Project Drawing

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National Chiao Tung University

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Solar Decathlon Europe

國立交通大學
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ORCHID HOUSE

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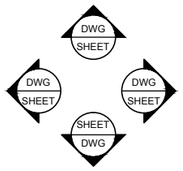
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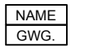
GENERAL SYMBOLS



ELEVATION MARK



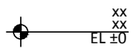
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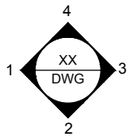
ROOM TAG



GRID NUMBER



ELEVATION MARKER



INTERIOR ELEVATION MARKER



DOOR TAG



WINDOW TAG



RECESSED DN LIGHT



WATERPROOF
RECESSED DN LIGHT



SPRINKLER



SMOKE DETECTOR



SMOKE ALARM



FIRE EXTINGUISHER



EXIST SIGN



EXIST DIRECTION

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GENERAL SYMBOLS

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GENERAL ABBREVIATIONS

Pound: OR Number
&: And
@: At
ACT: Acoustic Ceiling Tile
AD: Area Drain
AFF: Above Finished Floor
ALUM: Aluminum
ANOD: Anodized
BSMT: Basement
BYND: Beyond
BOT: Bottom
CIP: Cast In Place
CHNL: Channel
CJ: Control Joint
CLG: Ceiling
CLR: Clear
CMU: Concrete Masonry Unit
COL: Column
COMPR: Compressible
CONC: Concrete
CONT: Continuous
CPT: Carpet
CT: Ceramic Tile
CTYD: Courtyard
DBL: Double
DEMO: Demolish or Demolition
DIA: Diameter
DIM: Dimension
DIMS: Dimensions
DN: Down
DR: Door
DWG: Drawing
EA: Each
EJ: Expansion Joint
EL: Elevation
ELEC: Electrical
ELEV: Elevator or Elevation
EPDM: Ethylene Propylene Diene M-Class (Roofing)
EQ: Equal
EXIST: Existing
EXP JT: Expansion Joint
EXT: Exterior
FD: Floor Drain or Fire Department
FEC: Fire Extinguisher Cabinet
FIXT: Fixture
FLR: Floor
FM: Filled Metal
FO: Face Of
FND: Foundation
GA: Gauge
GALV: Galvanized
GWB: Gypsum Wall Board
HC: Hollow Core
HI: High
HM: Hollow Metal
HP: High Point
HR: Hour
HVAC: Heating, Ventilating, And Air Conditioning
IRGWB: Impact Resistant Gypsum Wall Board
ILO: In Lieu Of
INSUL: Insulated or Insulation
INT: Interior
LO: Low
MAX: Maximum
MO: Masonry Opening
MECH: Mechanical
MEMBR: Membrane
MIN: Minimum
MRGWB: Moisture-Resistant Gypsum Wall Board
MTL: Metal
NIC: Not In Contract
NO: Number
NOM: Nominal
OC: On Center
OH: Opposite Hand
OZ: Ounce
PCC: Pre-Cast Concrete
PLUMB: Plumbing
PLYD: Plywood
PT: Pressure Treated
PNT: Paint or Painted
PVC: Polyvinyl Chloride
RBR: Rubber
RCP: Reflected Ceiling Plan
RD: Roof Drain
REQD: Required
RM: Room
SIM: Similar
SPEC: Specified OR Specification
SPK: Sprinkler or Speaker
SSTL: Stainless Steel
STC: Sound Transmission Coefficient
STL: Steel
STRUCT: Structure or Structural
T&G: Tongue And Groove
TELE: Telephone
TLT: Toilet
TO: Top Of
TOC: Top Of Concrete
TOS: Top Of Steel
TPD: Toilet Paper Dispenser
T/D: Telephone/Data
TYP: Typical
UNO: Unless Noted Otherwise
U/S: Underside
VIF: Verify In Field
VP: Vision Panel
W/: With
WD: Wood

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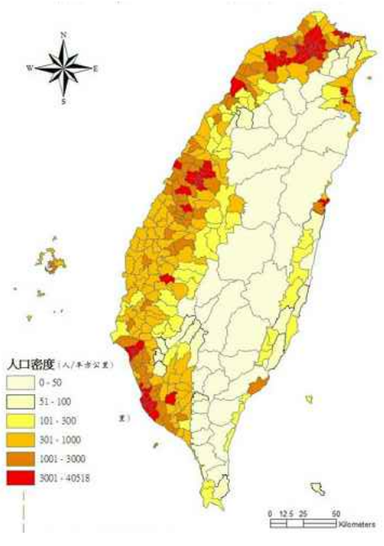


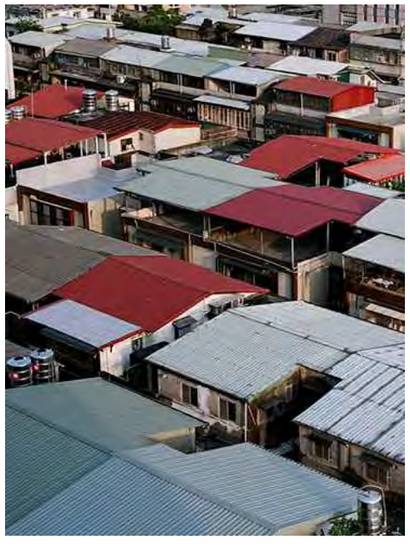
INTRODUCTION

Taiwan is a country spanning only 36,193 km2 but with a population of 23.34 million (compare with France's 674,834 km2 and 65.7 million people). The population density is especially high because two-thirds of the island is composed of mountains, and as a result most people live along the coastal areas. It is especially crowded in urban areas, such as the capitol city, Taipei, which is one of the top ten densest cities in the world. In addition to the high population density, Taipei also developed rapidly over the years, both of which contribute to a random assortment of architecture in the city that expands horizontally instead of vertically to conserve space.

However, also as a result of the rapid development, many of the residential buildings were not built to last and have infrastructure that is now rundown or outdated. In recent years, new residential buildings are sky scraper apartments, which are usually only affordable by the wealthy upper class because of the luxury design and locations in the city center.

This population growth results in the lack of living space and sufficient public amenity, and cause middle classes moving toward the periphery, even outside of city. The majority of these people are young professionals who just graduated from collage whom have worked a few years, and they are not able to afford a house yet. However, most of them works in the city center and commute, and caused major traffic congestions with millions of cars and motorcycle. Consequently, the city is left with a high carbon dioxide pollution, and the decrease living quality.









Taipei, Taiwan

Population:	2,650,900
Area:	271.8 km²
Density:	9,753 Person/km²

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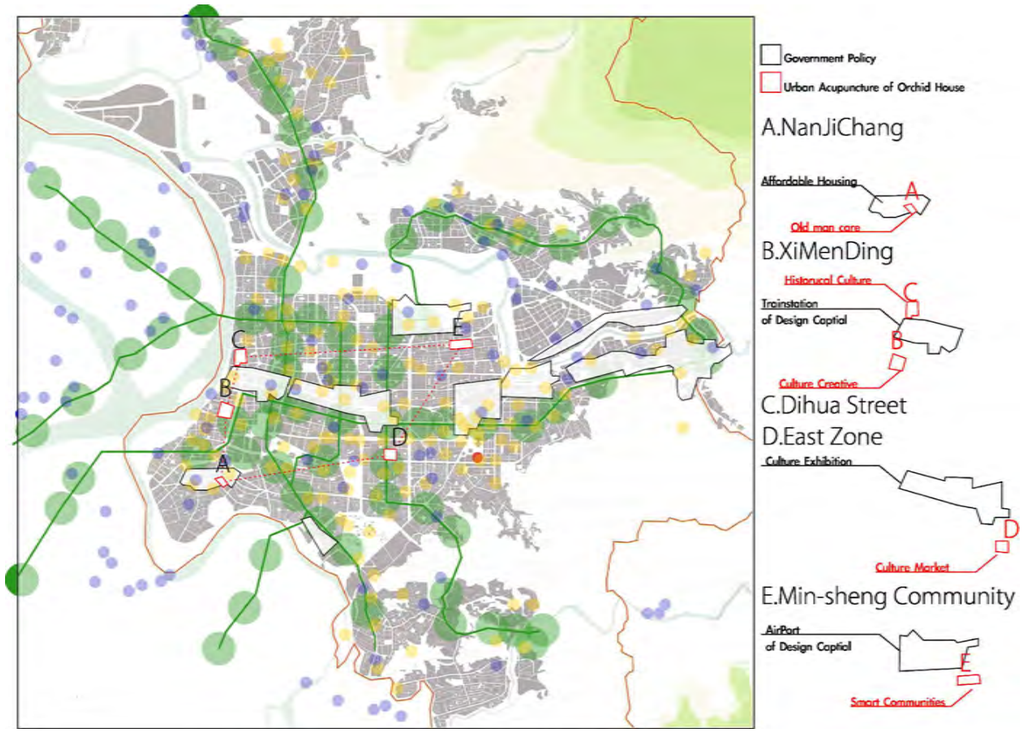
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Urban Acupuncture

Taipei city population reached its 20-year peak and residential building has been constructed in various types. The majorities are a duplex apartment, which is relatively wide and 4 to 5 story building, and a row house that is extremely narrow and deep single family owned. These two types were constructed during the modern democracy period. Most of flat-roof duplex apartment and row house are facing problems: leakage, heat absorption and no public facilities. Therefore, the illegal make-shift metal roofed shelters have been introduced widely in most of the residential buildings and create unregulated cityscape of Taipei.

For Orchid House urban design strategy, NCTU UNICODE focus districts where the most of duplex apartment and row house are located as the most needed area for urban regeneration to vitalize not only the residential building, but also these districts.

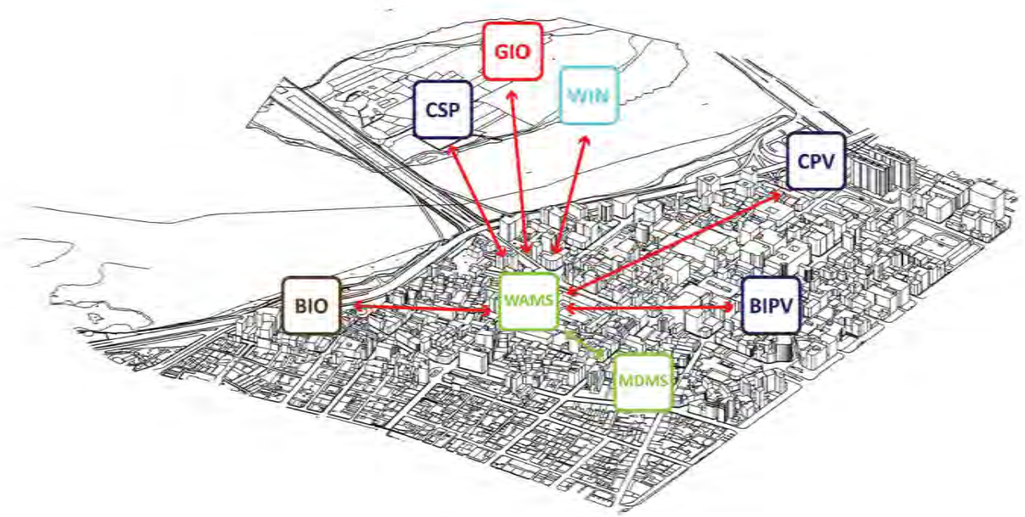




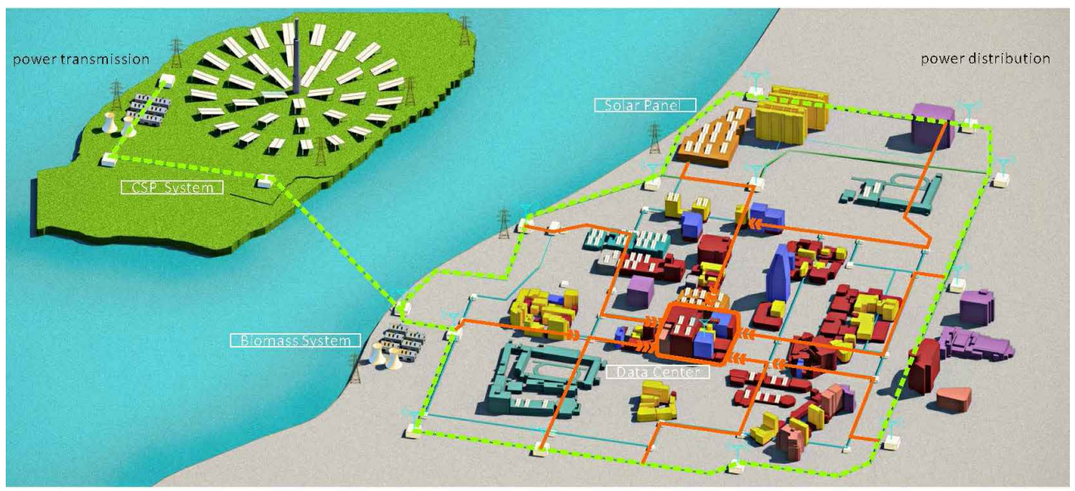
Zero Energy District: Ximending

As main focal point of Ximending Zero Energy District plan, NCTU UNICODE proposes not only PV panel implementation to buildings, but also larger scale of renewable energy sources such as CSP (Concentrated Solar Power), Biomass, Wind power and Geothermal. In order for all renewable energy sources to be distributed efficiently, advanced applications of Wide-area-Measurement System (WAMS) is installed one of larger footprint building rooftops, and Data Centre (MDMS) serve all the energy with automation system. Furthermore, AMI (Advanced Metering Infrastructure) is installed to Orchid House Clusters to manage power supply within houses. Please refer Architecture Design Narrative for farther details of AMI integration to housing appliances.

The Orchid House Cluster acts as a pilot project for further development of smart building energy management technology. Eventually, AMI system will be installed to most of buildings in the district to increase 20% energy usage efficiency from conventional grid system.



WAMS: Wide-area Measurement System
MDMS: Data Center
GIO: Geothermal
BIO: Biomass
CSP: Concentrated Solar Power
CPV: Concentrated Photovoltaic
BIPV: Building Integrated Photovoltaic
WIN: Wind Power



Solar Decathlon Europe

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Unit	-

DWG. Title: URBAN PROPOSAL EXPLANATION 1

DWG. No.: GE-310

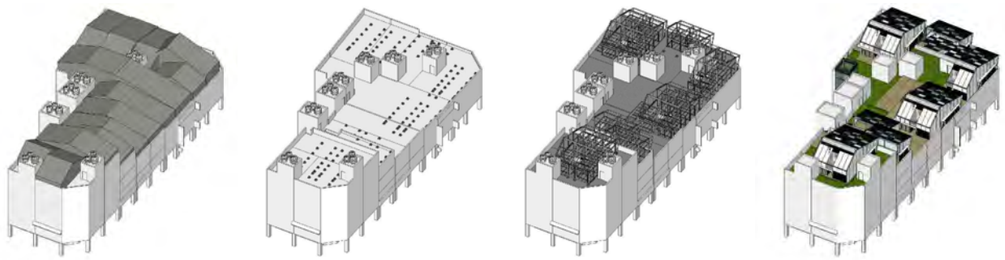
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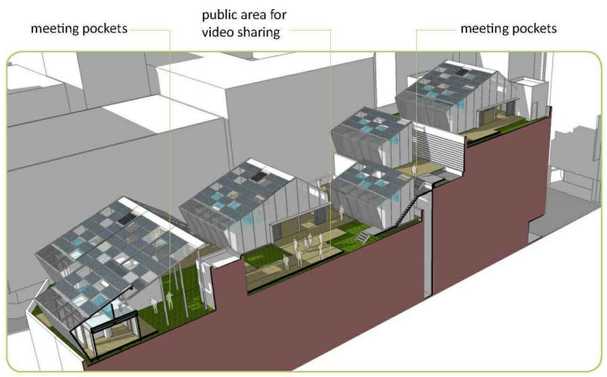
Orchid Cluster

Orchid House extension on existing building in Taipei city plays not only critical role for Ximending zero energy district urban planning, but also to apply new concept of urban regeneration. Almost 50% of residential building in Taipei city are over 30 years old and typically demolished during the renewal planning. However, NCTU UNICODE points out the problem of city re-development organized by government and executed by private developers. The developer tends to acquire larger number of properties to combine the land FAR (Floor Area Ratio) to build up high-rise residential condominium, which is not affordable for average income level and treated as investment target by investors.

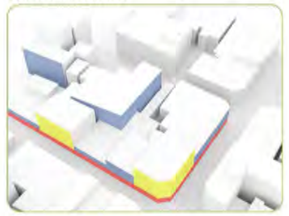
Orchid House will proved unique opportunity for not only the building owner, but also the targeted tenants, who needs housing support to pursue their young profession to promote new creative industry in Taipei.







Cluster Formation



1. Programme

Red: shops
Yellow: offices
Blue: residential



2. Alignments and setback

Ximending has a distinct characteristics of the "chamfered" corners, which allows a better viewing angle when turning



3. Potential rooftop surfaces

The highlighted rooftop area adds up to around 4360 square meters



4. Pedestrian Circulation

Ximending has several narrow alleys which is good for making a new entrance for the Orchid Cluster



5. Three clusters

Within the block, 3 locations are identified to locate elevators and staircase



6. Cluster Location

Two types of units are placed on the roof:
six one-bedrooms (48sm each)
ten studios (26 sm each)



7. Cluster Pockets

To create a balanced rooftop space, several pockets are designed to host seperate meetings



8. Green space

2463 square meter (56.5%) of green space is released from the rooftop for public sharing



9. Outdoor walkway system

Elevated circulation path connects different levels of rooftop and create community zones

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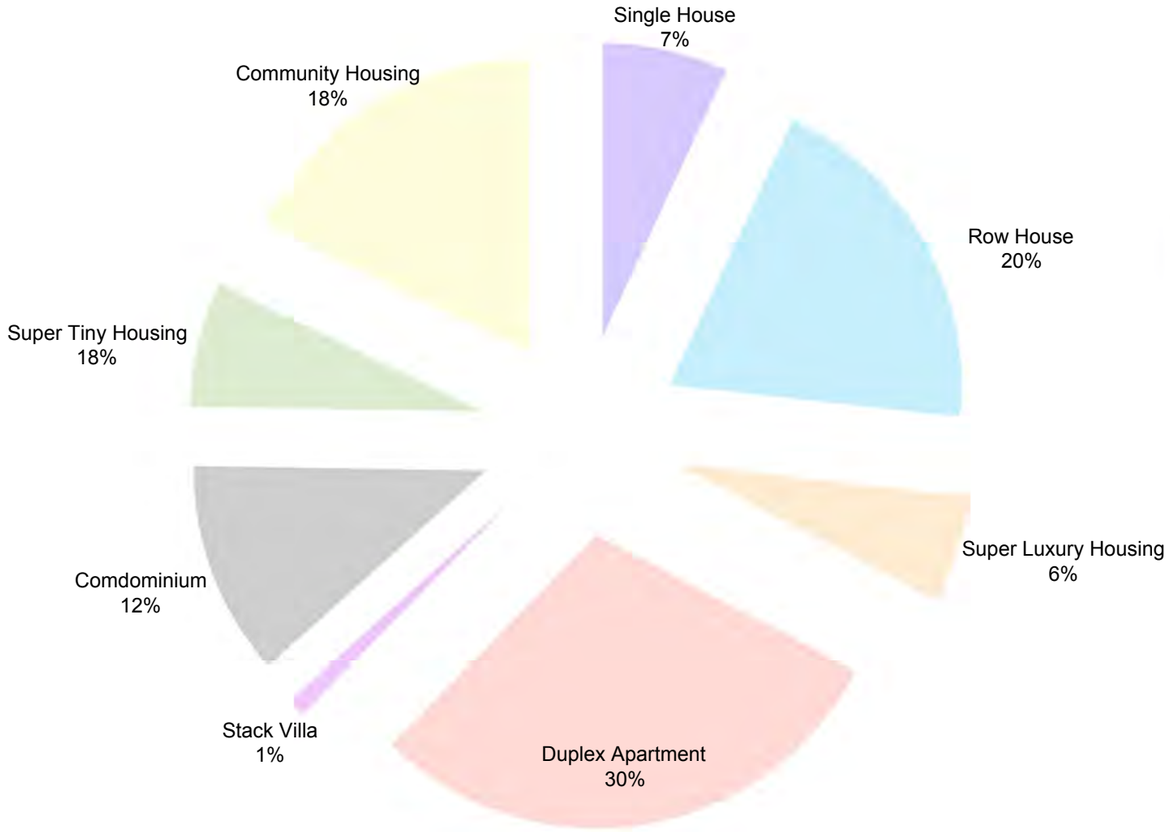
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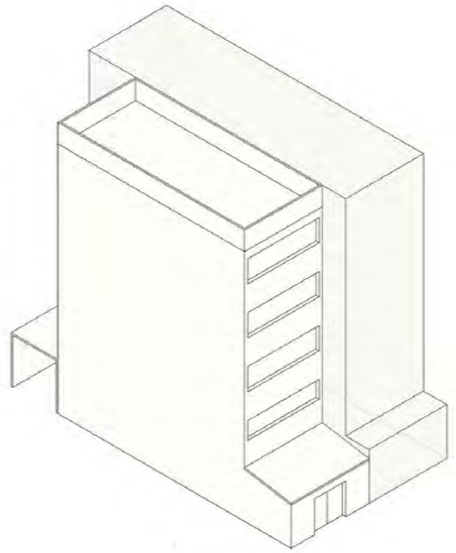
URBAN PROPOSAL EXPLANATION 2

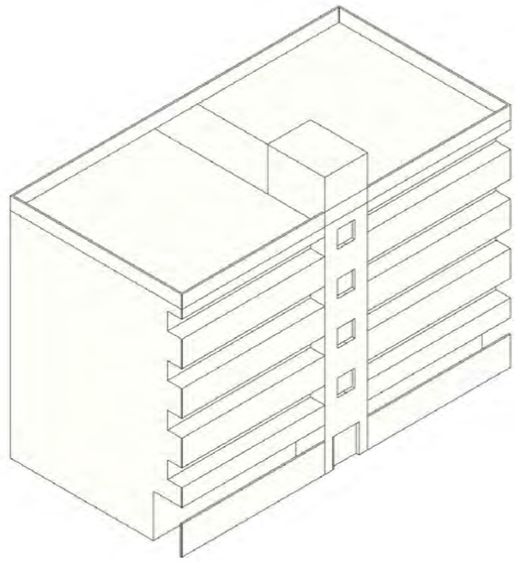
DWG. No. GE-311

PAGE 9

Taipei Residential Type Analysis







DESCRIPTION

Row House and Duplex Apartment are the most number of Taipei residential building Type. 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.

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DWG. Title: EXISTING BUILDING DRAWING AND ANALYSIS

DWG. No. GE-320

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DWG. Title

COMPETITION DWELLING

DWG. No.	PAGE
GE-330	11



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DWG. Title

PAVILION EAST SIDE RENDERING

DWG. No.	PAGE
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DWG. Title

PAVILION WEST SIDE RENDERING

DWG. No.	PAGE
GE-402	13



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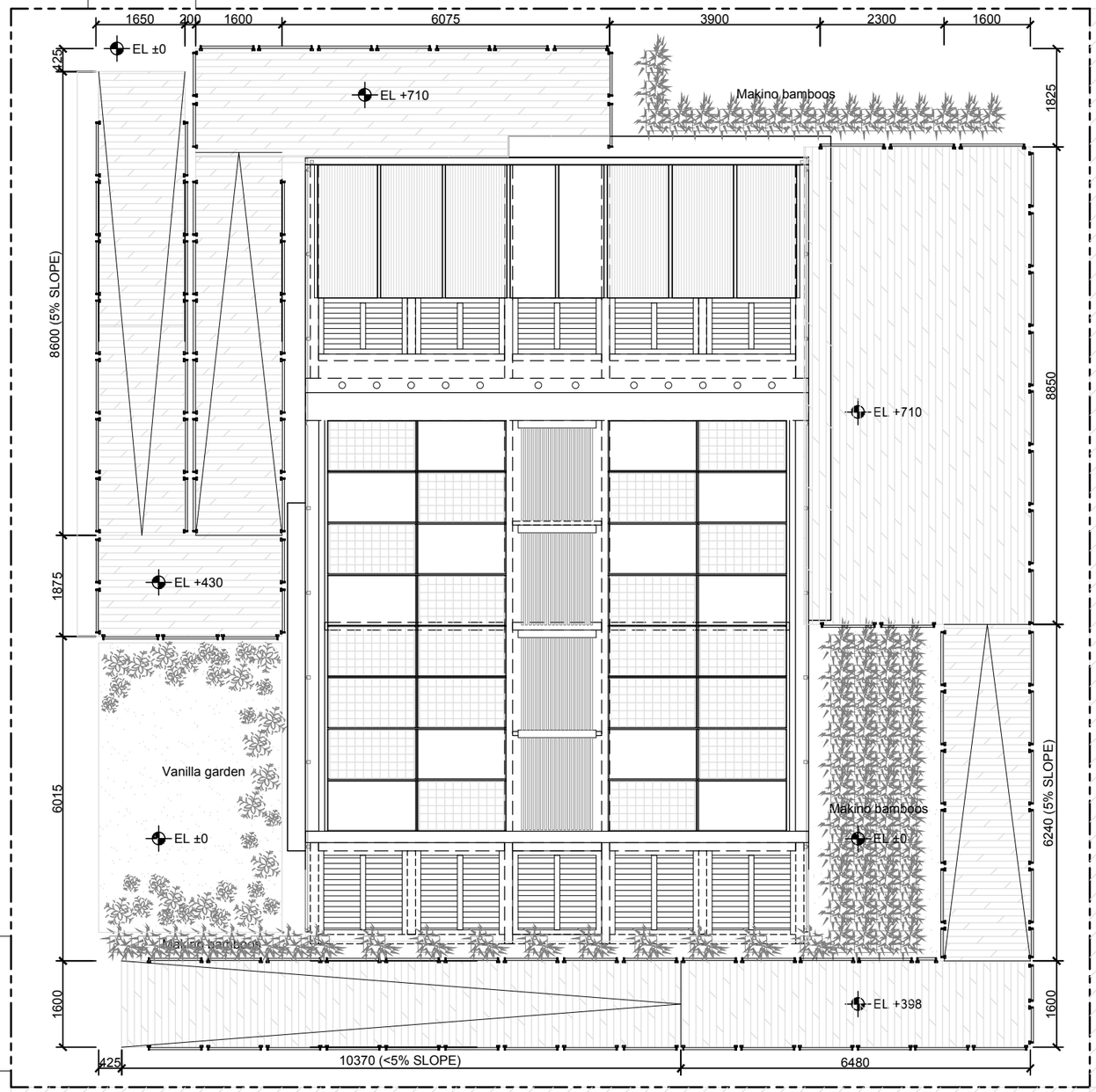
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DWG. Title

La Cité du Soleil® PLAN

DWG. No. AR-001

PAGE 14



0 1 2 5 METER

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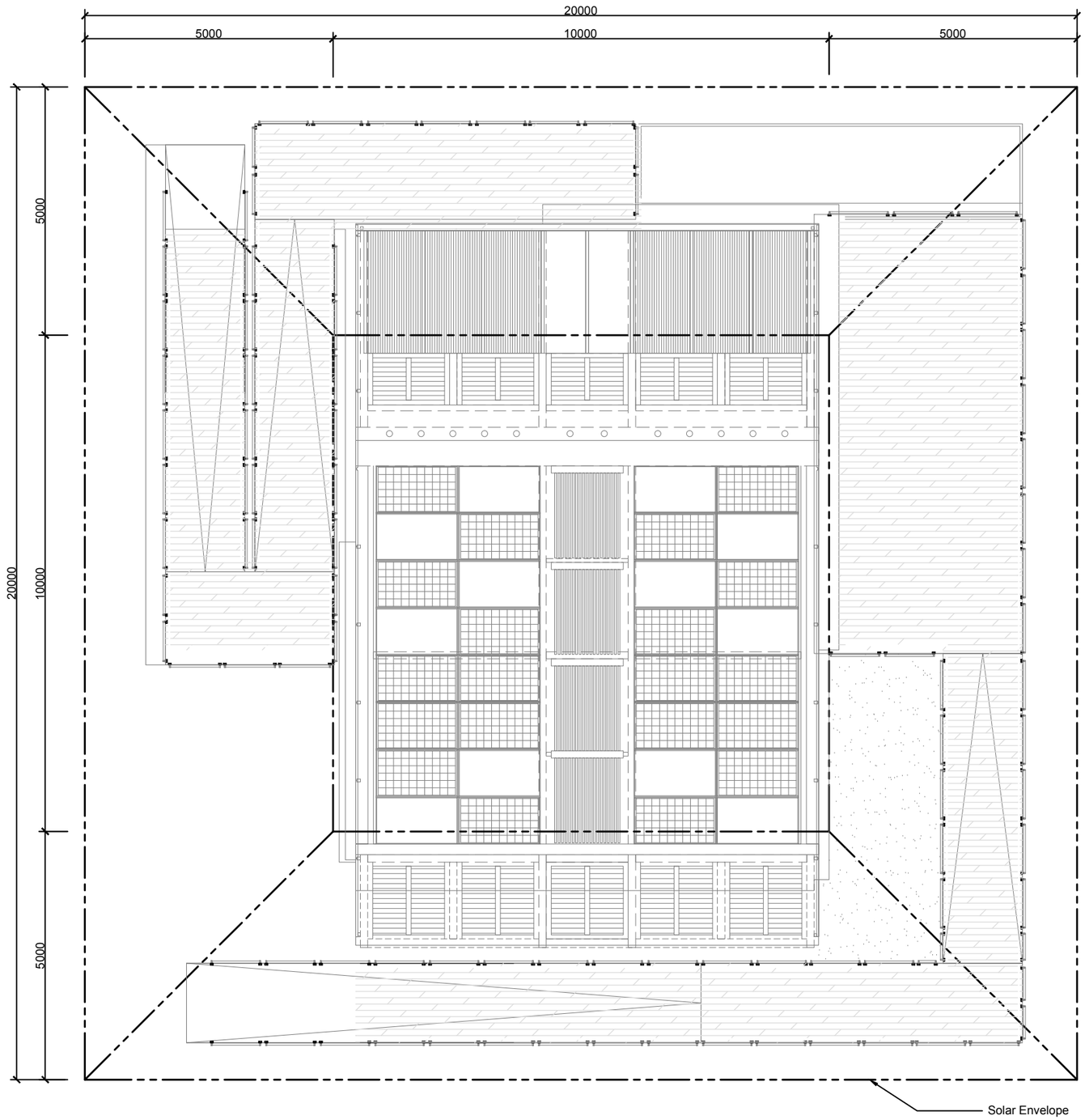
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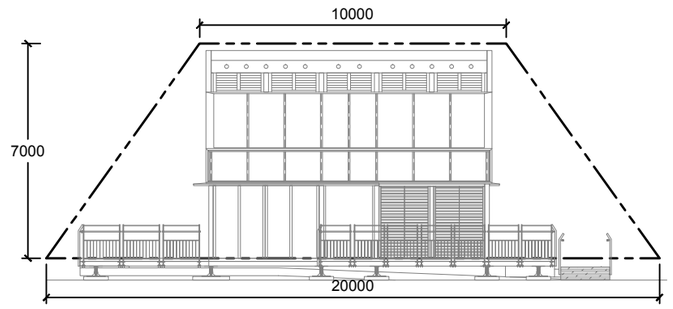
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DWG. No.: AR-002

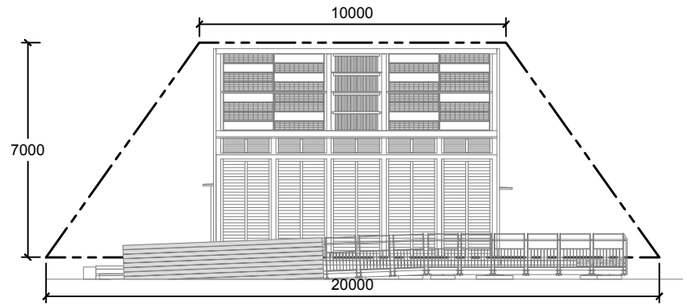
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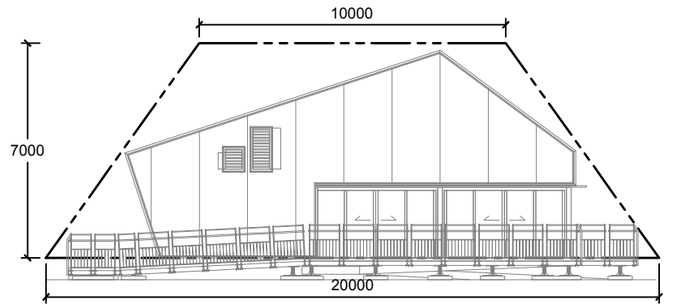
PLAN



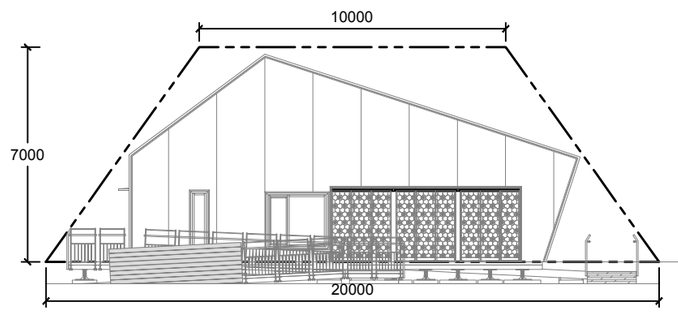
NORTH



SOUTH



EAST



WEST

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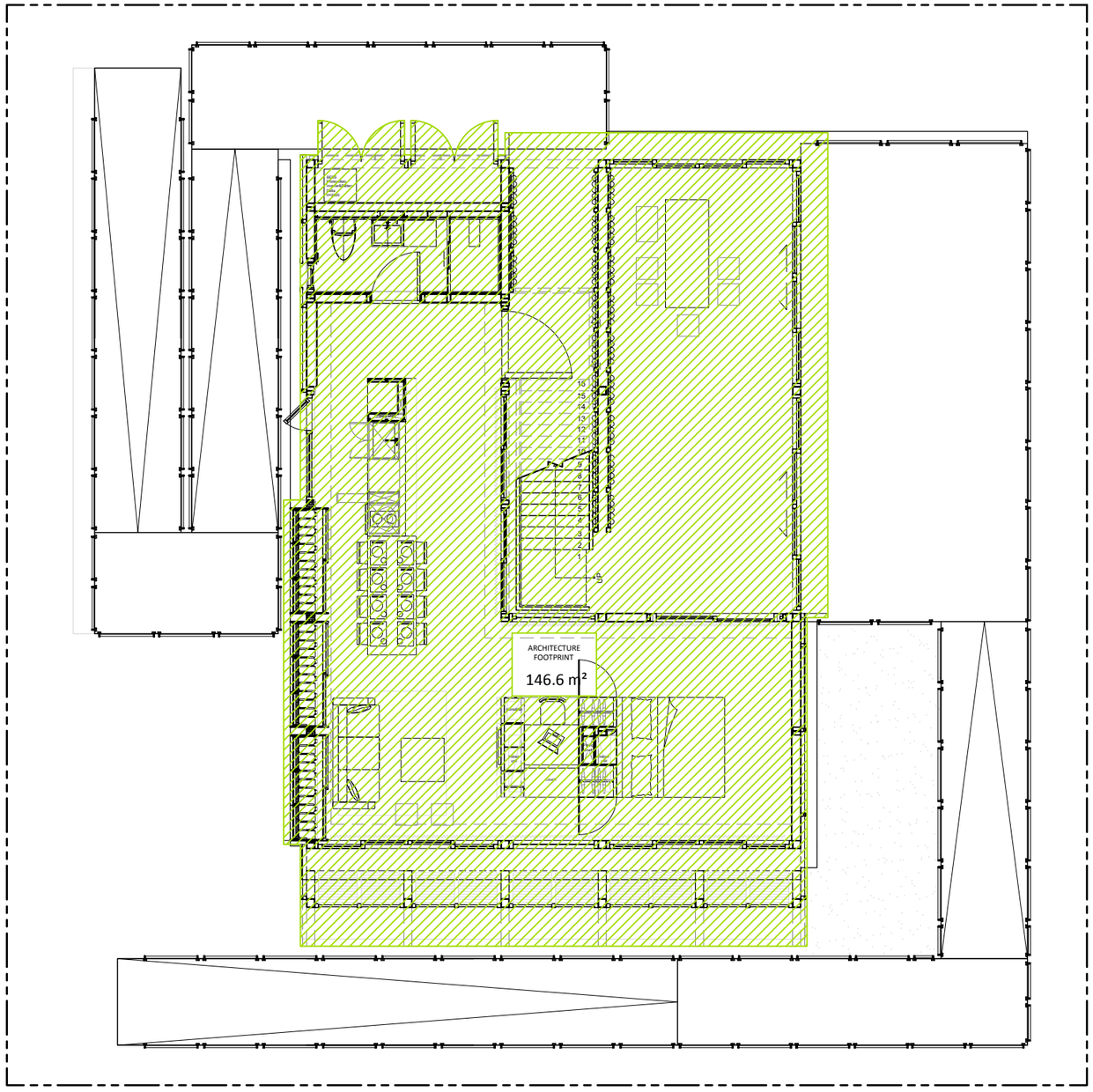
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DWG. Title

SOLAR ENVELOPE

DWG. No. AR-011

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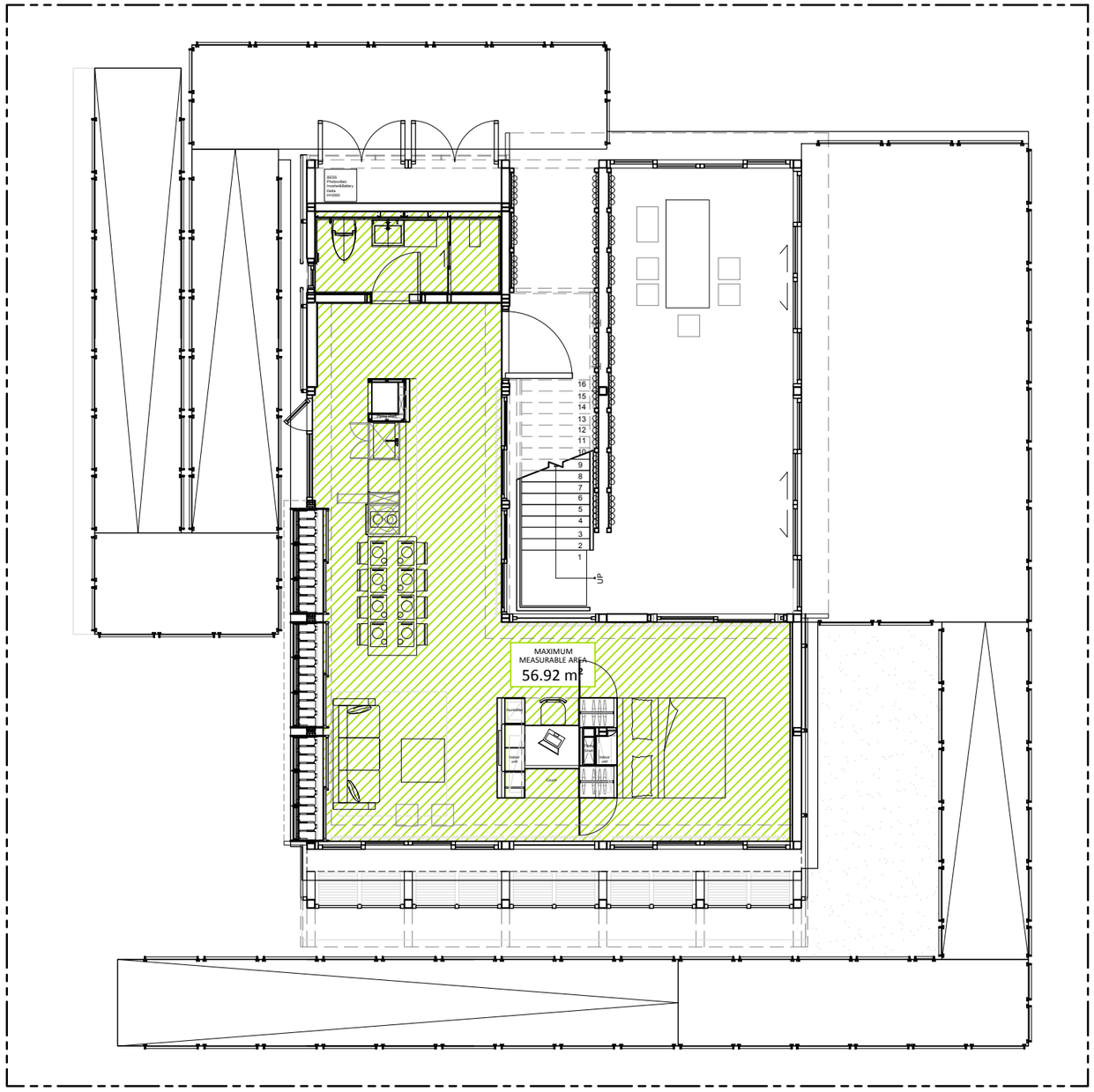
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DWG. Title: ARCHITECTURE FOOTPRINT

DWG. No.: AR-014

PAGE: 17



0 1 2 5 METER

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DWG. Title: MEASURABLE AREA

DWG. No.: AR-017

PAGE: 18



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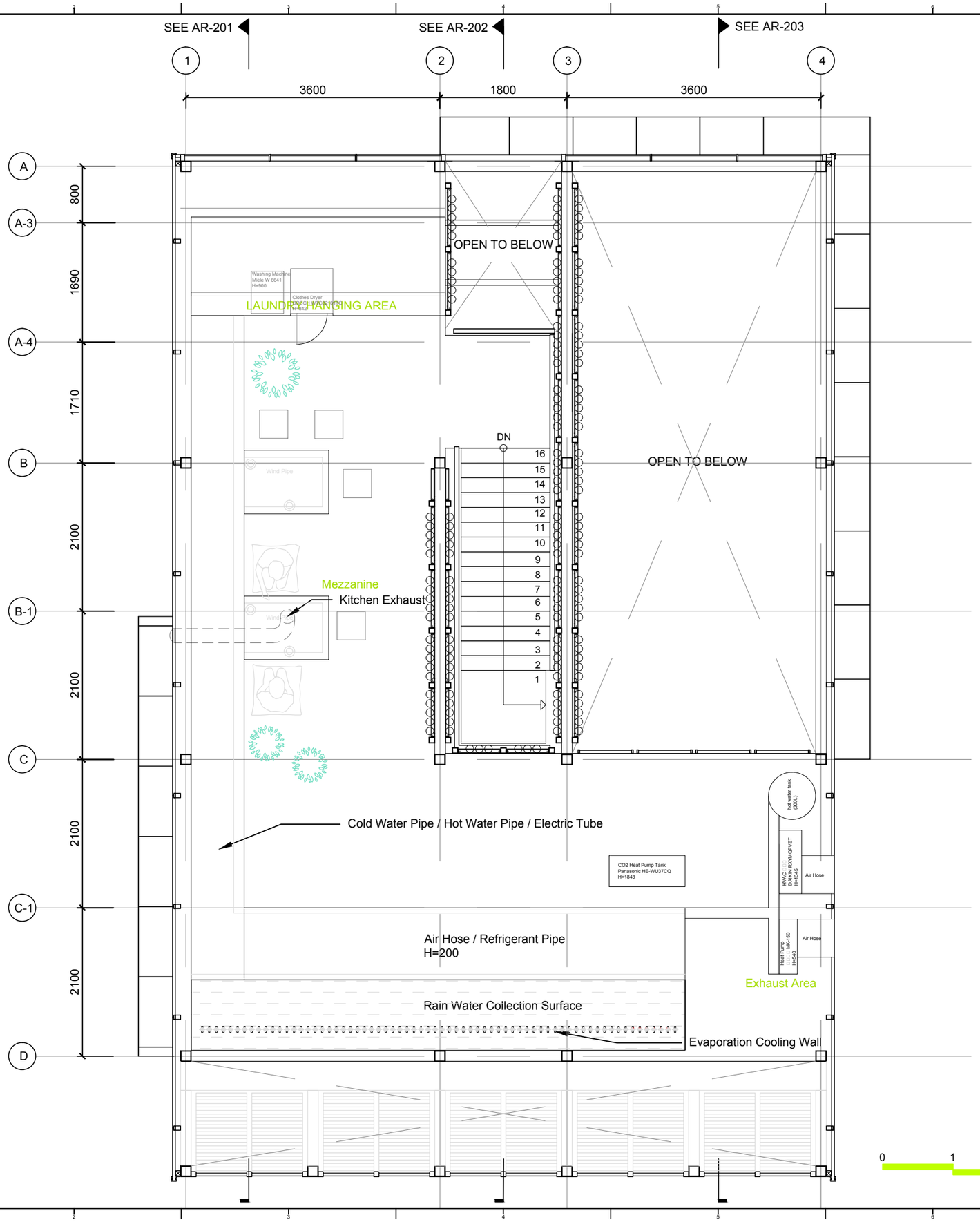
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DWG. Title

GROUND LEVEL PLAN

DWG. No. AR-021

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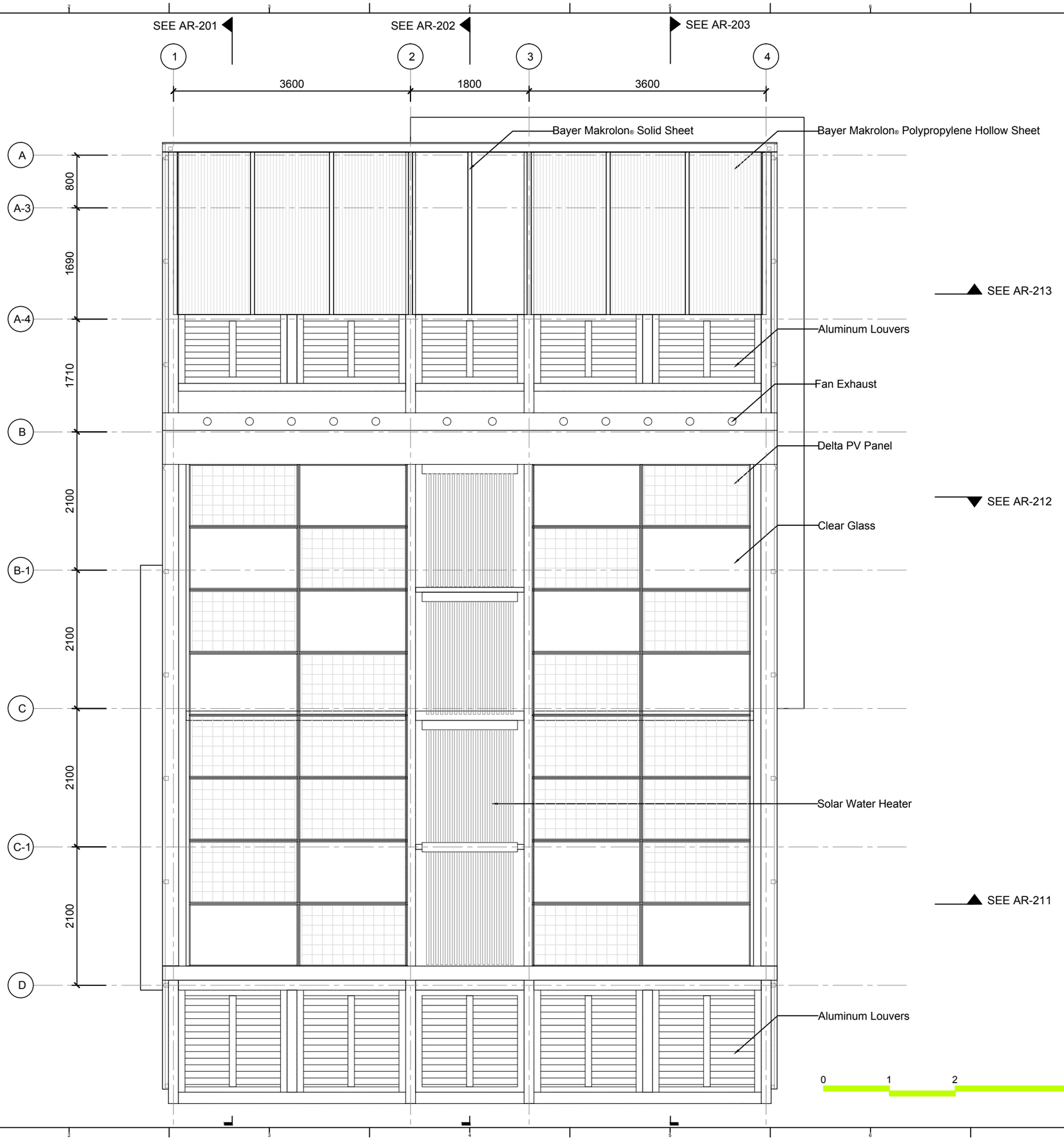
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DWG. Title

MEZZANINE LEVEL PLAN

DWG. No.	PAGE
AR-022	20



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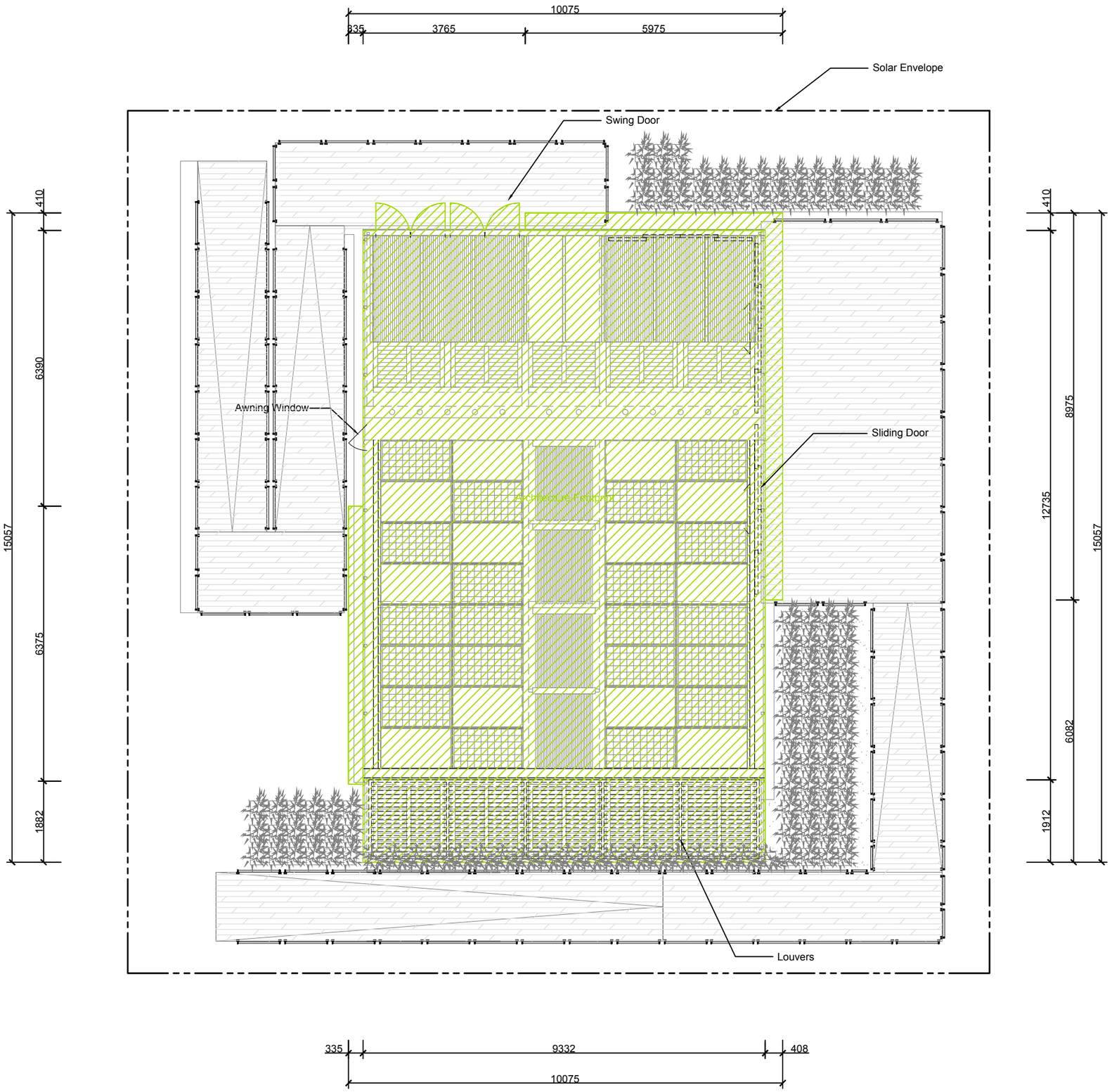
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DWG. Title

ROOF LEVEL PLAN

DWG. No.	PAGE
AR-031	21



Footprint Calculation

House：120.4 M2
Canopy：8.7 M2
Louvers：17.8 M2

Total：146.9 M2

House
9.332x12.735+0.6375x0.7854x3.14=120.4 (M2)

Canopy
5.975x0.41+(8.975-0.41)x0.408+6.375x0.335=8.0 (M2)

Louvers
9.332x1.912=17.8 (M2)

Total
120.41+8.05+17.84=146.3 (M2)

Solar Decathlon Europe

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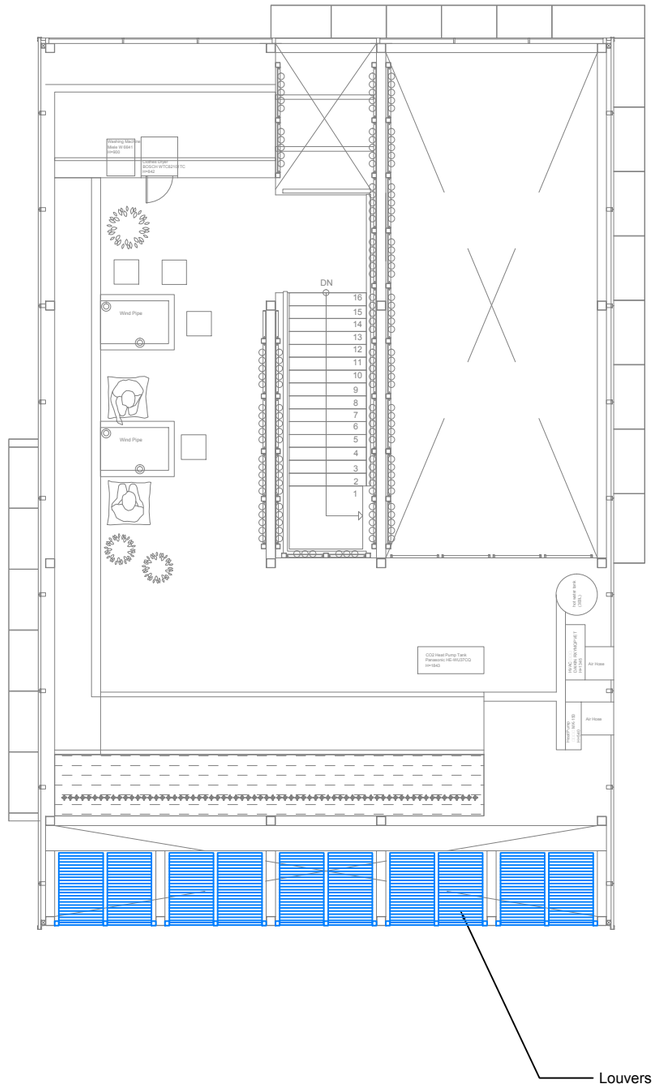
DWG. Title
RECONFIGURABLE FEATURES 1

DWG. No. AR-041

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Ground Level



Mezzanine Level

0 1 2 5 METER

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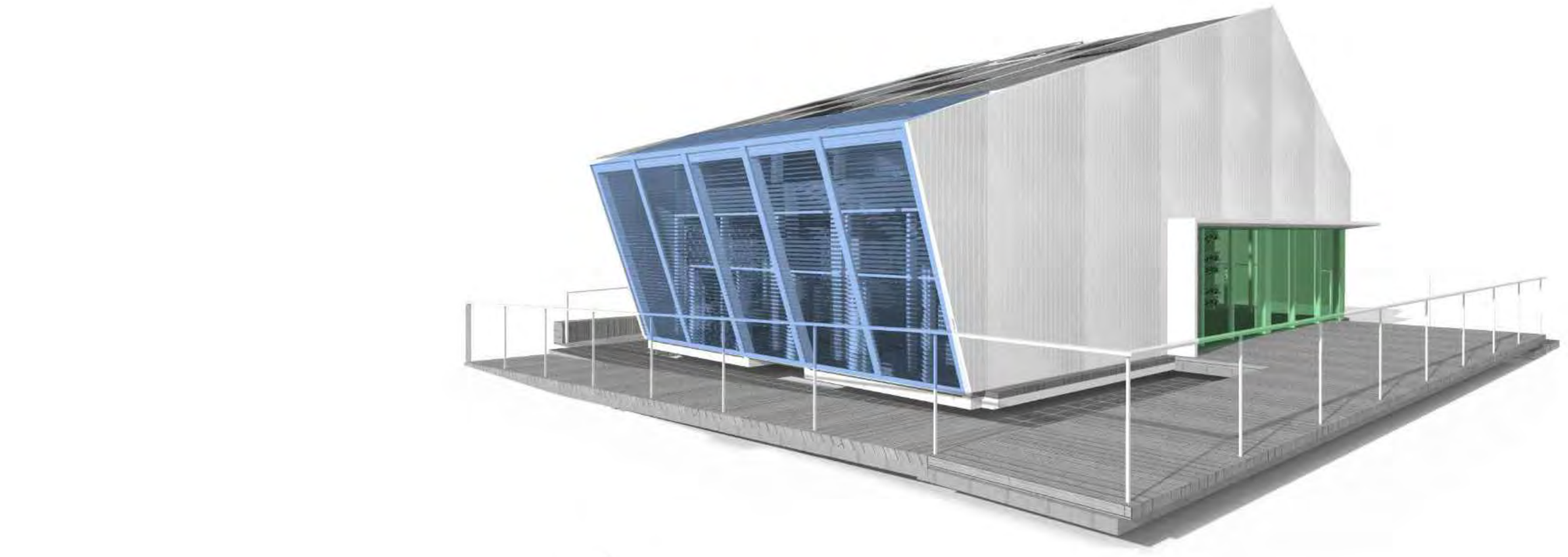
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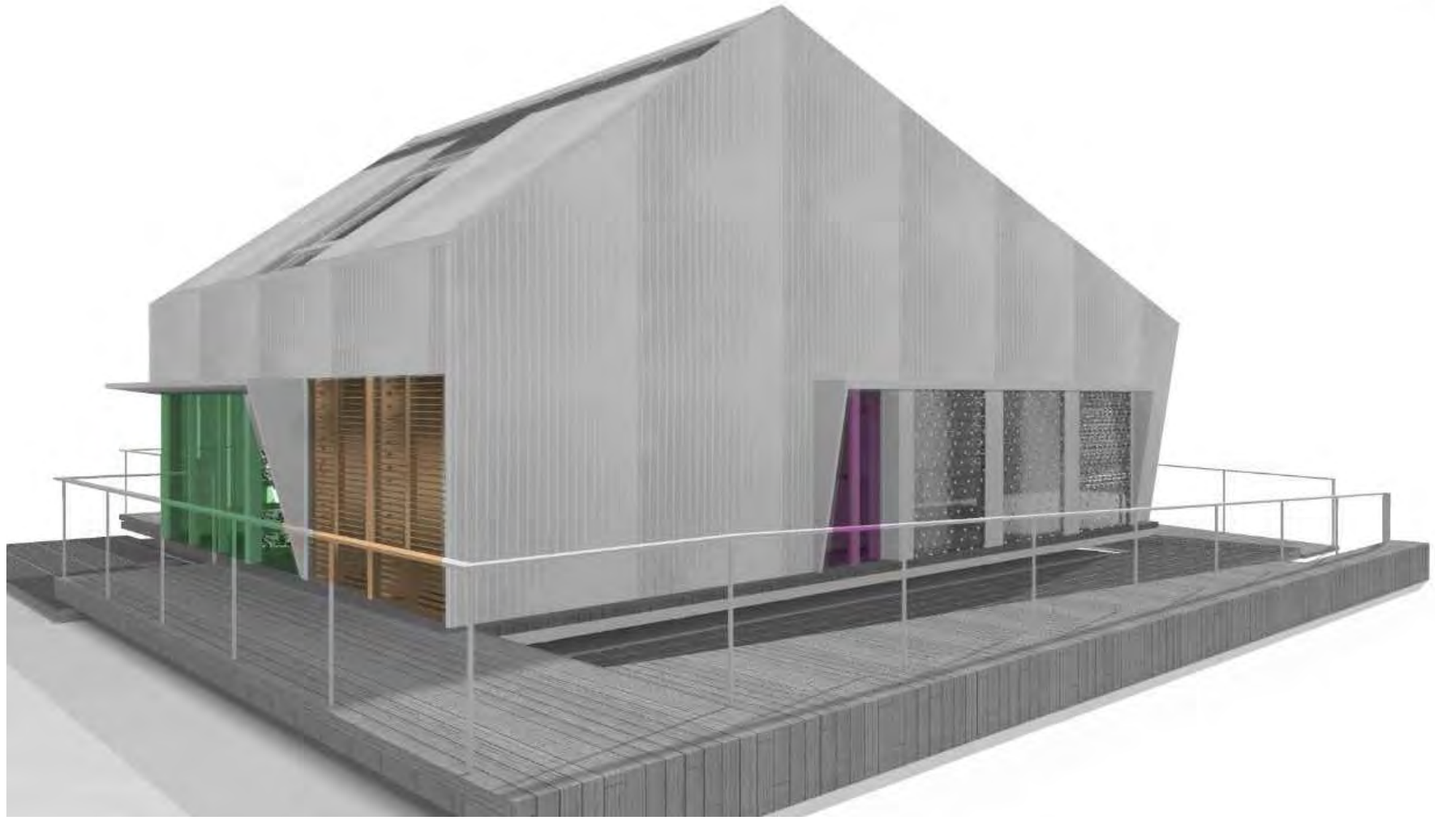
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DWG. Title

RECONFIGURABLE FEATURES 2

DWG. No.	PAGE
AR-042	23





Louvers
Sliding Door
Swing Door
Awning Window

Solar Decathlon Europe

Project:

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Note:

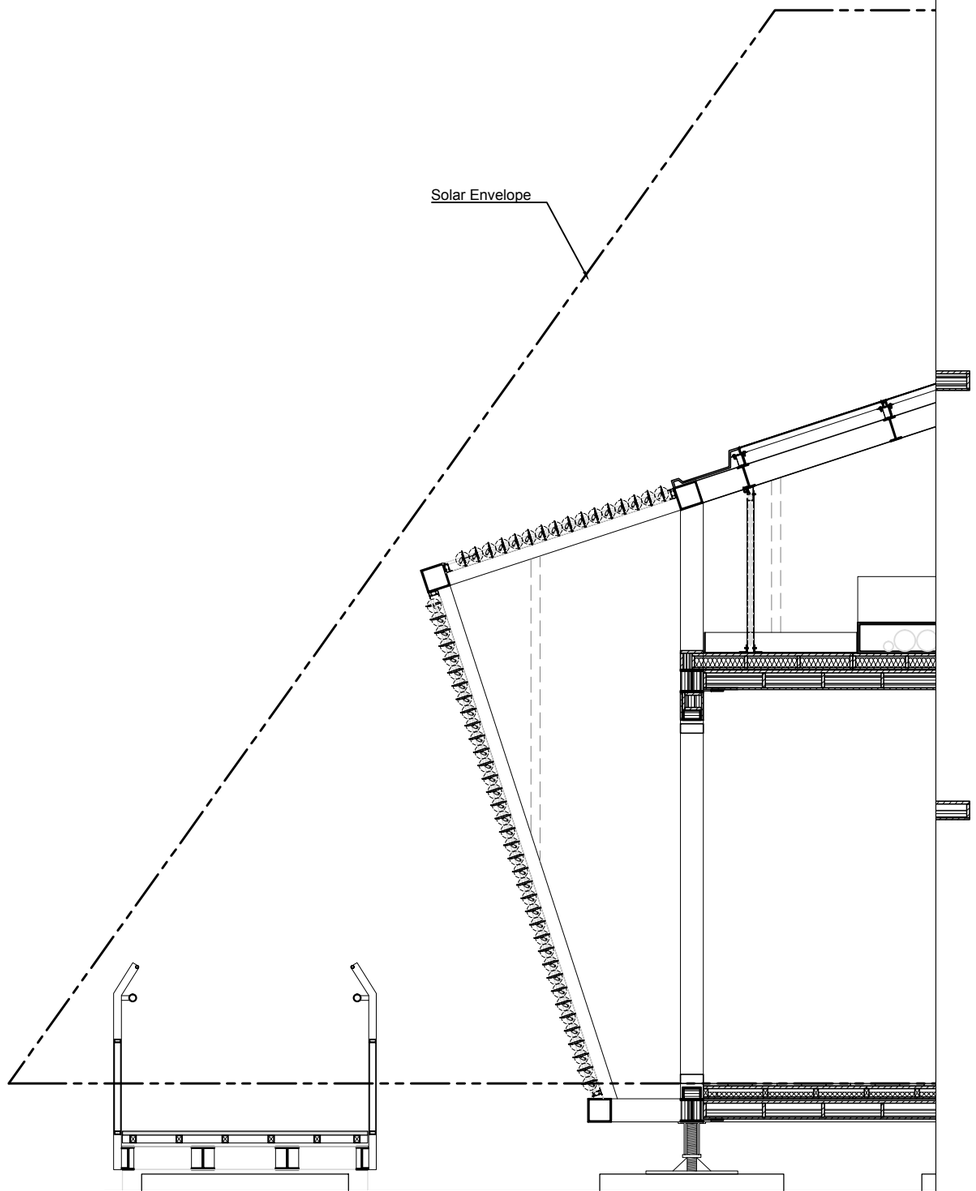
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ST	2014/04/30	CD Submission

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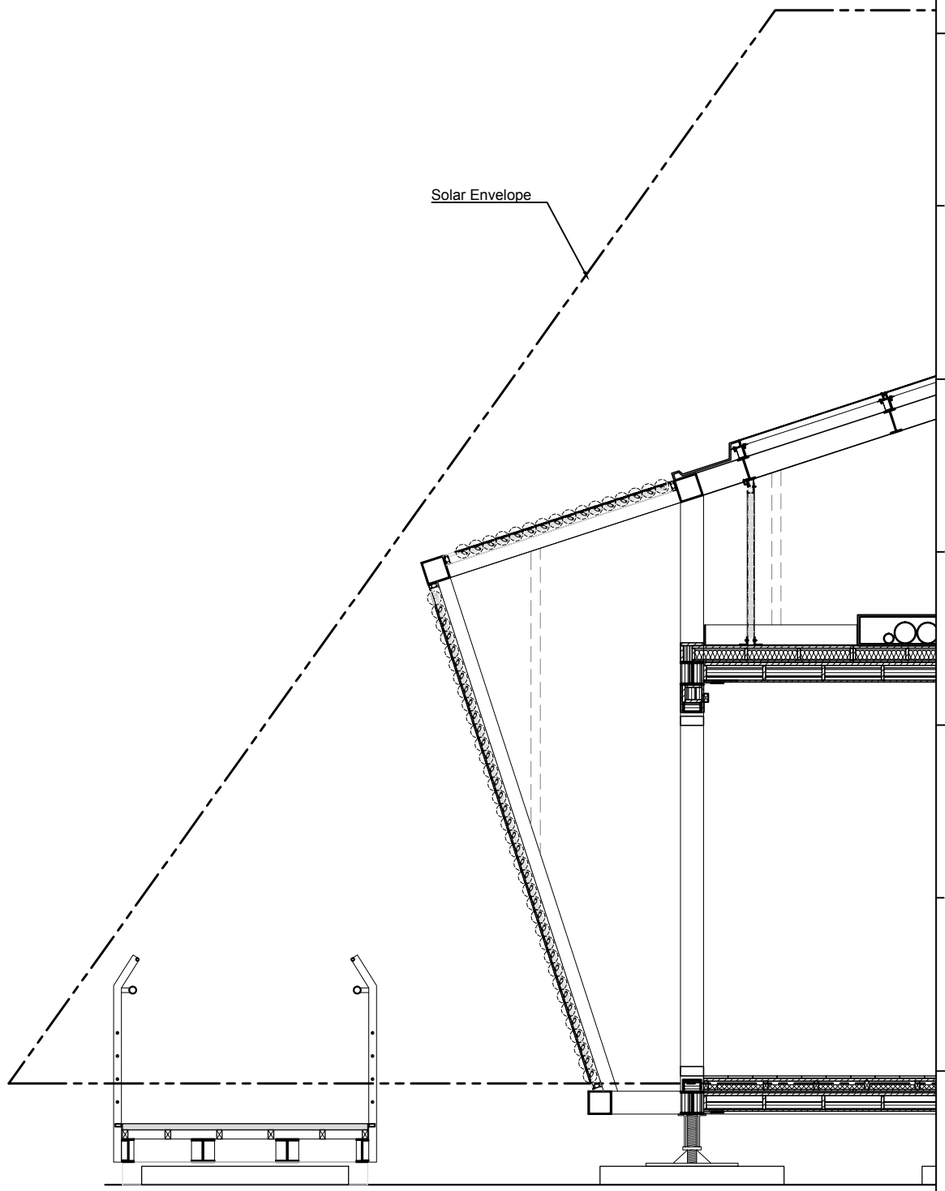
DWG. Title

RECONFIGURABLE FEATURES 3

DWG. No.	PAGE
AR-043	24



Louvers Open



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Solar Decathlon Europe

Project: ORCHID HOUSE

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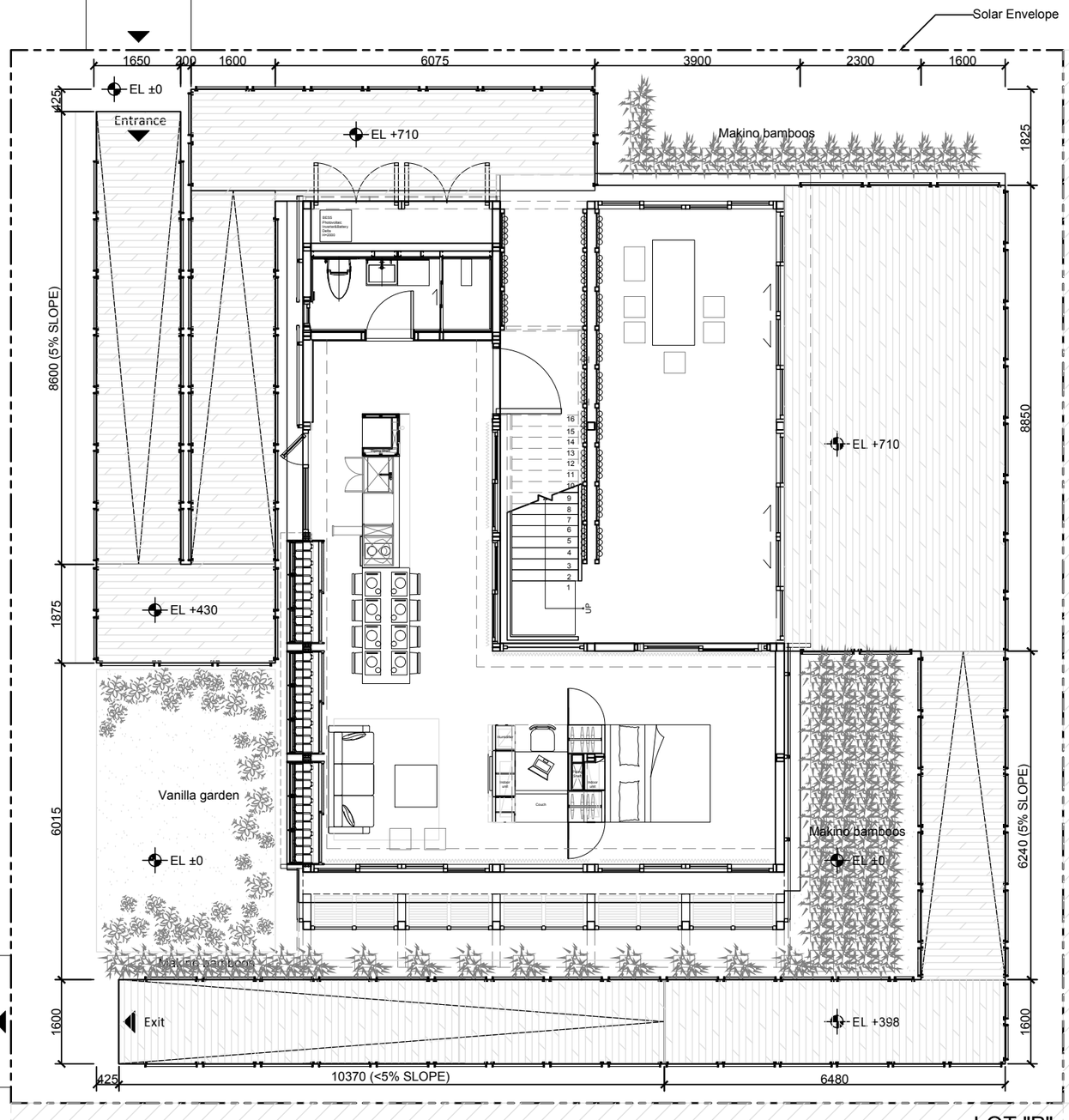
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DWG. Title

RECONFIGURABLE FEATURES 4

DWG. No. AR-044

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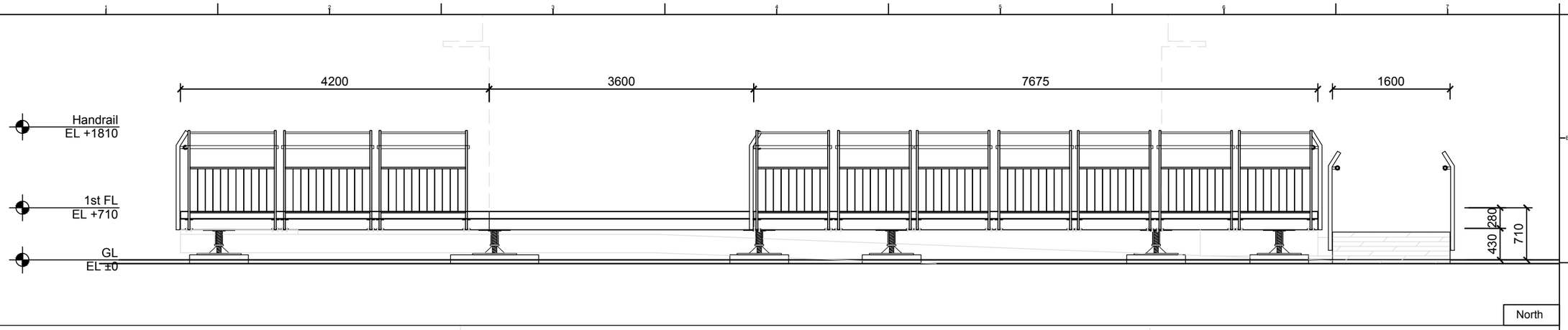
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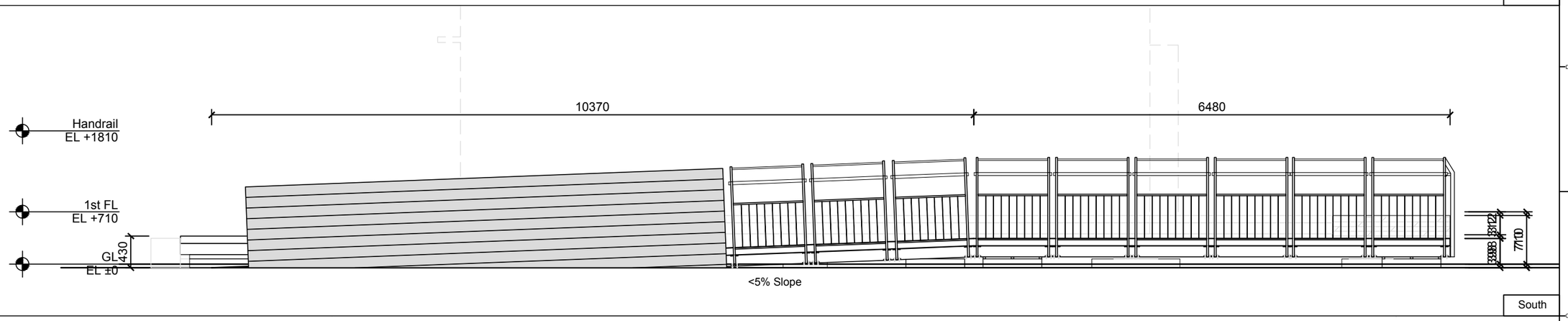
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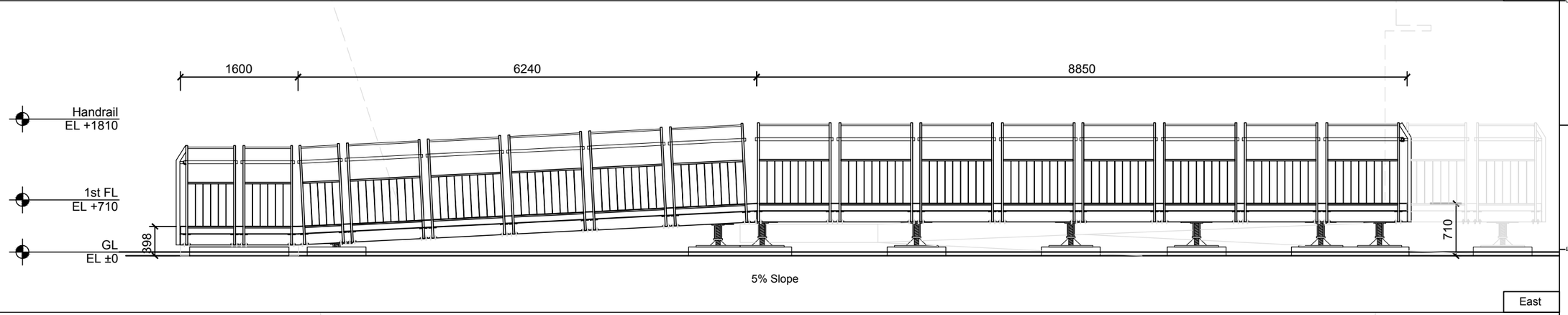
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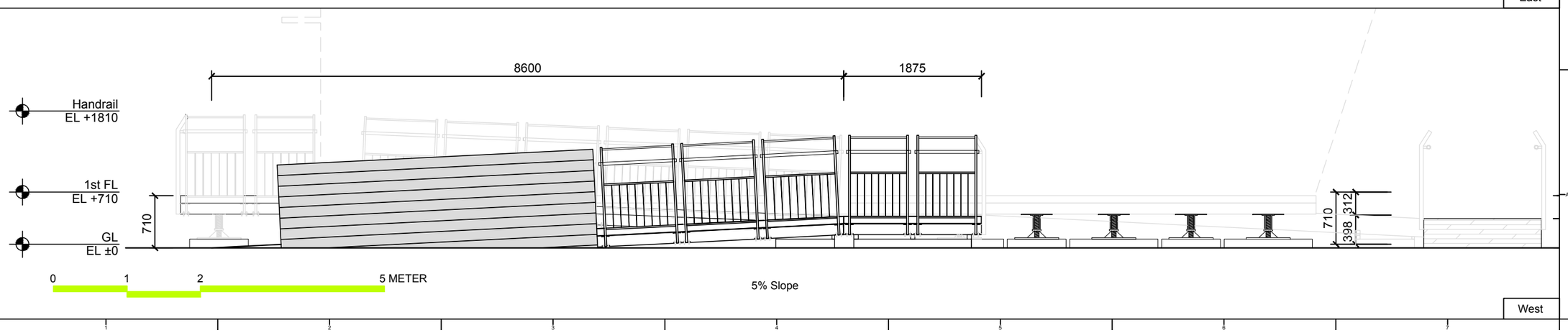
DWG. No. AR-051

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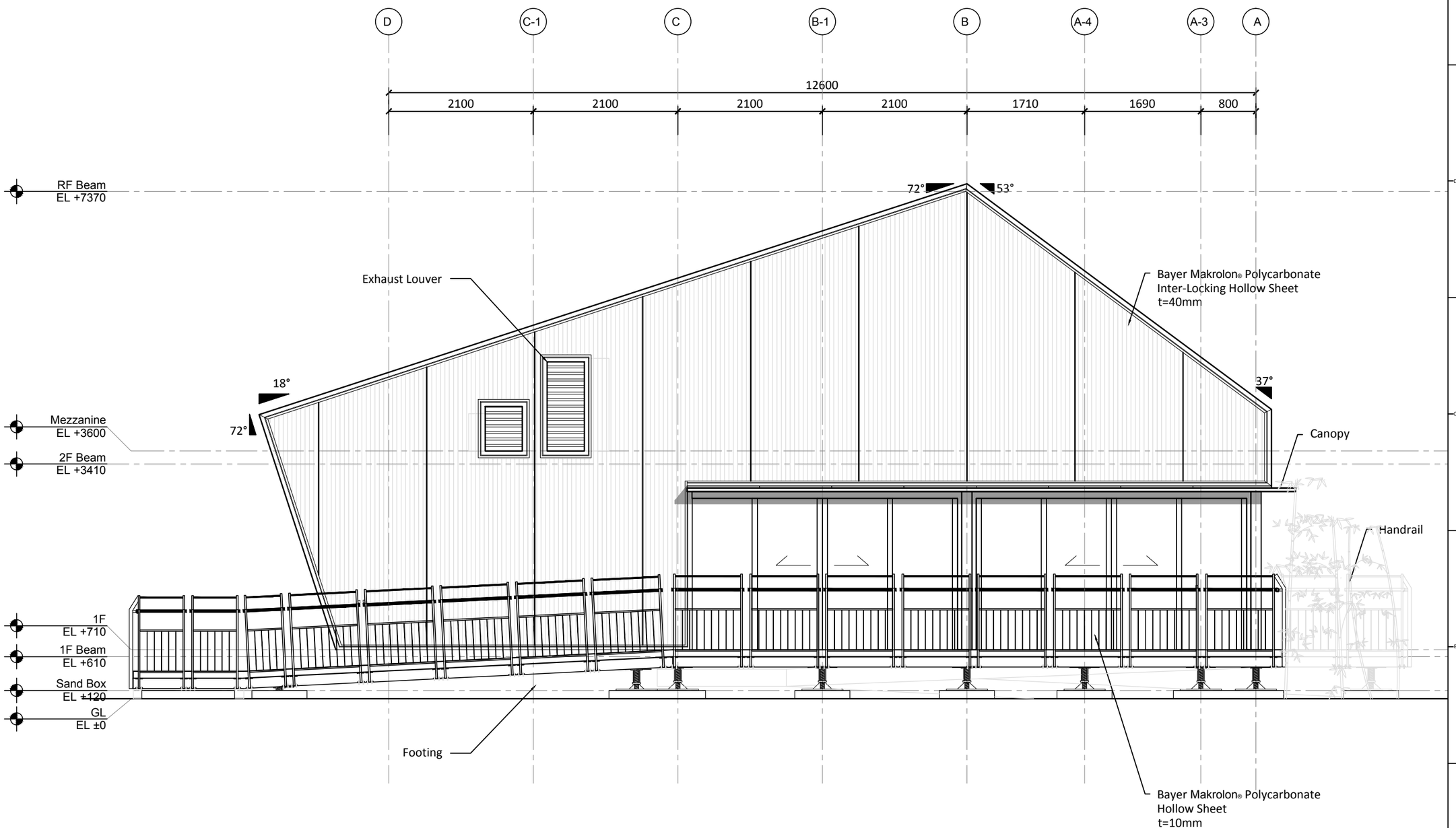
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Unit	mm

DWG. Title

SITE ELEVATION

DWG. No. AR-101

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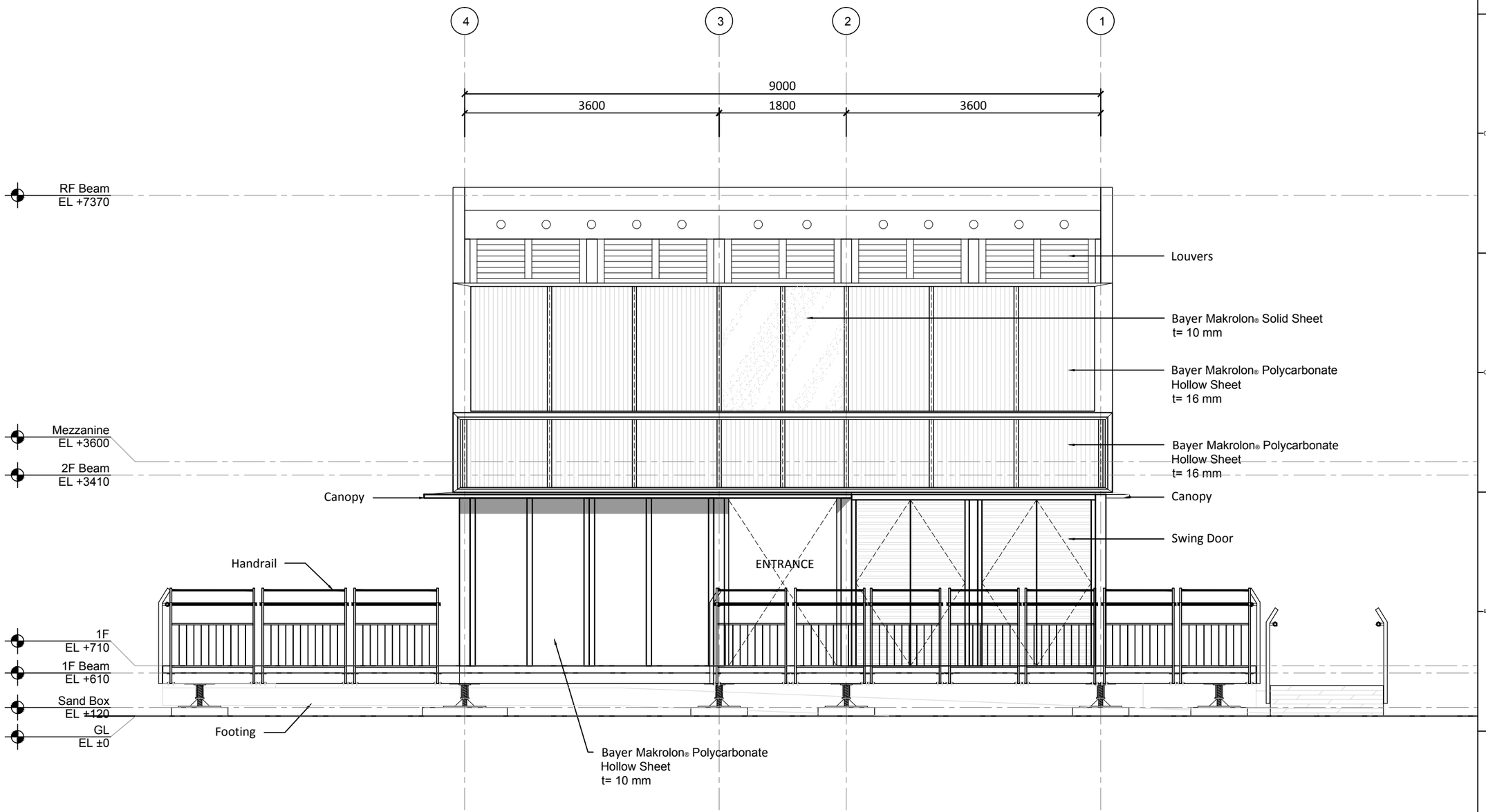
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Scale	1:60
Unit	mm

DWG. Title

EAST ELEVATION

DWG. No.	PAGE
AR-111	28



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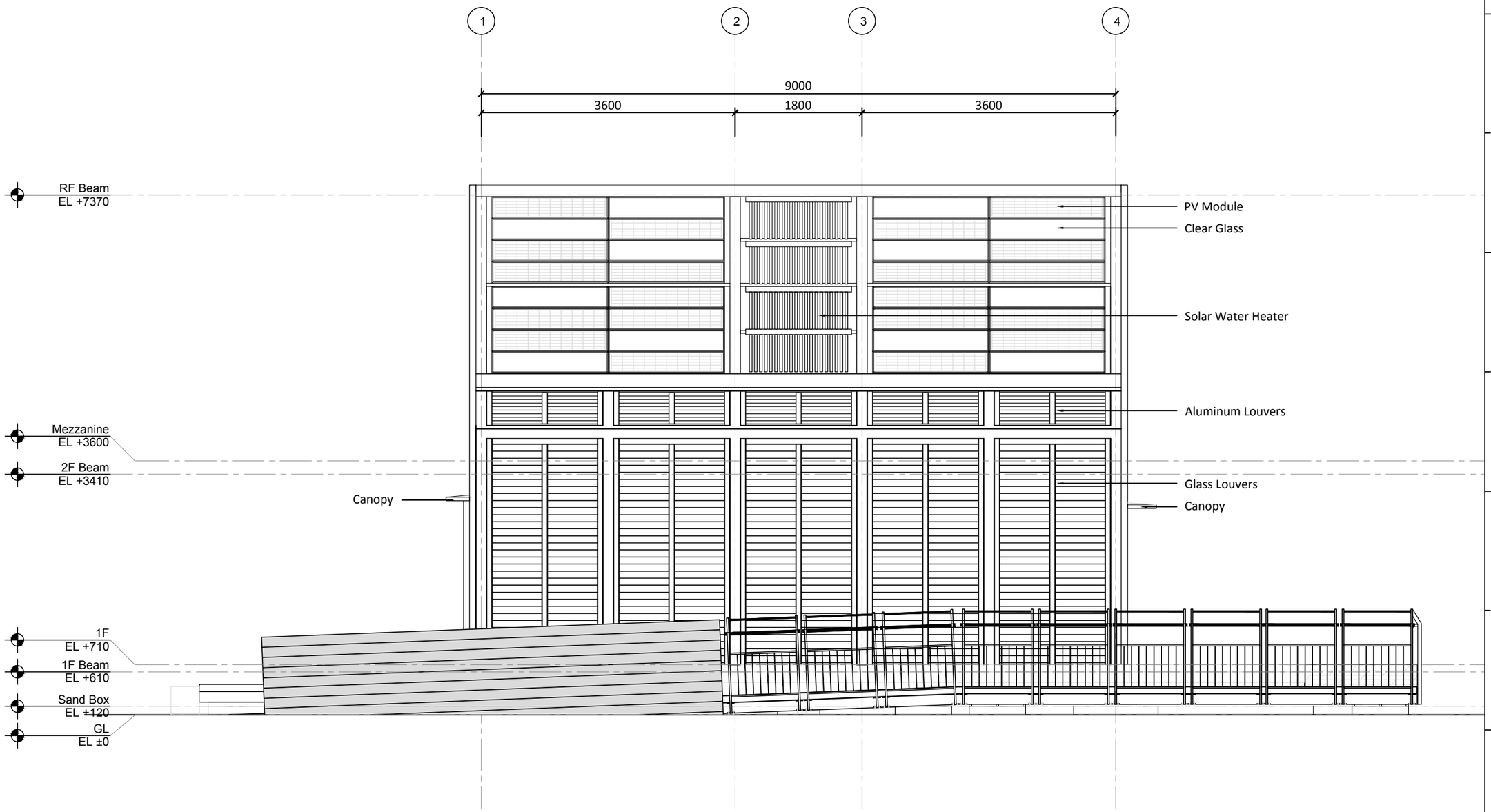
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Unit	mm

DWG. Title

NORTH ELEVATION

DWG. No. AR-112

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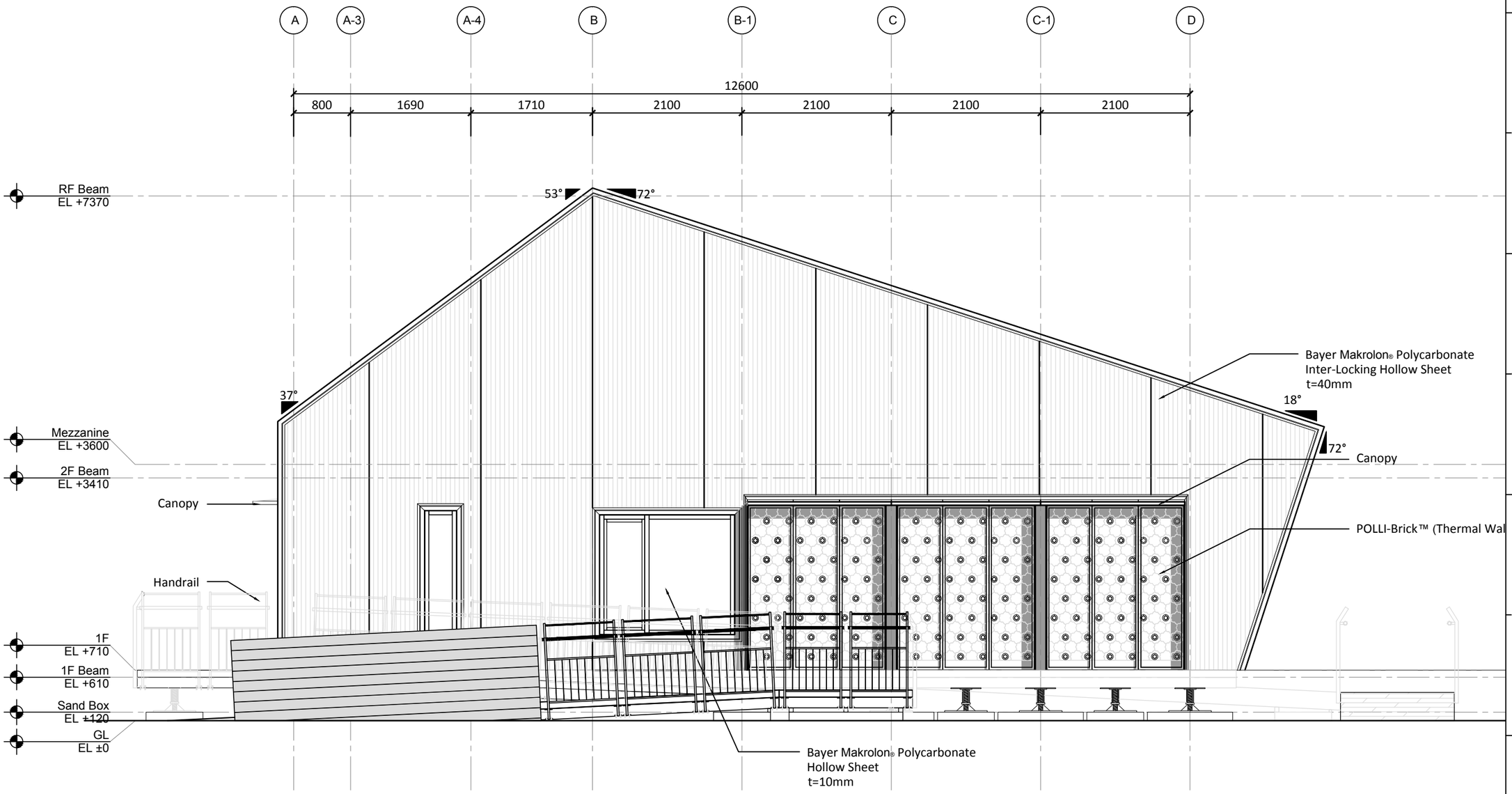
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DWG. Title

SOUTH ELEVATION

DWG. No.	PAGE
AR-113	30



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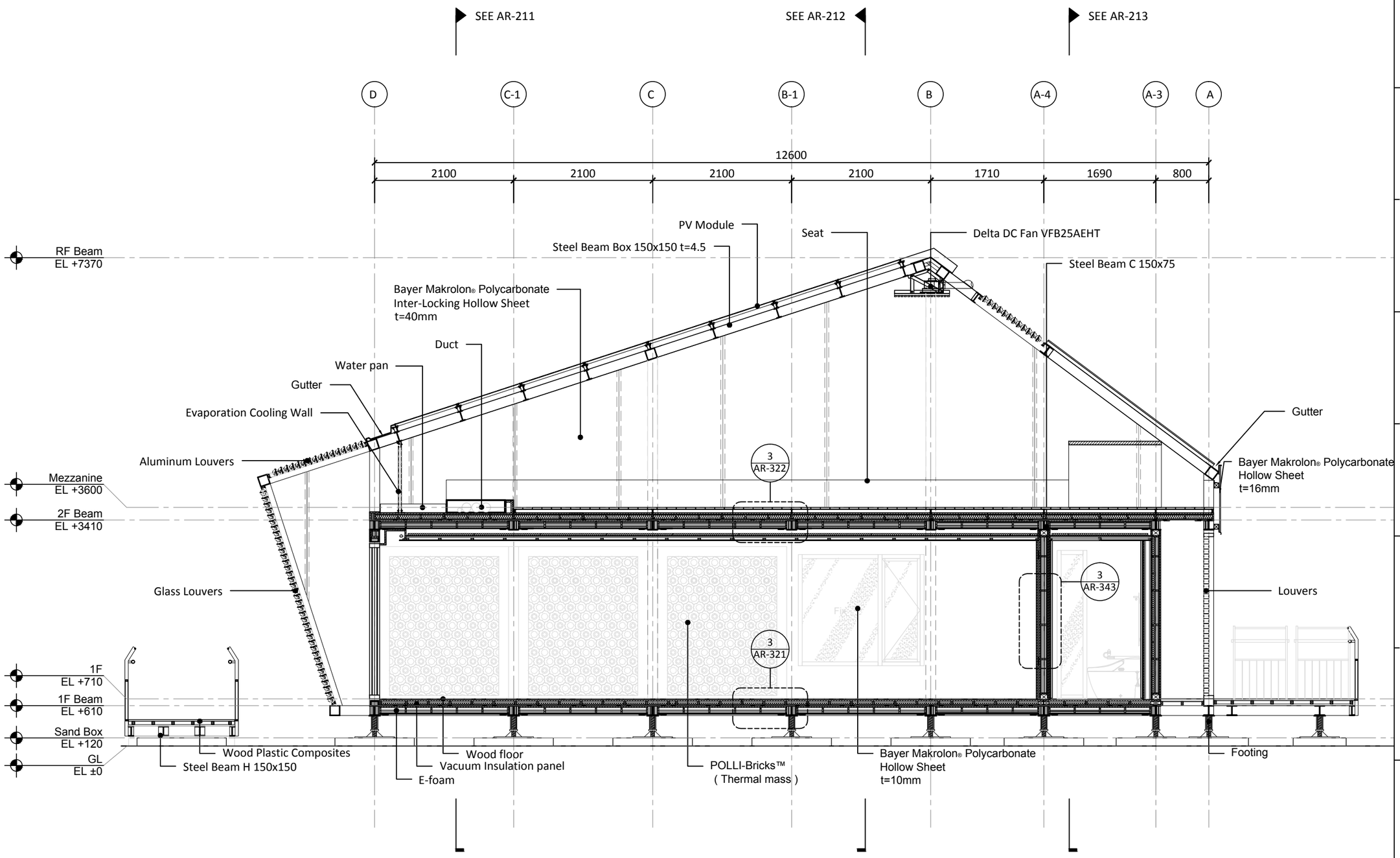
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DWG. Title

WEST ELEVATION

DWG. No. AR-114

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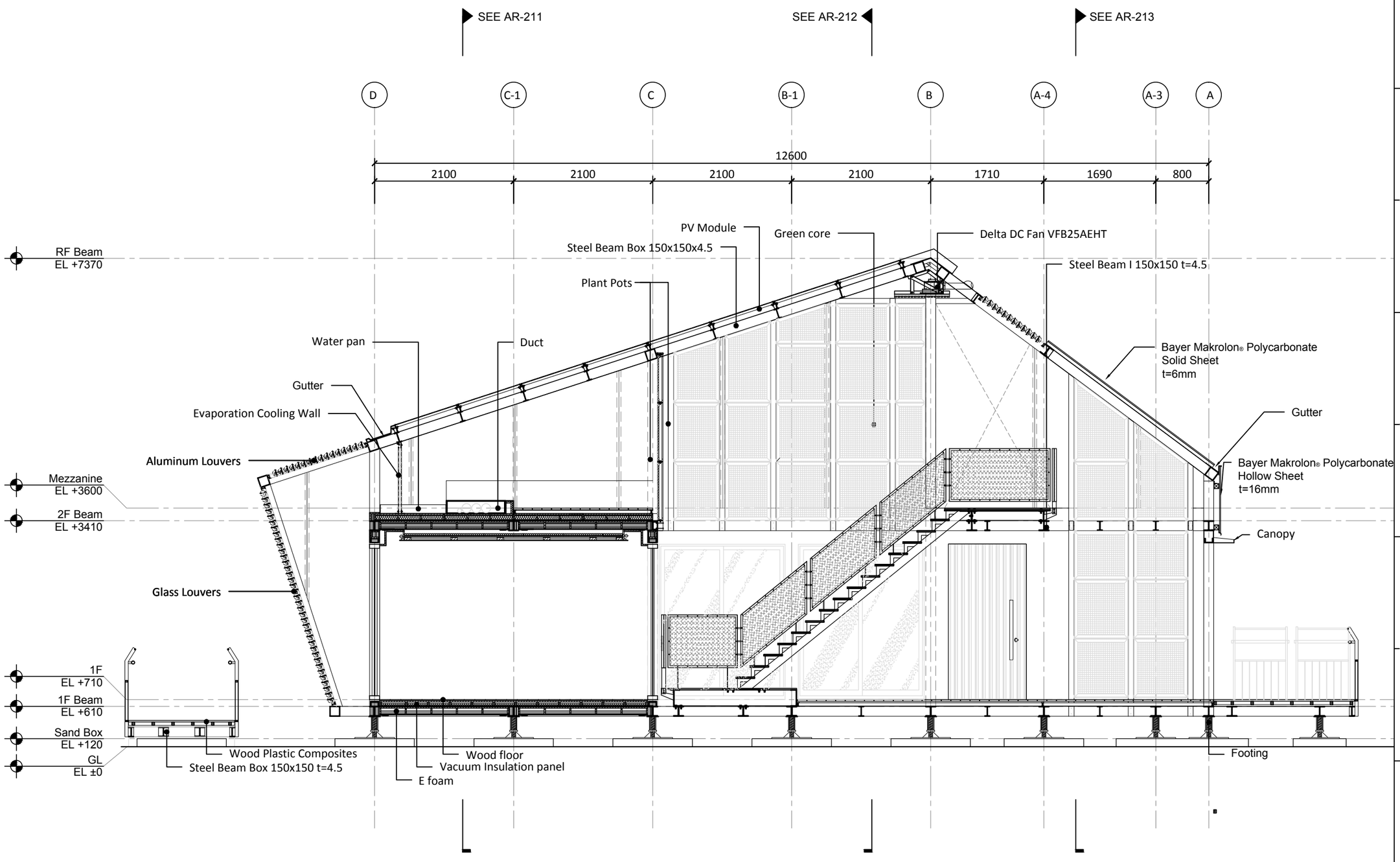
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DWG. Title

LONGITUDINAL SECTION 1

DWG. No. AR-201

PAGE 32



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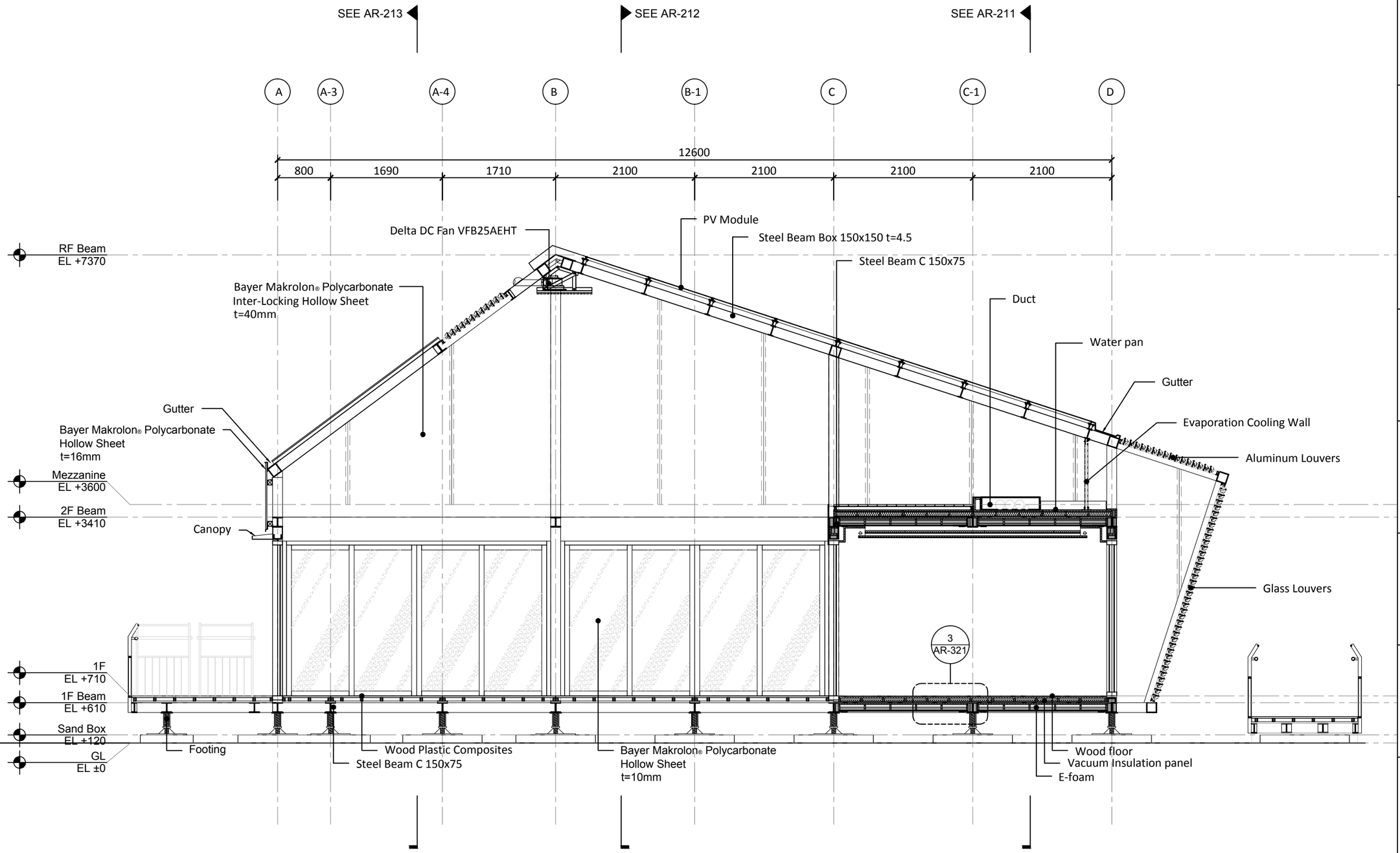
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DWG. Title

LONGITUDINAL SECTION 2

DWG. No. AR-202

PAGE 33



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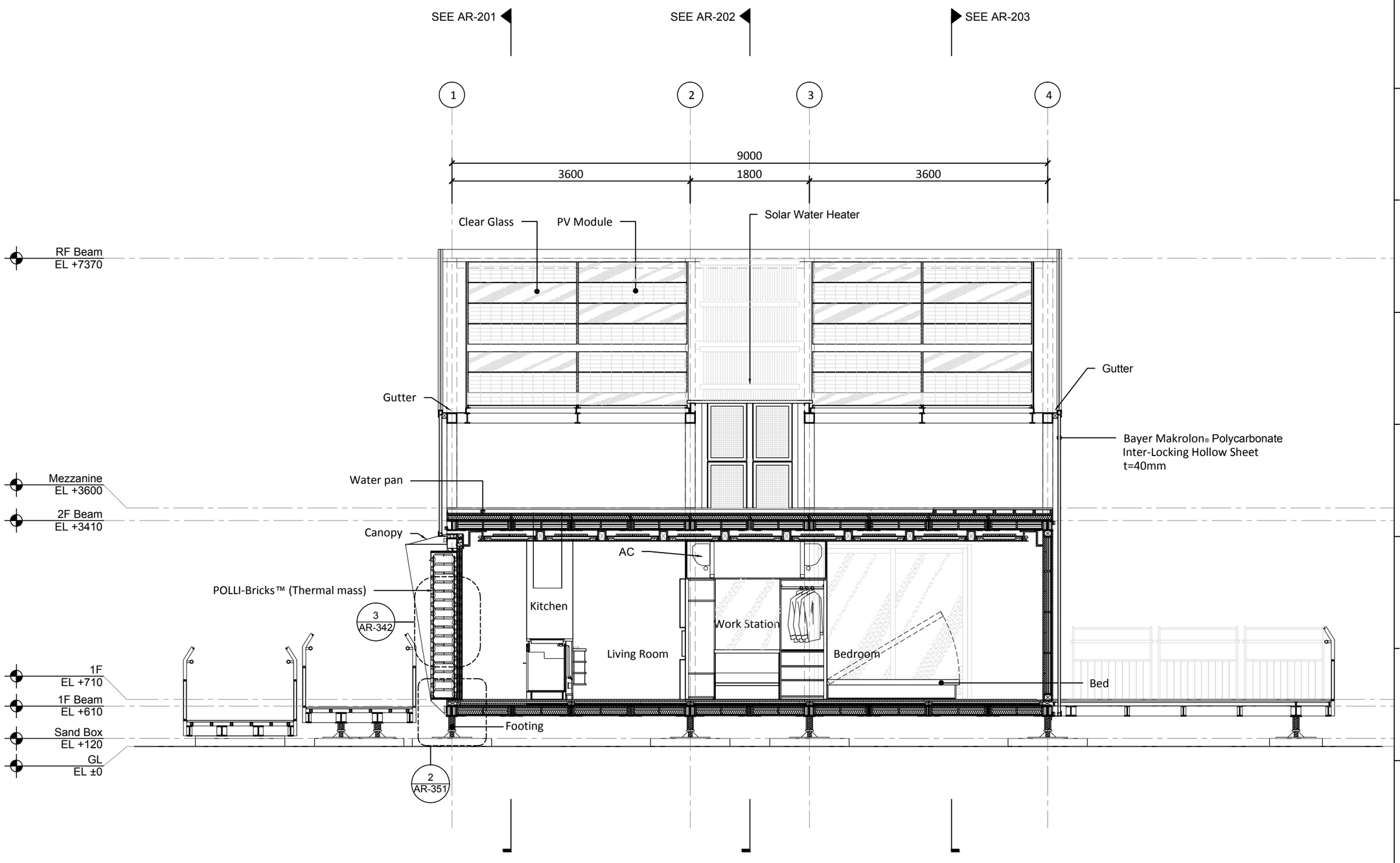
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DWG. Title

LONGITUDINAL SECTION 3

DWG. No. AR-203

PAGE 34



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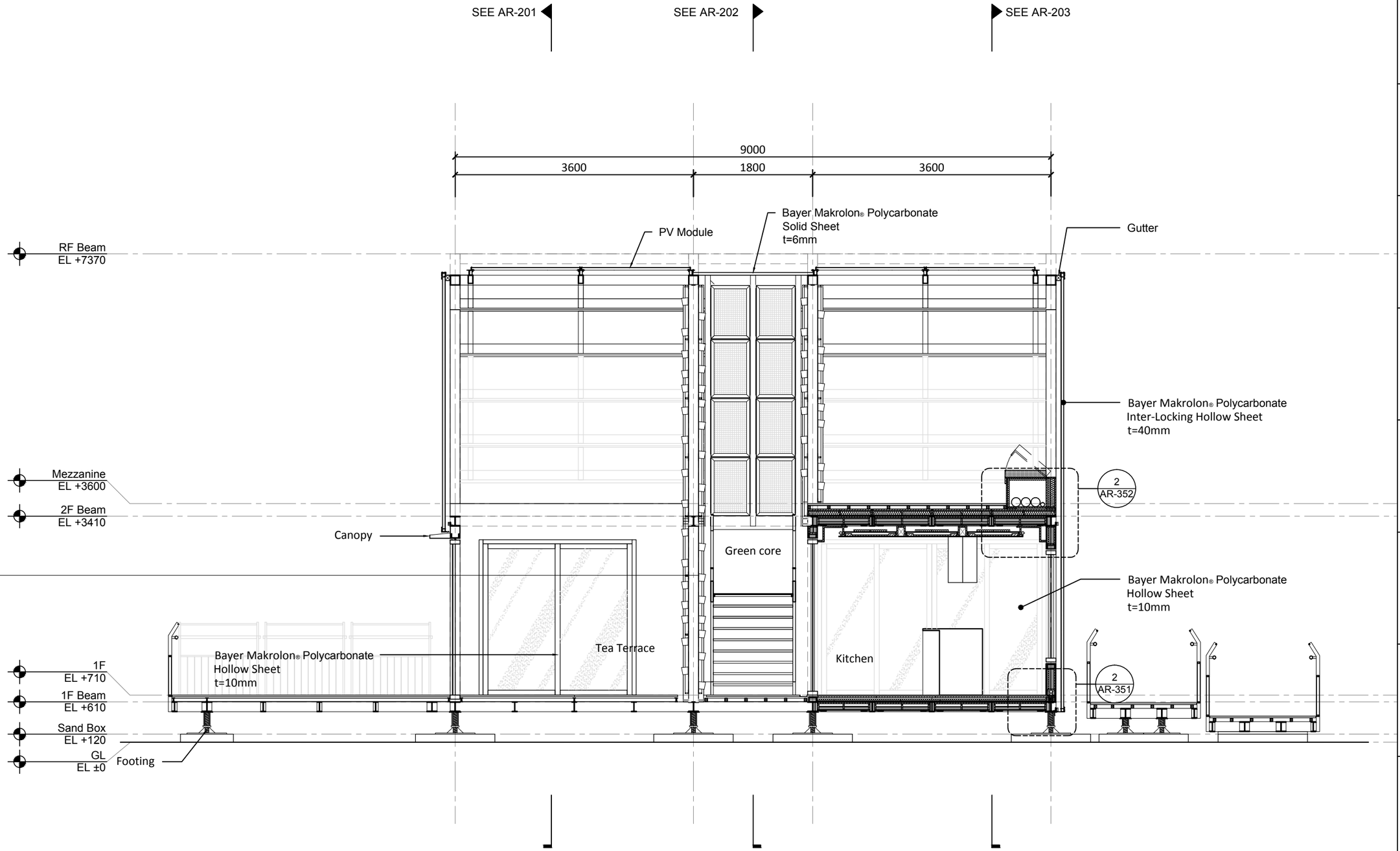
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DWG. Title

TRANSVERSAL SECTIONS
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DWG. No. AR-211

PAGE 35



Solar Decathlon Europe

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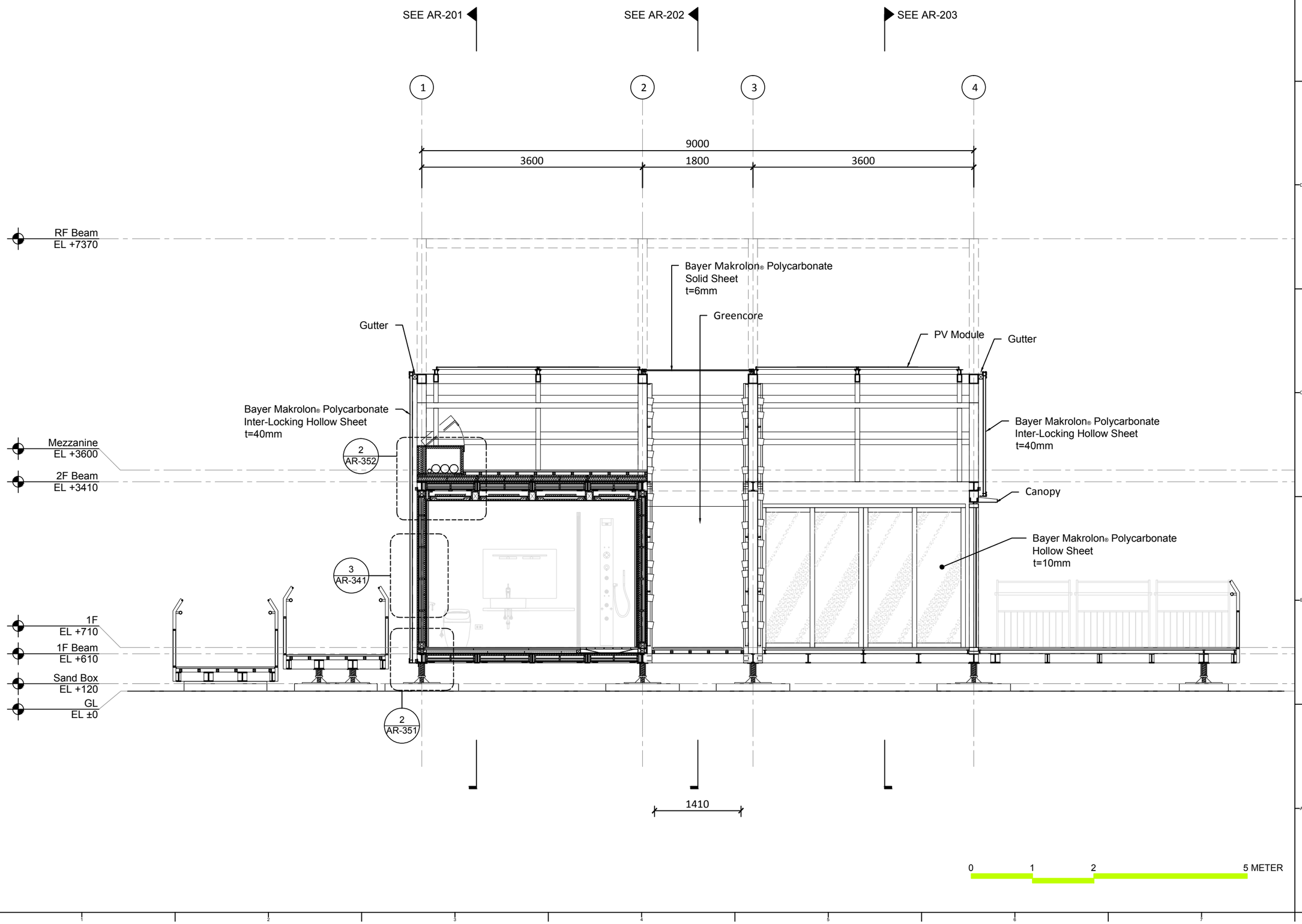
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DWG. Title

TRANSVERSAL SECTIONS
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DWG. No. AR-212

PAGE 36



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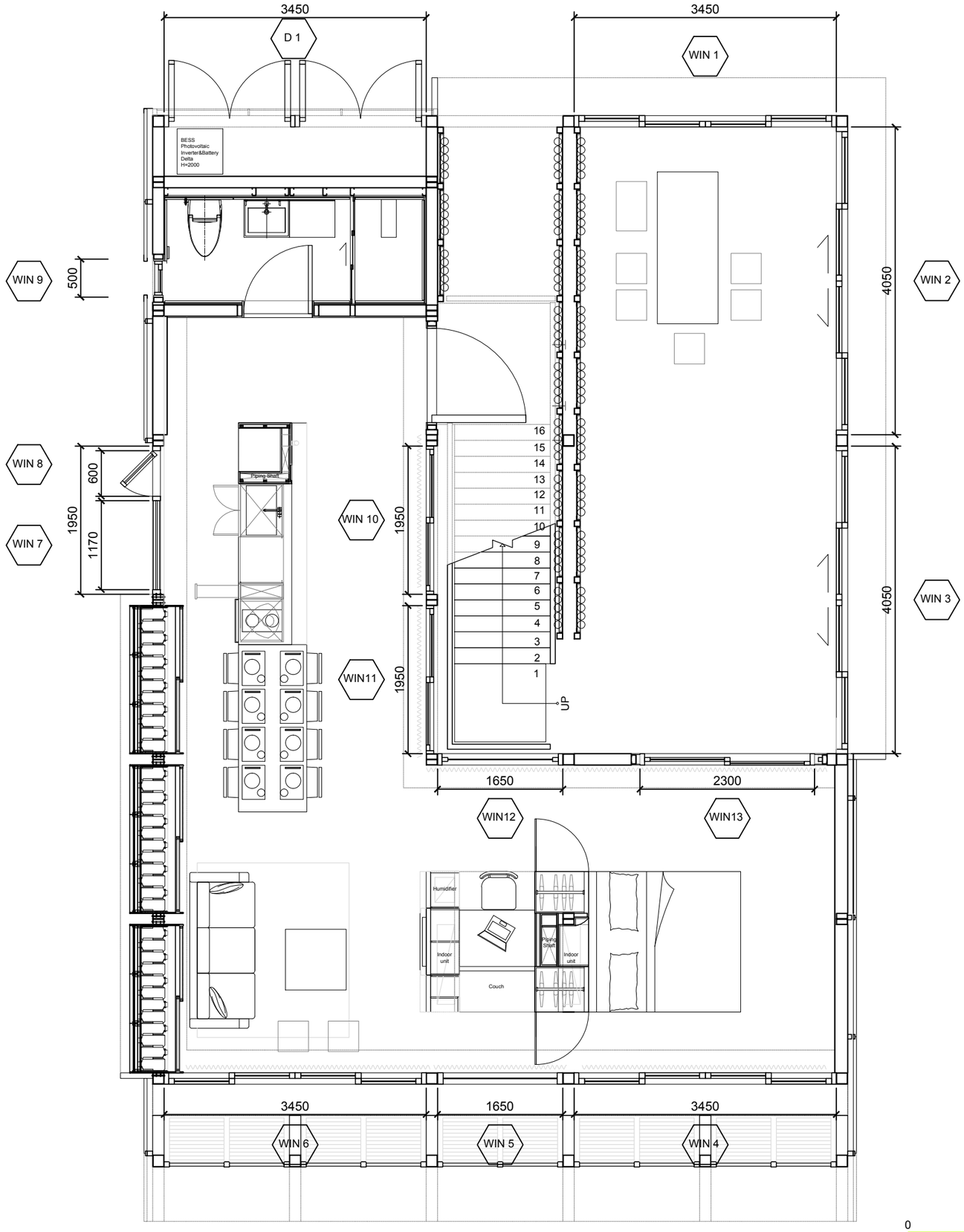
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DWG. Title

TRANSVERSAL SECTIONS
3

DWG. No. AR-213

PAGE 37



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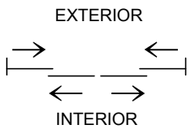
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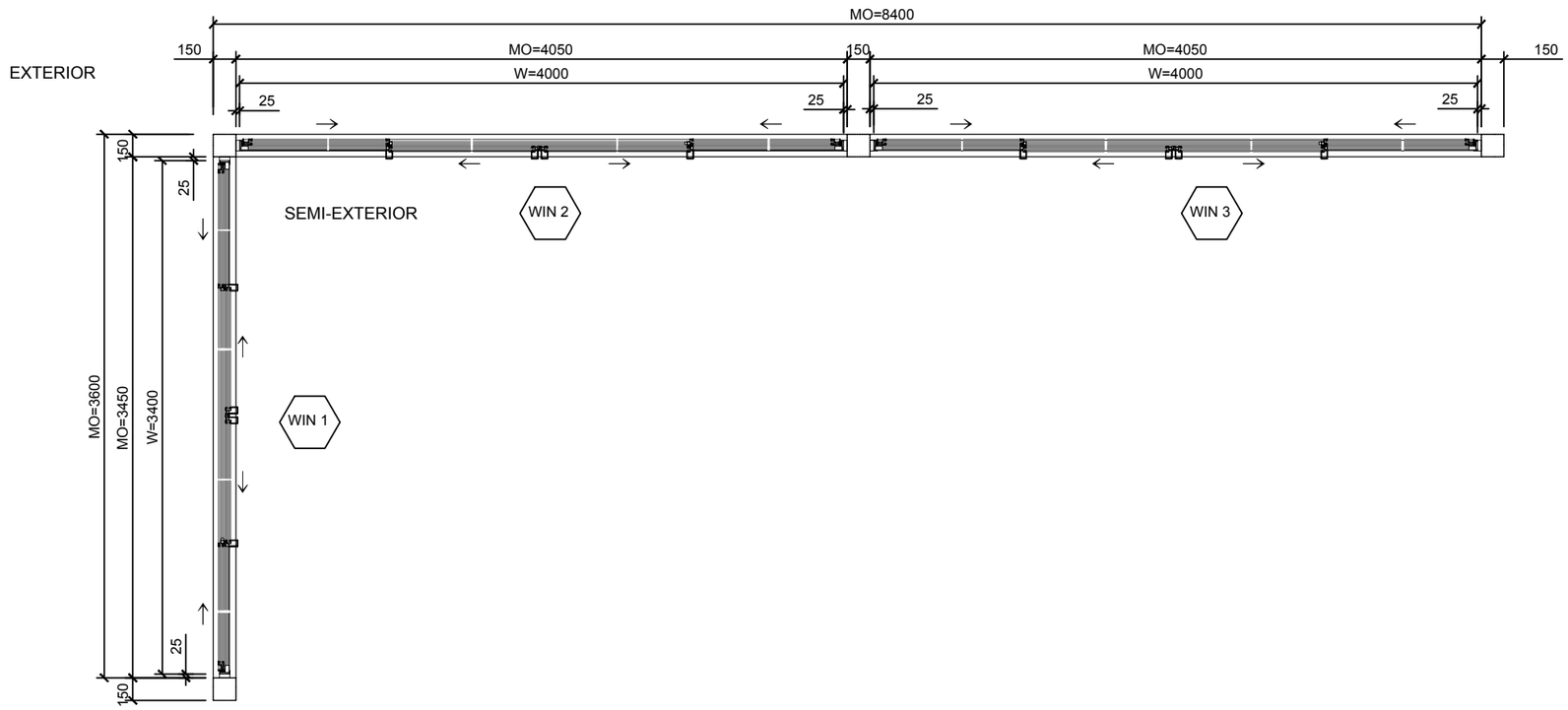
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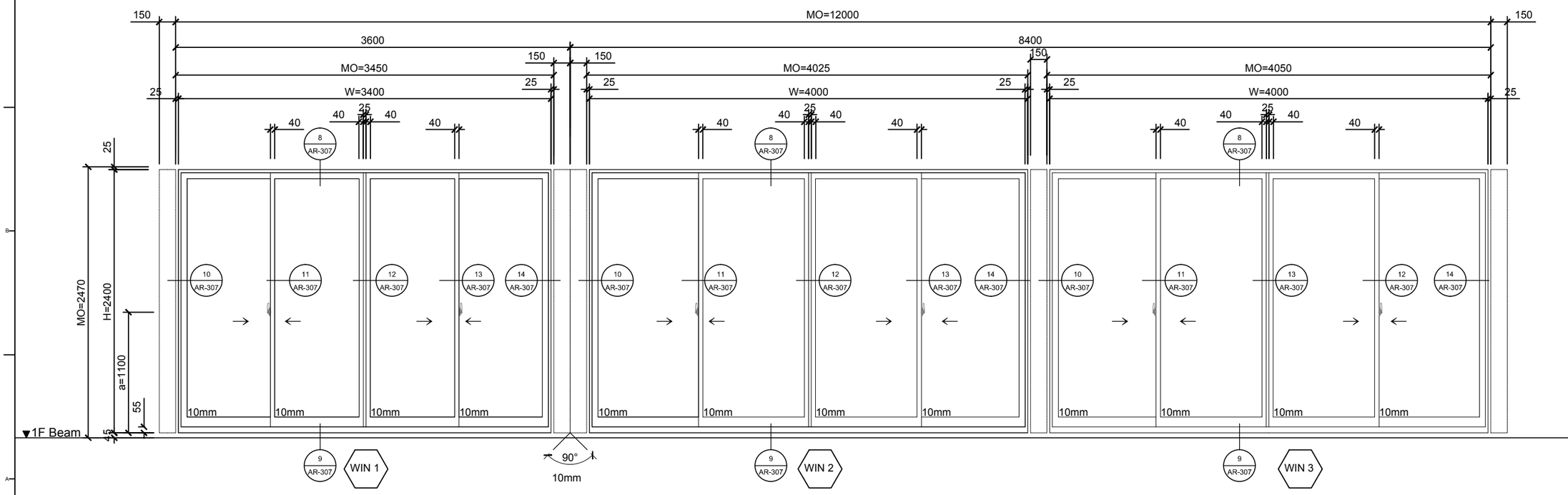
WINDOW SCHEDULE AND DETAILS 1

DWG. No. AR-301

PAGE 38







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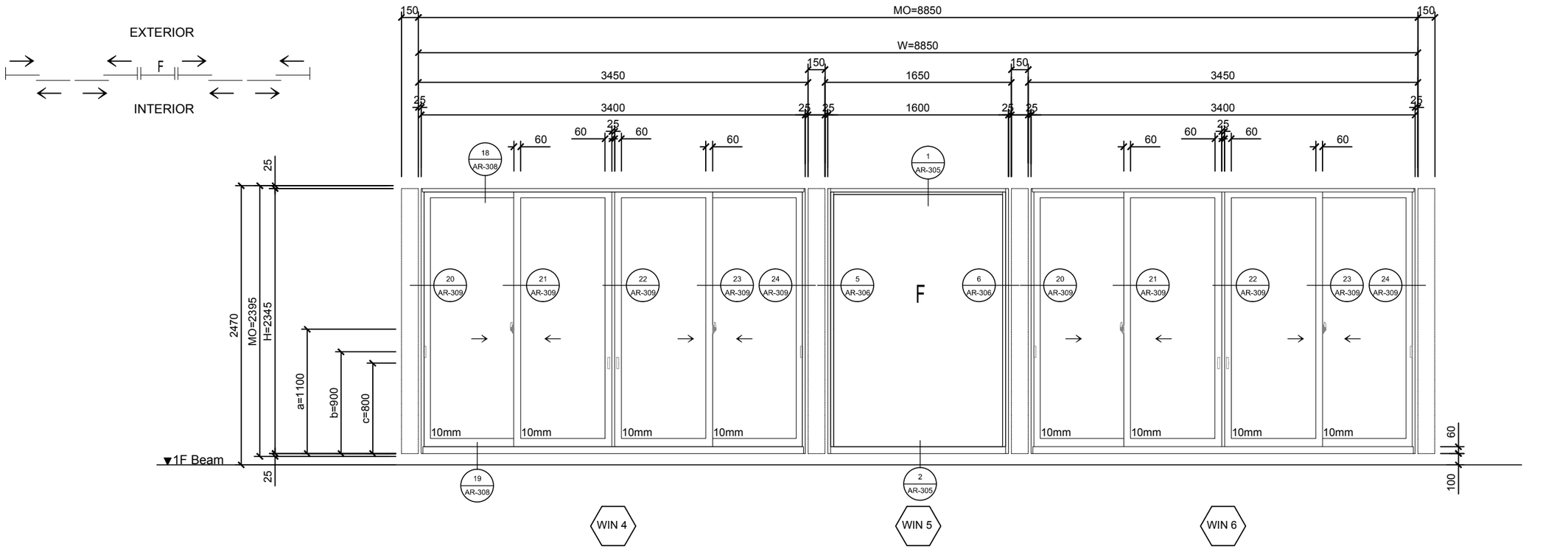
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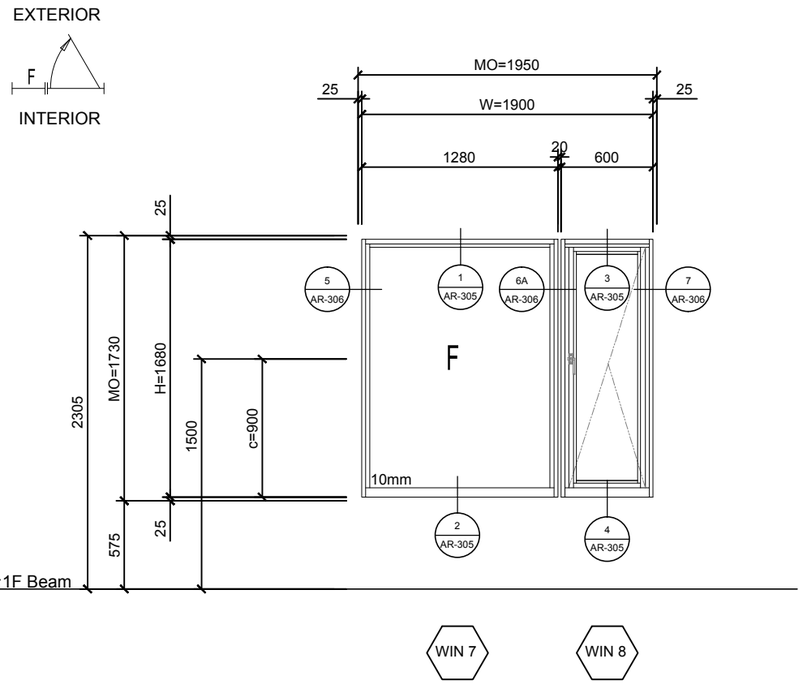
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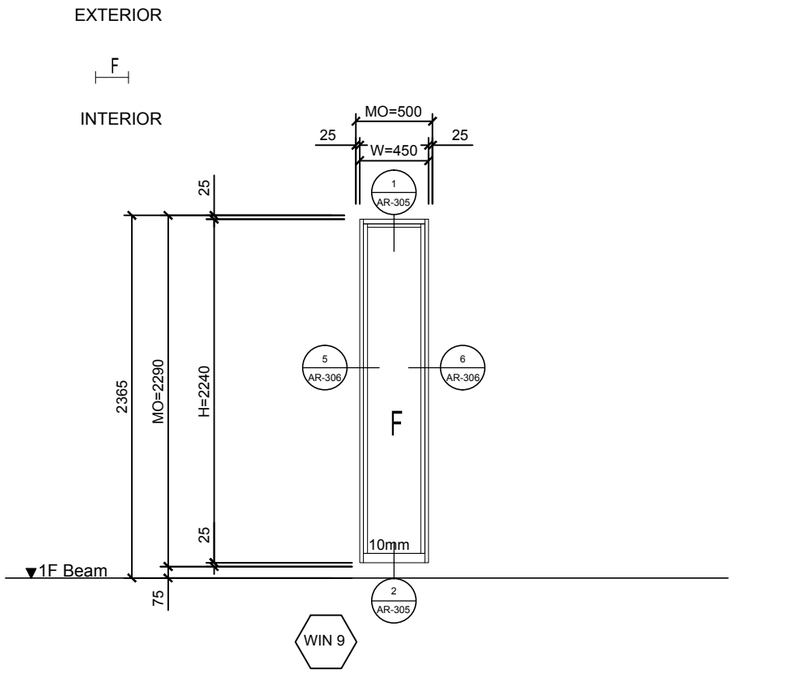
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DWG. No.: AR-302

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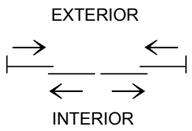
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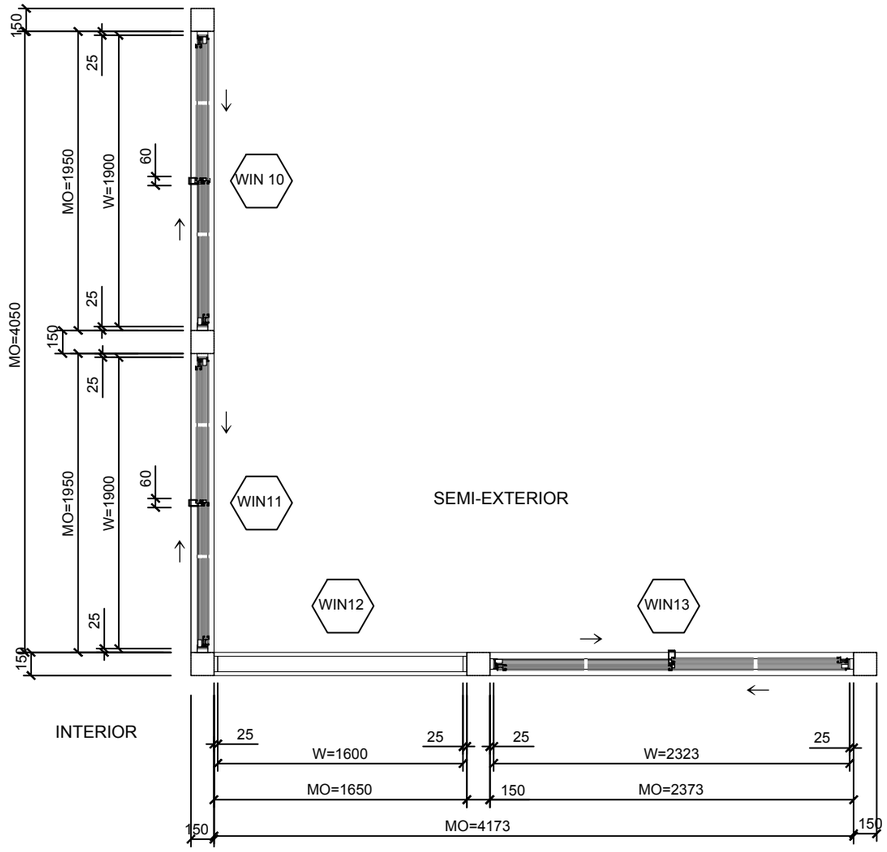
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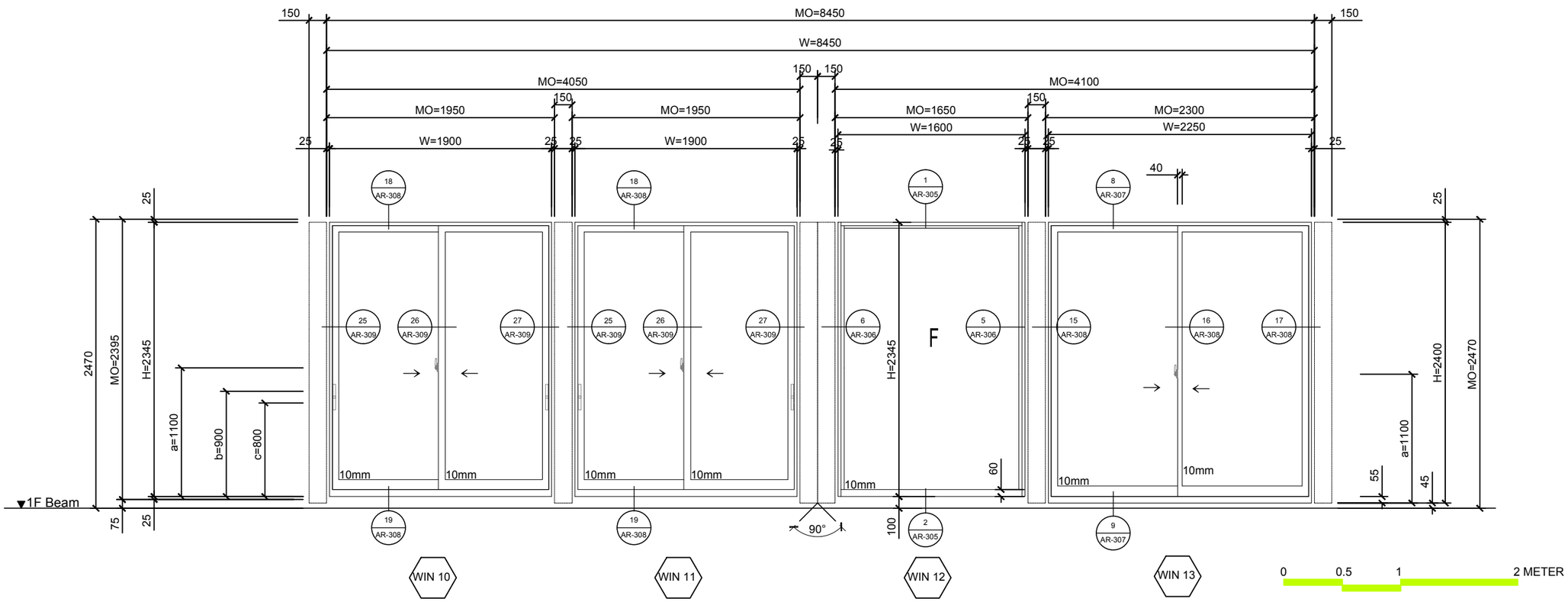
WINDOW SCHEDULE AND DETAILS 3

DWG. No. AR-303

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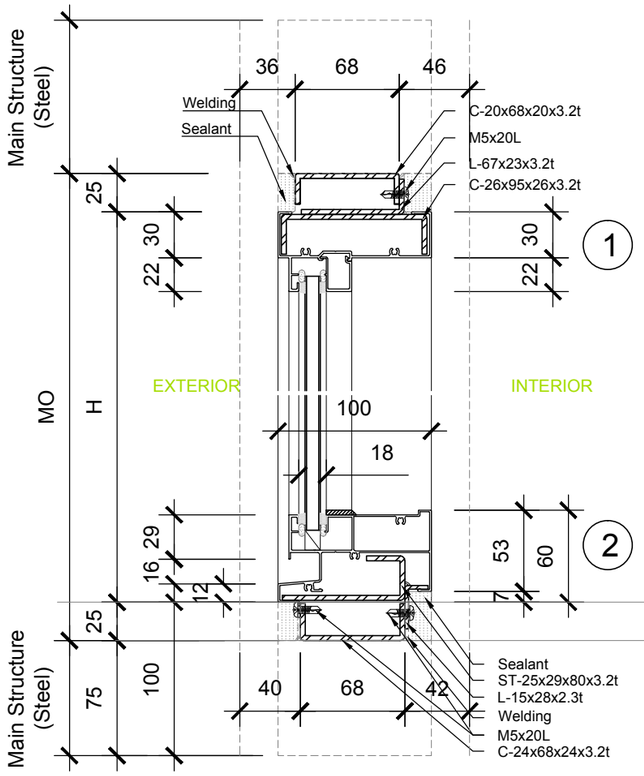
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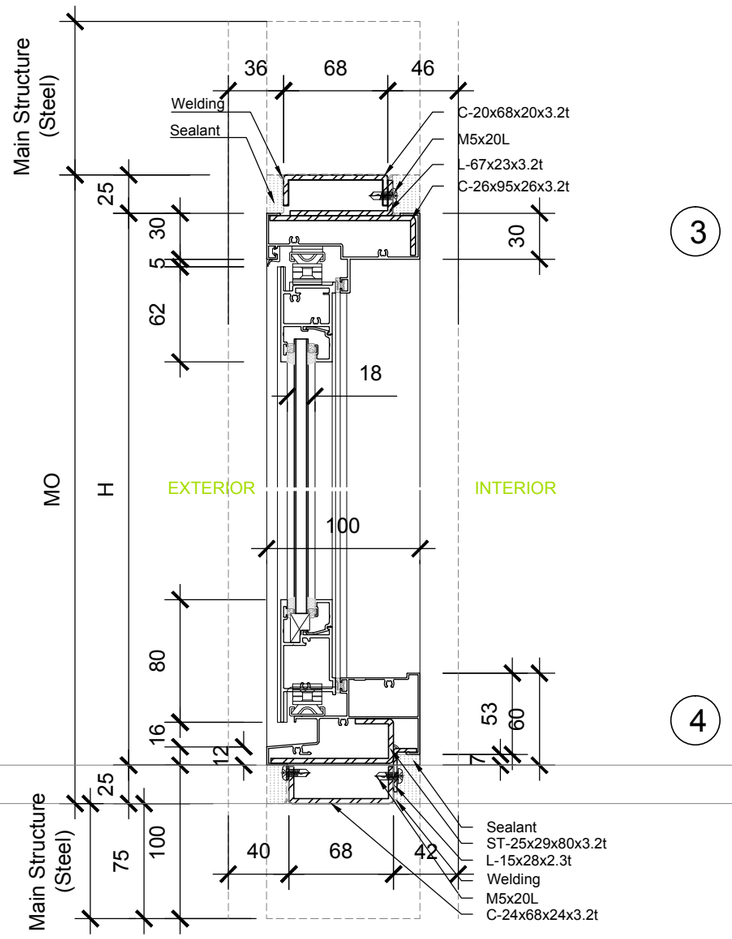
DWG. Title

WINDOW SCHEDULE AND DETAILS 4

DWG. No. AR-304

PAGE 41





0 0.05 0.1 0.2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Consultants:

Note:

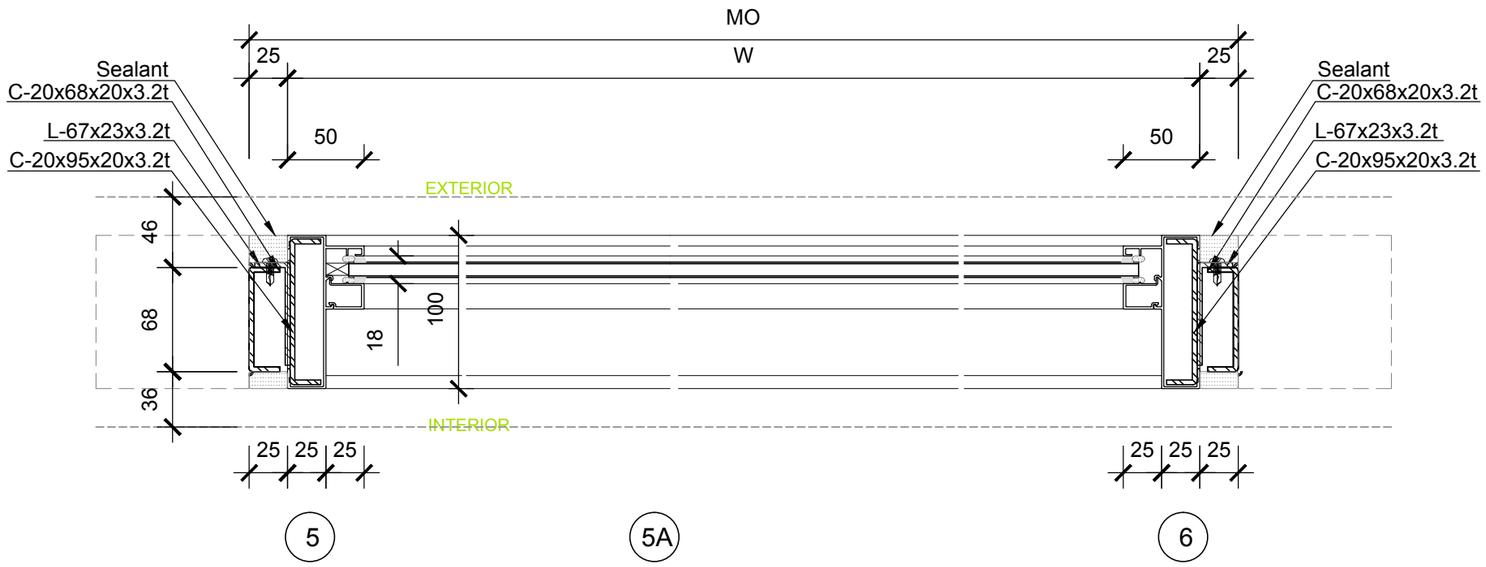
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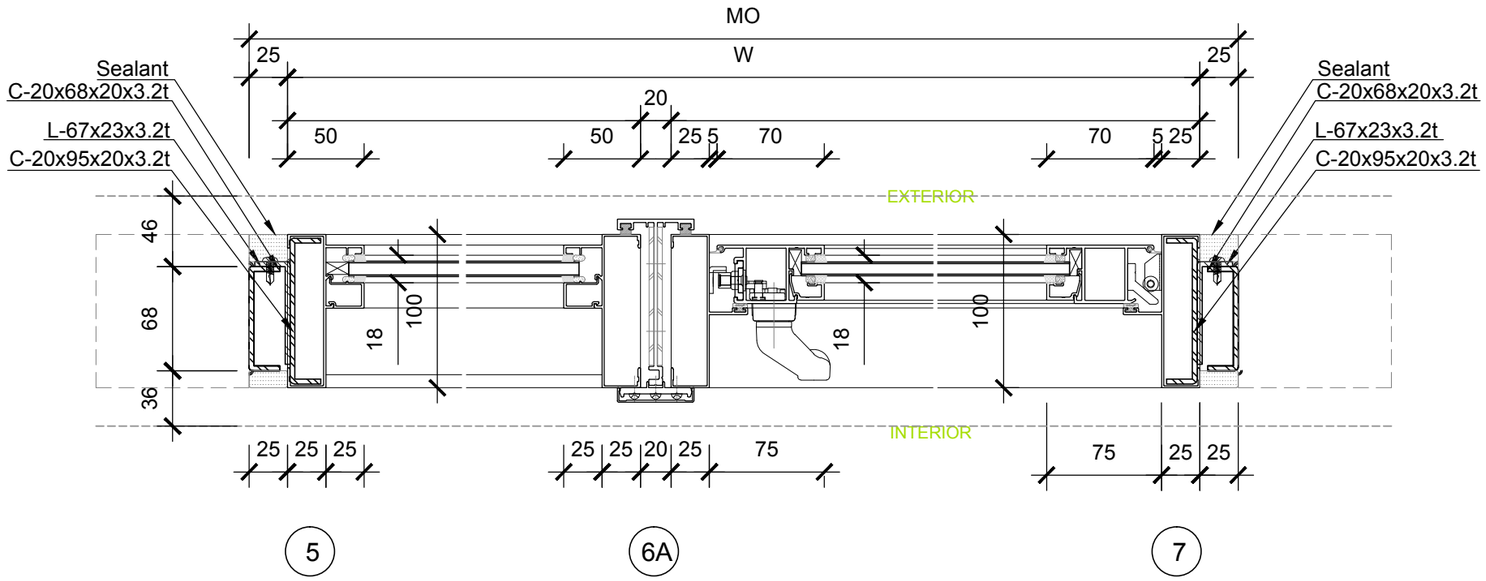
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Unit	mm

DWG. Title: WINDOW SCHEDULE AND DETAILS 5

DWG. No.: AR-305

PAGE: 42





0 0.05 0.1 0.2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

NCTU Architecture 國立交通大學建築研究所

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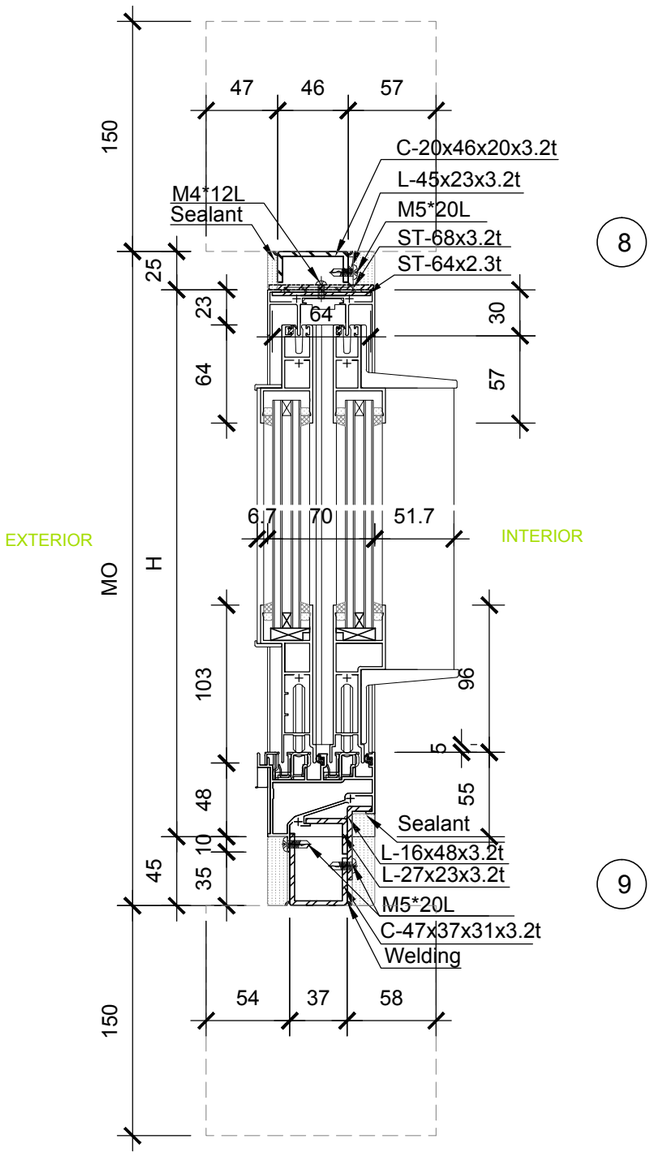
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ST	2014/04/30	CD Submission

