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- AR-017: Measurable Area
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- SI-021: Structural Roof Plan
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ME-011 HVAC Equipment 1
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PV-011 Photovoltaic System: DC circuits
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PT-001 Site accessibility Plan
PT-002 Site accessibility Elevation
PT-101 House Tour Plan
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GE-102
GENERAL ABBREVIATIONS

# Pound or DR Number
@ And
ACT: Acoustic Ceiling Tile
AD: Area Drain
AFF: Above Finished Floor
ALUM: Aluminum
ANDD: Anodized
BSMT: Basement
BYND: Beyond
BDT: Bottom
CIP: Cast In Place
CHAN: Channel
CEIL: Ceiling
CEMC: Concrete Masonry Unit
CG: Column
CMRR: Compressible
CONC: Concrete
CDN: Continuons
CPT: Carpet
CT: Ceramic Tile
CTYD: Courtyard
DDB: Double
DEM/D: Demolish or Demolition
DIA: Diameter
DIM: Dimension
DIMN: Dimensions
DN: Down
DR: Door
DWO: Drawing
EA: Each
EJ: Expansion Joint
EL: Elevator
ELEC: Electrical
ELEV: Elevator or Elevator
EPDM: Ethylene Propylene Diene M-Class (Reading)
EQ: Equal
EXST: Existing
EXP J: Expansion Joint
EXT: Exterior
FD: Floor Drain or Fire Department
FECC: Fire Extinguisher Cabinet
FXT: Fixture
FLR: Floor
FM: Filled Metal
FG: Face Off
FND: Foundation
GA: Gauge
GALX: Galvanized
GWBR: Gypsum Wall Board
HC: Hollow Core
HI: High
HMD: Hollow Metal
HP: High Point
HR: Hour
HVAC: Heating, Ventilating, And Air Conditioning
IRGWG: Impact Resistant Gypsum Wall Board
ID: In Dish
INSUL: Insulated or Insulation
INT: Interior
LD: Low
MAX: Maximum
MC: Masonry Cooring
MECH: Mechanical
MEMBR: Membrane
MIN: Minimum
MRGWB: Moisture-Resistant Gypsum Wall Board
NET: Metal
NIC: Not In Contract
NO: Number
NOM: Nominal
OHC: Off Center
OZ: Ounce
PCC: Pre-Cast Concrete
PLUMB: Plumbing
PLYWOOD: Plywood
PT: Pressure Treated
PNT: Painted or Paint
PVC: Polyvinyl Chloride
RBR: Rubber
RCF: Reflected Ceiling Plan
RD: Road Drain
REL: Required
RM: Room
S/M: Similar
SPC: Specified Or Specification
SPX: Sprinkler or Speaker
SS: Stainless Steel
STC: Sound Transmission Coefficient
STL: Steel
STRUC: Structural or Structural
T&G: Tongue And Groove
TEL: Telephone
TO: Top Of
T/P: Typical
T/D: Telephone/Data
T/PD: Toilet Paper Dispenser
UD: Underside
VFI: Verify In Field
VF: Vision Panel
W/L: With
WD: Wood
Taipei, Taiwan

This page contains a map of Taiwan and text discussing urban planning challenges, particularly in Taipei. The text mentions the introduction of the Taipei 101, a massive skyscraper located in the city. The text also discusses the rapid urbanization and environmental concerns in Taipei, including the need for sustainable urban planning and disaster preparedness. The text notes the importance of integrating green spaces and reducing urban heat islands to improve the quality of life in the city. The page contains a table with data on urban growth, population density, and other demographic information, as well as a section on urban planning strategies.
Orchid House = House Keeper + City Keeper System

The house keeper system is a basic node including some functions, such as environment control, public security, health management, house and life-style, personal secretary and shopping system.

All the functions will act as an in-house intelligent application and create a database system.

The possibility of solar house prototype is to integrate the nodes and form a city keeper system which is highly well-interweaved in the city network.
GREEN CORE

Green Core serves as the heart engine of the Orchid House - it keeps the temperature in balance, provides the exchange of fresh air, and kick off recycling system for the irrigation of plants. The difference in temperature will be immediately sensible to visible to the one who enters the Orchid House.

