1. GENERAL [GE]

GE-001 Cover sheet
GE-101 Sheet List
GE-201 General Symbols
GE-211 General Abbreviations
GE-301 World map
GE-302 Outline of Rikuzentakata
GE-303 Longitudinal Section
GE-310 Flooded area
GE-312 Zoning
GE-314 Electric energy management
GE-316 Mobility
GE-318 Public facilities
GE-319 Case Study area
GE-320 Isometric projection
GE-325 1FPan
GE-326 2FPan
GE-327 RFPan
GE-328 Section
GE-329 Electric Grid
GE-330 Thermal water Grid
GE-331 Elevation
GE-332 Perspective
GE-340 Competition Dwelling

2. ARCHITECTURAL [AR]

AR-001 La Cité du Soleil® Plan
AR-002 Site Plan
AR-011 Solar Envelope
AR-014 Architectural Footprint
AR-017 Measurable Area
AR-021 Floor Plan
AR-031 Roof Plan
AR-041 Reconfigurable features
AR-051 Measurable Areas
AR-101 Site Elevation
AR-111 Building Elevations
AR-201 Longitudinal Sections
AR-211 Transversal Sections
AR-301 Window Schedule and Details
AR-321 Door Schedule and Details
AR-341 Floor Construction Details
AR-351 Roof Construction Details
AR-361 Wall Sections and Construction Details
AR-371 Junction Detail
AR-381 Partitions Details
AR-401 Multi purpose space

3. BIOCLIMATIC ANALYSIS (BA)

BA-001 Local Climate Analysis
BA-011 Bioclimatic Drawings

4. INTERIORS (IN)

IN-001 Floor
IN-101 Reflected ceiling
IN-201 Elevations
IN-301 Furnishings
IN-401 Kitchen Plan (Furniture and Appliances)
IN-501 Bath room Plan (Fixtures and Accessories)
IN-601 Interior Renderings

5. STRUCTURAL (ST)

ST-001 Foundation Plan and Details
ST-011 Structural Floor Plan
ST-021 Structural Roof Plan
ST-101 Structural Longitudinal Sections
ST-201 Structural Blow ups

6. FIRE PROTECTION (FP)

FP-001 Fire Protection

7. PLUMBING (PL)

PL-001 Plumbing Plan. Supply and removal (cold and hot water)
PL-011 Greywater
PL-021 Drain / Waste / Vent
PL-101 Schematic diagram
PL-201 Supply and removal Isometric (cold and hot water)
PL-211 Greywater Isometric
PL-221 Drain / Waste / Vent Isometric

8. SOLAR WATER HEATING (SW)

SW-001 Plan
SW-101 Isometric
9. MECHANICAL (ME)

ME-001 HVAC distribution Plan
ME-011 HVAC equipment
ME-021 Heating
ME-031 Cooling
ME-041 Ventilation
ME-101 Mechanical room elevations
ME-201 HVAC System Schematic drawings
ME-211 Heating mode Schematic drawings
ME-221 Cooling mode Schematic drawings
ME-222 Cooling mode Schematic drawings
ME-231 Controls
ME-301 Isometric Distribution

10. ELECTRICAL (EL)

EL-001 Grid interconnection
EL-001- EL Wiring diagram
EL-301 Power plan
EL-401 Lighting plan
EL-501 One-line Diagram
EL-601 AC Circuit layout

11. PHOTOVOLTAIC SYSTEM (PV)

PV-001 Photovoltaic system general
PV-011 Photovoltaic system DC circuits
PV-021 Photovoltaic system AC circuits
PV-031 Photovoltaic systems grounding system

12. TELECOMMUNICATIONS AND BUILDING AUTOMATION SYSTEM (BAS)

BAS-001 Wiring plan
BAS-011 Schematic diagram
BAS-201 Equipment

13. SCHEMATIC DRAWING (ID)

ID-001 General Monitoring
ID-002 Monitoring panel room
ID-003 Electricity meters topology
ID-004 Electricity meters connection
ID-005 House appliances

14. SITE OPERATIONS (SO)

SO-001 Trucks shipment
SO-011 La Cité du Soleil®
SO-102 Lot plan
SO-201 Phases

15. HEALTH AND SAFETY

HS-001 Health and Safety in the lot and surroundings
HS-101 Health and Safety during the Outside Logistic
HS-201 Health and Safety during the Inside Logistic
HS-301 Health and Safety during load/unload
HS-401 Health and Safety during assembly/maintenance/disassembly

16. PUBLIC TOUR (PT)

PT-001 Site accessibility
PT-101 House tour floor plan
PT-201 House Tour General Information
Plan Title Code

Drawing Number

Drawing English Title

A

AR-011

Ground floor

Sheet Number

Indications

N

North Narrow

Graphic Scales

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Font

Calibri 12pt

Calibri 18pt
RIKUZENTAKATA city
Northeast region in JAPAN
latitude; 39°1’ N
longitude; 120° 40’ E.
RIKUZENTAKATA city
Population: 20,462
Area: 232.29 km²
Density: 83.7/km²

- temp(maximum)
- temp(average)
- temp(minimum)
- rainfall

Index | Description | Scale
---|---|---
A | Outline of Rikuzentakata | 

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Component

Scale

TOKYO

Outline of Rikuzentakata

Professional seat

Population

Area

Density
Before "3.11"
Flooded area

A

GE-310

1:20000
A

Flooded area

\[ \text{WL} + 22 \text{m Flooded level} \]

\[ \text{WL} \pm 0 \text{m} \]
Wind power generation  Streetlamp  Garden + PV  Low head hydropower  PV  PV

Electrical grid
A Mobility

Route
Inter-city bus station
Long distance

EV charge

Short distance
Middle distance

Long distance
We can rebuild public facilities with URBAN SEEDS SYSTEM

For example, clinic, school...etc
Case study: Alternative temporary dwelling plan for 30 households, 100 people.
Isometric projection
Isometric projection

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Index | Description | Scale
-- | -- | --
A | Isometric projection | --

Composed

GENERAL
Description
Isometric projection

Drawing Number
GE - 324
Thermal water grid

Surplus power

Use for heating

Use for cooking

Use for heating

Use for cooking

Use for heating

Use for cooking

Surplus power

Surplus power

Surplus power

Surplus power

Thermal water grid (local)
<table>
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<th>Description</th>
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<tbody>
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<td>A</td>
<td>Perspective</td>
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Competition Dwelling
Prototype with surrounding
1. ENGAWA links inside to outside - People watch over elderly in their ordinary life.
2. Various open space by planning URBAN SEEDS.
3. Passage is a place to communicate and interact for all people.
Prototype NORTH
Solar Envelope limit

Architectural Footprint
113.32 m²
Ground Floor Plan

Measurable Area
Living/Dining/Bedroom/Entrancehall total 43.944 m²
Kitchen 8.898 m²
Lavatory 6.177 m²
DEN 5.939 m²
total 64.958 m²

SLOPE inclined at 1:2.0
A
Building Elevation (SOUTH)

B
Building Elevation (EAST)

C
Building Elevation (WEST)

D
Building Elevation (NORTH)

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<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
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<td>A</td>
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<tr>
<td>B</td>
<td>Building Elevation (EAST)</td>
<td>1:150</td>
</tr>
<tr>
<td>C</td>
<td>Building Elevation (WEST)</td>
<td>1:150</td>
</tr>
<tr>
<td>D</td>
<td>Building Elevation (NORTH)</td>
<td>1:150</td>
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</tbody>
</table>

Component
ARCHITECTURAL
Description
Building Elevation
Drawing Number
AR-111
Longitudinal Section

Living

Dining

kitchen

Scale: 1:50

ARCHITECTURAL

Component

Description:

Longitudinal section

Drawing Number

AR-201
Longitudinal Section

DEN

Bed room

Living

Multipurpose Core

0m 1m 2m 5m 10m
0ft 5ft 10ft 20ft
Longitudinal Section

entrance hall

dining
Window Schedule and Details

WW: Wood Window
WD: Wood Door
WG: Wood Louver Door
AW: RESIN Window

Scale: 1:60

ARCHITECTURAL

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section ,east wooden window, upper part WW1 WW3

caulking

30mm x 40mm joist

t = 2mm waterproofing sheet

t = 24mm plywood

honeycomb thermo screen

wooden blind

t = 24mm plywood

t = 4mm fiber reinforced cement board

t = 2mm waterproofing sheet

t = 24mm plywood

caulking

1:100

m 0.1 0.2 0.5

0ft 1ft 2ft

t = 4mm fiber reinforced cement board

t = 6mm calcium silicate board

wooden flame

triple glazed wooden window

Uw = 1.0 W/m² K
section, east wooden window, lower part WW1 WW3

- t=12mm wooden flooring
- rubber for making airtightness
- natural ventilation apparatus

- triple glazed wooden window
  Uw=1.0W/m² K

- wooden flame
- wooden lintel 150mm*60mm
- W450mm*H134mm ventilating opening
- girder 150mm × 697mm

- sill: wood 180*120
- adjustable wooden column
- bottom board t=24mm plywood

- m 0.1 0.2 0.5
  Ft 1ft 2ft
A

elevation, east wooden window  WW1 WW3

B

plan, east wooden window

triple glazed wooden window

Uw=1.0W/m2 K

2726  3517

2592  3378

6000

6243
section, south wooden window, upper part

- WW2 WW2

- Section View

- **Caulking**
- **t=2mm Waterproofing Sheet**
- **t=24mm Plywood**
- **30mm x 40mm Joist**
- **t=4mm Fiber Reinforced Cement Board**

- **Wooden Beam 150*630**

- **Honeycomb Thermo Screen**
- **Wooden Blind**

- **Triple Glazed Wooden Window**
  - Uw=1.0W/m2 K

- Scale: 1:10
section, south wooden window, lower part

**WW2 WW2**

- **triple glazed wooden window**
  - $U_w = 1.0 \text{ W/m}^2 \text{ K}$
- **wooden flame**
- **wooden lintel 150mm\*60mm**
- **wood cladding**
- **floor panel (LVL)**
- **sill: wood 210\*120**
- **adjustable wooden column**
- **bottom board**
  - $t = 24 \text{ mm plywood}$
- **louver for air conditioning**
  - W450\*D90\*H30
  - $t = 12 \text{ mm wooden flooring}$
- **fan**
A elevation, south wooden window WW2 WW2

B plan, south wooden window

triple glazed wooden window
Uw=1.0W/m2 K

2503 30 2503

5036

2612 2612

0 0.1 0.5 1 2

m

0 0.5 1 2 5

m

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ARCHITECTURAL
Window Schedule and Details

section, west wooden window, lower part WW8

triple glazed wooden window
Uw=1.0W/m² K

wooden flame

wooden lintel 150mm x 55mm

girder 150mm x 697mm

sill: wood 180 x 120

adjustable wooden column

bottom board
  t=24mm plywood

1250
**A**
elevation, resin window AW4

**B**
plan, resin window AW4

**C**
section, resin window AW4

- Triple glazed resin window
  \[ U_w = 0.91 \text{ W/m}^2 \cdot \text{K} \]

- Triple glazed window wooden frame

- Nonflammable melamine decorative board

- T=12mm wooden flooring

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**Description**
Window Schedule and Details

**Drawing Number**
AR-311

---

**Specifications**

- Location:
  - Chiba University Japan
  - 1-33, Yayoicho, Inage Ward, Chiba-shi, Chiba, 263-8522 Japan

- Scale:
  - A: 1:10
  - B: 1:10
  - C: 1:10

- Component:
  - Architectural

---

**Notes**

- Additional details and specifications for the architectural design of the window and related components.
WW: Wood Window
WD: Wood Door
WG: Wood Louver Door
AW: RESIN Window
**A** elevation, wooden door (Bathroom) WD2

- Single swinging door (LVL flame)
- Facing t=4mm fiber reinforced cement board
- Roller latch
- Pull handle (stainless)
- L=452mm Φ27

**B** plan, wooden door (Bathroom) WD2

- Sill: wood 240*120
- Adjustable wooden column
- Bottom board t=24mm plywood
- Jamb W=45mm wood
- Jamb W=45mm wood (wooden) Φ42mm
- Groove for invisible hinge

**C** section, wooden door (Bathroom) WD2

- Section illustration of the door with details:
  - t=3mm nonflammable melamine decorative board
  - Head W=30mm wood
  - Single swinging door
  - Fiber reinforced cement board (facing) t=4mm

---

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<td>Ar-327, wooden door (reference WD2)</td>
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<td>B</td>
<td>Ar-327, wooden door (reference WD2)</td>
<td>1:15</td>
</tr>
<tr>
<td>C</td>
<td>Ar-327, wooden door (reference WD2)</td>
<td>1:15</td>
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Component:

**ARCHITECTURAL**

Door Schedule and Details

Drawing Number:

AR-322
**Elevation**

- Wooden door (Strage) WD2
- Single swinging door (LVL flame)
- Facing t=4mm fiber reinforced cement board
- Head W=30mm wood
- Pull handle (stainless) L=452mm Ø27
- Roller latch

**Plan**

- Wooden door (Strage) WD2
- Single swinging door (wooden) W=45mm
- Groove for invisible hinge
- Adjustable wooden column
- Bottom board t=24mm plywood
- Sill: wood 240*120

**Sections**

- Wooden door (Strage) WD2
- Section, wooden door (Strage) WD2
- t=3mm nonflammable melamine decorative board
**A**

**Elevation, wooden door (Electric Space)**

- Pull handle (stainless) L=452mm Ø 27
- Roller latch
- Thumb turn back: cylinder lock

**B**

**Plan, wooden door (Electric Space)**

- Jamb W=45mm wood
- Single swinging door (wooden) D=39mm
- Jamb W=45mm wood groove for invisible hinge

**C**

**Section, wooden door (Electric Space)**

- Single swinging door (LVL flame)
- Facing t=4mm fiber reinforced cement board
- Head W=30mm wood
- Sill: wood 240*120
- Adjustable wooden column
- Bottom board t=24mm plywood
- t=9mm plywood
- t=12mm wooden flooring
- t=25mm wooden deck flooring
section, double pushing & sliding door WD3

plan, double pushing & sliding door WD3

double pushing & sliding door (wooden) D=42mm

jamb W=30mm wood

overhead track

jamb W=30mm wood
section, double pushing & sliding door, upper part, WD3

Steel L-shaped angle 50mm*50mm

overhead track

hangers

g

single swinging door (LVL flame)

facing t=4mm

fiber reinforced cement board

t=3mm nonflammable melamine decorative board

overhead track

g

plan, double pushing & sliding door, lower part, WD3

flush bolt

216

g

sill: wood 240*120

adjustable wooden column

bottom board
t=24mm plywood

t=12mm wooden flooring

ARCHITECTURAL

Door Schedule and Details

Component

Description

index  description  scale

A  section, double pushing & sliding door, upper part WD3  1.5

B  section, double pushing & sliding door, lower part WD3  1.5

C  section, double pushing & sliding door WD3  1.15

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single sliding door (basswood lumber core) facing t=4mm
fiber reinforced cement board

roller latch
knob pull

sill: wood 240*120
adjustable wooden column
bottom board t=24mm plywood

t=12mm wooden flooring

head W=30mm wood

t=25mm wooden deck flooring

nonflammable melamine decorative board
plan, single sliding door, WD7

single sliding door (wooden) D=40mm

jamb W=48mm wood

pull handle (stainless) L=452mm φ 27
roller latch

1100

stile, top rail, bottom rail W=100mm wood (hemlock fir glued laminated timber)

t=10mm polycarbonate board

mohair seal for airtight

section, single sliding door, WD7

single sliding door (wooden) D=40mm

t=12mm ceramic tile

t=12mm wooden flooring
A. Plan, single sliding louver door, WG1

B. Elevation, single sliding louver door, WG1

C. Section, single sliding louver door, WG1

- Single sliding louver door
- Groove for invisible hinge
- Jamb W=30mm wood
- Jamb W=45mm wood
- Head W=30mm wood
- Louver 30*10
- Single sliding louver door facing t=4mm
- Fiber reinforced cement board
- Louver 30*10
- T=12mm wooden flooring
- Latent heat storage material
- Air conditioning space B
- Total enthalpy heat exchanger
- Reserve
- Total enthalpy heat exchanger
- Air conditioning space A
- Air flow
- Fan
- Mohair seal for airtight

