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**LOCALIZATION**

**DESCRIPTION**

**SIGNATURE**

**SHEET LIST**

**SCALE N/S**

**GE-101**
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**LOCALIZATION**

**DESCRIPTION**

**SIGNATURE**

**ELECTRICAL SYMBOLS**

**SCALE**

**GE-202**

5
THERE IS NO USE OF ABBREVIATIONS
Urban project location and analysis of the urban area
These drawings show the implementation of a Temporary Villa FENIX in one of the football fields studied in the city of Valparaíso. In this case the area was actually affected by a fire, which hit the life of the inhabitants years ago, leaving them in precarious living conditions. Therefore the physical location of the Emergency Villa is a real possibility to be implemented in the case of a catastrophe.
This sheet shows the progressive evolution of the definitive Eco Permanent Villa FENIX in the same study case of a real fire occurred in El Vergel area. The design of the villa proposed by team FENIX contemplates a new vision of the city, implementing design elements that protect against fire and green areas, to be used also as urban orchards.
Sketches showing how the Eco Permanent Villa FENIX progresses in time and develops as a new way of design for the hills of Valparaíso. With this new proposal for the city, team FENIX wishes to accomplish sustainable way of living for the inhabitants, thinking at a long term how to improve our quality of life and take advantage of the urban characteristics of the city.
Note: Thermal mass wall is considered within the measurable area, because its height is lower than 1.80m
ELEVATION AR-112
ELEVATION AR-113
ELEVATION AR-115
SECTION AR-201
Bloc bâle M3D MIX R. (précadre 4 cotés)

alu : 7016 givré
essence bois : pin naturel lasure incolore
Bloc baie M3D MIX R. (précadre 4 cotés)

alu : 7016 givré
essence bois : pin naturel lasure incolore
Bloc baie M3D MIX R. (précadre 4 cotés)

alu : 7016 givré
essence bois : pin naturel lasure incolore
**Bloc baie M3D MIX R.** (précadre 4 cotés)

alu : 7016 givré

essence bois : pin naturel  lasure incolore
Bloc baie M3D MIX (précadre 4 cotés)

alu : 7016 givré
essence bois : pin naturel lasure incolore
Bloc baie M3D MIX (précadre 4 cotés)

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essence bois : pin naturel lasure incolore
Bloc baie M3D MIX (précadre 4 cotés)

alu : 7016 givré
essence bois : pin naturel lasure incolore

Réservation 1155

Coupure horizontale
Bloc bale M3D MIX R. (précadre 4 cotés)

alu : 7016 givré
essence bois : pin naturel lasure incolore
Bloc baie M3D MIX (précadre 4 cotés)

alu : 7016 givré
essence bois : pin naturel lasure incolore
### Localisation

**Gamme:** M3D Mix  
**Désignation:** PF16 DP  
**Ossature:** 284  
**Dimensions:** 2135*1020  
**Hauteur Imposte:** 2104*962  
**Type de pose doublage:**  
**Scale:** 1/5  
**Fenêtre par l’extérieur:**   
**Engager la fenêtre par l’extérieur:**

<table>
<thead>
<tr>
<th>Réf.</th>
<th>Désignation</th>
<th>Type de pose</th>
<th>Dimensions réservation (H*L)</th>
<th>Dimensions tableau (H*L)</th>
<th>Cote D</th>
<th>Hauteur Imposte</th>
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<td>PF16 DP</td>
<td>ossature 284</td>
<td>2135*1020</td>
<td>2104*962</td>
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**Commentaires:**  
- alu : 7016 givré - pin naturel - précadre 7016  
- Hauteur tableau = hauteur de réservation - 31 mm  
- Largeur tableau = largeur de réservation - 58mm  
- Manuelles assemblées: X sans en usine sur chantier

### Bloc baie M3D MIX (précadre 4 cotés)

alu : 7016 givré  
essence bois : pin naturel lasure incolore
Wood Cladding

Ventilated air space 22 + 30 mm

Humidity Barrier + Pavatherm 60 mm (140 kg/m³ - 0,038 W/mK)

Pavaflex (Insulation) 100 mm (55 kg/m³ - 0,038 W/mK) + Pare-vapeur

Technical void 45 mm

Lining 10 mm (MDF decorative)

Ventilated air space 22 + 30 mm

OSB Panel 9 mm

Pavaboard 60 mm (220 kg/m³ - 0,049 W/mK)

Floor covering (linoleum) 16 mm

Beam 45/45 + 2 x 45/45

Insulation Support 50/45 (Ossature secondaire)
Wood Cladding

Humidity Barrier + Pavatherm 80 mm (140 kg/m² - 0.038 W/mK)

Pavaflex Insulation 100 mm (55 kg/m² - 0.038 W/mK) + Pare-vapeur

Technical void 45 mm

Lining 10 mm (MDF decorative)
WEATHER ANALYSIS
In general terms, weather analysis has considered the different climatic zones defined by the Chilean regulations, which also mention pre-designed generic solutions and strategies. The house main design concept uses these precedents.

Valparaiso has very mild climate—which can be considered Mediterranean (Koppen csb)—due to its coastal condition (which reduces the occurrence of extreme temperatures), and the amphitheatre shape of its hills, which protect it from the predominant south-west winds. Temperatures range from 10ºC to 28ºC in summer, and between 5ºC and 20ºC in winter, with little diurnal variations. Relative humidity is consistently above 60%, and although the skies can sometimes be covered by fog, solar radiation is also very consistent and can be relied on for passive strategies all year round.

Valparaiso is very well protected by prevailing south west winds, although this also implies that occasionally during winter, bad weather fronts will fall on the city from the north, causing very heavy rains and tidal swells.

The psychrometric chart above describes a yearly weather with relatively good conditions, where thermal comfort can be experienced with no effort at all, or with internal gains strategies. Without the use of further strategies, heating might be needed for up to 25% of the time.
VERSAILLES WEATHER ANALYSIS

WEATHER ANALYSIS
With regards to Versailles, the climate data used for the weather analysis and thermal modelling was obtained from Meteonorm software, as result of interpolation of six weather stations in the area, including several in the area of Paris and Trappes, ensuring a slightly lower external temperatures to account for Versailles more open conditions, and more reduced island effect of Paris.