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Scale	1:4
Unit	mm

DWG. Title

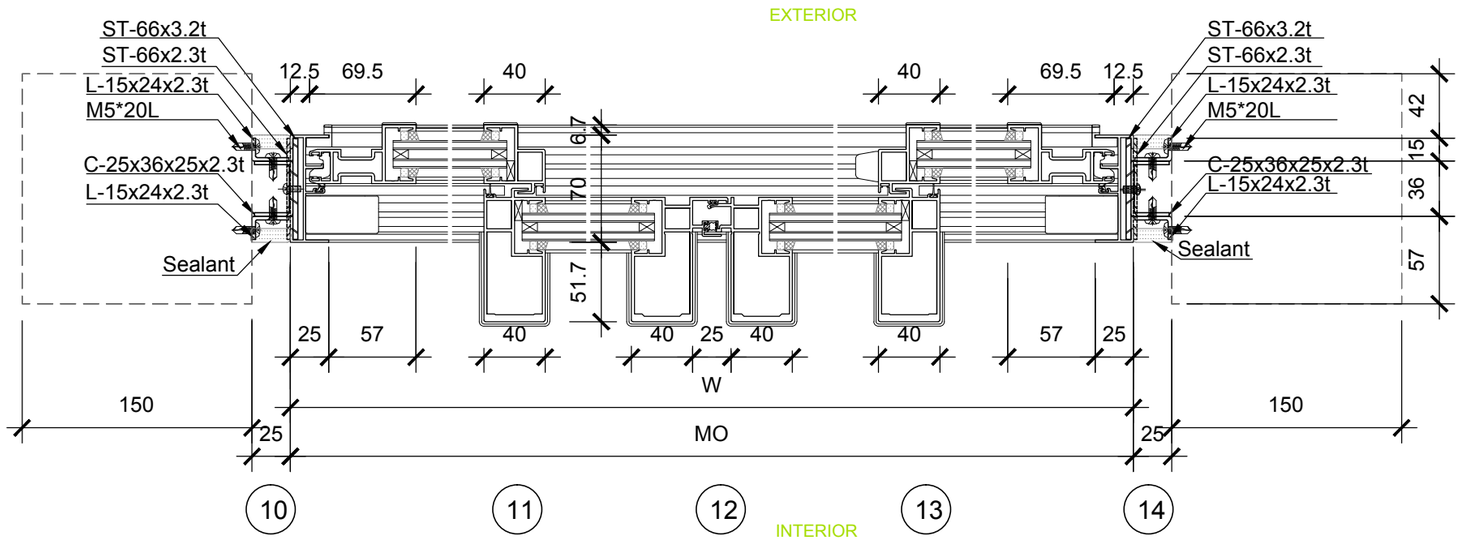
WINDOW SCHEDULE AND DETAILS 6

DWG. No.	PAGE
AR-306	43



8

9



0 0.05 0.1 0.2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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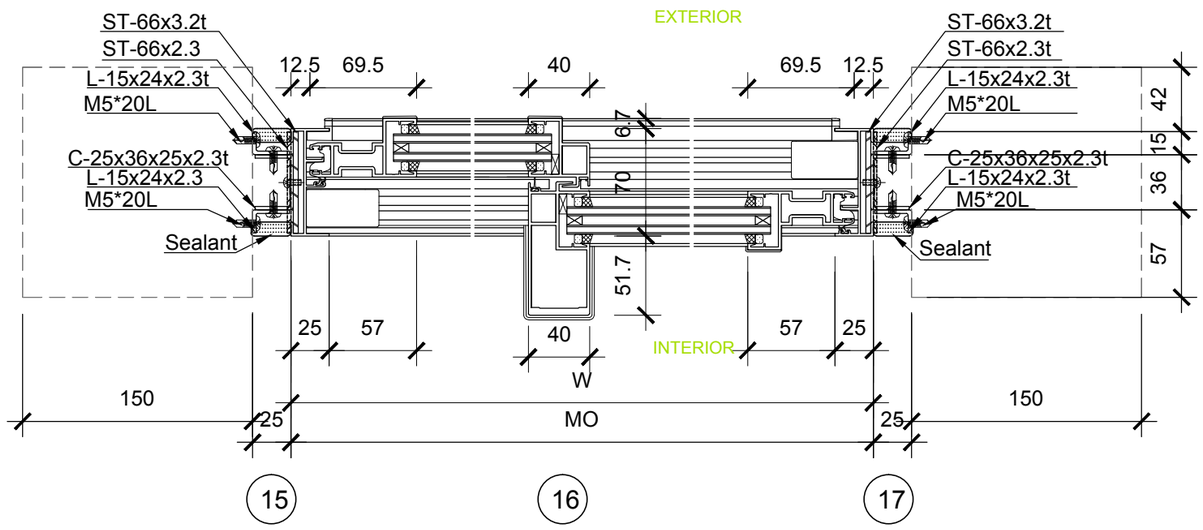
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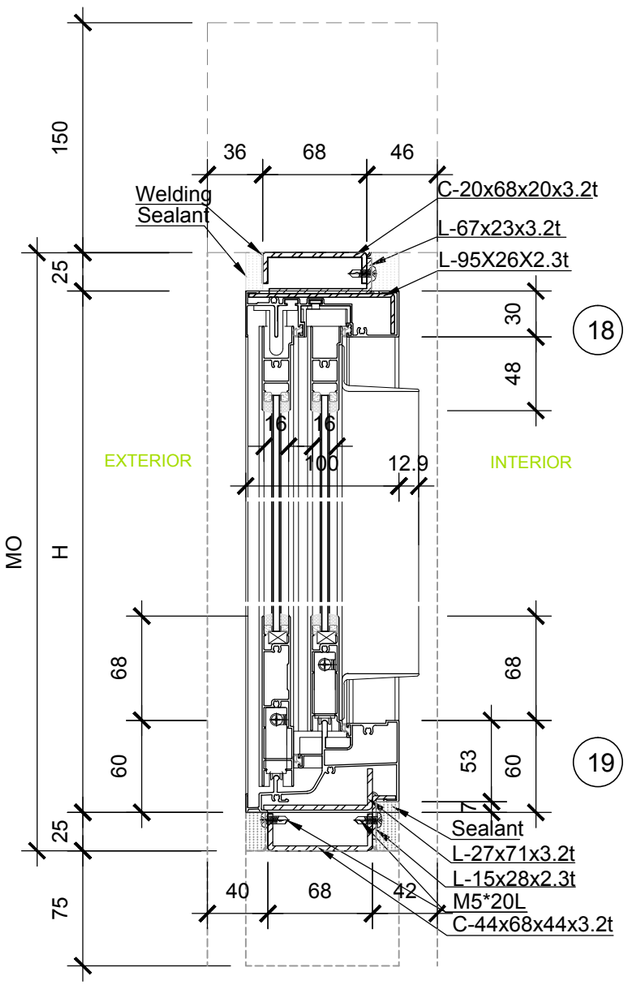
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Unit	mm

DWG. Title: WINDOW SCHEDULE AND DETAILS 7

DWG. No.: AR-307

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0 0.05 0.1 0.2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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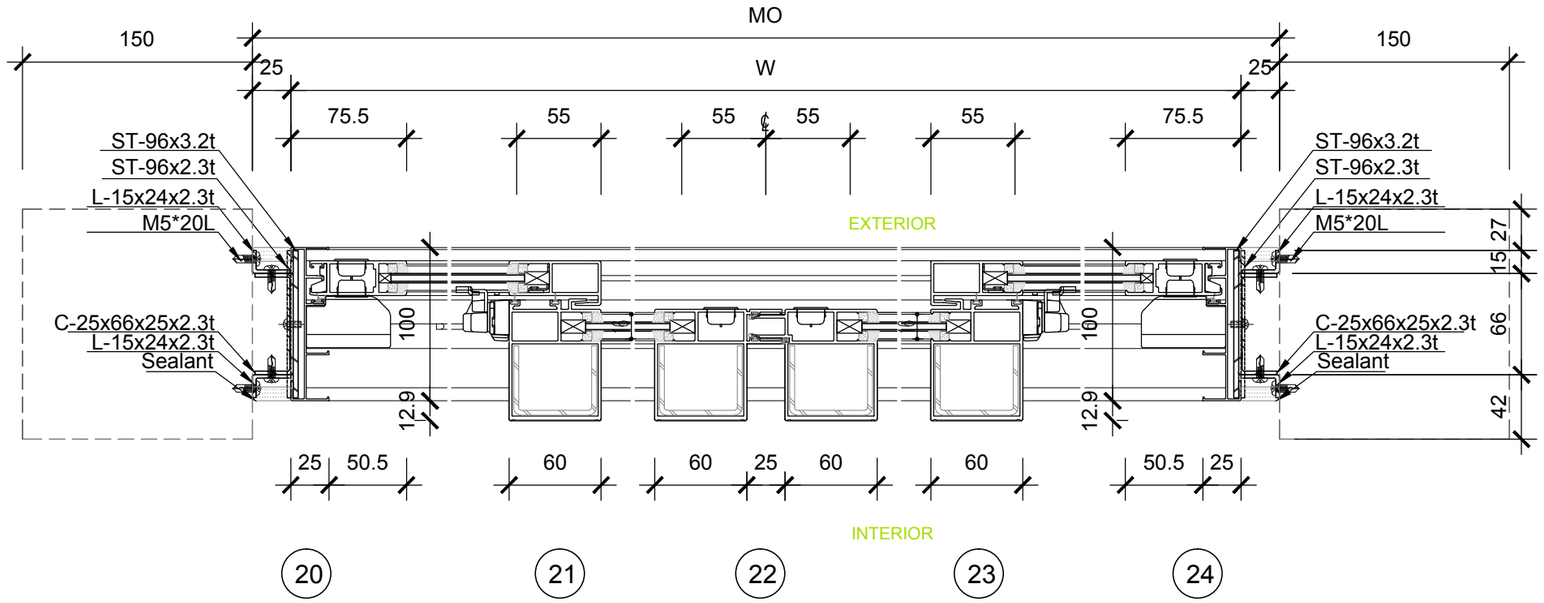
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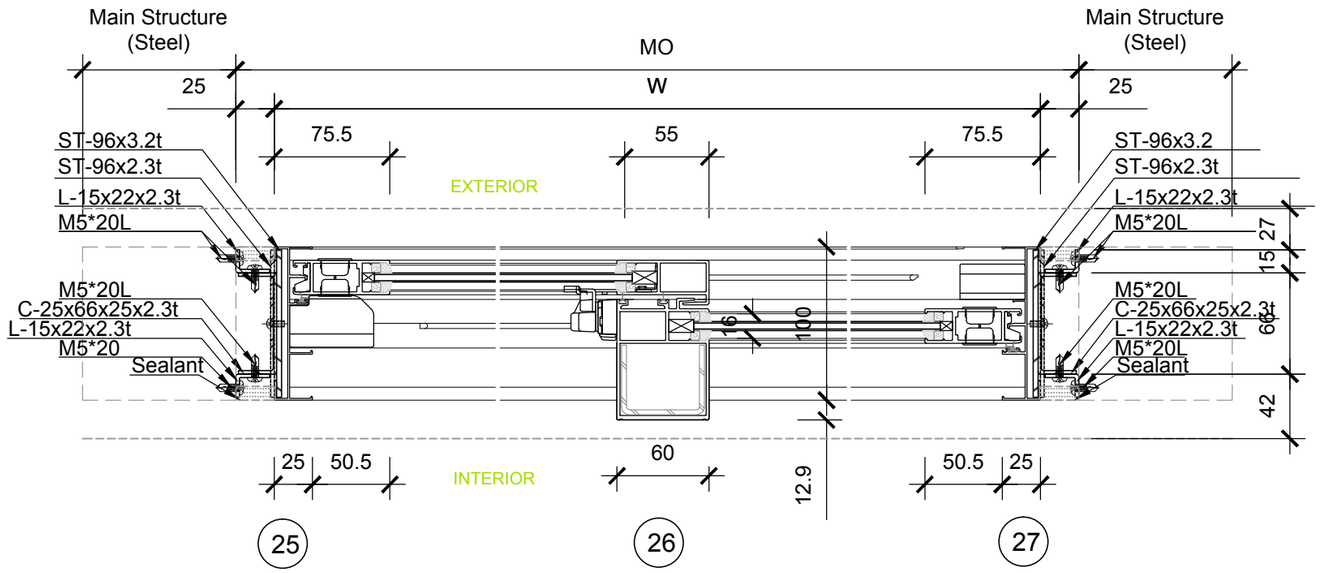
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Unit	mm

DWG. Title: WINDOW SCHEDULE AND DETAILS 8

DWG. No.: AR-308

PAGE: 45





0 0.05 0.1 0.2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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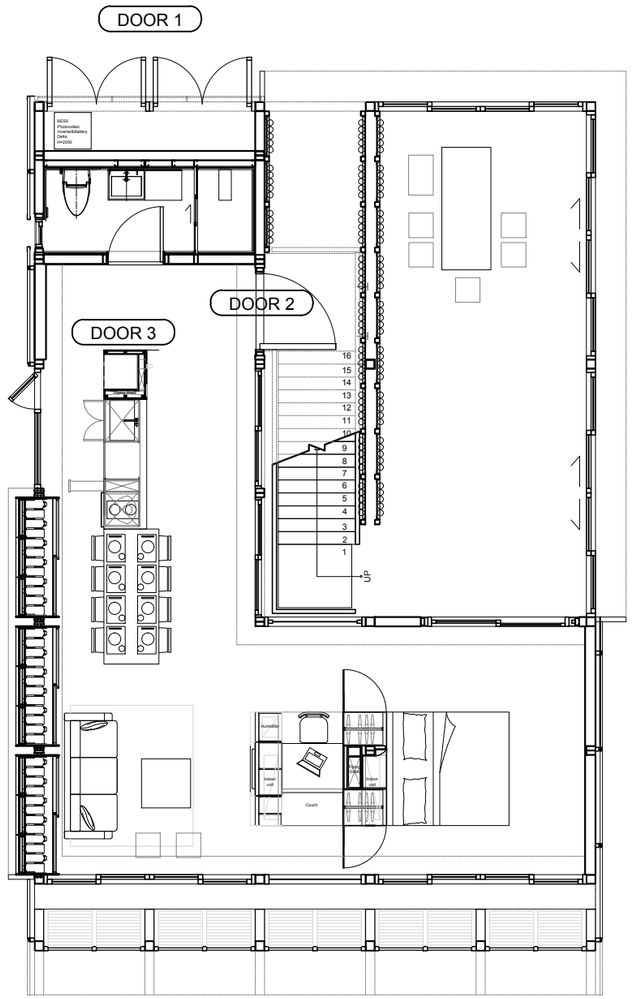
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DWG. Title

WINDOW SCHEDULE AND DETAILS 9

DWG. No. AR-309

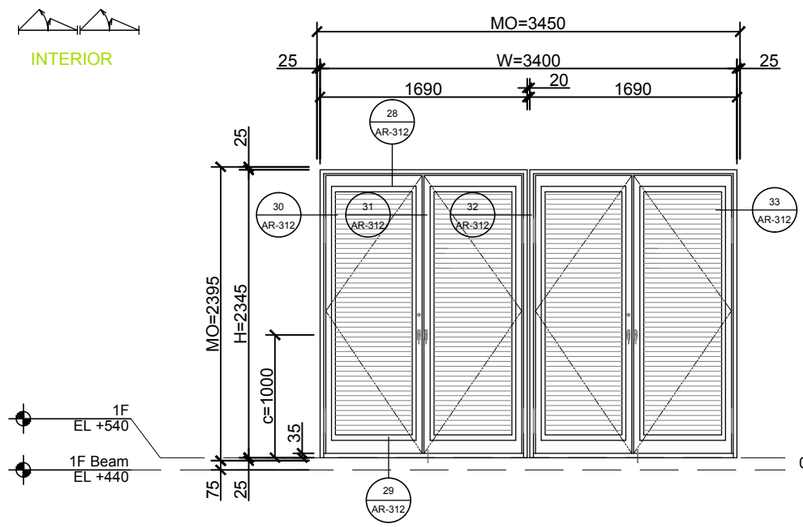
PAGE 46



0 1 2 5 METER

EXTERIOR

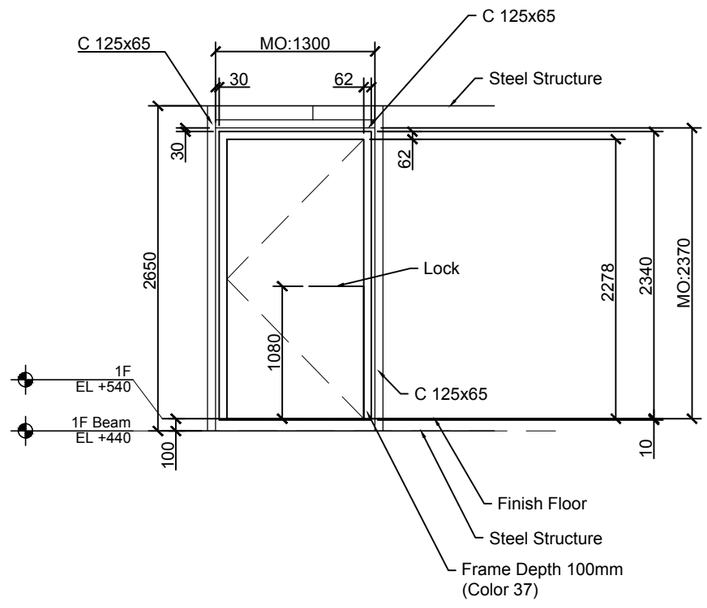
INTERIOR



DOOR 1

TYPE	HINGED
LOCATION	MECH RM
NOTE	FIRE RATED
MATERIAL	METEL GRILL

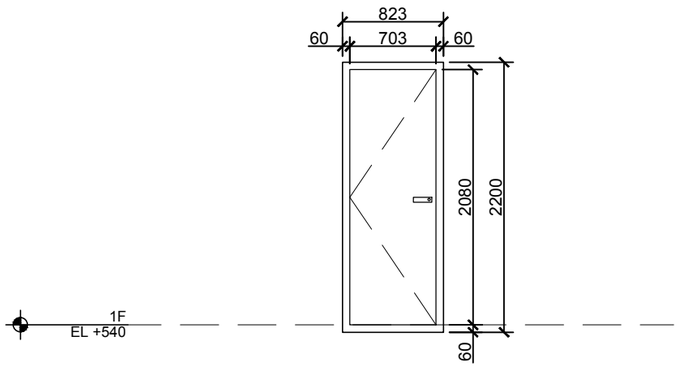
0 0.5 1 2 METER



DOOR 2

TYPE	HINGED
LOCATION	ENTRANCE
NOTE	FIRE RATED
MATERIAL	METEL+GLASS

0 0.5 1 2 METER



DOOR 3

TYPE	HINGED
LOCATION	BATH RM
NOTE	FIRE RATED
MATERIAL	WOOD

0 0.5 1 2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

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Note:

N

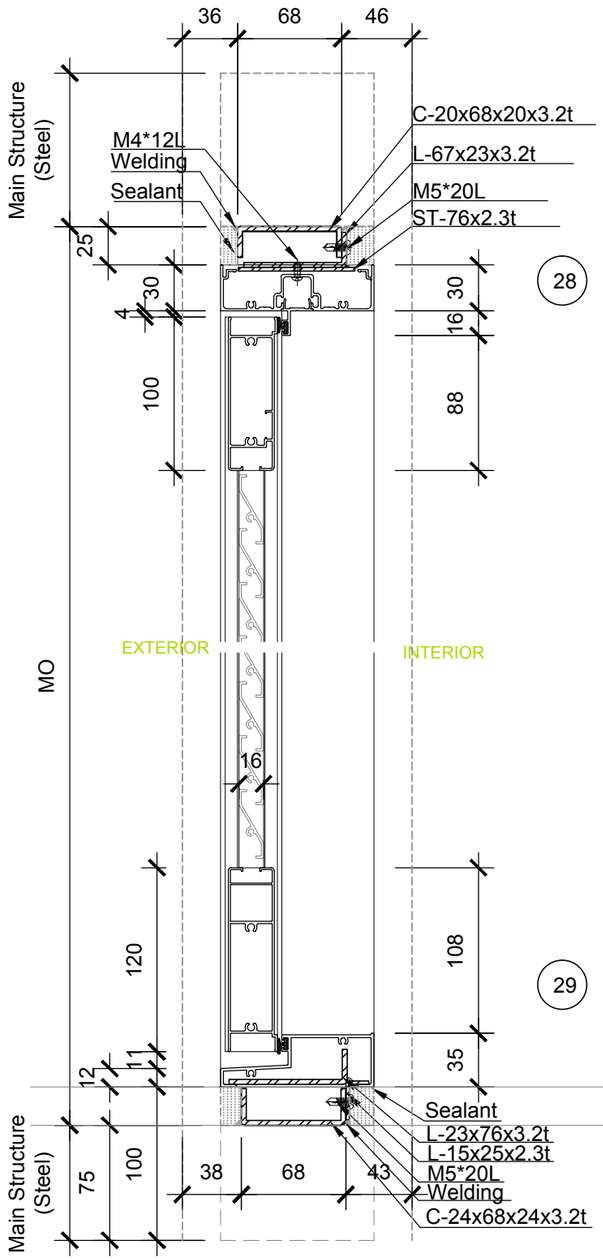
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ST	2014/04/30	CD Submission

Drawn by	CF
Checked by	DN
Scale	1:50
Unit	mm

DWG. Title

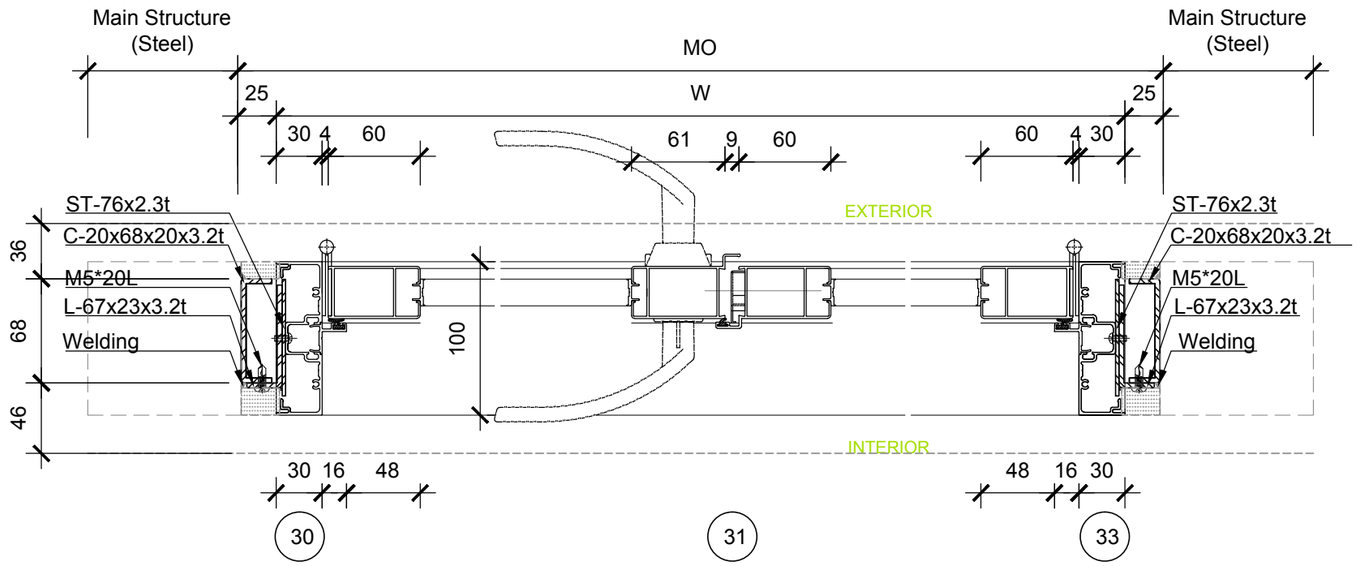
DOOR SCHEDULE AND DETAILS 1

DWG. No.	PAGE
AR-311	47



28

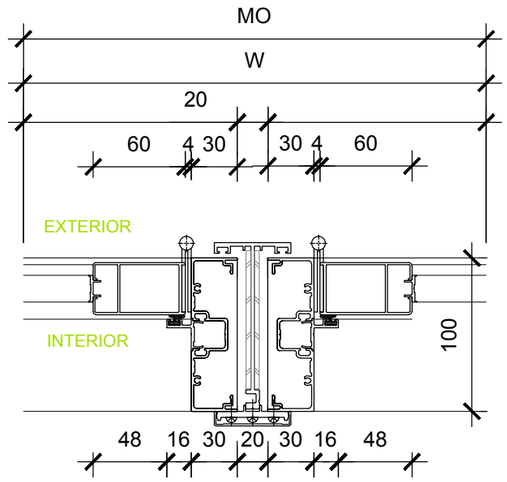
29



30

31

33



32

0 0.05 0.1 0.2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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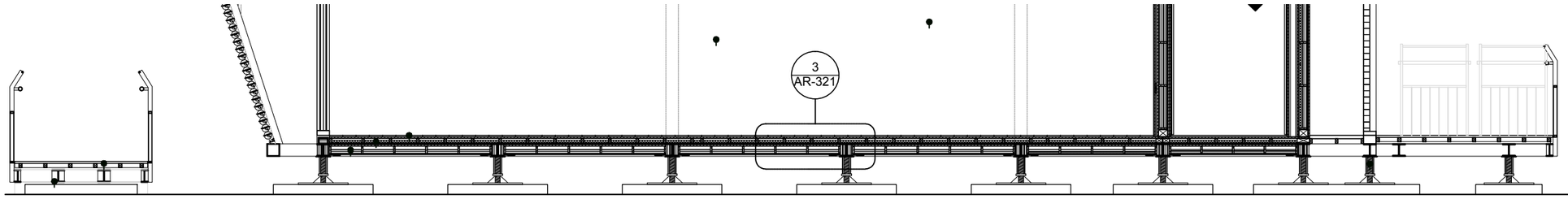
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Scale	1:4
Unit	mm

DWG. Title

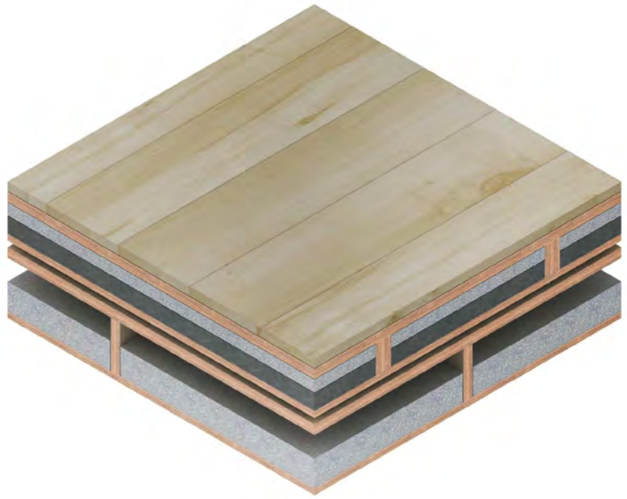
DOOR SCHEDULE AND DETAILS 2

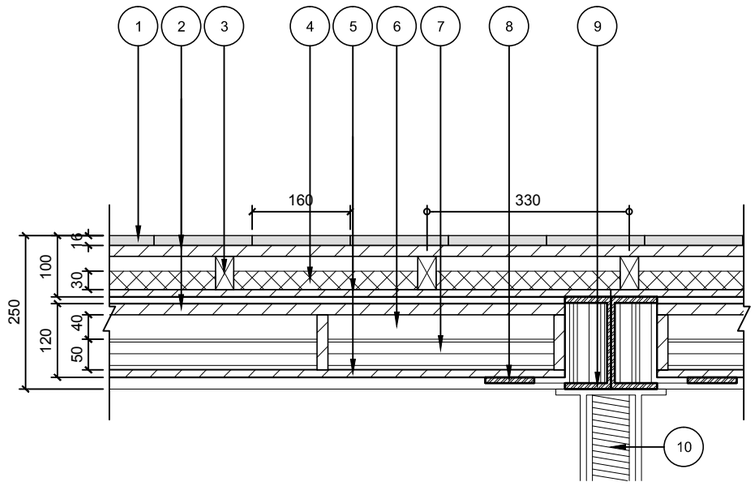
DWG. No.	PAGE
AR-312	48



0 1 2 5 METER

1





1. Finished Flooring 16mm
2. Plywood 18mm
3. Timber 30mm*54mm
4. Vacuum Insulation 30mm
5. Plywood 12mm
6. Air gap 40mm
7. E-foam 50mm
8. Floor supporting
9. Girder C-150x75 t=9.5mm
10. Footing

Thermal conductivity R = 7.7 (m^2K/W)

0 0.1 0.2 0.5 METER

4

3

Solar Decathlon Europe

Project: ORCHID HOUSE

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Note:

N

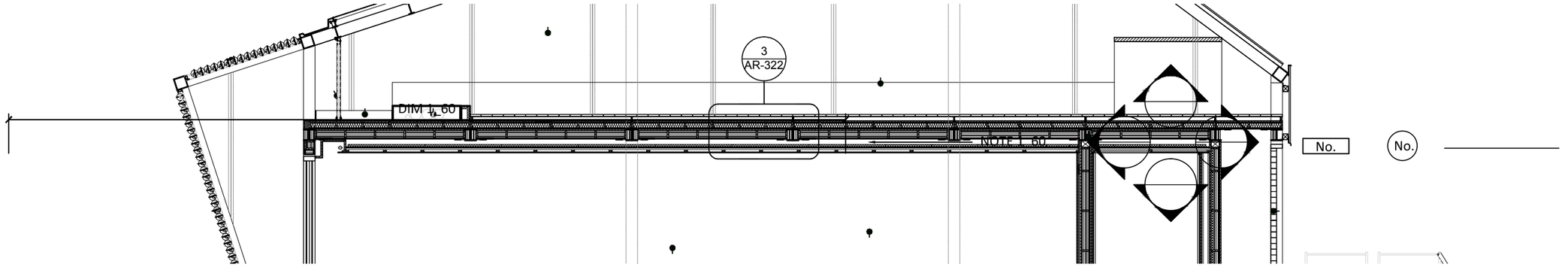
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	CH
Checked by	DN
Scale	1:10
Unit	mm

DWG. Title
FLOOR CONSTRUCTION GROUNDLEVEL

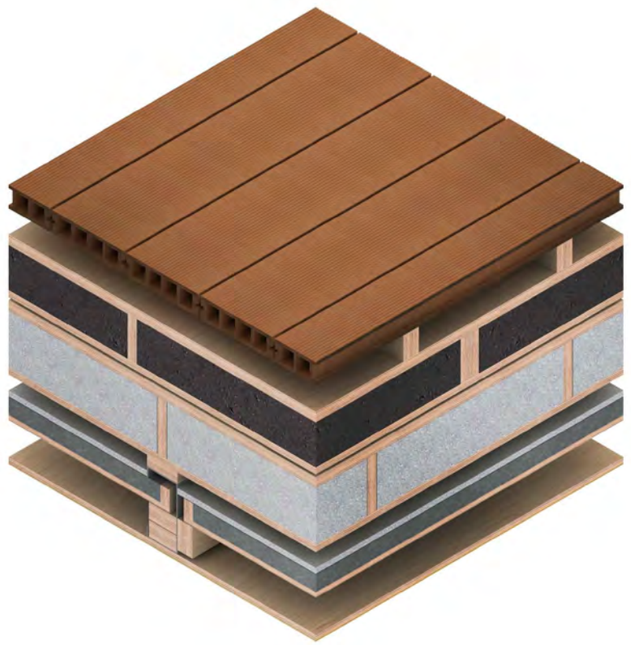
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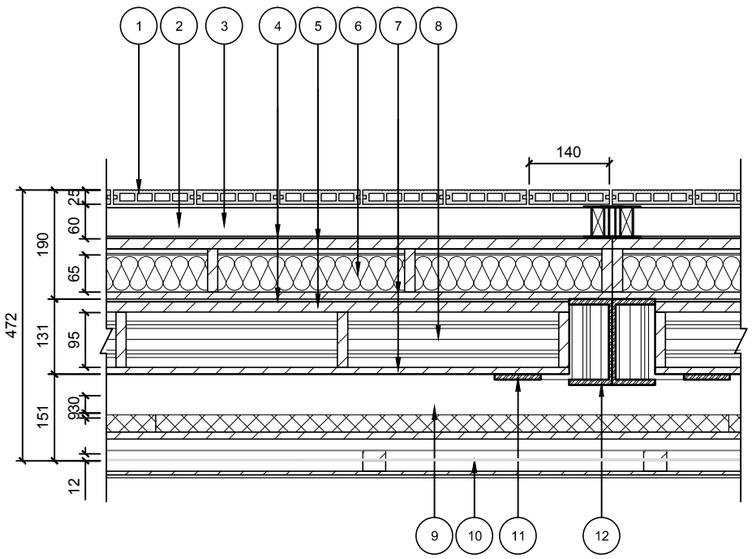
PAGE 49



0 1 2 5 METER

1





1. Wood Plastic Composites 40mm
2. Timber 30mm*44mm
3. Air gap 44mm
4. Water proving 2mm
5. Plywood 18mm
6. Glass foam 65mm
7. Plywood 12mm
8. E-foam 95mm
9. Vacuum Insulation 30mm
10. Ceiling 12mm
11. Floor supporting
12. Girder C-150x75 t=9.5mm

Thermal conductivity R = 13.7 (m²K/W)

0 0.1 0.2 0.5 METER

4

3

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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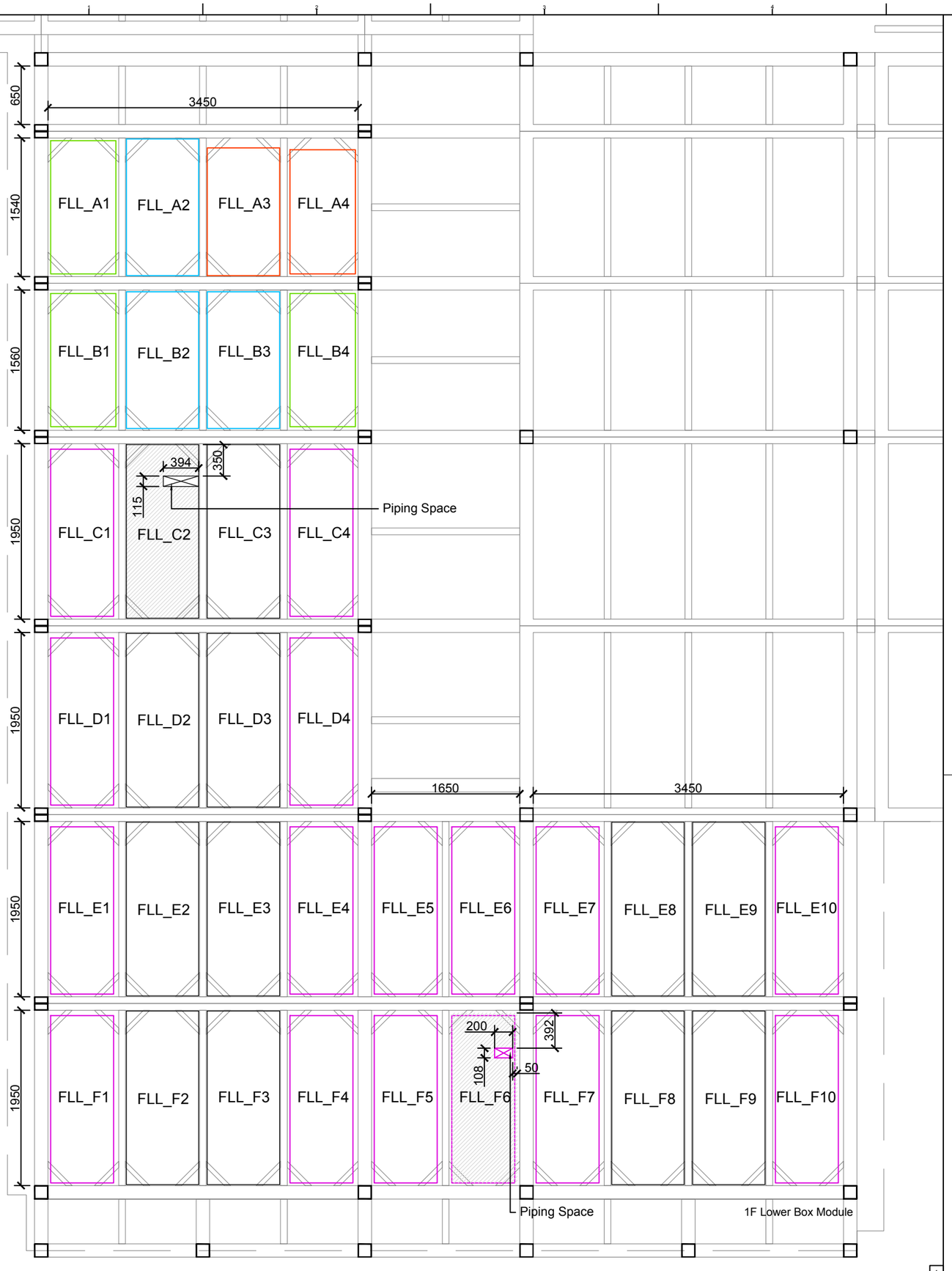
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ST	2014/04/30	CD Submission

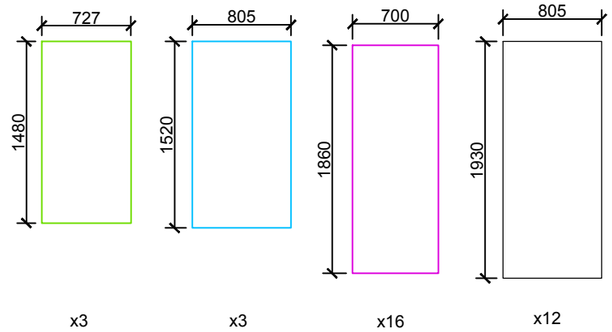
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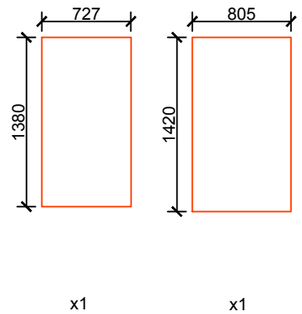
DWG. Title
FLOOR CONSTRUCTION
MEZZANINE LEVEL

DWG. No. AR-322

PAGE 50







Special Module

0 0.5 1 2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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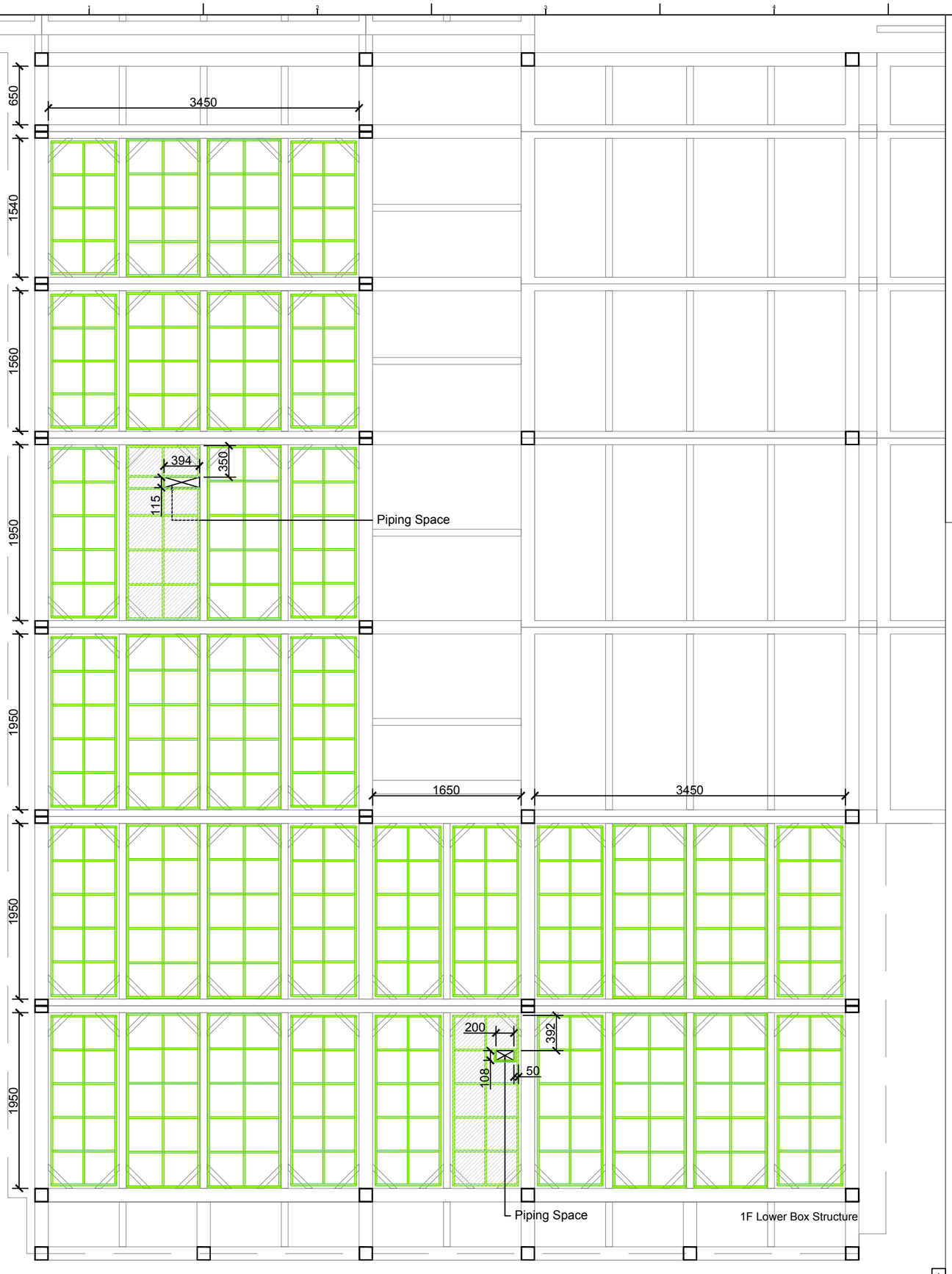
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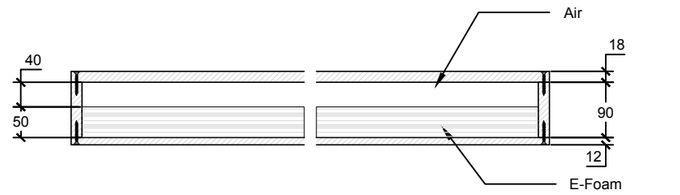
Drawn by	CF
Checked by	ST
Scale	1:50
Unit	mm

DWG. Title
FLOOR CONSTRUCTION DETAILS GROUND LEVEL1

DWG. No. AR-323

PAGE 51







Special Module



Solar Decathlon Europe

Project: ORCHID HOUSE

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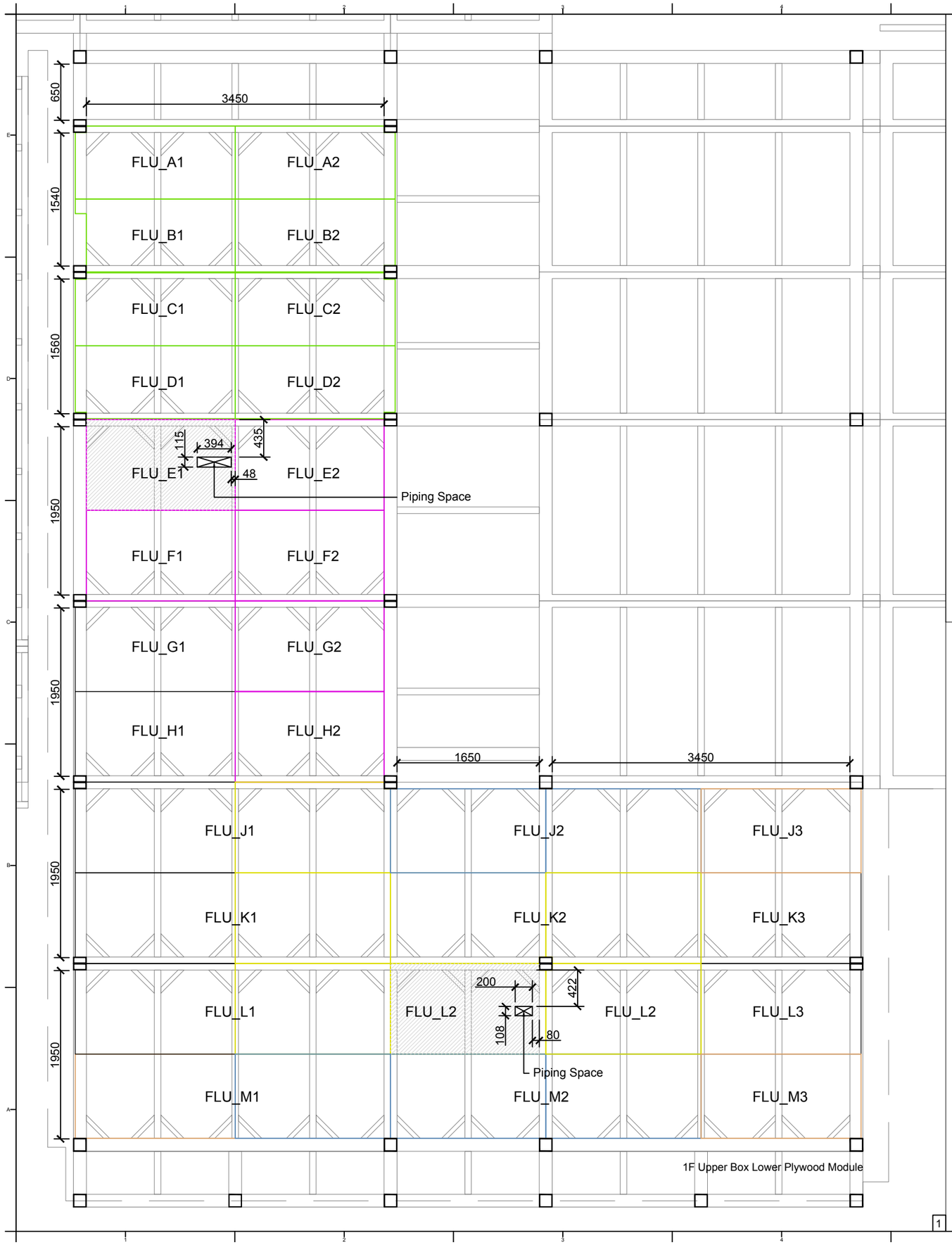
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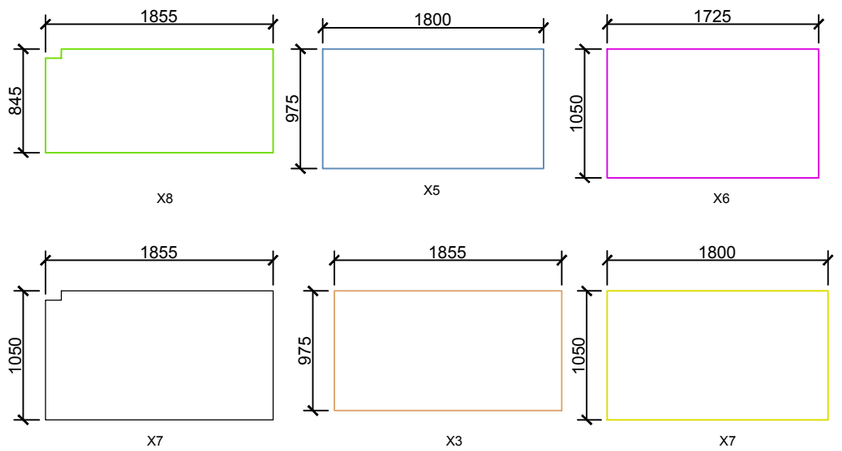
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Scale	1:50
Unit	mm

DWG. Title

FLOOR CONSTRUCTION DETAILS GROUND LEVEL 2

DWG. No.	PAGE
AR-324	52





Special Module

0 0.5 1 2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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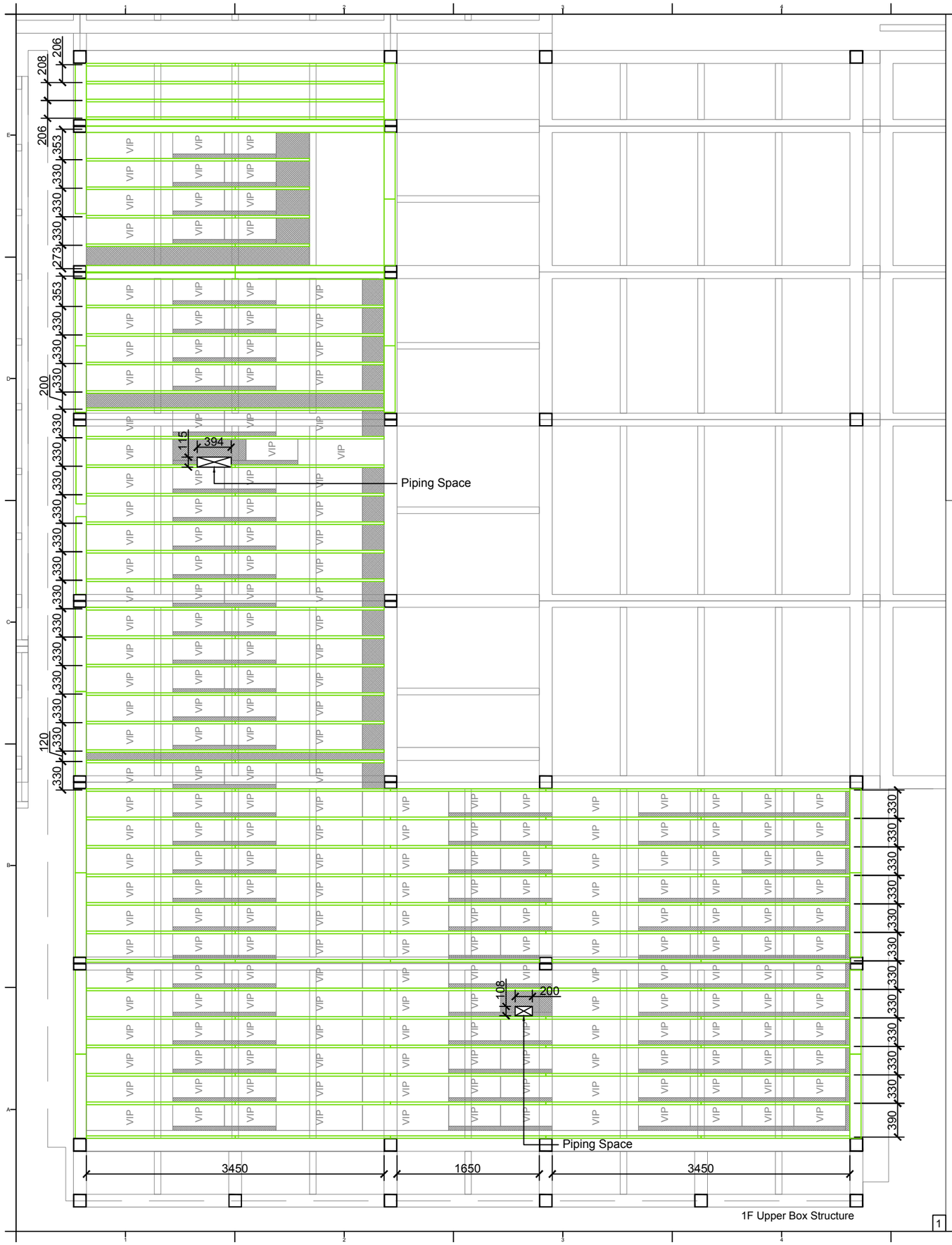
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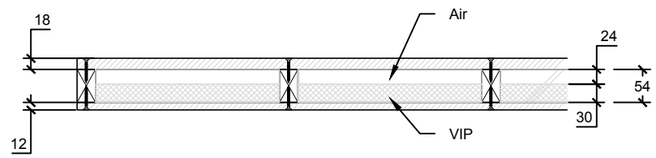
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Checked by	ST
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Unit	mm

DWG. Title: FLOOR CONSTRUCTION DETAILS GROUND LEVEL 3

DWG. No. AR-325

PAGE 53







2



1

Solar Decathlon Europe

Project:

ORCHID HOUSE

Institution:

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Consultants:

Note:

N

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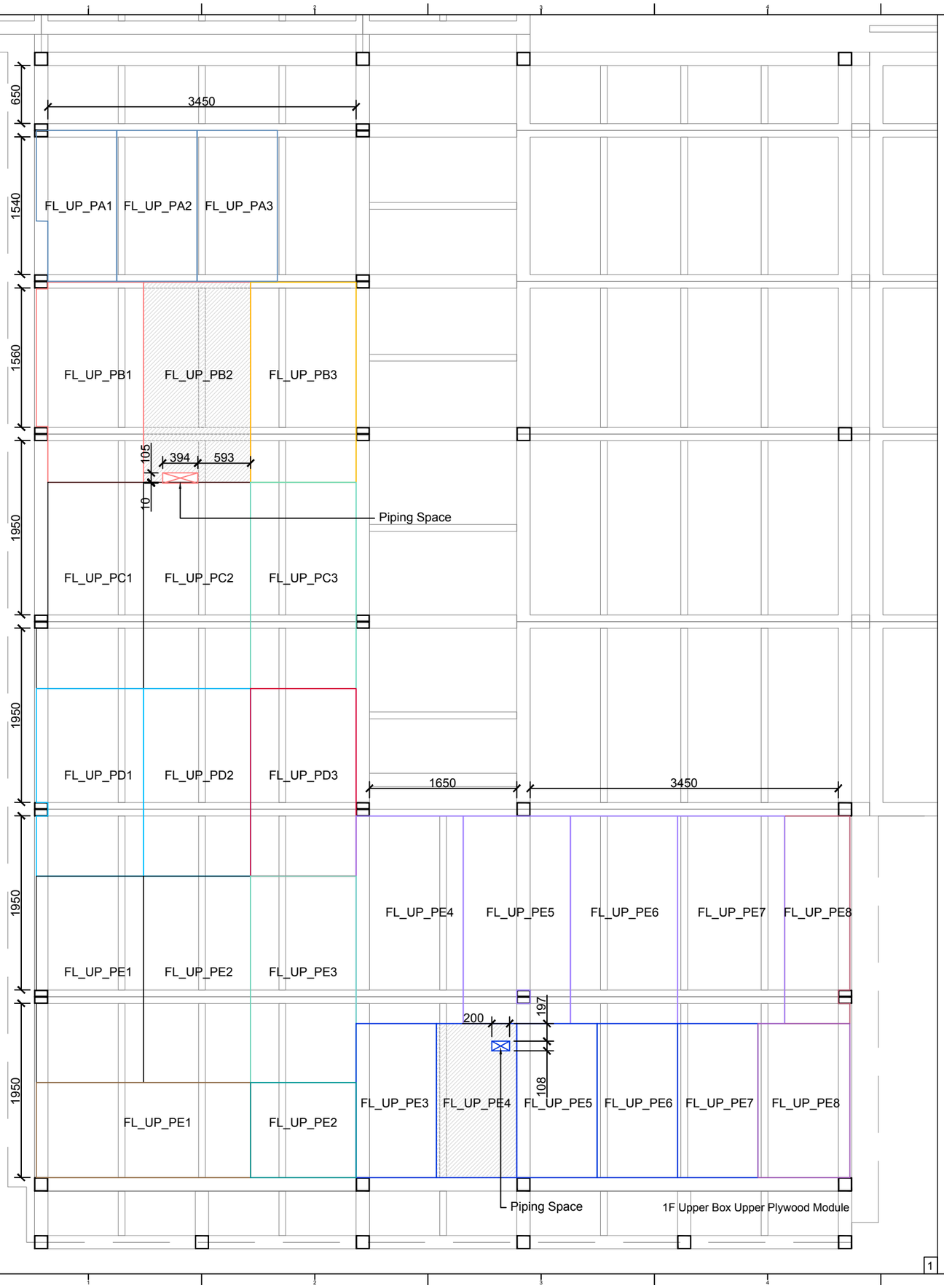
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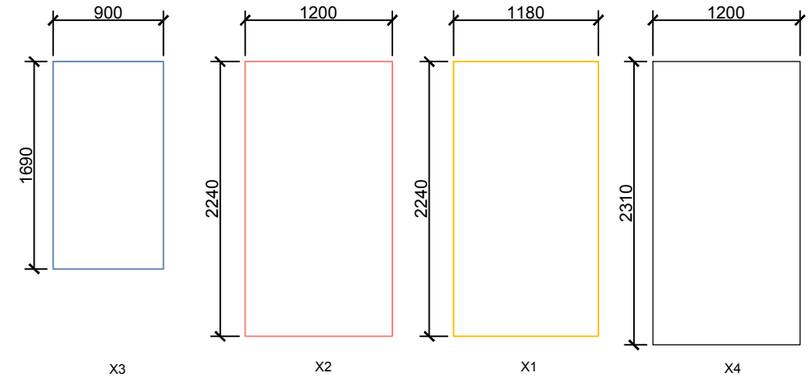
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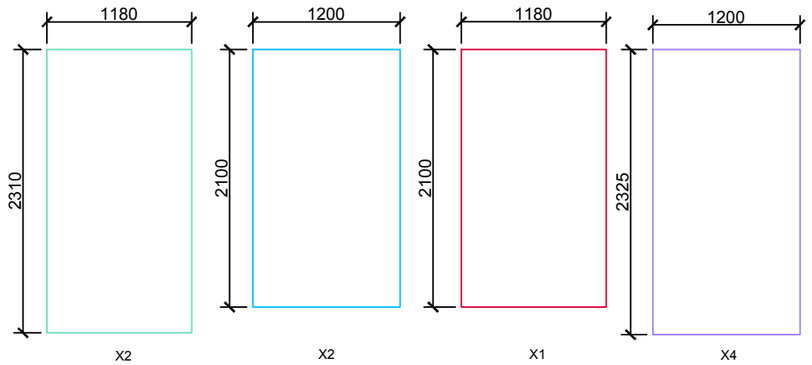
FLOOR CONSTRUCTION DETAILS
GROUND LEVEL 4

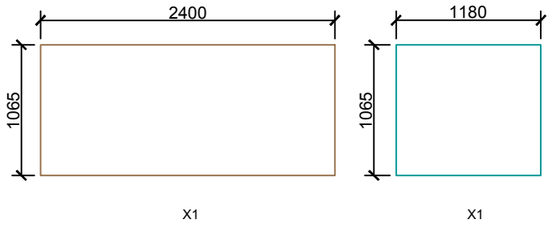
DWG. No. AR-326

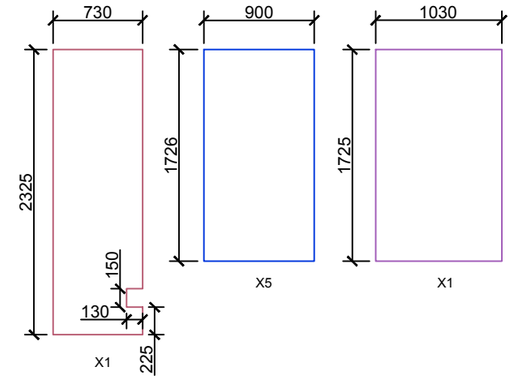
PAGE 54











Special Module

0 1 2 5 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

NCTU Architecture 國立交通大學建築研究所

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Consultants:

Note:

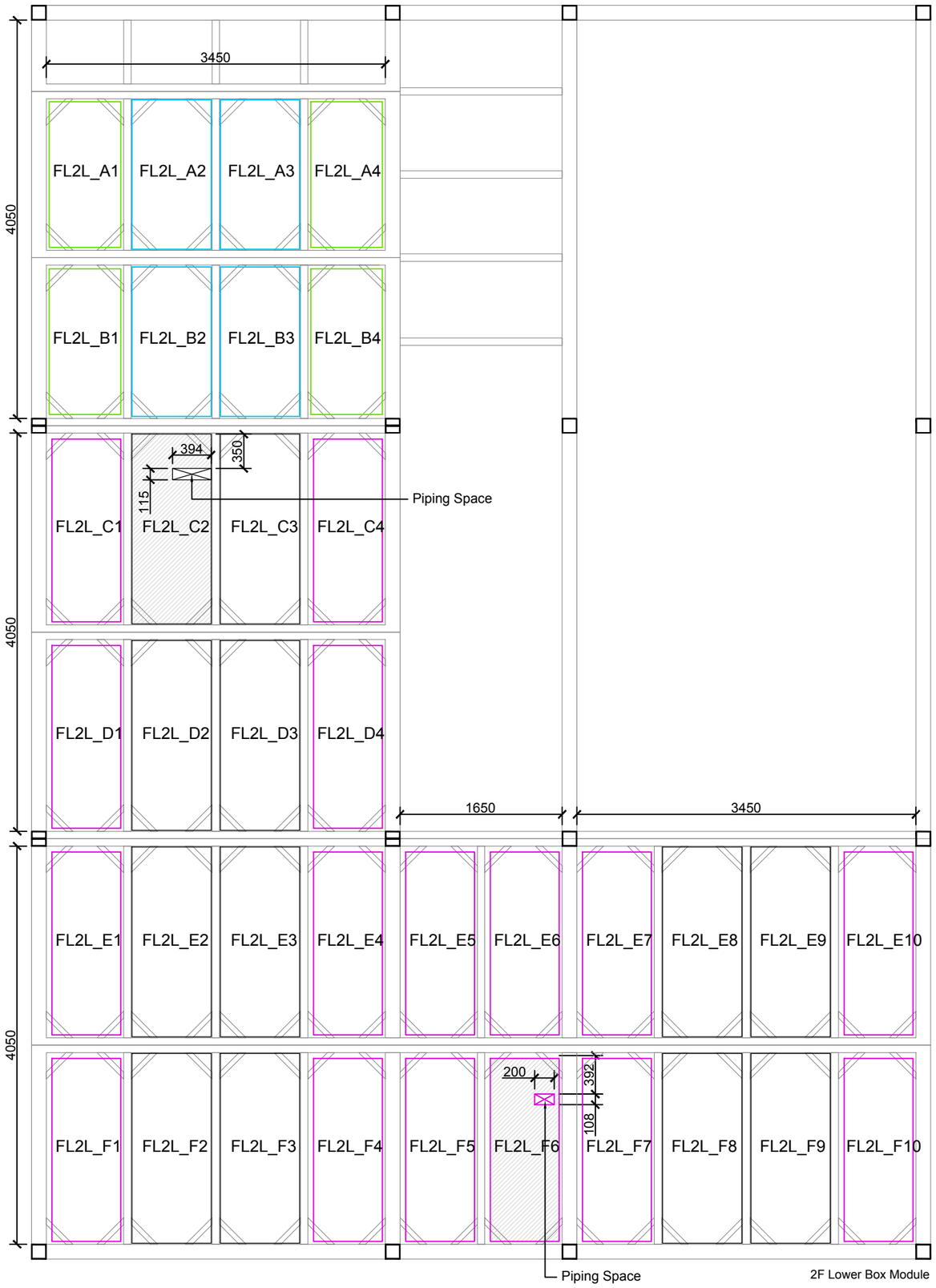
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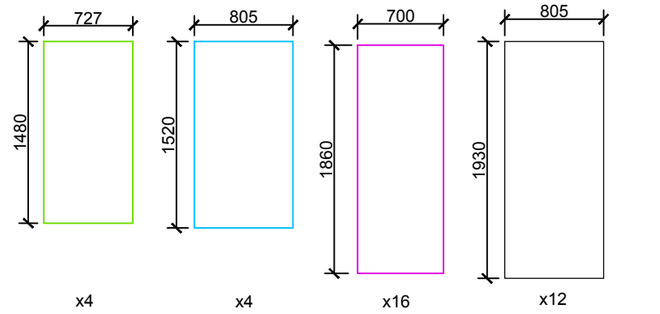
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Unit	mm

DWG. Title

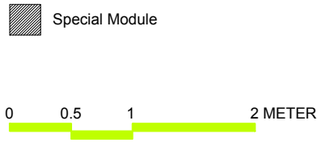
FLOOR CONSTRUCTION DETAILS GROUND LEVEL 5

DWG. No.	PAGE
AR-327	55









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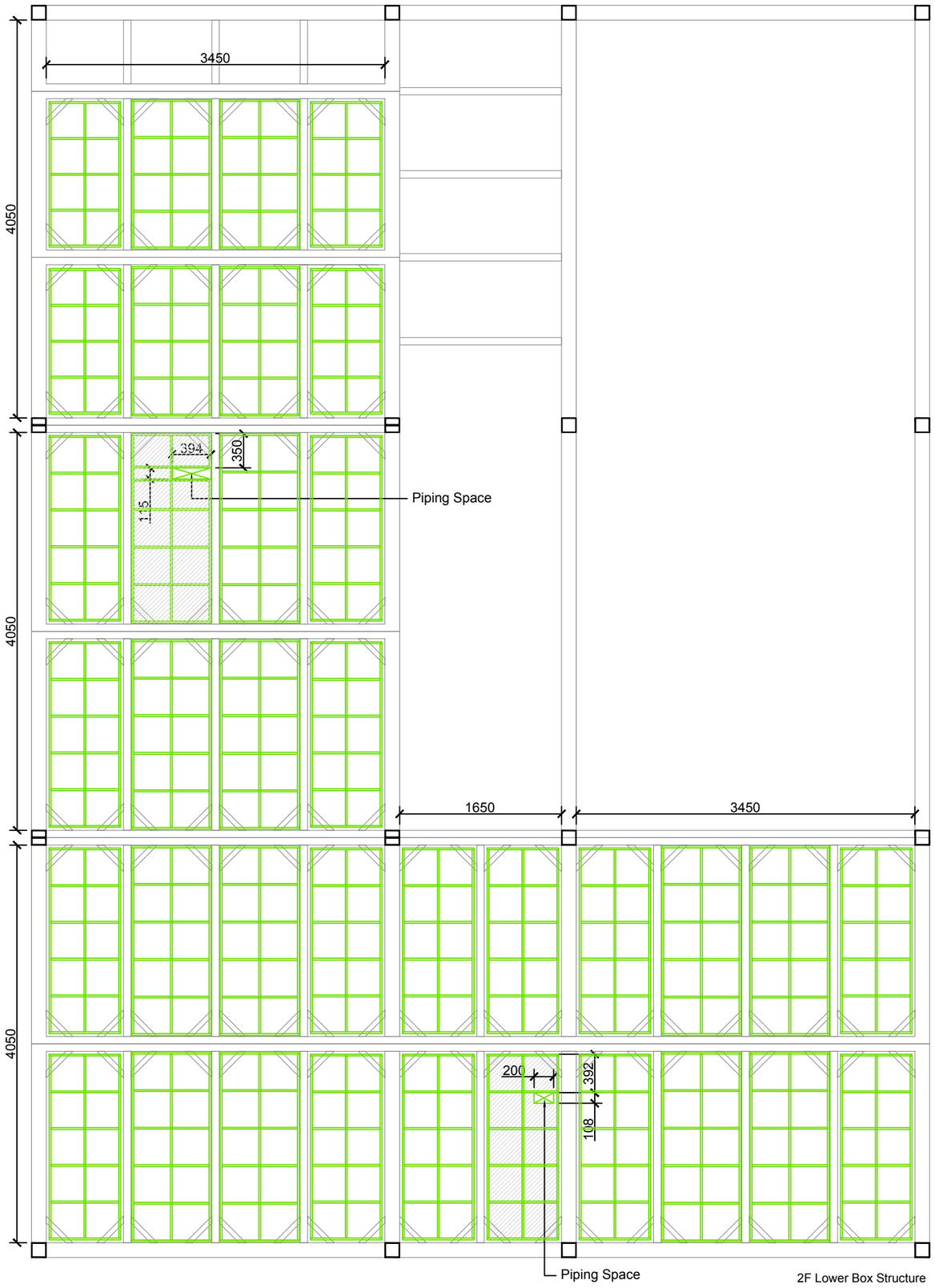
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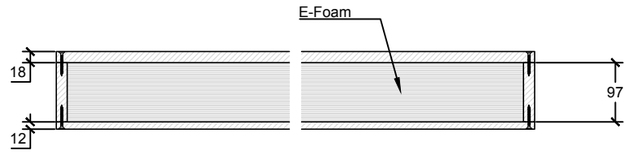
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DWG. Title
FLOOR CONSTRUCTION DETAILS
MEZZANINE LEVEL 1

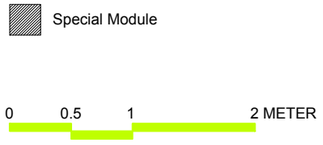
DWG. No. AR-328

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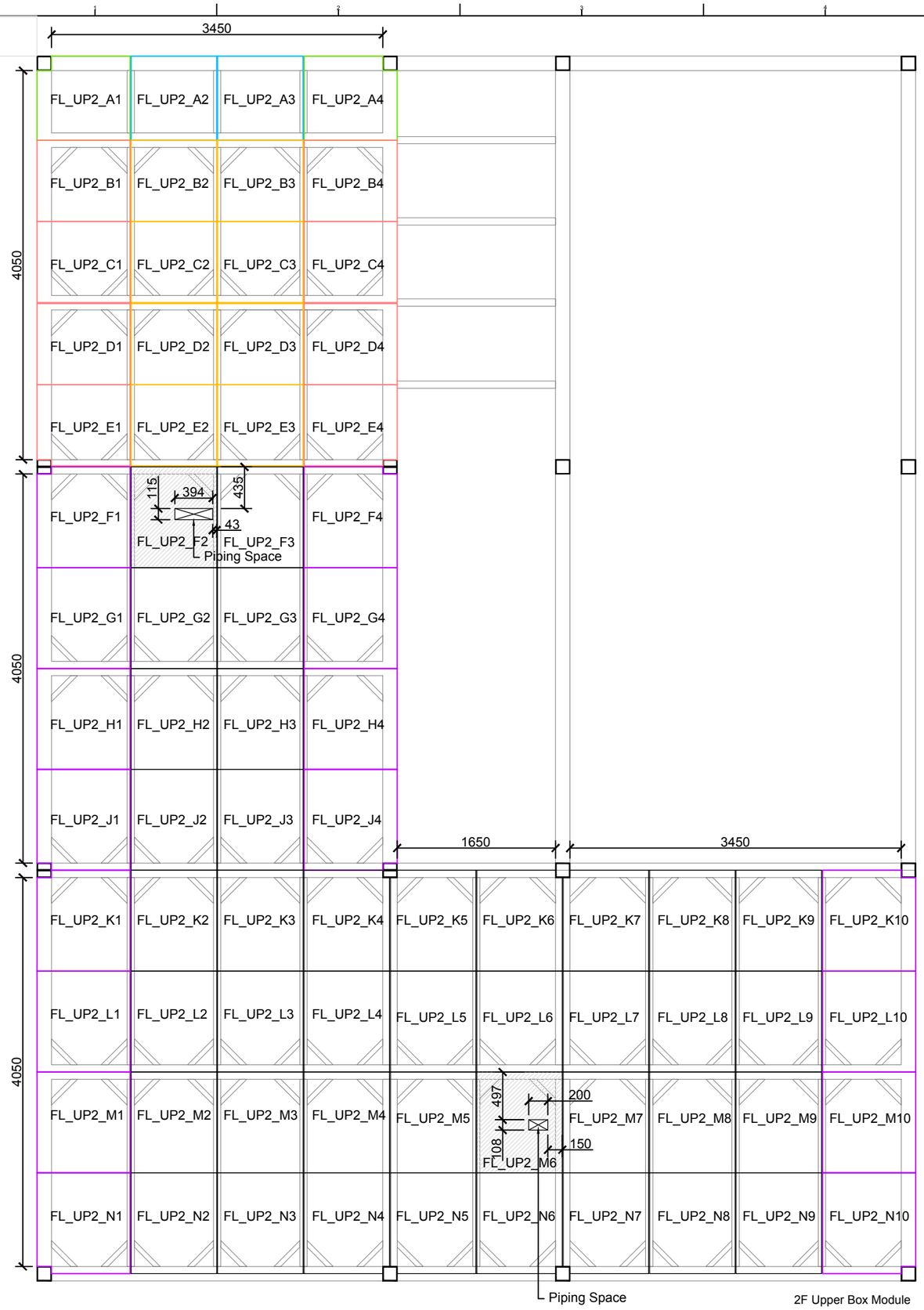
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ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Checked by	ST
Scale	1:50
Unit	mm

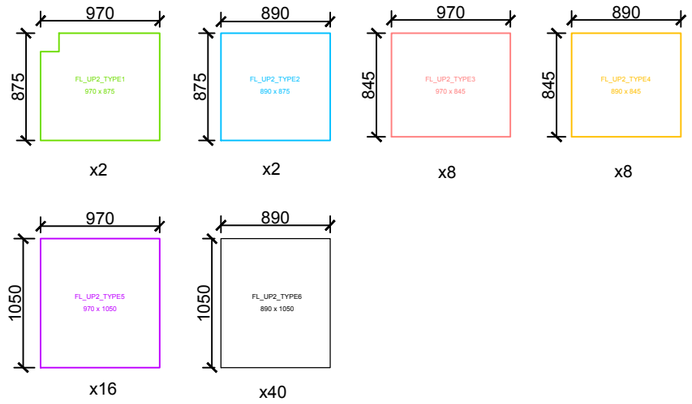
DWG. Title
FLOOR CONSTRUCTION DETAILS
MEZZANINE LEVEL 2

DWG. No. AR-329

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2F Upper Box Module



Special Module

0 0.5 1 2 METER

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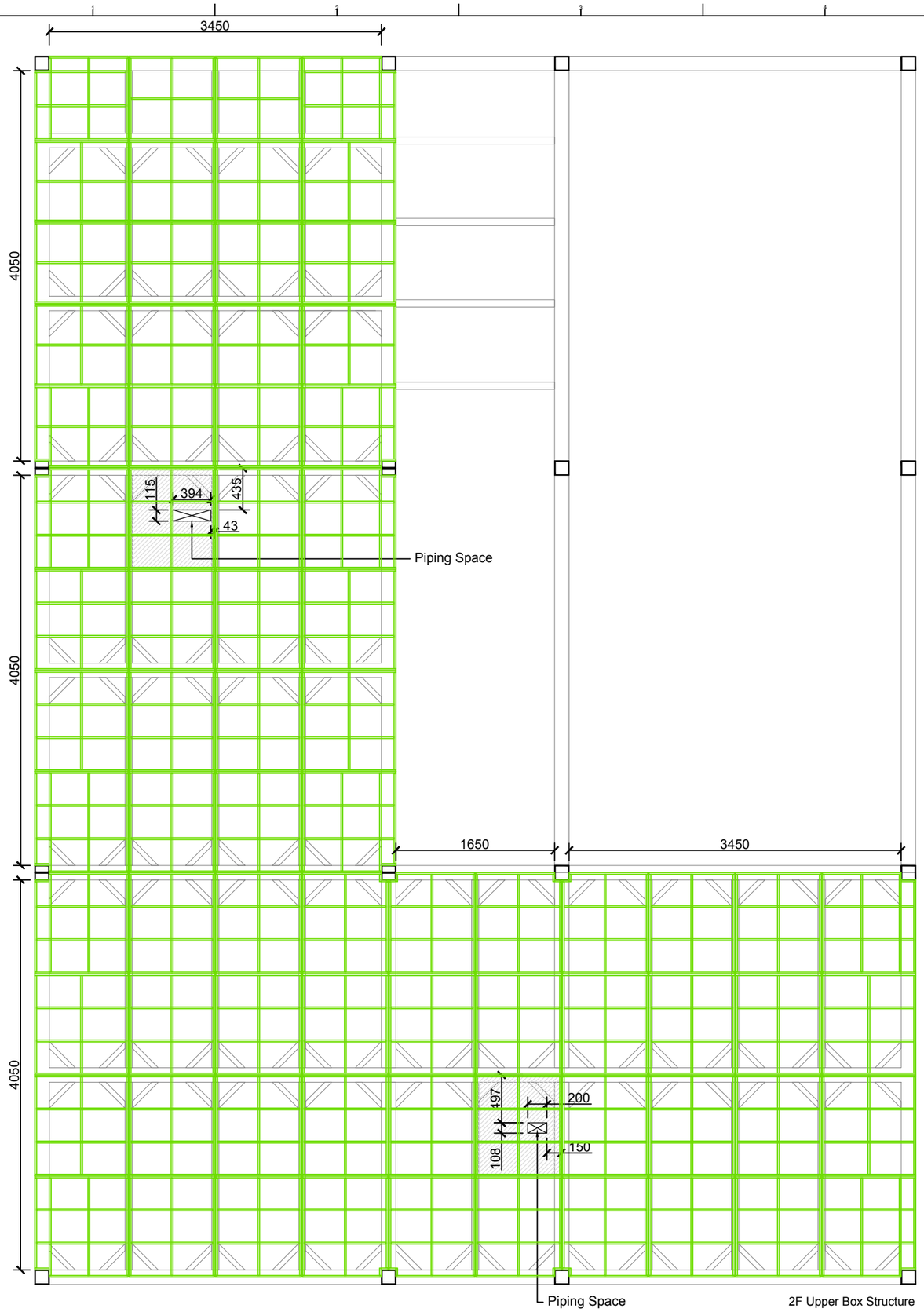
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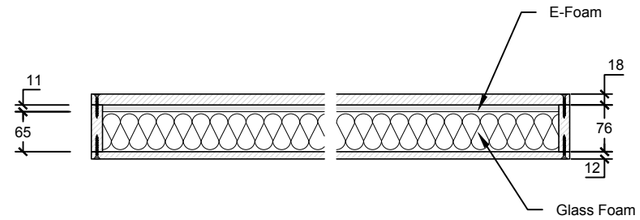
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Unit	mm

DWG. Title

FLOOR CONSTRUCTION DETAILS
MEZZANINE LEVEL 3

DWG. No.	PAGE
AR-330	58





0 0.1 0.2 0.5 METER

2

Special Module

0 0.5 1 2 METER

1

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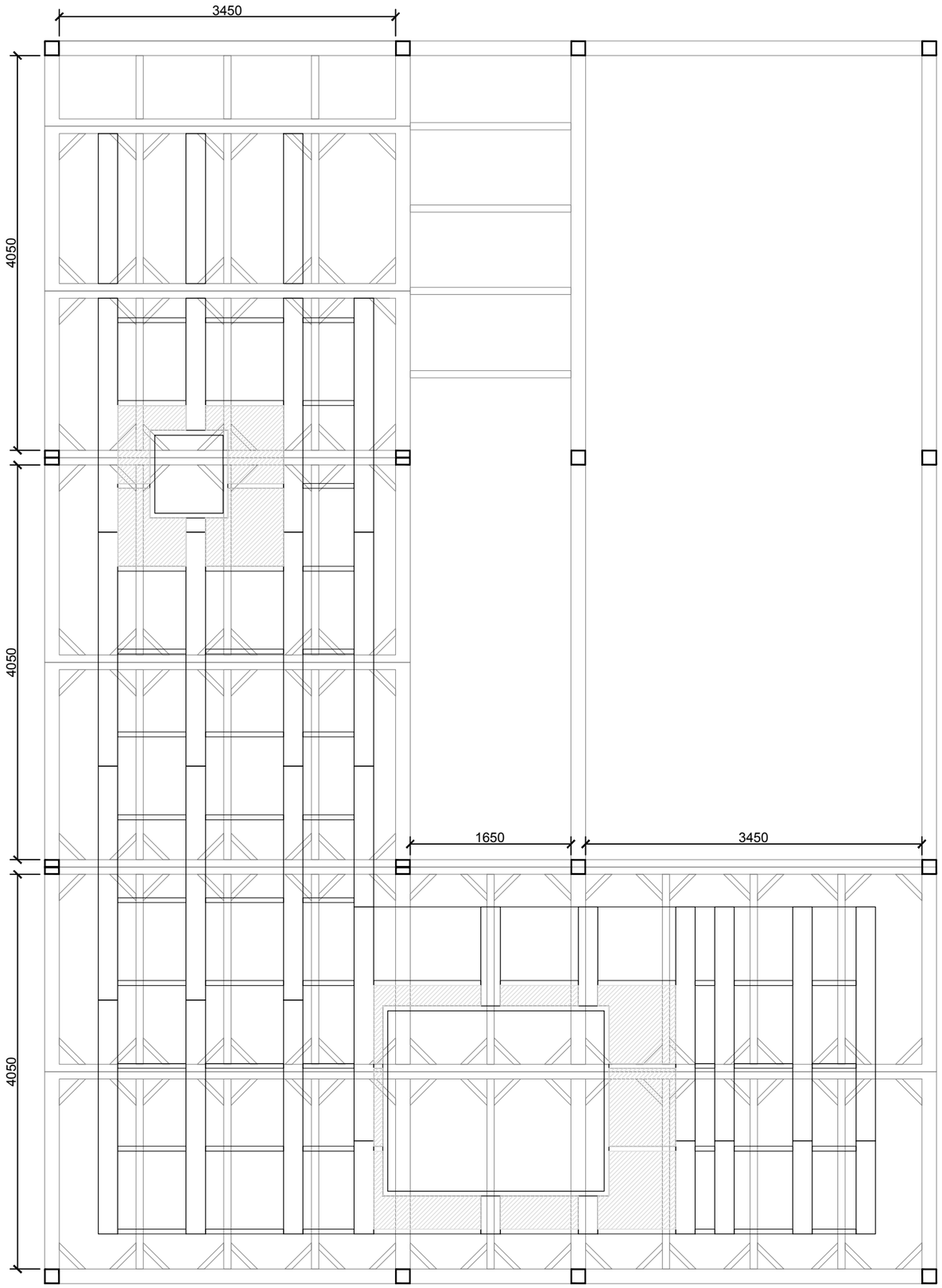
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Unit	mm

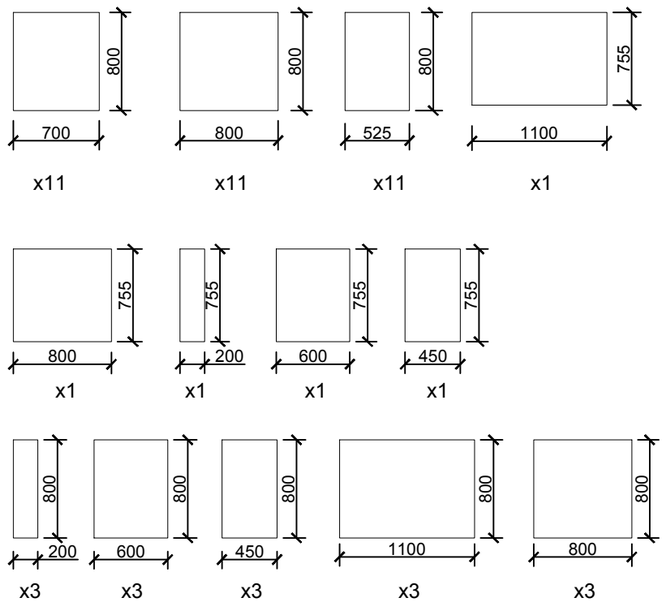
DWG. Title
FLOOR CONSTRUCTION DETAILS

DWG. No. AR-331

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Ceiling Structure and Module



Special Module

0 0.5 1 2 METER

2

1

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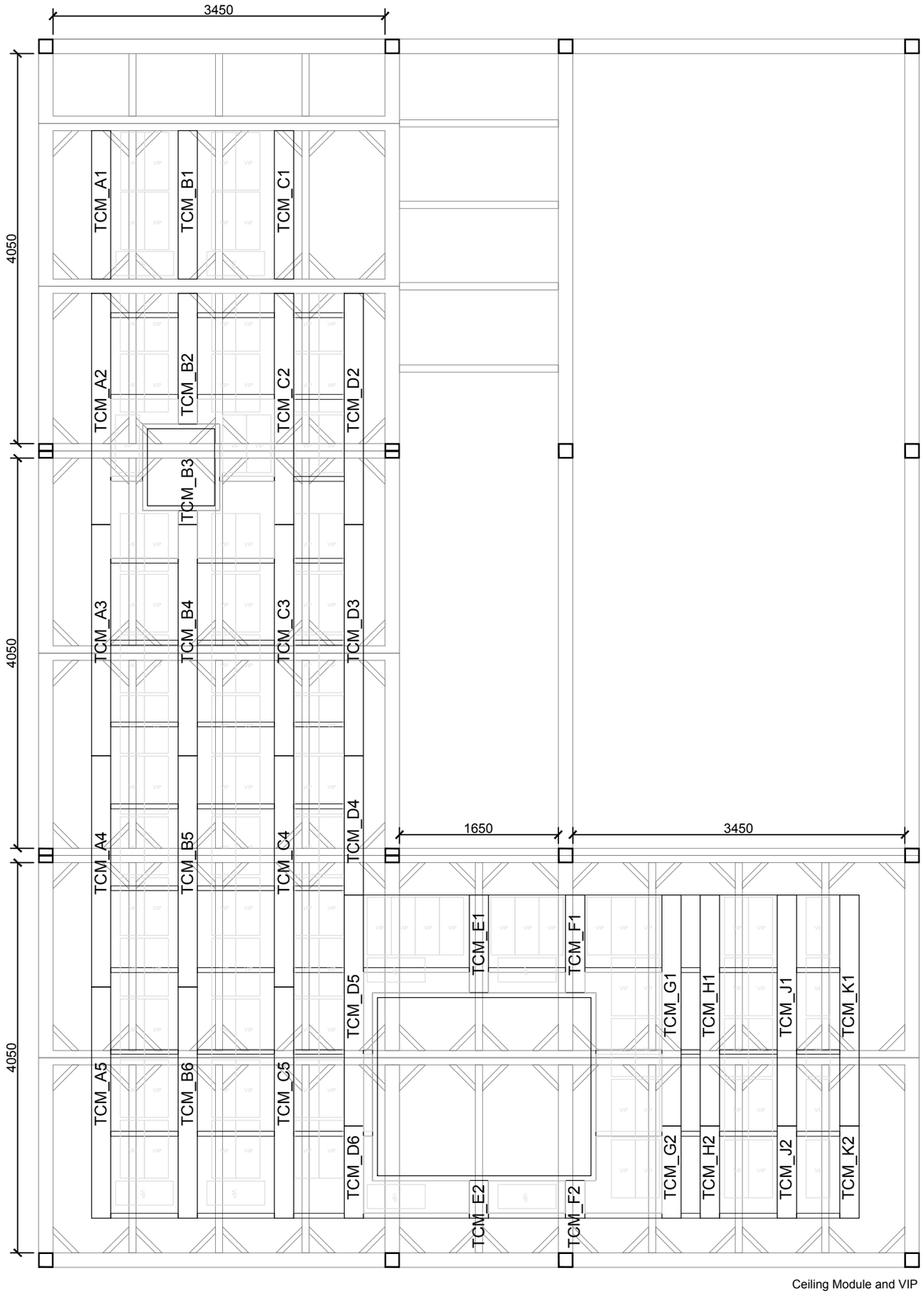
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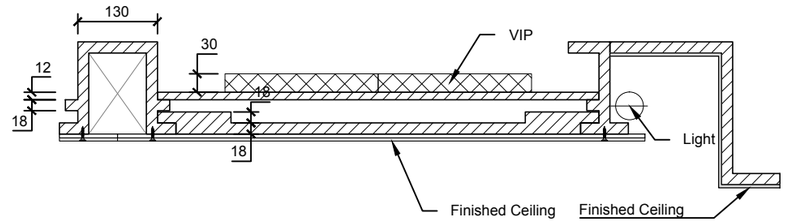
DWG. Title
CEILING CONSTRUCTION DETAILS

DWG. No. AR-332

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Ceiling Module and VIP







Solar Decathlon Europe

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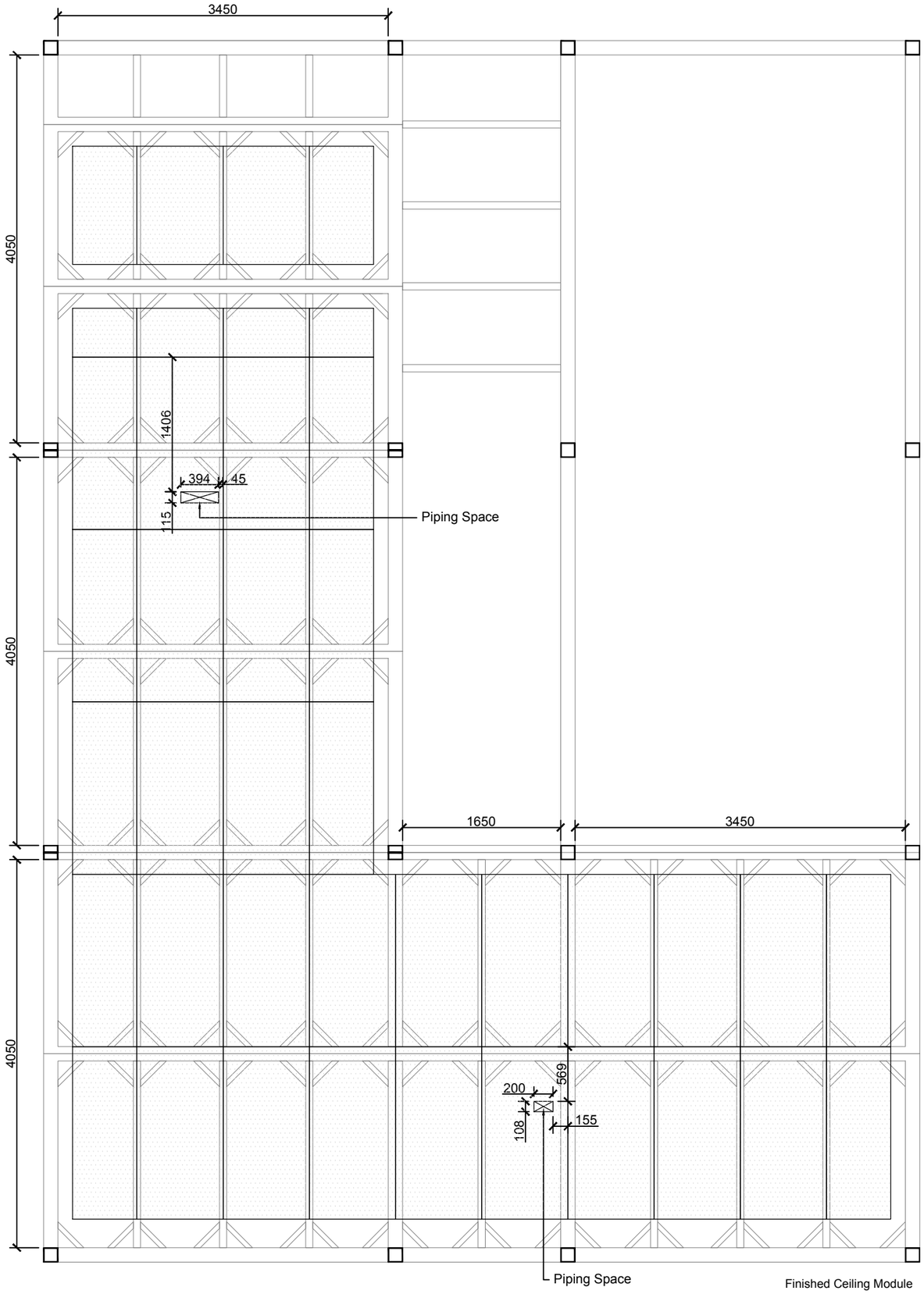
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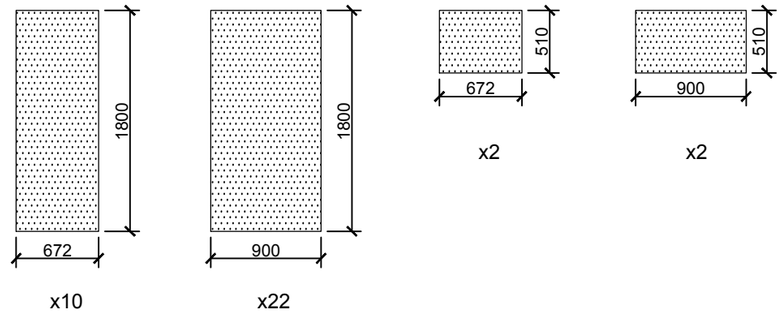
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Unit	mm

DWG. Title
CEILING CONSTRUCTION DETAILS

DWG. No. AR-333

PAGE 61





0 0.5 1 2 METER

Solar Decathlon Europe

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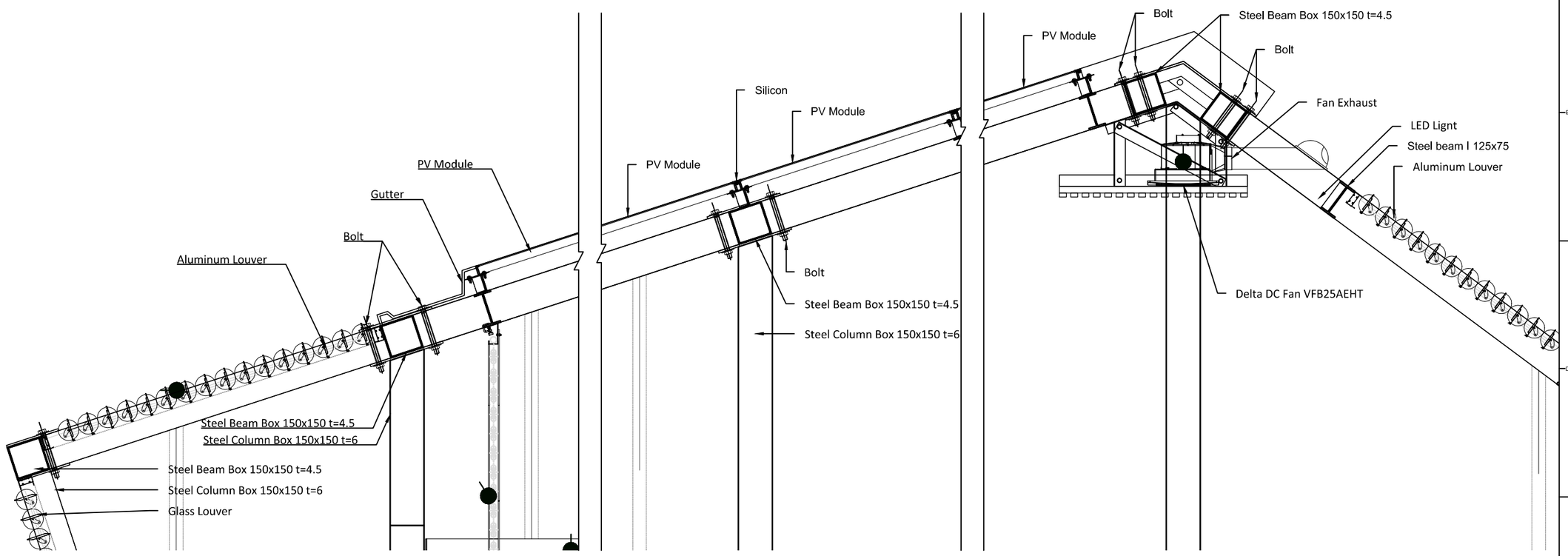
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Unit	mm

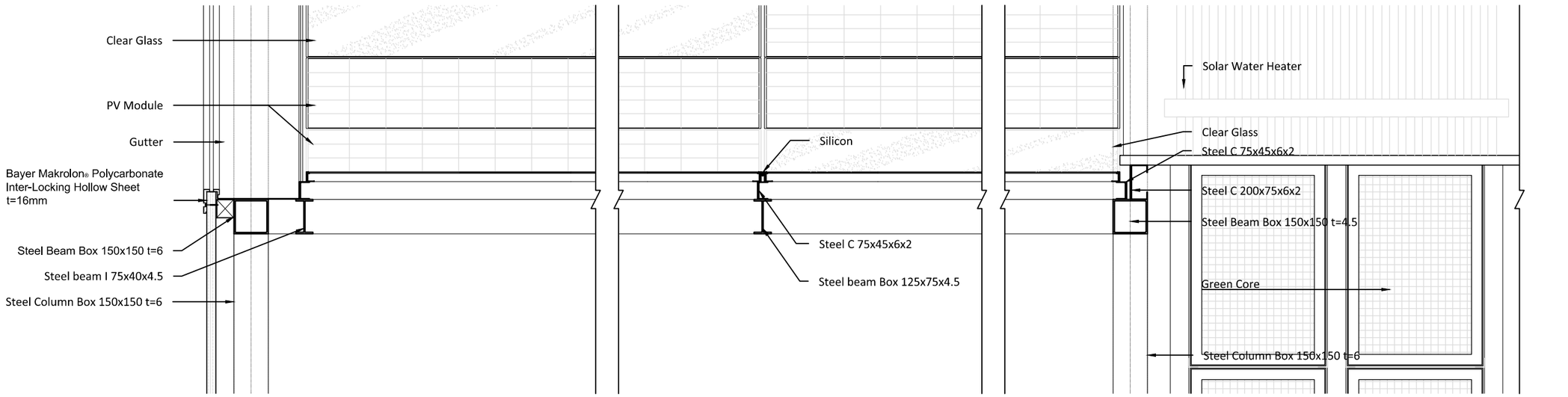
DWG. Title

CEILING CONSTRUCTION DETAILS

DWG. No.	PAGE
AR-334	62



1



2

Solar Decathlon Europe

Project: ORCHID HOUSE

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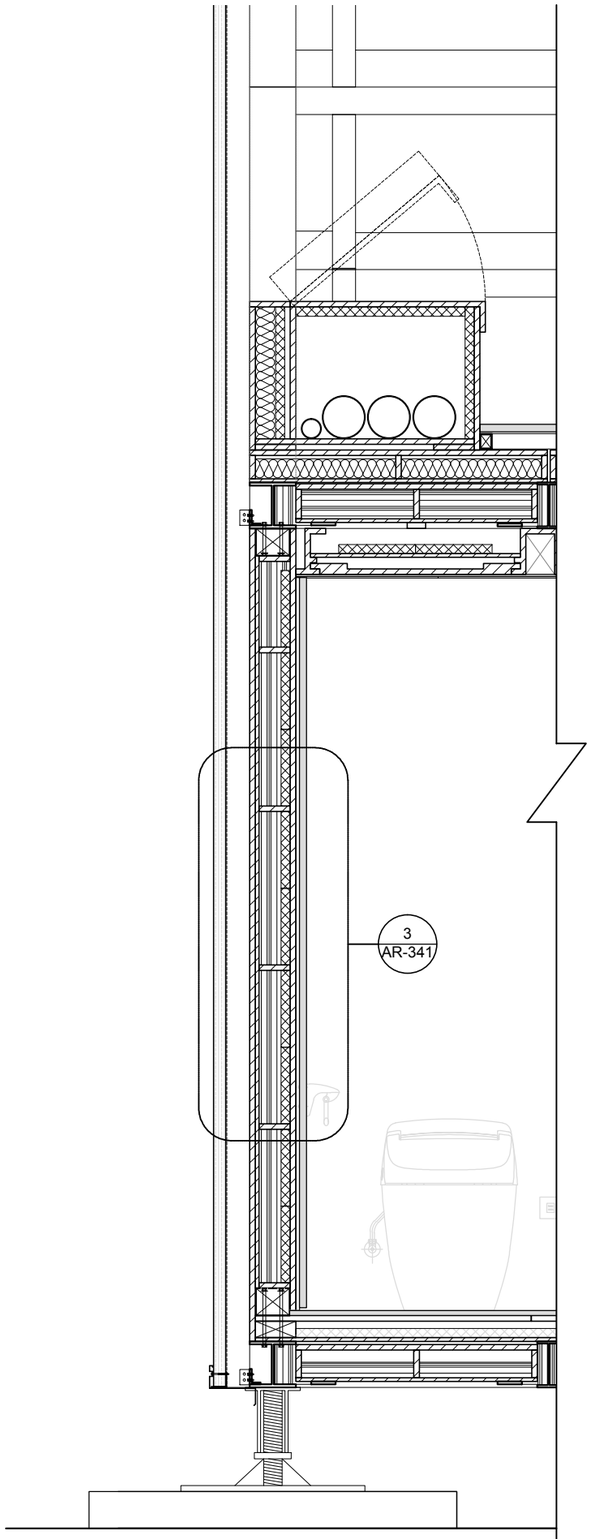
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DWG. Title

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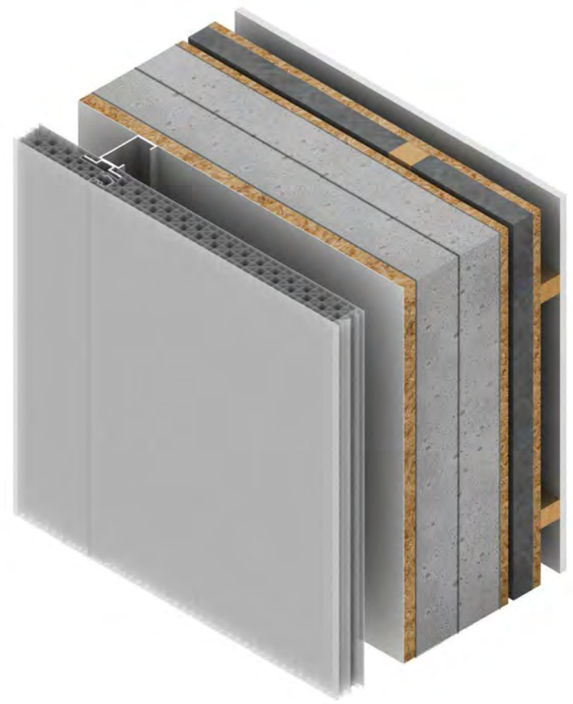
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PAGE 63

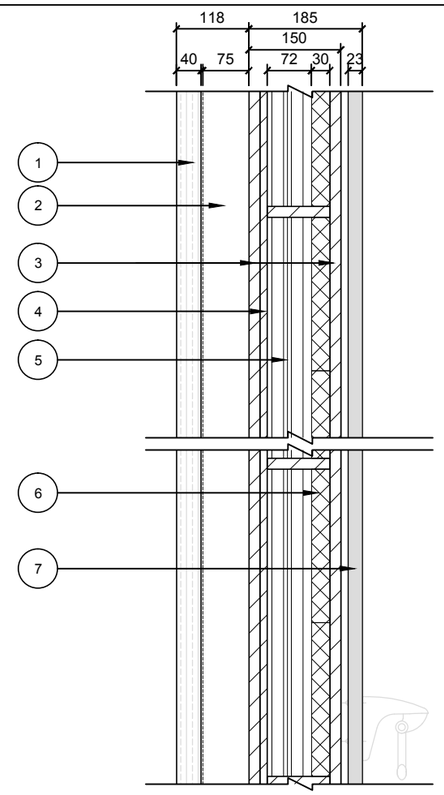


0 0.2 0.4 1 METER

1



2



1 Bayer Makrolon® Polycarbonate Inter-locking Hollow Sheet t=40mm
2 Inter-locking Sheet supporting 75mm
3 Plywood 18mm
4 Plywood 12mm
5 Glass foam 72mm
6 Vacuum Insulation 30mm
7 Ceramics board 23mm

Thermal conductivity R = 13.5 (m²K/W)

0 0.1 0.2 0.5 METER

3

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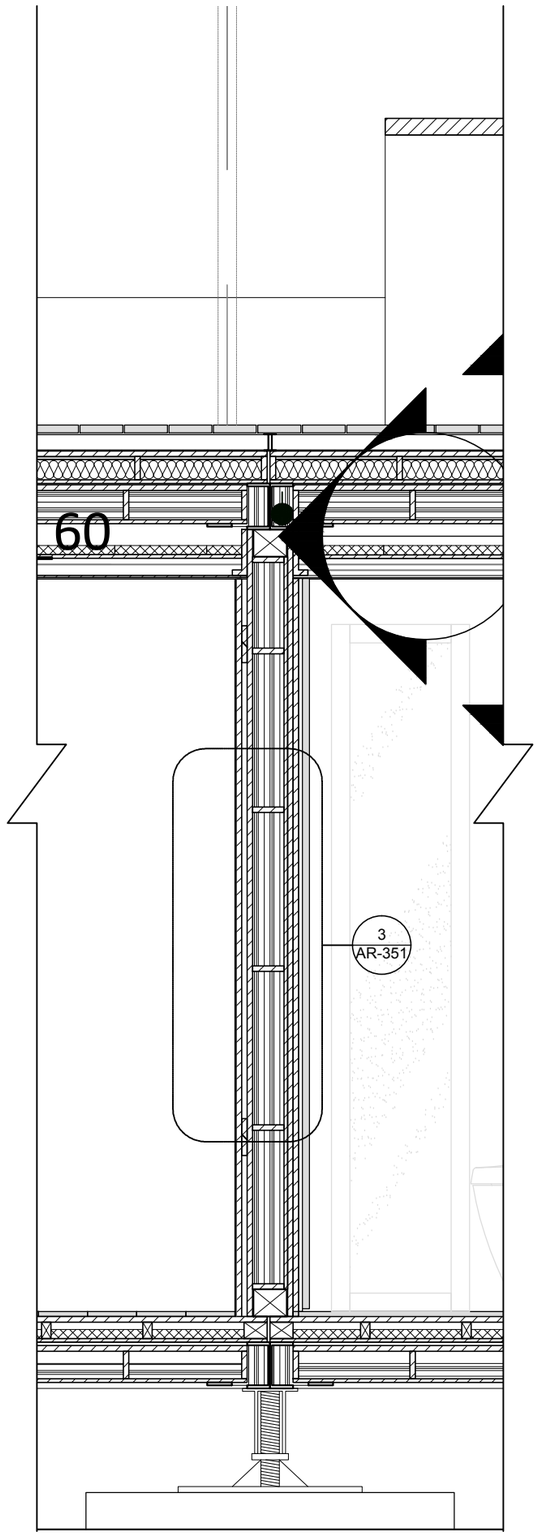
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	CH
Checked by	DN
Scale	1:10
Unit	mm

DWG. Title
WALL SECTION AND CONSTRUCTION DETAILS 1

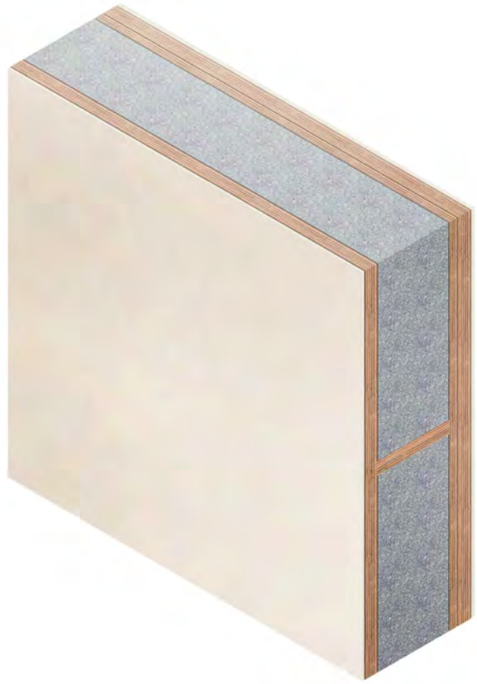
DWG. No. AR-341

PAGE 64

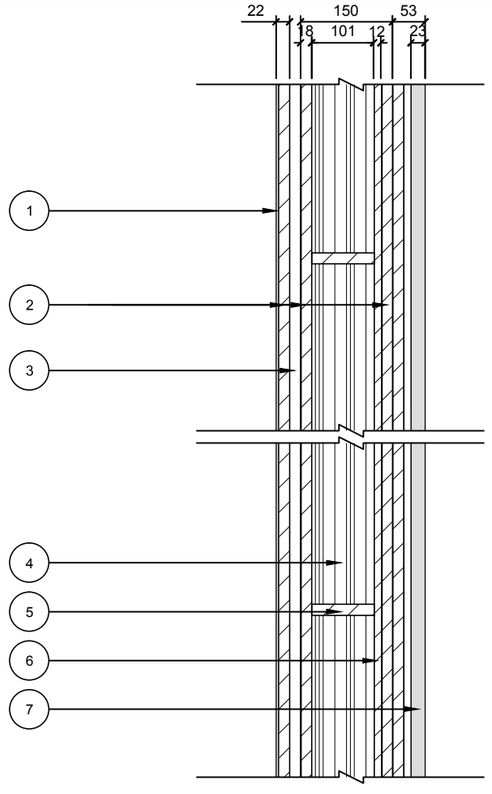


0 0.2 0.4 1 METER

1



2



1. Interior finish 3mm
2. Plywood 18mm
3. Air gap 18mm
4. E-foam 100mm
5. Wood framing 18mm*100mm
6. Plywood 12mm
7. Ceramic board 23mm

0 0.1 0.2 0.5 METER

3

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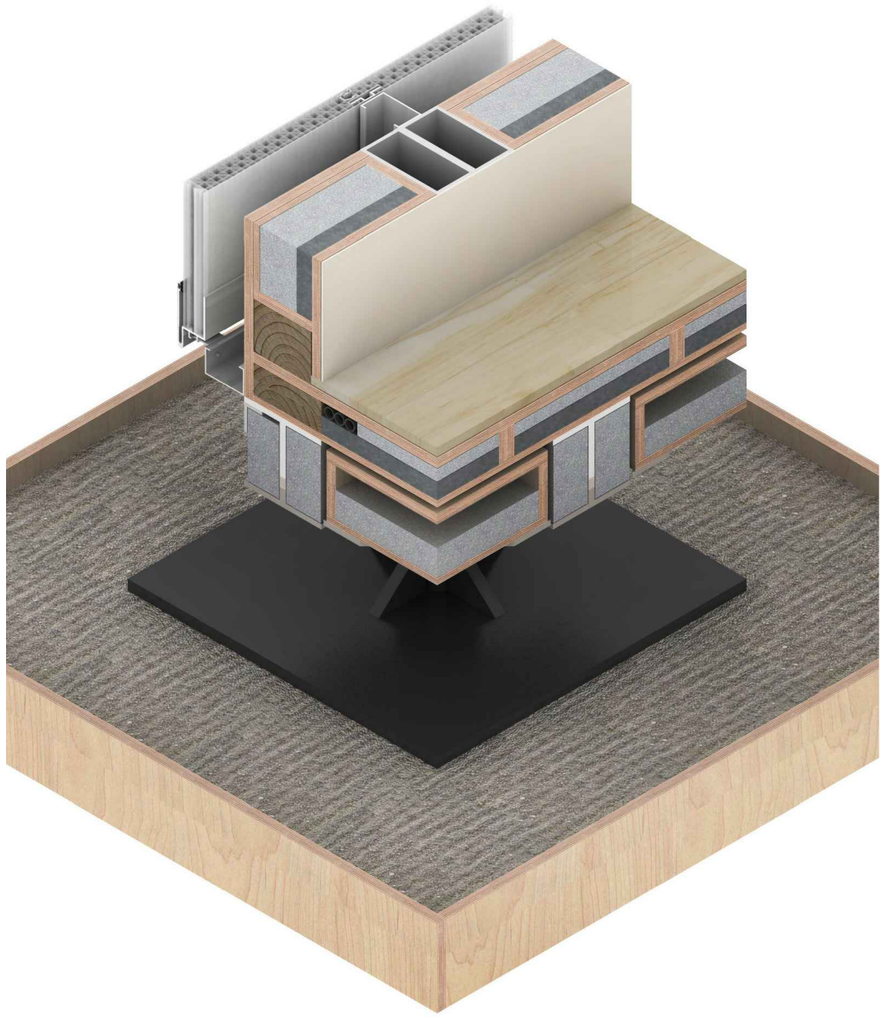
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Unit	mm

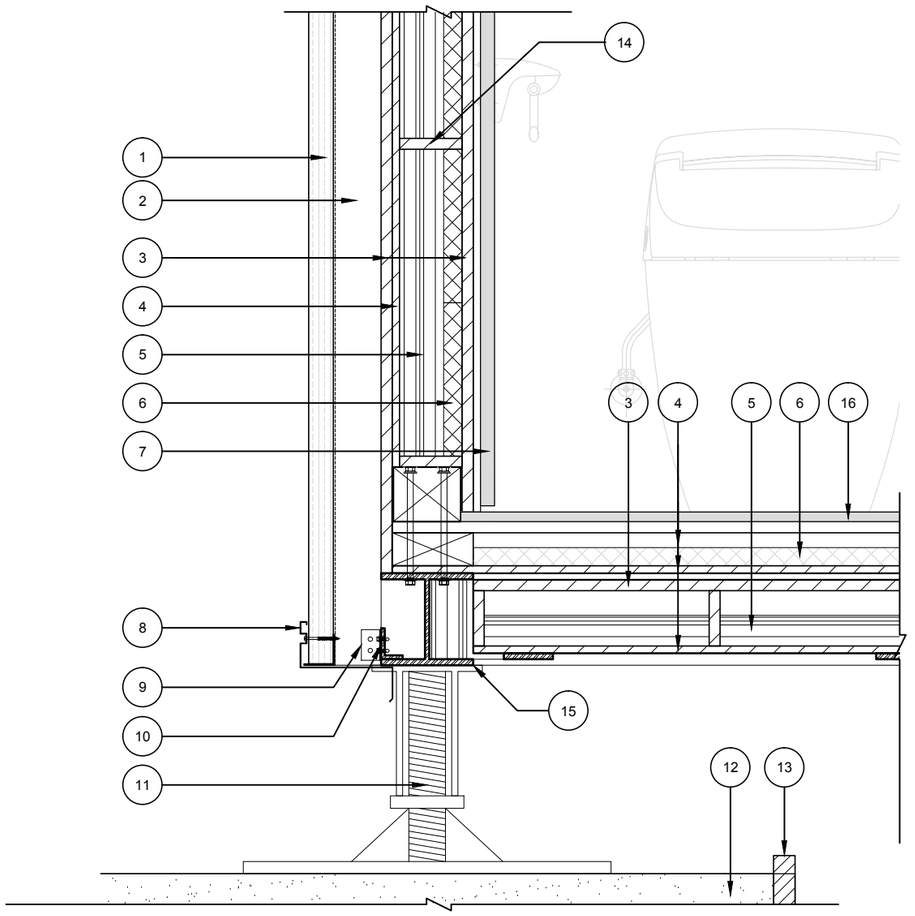
DWG. Title

PARTITION DETAILS

DWG. No. AR-351

PAGE 65





1 Bayer Makrolon® Polycarbonate Inter-locking Hollow Sheet t=40mm
2 Inter-locking Sheet supporting 75mm
3 Plywood 18mm
4 Plywood 12mm
5 E-foam 70mm
6 Vacuum Insulation 30mm
7 Ceramic board 23mm
8 Steel enclosure 1mm
9 L shape steel -30x30 t=2.3mm
10 L shape steel -50x35 t=6mm
11 Footing
12 Sand
13 Wood frame (sand box)
14 Wood frame (wall)
15 H -150x150 t=10mm
16 Wood Plastic Composites 25mm

0 0.1 0.2 0.5 METER

1

2

Solar Decathlon Europe

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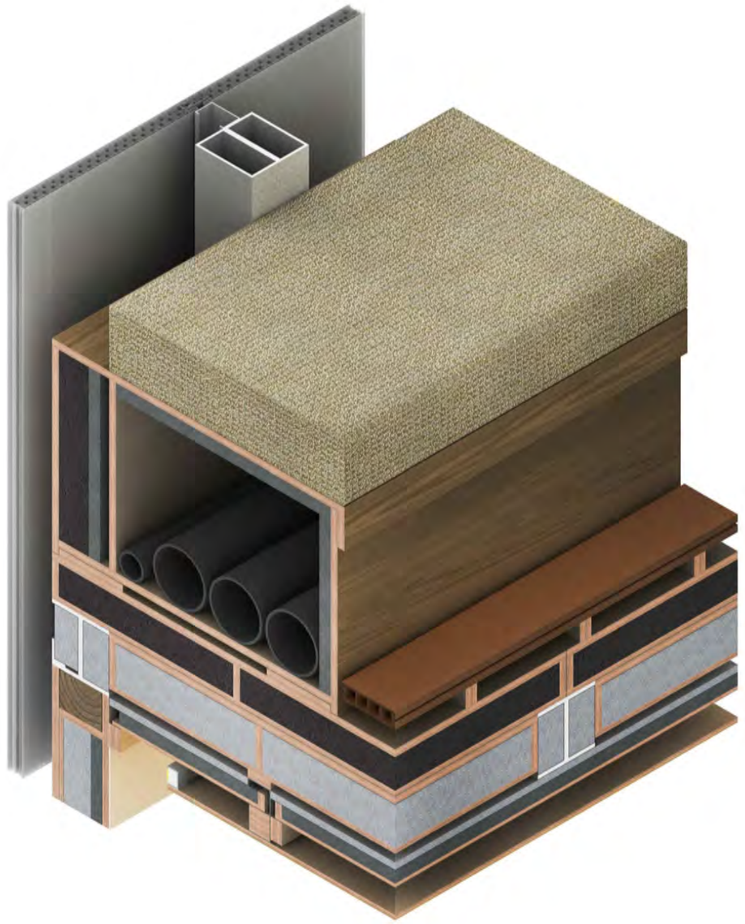
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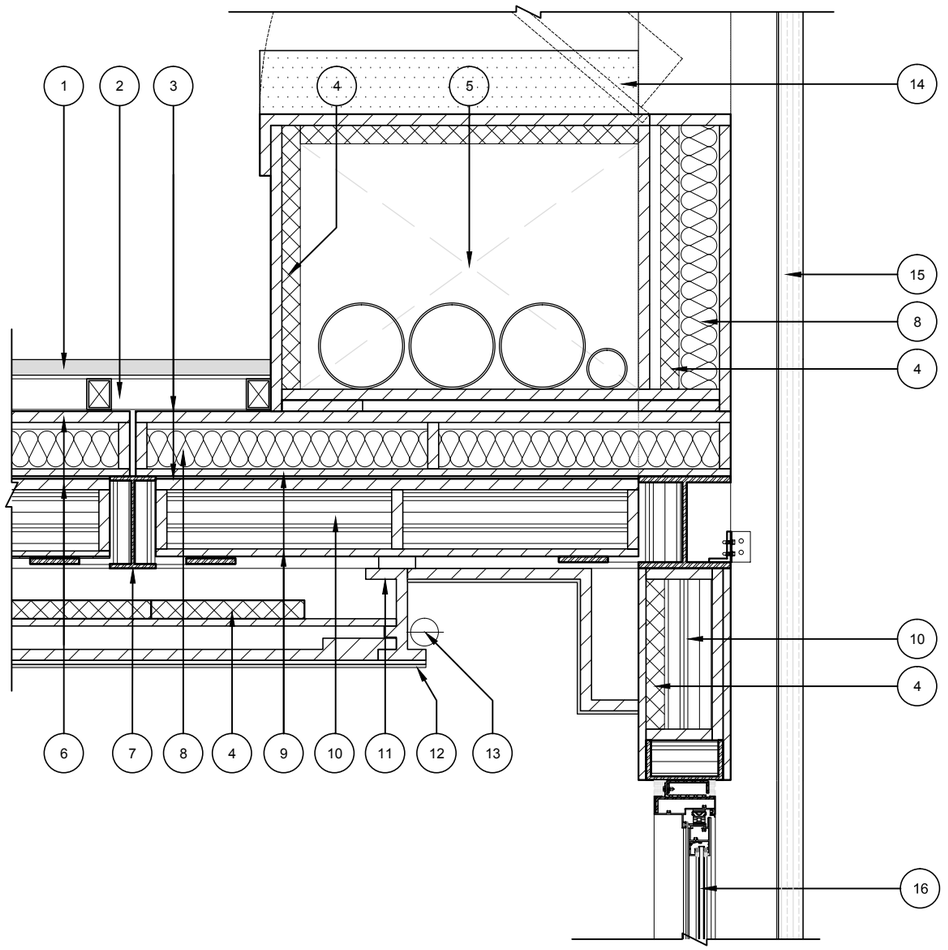
Drawn by	CH
Checked by	DN
Scale	1:10
Unit	mm

DWG. Title: JOINT DETAIL 1

DWG. No.: AR-361

PAGE: 66





1 Wood Plastic Composites 40mm

2 Air gap 44mm

3 Water proofing 1mm

4 Vacuum Insulation 30mm

5 Duct

6 Plywood 18mm

7 Sub-beam -150x75 t=7mm

8 Glass foam 65mm

9 Plywood 12mm

10 E-foam 95mm

11 C -120x60x20 t=2.3mm (ceiling system)

12 Ceiling 12mm
(plywood 9mm+ceiling finish 3mm)

13 T5 LED Link Light

14 Soft seat

15 Bayer Makrolon® Polycarbonate
Inter-locking Hollow Sheet
t=40mm

16 Bayer Makrolon® Polycarbonate
Hollow Sheet
t=16mm

0 0.1 0.2 0.5 METER

Solar Decathlon Europe

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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

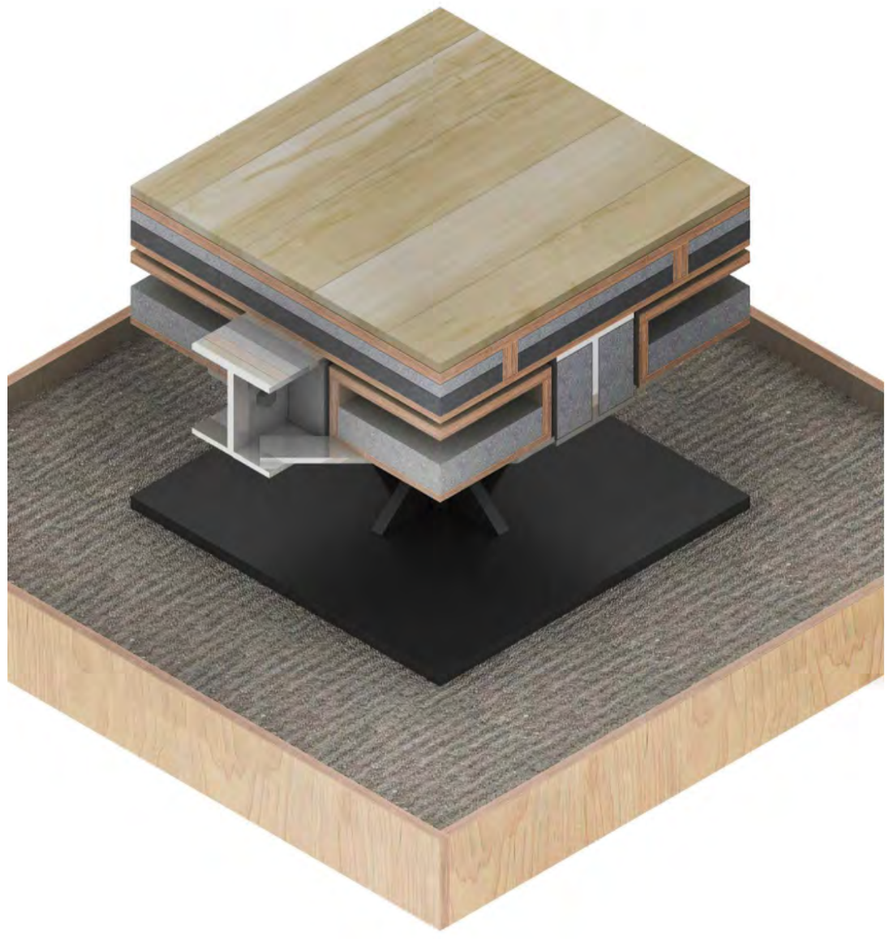
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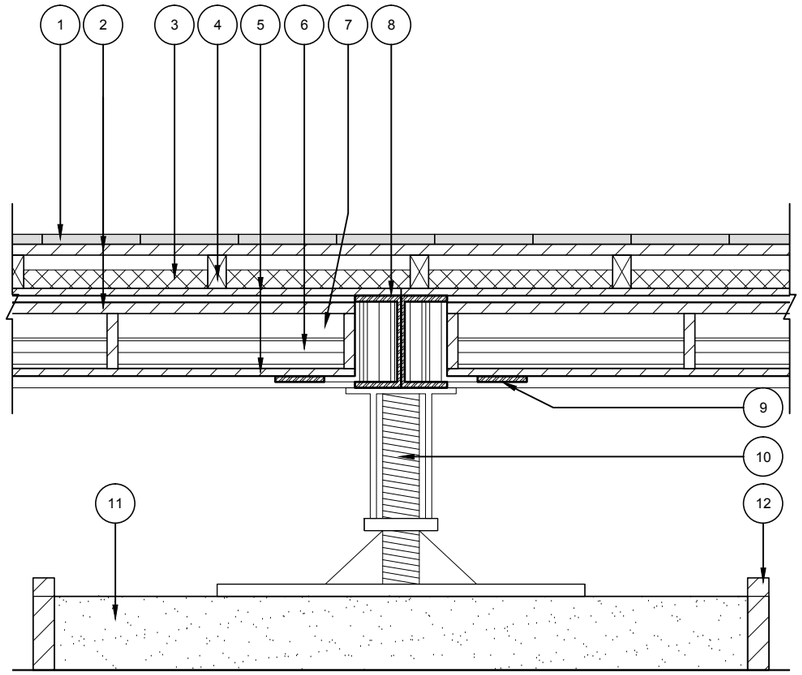
DWG. Title

JOINT DETAIL 2

DWG. No. AR-362

PAGE 67





1	Finished Flooring 16mm
2	Plywood 18mm
3	Vacuum Insulation 30mm
4	Wood frame 54mm
5	Plywood 12mm
6	E-foam 50mm
7	Air gap 40mm
8	Beam -C -150x75 t=9.5mm
9	Floor supporting
10	Footing
11	Sand box
12	Wood frame

0 0.1 0.2 0.5 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Note:

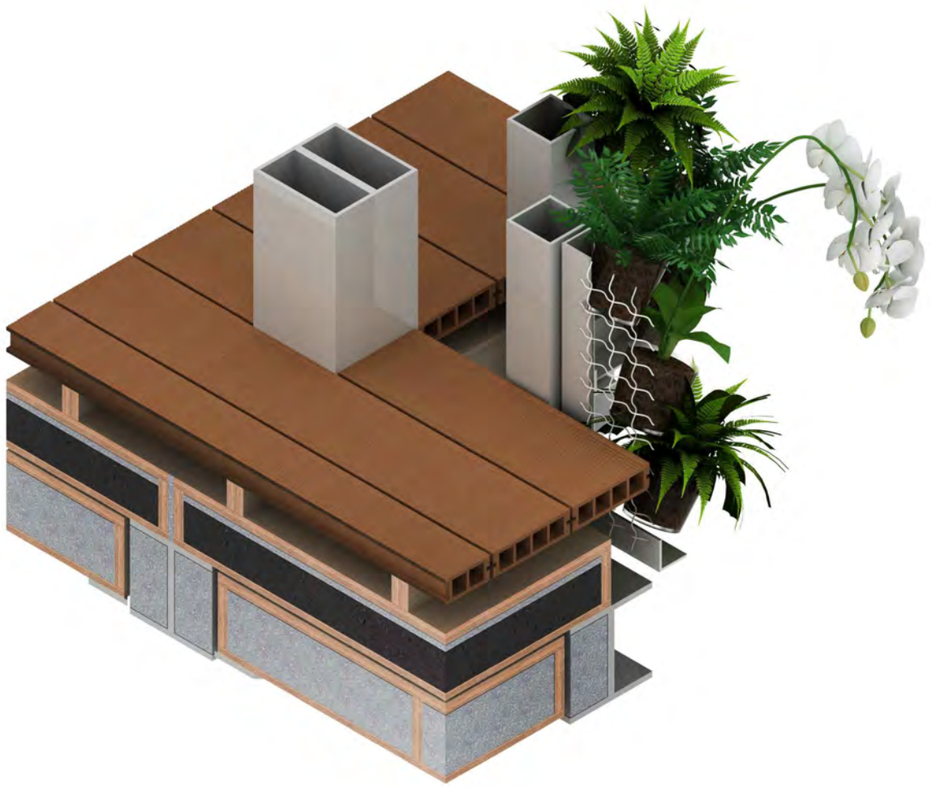
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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

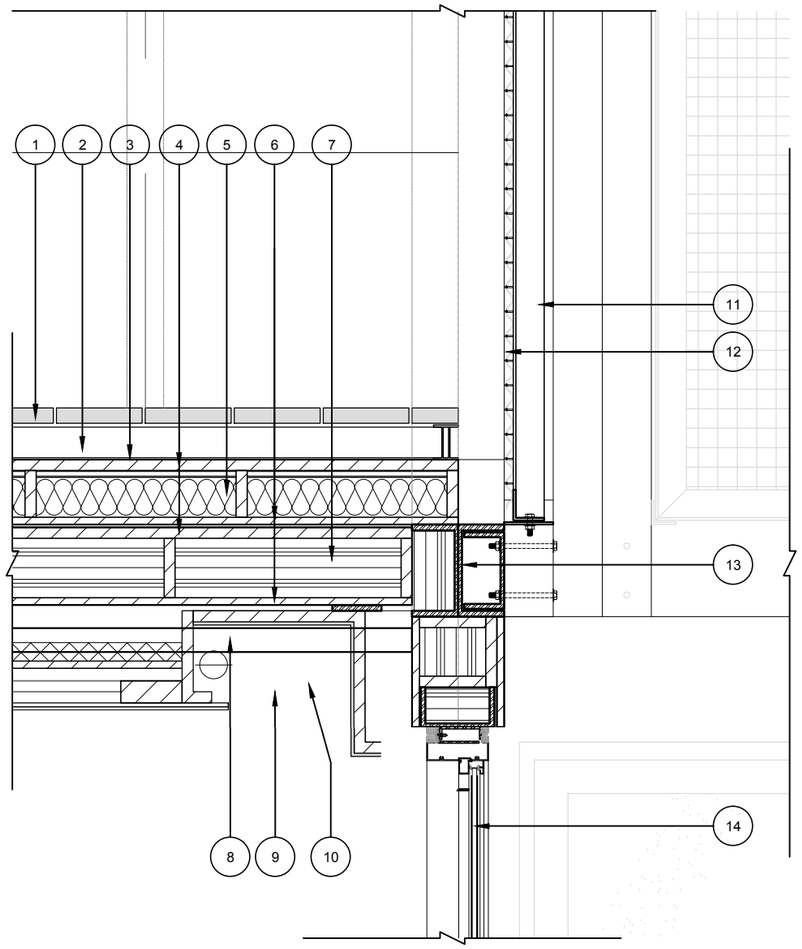
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Checked by	YW
Scale	DN
Unit	1:10

DWG. Title: JOINT DETAIL 3

DWG. No.: AR-363

PAGE: 68





1 Wooden Flooring 40mm

2 Framing 60mm / Air gap 44mm

3 Water proofing 2mm

4 Plywood 18mm

5 Glass foam 65mm

6 Plywood 12mm

7 E-foam 95mm

8 Vacuum Insulation 30mm

9 Ceiling 12mm
(plywood 9mm+ceiling finish 3mm)

10 T5 LED Link Light

11 Green core

12 barbed wire ⌀=2mm (for plants supporting)

13 Beam C-150x75 t=9.5mm

14 Bayer Makrolon® Polycarbonate
Hollow Sheet
t=16mm

0 0.1 0.2 0.5 METER

Solar Decathlon Europe

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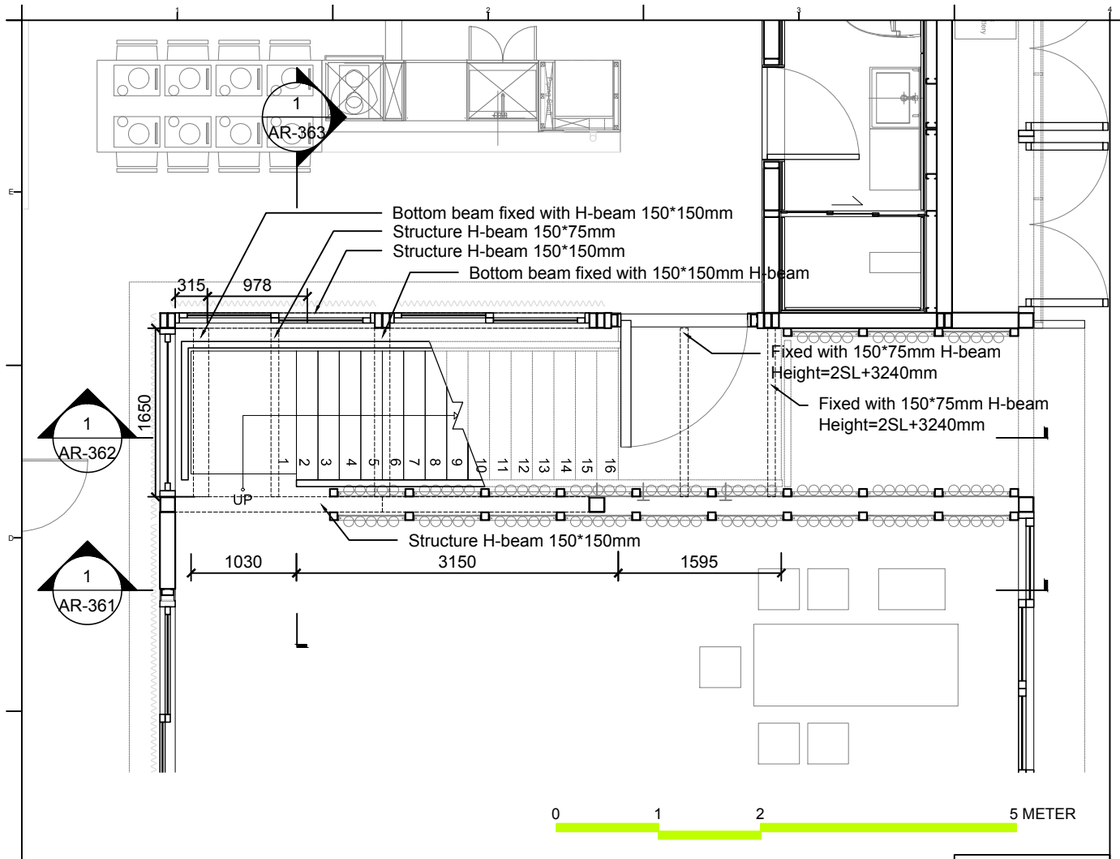
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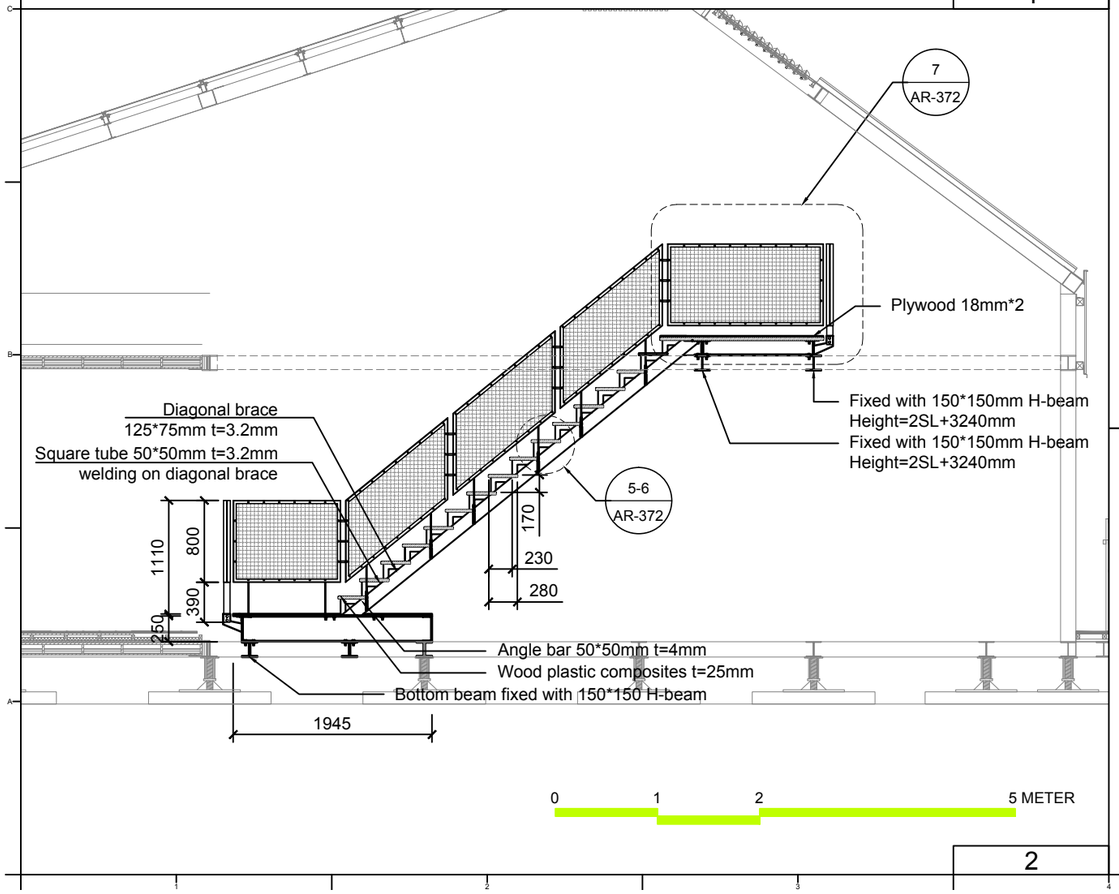
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DWG. No.: AR-364

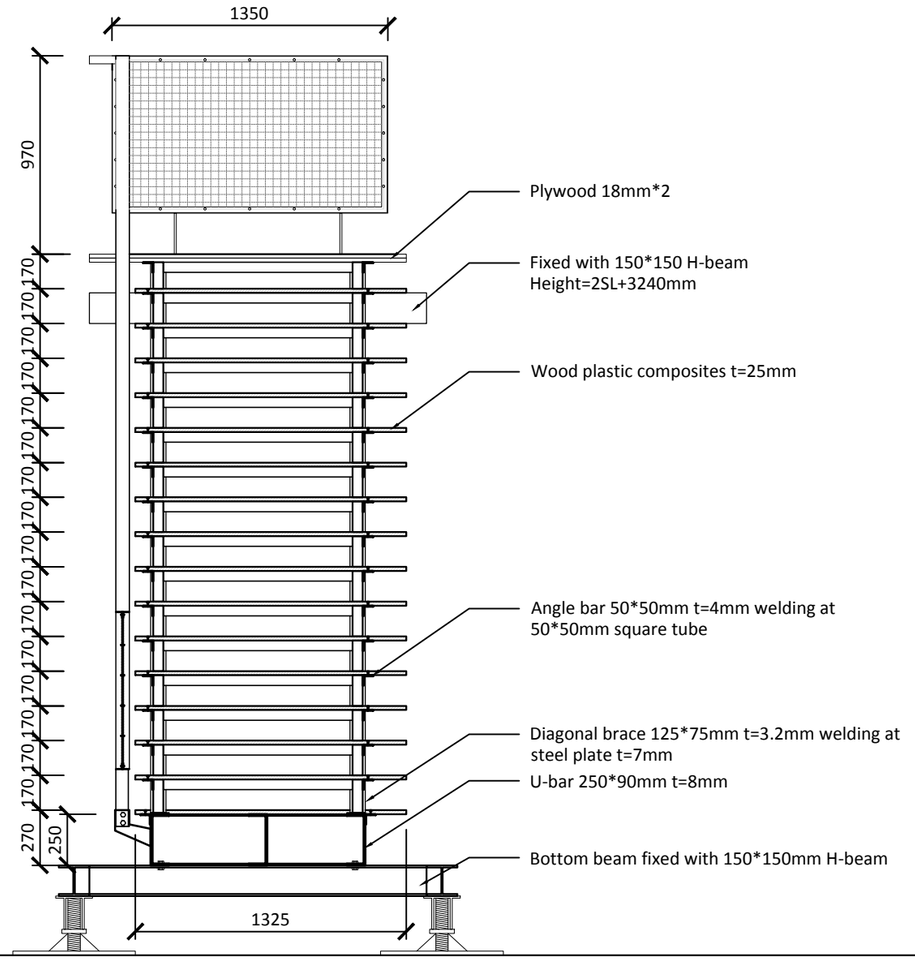
PAGE: 69



1



2



3

Solar Decathlon Europe

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Institution:

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Note:

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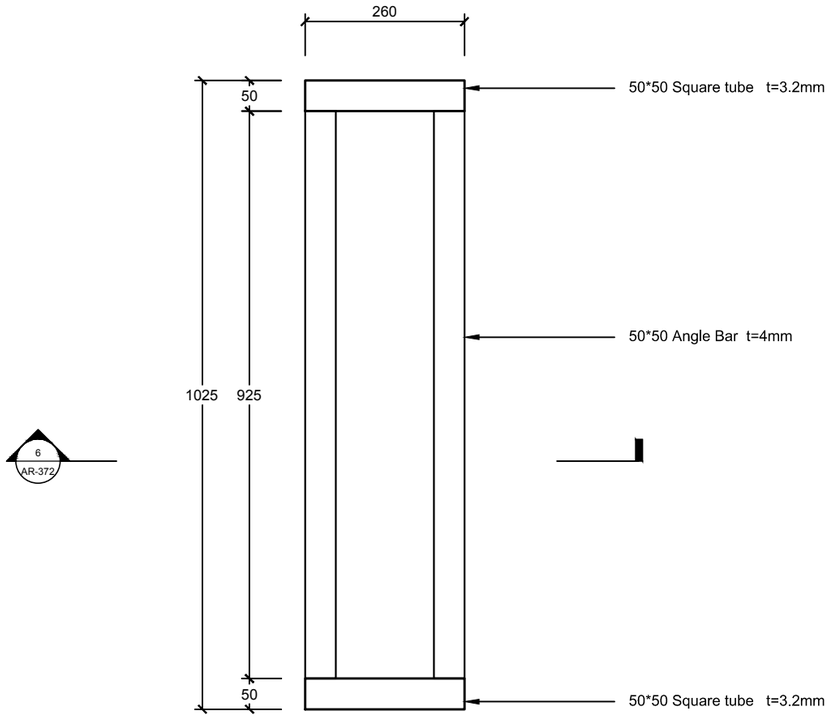
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Checked by	DN
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Unit	mm

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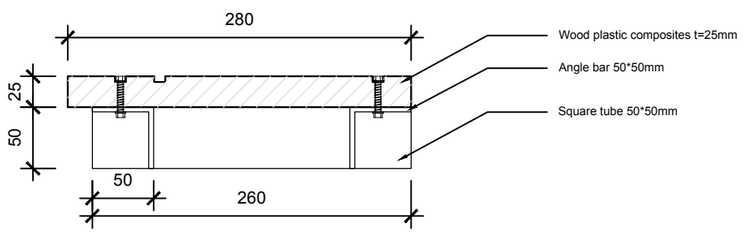
STAIR DETAIL 1

DWG. No.	PAGE
AR-371	70



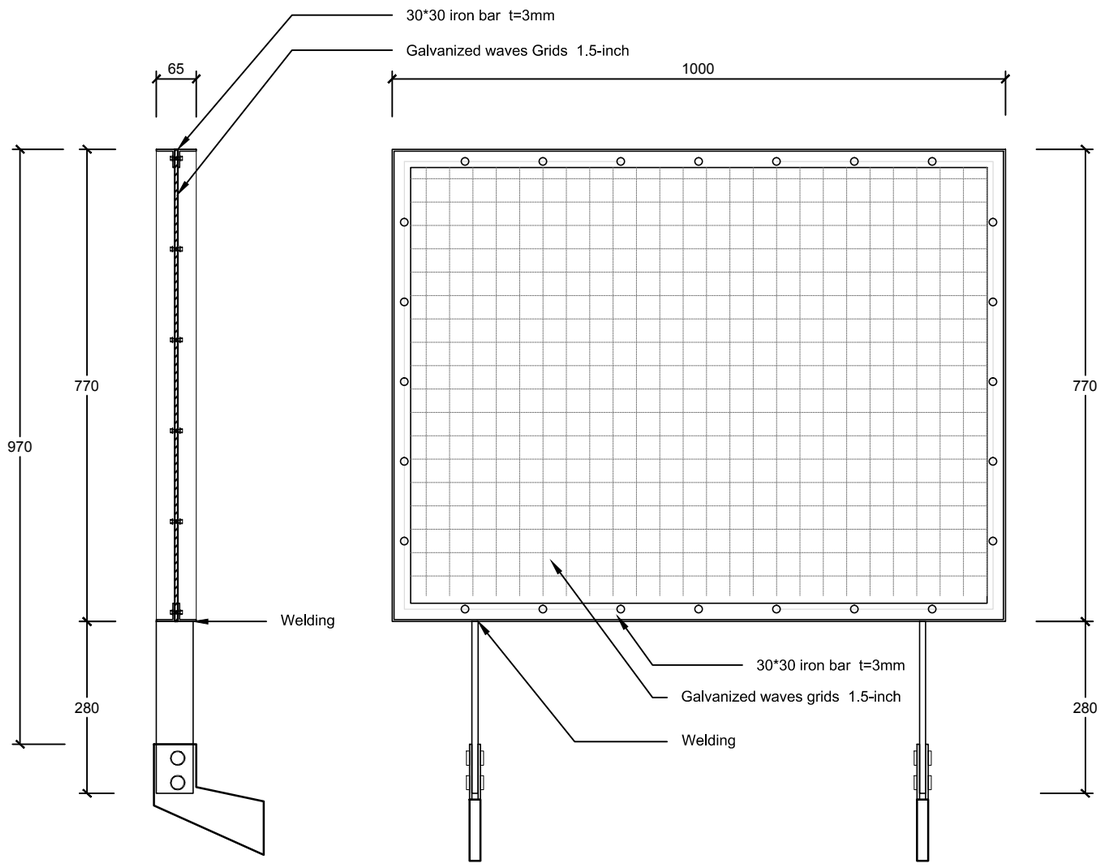
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5



0 0.05 0.1 0.2 METER

6



0 0.1 0.2 0.5 METER

7

Solar Decathlon Europe

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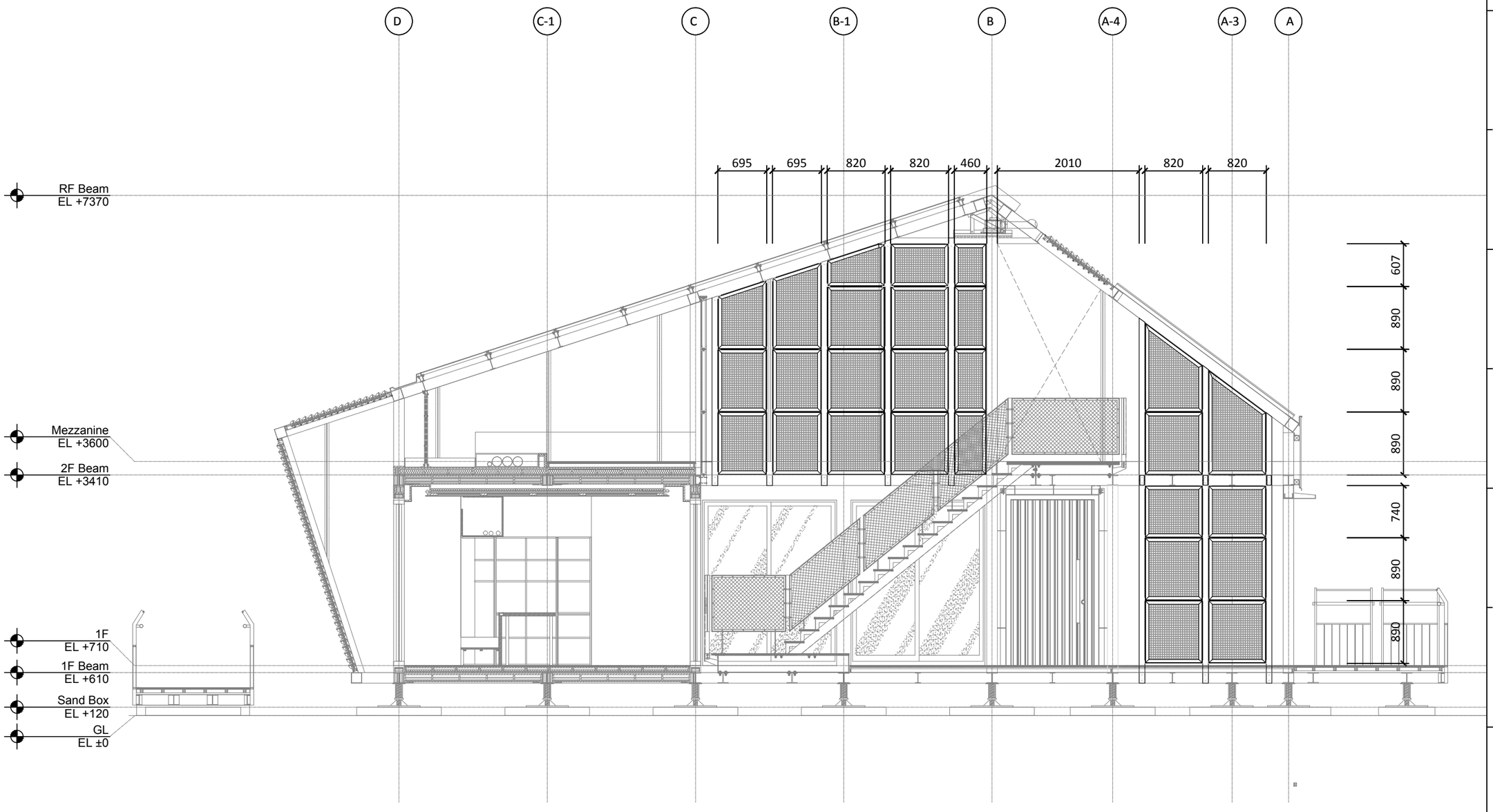
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ST	2014/04/30	CD Submission

Drawn by	TW
Checked by	DN
Scale	1:10
Unit	mm

DWG. Title: STAIR DETAIL 2

DWG. No.: AR-372

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Mark	Date	Description
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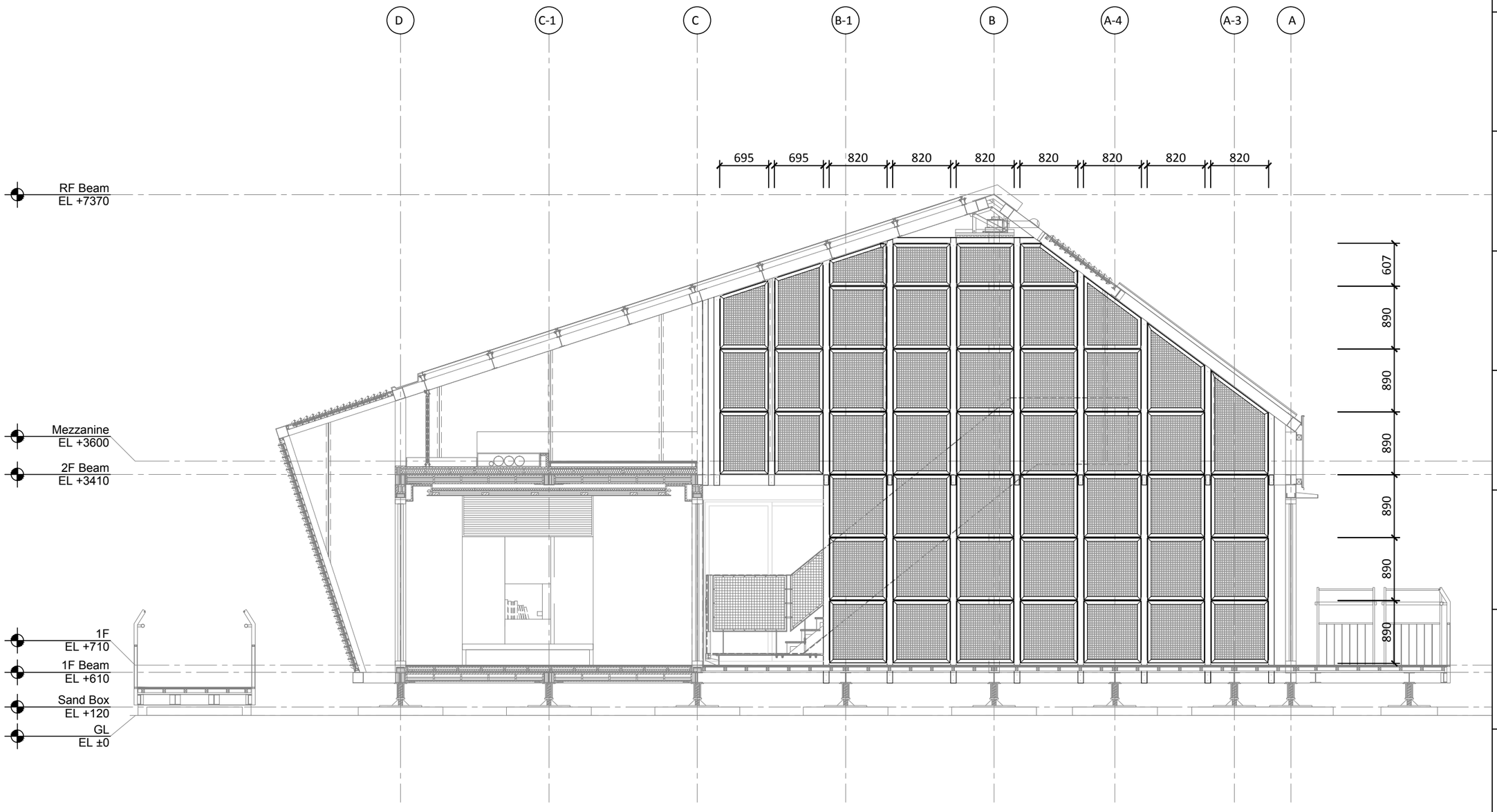
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Scale	1:60
Unit	mm

DWG. Title

GREEN CORE DETAIL 1

DWG. No. AR-401

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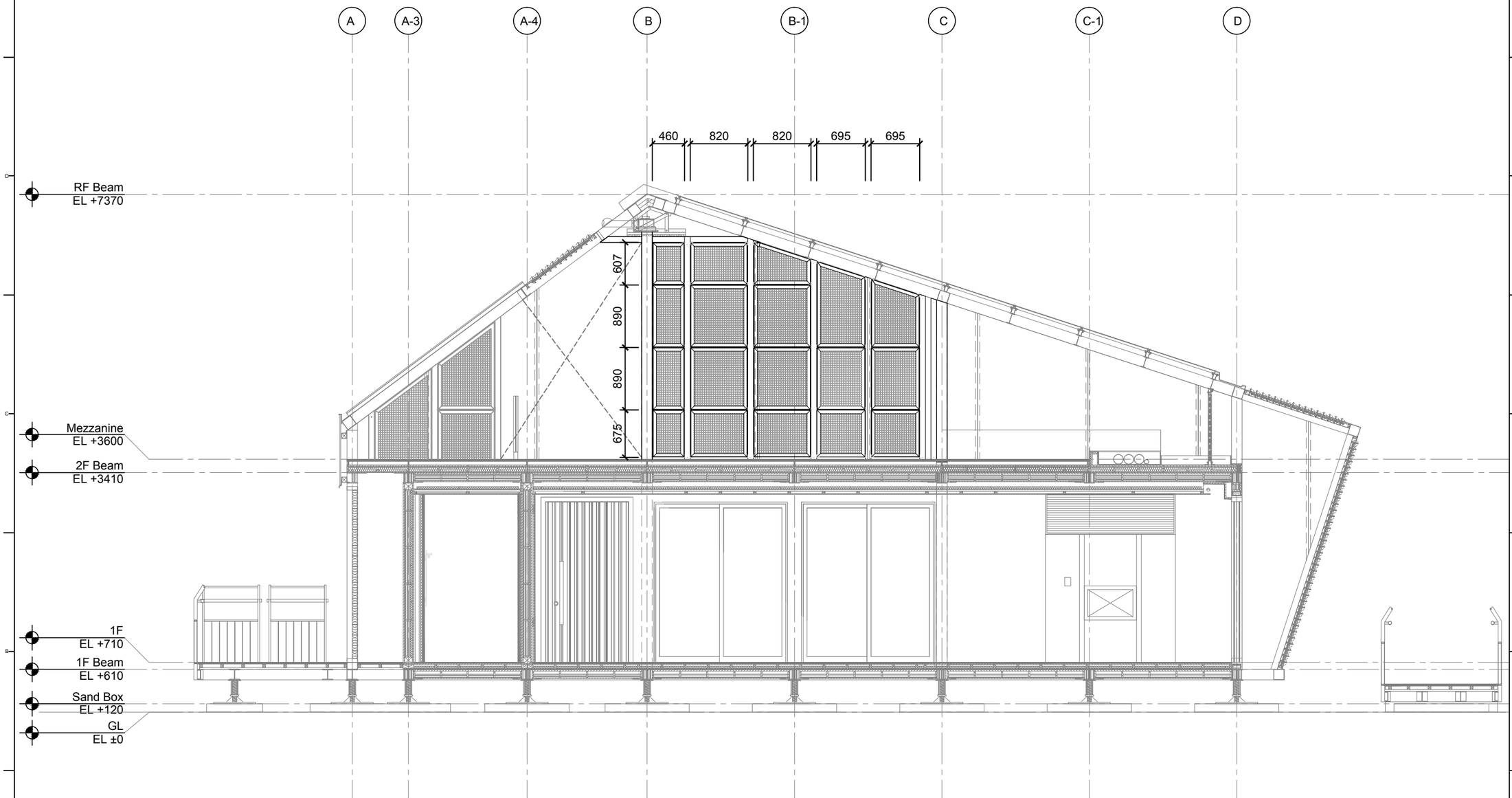
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Unit	mm