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<td>Plan, single sliding louver door</td>
<td>1:15</td>
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<tr>
<td>B</td>
<td>Elevation, single sliding louver door</td>
<td>1:15</td>
</tr>
<tr>
<td>C</td>
<td>Section, single sliding louver door</td>
<td>1:15</td>
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</table>
plan, single sliding louver door, WG2 (machinery room)

single sliding louver door

inset hinge @ 200

knob pull

elevation, single sliding louver door, WG2 (machinery room)

mortise lock

roller latch

knob pull
Floor Construction Schedule

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<td>Double flooring</td>
<td>t=12 Wood flooring A</td>
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<tr>
<td></td>
<td>t=12 Ceramic tile B</td>
</tr>
<tr>
<td></td>
<td>t=12 Wood flooring C</td>
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<tr>
<td></td>
<td>t=25 Wooden deck flooring D</td>
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<tr>
<td></td>
<td>t=12 Ceramic tile E</td>
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<tr>
<td></td>
<td>t=24 Plywood F</td>
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<td>450mm*450mm Underfloor inspection Hole G</td>
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<td>90mm*450mm Ventilating opening H</td>
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</table>

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Index Description Scale
A Floor Construction Schedule 1:50

Component
ARCHITECTURAL
Description
Floor Construction Details
Drawing Number
AR-341
Floor Construction

thermally transmittance
$U = 0.1 \text{ W/m}^2\text{K}$

Section, Double flooring

1. 12mm wooden flooring
2. 12mm wood sub floor (plywood)
3. 18mm x 50mm wood sleeper @ 300
4. 20mm Particle board
5. Steel post for double flooring
6. Phase Change Material (PCM)
7. 40mm flange (LVL)
8. 450mm wood fiber insulation
9. 12mm Ceramic tile
Section, Solar heat corrector

- 15° Steel angle
- Foundation 120mm x 120mm (LVL)
- Joist 30mm x 40mm
- Water proofing sheet
- Foundation wood 30mm x 120mm
- t=12mm plywood

Solar heat corrector

1820

Index | Description | Scale
--- | --- | ---
A | Section, Solar heat corrector | 1:10
### Section, Wall Sections

**Thermal Transmittance**

\[ U = 0.14 \text{ W/m}^2\text{K} \]

<table>
<thead>
<tr>
<th>FINISH</th>
<th>BACKING</th>
<th>AIR</th>
<th>STRUCTURE</th>
<th>PILLAR</th>
<th>Finishes</th>
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<tbody>
<tr>
<td>6mm Fiber Reinforced Cement Board</td>
<td>6mm Plywood</td>
<td>12mm Furring (Wood 12*50)</td>
<td>6mm Structural Plywood</td>
<td>120mm x 120mm wood</td>
<td>to 3mm Nonflammable Melamine Decorative</td>
</tr>
<tr>
<td>6mm Fiber Reinforced Cement Board</td>
<td>6mm Plywood</td>
<td>12mm Furring (Wood 12*50)</td>
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<td>6mm Structural Plywood</td>
<td>120mm x 120mm wood</td>
<td>to 3mm Nonflammable Melamine Decorative</td>
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### Wall Sections

<table>
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<tr>
<th>FINISH</th>
<th>BACKING</th>
<th>AIR</th>
<th>Insulation</th>
<th>Structure</th>
<th>Finishes</th>
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<tbody>
<tr>
<td>6mm Nonflammable Melamine Decorative Board</td>
<td>6mm Plywood</td>
<td>12+12+2 Vacuum Insulation</td>
<td>Moisture-proof Airtight Film</td>
<td>9mm Structural Plywood</td>
<td>to 3mm Nonflammable Melamine Decorative</td>
</tr>
<tr>
<td>6mm Nonflammable Melamine Decorative Board</td>
<td>6mm Plywood</td>
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<td>12+12+2 Vacuum Insulation</td>
<td>Moisture-proof Airtight Film</td>
<td>9mm Structural Plywood</td>
<td>to 3mm Nonflammable Melamine Decorative</td>
</tr>
</tbody>
</table>

**Note:**
- Material specifications and dimensions may vary depending on the specific application and location.
A) Junction, between interior floor and interior wall

- thermal insulating tape
- t=12mm wood flooring
- t=25mm wood deck flooring

B) Junction, between interior wall and interior ceiling between roof and exterior wall

- waterproof sheet (DOUBLE)
- thermal insulating tape
- thermal insulating tape
Junction, between roof and exterior wall

- Thermal insulating tape
- Waterproof sheet (DOUBLE)
- t=9mm plywood
- 30mm*40mm wood
- Wood for slope

Junction

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Junction, between roof and exterior wall</td>
<td>1:10</td>
</tr>
</tbody>
</table>
Overhead track substrate 90x135
L-shaped angle 27x60
Overhead track (aluminium)
Sliding partition (wooden)
line lighting W59 L1180 H47
t=3mm Decorative polyester plywood
Lighting Box

Overhead track substrate 90x135
Overhead track (aluminium)
A  Top rail 60*30 (LVL)
B  t=30mm Styrofoam
C  Rail 50*30 (LVL)
D  Stile 60*30 (LVL)
E  Bottom rail 60*30 (LVL)

F  hangers
G  panel (t=4mm China veneer)
H  Door silencer (rubber)
I  t=9mm mohair seal
J  Flush bolt
**Partitions Details**

- **A** Top rail 60*30 (LVL)
- **B** t=30mm Styrofoam
- **C** Rail 50*30 (LVL)
- **D** Stile 60*30 (LVL)
- **E** Bottom rail 60*30 (LVL)
- **F** Hangers
- **G** Panel (t=4mm China veneer)
- **H** Door silencer (rubber)
- **I** t=9mm mohair seal
- **J** Flush bolt

---

**Plan, Partitions**

**Index**
- **A** Partitions Details WSP5
- **B** Plan, Partitions WSP5

**Scale**
- 1:25
- 1:60

**Image Descriptions**

- **AR-384**
- **AR-384**
Exterior Rendering
**Team CUJ**
Chiba University, Japan
1-11-7 Yoyogi, Bunkyo Ward, Chiba, 282-0022 Japan

<table>
<thead>
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<th>Description</th>
<th>Scale</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Interior Rendering</td>
<td></td>
</tr>
</tbody>
</table>

**Component:** ARCHITECTURAL

**Description:** Multi-purpose Space

**Drawn Number:** AR-402

**Office:** Solar Decathlon Europe 2014
This is the lighting which uses OEL (Organic Electroluminescent).
You can enjoy the lighting by "Puting Mode" and "Hanging Mode".

When it raises, with the applied gravity, lighting curves naturally and it changes form. It is like a cradle.
The cover of lighting adopts fabric. By using various kinds of fabric, it is considered as the product which is easy to integrate to interior design.
multipurpose space
**Bioclimatic Analysis - Section A**

**Temperature**

Average daily maximum and minimum temperature of January in Rikuzentakata is -1.7 degrees, February is -1.5 degrees. Both below the freezing point.

In summer average daily maximum temperature of summer is about 30 degrees, but it drops to near 20 degrees at night.

**Strategy**

1. **Wood fiber and Vacuum Insulation**  
   Vacuum Insulation and wood fiber are used as a heat Insulation. The wall has a high thermal insulation performance.

2. **Honeycomb thermo screens**  
   Closing the honeycomb thermo screens at night to raise the insulation performance of openings.

3. **PCM**  
   Installing PCMs under the floor. They are cooled by the outside cold air which is taken in at night. Cooled PCMs reduce the cooling load during the day. And heat capacity is increased by installing them, change of room temperature becomes gradual.
Analysis
In Rikuzentakata, Sunshined hours of Jul is 119.5 hours, Jan is 148.1 hours. Sunshined hours of winter is long, summer’s is short. Accordingly it is comfortable throughout a year, obstructing solar radiation isn’t so important.

Strategy
① Large openings
RenaiHouse has opening of 5 m X 2.8 m on the south side and opening of 6 m X 2.8 m on the east side.

② Eaves
The eaves that is 1.4 m from the wall obstructs solar radiation to reduce the cooling load.