The full weather analysis indicates a Koppen climatic as Oceanic CFb Warm temperate humid. Minimum temperatures are near the frozen point in winter (2°C) and maximum warm in summer reaches 24°C. Relative humidity is high mostly the time. Solar radiation is very low in winter. The wettest moths are April, June and October.

The climate analysis indicates on the psychometric chart, there is a several month in winter of high humidity and low temperatures that required constant heating. Passive solar gains are preferable.

Internal Gains are possible to be used in spring and fall, and comfort condition is possible only in summer. Orientation suggest open to south and closed to East and West. Compact design is preferable. High insulated building envelope with mid thermal mass. Opening on 25% to 40% are recommended. Controlled natural ventilation is necessary.
Summer Day
Rooms with Sunspace

Summer Day
Rooms without Sunspace

Thermal Comfort

Simbology:
- \( > \) temp
- \( < \) temp
- Lattice
- Thermal Curtain
- Air Flow
- Solar Radiation
- Internal Gains

1. Lattice prevents solar radiation access
2. Thermal Curtain prevents heat transfer between the sunspace and the thermal mass wall.
3. Heat transfer between the environment and the liquid thermal mass wall.
4. Air inlets will be opened to generate stack effect or crossed ventilation.
5. Air outlets will be opened to generate stack effect or cross-ventilation.
6. Thermal curtain prevents solar radiation access to the living spaces.
**Summer Night**

**Rooms with Sunspace**

**Thermal Comfort**

- **Symbology**
  - > temp
  - < temp
  - Lattice
  - Heat transfer
  - Thermal curtain
  - Air Flow
  - Internal Gains
  - Solar Radiation

1. Thermal Curtain prevents heat transfer between the rooms and the sunspace
2. Heat transfer between the liquid thermal mass wall and the environment
3. Air inlets will be opened to generate stack effect or cross-ventilation
4. Air outlets will be opened to generate stack effect or crossed ventilation

**Summer Night**

**Rooms without Sunspace**
**Thermal Comfort**

**Simbolology**

1. **Lattice**
2. **Thermal curtain**
3. **Air Flow**
4. **Heat transfer**
5. **Internal Gains**
6. **Portable Gas Heater**

**Strategy**

1. **Lattice** allows solar radiation access to the living space.
2. Radiation is stored in the liquid thermal mass wall.
3. Air inlets will be closed.
4. Air outlets will be closed.
5. Internal gains heat the environment.
6. Portable Gas Heater if necessary.

**BIOCLIMATIC DRAWINGS**

**VALPARAISO WEATHER**

**LOCALIZATION**

**DESCRIPTION**

**SIGNATURE**

**BA-013**
Thermal Comfort

Simbolology

> temp
< temp

1. Lattice
2. Thermal curtain
3. Air Flow
4. Internal Gains
5. Solar Radiation
6. Portable Gas Heater

Strategy

1. Thermal Curtain prevents heat transfer between the rooms and the sunspace
2. Heat transfer between the liquid thermal mass wall and the rooms
3. Air inlets will be closed
4. Air outlets will be closed
5. Internal gains heat the environment
6. Portable Gas Heater if necessary
Summer Day
Rooms with Sunspace
Floor Energy Flux < 140 W/m²

Summer Day
Rooms without Sunspace
Floor Energy Flux < 140 W/m²

Thermal Comfort

1. Fresh air is insufflated inside the house
2. Stale air is removed from the house
3. Heat transfer between the environment and the liquid thermal mass wall

Thermal Simbology

- Fresh Air
- Stale Air
- Heat Transfer
- Solar Radiation
- Thermal Curtain
- Ventilairsec
- PCM Duct
- Mixer

Description

Scenario 1
(FLOOR ENERGY FLUX < 140 W/m²)
1. Summer Day
   Living Space
2. Summer Day SM
### Thermal Comfort

#### Strategy

1. **Fresh air is insufflated inside the house**
2. **Stale air is removed from the house**
3. **Heat transfer between the environment and the liquid thermal mass wall**
4. **Solar curtains prevent solar radiation access in front of the windows (closed 70%)**

#### Simbology

- **Stale Air**
- **Fresh Air**
- **Thermal curtain**
- **Ventilairsec**
- **Internal Gains**
- **FAN**
- **Heat transfer**
- **PCM Duct**
- **Mixer**
- **Solar Radiation**
- **Internal Gains**
- **Fresh Air**
- **Heat transfer**
- **PCM Duct**
- **Mixer**
- **Solar Radiation**
Summer Night
Rooms with Sunspace
T°\text{int} - T°\text{ext} < 3°C

- 40 m$^3$/h
- Windows are opened to generate cross-ventilation
- Heat transfer between the environment and the liquid thermal mass wall
- Fresh air is insufflated inside the house
- Stale air is removed from the house

Summer Night
Rooms without Sunspace
T°\text{int} - T°\text{ext} < 3°C

- 30 m$^3$/h
- Windows are opened to generate cross-ventilation
- Heat transfer between the environment and the liquid thermal mass wall

\text{Thermal Confort}

1. Fresh air is insufflated inside the house
2. Stale air is removed from the house
3. Windows are opened to generate cross-ventilation
4. Heat transfer between the environment and the liquid thermal mass wall
Summer Night
Rooms with Sunspace
T°int - T°ext ≥ 3°C

- Fresh air is insufflated inside the house
- Stale air is removed from the house
- Windows are opened to raise the air change rate
- Heat transfer between the environment and the liquid thermal mass wall

Summer Night
Rooms without Sunspace
T°int - T°ext ≥ 3°C

- Thermal Confort

1. Fresh air is insufflated inside the house
2. Stale air is removed from the house
3. Windows are opened to raise the air change rate
4. Heat transfer between the environment and the liquid thermal mass wall
### Thermal Confort

#### Simbology

- **> temp**
- **< temp**
- **Hot Air**
- **Warm Air**
- **Fresh Air**
- **Ventilairsec**
- **FAN**
- **PCM Duct**
- **Cool and Hot air is mixed to regulate temperature**
- **Heat transfer**

