four methods from the CTE.

- Due the insulation of the house and the high qualities demands of the internal environment, the constrains have been increase to warranty that the highest quality air inside the house.

- The reference flow taken for the project is 56.24 l/s and this is and average of method A - B - D.

- The others methods have not been consider because of the high difference of value compare with these three ones which are more similar in value.

- To reduce possible issues and make easier the execution, flexible pipes are going to be use to conform the air ducts. (PENDING OF SPONSOR, LOOKING FOR ECOVENT.DK)

- The air terminals could change due architecture demands. (PENDING OF SPONSOR)

- The stove exhaust is in the main design but it is not going to be set in the prototype.
LEGEND:

1. COMPACT SYSTEM
2. WATER METER BOX
3. MANIFOLDS
4. VENTILATION DUCTS
5. PEX AND PRE-INSULATED PEX WATER PIPES
6. HVAC COLLECTOR

CROSS ELEVATION, WITHOUT COMPACT P

CROSS ELEVATION, COMPACT UNIT INCLUDED

LONG-SIDE ELEVATION

Mechanical room elevations

DATE : 13/11/2013
SCALE : 1:30

SPONSORSHIP :

DELIVERABLE : #7

AUTHOR : Sofia Mora

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Grid interconnection

Cross section E-E'  Scale 1:50

1. DC DISTRIBUTION BOARD
2. GENERATION METER
3. AC MAIN DISTRIBUTION BOARD
4. SDE MONITORING BOARD
5. CONNECTION TO CDS GRID
6. INVERTER
SOCKETS PLAN: General Plan
SOCKETS PLAN: General Plan 1/50
SOCKETS PLAN: Elevations 1
SOCKETS PLAN: Elevations 2
LIGHT PLAN: General Plan
LIGHT PLAN: General Plan 1/50
LIGHT PLAN: External Plan
LIGHT PLAN: External Plan

LEYEND
- MAIN CONTROL
- EXTERNAL LIGHT WIRE
- WIRE SWITCH - LIGHT
- WIRE SWITCH - SWITCH
- LIGHT FIXTURE
- ONE WAY SWITCH
- TWO WAY SWITCH
- DIRECT CURRENT
- CURRENT TRANSFORMER
- LED TUBE (EXTERIOR)
- LED LIGHT (LIVING ROOM)
- LED LIGHT (BEDROOM)
- EXTERNAL MAIN CONTROL
- JUNCTION BOX
- DIESEL LIGHT (LIVING ROOM)
- LED LIGHT (BEDROOM)

DELIVERABLE: #7
SUBJECT: ELECTRICAL SYSTEM
DATE: 03/08/14
SCALE: 1:100
AUTHOR: Ricardo Salazar Valdivia
Alvaro Escudero Gargori
Pablo Roures Verdoy
Carlos Cherta Cucala
SPONSORSHIP:
LIGHT PLAN: Elevations 1
LIGHT PLAN: Elevations 2
PV PANELS GENERAL PLAN

LEYEND

- PHOTOVOLTAIC PANEL
- CONNECTION TO PV PANEL
- GROUND WIRE
- WIRE
- FUSE
- GROUNDING POINT
- CONNECTION TO THE GRID

DATE: 03/08/14
SCALE: 1:50

AUTHOR:
Ricardo Salazar Valdivia
Alvaro Escudero Gargori
Pablo Roures Verdoy
Carlos Cherta Cucala

SPONSORSHIP:
PHOTOVOLTAIC SYSTEM: GRID/HOUSE CONNECTION
AUTOMATIC SYSTEMS: CONTROL OF THE LIVING AREA LIGHTS
SHADDING CONTROL

LEYEND

- INTAKE
- MAIN CONTROL
- CPU
- GENERAL WIRE 16 A
- GENERAL WIRE 25 A
- WIRE TO T-REX
- WIRE - GROUND
- ETHERNET CABLE TO CPU
- WIRE T-REX TO SWITCH
- WIRE (LOW VOLTAGE) FROM ARDUINO TABLET TO SWITCH
- JUNCTION BOX
- PLUG 24 A
- PLUG 16 A
- ARDUINO + TRIAC ACTIVATOR MOTOR