DWG. Title

GREEN CORE DETAIL 2

DWG. No. AR-402

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0 1 2 5 METER

Solar Decathlon Europe

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Mark	Date	Description
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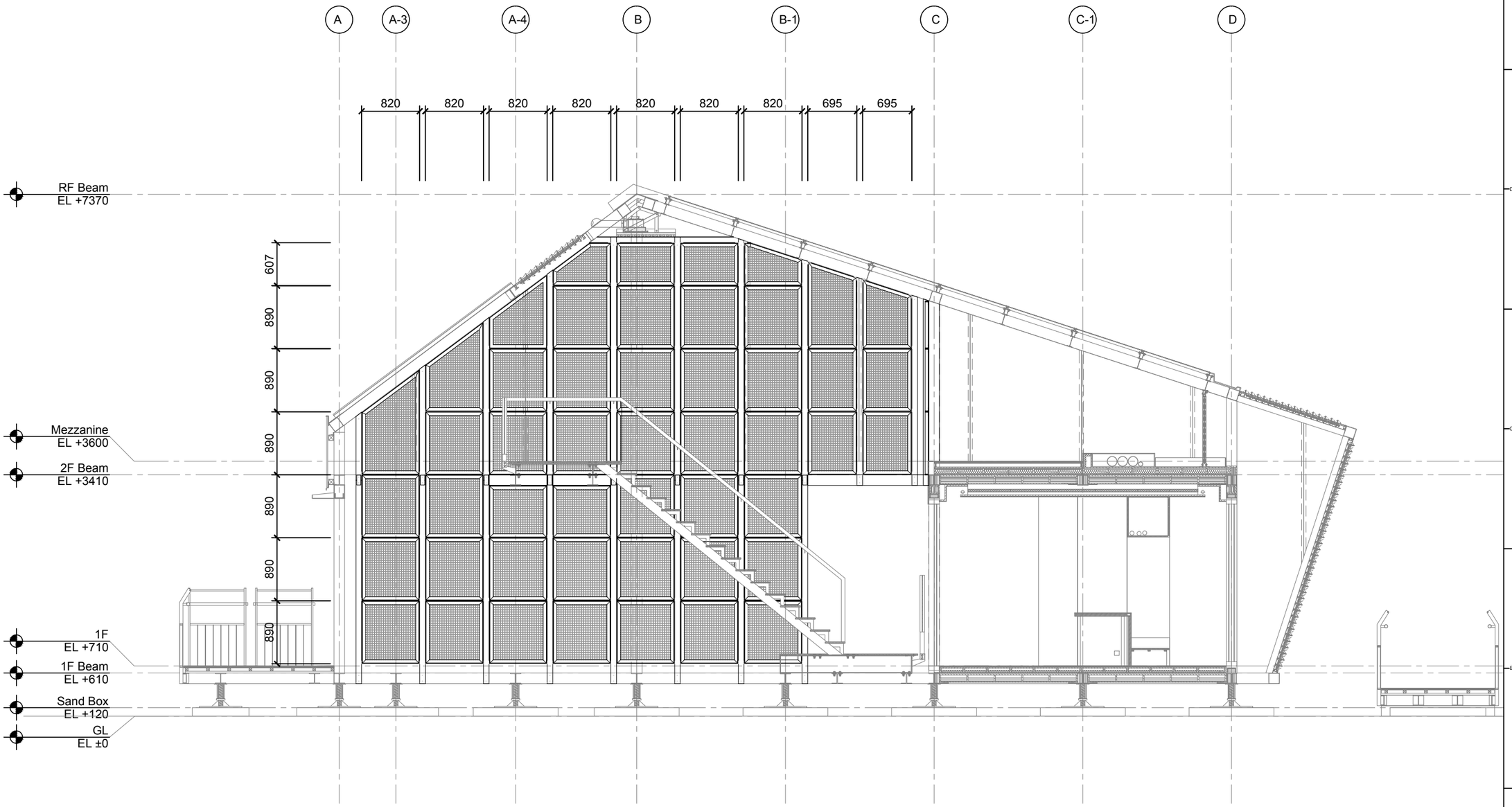
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Scale	1:60
Unit	mm

DWG. Title

GREEN CORE DETAIL 3

DWG. No. AR-403

PAGE 74



0 1 2 5 METER

Solar Decathlon Europe

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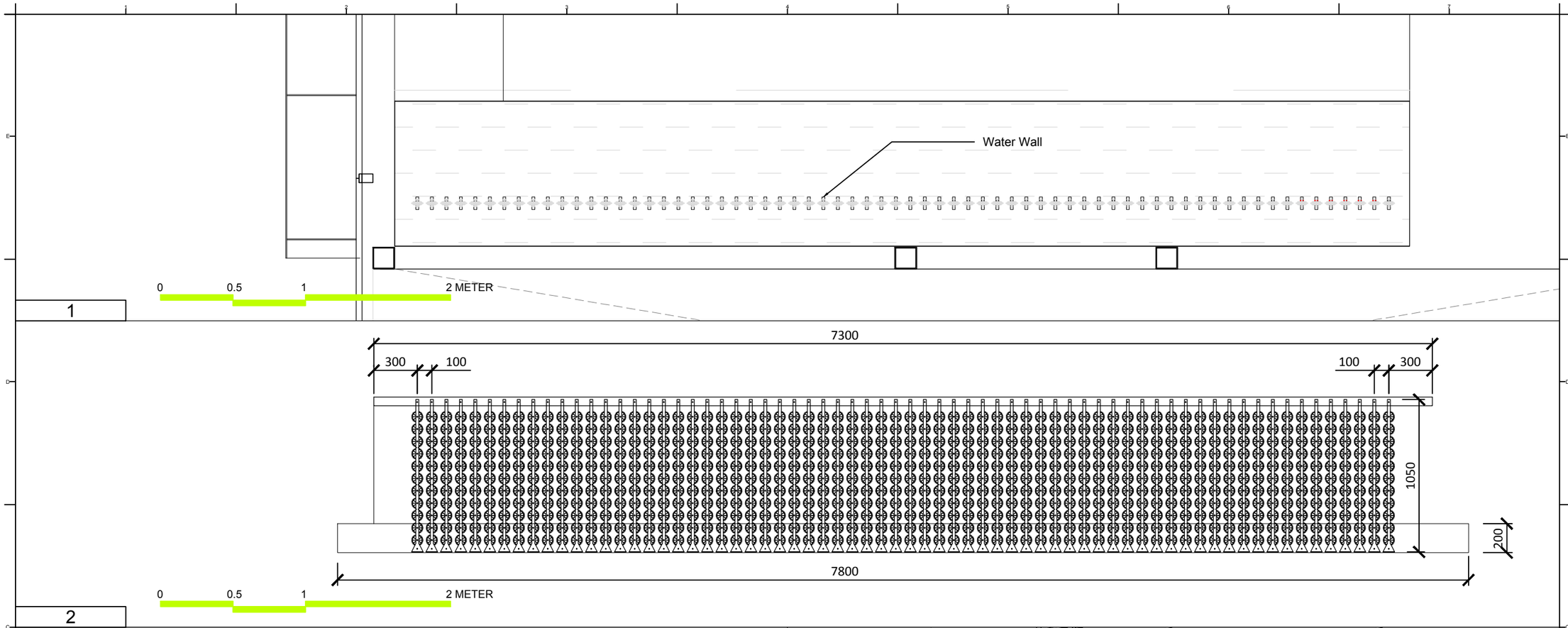
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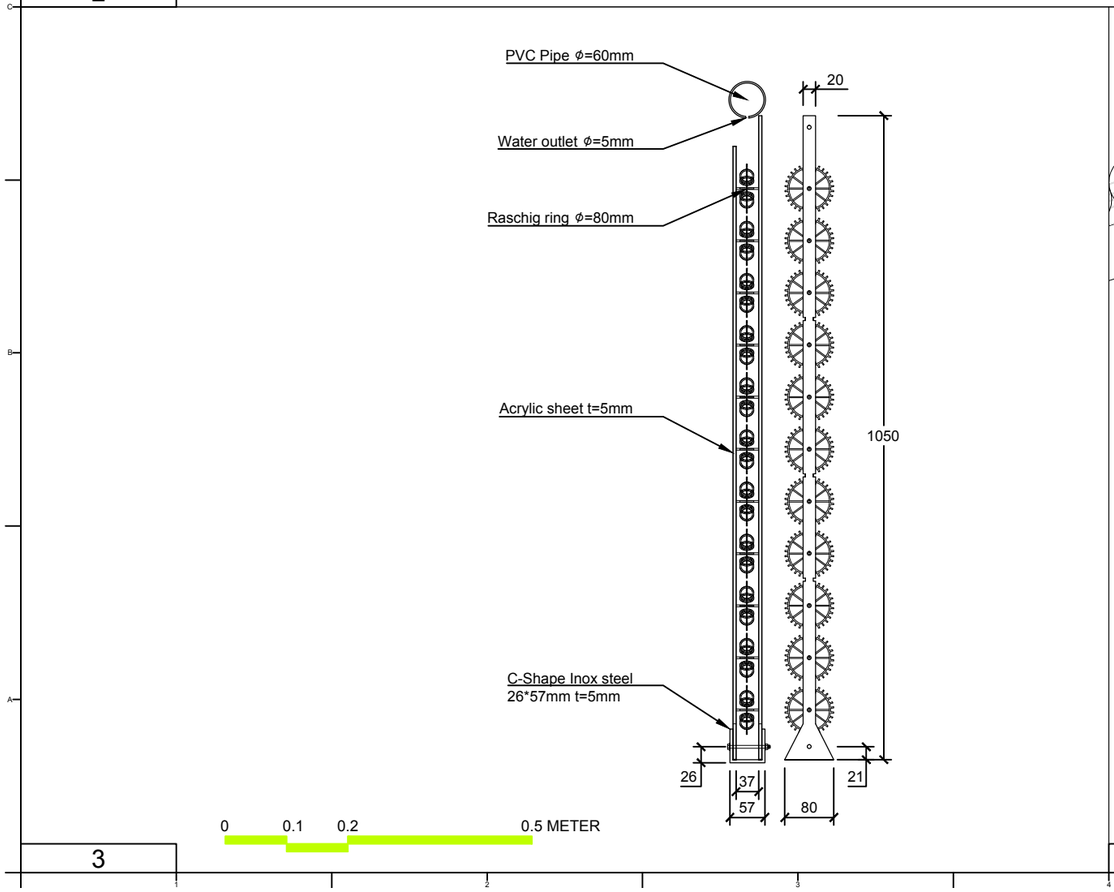
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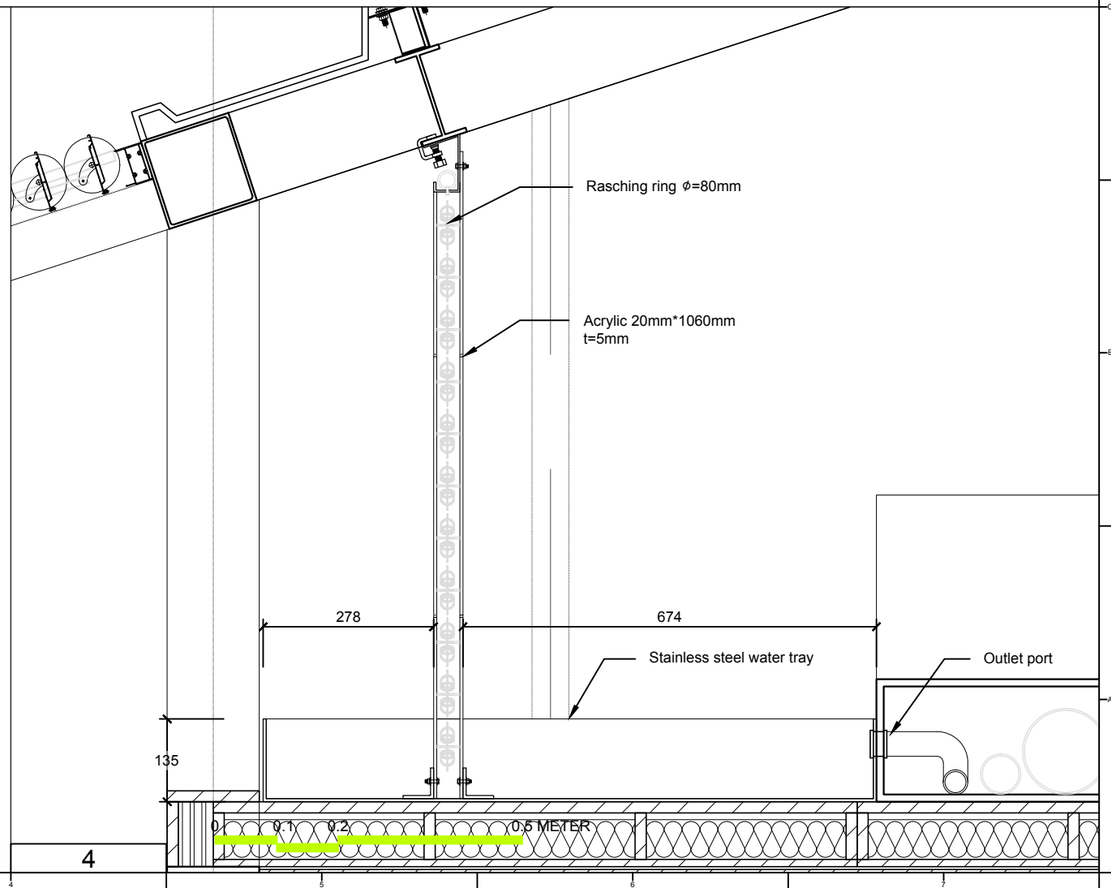
GREEN CORE DETAIL 4

DWG. No. AR-404

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Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Note:

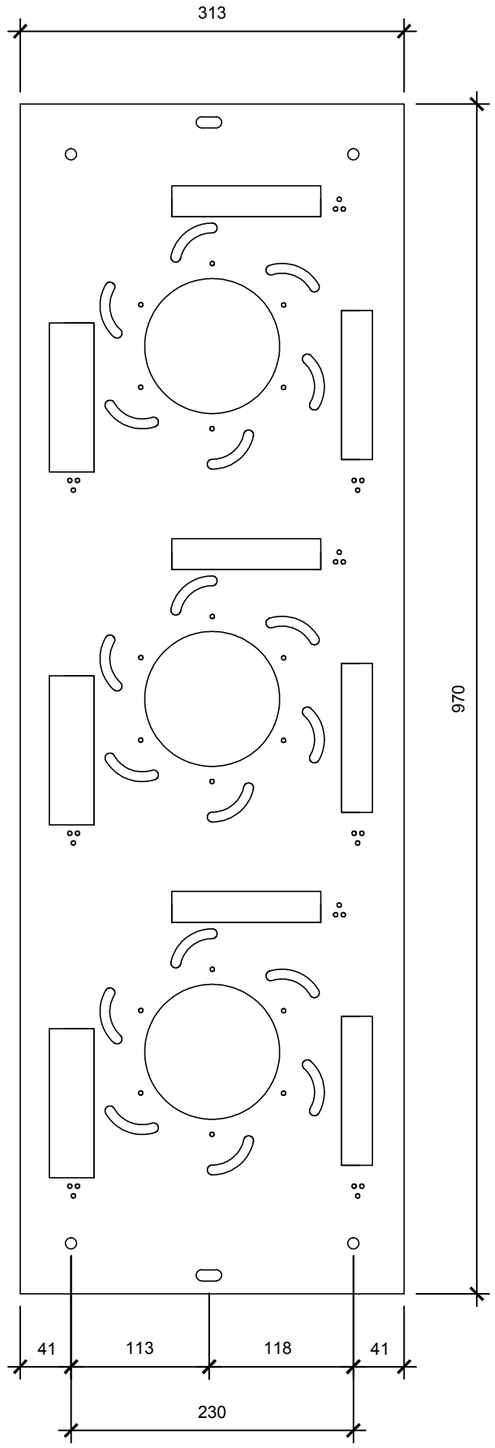
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DN	2013/07/01	DDc Submission
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Checked by	DN
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DWG. Title: WATER WALL DETAILS

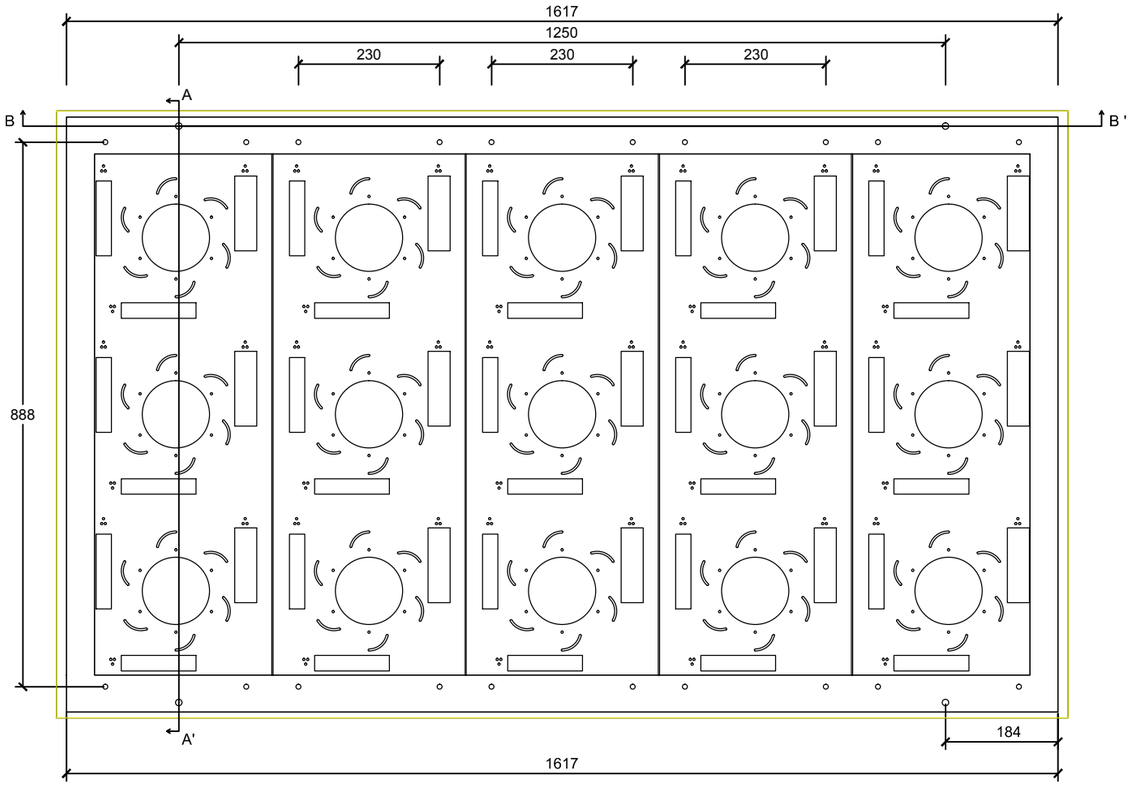
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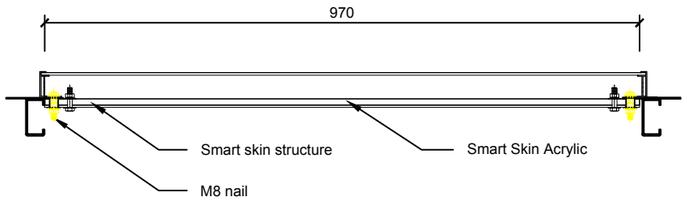
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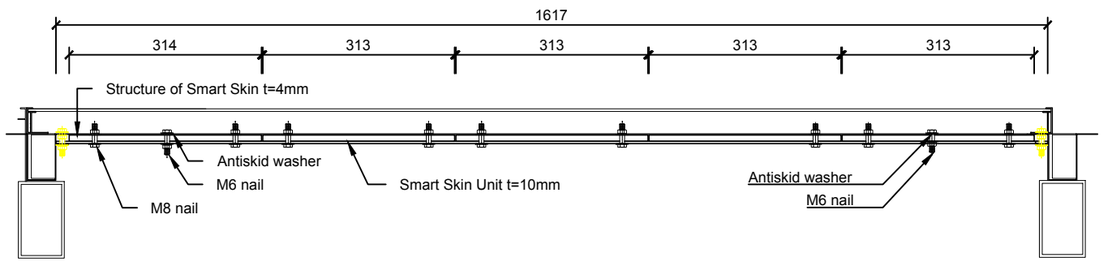
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2



0 0.1 0.2 0.5 METER

3



0 0.1 0.2 0.5 METER

4

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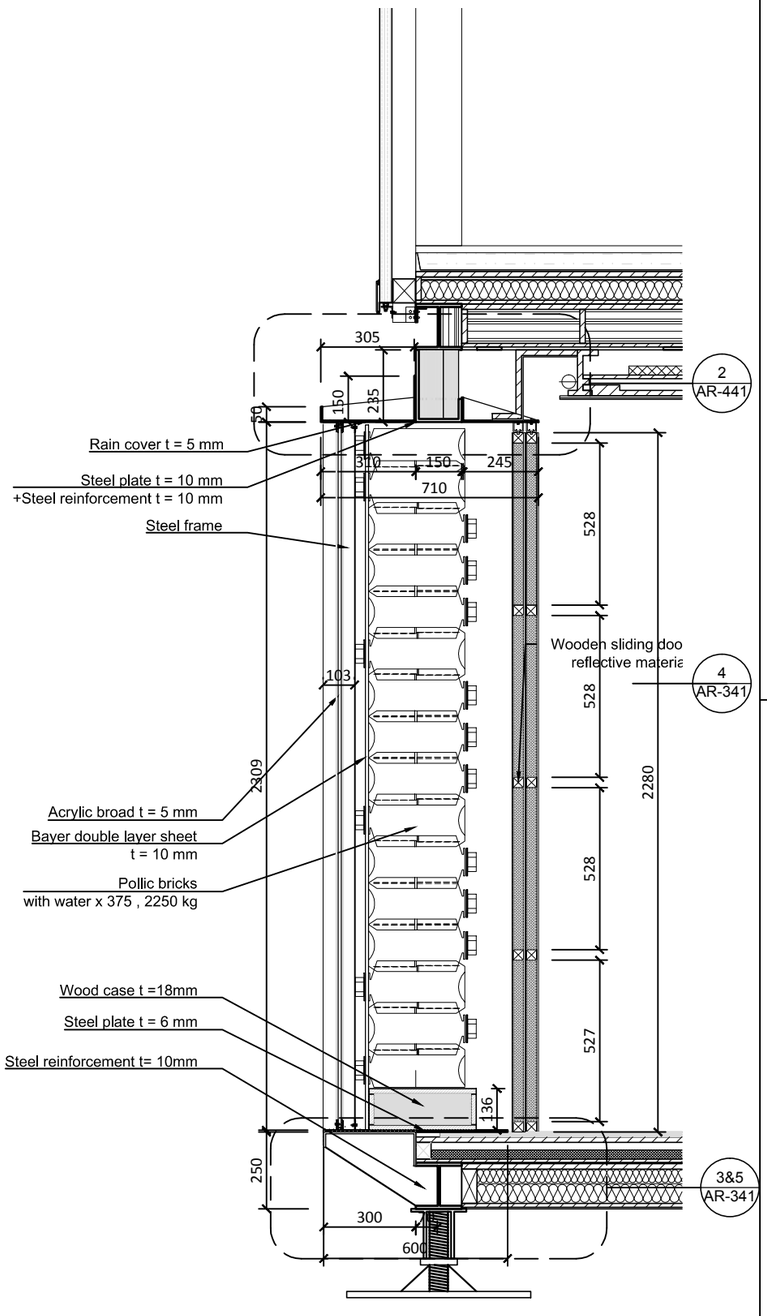
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Drawn by	RT
Checked by	ST
Scale	1:10
Unit	mm

DWG. Title: SMART SKIN DETAIL

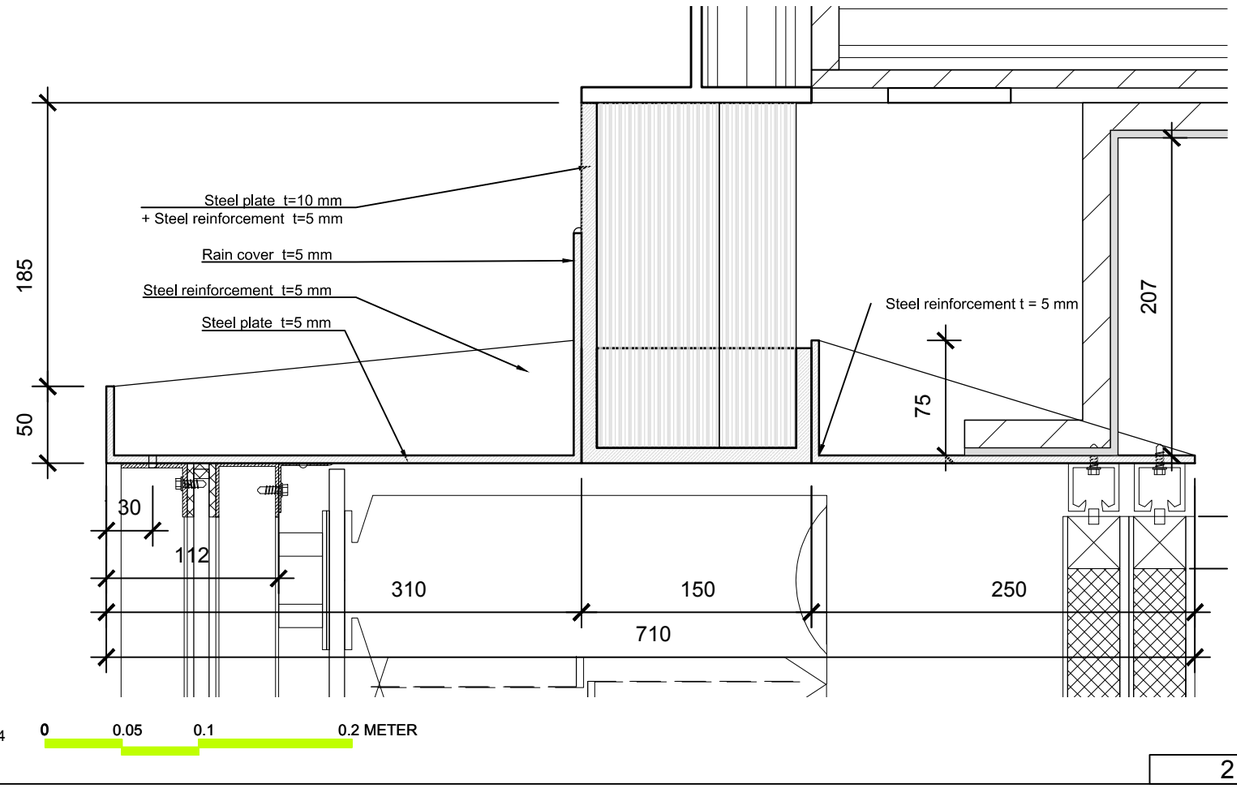
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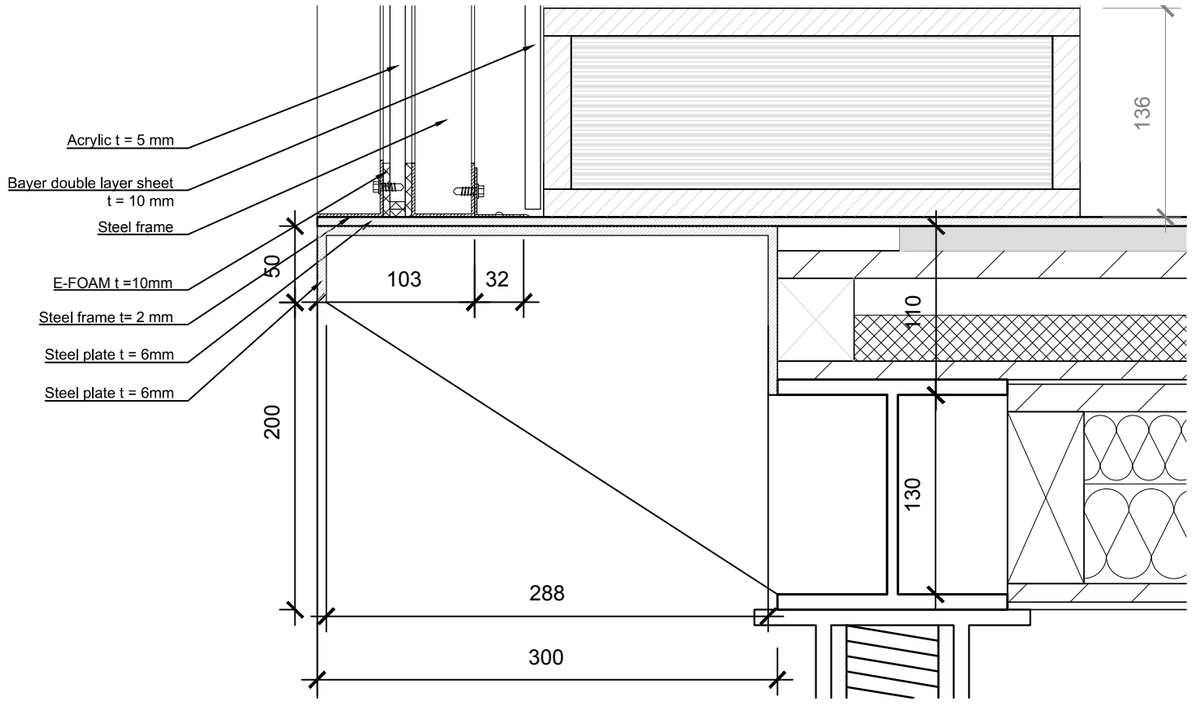
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1



1:4 0 0.05 0.1 0.2 METER

2



1:4 0 0.05 0.1 0.2 METER

3

Solar Decathlon Europe

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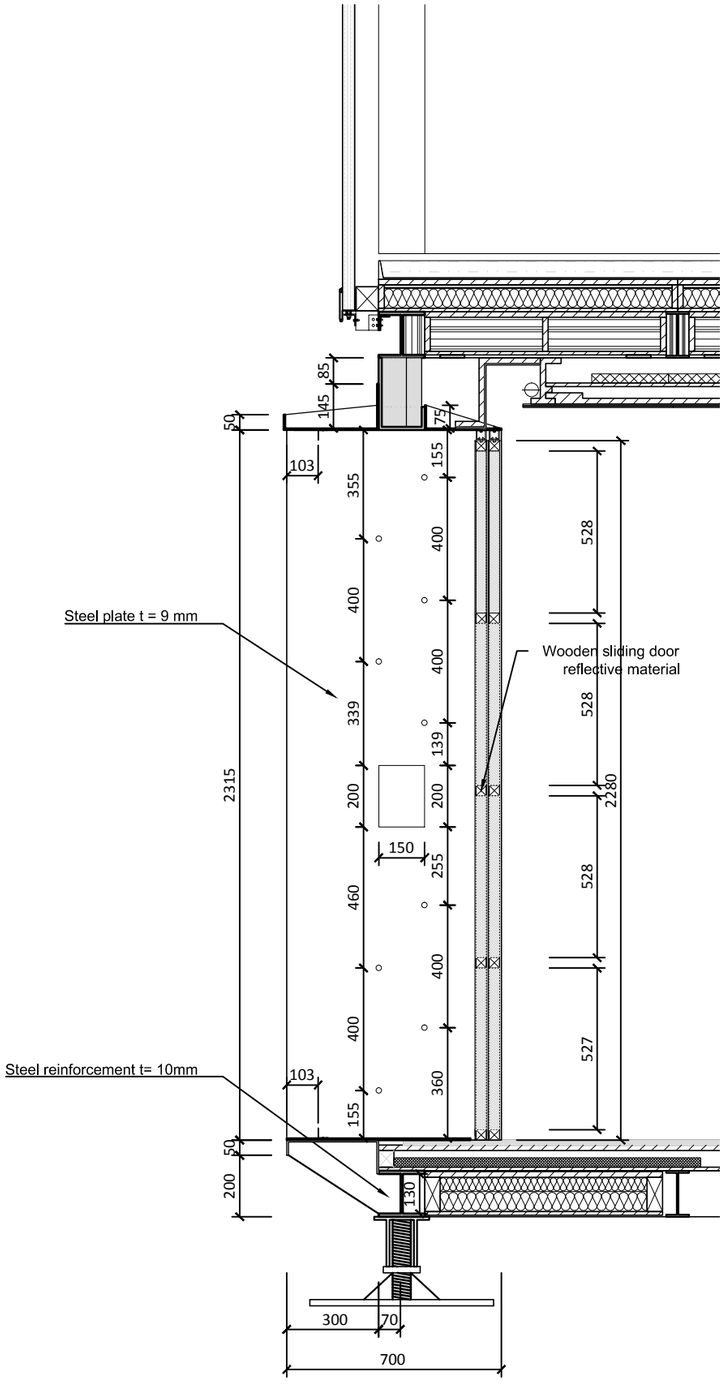
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ST	2014/04/30	CD Submission

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Checked by	DN
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Unit	mm

DWG. Title: THERMAL WALL DETAILS 1

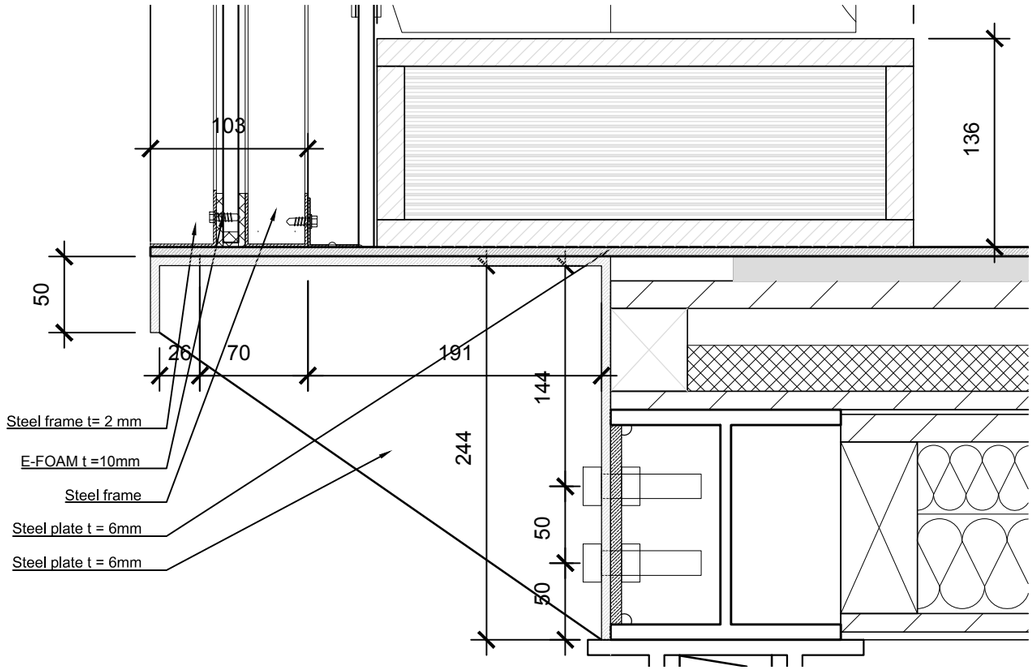
DWG. No. AR-431

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5

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Note:

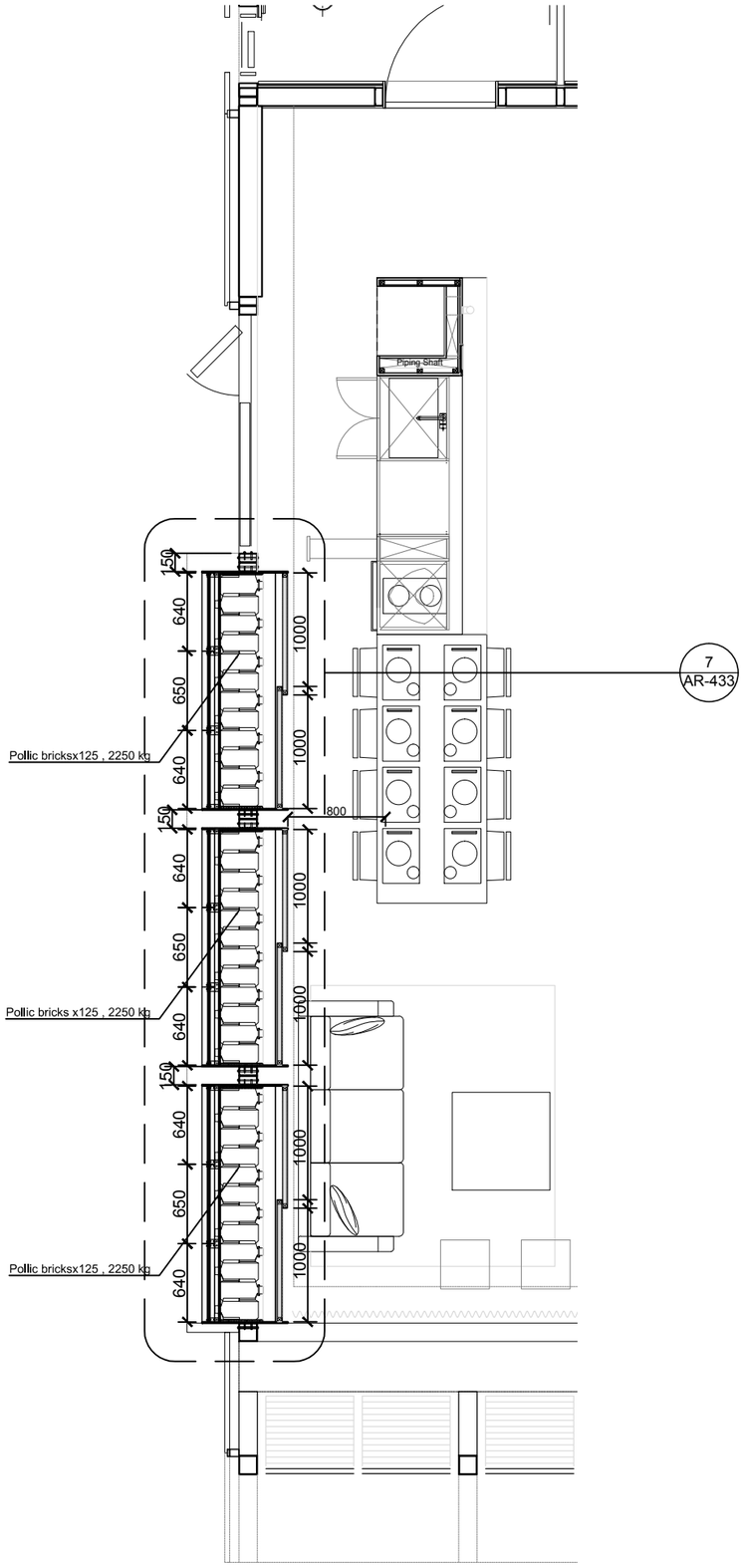
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Checked by	DN
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Unit	mm

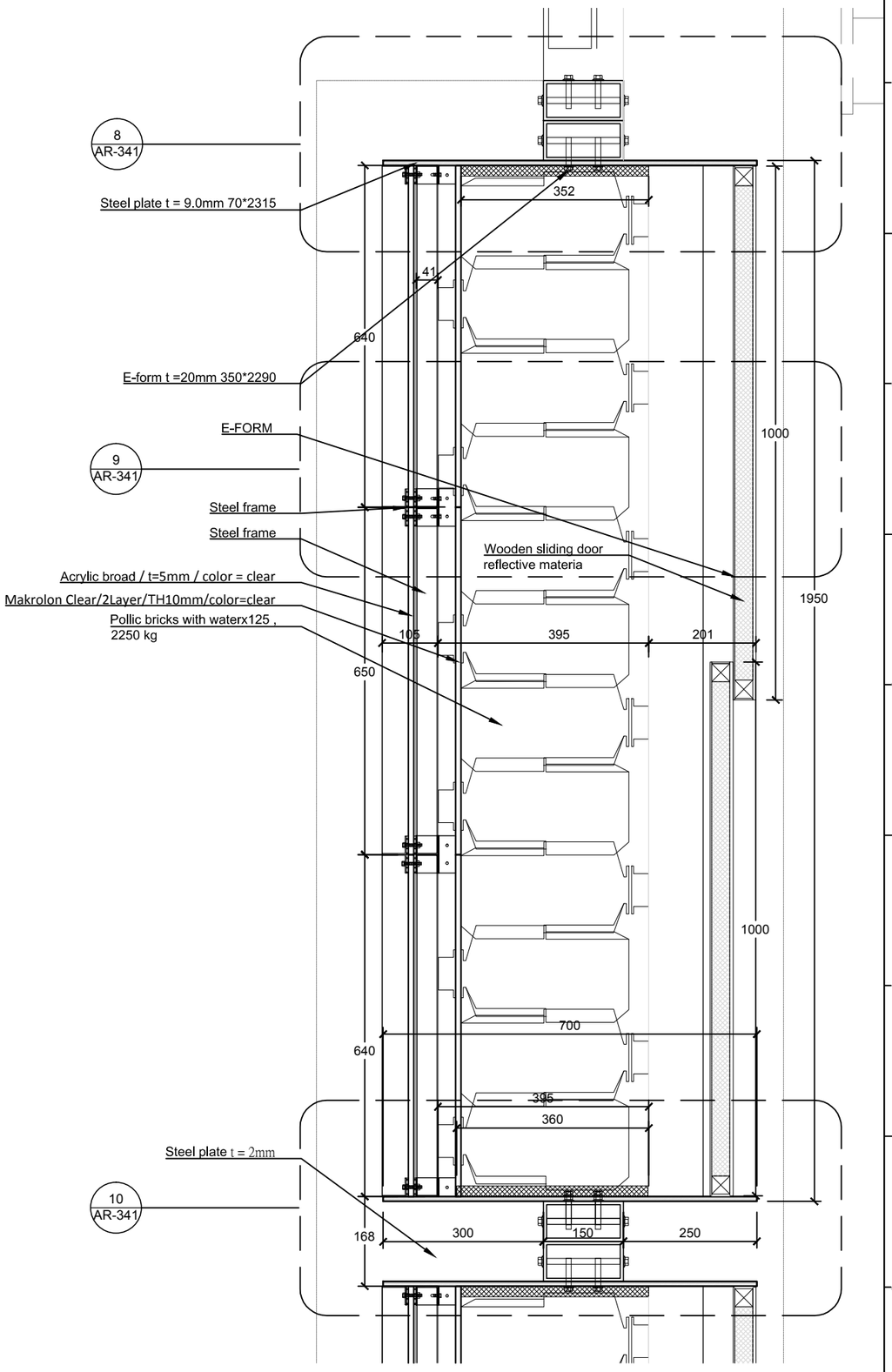
DWG. Title: THERMAL WALL DETAILS 2

DWG. No.: AR-432

PAGE: 79



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1:10 0 0.1 0.2 0.5 METER

6

7

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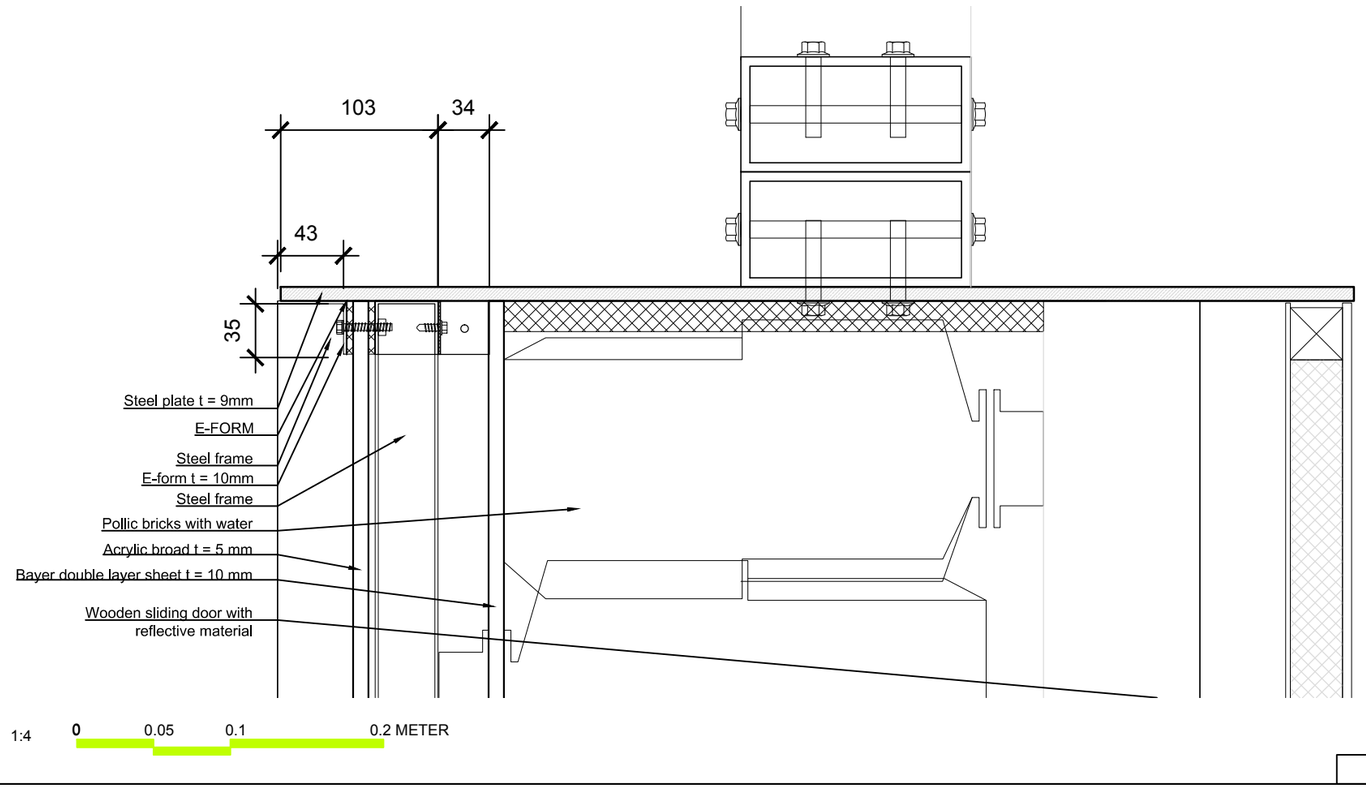
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ST	2014/04/30	CD Submission

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Unit	mm

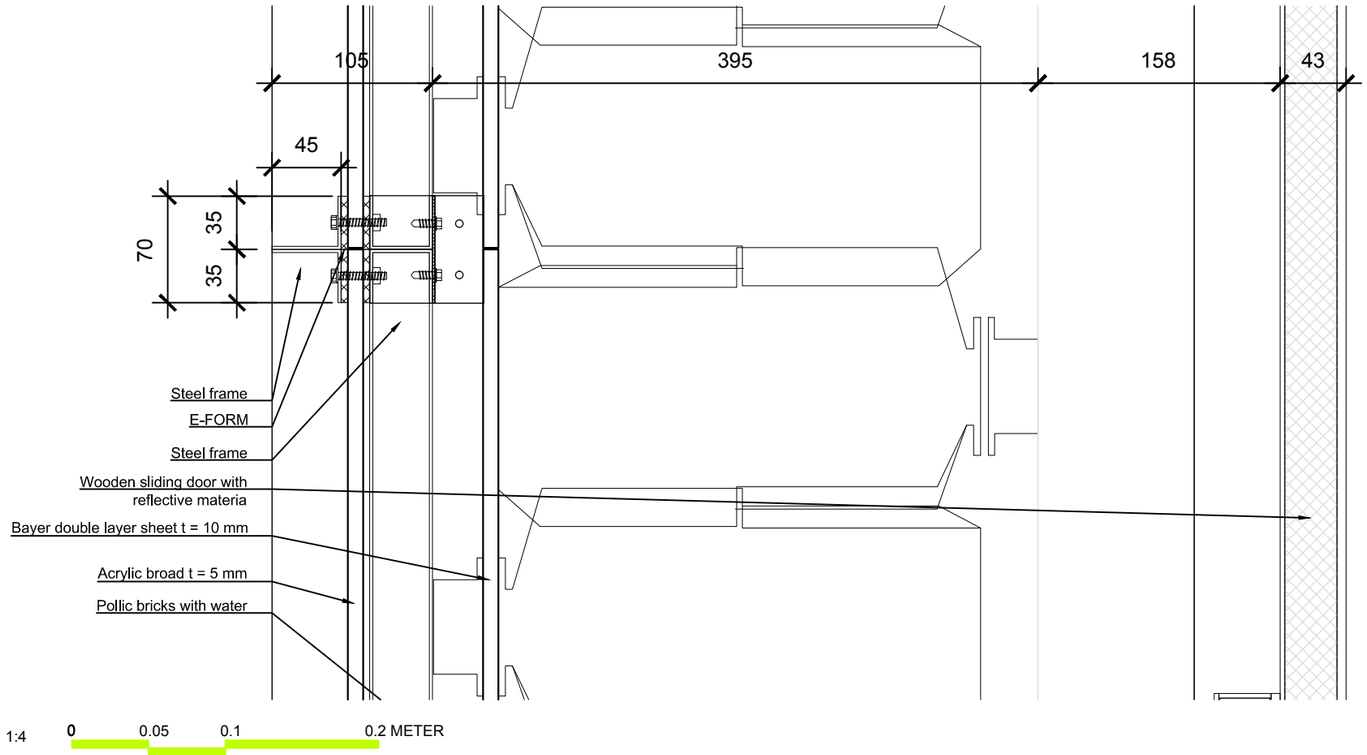
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DWG. No.: AR-433

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8



9

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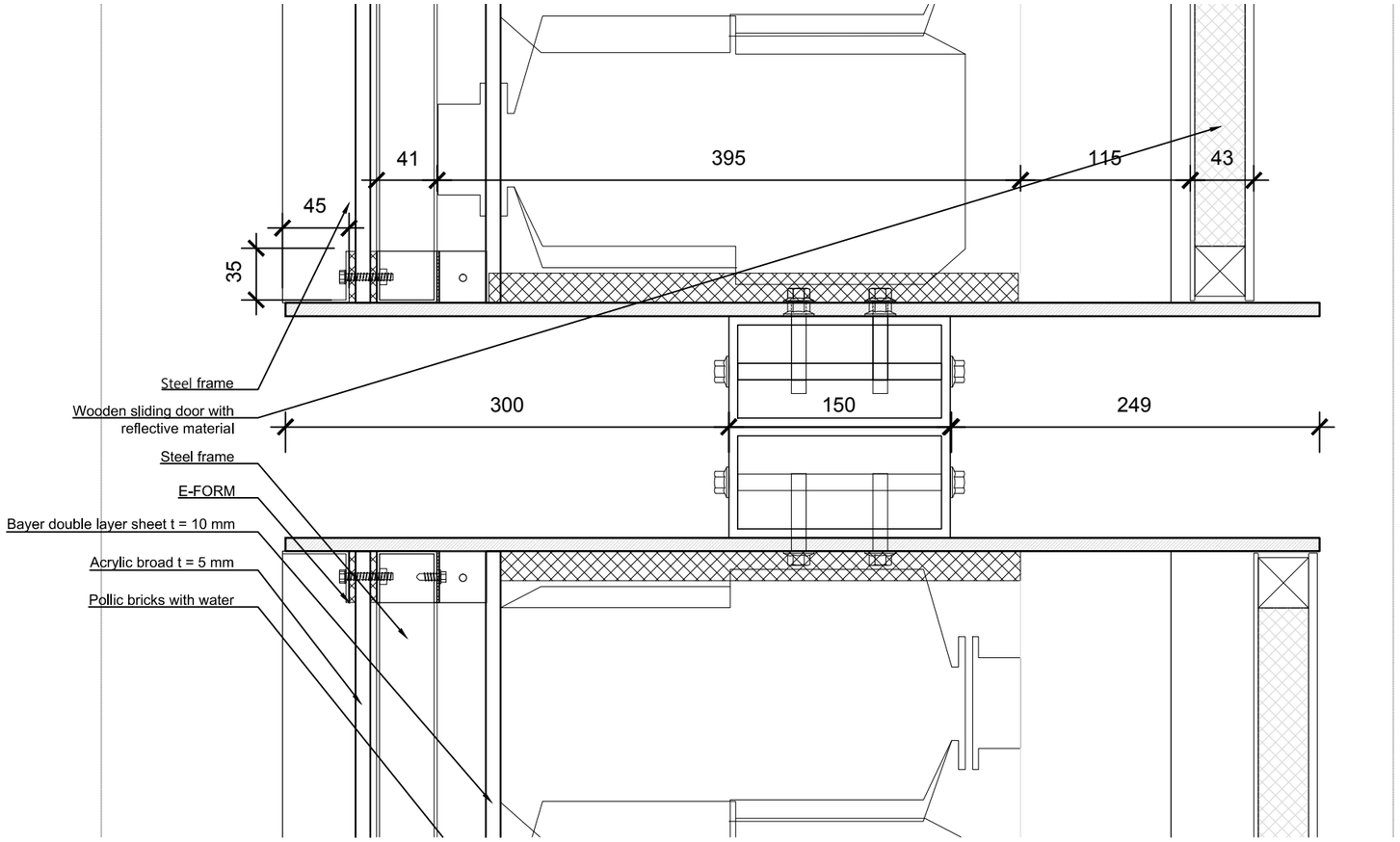
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Drawn by	JL
Checked by	DN
Scale	1: 04
Unit	mm

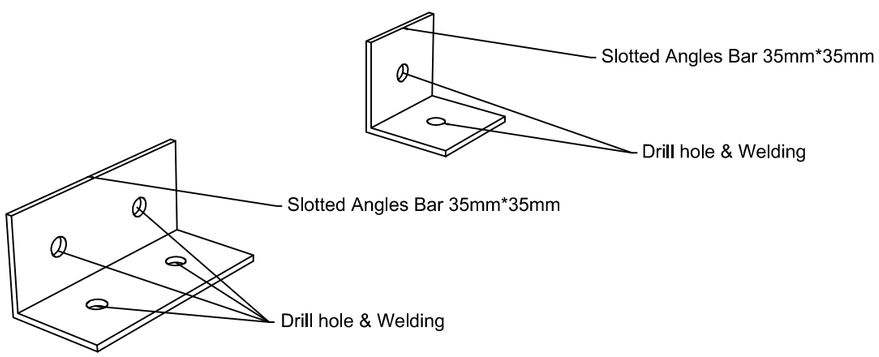
DWG. Title

THERMAL WALL DETAILS 4

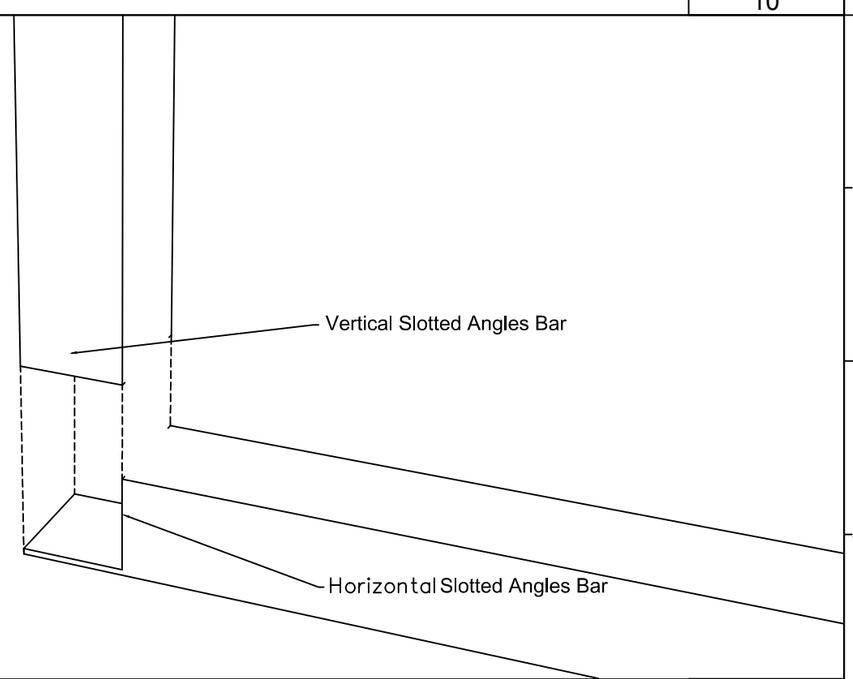
DWG. No.	PAGE
AR-434	81



10



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Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Contact: www.sde.tw

Consultants:

Note:

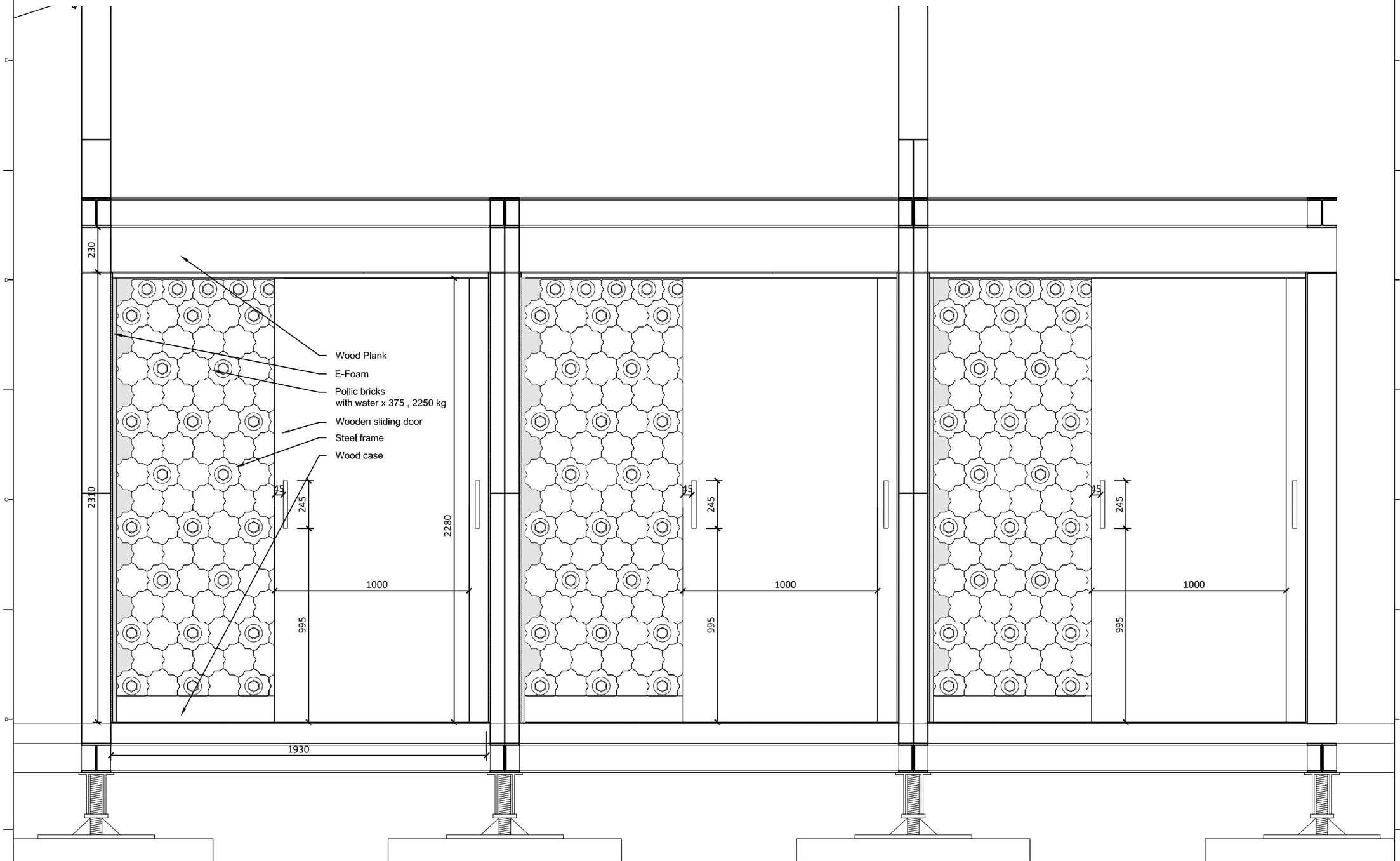
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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	JL
Checked by	DN
Scale	1:04
Unit	mm

DWG. Title: THERMAL WALL DETAILS 5

DWG. No.: AR-435

PAGE: 82



1:20 0 0.2 0.4 1 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Consultants:

Note:

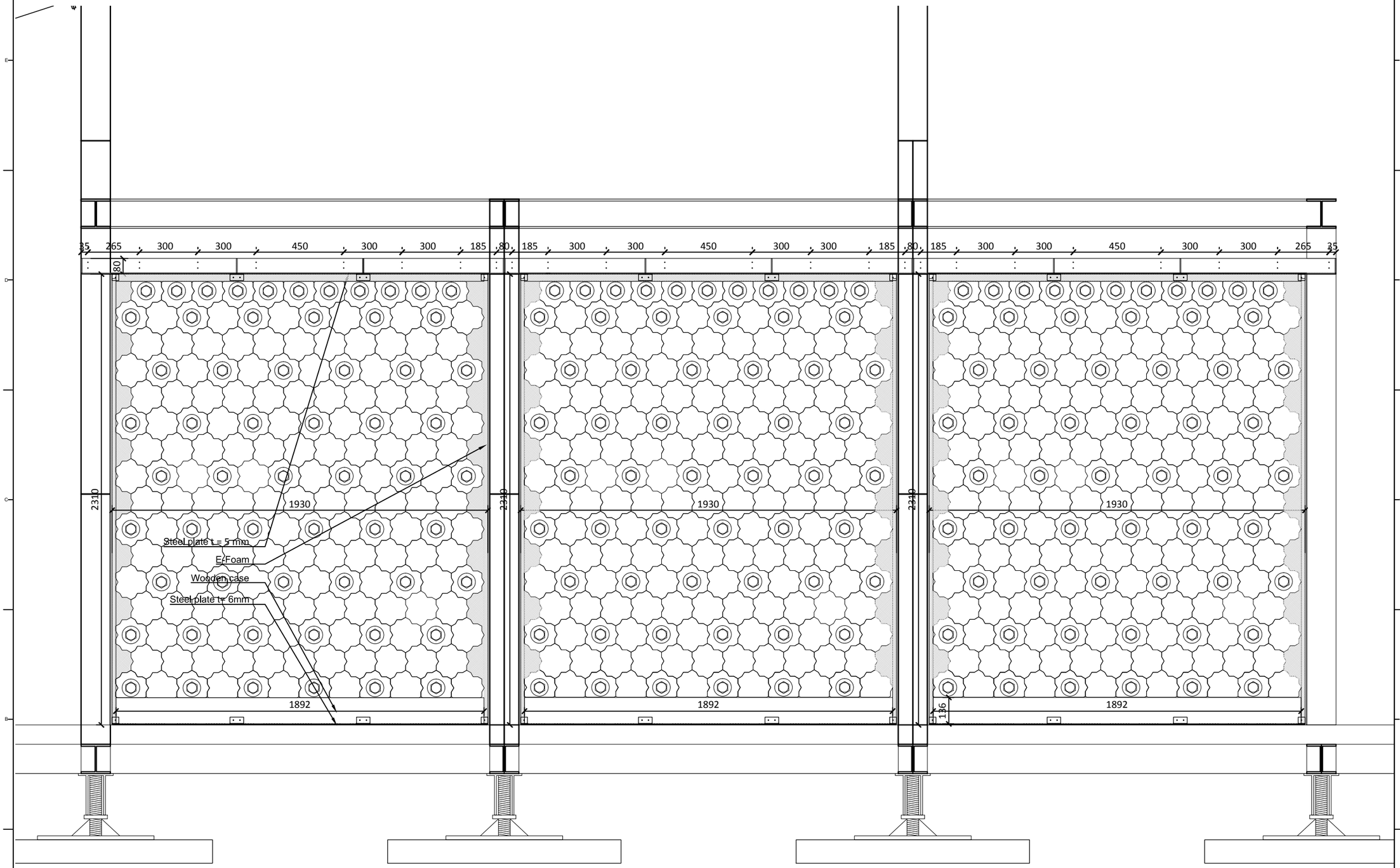
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ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	JL
Checked by	DN
Scale	1: 20
Unit	mm

DWG. Title
THERMAL WALL
DETAILS 6

DWG. No. AR-436

PAGE 83



1:20 0 0.2 0.4 1 METER

14

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
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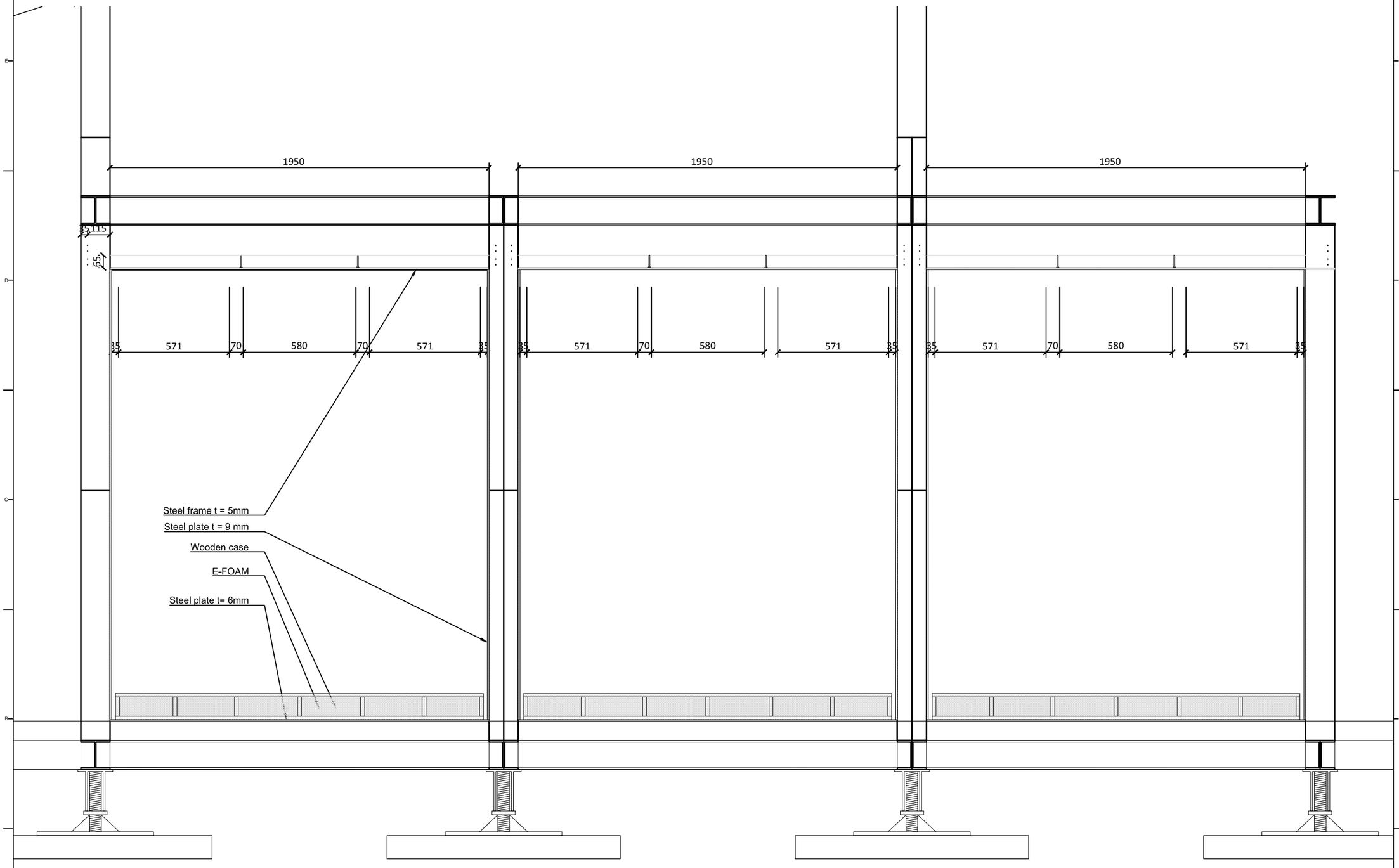
Drawn by	JL
Checked by	DN
Scale	1:20
Unit	mm

DWG. Title

THERMAL WALL DETAILS 7

DWG. No. AR-437

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Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

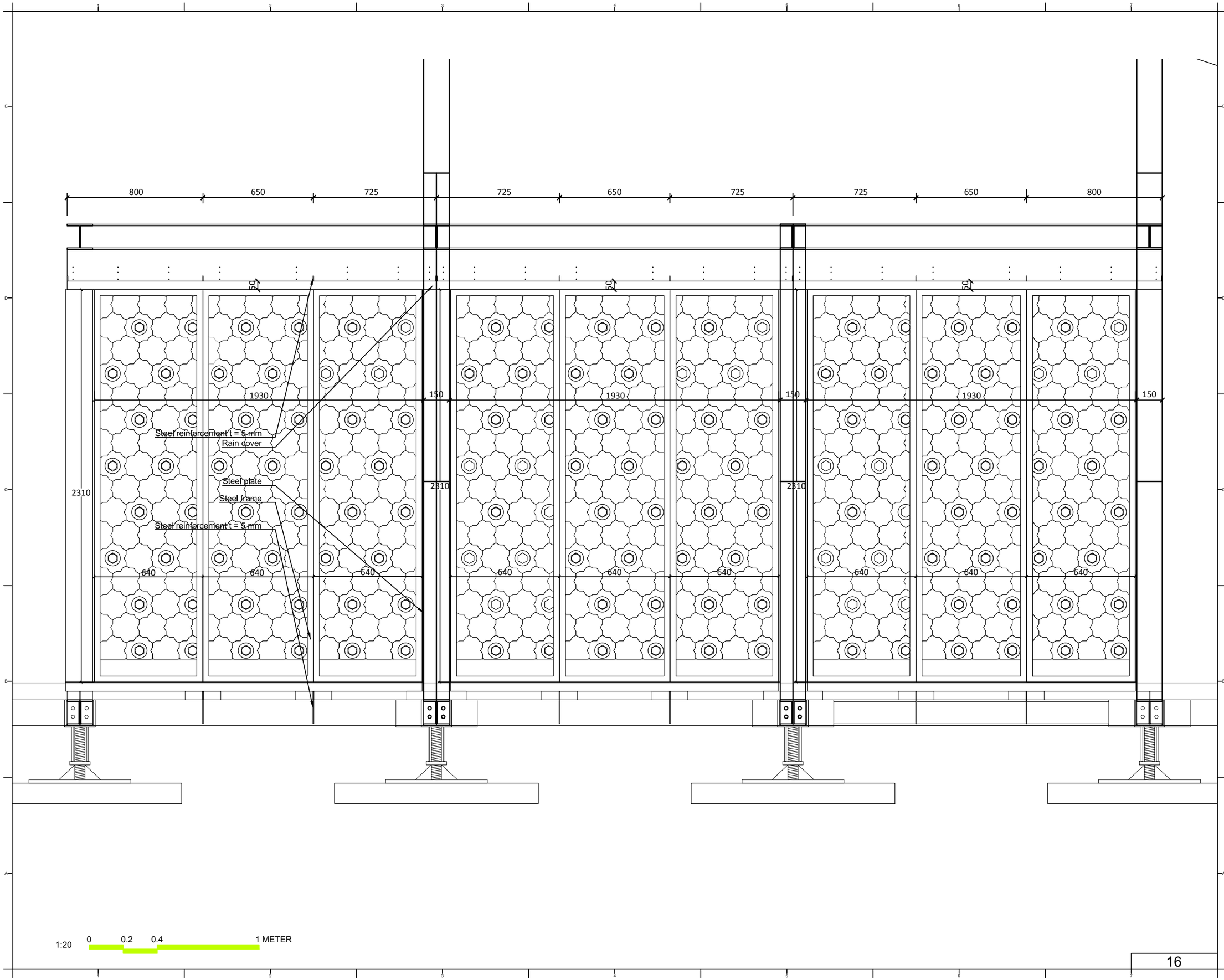
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Checked by	DN
Scale	1: 20
Unit	mm

DWG. Title

THERMAL WALL DETAILS 8

DWG. No. AR-438

PAGE 85



Solar Decathlon Europe

Project:

ORCHID HOUSE

Institution:

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Note:

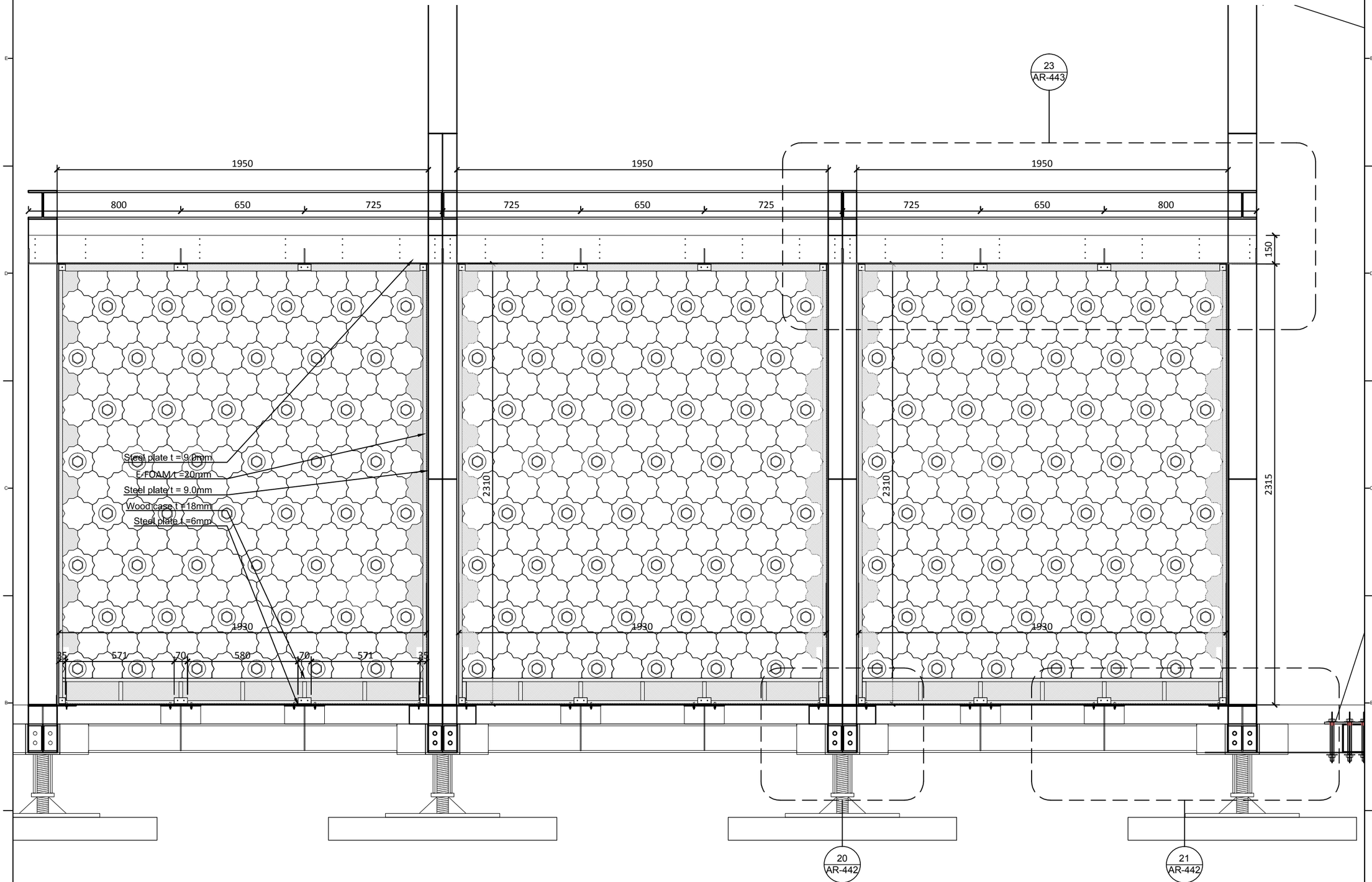
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ST	2014/04/30	CD Submission

Drawn by	JL
Checked by	DN
Scale	1: 20
Unit	mm

DWG. Title

THERMAL WALL
DETAILS 9

DWG. No.	PAGE
AR-439	86



1:20 0 0.2 0.4 1 METER

17

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Consultants:

Note:

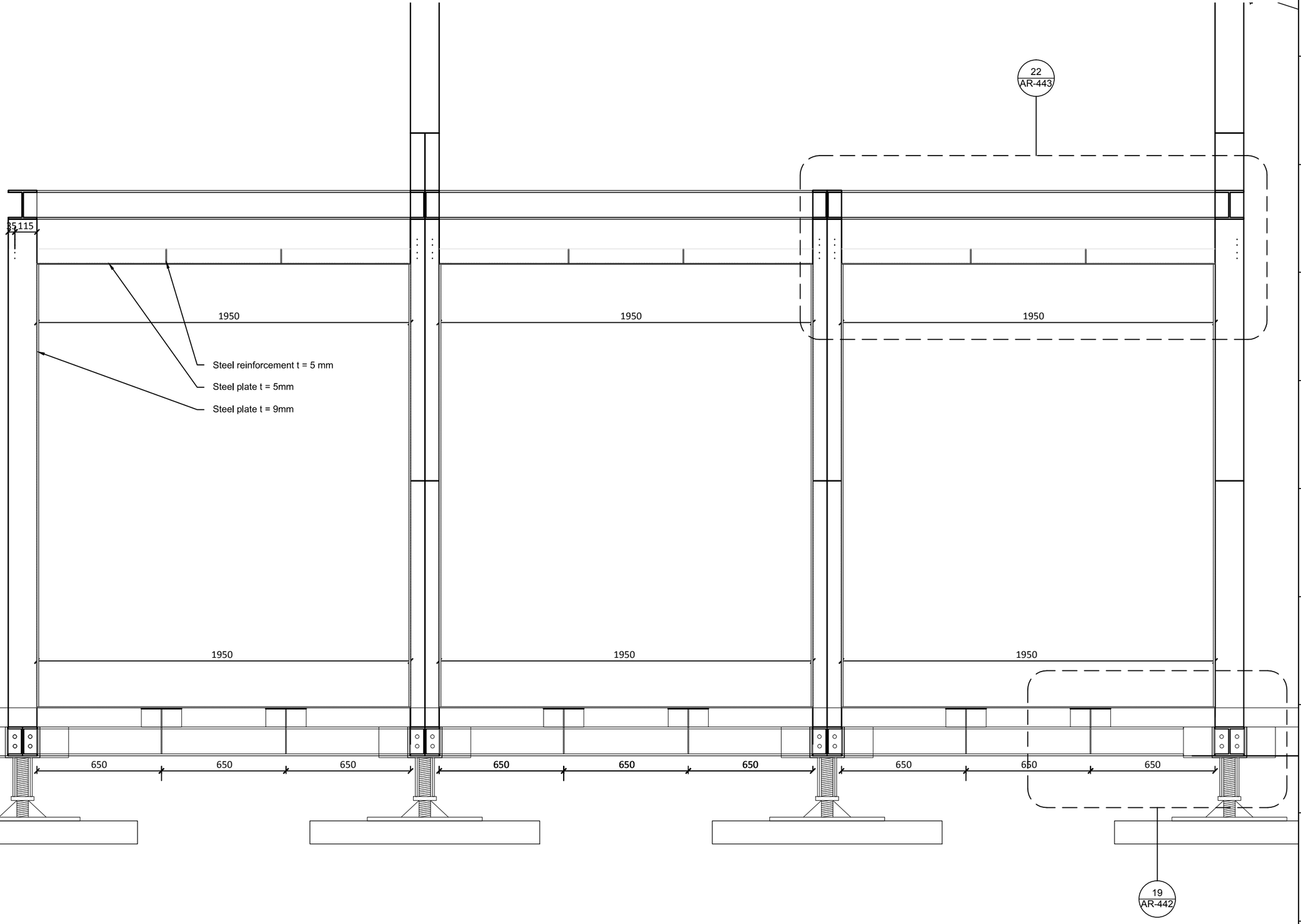
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ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	JL
Checked by	DN
Scale	1:20
Unit	mm

DWG. Title: THERMAL WALL DETAILS 10

DWG. No.: AR-440

PAGE: 87



1:20 0 0.2 0.4 1 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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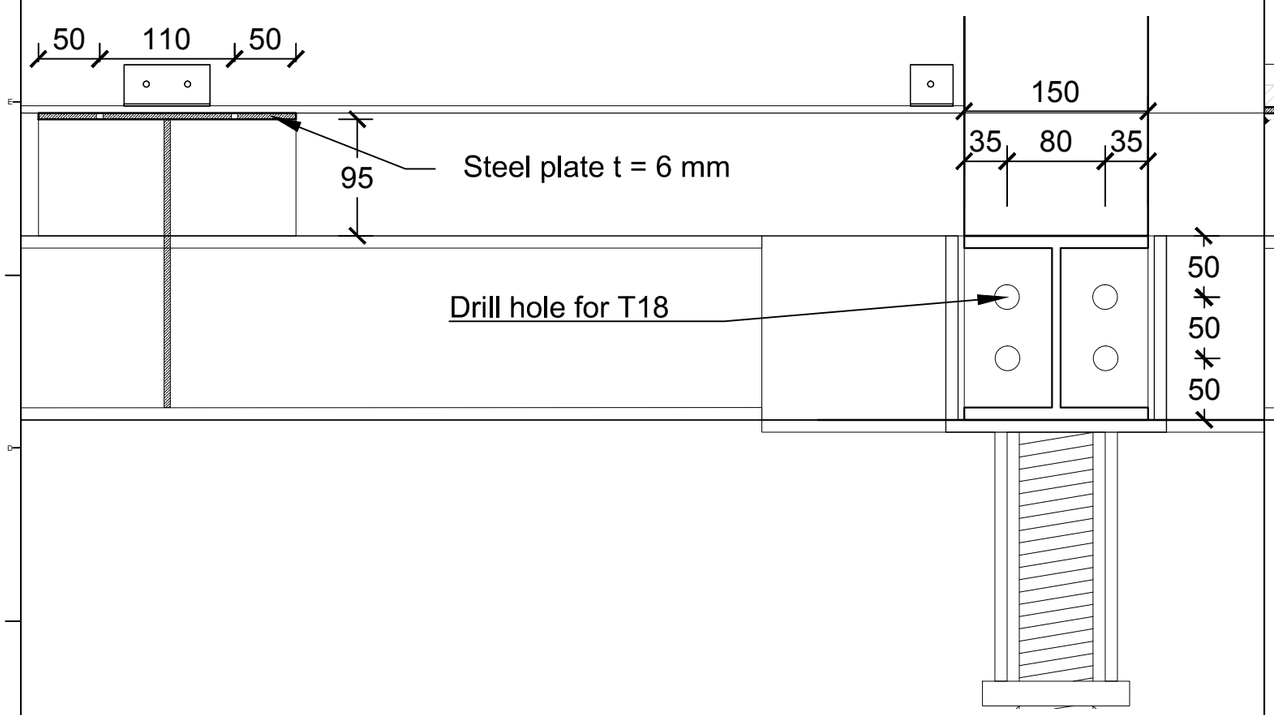
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Unit	mm

DWG. Title

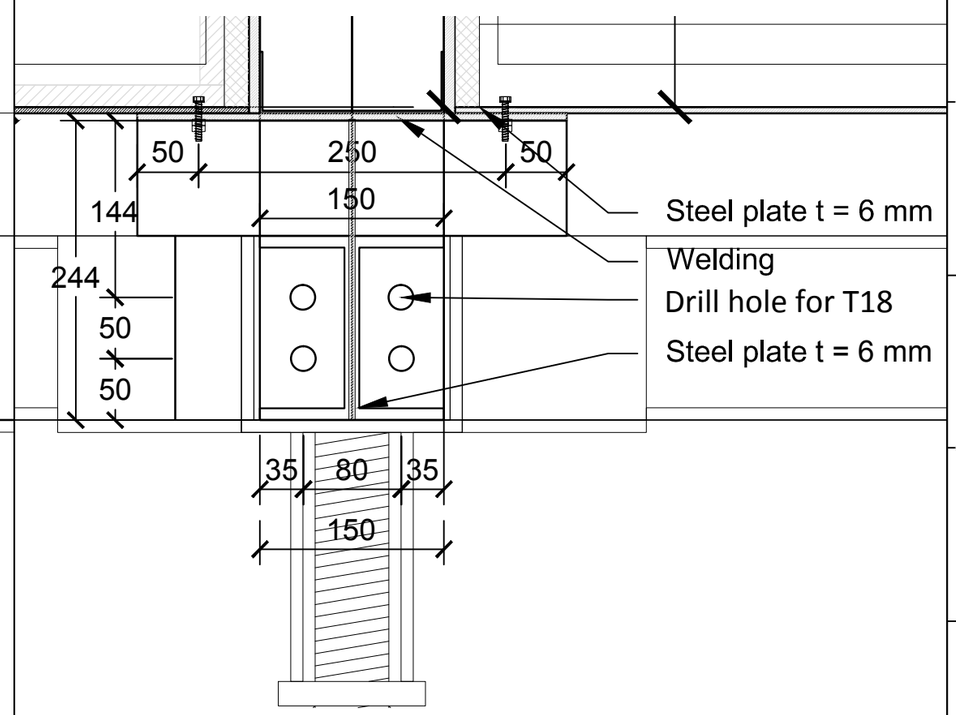
THERMAL WALL DETAILS 11

DWG. No. AR-441

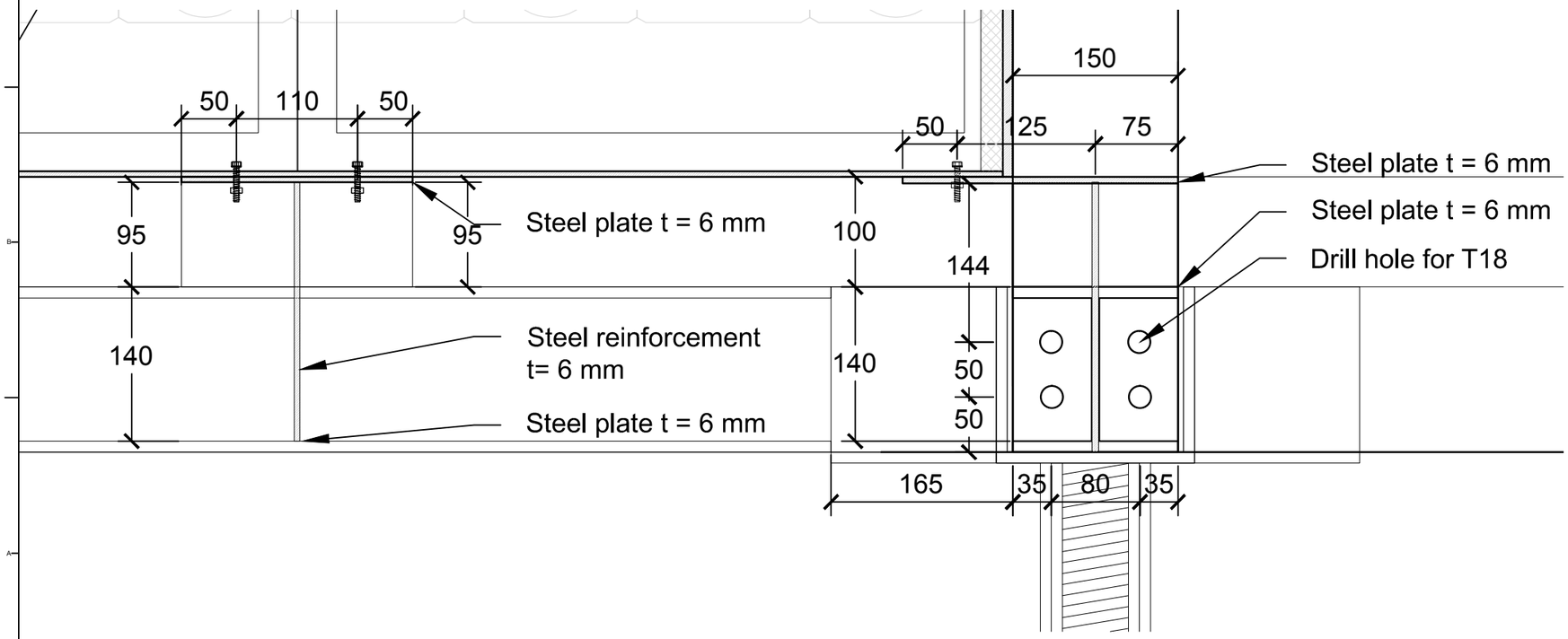
PAGE 88



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Solar Decathlon Europe

Project: ORCHID HOUSE

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Taiwan

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Consultants:

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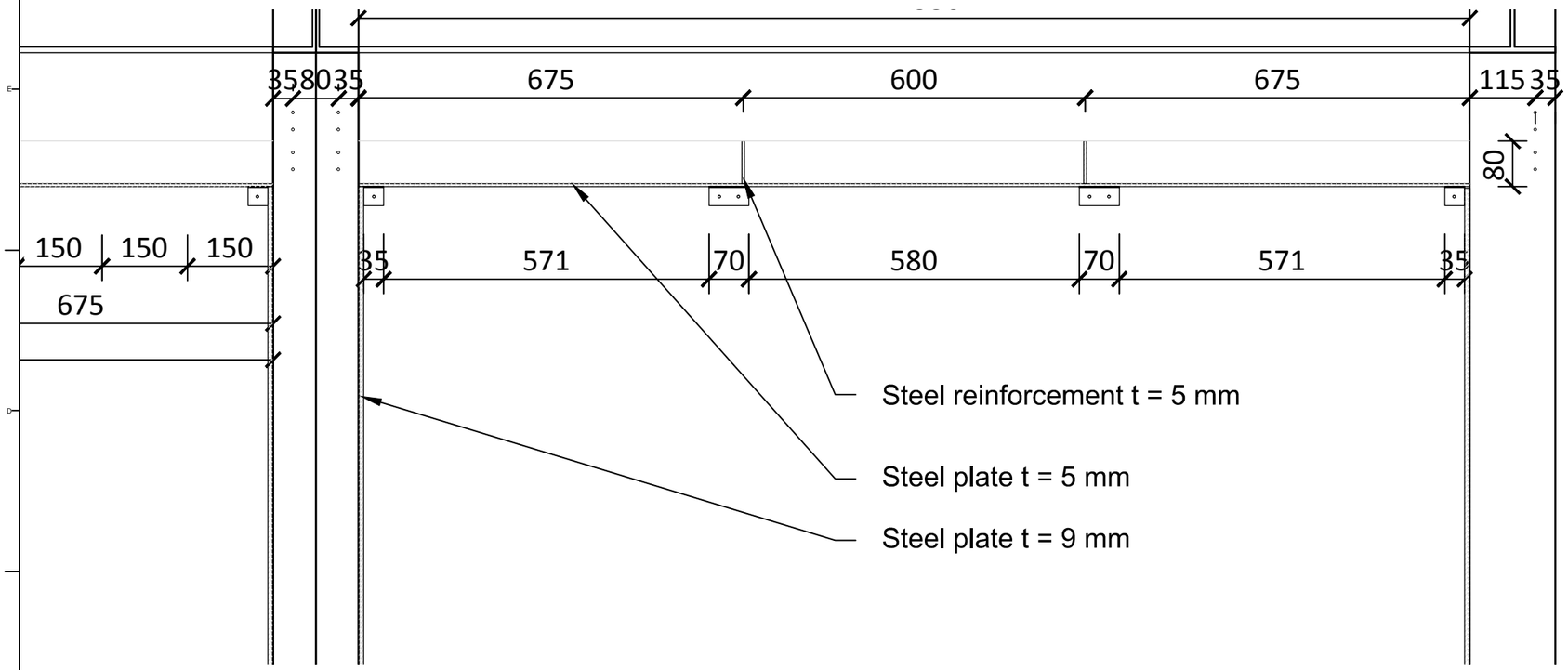
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DN	2013/07/01	DDc Submission
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Checked by	DN
Scale	1:5
Unit	mm

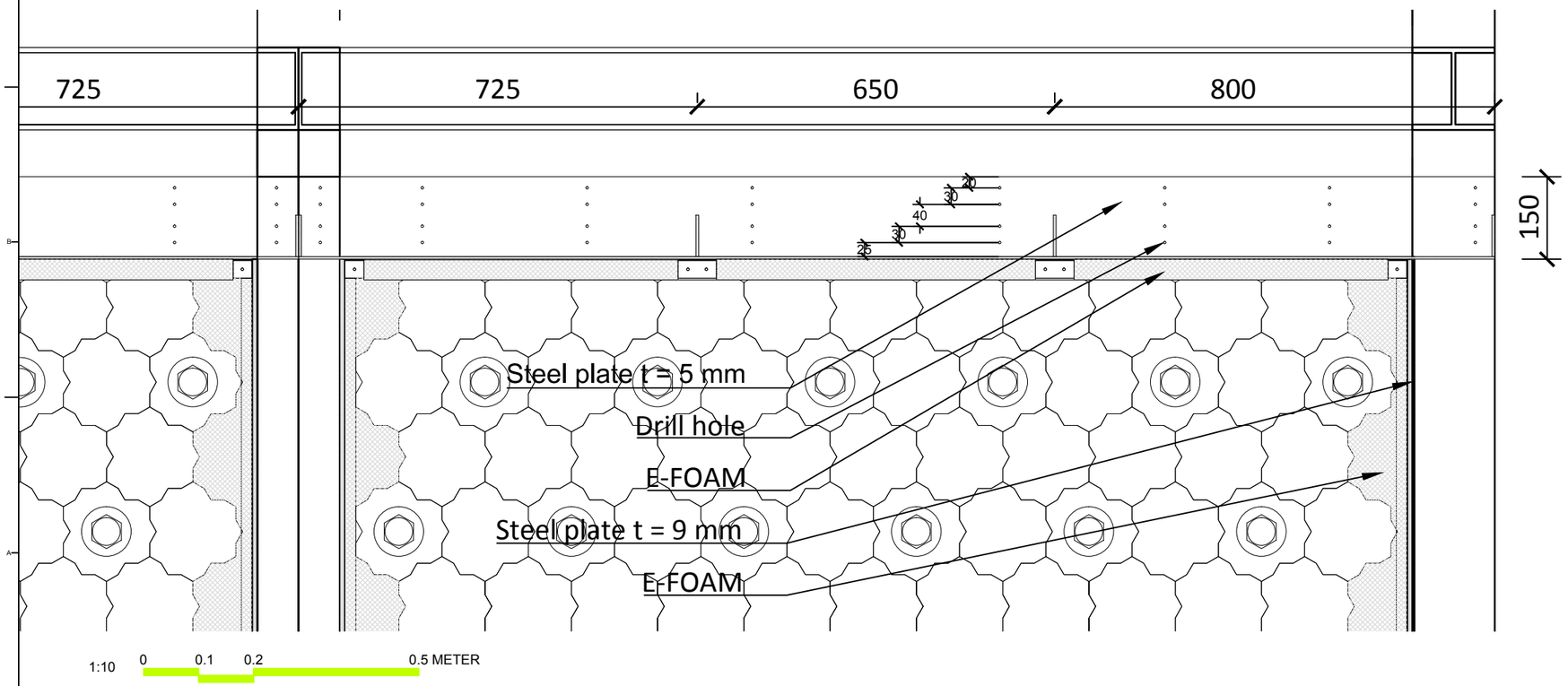
DWG. Title: THERMAL WALL DETAILS 12

DWG. No.: AR-442

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Solar Decathlon Europe

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Institution: 國立交通大學 National Chiao Tung University

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ST	2014/04/30	CD Submission

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Scale	1: 10
Unit	mm

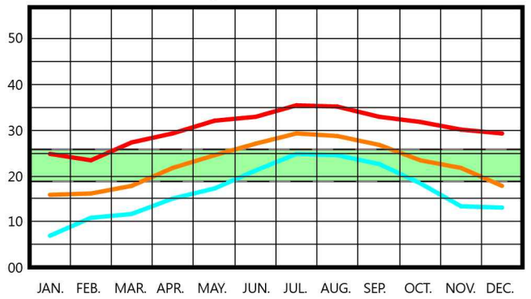
DWG. Title: THERMAL WALL DETAILS 13

DWG. No.: AR-443

PAGE: 90

TEMPERATURE (°C)

LOCATION: TAIPEI, TWN



RANGE OF OUTDOOR TEMPERATURE FOR COMFORTABLE INDOOR TEMPERATURE

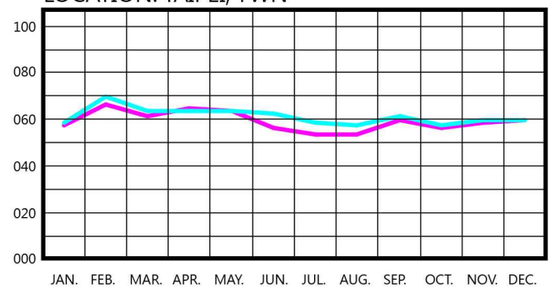
MAXIMUM TEMPERATURE

AVERAGE TEMPERATURE

MINIMUM TEMPERATURE

HUMIDITY (%)

LOCATION: TAIPEI, TWN



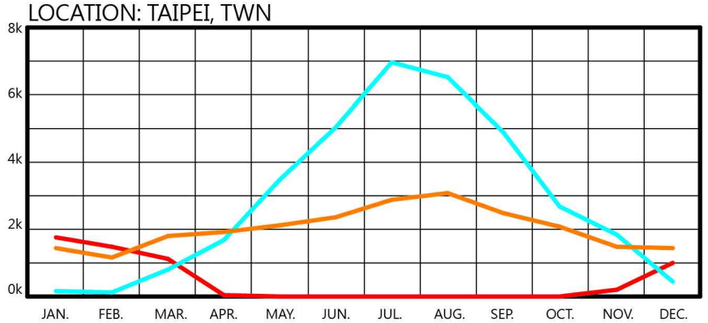
RELATIVE HUMIDITY (09:00AM)

RELATIVE HUMIDITY (03:00PM)

DEGREE HOURS

(HEATING,COOLING AND SOLAR)

LOCATION: TAIPEI, TWN

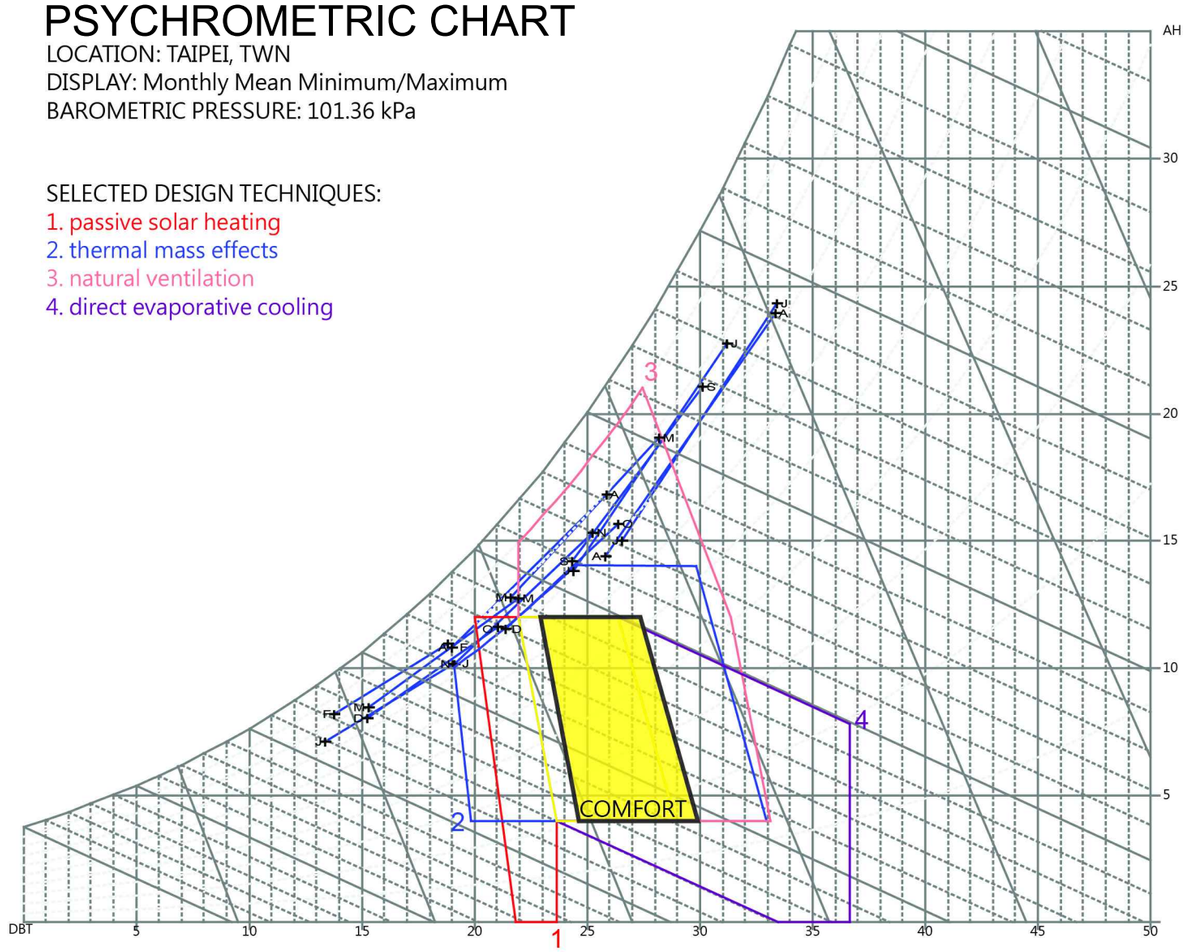


DEGREE-HOURS	ANNUAL
HEATING DEGREE-HOURS	5795
SOLAR EXCESS DEGREE-HOURS	24511
COOLING DEGREE-HOURS	34668

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



Solar Decathlon Europe

Project: ORCHID HOUSE

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Note:

Mark	Date	Description
DN	2013/04/01	SD Submission
DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by: JL

Checked by: DN

Scale: -

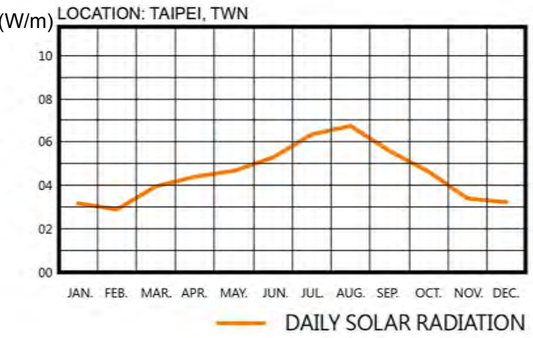
Unit: -

DWG. Title: TAIPEI CLIMATE ANALYSIS

DWG. No.: BA-001

PAGE: 91

RADIATION (W/m)



BASIC CLIMATIC CONDITION

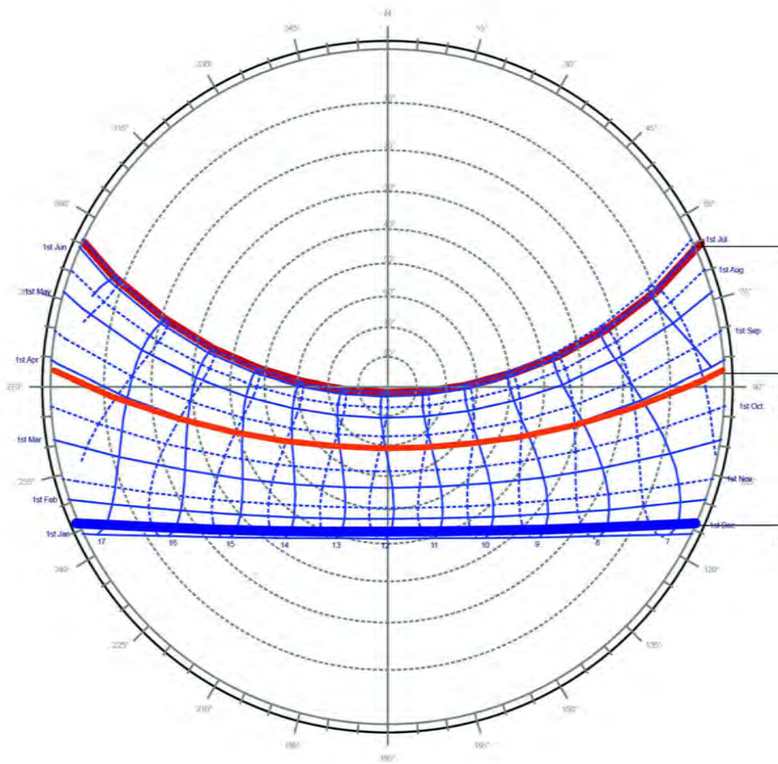


OVERHEATED PERIOD
(JUN.01-SEP.21)

UNDERHEATED PERIOD
(DEC.01-MAR.21)

COMFORTABLE PERIOD
(MAR.21-JUN.01 & SEP.21-DEC.01)

SOLAR PATH DIAGRAM



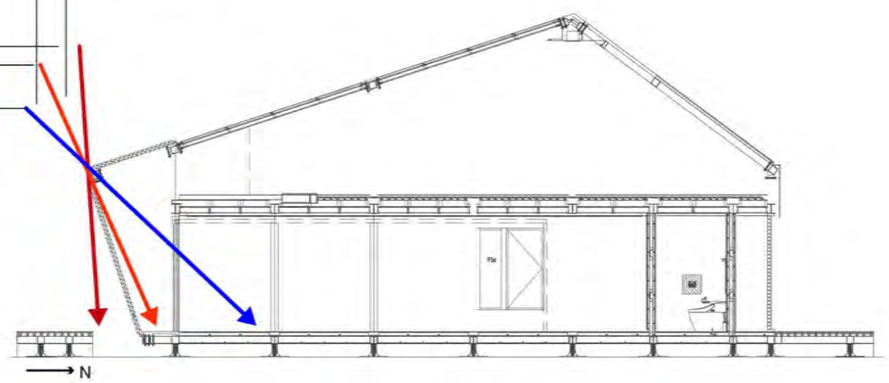
UNDERHEATED PERIOD
DIRECT SOLAR GAIN

OVERHEATED PERIOD
SHADING

JUN. 22nd

MAR. 21st
SEP. 21st

DEC. 22nd



Date: December 22st

Date: September 21st
ANGLE : 65.7°

Date: March 21st
ANGLE : 66.2°

Date: June 22nd

Solar Decathlon Europe

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ST	2014/04/30	CD Submission

Drawn by: JL

Checked by: DN

Scale: -

Unit: -

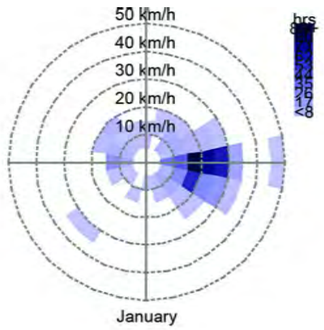
DWG. Title: TAIPEI SHADING ANALYSIS

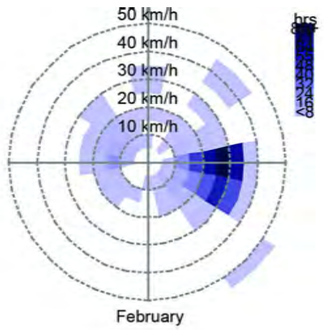
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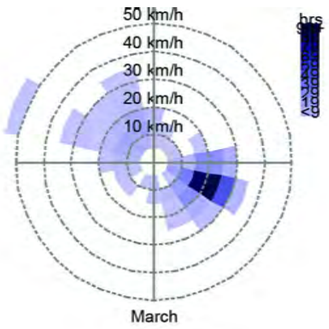
PAGE: 92

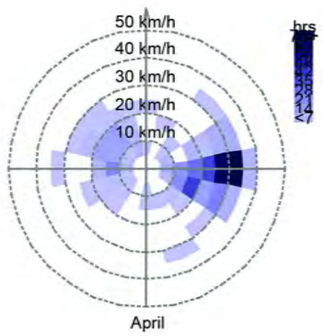
PREVAILING WINDS

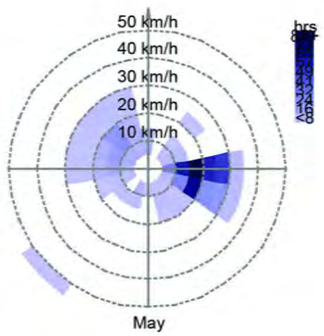
Wind Frequency (Hrs)
Location: TAIPEI, TWN
Date: January 1st - December 31st
Time: 00:00 - 24:00

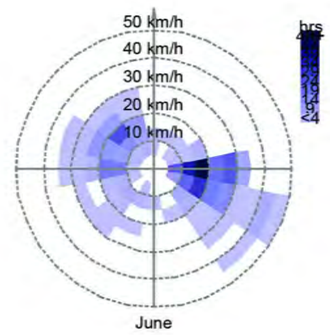


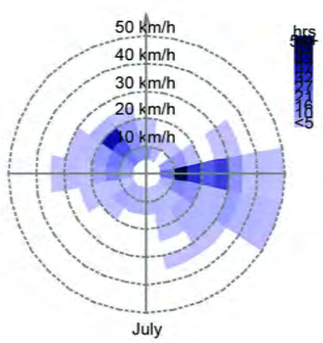


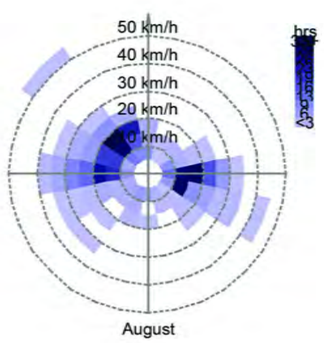


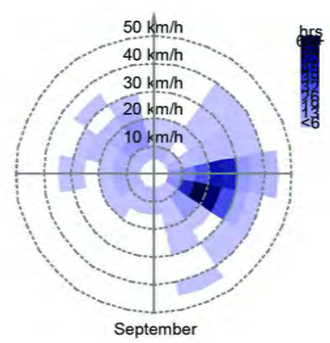


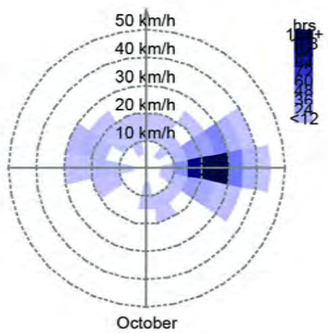


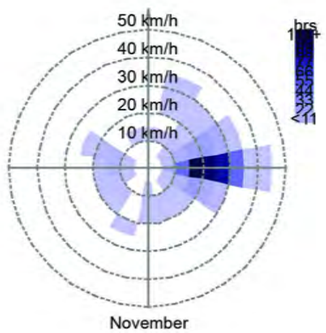


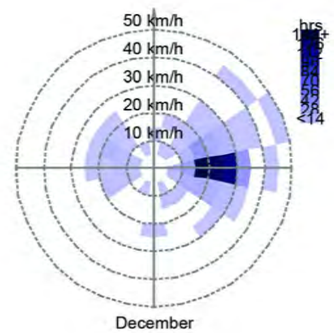












Solar Decathlon Europe

Project: ORCHID HOUSE

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ST	2014/04/30	CD Submission

Drawn by	JL
Checked by	DN
Scale	-
Unit	-

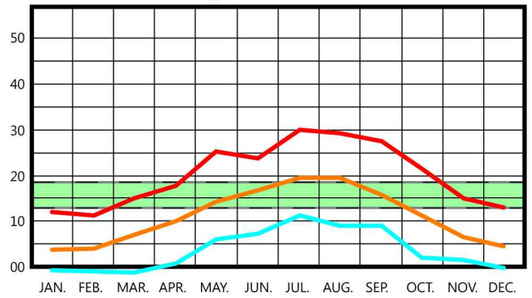
DWG. Title: TAIPEI WIND ROSE ANALYSIS

DWG. No.: BA-003

PAGE: 93

TEMPERATURE (°C)

LOCATION: PARIS_ ORLY, FRA



RANGE OF OUTDOOR TEMPERATURE FOR COMFORTABLE INDOOR TEMPERATURE

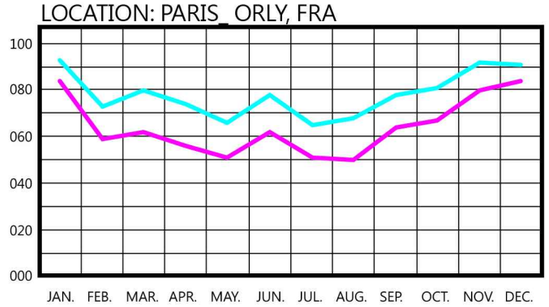
MAXIMUM TEMPERATURE

AVERAGE TEMPERATURE

MINIMUM TEMPERATURE

HUMIDITY (%)

LOCATION: PARIS_ ORLY, FRA



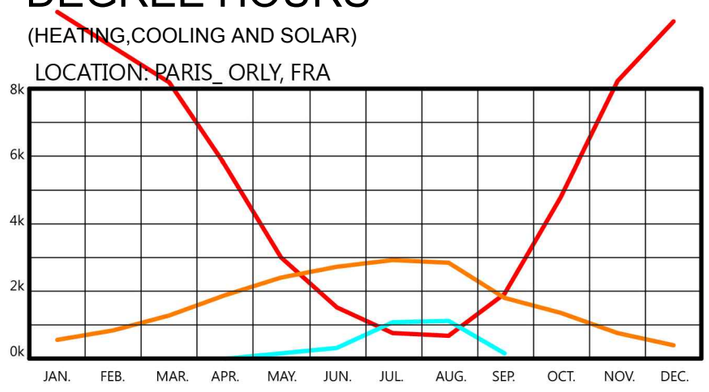
RELATIVE HUMIDITY (09:00AM)

RELATIVE HUMIDITY (03:00PM)

DEGREE HOURS

(HEATING,COOLING AND SOLAR)

LOCATION: PARIS_ ORLY, FRA

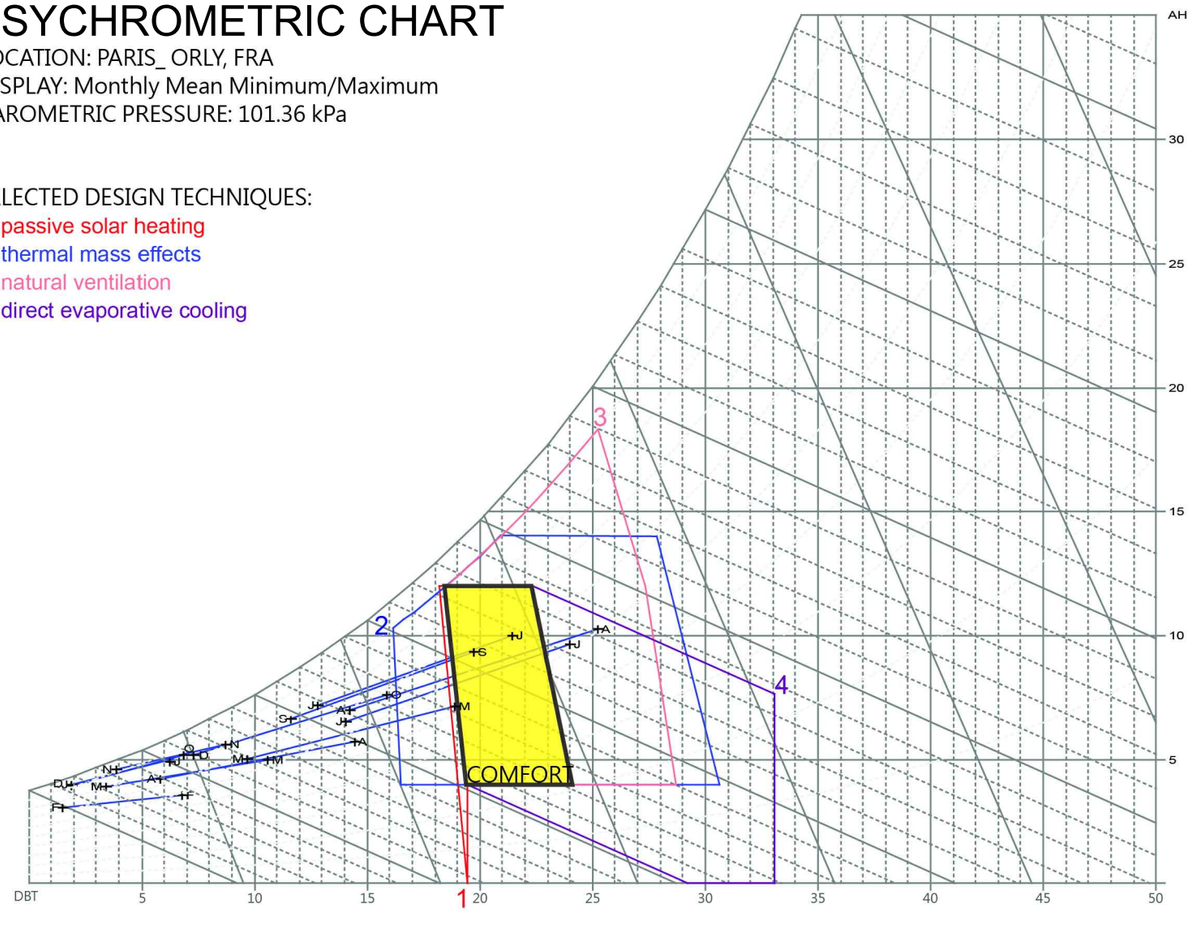


DEGREE-HOURS	ANNUAL
HEATING DEGREE-HOURS	64193
SOLAR EXCESS DEGREE-HOURS	19993
COOLING DEGREE-HOURS	2929

PSYCHROMETRIC CHART

LOCATION: PARIS_ ORLY, FRA
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



Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

NCTU Architecture 國立交通大學建築研究所

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Contact: www.sde.tw

Consultants:

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ST	2014/04/30	CD Submission

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Checked by	DN
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Unit	-

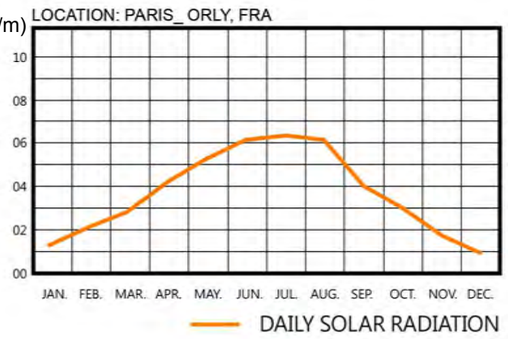
DWG. Title

VERSAILLES CLIMATE ANALYSIS

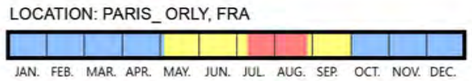
DWG. No. BA-004

PAGE 94

RADIATION (W/m)



BASIC CLIMATIC CONDITION

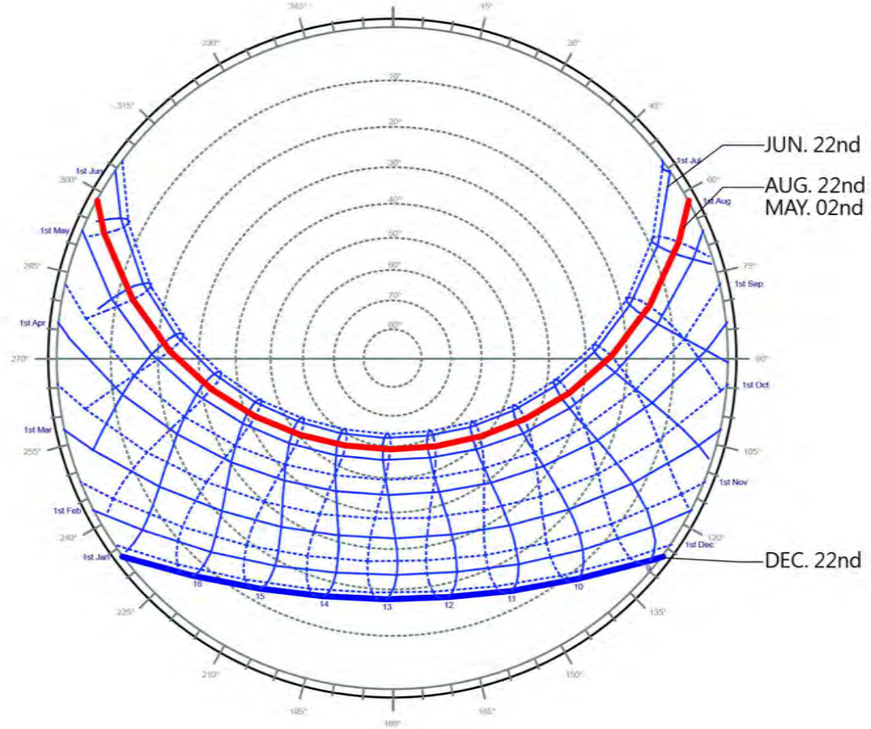


OVERHEATED PERIOD

UNDERHEATED PERIOD

COMFORTABLE PERIOD

SOLAR PATH DIAGRAM



Solar Decathlon Europe

Project: ORCHID HOUSE

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ST	2014/04/30	CD Submission

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Checked by: DN

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Unit: -

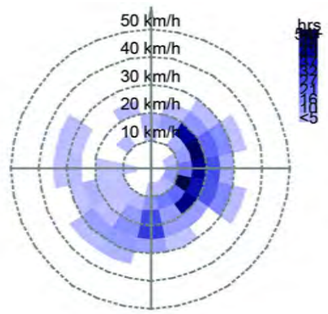
DWG. Title: VERSAILLES SHADING ANALYSIS

DWG. No.: BA-005

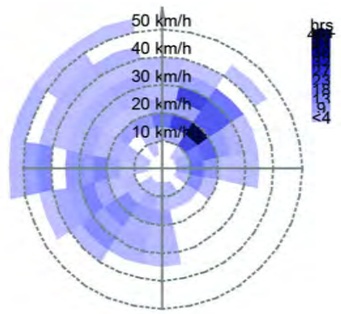
PAGE: 95

PREVAILING WINDS

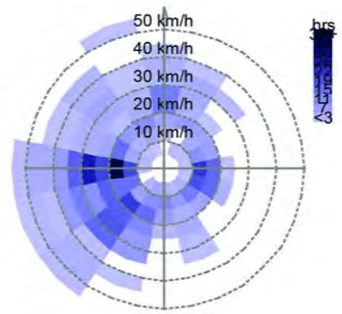
Wind Frequency (Hrs)
Location: PARIS_ ORLY, FRA
Date: 1st January - 31st December
Time: 00:00 - 24:00



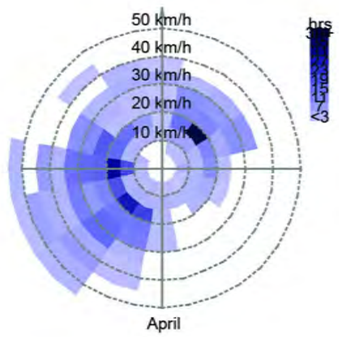
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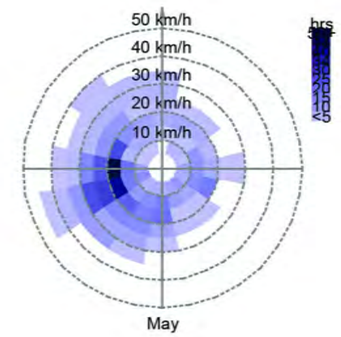
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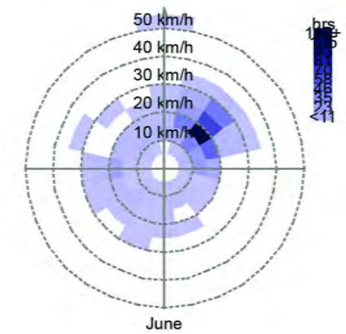
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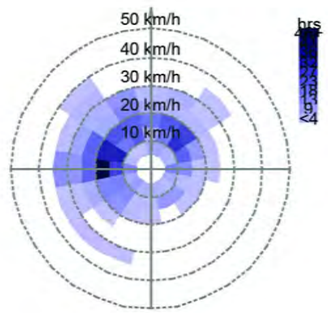
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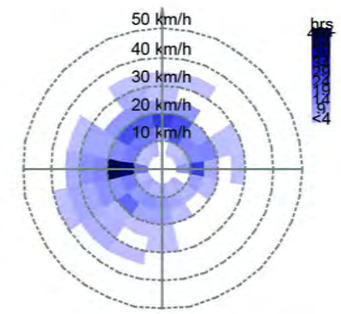
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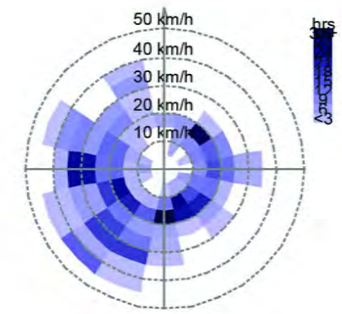
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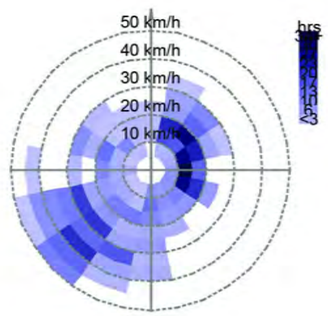
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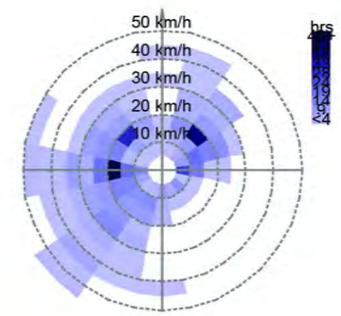
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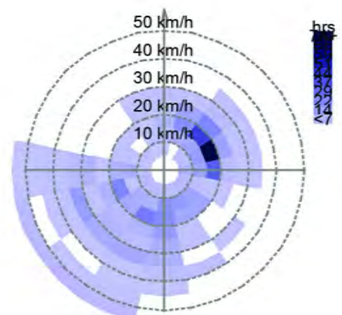
September



October



November



December

Solar Decathlon Europe

Project: ORCHID HOUSE

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ST	2014/04/30	CD Submission

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Checked by	DN
Scale	-
Unit	-

DWG. Title: VERSAILLES WIND ROSE ANALYSIS

DWG. No.: BA-006

PAGE: 96

HEATING	ACTIVE	HIGH ENERGY CONSUMPTION	HEAT PUMP HEATING	BA.021
	SEMI-PASSIVE		HEAT EXCHANGER PREHEATED BY SOLAR HOT WATER	BA.020
	PASSIVE	LOW ENERGY CONSUMPTION	THERMAL WALL	BA.018.019
			GREEN HOUSE EFFECT	BA.017
			DIRECT SOLAR GAIN	BA.016
COOLING	PASSIVE	LOW ENERGY CONSUMPTION	SHADING	BA.016
			NATURAL VENTILATION	BA.012
	SEMI-PASSIVE		SOLAR CHIMNEY	BA.013
			HEAT SINK AND VEGETATION COOLING	BA.014
			EVAPORATIVE COOLING	BA.015
	ACTIVE	HIGH ENERGY CONSUMPTION	HEAT PUMP COOLING	BA.021

Solar Decathlon Europe

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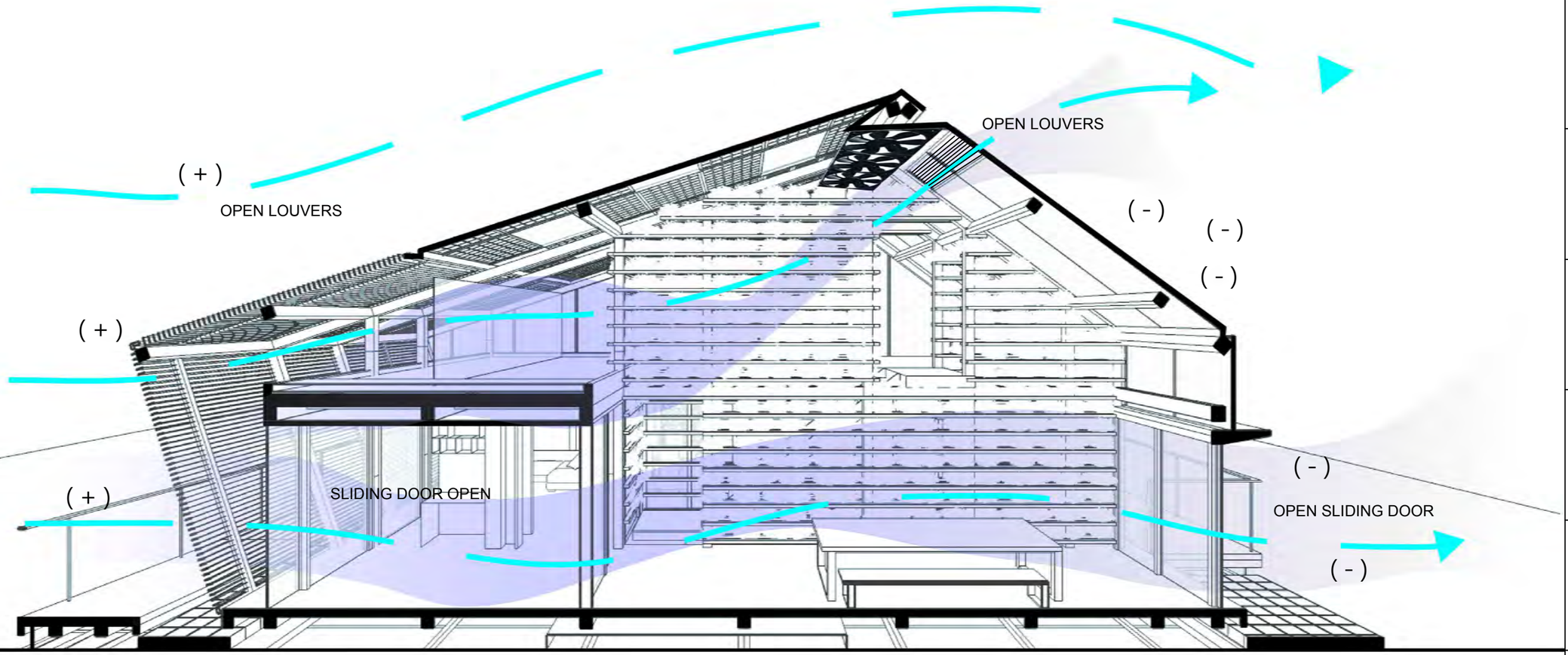
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ST	2014/04/30	CD Submission

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Unit	-

DWG. Title: BIOCLIMATIC STRATEGIES

DWG. No.: BA-011

PAGE: 97



N

OUTDOOR TEMPERATURE UNDER19°C WITH WIND

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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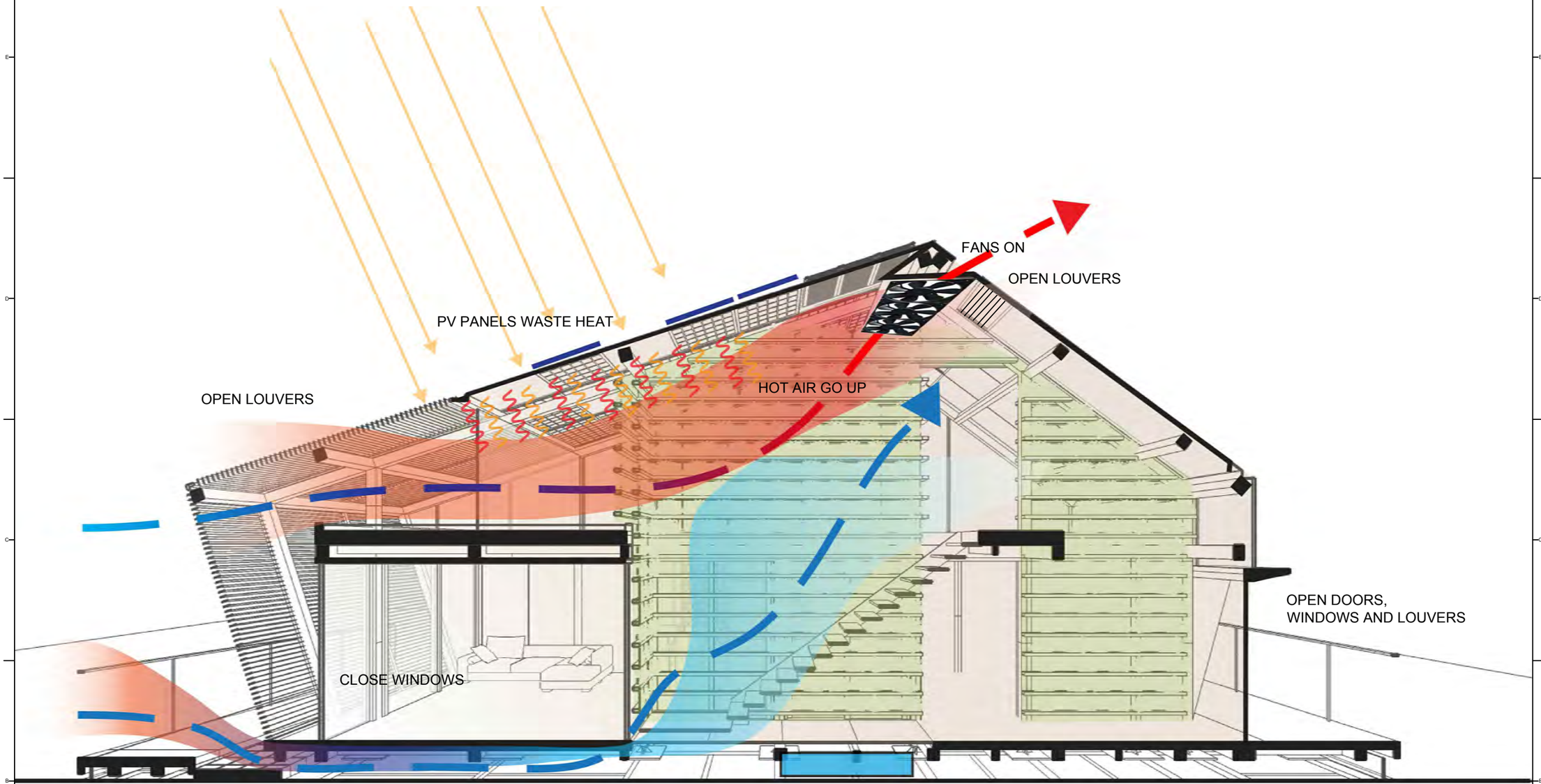
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ST	2014/04/30	CD Submission

Drawn by	JL
Checked by	LY
Scale	-
Unit	-

DWG. Title: NATURAL VENTILATION

DWG. No.: BA-012

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N

EXTERIOR TEMPERATURE UNDER 19°C
NO WIND

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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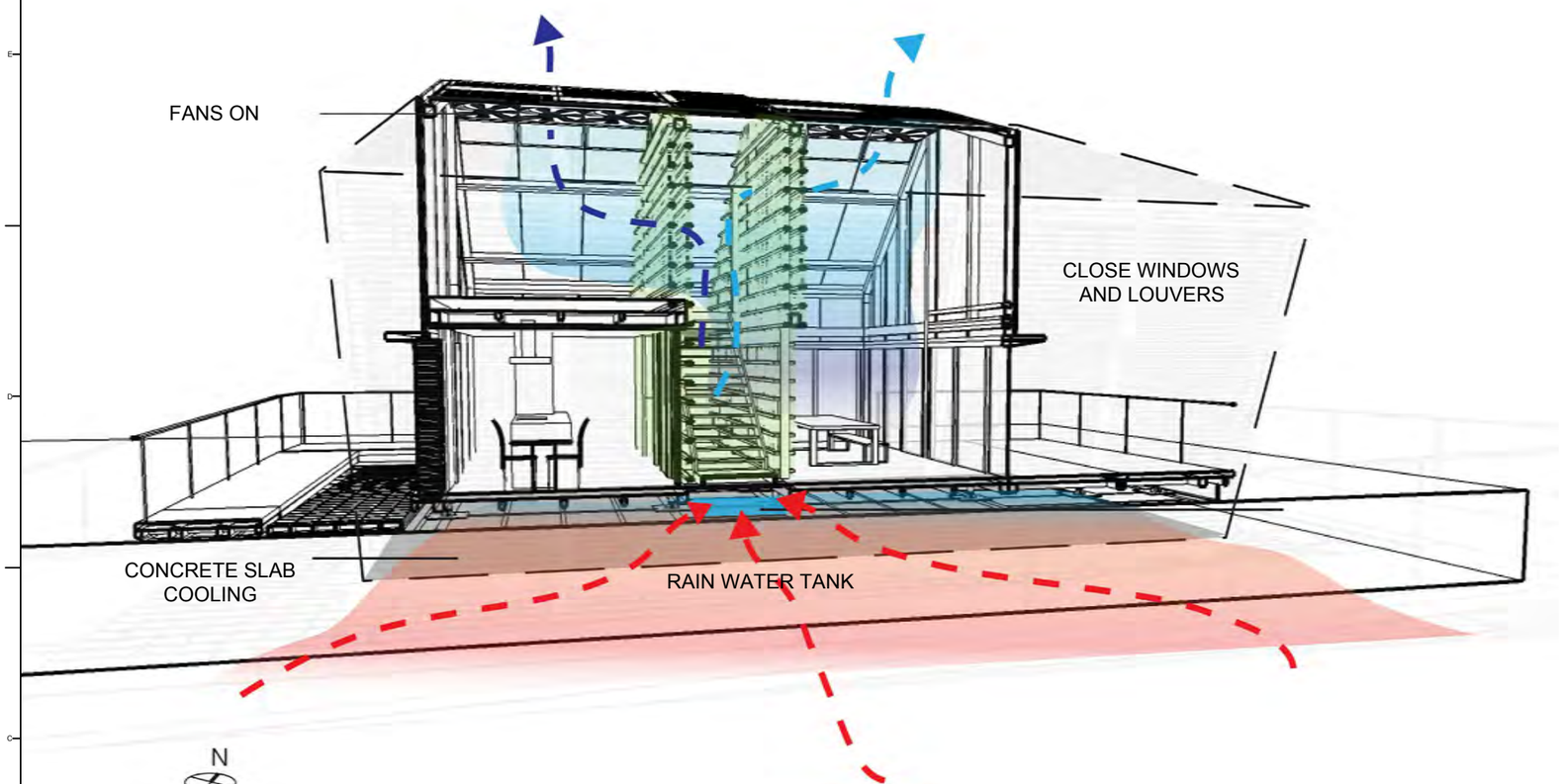
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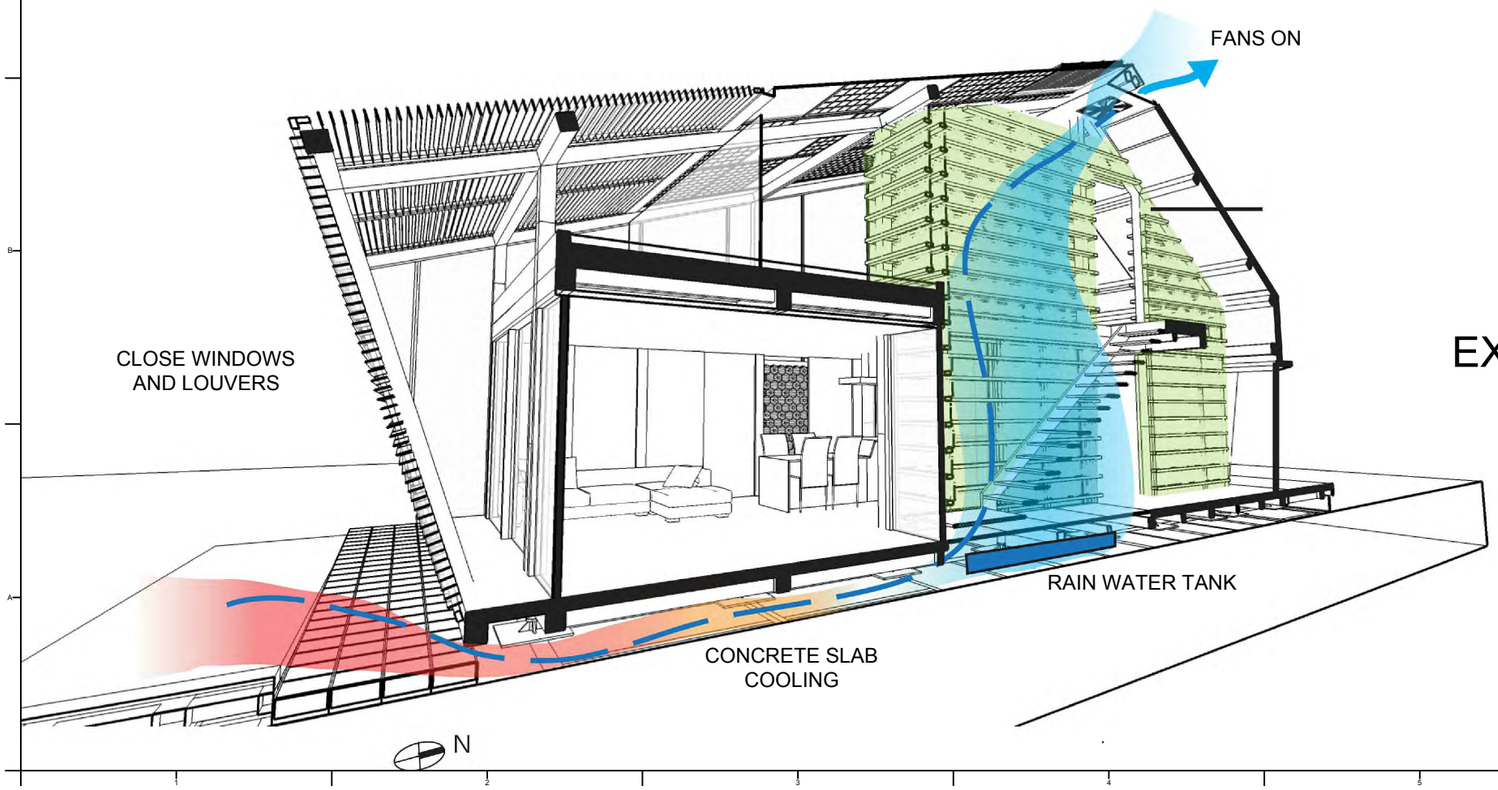
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	JL
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Scale	-
Unit	-

DWG. Title: SOLAR CHIMNEY

DWG. No.	PAGE
BA-013	99





EXTERIOR TEMPERATURE ABOVE 26°C

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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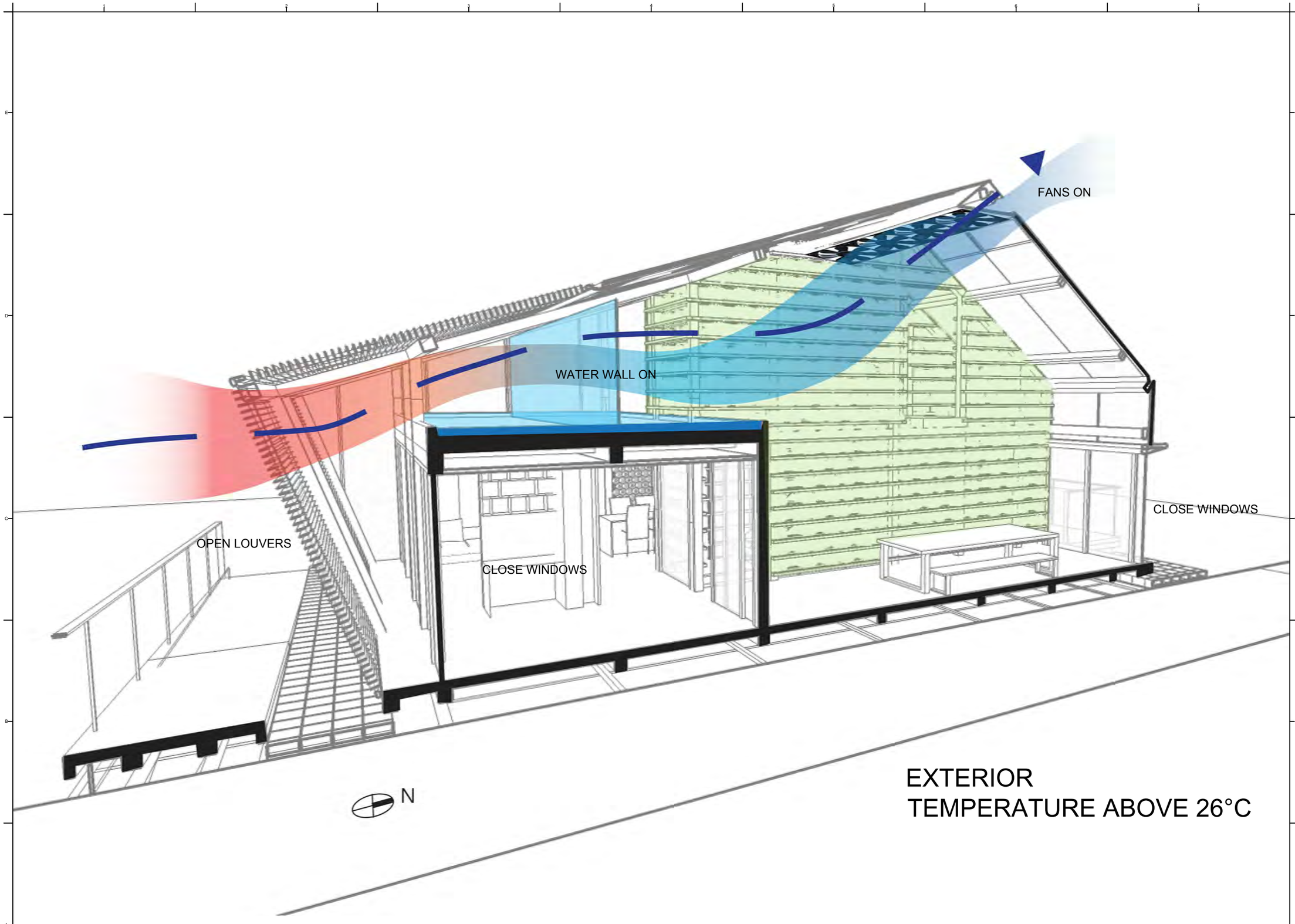
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Checked by	LY
Scale	-
Unit	-

DWG. Title: HEAT SINK AND VEGETATION COOLING

DWG. No.: BA-014

PAGE: 100



EXTERIOR
TEMPERATURE ABOVE 26°C

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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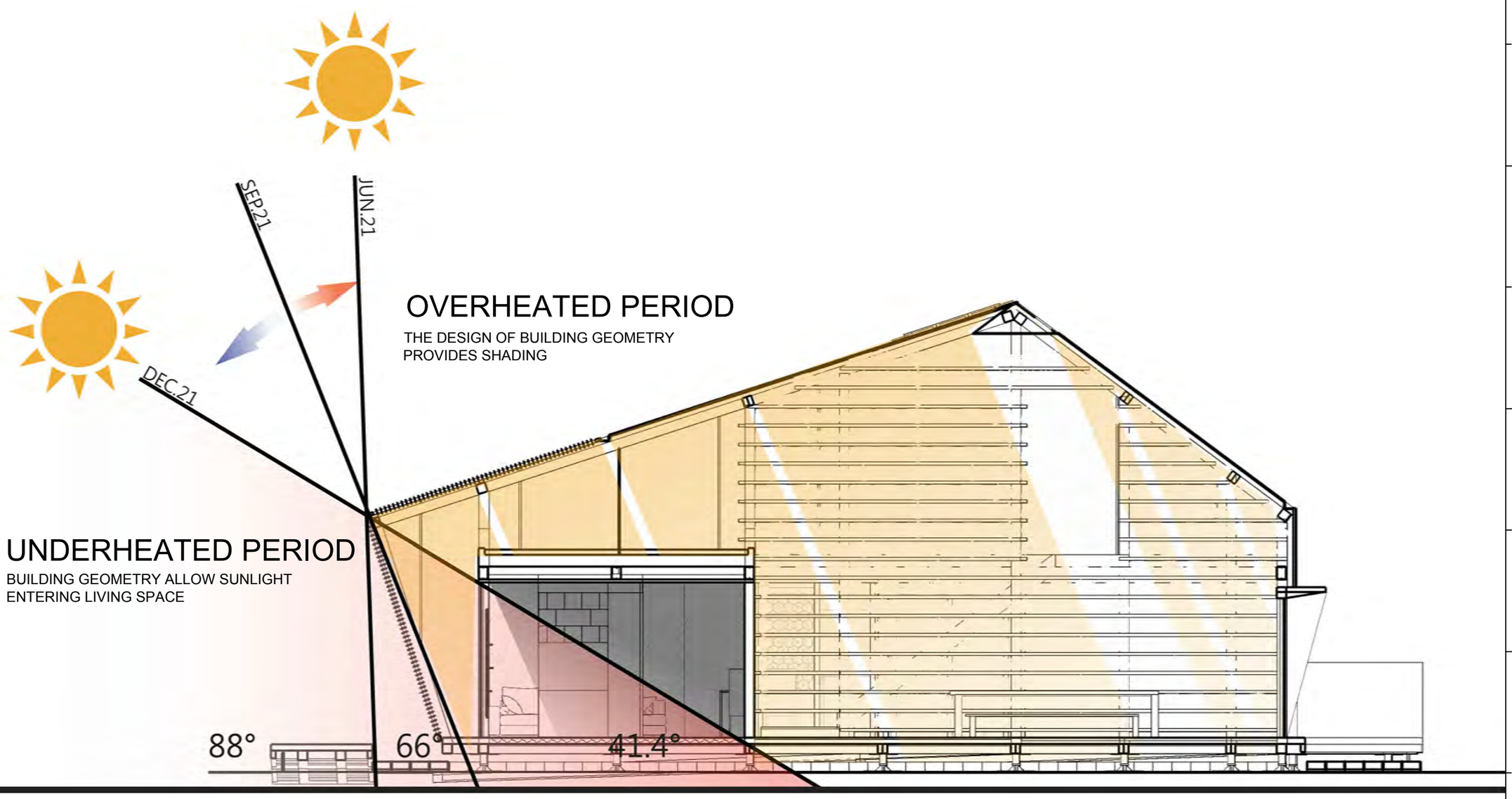
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ST	2014/04/30	CD Submission

Drawn by	JL
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Scale	-
Unit	-

DWG. Title: EVAPORATIVE COOLING

DWG. No.: BA-015

PAGE: 101



OVERHEATED PERIOD

THE DESIGN OF BUILDING GEOMETRY
PROVIDES SHADING

UNDERHEATED PERIOD

BUILDING GEOMETRY ALLOW SUNLIGHT
ENTERING LIVING SPACE

THE HEIGHEST
ANGLE OF THE SUN

SEP.21;MAR.21
OVERHEAT/UNDERHEAT
TRANSITION DATE
ANGLE OF THE SUN

THE LOWEST
ANGLE OF THE SUN

N

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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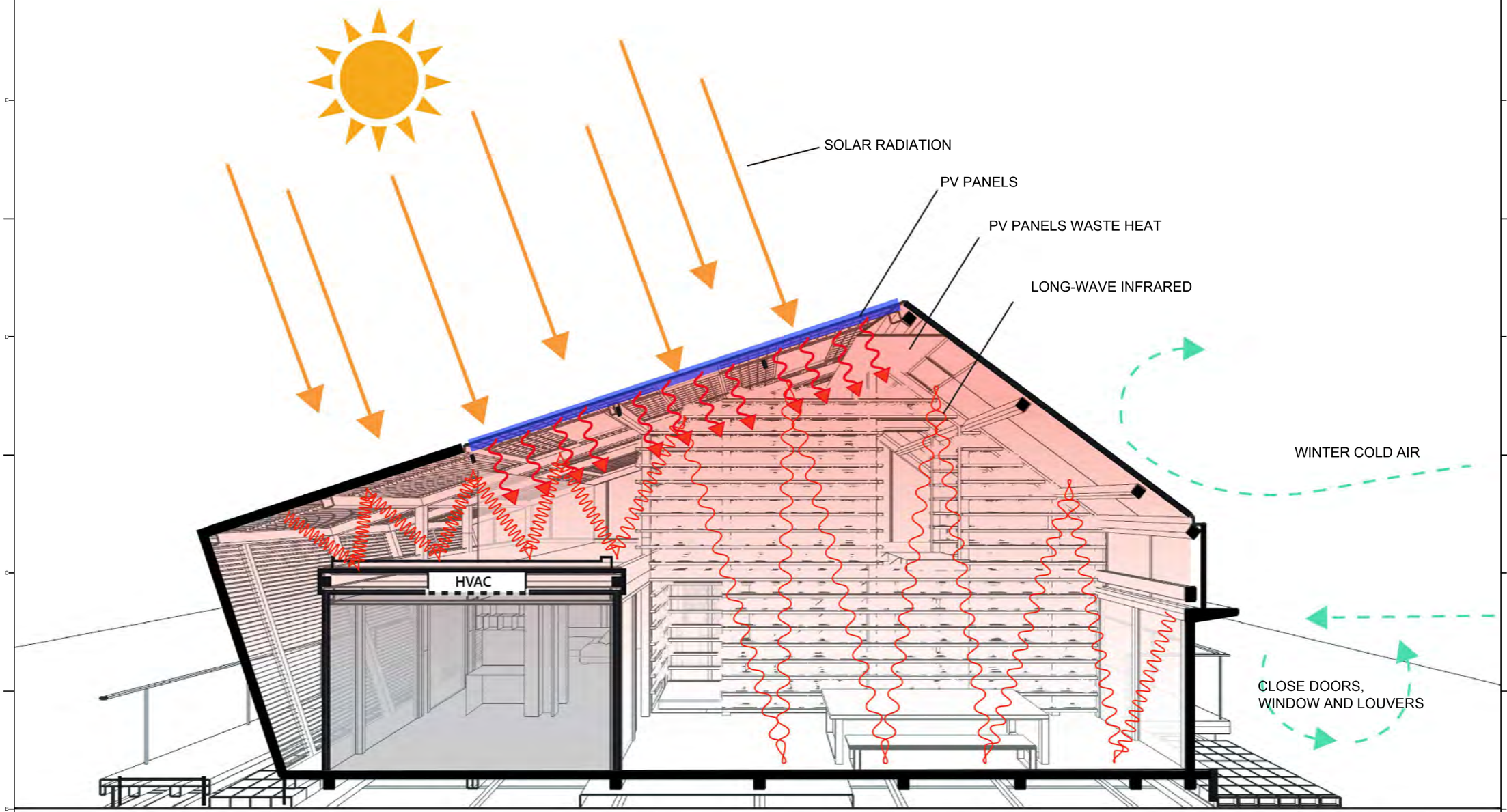
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Checked by	LY
Scale	-
Unit	-

DWG. Title: DIRECT SOLAR GAIN

DWG. No.: BA-016

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N

OUTDOOR TEMPERATURE
BELOW 26°C

Solar Decathlon Europe

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Institution: 國立交通大學 National Chiao Tung University

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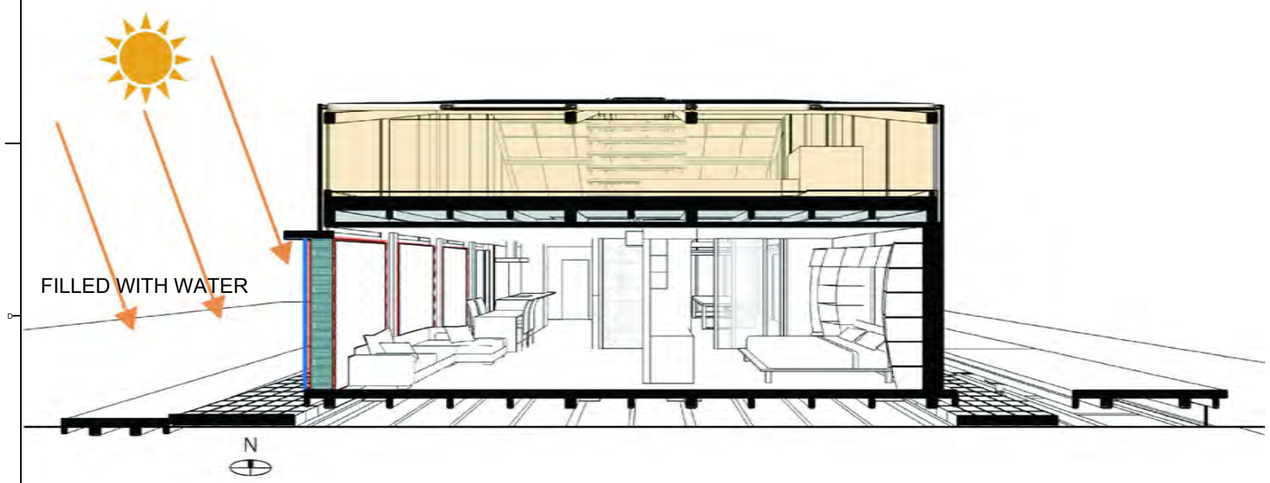
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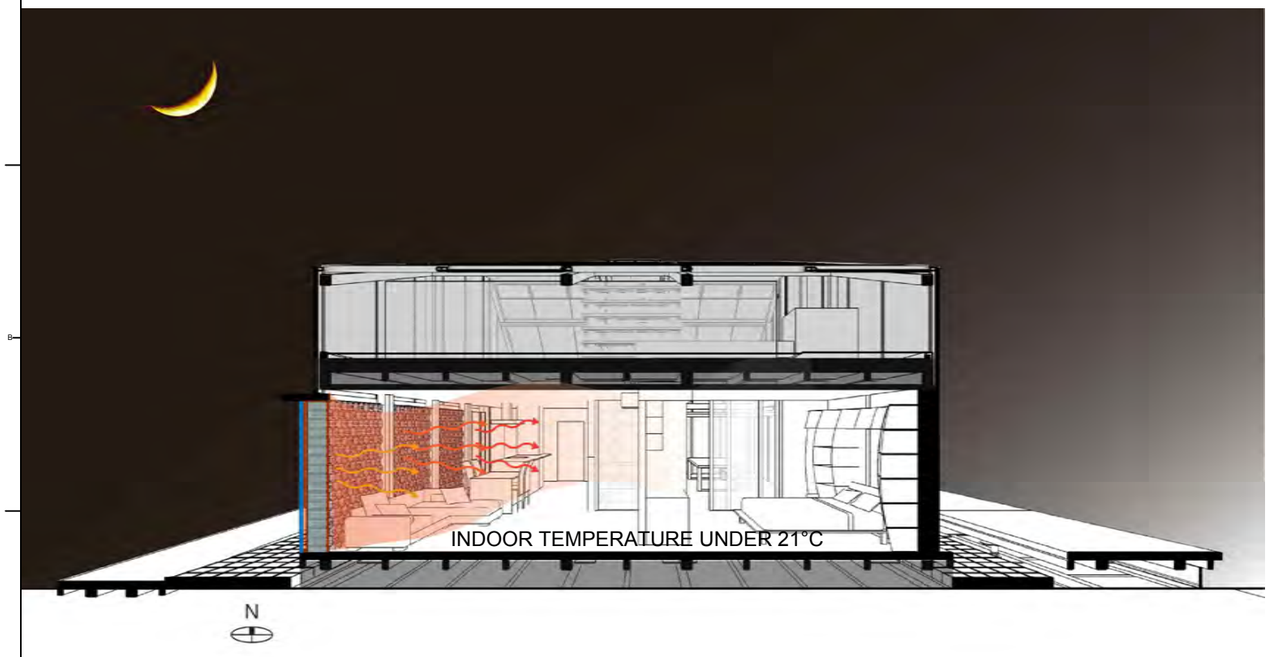
DWG. Title: GREEN HOUSE EFFECT

DWG. No.: BA-017

PAGE: 103



A 30cm water thermal wall is built on the west side of the hous Each bottle contains 6 litter of water. The bottles are piled to 2 meter height-wise and 3 meter length-wise. The bottles are held together and fixated to a transparent acrylic sheet on their exterior side.
eThe water in the thermal wall absorbs solar radiation during the day and releases heat to interior space at night.