#### Strategy

1. Radiation is stored in the liquid thermal mass wall
2. Cool air from outside is heated by Ventilairsec system
3. Cool air enters to regulate temperature of hot air
4. Cool and Hot air is mixed to regulate temperature
5. Warm air is insufflated inside the house
6. Internal gains heat the environment
7. Stale air is extracted from the service rooms

---

**Winter Day**

- Rooms with Sunspace
- Rooms without Sunspace
- Ventilairsec
- °C

---

**DESCRIPTION**

1. WINTER DAY LIVING SPACE
2. WINTER DAY SM

---

**SIGNATURE**

**LOCALIZATION**

**BA-019**
Heat transfer between the liquid thermal mass wall and the rooms

2 Cool air from outside is vacuumed by Ventilairsec system

3 PCM inside the Ventilairsec stock heats the air

4 Cool air enters to regulate temperature of hot air

5 Cool and Hot air is mixed to regulate temperature

6 Warm air is insufflated inside the house

7 Internal gains heat the environment

8 Stale air is extracted from the service rooms

9 Thermal Curtain prevents heat losses through the windows
REFLECTED CEILING

1. Interior ceiling material
White wood panelling/ Raw finishing
2000 x 140 x 13.5 mm

SCALE 1:100

IN-101 74
LIVING ROOM

1. Interior wall material
   White wood paneling/Raw Finishing
   2050 x 140 x 13.5 mm
LIVING ROOM

1. Interior wall material
   White wood paneling/Raw finishing
   2050 x 140 x 13.3 mm
LIVING ROOM

1. Interior wall material
   White wood paneling/Raw finishing
   2050 x 140 x 13.5 mm
KITCHEN

1. Interior wall material
   White wood paneling/Raw finishing
   2050 x 140 x 15.5 mm
**BATHROOM**

1. Interior wall material
   - White wood paneling/Raw Finishing
   - 2000 x 140 x 13.5 mm

2. White ceramic tiles
SM/Bedroom

1. Interior wall material.
   White wood paneling/ Raw finishing
   2500 x 140 x 15.5 mm
SM/ BEDROOM

1. Interior wall material: White wood paneling/Raw finishing
   2050 x 140 x 13.3 mm

SCALE 1:20
VERTICAL GARDEN

Vertical garden system fabricated with recycled plastic bottles and tensor cable
KITCHEN

Liquid Thermal Mass

Thermal Wall Detail: It is composed of a series of stones and plastic bottles full of liquid thermal mass (water).
Drawer 1 - 2

1. 2" Dark grey pannel veneer
2. 15 mm Natural wood pannel venner
3. Dark grey drawer pull
4. Wall as background
5. 15 mm Natural wood pannel veneer
6. 15 mm Dark grey pannel veneer
1. Natural Wood board
2. Dark Grey Panel Veneer
- Countertop
- Sink
- Refrigerator
- Dining table

KITCHEN

Water Thermal Wall
Water Thermal Wall
SECTION F-F'

a) Countertop BOSCH PIM651R16E
   Built-in measurements 56 x 49/50 x 5.1 cm

b) Dishwasher (According to availability)
   Built-in measurements 45.3 x 42.3 cm

d) Oven WHIRLPOOL AKZM7530/S
   Built-in measurements 56 x 55 x 60 cm

d) Dishwasher ESSENTIEL B ELVC551B
   Built-in measurements 43.5 x 55 x 50 cm

e) Refrigerator SIEMENS KD33E4140
   Measurements 176 x 60 x 65 cm
a) Hot water storage

b) Washbasin

b) WC

b) Shower
a) Hot water storage
   Diameter 557 h 104 cm / 150 lt

b) Washbasin

c) WC
   Not connected to greywater

d) Shower
   Outlet screw 1/2''

e) Washing Machine LG F74932WH
   85 X 60 X 59 cm

f) Water pump
   Sound Insulated

Water meter
   Easy to access
GL 24 H
330x350mm
thickness >62.5mm

Adjustable Blocks "BUZON" DPH-5
100/175mm with slope compensator integrated or DPH-2 +PH5 44/62mm

8 blades terraces
480x120x27 treated class 4
(outside use)
SUN SPACE ROOF

1.2 1.1 2 3 4 5 6 7 8.1 8.2
1.3 2.2

PLEASE REFER TO ST-308 - ST-325 DRAWINGS FOR DETAILS.
1/2 module n°8
1/2 module n°7
1/2 module n°6

COUPE B

COUPE A

PLAN

LOCALIZATION

DESCRIPTION

SIGNATURE

UNIVERSIDAD TÉCNICA FEDERICO SANTA MARIA

ST-309
1/2 module n°5
1/2 module n°4

COUPE B

COUPE A

PLAN

ST-311

131
1/2 module n°2

COUPE B

COUPE A

PLAN

3065

577 1330

2443 3065

1193

181

181

577

1330

1193

181

181

1193
1/2 module n°1
COUPE A

VUE PERPENDICULAIRE A LA TOITURE

COUPE B
COUPE A

VUE PERPENDICULAIRE A LA TOITURE

COUPE B
DHW Domestic Hot Water system
SK Sink
DW Dishwasher
WM Washing machine
WB Wash basin
SW Shower
V Water pump
W Water meter

All the openings above the tanks are easily accessible.
SK  Sink
DW  Dishwasher

16mm

From Cold water supply
DHW Domestic Hot Water system
SK Sink
WB Wash basin
SW Shower
DHW Domestic Hot Water system
SK Sink
WB Wash basin
SW Shower

LOCALIZATION

SIGNATURE

PLUMBING PLAN HOT WATER
SCALE 1:25

PL-006 155
DHW Domestic Hot Water system
SK Sink
DW Dishwasher
WM Washing machine
WB Wash Basin
SW Shower
Water pump

All the openings above the tanks are easily accessible.