DATE: 03/08/14
SCALE: 1:50
DELIVERABLE: #7
SUBJECT: ELECTRICAL SYSTEM
AUTHOR: Ricardo Salazar Valdivia
Alvaro Escudero Gargori
Pablo Roures Verdoy
Carlos Cherta Cucala
SPONSORSHIP:
SENSOR CONTROL

LEYEND

- INTAKE
- MAIN CONTROL
- CPU
- SENSOR WIRE
- TEMPERATURE, CO2 HUMIDITY
- MOVEMENT SENSOR
- SMOKE SENSOR
- WEATHER STATION

NOTES

SPONSORSHIP:

DATE: 03/08/14
SCALE: 1:50

AUTHOR:
Ricardo Salazar Valdivia
Alvaro Escudero Gargori
Pablo Roures Verdoy
Carlos Cherta Cucala
A  Diameter 25 mm

B  Diameter 20 mm

MB Monitoring Box

DB Distribution Box
(Electrical Team Box)

5.1, 5.2, 5.3 Bedroom
17 m

5.1, 5.2, 5.3 Living Room
13 m

6.1, 6.2  12 m

6.3, 6.4  9 m

6.5  9 m

6.9  13 m
MONITORING PANEL

PV METER

LOAD METER

<50 cm

>95 mm

<50 cm

SDE GRID

eBRICKhouse
LIMIT

ELECTRICAL
TERMICAL
BLOCS

PV SYSTEM
LOADS

ELECTRICAL
PROTECTIONS

ID-004
DAY 1: Site preparation and foundation

MORNING

AFTERNOON

NIGHT
DAY 2: Crane Operations

MORNING

AFTERNOON

NIGHT
DAY 2: Crane Operations

MORNING

AFTERNOON

NIGHT
DAY 2: Crane Operations

MORNING  

AFTERNOON  

NIGHT
DAY 2: Crane Operations

Greenhouse Floor

Crane Operations

MORNING

AFTERNOON

NIGHT
DAY 3: Exterior Cladding (ventilated facade - east) and Photovoltaic Installation (Conexion, check and test)

DAY 4: Exterior Cladding (mobile sunscreen - south) and Installations (Plumbing and ventilation)

DAY 5: Exterior Cladding (Ceramic tiles - west) and Interior Works

Exterior Cladding (north)
DAY 6: Exterior Cladding (north) and Exterior Platform
DAY 7: Furnitures and Interior Design

DAY 8, 9, 10: Verifications/ Finishes/ Ceck/ Test/ Cleaning/ Delay

DATE: 26/03/14

AUTHOR: David Fernández

SPONSORSHIP:

DELIVERABLE: #7

SITE OPERATION.

Assembly - 13 of 13
DAY 1: Dissassembly Exterior Platform, Furnitures and Exterior Cladding
DAY 2: Dissassembly Exterior Cladding and Disconnecting electrical and plumbing systems
DAY 3: Disassembly PV system, top roof and windows
DAY 4: Crane operations
DAY 4: Crane operations

Greenhouse floor

MORNING  AFTERNOON  NIGHT

DATE: 26/03/14
SCALE: 
SPONSORSHIP:

AUTHOR: David Fernández
DAY 4: Crane operations       Disassembly Greenhouse floor            Crane Operations
DAY 4: Crane operations
Disassembly Greenhouse floor
Crane Operations

MORNING      AFTERNOON      NIGHT
DAY 4: Crane operations       Disassembly Greenhouse floor            Crane Operations
DAY 5: Removal foundation and Site Cleaning
SIGNPOSING

- Trapped by or between objects
- Fall of objects
- Circulation way
- Fall because of barriers
- Back injury

- Don’t run on walkway
- Don’t smoke here
- Don’t pass under load
- Work forbidden

- First aid kit
- Voice of management
- Fire extinguisher

Subject: Health and Safety during the outside logistic

Author: Rosa Prades

Date: 27/03/14
General individual protections

- Pants
- Safety shoes
- Gloves
- Helmet
- Earplugs
- Safety goggles
DAY 1: Site preparation and foundation
DAY 2: Crane Operations

SITE SAFETY

- Warning: Construction activities in progress.
- Head Protection

- Danger of falling objects

DATE: 26/03/14
AUTHOR: Rosa Prades
SPONSORSHIP: EQUiPEx V&A
DELIVERABLE: #7
SUBJECT: HEALTH AND SAFETY during assembly - 2 of 13

www.equipe.via.uji.es
DAY 2: Crane Operations

SITE SAFETY

Warning Construction activities in progress.