MECHANICAL ROOM

Mechanical Room serves as the engine/hub of the Orchid House - it is a storage of being dedicated to the mechanical and electrical equipment.

THERMAL WALL

The liquid thermal mass wall on the west side of Orchid House, and it conserves energy and maintains comfortable temperature both day and night.

CIRCULATION INTEGRATE

Orchid House is targeted to be developed and implemented in the future on rooftops over a great number of existing housing in Taiwan. To integrate the new system with old one is the key point.
Taipei Residential Type Analysis

DESCRIPTION

Row House and Duplex Apartment are the most number of Taipei residential building Types. These two types are usually 4 to 5 floor high and the oldest building in Taipei, which are about 20 to 30 years old and facing some following problems:

1. Top floor Leaking
2. Top floor is too hot
3. No Public Facility

Presently, most households live in flat-roofed row houses and duplex apartments, but due to a lack of space, people try to expand their living area by building on their roofs.

The illegal make-shift metal-roofed shelters that result are unregulated and displeasing to the eye. Lastly, social housing projects have fallen to the wayside and do not adequately consider the needs of disadvantaged groups, social justice, and the problems of housing for those with low-income.
DOOR 1

- **Type:** Hinged
- **Location:** MECH
- **Note:** FIRE RATED
- **Material:** METAL + GLASS

DOOR 2

- **Type:** Hinged
- **Location:** ENTRANCE
- **Note:** FIRE RATED
- **Material:** METAL + GLASS

DOOR 3

- **Type:** Hinged
- **Location:** BATH RM
- **Note:** FIRE RATED
- **Material:** WOOD
Thermal conductivity $R = 13.7$ ($m^2K/W$)
Bayer Maxelon - Polyurethane
Interlocking Hollow Sheet 1x40mm
Interlocking Sheet supporting 25mm
Plywood 18mm
Glass foam 65mm 12
Vacuum Insulation 30mm
Framing 42mm
Framing 24mm
Finshed wall 15mm
L shape steel
Sub beam = 125x75 tol. 3mm

Thermal conductivity R = 13.5 (m²*K/W)
Thermal conductivity R = 2.7 (m²K/W)
1. Wooden Flooring 25mm
2. Framing 89mm | Air gap 10mm
3. Waterproofing 2mm
4. Plywood 18mm
5. Glass beam 65mm
6. Eaves 50mm
7. Plywood 12mm
8. Vacuum Insulation 30mm
9. Ceiling 21mm
10. Lighting
11. Planter pot
12. L-shaped steel
13. Beam C-203x75x20 144mm
14. Bayer Maikro-Prepolycarbonate hollow Sheet 10mm

0 0.1 0.2 0.3 METER

Project: Solar Decathlon Europe

Joint Detail

Scale: 1:10
Unit: mm

Drawing by: On
Checked by: TW

AR-354
TEMPERATURE (°C)
LOCATION: TAIPEI TWN

- RANGE OF OUTDOOR TEMPERATURE FOR COMFORTABLE INDOOR TEMPERATURE
- MAXIMUM TEMPERATURE
- AVERAGE TEMPERATURE
- MINIMUM TEMPERATURE

HUMIDITY (%)
LOCATION: TAIPEI TWN

- RELATIVE HUMIDITY (09:00AM)
- RELATIVE HUMIDITY (03:00PM)

DEGREE HOURS
(HEATING, COOLING AND SOLAR)
LOCATION: TAIPEI TWN

- DEGREE-HOURS
- ANNUAL
- HEATING DEGREE-HOURS: 5795
- SOLAR EXCESS DEGREE-HOURS: 24511
- COOLING DEGREE-HOURS: 34668

PSYCHROMETRIC CHART
LOCATION: TAIPEI TWN
- DISPLAY: Monthly Mean Minimum/Maximum
- BAROMETRIC PRESSURE: 101.36 kPa

SELECTED DESIGN TECHNIQUES:
1. passive solar heating
2. thermal mass effects
3. natural ventilation
4. direct evaporative cooling