UNIVERSIDAD TECNICA FEDERICO SANTA MARIA
WATER DELIVERY DATES
Monday 23 June
Volume of water: 1500 Lt
Monday 7 July
Volume of water: 350 Lt

DHW Domestic Hot Water system
SK Sink
DW Dishwasher
WM Washing machine
WB Wash basin
SV Shower
### TECHNICALS CHARACTERISTICS

**VMI FAN / FILTER**

#### Characteristics per mode

<table>
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<tr>
<th>Vitesses</th>
<th>Débits d'air en m³/h</th>
<th>Consommation ventilateur seul en watts/h</th>
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TECHNICALS CHARACTERISTICS
FILTER

Characteristics

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| FINAL PRESSURE DROP Pa    |               |
| FINAL PRESSURE DROP Pa EN 13 053 |          |

| TEMPERATURE LIMITS °C    |               |
| CONTINUOUS               |               |
| EVENT                    |               |
| LIFE TIME OF EVENT       |               |
| FIRE TEST                |               |

| MATERIAL COMPONENTS :    |               |
| CELL SIDES               | NA           |
| MEDIA PACK               | POLYPROPYLENE |
| BOND                     | NON          |
| SEPARATOR                | NON          |

Diagram:
- Dimension
- Pressure losses Pa vs Velocity en m/s
- Localisation: ME-012
- Description: Technical Characteristics of VMI Fan/Filter
- Signature: ME-012
TECHNICALS CHARACTERISTICS
HEATING FAN FRAME

Characteristics

1. Product Description

Design and Performance Characteristics
- compact clamping frame
- ALU-finned elements for electrical contact and optimal heat transfer possibilities
- several single heating circuits, various connection possibilities
- heating and regulation in one function
- safety through temperature limiting characteristic

2. Technical Data

Manufacturer: DBK David+Baader GmbH
Product Name: PTC – Finned Resistor Heater
DBK-Order No.: 371 359.01
Type: HRKK01 4/24 220-240V
Protection class: To be ensured through way of assembly

Rated voltage: 230 V AC or DC
Rated Power: 540 W

Inrush current: max 5 A at 240 V

Electrical connection: spade terminals 6,3 x 0,8 mm, steel nickel-plated

Max. Surface temp.: max. 230°C no operating mode;
Power in case of failure: 80 W

Measurements: see section 3
Fixings: see section 3
Weight: approx. 220g

Ambient temperature: -25°C to +65°C
Humidity: max 85% relative humidity

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Fixings: see section 3
Weight: approx. 220g

Ambient temperature: -25°C to +65°C
Humidity: max 85% relative humidity
The outside cold air is heated by the Solar Collector [3], reaching almost 40°C

Then the hot air comes through the PCM Box Storage [3], heating it.

The hot air is drawn by the fan [5]

The hot air is mixed [4] with the outside cold air [1], reaching 25°C.

The mixed warm air is dispersed by the inside outlets [6,7]

The air flow in [6] is 40m³/h, meanwhile in [7] is 30m³/h.

The inside overpressure is regulated by the outlets in the north facade [8,9]

The air flow in [8] is 40m³/h, meanwhile in [9] is 30m³/h.

- **Red**: Hot Air heated by the Solar Collectors
- **Blue**: Cold Air that come from outside inlets
- **Yellow**: Warm Air that is result of the mixture
The outside warm air [1] is drawn by the fan [10].

The Air Mixer [2] allow the enter of hot air from the Solar Collectors.

The warm air is disperse by the inside outlets [4,5].

The air flow in [4] is 400m³/h, meanwhile in [5] is 200m³/h.

The air flow in the north facade outlets is 60m³/h in [6], meanwhile in [7] is 40m³/h.

The inside overpresson is regulated by the windows opening.
The outside warm air [1] is drawn by the fan [3].

The Air Mover [2] not allow the entry of hot air, from the Solar Collectors.

The warm air is dispersed by the inside outlets [4,5].

The air flow in [4] is 40m³/h, meanwhile in [5] is 30m³/h.

The air flow in the north facade outlets is 40m³/h in [6], meanwhile in [7] is 30m³/h.

The inside over pressure is regulated by the windows opening.
The outside cool air is heated by the Solar Collector [1] reaching almost 40°C.

Then the hot air comes through the PCM Box Storage [2], heating it.

The hot air is drawn by the fan [3].

The hot air is mixed [4] with the outside cool air [1], reaching 20°C.

The mixed warm air is dispersed by the inside outlets [6,7].

The air flow in [6] is 40m³/h, meanwhile in [7] is 30m³/h.

The inside overpressure is regulated by the outlets in the north facade [8,9].

The air flow in [8] is 40m³/h, meanwhile in [9] is 30m³/h.
The outside warm air (1) is drawn by the fan (3).

The Air Mover (2) not allow the enter of hot air, from the Solar Collectors.

The warm air is disperse by the inside outlets (4-5).

The air flow in (4) is 40m³/h, meanwhile in (5) is 100m³/h.

The air flow in the north facade outlets is 45m³/h in (6), meanwhile in (7) is 35m³/h.

The inside overpression is regulated by the windows opening.

- **Yellow**: Outside Warm Air
- **Red**: Used Hot Air
HVAC REMOTE CONTROL

Remote Control

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Cablet de Terre Cuivre Nu 25mm²

Piquet de Terre

Vers bornier de terre TGBT

Connection wire to the grid 3G16mm²
Length: 20m

LOCALIZATION
EL-001
SCALE 1/50
GRID INTERCONNECTION
SIGNATURE
DESCRIPTION

LIVING ROOM
WORKSPACE
KITCHEN
BATHROOM
BEDROOM

Vers bornier de long TGBT

Cablet de Terre Cuivre Nu 25mm²

Piquet de Terre

EL-001 182
TOUTES LES DESCENTES S'EFFECTUERONT EN APPARET SOUS GOUTTIERE/MOULURE
Photovoltaic String panels: 260Wp monocry stalline module VMH Énergies

Inverter: Sunny Boy 4000TL of SMA Solar Technology

Ground

Line/ conductor

ground line
module photovoltaïque
classes II avec diodes
by-pass intégrées

connecteur
débranchable
strings de nodule
affectées à l'onduleur

Arrêté PV-DC
ParaFoudre
Interrupteur
sectionneur

Interrupteur
sectionneur
Général

2 trackers npp
Surveillance
et coupure du réseau

Sortie AC monophase
3x 6 mm²

Disjoncteur
différentiel
Arrêté
PV-AC
Ligne monophasé
ParaFoudre

Disjoncteur
différentiel
Départ PV

Tableau Réservation
Casa FENIX

Départ PV

Domaine privé

Domaine public

AGCP

15 modules Monocristallins 260 Wc
Total: 3,9 kWc

LALBEL 1

COUPE RESEAU DE DISTRIBUTION ET PARAFoudRE

In case of lacking the over production
An identification label located near the device ensuring the boundary of the concession
AGCP