Solar Decathlon Europe

Project:

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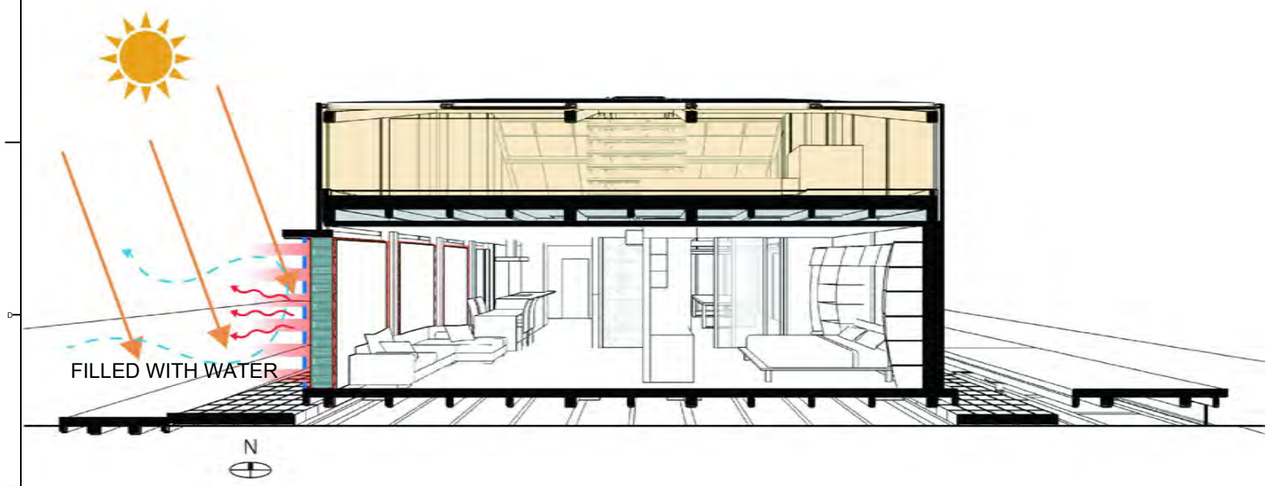
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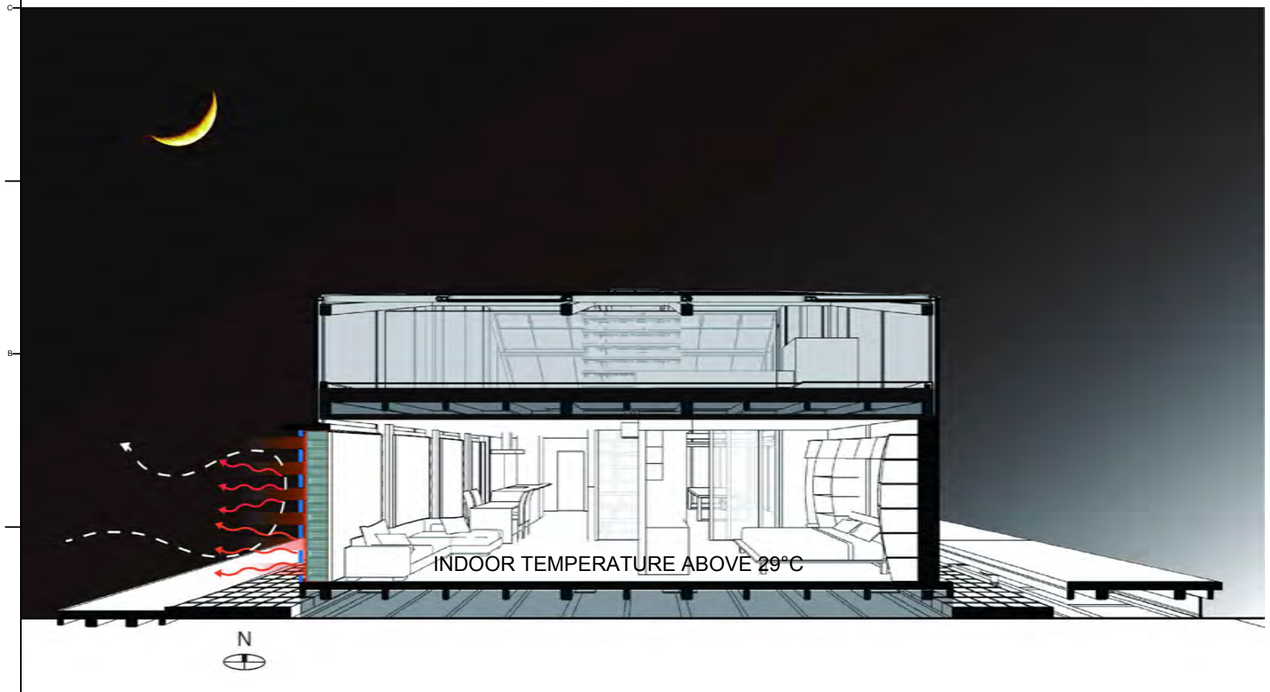
DWG. Title

THERMAL WALL
IN VERSAILLES

DWG. No. BA-018

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Solar Decathlon Europe

Project:

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Institution:

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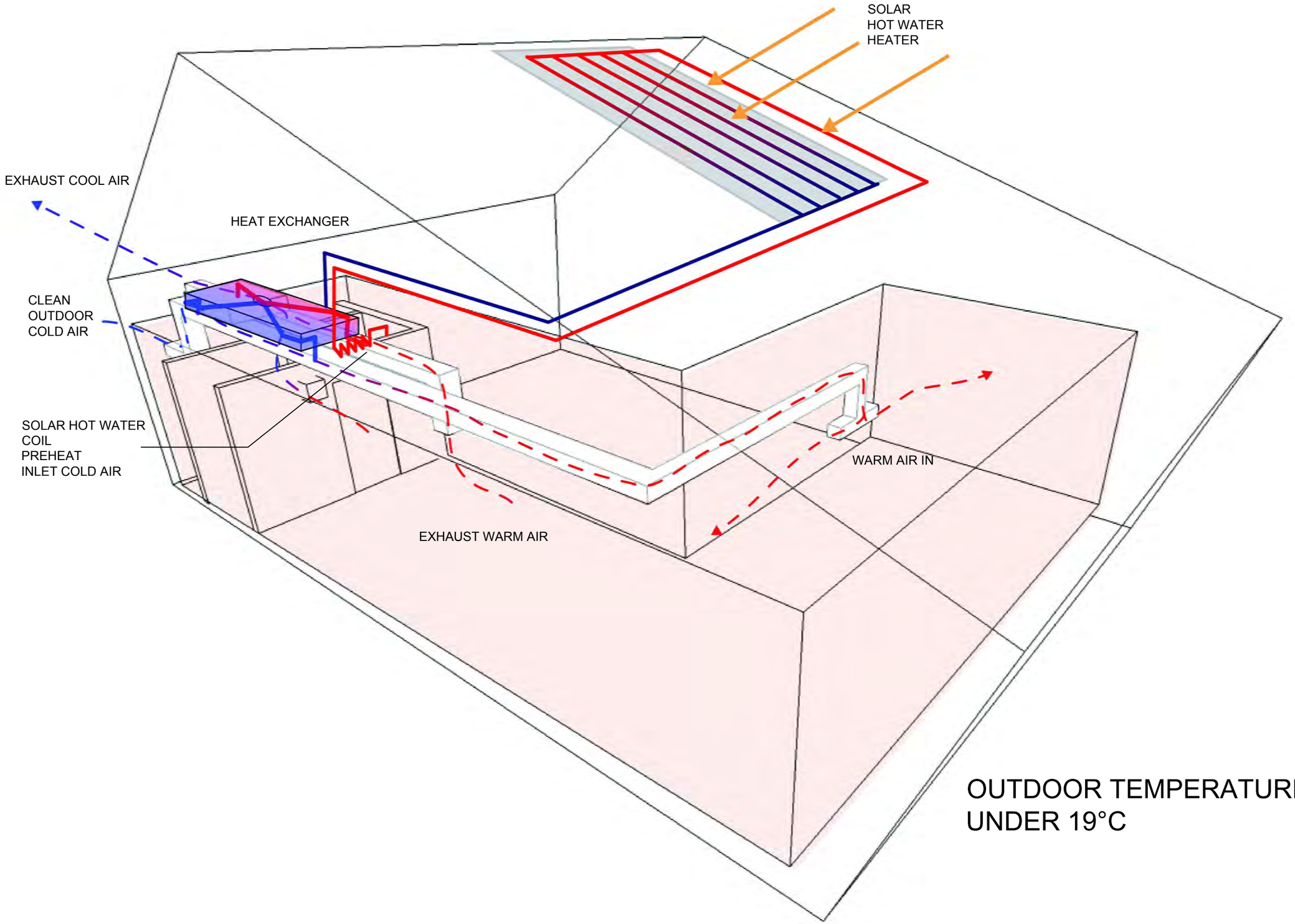
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Checked by	LY
Scale	-
Unit	-

DWG. Title

THERMAL WALL
IN TAIPEI

DWG. No.	PAGE
BA-019	105



OUTDOOR TEMPERATURE
UNDER 19°C

Solar Decathlon Europe

Project:

ORCHID HOUSE

Institution:

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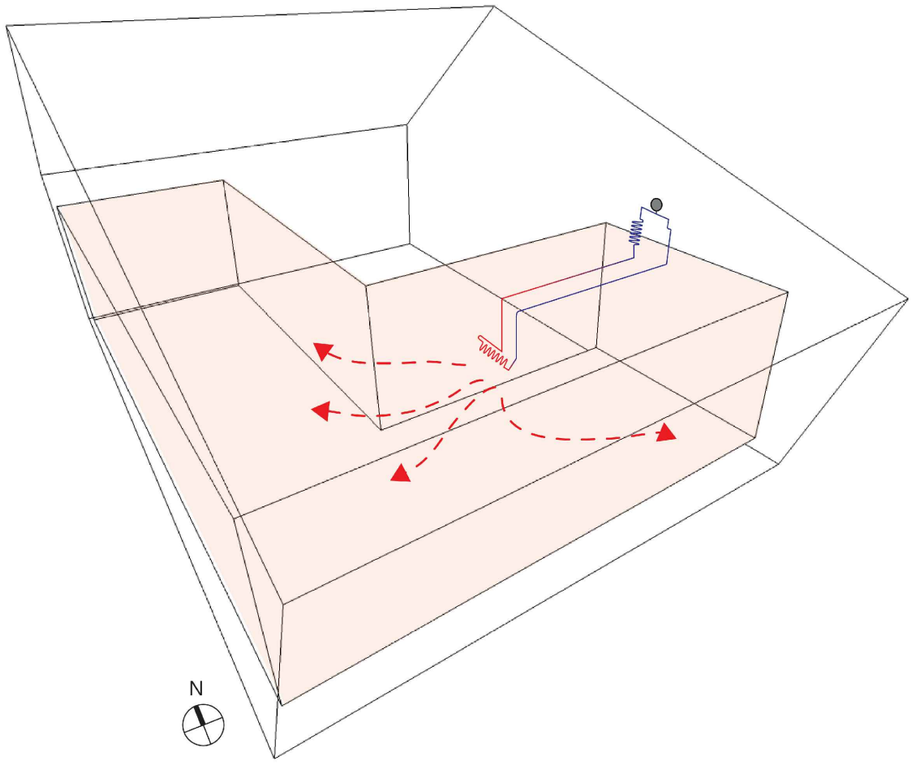
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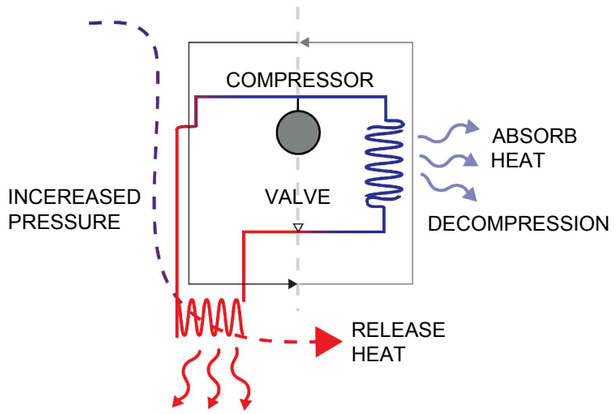
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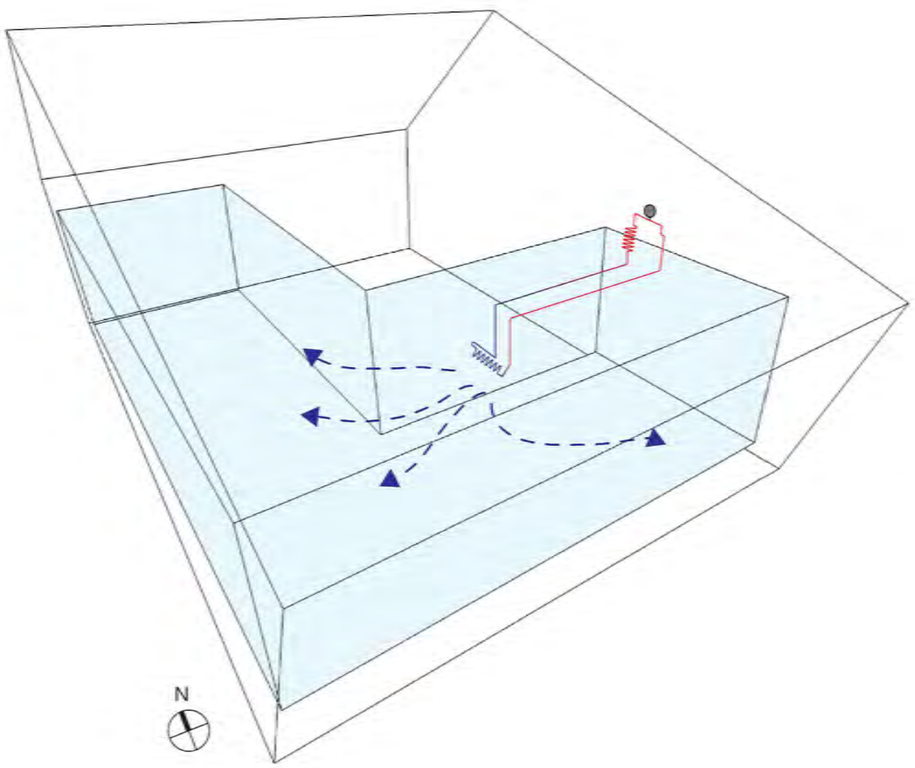
DWG. Title
HEAT EXCHANGER
PREHEATED BY SOLAR
HOT WATER

DWG. No.	PAGE
BA-020	106

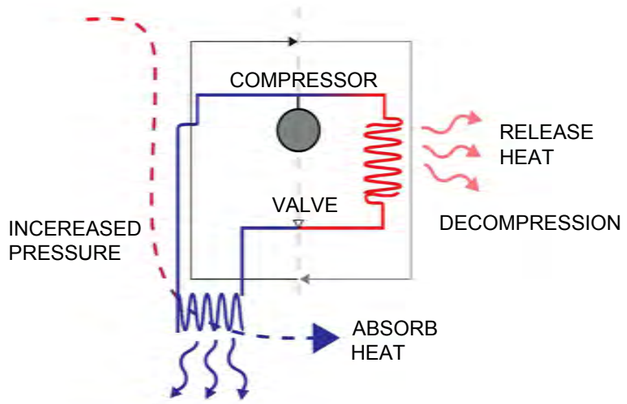


HEAT PUMP HEATING





HEAT PUMP COOLING



Solar Decathlon Europe

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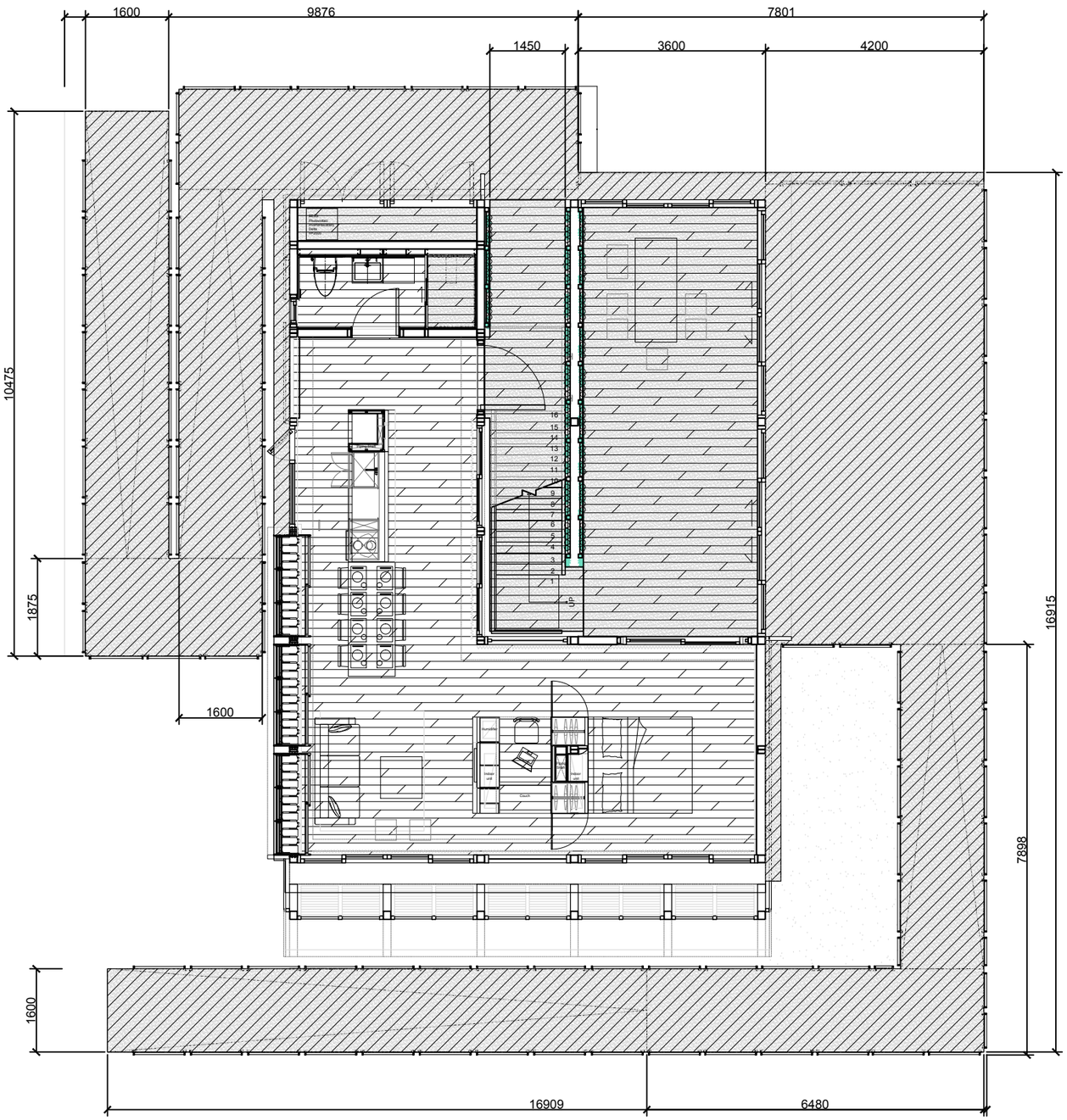
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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	TW
Checked by	LY
Scale	-
Unit	-

DWG. Title: HEAT PUMP

DWG. No.: BA-021

PAGE: 107



SYMBOL & LEGEND

HATCH TYP	FLOOR TYPE	AREA	LOCATION
	Modern Tree Laminate Flooring	55.7m²	Interior Space
	Wood Plastic Composites	43.75m²	Terrace / Mech. RM. Shower RM.
	Wood Plastic Composites	127.7m²	Outdoor Deck

Solar Decathlon Europe

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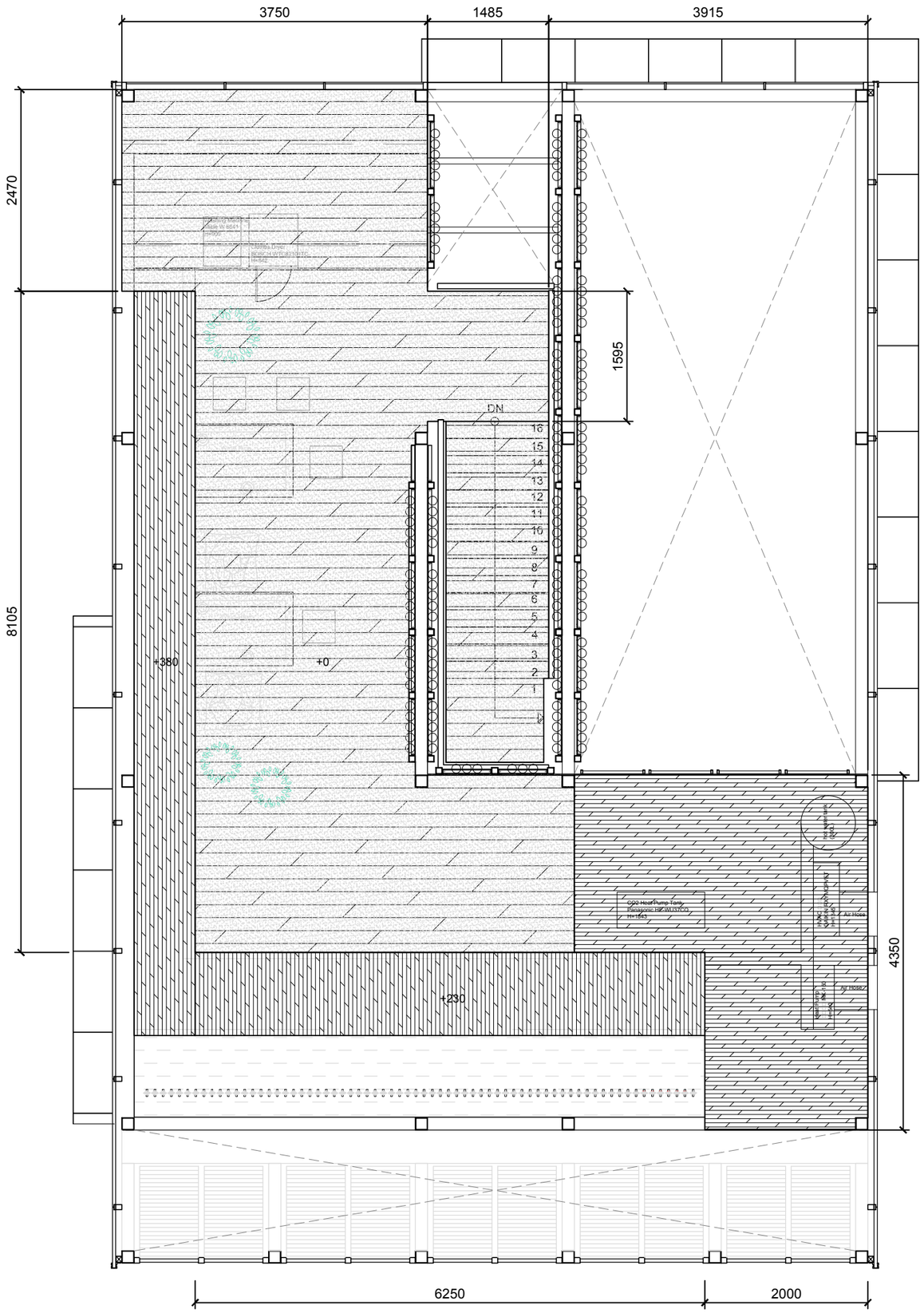
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Scale	1:100
Unit	mm

DWG. Title

GROUND LEVEL FLOOR

DWG. No.	PAGE
IN-001	108



SYMBOL & LEGEND

HATCH TYP	FLOOR TYPE	AREA	LOCATION
	Wood Plastic Composites	42.84m²	
	Solid Wood	25.34m²	
	Stainless Steel	7m²	

0 1 2 5 METER

1 2

Solar Decathlon Europe

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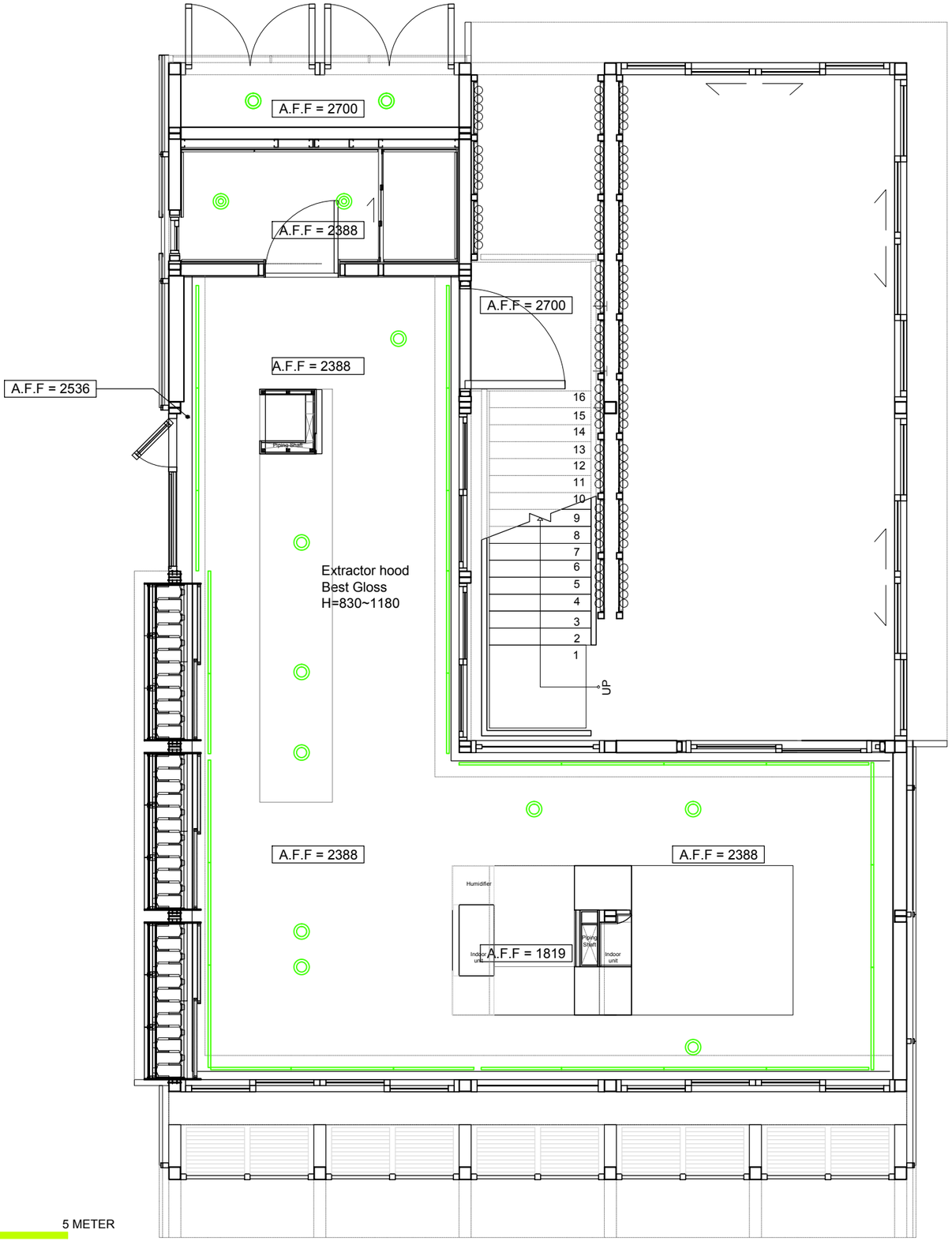
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Unit	mm

DWG. Title

MEZZANINE LEVEL FLOOR

DWG. No. IN-002

PAGE 109



SYMBOL & LEGEND

HATCH TYP	TYPE
	DOWN LIGHT
	WATERPROOFED DOWN LIGHT
	T8 LED

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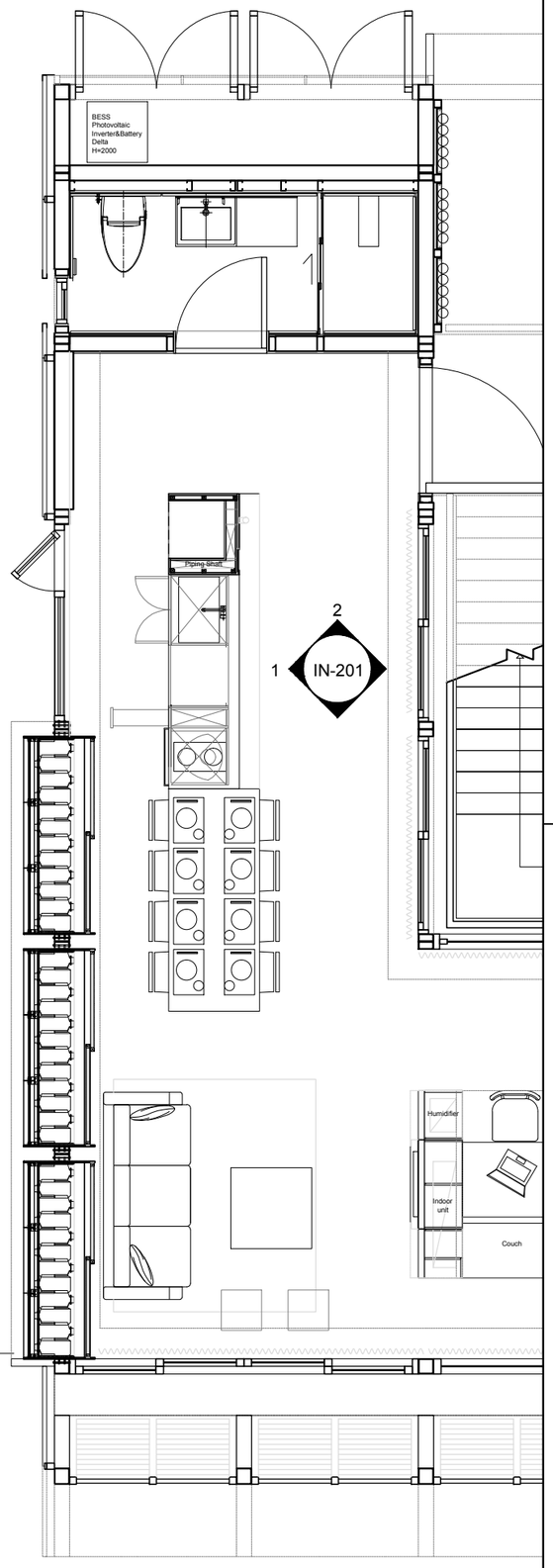
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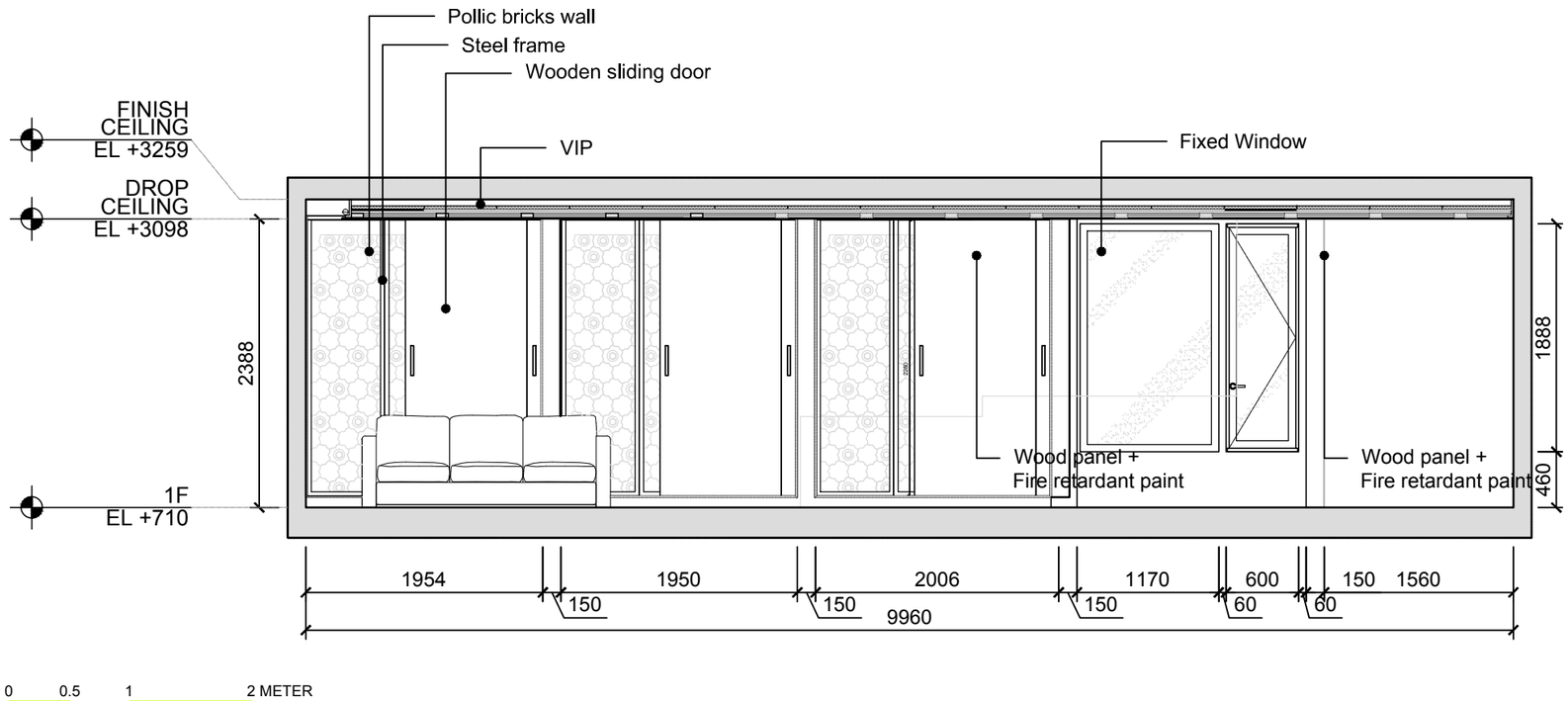
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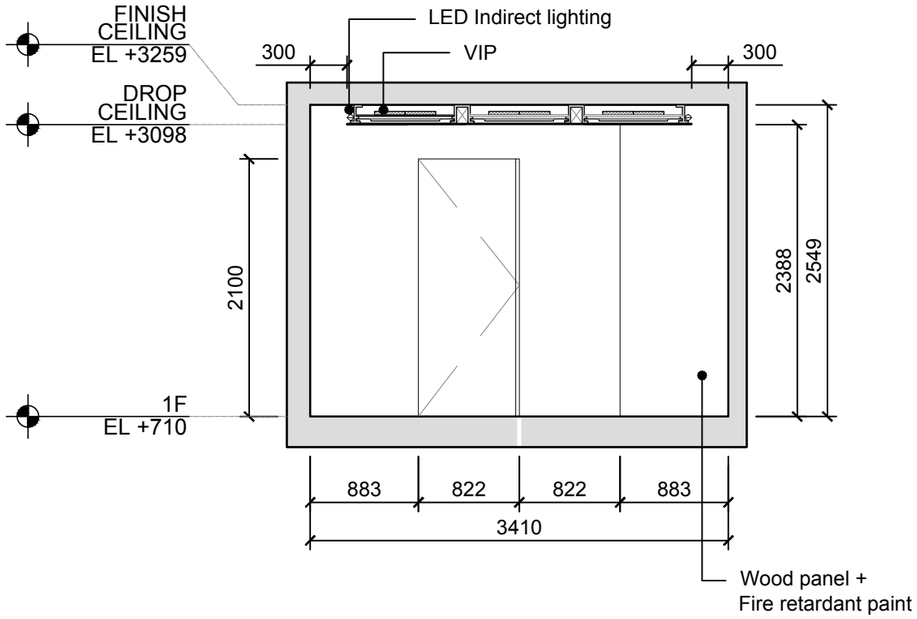
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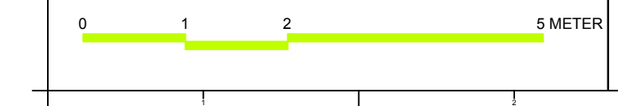
PAGE 110

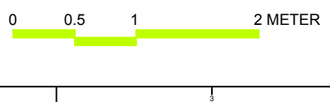




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2

Solar Decathlon Europe

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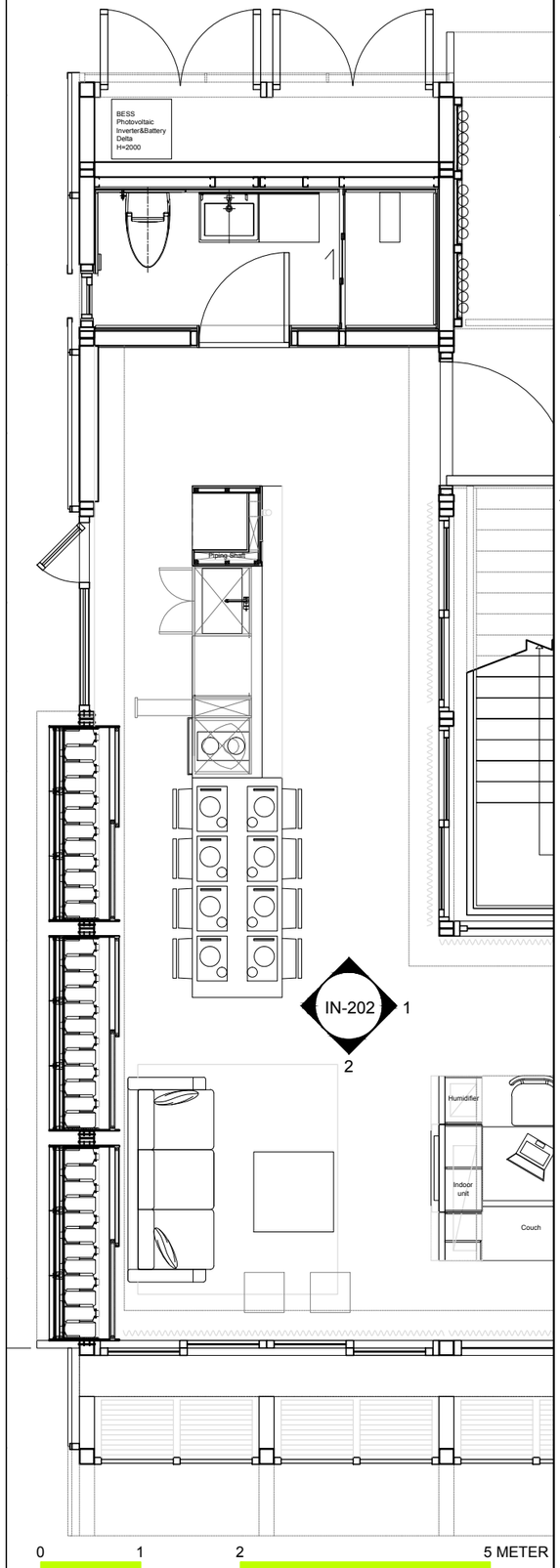
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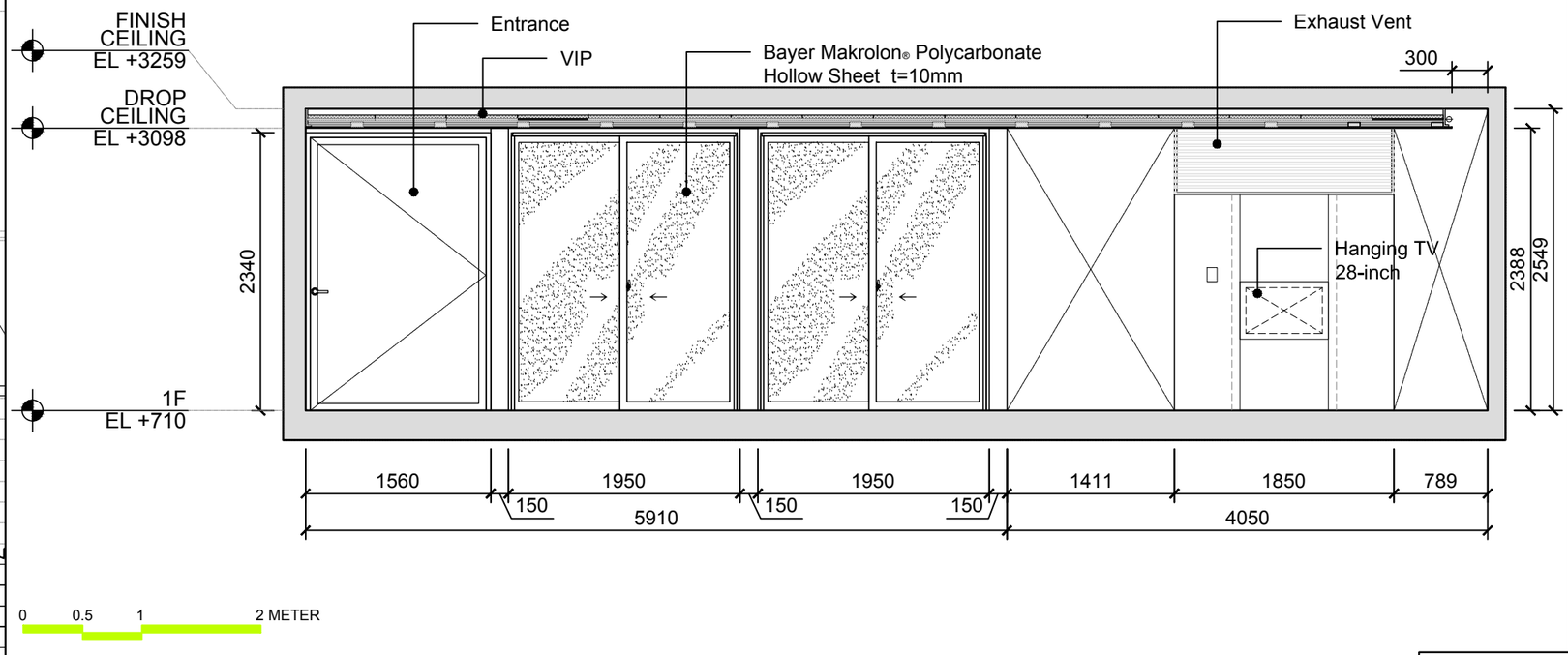
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DWG. Title: INTERIOR ELEVATIONS 1

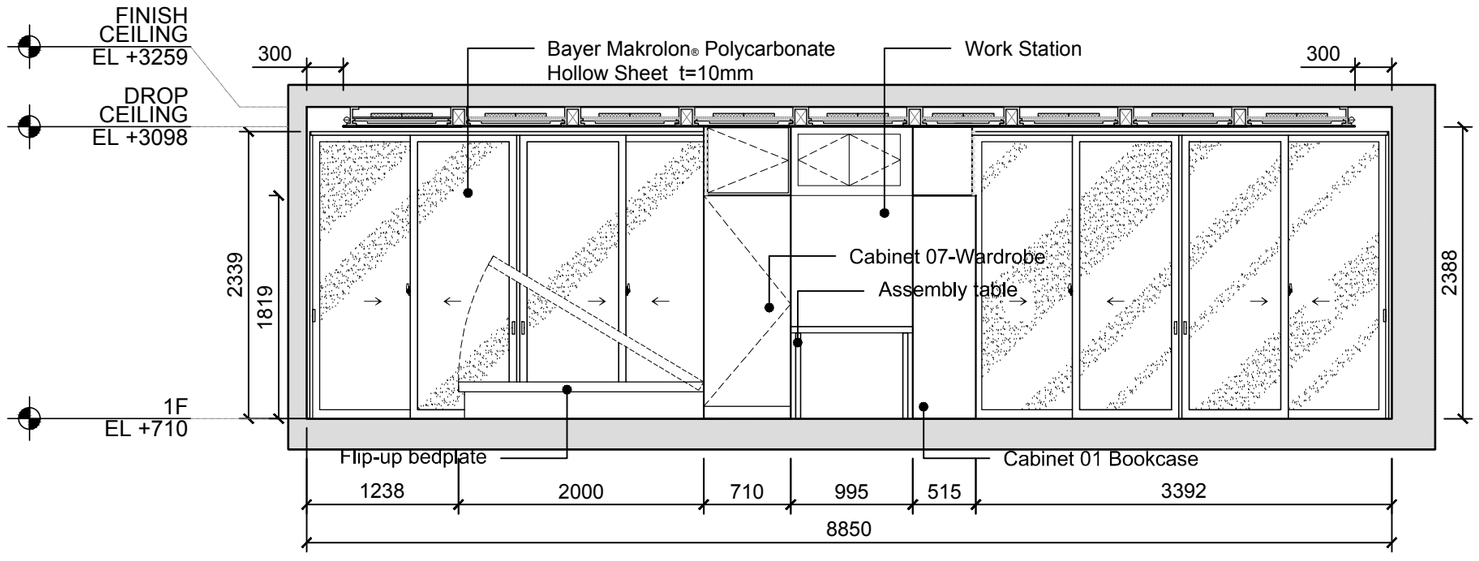
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1



2

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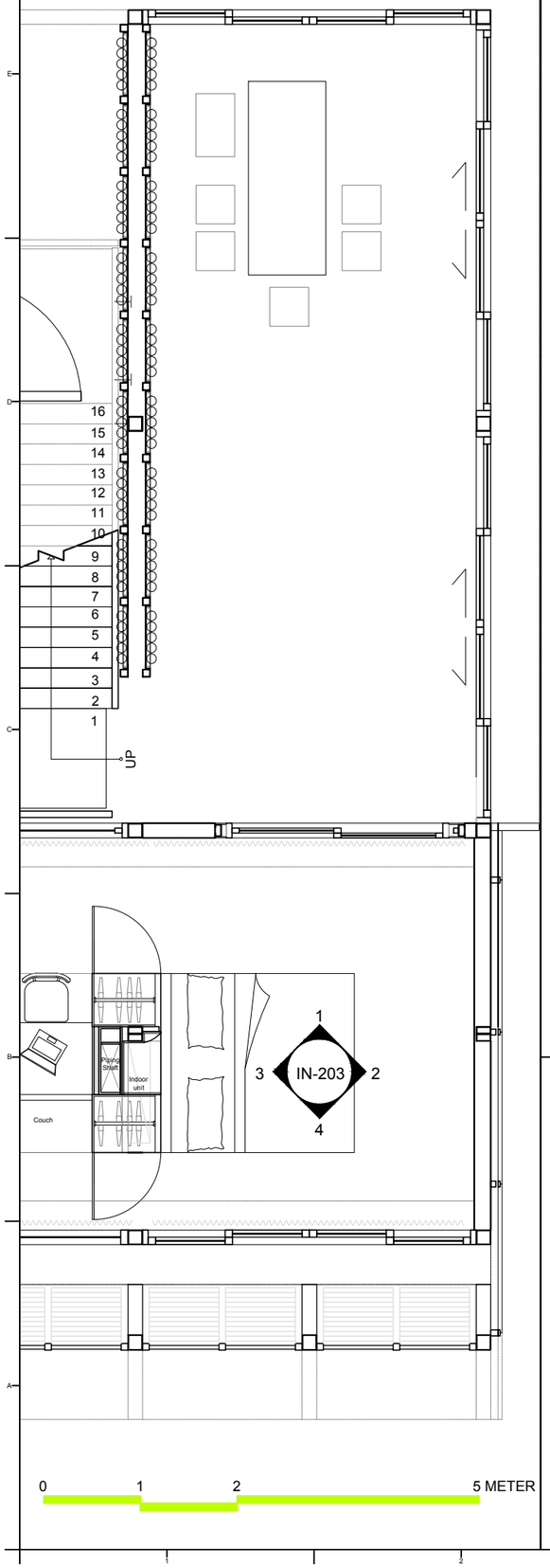
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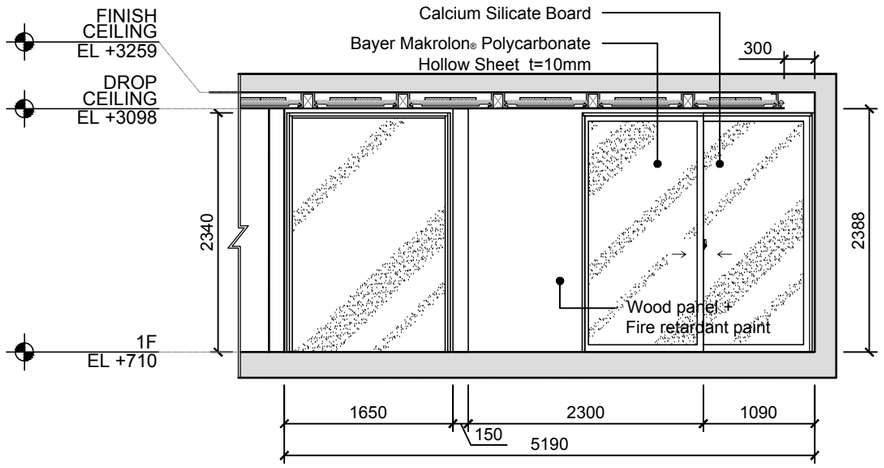
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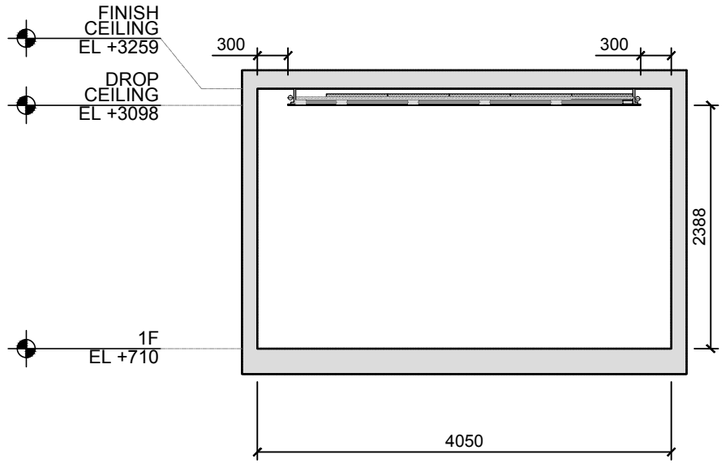
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PAGE: 112

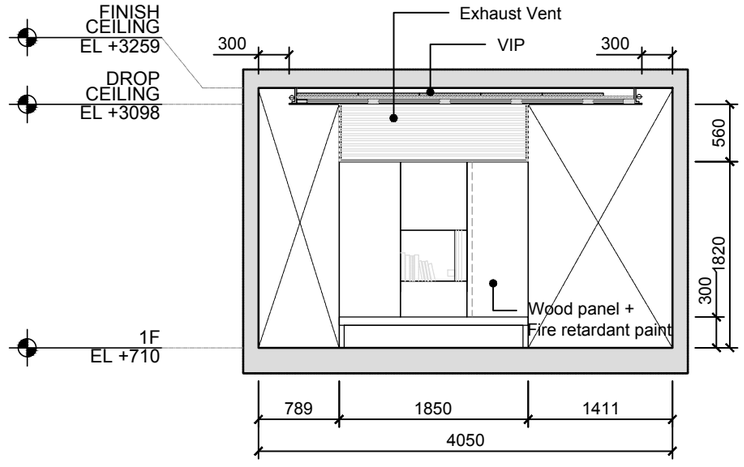




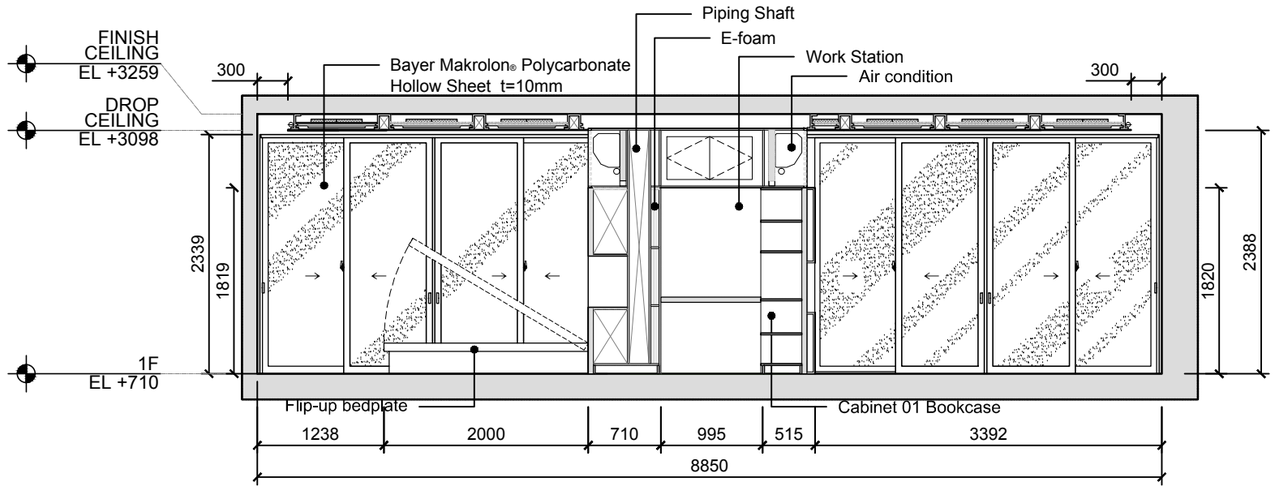
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2



3



4

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N

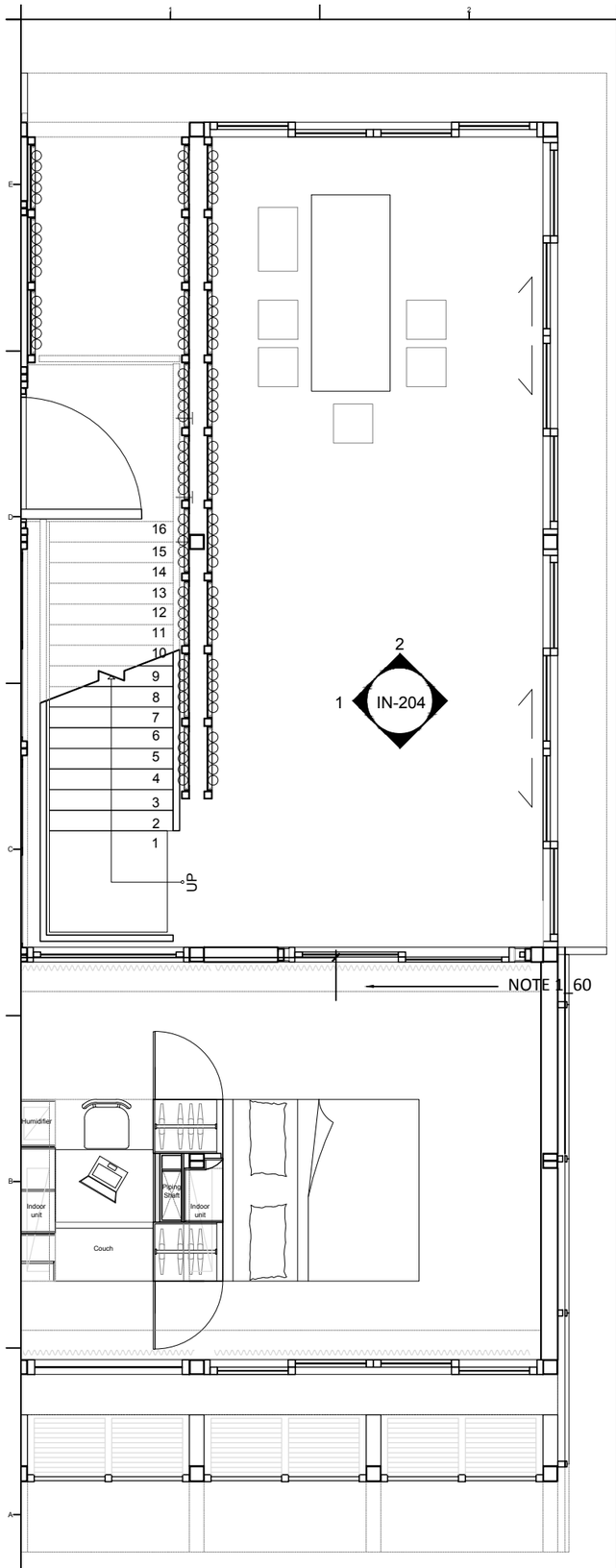
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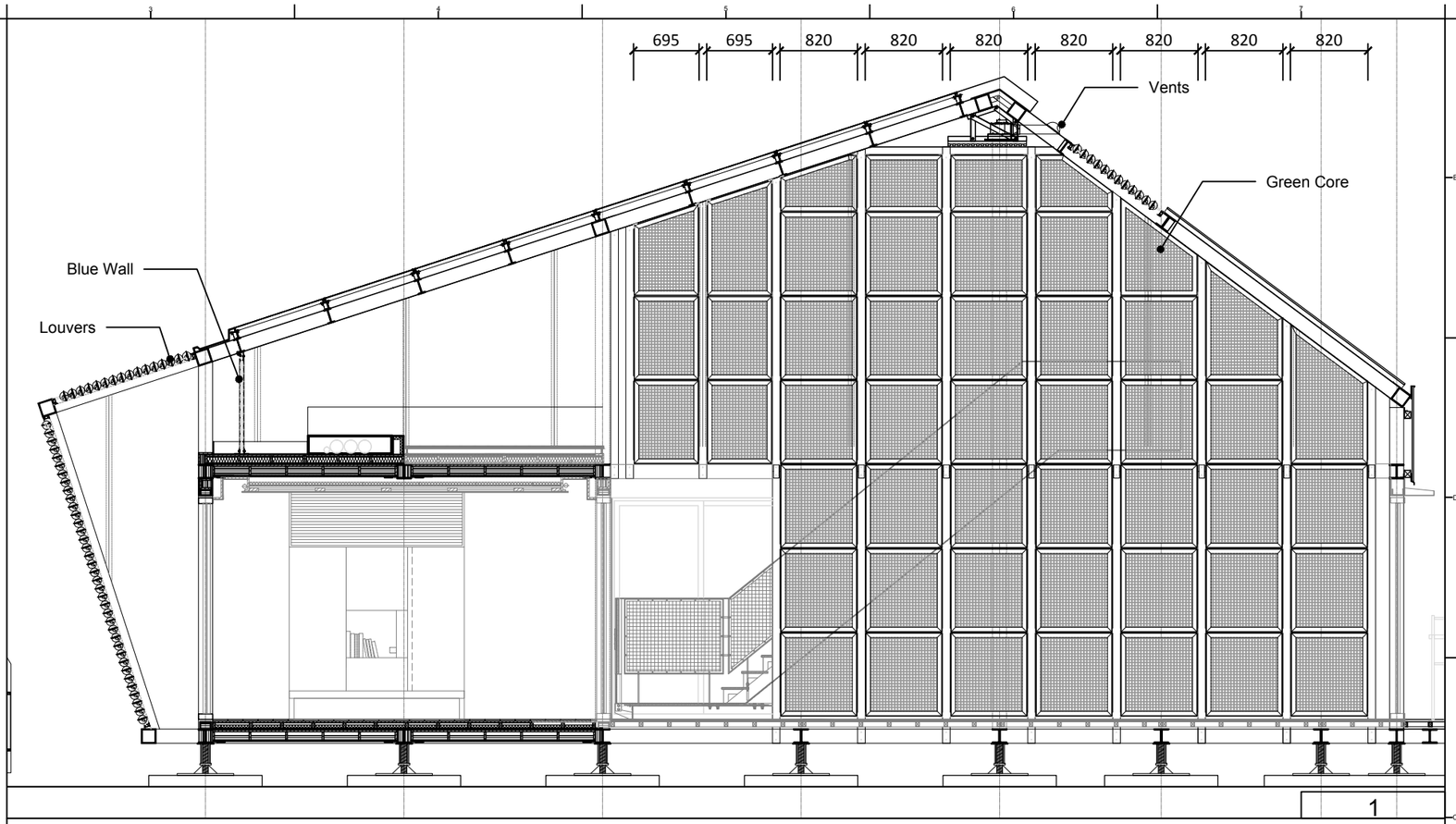
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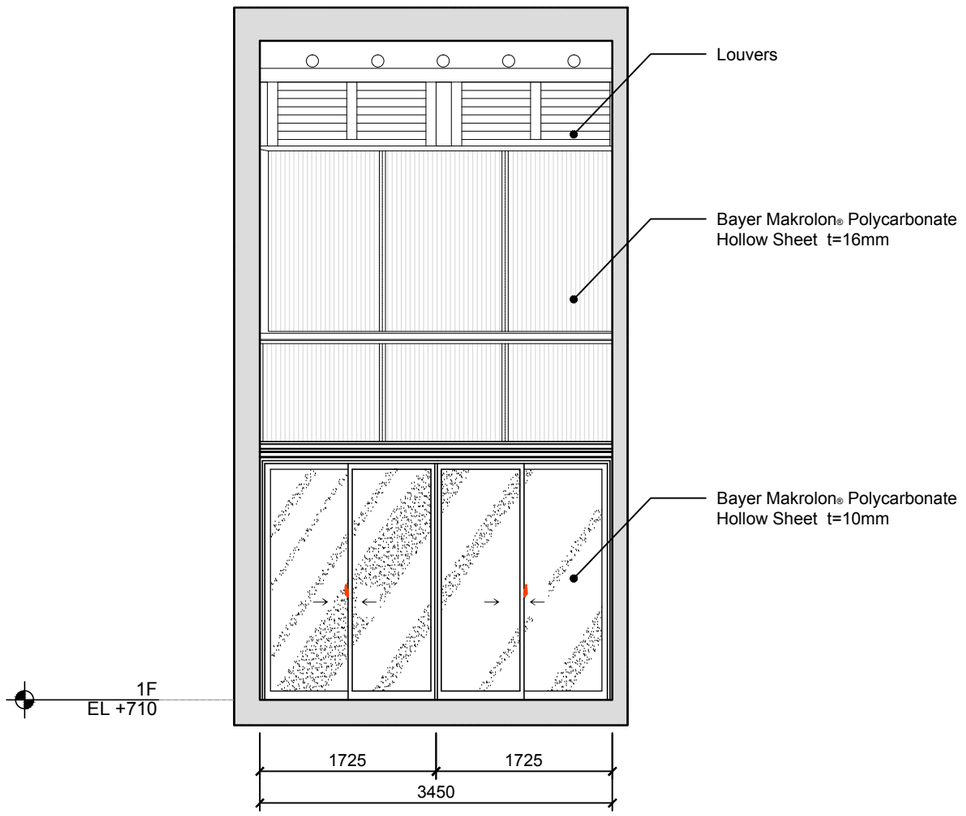
DWG. Title: INTERIOR ELEVATIONS 3

DWG. No.: IN-203

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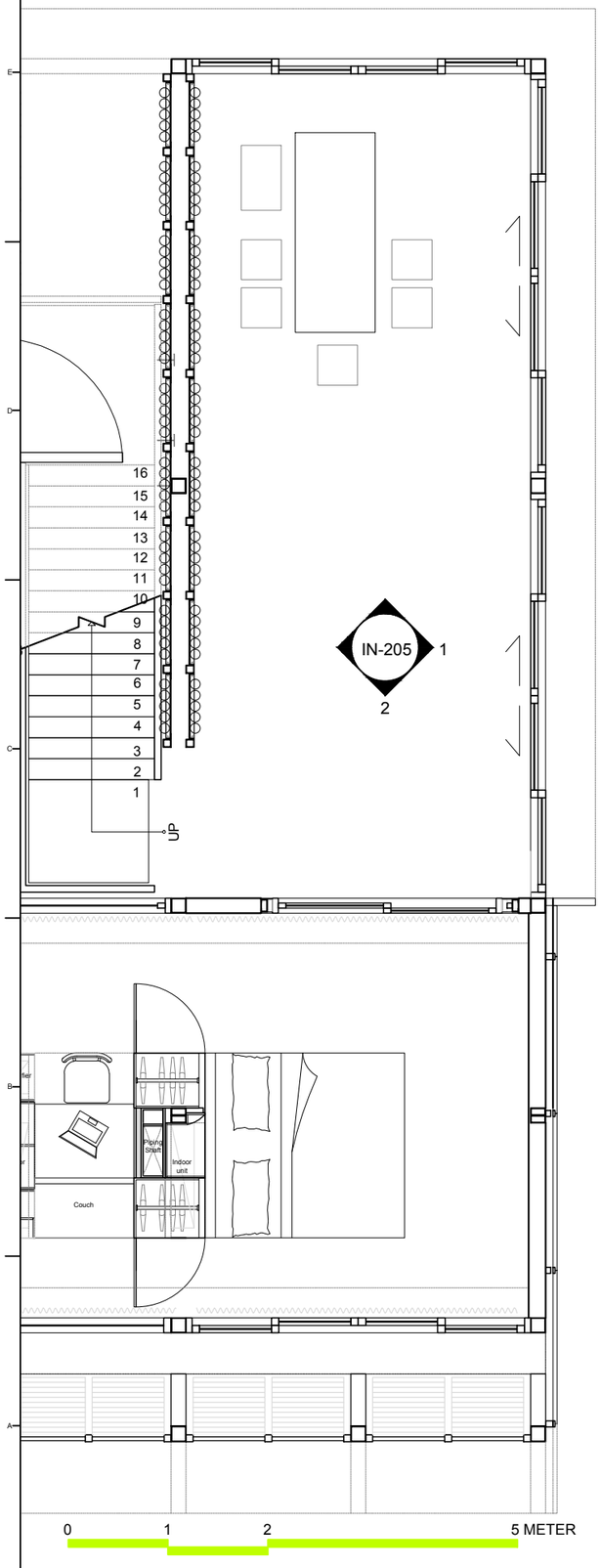
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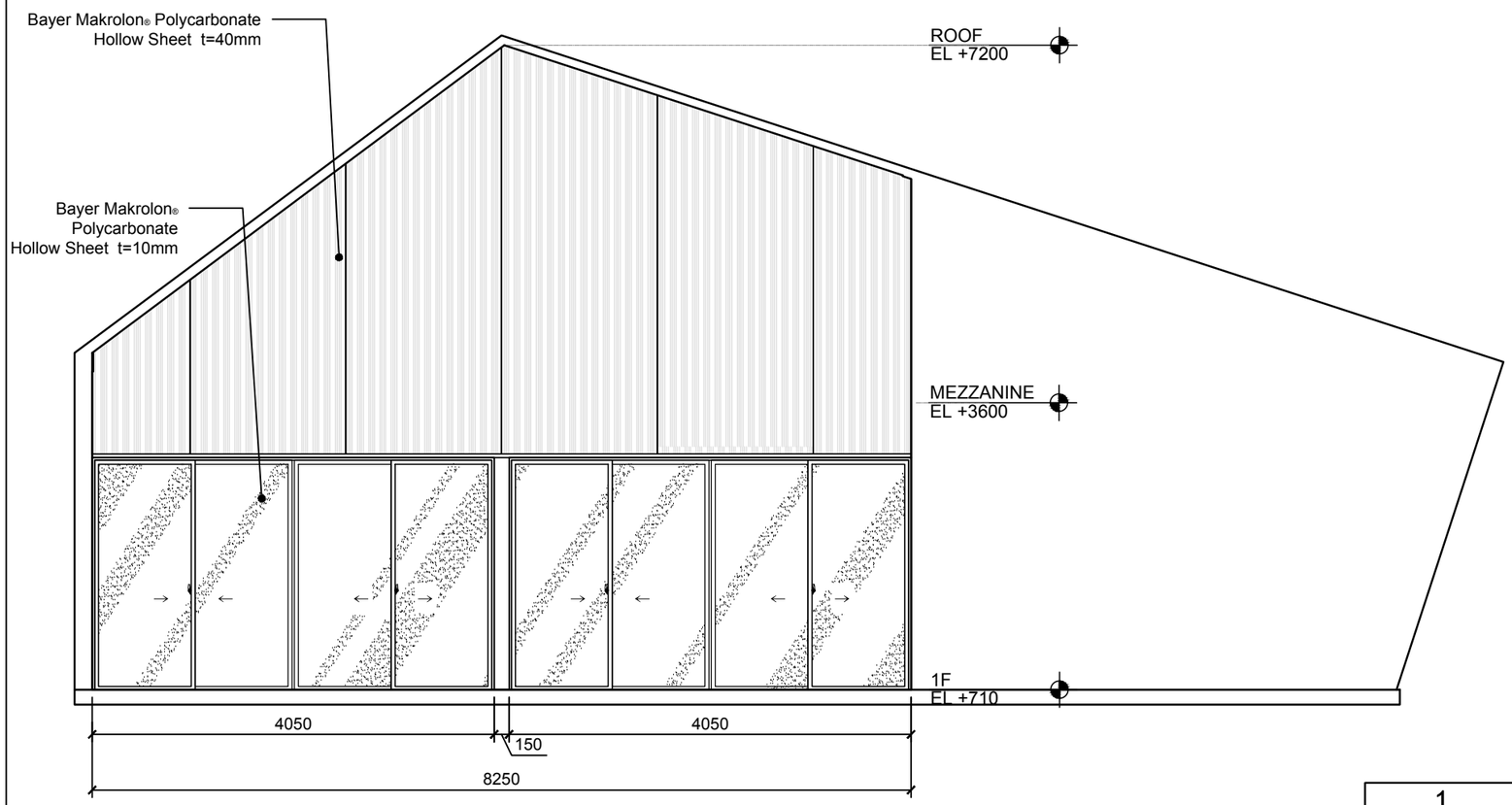
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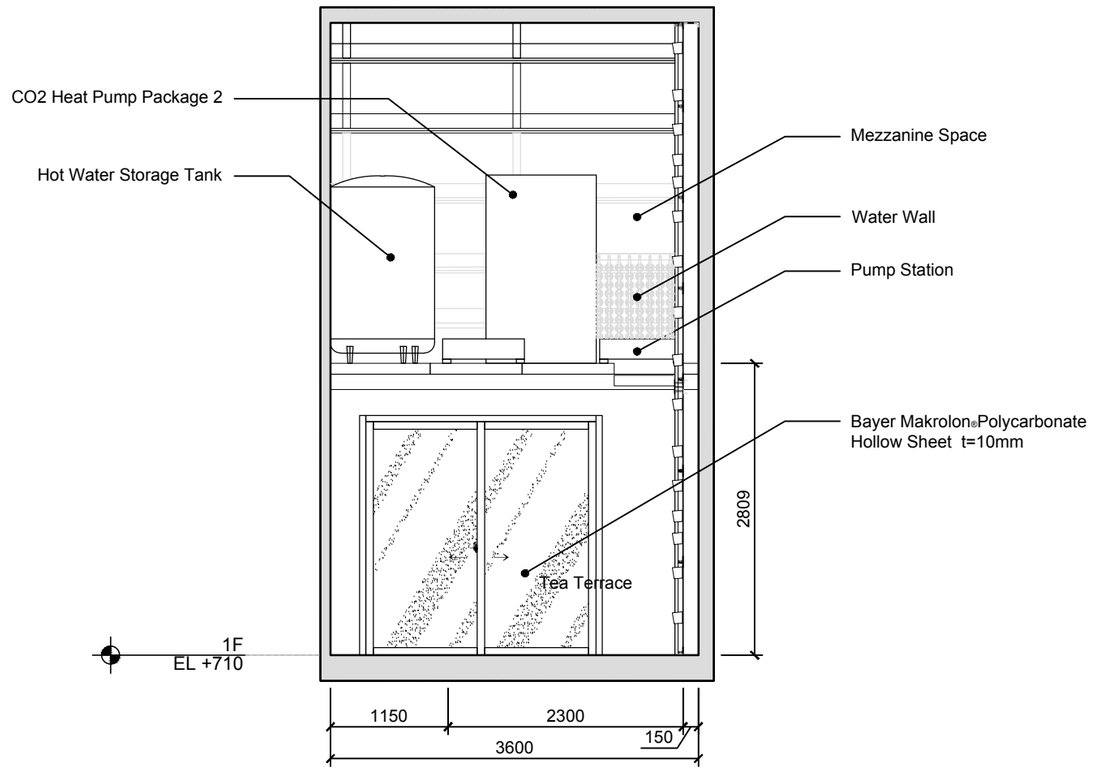
INTERIOR ELEVATIONS 3

DWG. No.	PAGE
IN-204	114





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2

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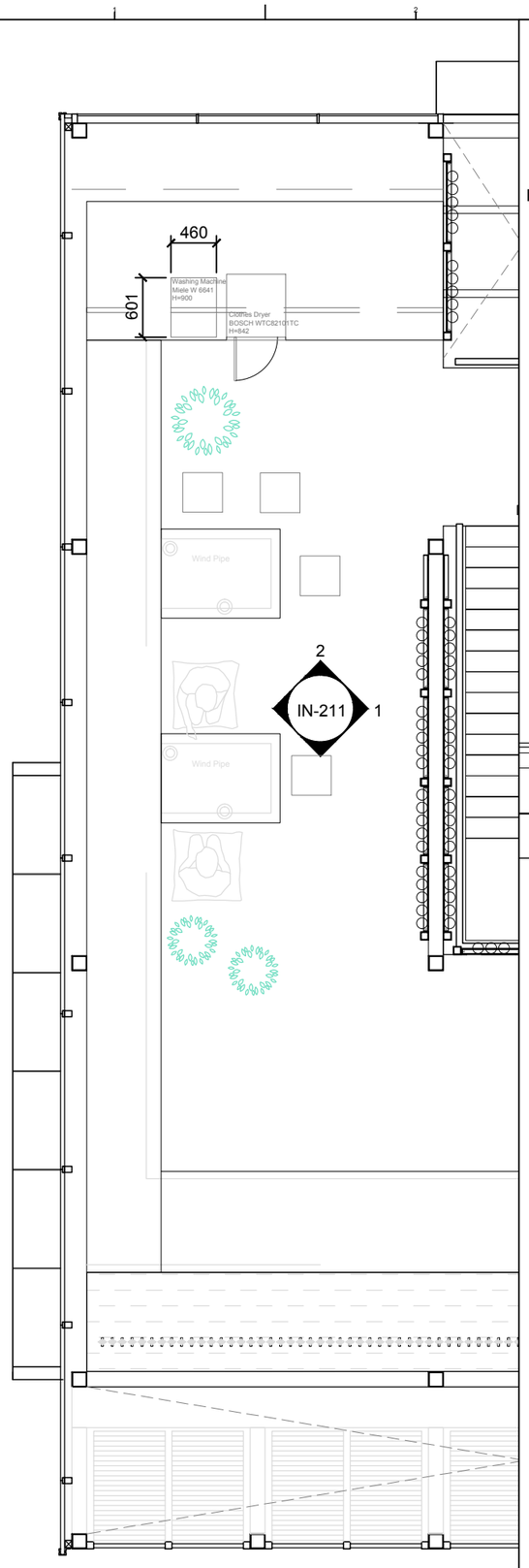
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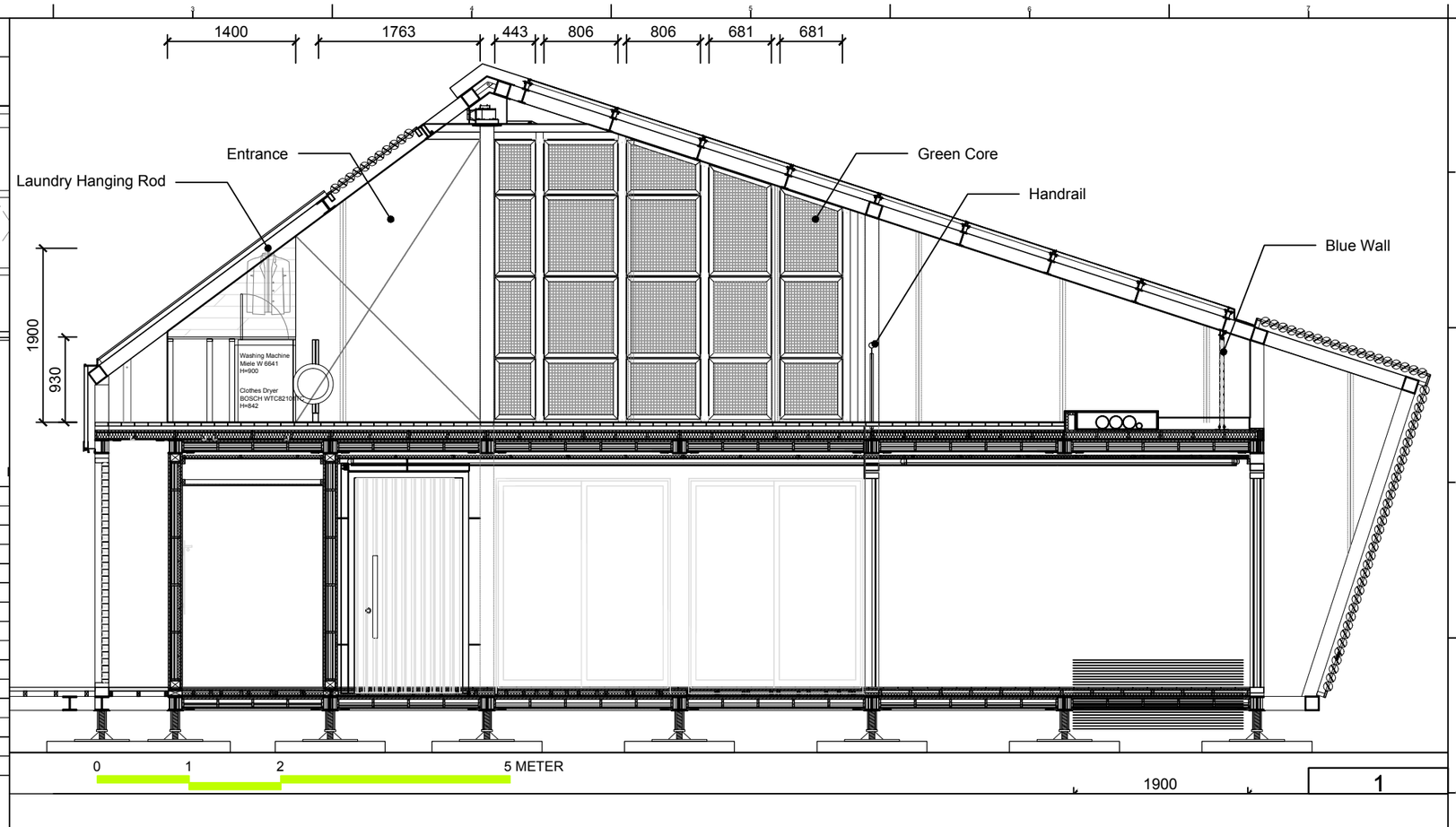
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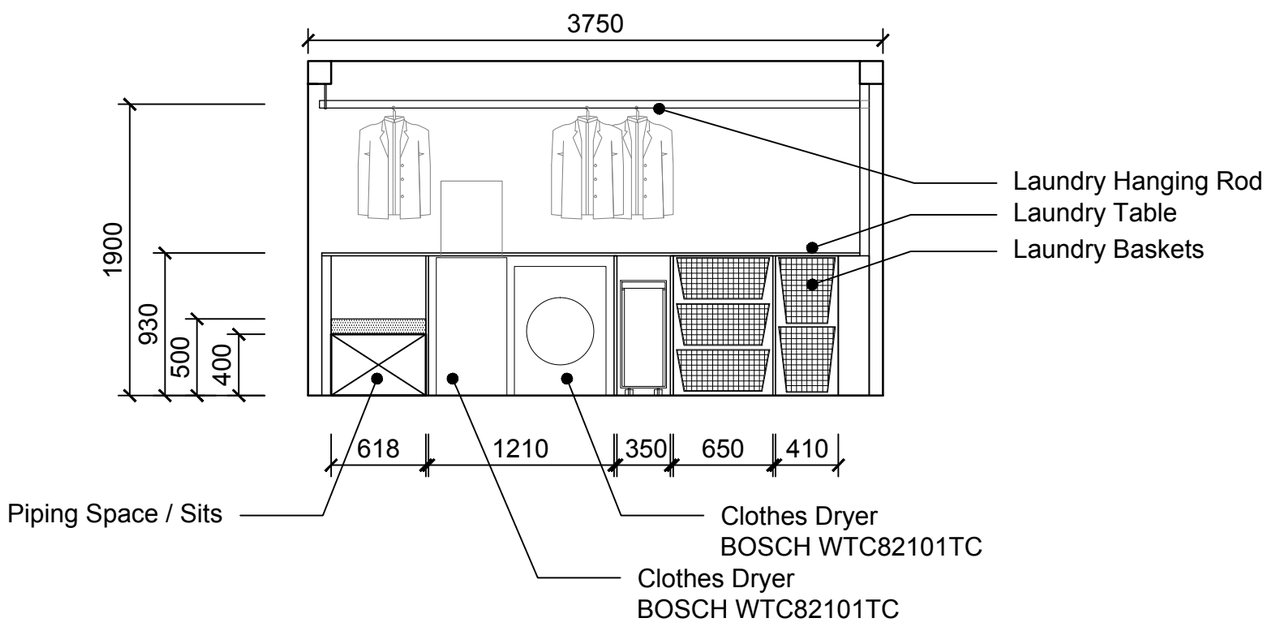
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DWG. No.: IN-205

PAGE: 115











2

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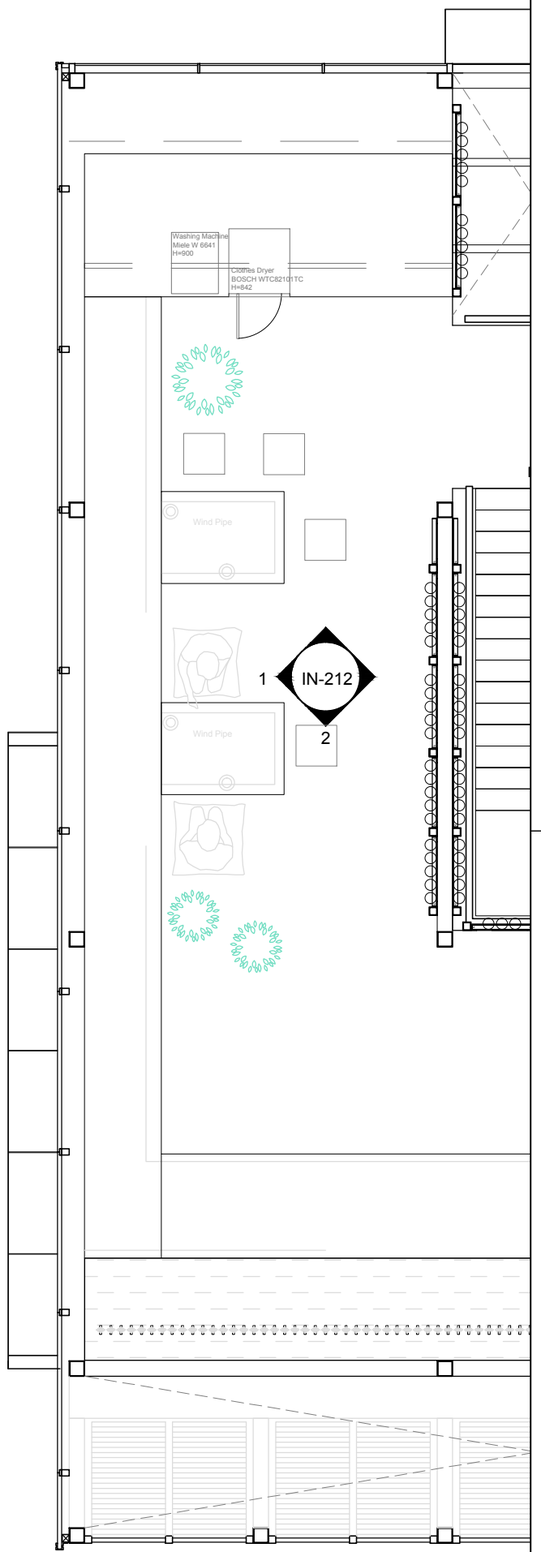
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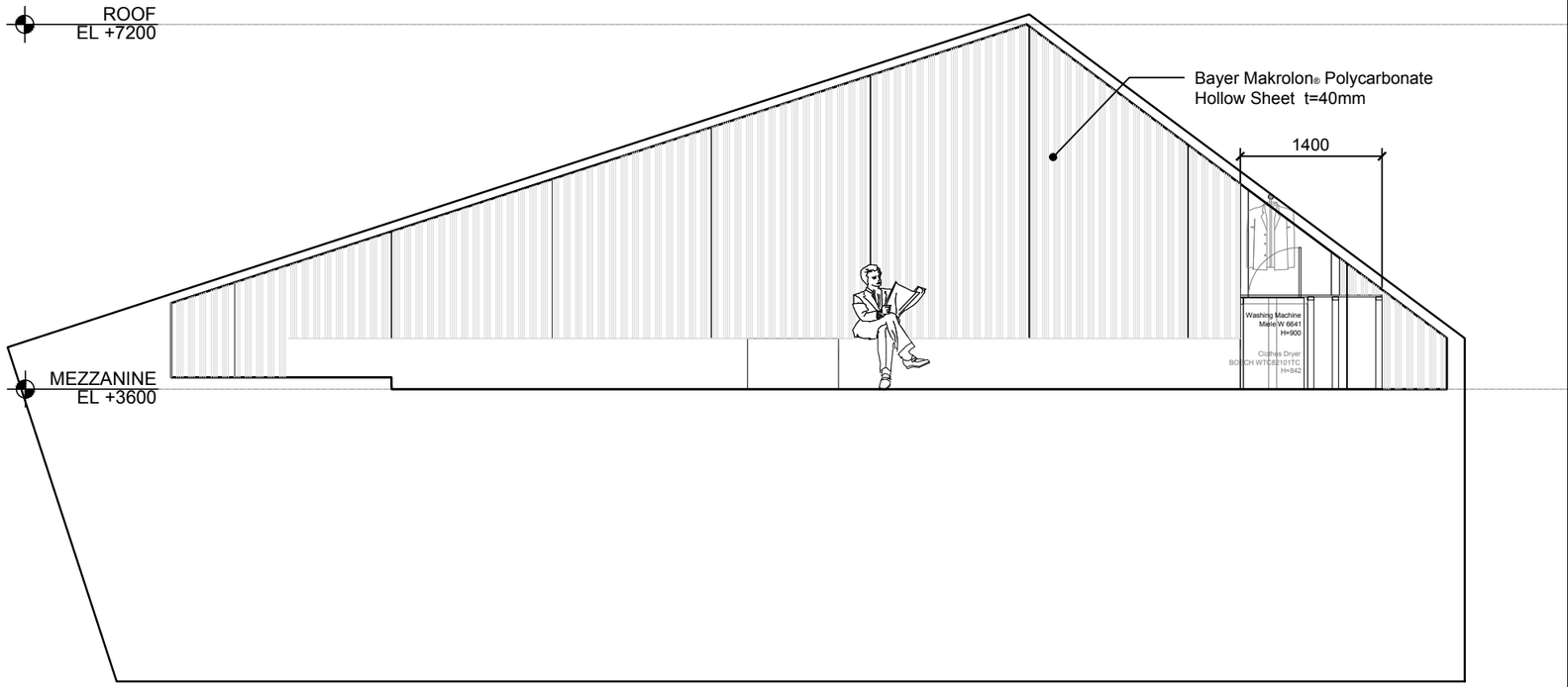
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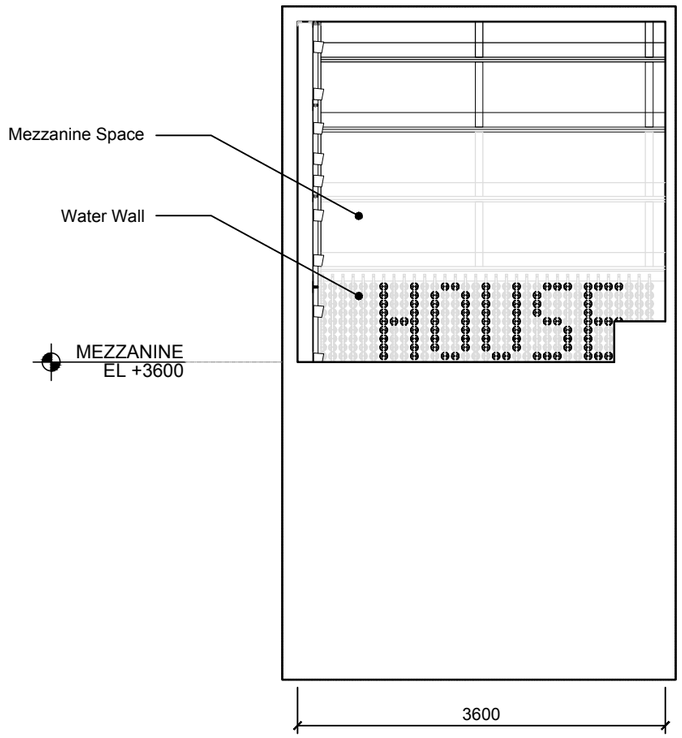
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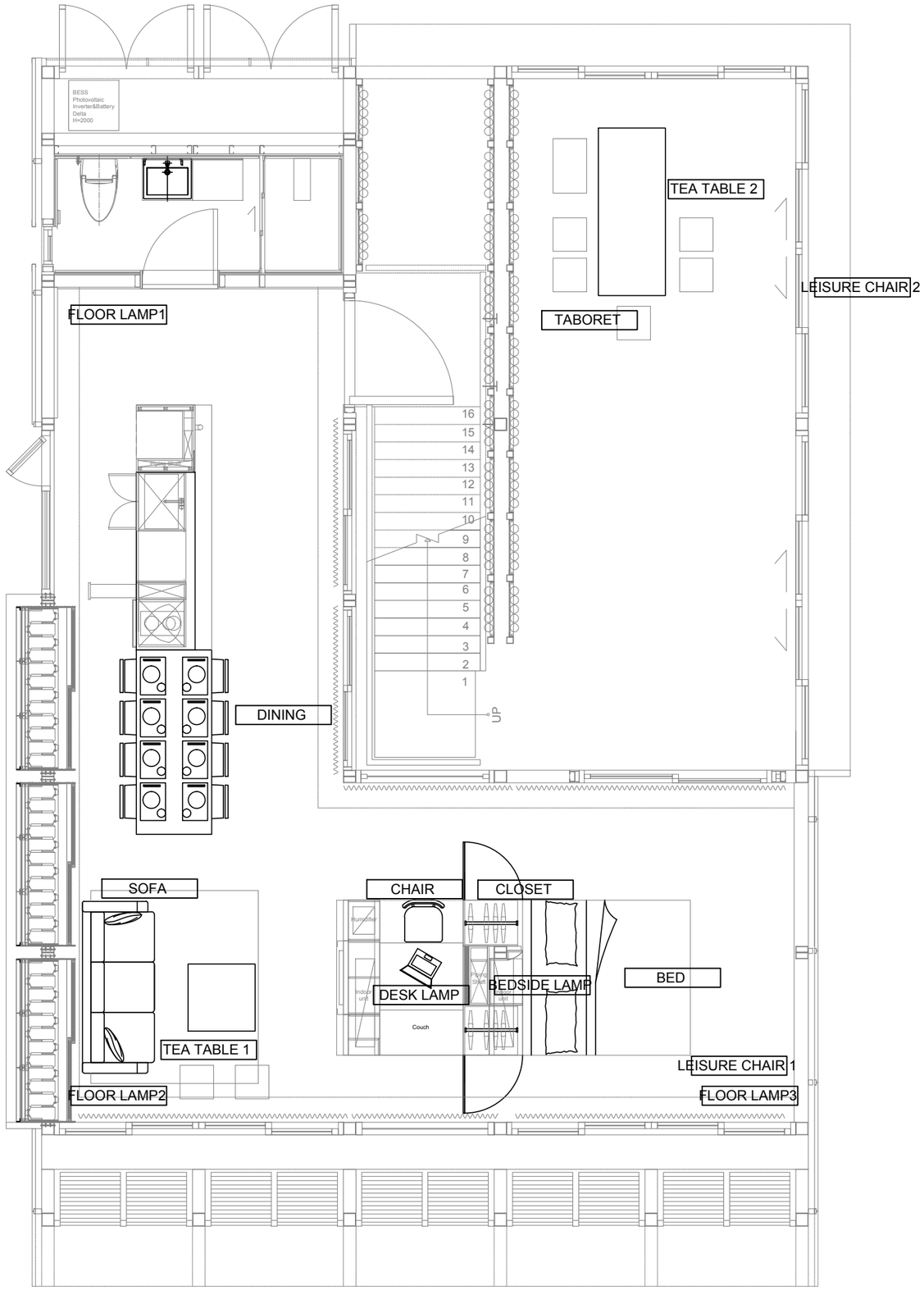
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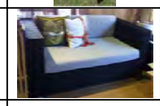
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DWG. No.: IN-212

PAGE: 117



FURNITURE LIST

TYPE	IMAGE	SIZE(L*W*H) mm
DINING CHAIR		
SOFA		1900*860*700 seat height:
TEA TABLE 1		
BED		1520*1880*210
WORK CHAIR		
TEA TABLE 2		
TABORET		400*400*400
LEISURE CHAIR 1		
LEISURE CHAIR 2		
UMBRELLA BUCKET		
CLOSET	SEE DWG.IN-701	
FLOOR LAMP 1		360*360*1400
FLOOR LAMP 2		360*360*1400
FLOOR LAMP 3		260*250*1450
DESK LAMP		400*160*540
BEDSIDE LAMP		250*250*525

Solar Decathlon Europe

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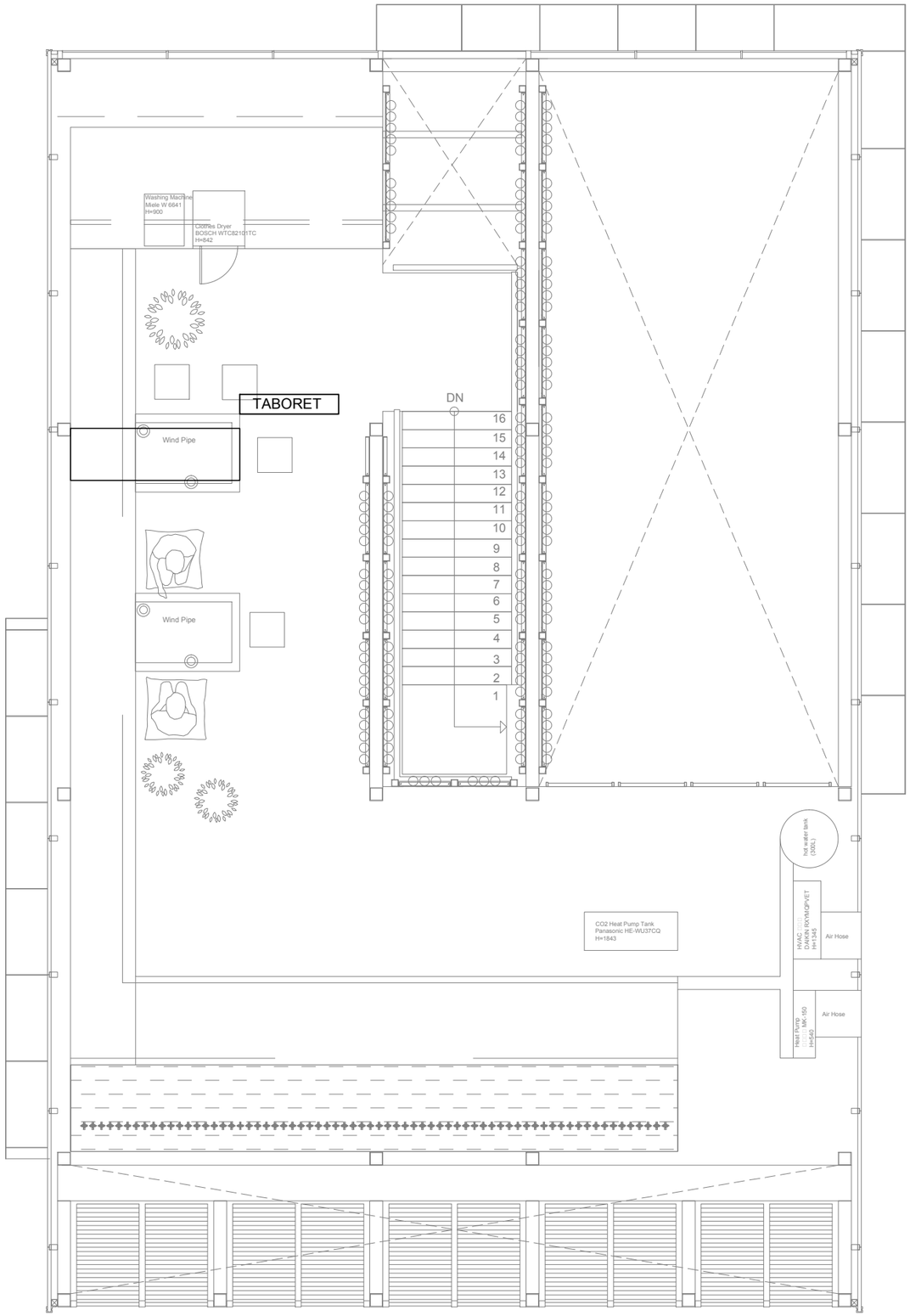
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Checked by	DN
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Unit	mm

DWG. Title

GROUND FLOOR FURNISHINGS

DWG. No. IN-301

PAGE 118



0 1 2 5 METER

FURNITURE LIST

TYPE	IMAGE	SIZE(L*W*H) mm
TABORET		400*400*400

Solar Decathlon Europe

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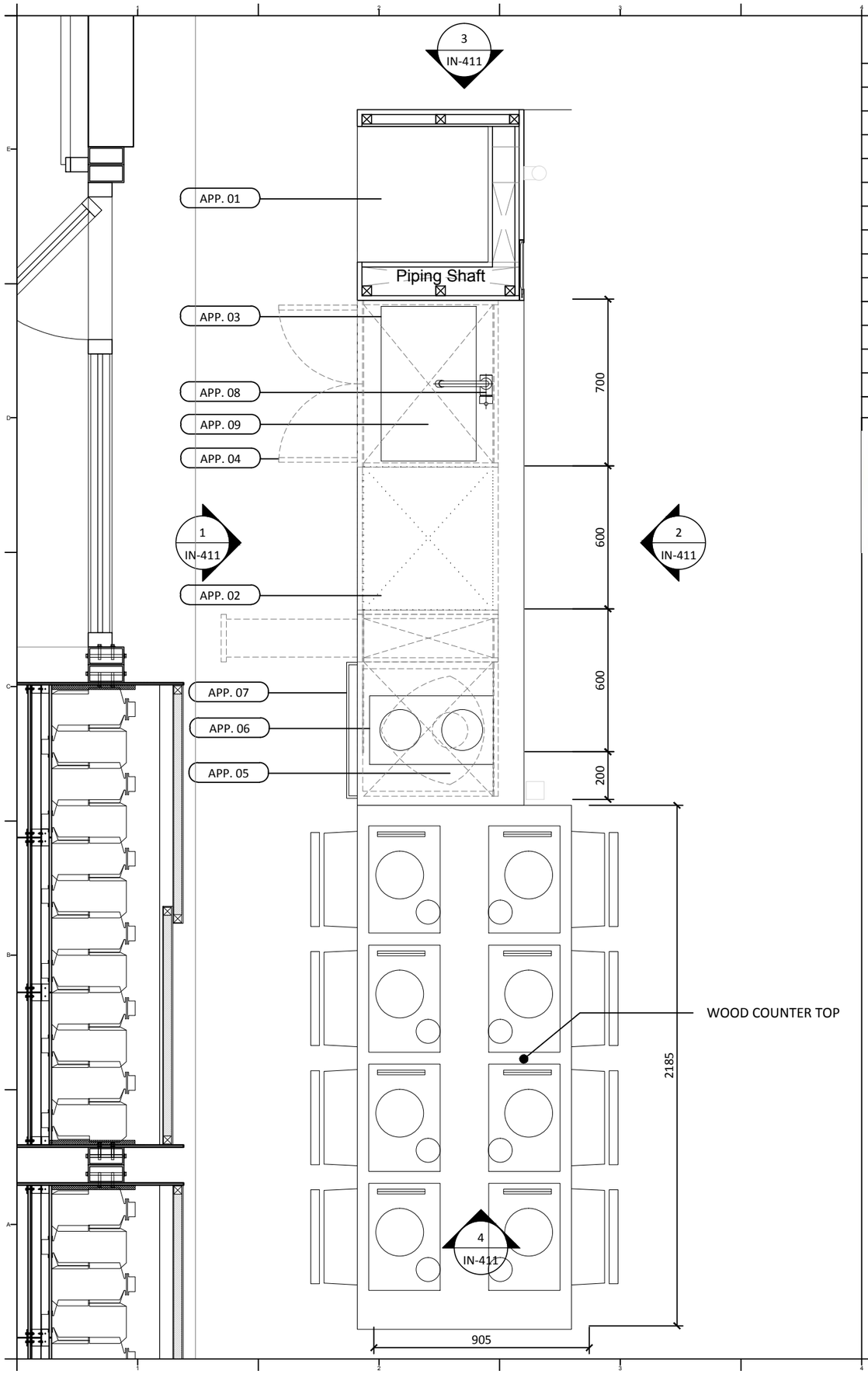
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Drawn by	TW
Checked by	DN
Scale	1:60
Unit	mm

DWG. Title

MEZZANINE FLOOR FURNISHINGS

DWG. No.	PAGE
IN-302	119



APPLIANCE LIST

APP. No	TYPE	BRAND	TYPE	LOCATION	SIZE (W*D*H)	NOTE
APP. 01	REFRIGERATOR	MIELE	KFN 37452 i DE	KITCHEN	560x550x1772	
APP. 02	DISH WASHER	MIELE	G6995 SCVi K2O	KITCHEN	598*570*845-910	
APP. 03	SINK	HCG	BKJ650	KITCHEN	650x400x190	
APP. 04	CABINET	HCG		KITCHEN	3210x900	
APP. 05	HOOD	BEST	GLOSS	KITCHEN	455x435x830-1180	
APP. 06	INDUCTION TOP	MIELE	Domino CS 1112 E	KITCHEN	272x500	
APP. 07	OVEN	MIELE	H2161 B CLST	KITCHEN	600x600x500	
APP. 08	FAUCET	HCG	KT580T	KITCHEN	25x215x295	
APP. 09	DRAIN	HCG		KITCHEN		

APP. 01	APP. 02	APP. 03	APP. 05	APP. 06	APP. 07	APP. 08
						

0 0.2 0.4 1 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Consultants:

Note:

N

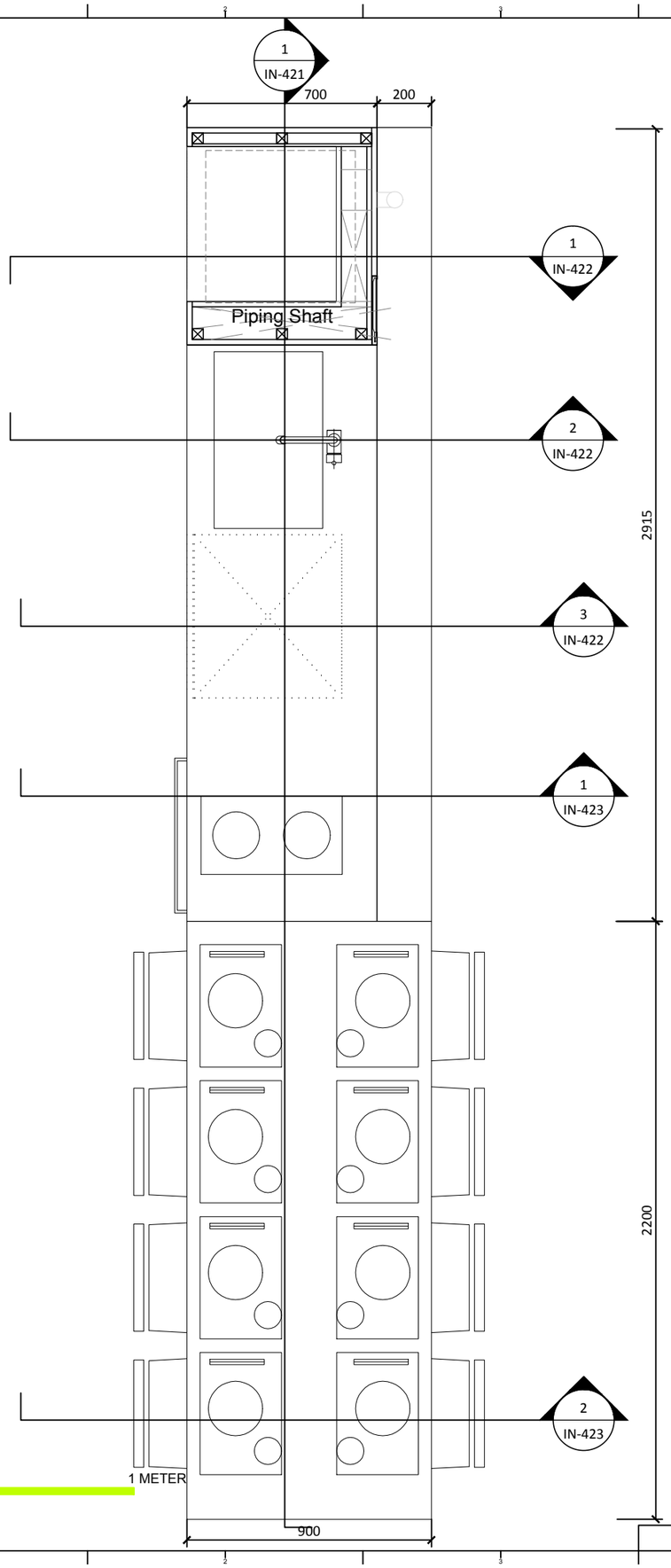
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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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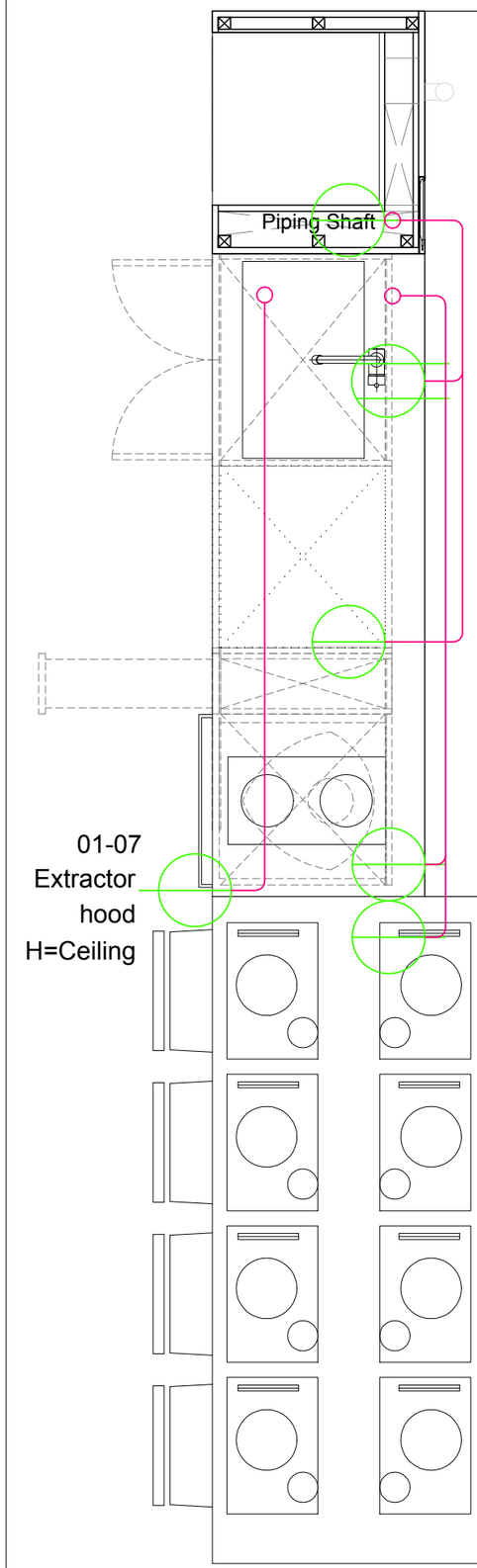
DWG. Title

KITCHEN PLAN 1

DWG. No.	PAGE
IN-401	120



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2

Solar Decathlon Europe

Project: ORCHID HOUSE

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Note:

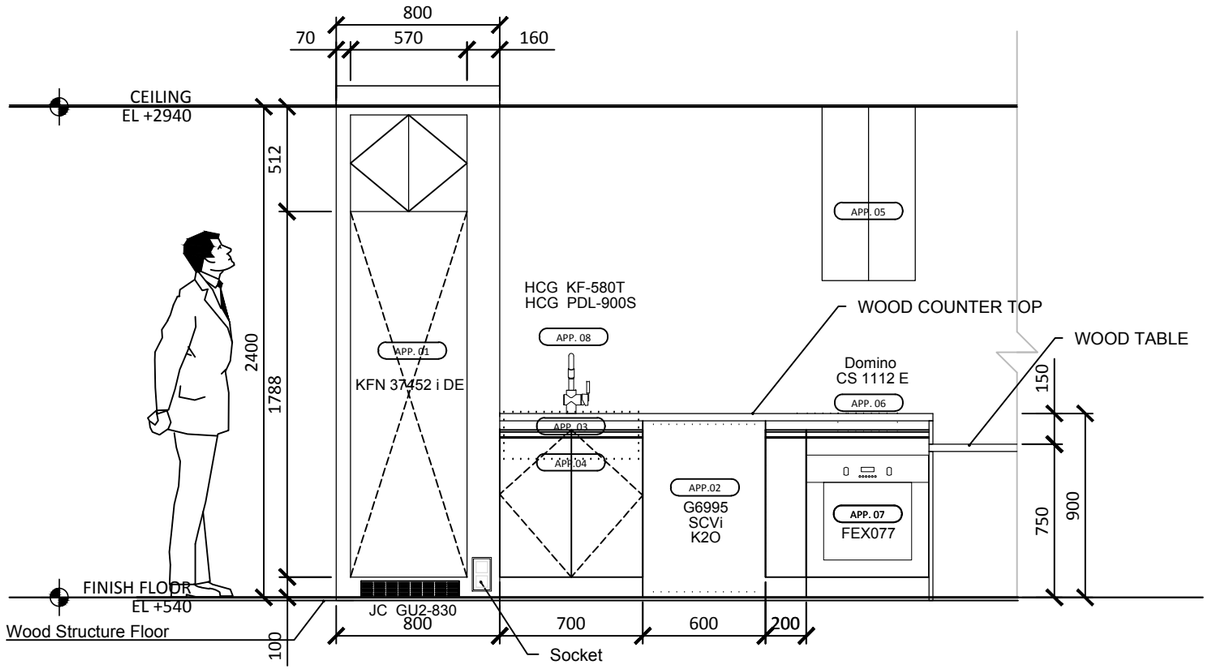
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Unit	mm

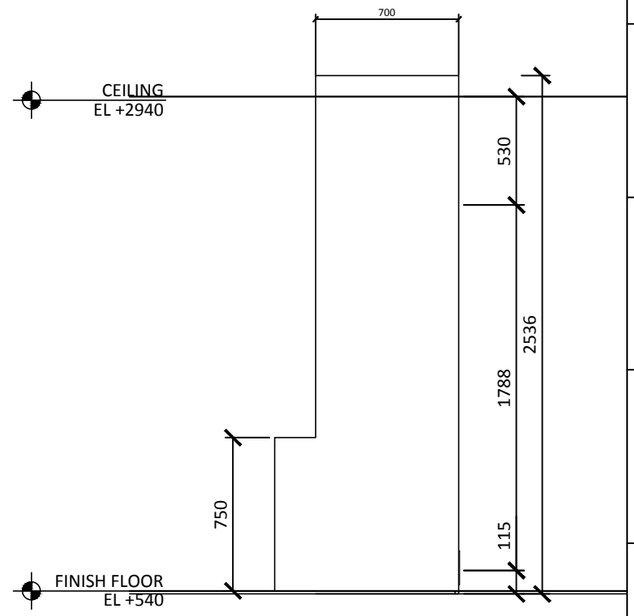
DWG. Title

KITCHEN PLAN 2

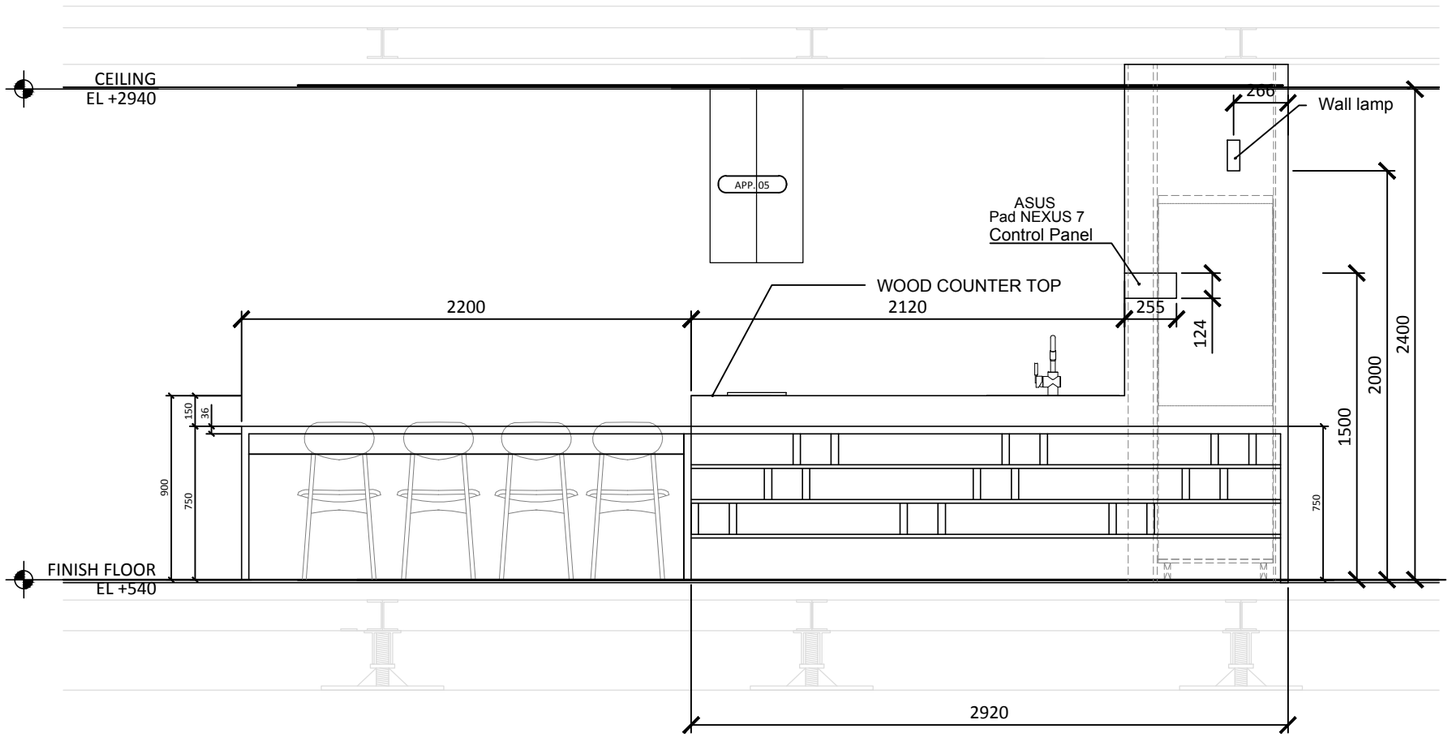
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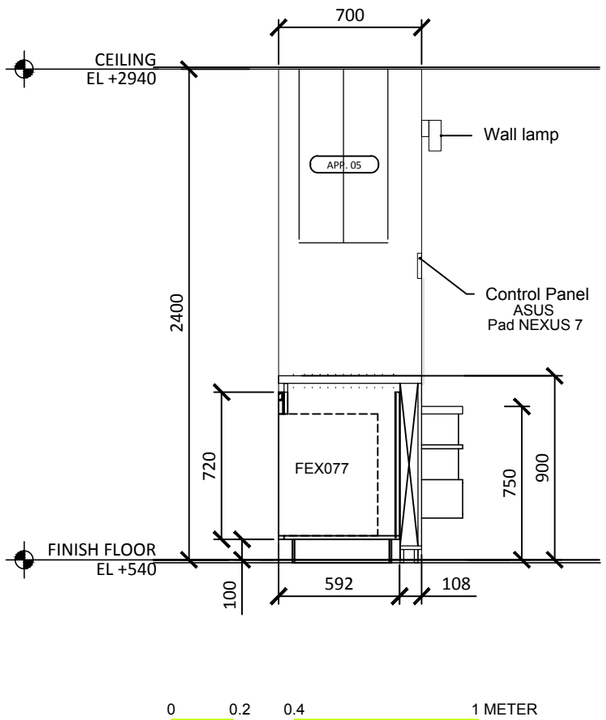
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2



4

Solar Decathlon Europe

Project:

ORCHID HOUSE

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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

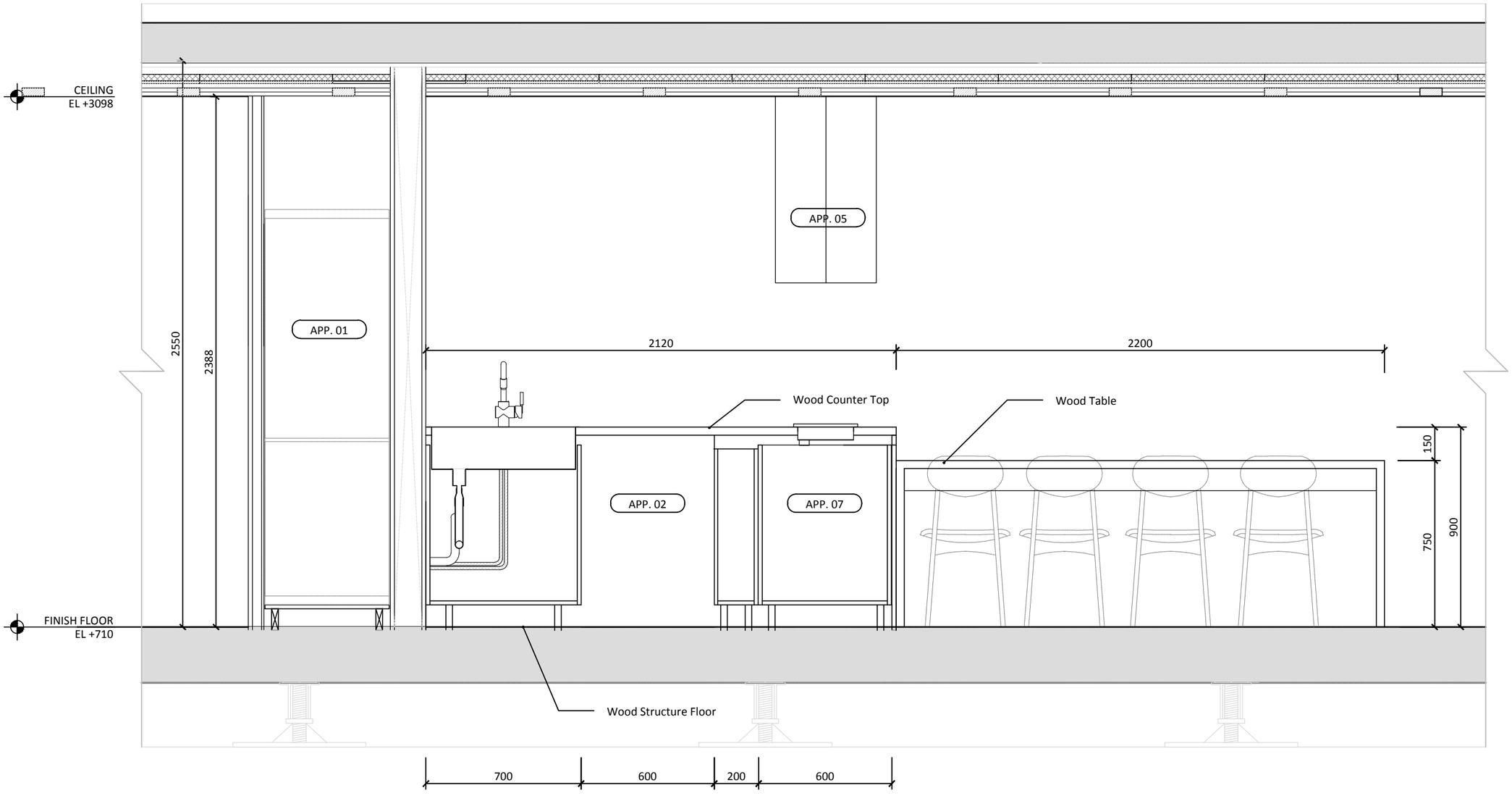
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Unit	mm

DWG. Title

KITCHEN ELEVATIONS

DWG. No. IN-411

PAGE 122



0 0.2 0.4 1 METER

1

Solar Decathlon Europe

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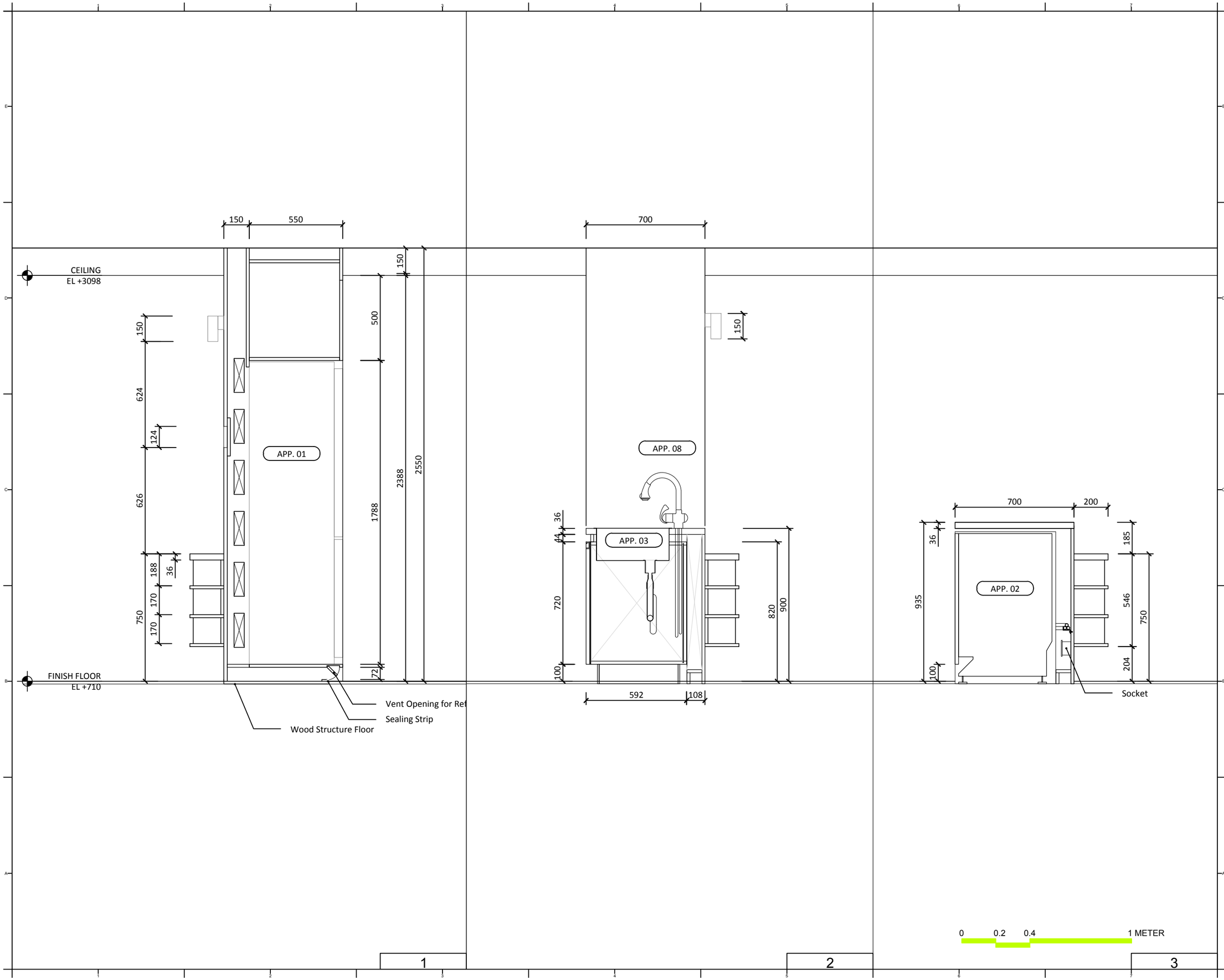
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DWG. Title

KITCHEN SECTION 1

DWG. No. IN-421

PAGE 123



Solar Decathlon Europe

Project: ORCHID HOUSE

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ST	2014/04/30	CD Submission

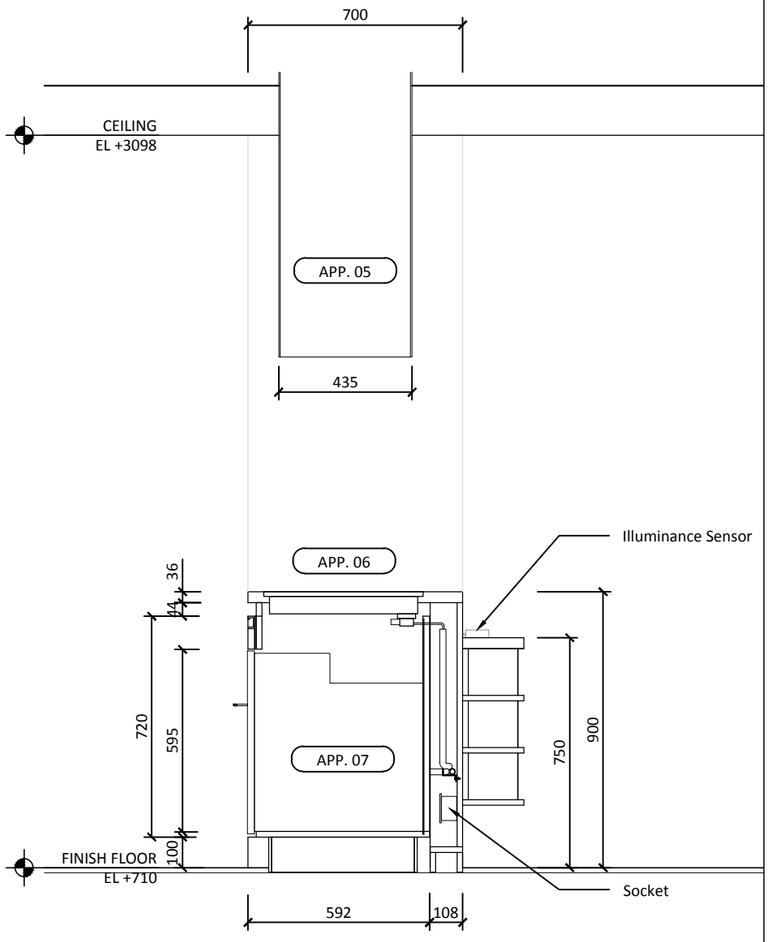
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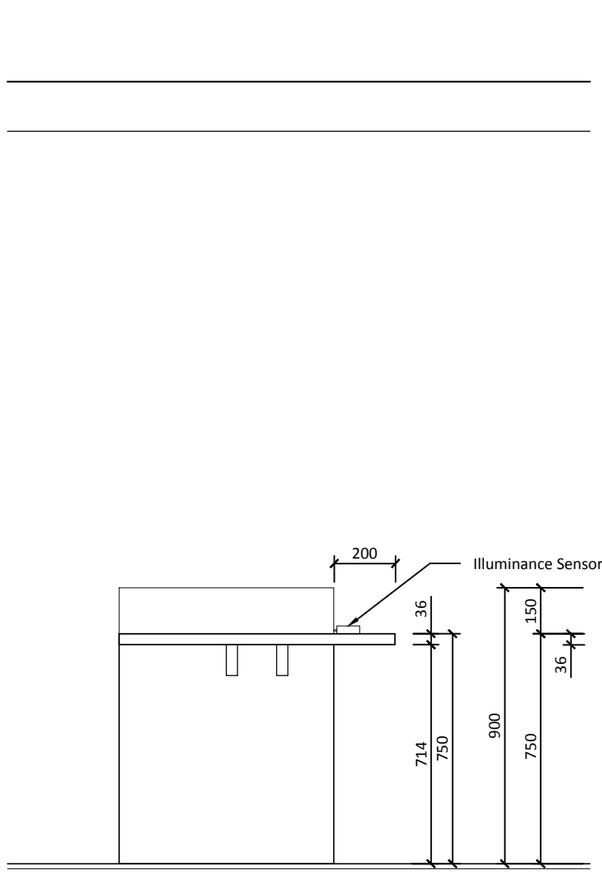
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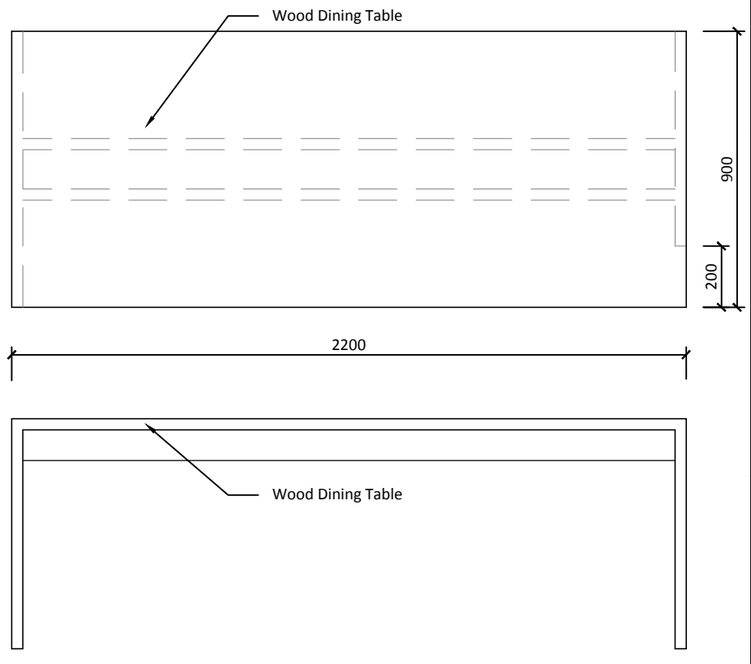
KITCHEN SECTION 2

DWG. No. IN-422

PAGE 124







0 0.2 0.4 1 METER

1

2

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Note:

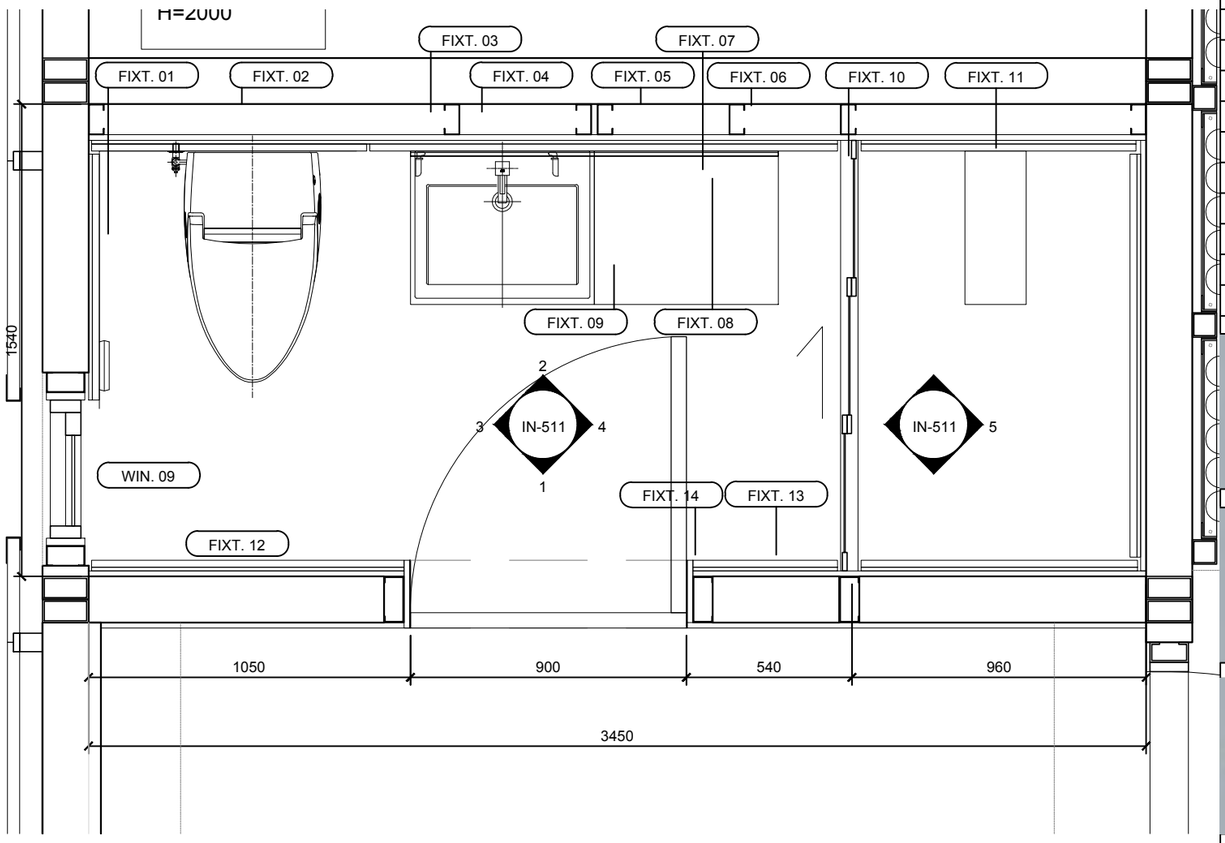
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Unit	mm

DWG. Title

KITCHEN SECTION 3

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IN-423	125

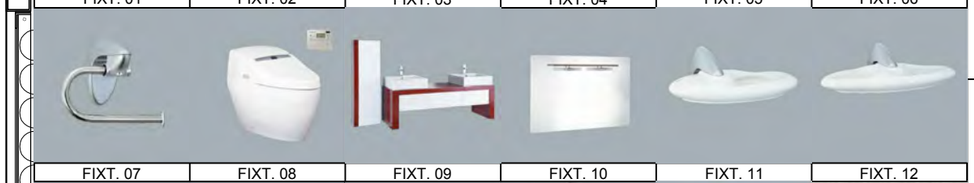


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FIXED FURNITURE LIST

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FIXT. 02	INTELLIGENT TOLIET	HCG	BATHROOM	800x460x625	C3016
FIXT. 03	CABINET	HCG	BATHROOM	1500x500x700	LCP400-4115NP
FIXT. 04	MIRROR	HCG	BATHROOM	1200x800x80	BA2826
FIXT. 05	TUMBLER HOLDER	HCG	BATHROOM	245x130x105	BA202
FIXT. 06	SOAP DISH	HCG	BATHROOM	300x140x105	BA207
FIXT. 07	TEMPERATURE CONTROL FAUCET	HCG	BATHROOM	235x60x180	LF3167PT(AW)
FIXT. 08	DRAINGE TAKEOVER	HCG	BATHROOM		LF725L-B1
FIXT. 09	SINK	HCG	BATHROOM	480x570x155	L400SAdb-4115N
FIXT. 10	ACCESSIBLE SHOWER DOOR	HCG	BATHROOM	1541x50x2200	SK2W1619
FIXT. 11	SMART SHOWER COLUM	HCG	BATHROOM	500x190x1400	ST8791
FIXT. 12	SHOWER WALL	HCG	BATHROOM	897x1797x4	STANDARD 4142
FIXT. 13	DOUBLE TOWEL RACK	HCG	BATHROOM	300x110x160	BA203
FIXT. 14	CLOTH HOOK	HCG	BATHROOM	145x110x105	BA206

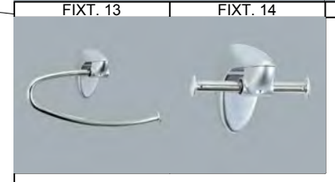
FIXT. 01 FIXT. 02 FIXT. 03 FIXT. 04 FIXT. 05 FIXT. 06



FIXT. 07 FIXT. 08 FIXT. 09 FIXT. 10 FIXT. 11 FIXT. 12



FIXT. 13 FIXT. 14



陶板分割尺寸：

1. 897x676 五片
2. 897x897 五片
3. 1533x676 二片
4. 897x835 五片
5. 1460x676 一片
6. 1460x897 一片
7. 1320x835 一片

Solar Decathlon Europe

Project: ORCHID HOUSE

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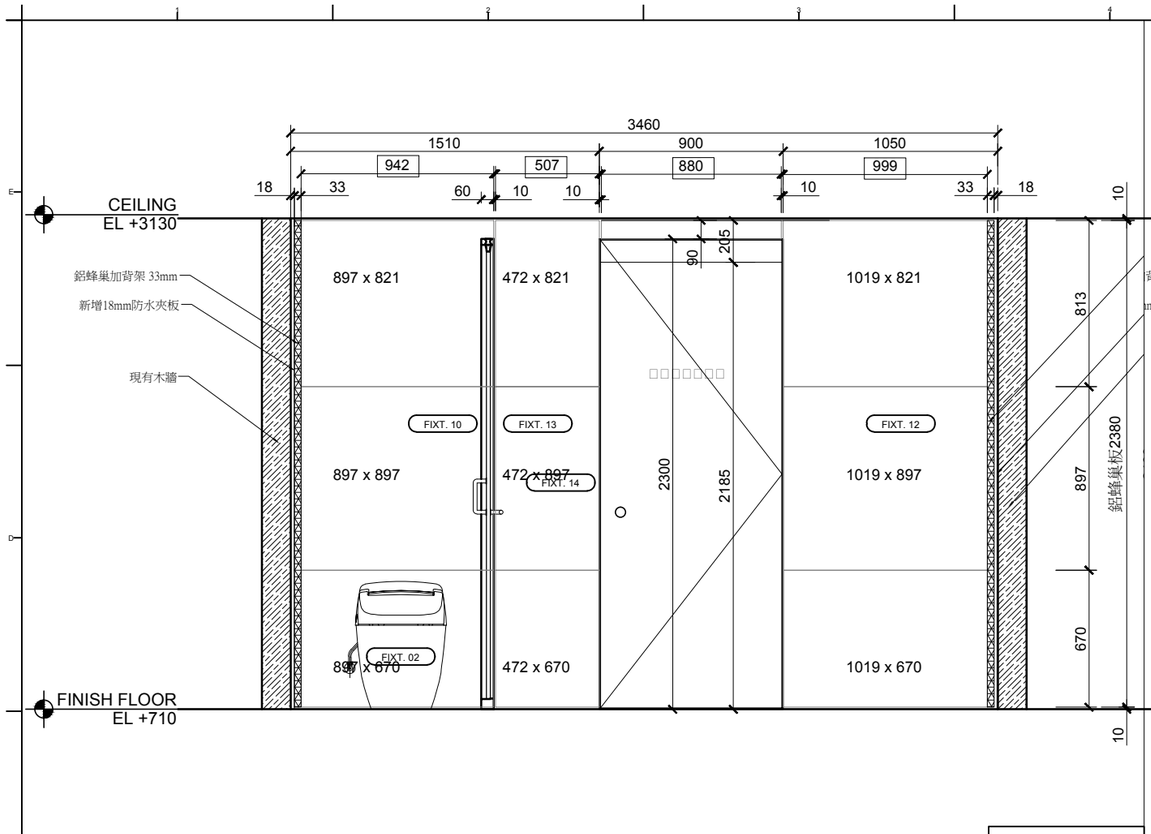
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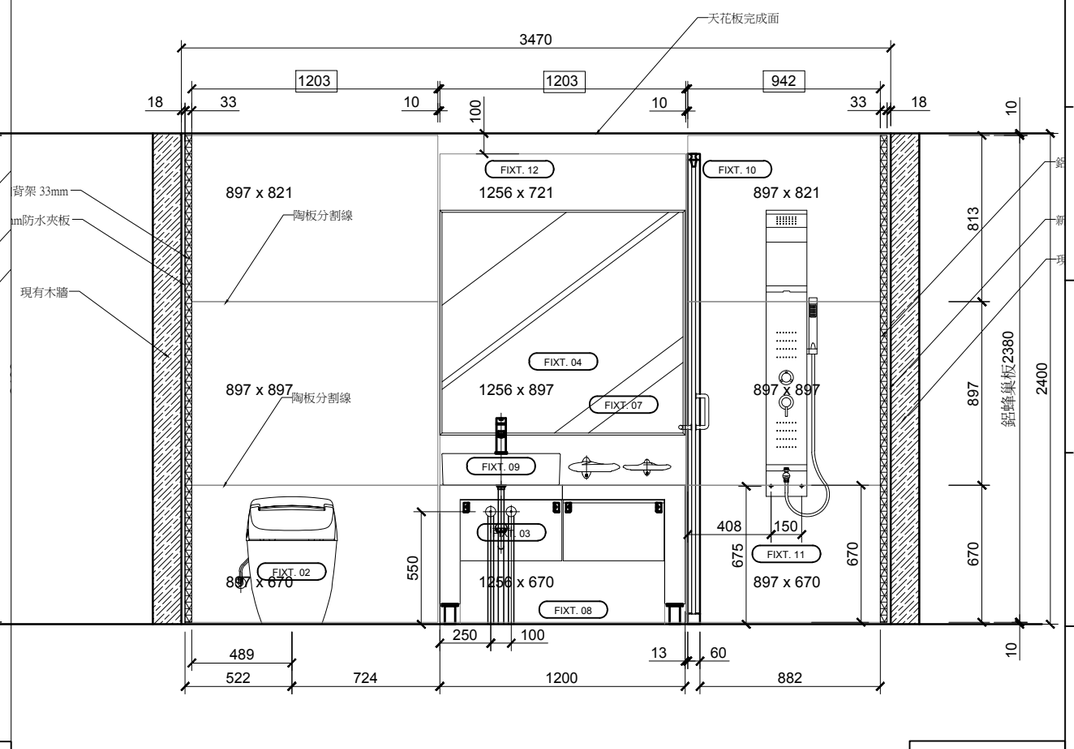
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DWG. No.: IN-501

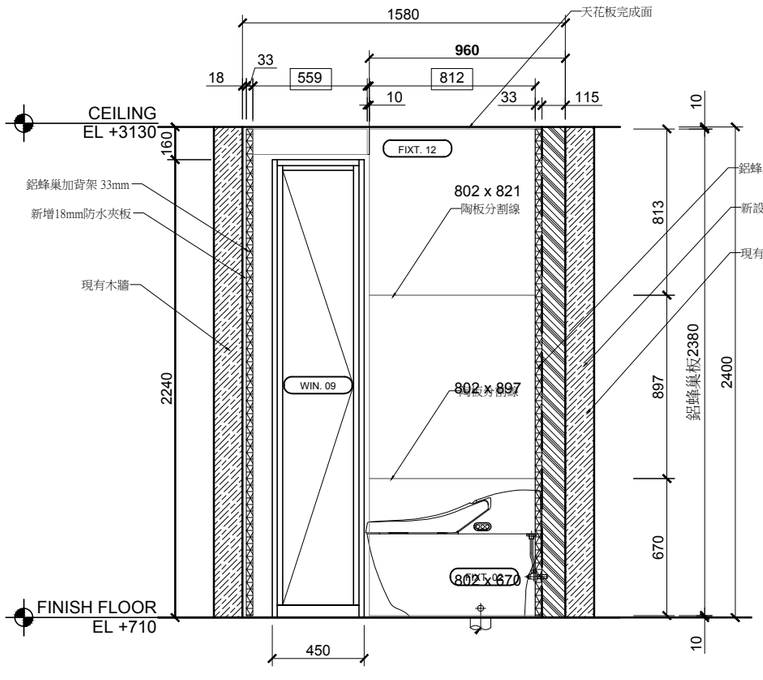
PAGE: 126



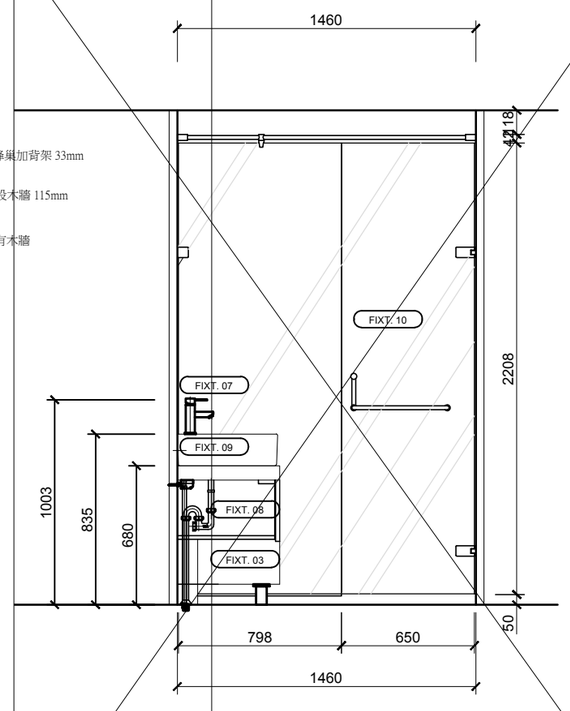
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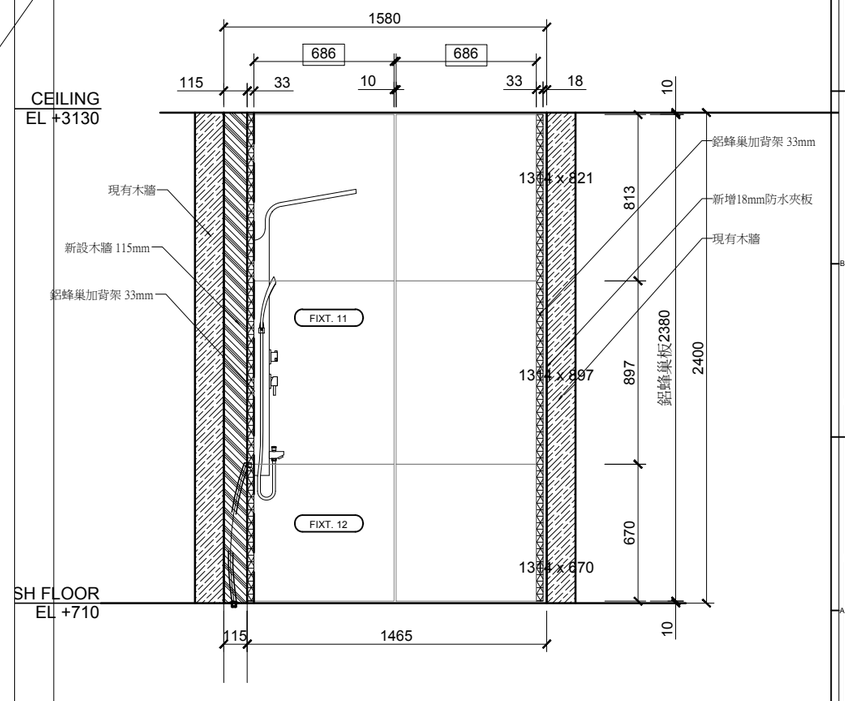
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3



4



5

0 0.5 1 2 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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ST	2014/04/30	CD Submission

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Checked by	BT
Scale	1:30
Unit	mm

DWG. Title

BATHROOM ELEVATIONS

DWG. No. IN-511

PAGE 127



Solar Decathlon Europe

Project:

ORCHID HOUSE

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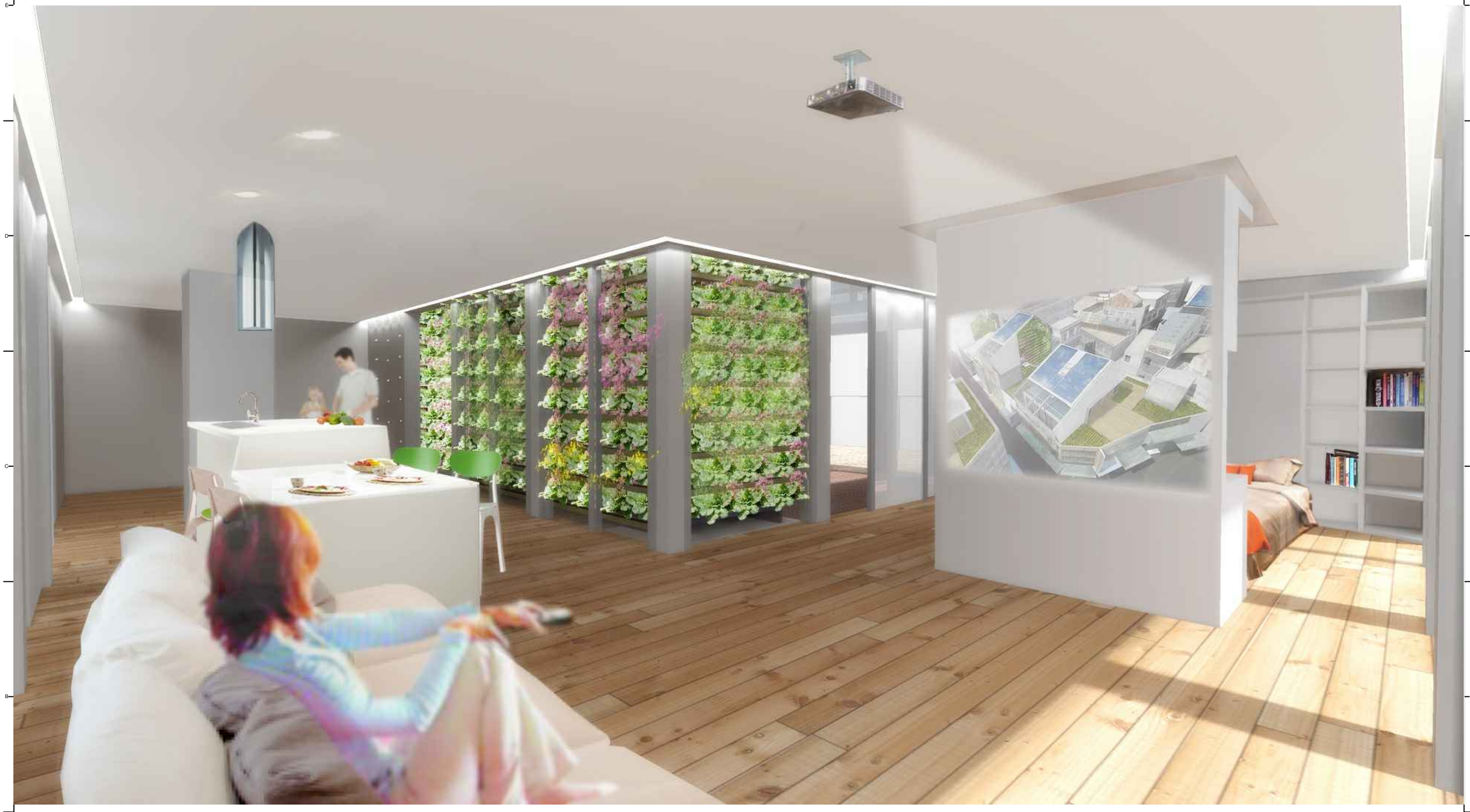
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Unit	-