TAIWAN CLIMATE ANALYSIS
PREVALING WINDS

Wind Frequency (Hrs)
Location: TAPEI TWIN
Date: January 1st - December 31st
Time: 03:00 - 24:00

January
February
March
April
May
June
July
August
September
October
November
December
OUTDOOR TEMPERATURE UNDER 19°C WITH WIND
EXTERIOR TEMPERATURE ABOVE 26°C
RELEASE HEAT TO OUTDOOR COOL AIR SOLIFY PHASE CHANGE MATERIAL

ABSORB HEAT FROM IN DOOR WARM AIR LIQUIFY PHASE CHANGE MATERIAL
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<td>FKT. 13</td>
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<td>FKT. 14</td>
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<td>FKT. 15</td>
<td>TOILET STAND</td>
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**BATHROOM PLAN**

**Notes:**

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**References:**

- **Scale:** 1:20
- **Unit:** mm
- **Date:** 20140601
- **Location:** SD Substructure
- **Design:** SD Substructure
- **Checked by:** QN
- **Drawn by:** A
- **Checked by:** QN

**Contact:**

- **Address:** 1041 Ta-Hsiu Rd, Taipei City 20101, Taiwan
- **Website:** www.gothe.be

**Institution:**

- **National Chiao Tung University**

**Project:**

- **NCTU: Architecture**

---

**Abbreviations:**

- **BA:** BATHROOM

---

**IN-501**
NOTE:
1. Clean water pump / Booster pump, 1/2HP
2. Clean water tank 1af x2
NOTE:
1. Domestic hot water tank 240L.
NOTE:
1. Gray water pump 1/4 HP
2. Gray water tank 1m³
3. Black water tank 1.5m³ x 2
### Name: Heating Only Heat Pump

- **Service**: Domestic Hot Water and Heating
- **Type**: Air-to-Water Heat Pump
- **Nominal Capacity**: 4 kW
- **COP**: 4.1
- **EER**: 4.7
- **Electrical Power Supply**: 230 V
- **Frequency**: 50 Hz
- **Power Consumption**: 1.2 kW
- **Liquid Pipe Size**: 6.4 Φ
- **Gas Pipe Size**: 3.5 Φ
- **Refrigerant**: R-410A

### Name: Dual Coil Storage Tank

- **Service**: Domestic Hot Water
- **Total Capacity**: 300 L
- **Tank Diameter**: 450 mm
- **Tank Height**: 2000 mm
- **DHW Outlet Size**: 20 Φ
- **Standby Heat Loss**: 1.3 KWh/24h
- **Size of Solar Indirect Coil**: 1.2 m²
**Winter - Night**

- In cold-stream winter night.
- Space heating is required.
- Both heating coil and heat pump are operating.
- HRV is in HX mode.

**Legend:**
- Exhaust Air
- Indoor Air
- Supply Air
- HRV - Heat Exchange Mode
- HRV - Bypass Mode
- Hot Air
- Warm Air
- Cool Air
- Cold Air
- Exhaust Air
- Refrigerant Pipe

**Winter**

- Winter of freezing temperature.
- Space heating is required.
- Only heating coil is operating.
- HRV is in HX mode.
Summer - Day
- Typical of summer day.
- Space cooling is required.
- Heat pump is operating.
- HRV is in HX mode.

Spring - Night
- Outdoor temperature is much less than room temperature.
- Space cooling is still required.
- PCM is in store mode.
- HRV is in bypass mode.

Summer - Early Morning
- Outdoor temperature is less than room temperature.
- Space cooling is required.
- Heat pump is operating.
- HRV is in bypass mode.

Spring - Day
- Outdoor temperature is higher than room temperature.
- Space cooling is required.
- PCM is supplying cool air for cooling.
- HRV is in HX mode.

Legend:
- Hot Air
- Warm Air
- Cool Air
- Cold Air
- Exhaust Air
- Refrigerant Pipe
**Summer - Day**
- Outdoor temperature is much higher than room temperature.
- HRV is in HX mode.

**Spring - Day**
- Outdoor temperature is higher than room temperature.
- Space cooling is required.
- HRV is in HX mode.