LABEL 2

ATTENTION
Cables sous tension

Label marked with:
Caution, DC cables under tension
- On the front of the DC case
- On the ends of the DC lines

LABEL 3

NE PAS MANIPULER EN CHARGE

Label marked with:
Do not operate in charge
- Inside the DC cabinet
- Near the breakers, plug-in devices

LABEL 4

ATTENTION
Inverter label

Placed in the facade of the inverter

LOCALIZATION

DESCRIPTION
SINGLE LINE DIAGRAM
INSTALLATION BEAK

SIGNATURE

PHOTOVOLTAIC SYSTEM GENERAL
SCALE NO
Puissance crête totale : 3,9 kWc
Surface Tilt = LxH = 3,20 m x 9,7 m = 31,04 m²
Surface modules PV = LxH = 8,28 x 2,999 m = 24,83 m²
50 bord module/bout de rail
CASA FENIX DOES NOT USE TELECOMMUNICATION AND BUILDING AUTOMATIZATION SYSTEM
All channel/tubes used for routing of the wire have the following characteristics:
- Polyethylene (PE 8209-02)
- Overhead system, bendable, transparency, elastic and corrugated for the protection of electrical cables and threads.
- Satin finish Polyethylene
- Flame retardant (UL)
- Minimum fire rating (EN) 90
- Resistance to crushing 700N a 23°C (ISO 9835 standard fire test)
- Resistance to cracking at ±5°C
- Temperature range of -20°C and maximum of 50°C
- Electric strength 2500V/min for 15 sec
- Insulation withstands under a 500V continuous tension
- Seals PE with sleeve
CLOTHES DRYING METHOD

Casa FENIX will use a clothes line as drying method. This will be installed in the exterior of the house, in the south facade.

The structure will be constructed in wood and wire and will be assembled and disassembled according to the needs, as shown in the drawing.

The system has the capacity to hang six towels simultaneously, as specified in Sub-contest 6.4: Clothes drying.
I/ INTRODUCTION

To take all of our Casa from La Rochelle to Versailles for the competition, we will use trucks like defined in the Site Operation Report: Trucks Specification and Shipments in the PM#5. However, we will take the tools we need for the Assembly and Disassembly Phase by a personal vehicle, and after, the tools will be stored in the container which will be on the construction site.

The trucks will arrive one by one, at the indicated schedules in the PM#5.

II/ TRUCK SHIPMENT #1

LOAD
- Container
- Furnitures
- Half-Module n°3
- Wall’s junction 3-4 1
- Wall’s junction 3-4 2
- Floor’s junction 3-4
- Roof’s junction 3-4
- Foundations
III/ TRUCK SHIPMENT #2

LOAD
- Half-Module n°2
- Half-Module n°4
- Wall’s junction 4-5 2
- Wall’s junction 4-5 1
- Floor’s junction 4-5
- Roof’s junction 4-5
- Roof Overhang 2
- Roof’s junction 2-3
- Floor’s junction 2-3
- Wall’s junction 1-2 1
IV/ TRUCK SHIPMENT #3

LOAD

- Half-Module n°5
- Half-Module n°1
- Wall’s junction 5-6 1
- Wall’s junction 5-6 2
- Floor’s junction 5-6
- Roof’s junction 5-6
- Roof overhang 1
LOAD

- Half-Module n°6
- Technical Elements
- Wall’s junction 6-7 1
- Wall’s junction 6-7 2
- Floor’s junction 6-7
- Roof’s junction 6-7
- Water tanks
VI/ TRUCK SHIPMENT #5

LOAD

- Half-Module n°7
- Half-Module n°8
- Wall’s junction 7-8 1
- Wall’s junction 7-8 2
- Floor’s junction 7-8
- Roof’s junction 7-8
- Roof overhang 3
LOAD

- Sunspace's Roof
LOAD

- Decks and Access Ramps
- Presentation Module
The Solar Village is composed of the 20 different lots (20x20m, one by team), the operations areas (10x20m, one by team), the circulation ways, a waiting area for the trucks and diverse infrastructures.

Because of this co activity, there is some factors to consider:

- It will be lots of trucks on the circulation ways, so our truck should have to wait on the waiting area, it can delay the progress of our project, that is why we shall take an extra time for the organization of the construction site.

There is a co activity of the crane, that’s why, on the SO-102 LOT PLAN, we have established a no-fly zone of the crane.

For the evacuation of the waste, it won’t be a real problem because we won’t have a big quantity of waste thanks to the prefabrication. For more details, see the 4-4 Waste Management on the Site Operations Report.
IMPORTANT NOTE: THE DAY 8, NO MORE TRUCKS WILL BE ON THE TRUCK AREA, SO WE WILL DEPLACCE THE MOBILE CRANE TO THE TRUCK AREA IN ORDER TO BE ABLE TO INSTALL THE ACCESS RAMP AT THE BORDER BETWEEN THE LOT AND THE OPERATIONS AREAS (CF: LOT PLAN SO-102 ter: DAYS 8 TO 10)
I/ Assembly Phases

Phase n°1 & 1bis

Team on Site : 4 and then 3
Vehicle in unloading area : Personal vehicle
Crane Needed : No
Description of the Phase : Site installation and Implantation
Phase n°2 and 2bis

Team on Site: 2 and 4
Truck in unloading area: N°1
Crane Needed: Yes

Description of the Phase: Installation of the foundations and positioning of the container
Phase n°3 (1)

Team on Site : 2
Truck in unloading area : N°1
Crane Needed : Yes
Description of the Phase : Positioning of the half Module n°3
Phase n°3 (2)

Team on Site : 2
Truck in unloading area : N°2
Crane Needed : Yes
Description of the Phase : Positioning of the half Module n°2
Phase n°3 (3)

Team on Site : 2
Truck in unloading area : N°2
Crane Needed : Yes
Description of the Phase : Positioning of the half Module n°4
Phase n°3 (4)

Team on Site: 2
Truck in unloading area: N°3
Crane Needed: Yes
Description of the Phase: Positioning of the half Module n°1
Phase n°3 (5)