③ Electric blind
The blind of the north core obstructs solar radiation in summer. In winter, it is opened to warm the room by solar radiation.

④ Lighting duct
Lighting duct can shine the place where daylight doesn’t reach.
Precipitation and Related Humidity

Analysis

In Rikuzentakata, it has much precipitation in summer. Over 100 mm of rain is falling in more than six months of the year. Consequently, humidity is also high. Humidity is over 60% throughout the year, it is over 80% in July and August.

Strategy

① Utilization of rain water
Rain water is collected at the roof of the west core. Collected water in the tank is used washing PV panels and watering plants.

② Providing aerated zone
12 mm of aerated zone is provided between the outer wall panel and the precursor. Because of flowing wind, heat and moisture are’t stuffy.

③ Natural ventilation
The wind came from the opening of the South and East exits from the opening of the north core by the chimney effect. Natural ventilation is also possible from ventilation holes provided under the floor.
Bioclimatic Analysis - Summer - Day

<table>
<thead>
<tr>
<th>Icon</th>
<th>Mean</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>🌞 solar altitude</td>
<td>high</td>
<td>- 68° at 12:00 Aug.1</td>
</tr>
<tr>
<td>⚫️ solar radiation</td>
<td>much</td>
<td>- obstruct by the eaves</td>
</tr>
<tr>
<td>✡️ electric blind</td>
<td>closed</td>
<td>- obstruct solar radiation</td>
</tr>
<tr>
<td>🌬️ air flow</td>
<td>cool</td>
<td>- underfloor air distribution</td>
</tr>
<tr>
<td>⚜️ ventilation hole</td>
<td>closed</td>
<td>- obstruct air</td>
</tr>
<tr>
<td>🍒 PCM</td>
<td>absorb heat</td>
<td>- reduce the cooling load</td>
</tr>
<tr>
<td>⛤️ honeycomb thermo screen</td>
<td>window: opened</td>
<td>north core: closed</td>
</tr>
</tbody>
</table>

Bioclimatic Analysis - Summer - Night

<table>
<thead>
<tr>
<th>Icon</th>
<th>Mean</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>✡️ electric blind</td>
<td>opened</td>
<td>- for ventilation</td>
</tr>
<tr>
<td>🌬️ air flow</td>
<td>cool</td>
<td>- natural air</td>
</tr>
<tr>
<td>⚜️ ventilation hole</td>
<td>opened</td>
<td>- for ventilation</td>
</tr>
<tr>
<td>🍒 PCM</td>
<td>generate heat</td>
<td>- cooled by air</td>
</tr>
<tr>
<td>⛤️ honeycomb thermo screen</td>
<td>window: opened</td>
<td></td>
</tr>
</tbody>
</table>
### Winter - Day

<table>
<thead>
<tr>
<th>Icon</th>
<th>Mean</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>☀️ solar altitude</td>
<td>Low</td>
<td>- 27° at 12:00 Jan.1</td>
</tr>
<tr>
<td>→ solar radiation</td>
<td>little</td>
<td>- warm the room</td>
</tr>
<tr>
<td>⌀ electric blind</td>
<td>opened</td>
<td>- reflect solar radiation</td>
</tr>
<tr>
<td>≈ air flow</td>
<td>warm</td>
<td>- underfloor air distribution</td>
</tr>
<tr>
<td>🔄 ventilation hole</td>
<td>closed</td>
<td>- obstruct air</td>
</tr>
<tr>
<td>🔄 PCM</td>
<td>absorb heat</td>
<td>- warmed by solar radiation</td>
</tr>
<tr>
<td>⬇️ honeycomb thermo screen</td>
<td>window : opened north core : opened</td>
<td></td>
</tr>
<tr>
<td>⬇️ radiant heat</td>
<td>generate heat</td>
<td>- human and appliances</td>
</tr>
</tbody>
</table>

### Winter - Night

<table>
<thead>
<tr>
<th>Icon</th>
<th>Mean</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>⌀ electric blind</td>
<td>closed</td>
<td></td>
</tr>
<tr>
<td>🔄 ventilation hole</td>
<td>closed</td>
<td>- obstruct air</td>
</tr>
<tr>
<td>🔄 PCM</td>
<td>generate heat</td>
<td>- keep room temperature</td>
</tr>
<tr>
<td>⬇️ honeycomb thermo screen</td>
<td>window : closed north core : closed</td>
<td></td>
</tr>
<tr>
<td>⬇️ radiant heat</td>
<td>generate heat</td>
<td>- human and appliances</td>
</tr>
</tbody>
</table>
A  Plan, Honeycomb thermo screen

B  Section, Honeycomb thermo screen

C  Section, Honeycomb thermo screen

90°90 joist

machine room

Lavatory

Kitchen

Floor to Honeycomb: H=2266
<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Model Number</th>
<th>Dimension</th>
<th>Energy Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes Washer Dryer</td>
<td>Panasonic</td>
<td>NA-VX7300</td>
<td>639×716×1021</td>
</tr>
<tr>
<td>Refrig. Freezer</td>
<td>SHARP</td>
<td>SJ-XW47Y</td>
<td>650×715×1820</td>
</tr>
<tr>
<td>Cooktop</td>
<td>Cleanup</td>
<td>ZEFR7M12DSS</td>
<td>260×354×68</td>
</tr>
</tbody>
</table>
| Dishwasher       | Cleanup      | ZWPM45M12CDS    | 448×627×450        | Fire1: 3000W  
|                  |              |                 | Fire2: 3000W       | Fire3: 1250W  |
| Oven             | Electrolux   | EOB31002X       | 594×560×590        | 1875W(maximum) |
| TV               | Orion Electronics | LK-291BP     | 663×170×429        | 37kWh/year   |
| Computer         | TOSHIBA      | PT5715TEBG8W    | 413.6×274×28 ～36  | 120W(maximum) |
| DVD Player       | Panasonic    | DMP-BD79        | 330×181×38         | 7W           |
Dining, Interior Renderings
Structural Roof Plan
(FL + 3500 Level)

EAVES

R1 R2 R3 R4 R5 R6 R7 R8 R9:
Floor Panel H=530mm
(Laminated Veneer Lumber)

EAVES

Structural Plywood t=24mm
A
ST-201
Blow up

TEAM CUI
Chiba University Japan
1-33, Yayoicho, Inage Ward,
Chiba-shi, Chiba, 263-8522 Japan

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Blow up</td>
<td></td>
</tr>
</tbody>
</table>

Components:
STRUCTURAL

Description
Structural Blow ups

Drawing Number
ST-201
Opening Size: 1500

Water Meter
Supply Water Pump
Supply Water Tank

Water

Machine Room

Lavatory

Kitchen

Suplly water

Suplly hot water

Culmination altitude 62.5°
Opening Size: 150Ø

bridged polyethylene pipe 20A
Drain Water Pump
Drain Water Tank

polyvinyl chloride pipe 75A at a slope of 1 in 100
polyvinyl chloride pipe 50A

Index | Description | Scale
--- | --- | ---
A | Section, Plumbing | 1:50
B | Section, Plumbing | 1:50

Component
Description
PLUMBING
Drain / Waste / Vent

Drawing Number
PL-022
**Schematic diagram**

![Schematic Diagram of Plumbing System](image)

**Component**
- Supply water tank: 3000L
- Drain water tank: 3000L
- Supply water pump: 16 L/min
- Drain water pump unit: 80 L/min
- Shower: 50 L/once
- Washing stand: 4 L/min
- Washing machine: 72 L/once
- Kitchen: 5 L/min
- Dish washer: 8 L/once
- Supply water pump: 16 L/min
- Supply hot water pump: 16 L/min
- Heat pump unit: 50 L/once
- Solar heat corrector: 8 L/once
- Drain water pump unit: 80 L/min
- Heat medium for solar heat corrector
- Heat medium for heat pump unit

**Location**
- Chiba University Japan
  - 1-33, Yayoicho, Inage Ward, Chiba-shi, Chiba, 263-8522 JAPAN
Isometric, W-Seed
A Section, Solar Water Heating