**Winter - Night**
- Outdoor temperature is much less than room temperature.
- HRV is in HX mode.
- Humidifier is operating.

**Spring - Night**
- Outdoor temperature is less than room temperature.
- Space cooling is required.
- HRV is in bypass mode.

Legend:
- Exhaust Air
- Indoor Air
- HRV - Heat Exchange Mode
- HRV - Bypass Mode
- Hot Air
- Warm Air
- Cool Air
- Cold Air
- Exhaust Air
- Supply Air
1. Dual Coil Storage Tank
2. Outdoor Unit of Cooling/Heating Heat Pump
3. Heating Only Heat Pump
4. Pump Station

A Mechanical Room Elevation
(South-West)

B Mechanical Room Elevation
(South-East)
Winter Mode
1. Heating Cell
2. Outdoor Air
3. Exhaust Air
4. Heat Recovery Ventilator
5. Indoor Air
6. Phase Change Material
7. Hot Water Pipe
8. Dual Cell Storage Tank
9. Outdoor Unit of Cooling/Heating Heat Pump
11. Pump Station
12. Refrigerant Pipe
13. Indoor Unit of Heat Pump
14. Supply Air
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<tr>
<th>Tag</th>
<th>Components</th>
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**Diagrams**

1. **PV Array**
   - Solar Cable 4mm²
   - Fuse 15A
   - SPD

2. **DC Protections**
   - Solar Cable 4mm²

3. **Inverter**
   - Grounding Terminal

**Photovoltaic Module**
- DelSolar D6P250B3A
- Max. DC power = 250Wp
- Voc = 37.37 V
- Vmp = 30.95 V
- ISC = 8.63 A
- Temp. Coef. of Voc = -0.131 V/°C
- Temp. Coef. of Isc = 0.0043 A/°C
- Temp. Coef. of Vmp = -0.142 V/°C
- Module Efficiency = 15.3%

**Inverter**
- Delta Solivia 5.0
- Max. Input power = 6,000Wp
- Input Voltage range = 125 ~ 600V
- Full power MPP range = 150 ~ 480V
- Max. current = 36.8A
- DC connector = 2 pairs
- Nominal apparent power = 5,000VA
- Voltage range = 184~264Vac
- AC output frequency = 50 Hz
- Max. current = 27.2 Aac
- Max. efficiency = 96.1%
- EU efficiency = 94.8%

**Voltage Calculations**
- Voc @ coldest expected operating Temp.: Low ambient Temp. = 0°C
  \[ \text{Voc}@\text{coldest} = \text{Voc}(@\text{STC}) - 25°C \times \frac{\Delta \text{Voc}(@\text{STC})}{25°C} = 37.37 - 25°C \times 0.131 = 40.65V \]

**Max. modules of string:**
- \[ n_{\text{max}} = \frac{\text{Voc}(\text{input max})}{\text{Voc}(0°C) + 600/40.65 + 14.76} \leq 14 \text{pcs} \]

**Vmp @ highest expected operating Temp.:**
- High ambient Temp. = 75°C
- \[ \text{Vmp}(75°C) = \text{Vmp}(\text{STC}) + 75°C - 25°C \times \frac{\Delta \text{Vmp}(@\text{STC})}{25°C} = 30.95 + 50°C \times 0.142 = 23.85V \]

**Min. modules of string:**
- \[ n_{\text{min}} = \frac{\text{Vmp}(\text{min})}{\text{Vmp}(75°C) + 150/23.85 = 6.29} \geq 7 \text{pcs} \]

**Selection modules of string:**
- 12 pcs

**Voltage String in parallel:**
- Max. DC power of Charge Controller / Selection modules of string / Module Max. DC power
  - 6,000W / 12pcs / 250W
  - = 2 parallel
<table>
<thead>
<tr>
<th>Tag</th>
<th>Components</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Q'ty</th>
<th>Notes</th>
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<tr>
<td>①</td>
<td>SDE Grid</td>
<td></td>
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<td>Organizer Supplied Meter</td>
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<tr>
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<td>Smart Meter</td>
<td>Schneider</td>
<td>PM3200</td>
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<td>④</td>
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<tr>
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<td>Inverter</td>
<td>Delta</td>
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<td>BESS</td>
<td>Delta</td>
<td></td>
<td>1</td>
<td>Battery Energy Storage System</td>
</tr>
</tbody>
</table>