DWG. Title

INTERIOR RENDERING
ENTRANCE

DWG. No.	PAGE
IN-601	128



Solar Decathlon Europe

Project:

ORCHID HOUSE

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ST	2014/04/30	CD Submission

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Unit	-

DWG. Title

INTERIOR RENDERING LIVING ROOM

DWG. No.	PAGE
IN-602	129



Solar Decathlon Europe

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DWG. Title

INTERIOR RENDERING
2ND FLOOR

DWG. No.	PAGE
IN-603	130



Solar Decathlon Europe

Project:

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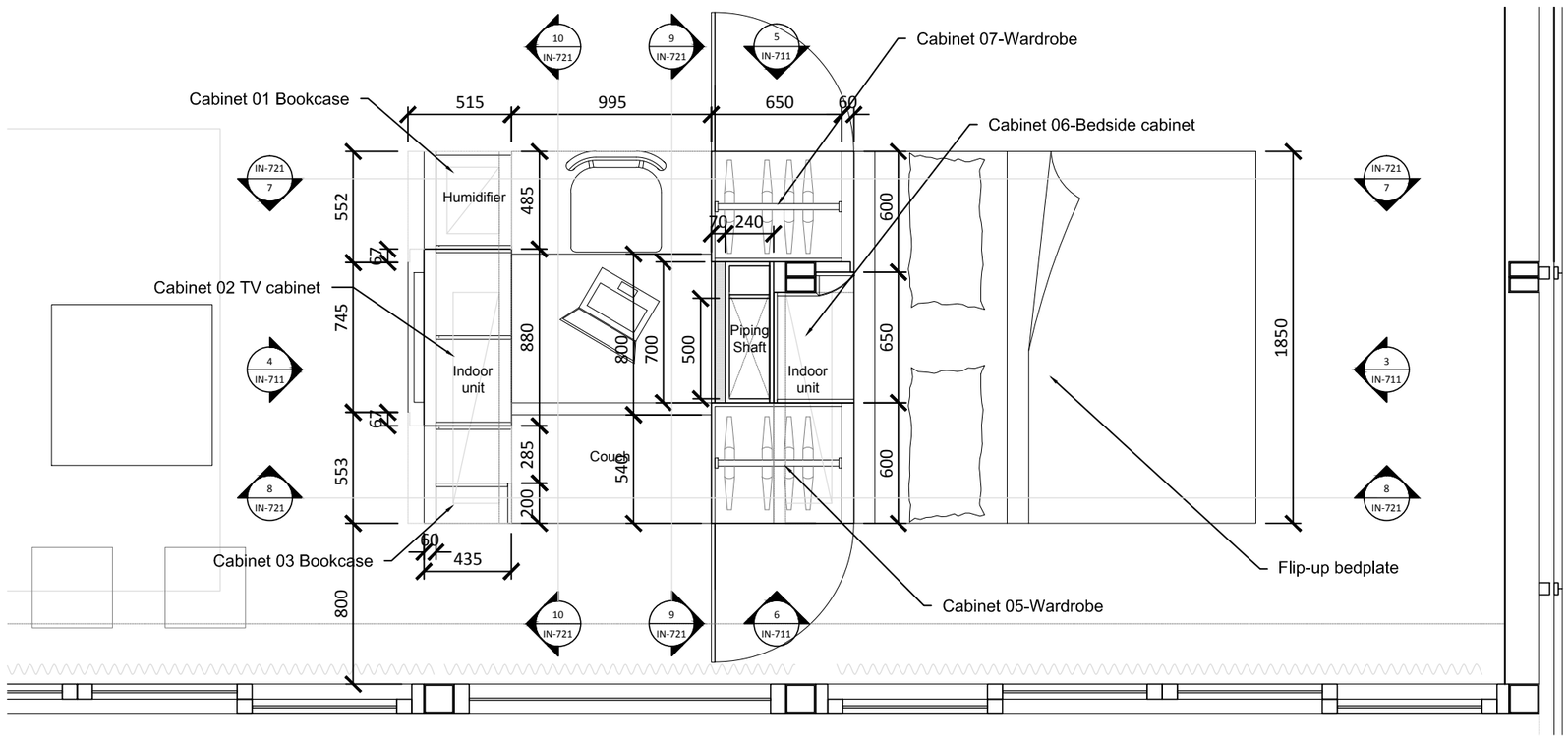
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DWG. Title

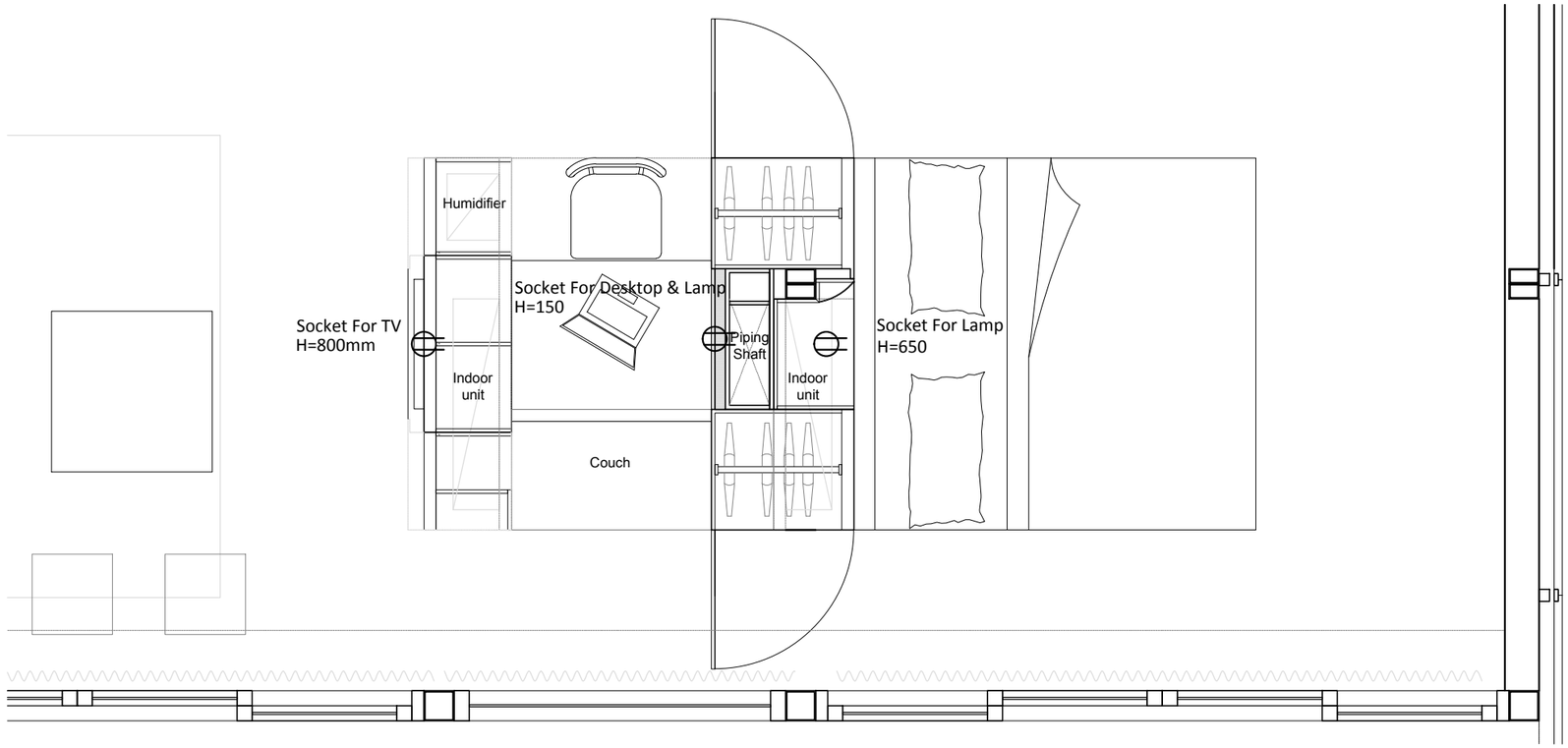
INTERIOR RENDERING
VIEW FROM TERRACE

DWG. No.	PAGE
IN-604	131



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2

Solar Decathlon Europe

Project: ORCHID HOUSE

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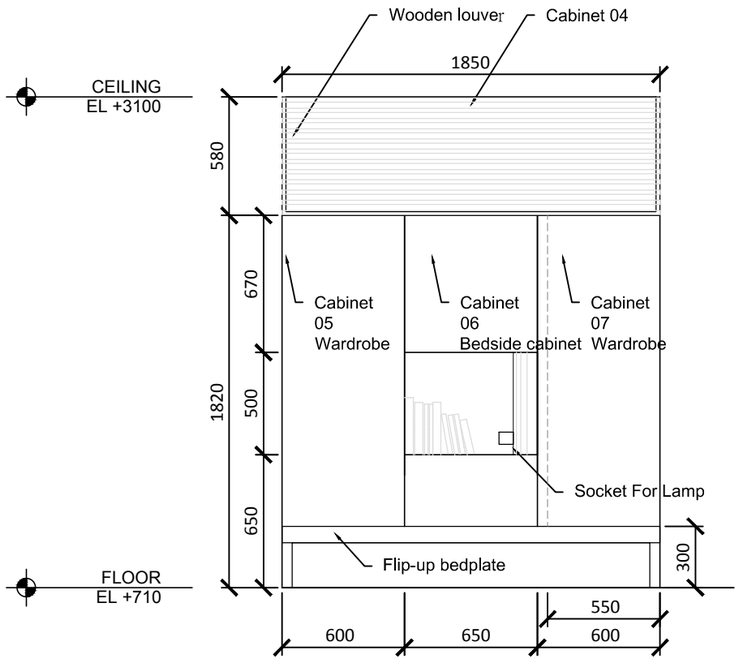
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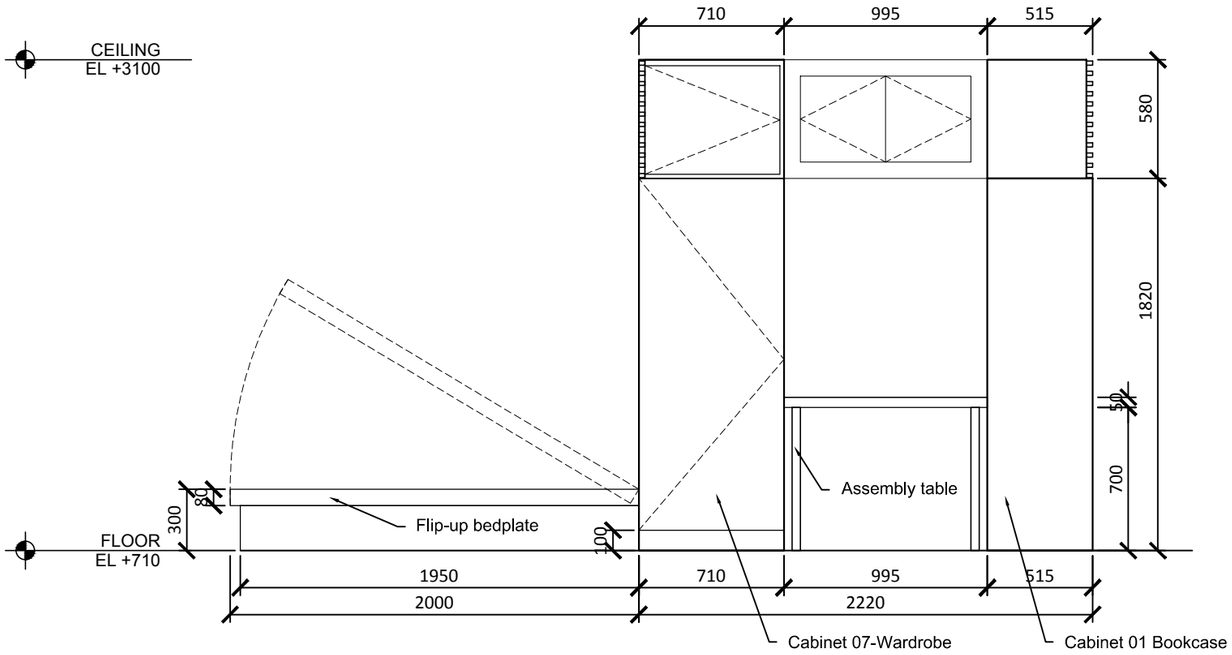
WORKSTATION PLAN

DWG. No. IN-701

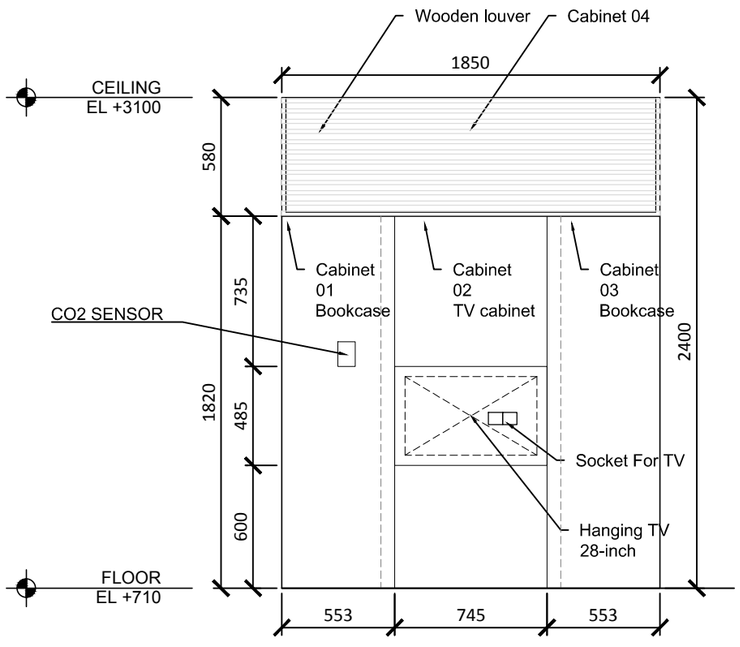
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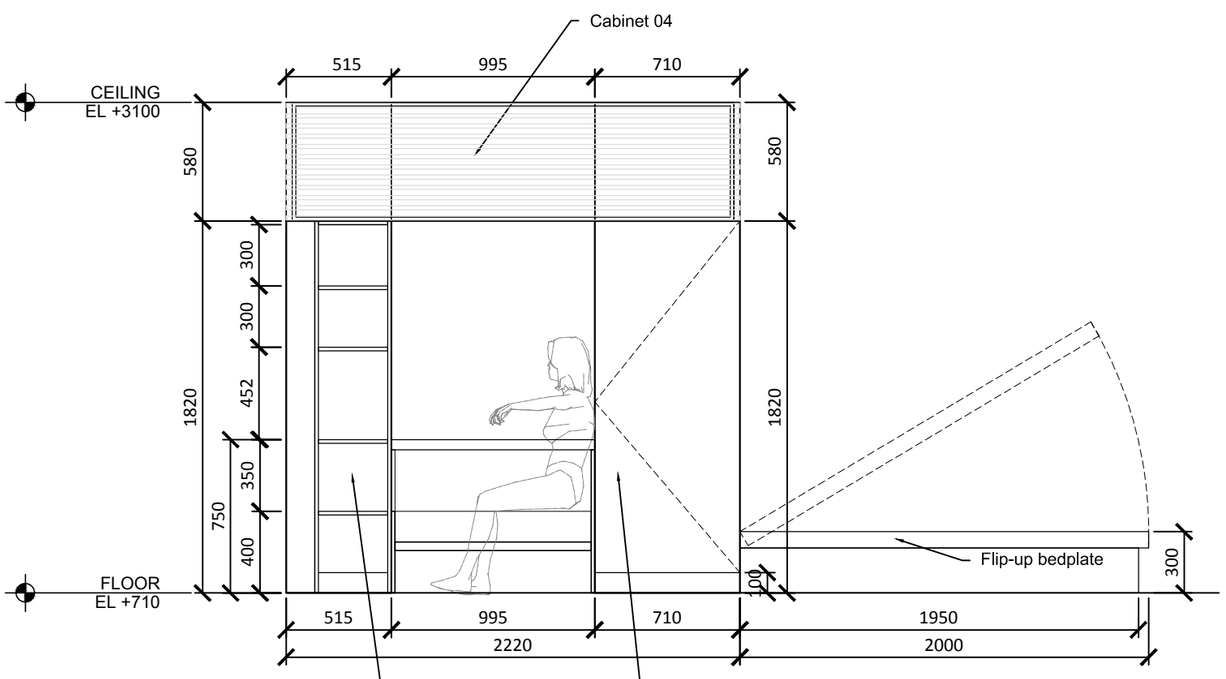


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6

Solar Decathlon Europe

Project:

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Institution:

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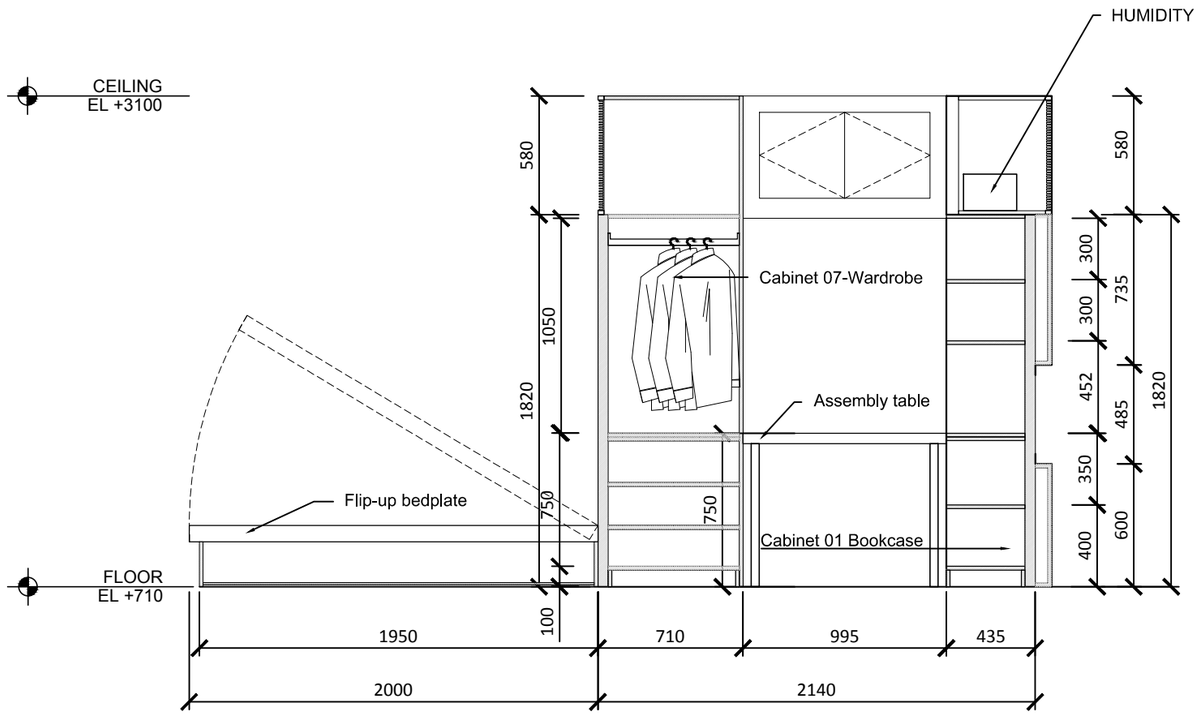
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DWG. Title

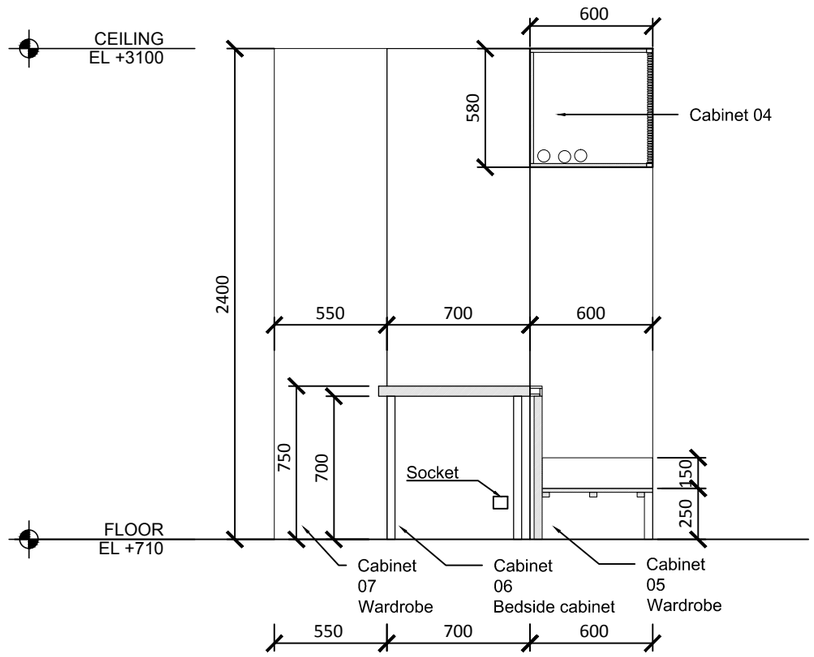
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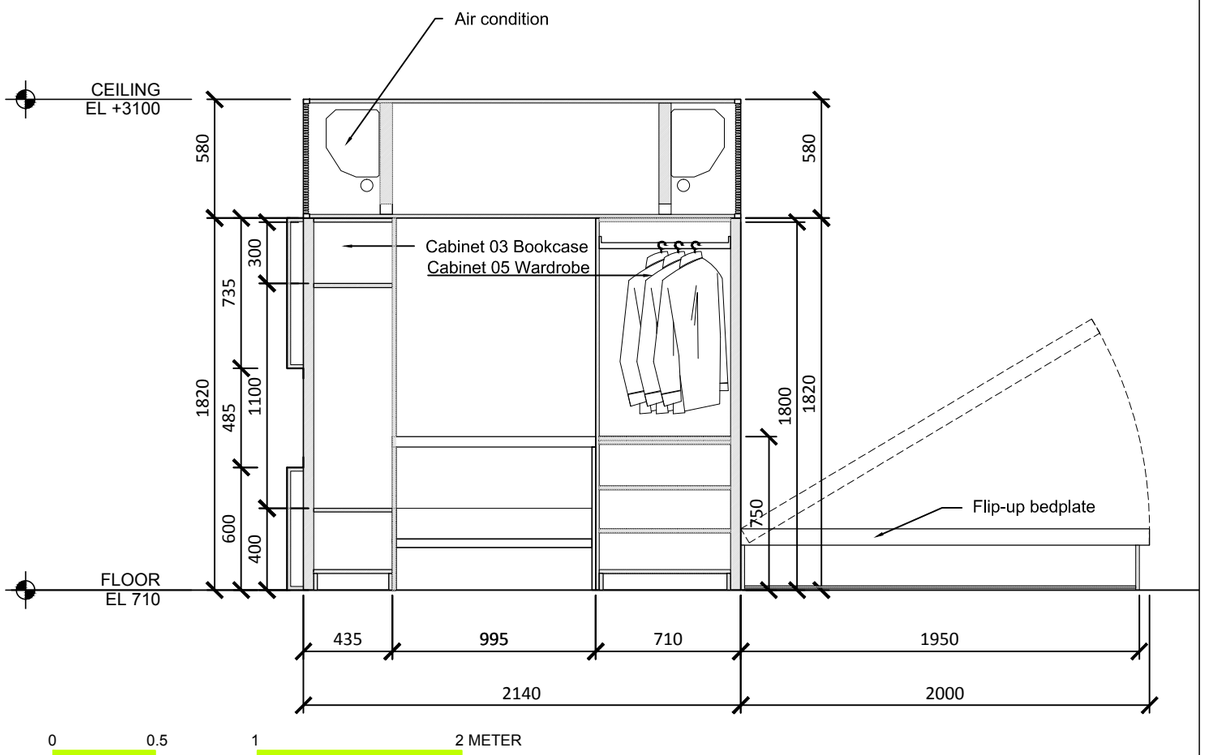
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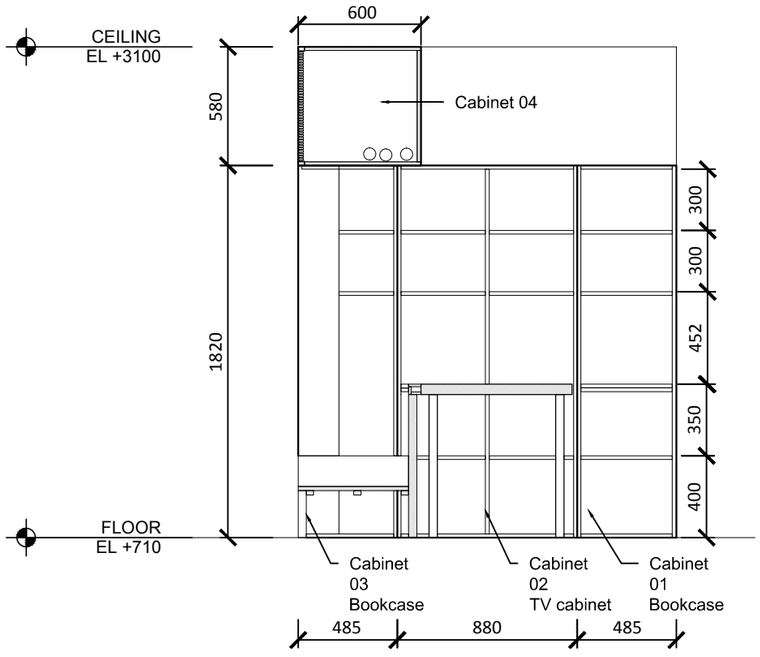
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9



8



10

Solar Decathlon Europe

Project:

ORCHID HOUSE

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Note:

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DN	2013/04/01	SD Submission
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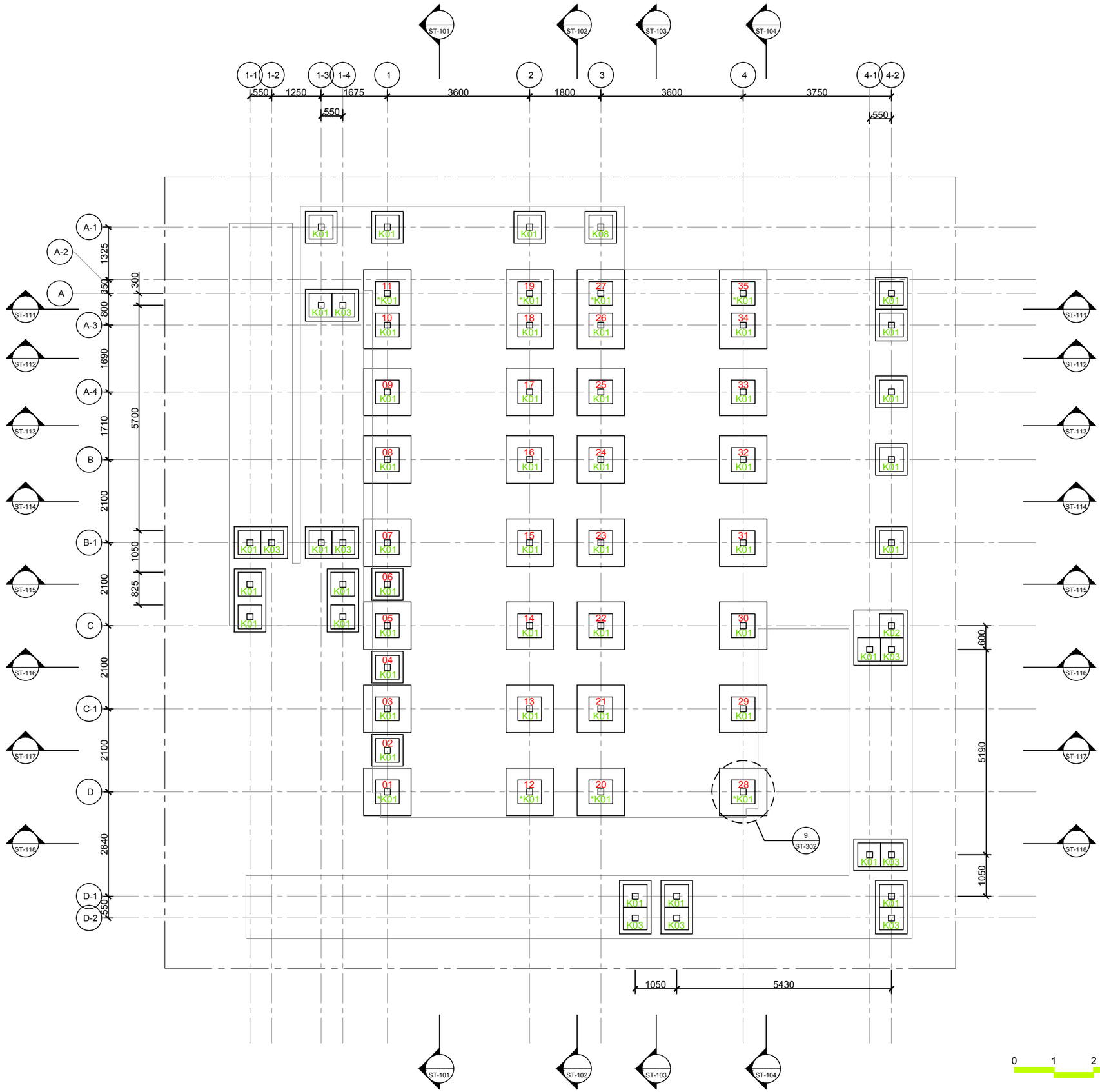
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DWG. Title

WORKSTATION SECTION

DWG. No. IN-721

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Solar Decathlon Europe

Project: ORCHID HOUSE

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Consultants: RUENTEX CONSTRUCTION GROUP

Note:

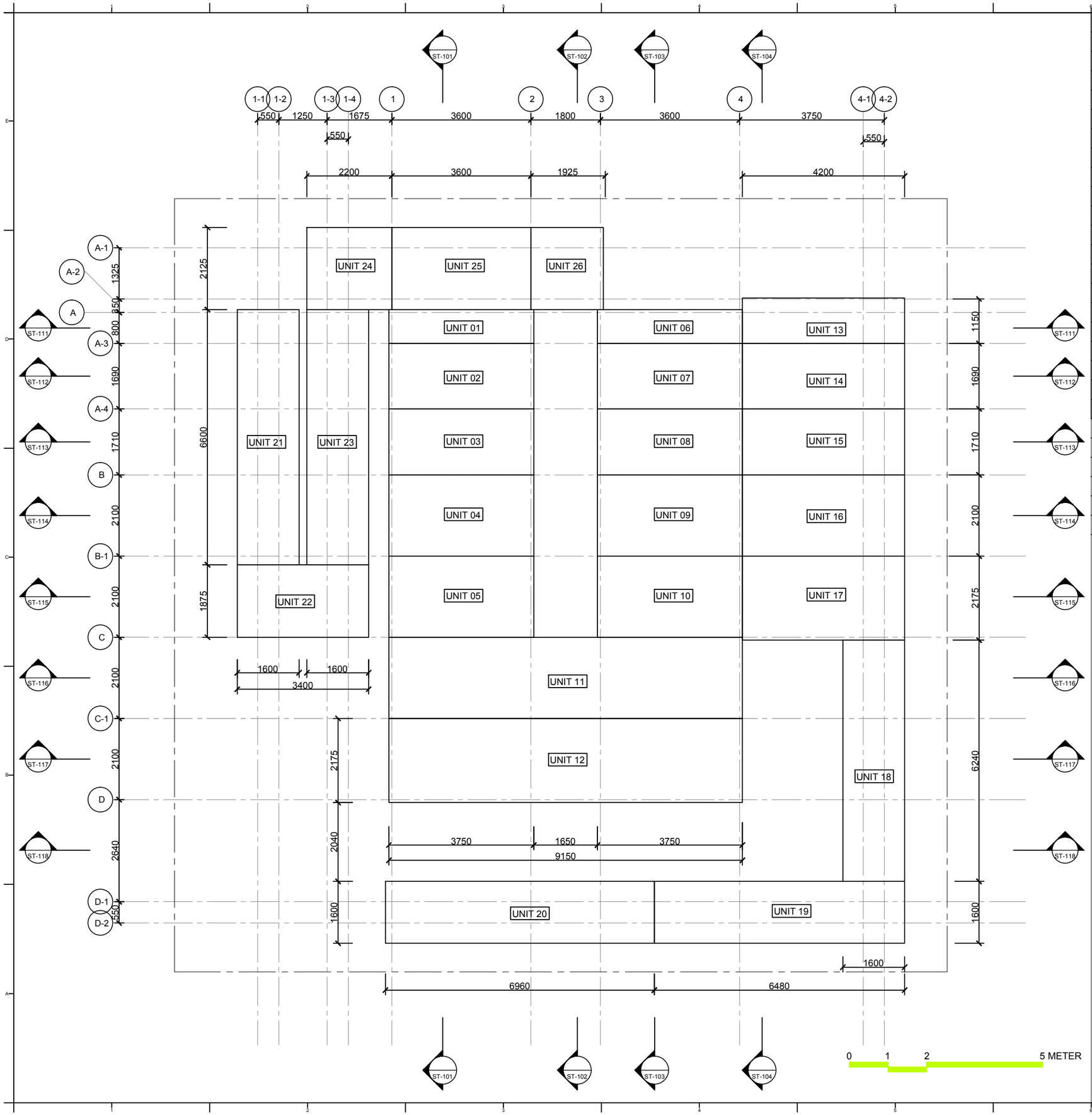
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Drawn by	CF
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Unit	mm

DWG. Title

FOUNDATION PLAN AND DETAILS AND MARKING

DWG. No.	PAGE
ST-001	135



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UNIT 02	3750 x 1690 x 150
UNIT 03	3750 x 1710 x 150
UNIT 04	3750 x 2100 x 150
UNIT 05	3750 x 2100 x 150
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UNIT 08	3750 x 1710 x 150
UNIT 09	3750 x 2100 x 150
UNIT 10	3750 x 2100 x 150
UNIT 11	9150 x 2100 x 150
UNIT 12	9150 x 2175 x 150
UNIT 13	4200 x 1150 x 150
UNIT 14	4200 x 1690 x 150
UNIT 15	4200 x 1710 x 150
UNIT 16	4200 x 2100 x 150
UNIT 17	4200 x 2175 x 150
UNIT 18	6240 x 1600 x 150
UNIT 19	6480 x 1600 x 150
UNIT 20	6960 x 1600 x 150
UNIT 21	6600 x 1600 x 150
UNIT 22	3400 x 1875 x 150
UNIT 23	6600 x 1600 x 150
UNIT 24	2200 x 2125 x 150
UNIT 25	3600 x 2125 x 150
UNIT 26	2125 x 1925 x 150

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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

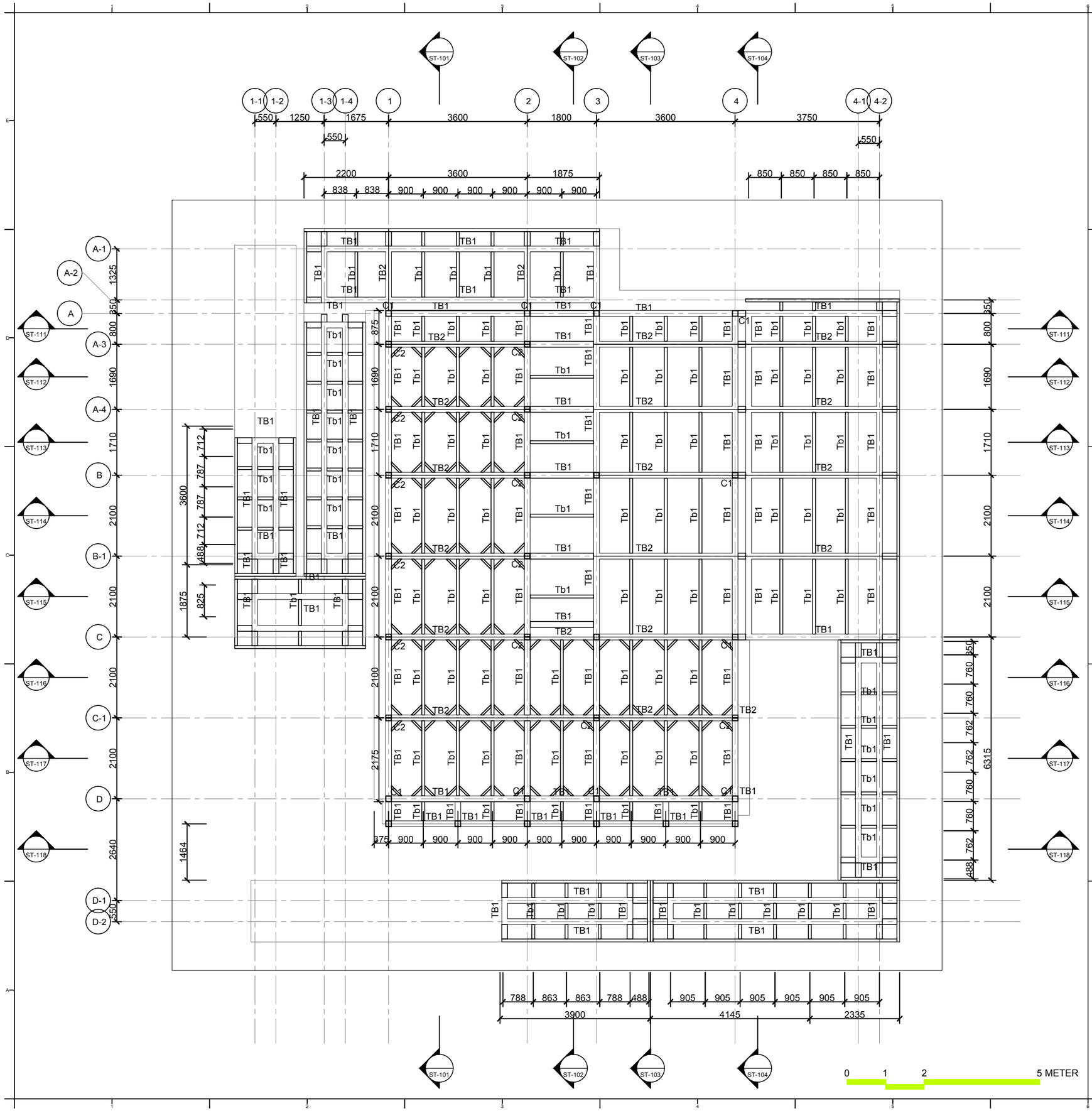
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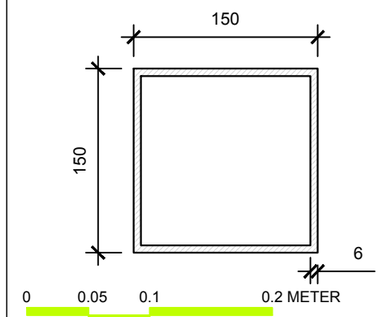
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STRUCTURAL FLOOR UNITS

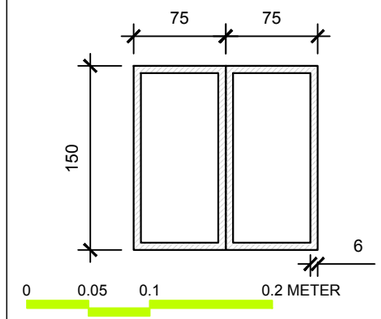
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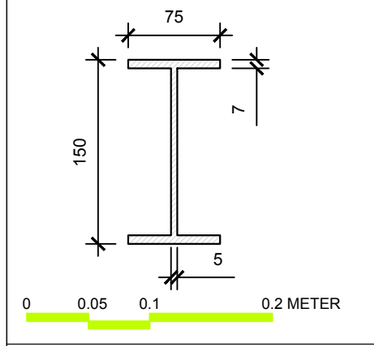




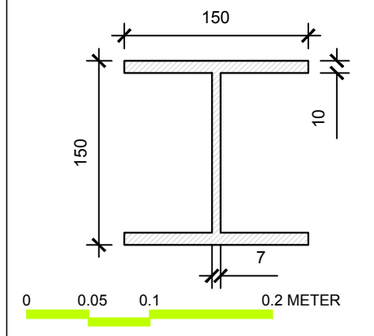
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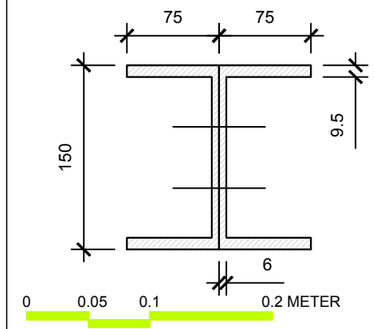
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Tb1



TB1



TB2

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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

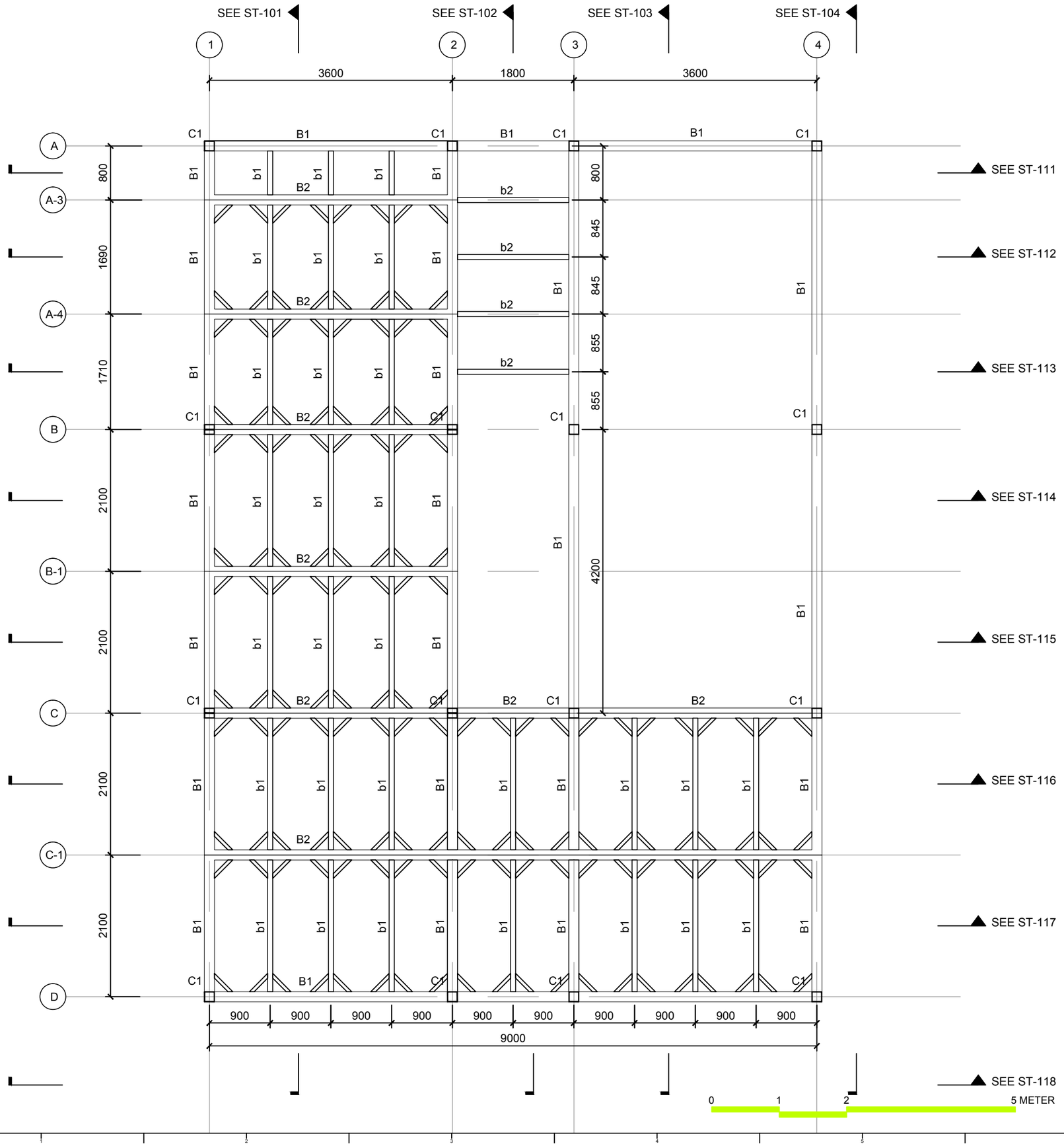
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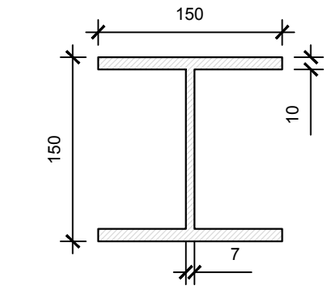
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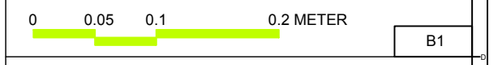
STRUCTURAL
GROUND LEVEL PLAN

DWG. No. ST-011

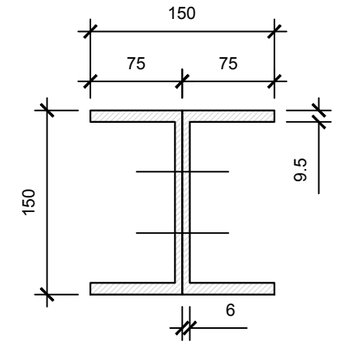
PAGE 137

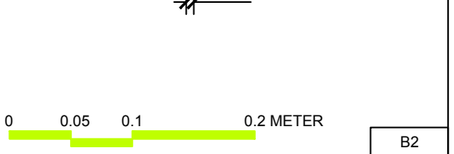




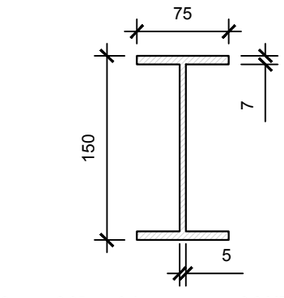


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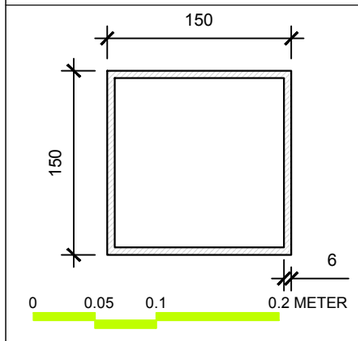


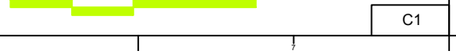


B2



b1





C1

Solar Decathlon Europe

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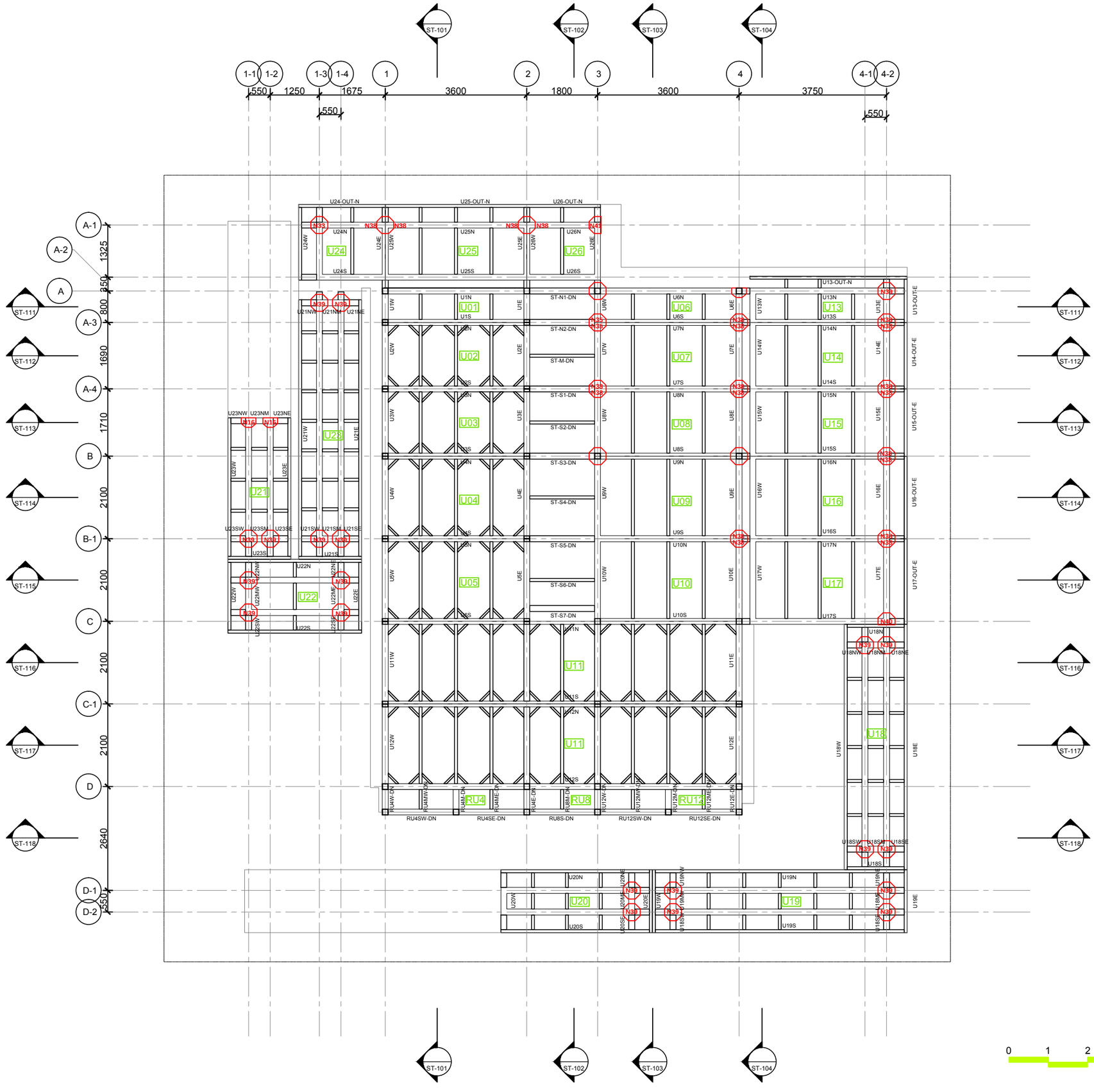
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DWG. Title

STRUCTURAL MEZZANINE LEVEL PLAN

DWG. No. ST-012

PAGE 138



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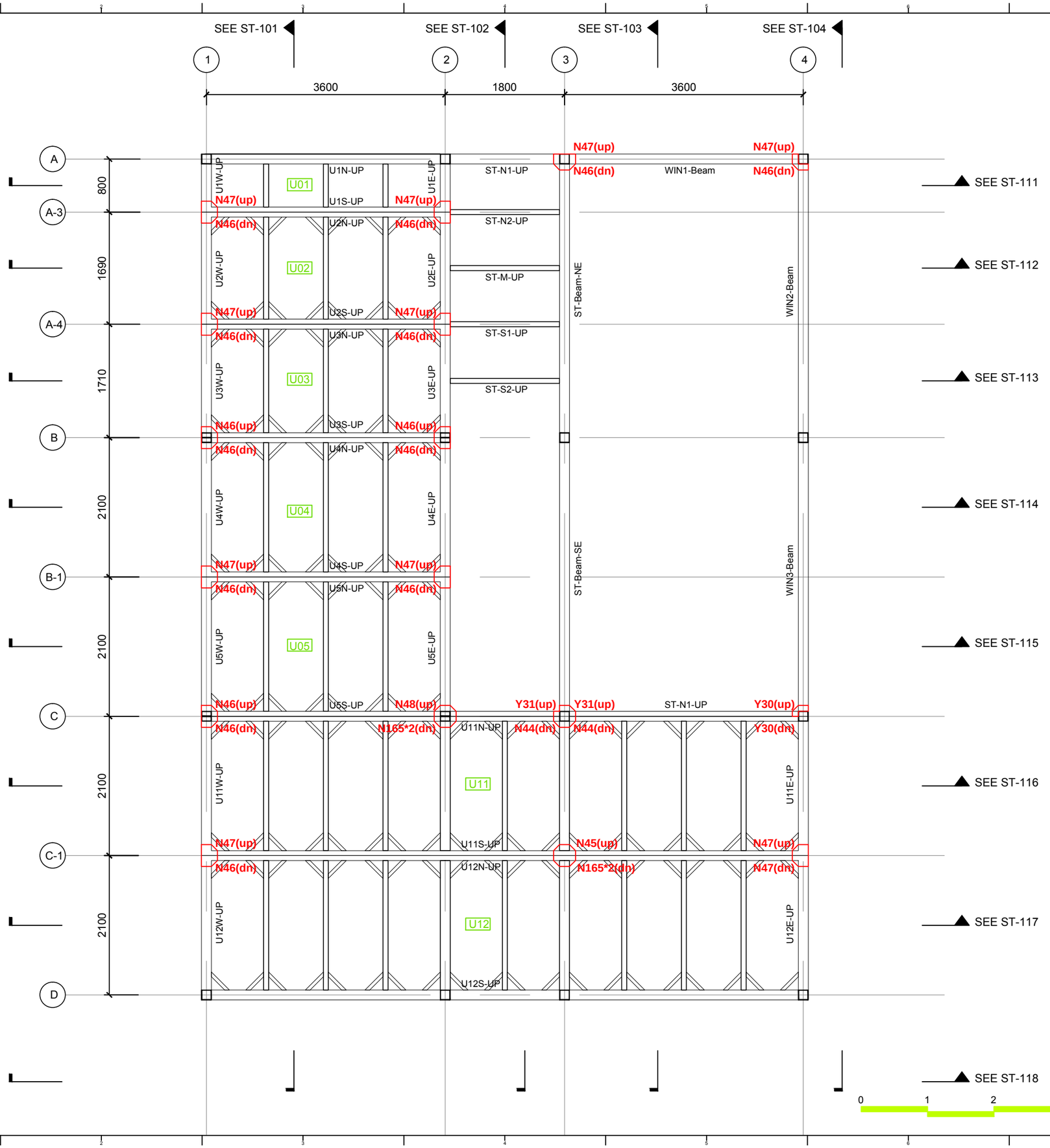
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Checked by	ST
Scale	1:100
Unit	mm

DWG. Title: STRUCTURAL ELEMENTS MARKING GROUND LEVEL PLAN

DWG. No.: ST-013

PAGE: 139



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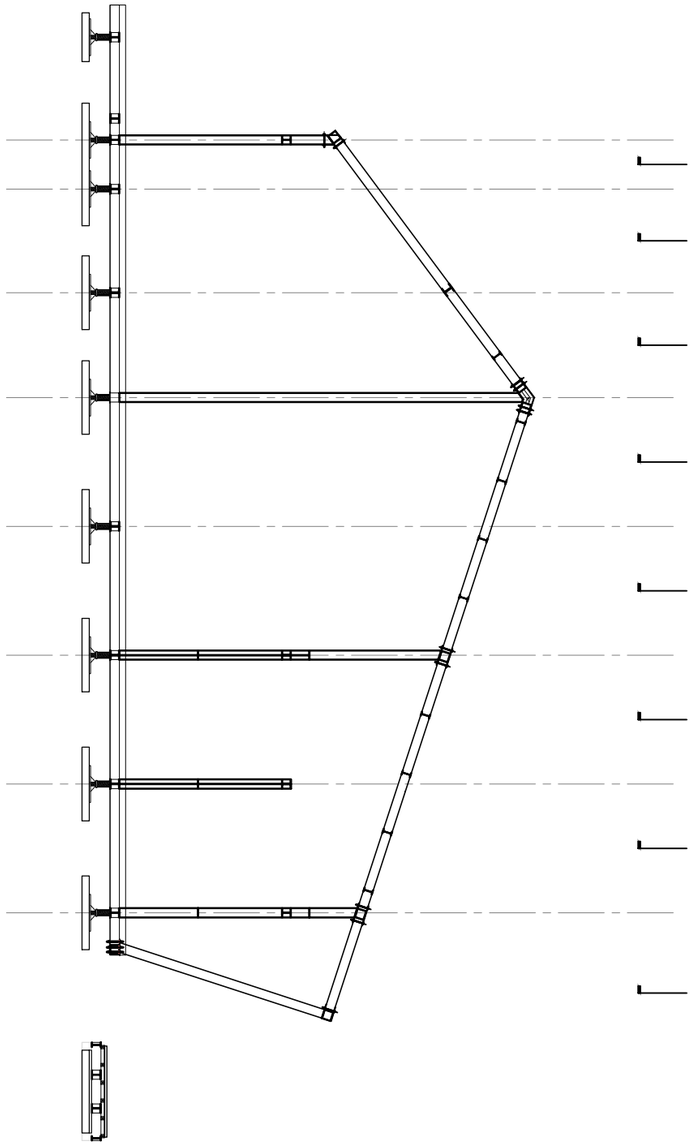
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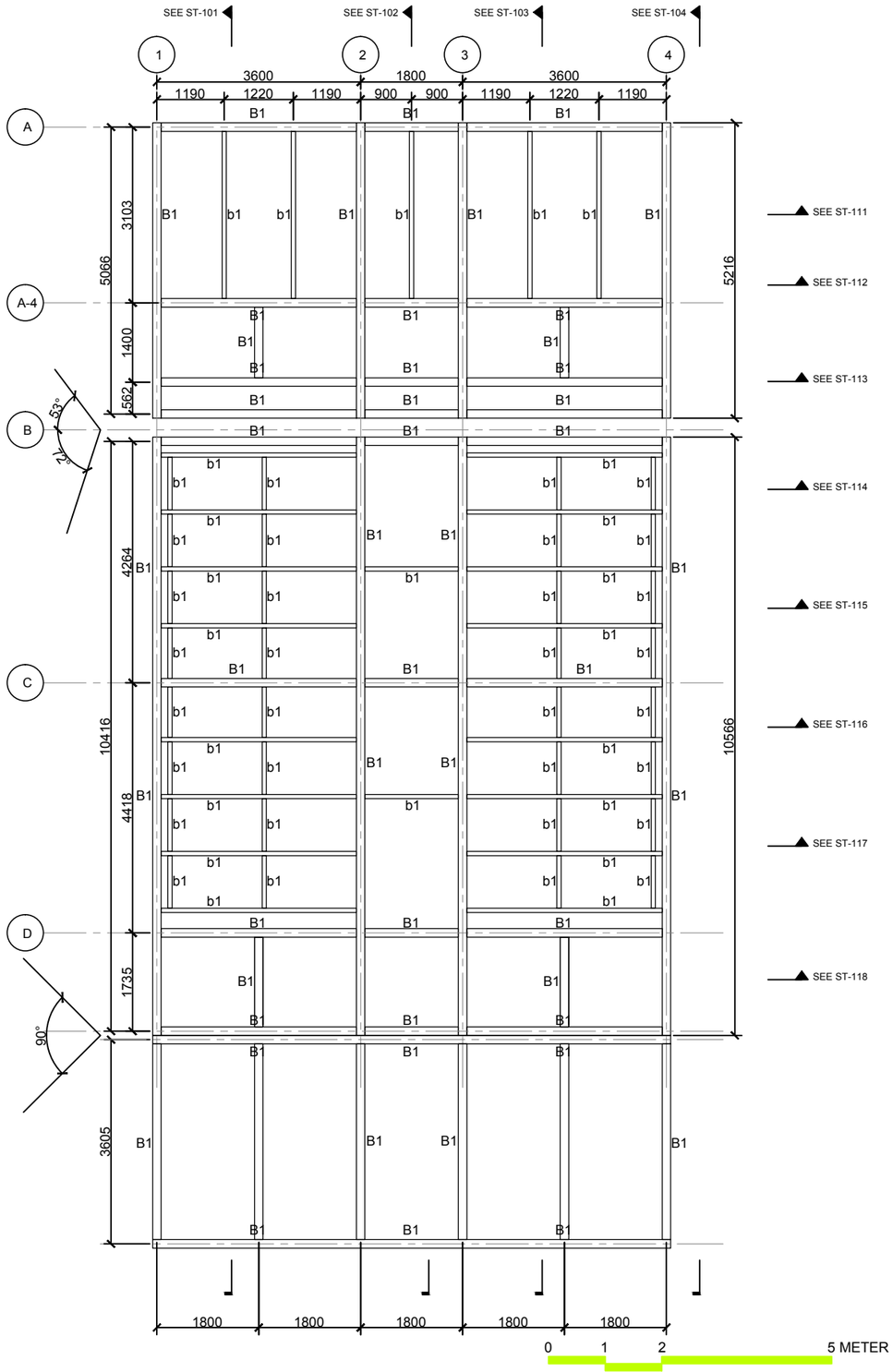
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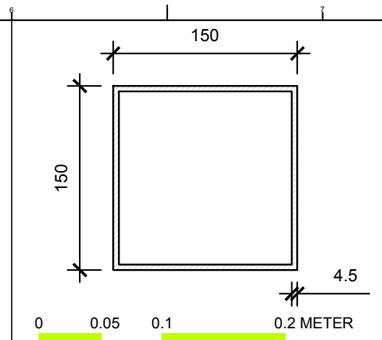
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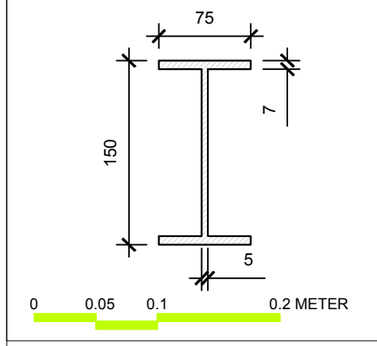
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ST-014	140







B1



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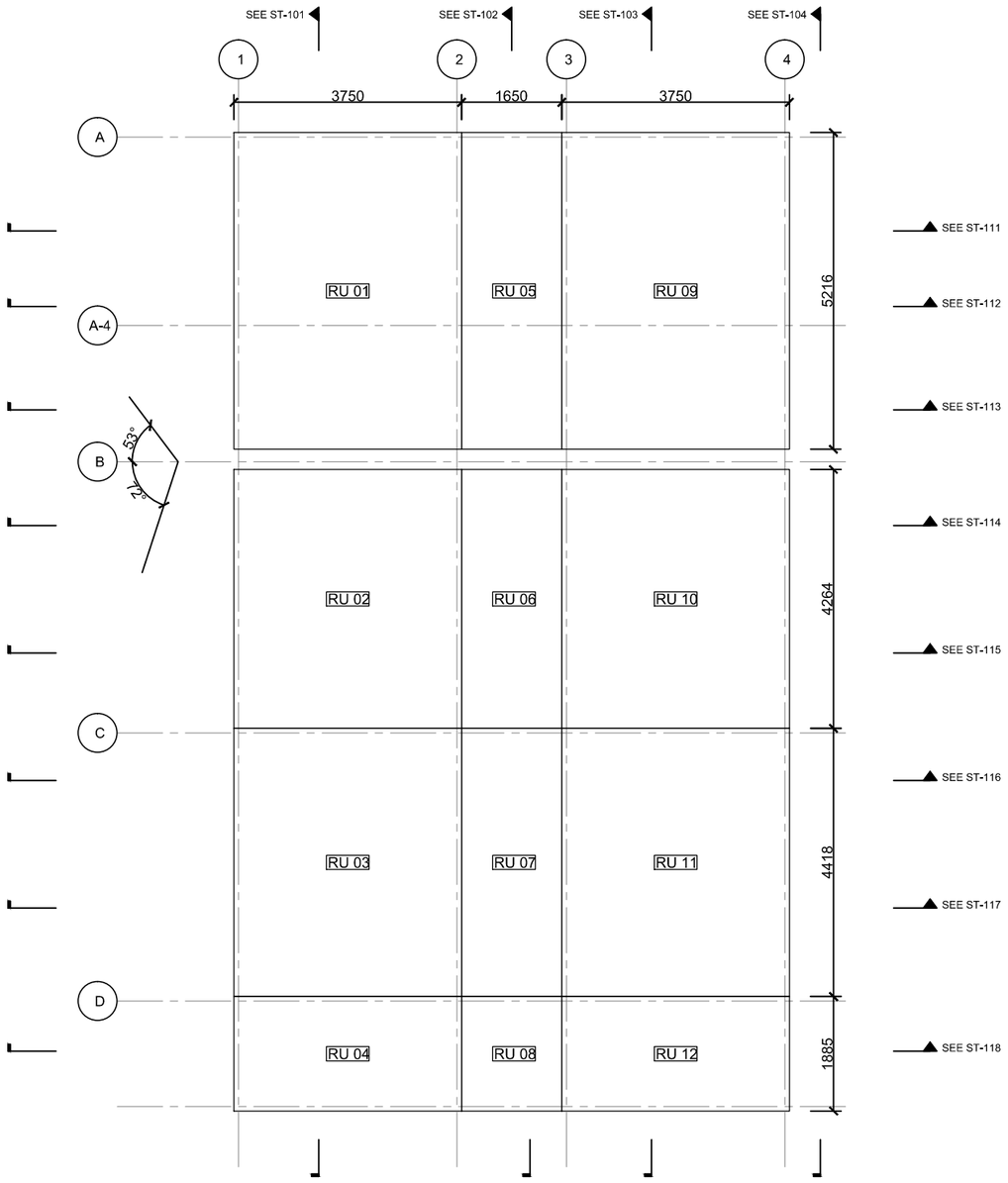
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DWG. Title

STRUCTURAL ROOF PLAN

DWG. No. ST-021

PAGE 141



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RU 02	4264 x 3750 x 150
RU 03	4418 x 3750 x 150
RU 04	1885 x 3750 x 150
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0 1 2 5 METER

Solar Decathlon Europe

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Consultants: RUENTEX CONSTRUCTION GROUP

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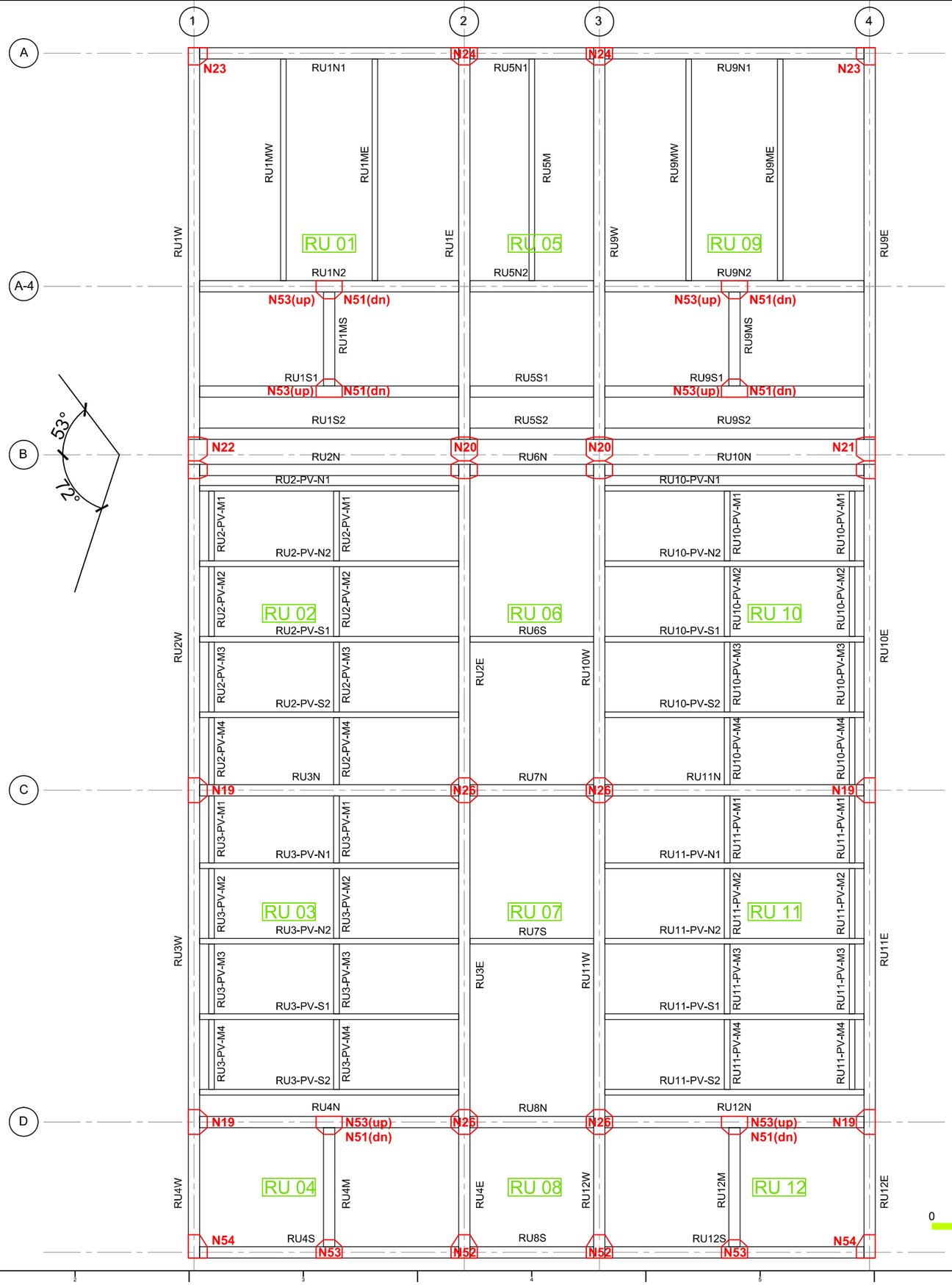
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Scale	1:100
Unit	mm

DWG. Title: STRUCTURAL ROOF UNITS

DWG. No.: ST-022

PAGE: ----



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Mark	Date	Description
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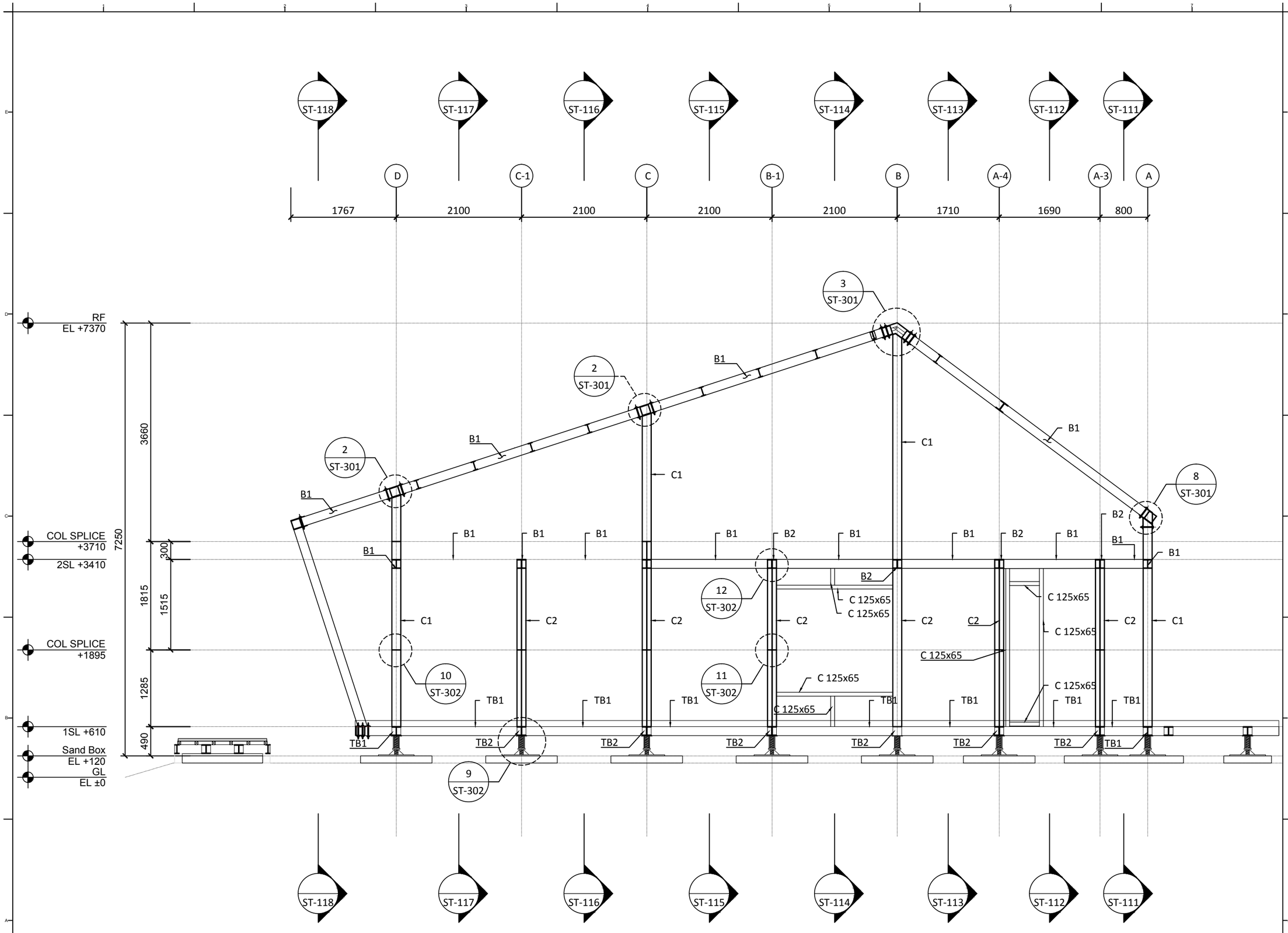
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DWG. Title

STRUCTURAL ELEMENTS MARKING ROOF PLAN

DWG. No. ST-023

PAGE 143



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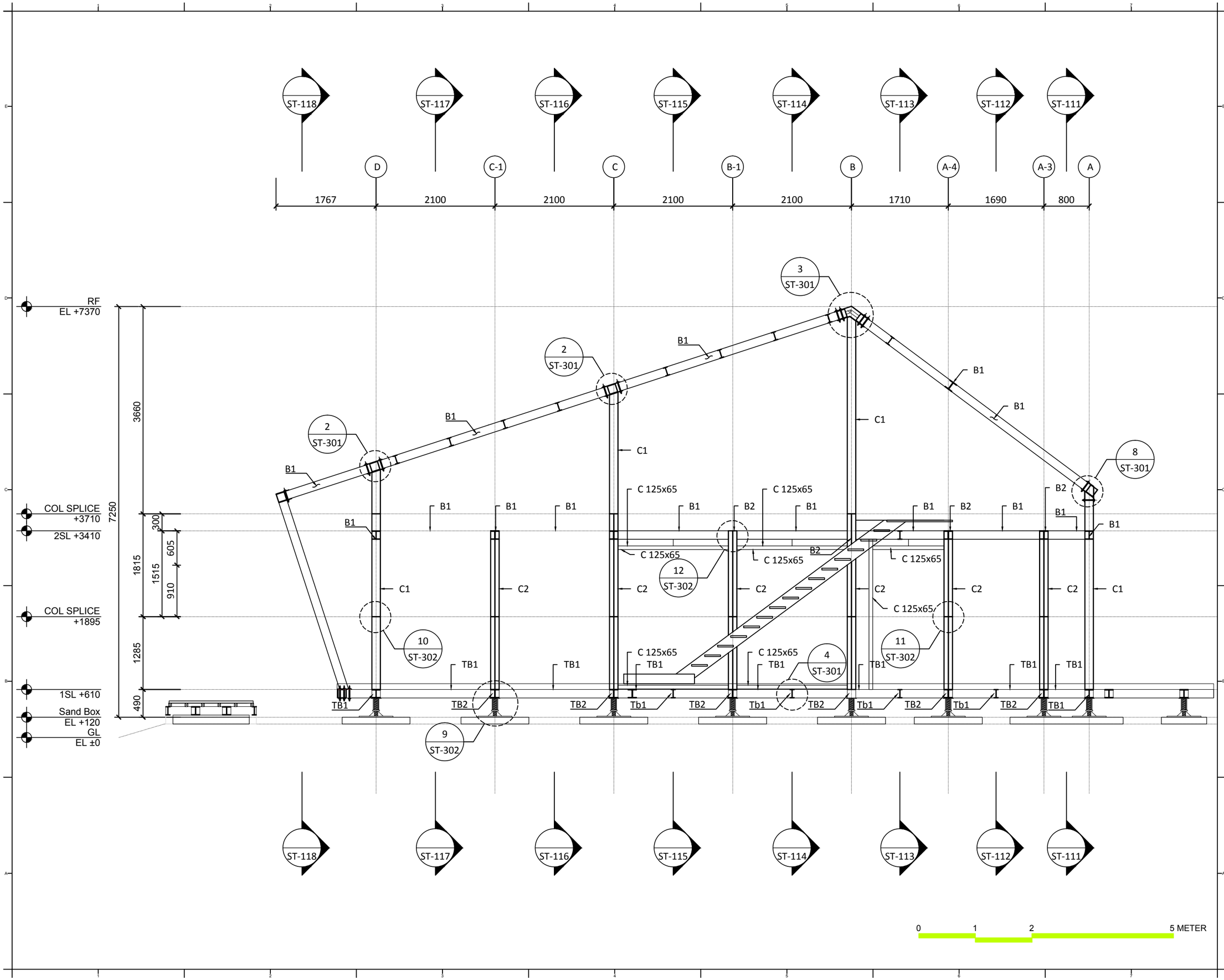
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ST	2014/04/30	CD Submission

Drawn by	ST
Checked by	DN
Scale	1:60
Unit	mm

DWG. Title: STRUCTURAL LONGITUDINAL SECTIONS FRAME 1

DWG. No.: ST-101

PAGE: 144



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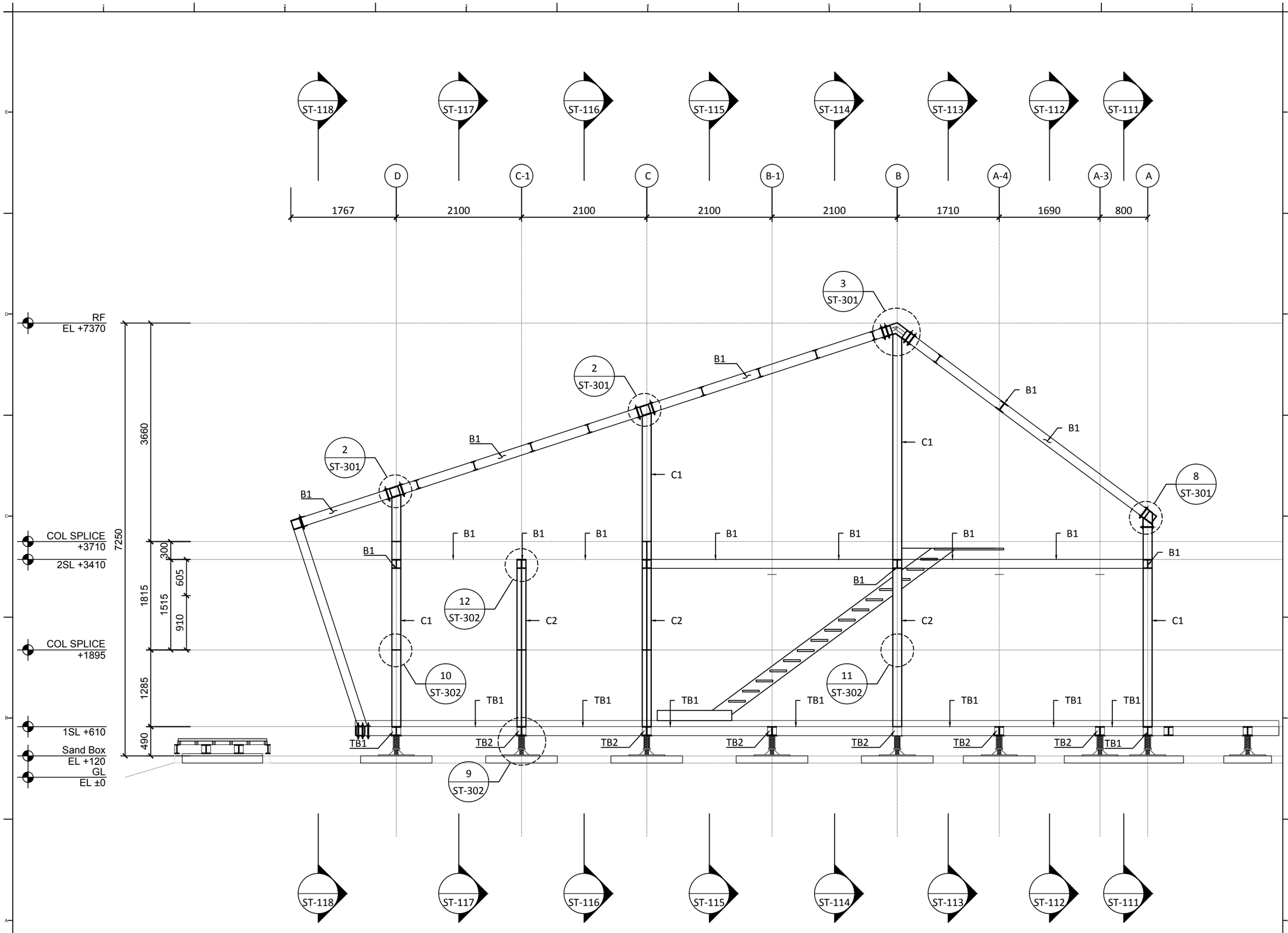
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ST	2014/04/30	CD Submission

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Checked by	DN
Scale	1:60
Unit	mm

DWG. Title

STRUCTURAL LONGITUDINAL SECTIONS FRAME 2

DWG. No.	PAGE
ST-102	145



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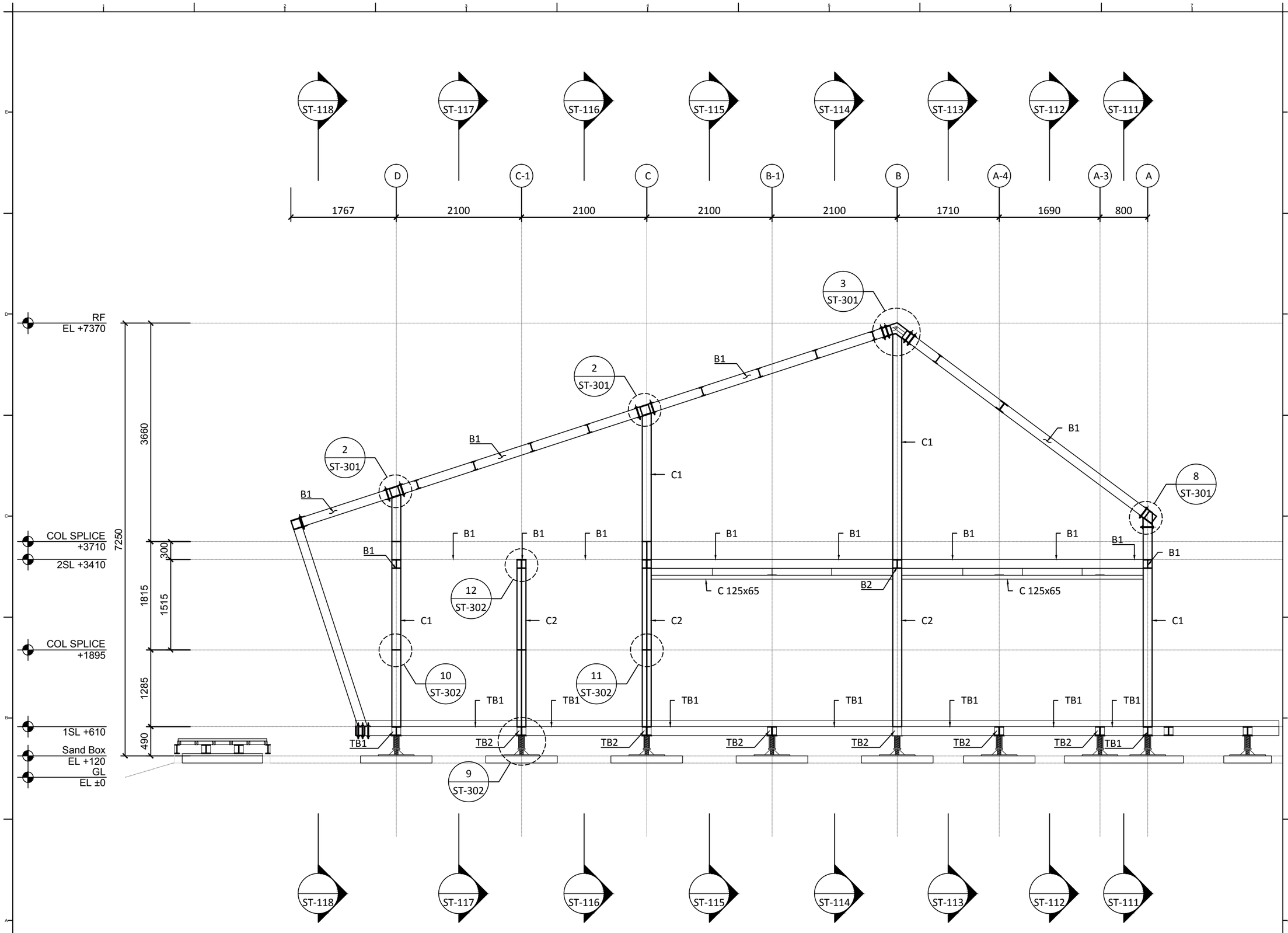
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Unit	mm

DWG. Title

STRUCTURAL LONGITUDINAL SECTIONS FRAME 3

DWG. No. ST-103

PAGE 146



Solar Decathlon Europe

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RUENTEX CONSTRUCTION GROUP

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ST	2014/04/30	CD Submission

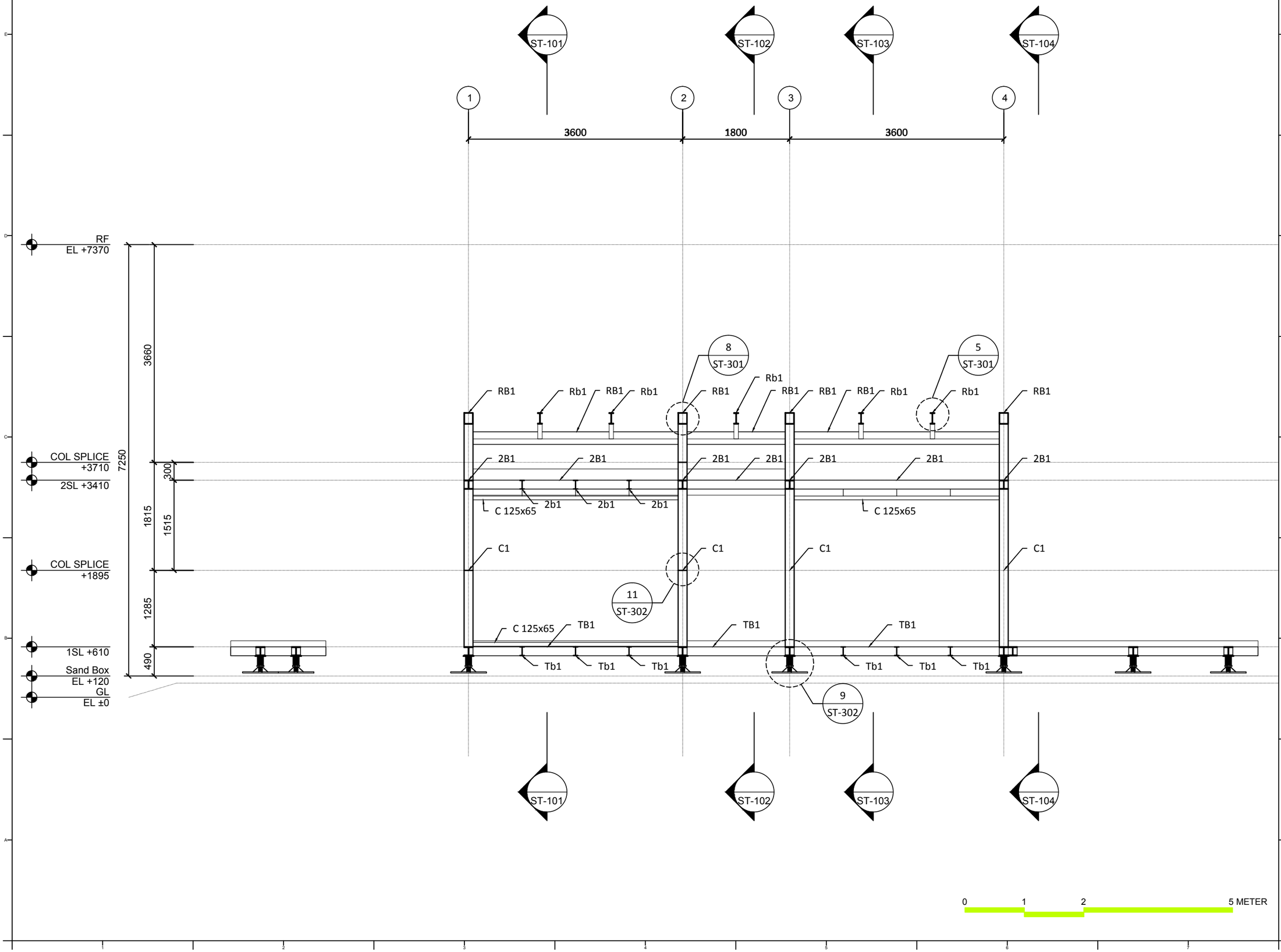
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Unit	mm

DWG. Title

STRUCTURAL LONGITUDINAL SECTIONS FRAME 4

DWG. No. ST-104

PAGE 147



Solar Decathlon Europe

Project:

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Contact: www.sde.tw

Consultants:

RUENTEX CONSTRUCTION GROUP

Note:

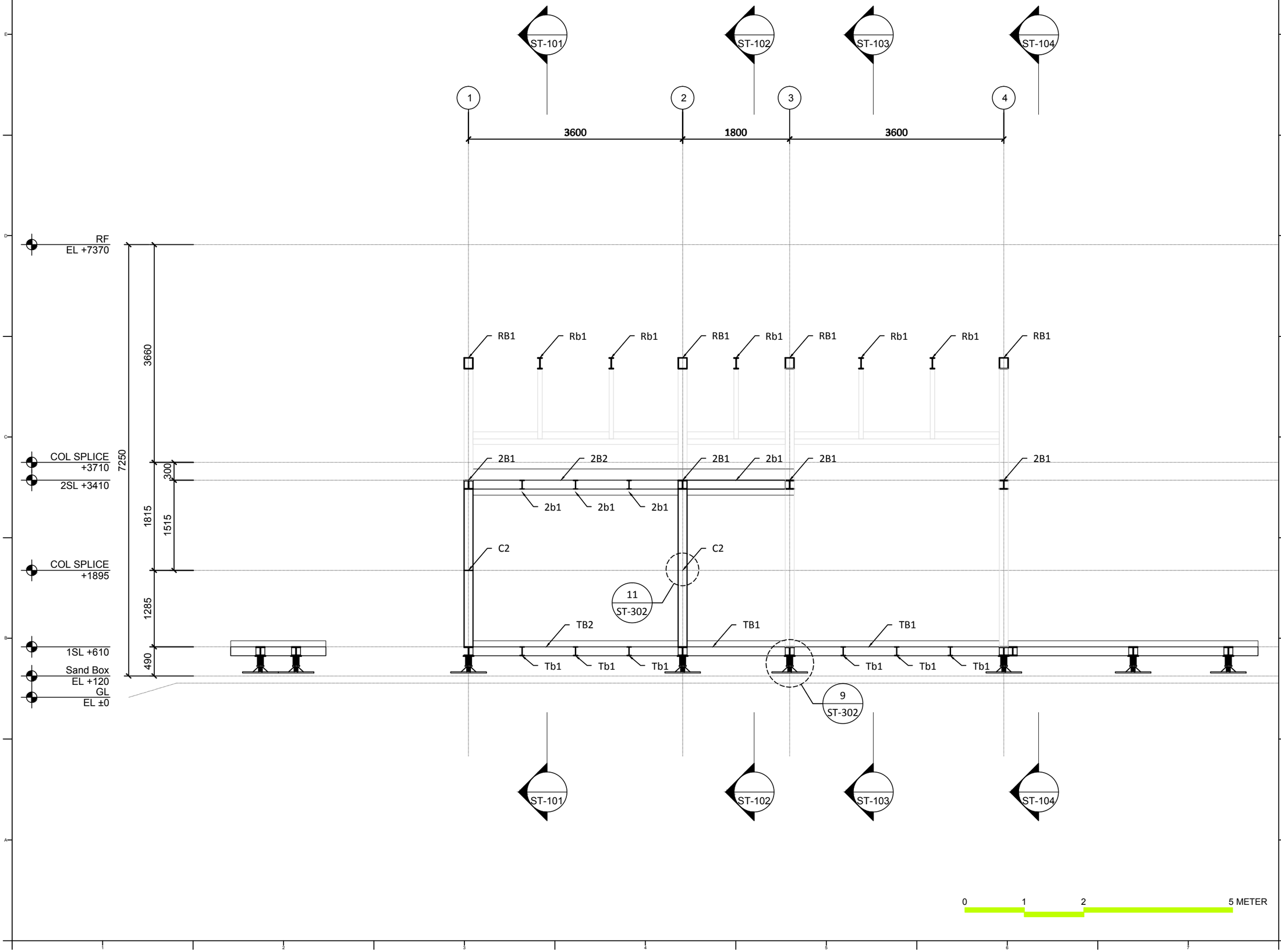
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Unit	mm

DWG. Title

STRUCTURAL
TRANSVERSAL SECTIONS
FRAME A

DWG. No.	PAGE
ST-111	148



Solar Decathlon Europe

Project: ORCHID HOUSE

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Note:

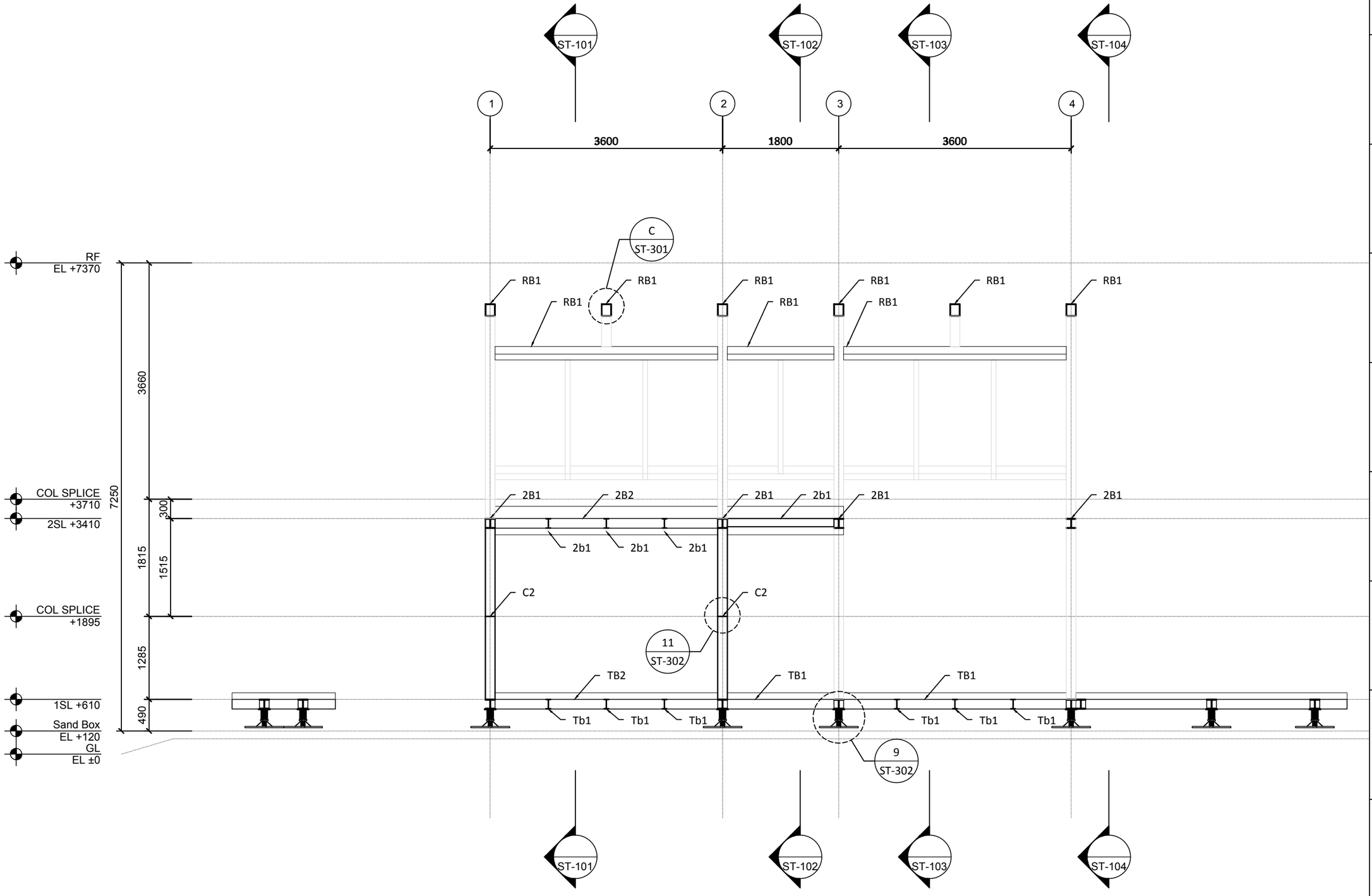
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DWG. Title

STRUCTURAL TRANSVERSAL SECTIONS FRAME A-3

DWG. No.	PAGE
ST-112	149



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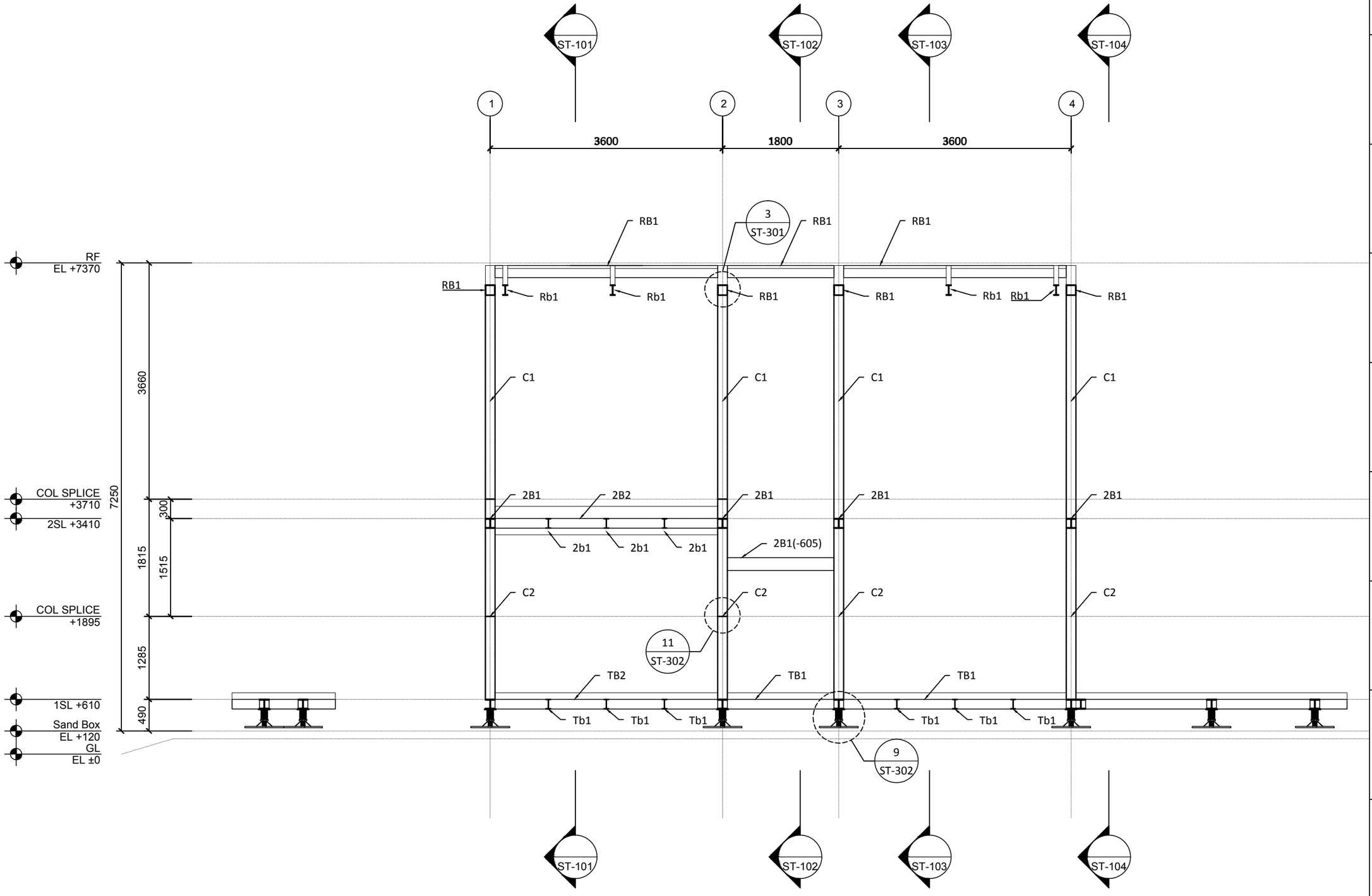
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DWG. Title

STRUCTURAL TRANSVERSAL SECTIONS FRAME A-4

DWG. No. ST-113

PAGE 150



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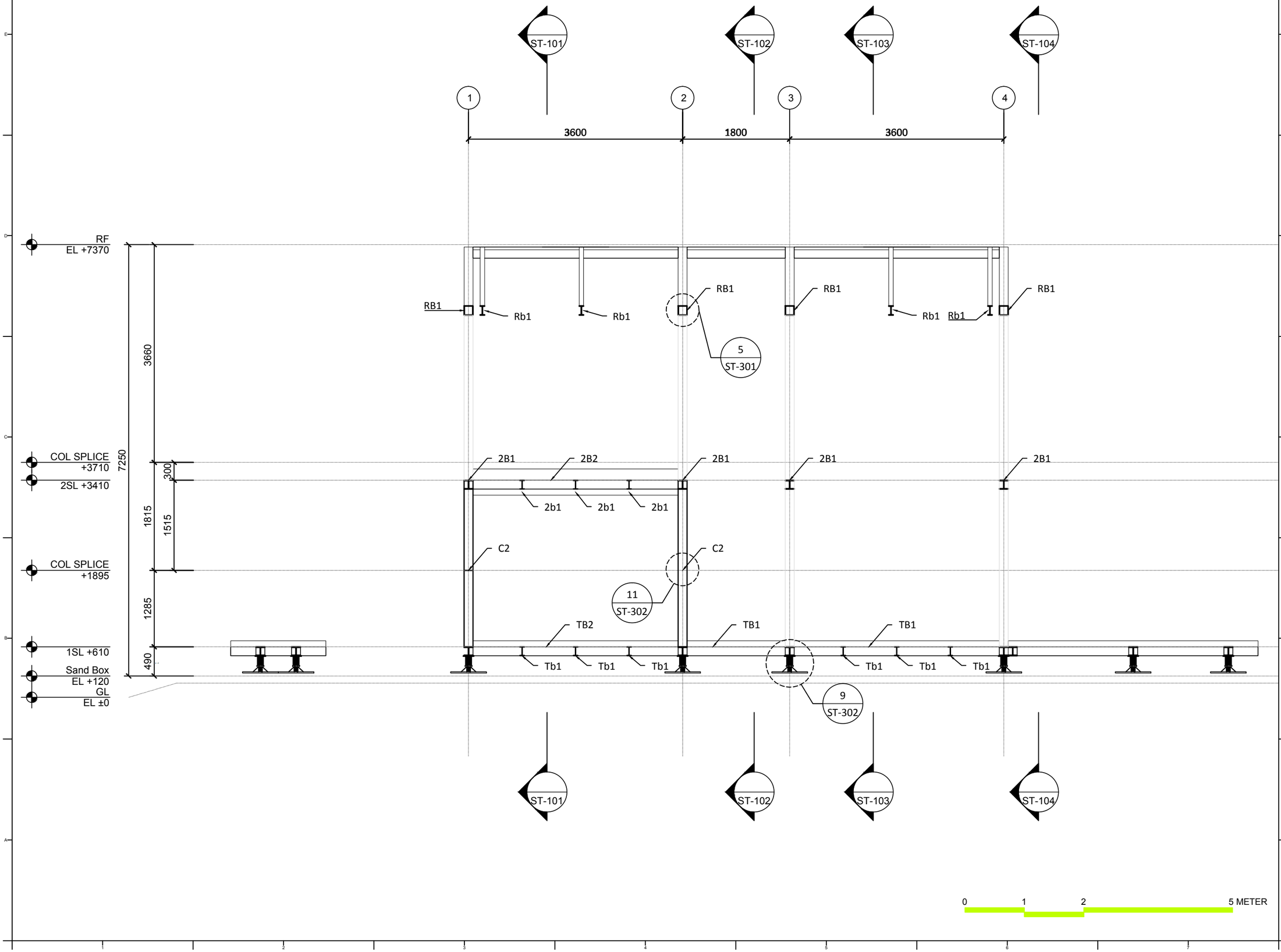
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DWG. Title

STRUCTURAL TRANSVERSAL SECTIONS FRAME B

DWG. No. ST-114

PAGE 151



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Project: ORCHID HOUSE

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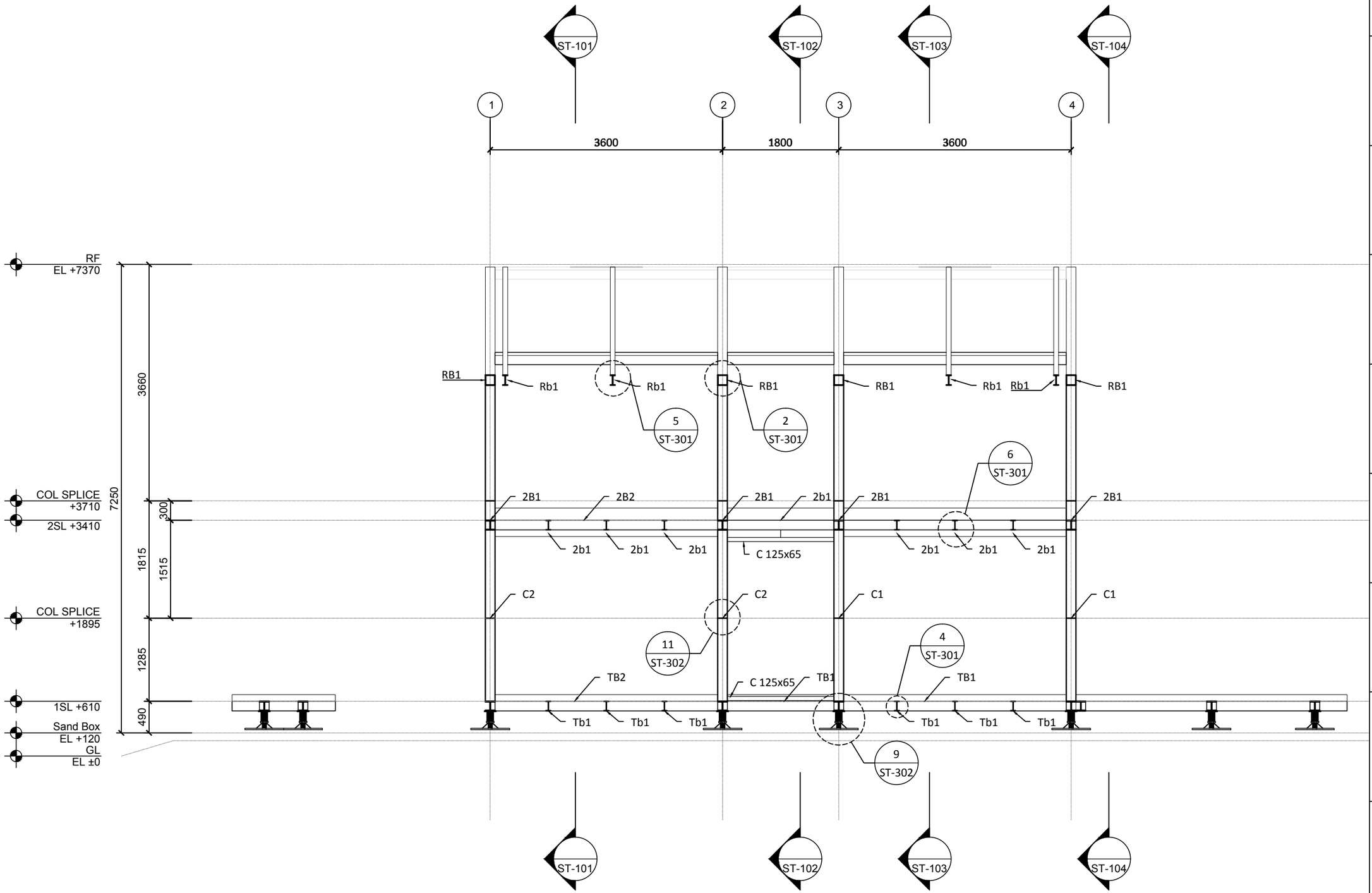
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DWG. Title

STRUCTURAL TRANSVERSAL SECTIONS FRAME B-1

DWG. No.	PAGE
ST-115	152



Solar Decathlon Europe

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Note:

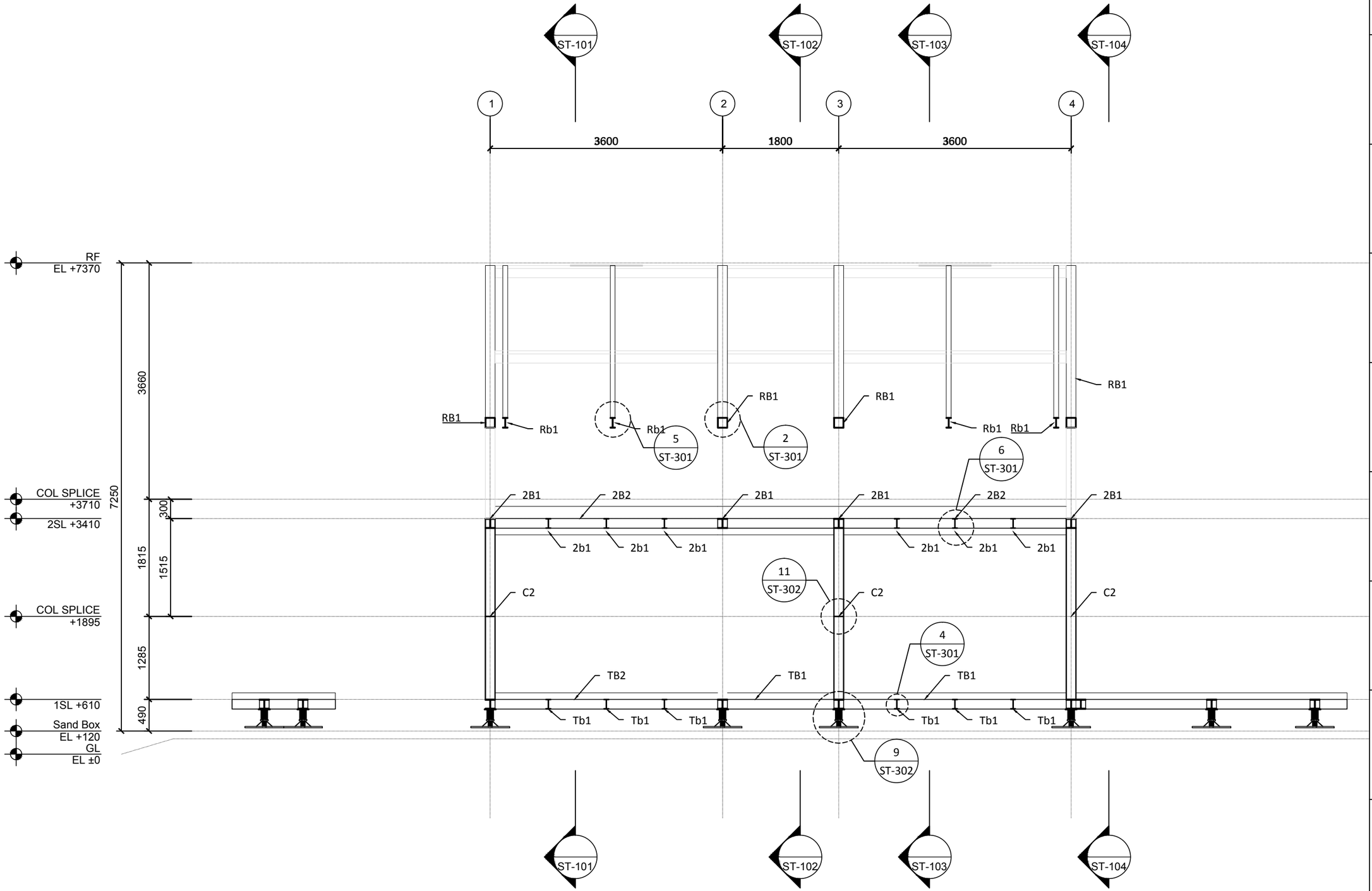
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Unit	mm

DWG. Title

STRUCTURAL TRANSVERSAL SECTIONS FRAME C

DWG. No.	PAGE
ST-116	153



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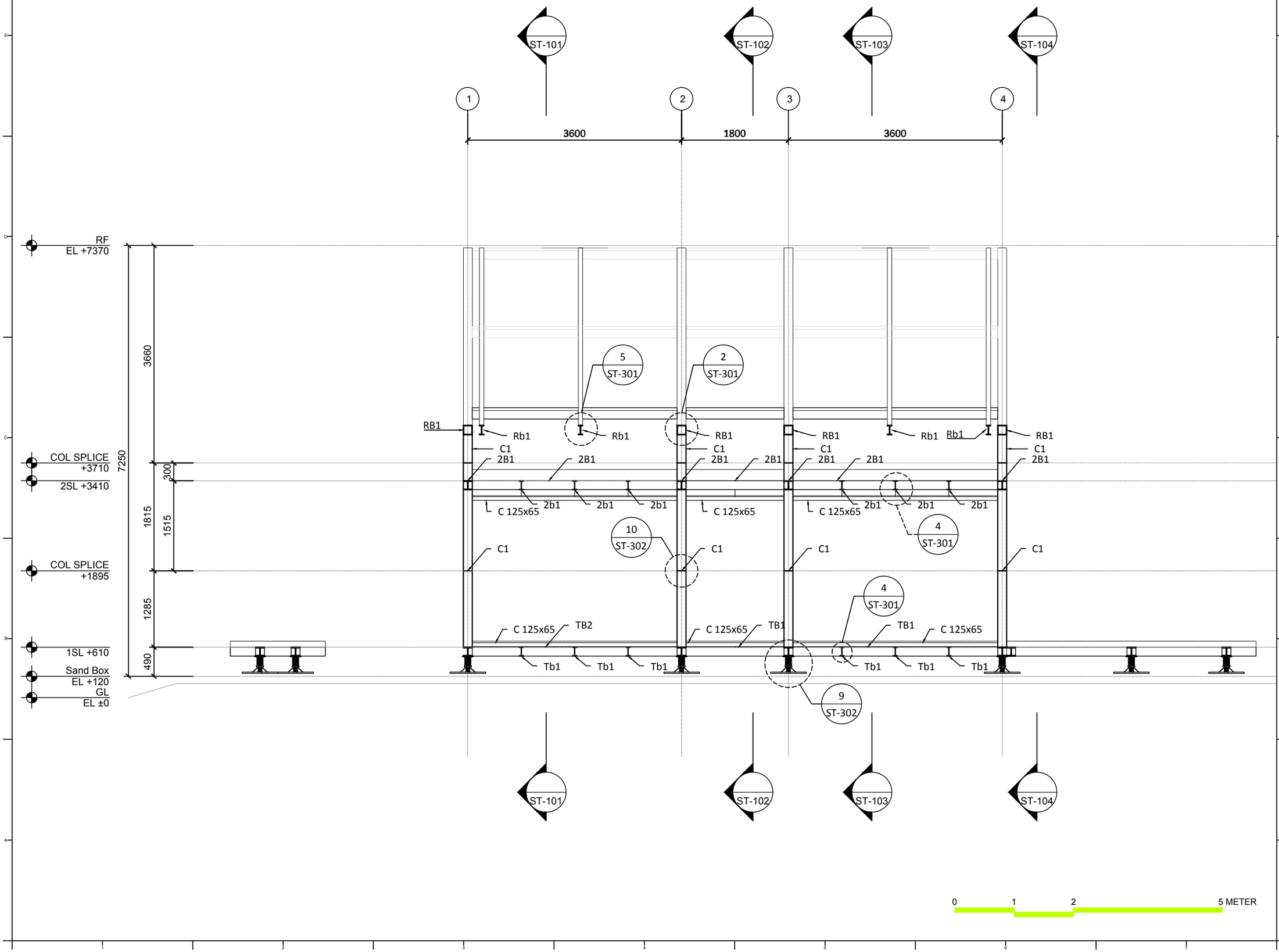
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DWG. Title

STRUCTURAL TRANSVERSAL SECTIONS FRAME C-1

DWG. No.	PAGE
ST-117	154



Solar Decathlon Europe

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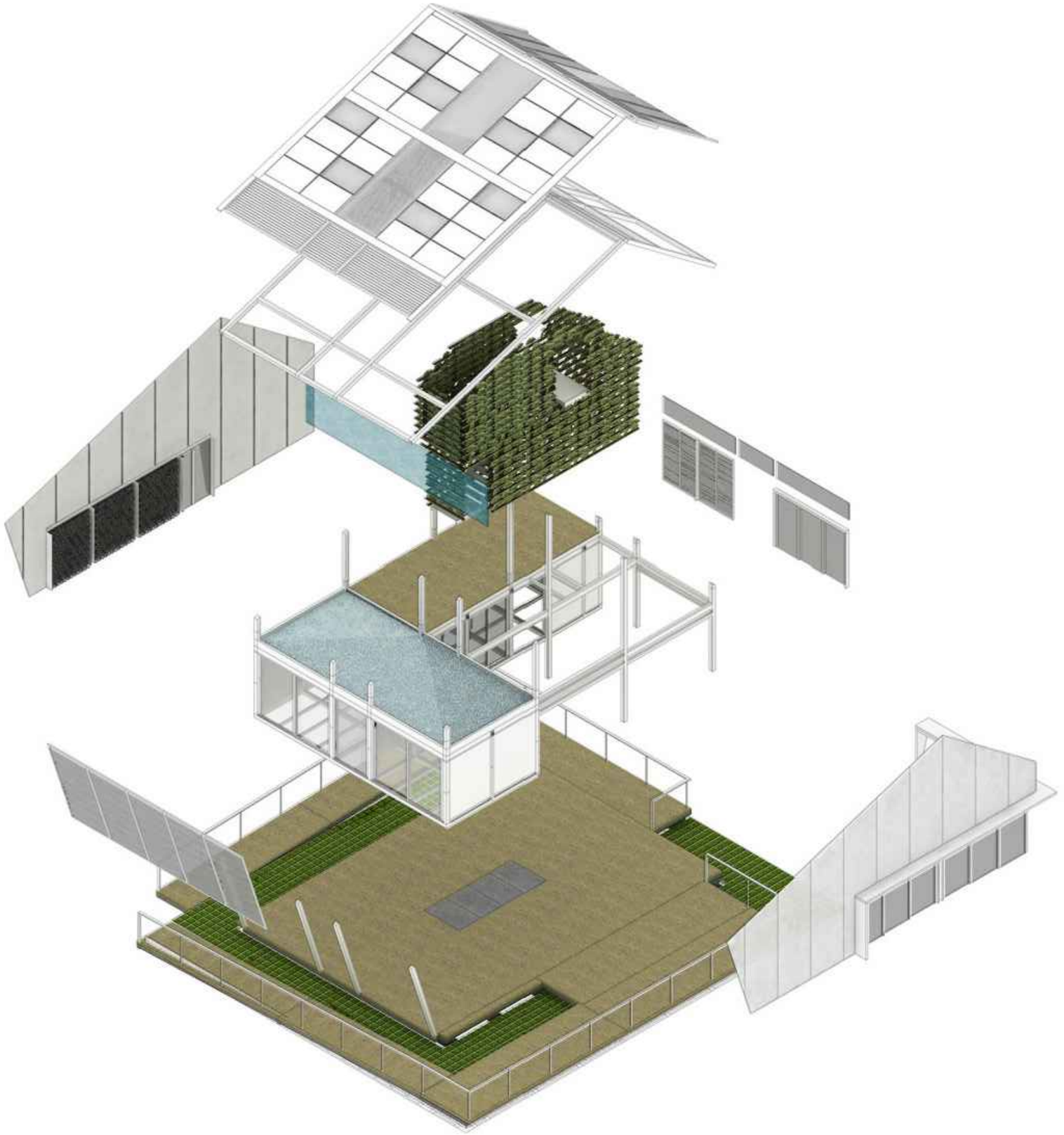
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DWG. Title

STRUCTURAL
TRANSVERSAL SECTIONS
FRAME D

DWG. No. ST-118

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Consultants:

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Note:

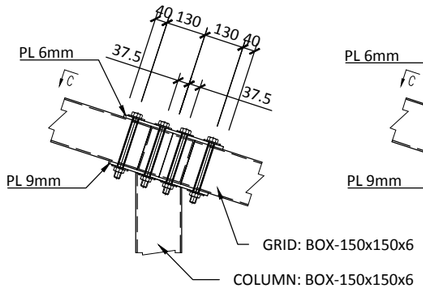
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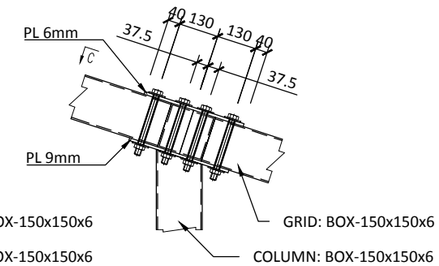
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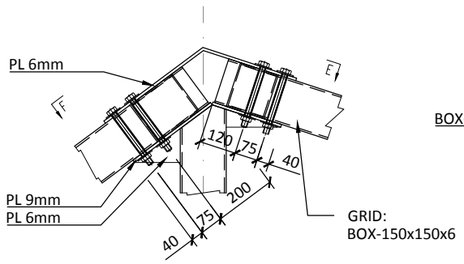
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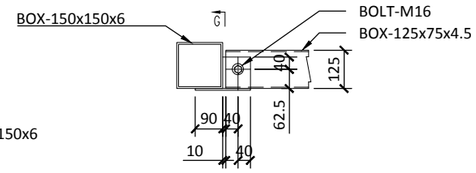
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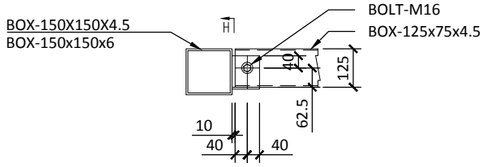
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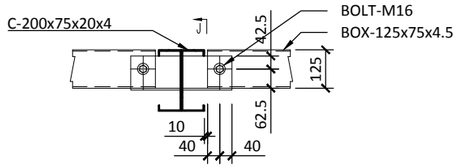
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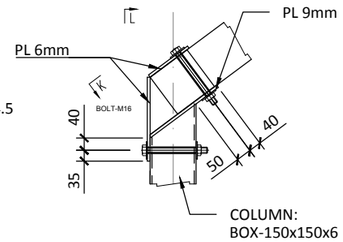
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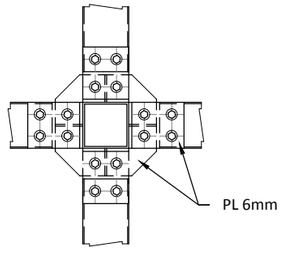
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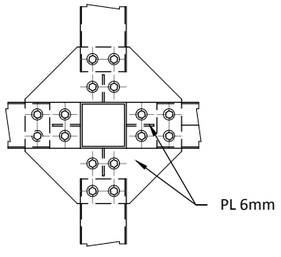
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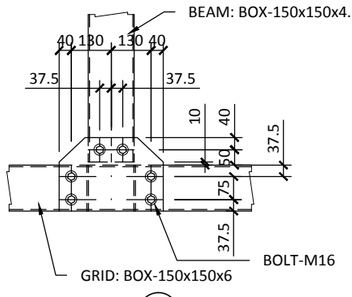
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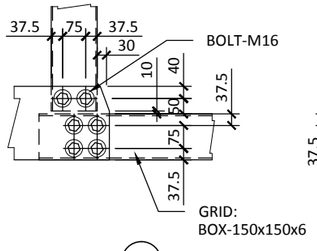
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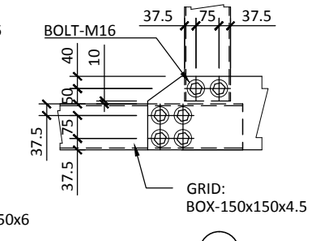
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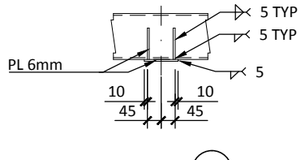
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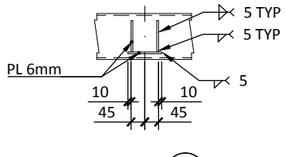
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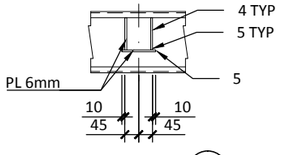
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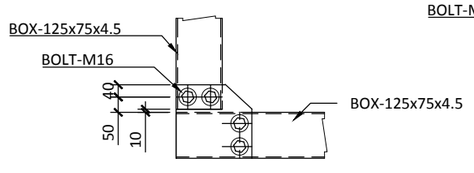
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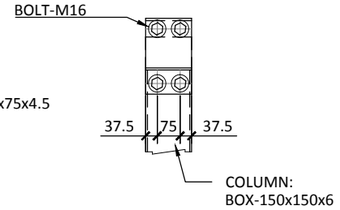
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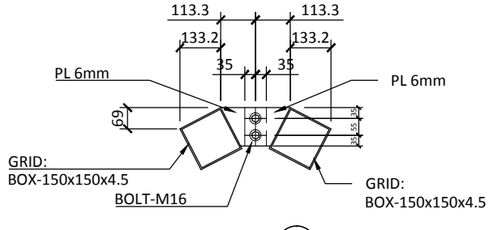
SECTION J



SECTION K



SECTION L



SECTION M

0 0.2 0.4 1 METER

Solar Decathlon Europe

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Consultants: RUENTEX CONSTRUCTION GROUP

Note:

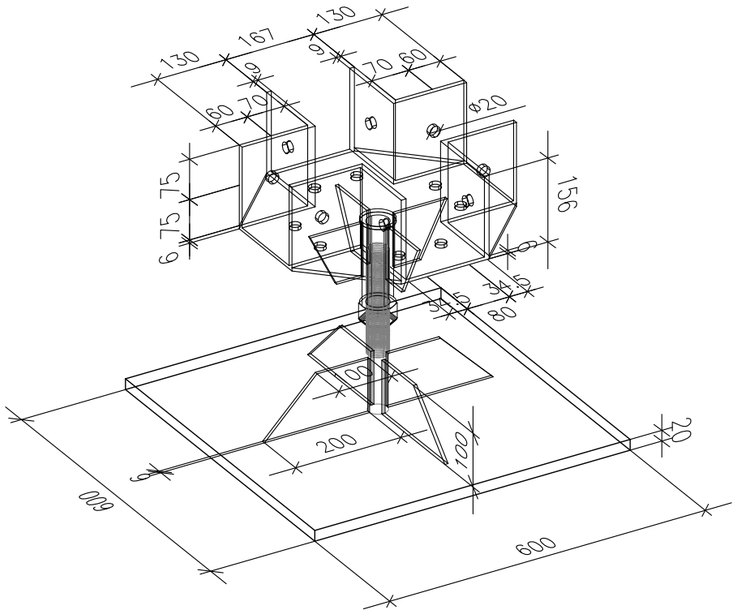
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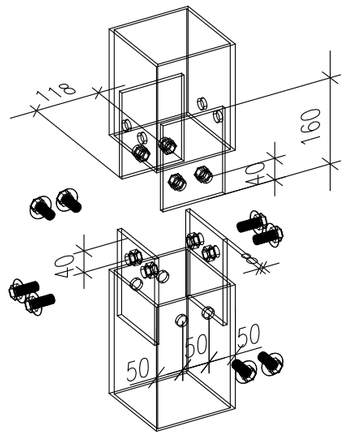
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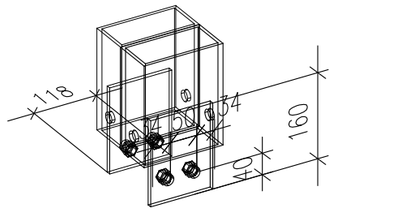
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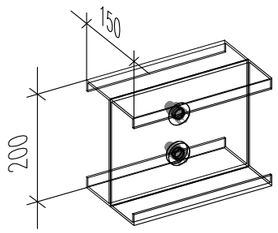
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11



12

0 0.1 0.2 0.5 METER

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Note:

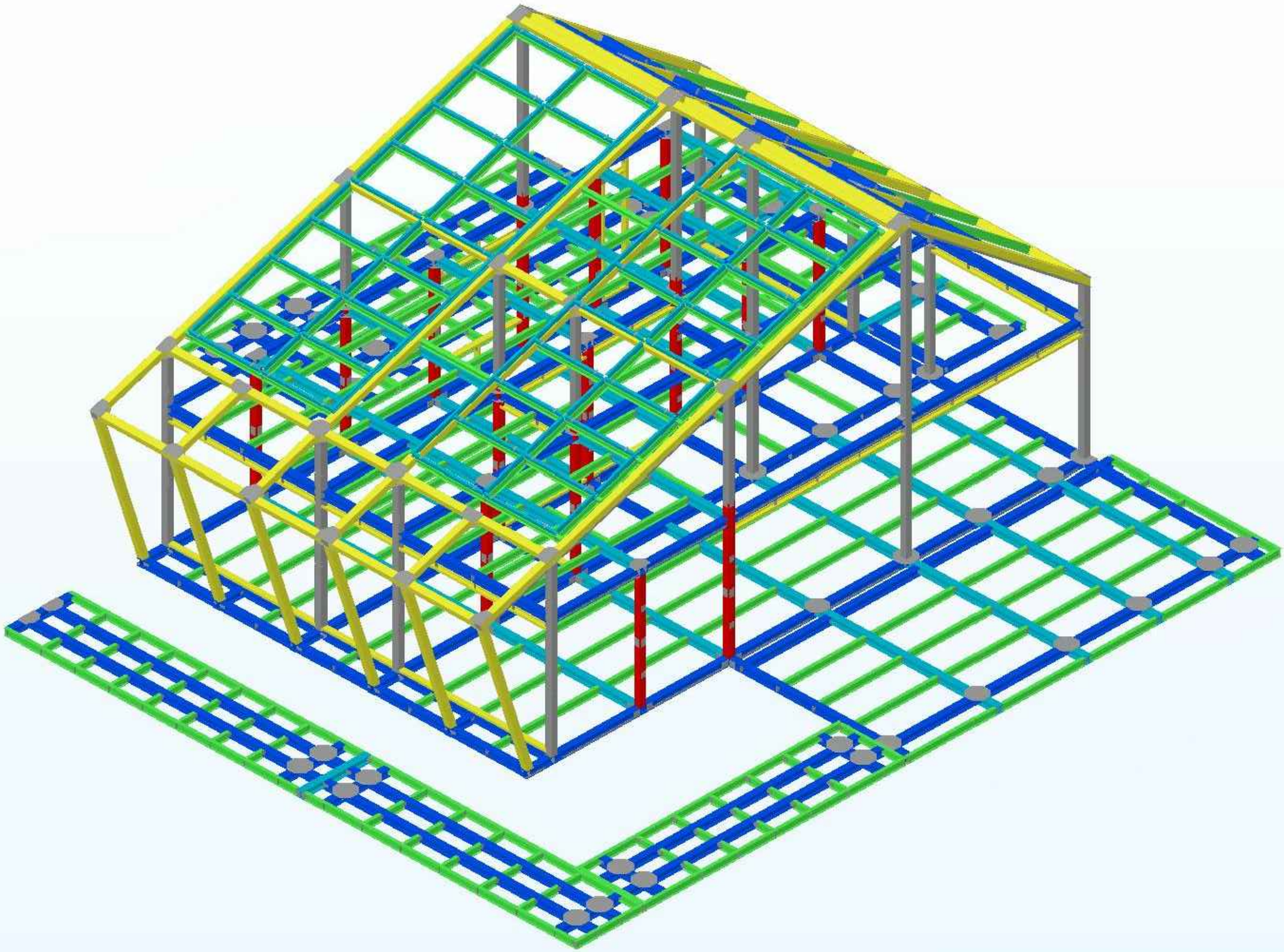
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DWG. Title: STRUCTURE DETAILS AXON

DWG. No.: ST-302

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Solar Decathlon Europe

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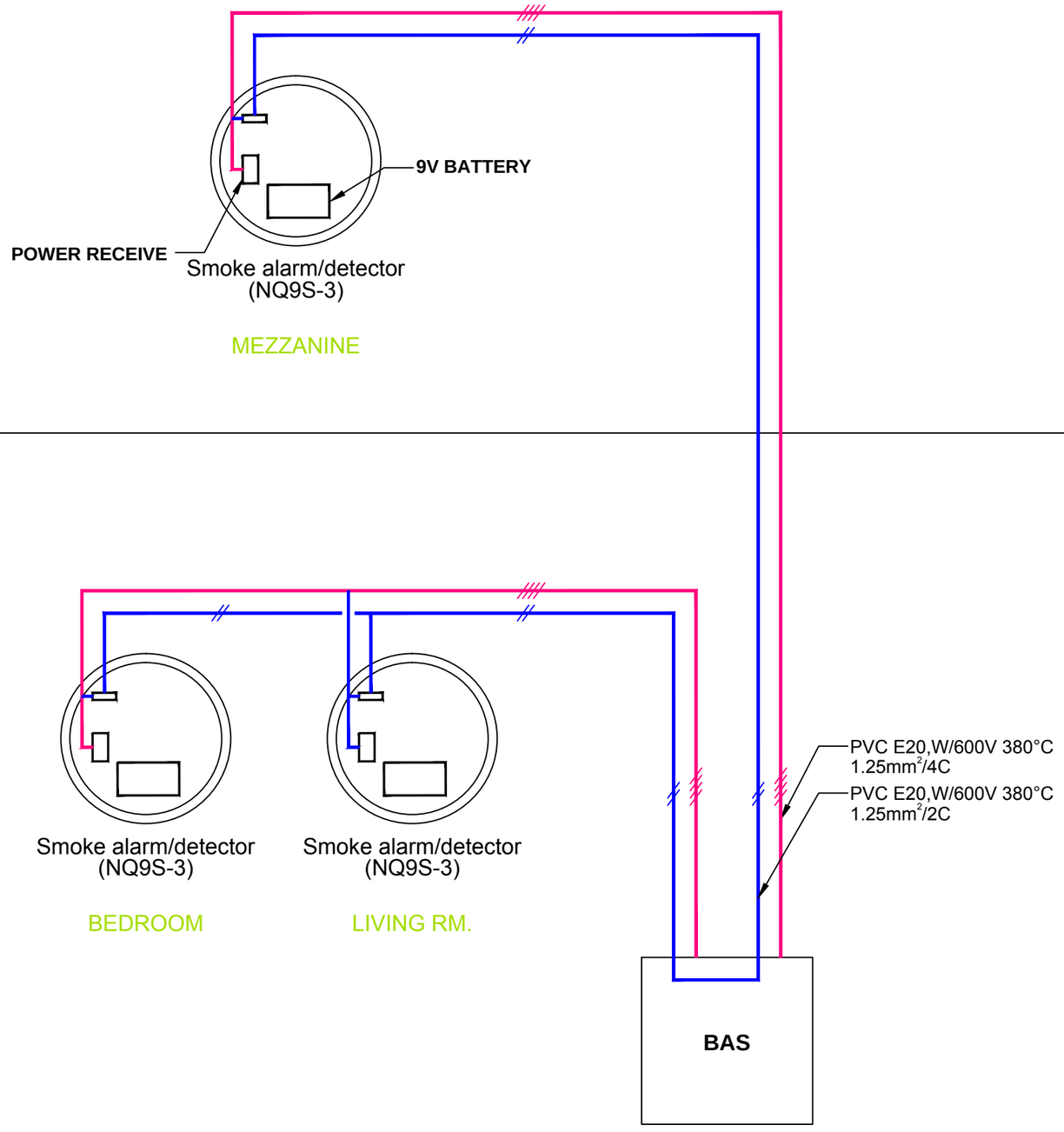
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STRUCTURAL AXON

DWG. No. ST-401

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Consultants: UIS United Integrated Services

Note:

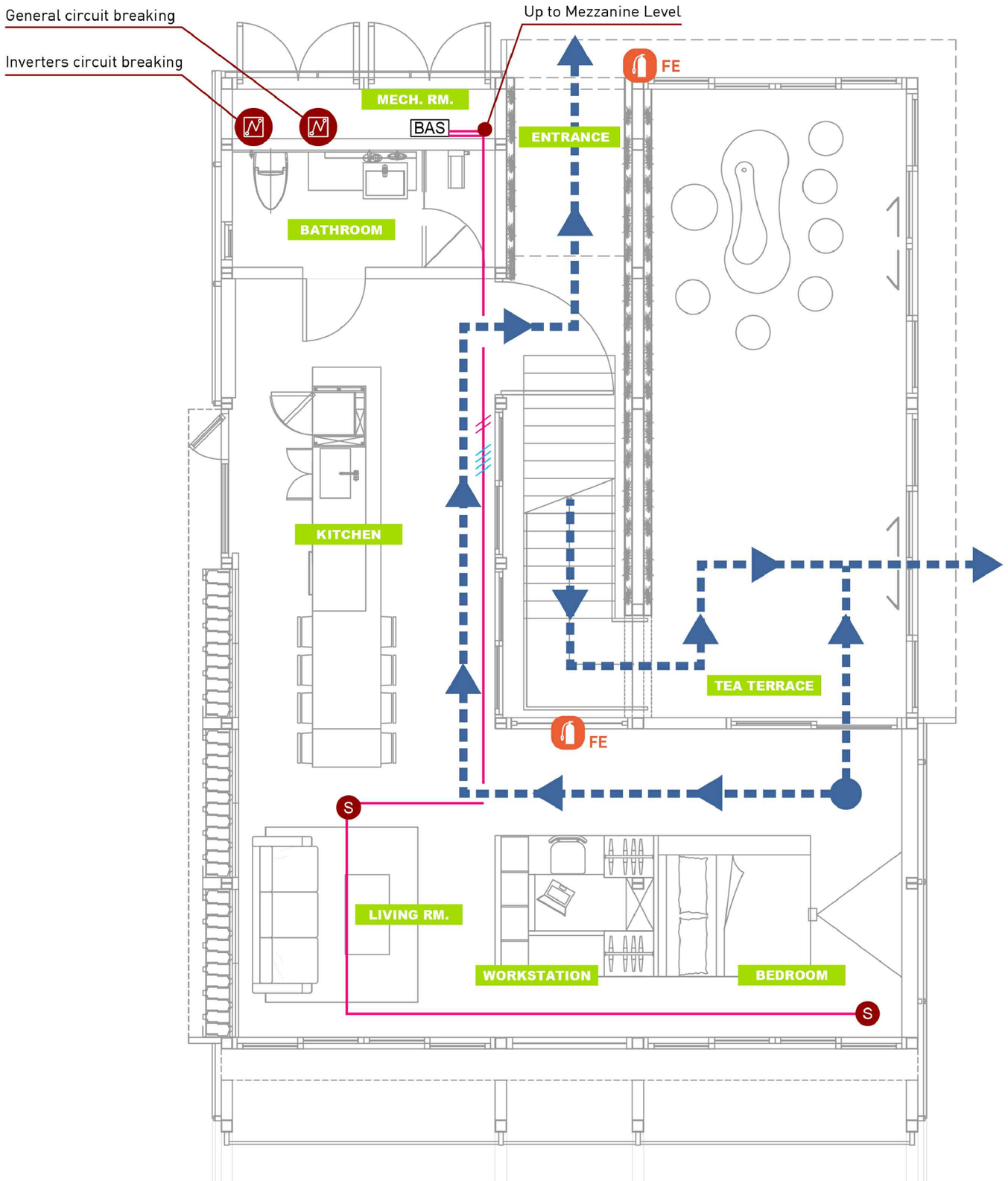
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Scale	-
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DWG. Title: FIRE PROTECTION DETAIL

DWG. No.: FP-001

PAGE: 160



PVC E20,W/600V 380°C
1.25mm²/4C,1.25mm²/2C

Smoke Alarm/Detector
NQ9S-3 :
-DC 9V Battery
-Alarm Contacts
-Interlock with all detectors when alarm of any detector
-AC 220V

Fire Extinguisher
ABC-EN3-4K :
21A/113B/C efficiency

Power cut ON/OFF
General circuit breaking

Power cut ON/OFF
Inverters circuit breaking

Solar Decathlon Europe

Project: ORCHID HOUSE

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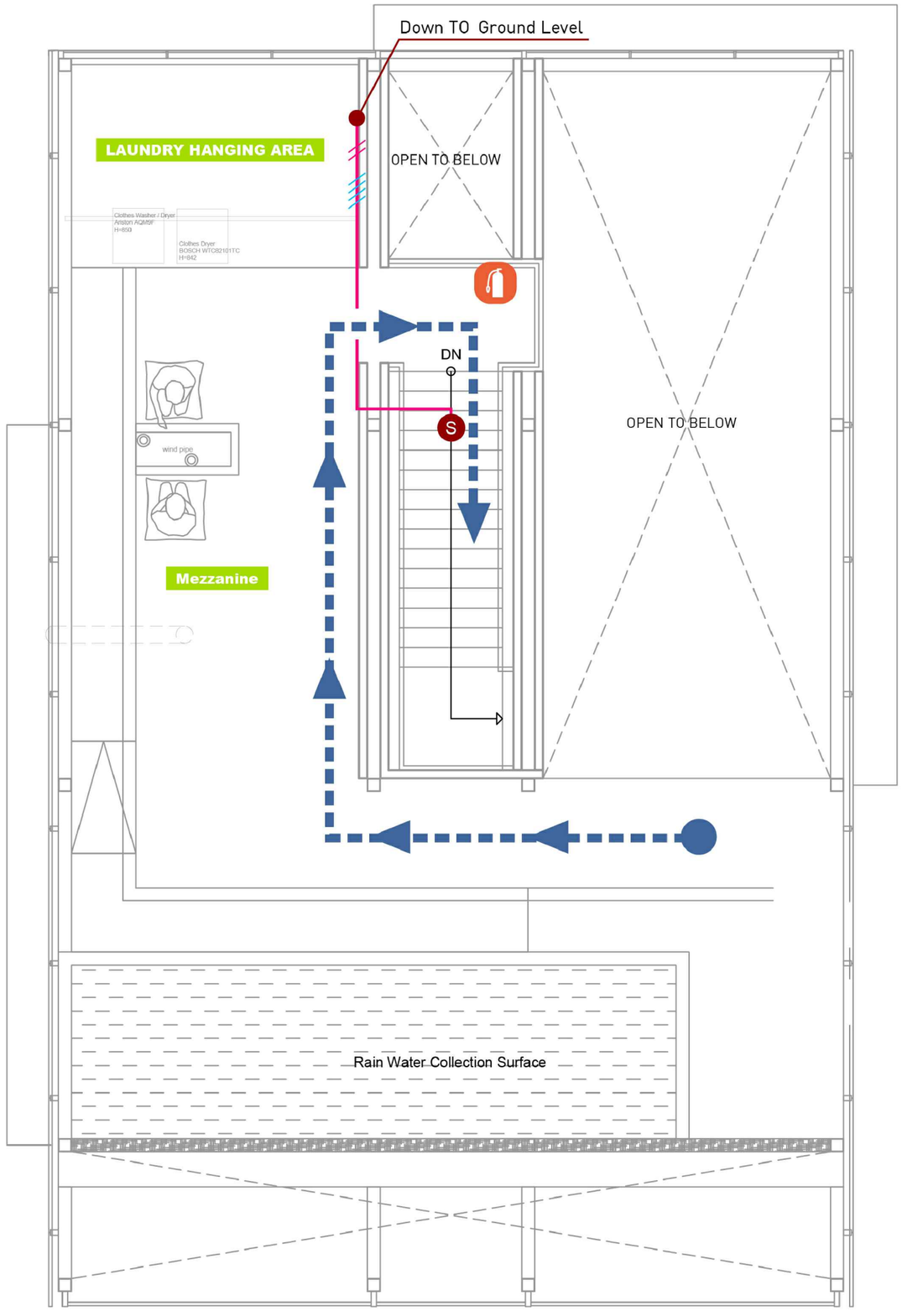
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	HU
Checked by	CHESTER
Scale	1:60
Unit	mm

DWG. Title: FIRE PROTECTION GROUND LEVEL

DWG. No.: FP-002

PAGE: 161



1.25mm²/4C,1.25mm²/2C

S

NQ9S-3 :
-DC 9V Battery
-Alarm Contacts
-Interlock with all detectors
when alarm of any detector
-AC 220V

Fire Extinguisher
ABC-EN3-4K :
21A/113B/C efficiency

Evacuation Route

Evacuation Origin

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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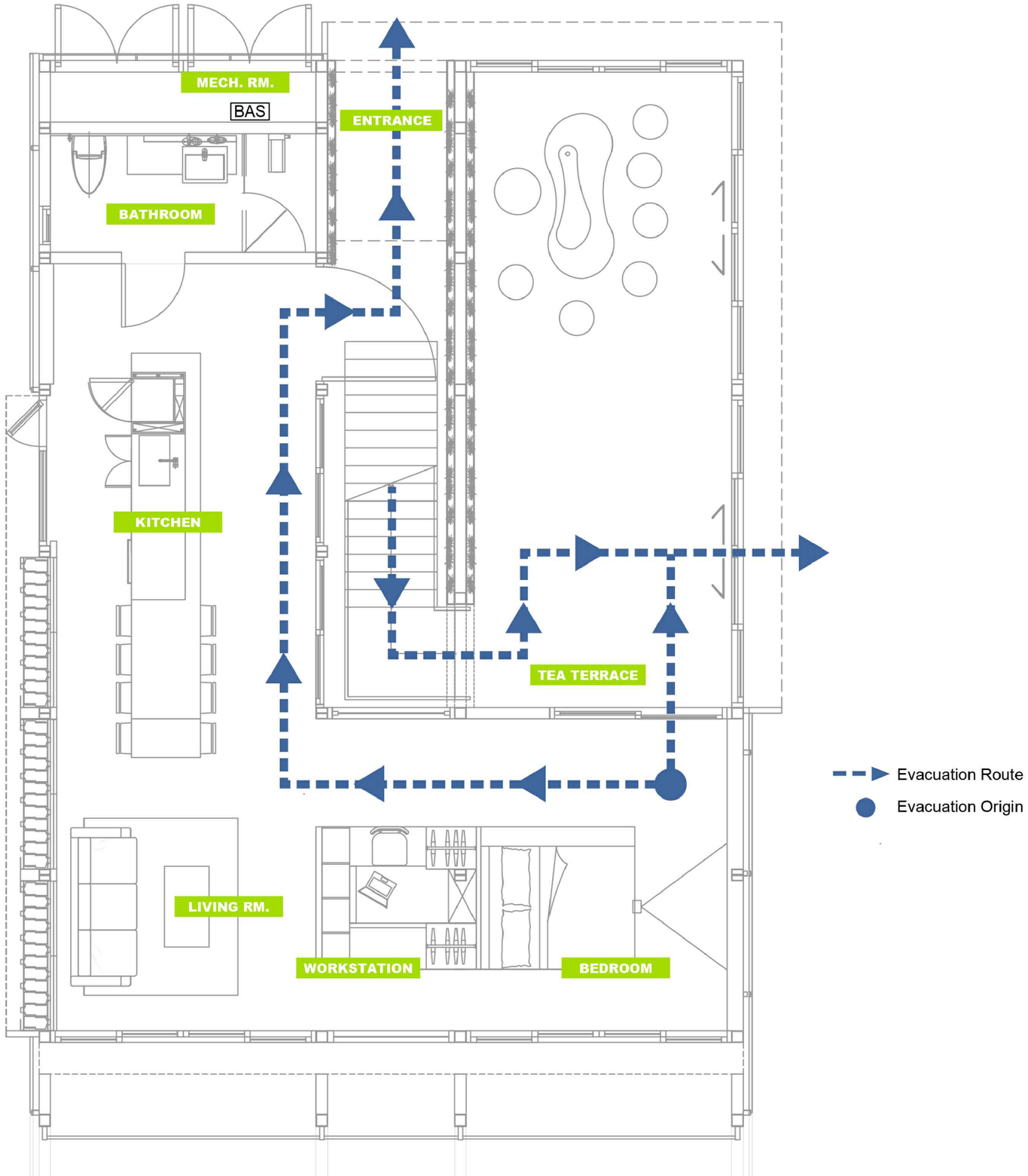
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ST	2014/04/30	CD Submission

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Checked by	CHESTER
Scale	1:60
Unit	mm

DWG. Title: FIRE PROTECTION MEZZANINE LEVEL

DWG. No. FP-003

PAGE 162



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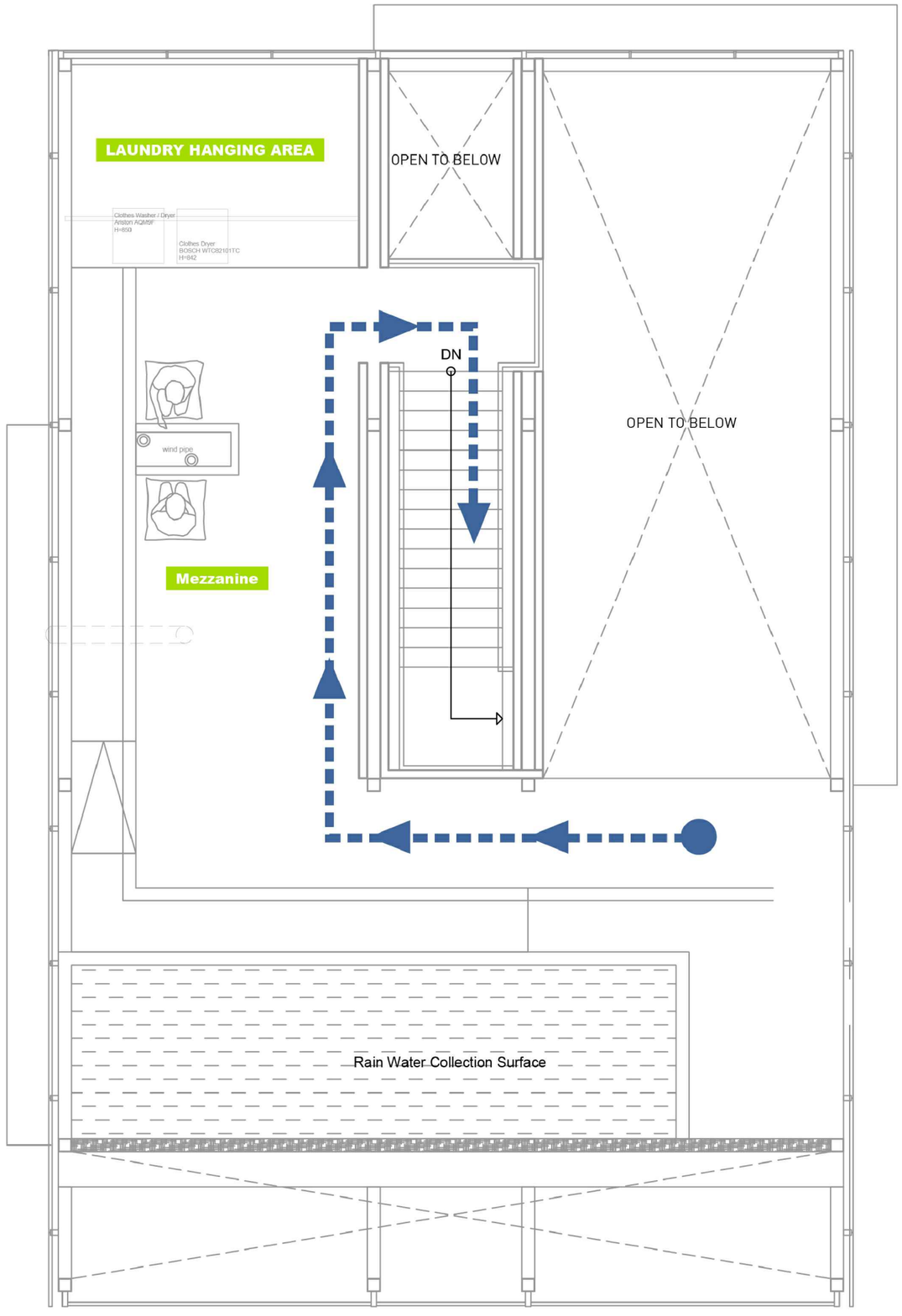
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	HU
Checked by	CHESTER
Scale	1:60
Unit	mm

DWG. Title: FIRE PROTECTION EVACUATION PATH GROUND LEVEL

DWG. No.	PAGE
FP-004	163



1.25mm²/4C,1.25mm²/2C

S

NQ9S-3 :
-DC 9V Battery
-Alarm Contacts
-Interlock with all detectors
when alarm of any detector
-AC 220V

Fire Extinguisher
ABC-EN3-4K :
21A/113B/C efficiency

Evacuation Route

Evacuation Origin

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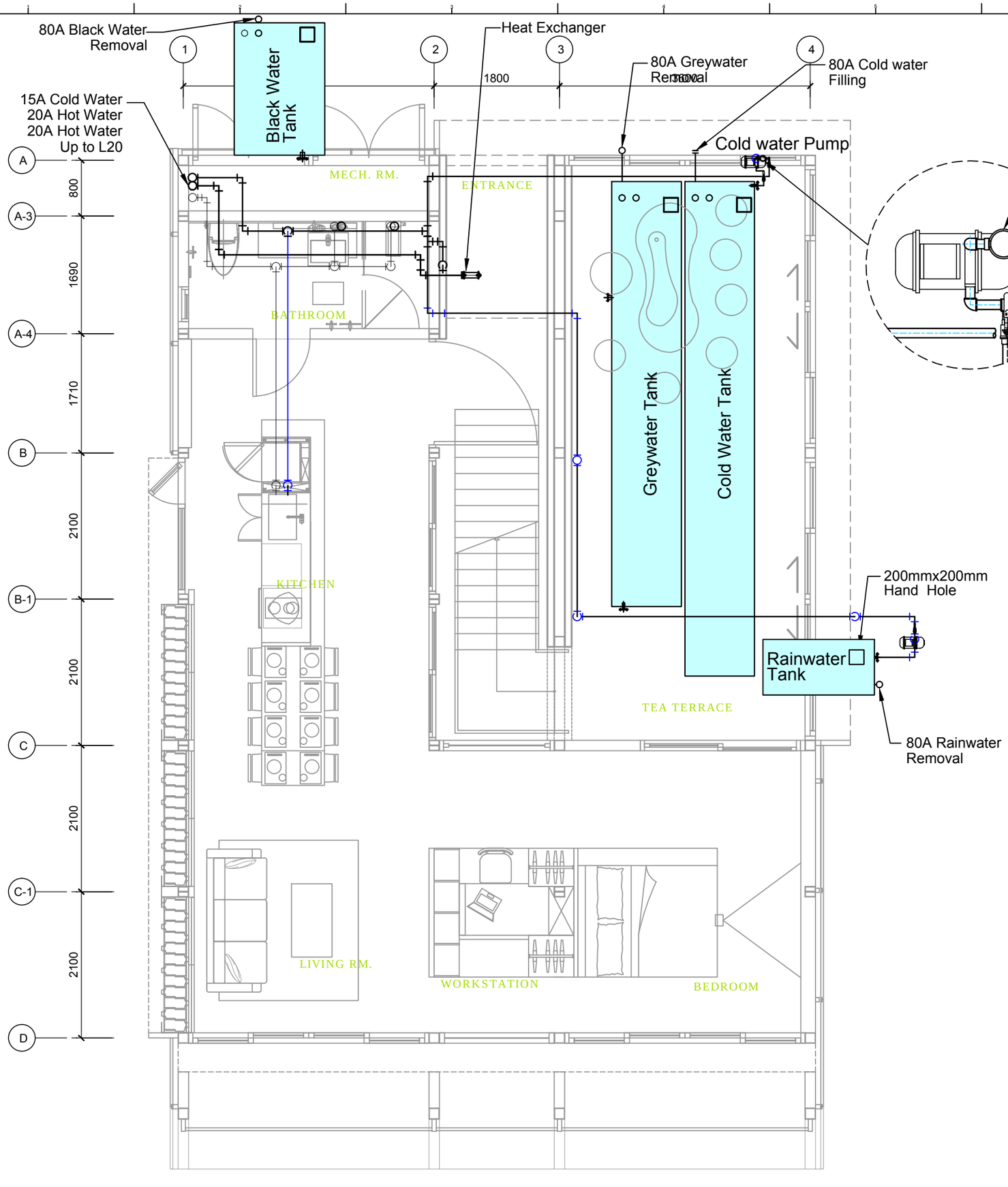
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	HU
Checked by	CHESTER
Scale	1:60
Unit	mm

DWG. Title
FIRE PROTECTION
EVACUATION PATH
MEZZANINE LEVEL

DWG. No. FP-005

PAGE 164



1. **Cold Water Tank**
   Size : 1.00x7.00x0.30 m,
   Volume : 2100l.