B Section, Solar Water Heating

Solar heat corrector

Heat Pump Unit

Solarheat Tank

Lavatory

Kitchen

hot water supply

heat medium pipe

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Chiba University Japan
1-33, Yayoicho, Inage Ward, Chiba-shi, Chiba, 263-8522 JAPAN

Index Description Scale

A Section, Solar Water Heating 1:50

B Section, Solar Water Heating 1:50

Component

SOLAR WATER HEATING

Index Drawing Number

A SW-002

B SW-002
HVAC distribution Plan

- Exhaust air
- Open air
- Supply air
- Return air

MECHANICAL

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1-33, Yayoi cho, Inage Ward, Chiba-ku, Chiba, 263-8522 Japan

Index | Description | Scale
--- | --- | ---
A | HVAC distribution Plan | 1:100

Component

MECHANICAL

Description

HVAC distribution Plan

Drawing Number
ME-001
Floor Plan

Exhaust air
Open air
Supply air
Return air

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1-33, Yayoicho, Inage Ward,
Chiba-shi, Chiba, 263-8522 Japan

Index | Description | Scale
--- | --- | ---
A | Floor Plan | 1:100

Component

MECHANICAL

Description

HVAC distribution Plan

Drawing Number
ME-002
Humidification Systems

Index Description Scale

A Humidification Systems 1:100

Component MECHANICAL

Description HVAC distribution Plan

Drawing Number ME-003

Supply air
Ventilation schematic plan

- Exhaust air
- Open air
- Supply air
- Return air

Index | Description | Scale
--- | --- | ---
A | Ventilation schematic plan | 1:100

Component

MECHANICAL

Description | Ventilation
--- | ---
Drawing Number | ME-041
Natural Ventilation
In the natural ventilation system of Renai house, it is possible to supply the outside air from the inlets under the floor, to evacuate from the top side windows on the north side. In summer, it is possible to cool the precursor that became hot during the day by natural ventilation.
Ventilation opening

- t=12mm wooden flooring
- rubber for making airtightness
- natural ventilation apparatus

- triple glazed wooden window
- wooden flame
- wooden lintel 150mm x 60mm
- W450mm x H134mm ventilating opening
- girder 150mm x 697mm

- sill: wood 180*120
- adjustable wooden column
- bottom board t=24mm plywood

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Chiba University Japan
1-33, Yayoiicho, Inage Ward,
Chiba-shi, Chiba, 263-8522 Japan

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Scale</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>Ventilation opening</td>
<td>1:10</td>
</tr>
</tbody>
</table>

Component:
MECHANICAL

Descriptions

Drawing Number
ME-044
Mechanical room elevations

- Air conditioner outside machine
- Single sliding louver door
- Groove for invisible hinge
- Mortise lock
- Roller latch
- Knob pull
- Groove for invisible hinge
- Single sliding louver door
- Total enthalpy heat exchanger
- Fan
- Mohair seal for airtight
- Air conditioning unit
- Air conditioning space A
- Air conditioning space B
- Air flow
Mechanical room elevations in competition activities

MECHANICAL

Air conditioning unit

Air conditioning space B

Air conditioning space A

Air conditioner outside machine

Air conditioning unit

Air conditioner outside machine

Air conditioning unit

Total enthalpy heat exchanger

Total enthalpy heat exchanger

Fan

Air flow

ME-103

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Chiba University Japan
1-33, Yayoicho, Inage Ward,
Chiba-shi, Chiba, 263-8522 Japan

Localization

Index Description Scale

A Mechanical room elevations in competition activities

Solar

2014 ENERGIE

Entrance

Solar House

DMS - Design Development Documentation
Project Drawings
June 7, 2014

Localisation

Component

MECHANICAL

Description

Mechanical room elevations

Drawing Number

ME-103
In the RenaiHouse project, a house unit energy system is designed based on the Smart House concept. Our Smart house is controlled by home energy management system (HEMS). It is kind of a home automation system for energy control and homecare. The biggest factor to high cost and energy consumption in house is energy in the form of heat. Also, being comfortable in house is mostly concerned with temperature. Therefore, in this system, we mainly focus on measurement, monitor environmental temperature by sensors and control of house temperature by network system.
<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Scale</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Cooling mode Schematic drawings</td>
<td></td>
<td>MECHANICAL</td>
</tr>
<tr>
<td>B</td>
<td>Cooling mode Schematic section</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Localization**

TEAM CUJ
Chiba University Japan
1-33, Yayocho, Inage Ward, Chiba-shi, Chiba, 263-8522 Japan
**Component**

**Description**

**Drawing Number**

**Index**

**Description**

**Scale**

**Component**

**TEAM CUJ**

Chiba University Japan

1-33, Yayoi-cho, Inage Ward,

Chiba-shi, Chiba, 263-8522 Japan

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<th>Index</th>
<th>Description</th>
<th>Scale</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Control schematic plan</td>
<td></td>
<td>MECHANICAL</td>
</tr>
<tr>
<td>B</td>
<td>Controls</td>
<td></td>
<td>Controls</td>
</tr>
</tbody>
</table>

**MECHANICAL**

**Localization**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>ME-231</th>
</tr>
</thead>
</table>

**Solar Decathlon Europe 2014 ENFRANCE**

**SUN HOUSE**

DME - Design Development Documentation

Project Drawings

June 2 - 2014
Distribution Board #1

- Power meter for E_H
- 1 φ 3W AC200V
- 1 φ 2W AC100V
- MCB 20A

Distribution Board #2

- Power meter for E_H
- 1 φ 3W AC200V
- 1 φ 2W AC100V
- MCB 20A

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Chiba-shi, Chiba, 263-8522 Japan

- All of the cables are Halogen-free.
- EM-EP2.0mm²-3C cable is used for 20A load.
- EM-CEB.0mm²-3C cable is used for 40A and 50A lines.
Photovoltaic system:

- Photovoltaic panels: DC225V 4.725kW
- DC/AC Inverter
- MPPT1
- Distribution Board #1
- Power meter for E1
- Electric circuit 30mA 40A
- Distribution Board #2
- Power meter for E2
- Electric circuit 30mA 40A

Components:

- PV Panel
- DC/AC Inverter
- MPPT1
- Circuit Breaker
- Load Meter
- Electric Socket Type 2P47/5A

Equipment:

- MCB 20A
- MCB 50A
- MCB 100A (MAX 100A)
- ELB 105mA 30A (MAX 100A)
- ELB 30mA 40A

Notes:

- All cables are Halogen-free.
- PV: Photovoltaic
- MCB: Molded Case Circuit Breaker
- ELB: Earth Leakage Circuit Breaker
- L4: Lighting Arrester

Chiba University Japan
1-33, Yayoicho, Inage Ward, Chiba-shi, Chiba, 263-8522 Japan

Drawing Number: PV-001

Date: June 2, 2014
Photovoltaic system:
DC circuits

A BLOCK
7 panels
1x2W DC 225V
PV1-F2.5mm²-2C

B BLOCK
7 panels
1x2W DC 225V
PV1-F2.5mm²-2C

C BLOCK
7 panels
1x2W DC 225V
PV1-F2.5mm²-2C

JUNCTION BOX

PCS#1
DC/AC INVERTER

1x3W AC 200V
EM-0E6.0mm²-3C
AC Bus

Surge Absorber

Index Description Scale
A Photovoltaic system: DC circuits None

Component
PHOTOVOLTAIC SYSTEM

Description: Photovoltaic system: DC circuits

Drawing Number: PV-011
Photovoltaic system: AC circuits

- PCS#1: 4.0kW
- DC/AC INVERTER
- MPPT
- 1 x 3W AC 2000V
- EM-CEB 0.0mm² - 3C

Distribution Board #1
- Power meter for Ei
- Power meter for Ehe
- 1 x 2W AC 100V
- EM-EEF 2.0mm - 2C
- MCB 10A 30mA 40A

Distribution Board #2
- MCB 10A 30mA 40A

Circuit Breaker
- 1 x 3W AC 2000V
- EM-EEF 0.0mm² - 3C
- MCB 100A Max100A

PV Meter
- 30mA

Electric socket
- Type 2P4T/63A
- 1 x 2W AC 230V
- EM-CE22.0mm² - 3C

Transformer
- AC 230V 50Hz
- Transformer

Load Meter
- 1 x 3W AC 2000V
- EM-EEF 0.0mm² - 3C
- MCB 100A 30mA Max100A

SDE Connection Box
- ELB 30mA
- MCB 50A

- All of the cables are Halogen free.
- PV: Photo Voltic
- MCCB: Molded Case Circuit Breaker
- ELB: Earth Leakage Circuit Breaker
- LA: Lightning Arrester