**Diagram:**

1. SDE Grid (230V 50Hz)
2. Smart Meter
3. PV array
4. DC Protections
5. Inverter
6. Power Meter
7. BESS

---

**Note:**

- RS485
- AC Load
<table>
<thead>
<tr>
<th>Tag</th>
<th>Components</th>
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<th>Qty</th>
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<td>3</td>
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<td>4</td>
<td>AC Switch Panel</td>
<td>HI BOX</td>
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<tr>
<td>5</td>
<td>BESS</td>
<td>Delta</td>
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</table>

**Diagram Notes:**
- PV Array to DC Protections
- DC Protections to Inverter
- Inverter to AC Switch Panel
- AC Switch Panel to BESS
- BESS to AC Grid 1@230V 50Hz

**Grounding Calculations:**
DC ARRAY GROUNDING CONDUCTOR:
1.56 * 16c * 2 = 1.56 * 1.21A * 2 = 25.82A
SELECTED CONDUCTOR: PVC 16mm²

**AC Grid:**
1@230V 50Hz

**Grounding Terminal:**

**Photovoltaic System:**
GROUNDING SYSTEM
<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
<th>Brand/Model</th>
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</thead>
<tbody>
<tr>
<td>Temperature &amp; Humidity</td>
<td>STR810 &amp; SHO101-78</td>
<td>Schneider Electric</td>
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<tr>
<td>Air Quality (CO2)</td>
<td>SCR100</td>
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<tr>
<td>Air Quality (VOC)</td>
<td>BAC Point 8</td>
<td>Mceo Technology</td>
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<td>Smoke Detector</td>
<td>ARGOUS MT1448861</td>
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<tr>
<td>PIR</td>
<td>ARGOUS 380</td>
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<td>Sound Sensor</td>
<td>Sound Sensor</td>
<td>Seenet Stork</td>
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<td>Soil Moisture Sensor</td>
<td>JS6-100</td>
<td>Jene Electric</td>
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<td>Smart Weather Station</td>
<td>JMK-01</td>
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<tr>
<td>Blind/Blinder Actuator</td>
<td>KNX shutter actuator</td>
<td>Schneider Electric</td>
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<tr>
<td>Switch Actuator</td>
<td>KNX switch actuator</td>
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<tr>
<td>Dimming Actuator</td>
<td>KNX Dim actuator</td>
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<td>DIFM Module</td>
<td>TSK-07-20</td>
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<tr>
<td>Schedule Controller</td>
<td>KNX Logic module</td>
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<td>Access Point</td>
<td>EA-N88</td>
<td>ASUS</td>
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<tr>
<td>Touch Panel</td>
<td>KNX Touch panel 10</td>
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<td>Wall Switch</td>
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<td>Motion Detector</td>
<td>KNX UH-3 MOU3.633-12</td>
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<td>Light Level Sensor</td>
<td>SLR320</td>
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</table>
Task/Monitoring

5.1 Temperature Sensor. Living Room (L=21m)
5.1 Temperature Sensor. Bedroom (L=28m)
5.1 Temperature Sensor. Kitchen (L=16m)
5.2 Humidity Sensor. Living (L=21m)
5.3 Air Quality Sensor. Living (L=21m)
5.1 Temperature Sensor. Refrigeration (L=11m)
5.2 Temperature Sensor. Freezing (L=11m)
5.3 Temperature Sensor. Dish Washer (L=12m)
6.6 Temperature Sensor. Oven (L=13m)

Monitoring panel

Temporal Tripod Location

5.1 Bedroom Tripod Line. = 11 Meters.
5.1 Kitchen Tripod Line. = 7 Meters.
5.1 5.2 5.3 Living Room Tripod Line. = 8 Meters.
6.3 Temperature Sensor. Clothes Washer / Dryer (L=11m)
1F 230V PANELBOARD (600Wx1200Hx300D)mm