2. **Greywater tank**
   Size : 1.00x6.00x0.30 m,
   Volume : 1800l.

3. **Black Water Tank**
   Size : 1.20x1.80x0.30 m,
   Volume : 600l.

4. **Rainwater Tank**
   Size : 0.70x1.50x0.30 m,
   Volume : 300l.

5. **Rainwater Pump**
   Flow : 15 lpm
   Head : 15 m

6. **Cold Water Pump**
   Flow : 25 lpm
   Head : 20 m

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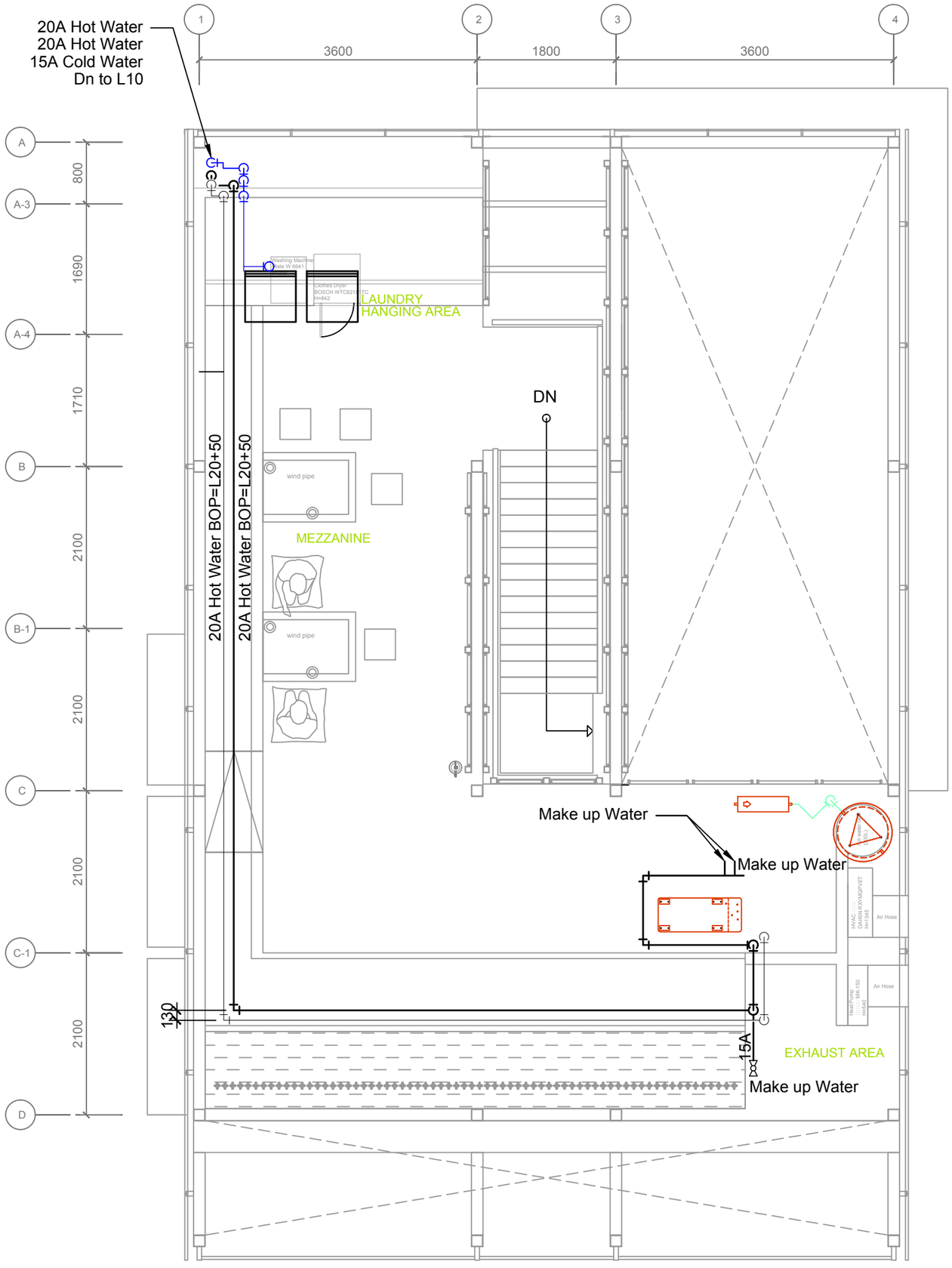
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ST	2014/04/30	CD Submission

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Scale	1:60
Unit	mm

DWG. Title
PLUMBING SUPPLY AND REMOVAL
GROUND LEVEL PLAN

DWG. No. PL-001

PAGE 165



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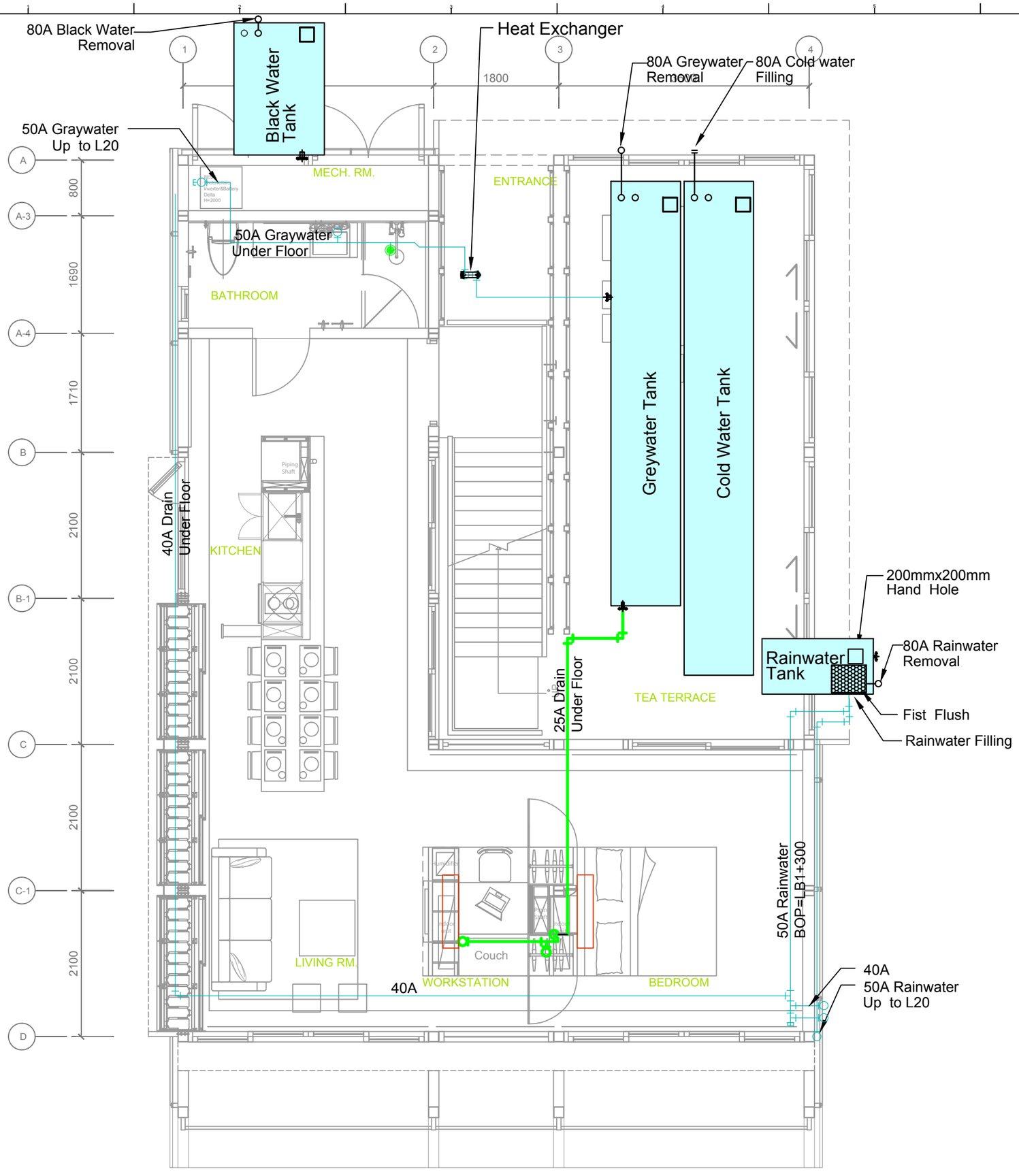
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Scale	1:60
Unit	mm

DWG. Title
PLUMBING SUPPLY AND REMOVAL
MEZZANINE LEVEL PLAN

DWG. No. PL-002

PAGE 166



1. **Cold Water Tank**
   Size : 1.00x7.00x0.30 m,
   Volume : 2100l.

2. **Greywater tank**
   Size : 1.00x6.00x0.30 m,
   Volume : 1800l.

3. **Black Water Tank**
   Size : 2.00x1.00x0.30 m,
   Volume : 600l.

4. **Rainwater Tank**
   Size : 1.50x0.70x0.30 m,
   Volume : 300l.

5. **Rainwater Pump**
   Flow : 15 lpm
   Head : 15 m

6. **Cold Water Pump**
   Flow : 20 lpm
   Head : 18 m

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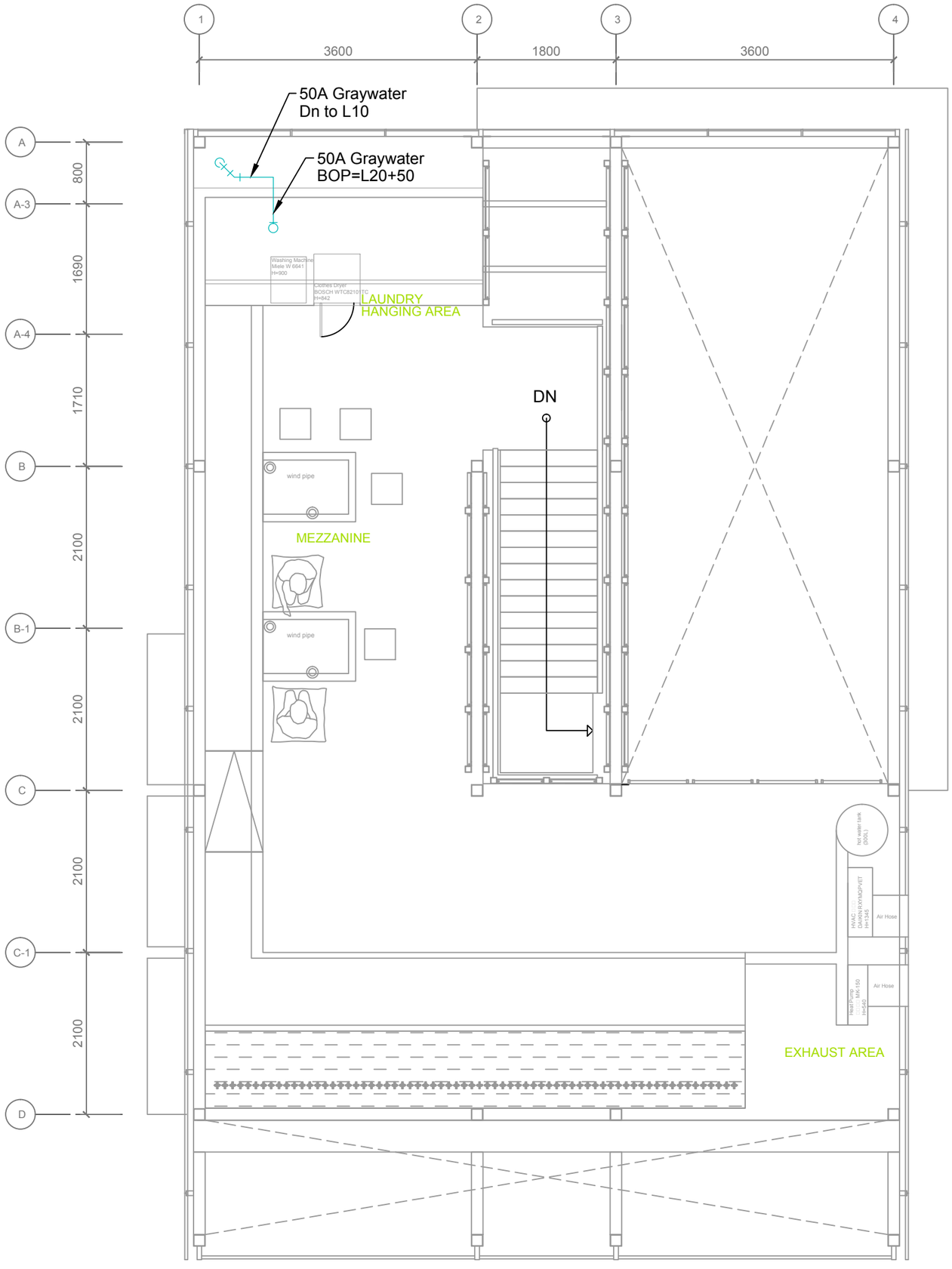
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Scale	1:60
Unit	mm

DWG. Title
GRAY WATER
GROUND LEVEL

DWG. No.	PAGE
PL-011	167



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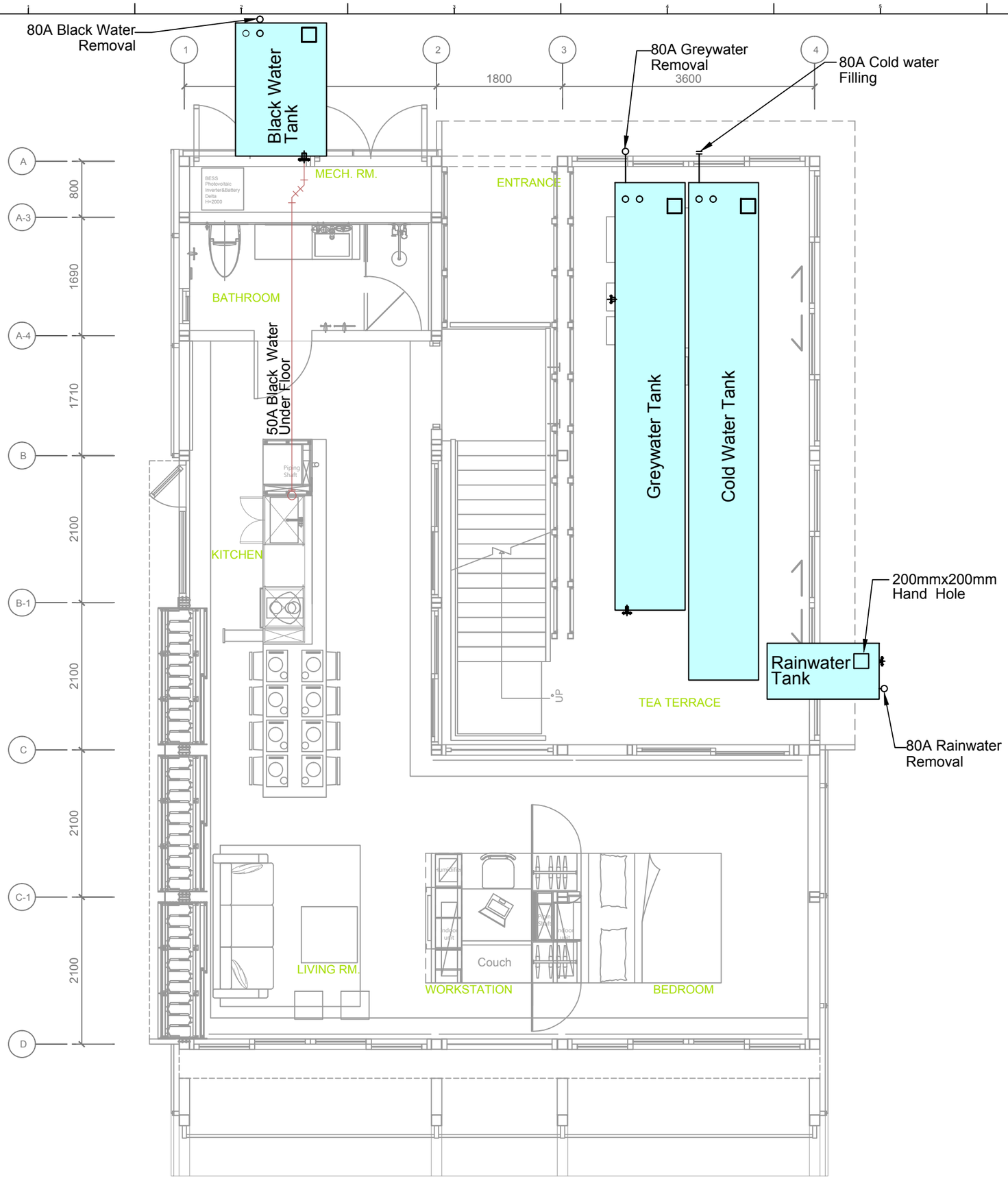
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Scale	1:60
Unit	mm

DWG. Title

GRAY WATER
MEZZANINE LEVEL

DWG. No. PL-012

PAGE 168



1. **Cold Water Tank**
   Size : 1.00x7.00x0.30 m,
   Volume : 2100l.

2. **Greywater tank**
   Size : 1.00x6.00x0.30 m,
   Volume : 1800l.

3. **Black Water Tank**
   Size : 1.20x1.80x0.30 m,
   Volume : 600l.

4. **Rainwater Tank**
   Size : 0.70x1.50x0.30 m,
   Volume : 300l.

5. **Rainwater Pump**
   Flow : 15 lpm
   Head : 15 m

6. **Cold Water Pump**
   Flow : 25 lpm
   Head : 20 m

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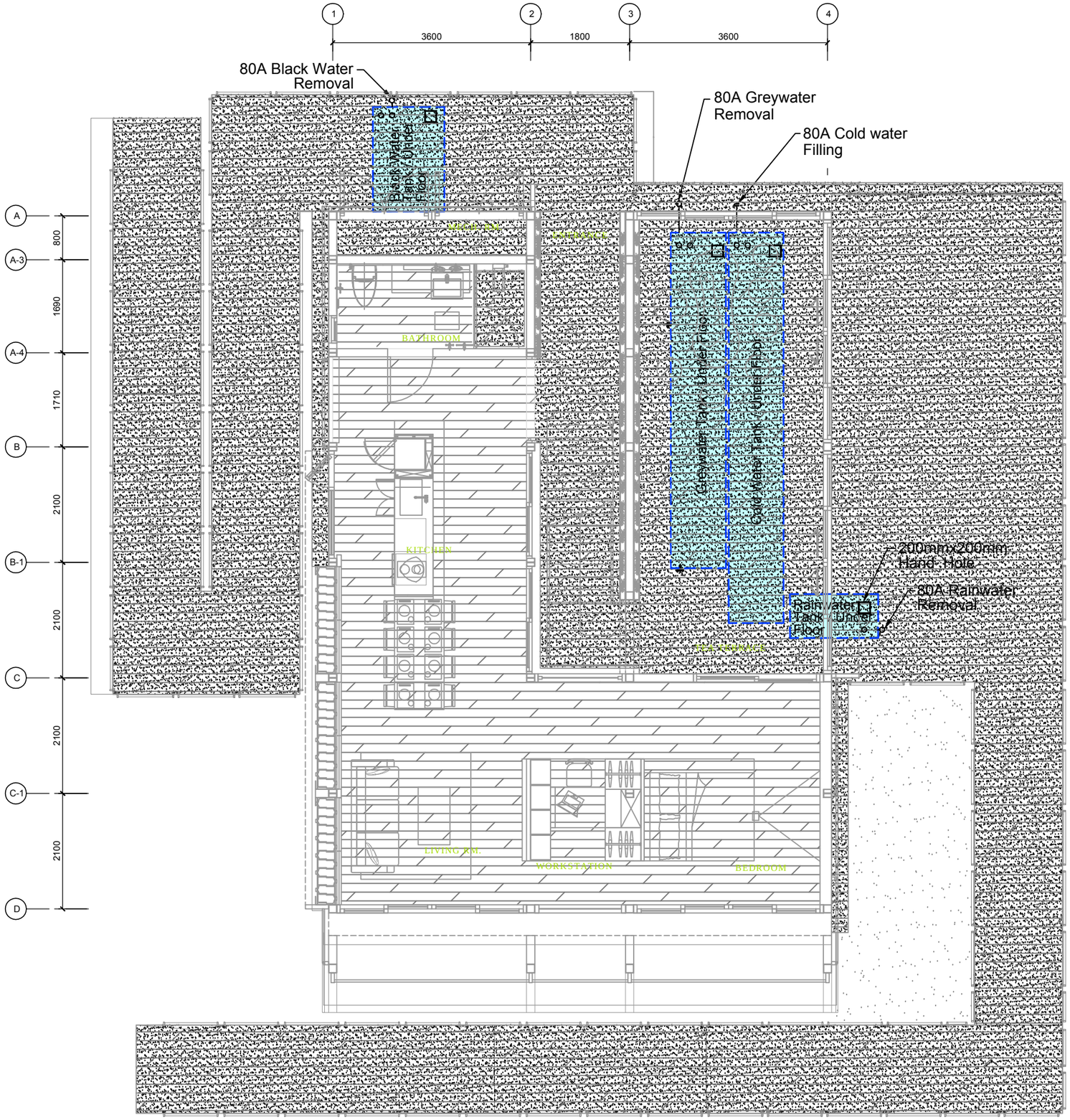
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ST	2014/04/30	CD Submission

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Scale	1:60
Unit	mm

DWG. Title
DRAIN / WASTE / VENT
Ground Level

DWG. No.	PAGE
PL-021	169



1. **Cold Water Tank**
   Size : 1.00x7.00x0.30 m,
   Volume : 2100l.

2. **Greywater tank**
   Size : 1.00x6.00x0.30 m,
   Volume : 1800l.

3. **Black Water Tank**
   Size : 1.20x1.80x0.30 m,
   Volume : 600l.

4. **Rainwater Tank**
   Size : 0.70x1.50x0.30 m,
   Volume : 300l.

5. **Rainwater Pump**
   Flow : 15 lpm
   Head : 15 m

6. **Cold Water Pump**
   Flow : 25 lpm
   Head : 20 m

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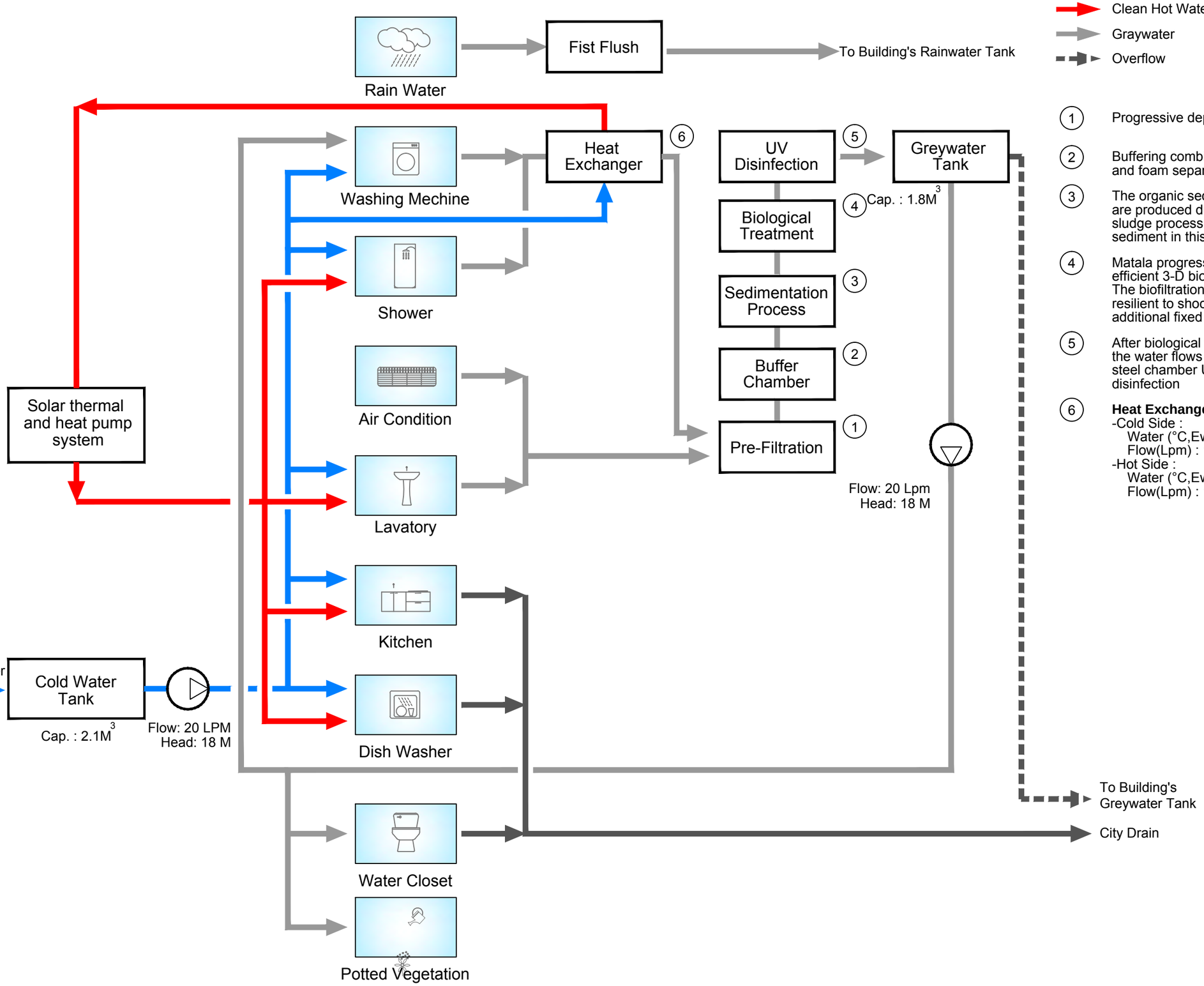
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Scale	1:60
Unit	mm

DWG. Title: Containers and Fill Locations

DWG. No.: PL-031

PAGE: 170



1. Progressive depth filtration
2. Buffering combining active sludge and foam separation
3. The organic sediments which are produced during the active sludge process obtain further sediment in this tank
4. Matala progressive biofiltration efficient 3-D biofiltration. The biofiltration process is very resilient to shock loads with additional fixed biofilter skimmers
5. After biological treatment, the water flows through a stainless steel chamber UV-C system for disinfection
6. **Heat Exchanger**
   -Cold Side :
   Water (°C,Ewt / Lwt) : 15 / 23
   Flow(Lpm) : 18.75
   -Hot Side :
   Water (°C,Ewt / Lwt) : 33 / 23
   Flow(Lpm) : 15

Solar Decathlon Europe

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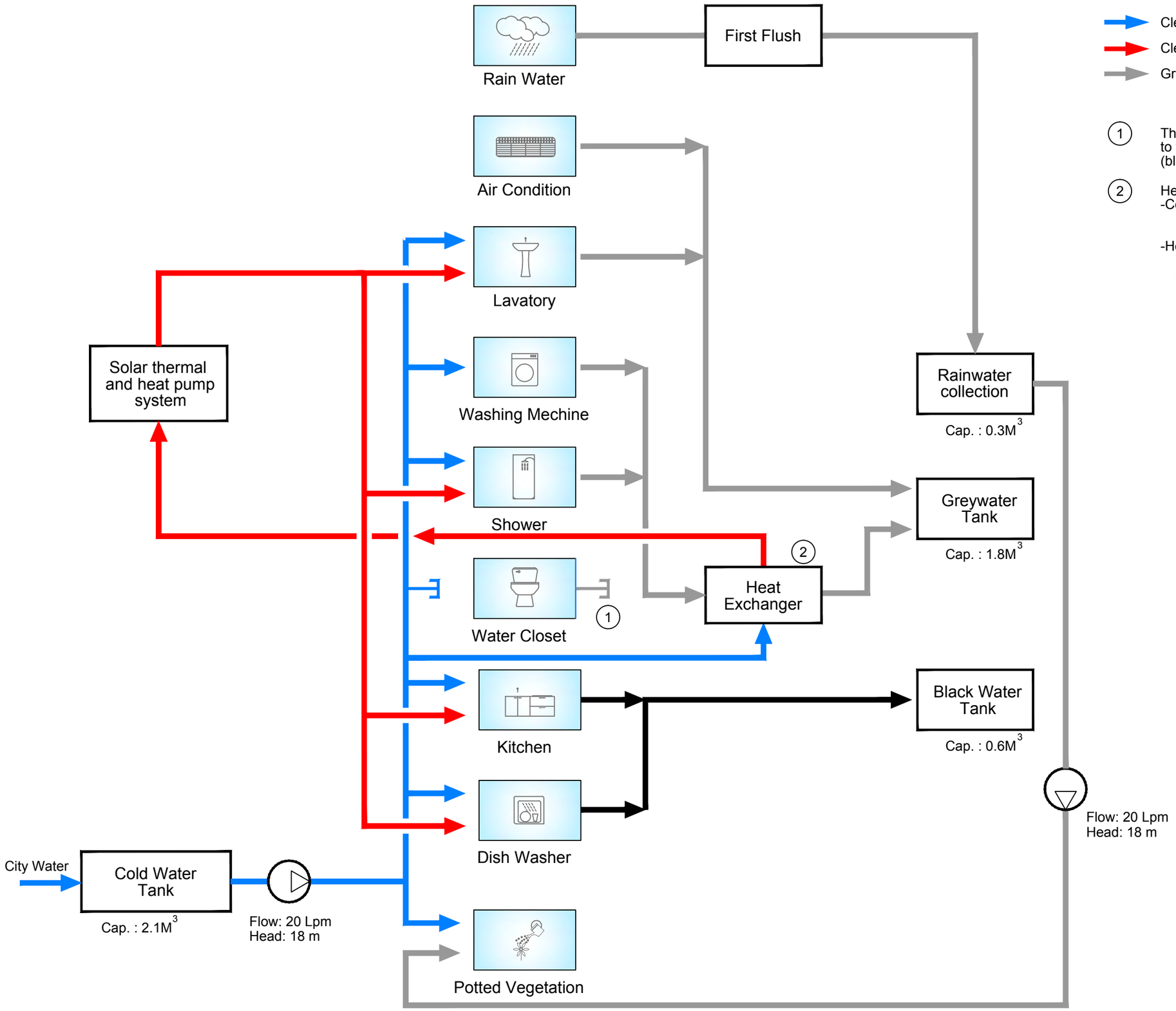
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Checked by	-
Scale	-
Unit	-

DWG. Title: SCHEMATIC DIAGRAM IN TAIWAN

DWG. No.: PL-101

PAGE: 171



1 The water closet is not connected to the sewage disposal system (black water tank) during the event.

2 Heat Exchanger
-Cold Side :
Water (°C,Ewt / Lwt) : 15 / 23
Flow(Lpm) : 18.75
-Hot Side :
Water (°C,Ewt / Lwt) : 33 / 23
Flow(Lpm) : 15

Solar Decathlon Europe

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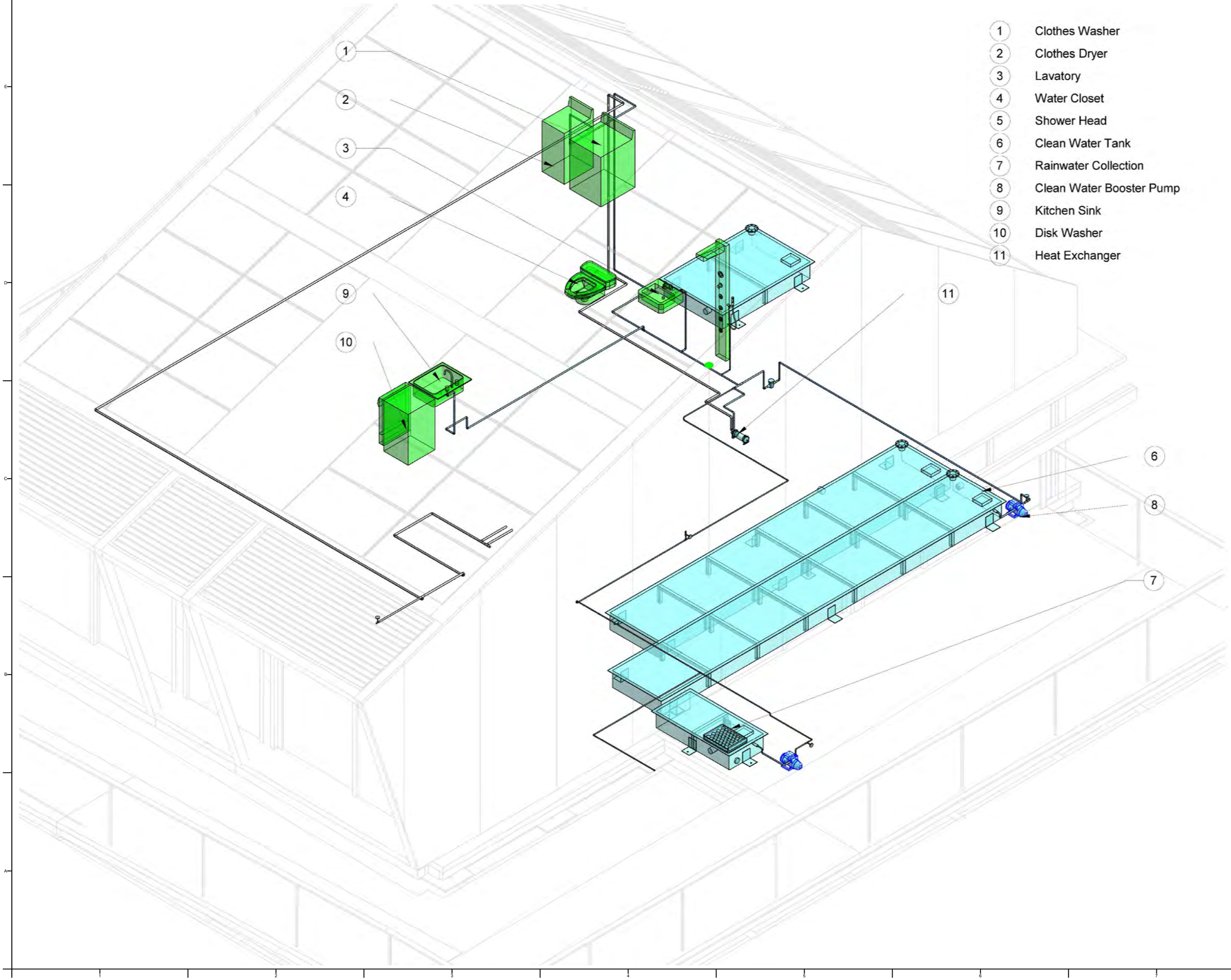
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Scale	-
Unit	-

DWG. Title: SCHEMATIC DIAGRAM IN COMPETITION

DWG. No.: PL-102

PAGE: 172



1 Clothes Washer
2 Clothes Dryer
3 Lavatory
4 Water Closet
5 Shower Head
6 Clean Water Tank
7 Rainwater Collection
8 Clean Water Booster Pump
9 Kitchen Sink
10 Disk Washer
11 Heat Exchanger

Solar Decathlon Europe

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Consultants:
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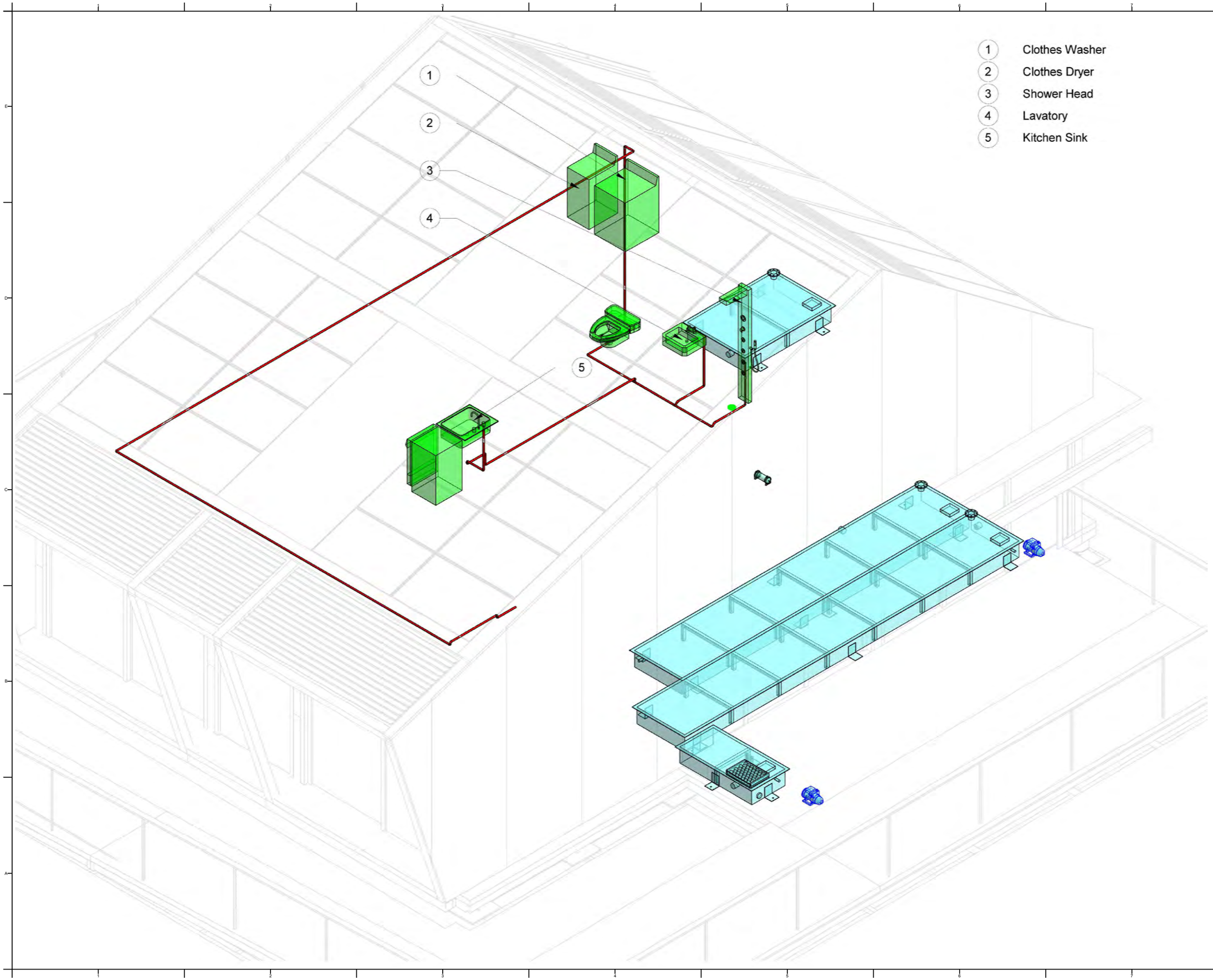
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ST	2014/04/30	CD Submission

Drawn by	MH
Checked by	-
Scale	-
Unit	-

DWG. Title
SUPPLY AND REMOVAL
CLEAN WATER ISOMETRIC

DWG. No. PL-201
PAGE 173



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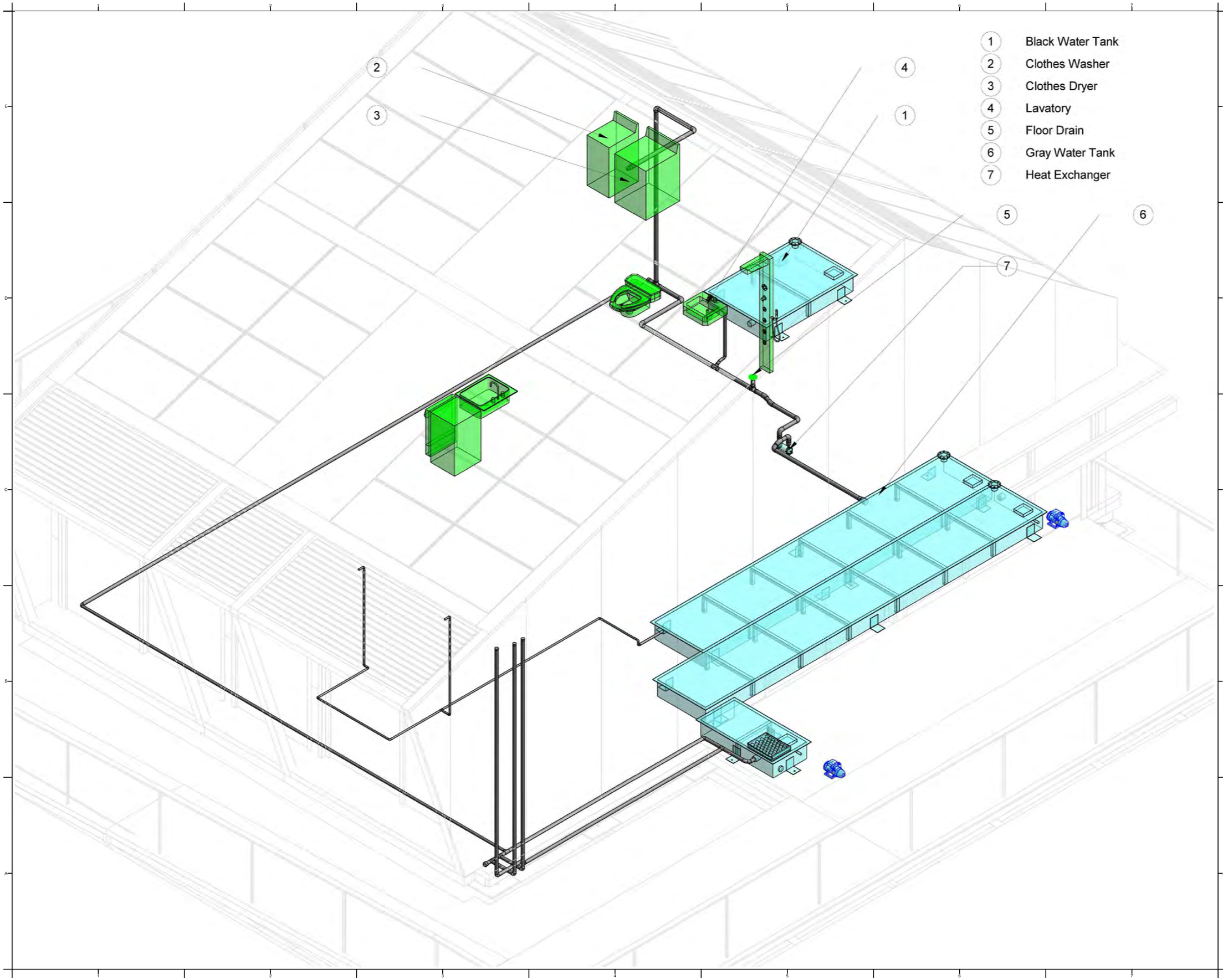
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ST	2014/04/30	CD Submission

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Scale	-
Unit	mm

DWG. Title

SUPPLY AND REMOVAL
HOT WATER ISOMETRIC

DWG. No.	PAGE
PL-202	174



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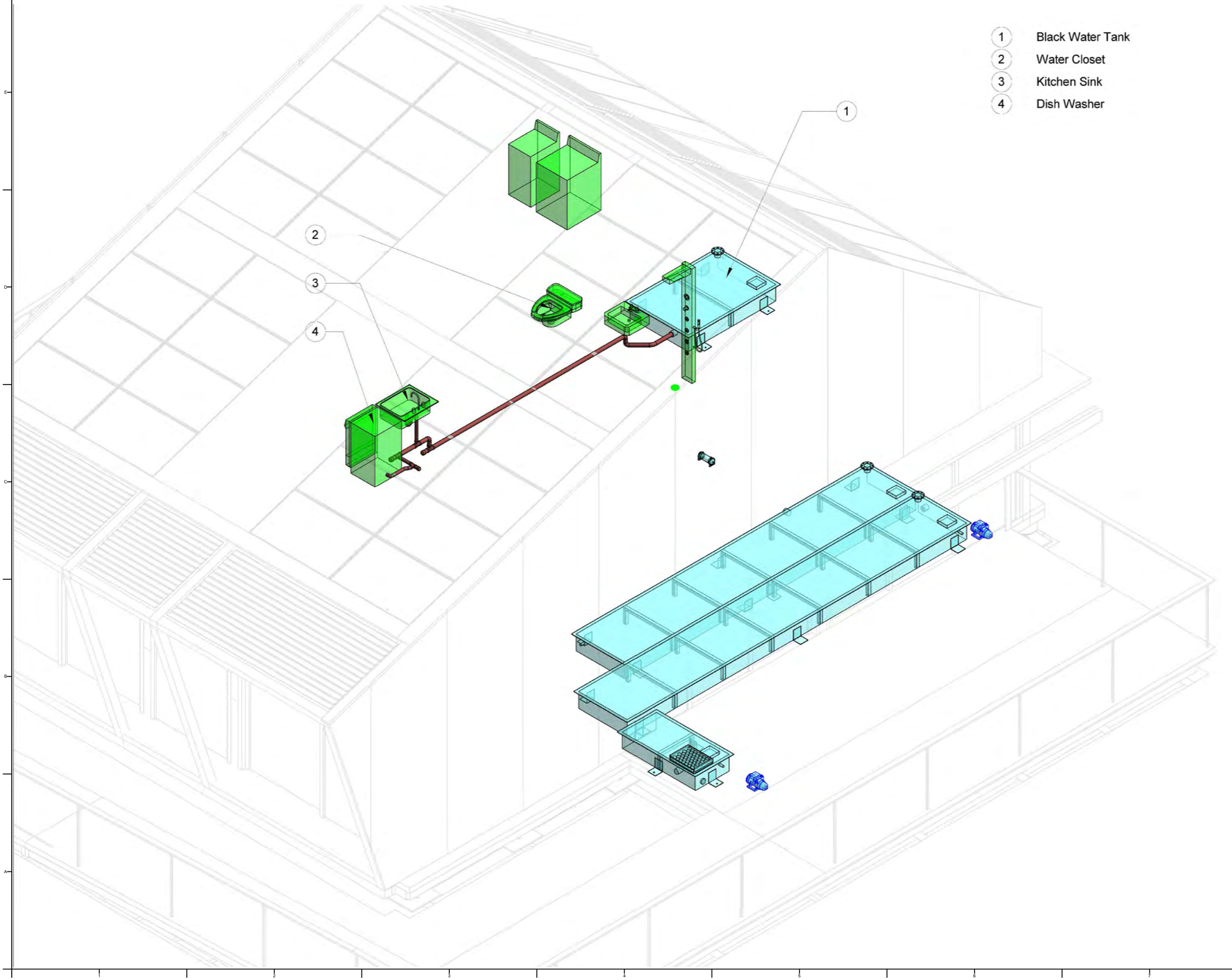
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Unit	-

DWG. Title

GRAY WATER ISOMETRIC

DWG. No. PL-211

PAGE 175



1. Black Water Tank
2. Water Closet
3. Kitchen Sink
4. Dish Washer

Solar Decathlon Europe

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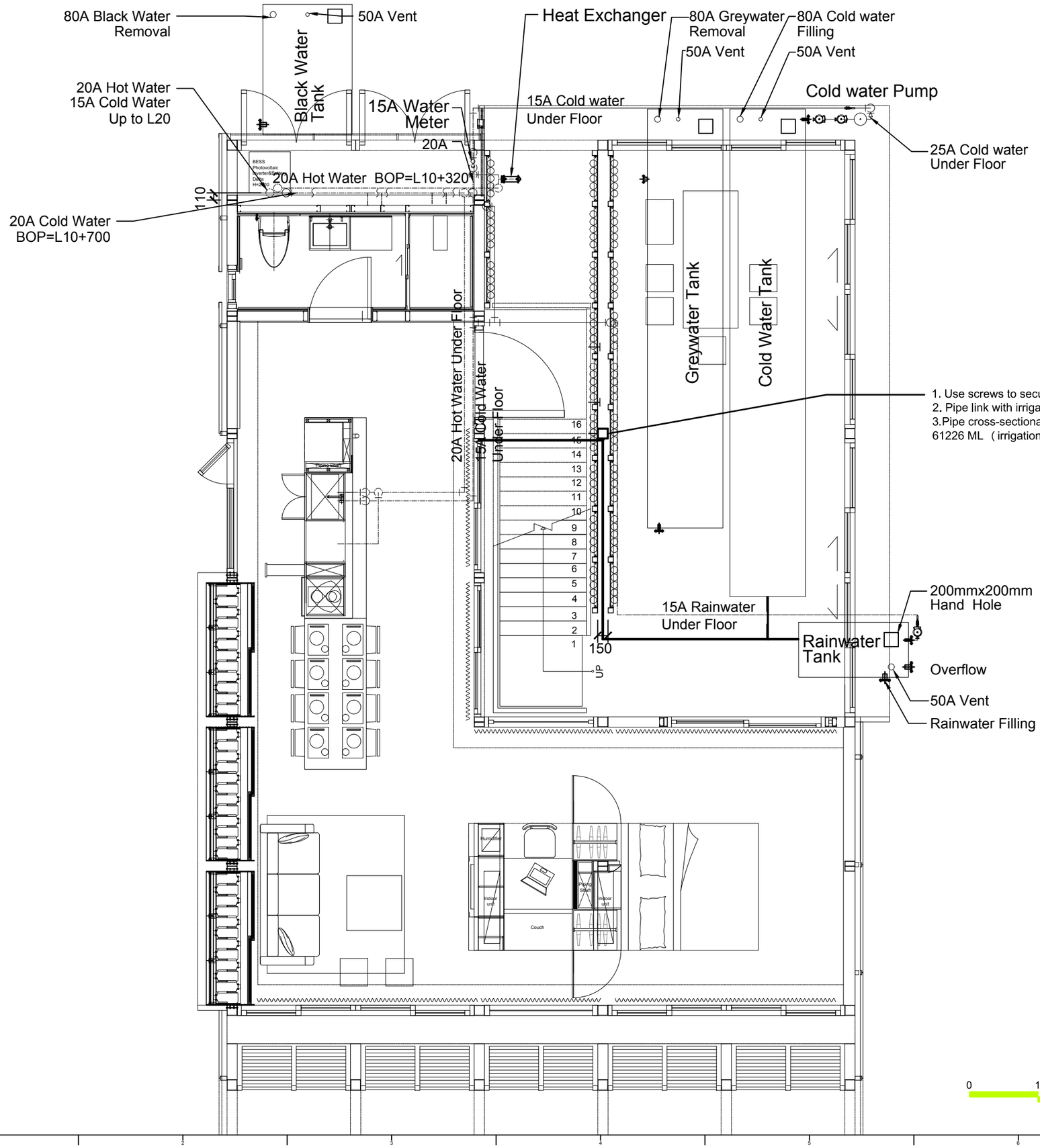
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ST	2014/04/30	CD Submission

Drawn by	MH
Checked by	-
Scale	-
Unit	-

DWG. Title: DRAIN/WASTE/VENT ISOMETRIC

DWG. No.: PL-221

PAGE: 176



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Unit	mm

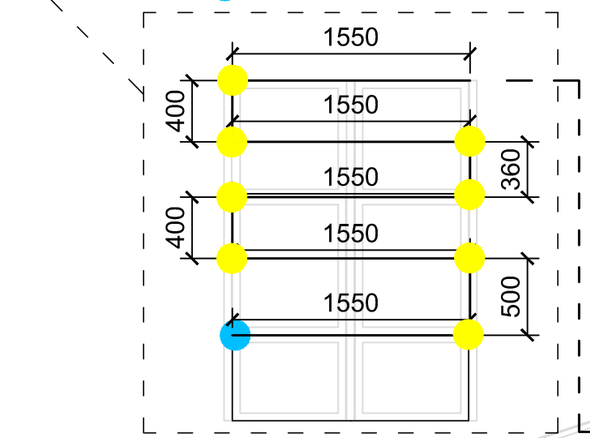
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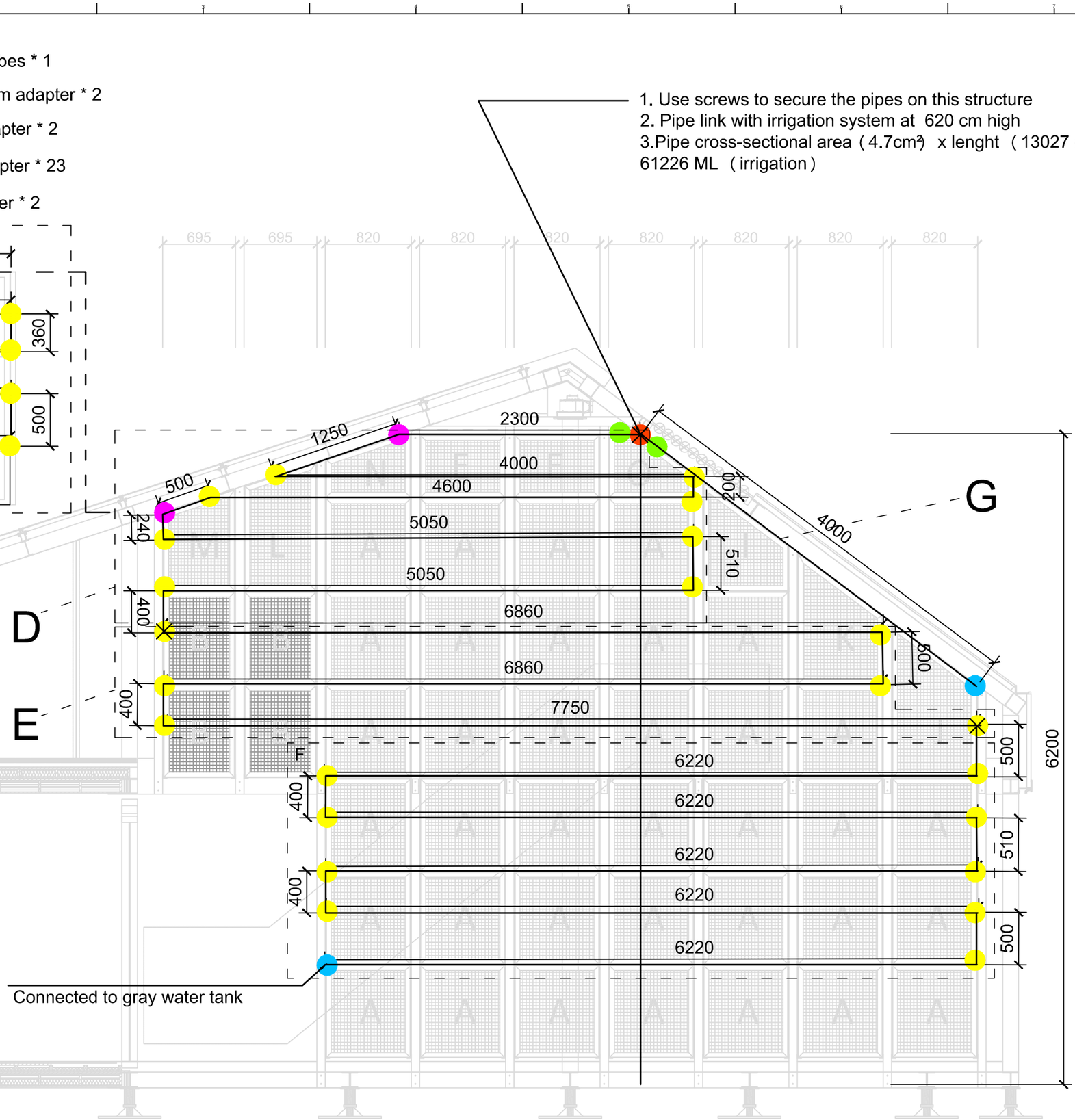
GREEN CORE
IRRIGATION SYSTEM
PLAN

DWG. No.	PAGE
PL-301	178

- T-Aluminum tubes * 1
- Irrigation system adapter * 2
- T Irrigation adapter * 2
- L Irrigation adapter * 23
- Irrigation stopper * 2

1. Use screws to secure the pipes on this structure
2. Pipe link with irrigation system at 620 cm high
3.Pipe cross-sectional area（4.7cm²）x lenght（13027 cm）= 61226 ML（irrigation）





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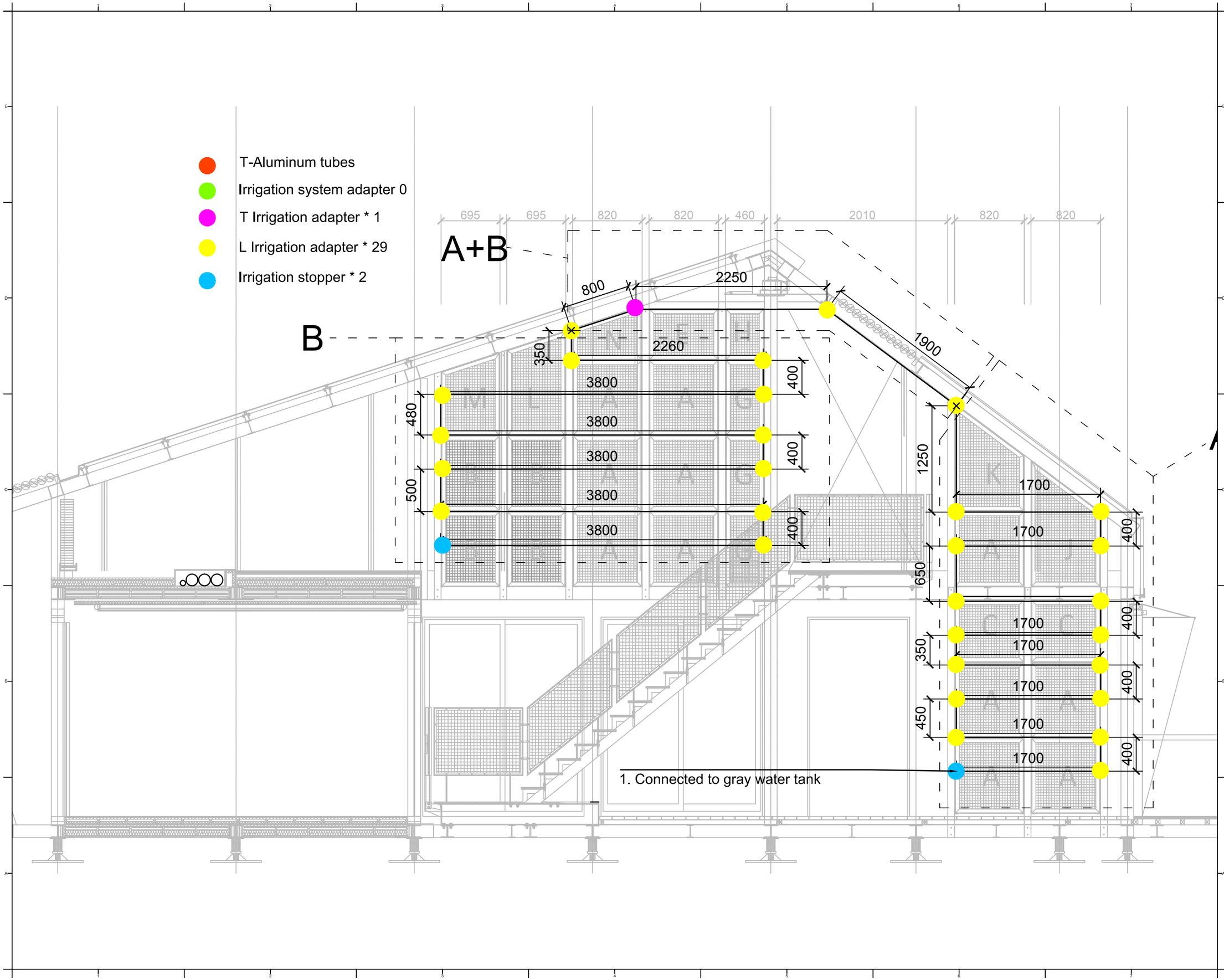
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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Checked by	DN
Scale	1:40
Unit	mm

DWG. Title: GREEN CORE IRRIGATION SYSTEM ELEVATION 1

DWG. No. PL-302

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Solar Decathlon Europe

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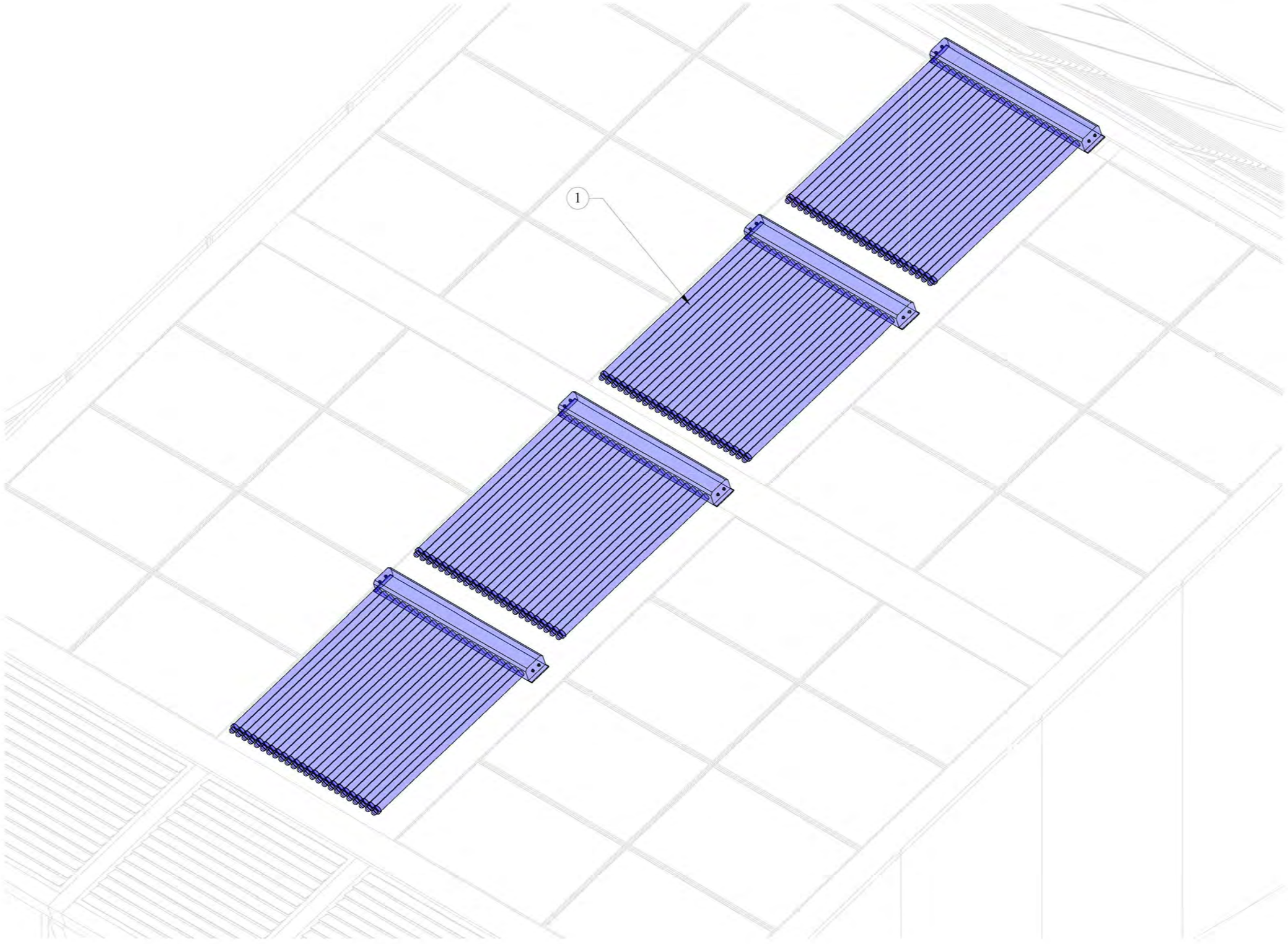
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Checked by	DN
Scale	1:40
Unit	mm

DWG. Title
GREEN CORE
IRRIGATION SYSTEM
ELEVATION 2

DWG. No. PL-303

PAGE 180

1 Solar Thermal Collector



Solar Decathlon Europe

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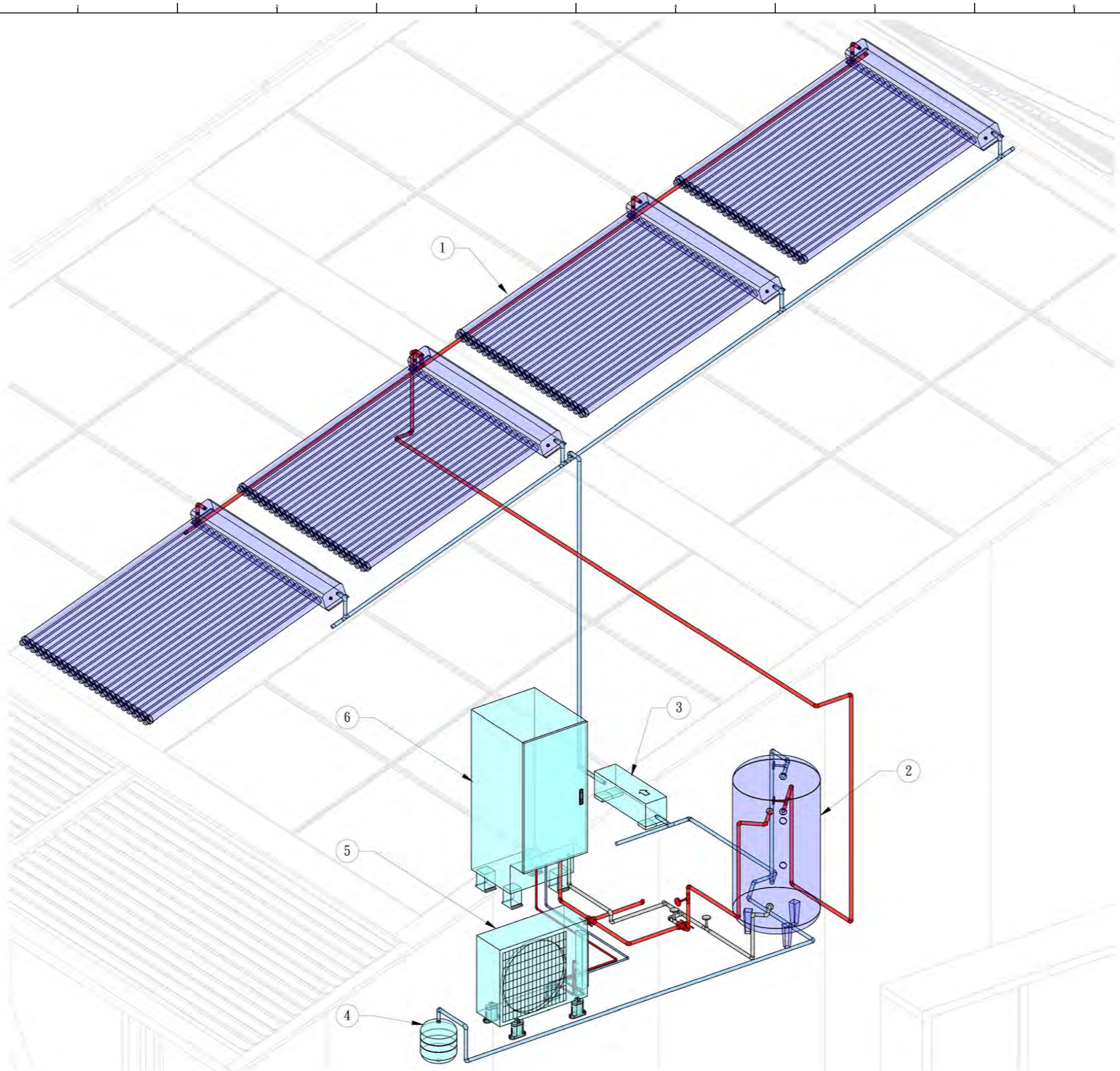
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Unit	-

DWG. Title

SOLAR WATER PLAN

DWG. No. SW-001

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1. Solar Thermal Collector
2. Hot Water Storage Tank
3. Pump Station
4. Expansion Tank 1
5. CO2 Heat Pump Package 2
6. CO2 Heat Pump Package 1

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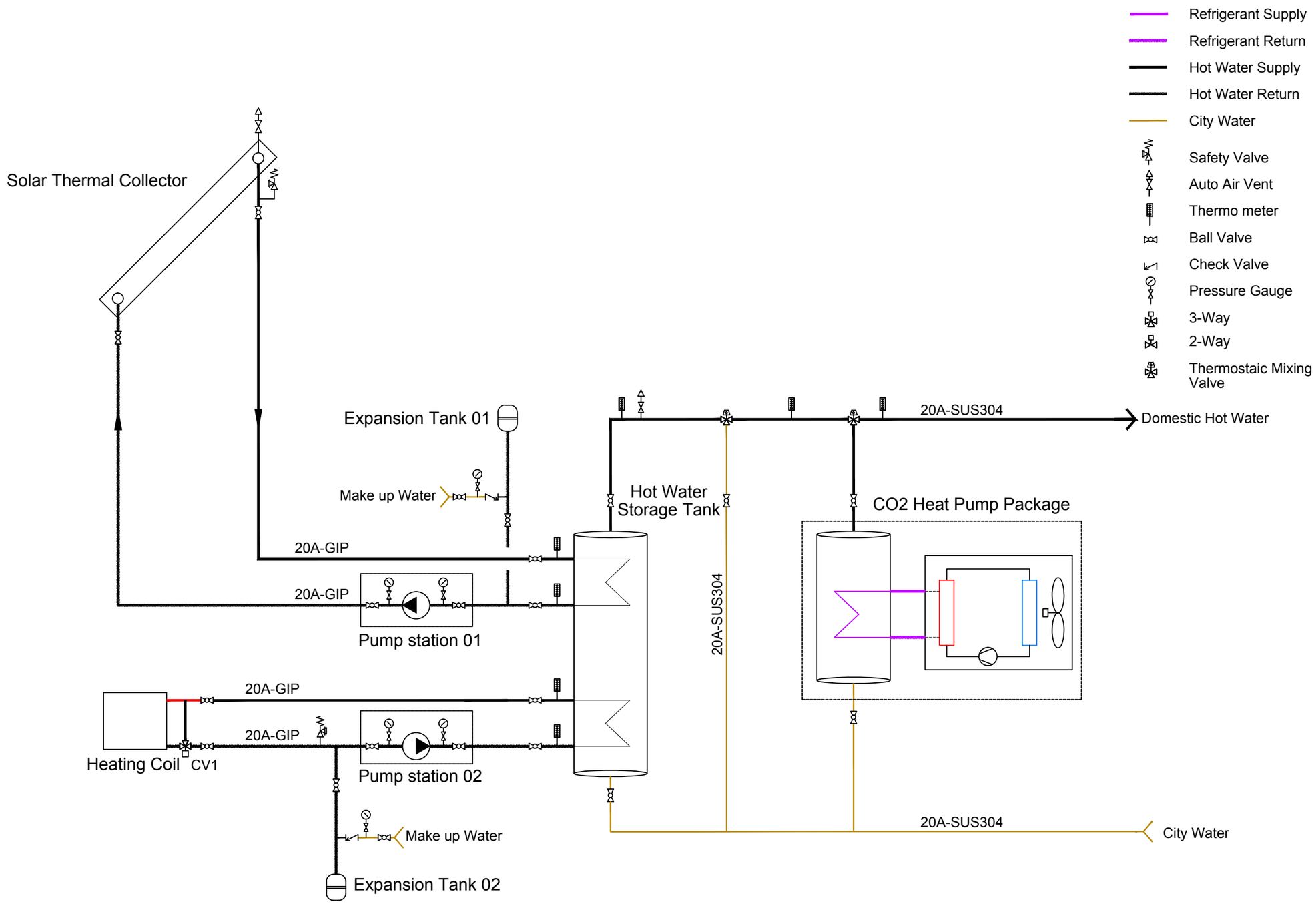
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Unit	-

DWG. Title: SOLAR WATER ISOMETRIC

DWG. No.: SW-101

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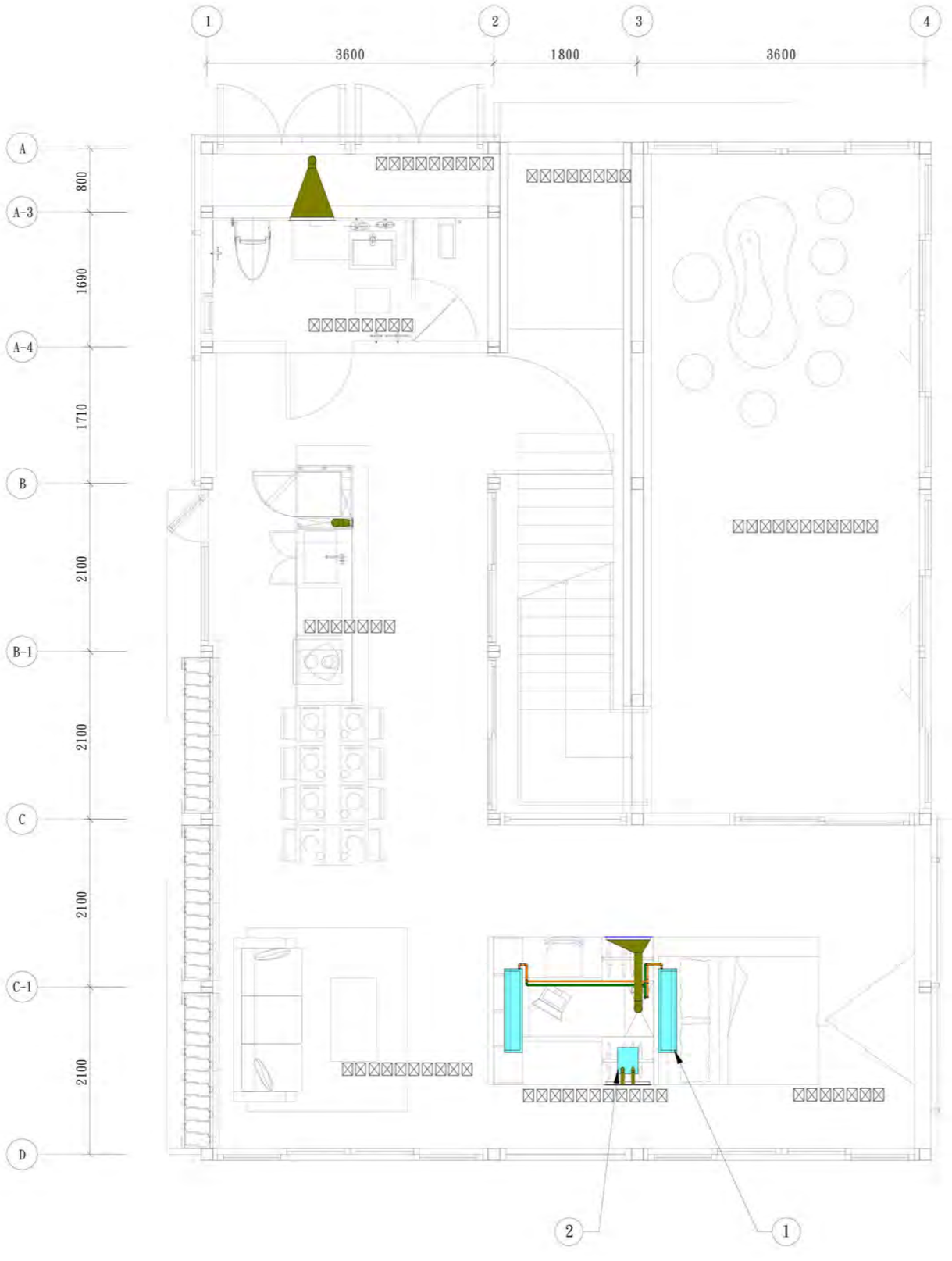
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Unit	-

DWG. Title: SOLAR WATER SCHEMATIC

DWG. No.: SW-201

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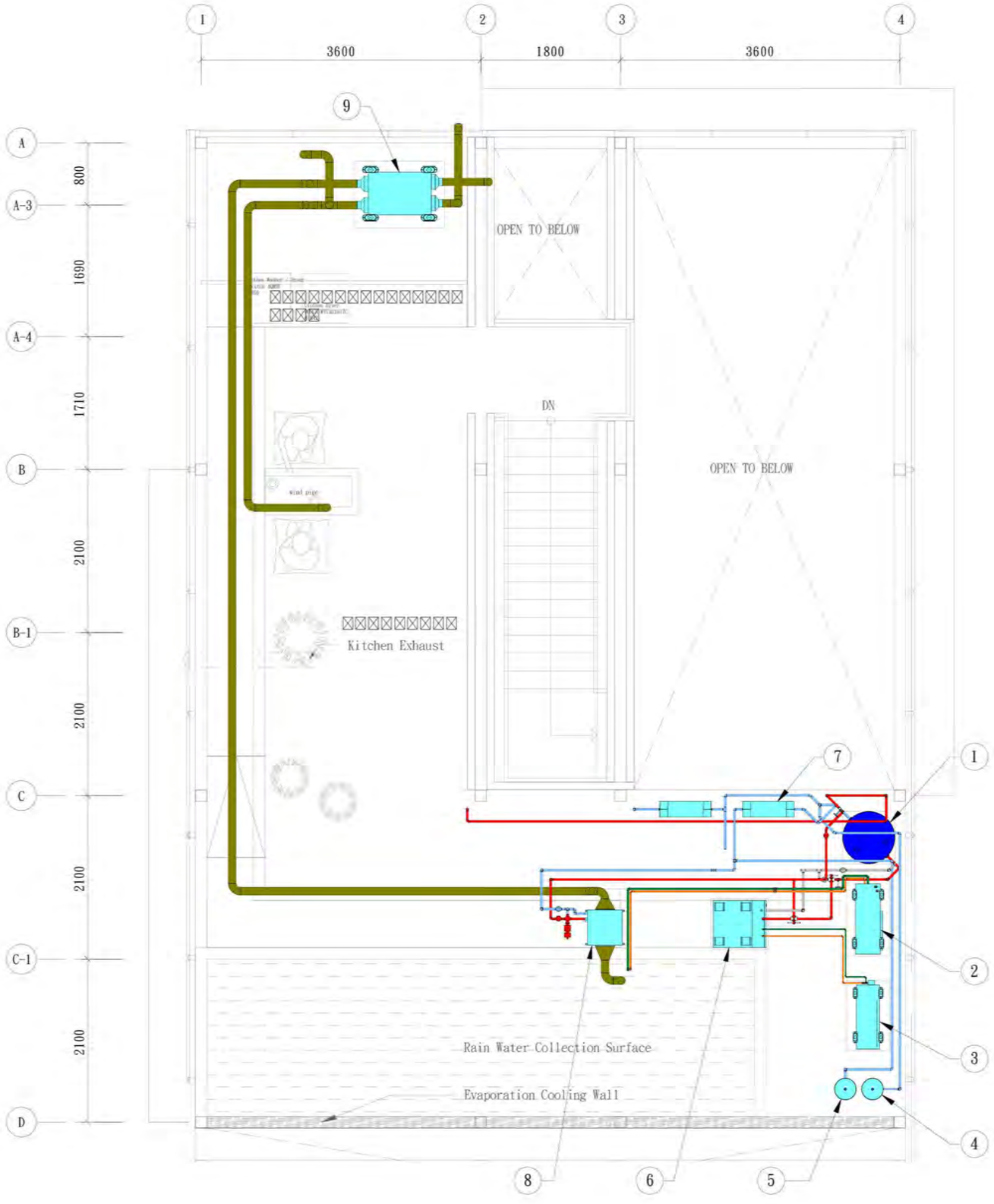
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Scale	1:60
Unit	mm

DWG. Title

HVAC DISTRIBUTION PLAN
GROUND LEVEL

DWG. No.	PAGE
ME-001	183



Refrigerant Supply
Refrigerant Return
Hot Water Supply
Hot Water Return
City Water
Duct

1. Hot Water Storage Tank
2. Heat Pump
3. CO2 Heat Pump Package1
4. Expansion Tank 1
5. Expansion Tank 2
6. CO2 Heat Pump Package 2
7. Pump Station
8. Heating Coil
9. Heat Reclaim Ventilator

Solar Decathlon Europe

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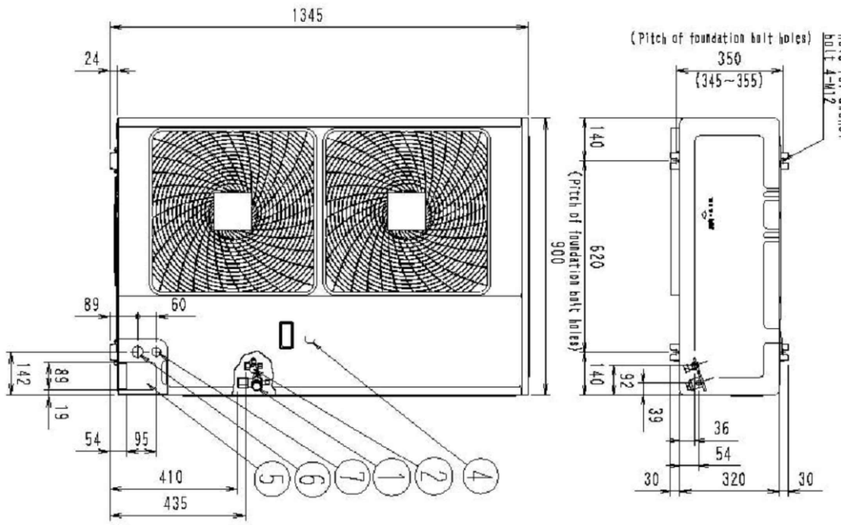
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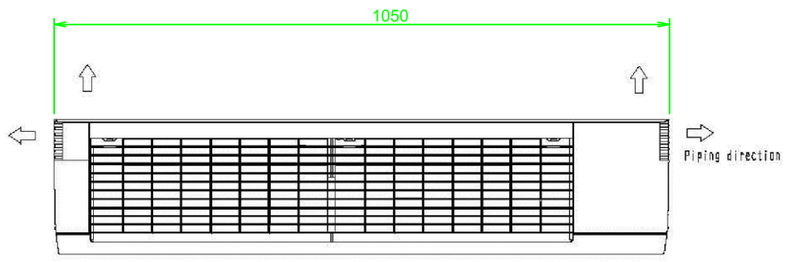
DWG. Title: HVAC DISTRIBUTION PLAN MEZZANINE LEVEL

DWG. No. ME-002

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Outdoor Unit of Cooling/Heating Heat Pump

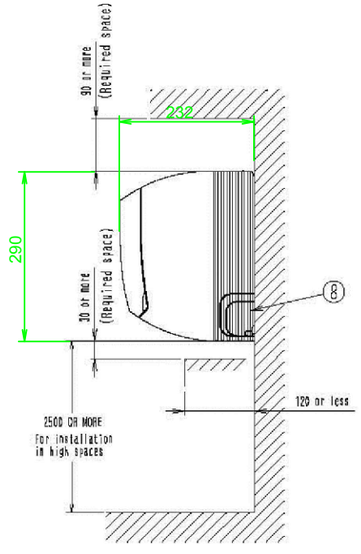




Name	Outdoor Unit of Cooling/Heating Heat Pump
Service	HVAC Cooling and Heating
Type	Heat Pump
Cooling Capacity	11.2 KW
Heating Capacity	12.5 KW
COP	Cooling = 3.8 Heating = 3.82
EER	Cooling = 4.4 Heating = 4.4
Electrical Power Supply	230 V
Frequency	50 HZ
Power Consumption	KW Cooling = 2.95 Heating = 3.27
Refrigerant	R-410A

Test condition for outdoor unit:

1. Cooling Condition : Indoor Temperature 27°C DB / 19°C WB
   Outdoor Temperature 35°C DB
2. Heating Condition : Indoor Temperature 20°C DB
   Outdoor Temperature 7°C DB / 6°C WB



Name	Indoor Unit of Heat Pump
Service	Room Heating and Cooling
Type	Wall Mounted
Quantity	2
Cooling Capacity	4.5 KW
Heating Capacity	5 KW
Fan Flow(High/Low)	12 / 9 m^3/min
Air Filter	Washable Resin Net

Solar Decathlon Europe

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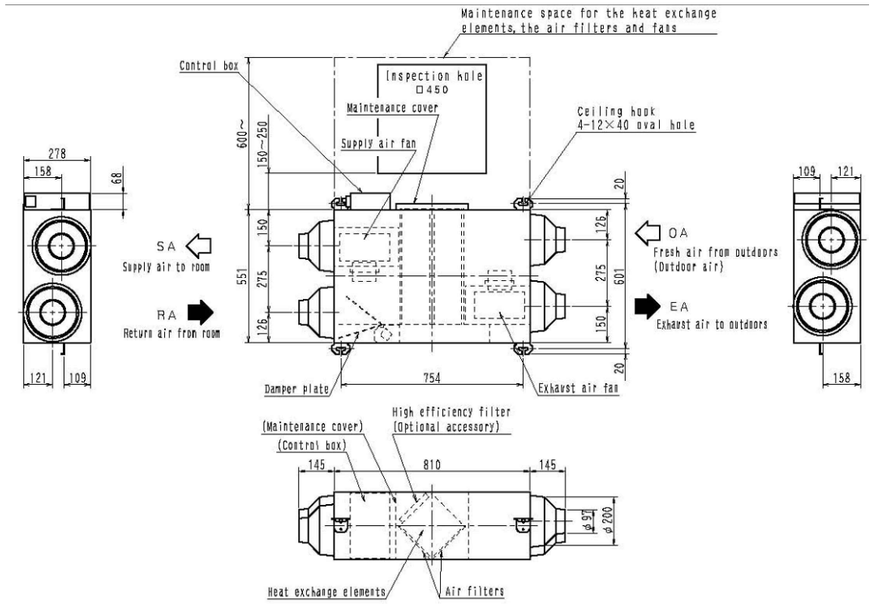
Unit: mm

DWG. Title: HVAC EQUIPMENTS 1

DWG. No.: ME-011

PAGE: 185

Heat Reclaim Ventilator



Name	Heat Reclaim Ventilator
Service	Room Active Ventilation
Temperature Exchange Efficiency	79%
Enthalpy Exchange Efficiency	
Cooling	66%
Heating	72%
Fan Air Flow Rate	150 m^3/h
Electrical Power Supply	230 V
Frequency	50 HZ
Power Consumption	30 W × 2

Test condition for exchange efficiency:

Condition	Indoor		Outdoor	
	°Cdb	rh%	°Cdb	rh%
Cooling	27	50	35	60
Heating	20	40	7	70

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Unit: mm

DWG. Title: HVAC EQUIPMENTS 2

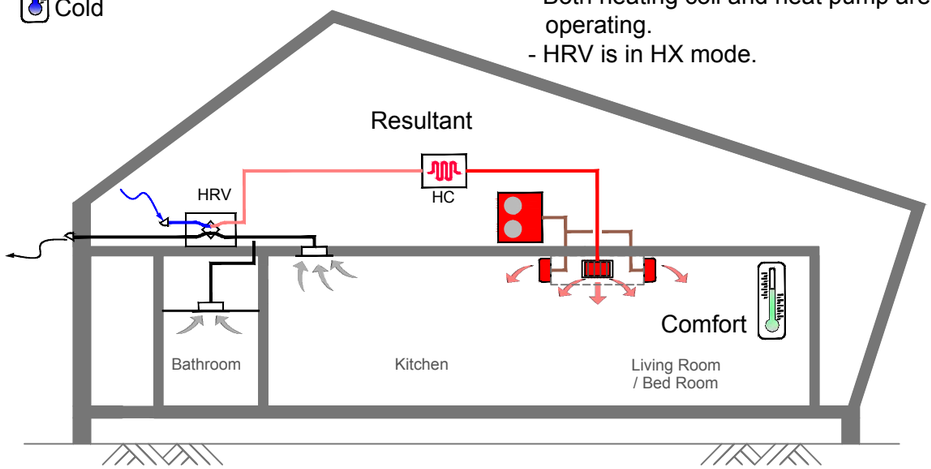
DWG. No.: ME-012

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Winter - Night

Cold

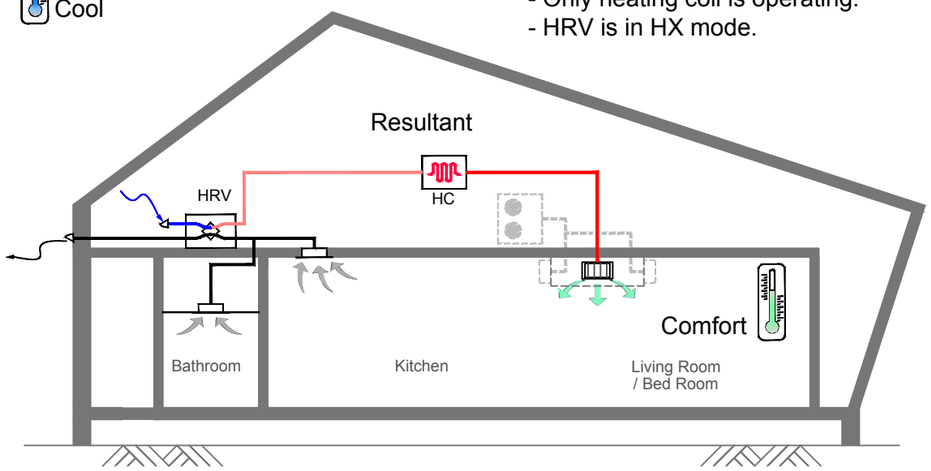
- In cold-stream winter night.
- Space heating is required.
- Both heating coil and heat pump are operating.
- HRV is in HX mode.



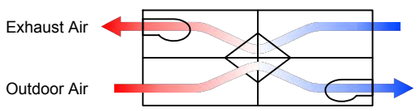
Winter

Cool

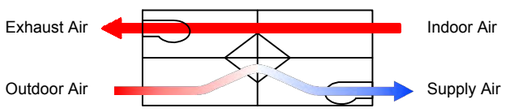
- Winter of freezing temperature.
- Space heating is required.
- Only heating coil is operating.
- HRV is in HX mode.



Legend:



HRV - Heat Exchange Mode



HRV - Bypass Mode

Hot Air
Warm Air
Cool Air
Cold Air

Exhaust Air
Refrigerant Pipe

Solar Decathlon Europe

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Unit	-

DWG. Title: HEATING

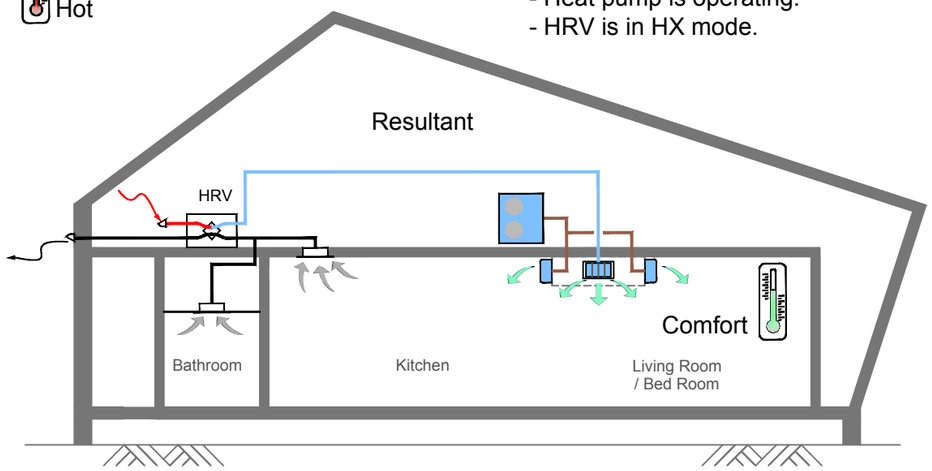
DWG. No.: ME-021

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Summer - Day

Hot

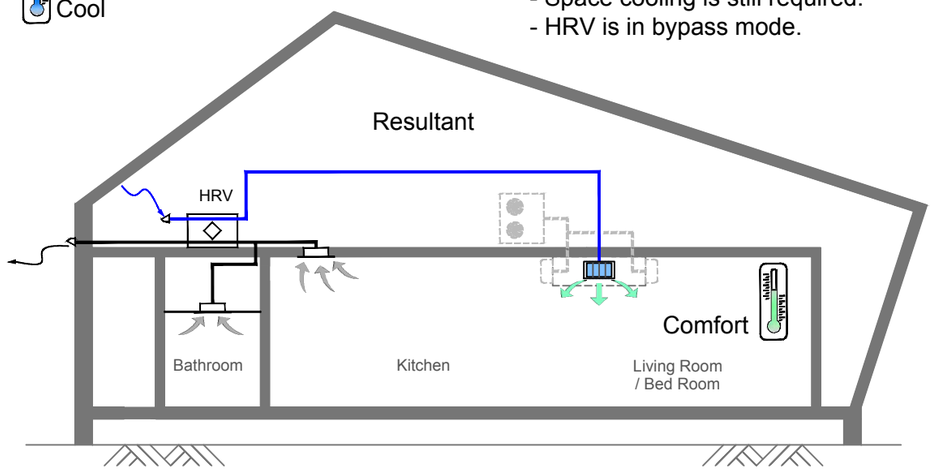
- Typical of summer day.
- Space cooling is required.
- Heat pump is operating.
- HRV is in HX mode.



Spring - Night

Cool

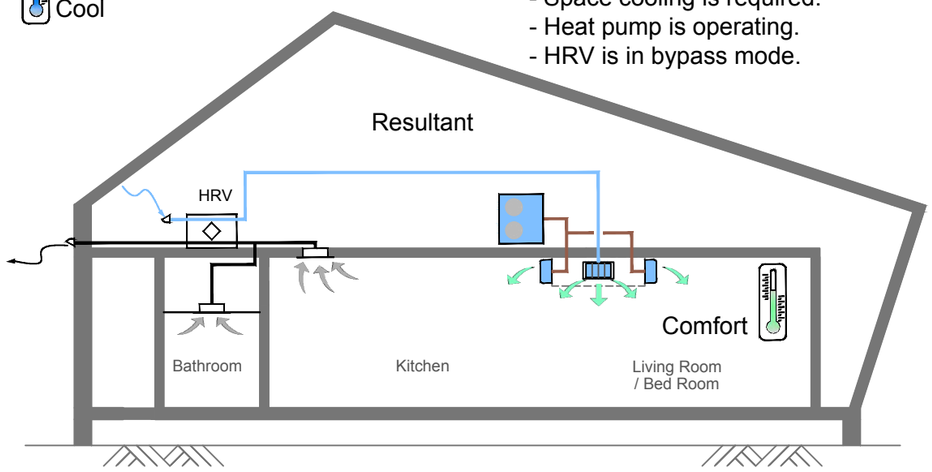
- Outdoor temperature is much less than room temperature.
- Space cooling is still required.
- HRV is in bypass mode.



Summer - Early Morning

Cool

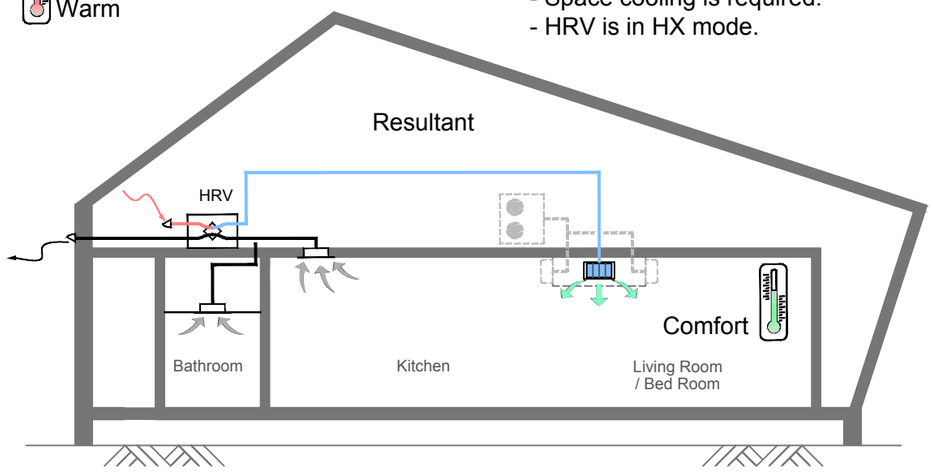
- Outdoor temperature is less than room temperature.
- Space cooling is required.
- Heat pump is operating.
- HRV is in bypass mode.



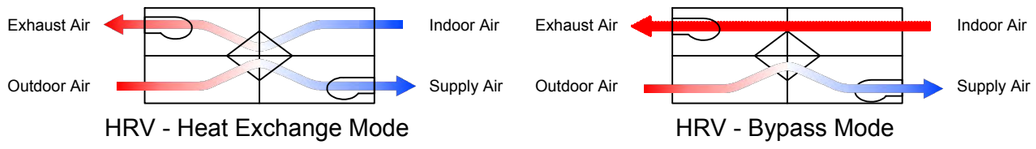
Spring - Day

Warm

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



Legend:



- Hot Air
- Warm Air
- Cool Air
- Cold Air
- Exhaust Air
- Refrigerant Pipe

Solar Decathlon Europe

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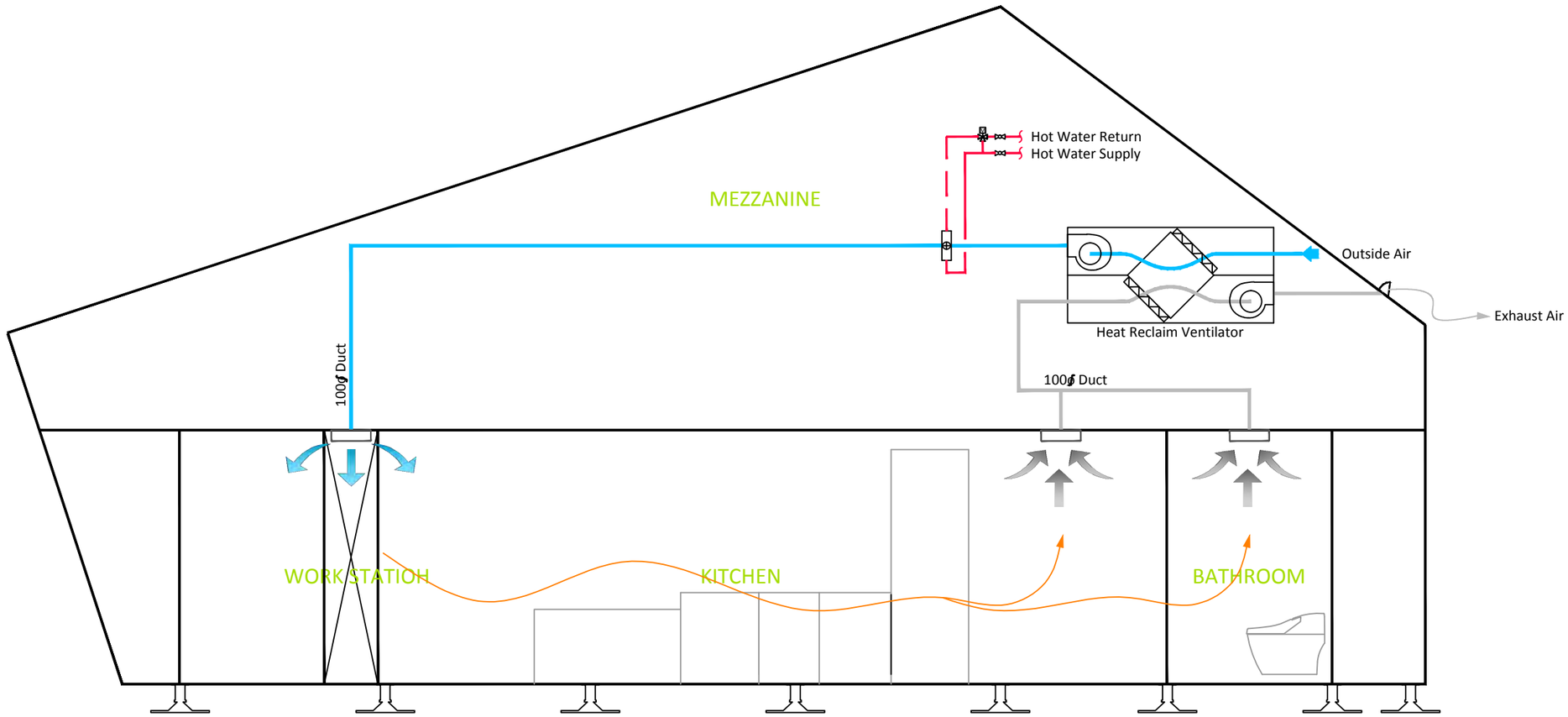
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Unit: -

DWG. Title: COOLING

DWG. No.: ME-031

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DWG. Title: VENTILATION 1

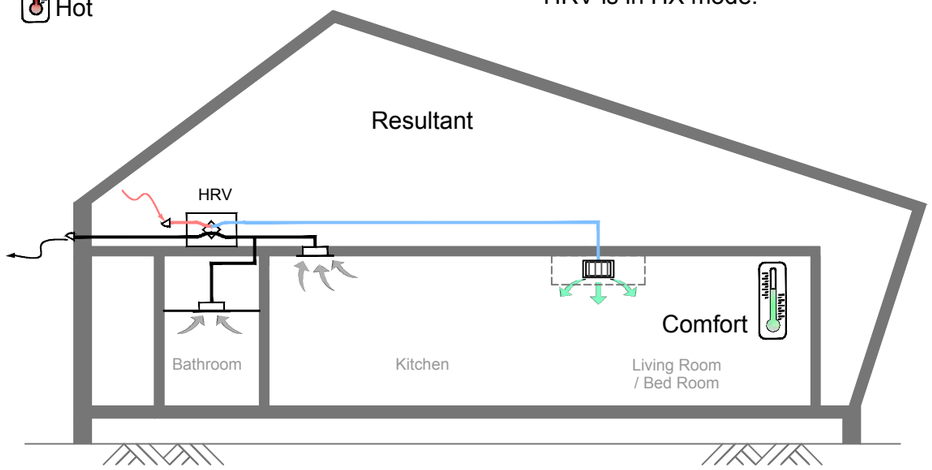
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Summer - Day

Hot

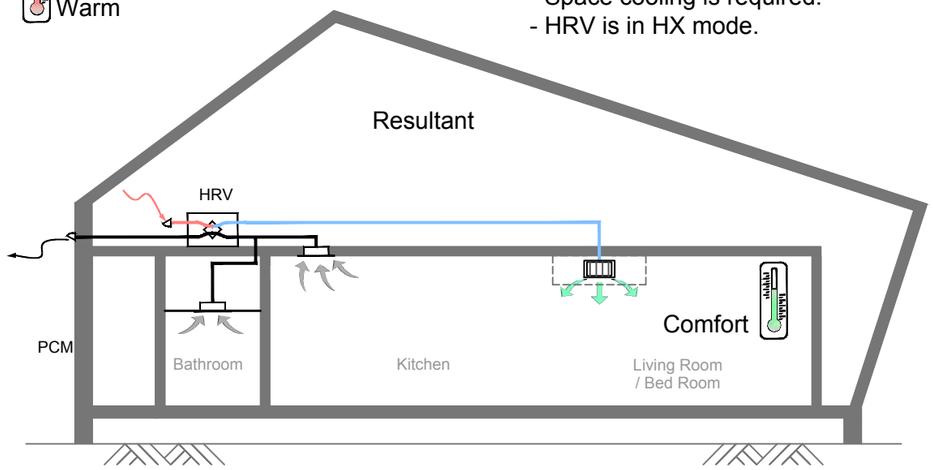
- Outdoor temperature is much higher than room temperature.
- HRV is in HX mode.



Spring - Day

Warm

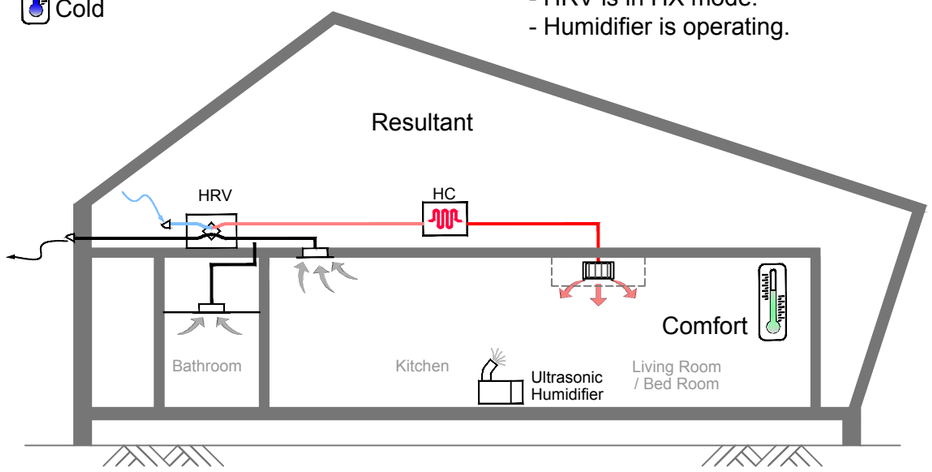
- Outdoor temperature is higher than room temperature.
- Space cooling is required.
- HRV is in HX mode.



Winter - Night

Cold

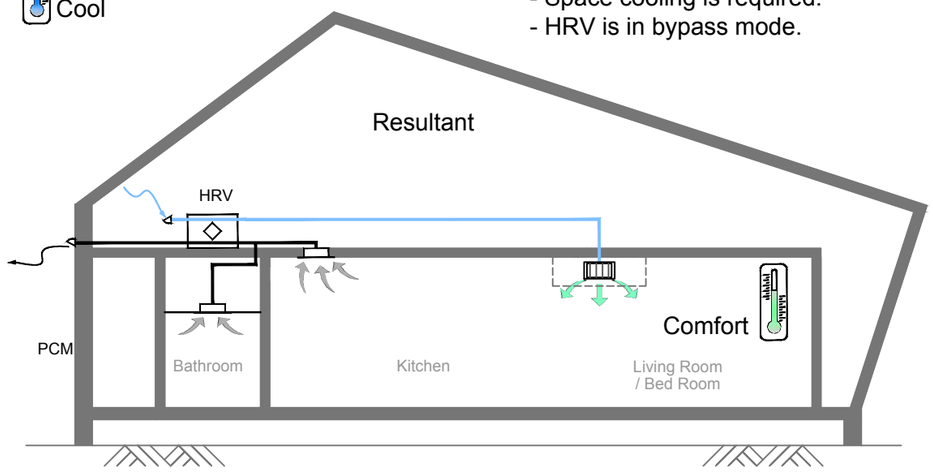
- Outdoor temperature is much less than room temperature.
- HRV is in HX mode.
- Humidifier is operating.



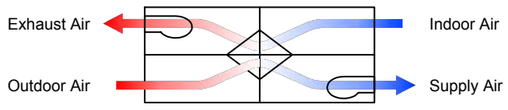
Spring - Night

Cool

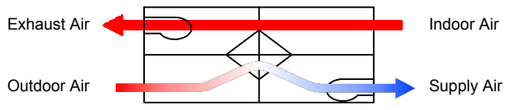
- Outdoor temperature is less than room temperature.
- Space cooling is required.
- HRV is in bypass mode.



Legend:



HRV - Heat Exchange Mode



HRV - Bypass Mode

Hot Air
Warm Air
Cool Air
Cold Air
Exhaust Air

Solar Decathlon Europe

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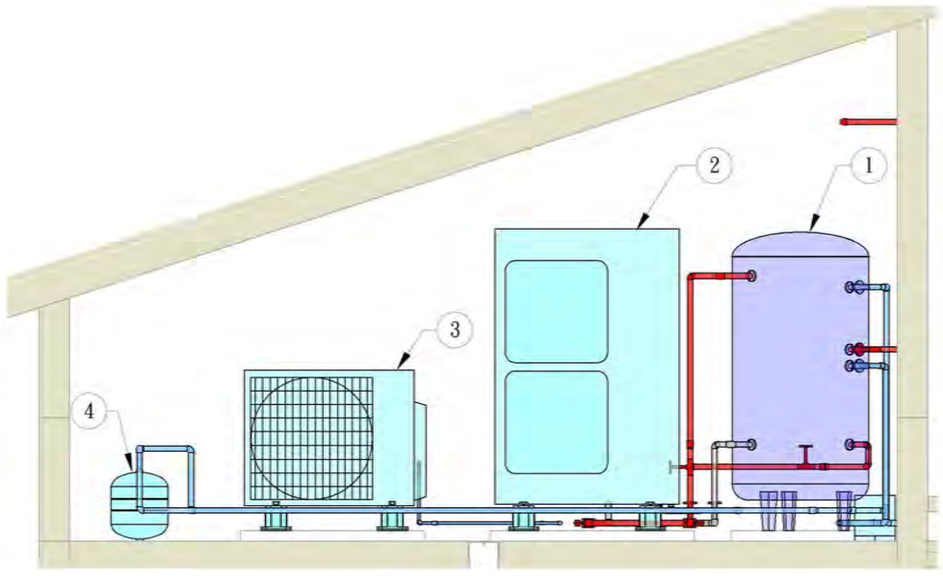
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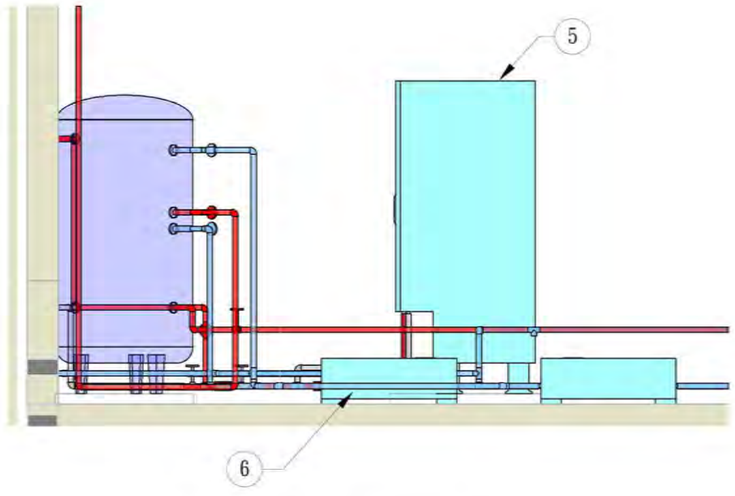
DWG. No.: ME-042

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1 Hot Water Storage Tank
2 Heat Pump
3 CO2 Heat Pump Package1
4 Expansion Tank 1
5 CO2 Heat Pump Package 2
6 Pump Station



Mechanical Room Elevation(East)



Mechanical Room Elevation(North)

Solar Decathlon Europe

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Note:

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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

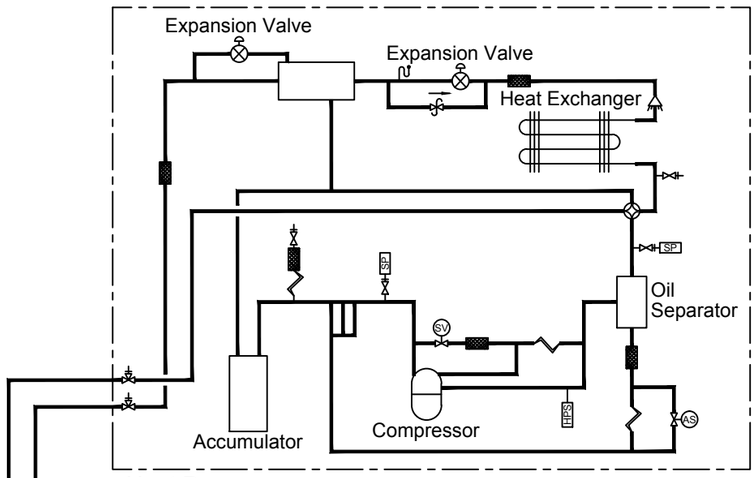
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DWG. Title: MECHANICAL ROOM ELEVATIONS

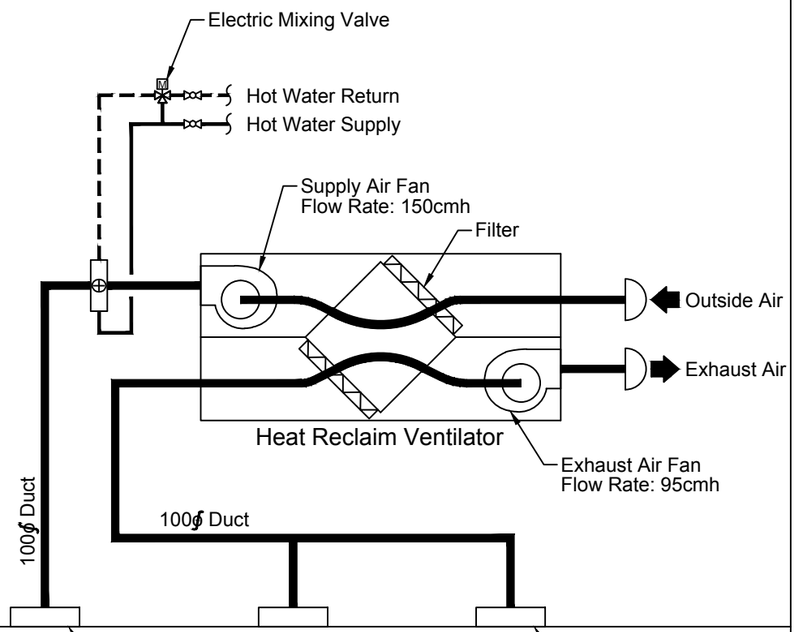
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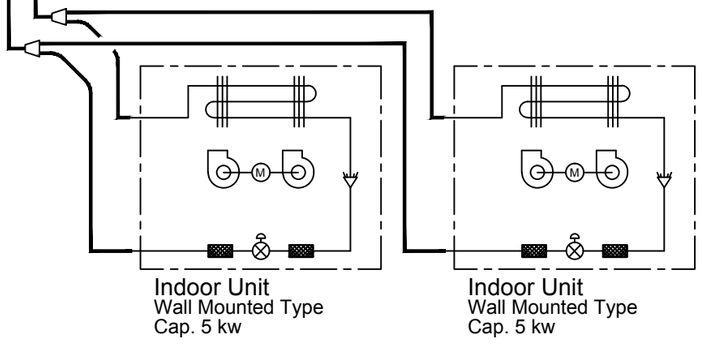
PAGE: 191

MEZZANINE



Heat Pump
Outdoor Unit
Cap. 12.5 kw





Indoor Unit
Wall Mounted Type
Cap. 5 kw

Indoor Unit
Wall Mounted Type
Cap. 5 kw

BEDROOM LIVING ROOM WORK STATIOH KITCHEN BATHROOM

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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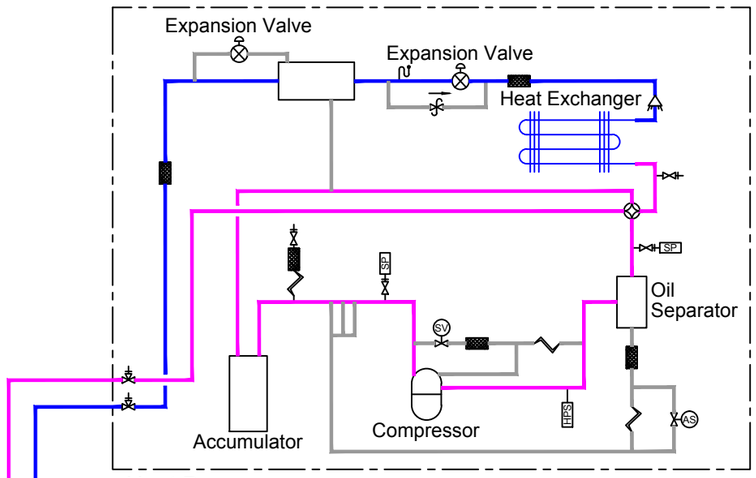
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DWG. Title: HVAC SYSTEM SCHEMATIC DRAWINGS

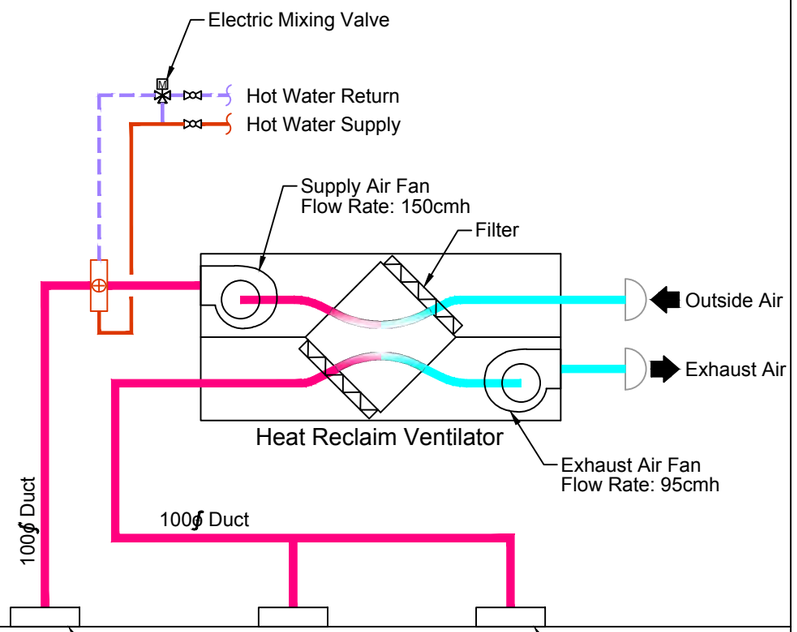
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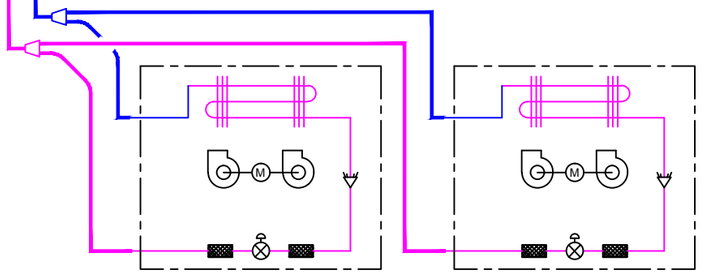
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MEZZANINE



Heat Pump
Outdoor Unit
Cap. 12.5 kw





Indoor Unit
Wall Mounted Type
Cap. 5 kw

Indoor Unit
Wall Mounted Type
Cap. 5 kw

Gas Pipe
Liquid Pipe
Cold Air
Warm Air
Hot Water Supply
Hot Water Return

BEDROOM LIVING ROOM WORK STATIOH KITCHEN BATHROOM

When the heat pump is operating in heating mode and the outdoor temperature is lower than the room temperature, the energy recovery ventilator is automatically switched to the heat recovery mode .

Solar Decathlon Europe

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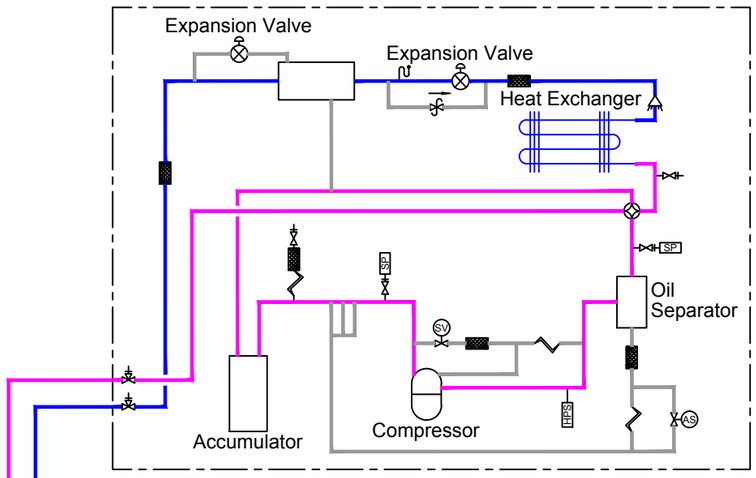
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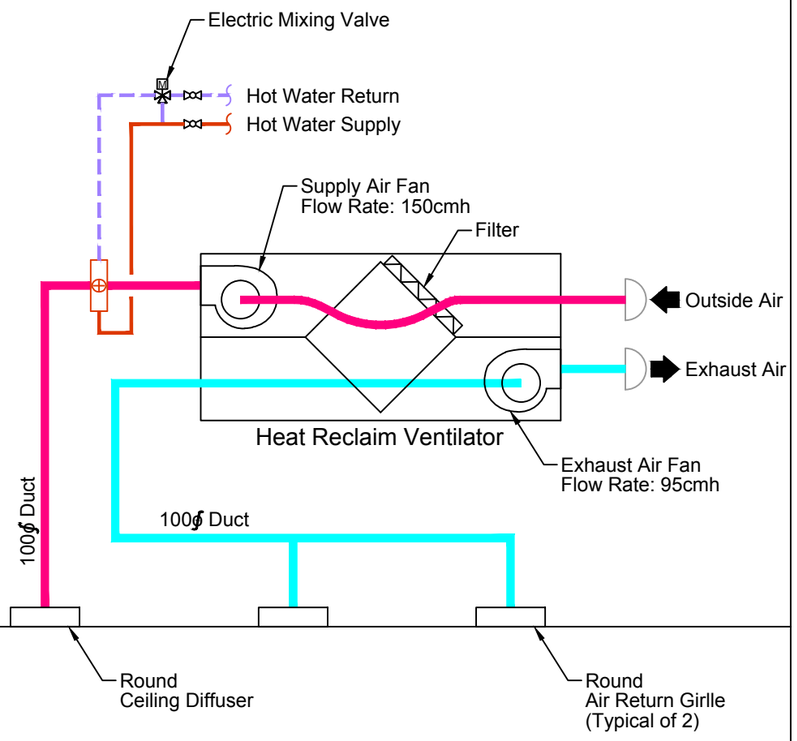
DWG. Title
HEATING MODE
SCHEMATIC DRAWINGS
1

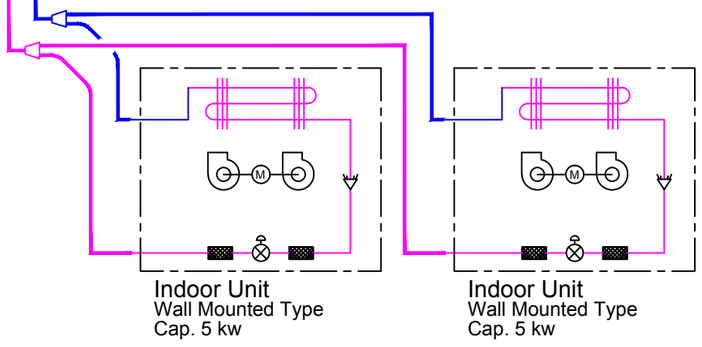
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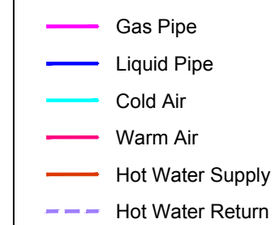
PAGE 193

MEZZANINE









BEDROOM LIVING ROOM WORK STATIOH KITCHEN BATHROOM

When the heat pump is operating in heating mode and the outdoor temperature is higher than the room temperature, the energy recovery ventilator is automatically switched to the bypass mode .

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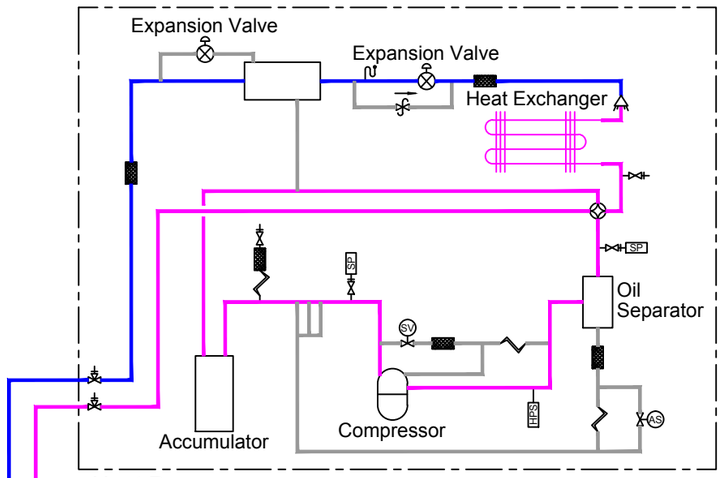
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DWG. Title
HEATING MODE
SCHEMATIC DRAWINGS
2

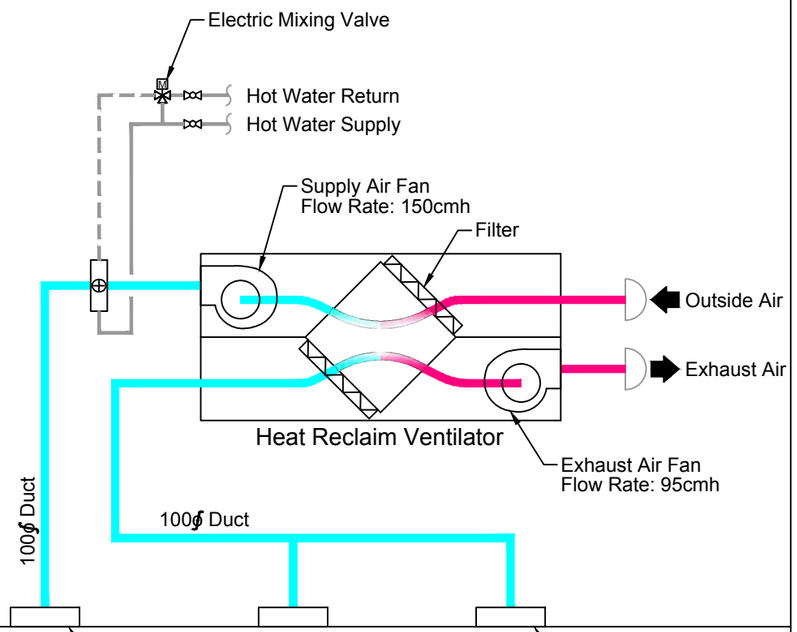
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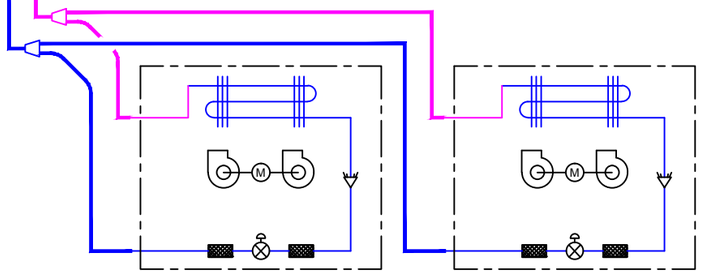
PAGE 194

MEZZANINE



Heat Pump
Outdoor Unit
Cap. 11.2 kw





Indoor Unit
Wall Mounted Type
Cap. 4.7 kw

Indoor Unit
Wall Mounted Type
Cap. 4.7 kw

BEDROOM LIVING ROOM WORK STATIOH KITCHEN BATHROOM

When the heat pump is operating in cooling mode and the outdoor temperature is higher than the room temperature, the energy recovery ventilator is automatically switched to the heat recovery mode .

Gas Pipe
Liquid Pipe

Solar Decathlon Europe

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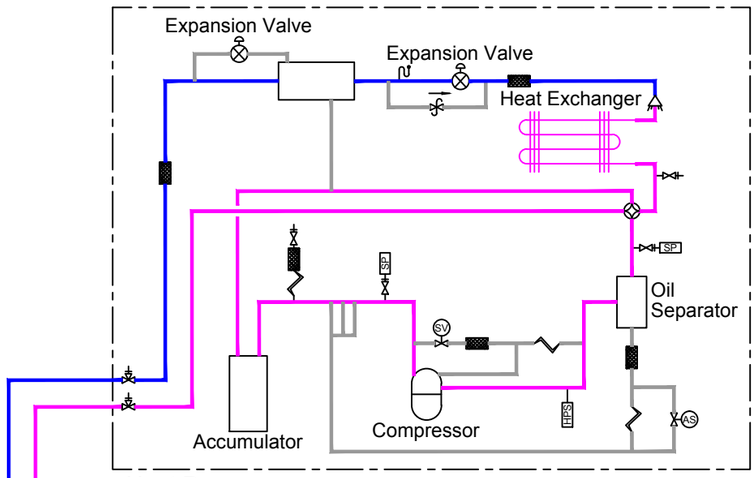
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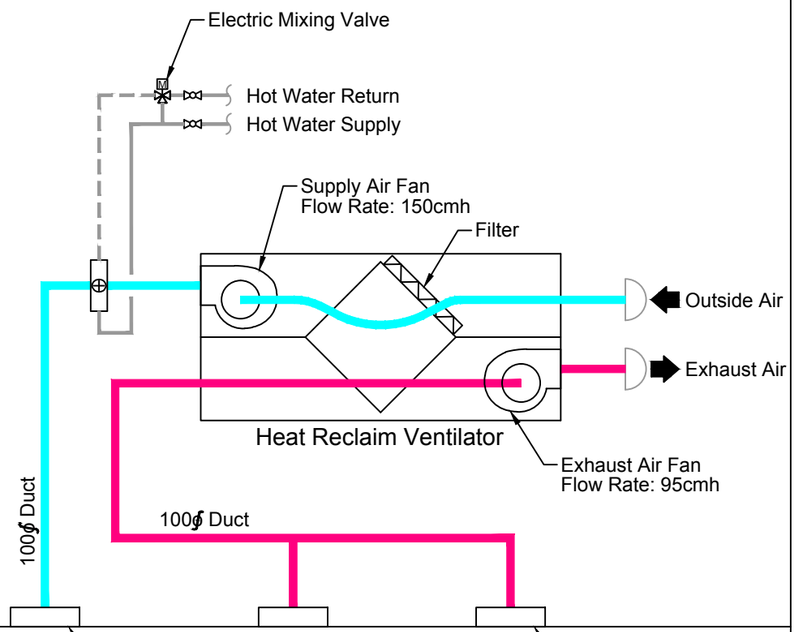
DWG. Title
COOLING MODE
SCHEMATIC DRAWINGS
1

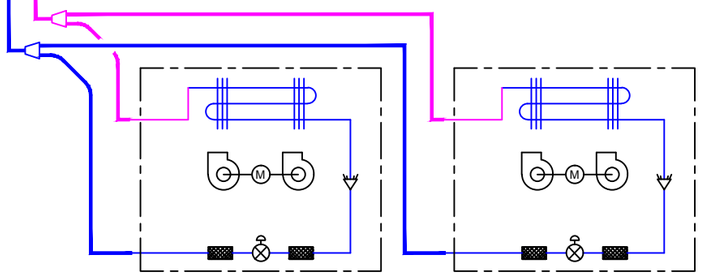
DWG. No.	PAGE
ME-221	195

MEZZANINE



Heat Pump
Outdoor Unit
Cap. 11.2 kw





Indoor Unit
Wall Mounted Type
Cap. 4.7 kw

Indoor Unit
Wall Mounted Type
Cap. 4.7 kw

BEDROOM LIVING ROOM WORK STATIOH KITCHEN BATHROOM

When the heat pump is operating in cooling mode and the outdoor temperature is lower than the room temperature, the energy recovery ventilator is automatically switched to the bypass mode .

Gas Pipe
Liquid Pipe

Solar Decathlon Europe

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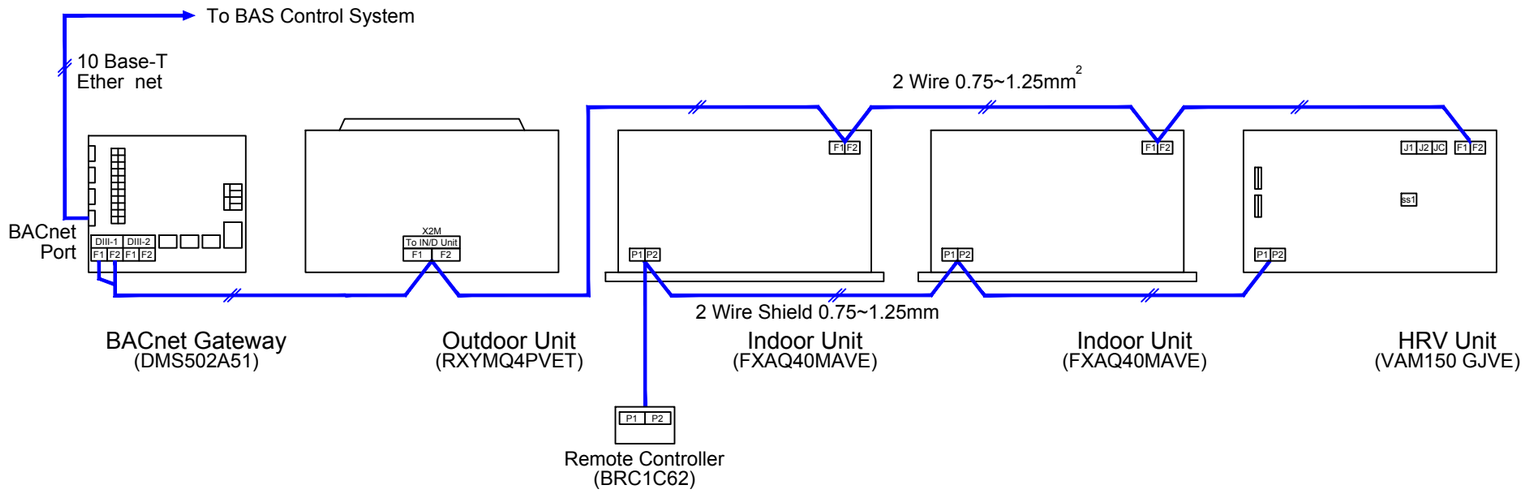
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ST	2014/04/30	CD Submission

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Scale	-
Unit	-

DWG. Title
COOLING MODE
SCHEMATIC DRAWINGS
2

DWG. No. ME-222

Control Wiring Diagram

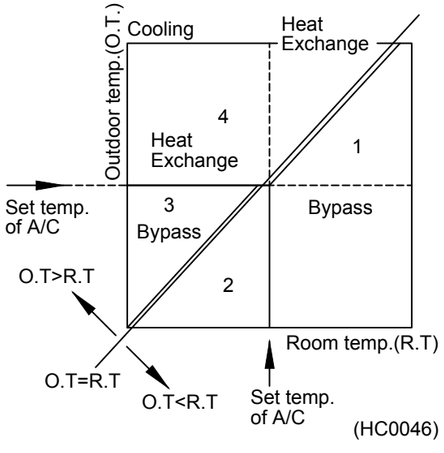


Remote Controller Function :

1 Cooling
2 Heating
3 Automatic Heating / Cooling Changeover
4 Program Dry Mode
5 Fan Mode
6 Program Timer
7 Program The Start/Stop Time

Operation Mode Of HRV Unit

1. In case of cooling operation



(HC0046)

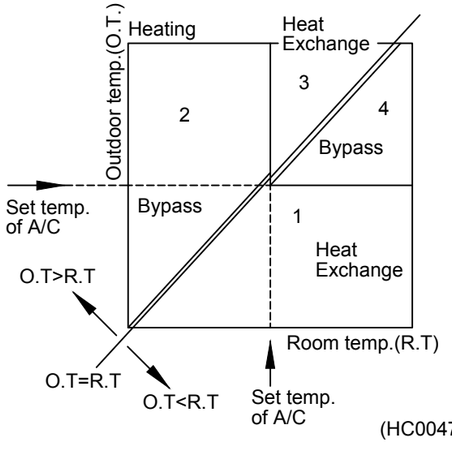
Zone 1 : Free cooling (cooling by outdoor air) in bypass mode.

Zone 2 : Room temperature to be achieved set temperature by heat exchange mode.

Zone 3 : Room temperature to be achieved set temperature in bypass mode.

Zone 4 : Fresh air supply is cooled down by indoor air in heat exchange mode (energy saving).
* The air cannot be supplied at the same temperature as the outdoor air because it is partly heat-exchanged.

2. In case of heating operation



(HC0047)

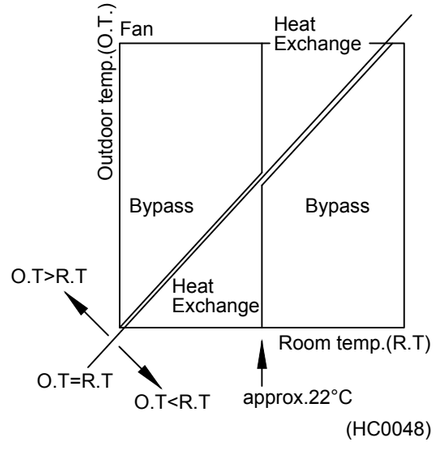
Zone 1 : Fresh air supply is heated up by indoor air in heat exchange mode (energy saving).

Zone 2 : Free heating (heating by outdoor air) in bypass mode.

Zone 3 : Room temperature to be achieved set temperature by heat exchange.

Zone 4 : Room temperature to be achieved set temperature in bypass mode.
* The air cannot be supplied at the same temperature as the outdoor air because it is partly heat-exchanged.

3. In case of fan operation only



(HC0048)

Ventilation mode is individually determined by the original formula of HRV with the temperature sensors.

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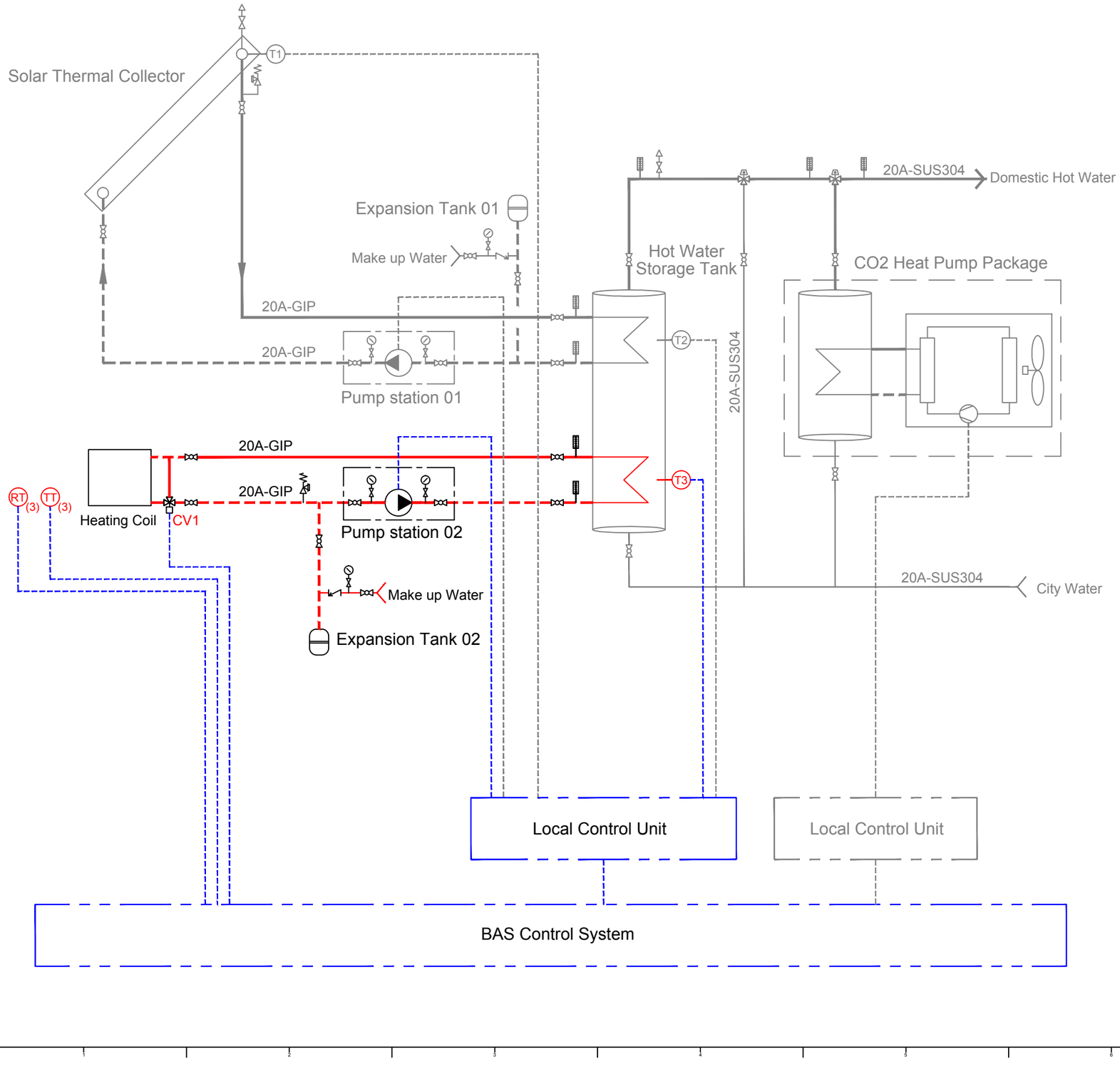
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Scale: -
Unit: -

DWG. Title: CONTROLS 1

DWG. No.: ME-231
PAGE: 197



Remote Controller Function :

1. Cooling
2. Heating
3. Automatic Heating / Cooling Changeover
4. Program Dry Mode
5. Program Fan Mode
6. Program Timer
7. Program The Start/Stop Time

Solar Decathlon Europe

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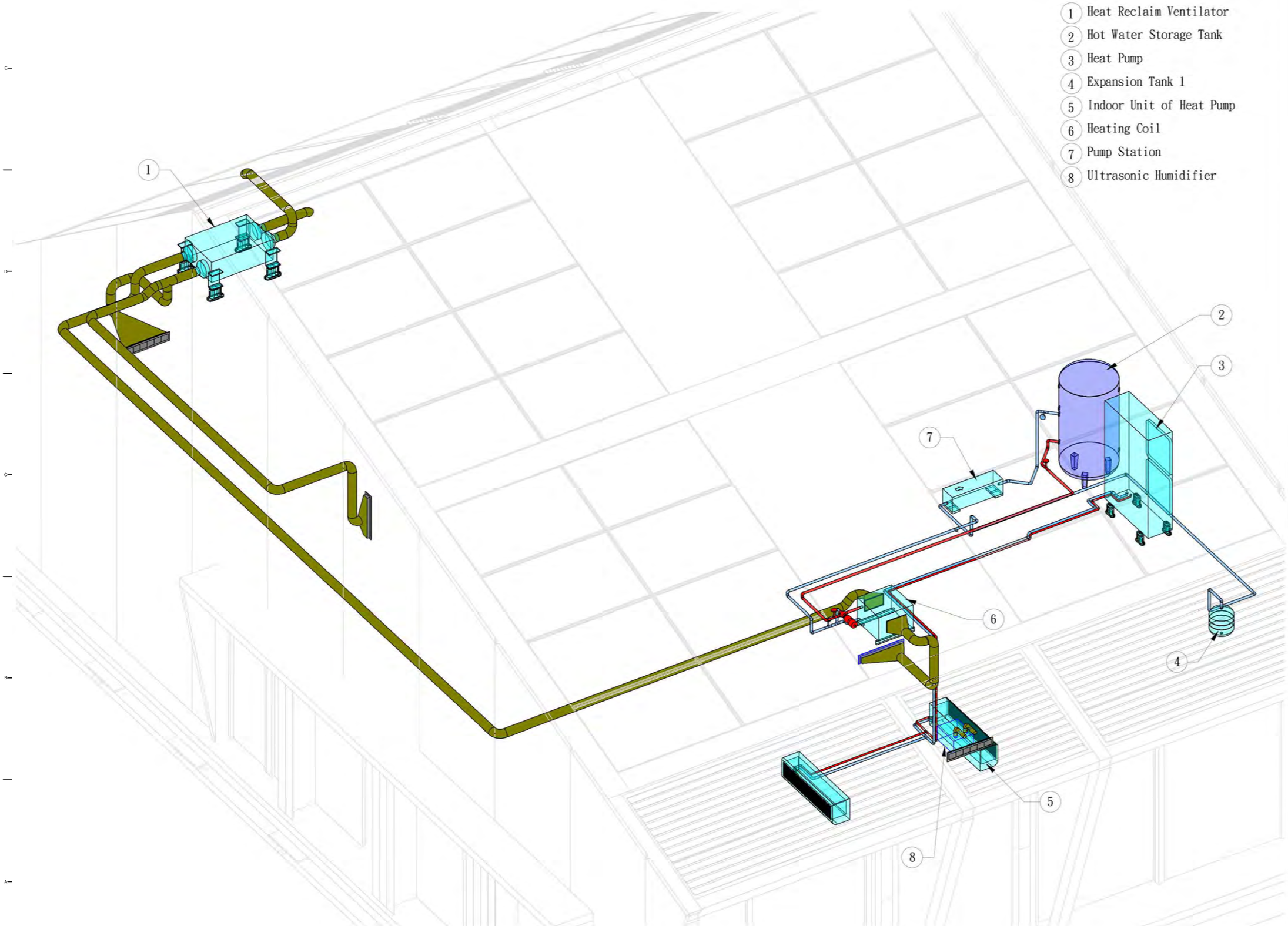
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ST	2014/04/30	CD Submission

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Scale	-
Unit	-

DWG. Title: CONTROLS 2

DWG. No.: ME-232

PAGE: 198



1. Heat Reclaim Ventilator
2. Hot Water Storage Tank
3. Heat Pump
4. Expansion Tank 1
5. Indoor Unit of Heat Pump
6. Heating Coil
7. Pump Station
8. Ultrasonic Humidifier

Solar Decathlon Europe

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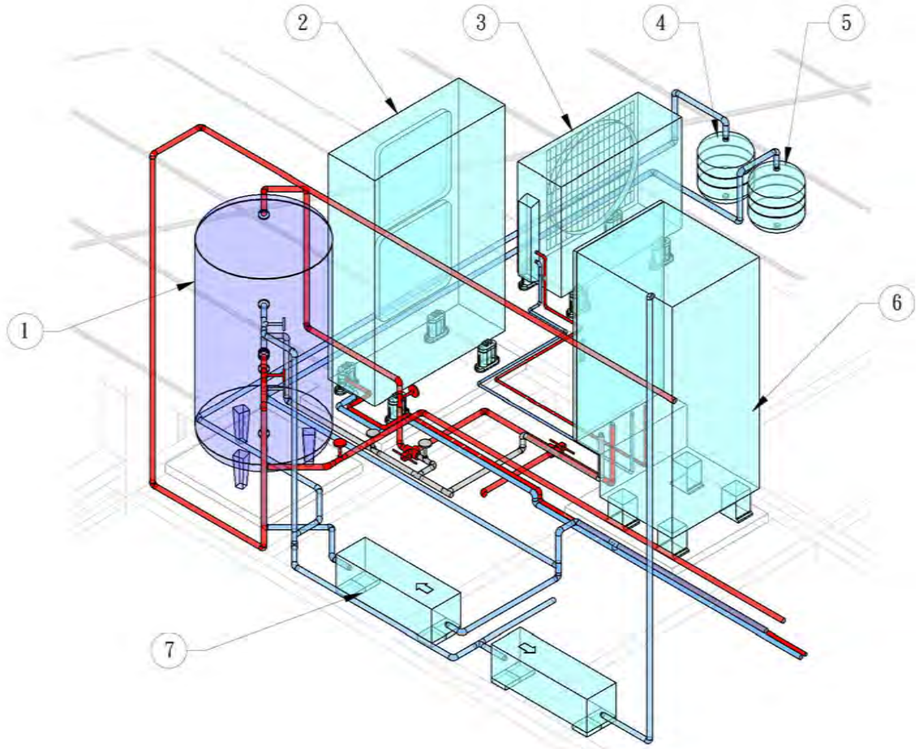
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DWG. Title

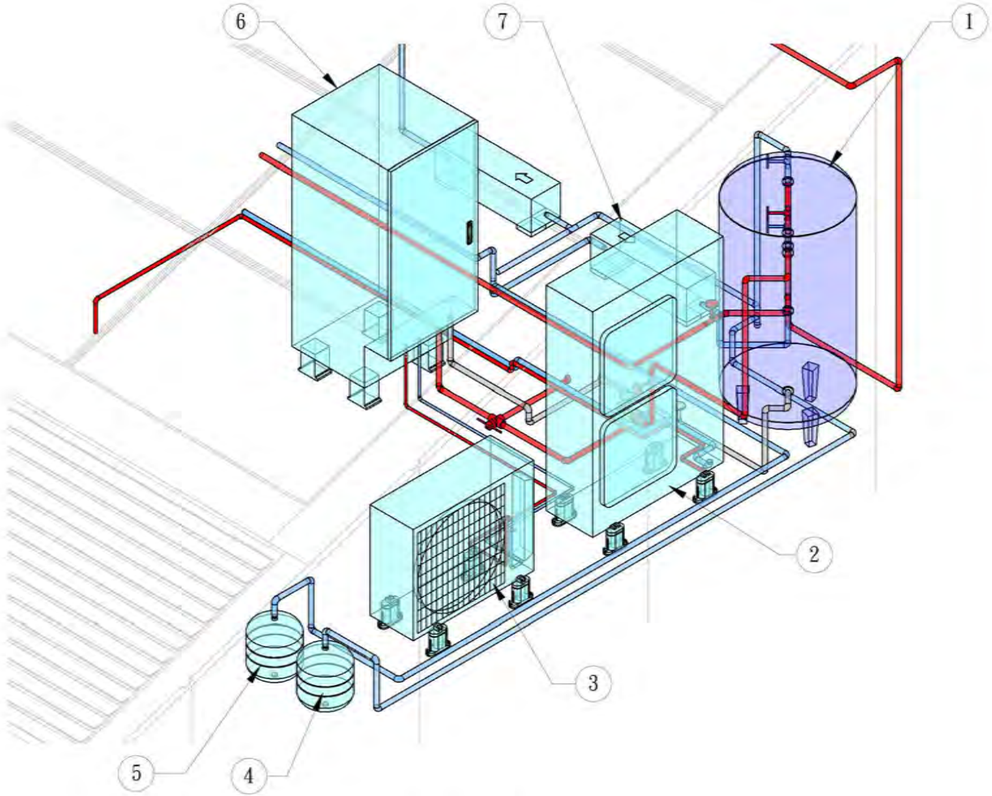
ISOMETRIC DISTRIBUTION 1

DWG. No.	PAGE
ME-301	199

1. Hot Water Storage Tank
2. Heat Pump
3. CO2 Heat Pump Packagel
4. Expansion Tank 1
5. Expansion Tank 2
6. CO2 Heat Pump Package 2
7. Pump Station



Mechanical Room Elevation(East North)



Mechanical Room Elevation(West South)

Solar Decathlon Europe

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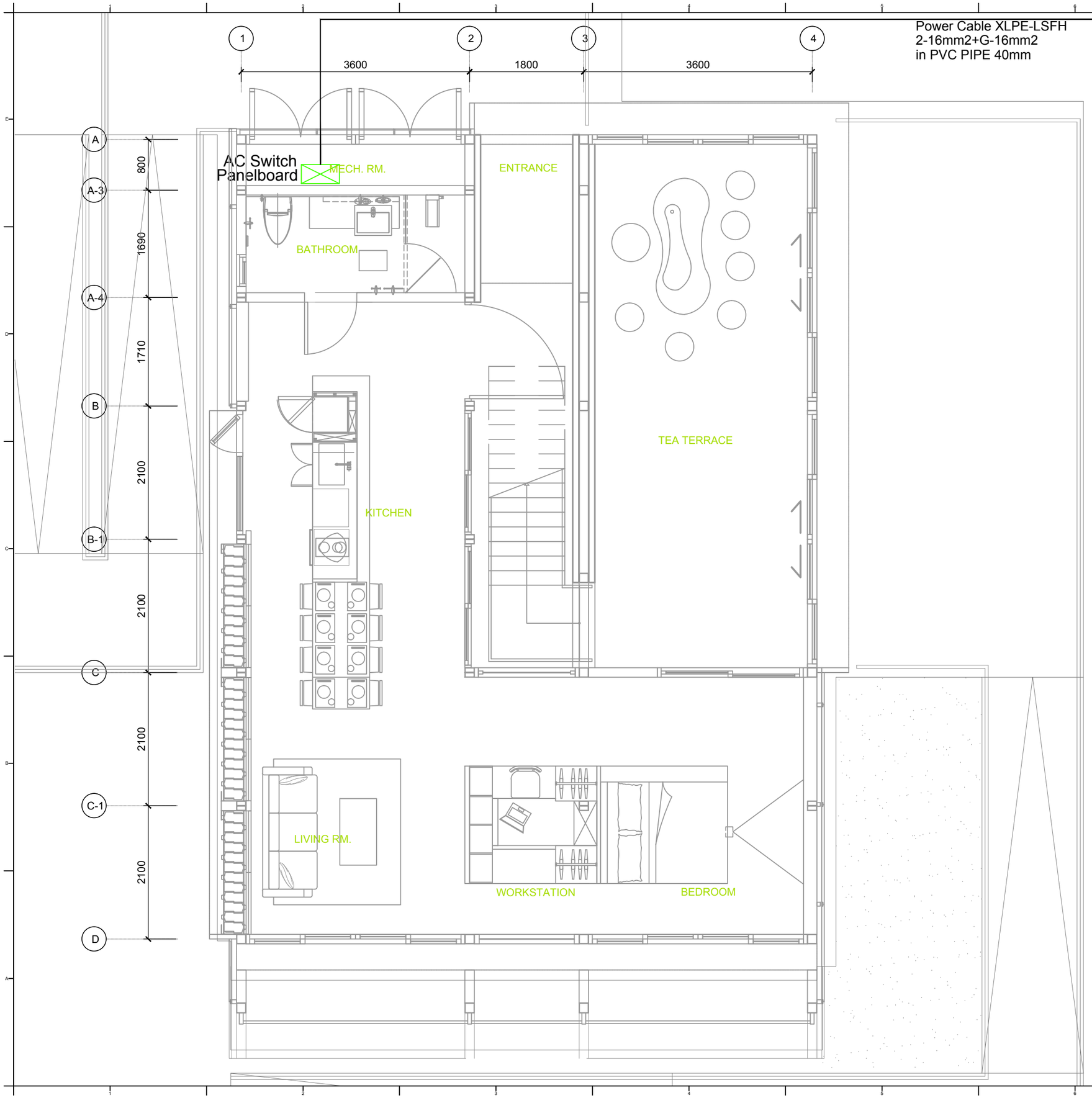
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Unit	-

DWG. Title: ISOMETRIC DISTRIBUTION 2

DWG. No.: ME-302

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Solar Decathlon Europe

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ST	2014/04/30	CD Submission

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Scale	1:60
Unit	mm

DWG. Title: GRID INTERCONNECTION

DWG. No.	PAGE
EL-001	201

Tag	Components	Manufacturer	Model	Q'ty	Notes
①	PV Module	NSP	D6P250B3A	20	
②	Box	HI BOX		1	
	Fuse			4	DC1000V 15A
	Surge Protection Device	Shihlin	BHP30-2P	2	Uc:500V,Up□1.4kV,In:15kA(8/20us)
	Disconnector Switch	MERZ	MDC1A-025-600	2	DC600V 25A
③	Inverter	Delta	Solivia 5.0	1	

Photovoltaic Module :
NSP D6P250B3A
Max. DC power = 250Wp
Voc = 37.33 V
Vmp = 30.34 V
Isc = 8.69 A
Temp. Coeff. of Voc = -0.117 V/˚C
Temp. Coeff. of Isc = 0.004 A/°C
Temp. Coeff. of Vmp = -0.127 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 = 36.6A
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 = 94.6%

Voltage Calculations :
Voc @ coldest expected operating Temp.:
Low ambient Temp. = -20˚C
Voc(-20°C)=Voc(STC)+(-20°C-25°C)*(ΔVoc/°C)=37.33-45*(-0.117) = 42.595V
Max. modules of string:
nmax=Vdc(input max)/Voc(-20°C)=600/42.595=14.086 ≤ 14pcs
Vmp @ highest expected operating Temp.:
High ambient Temp. = 75˚C
Vmp(75°C)=Vmp(STC)+(75°C-25°C)*(ΔVmp/°C)=30.34+50*(-0.127) = 23.99V
Min. modules of string:
nmin=Vmp(min)/Vmp(75°C)=150/23.99=6.25 ≥ 7pcs
Selection modules of string = 10 pcs

Voc(-20°C)_string = Modules*Voc(-20°C) = 10*42.595V = 425.95V < 600V

Vmp(75°C)_string = Modules*(75°C) = 10*23.99V = 239.9V > 150V

String in parallel :
Max. DC power of Charge Controller / Selection modules of string / Module Max. DC power
= 6,000W / 10pcs / 250W
= 2.4 ≤ 2parallel

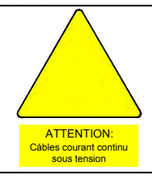
DC array conductor :
1.56 * Isc * 2 = 1.56 * 8.69A * 2 = 27.11A
Selected conductor : solar cable 4mm²

Labels for pv installations:

ON DC SIDE

All the junction boxes and DC electrical cabling must indicate live conductors or the internal parts of the boxes can remain live even after the opening of the DC switch.