AC230V Power Line
- Neutral (Grounding) Line
- Grounding Line
- AC100V Power Line

Scale: 1/50

TEAM CUJ
Chiba University Japan
1-33, Yayoicho, Inage Ward, Chiba-shi, Chiba, 263-8522 Japan

Index | Description | Scale
--- | --- | ---
A | Photovoltaic system: AC circuits | 1/50
PHOTOVOLTAIC SYSTEM

Photovoltaic system:
grounding system

Localization

Index

Component

Description

Photovoltaic system: grounding system

Drawing Number

PV-031
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>H1</td>
<td>SDE Monitoring Panel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>INABIA</td>
<td>AKB–</td>
<td>W368–670×H220×D110mm</td>
<td>6.7~9.2kg</td>
<td>ARMV7 800MHz, microSD ECHONET Lite</td>
</tr>
<tr>
<td>H2</td>
<td>AKB Distribution Board</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NISSIN SYSTEMS</td>
<td>MRS120</td>
<td></td>
<td></td>
<td>ECHONET Lite support</td>
</tr>
<tr>
<td>H3</td>
<td>HEMS Server</td>
<td>1</td>
<td>AC100–240V</td>
<td>12V</td>
<td>2.5A</td>
<td>30W</td>
<td>NISSIN SYSTEMS</td>
<td>W100 × H115 × D 32.5</td>
<td>0.3kg</td>
<td>ARMV7 800MHz, microSD ECHONET Lite</td>
<td></td>
</tr>
<tr>
<td>H4</td>
<td>USB Dougle 2.4GHz</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NISSIN SYSTEMS</td>
<td>CYGNET Lite</td>
<td></td>
<td></td>
<td>2.4GHz Wireless Network</td>
</tr>
<tr>
<td>H5</td>
<td>CT Sensor Module</td>
<td>5</td>
<td>AC100–240V</td>
<td>1.2W</td>
<td>1.2W</td>
<td></td>
<td>NISSIN SYSTEMS</td>
<td>W45 × H77 × D45 mm</td>
<td>0.053kg</td>
<td>Siren : 1/F RS232C/422/485</td>
<td></td>
</tr>
<tr>
<td>H6</td>
<td>Smart Power Outlet (SPO)</td>
<td>1</td>
<td>100V</td>
<td>0–15A</td>
<td>0.5W</td>
<td></td>
<td>NISSIN SYSTEMS</td>
<td>W95 × H72 × D23 mm</td>
<td>0.4kg</td>
<td>Siren : 1/F RS232C/422/485</td>
<td></td>
</tr>
<tr>
<td>H7</td>
<td>Device Server</td>
<td>2</td>
<td>AC100–240V</td>
<td>1.8W MAX</td>
<td></td>
<td></td>
<td>LANTRONIX</td>
<td>EDS2100</td>
<td></td>
<td></td>
<td>Siren : 1/F RS232C/422/485</td>
</tr>
<tr>
<td>H8</td>
<td>Circuit Meter</td>
<td>1</td>
<td>AC100–240V</td>
<td>0.03A</td>
<td>0.3W</td>
<td></td>
<td>Informets</td>
<td>CM-1/2</td>
<td>W65×H10×D80 mm</td>
<td></td>
<td>Siren : 1/F RS232C/422/485</td>
</tr>
<tr>
<td>H9</td>
<td>AT powered Dissaggregation</td>
<td>1</td>
<td>AC100–240VAC</td>
<td>7W</td>
<td></td>
<td></td>
<td>Informets</td>
<td>ARF200</td>
<td>W288×H288×D251 mm</td>
<td>7.2kg</td>
<td>Siren : 1/F RS232C/422/485</td>
</tr>
<tr>
<td>H10</td>
<td>Advanced Recorder</td>
<td>1</td>
<td>AC100–240V</td>
<td>65VA MAX</td>
<td></td>
<td></td>
<td>asbil</td>
<td>ARF200</td>
<td></td>
<td></td>
<td>Siren : 1/F RS232C/422/485</td>
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<tr>
<td>H11</td>
<td>Thermocouple (T Type)</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Schneider Electric</td>
<td>MPM-UN</td>
<td>W126×H132×D34mm</td>
<td>315kHz</td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H12</td>
<td>Multi-function Control Device</td>
<td>1</td>
<td>AC100–240V</td>
<td>0.5A</td>
<td>1.2W</td>
<td></td>
<td>Schneider Electric</td>
<td>MPM-UN</td>
<td>W126×H132×D34mm</td>
<td>315kHz</td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H13</td>
<td>Wireless Room Sensor</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>thermomok</td>
<td>SRH4P MS rh315</td>
<td>W84.5×H84.5×D25mm</td>
<td>315kHz</td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H14</td>
<td>Wireless Outdoor Temperature</td>
<td>10</td>
<td></td>
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<td></td>
<td>thermomok</td>
<td>SR6S315TF</td>
<td>W78×H58×D45.5 mm</td>
<td>315kHz</td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H15</td>
<td>Wireless Integrated</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CMURON</td>
<td></td>
<td></td>
<td></td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H16</td>
<td>Multiple Sensor</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CorLab</td>
<td></td>
<td></td>
<td></td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H17</td>
<td>Infrared Camera</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CorLab</td>
<td></td>
<td></td>
<td></td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H18</td>
<td>Server</td>
<td>2</td>
<td>AC100–240V</td>
<td>65W</td>
<td></td>
<td></td>
<td>Intel</td>
<td>DCS3427HEY</td>
<td>W116.6×H39×D112mm</td>
<td>1kg</td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H19</td>
<td>Xperia Tablet</td>
<td>2</td>
<td>AC100–240V</td>
<td>22.2W</td>
<td></td>
<td></td>
<td>SONY</td>
<td>SG312JKR/B</td>
<td>W266×H6.9×D172mm</td>
<td>0.495kg</td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H20</td>
<td>Wireless LAN broadband</td>
<td>1</td>
<td>AC100–240V</td>
<td>100V</td>
<td>0.132A</td>
<td>13.2W</td>
<td>BAFFALO</td>
<td>WZR-HP-AG300H</td>
<td>W35×H165×D158mm</td>
<td>0.35kg</td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H21</td>
<td>Switching Hub (Industrial</td>
<td>1</td>
<td>AC100–240V</td>
<td>18~30VDC</td>
<td></td>
<td></td>
<td>WAGO JAPAN</td>
<td>RS2-112</td>
<td>W109.2×H23.4×D73.8mm</td>
<td>0.1kg</td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H22</td>
<td>Let's note</td>
<td>1</td>
<td>AC100–240V</td>
<td>65W</td>
<td></td>
<td></td>
<td>Panasonic</td>
<td>CF-NX3</td>
<td>W295×H25.4×D216.2mm</td>
<td>1.34kg</td>
<td>En Ocean 300m</td>
</tr>
<tr>
<td>H23</td>
<td>REGZA Tablet</td>
<td>1</td>
<td>AC100–240V</td>
<td>5W</td>
<td></td>
<td></td>
<td>TOSHIBA</td>
<td>AT350</td>
<td>W128×H121.1×D189mm</td>
<td>0.379kg</td>
<td>En Ocean 300m</td>
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<tr>
<td>H24</td>
<td>UPS</td>
<td>1</td>
<td>100V</td>
<td>12W/25W MAX</td>
<td></td>
<td></td>
<td>OMRON</td>
<td>BY35S</td>
<td>W92×H165×D285</td>
<td>4.5kg</td>
<td>En Ocean 300m</td>
</tr>
</tbody>
</table>
**General Monitoring**

Component: SDE Grid Connection Box

- Grey water pump
- Feed pump
- Water meter by SDE (the detail is described in ID-001-B)

**Index**

- ID-001

**Description**

- General Monitoring

**Scale**

1:60

**Sensors Distances**

- Temperature (3 points) 15m
- Humidity 15m
- Natural Lighting 15m
- Air Quality CO2 15m
- Air Quality VOC