Support

MONITORING PANEL (450Wx650Hx150D)mm

Front View

Monitoring Panel Dimensions: 65x45x15 cm
Free Space Left For The Monitoring Panel: 100x60x25 cm

5.1 Living Room
5.2 Living Room
5.3 Living Room
5.4 Bed Room
5.5 Kitchen Room
6.1
6.2
6.3
6.4
6.5
6.6

Monitoring Power Line
Monitoring Ethernet 1
Monitoring Ethernet 2

Sensor Interface

Monitoring Panel Room

ID-011
<table>
<thead>
<tr>
<th>Tag</th>
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![Diagram](image-url)
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<tr>
<th>Date</th>
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<th>Demand Help</th>
<th>Self assist</th>
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<td>Taiwan</td>
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<td>Declaration process guidance</td>
<td>Customers detail, customs declaration</td>
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<td>Calculated time</td>
<td>Taiwan</td>
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<td>Packaging and protective materials to provide advice</td>
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<td>Taiwan</td>
<td>Component transport (Trailers Trucks *13)</td>
<td>Huachin→Container port</td>
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<td>Component Loading (Container*12)</td>
<td>Loading location and Equipment evaluation</td>
<td>Component classification and Equipment evaluation</td>
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<td>Ship</td>
<td>Taiwan→France</td>
<td>Transport</td>
<td>The number of containers and the declaration content</td>
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<td>France</td>
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<td>Declaration process guidance</td>
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<td>Component Discharge</td>
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<td>Before 6/30</td>
<td>France</td>
<td>Component transport (Trailers Trucks *13)</td>
<td>France transport (Trailers Trucks *13)</td>
<td>Trucks size</td>
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<td>6/10-6/25</td>
<td>France</td>
<td>Pre Construction Temporary base (H-5M,400m² Warehouse)</td>
<td>Warehouse (Near-Versailles)</td>
<td>Warehouse size</td>
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<td>7/9-7/13</td>
<td>France</td>
<td>Heavy equipment rental</td>
<td>Lodging near Warehouse Forklift, Bridge Crane or small crane, Scaffolding, air Compressors</td>
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<td>6/16-6/25</td>
<td>France</td>
<td>Transport sequence</td>
<td>Transport</td>
<td>Transport sequence In 10 Days</td>
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<tr>
<td>7/15-7/22</td>
<td>France</td>
<td>Disassembly Warehouse (H-5M,100m² Warehouse)</td>
<td>Forklift, Bridge crane or small crane, Scaffolding, air Compressors</td>
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<tr>
<td>7/19-7/22</td>
<td>France</td>
<td>Component packaging and protection</td>
<td>Packaging and protective materials to provide advice</td>
<td>Packaging and Protection</td>
</tr>
</tbody>
</table>
DAY-1  6:00
Site preparation

Truck-1: Flat:
Tool Container
Foundation
Construction Safety Box
Unit-7
DAY 2 19:00
TRUCK-7 FM:
- Phase 5: Appliance & electricity
- Appliance & electricity
- Lifting and electricity
- Pipeline installation
DAY-5  07:00
TRUCK-11 Flat: Out door Floor finish and Deck
DAY-7  7:00
TRUCK-13 Flat:  Furniture & Planting
DAY 8-10
Continue to complete the construction
Phase 08: Lot cleaning
Phase 10: Test
SITE DESCRIPTION
Lot number: R
Lot size: 20 x 20 m (400m²)
Elements around the lot:
- Our lot situated near the main path export
- The track route overruns with our loading/offloading area

ROUTE TO THE NEAREST HOSPITAL

A: La Cite du Soleil
- Head south on "Allée des Matelas"
- Turn right to stay on "Allée des Matelas"
- Turn right onto "D10"
- Turn left onto "Rue Royale/D10"
- Continue to follow D10
- Turn right onto "Rue de Paris/D10"
- Turn right onto "Rue des Etats Généraux"
- Continue onto "Rue des Chantiers"
- Turn right onto "PL du 8 Mai 1945/D699" Continue to follow D699
- Turn left