On the front of all junction boxes, insert a label:
"Attention, cables courant continu sous tension"



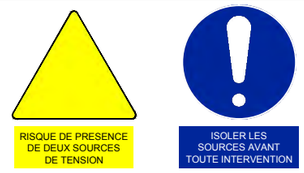
In all the junction boxes and in all the DC disconnect boxes, insert a label:
"Ne pas manoeuvrer en charge"

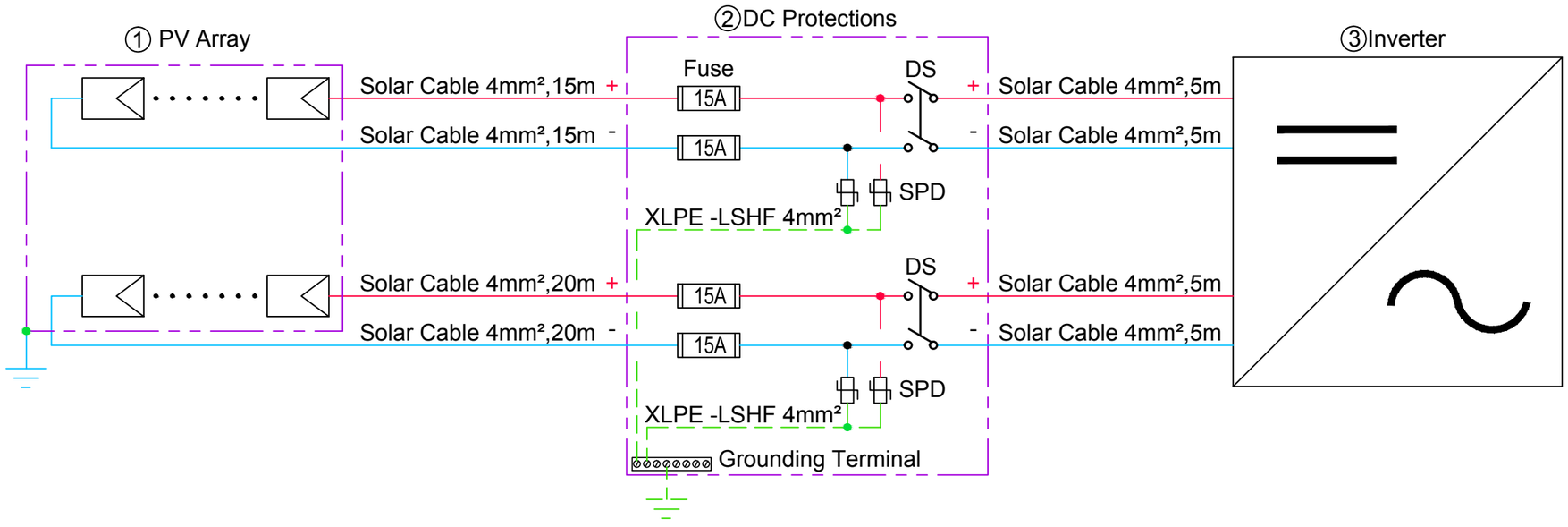


ON THE INVERTERS

All the inverters shall have clear markings specifying that before all work, all the voltage sources must be electrically isolated.

Insert this label on the inverter front.





Solar Decathlon Europe

Project: ORCHID HOUSE

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Consultants: DELTA 台達電子工業股份有限公司 DELTA ELECTRONICS, INC.

Note:

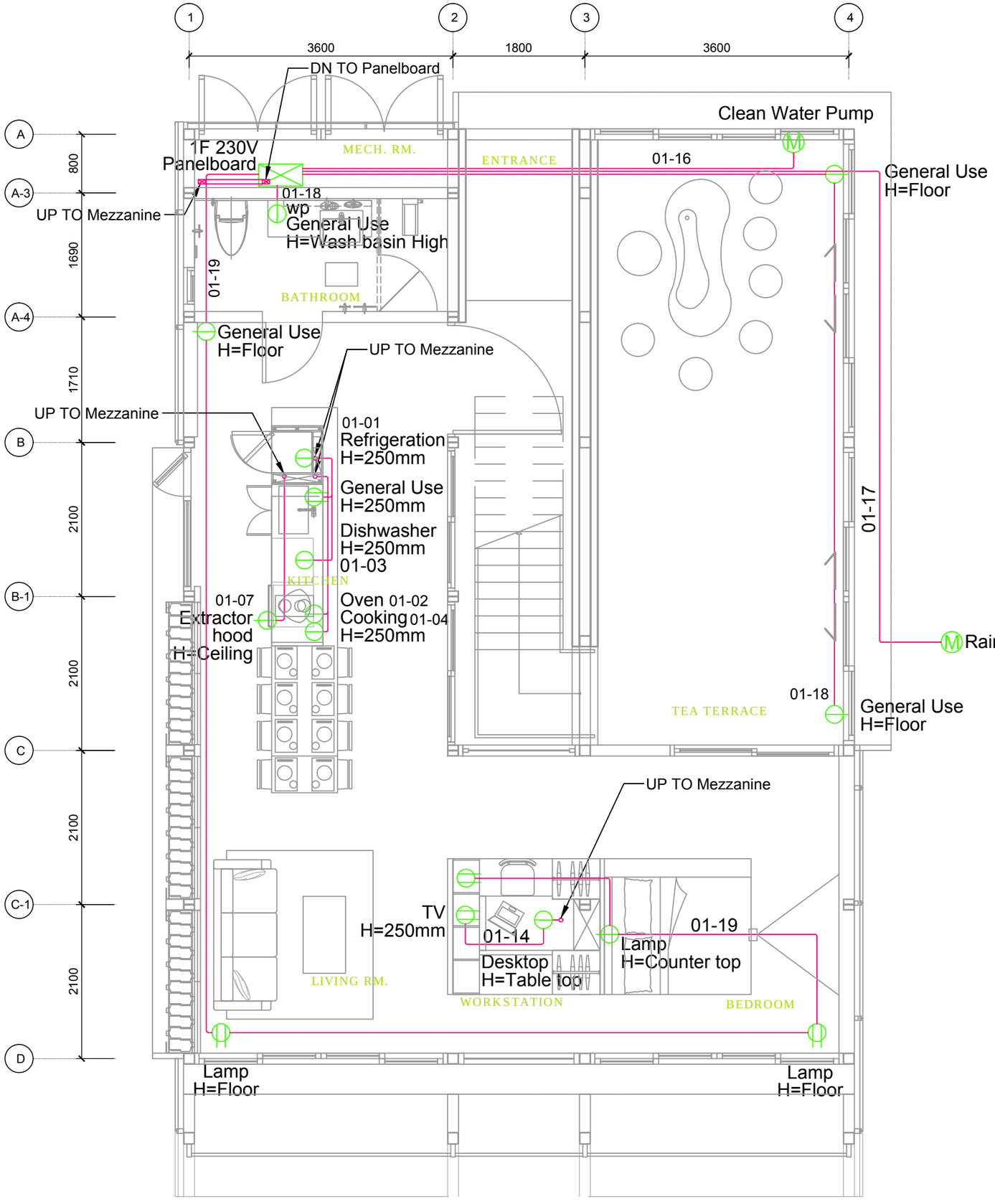
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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	GK
Checked by	DN
Scale	-
Unit	-

DWG. Title: DC WIRING DIAGRAM

DWG. No.: EL-201

PAGE: 202



Symbol & Legend

- Single Socket outlet with child protection, 16A 2P+E, 250V
- Duplex Socket outlet with child protection, 16A 2P+E, 250V
- Φ_{wp} Single Socket outlet with water-proof cover, IP54, 16A 2P+E, 250V
- (M) Pump or Motor 2P+E, 230V
- 230V Electrical Panelboard
- Branch Circuit (concealed in Ceiling or Wall)
- Branch Circuit (Exposed on Wall)
- WIREWAY 100mmW x 50mmH

LOOP NUMBER

01-03 —— CIRCUIT NUMBER
└—— PANEL NUMBER

PANEL NUMBER

01-- 1F 230V Panelboard
02-- 2F 230V Panelboard

Solar Decathlon Europe

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Contact: www.sde.tw

Consultants: UIS United Integrated Services

Note:

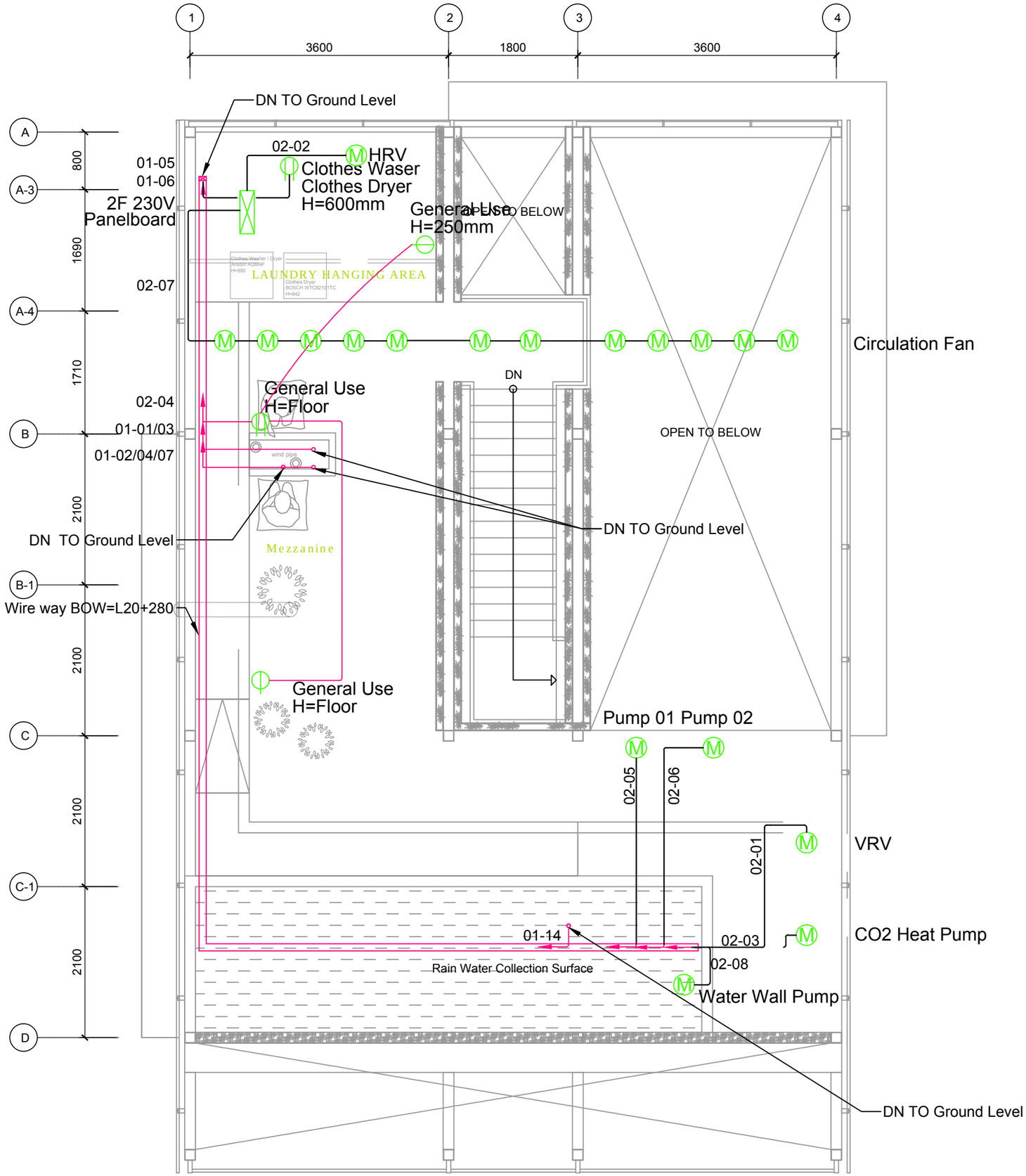
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by: RAYS
Checked by: -
Scale: 1:60
Unit: mm

DWG. Title: POWER PLAN GROUND LEVEL

DWG. No.: EL-301

PAGE: 203



Symbol & Legend

- Single Socket outlet with child protection, 16A 2P+E, 250V
- Duplex Socket outlet with child protection, 16A 2P+E, 250V
- Φ_{wp} Single Socket outlet with water-proof cover, IP54, 16A 2P+E, 250V
- Pump or Motor 2P+E, 230V
- 230V Electrical Panelboard
- Branch Circuit (concealed in Ceiling or Wall)
- Branch Circuit (Exposed on Wall)
- WIREWAY 100mmW x 58mmH

LOOP NUMBER

01-03 — CIRCUIT NUMBER
└ PANEL NUMBER

PANEL NUMBER

01-- 1F 230V Panelboard
02-- 2F 230V Panelboard

Solar Decathlon Europe

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ST	2014/04/30	CD Submission

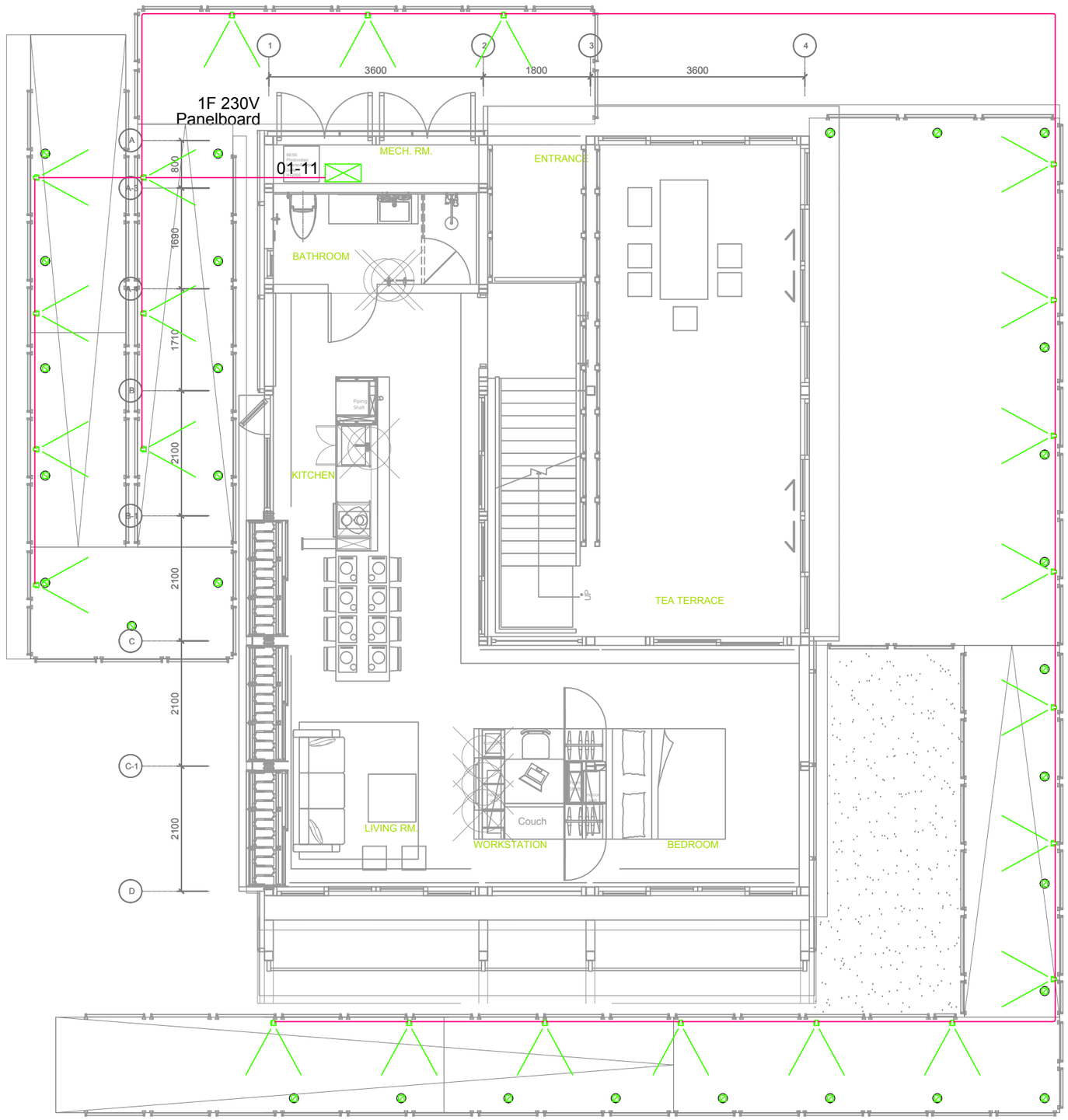
Drawn by	RAYS
Checked by	-
Scale	1:60
Unit	mm

DWG. Title

POWER PLAN
MEZZANINE LEVEL

DWG. No. EL-302

PAGE 204



SYMBOL & LEGEND

Taiwan□Solar, Solar Underground Light
Ni-MH battery 3.6V, 0.3W

Floor LED lamp

230V Electrical Panelboard

Branch Circuit (concealed in Ceiling or Wall)

Branch Circuit (Exposed on Wall)

LOOP NUMBER

01-03——CIRCUIT NUMBER
└———— PANEL NUMBER

PANEL NUMBER

01-- 1F 230V Panelboard
02-- 2F 230V Panelboard

0 1 2 5 METER

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Note:

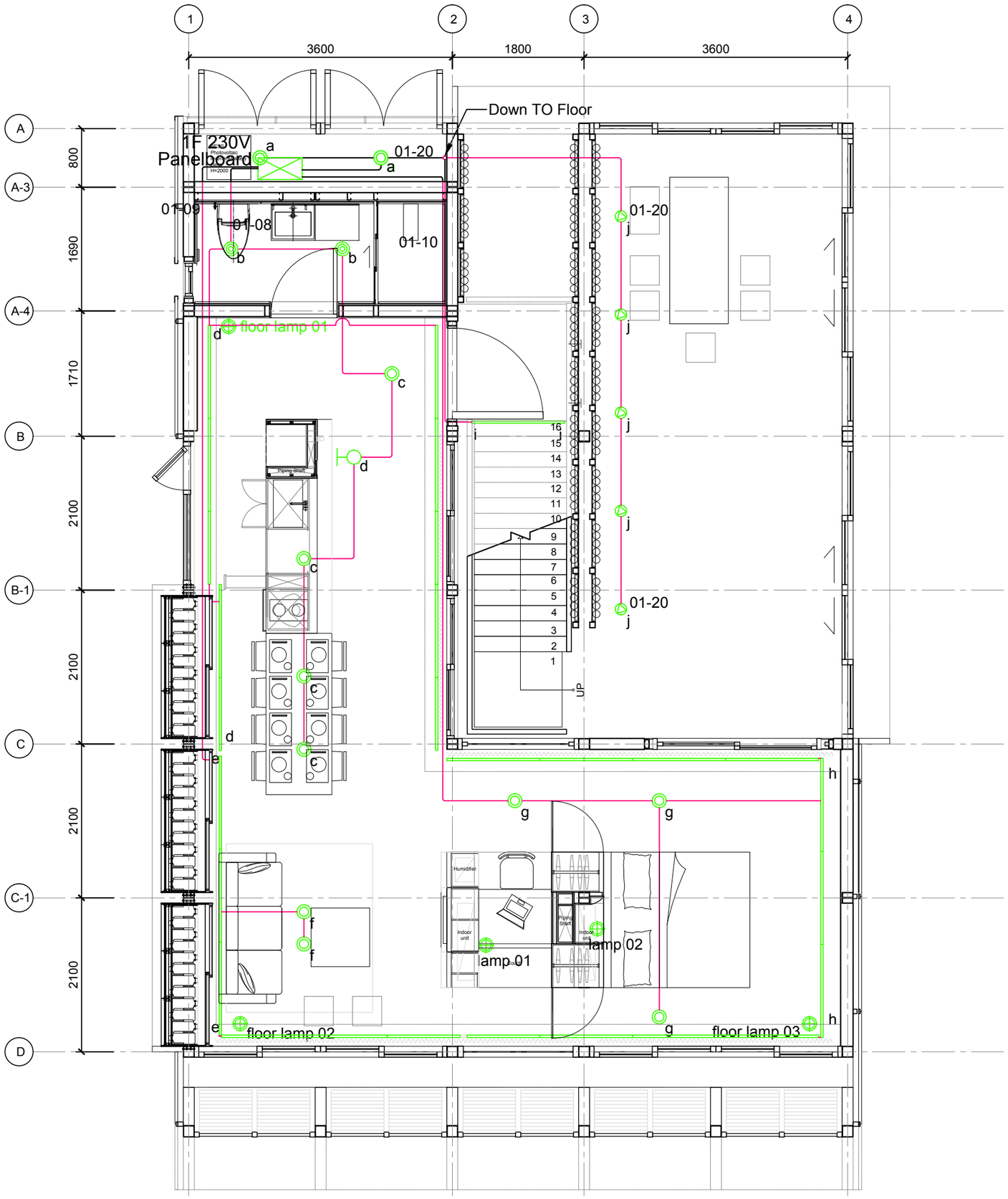
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	DL
Checked by	-
Scale	1:80
Unit	mm

DWG. Title: LIGHTING PLAN SITE

DWG. No.: EL-401

PAGE: 205



SYMBOL & LEGEND

- Tons LSP-3106 / 7.2W / Warm White AC 100~240V, Wall mounted / 4000k
- Tons T8 LED / 1270mm 20W/4000k AC 100~240V, Wall mounted
- Tons T8 LED /995mm 20W/4000k AC 100~240V, Wall mounted
- Tons KA-112R / 3.6W Warm White AC 100~240V, Wall mounted / 4000k
- Tons DA-504AD / 1.2W / Warm White AC 100~240V, Recess mounted / 4000k
- Tons DG-913C / 12.6W / Warm White AC 100~240V, Recess mounted / 4000k
- Tons ODL-005 / 1.2W / Warm White AC 100~240V, Recess mounted / 4000k
- Delta A60 / DF 10W AC 100~240V / E27 / 4000k
- Sa — Lighting Switch, single-cut
- S3a — Lighting Switch, double-cut
- 230V Electrical Panelboard
- Branch Circuit (concealed in Ceiling or Wall)
- Branch Circuit (Exposed on Wall)

LOOP NUMBER

01-03 —— CIRCUIT NUMBER
└———— PANEL NUMBER

PANEL NUMBER

01-- 1F 230V Panelboard

02-- 2F 230V Panelboard

Solar Decathlon Europe

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Note:

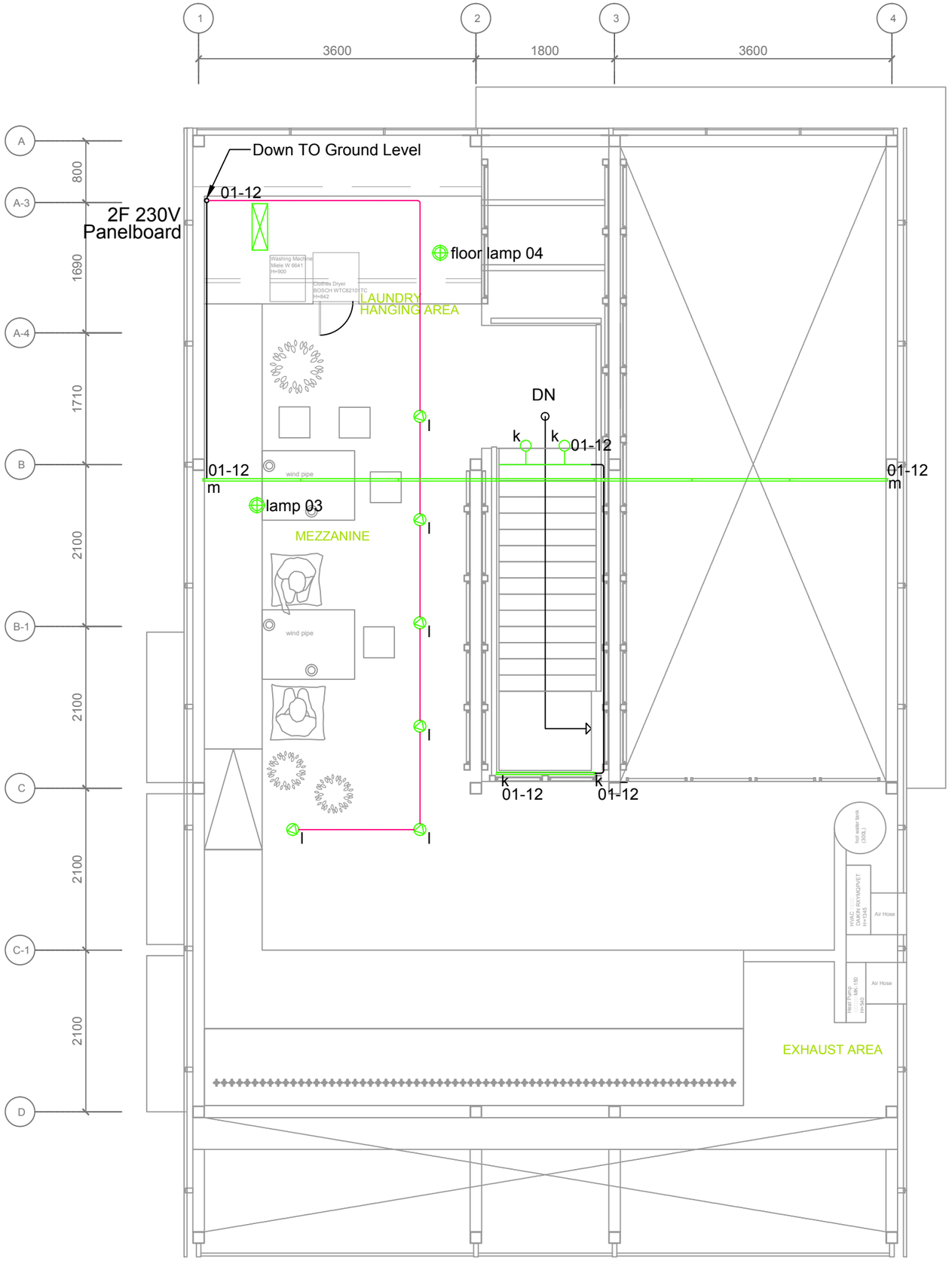
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	RAYS
Checked by	-
Scale	1:60
Unit	mm

DWG. Title: LIGHTING PLAN GROUND LEVEL

DWG. No.: EL-402

PAGE: 206



SYMBOL & LEGEND

- Tons LSP-3106 / 7.2W / Warm White AC 100~240V, Wall mounted / 4000k
- Tons T8 LED / 1270mm 20W/4000k AC 100~240V, Wall mounted
- Tons T8 LED /995mm 20W/4000k AC 100~240V, Wall mounted
- Tons KA-112R / 3.6W Warm White AC 100~240V, Wall mounted / 4000k
- Tons DA-504AD / 1.2W / Warm White AC 100~240V, Recess mounted / 4000k
- Tons DG-913C / 12.6W / Warm White AC 100~240V, Recess mounted / 4000k
- Tons ODL-005 / 1.2W / Warm White AC 100~240V, Recess mounted / 4000k
- Delta A60 / DF 10W AC 100~240V / E27 / 4000k
- Sa — Lighting Switch, single-cut
- S3a — Lighting Switch, double-cut
- 230V Electrical Panelboard
- Branch Circuit (concealed in Ceiling or Wall)
- Branch Circuit (Exposed on Wall)

LOOP NUMBER

01-03 —— CIRCUIT NUMBER
└———— PANEL NUMBER

PANEL NUMBER

01-- 1F 230V Panelboard
02-- 2F 230V Panelboard

Solar Decathlon Europe

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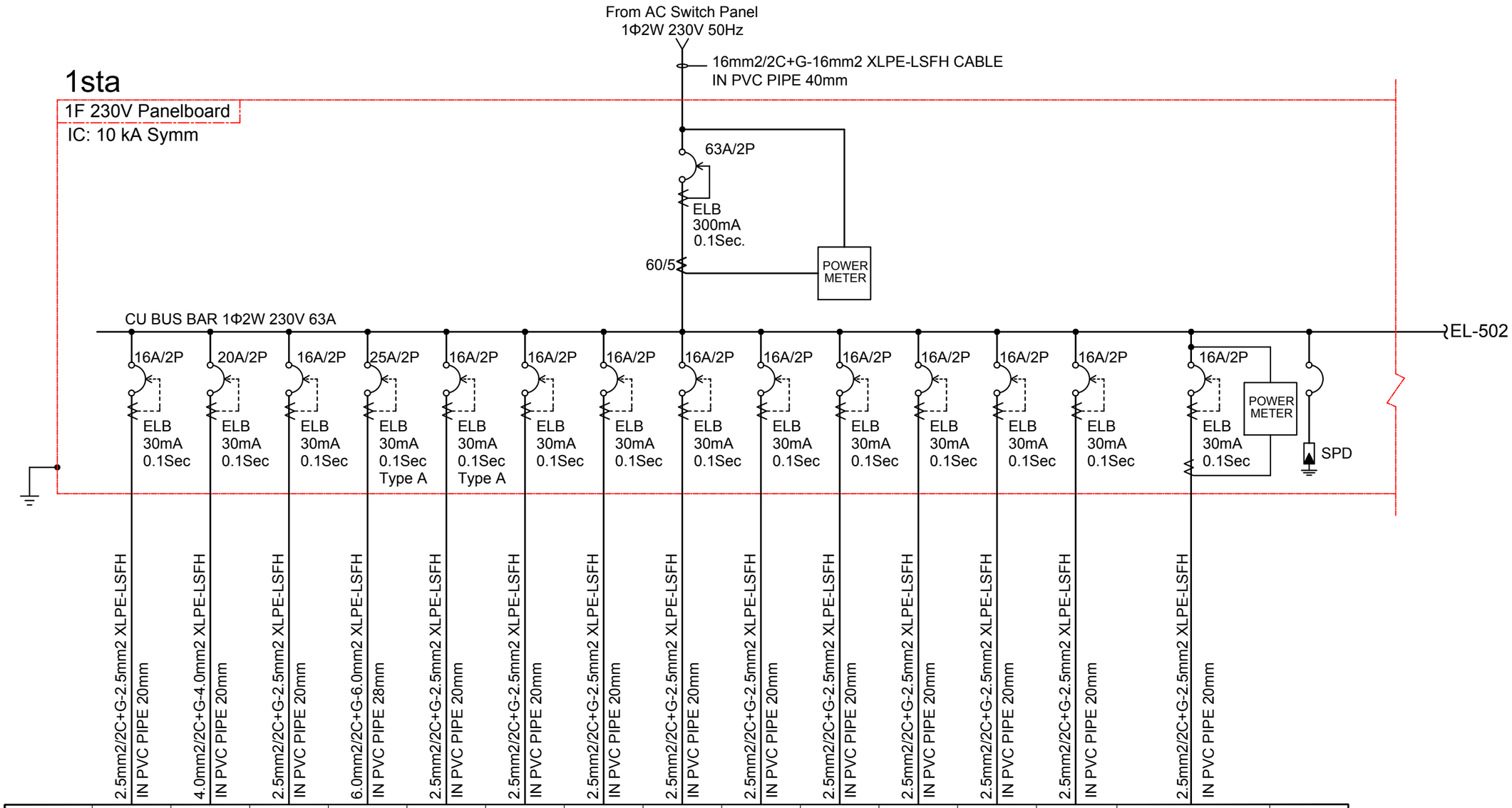
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	RAYS
Checked by	-
Scale	1:60
Unit	mm

DWG. Title

LIGHTING PLAN
MEZZANINE LEVEL

DWG. No.	PAGE
EL-403	207



CIRCUIT NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DESCRIPTION	Refrigeration	OVEN	Dishwasher	Cooking	Clothes Washer	Clothes Dryer	Extractor hood	Kitchen& Bathroom Lighting	Living room Lighting	Bed room & Workstation Lighting	Outdoor Lighting	Mezzanine Space Lighting	Automation System	Lving Room & Workstation Receptacle (Home Electronics)	SPD
LOAD(W)	308W	3500W	2110W	1800W	1400W	1000W	260W	651W	360W	690W	8.4W	519W	-	-	-
CURRENT (A)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
VOLTAGE (V)	230V	230V	230V	230V	230V	230V	230V	230V	230V	230V	230V	230V	230V	230V	230V

Solar Decathlon Europe

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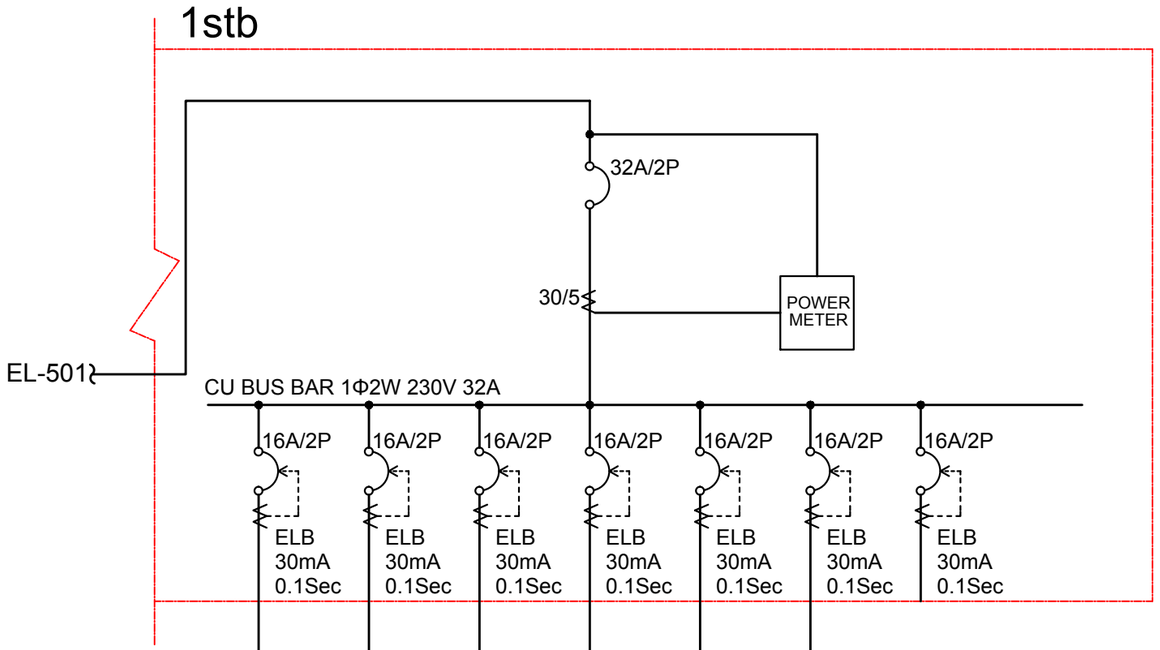
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Unit: -

DWG. Title: ONE-LINE DIAGRAM 1

DWG. No.: EL-501

PAGE: 208



CIRCUIT NO.	16	17	18	19	20	21	22
DESCRIPTION	Clean Water Pump	Rain Water Pump & Level relay	BathRoom & Tea Terrace Receptacle	Floor Receptacle (General Use)	Tea Terrance & Mech. RM Lighting	Control Valve (For irrigation)	SPARE
LOAD(W)	540W	270W	-	-	8.4W	-	-
CURRENT (A)	-	-	-	-	-	-	-
VOLTAGE (V)	230V	230V	230V	230V	230V	230V	230V

ELECTRICAL SYMBOLS

- LOW VOLTAGE MOLDED CASE CIRCUIT BREAKER
- LOW VOLTAGE MOLDED CASE CIRCUIT BREAKER WITH GROUND FAULT CIRCUIT INTERRUPTER (GFCI)
- GROUNDING
- CURRENT TRANSFORMER
- TRANSFORMER
- LOW VOLTAGE FUSE
- LSFH CABLE 0.6/1KV LOW SMOKE FREE OF HALOGEN CABLE
- Surge Protection Device

Solar Decathlon Europe

Project: ORCHID HOUSE

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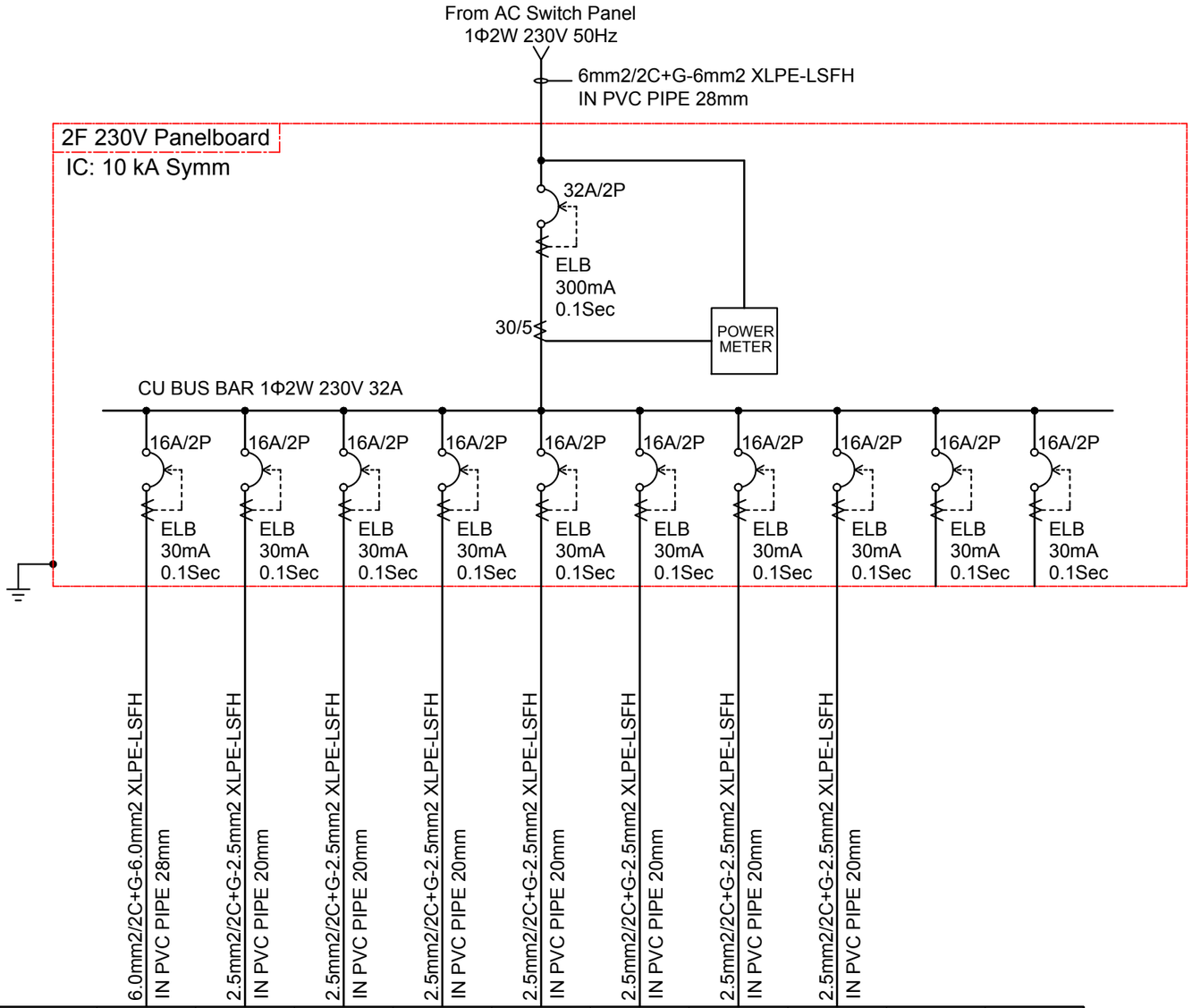
Scale: -

Unit: -

DWG. Title: ONE-LINE DIAGRAM 2

DWG. No.: EL-502

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CIRCUIT NO.	1	2	3	4	5	6	7	8	9	10
DESCRIPTION	VRV	HRV	CO2 Heat Pump	Mezzanine Area Receptacle	Pump Station 01	Pump Station 02	Circulation FANx12	Water wall Pump	Spare	Spare
LOAD(W)	2760W	100W	1340W	-	550W	550W	480W	-	-	-
CURRENT (A)	-	-	-	-	-	-	-	-	-	-
VOLTAGE (V)	230V	230V	230V	230V	230V	230V	230V	230V	230V	230V

ELECTRICAL SYMBOLS

- LOW VOLTAGE MOLDED CASE CIRCUIT BREAKER
- LOW VOLTAGE MOLDED CASE CIRCUIT BREAKER WITH GROUND FAULT CIRCUIT INTERRUPTER (GFCI)
- GROUNDING
- CURRENT TRANSFORMER
- TRANSFORMER
- LOW VOLTAGE FUSE
- LSFH CABLE — 0.6/1KV LOW SMOKE FREE OF HALOGEN CABLE
- Surge Protection Device

Solar Decathlon Europe

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Unit: -

DWG. Title: ONE-LINE DIAGRAM 3

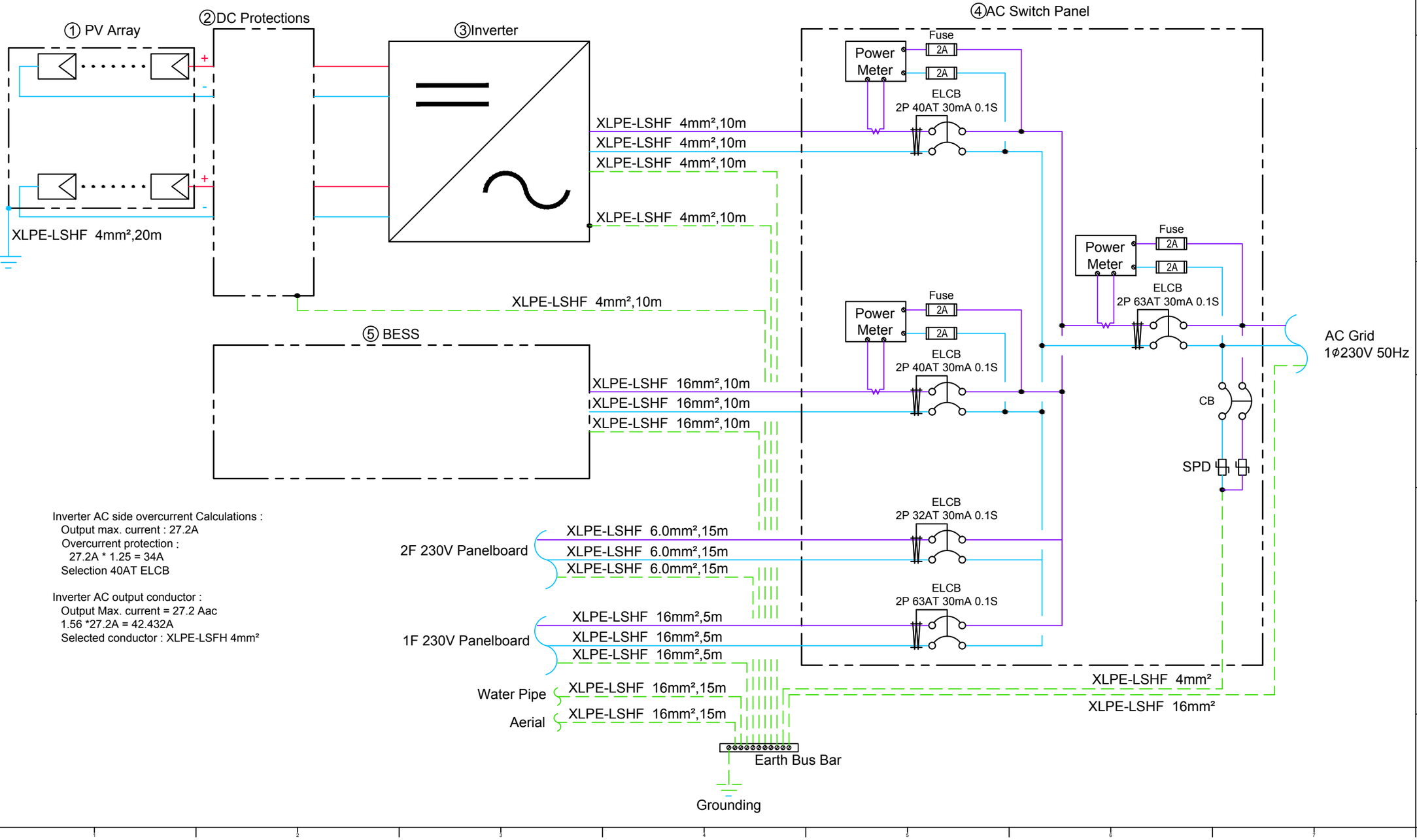
DWG. No.: EL-503

PAGE: 210

Tag	Components	Manufacturer	Model	Q'ty	Notes
①	PV Module	NSP	D6P250B3A	20	
②	DC Protections	HI BOX		1	
③	Inverter	Delta	Solivia 5.0	1	
④	Box	HI BOX		1	
	Power Meter	Schneider	PM3200	3	
	ELCB	Schneider		4	
	Surge Protection Device	Shihlin	BHP30 1PN	2	Uc:275V,Up□1.2kV,In:15kA(8/20us)
⑤	BESS	Delta	RenE-ES 6120	1	Battery Energy Storage System

Labels for pv installations:

ON AC SIDE	
On AC side, insert this label near the main AC photovoltaic circuit breaker or near the main AC photovoltaic switch	Production photovoltaïque / Coupure réseau de Distribution or Coupure photovoltaïque
On AC side, insert this label(near the main circuit breaker) if a main circuit breaker cut off simultaneously photovoltaic and electrical loads	Coupure réseau de distribution et photovoltaïque



Inverter AC side overcurrent Calculations :
Output max. current : 27.2A
Overcurrent protection :
27.2A * 1.25 = 34A
Selection 40AT ELCB

Inverter AC output conductor :
Output Max. current = 27.2 Aac
1.56 *27.2A = 42.432A
Selected conductor : XLPE-LSFH 4mm²

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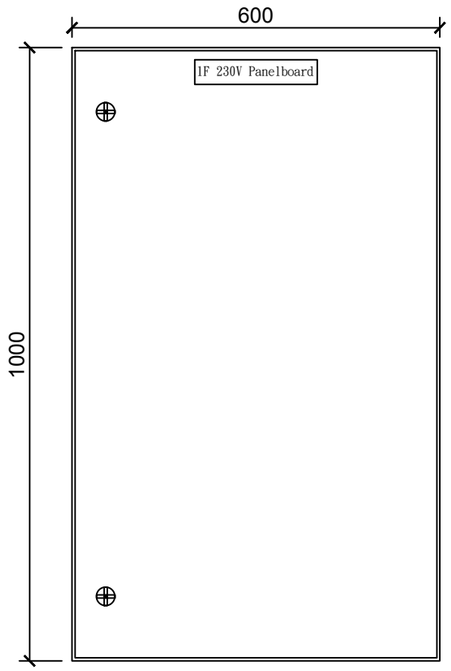
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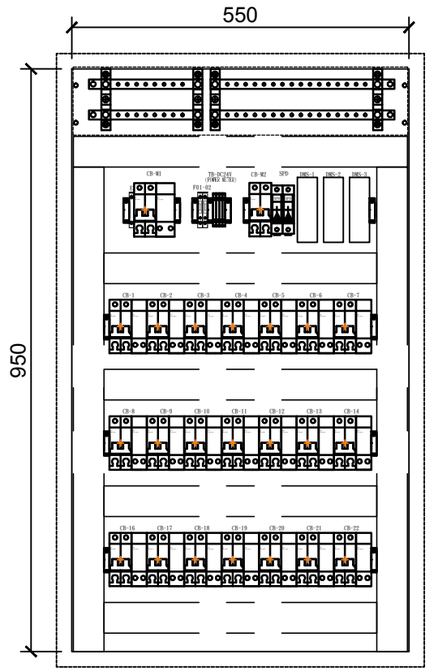
DWG. Title: AC CIRCUIT LAYOUT

DWG. No.: EL-601

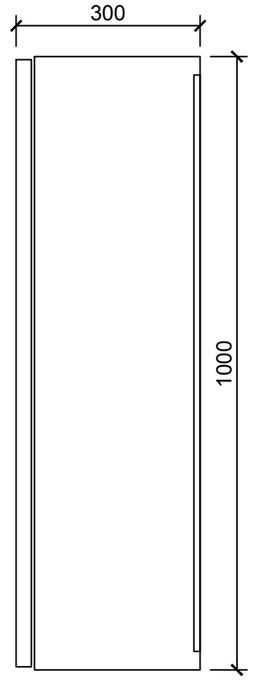
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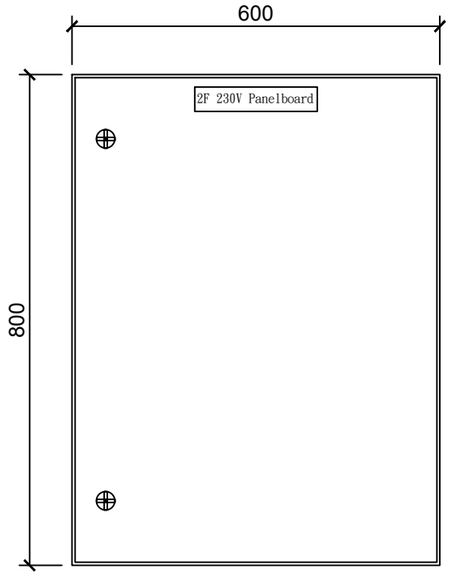
1F 230V Panelboard
Front View



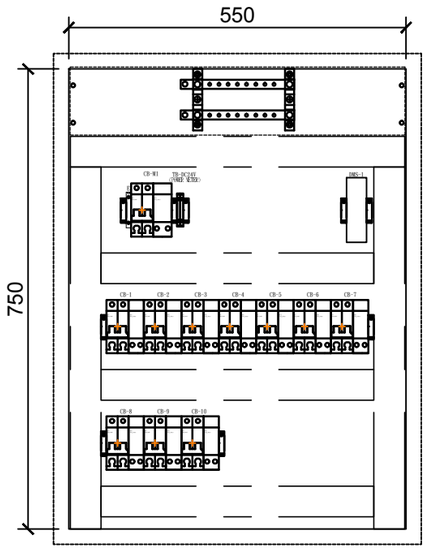
1F 230V
Panelboard



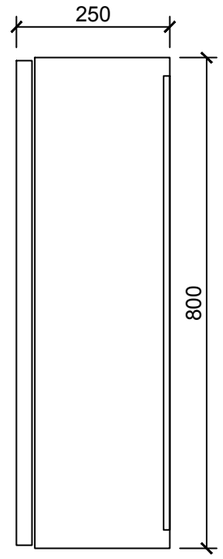
1F 230V Panelboard
Side View



2F 230V Panelboard
Front View



2F 230V
Panelboard



2F 230V Panelboard
Side View

Solar Decathlon Europe

Project: ORCHID HOUSE

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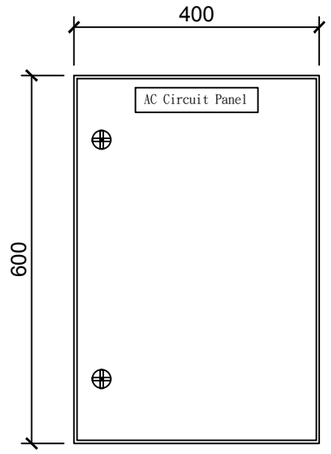
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Unit	mm

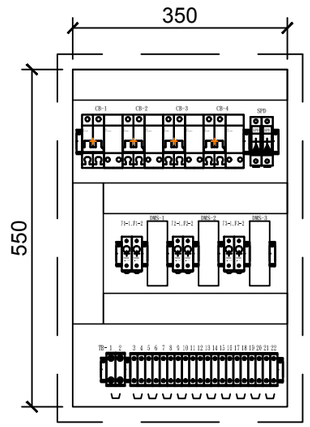
DWG. Title: AC CIRCUIT LAYOUT

DWG. No.: EL-602

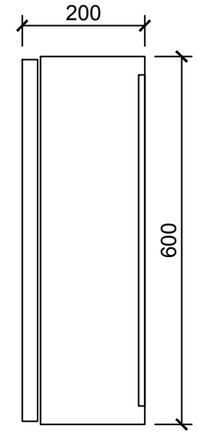
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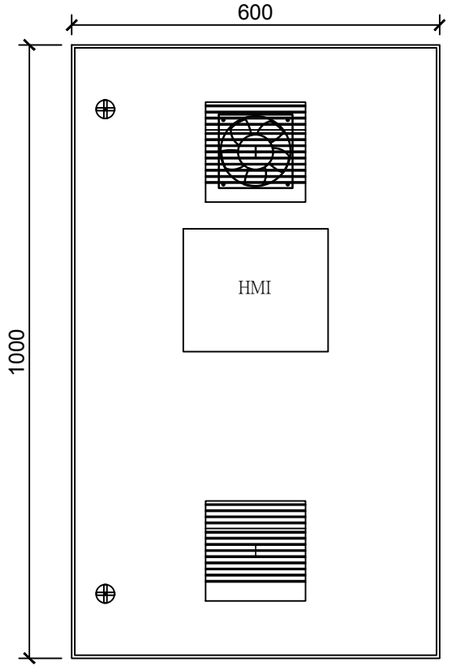
AC Circuit Panel
Front View



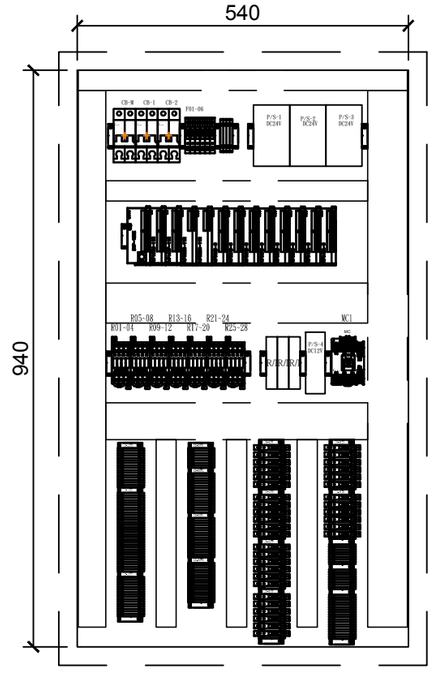
AC Circuit Panel



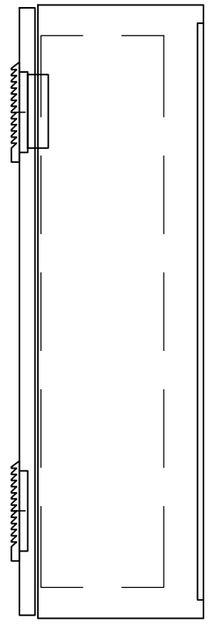
AC Circuit Panel
Side View



BAS Panel
Front View



BAS Panel



BAS Panel
Side View

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Hsinchu City 30010
Taiwan

Contact: www.sde.tw

Consultants: UIS United Integrated Services

Note:

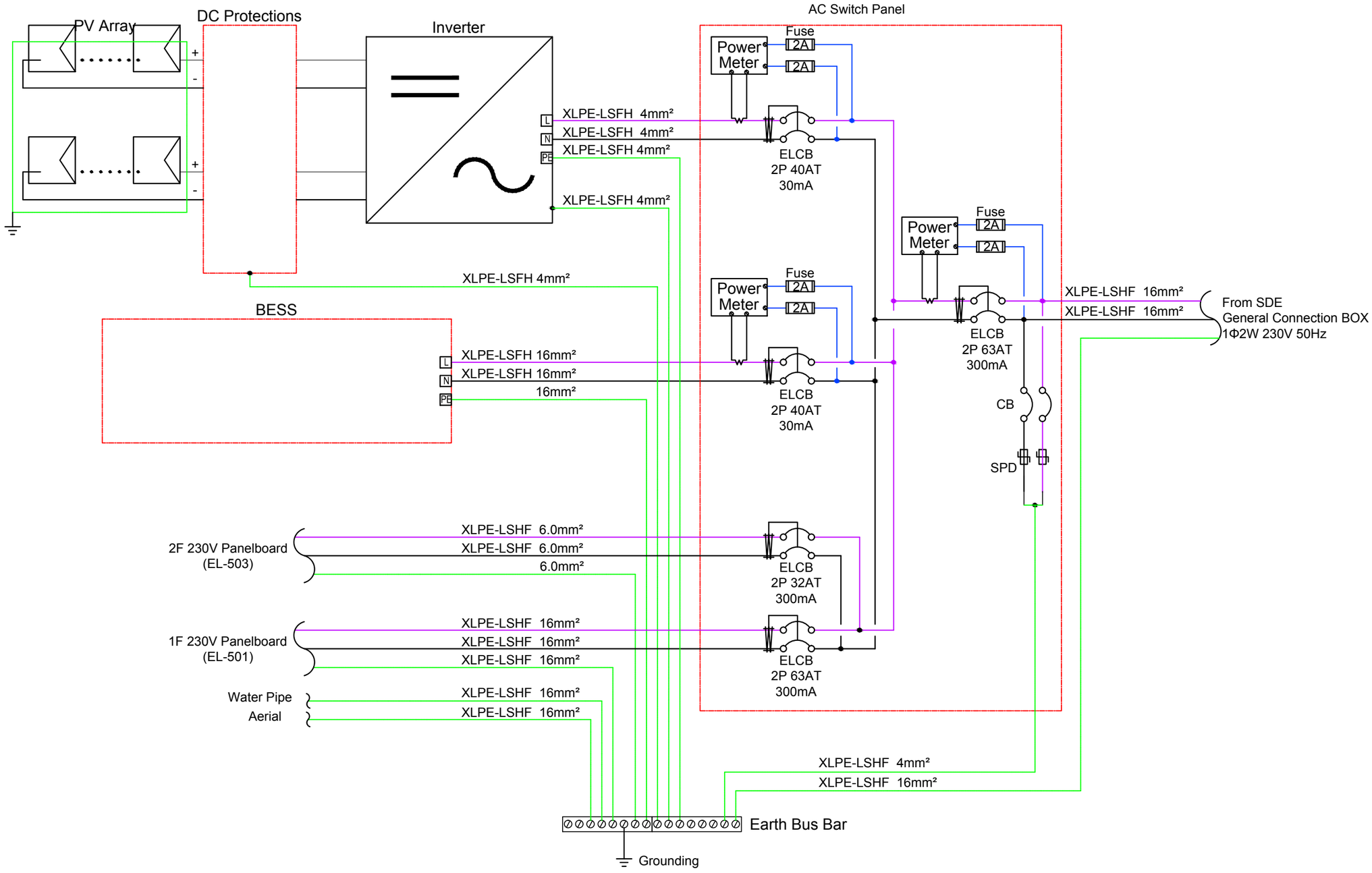
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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Scale	1:60
Unit	mm

DWG. Title: AC CIRCUIT LAYOUT

DWG. No.: EL-603

PAGE: 213



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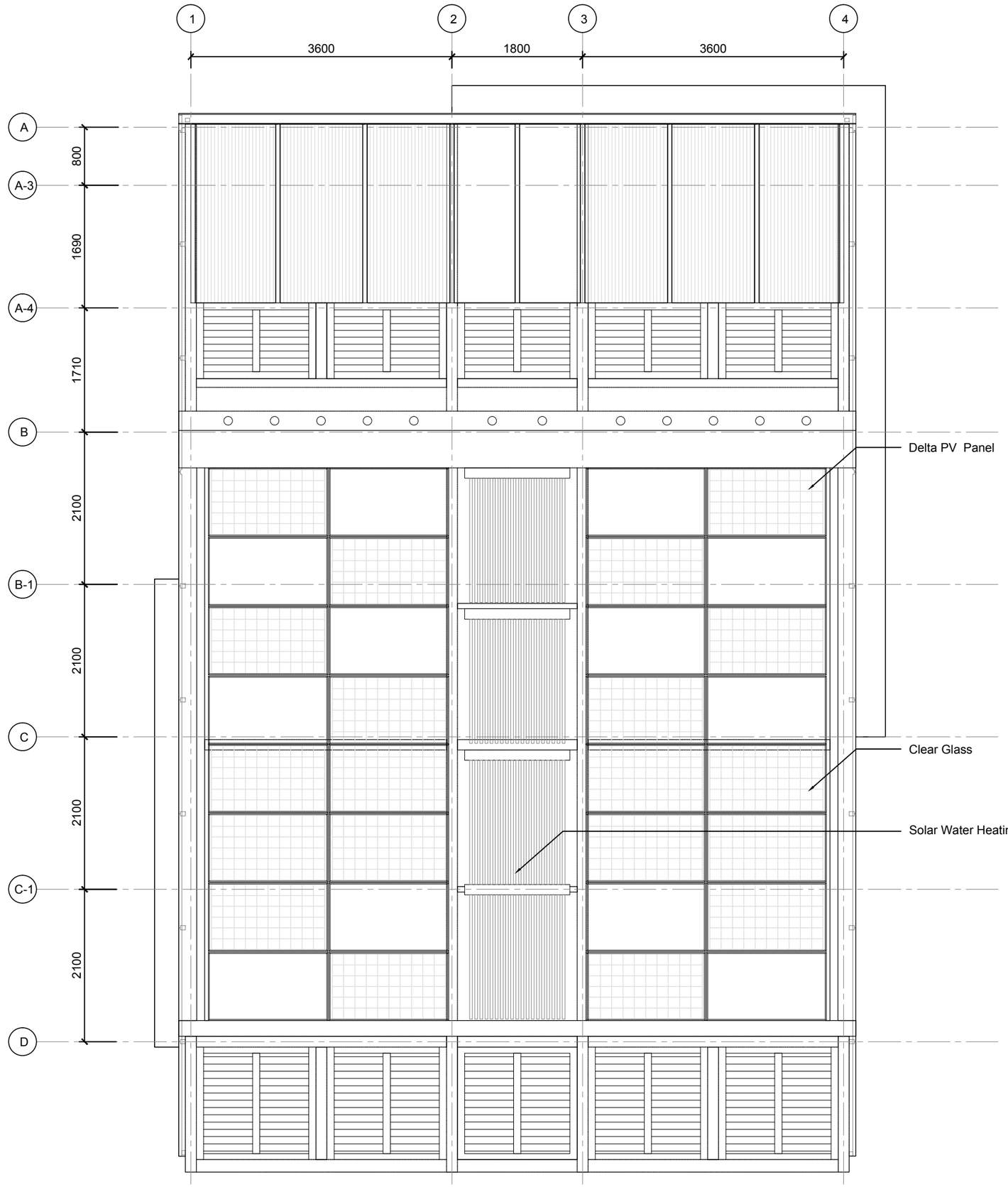
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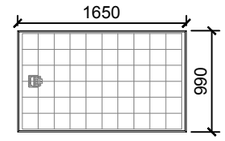
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Unit	-

DWG. Title: PHOTOVOLTAIC SYSTEM: GENERAL 1

DWG. No.: PV-001

PAGE: 214





Solar Module

System Design Data	
Module Type	Standard
Module Power	250 Wp
Number of Module	24 pieces
Inverter Type	Solivia 5.0
Number of Inverter	1
System Capacity	6 kWp
Tilt Angle of Modules	18°
Azimuth of Modules	South
System Type	On Grid

0 1 2 5 METER

Solar Decathlon Europe

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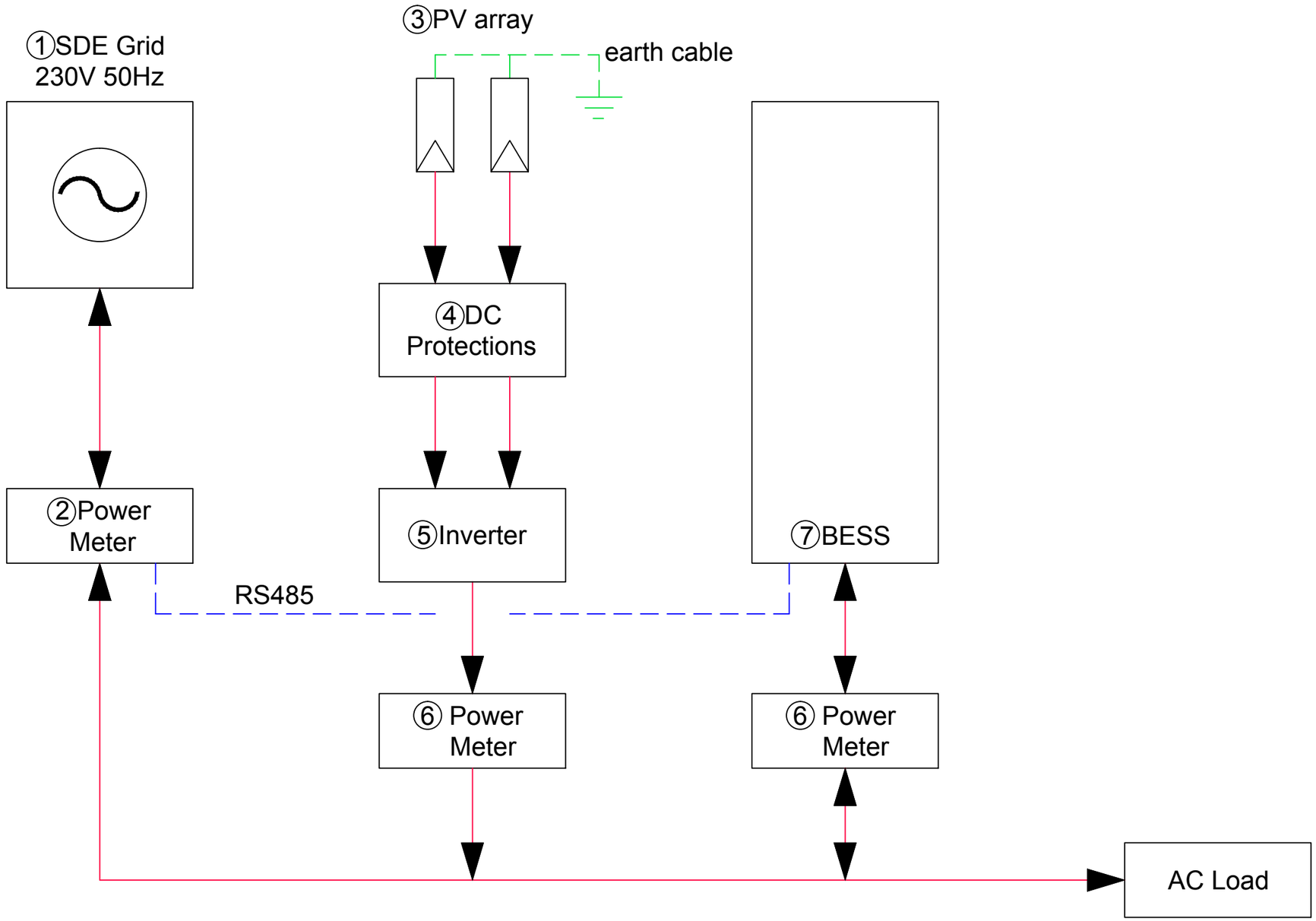
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Unit	mm

DWG. Title: PHOTOVOLTAIC SYSTEM: GENERAL 2

DWG. No.: PV-002

PAGE: 215

Tag	Components	Manufacturer	Model	Q'ty	Notes
①	SDE Grid			1	Organization Supplied Grid Power
②	Power Meter	Schneider	PM3200	1	
③	PV array	NSP	D6P250B3A	20	
④	DC Protections	HI BOX		1	
⑤	Inverter	Delta	Solivia 5.0	1	
⑥	Power Meter	Schneider	PM3200	2	
⑦	BESS	Delta	RenE-ES 6120	1	Battery Energy Storage System



Solar Decathlon Europe

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Scale	-
Unit	-

DWG. Title: PHOTOVOLTAIC SYSTEM: GENERAL 3

DWG. No.: PV-003

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Tag	Components	Manufacturer	Model	Q'ty	Notes
①	PV Module	NSP	D6P250B3A	20	
②	Box	HI BOX		1	
	Fuse			4	DC1000V 15A
	Surge Protection Device	Shihlin	BHP30-2P	2	Uc:500V,Up□1.4kV,In:15kA(8/20us)
	Disconnector Switch	MERZ	MDC1A-025-600	2	DC600V 25A
③	Inverter	Delta	Solivia 5.0	1	

Photovoltaic Module :
- NSP D6P250B3A
- Max. DC power = 250Wp
- Voc = 37.33 V
- Vmp = 30.34 V
- Isc = 8.69 A
- Temp. Coeff. of Voc = -0.117 V/˚C
- Temp. Coeff. of Isc = 0.004 A/°C
- Temp. Coeff. of Vmp = -0.127 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 = 36.6A
- 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 = 94.6%

Voltage Calculations :

Voc @ coldest expected operating Temp.:

Low ambient Temp. = -20˚C

Voc(-20°C)=Voc(STC)+(-20°C-25°C)*(ΔVoc/°C)=37.33-45*(-0.117) = 42.595V

Max. modules of string:

nmax=Vdc(input max)/Voc(-20°C)=600/42.595=14.086 ≤ 14pcs

Vmp @ highest expected operating Temp.:

High ambient Temp. = 75˚C

Vmp(75°C)=Vmp(STC)+(75°C-25°C)*(ΔVmp/°C)=30.34+50*(-0.127) = 23.99V

Min. modules of string:

nmin=Vmp(min)/Vmp(75°C)=150/23.99=6.25 ≥ 7pcs

Selection modules of string = 10 pcs

Voc(-20°C)_string = Modules*Voc(-20°C) = 10*42.595V = 425.95V < 600V

Vmp(75°C)_string = Modules*(75°C) = 10*23.99V = 239.9V > 150V

String in parallel :

Max. DC power of Charge Controller / Selection modules of string / Module Max. DC power

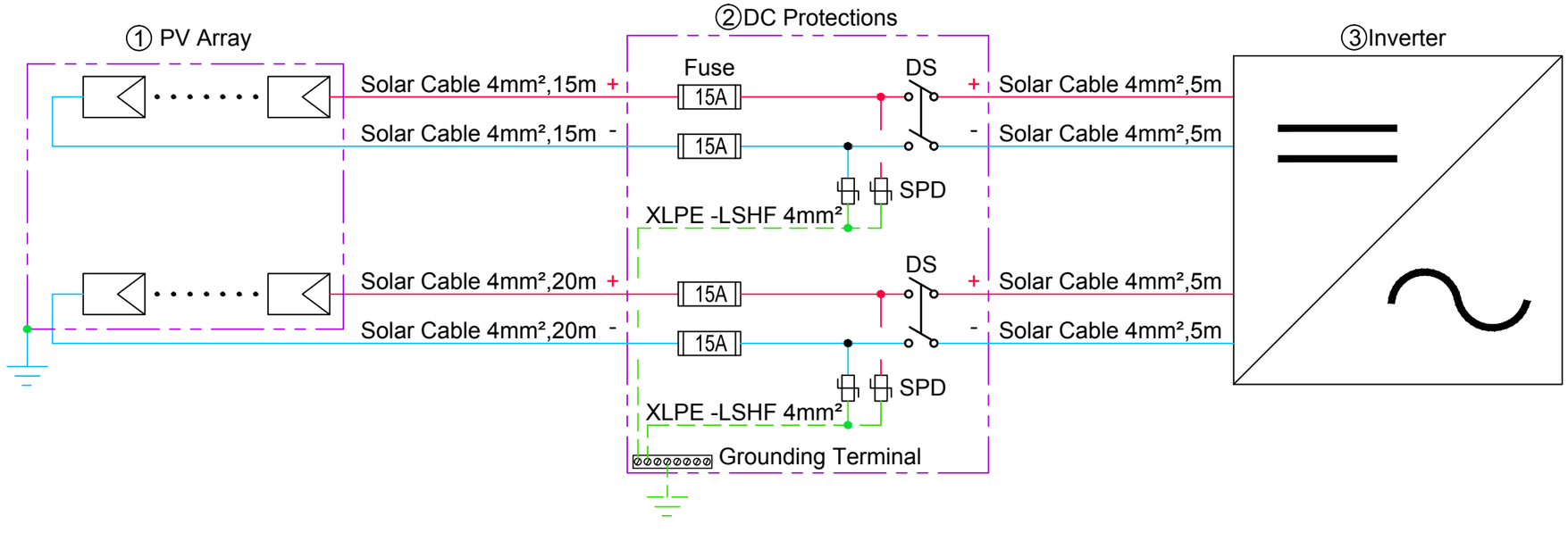
= 6,000W / 10pcs / 250W

= 2.4 ≤ 2parallel

DC array conductor :

1.56 * Isc * 2 = 1.56 * 8.69A * 2 = 27.11A

Selected conductor : solar cable 4mm²

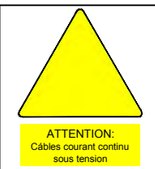


Labels for pv installations:

ON DC SIDE

All the junction boxes and DC electrical cabling must indicate live conductors or the internal parts of the boxes can remain live even after the opening of the DC switch.

On the front of all junction boxes, insert a label:
"Attention, cables courant continu sous tension"



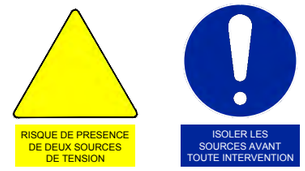
In all the junction boxes and in all the DC disconnect boxes, insert a label:
"Ne pas manceuvrer en charge"



ON THE INVERTERS

All the inverters shall have clear markings specifying that before all work, all the voltage sources must be electrically isolated.

Insert this label on the inverter front.



Solar Decathlon Europe

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DWG. Title: PHOTOVOLTAIC SYSTEM: DC CIRCUITS

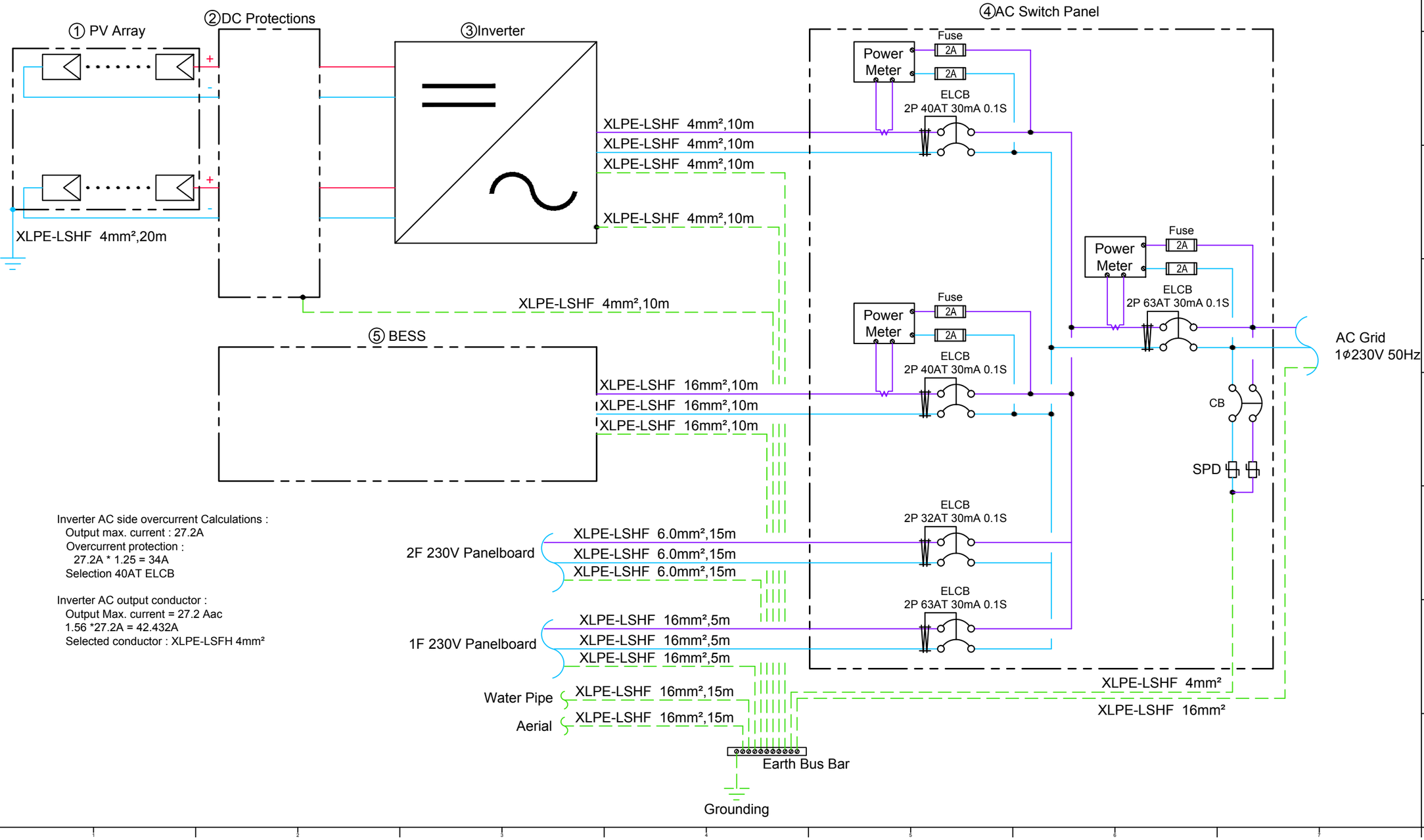
DWG. No.: PV-011

PAGE: 217

Tag	Components	Manufacturer	Model	Q'ty	Notes
①	PV Module	NSP	D6P250B3A	20	
②	DC Protections	HI BOX		1	
③	Inverter	Delta	Solivia 5.0	1	
④	Box	HI BOX		1	
	Power Meter	Schneider	PM3200	3	
	ELCB	Schneider		4	
	Surge Protection Device	Shihlin	BHP30 1PN	2	Uc:275V,Up□1.2kV,In:15kA(8/20us)
⑤	BESS	Delta	RenE-ES 6120	1	Battery Energy Storage System

Labels for pv installations:

ON AC SIDE	
On AC side, insert this label near the main AC photovoltaic circuit breaker or near the main AC photovoltaic switch	Production photovoltaïque / Coupure réseau de Distribution or Coupure photovoltaïque
On AC side, insert this label(near the main circuit breaker) if a main circuit breaker cut off simultaneously photovoltaic and electrical loads	Coupure réseau de distribution et photovoltaïque



Inverter AC side overcurrent Calculations :
Output max. current : 27.2A
Overcurrent protection :
27.2A * 1.25 = 34A
Selection 40AT ELCB

Inverter AC output conductor :
Output Max. current = 27.2 Aac
1.56 *27.2A = 42.432A
Selected conductor : XLPE-LSFH 4mm²

Solar Decathlon Europe

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DWG. Title: PHOTOVOLTAIC SYSTEM: AC CIRCUITS

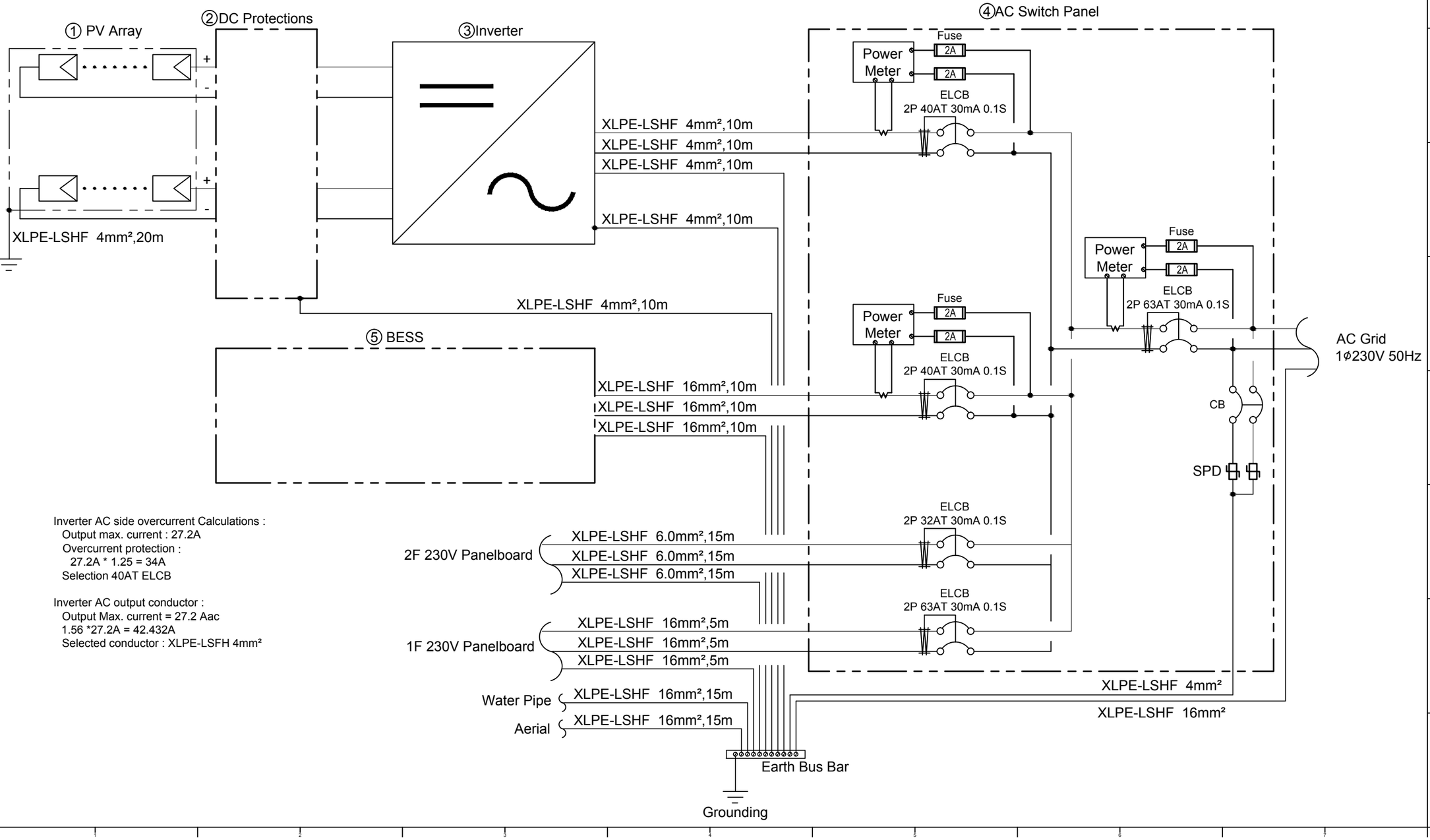
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PAGE 218

Tag	Components	Manufacturer	Model	Q'ty	Notes
①	PV Module	NSP	D6P250B3A	20	
②	DC Protections	HI BOX		1	
③	Inverter	Delta	Solivia 5.0	1	
④	Box	HI BOX		1	
	Power Meter	Schneider	PM3200	3	
	ELCB	Schneider		4	
	Surge Protection Device	Shihlin	BHP30 1PN	2	Uc:275V,Up□1.2kV,In:15kA(8/20us)
⑤	BESS	Delta	RenE-ES 6120	1	Battery Energy Storage System

Labels for pv installations:

ON AC SIDE	
On AC side, insert this label near the main AC photovoltaic circuit breaker or near the main AC photovoltaic switch	Production photovoltaïque / Coupure réseau de Distribution or Coupure photovoltaïque
On AC side, insert this label(near the main circuit breaker) if a main circuit breaker cut off simultaneously photovoltaic and electrical loads	Coupure réseau de distribution et photovoltaïque



Inverter AC side overcurrent Calculations :
Output max. current : 27.2A
Overcurrent protection :
27.2A * 1.25 = 34A
Selection 40AT ELCB

Inverter AC output conductor :
Output Max. current = 27.2 Aac
1.56 *27.2A = 42.432A
Selected conductor : XLPE-LSFH 4mm²

Solar Decathlon Europe

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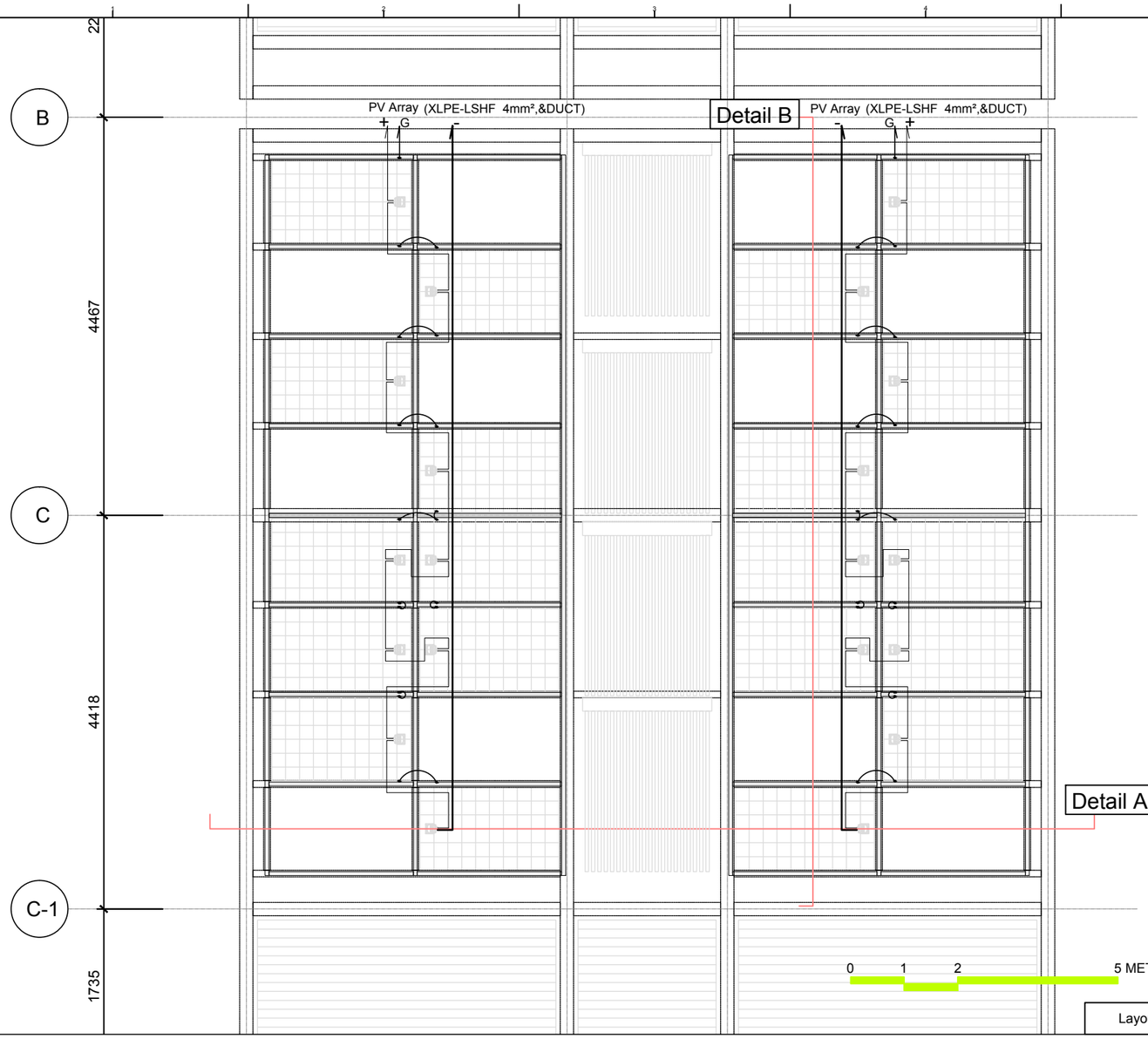
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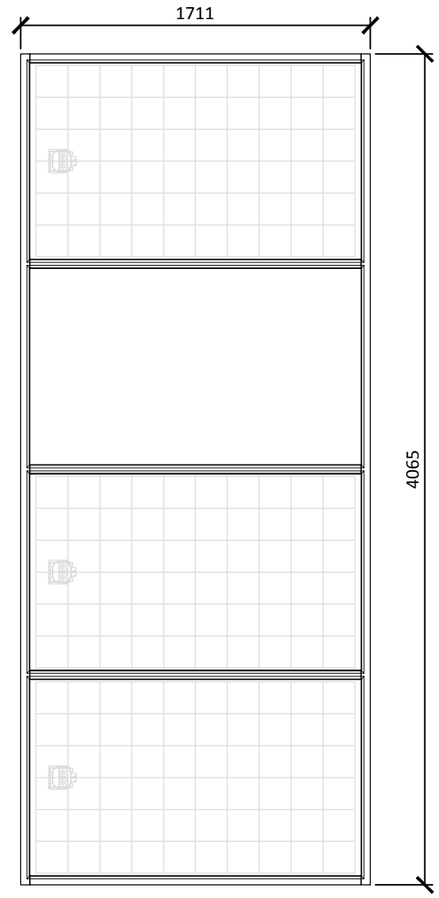
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DWG. No. PV-031

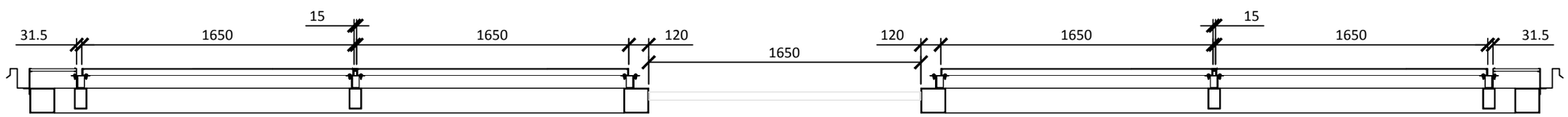
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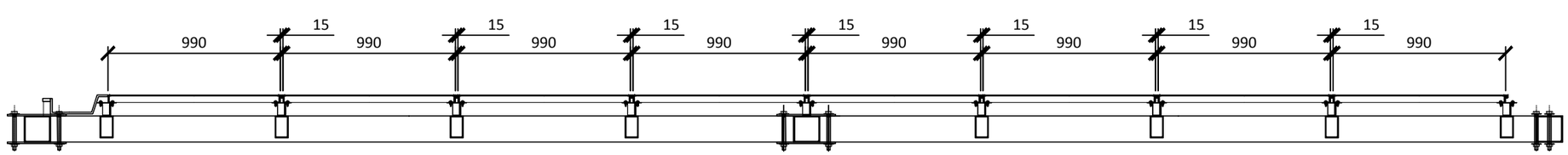
Layout



United Type



Detail A



Detail B

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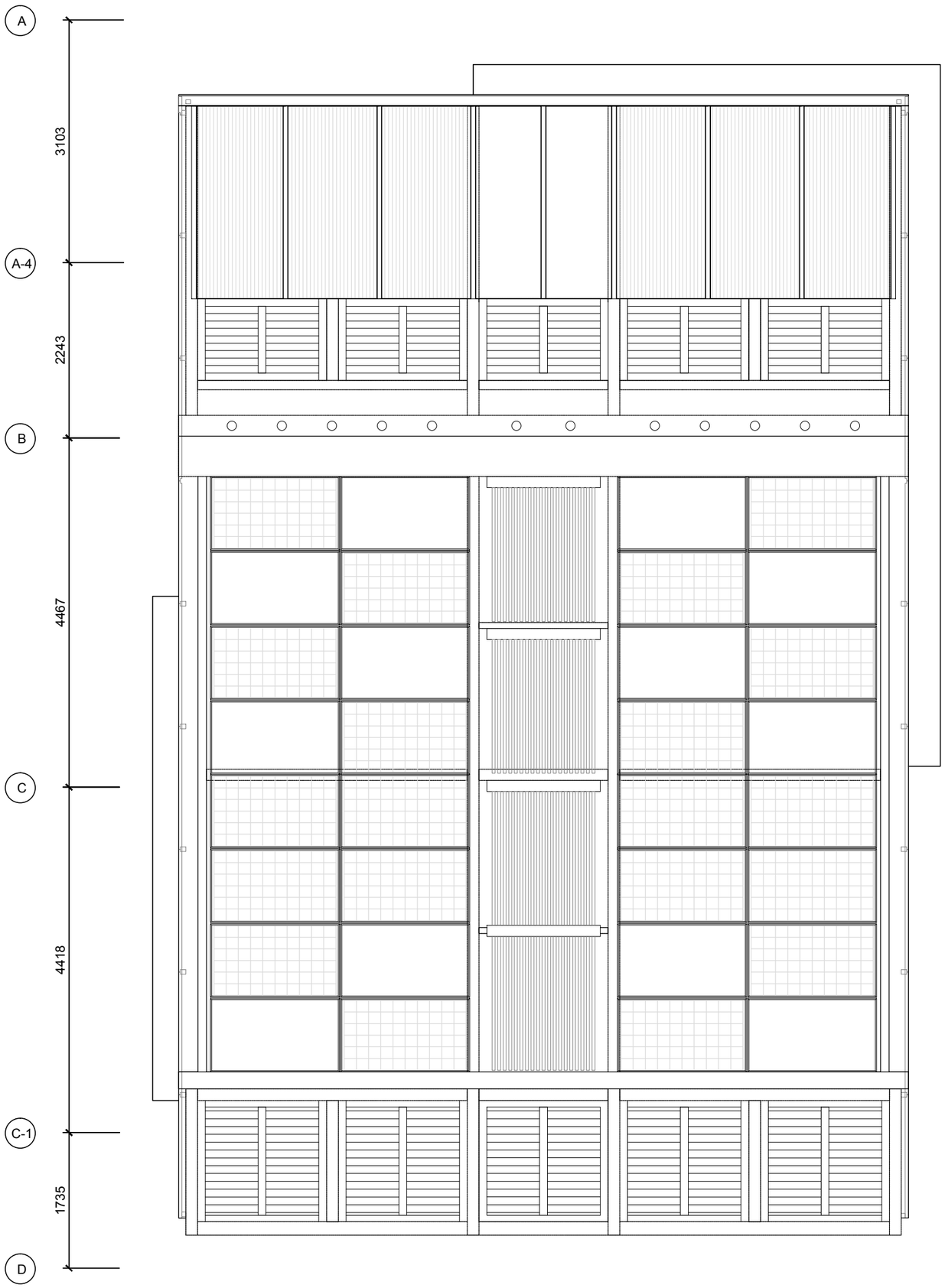
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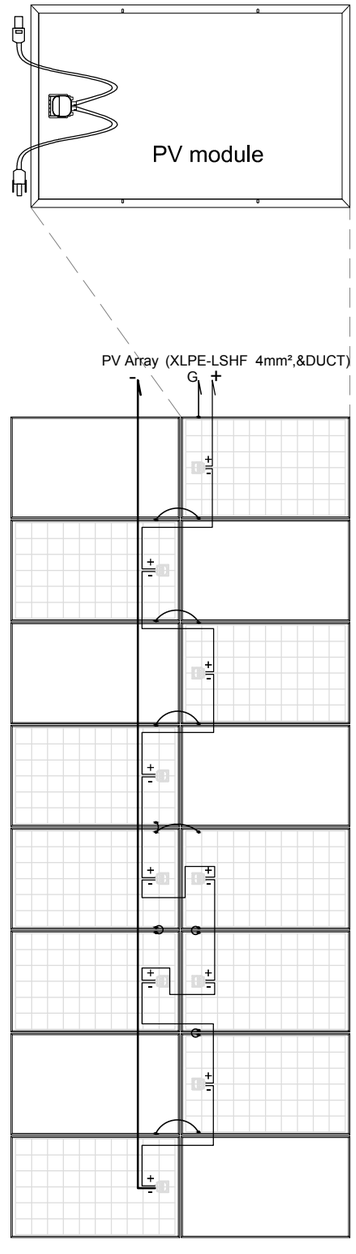
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DWG. Title

PHOTOVOLTAIC SYSTEM: MODULE LAYOUT

DWG. No.	PAGE
PV-041	220





0 1 2 5 METER

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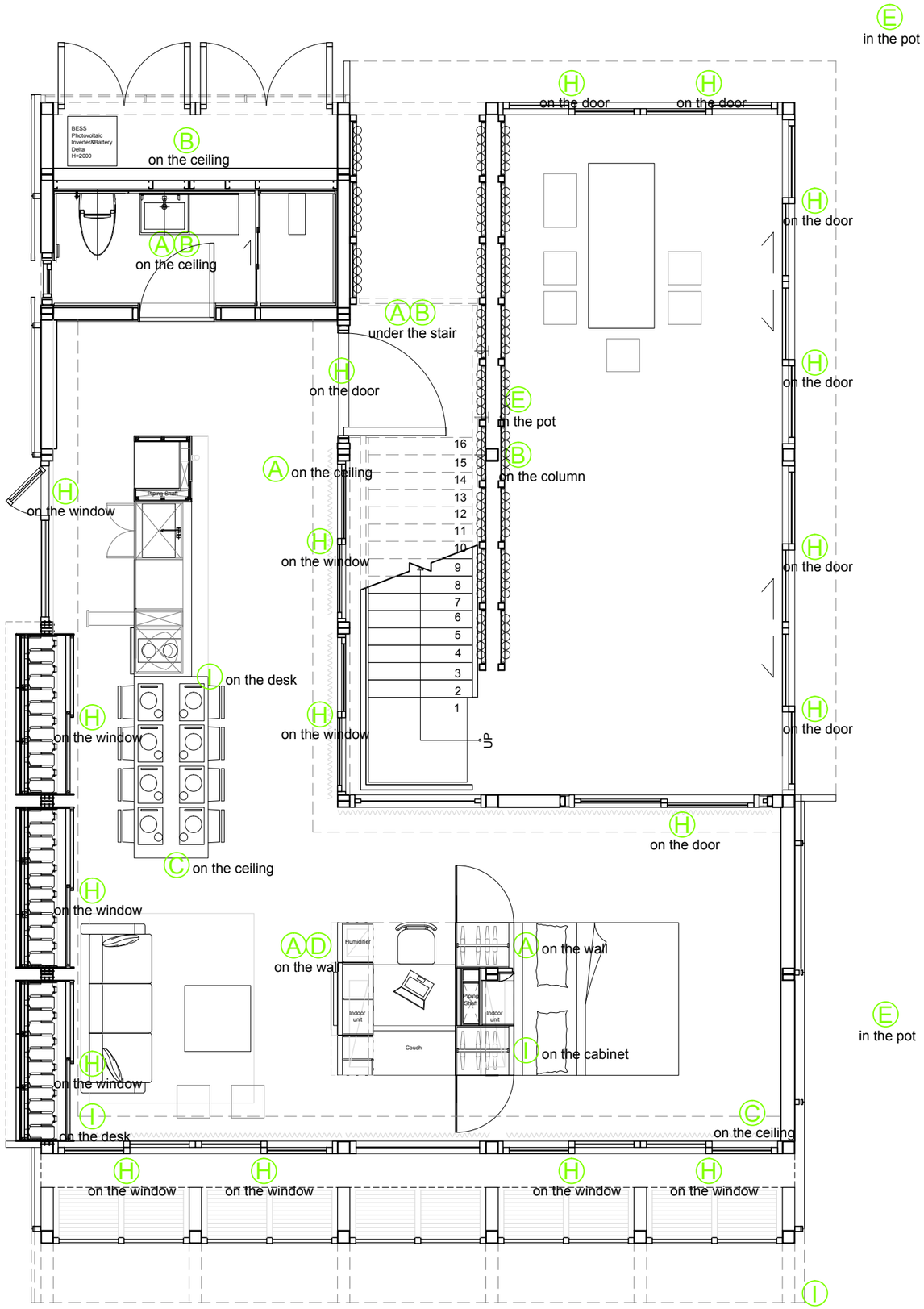
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Scale	1:60
Unit	mm

DWG. Title

PHOTOVOLTAIC SYSTEM: MODULE STRING LAYOUT

DWG. No.	PAGE
PV-042	221



A Temperature & Humidity

B Motion detector

C Smoke Detector

D Air Quality-CO2

E Soil Moisture Sensor

F Smart Weather Station
1.Temperature & Humidity
2.Wind Speed
3.Raining
4.Air Quality-CO2
5.Solar

G Light Level Sensor

H Door / Windows Position Sensor

Solar Decathlon Europe

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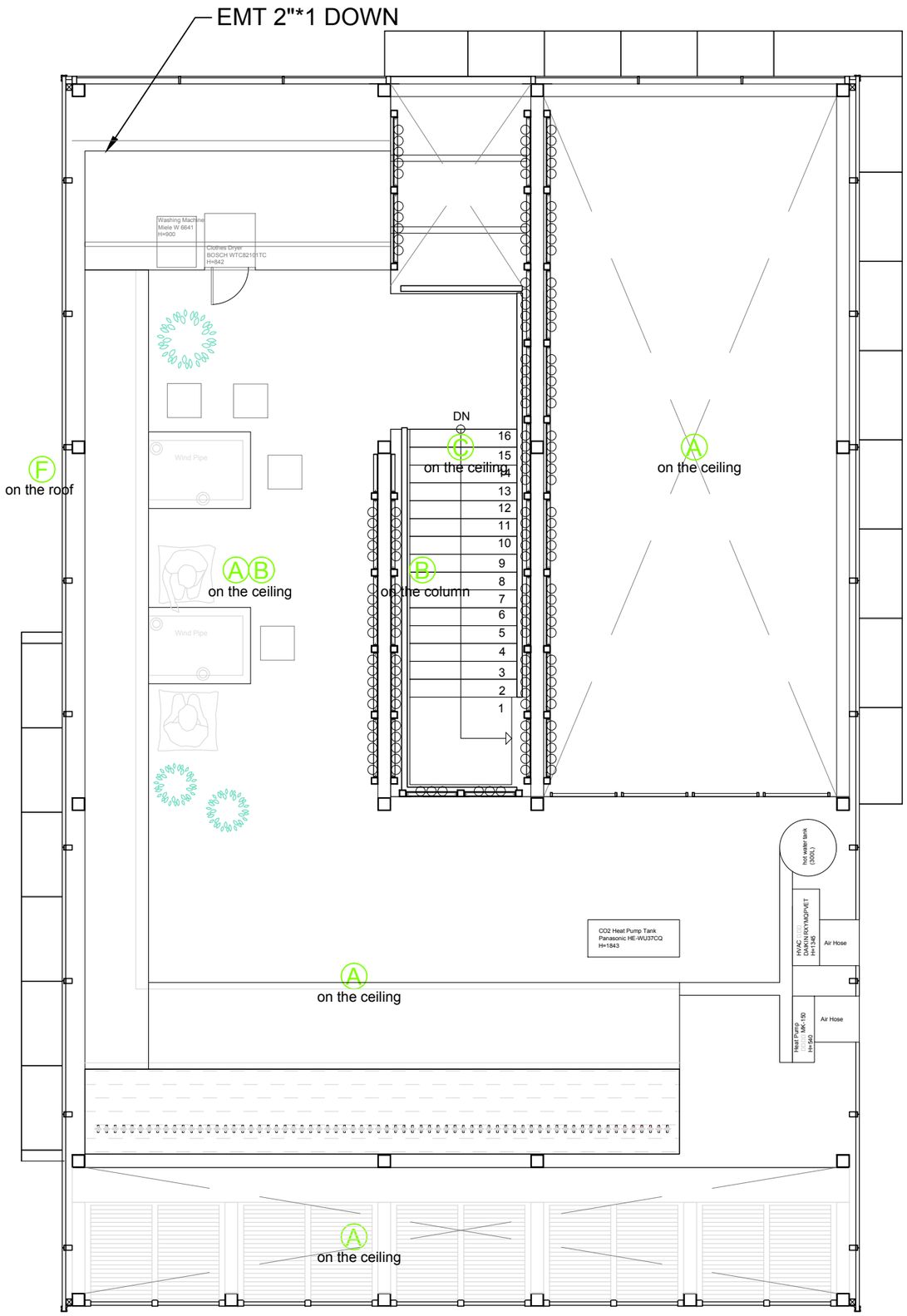
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ST	2014/04/30	CD Submission

Drawn by	Aaron Chen
Checked by	Steven Yu
Scale	1:60
Unit	mm

DWG. Title

WIRING PLAN GROUND LEVEL

DWG. No.	PAGE
BAS-001	222



- A Temperature & Humidity
- B Motion detector
- C Smoke Detector
- D Air Quality-CO2
- E Soil Moisture Sensor
- F Smart Weather Station
  1.Temperature & Humidity
  2.Wind Speed
  3.Raining
  4.Air Quality-CO2
  5.Solar
- G Light Level Sensor
- H Door / Windows Position Sensor

Solar Decathlon Europe

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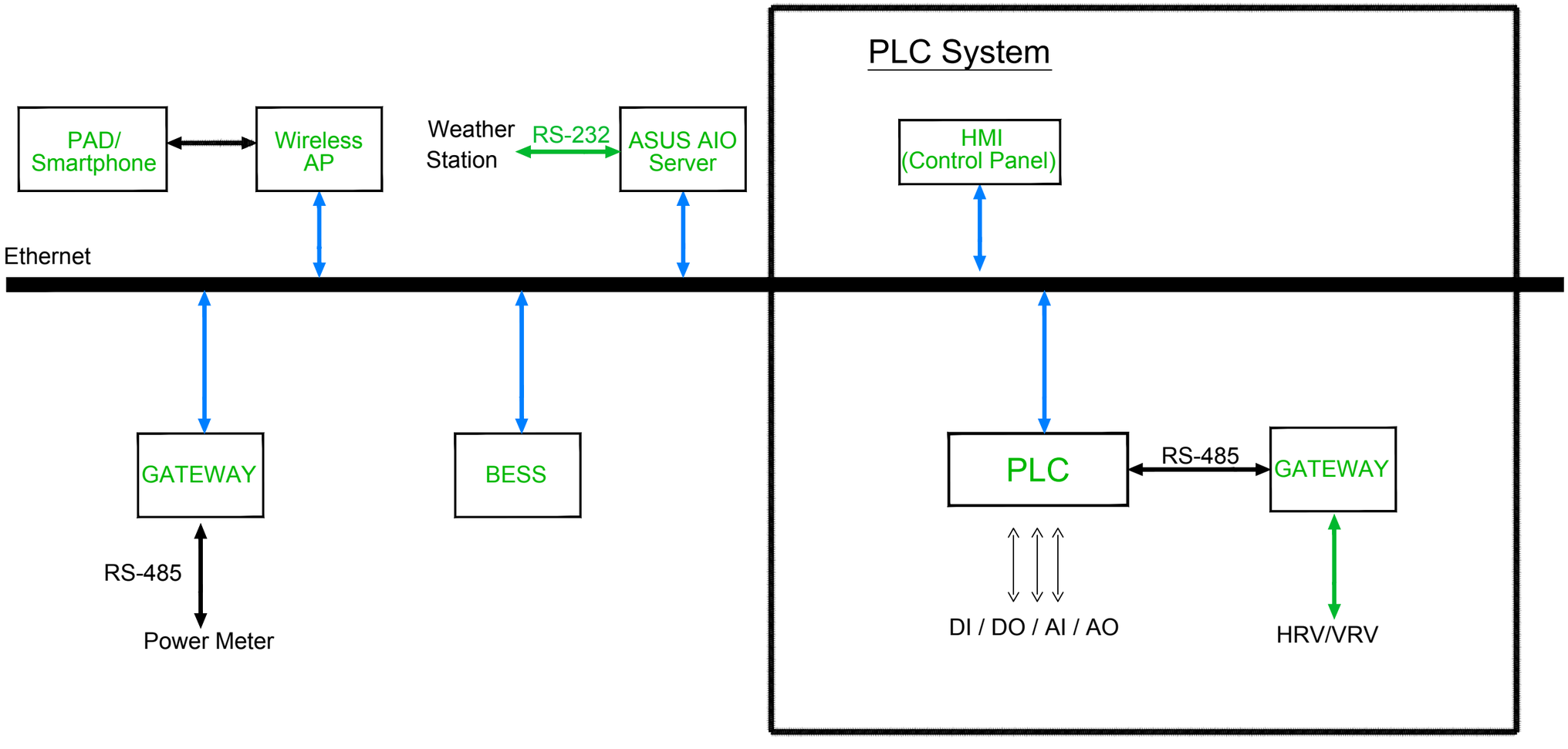
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Checked by	Steven Yu
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Unit	mm

DWG. Title

WIRING PLAN
MEZZANINE LEVEL

DWG. No.	PAGE
BAS-002	223

Home Automation System



Solar Decathlon Europe

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Drawn by: Aaron Chen

Checked by: Steven Yu

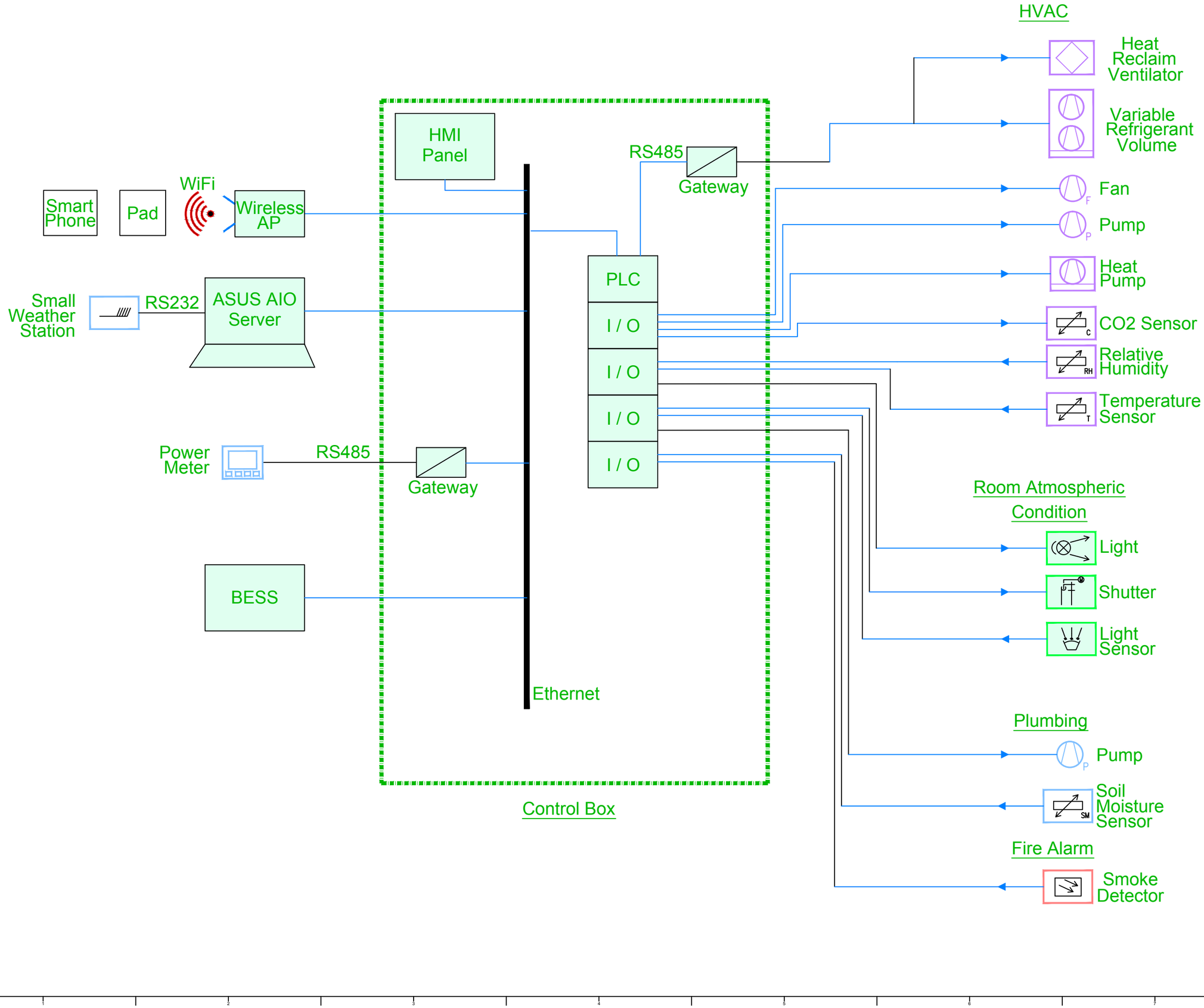
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Unit: -

DWG. Title: SCHEMATIC DIAGRAM 1

DWG. No.: BAS-101

PAGE: 224



Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

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Contact:	www.sde.tw

Consultants: DELTA 台達電子工業股份有限公司 DELTA ELECTRONICS, INC.

Note:

Mark	Date	Description
DN	2013/04/01	SD Submission
DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	Aaron Chen
Checked by	Steven Yu
Scale	-
Unit	-

DWG. Title: SCHEMATIC DIAGRAM 2

DWG. No.	PAGE
BAS-102	225

Legend / Brand / Model

Item	Specification	Brand/Model
Temperature & Humidity	T : -50~50□ or 0~100□ H : 0~100%RH	Airtek / AR1000
Air Quality (CO2)	±30 ppm ±2% of Reading	Airtek / VC1008T
Smoke Detector	Action concentration : 15% Alarm : 90db / 1m	Horing Lih / NQ95
Soil Moisture Sensor	0-100% ; ±3%(m3/m3)	Jetec / JSH-100
Smart Weather Station	T/H ; Rainfall ; Wind ; BP	Vaisala WXT520
Light Level Sensor	0-400 lux	Schneider / SLR320
Motion Detector	Infrared /	Panasonic / WTKF2311
Access Point		
Touch Panel	Android 4.2 ; DDR3 1G ; Wifi	Asus / Nexus 7

Solar Decathlon Europe

Project: ORCHID HOUSE

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Note:

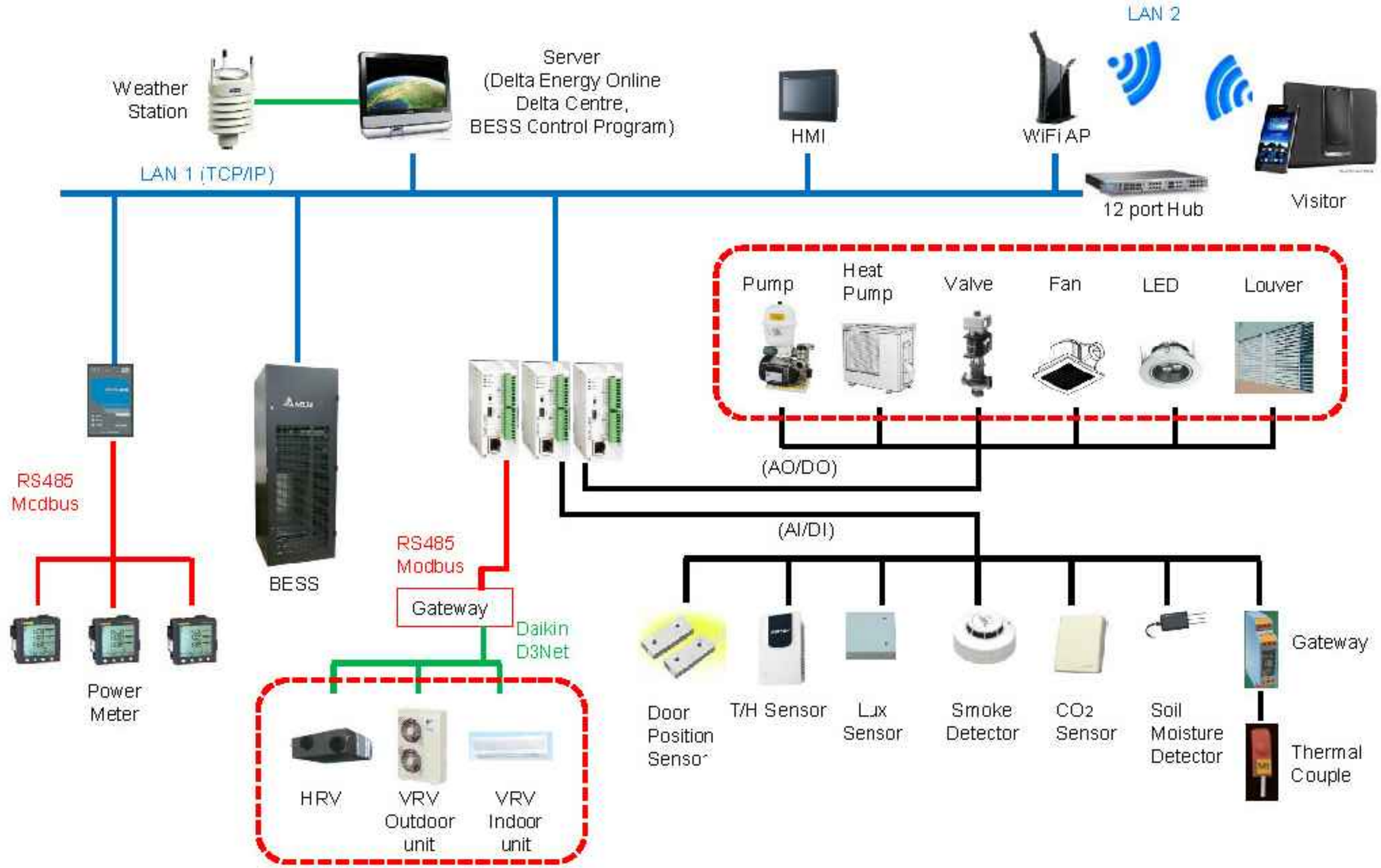
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ST	2014/04/30	CD Submission

Drawn by	AC
Checked by	SY
Scale	-
Unit	-

DWG. Title: EQUIPMENT

DWG. No.: BAS-201

PAGE: 226



Solar Decathlon Europe

Project: ORCHID HOUSE

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Consultants: UIS United Integrated Services

Note:

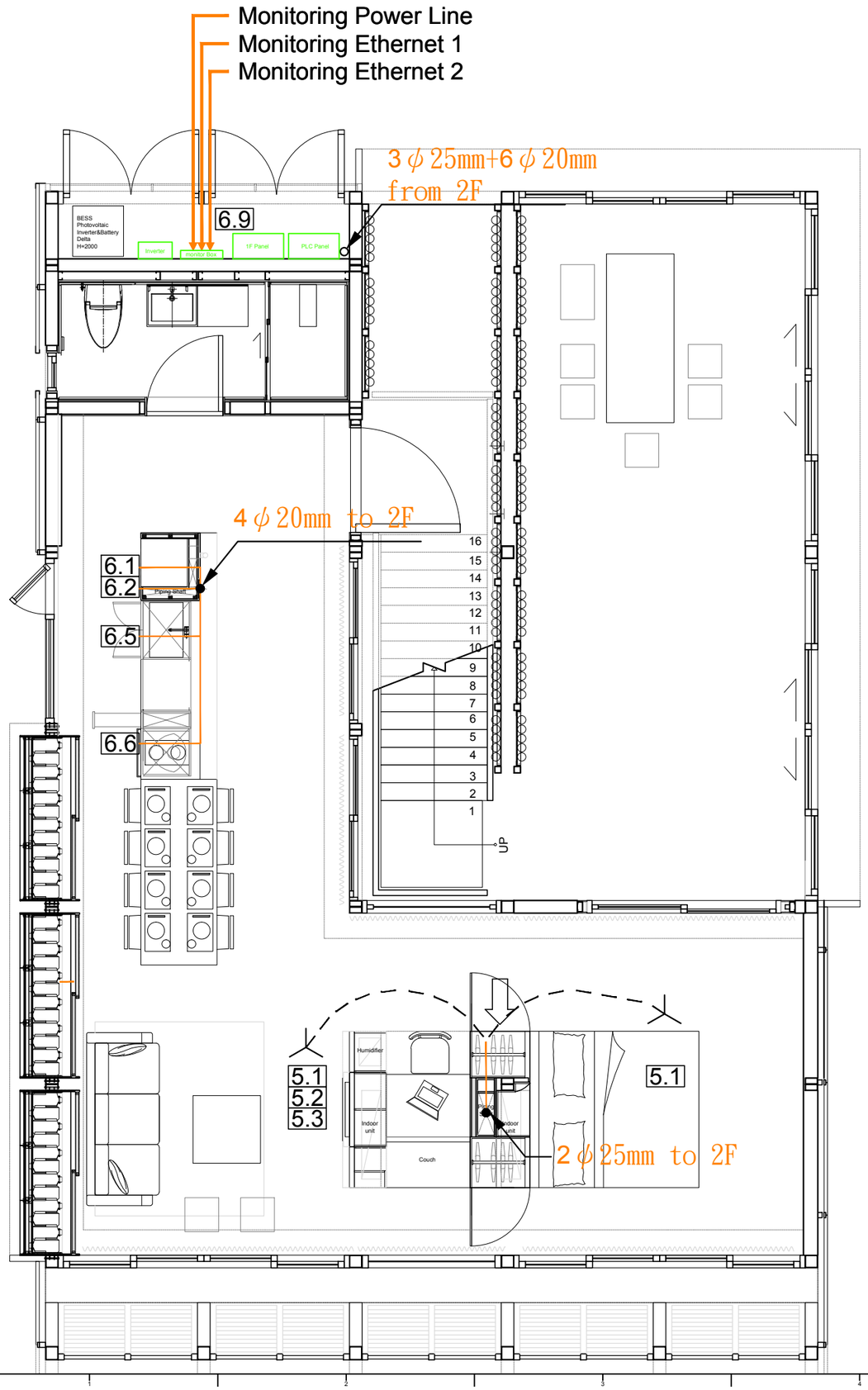
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ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	AC
Checked by	SY
Scale	-
Unit	-

DWG. Title: EQUIPMENT

DWG. No.: BAS-202

PAGE: ----



Legend / Lenght / Channeling		
5.1 5.2 5.3	Temperature Humidity Air Quality	21m
5.1	Temperature	28m
6.1	Fridge	15m
6.2	Freezer	15m
6.5	Dish Washer	17m
6.6	Oven	19m
6.9	Home Electronics	
⇨	Temporal Tripod Location	
monitor Box	Monitor Box	
-----	Sensor Channeling	

Solar Decathlon Europe

Project: ORCHID HOUSE

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Note:

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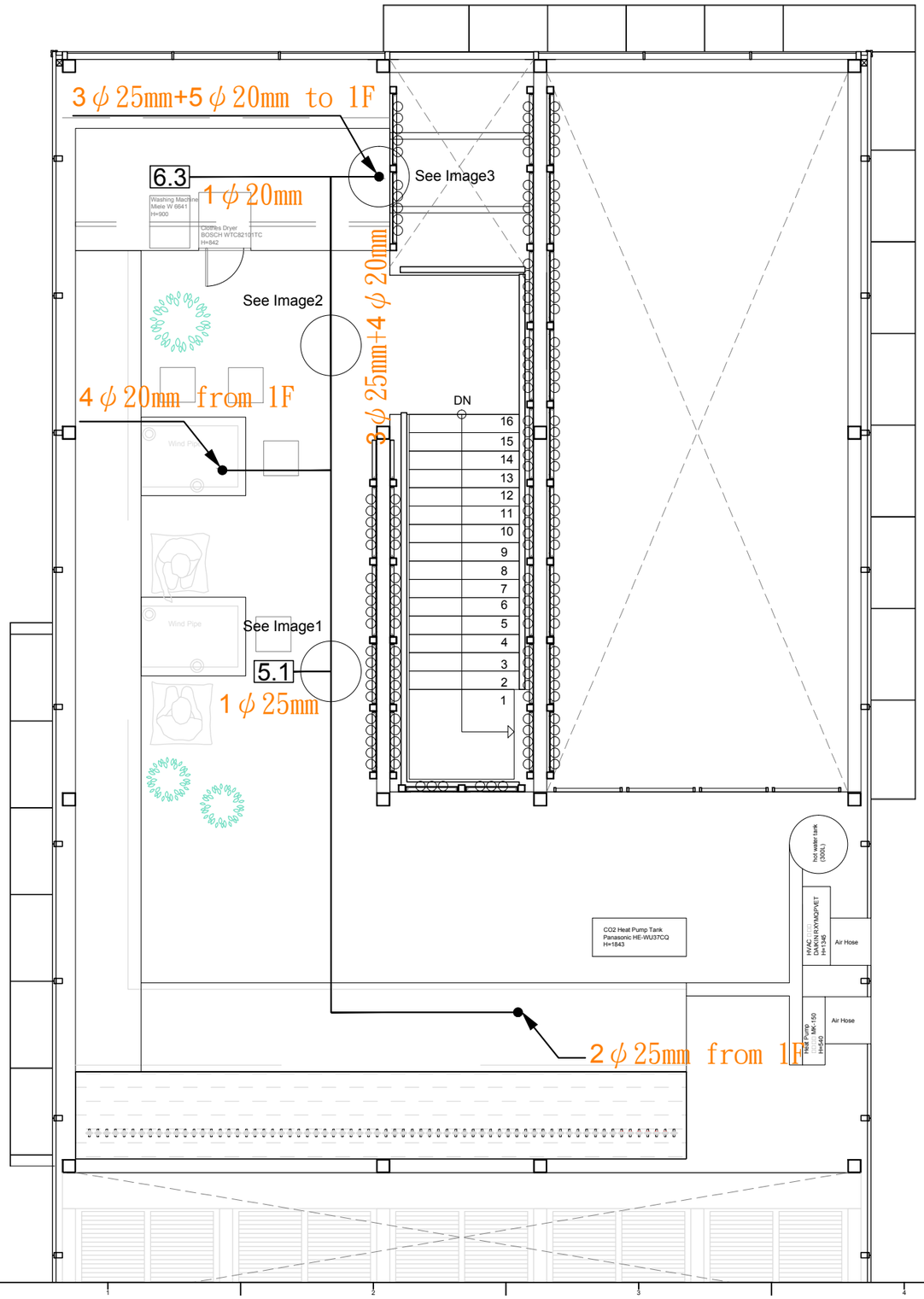
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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	Aaron Chen
Checked by	Steven Yu
Scale	1:60
Unit	mm

DWG. Title

GENERAL MONITORING
GROUND LEVEL

DWG. No.	PAGE
ID-001	228



Legend / Lenght / Channeling		
5.1	Temperature	15m
6.3	Clothes Washing	10m



Image1 | Image2



Image3

Solar Decathlon Europe

Project: ORCHID HOUSE

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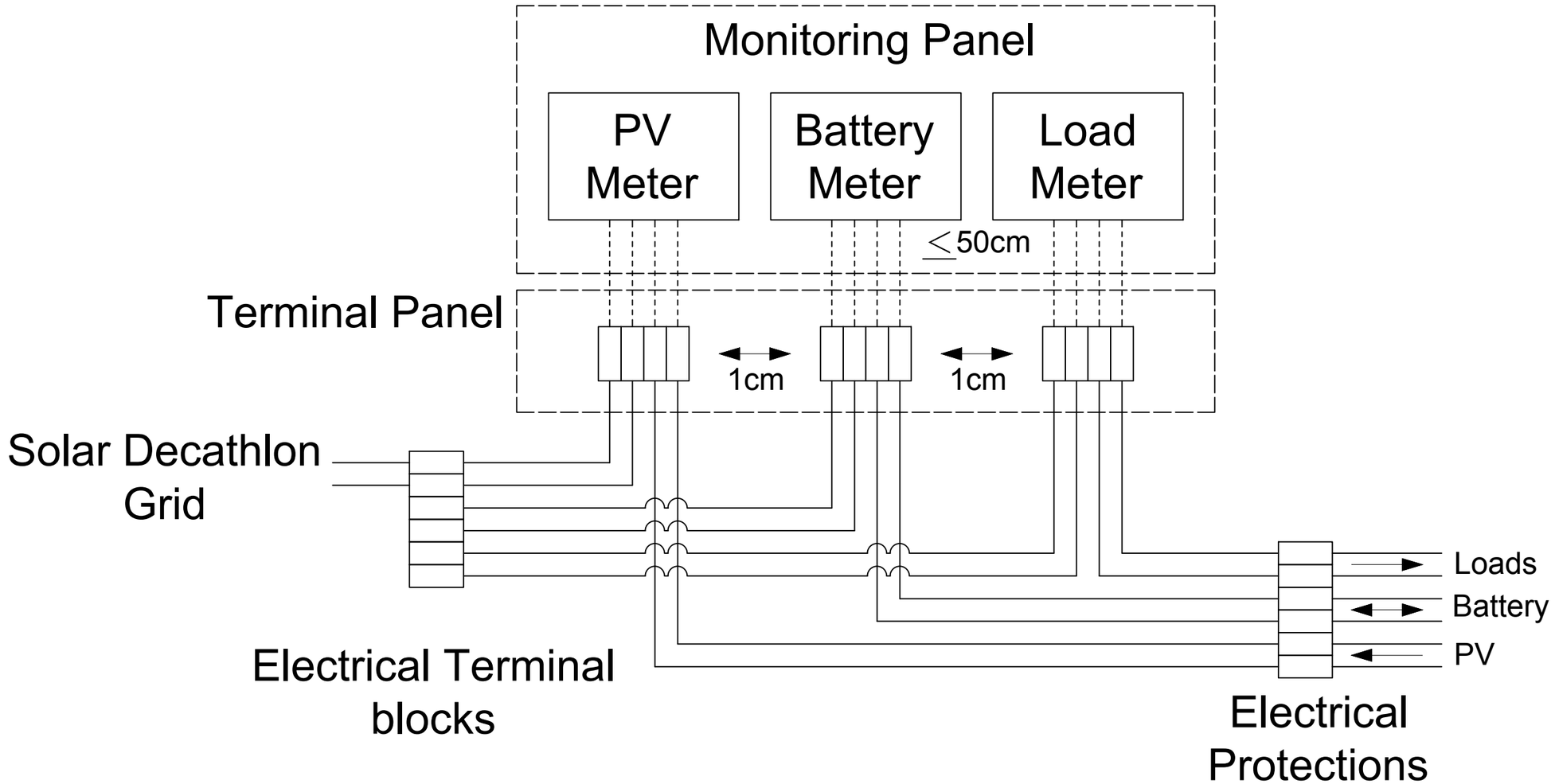
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ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	Aaron Chen
Checked by	Steven Yu
Scale	1:60
Unit	mm

DWG. Title: GENERAL MONITORING MEZZANINE LEVEL

DWG. No.: ID-002

PAGE: 229



Solar Decathlon Europe

Project: ORCHID HOUSE

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Note:

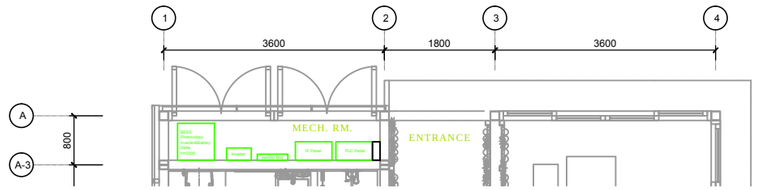
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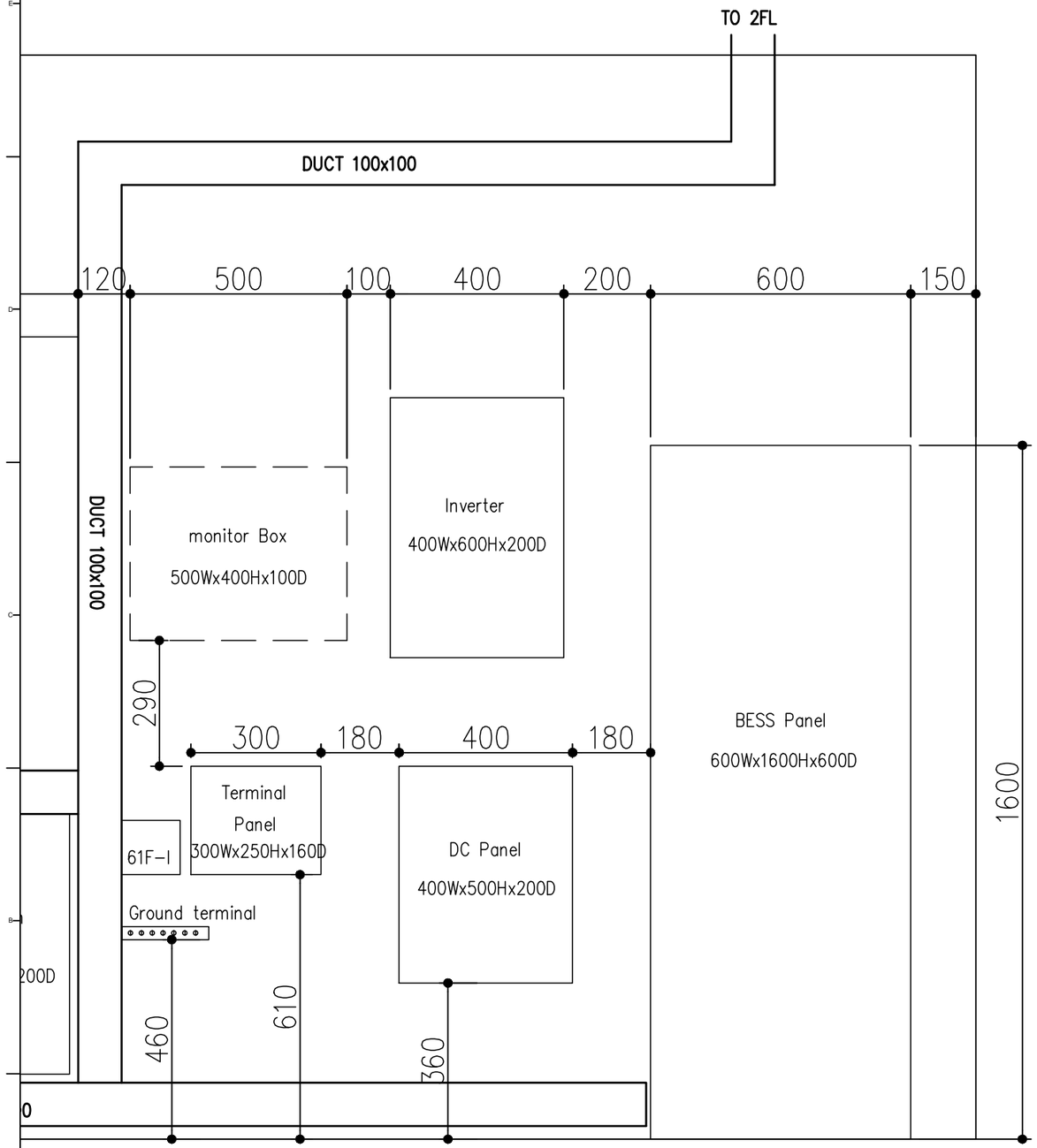
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Checked by	Steven Yu
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Unit	mm

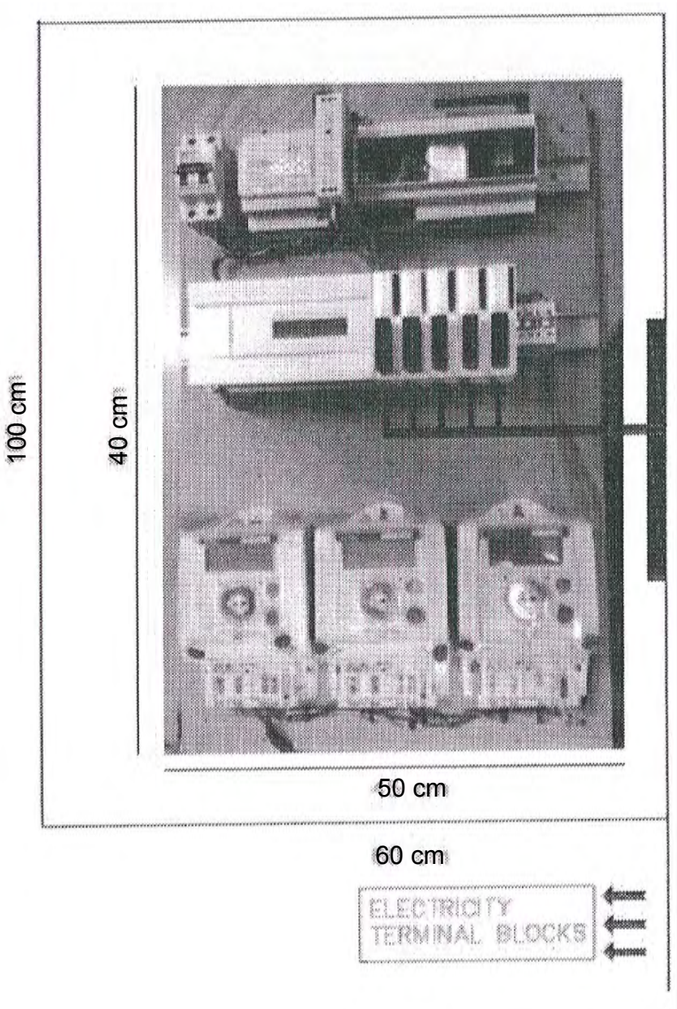
DWG. Title: ELECTRICITY METER CONNECTION

DWG. No.: ID-003

PAGE: 230







Monitoring Panel
Dimensions : 50x40x15 cm

Free Space Left For The
Monitoring Panel "
100x60x20 cm

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

Sensor Entrance

Monitoring Power Line
Monitoring Ethernet 1
Monitoring Ethernet 2

FRONT VIEW

Solar Decathlon Europe

Project: ORCHID HOUSE

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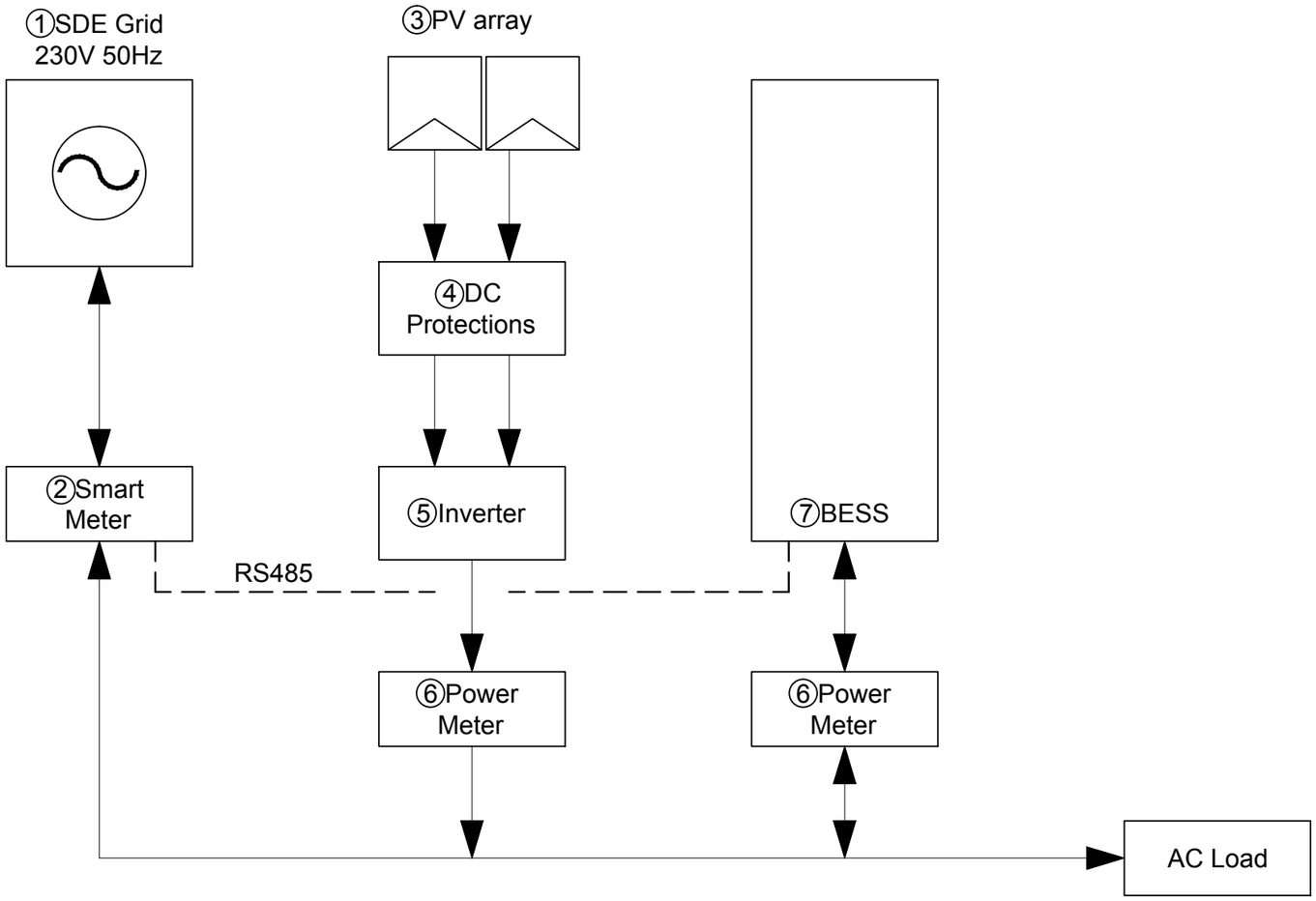
Drawn by	AC
Checked by	SY
Scale	-
Unit	

DWG. Title: MONITORING PANEL ROOM

DWG. No.: ID-011

PAGE: 231

Tag	Components	Manufacturer	Model	Q'ty	Notes
①	SDE Grid			1	Organizer Supplied Meter
②	Smart Meter	Schneider	PM3200	1	
③	PV array	DelSolar	D6P250B3A	24	
④	DC Protections	HI BOX		1	
⑤	Inverter	Delta	Solivia 5.0	1	
⑥	Power Meter	Schneider	PM3200	2	
⑦	BESS	Delta		1	Battery Energy Storage System



Solar Decathlon Europe

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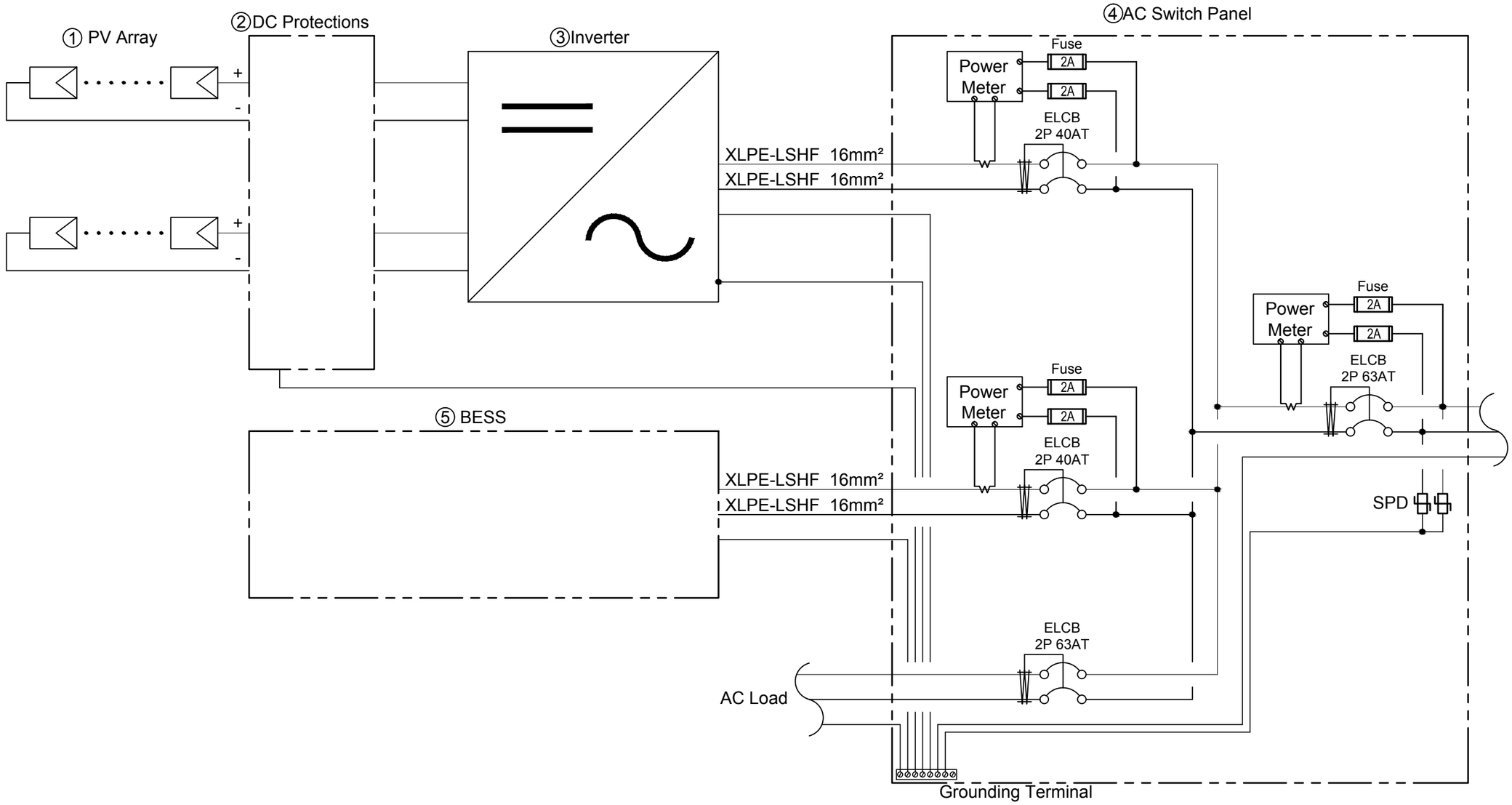
Drawn by	GK
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Scale	-
Unit	-

DWG. Title: ELECTRICITY METERS TOPOLOGY

DWG. No.: ID-021

PAGE: 232

Tag	Components	Manufacturer	Model	Q'ty	
①	PV Module	DelSolar	D6P250B3A	24	Notes
②	DC Protections	HI BOX		1	
③	Inverter	Delta	Solivia 5.0	1	
④	Box	HI BOX		1	
	Power Meter	Schneider	PM3200	3	
	ELCB	Shihlin		4	
	Surge Protection Device	Shihlin		2	
⑤	BESS	Delta		1	Battery Energy Storage System



Solar Decathlon Europe

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ST	2014/04/30	CD Submission

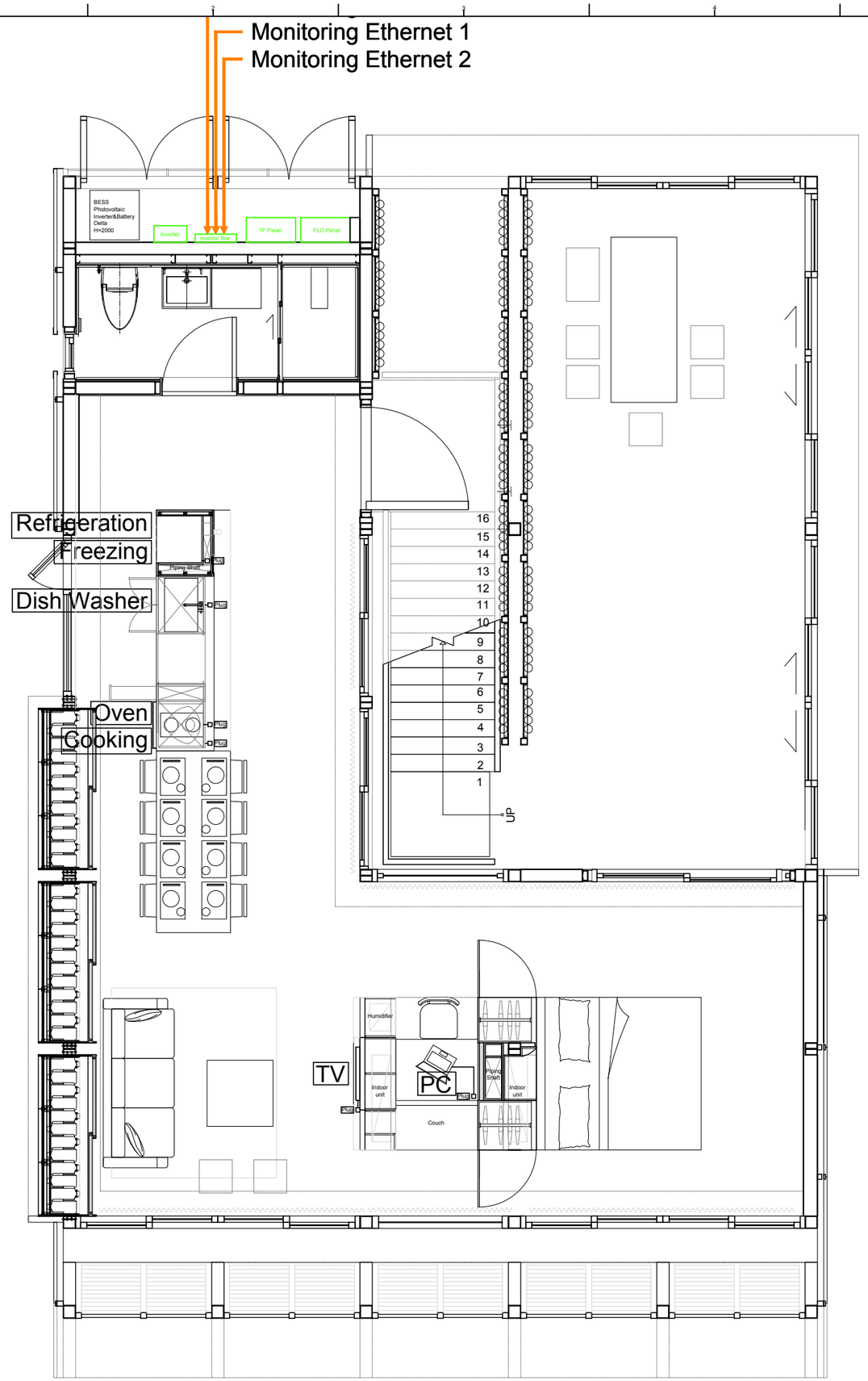
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Checked by	DN
Scale	-
Unit	-

DWG. Title

ELECTRICITY METERS CONNECTION

DWG. No. ID-031

PAGE 233



Legend / Brand / Model		
Refrigeration	MIELE	KFN 37452 i DE
Dish Washer	MIELE	G6995 SCVi K2O
Oven	MIELE	H2161 B CLST
TV	Samsung	F4000 Series 4
PC	Asus	Transformer AiO P1801