**Components**

- Refrigeration 20m
- Freezing 20m
- Cloth Washing 20m
- Dish Washing 20m
- Oven 20m
- Hot Water Draw Not Attached
- Cooking Not Connected
- Home Electronics Meter Measuring
- Home Electronics Meter Measuring

**Description of Telecommunication Line (Ethernet)**

- Power Line in the roof space
- Channeling Sleeve Inside DAI.28mm
- Sensor Wire by SDE Org.
- Net Work Port
- Monitoring Name Number
- Sensor
- Tripod

**Description of Water Meter, Valves and Connectors**

- Water meter by SDE (the detail is described in ID-001-B)

**INSTRUMENTATION DRAWINGS**

- Multipurpose space
- Natural Drying Space
- Distribution Water Tank
- Drain Water Tank
- Storage
- Entrance Hall
- Living
- Bed Room
- Lavatory
- Kitchen

**Team CUI**

Chiba University
1-33, Yayoicho, Inage Ward,
Chiba-shi, Chiba, 263-8522 Japan

**Index**

- General Monitoring

**Description**

- General Monitoring

**Component**

- INSTRUMENTATION DRAWINGS

**Drawing Number**

ID-001
Description of water meter, valves and connectors

Feed water tank → Feed water pump → Water Meter → Valves → Connectors (3/4" female screw) → Renai House
Arrangement of House Appliances

TV: LK-291BP / Orion Electronics
DVD: DMP-BD79 / Panasonic
COMPUTER: PT5715TEBGBW / TOSHIBA
FREEZER: SJ-XW47Y / SHARP
REFRIDGE: SJ-XW47Y / SHARP
DishWasher: ZWPM45M12CD / Cleanup
Oven: EOB3100X / Electrolux
Cooktop: ZEFCR7M12DSS / Cleanup
ClothWasher: NA-VX7300L / Panasonic
ClothDryer: NA-VX7300L / Panasonic
Humidifier: FE-KFE15 / Panasonic

We plan to use two humidifiers.
Container Trucks route in Japan

We put the container required elements in Kisarazu.
Transported by truck to Tokyo from Kisarazu.

Distance: 42.0km
Time: 50min

A...KISARAZU
B...TOKYO (Oi container terminal)
Container ship route

It takes about a month to transport the house.

A...Japan / Tokyo Oi container terminal  
First cargo / Shipment 23-April... Arrival 1-June

B...France / Le Havre  
Second cargo / Shipment 1-May... Arrival 8-June
Container Trucks route in France

1. The unloading from the container, check the contents. (presence or absence of corruption, confirmation of mold)
2. Stage (6/3 ~ 6/15) @ NIPPON EXPRESS FRANCE S.A.S. PARIS REMOVAL PELICAN CENTER
3. To Versailles (6/16 ~)
4. From Versailles to NIPPON EXPRESS FRANCE S.A.S PARIS REMOVAL PELICAN CENTER
5. Send to Japan (late July)
6. Re-construction in Japan

A... Le Havre Port
B... NIPPON EXPRESS FRANCE S.A.S. PARIS REMOVAL PELICAN CENTER
C... Le Cite de Soleil

Route ① From A to B
【Distance】 215km
【Time】 2h09min

Route ② From B to C
【Distance】 53km
【Time】 1h30min

Terminal de la citadelle, Quai Auguste Brostrom, 76600, Le Havre, France
1 Rue de Chapelier 95702 Roissy CDG France
Le Cite de soleil Versailles
Trucks route to Le Cite du Soleil

Truck arrival:
1. Pion barracks
2. Allée des Matelots
3. Cité du Soleil®
Inside Logistics Lot Plan

Phase A3 Day1
Phase A4 Day2
Phase A4 Day2
Phase D5 Day4
Phase D6 Day4
Phase A...All Phase
Phase D...All Phase

SO-102

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Chiba-ku, Chiba,
263-8522
Japan

Index Description Scale
A Inside Logistics Lot Plan

Site Operation
Inside Logistics
Drawing Number
SO-102
DAY-1

Truck1...core unit N1 (low)
Truck2...West core unit (low)
Truck3...South core unit (low)
Truck4...LVL Panel (floor)
Truck5...North core unit (middle)
Truck6...West core unit (up)
<table>
<thead>
<tr>
<th>Drawing Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SO-112</td>
<td>Inside Logistics</td>
</tr>
</tbody>
</table>

DAY-2

- Truck7...South core unit (up)
- Truck8...North core unit (up)
- Truck9...LVL Panel (roof)
- Truck10...wooden member,
  Thermal insulation material,
  Double floor, etc.
DAY-3

Truck11... Wooden member, Flexible board, Alminium rail, Flooring

SO-113

Inside Logistics 3/6

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>Scale</th>
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</thead>
<tbody>
<tr>
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<td>Inside Logistics</td>
<td></td>
</tr>
</tbody>
</table>

Component

Site Operation

Description

Drawing Number

SO-113
Inside Logistics 4/6

Day-4

Truck12...Tarpaulin, Tile,
Deck flooring
Sailing member,

Component
Description
Site Operation
Inside Logistics

Index Description Scale
A Inside Logistics

Project Drawings
June 2 - 2014
Inside Logistics 5/6

DAY-5

Truck13...Kitchen panel, Tile, Finishing, PV panels and accessories, Rail light,
Inside Logistics 6/6

Slope
Deck
Wooden member

Glass
Preliminary
unloading area

Truck14…Kitchen, Deck, Slope
Glass, Preliminary

DAY-6

SO-116
Day 1

- Placement of fence
Phase-A2

Day 1

- Levelled
- Determination of the housing modules location
- Placement of wooden elements

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Phase-A3

Day 1

- Placement of core unit N, unit W, unit S with crane
Phase-A4

Day1

- Placement of floor elements with crane
Phase-A5

Day 2

- Placement of core unit N2, W2, S2
- Placement of roof elements with crane
- Placement of core unit N3

Phase Assembly 5/11

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Japan

Index | Description | Scale
--- | --- | ---
A | Phase Assembly | 

Components

Site Operation

Description

Phases Assembly

Drawing Number

SO-205
Day 3

- Woodwork of the inner wall
- Piping and wiring work
- Waterproof treatment of roof and wall
- Placement of the wooden sash
Phase Assembly 7/11

Day 4-6

- Outer wall panel mounting
- Woodwork of the ceiling base pairs
- Adjusting the floor level
- Double floor mounting

Phase-A7

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Index | Description | Scale
--- | --- | ---
A | Phase Assembly | |

Site Operation
Description
Phase Assembly
Drawing Number
SO-207
Phase-A8

Day6

- Installation of the PV panels and solar heat panels
- Machinery and equipment installation
- Piping and wiring work

Component
Site Operation
Description
Phase Assembly
Drawing Number
SO-208
Day 8-9

- Installation of wooden deck
- Finish of the inner wall
- Ceiling finishes
Phase Assembly 10/11

Day 10

- Installation of handrails
- Placement of the joinery

Phase-A10

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Project Drawings
June 2 - 2014

SO-210

Site Operation

Component
Description
Phase Assembly
Drawing Number
SO-210
Phase-D1

Day 1

- Installation of the safety fence
- Placement of the first aid at the tent
- Withdrawal of exterior and interior equipment
Phase-D2

Day 2

- Dismantling of the handrail and deck and slope
- Dismantling and removal of ceiling material
- Removal of piping and wiring
- Removing the equipment
Phase Disassembly 3/8

Phase-D3

Day 2-3

- Removal of panels
- Removal and demolition of flooring
- Removal inner wall

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263-8522

Index | Description | Scale
--- | --- | ---
A | Phase Disassembly |

Component

Site Operation

Description

Drawing Number
SO-303
Phase-D4

Day 3-
- Removal of the outer wall panels
- Removal of the waterproof sheet
- Recovery of indoor wiring
- Removal of wooden sashes
Phase-D5

Day 4

- Removal of the
- Removal of the roof panels with crane
Phase-D6

Day 4

- Removal of core unit N2, W2, S2
- Removal of the floor panels with clané
Phase-D6

Day 5

- Removal of the floor panels
- Removal of core unit N1, W1, S1
Day 10

- Placement of furnitures and exterior elements
- Removal of the fence
- Cleaning
- Maintenance
- Planting
- Commissioning appliances
Phase-D7

Day5

- Removal of wooden based elements
- Removal of the tent and fence
- Cleaning

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Chiba University Japan
1-33, Yayoicho, Inage Ward,
Chiba-shi, Chiba,
263-8522
Japan
Lot & Surroundings

“USE SAFETY BELT!!”