Team on Site : 2

Truck in unloading area : N°3

Crane Needed : Yes

Description of the Phase : Positioning of the half Module n°5
Phase n°3 (6)

Team on Site : 2
Truck in unloading area : N°4
Crane Needed : Yes
Description of the Phase : Positioning of the half Module n°6
Phase n°5bis (1)

Team on site: 2
Truck in unloading area: N°4
Crane needed: Yes

Description of the Phase: Positioning of the technical components and the water tanks
Phase n°3 (7)

Team on Site : 2
Truck in unloading area : N°5
Crane Needed : Yes
Description of the Phase : Positioning of the half Module n°7
Phase n°3 (8)

Team on Site : 2
Truck in unloading area : N°5
Crane Needed : Yes
Description of the Phase : Positioning of the half Module n°8
Phase n°4 & 5

Team on Site : 1 & 3
Truck in unloading area : none
Crane Needed : Yes
Description of the Phase : - Electric and Water connections between each half module
Phase n°5bis (2)

Team on Site: 3 and 4
Truck in unloading area: N°7
Crane Needed: Yes

Description of the Phase: Installation of the decks, access ramps and devastated area
Phase n°6

Team on Site: 2
Truck in unloading area: N°6
Crane Needed: Yes
Description of the Phase: Positioning and setting of the Sunspace's roof
Phase n°5bis (3)

Team on Site : 3 and 4

Truck in unloading area : None

Crane Needed : Yes

Description of the Phase : Installation of the remaining decks and access ramps and the Exhibition structure.
**Phase n°7 & 8 & 9 & 10**

Team on Site: 1, 2, 3 & 4

Truck in unloading area: None

Crane Needed: No

Description of the Phase: - Junctions of the Sunspace' roof

- PV and Electrical connections of the sunspace
- House fitting and electrical connections of the household appliances
- Connecting Power grid and Water system to the solar village
Phase n°11

Team on Site : 2 & 4
Truck in unloading area : None
Crane Needed : No
Description of the Phase : -House and outside cleaning
II/ Disassembly Phases

**Phase n°1**

Team on Site: 1 to 4

Truck in unloading area: None

Crane Needed: No

Description of the Phase: - Electrical and plumbing disconnections

- Loading of furnishings and Household appliances and loading in the container

- Disassembly of the decks, access ramps, exhibition structure, devastated area and storage on site
**Phase n°2**

Team on Site: 1 and 2  
Truck in unloading area: 6  
Crane Needed: Yes  

Description of the Phase:
- Loading of the decks, access ramps, exhibition structure, devastated area on the truck  
- Disassembly of the Sunspace’s roof and loading on the truck
Phase n°3

Team on Site: 3 and 4
Truck in unloading area: None
Crane Needed: No
Description of the Phase: Disassembly of all the junctions of the modules and storage on site
Phase n°4(1)

Team on Site: 1 and 2
Truck in unloading area: 5
Crane Needed: Yes

Description of the Phase: - Disassembly of the half module 7 and 8 and loading on the truck
Phase n°4(2)

Team on Site: 1 to 4
Truck in unloading area: 4
Crane Needed: Yes

Description of the Phase:
- Disassembly of the half module 6 and loading on the truck
- Disassembly of the technical element and loading on the truck with the water tanks
Phase n°4(3)

Team on Site : 1 to 4
Truck in unloading area : 3
Crane Needed : Yes

Description of the Phase : Disassembly of the half module 5 and 1 and loading on the truck
Phases n°4(4)

Team on Site: 1 to 4
Truck in unloading area: 2
Crane Needed: Yes

Description of the Phase:
- Disassembly of the half module 4 and 2 and loading on the truck
Phase n° 4(5)

Team on Site : 1 to 4
Truck in unloading area : 1
Crane Needed : Yes

Description of the Phase:
- Loading of the half module 3 on the truck
- Loading of the rest equipments in the container
- Loading of the container on the truck
Phase n°5

Team on Site: 1 to 4
Truck in unloading area: None
Crane Needed: No

Description of the Phase: - Cleaning of the construction site
The truck convoy will leave the University Institute of Technology, ULR rue de Roux in La Rochelle to arrive at allée des Tilleuls in Versailles. The total distance is 461 km and the road includes 106 km of freeway or highway type of route.

Specification: One truck (the truck n°7) will leave from the CILC Company at Jaunay-Clan (86) and will take the Highway A10 to Versailles.

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<tr>
<td>X</td>
<td></td>
<td>D 766</td>
<td>LIMITE DEPARTEMENT 37</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>D 766</td>
<td>CHATEAU LA VALLIERE</td>
<td></td>
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<tr>
<td>X</td>
<td></td>
<td>D 766</td>
<td>CHATEAU RENAULT</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>N 10</td>
<td>LIMITE DEPARTMET 41</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>N 10</td>
<td>VENDOME</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>N 10</td>
<td>LIMITE 28</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>N 10</td>
<td>CHATEAUDUN</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>N 10</td>
<td>CHARTRES</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>D 910</td>
<td>LIMITE DEPARTMENT 78</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>D 910</td>
<td>ABLIS</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>N 10</td>
<td>RAMBOUILLET</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>N 10</td>
<td>TRAPPES</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>D 10</td>
<td>MONTIGNY LE BRETONNEUX</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>D 10</td>
<td>ST CYR L ECOLE</td>
<td></td>
</tr>
<tr>
<td>X</td>
<td></td>
<td>D 10 (RUE DIVISION LECLERC)</td>
<td>ALLEE DES MATELOTS (VERSAILLES)</td>
<td></td>
</tr>
</tbody>
</table>
For the safety fire we are going to have three extinguisher.

Two of 9 liters capacity and 21A233B efficiency for the interior of the house and during the construction period in the container.

And one C02 fire extinguisher for electrical installations inside the house, near the electrical box.
Arrival of the trucks:

The speed of the trucks will adapt to the step of a man
One person must walk in front of the truck, on the site of the conductor
Another person must walk behind the truck on the other side, with a visibility on the rear view mirror

These two people will have to:

Established the maximum speed of vehicles
Direct the movements of the trucks
The movements of the loads will be controlled by four men with four slings.