HEAD PROTECTION

DATE: 26/03/14

AUTHOR: Rosa Prades

SPONSORSHIP:

DATE: 26/03/14

SCALE: HS-403
DAY 2: Crane Operations

SITE SAFETY

Warning: Construction activities in progress.

HEAD PROTECTION

Danger of falling objects

DATE: 26/03/14
AUTHOR: Rosa Prades
SPONSORSHIP: PORCELANOSA
DELIVERABLE: #7
SUBJECT: HEALTH AND SAFETY during assembly - 5 of 13
SCALE: HS-405
DAY 2: Crane Operations

SITE SAFETY

Warning Construction activities in progress.

HEAD PROTECTION

Danger of falling objects

SITE SAFETY

DATE: 26/03/14
AUTHOR: Rosa Prades
SPONSORSHIP: www.equipe.via.uji.es
SITE SAFETY

Warning
Construction activities in progress.

HEAD PROTECTION

DATE: 26/03/14

SPONSORSHIP:
PORCELANOSA

AUTHOR: Rosa Prades

DELIVERABLE: #7

SUBJECT: HEALTH AND SAFETY during assembly - 7 of 13

AUTHOR: Rosa Prades

DATE: 26/03/14

SPONSORSHIP:
PORCELANOSA
SITE SAFETY

DAY 2: Crane Operations Greenhouse Floor       Crane Operations Roof

DATE : 26/03/14
SCALE :
SPONSORSHIP :
AUTHOR : Rosa Prades
DELIVERABLE : #7
SUBJECT : HEALTH AND SAFETY during assembly - 9 of 13

HS-409
SITE SAFETY

DAY 2: Crane Operations Greenhouse Floor Crane Operations Roof Windows and Photovoltaic Installation

DATE: 26/03/14

AUTHOR: Rosa Prades

SPONSORSHIP:

HEALTH AND SAFETY during assembly - 10 of 13

DELIVERABLE: #7

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SCALE:
DAY 3: Exterior Cladding (ventilated facade - east) and Photovoltaic Installation (Conexion, check and test)

DAY 4: Exterior Cladding (mobile sunscreen - south) and Installations (Plumbing and ventilation)

DAY 5: Exterior Cladding (Ceramic tiles - west) and Interior Works

Exterior Cladding (north)

MORNING AFTERNOON NIGHT
HEALTH AND SAFETY during assembly - 12 of 13

SITE SAFETY

Warning
Construction activities in progress.

HEAD PROTECTION

AUTHOR: Rosa Prades

SPONSORSHIP:

DATE: 26/03/14

SCALE:

MORNING

AFTERNOON

NIGHT

DAY 6: Exterior Cladding (north) and Exterior Platform
DAY 7: Furnitures and Interior Design

DAY 8, 9, 10: Verifications/ Finishes/ Check/ Test/ Cleaning/ Delay

SITE SAFETY

HEAD PROTECTION

Warning
Construction
activities in progress.
DAY 1: Dissassembly Exterior Platform, Furnitures and Exterior Cladding
DAY 2: Dissassembly Exterior Cladding and Disconnecting electrical and plumbing systems
DAY 3: Disassembly PV system, top roof and windows
DAY 4: Crane operations

MORNING

AFTERNOON

NIGHT

DATE: 26/03/14

SCALE: HS-417

AUTHOR: Rosa Prades

SPONSORSHIP:

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DELIVERABLE: #7

SUBJECT: HEALTH AND SAFETY during disassembly - 4 of 10
DAY 4: Crane operations
Greenhouse floor

SITE SAFETY

Warning
Construction activities in progress.

HEAD PROTECTION

Danger of falling objects

DATE: 26/03/14
SCALE: #7
SPONSORSHIP: PORCELANOSA
AUTHOR: Rosa Prades

SUBJECT: HEALTH AND SAFETY during disassembly - 5 of 10
SITE SAFETY

Warning: Construction activities in progress.