B: Département Anesthésie-Réanimation
- Hôpitaux Privés de Versailles
Address: ZI 1 Rue de la Perle de Bus 78800 Versailles, France
Tel: +33 626 30 30 30
anesthese-versailles.com
<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>RISKS</th>
<th>ADOPTED MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangers caused by weather</td>
<td>Ground subsidence</td>
<td>Provision of lifting devices</td>
</tr>
<tr>
<td></td>
<td>Getting stuck of heavy equipment</td>
<td>Support plates for heavy vehicles' legs</td>
</tr>
<tr>
<td></td>
<td>Getting stuck of heavy components</td>
<td></td>
</tr>
<tr>
<td>Dangers due to the great number of people on shipping to the site</td>
<td>Unclear arrangement danger of injury Increases</td>
<td>No access for unauthorized persons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Access only in coordination with construction supervisor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High visibility vest in compliance with the color scheme required by site operations for every person entering construction site</td>
</tr>
<tr>
<td>Too many access possibilities to the lot</td>
<td>Unclear arrangement danger of unauthorized access</td>
<td>Security officers for control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Site fence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clearly marked pedestrian access to construction site</td>
</tr>
<tr>
<td>Too small distances from lot and trees/plants</td>
<td>Obstruction of vehicle movements</td>
<td>No changes possible</td>
</tr>
<tr>
<td></td>
<td>Obstructions due to small distances between construction grounds</td>
<td>- steady crane</td>
</tr>
<tr>
<td></td>
<td>Obstruction of vehicle movements</td>
<td>- site fence</td>
</tr>
<tr>
<td>Ground limitations</td>
<td>Obstruction / limitations through on-site security installations</td>
<td>- unloading/loading materials in the storage area inside the lot</td>
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<tr>
<td></td>
<td></td>
<td>- unauthorized and external persons who invade the lot</td>
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<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Securing existing escape routes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No dangerous works close to this area</td>
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</tbody>
</table>
THE SAFETY PLAN AND COORDINATION PHASE

Plan of site

PROBLEM | RISKS | ADOPTED MEASURES
---|---|---
Too small property lines | Collision with other people, Collision with parts stored, Discomfort to the maneuvers | Marking dangerous parts stored, High visibility vests, Guiding gear during maneuvers with two pedestrians, Designing a delivery zone
Dangers due to the great number of people in the site | Increased dangers of injury muddle | High visibility vest, Dentist of access to other people
Trucks passway | Pass by operation area | Arrange signpostings
Heavy rain or rain of long-term | Degradation of the land, Electric shock due to humidity | Use anti-slip mats on slipping surfaces, Regularly remove water from the floor with scrapers, Replacement of defective cables, Waterproof plugs, Protective clothes
Ground limitations | Obstruction / limitations through on-site security installations | Securing existing escape routes, No dangerous works close to this area
Traffic and parking of the crane or a truck | Shock, collisions with pedestrians, existing equipment or vehicle, Falling objects transported | Respect the rules of the road, Parking places reserved for this purpose, Lash with appropriate means and in sufficient number
THE SAFETY PLAN AND COORDINATION PHASE

Plan of site

- Implementation of the crane
  - Stem person
  - Markup
  - Preparation of the operation by releasing space
  - Use a rope to guide package

- Reversal of the crane
  - Information on resistance of the ground and underground structures

- Lifting work
  - Fall of objects because of manipulation
  - Fall of objects because they come loose
  - Fall of person at a different level
  - Fall of person at the same level
  - Construction safety for on-site workers
  - Information on resistance of the ground and underground structures

- Clash of the crane or load by person or vehicle
  - Mark the area of evolution of the crane and load

PROBLEM | RISKS | ADOPTED MEASURES
--- | --- | ---
Implementation of the crane | Stem person | Markup
| | | Preparation of the operation by releasing space
| | | Use a rope to guide package
Reversal of the crane | Information on resistance of the ground and underground structures
Lifting work | Fall of objects because of manipulation
| | Fall of objects because they come loose
| | Fall of person at a different level
| | Fall of person at the same level
| | Construction safety for on-site workers
| | Information on resistance of the ground and underground structures
Clash of the crane or load by person or vehicle | Mark the area of evolution of the crane and load