And the only man who speaks with the conductor of the crane is the BANKSMAN (clearly identify with the jacket).
<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
<th>Icon</th>
<th>Description</th>
<th>Icon</th>
<th>Description</th>
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<tbody>
<tr>
<td>!</td>
<td>Attention</td>
<td>✋</td>
<td>Don't run on worksite</td>
<td><img src="image" alt="Point of resemblance" /></td>
<td>Point of resemblance</td>
</tr>
<tr>
<td>🚧</td>
<td>Fall of objects</td>
<td>✋</td>
<td>Don't made fire</td>
<td><img src="image" alt="First aid kit" /></td>
<td>First aid kit</td>
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<tr>
<td>⚡</td>
<td>Electrical risk</td>
<td>✋</td>
<td>Don't pass under load</td>
<td><img src="image" alt="Fire extinguisher" /></td>
<td>Fire extinguisher</td>
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<tr>
<td>⚠️</td>
<td>Manutention of charged</td>
<td>✋</td>
<td>Forbidden for the foreign people</td>
<td><img src="image" alt="WARNING" /></td>
<td>WARNING</td>
</tr>
<tr>
<td>⚠️</td>
<td>Fall because of barriers</td>
<td>✋</td>
<td>No alcohol</td>
<td><img src="image" alt="No alcohol" /></td>
<td>No alcohol</td>
</tr>
<tr>
<td>⚠️</td>
<td>Trapped between object</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Assembly

Phase n°1 & 1bis

Description of the Phase: Site installation and Implantation
Phase n°2 and 2bis

Description of the Phase:
Installation of the foundations and positioning of the container
Phase n°3 (1)
Description of the Phase Positioning of the half Module n°3
Phase n°3 (2)
Description of the Phase: Positioning of the half Module n°2
Phase n°3 (3)
Description of the Phase Positioning of the half Module n°4
Phase n°3 (4)

Description of the Phase Positioning of the half Module n°1
Phase n°3 (5)
Description of the Phase Positioning of the half Module n°5
Phase n°3 (6)

Description of the Phase: Positioning of the half Module n°6
Phase n°5bis (1)

Description of the Phase: Positioning of the technical components and the water tanks
Phase n°3 (7)

Description of the Phase Positioning of the half Module n°7
Description of the Phase: Positioning of the half Module n°8

PHASE N°3 (8)

Description of the Phase: Positioning of the half Module n°8
### Description of the Phase:

- Electric and Water connections between each half module
- Roof’s, floor’s and wall’s junctions between each half module
Phase n°Sbis (2)
Description of the Phase: Installation of the decks, access ramps and devastated area.
Phase n°Sbis (3)
Description of the Phase: Installation of the remaining decks and access ramps and the Exhibition structure.
Phase n°6
Description of the Phase Positioning and setting of the Sunspace's roof
Description of the Phase:

- Junction of the Sunspace’s roof
- PV and Electrical connections of the sunspace
- House fitting and electrical connections of the household appliances
- Connecting Power grid and Water system to the solar village
Phase n°11
Description of the Phase: House and outside cleaning
Description of the Phase:

- Electrical and plumbing disconnections
- Loading of furnishings and Household appliances and loading in the container
- Disassembly of the decks, access ramps, exhibition structure, devastated area and storage on site
### Phase no. 2

**Description of the Phase:**

- Loading of the decks, access ramps, exhibition structure, devastated area on the truck
- Disassembly on the Sunspace’s roof and loading on the truck
Description of the Phase: Disassembly of all of the junctions of the modules and storage on site
Description of the Phase - Disassembly of the half module 7 and 8 and loading on the truck.
Description of the Phase:
- Disassembly of the half module 6 and loading on the truck
- Disassembly of the technical elements and loading on the truck with the water tanks
Phase n°4(3)
Description of the Phase: Disassembly of the half module 5 and 1 and loading on the truck.
Phase n°4(4)

Description of the Phase: Disassembly of the half module 4 and 2 and loading on the truck
Phase n°4(5)

Description of the Phase:
- Loading of the half module 3 on the truck
- Loading of the rest equipment in the container
- Loading of the container on the truck
**Phase n°5**

Description of the Phase - Cleaning of the construction site

<table>
<thead>
<tr>
<th>Icon</th>
<th>Icon</th>
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<th>Icon</th>
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</thead>
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<td><img src="image3.png" alt="Image" /></td>
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<tr>
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<td><img src="image7.png" alt="Image" /></td>
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<td><img src="image11.png" alt="Image" /></td>
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**LOCALIZATION**

HEALTH AND SAFETY DURING ASSEMBLY / MAINTENANCE / DISASSEMBLY

**DESCRIPTION**

DISASSEMBLY
CLEANING

**SIGNATURE**

**SCALE N/S**

UNIVERSIDAD TECNICA FEDERICO SANTA MARIA

Solar Decathlon Europe

La Rochelle
<table>
<thead>
<tr>
<th>Start</th>
<th>Allée des Matelots, 78000 Versailles</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Take &quot;Allée des Matelots&quot; and continue during 285 m</td>
</tr>
<tr>
<td>2</td>
<td>Take right &quot;Avenue de la Division Leclerc (D10)&quot; and continue during 2.6 km</td>
</tr>
<tr>
<td>3</td>
<td>Take right &quot;Rue du Docteur Vaillant&quot; and continue during 662m</td>
</tr>
<tr>
<td>4</td>
<td>At the traffic circle take right &quot;Rue du Docteur Vaillant&quot; and continue during 2.9 km</td>
</tr>
<tr>
<td>5</td>
<td>At the traffic circle, continue in the &quot;Route de Saint-Cyr&quot; and continue during 703m</td>
</tr>
<tr>
<td>6</td>
<td>Take right D307 and continue during 3.1 km</td>
</tr>
<tr>
<td>7</td>
<td>Take right &quot;Rue de Versailles&quot; and continue during 684m</td>
</tr>
<tr>
<td>Finish</td>
<td>HOPITAL ANDRÉ MIGNOT 177 Rue de Versailles, 78150 Le Chesnay</td>
</tr>
</tbody>
</table>
IN CASE OF EMERGENCY