HEAD PROTECTION

DAY 4: Crane operations       Disassembly Greenhouse floor            Crane Operations

MORNING AFTERNOON NIGHT

DATE : 26/03/14
SCALE : 

SPONSORSHIP :

AUTHOR : Rosa Prades

DELIVERABLE : #7
SUBJECT : HEALTH AND SAFETY during disassembly - 6 of 10

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 HS-419
HS-420

SITE SAFETY

DAY 4: Crane operations       Disassembly Greenhouse floor            Crane Operations

DATE : 26/03/14
SCALE :
Sponsorship :

DELIVERABLE : #7
SUBJECT : HEALTH AND SAFETY during disassembly - 7 of 10

AUTHOR : Rosa Prades

DELIVERABLE : #7
SUBJECT : HEALTH AND SAFETY during disassembly - 7 of 10

AUTHOR : Rosa Prades
Health and Safety during disassembly - 9 of 10

DAY 4: Crane operations       Disassembly Greenhouse floor            Crane Operations

SITE SAFETY

Warning:
Construction activities in progress.

Head Protection

Danger of falling objects

DATE: 26/03/14

AUTHOR: Rosa Prades

SPONSORSHIP:

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DAY 5: Removal foundation and Site Cleaning

SITE SAFETY

Warning: Construction activities in progress.

HEAD PROTECTION

DATE: 26/03/2014

AUTHOR: Rosa Prades

SPONSORSHIP:

PERCELANOSA

HEALTH AND SAFETY during disassembly - 10 of 10
Receiving the public
Answering the basics questions of sequence
Anticipating the language of the groups + offering drinking waters

Organizing the visitors on the waiting line
Groups members is based on the amount of people waiting and the languages that they speak.

Guiding visitors to the exterior garden.
Waiting space. Free time and children games.

Entrance. Doorman.

Exit. Doorman.

CONCEPT/ CONSTRUCTION SYSTEM/
MATERIALS/ FACILITIES

GARDEN/ AFFORDABILITY/ PASSIVE
and ACTIVE SYSTEM (garden - change material) / SUSTAINABILITY

INTERIOR SPACE / DISTRIBUTION /
FURNITURE

TERRACE/ FACADE SYSTEM

DISABLE PEOPLE ACCESABILITY
5% AND 4% RAMPS PENDENT
EXTerior GARDEN

SECOND STAIRS

BEDROOM

KITCHEN

OPEN SPACE

GREENHOUSE

MAIN STAIRS

MAIN ROAD

RAMP pte. 4%
**DELIVERABLE**: #7

**SUBJECT**: House tour general information

**AUTHOR**: Irene Ruiz Guillén

**SPONSORSHIP**: PORCELANOSA

**DATE**: 23/04/2014

**SCALE**: 1:100

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**Main Road**

- **Z1**: Concept/Construction System/Materials/Facilities
- **Z2**: Garden/Affordability/Passive and Active System (garden-change material)/Sustainability
- **Z3**: Interior Space/Distribution/Furniture
- **Z4**: Terrace/Facade System

---

**Exterior Garden**

- **c**: Receiving the public
  Answering the basics questions of sequence
  Anticipating the language of the groups
  Offering drinking waters

- **b**: Organizing the visitors on the waiting line
  Groups members is based on the amount of people waiting and the languages that they speak.

- **c**: Guiding visitors to the exterior garden
  Waiting space. Free time and children games.

- **d**: Entrance. Doorman.

- **e**: Exit. Doorman.

---

**Second Stairs**

- **a**: Receiving the public
  Answering the basics questions of sequence
  Anticipating the language of the groups
  Offering drinking waters

---

**Second Stairs**

- **a**: Receiving the public
  Answering the basics questions of sequence
  Anticipating the language of the groups
  Offering drinking waters
Receiving the public
Answering the basics questions of sequence
Anticipating the language of the groups
+ offering drinking waters

Organizing the visitors on the waiting line
Groups members is based on the amount of people waiting and the languages that they speak.

Guiding visitors to the exterior garden.
Visiting space. Free time and children games.

Entrance, Door
Exit, Door

CONCEPT/ CONSTRUCTION SYSTEM/ MATERIALS/ FACILITIES

GARDEN/ AFFORDABILITY/ PASSIVE and ACTIVE SYSTEM (garden - change material) / SUSTAINABILITY

INTERIOR SPACE / DISTRIBUTION / FURNITURE

TERRACE/ FACADE SYSTEM