Reversal of the crane
- Reprogram the electronic control for load after removal of the crane counterweight and verification of the program before any operation
- Electronic control for load active during removal operation

Clean the lot
- Remove the markings of the construction
- Remove the any waste in appropriate containers
PPE MUST BE WORN ON THIS SITE

- Hard Hat
- Safety Glasses
- Reflective Jacket
- Work Clothes
- Safety Gloves
- Safety Boots
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground

Phase 1: Site preparation
First, all the boundary will be marked, such as construction site, loading/unloading area, storage area, and crane location. After the marking, the security fence will be installed. Then, unload the tool container, safety accessory kit, and foundations. While unloading, the site will be safeguarded by the team and the electrician, who will install the electrical panel and the spotlights. Afterwards, the pavilion and site facilities will be assembled.
Phase 2: Establishment of the module unit

After the foundation footings are properly installed and leveled, the module units will be unloaded from the truck and installed on site. The footing weight is designed to be carried by one person and also installed by hand.

ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house
On the mezzanine floor

Phase 3: Installation of the main structure
After the 7 basic structural modules are installed on site, the roof supporting structure will be installed.
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house
On the mezzanine floor
On the floor

Phase 4: Building of the roof structure
After the roof structures are constructed, the PV panels will be installed. In order to minimize complicated installation work at the height, 8 PV panels will be attached to prefabricated frame in Taiwan.
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
- On the ground
- In the house
- On the mezzanine floor
- On the roof

Phase 5: installation of exterior wall
In order to protect the interior space from unexpected weather condition, the exterior wall panels will be installed as quickly as possible. Most of the panels are prefabricated with inter-locking method to eliminate complicated installation process.
Phase 6: Installation of floors and windows

After the exterior walls are sealed, the window frames and floor panels will be installed. In order to minimize risk of installing heavy glazing material, the light weight clear polycarbonate 10mm sheets will be installed.

ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house

Phase 7: Installation of the furniture and planting
After installing all the house components, the wood deck and furniture will be installed. Also planters along the deck and information support for the public will installed.
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house

Phase 8: Cleaning of the construction site and test of the house
First, the tool container, safety accessory kit, and fences and markers will be loaded on a truck to clean the site. To assure the public safety, the danger zone will be sealed off by the team members.

After cleaning the site, the house function will be tested.
Phase 9: Disassembly of the furniture and planting
First, the all movable interior components of the house will be wrapped and stored. Afterwards, the planting pods and wood deck will be removed.

ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house

Phase 10: Disassembly of floors and windows
All the floor panels will be removed first and then window frames will be detached.
Where the worker are:
On the ground
In the house
On the mezzanine floor
On the roof

Phase 11: Disassembly of exterior wall
Exterior wall panels will be disassembled and stored. The thermal mass water will be carried to the proper drain location and remove all the water.
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house
On the mezzanine floor
On the floor

Phase 12: Disassembly of the roof structure
PV panel will be disconnected and removed properly. After the PV panels are removed, the roof structure will be disassembled.
Phase 13: Disassembly of the main structure
First, the roof beams will be removed and then the columns are detached from the structural modules.
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground
In the house

Phase 14: Disassembly of the module unit
The 7 structural modules are disassembled and loaded to the truck straight.
ALL SAFETY RULES MUST BE FOLLOWED

Where the worker are:
On the ground

Phase 15: Disassembling site facilities and cleaning
The house facilities will be dismantled and stored in the container. The waste will be emptied and the lot will be cleaned. Finally, the container and the elements from the storage area will be removed and loaded to the truck by crane. To assure the public safety, the danger zone will be sealed by the team member.
1. First Impressions
2. Poster
3. Line Started
4. Photshop 1
5. Machine system
6. Entrance & Green Core
7. Kitchen & Bathroom
8. Livingroom & Thermal Mass
9. Bedroom & Workstation
10. Exhibition & Green Core system
11. Photshop 2 & Garden
12. Photshop 3 & Garden
13. Green House planning
14. Get the vote Card