ALERT RELIEF

1. SITE NAME: SOLAR DECATHLON EUROPE 2014
2. SITE ADDRESS: ALLEE DES MATELOTS, 78000 VERSAILLES
3. NATURE OF THE ACCIDENT: BURN, CUT, BROKEN BONES, ETC.
4. POSITION OF THE INJURED AND THE POSSIBLE NEED OF SPACE
5. NUMBER AND CONDITIONS OF THE INJURED
6. MEETING POINT

HUNG UP AFTER THE EMERGENCY SIGNAL

AID TO THE INJURED

1. IDENTIFY THE VICTIM AND THE SITUATION: IDENTIFY THE CAUSES, ANALYZE THE DANGERS.
2. PROTECT: AVOID OTHER ACCIDENTS, PROTECT THE OTHER PERSONS, THE VICTIM AND ESPECIALLY PROTECT YOURSELF.
3. EXAMINE THE VICTIM: LOOK FOR PAIN, BLEEDINGS, ETC.
4. AVOID THE LOSS OF CONSCIOUSNESS.
5. CALL FOR HELP!!!
6. SUPERVISE THE VICTIM AT ALL TIMES UNTIL THE ARRIVAL OF HELP

TEAM CASA FENIX

EMERGENCY LINE:
- SAMU: 15
- AMBULANCE: 18
- FIRE DEPARTMENT: 18
- POLICE: 17

NEAREST HOSPITAL:
HOPITAL ANDRE MIGNOT
ADDRESS:
177 Rue de Versailles
78157 Le CHESNAY
N° 01 39 639133
EN CAS D’URGENCE

ALERTER LES SECOURS

1 NOMDU CHANTIER : SOLAR DECATHLON EUR OPE 2014

2 ADRESSE CHANTIER: ALLÉE DES MATELOT'S, 78000 VERSAILLES

3 NATURE DE L’ACCIDENT : BRÛLURE, COUPURE, FRACTURE, ETC.

4 LE NOMBRE ET L’ETAT DES BLESSES

5 LE POINT DE RDV

RACCHROCHER APRES LE SIGNAL DES URGENCES

SECOURS AUX BLESSÉS

IDENTIFIER LA VICTIME ET LA SITUATION :
IDENTIFIER LES CAUSES, ANALYSER LES DANGERS.

PROTEGER :
éviter le sur accident, protéger les autres personnes, la victime et surtout se protéger.

EXAMINER LA VICTIME :
rechercher les douleurs, les saignements, etc.

APPELER LES SECOURS!!!

18000 VERSAILLES

EN CAS DE PANIQUE, APPELER LE 112
EN CASO DE EMERGENCIA

ALERTA DE AUXILIO

1 LUGAR:
SOLAR DEC ATHLON
E U R O P E  2 0 1 4

2 DIRECCION:
ALLÉ DES MATELOTS,
78000 VERSAILLES

TIPO DE ACCIDENTE:
QUEMADURA, CORTE, FRACTURA, ETC.

POSIÇION DEL ACCIDENTADO
NECESIDAD DE DESPEJAR ESPACIO

3 NÚMERO Y CONDICION DE LOS ACCIDENTADOS

4 LUGAR DE ENCUENTRO
CUELGA DESPUÉS DE LA SEÑAL DE EMERGENCIA

ASISTENCIA AL ACCIDENTADO

1 IDENTIFIQUE A LA VÍCTIMA Y LA SITUACIÓN
IDENTIFIQUE LAS CAUSAS.
ANALICE LOS PELIGROS.

2 PROTECCIÓN:
EVITE OTROS ACCIDENTES
PROTEJA A LAS OTRAS PERSONAS A LA VÍCTIMA Y EN ESPECIAL A USTED MISMO.

EXAMINE A LA VÍCTIMA:
REVISE DOLORES, SANGRAMIENTOS, ETC.

EVITE QUE LA VÍCTIMA PIERDA EL CONOCIMIENTO.

3 LLAME POR AYUDA!!!

4 MANTENGA LA VIGILANCIA DEL ACCIDENTADO EN TODO MOMENTO HASTA LA LLEGADA DE LA AYUDA.

TEAM CASA FENIX

LINEA DE EMERGENCIA:
SAMU: 15
AMBULANCIA: 18
BOMBEROS: 18
POLICIA: 17
HOSPITAL MÁS CERCA:
HOSPITAL ANDRÉ MIGNOT
Dirección:
177 Rue de Versailles
78157 Le CHESNAY
N° 01 39 639133

LOCALIZATION:  
SIGNATURE:  
DESCRIPTION:  
EMERGENCY SIGN SPANISH:  
IN CASE OF EMERGENCY SCALE N/S:  

HS-504 281
A. Entrance
   The waiting line will be managed by 2 people; one will be in charge of letting in groups of 8 people to the beginning of the tour, the other one will be in charge of delivering leaflets to people in the line.

B. Catastrophe Station
   This station is self-guided by an informative wall and will be part of the waiting line, as an introduction to the tour of Casa FENIX. This informative wall will have basic information about Chile, its natural disasters, and the current solution for people who lose their homes.

C. Response Station
   The guide will give a short briefing about the information in the "Catastrophe Station" and will show the "Catastrophe Ground". After this, he/she will explain Casa FENIX as an improved response to a Catastrophe, and will explain the modules according to the stages of a natural disaster.

D. Relief Station
   The guide will explain the Sun Space they've just passed through, as a solar passive strategy to cooling and warming the house. He/She will explain the features of MM and LM.

D.1 Optional station for technical features of the house.

E. Awareness
   In this last station, the guide will talk about the opportunity of creating new, safe and sustainable neighborhoods within the reconstruction of cities. Then the visitors will be guided to the exit.
Casa FENIX
Welcome to Casa FENIX and start of the Public Tour.

Informative Wall
Information of the project at the entrance route. Exhibit of the structure designed by the students.

Emergency Kitchen
Explanation about the “olla común” and how people organize themselves when hit by a natural disaster.

Urban Strategy
Explanation about the use of Casa FENIX in an urban context at the end of the visit.

Self-gardening
Low tech and sustainability.

Plans
Brief explanation in Braille.

Graffiti
Explanation about the graffiti of the city Valparaiso.

Clothes Dryer
Explanation about the graffiti of the city Valparaiso.

Catastrophe
Explanation about the catastrophe scene set in the lot.

Self-gardening + Recycling
Low tech and sustainability.