“WATCH YOUR STEP”

“DO NOT ENTER!!”

“CLEAR THE AREA!!”

“OVERHEAD CAUTION!!”

“CAUTION FALLING OBJECT!!”

“DO NOT GET UNDER THE LOAD HANGING!!”

“DO NOT USE FIRE!!”

EVACUATION ROOT

FIRE HYDRANT

FORKLIFT WAY
Route to Hospital

HOSPITAL: Clinique des Franciscaines
ADDRESS: 7 Bis Rue de la Porte de Buc, 78000 Versailles, France
TEL: +33 826 30 33 33
E-mail address: contact.lesfranciscaines@ramsaysante.fr
We will act along the "Emergency Chart" accident occurs. We have instructions to contact the SDE organization, if necessary.
Tools List

1. Extension cable
2. Lighting
3. Planer
4. Cable reel
5. Impact driver
6. Electrical circular saw
7. Electrical drill
8. Compressor
9. Air hose
10. Electric tacker
11. Nailing machine

Planer

Extension cable
Lighting

Impact driver

Electrical circular saw

Compressor

Air hose

Electric tacker

Nailing machine
During Assembly 1/11

Phase-A1

○GENERAL RISK:
- Anything not

○GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
Phase-A2

○GENERAL RISK:
- Stepping on objects
- Sandwiching the part of the body

○GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot Caution
Phase-A3

○ GENERAL RISK:
- Sandwiching the part of the body
- Fall of suspended load

○ GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution

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Chiba University Japan
1-33, Yayoicho, Inage Ward,
Chiba-shi, Chiba,
263-8522 Japan

<table>
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<tr>
<th>Index</th>
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</thead>
<tbody>
<tr>
<td>A</td>
<td>During Assembly</td>
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</table>

Component: Health & Safety
Description: During Assembly
Drawing Reference: HS-403
Phase-A4

- General Risk:
  - Sandwiching the part of the body
  - Fall of suspended load

- General Preventive Measures:
  - Coordination and information among workers
  - Maintain the work area clean and organized
  - Foot and hand, overhead Caution
Phase-A4

○ GENERAL RISK:
- Sandwiching the part of the body
- Fall of suspended load

○ GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
Phase-A5

○ GENERAL RISK:
- Sandwiching the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at a same level
- Fall of objects because of collapse
- Fall of objects because they come loose
- Humping

○ GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
- Rehydration
- Ensure the number of people
Phase-A6

○ GENERAL RISK:
- Sandwiching the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at the same level
- Fall of objects because of collapse
- Fall of objects because they come loose
- Humping

○ GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
- Rehydration
- Ensure the number of people
During Assembly 8/11

Phase-A7

○ GENERAL RISK:
- Sandwiching the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at the same level
- Fall of objects because of collapse
- Fall of objects because they come loose
- Humping

○ GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
  - Work area clean and organized
  - Overhead Caution
  - Be of people
Phase-A8

○ GENERAL RISK:
- Sandwichting the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at a same level
- Fall of objects because of collapse
- Fall of objects because they come loose
- Humping

○ GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the area clean and organized
- Foot and hand, overhead Caution
- Rehydration
- Ensure the number of people

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Chiba-ku, Chiba,
263-8522
Japan

Index | Description | Scale
--- | --- | ---
A | During Assembly | 

Component
Health & Safety
Description
During Assembly
Drawing Number
HS-409
Phase-A9

○GENERAL RISK:
- Sandwiching the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at the same level
- Fall of objects because of collapse
- Fall of objects because they come loose

○GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
- Rehydration
Phase-D1

○ GENERAL RISK:
- Sandwiching the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at the same level
- Fall of objects because of collapse
- Fall of objects because they come loose
- Reckless dismantling

○ GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
- Rehydration
- Check the work of more than one person
Phase-D2

○ GENERAL RISK:
- Sandwiching the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at the same level
- Fall of objects because of collapse
- Fall of objects because they come loose
- Reckless dismantling

○ GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
- Rehydration
- Check the work of more than one person

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263-8522
Japan

Index Description Scale
A During Disassembly

Component
Health & Safety
Description
During Disassembly
Drawing Number
HS-422
Phase-D3

GENERAL RISK:
- Sandwiching the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at the same level
- Fall of objects because of collapse
- Fall of objects because they come loose
- Reckless dismantling

GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
- Rehydration
- Check the work of more than one person
Phase-D4

○ GENERAL RISK:
- Sandwiching the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at a same level
- Fall of objects because of collapse
- Fall of objects because they come loose
- Reckless dismantling

○ GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
- Rehydration
- Check the work of more than one person
Phase-D5

○ GENERAL RISK:
  - Sandwiching the part of the body
  - Fall of suspended load

○ GENERAL PREVENTIVE MEASURES:
  - Coordination and information among workers
  - Maintain the work area clean and organized
  - Foot and hand, overhead Caution
Phase-D6

GENERAL RISK:
- Sandwiching the part of the body
- Fall of suspended load

GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
During Disassembly 7/8

Phase-D7

○ GENERAL RISK:
  - Sandwiching the part of the body
  - Fall of suspended load

○ GENERAL PREVENTIVE MEASURES:
  - Coordination and information among workers
  - Maintain the work area clean and organized
  - Foot and hand, overhead Caution

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Chiba University Japan
1-33, Yayoicho, Inage Ward,
Chiba-city, Chiba,
263-8522 Japan

Index | Description
--- | ---
A | During Disassembly
During Assembly 11/11

Phase-A10

○GENERAL RISK:
- Sandwiching the part of the body
- Overexertion
- Fall of persons at a different level
- Fall of persons at the same level
- Fall of objects because of collapse
- Fall of objects because they come loose

○GENERAL PREVENTIVE MEASURES:
- Coordination and information among workers
- Maintain the work area clean and organized
- Foot and hand, overhead Caution
- Rehydration

TEAM CUJ
Chiba University Japan
1-33, Yayoicho, Inage Ward,
Chiba-ku, Chiba,
263-8522
Japan

Index | Description | Scale
--- | --- | ---
A | During Assembly |
Phase-D8

- **GENERAL RISK:**
  - Stepping on objects

- **GENERAL PREVENTIVE MEASURES:**
  - Coordination and information among workers
  - Maintain the work area clean and organized
Site accessibility

SLOPE Inclined at 1:20

Slope Elevation (1:100)
House tour floor plan

*8 people / tour

Site Accessibility

TEAM CUJ
Chiba University Japan
1-33, Yayoicho, Inage Ward,
Chiba-ku, Chiba, 263-8522 Japan

Index | Description | Scale
--- | --- | ---
A | Site Accessibility | 1:100

Component

PUBLIC TOUR

Description
House tour plan

Drawing Number
PT-101
Summary of Description

1. Welcome and overall concept
   Description: 2 students stand in front of entrance. Visitors wait from the bottom of the slope until here looking at description panels that will be located on the handrail of slope. Students give handouts to visitors.

2. “Urban Seeds”
   Welcome to RenailHouse. Now you can see the three units. We call them “Urban Seeds”. The idea is that we transport this “Urban Seeds” to disaster area and victims start their life as soon as possible.

3. Electrical system
   One of our main features is a current waveform measurement system. When we want to know how much energy we use, we have to install necessary equipment for each component such as refrigerator, washing machine, lighting etc.

4. Multi-purpose seed (Kiosk)
   This is what we call multi-purpose seed. When disaster happens, this unit comes at first and becomes storage for emergent goods such as water, dry food etc.

5. Flexible internal area
   Finally we introduce flexibility of the house. The hanging doors of central place divide one large space into four individual spaces.

6. Answering question
   Description: 1 students stands on the deck and he or she answers specific questions from visitors. Also he or she leads visitors to exit to two directions. Both directions are fine.