Solar Decathlon Europe

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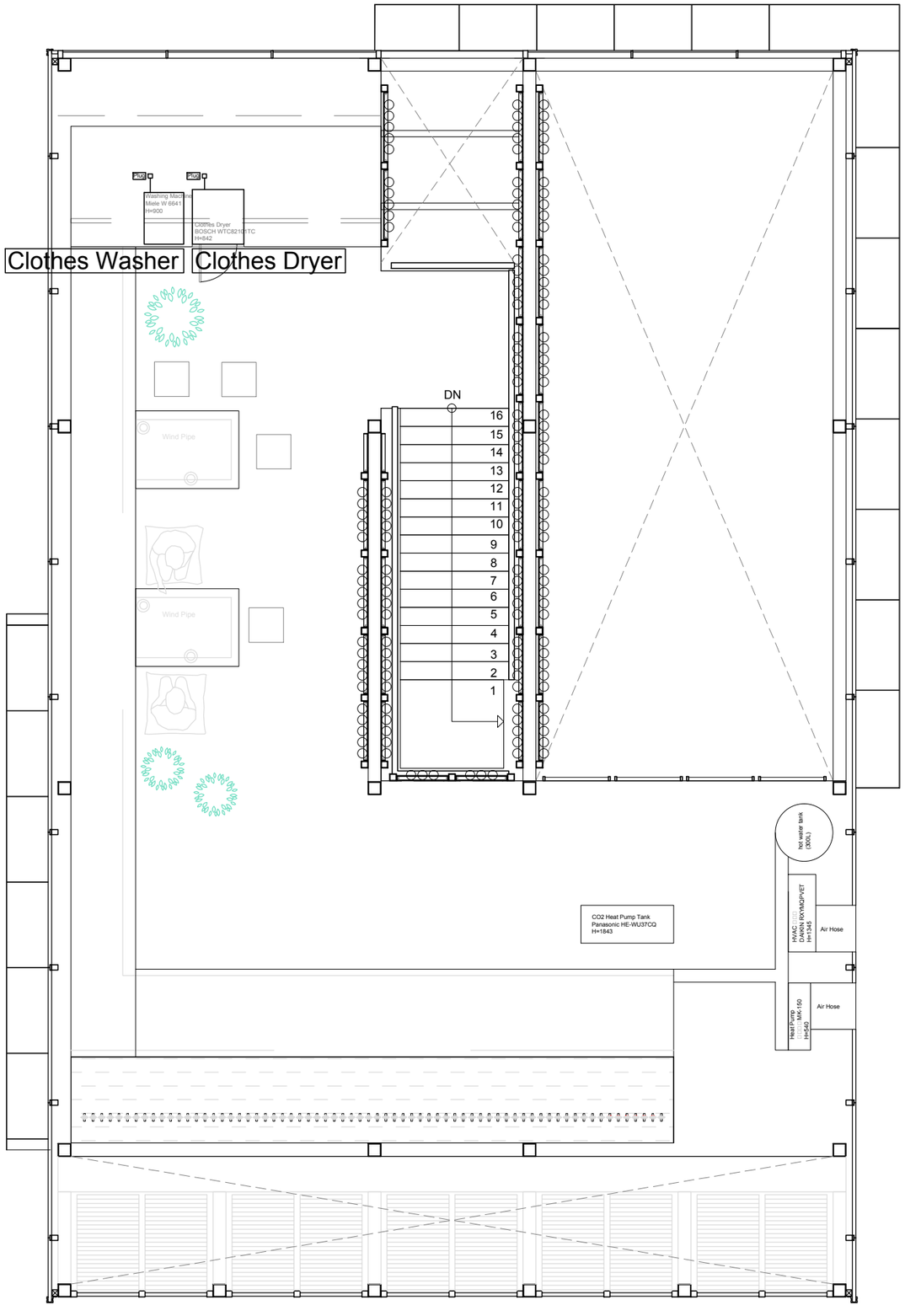
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Scale	-
Unit	-

DWG. Title

HOUSE APPLIANCES GROUND LEVEL

DWG. No. ID-041

PAGE 234



Legend / Brand / Model		
Clothes Washer	MIELE	W 664
Clothes Dryer	BOSCH	WTW84363NL

Solar Decathlon Europe

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Note:

N

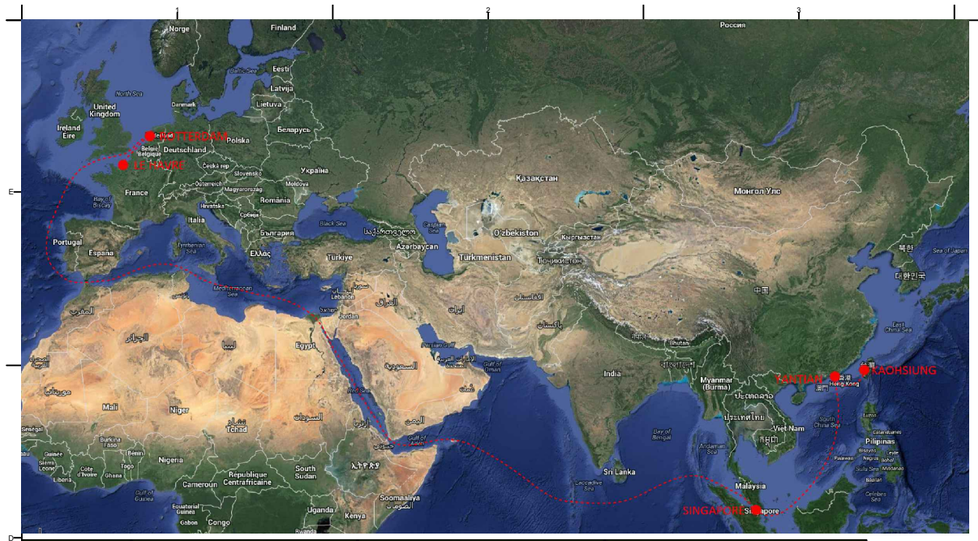
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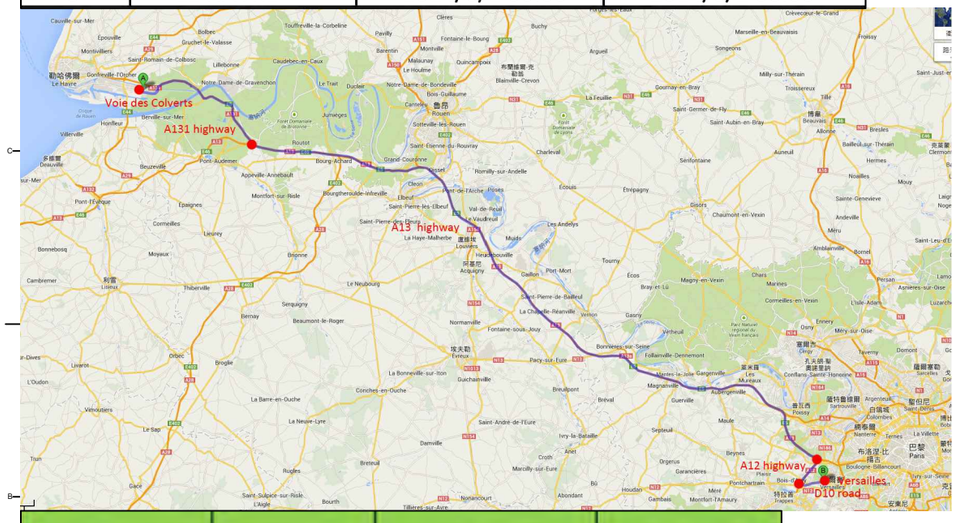
DWG. Title

HOUSE APPLIANCES
MEZZANINE LEVEL

DWG. No.	PAGE
ID-042	235



Phase	Port	Arrival	Departure
1	KAOHSIUNG	2014/4/29 10:00	2014/4/30 08:00
2	YANTIAN	2014/5/1 08:00	2014/5/2 08:00
3	SINGAPORE	2014/5/5 16:00	2014/5/6 22:00
4	ROTTERDAM	2014/5/26 01:00	2014/5/27 10:00
5	LE HAVRE	2014/6/1 06:00	2014/6/2 06:00



Trailer Frequency	Transport Date	Location & Directions	Travel time(min)
15	6/16-6/25	Voie des Colverts(start)	0
		A131 Highway	7
		A13 Highway	16
		A12 Highway	60
		D10 Road	26
		Versailles(end)	5
TOTAL			114
16	7/15-7/19	Versailles(start)	0
		D10 Road	5
		A12 Highway	26
		A13 Highway	60
		A131 Highway	16
		Voie des Colverts(end)	7
TOTAL			114

Shipping, Freight, Demand, Process Timetable				
Date	Local	Project target	Demand Help	Self assist
4/16~4/29	Taiwan	Apply to customs	Declaration process guidance	Customs detail, customs declaration
4/7~4/13	Taiwan	Component packaging and protection	Packaging and protective materials to provide	Packaging and Protection
4/13~4/16	Taiwan	Component transport (Container *14)	Hsinchu→Container port	
4/13~4/16	Taiwan	Component Loading(Container*14)	Loading location and Equipment evaluation	Component classification
4/29~6/1	Ship	Taiwan→France	Transport	The number of containers and the declaration content
6/1~6/5	France	Immigration Customs	Declaration process guidance	Customs detail, the number of containers and the
6/5~6/10	France	Component Discharge (Container*14)(Trailers Trucks *15)	Component Discharge	Component Discharge
6/10~6/15	France	Component transport (Trailers Trucks *15)	France transport (Trailers Trucks *13)	Trucks size
6/5~6/25 7/15~7/25	France	Pre Construction Warehouse (H-5M,400m^2 Warehouse) Heavy equipment rental	Warehouse Lodging Near Warehouse Forklift ,Bridge Crane or small crane ,Scaffolding, air Compressors	Warehouse size
6/16~6/25	France	Transport sequence	Transport	Transport sequence in 10 Days
7/15~7/24	France	Disassembly Warehouse (H-5M,400m^2 Warehouse)	Forklift, Bridge crane or small crane ,Scaffolding, air Compressors	
7/19~7/24	France	Component packaging and protection	Packaging and protective materials to provide	Packaging and Protection
7/21~7/24	France	Component transport (Trailers Trucks *14)	Warehouse→Port	
7/25	France	Outbound Customs	Declaration process guidance	Customs detail, customs declaration
8/1	Taiwan	Transportation back to Taiwan		

Solar Decathlon Europe

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Checked by DN

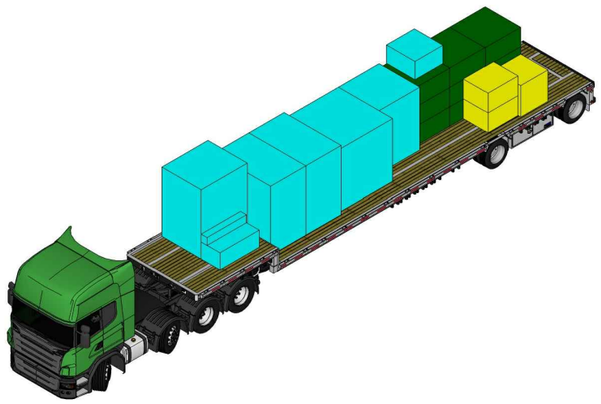
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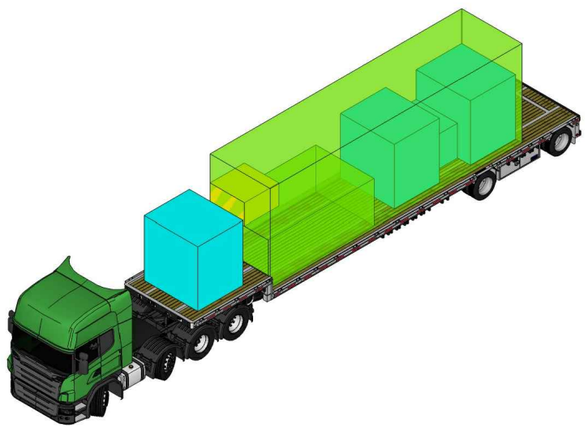
DWG. Title: TRUCKS SHIPMENT 1

DWG. No.: SO-001

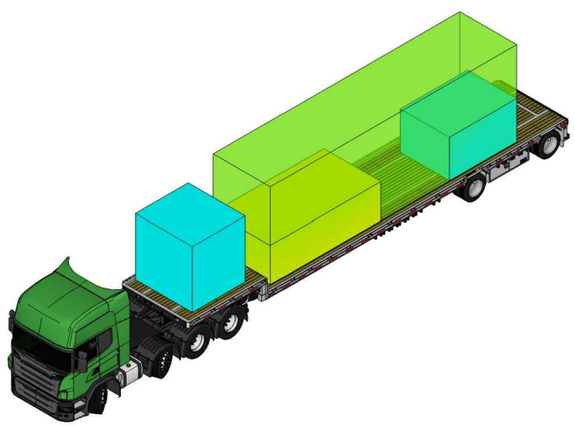
PAGE: 236



TRUCK-1 FLATBED
6/16 08:00



TRUCK-2 LOW LOADER
6/16 12:00



TRUCK-3 LOW LAODER
6/16 14:00

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm) L	W	H	Arrival
1	Flat	Tool	N30	1	1	150	1500	1500	1500	6/16 08:00
1	Flat	Tool	N32	1	1	10	1500	900	800	6/16 08:00
1	Flat	Tool	N33	1	1	50	1500	500	500	6/16 08:00
1	Flat	Tool	N25	3	1	150	1000	1000	1000	6/16 08:00
1	Flat	Wooden Sandbox	P27	4	1	150	2100	1300	1090	6/16 08:00
1	Flat	Wooden Sandbox	P28	4	1	150	2100	1300	1090	6/16 08:00
1	Flat	Wooden Sandbox	P31	4	1	150	1700	1450	1210	6/16 08:00
1	Flat	Steel Structure Footing	P14	6	1	440	1300	1300	620	6/16 08:00
1	Flat	Steel Structure Footing	P15	6	1	440	1300	1300	620	6/16 08:00
1	Flat	Steel Structure Footing	P16	6	1	440	1300	1300	620	6/16 08:00
1	Flat	Steel Structure Footing	P17	6	1	440	1300	1300	620	6/16 08:00
1	Flat	Steel Structure Footing	P18	6	1	440	1300	1300	620	6/16 08:00
1	Flat	Plastic Bucket	W1	11	1	890	1100	900	630	6/16 08:00
1	Flat	Plastic Bucket	W2	11	1	120	1100	900	630	6/16 08:00
1	Flat	Tool	P48-w	11	1	680	1500	1500	2000	6/16 08:00
1	Flat	Steel Structure Footing	P19	326	1	440	1300	1300	620	6/16 08:00
1	Flat	Steel Structure Footing	P20	326	1	440	1300	1300	620	6/16 08:00
1	Flat	Steel Structure Footing	P21	326	1	440	1300	1300	620	6/16 08:00
1	Flat	Steel Structure Footing	P22	326	1	440	1300	1300	620	6/16 08:00
1	Flat	Sand Bag	N34	1	1	6000	2000	2000	2000	6/16 08:00
total					20	12460				

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm) L	W	H	Arrival
2	Low	Steel Structure UNIT 12	P09	11	1	2640	9500	2275	3450	6/16 12:00
2	Low	Steel Structure UNIT 10	P07	51	1	550	4000	2200	1545	6/16 12:00
2	Low	GL Lower Wooden Box	P50	98	1	80	1865	1150	1140	6/16 12:00
2	Low	GL Lower Wooden Box	P52	98	1	180	1865	1150	1140	6/16 12:00
2	Low	Steel Structure Connection	P13-w	121	1	350	1300	1300	755	6/16 12:00
2	Low	ML Lower Wooden Box	P58	1	1	2500	2030	1710	1210	6/16 12:00
2	Low	ML Lower Wooden Box	P59	1	1	2500	2030	1710	1210	6/16 12:00
total					7	8800				

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm) L	W	H	Arrival
3	Low	Steel Structure UNIT 11	P08	15	1	2345	9500	2200	3450	6/16 14:00
3	Low	Aluminum Window Frame	W3	57	1	260	4450	2200	1300	6/16 14:00
3	Low	ML Upper Wooden Box	P60	122	1	420	2000	2000	2000	6/16 14:00
3	Low	Ceiling Structure	P46	178	1	70	1622	960	420	6/16 14:00
total					4	3095				

Solar Decathlon Europe

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Note:

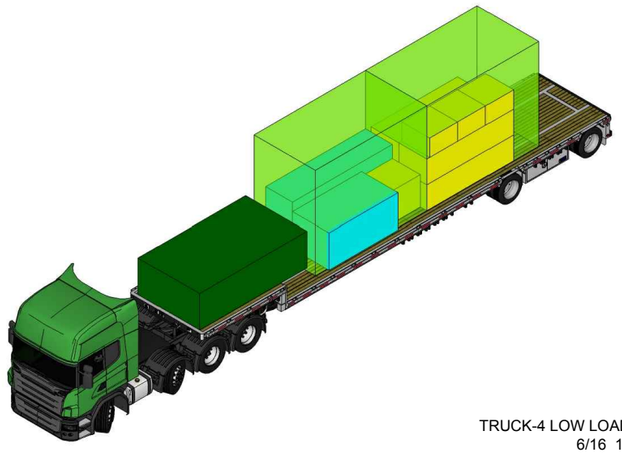
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DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
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ST	2014/04/30	CD Submission

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Checked by: DN
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Unit: -

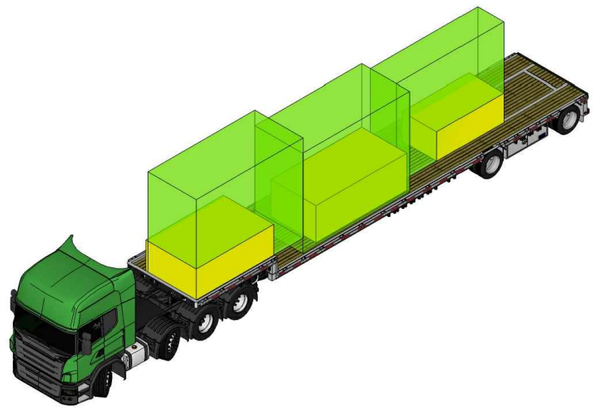
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DWG. No.: SO-011

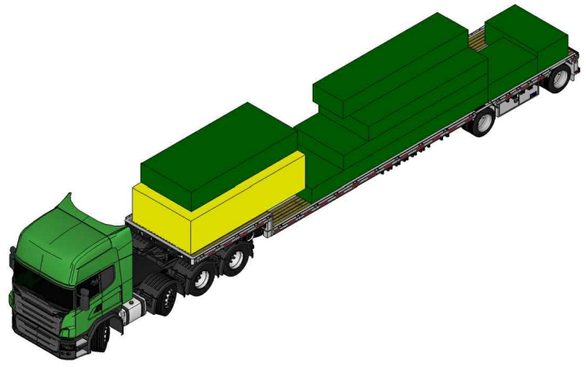
PAGE: 237



TRUCK-4 LOW LOADER
6/16 15:00



TRUCK-5 LOW LOADER
6/16 16:00



TRUCK-6 FLATBAD
6/16 23:00

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
4	Low	Steel Structure UNIT 05	P05	20	1	1150	4000	2200	3450	6/16 15:00
4	Low	Eform	N31	24	1	150	4000	2000	2000	6/16 15:00
4	Low	Steel Structure UNIT 04	P04	27	1	1025	4000	2200	3450	6/16 15:00
4	Low	Electrical Pipe	W22	32	1	80	3100	1000	800	6/16 15:00
4	Low	Water Pipe	W23	32	1	110	3100	1000	800	6/16 15:00
4	Low	Steel Structure UNIT 06	P06	54	1	1500	3850	2200	1130	6/16 15:00
4	Low	Vacuum Insulation Panel	P76	122	1	120	2480	1303	1200	6/16 15:00
4	Low	UIS Tool	N24	147	1	70	1000	1000	600	6/16 15:00
4	Low	UIS Tool	N21	147	1	70	1000	1000	600	6/16 15:00
4	Low	UIS Tool	N22	147	1	70	1000	1000	600	6/16 15:00
4	Low	UIS Tool	N23	147	1	70	1000	1000	1000	6/16 15:00
4	Low	Air Pipe	W24	153	1	50	3100	1000	800	6/16 15:00
4	Low	Exhaust Fan Air Pipe	W25	198	1	250	3100	1000	800	6/16 15:00
4	Low	PV Cable Tray	w25	244	1	250	3100	1000	800	6/16 15:00
total					14	4965				

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
5	Low	Tool	N12	3	1	835	2900	1890	1000	6/16 16:00
5	Low	Tool	N11	3	1	800	3400	1690	1200	6/16 16:00
5	Low	Steel Structure UNIT 03	P03	34	1	950	4000	1810	3450	6/16 16:00
5	Low	Steel Structure UNIT 02	P02	41	1	1000	4000	1790	3450	6/16 16:00
5	Low	Steel Structure UNIT 01	P01	46	1	900	4000	975	3450	6/16 16:00
5	Low	Wooden Sheet	W31	178	1	150	2600	1300	800	6/16 16:00
total					6	4635				

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
6	Flat	Steel Structure Beam	P37	83	1	1660	4030	1900	630	6/16 23:00
6	Flat	Steel Structure Stair	P39	92	1	350	4730	1150	565	6/16 23:00
6	Flat	Steel Structure Stair	P40	92	1	200	1890	1305	540	6/16 23:00
6	Flat	Steel Structure Stair	P38	92	1	400	2010	1150	690	6/16 23:00
6	Flat	Steel Structure Beam	P34	102	1	1540	4507.6	1900	480	6/16 23:00
6	Flat	Steel Structure Beam	P36	102	1	920	5451.5	1900	480	6/16 23:00
6	Flat	GL Upper Wooden Box	W26	122	1	760	4350	2200	1100	6/16 23:00
6	Flat	Steel Structure Column	P33	188	1	1700	6674.3	1900	480	6/16 23:00
total					8	7530				

Solar Decathlon Europe

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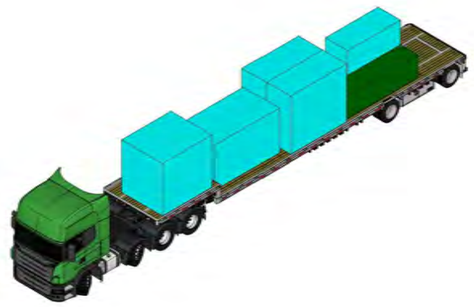
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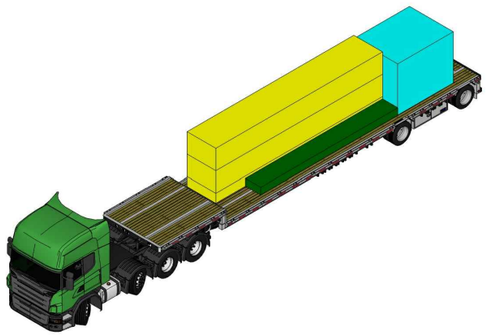
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DWG. No.: SO-012

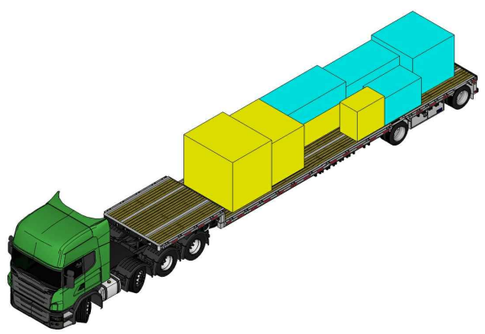
PAGE: 238



TRUCK-7 FLATBED
6/17 02:00



TRUCK-8 FLATBED
6/17 08:00



TRUCK-9 FLATBED
6/18 06:00

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm) L	W	H	Arrival
7	Flat	Bedroom Cabinet	P64	130	1	200	2515	1065	1000	6/17 02:00
7	Flat	Steel Structure Small Beam (South	P35	102	1	800	3530	1900	930	6/17 02:00
7	Flat	Wooden Box (Wall)	P61	125	1	2000	2650	1140	1236	6/17 02:00
7	Flat	Wooden Box (Wall)	P62	125	1	2000	2650	1140	1236	6/17 02:00
7	Flat	Kitchen Finish	P73	129	1	300	3050	1700	1830	6/17 02:00
7	Flat	Bedroom Cabinet	P74	130	1	220	2350	1950	2130	6/17 02:00
total					6	5520				

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm) L	W	H	Arrival
8	Flat	Steel Structure Canopy	P82	140	1	300	6250	700	300	6/17 08:00
8	Flat	Wooden Box	P77	146	1	360	2540	2000	2020	6/17 08:00
8	Flat	Stainless Steel Pool	W9	161	1	190	7600	1310	390	6/17 08:00
8	Flat	FRP Clean Water Tank	W35	162	1	110	7600	1310	880	6/17 08:00
8	Flat	FRP Gray Water Tank	W36	162	1	110	7600	1310	880	6/17 08:00
total					5	1070				

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm) L	W	H	Arrival
9	Flat	Small Wooden Box	P65	125	1	350	2500	1300	1440	6/18 06:00
9	Flat	Ceramic Panel	P75	146	1	860	2700	1320	720	6/18 06:00
9	Flat	Toilet equipment	W13	179	1	300	2100	1650	1680	6/18 06:00
9	Flat	Washing Machine	W11	207	1	150	800	1260	1180	6/18 06:00
9	Flat	Panasonic CO2 Heat Pump Tank	W12	207	1	270	1800	2250	1980	6/18 06:00
9	Flat	Hot Water Tank	P72	207	1	150	1700	1000	1080	6/18 06:00
9	Flat	Polli-Brick	P45	225	1	160	1900	1900	1730	6/18 06:00
9	Flat	Thermal Wall Outside Structure	W30	226	1	500	2500	1300	950	6/18 06:00
total					8	2740				

Solar Decathlon Europe

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Checked by: DN

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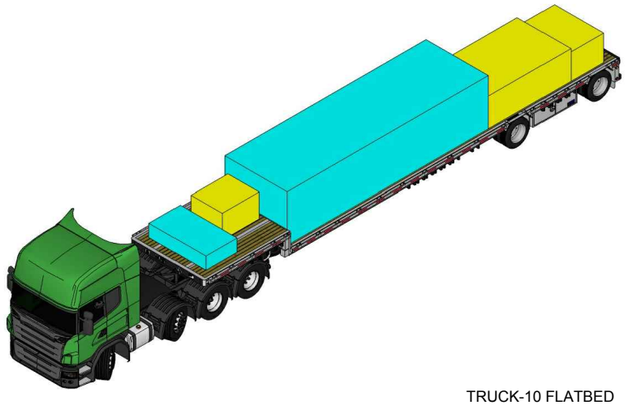
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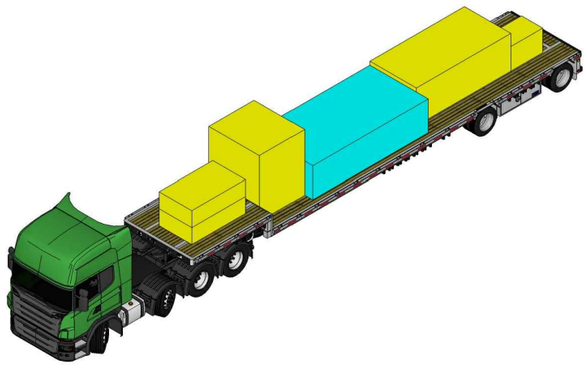
ASSEMBLY TRUCKS
SHIPMENT 3

DWG. No. SO-013

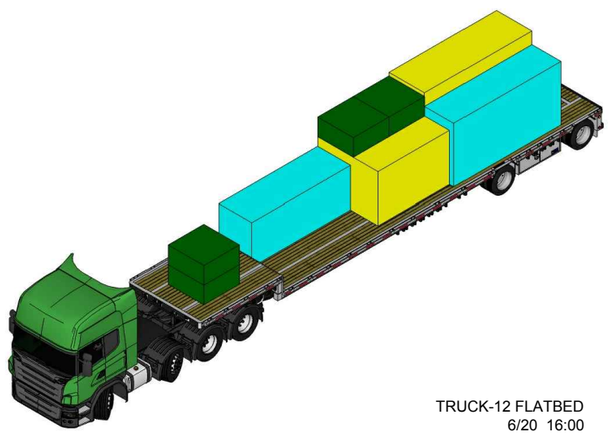
PAGE 239



TRUCK-10 FLATBED
6/19 0200



TRUCK-11 FLATBED
6/19 14:00



TRUCK-12 FLATBED
6/20 16:00

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm) L	W	H	Arrival
10	Flat	PV Module	N26	242	1	160	1500	800	600	6/19 02:00
10	Flat	PV Module	N13	242	1	720	2900	1890	1000	6/19 02:00
10	Flat	Smart Skin UNIT	N14	243	1	275	1730	1150	900	6/19 02:00
10	Flat	Electrical equipment	W14	248	1	150	1100	1300	820	6/19 02:00
10		Bayer PC Hollow Sheet	P78	281	1	900	7100	2200	1630	6/19 02:00
total					5	2205				

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm) L	W	H	Arrival
11	Flat	Glass Louver	W5	258	1	950	712	1200	740	6/19 14:00
11	Flat	kitchen&living equipment	W10	268	1	460	1900	1700	2130	6/19 14:00
11	Flat	Exhaust Fan	W15	270	1	200	1230	2020	550	6/19 14:00
11	Flat	Exhaust Fan	W16	270	1	200	1230	2020	550	6/19 14:00
11	Flat	Aluminum Louver Frame	W4	307	1	2000	3560	1750	1230	6/19 14:00
11	Flat	Plastic Wood Unit	P67	378	1	4200	4350	2200	1100	6/19 14:00
total					6	8010				

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm) L	W	H	Arrival
12	Flat	Aluminum Windows	W32	258	1	140	2600	2200	2200	6/20 16:00
12	Flat	Steel Column Green Core	N6	276	1	2200	3900	1290	1215	6/20 16:00
12	Flat	Steel Column Green Core	N7	276	1	2200	3900	1290	1215	6/20 16:00
12	Flat	Steel Structure Footing	P23	326	1	440	1300	1300	620	6/20 16:00
12	Flat	Steel Structure Footing	P24	326	1	440	1300	1300	620	6/20 16:00
12	Flat	Steel Structure Footing	P25	326	1	440	1300	1300	620	6/20 16:00
12	Flat	Steel Structure Footing	P26	326	1	440	1300	1300	620	6/20 16:00
12	Flat	Plastic Wood Small Piece	N20	378	1	2000	3600	1200	1400	6/20 16:00
12	Flat	Sand Bag	N36	400	1	6000	2000	2000	2000	6/20 16:00
total					9	14300				

Solar Decathlon Europe

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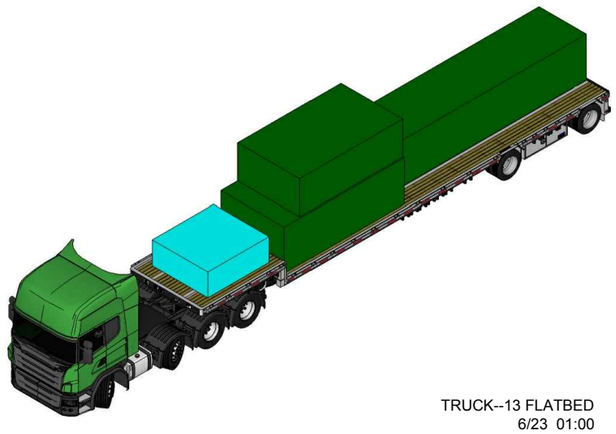
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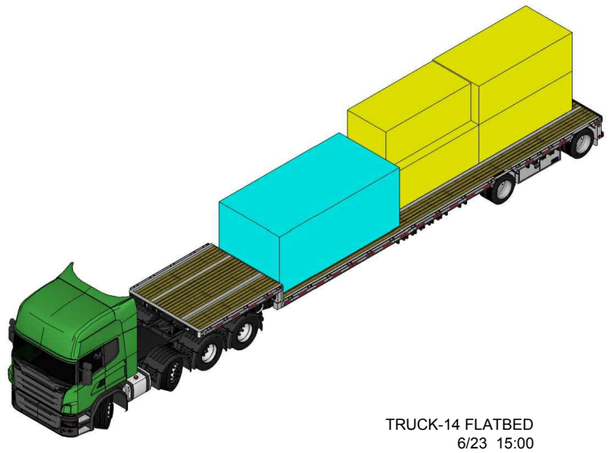
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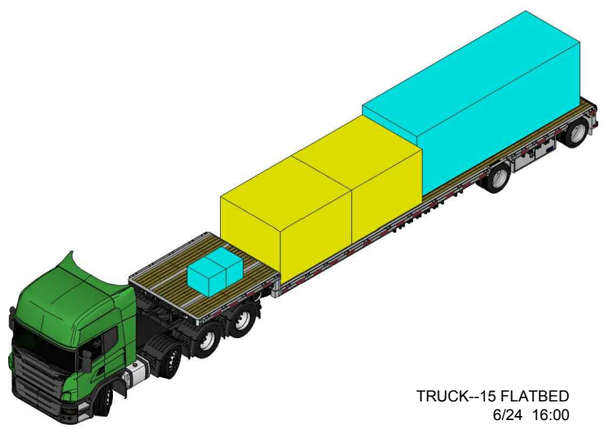
PAGE: 240



TRUCK--13 FLATBED
6/23 01:00



TRUCK-14 FLATBED
6/23 15:00



TRUCK--15 FLATBED
6/24 16:00

Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
13	Flat	Solar Water Heater Frame	P44	328	1	220	2200	2000	800	6/23 01:00
13	Flat	Steel Structure UNIT 13	P10	334	1	1950	4300	2275	1430	6/23 01:00
13	Flat	Steel Structure UNIT 23	P11	334	1	3800	7000	1700	1430	6/23 01:00
13	Flat	Steel Structure UNIT 22	P12	334	1	1450	3700	2225	1180	6/23 01:00
total					4	7420				
Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
14	Flat	FRP Rain Water Tank	W37	162	1	150	3100	1400	1180	6/23 15:00
14	Flat	Plastic Wood Unit	P68	378	1	4440	4350	2200	1830	6/23 15:00
14	Flat	Steel Outdoor Handrail	N1	396	1	800	3400	1685	1215	6/23 15:00
14	Flat	Steel Outdoor Handrail	N3	396	1	800	3400	1685	1215	6/23 15:00
14	Flat	Steel Outdoor Handrail	N2	396	1	800	3400	1685	1215	6/23 15:00
total					5	6990				
Truck No.(A)	Type	Designation	Package No.	Assembly No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
15	Flat	Home accessories	N27	410	1	80	800	400	400	6/24 16:00
15	Flat	Furniture	W33	410	1	260	2600	2200	2200	6/24 16:00
15	Flat	Furniture	W34	410	1	650	2600	2200	2200	6/24 16:00
15	Flat	Planting	N35	400	1	3000	7000	2000	2000	6/24 16:00
total					4	3990				

Solar Decathlon Europe

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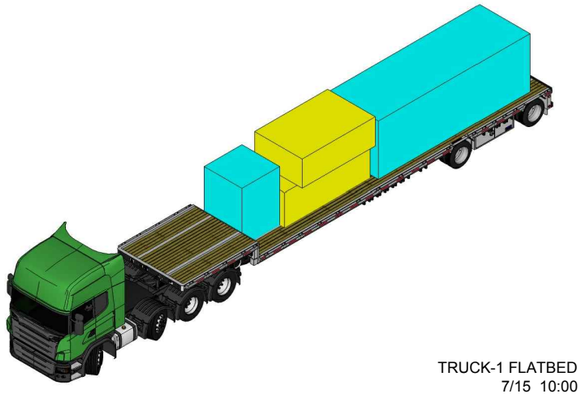
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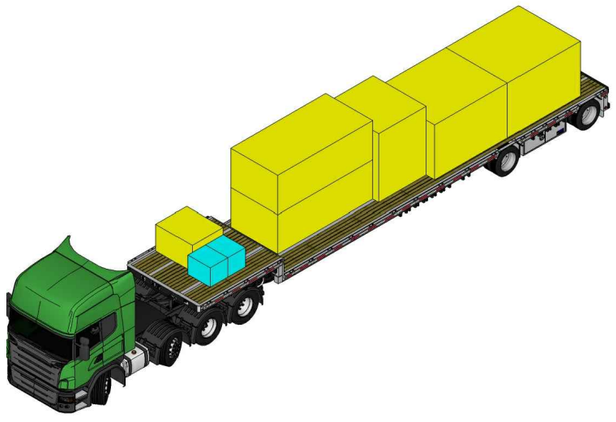
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DWG. No.: SO-015

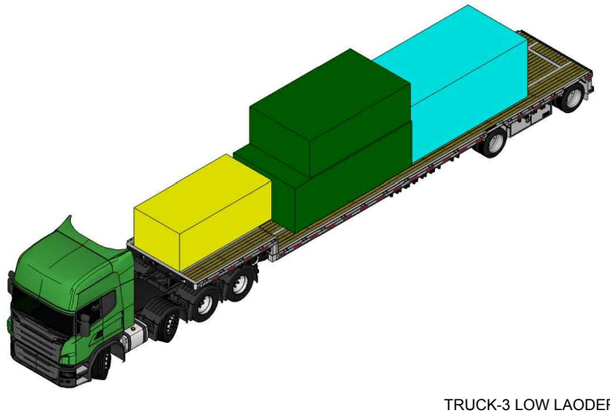
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TRUCK-1 FLATBED
7/15 10:00



TRUCK-2 LOW LOADER
7/15 15:00



TRUCK-3 LOW LAODER
7/15 20:00

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
1	Flat	Tool	N30	0	1	150	3400	1800	1100	7/15 10:00
1	Flat	Tool	N32	0	1	10	2900	1700	1100	7/15 10:00
1	Flat	Tool	N33	0	1	50	2000	2000	2000	7/15 10:00
1	Flat	Planting	N35	150	1	3000	7000	2000	2000	7/15 10:00
total					4	3210				

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
2	Flat	Electrical equipment	W14	4	1	150	1100	1300	820	7/15 15:00
2	Flat	kitchen&living equipment	W10	3	1	460	1900	1700	2130	7/15 15:00
2	Flat	Steel Outdoor Handrail	N1	6	1	800	3400	1685	1215	7/15 15:00
2	Flat	Steel Outdoor Handrail	N2	6	1	800	3400	1685	1215	7/15 15:00
2	Flat	Home accessories	N27	1	1	80	800	400	400	7/15 15:00
2	Flat	Furniture	W33	2	1	260	2600	2200	2200	7/15 15:00
2	Flat	Furniture	W34	2	1	650	2600	2200	2200	7/15 15:00
total					7	3200				

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
3	Flat	Steel Structure UNIT 13	P10	8	1	1950	4300	2275	1430	7/15 20:00
3	Flat	Steel Structure UNIT 22	P12	8	1	1450	3700	2225	1180	7/15 20:00
3	Flat	Plastic Wood Unit	P68	7	1	4440	4350	2200	1830	7/15 20:00
3	Flat	Steel Outdoor Handrail	N3	6	1	800	3400	1685	1215	7/15 20:00
total					4	8640				

Solar Decathlon Europe

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Note:

Mark	Date	Description
DN	2013/04/01	SD Submission
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by: SC

Checked by: DN

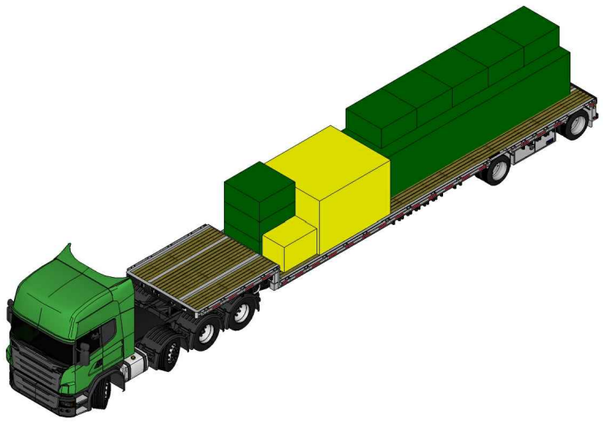
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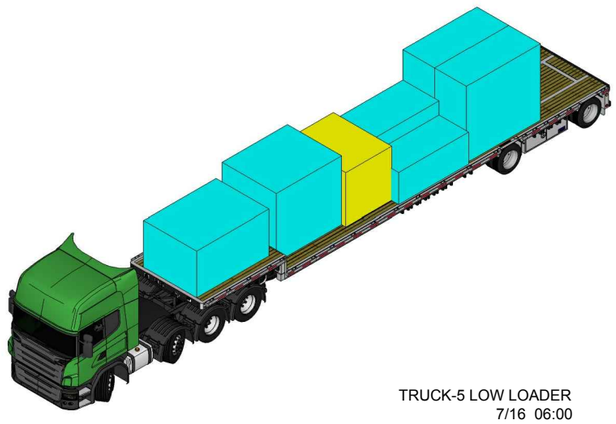
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DWG. No.: SO-021

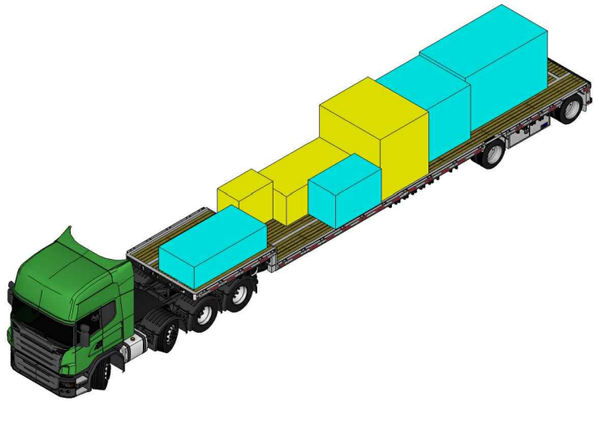
PAGE: 242



TRUCK-4 LOW LOADER
7/16 01:00



TRUCK-5 LOW LOADER
7/16 06:00



TRUCK-6 FLATBAD
7/16 12:00

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
4	Flat	Glass Louver	W5	12	1	950	712	1200	740	7/16 01:00
4	Flat	Aluminum Windows	W32	15	1	140	2600	2200	2200	7/16 01:00
4	Flat	Steel Structure Footing	P19	9	1	440	1300	1300	620	7/16 01:00
4	Flat	Steel Structure Footing	P20	9	1	440	1300	1300	620	7/16 01:00
4	Flat	Steel Structure Footing	P21	9	1	440	1300	1300	620	7/16 01:00
4	Flat	Steel Structure Footing	P22	9	1	440	1300	1300	620	7/16 01:00
4	Flat	Steel Structure Footing	P23	9	1	440	1300	1300	620	7/16 01:00
4	Flat	Steel Structure Footing	P24	9	1	440	1300	1300	620	7/16 01:00
4	Flat	Steel Structure Footing	P25	9	1	440	1300	1300	620	7/16 01:00
4	Flat	Steel Structure Footing	P26	9	1	440	1300	1300	620	7/16 01:00
4	Flat	Steel Structure UNIT 23	P11	8	1	3800	7000	1700	1430	7/16 01:00
total					11	8410				

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
5	Flat	Bedroom Cabinet	P64	25	1	200	2515	1065	1000	7/16 06:00
5	Flat	Wooden Box (Wall)	P61	21	1	2000	2650	1140	1236	7/16 06:00
5	Flat	Wooden Box (Wall)	P62	21	1	2000	2650	1140	1236	7/16 06:00
5	Flat	Small Wooden Box	P65	21	1	350	2500	1300	1440	7/16 06:00
5	Flat	Bedroom Cabinet	P74	25	1	220	2350	1950	2130	7/16 06:00
5	Flat	Ceiling Structure	P46	20	1	70	1622	960	420	7/16 06:00
5	Flat	Toilet equipment	W13	22	1	300	2100	1650	1680	7/16 06:00
total					7	5140				

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
6	Flat	Kitchen Finish	P73	23	1	300	3050	1700	1830	7/16 12:00
6	Flat	Ceramic Panel	P75	31	1	860	2700	1320	720	7/16 12:00
6	Flat	Washing Machine	W11	28	1	150	800	1260	1180	7/16 12:00
6	Flat	Panasonic CO2 Heat Pump Tank	W12	28	1	270	1800	2250	1980	7/16 12:00
6	Flat	Hot Water Tank	P72	28	1	150	1700	1000	1080	7/16 12:00
6	Flat	Polli-Brick	P45	26	1	160	1900	1900	1730	7/16 12:00
6	Flat	Thermal Wall Outside Structure	W30	26	1	500	2500	1300	950	7/16 12:00
total					7	2390				

Solar Decathlon Europe

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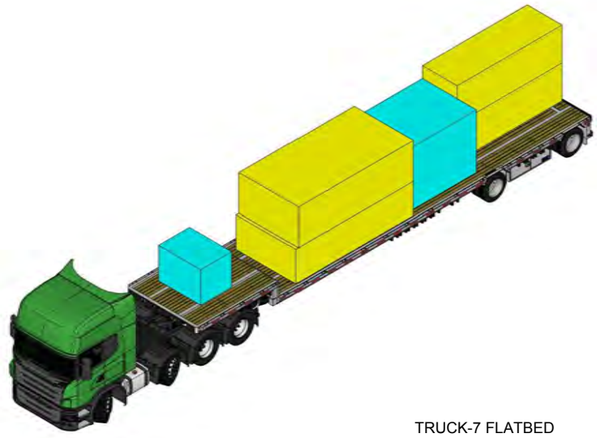
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Checked by: DN
Scale: -
Unit: -

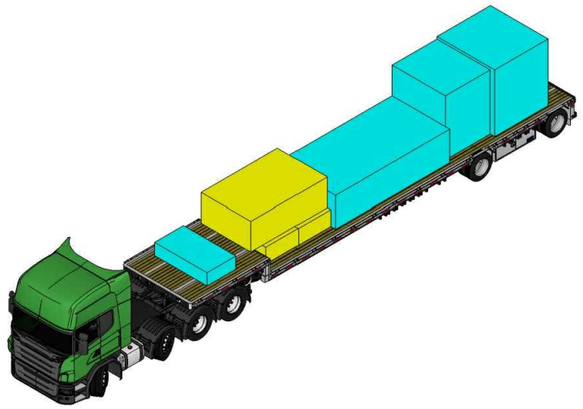
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DWG. No.: SO-022

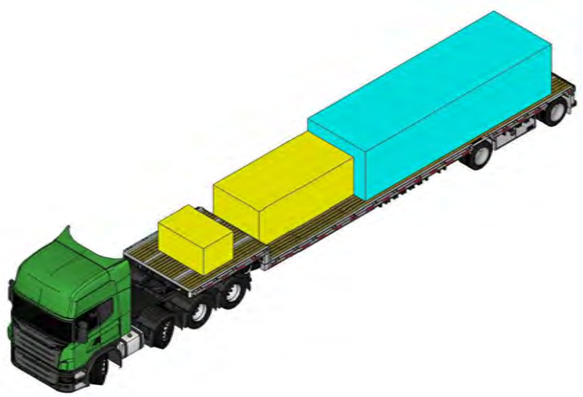
PAGE: 243



TRUCK-7 FLATBED
7/16 23:00



TRUCK-8 FLATBED
7/17 09:00



TRUCK-9 FLATBED
7/17 15:00

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
7	Flat	Aluminum Window Frame	W3	38	1	260	4450	2200	1300	7/16 23:00
7	Flat	GL Lower Wooden Box	P50	39	1	80	1865	1150	1140	7/16 23:00
7	Flat	GL Upper Wooden Box	W26	36	1	760	4350	2200	1100	7/16 23:00
7	Flat	Wooden Box	P77	31	1	360	2540	2000	2020	7/16 23:00
7	Flat	Steel Column Green Core	N6	35	1	2200	3900	1290	1215	7/16 23:00
7	Flat	Steel Column Green Core	N7	35	1	2200	3900	1290	1215	7/16 23:00
total					6	5860				

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
8	Flat	GL Lower Wooden Box	P52	39	1	180	1865	1150	1140	7/17 09:00
8	Flat	ML Upper Wooden Box	P60	37	1	420	2000	2000	2000	7/17 09:00
8	Flat	PV Module	N26	0	1	160	1500	800	600	7/17 09:00
8	Flat	PV Module	N13	50	1	720	2900	1890	1000	7/17 09:00
8	Flat	Exhaust Fan	W15	45	1	200	1230	2020	550	7/17 09:00
8	Flat	Exhaust Fan	W16	45	1	200	1230	2020	550	7/17 09:00
8	Flat	Plastic Wood Unit	P67	40	1	4200	4350	2200	1100	7/17 09:00
total					7	6080				

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
9	Flat	Smart Skin UNIT	N14	51	1	275	1730	1150	900	7/17 15:00
9	Flat	Bayer PC Hollow Sheet	P78	55	1	900	7100	2200	1630	7/17 15:00
9	Flat	Aluminum Louver Frame	W4	53	1	2000	3560	1750	1230	7/17 15:00
total					3	3175				

Solar Decathlon Europe

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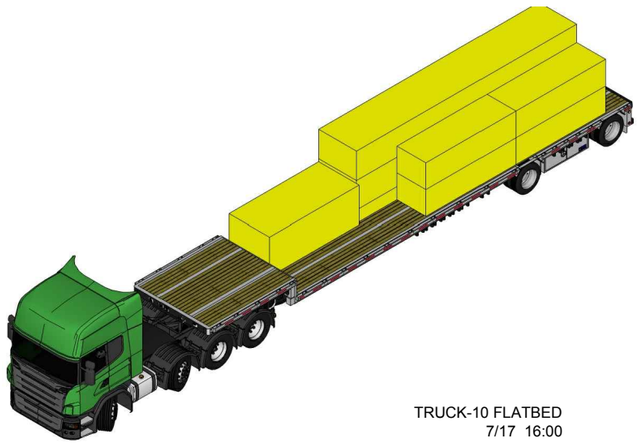
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ST	2014/04/30	CD Submission

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Checked by	DN
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Unit	-

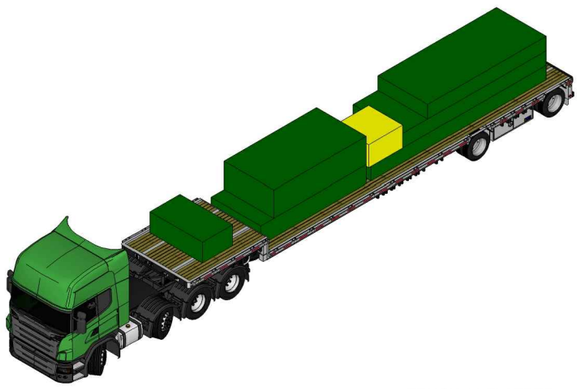
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DISASSEMBLY TRUCKS SHIPMENT 3

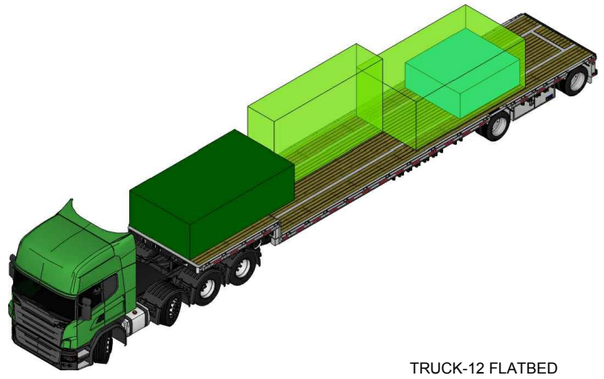
DWG. No.	PAGE
SO-023	244



TRUCK-10 FLATBED
7/17 16:00



TRUCK-11 FLATBED
7/18 23:00



TRUCK-12 FLATBED
7/19 02:00

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
10	Flat	Electrical Pipe	W22	56	1	80	3100	1000	800	7/17 16:00
10	Flat	Water Pipe	W23	56	1	110	3100	1000	800	7/17 16:00
10	Flat	Air Pipe	W24	30	1	50	3100	1000	800	7/17 16:00
10	Flat	Stainless Steel Pool	W9	29	1	190	7600	1310	390	7/17 16:00
10	Flat	FRP Clean Water Tank	W35	57	1	110	7600	1310	880	7/17 16:00
10	Flat	FRP Gray Water Tank	W36	57	1	110	7600	1310	880	7/17 16:00
10	Flat	FRP Rain Water Tank	W37	57	1	150	3100	1400	1180	7/17 16:00
10	Flat	Exhaust Fan Air Pipe	W25	56	1	250	3100	1000	800	7/17 16:00
10	Flat	PV Cable Tray	w25	56	1	250	3100	1000	800	7/17 16:00
total					9	1300				

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
11	Flat	Steel Structure Beam	P37	133	1	1660	4030	1900	630	7/18 23:00
11	Flat	Steel Structure Stair	P38	133	1	400	2010	1150	690	7/18 23:00
11	Flat	Steel Structure Small Beam	P35	122	1	800	3530	1900	930	7/18 23:00
11	Flat	Steel Structure Beam	P34	122	1	1540	4507.6	1900	480	7/18 23:00
11	Flat	Steel Structure Beam	P36	122	1	920	5451.5	1900	480	7/18 23:00
11	Flat	Steel Structure Connection	P13-w	124	1	350	1300	1300	755	7/18 23:00
11	Flat	Steel Structure Column	P33	105	1	1700	6674.3	1900	480	7/18 23:00
total					7	7370				

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
12	Low	Steel Structure UNIT 01	P01	141	1	900	4000	975	3450	7/19 02:00
12	Low	Steel Structure UNIT 10	P07	138	1	550	4000	2200	1545	7/19 02:00
12	Low	Steel Structure UNIT 06	P06	134	1	1500	3850	2200	1130	7/19 02:00
12	Low	Solar Water Heater Frame	P44	54	1	220	2200	2000	800	7/19 02:00
total					4	3170				

Solar Decathlon Europe

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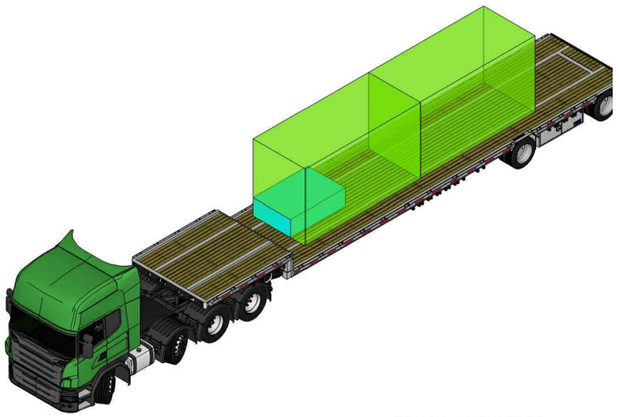
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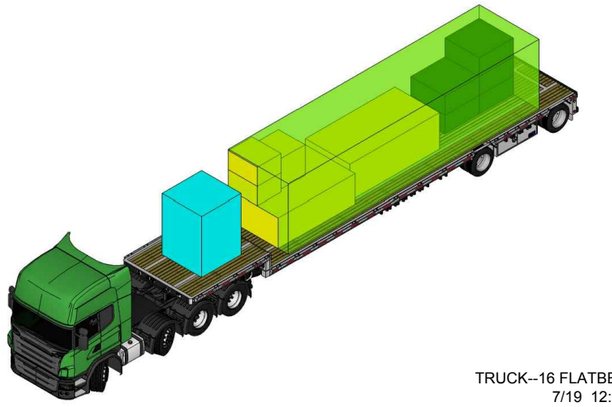
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DWG. No.: SO-024

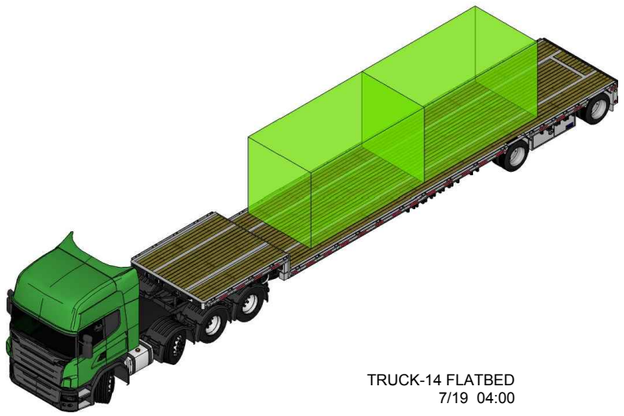
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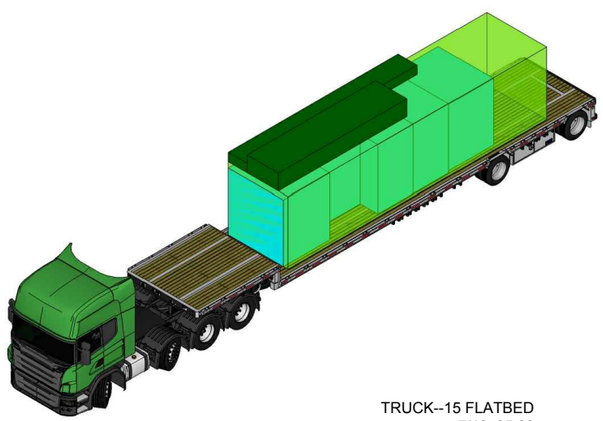
TRUCK--13 FLATBED
7/19 03:00



TRUCK--16 FLATBED
7/19 12:00



TRUCK-14 FLATBED
7/19 04:00



TRUCK--15 FLATBED
7/19 05:00

Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
13	Low	Steel Structure UNIT 03	P03	143	1	950	4000	1810	3450	7/19 03:00
13	Low	Steel Structure UNIT 02	P02	142	1	1000	4000	1790	3450	7/19 03:00
13	Low	Steel Structure Stair	P40	132	1	200	1890	1305	540	7/19 03:00
total					3	2150				
Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
14	Low	Steel Structure UNIT 05	P05	145	1	1150	4000	2200	3450	7/19 04:00
14	Low	Steel Structure UNIT 04	P04	144	1	1025	4000	2200	3450	7/19 04:00
total					2	2175				
Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
15	Low	Wooden Sandbox	P27	149	1	150	2100	1300	1090	7/19 05:00
15	Low	Wooden Sandbox	P28	149	1	150	2100	1300	1090	7/19 05:00
15	Low	Wooden Sandbox	P31	149	1	150	1700	1450	1210	7/19 05:00
15	Low	Steel Structure UNIT 11	P08	147	1	2345	9500	2200	3450	7/19 05:00
15	Low	Steel Structure Stair	P39	132	1	350	4730	1150	565	7/19 05:00
15	Low	Steel Structure Canopy	P82	131	1	300	6250	700	300	7/19 05:00
15	Low	ML Lower Wooden Box	P58	150	1	2500	2030	1710	1210	7/19 05:00
15	Low	ML Lower Wooden Box	P59	150	1	2500	2030	1710	1210	7/19 05:00
total					8	8445				
Truck No.(B)	Type	Designation	Package No.	Dismantling No	QTY	Weight(kg)	Dimensions(mm)			Arrival
							L	W	H	
16	Low	Tool	N12	150	1	835	2900	1890	1000	7/19 12:00
16	Low	Tool	N25	150	1	150	1000	1000	1000	7/19 12:00
16	Low	Tool	N11	150	1	800	3400	1690	1200	7/19 12:00
16	Low	Steel Structure Footing	P14	149	1	440	1300	1300	620	7/19 12:00
16	Low	Steel Structure Footing	P15	149	1	440	1300	1300	620	7/19 12:00
16	Low	Steel Structure Footing	P16	149	1	440	1300	1300	620	7/19 12:00
16	Low	Steel Structure Footing	P17	149	1	440	1300	1300	620	7/19 12:00
16	Low	Steel Structure Footing	P18	149	1	440	1300	1300	620	7/19 12:00
16	Low	Steel Structure UNIT 12	P09	148	1	2640	9500	2275	3450	7/19 12:00
16	Low	Plastic Bucket	W1	150	1	890	1100	900	630	7/19 12:00
16	Low	Plastic Bucket	W2	150	1	120	1100	900	630	7/19 12:00
16	Low	Tool	P48-w	150	1	680	1500	1500	2000	7/19 12:00
16	Low	Sand Bag	N34	150	1	6000	2000	2000	2000	7/19 12:00
16	Low	Sand Bag	N36	150	1	6000	2000	2000	2000	7/19 12:00
total					14	20315				

Solar Decathlon Europe

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Drawn by: MS
Checked by: DN
Scale: -
Unit: -

DWG. Title: DISASSEMBLY TRUCKS SHIPMENT 5

DWG. No.: SO-025

PAGE: 246



Solar Decathlon Europe

Project: ORCHID HOUSE

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Note:

N

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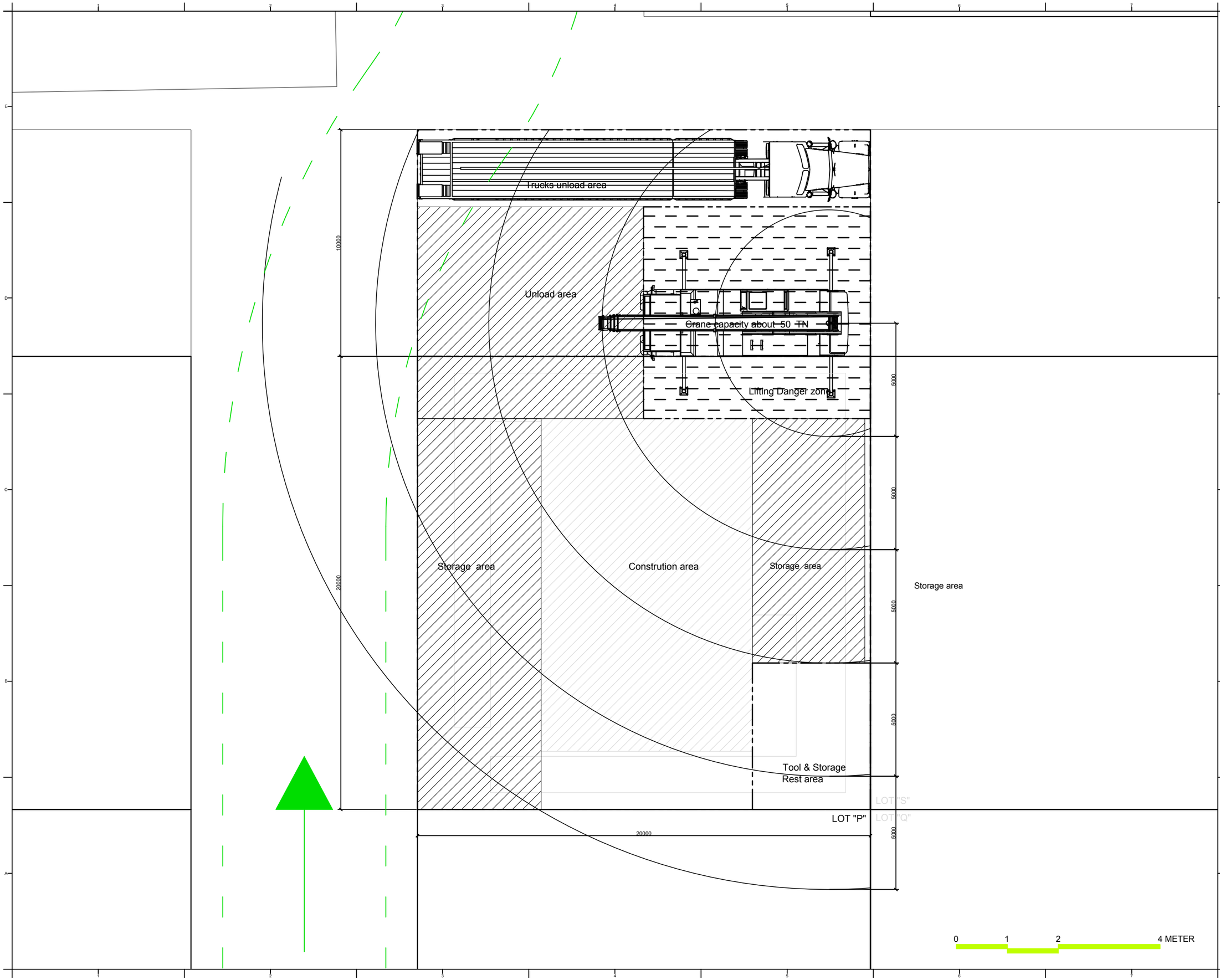
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Checked by	DN
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Unit	mm

DWG. Title

La Cité du Soleil® PLAN

DWG. No. SO-101

PAGE 247



Solar Decathlon Europe

Project:

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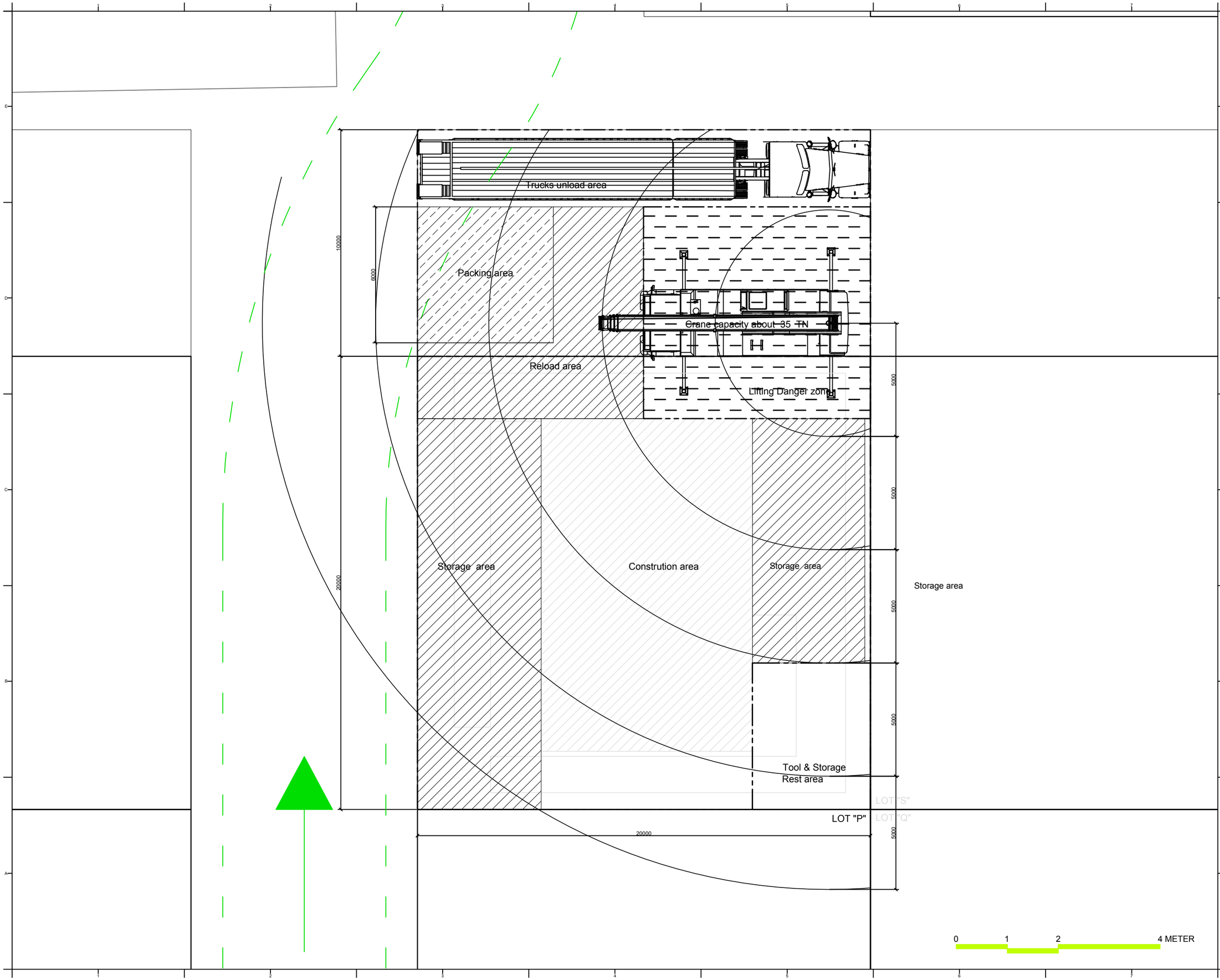
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DWG. Title

LOT PLAN

DWG. No. SO-102

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Solar Decathlon Europe

Project:

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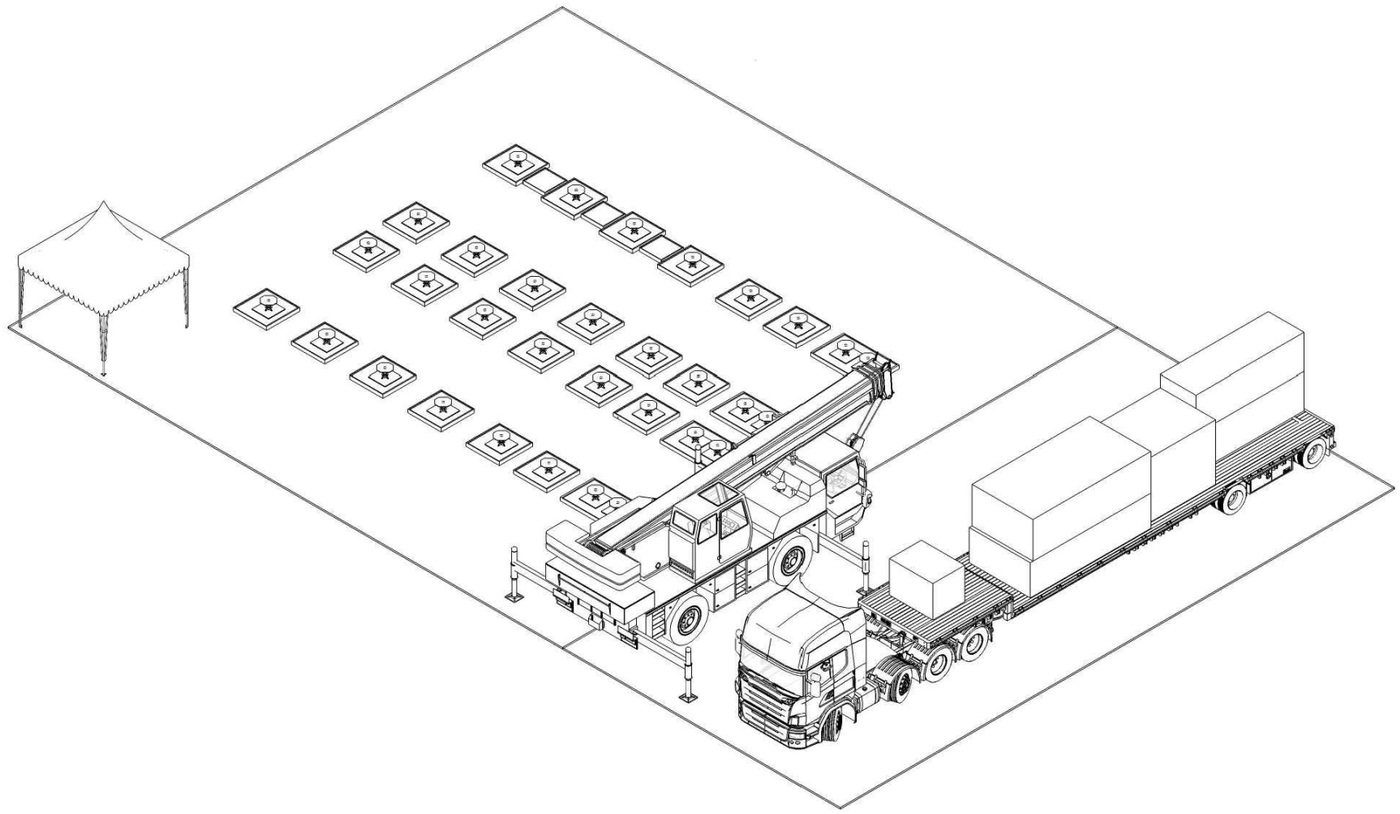
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	SC
Checked by	-
Scale	1:150
Unit	mm

DWG. Title

DISASSEMBLY LOT PLAN

DWG. No.	PAGE
SO-103	243



Site-Preparation

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Datum Point	Spacing	Sand Box	Footing Set	Coordinate positioning	Horizontal correction			
Woker	6	4	4	4	6	4			
Note									

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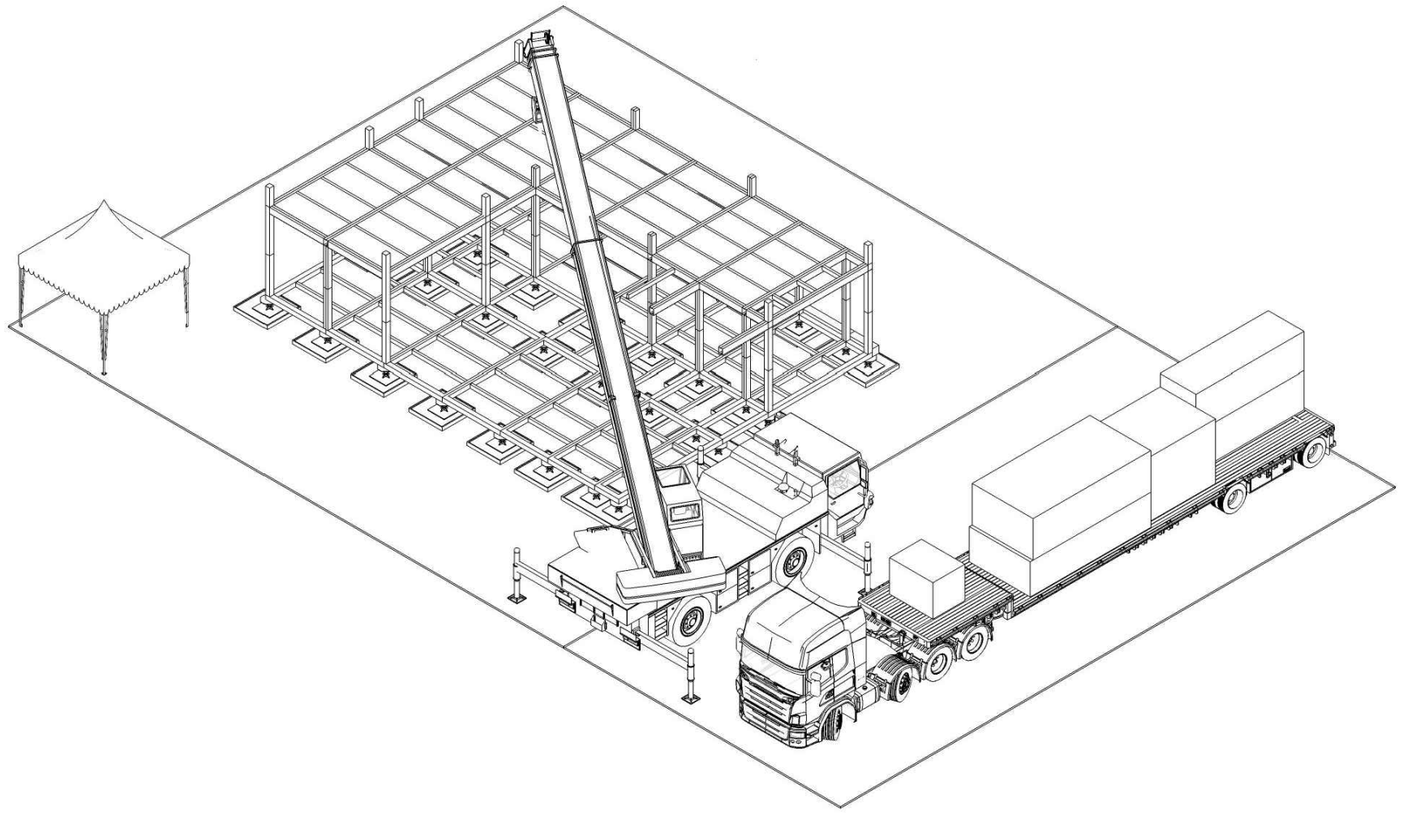
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Unit	-

DWG. Title: Assembly Phase 1

DWG. No.: SO-201

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Modular Unit

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Modular Unit 1~5 Modular Unit 11~12	M.E.P Ststem Under Unit	Unit combination	Building positioning correction					
Woker	8	4	4	6					
Note									

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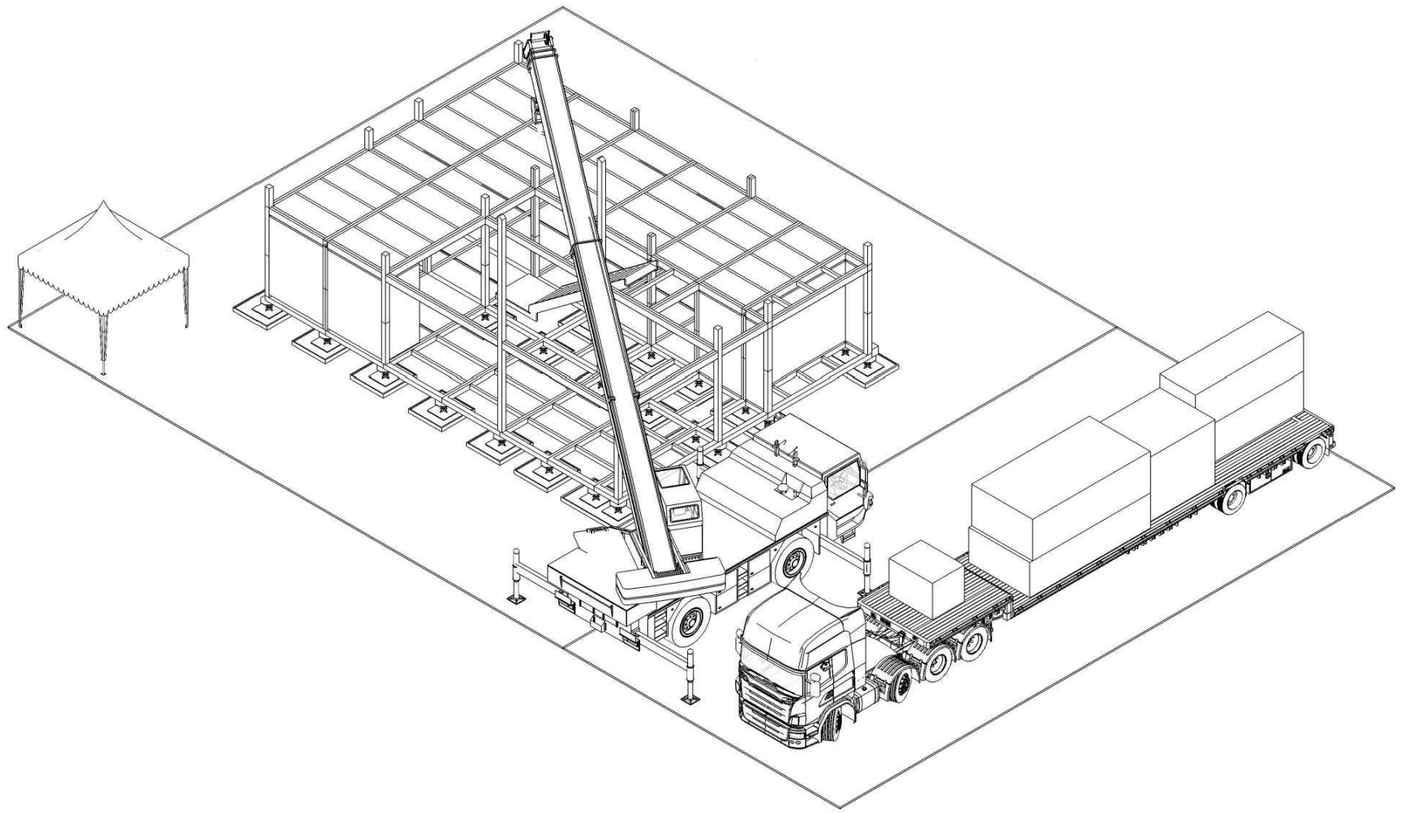
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Unit	-

DWG. Title: Assembly Phase 2

DWG. No.: SO-202

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Insulation

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Stair Unit and Terrace Unit Assembly and Lifting	Interior Insulation Assembly	M.E.P System Tube and trunking	Interior Upper Floor Insulation					
Woker	5	4	4	6					
Note									

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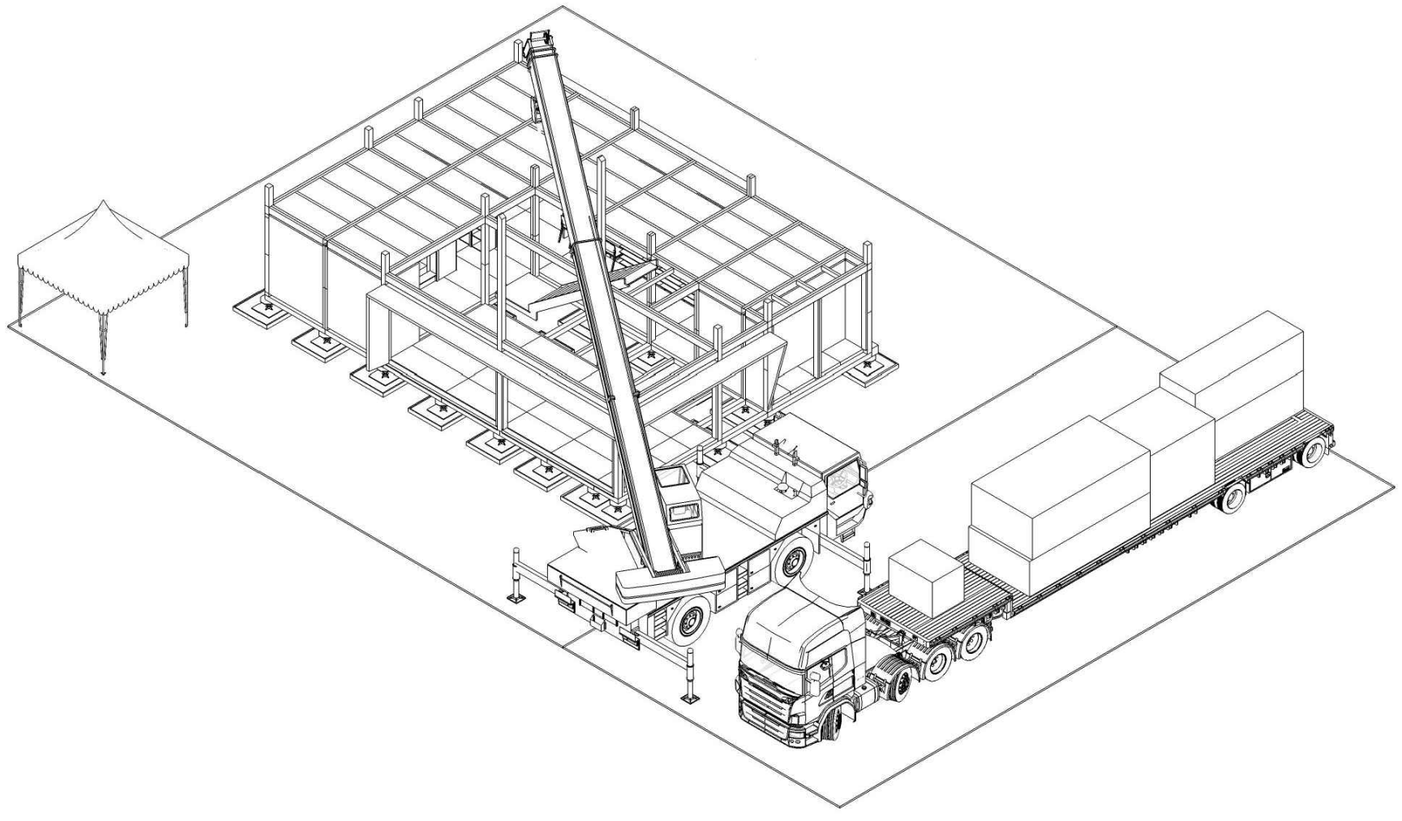
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Unit	-

DWG. Title: Assembly Phase 3

DWG. No.: SO-203

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MEP System

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Additional components	M.E.P System Shaft							
Woker	6	4							
Note									

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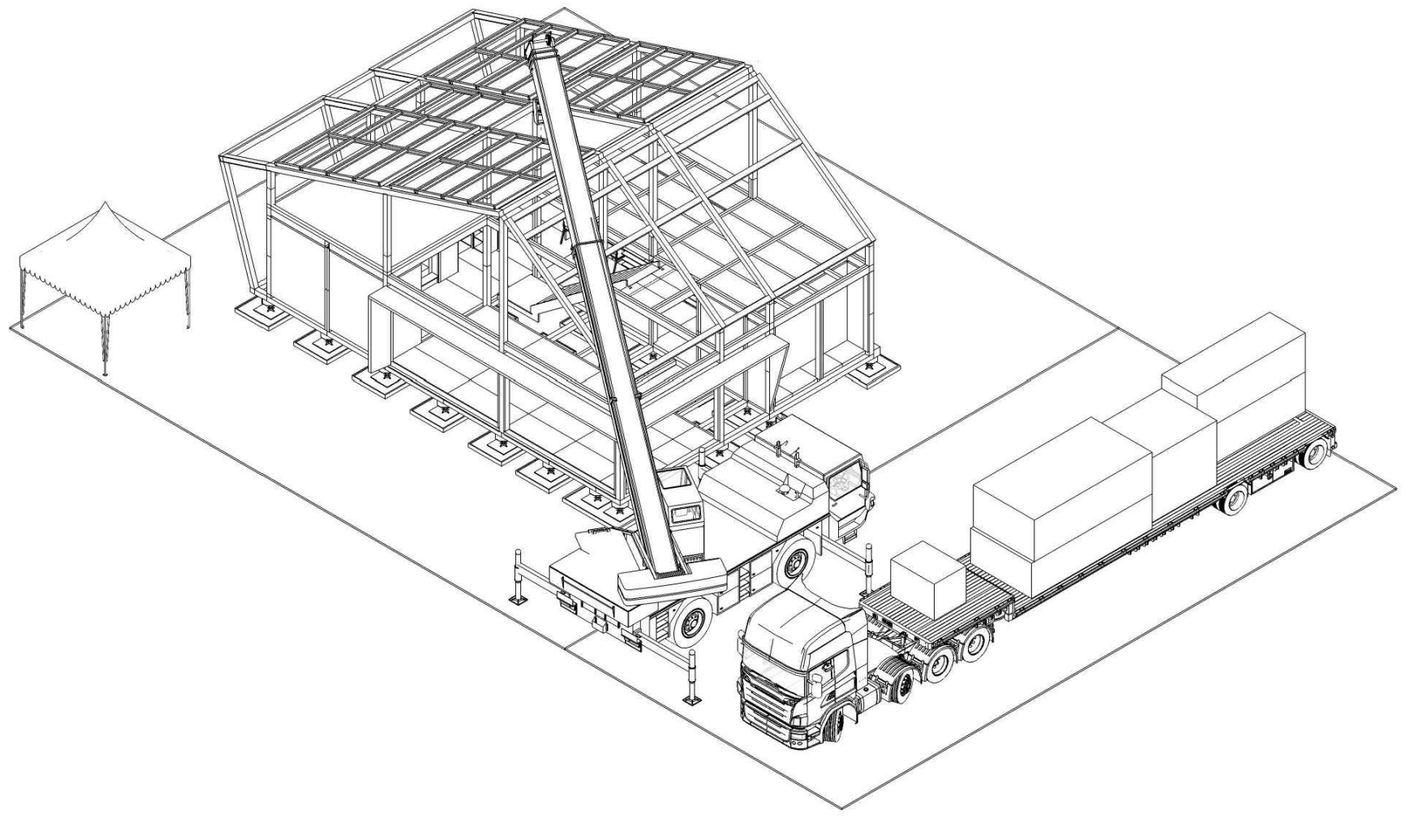
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DWG. Title

Assembly Phase 4

DWG. No. SO-204

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Roof Structure

Step	1	2	3	4	5	6	7	8	9
Work Deatail	2F Main Structure	Roof Unit							
Woker	6	4							
Note									

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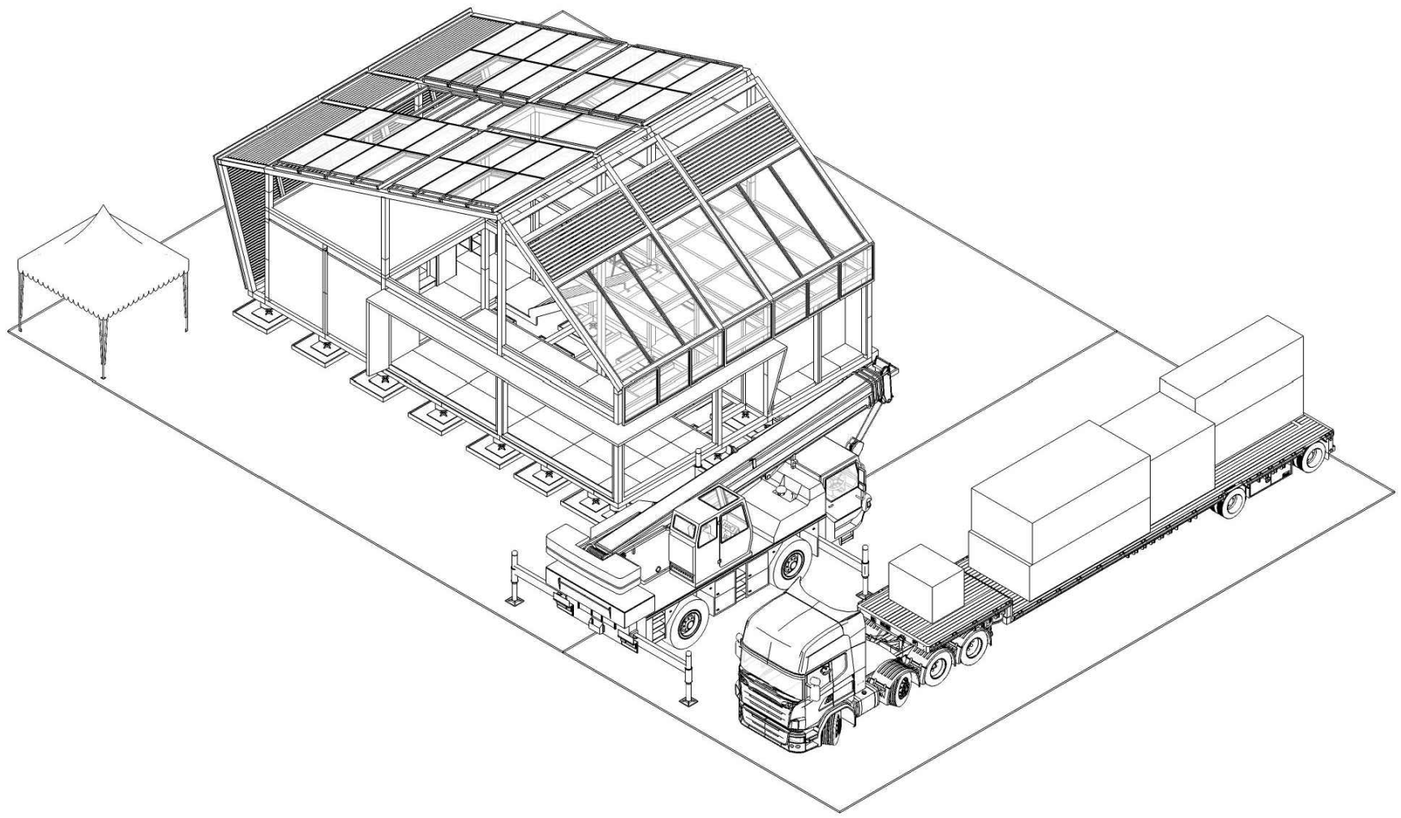
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Unit	-

DWG. Title

Assembly Phase 5

DWG. No.	PAGE
SO-205	254



Roof Panel

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Solar Panel & Solar Panel Electricity System	Bayer Roof Panel	Louver Panel						
Woker	6	4	6						
Note									

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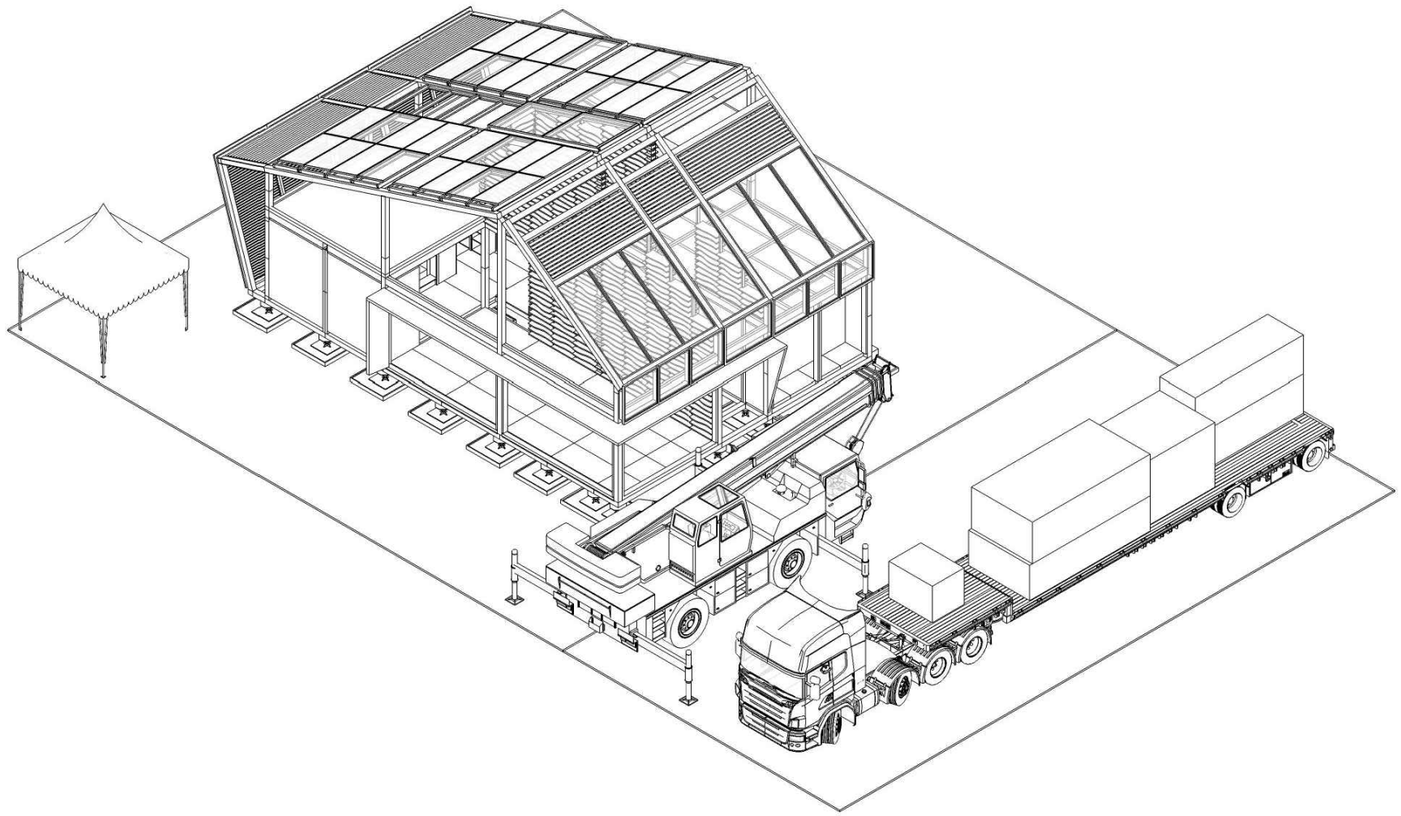
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Unit	-

DWG. Title: Assembly Phase 6

DWG. No.: SO-206

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Green Core

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Green Core Structure & Panel & Water System	M.E.P Wiring & Piping System							
Woker	6	4							
Note									

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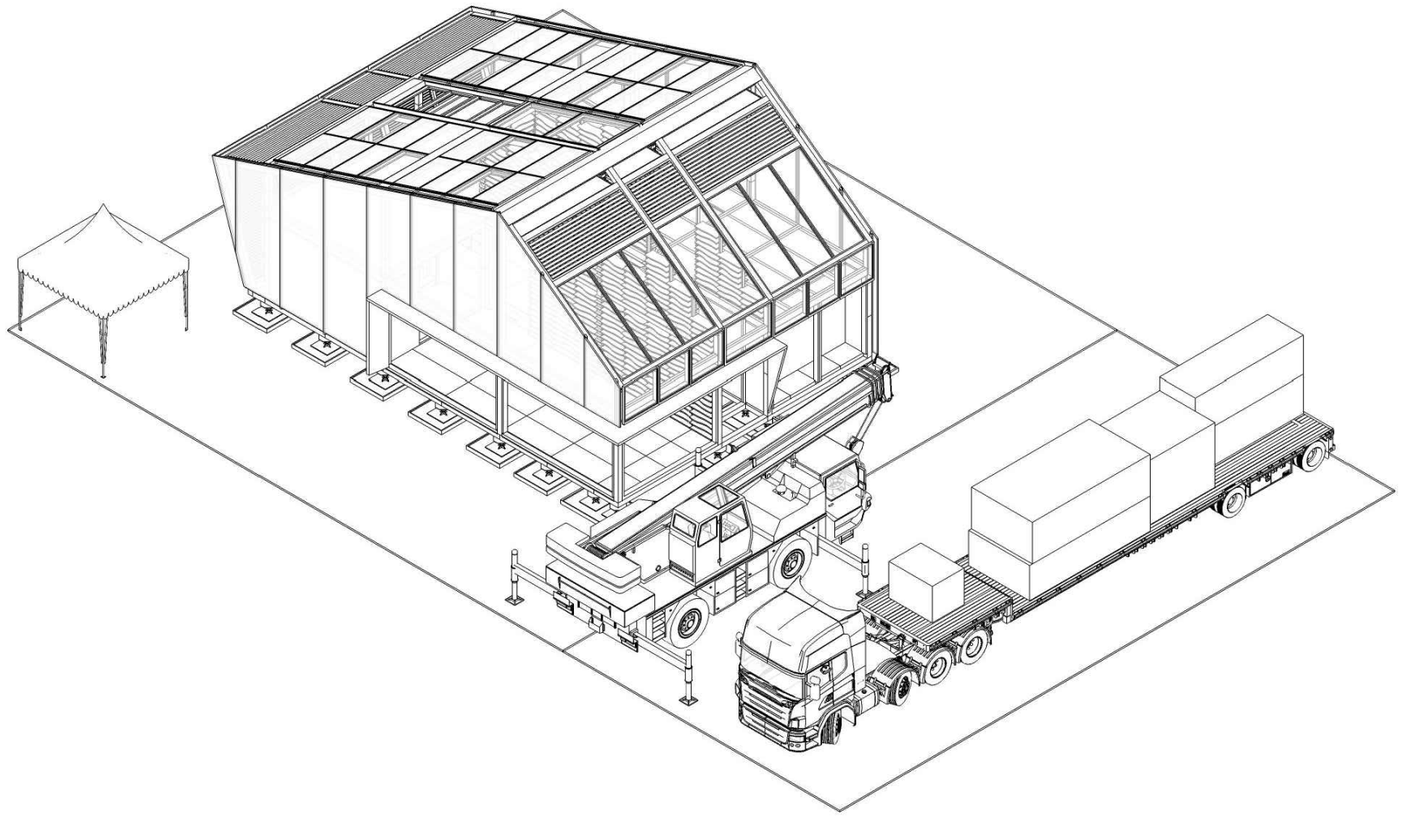
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Unit	-

DWG. Title

Assembly Phase 7

DWG. No. SO-207

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Facade

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Bayer Wall System Structure & Panel	Roof Cover & Gutter System							
Woker	6	6							
Note									

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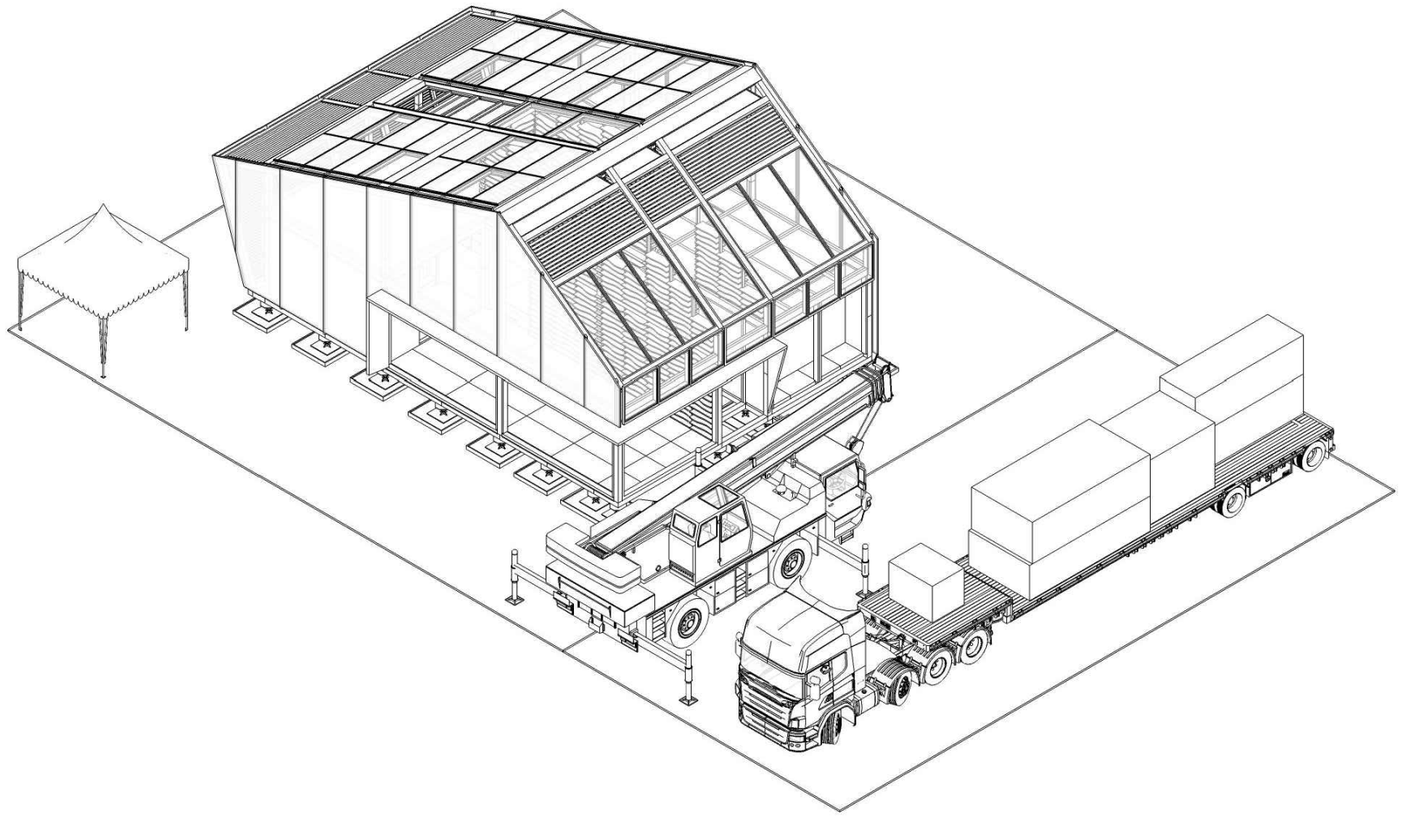
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DWG. Title: Assembly Phase 8

DWG. No.: SO-208

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Waterproof

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Roof Waterproof	Equipment & Lighting Test							
Woker	6	6							
Note									

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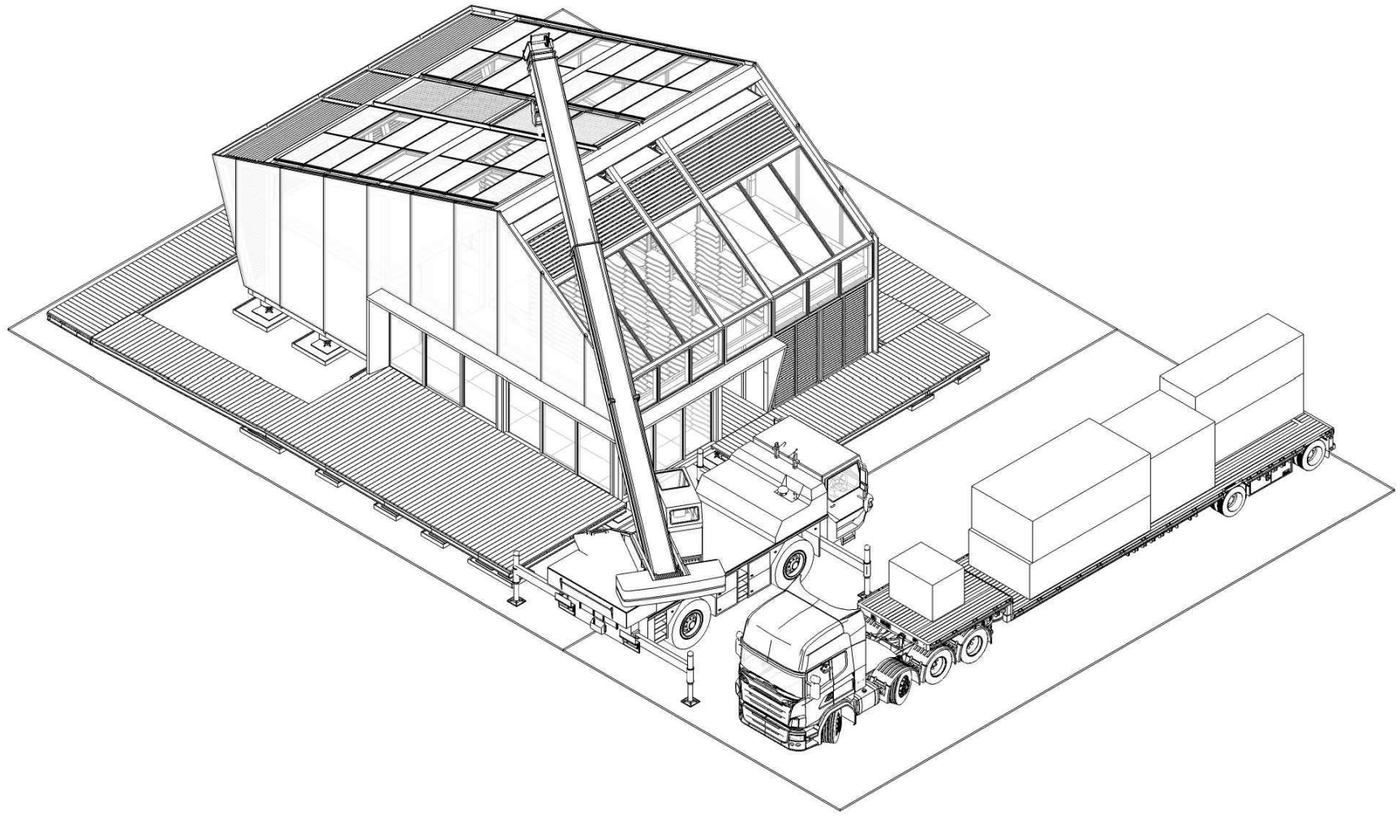
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DWG. Title

Assembly Phase 9

DWG. No. SO-209

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Furnishing and Planting

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Outdoor Terrace Structure & Handrail & LIghting	Outdoor Planting & Green Core Planting	Furniture	Appliances	System Test	Lot Clean			
Woker	6	6	6	6	6	6			
Note									

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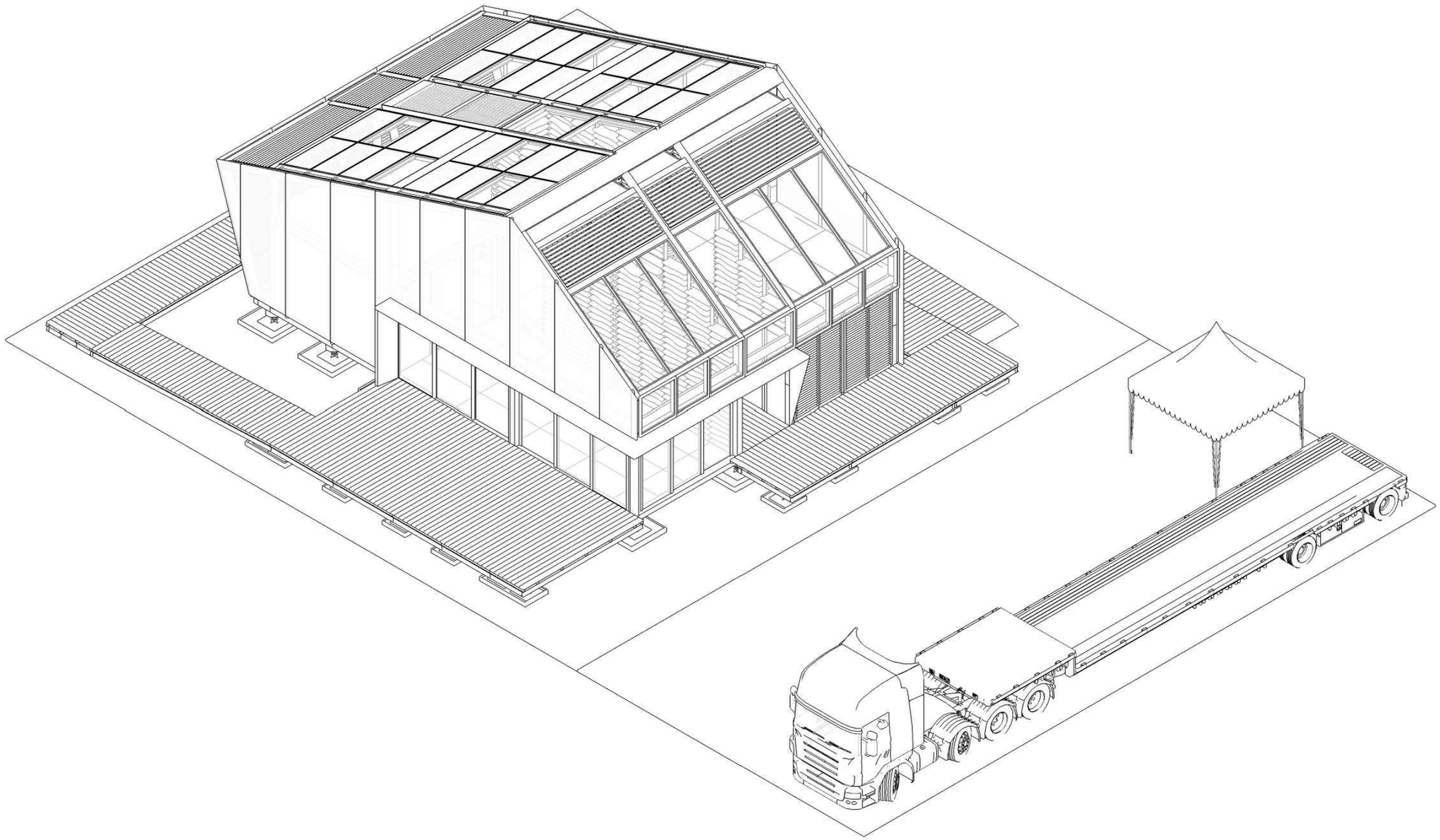
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Unit	-

DWG. Title: Assembly Phase 10

DWG. No.: SO-210

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Furnishing and Planting

Step	1	2	3	4	5	6	7			
Work detail	Plants removing	accessory removing	Furniture removing	Kitchen/Appliance/Lamp equipment	Machinery room	Outside pipeline/Lamps	Outside handrail			
Worker	6	4	6	4	2	4	4			
Note										

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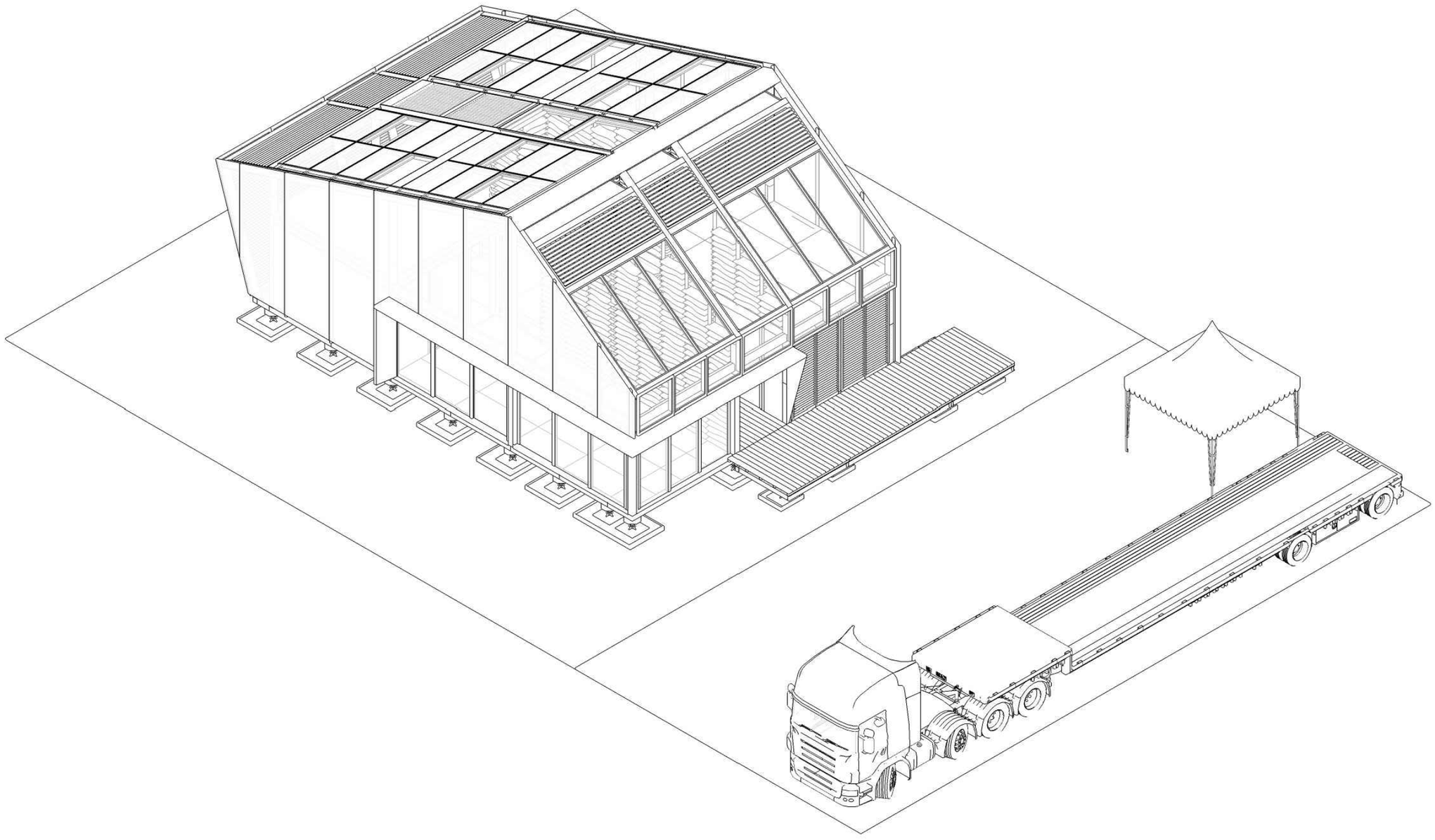
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DWG. Title: Disassembly Phase 1

DWG. No.: SO-301

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Outdoor Deck Units

Step	1	2	3	4						
Work detail	Outside WPC/deck	Outside footing	East/West Bayer board	South Eletric Blinds						
Worker	6	2	5	3						
Note										

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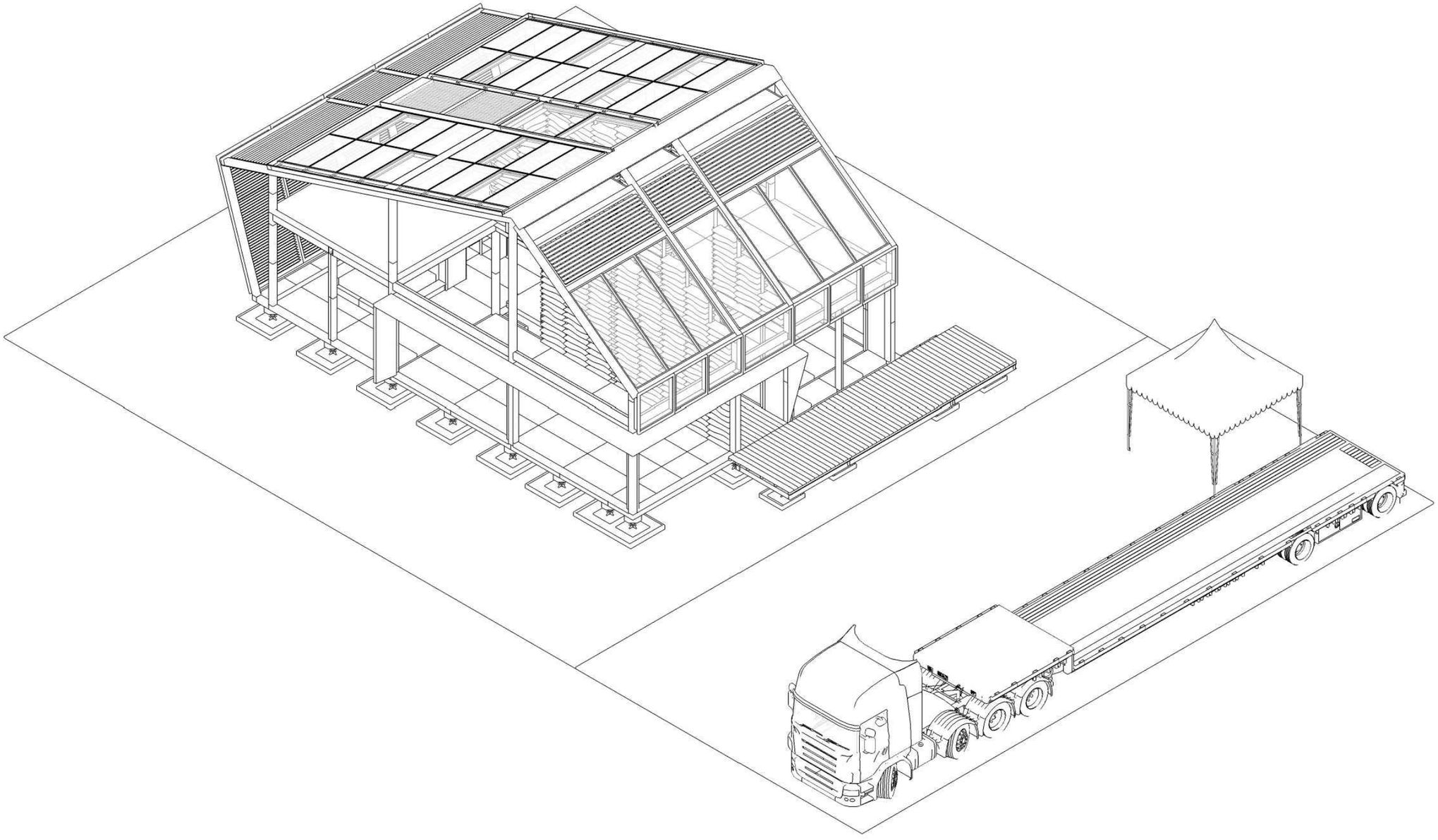
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Unit	-

DWG. Title

Disassembly Phase 2

DWG. No.	PAGE
SO-302	261



Ground Floor

Step	1	2	3	4	5	6	7	8	9	
Work detail	1F Interior floor	Aluminium window	Sensor removing	1F Ceiling	1F Wooden wall	Bathroom	Kitchen Island	Work Station removing	Thermal wall removing	
Worker	4	2	2	4	6	4	3	4	4	
Note										

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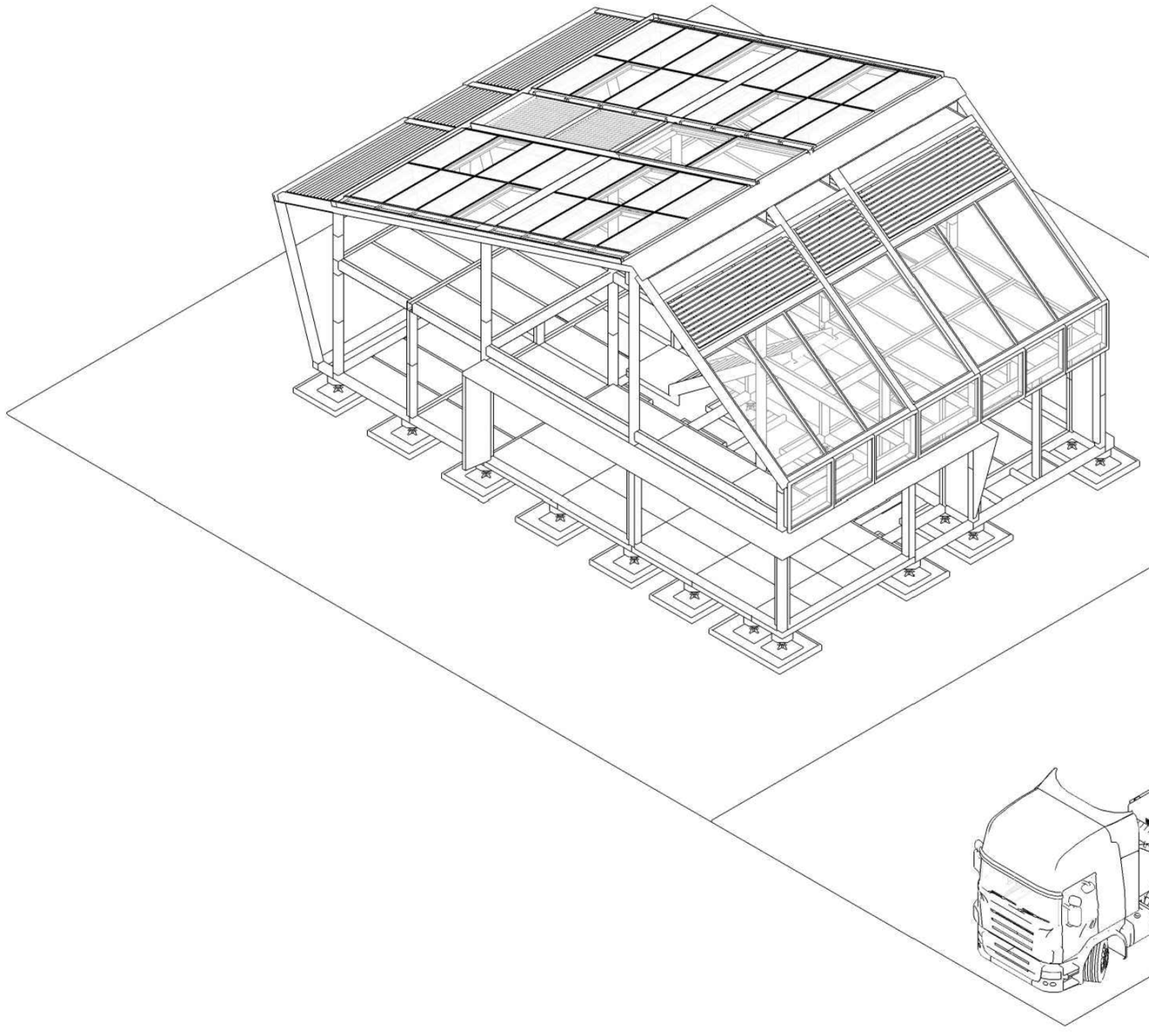
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DWG. Title

Disassembly Phase 3

DWG. No. SO-303

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Mezzanine Floor

Step	1	2	3	4	5	6	7	8	9	
Work detail	2F WPC	2F Equipment/Appliance	Water wall removing	2F pipline	Green core	1F Upper wooden box	2F Upper wooden box	Window/Door disassembly	Tea terrance/Entrance WPC	
Worker	3	5	8	4	4	6	6	4	8	
Note										

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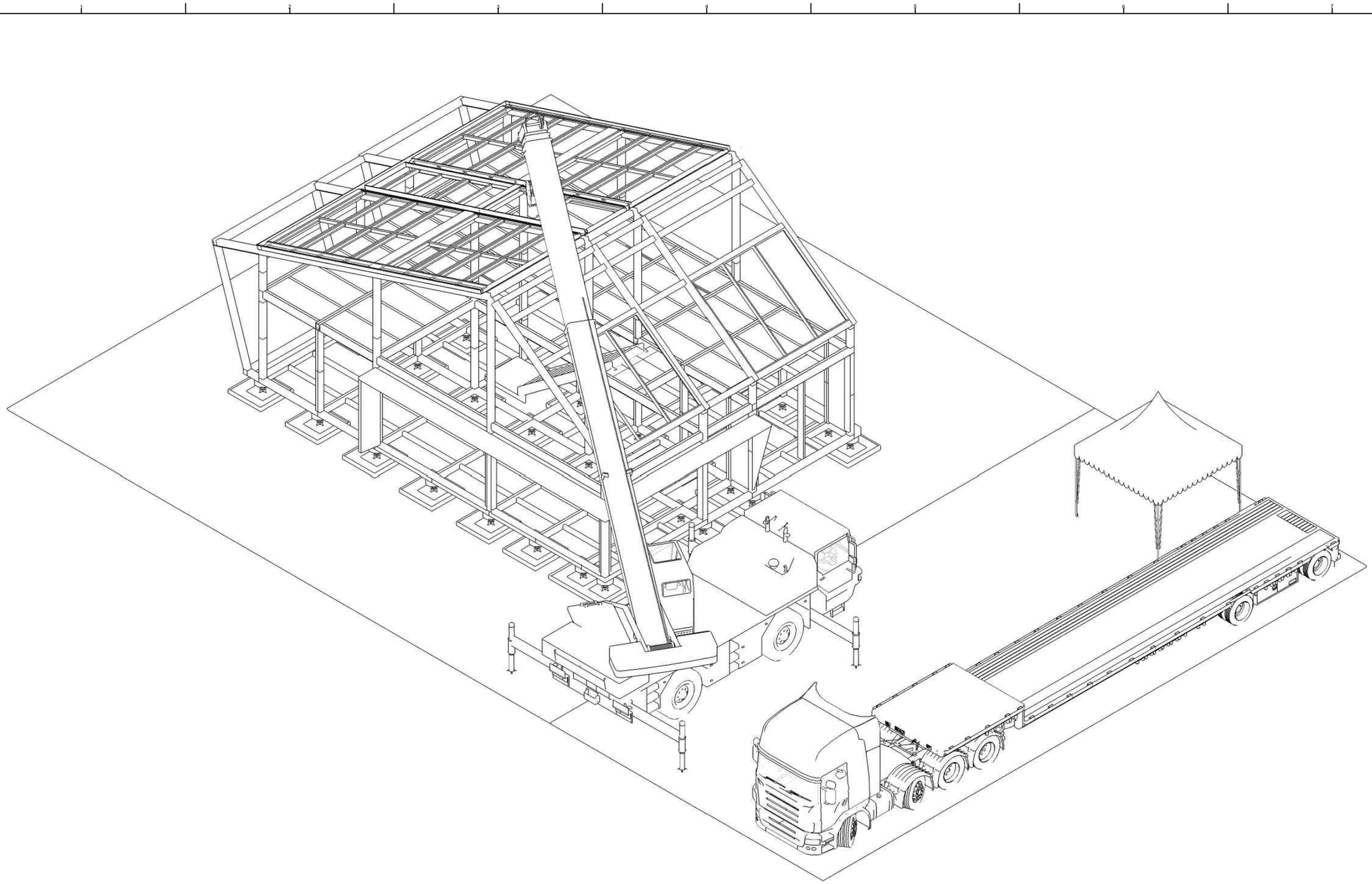
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DWG. Title

Disassembly Phase 4

DWG. No. SO-304

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Roof Panels

Step	1	2	3	4	5	6	7	8		
Work detail	Roof cover board	North Bayer board	Roof ridge Fans	Smart skin	Solar panel	North Eletric Blinds	Solar water heater	Water tank		
Worker	4	3	4	3	3	4	2	6		
Note										

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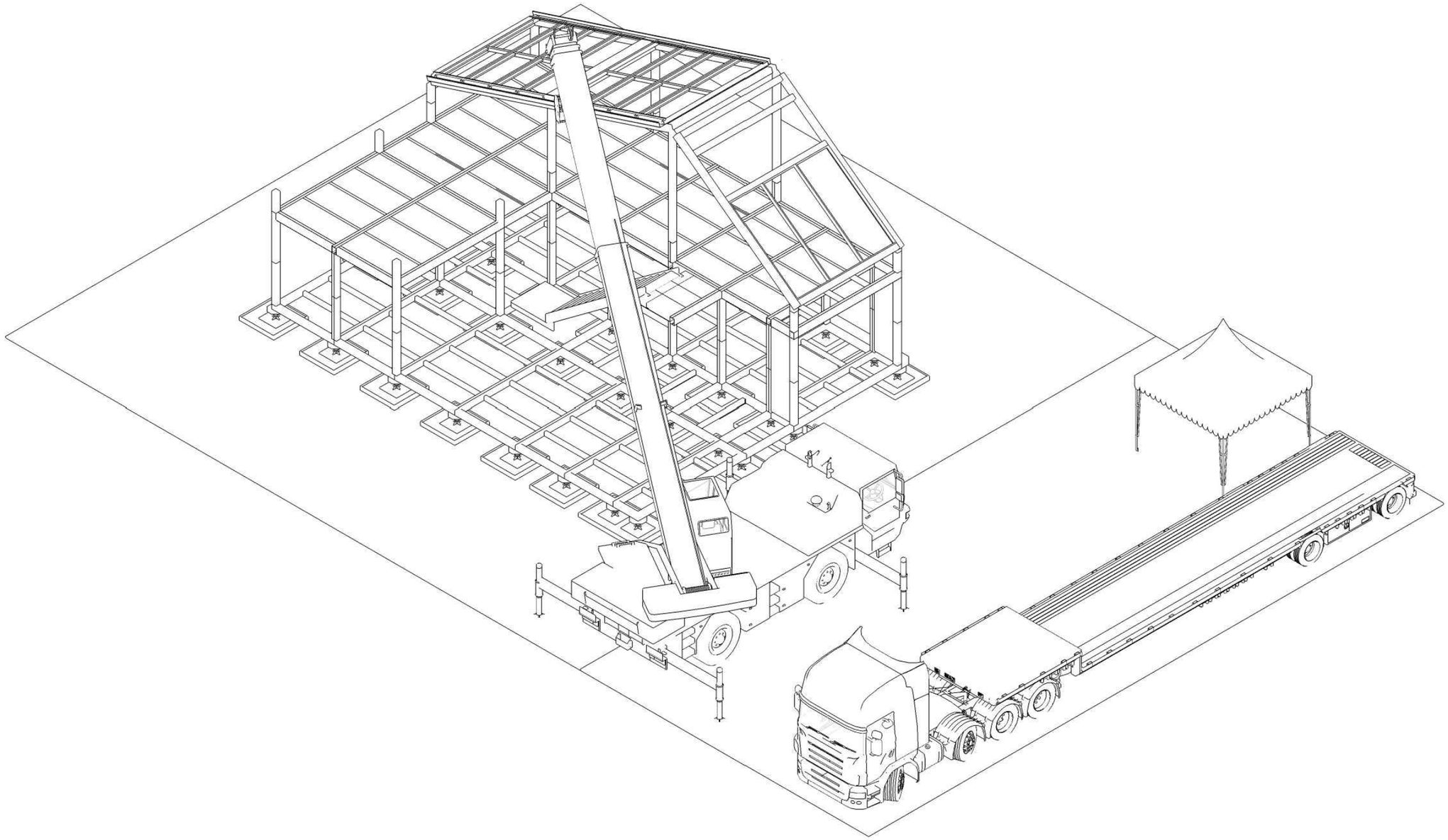
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DWG. Title: Disassembly Phase 5

DWG. No.: SO-305

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East Roof Structure

Step	1	2	3	4						
Work detail	E1,E2,E3,E4 unit disassembly	Roof Unit 5~7 disassembly	Roof Unit 9~11 disassembly	East column						
Worker	5	3	4	3						
Note										

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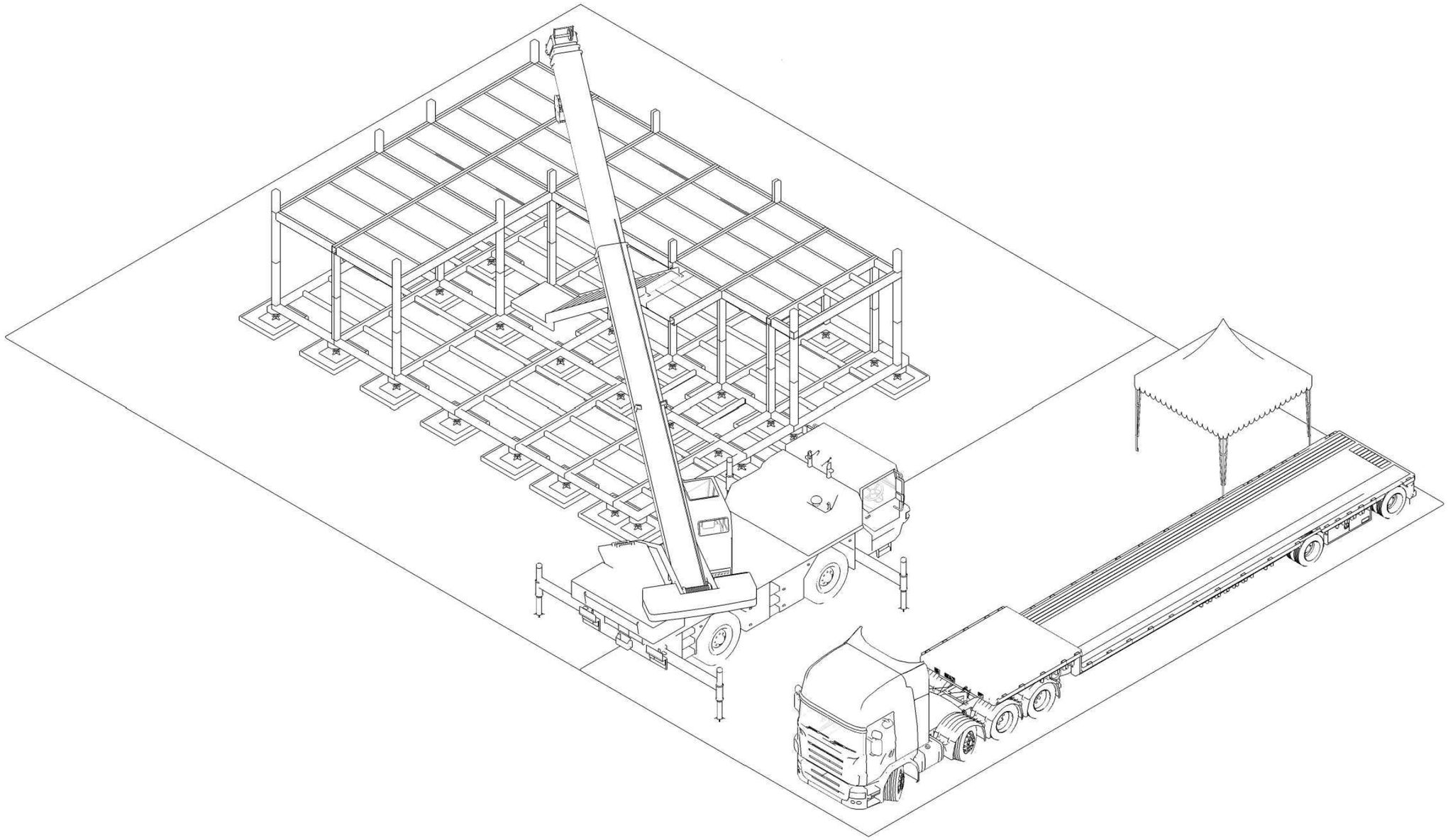
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DWG. Title: Disassembly Phase 6

DWG. No.: SO-306

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West Roof Structure

Step	1	2	3	4	5					
Work detail	Roof Unit 1~3 removing	2F unit disassemby	Roof Unit 9~11 disassembly	West column	East/North canopy					
Worker	4	6	4	3	6					
Note										

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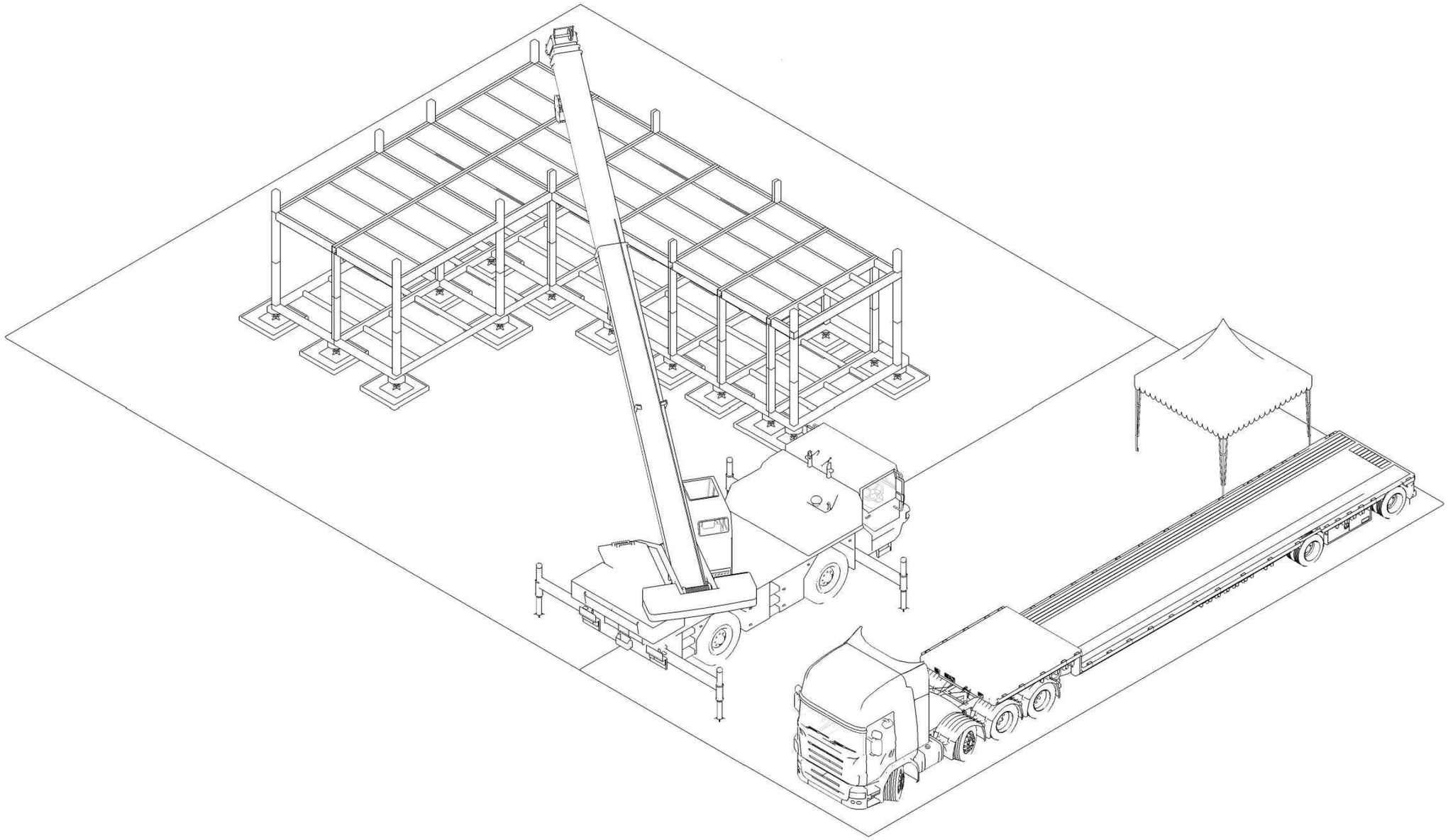
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DWG. Title

Disassembly Phase 7

DWG. No. SO-307

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Tea Terrance Units

Step	1	2								
Work detail	Unit 6~10 disassembly	Tea terrance footing								
Worker	4	4								
Note										

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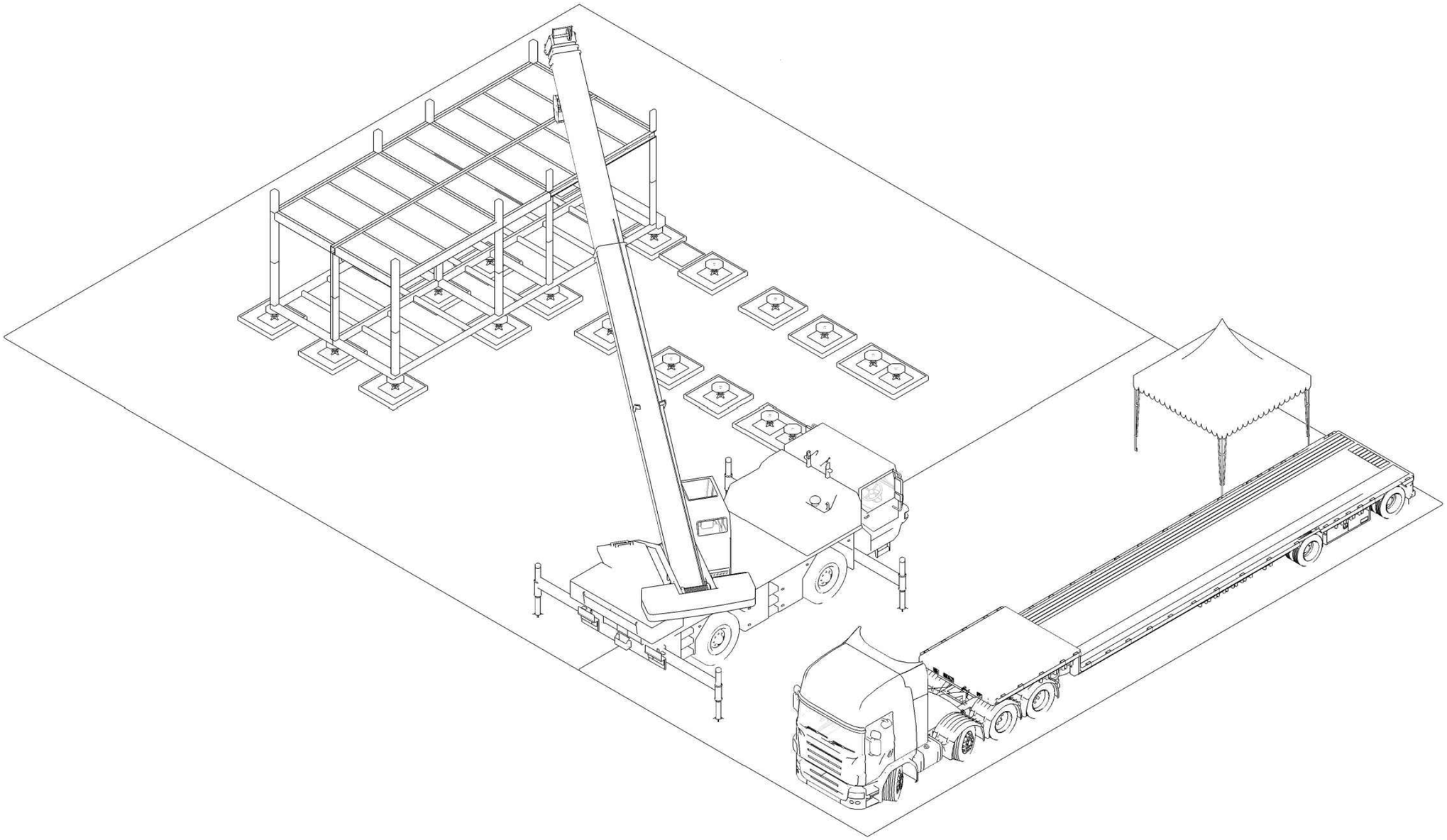
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DWG. Title: Disassembly Phase 8

DWG. No.: SO-308

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Box Units

Step	1	2								
Work detail	Unit 1~5 disassembly	Unit 1~5 removing								
Worker	6	4								
Note										

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Consultants:

Note:

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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

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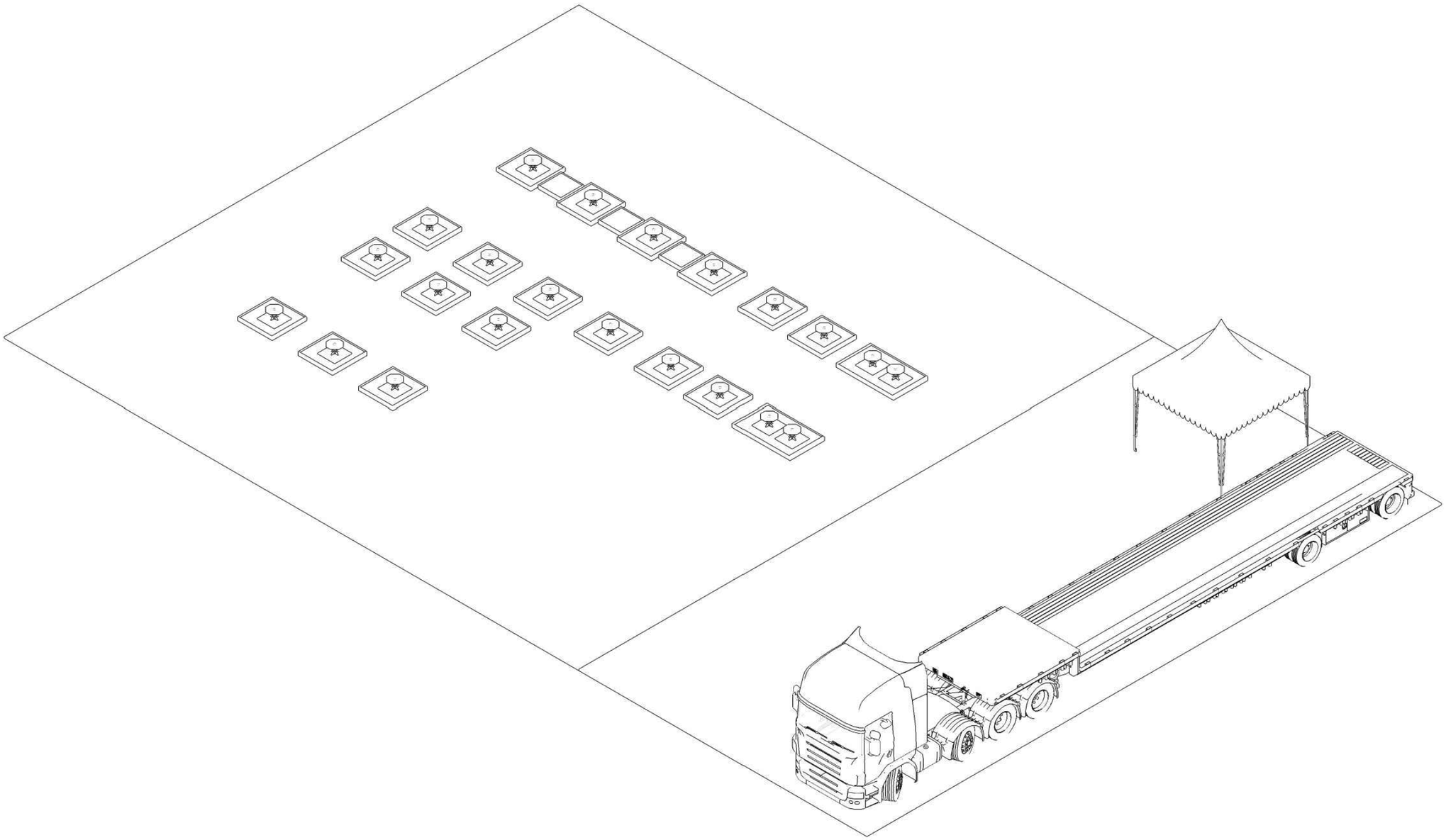
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Unit: -

DWG. Title: Disassembly Phase 9

DWG. No.: SO-309

PAGE: 268



Footing

Step	1	2	3	4						
Work detail	Unit 11~12 disassembly	Unit 11~12 removing	Footing removing	Site cleaning						
Worker	6	4	6	10						
Note										

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Scale	-
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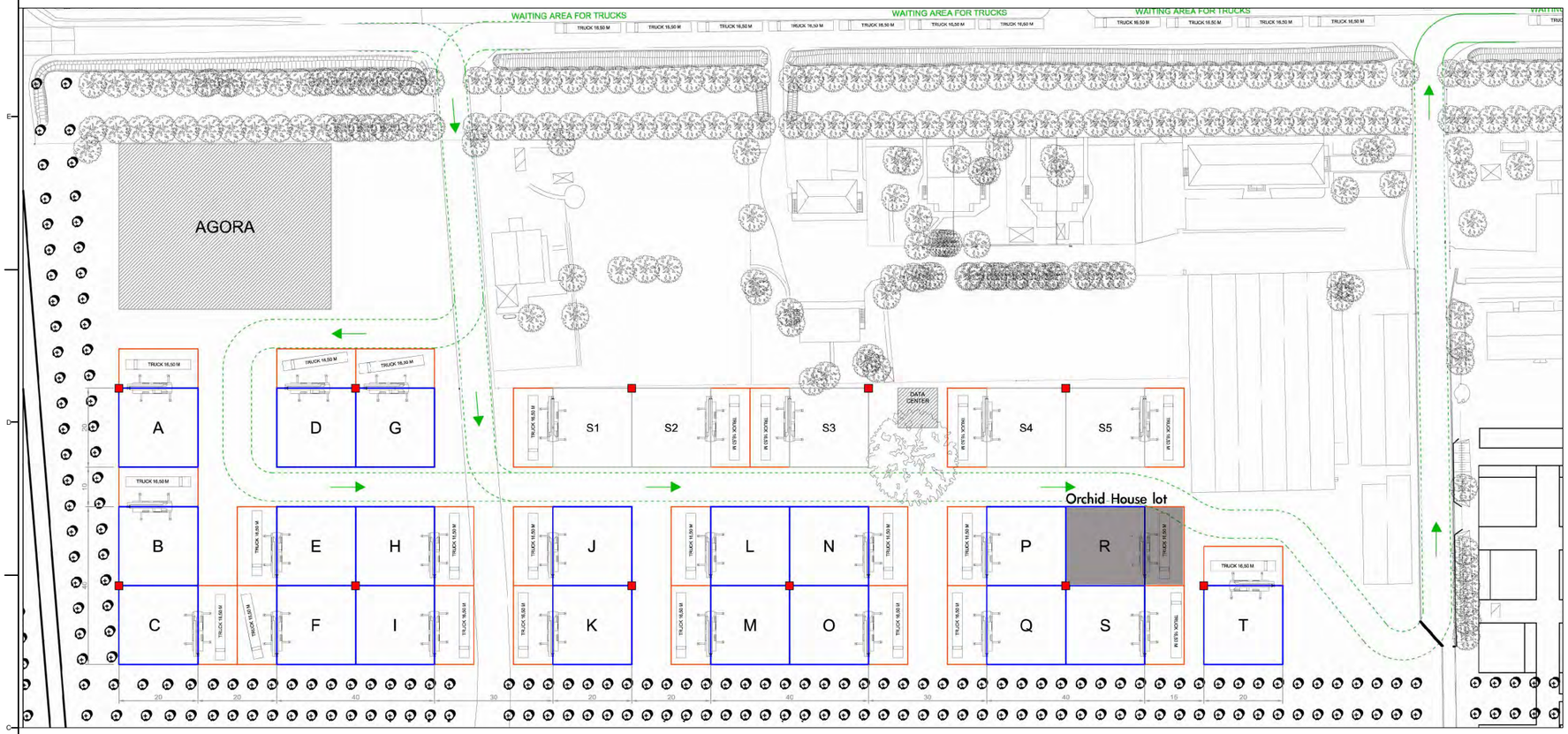
DWG. Title

Disassembly Phase 10

DWG. No. SO-310

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VEHICLE ACCESS TO LOT



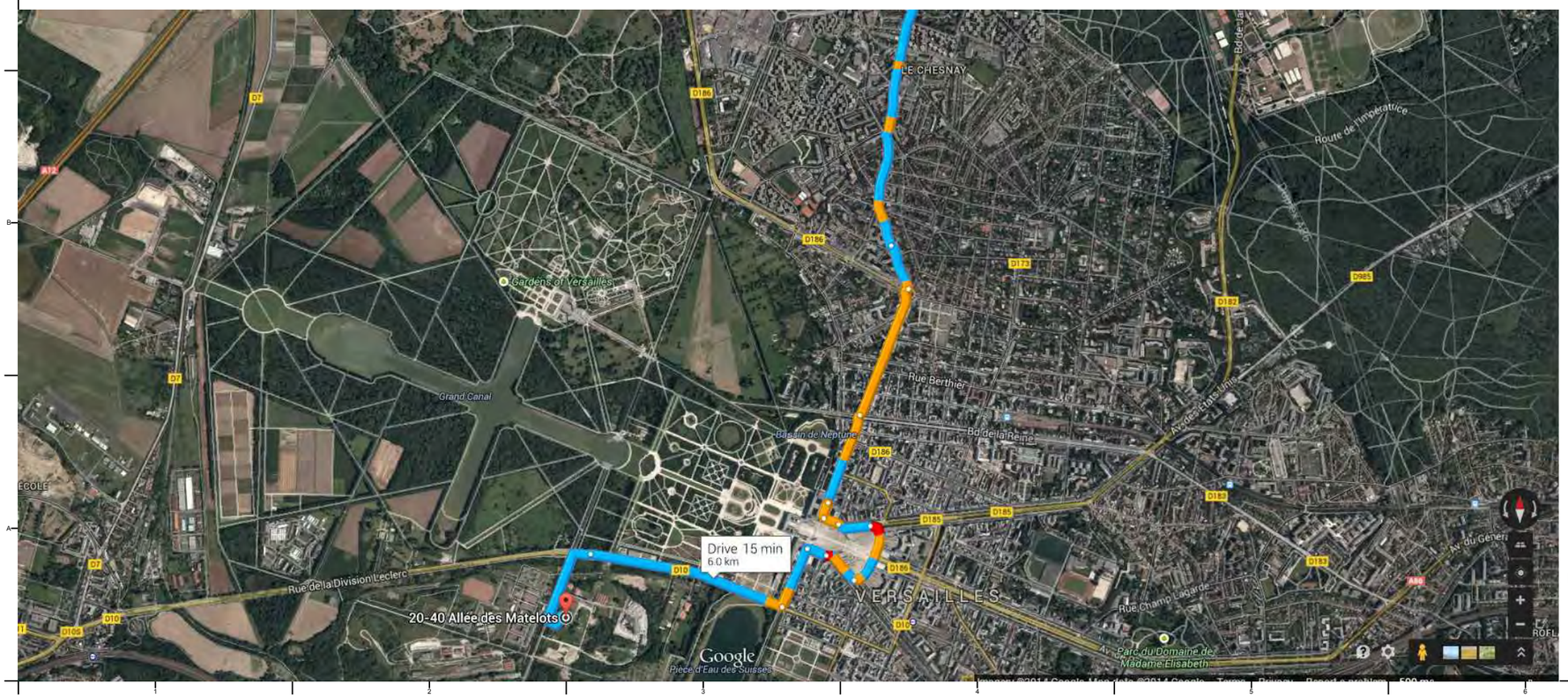
SITE DESCRIPTION

Lot number: R

Lot size: 20 x 20 m (400m^2)

Elements around the lot:
-Our lot situated near the main path export
-The track route overwraps with our loading/ unloading area

ROUTE TO THE NEAREST HOSPITAL



A: La Cite du Soleil

-Head south on "Allée des Matelots"
-Turn right to stay on "Allée des Matelots"
-Turn right onto "D10"
-Turn left onto "Rue de l'Indépendance Américaine"
-Continue onto "Rue Saint-Julien"
-Turn left onto "Rue des Récollets"
-Turn right onto "Av. Nepveu Sud"
-Slight left onto "Av. Rockefeller"
-Continue onto "Rue Hoche/D186"
-Continue onto "Rue Carnot"
-Keep right to stay on "Rue Carnot"
-Slight right onto "Rue des Réservoirs"
-At the roundabout, take the 2nd exit onto "Bd du Roi/D186"
-At the roundabout, take the 4th exit onto "Rue de Versailles"
-Keep left to stay on "Rue de Versailles"
-At the roundabout, take the 4th exit

Distance: 6 km , 15 mins

B: 177 Rue de Versailles
Address: 177 Rue de Versailles,
78150 Le Chesnay, France

Tel.: 01.39.63.91.33

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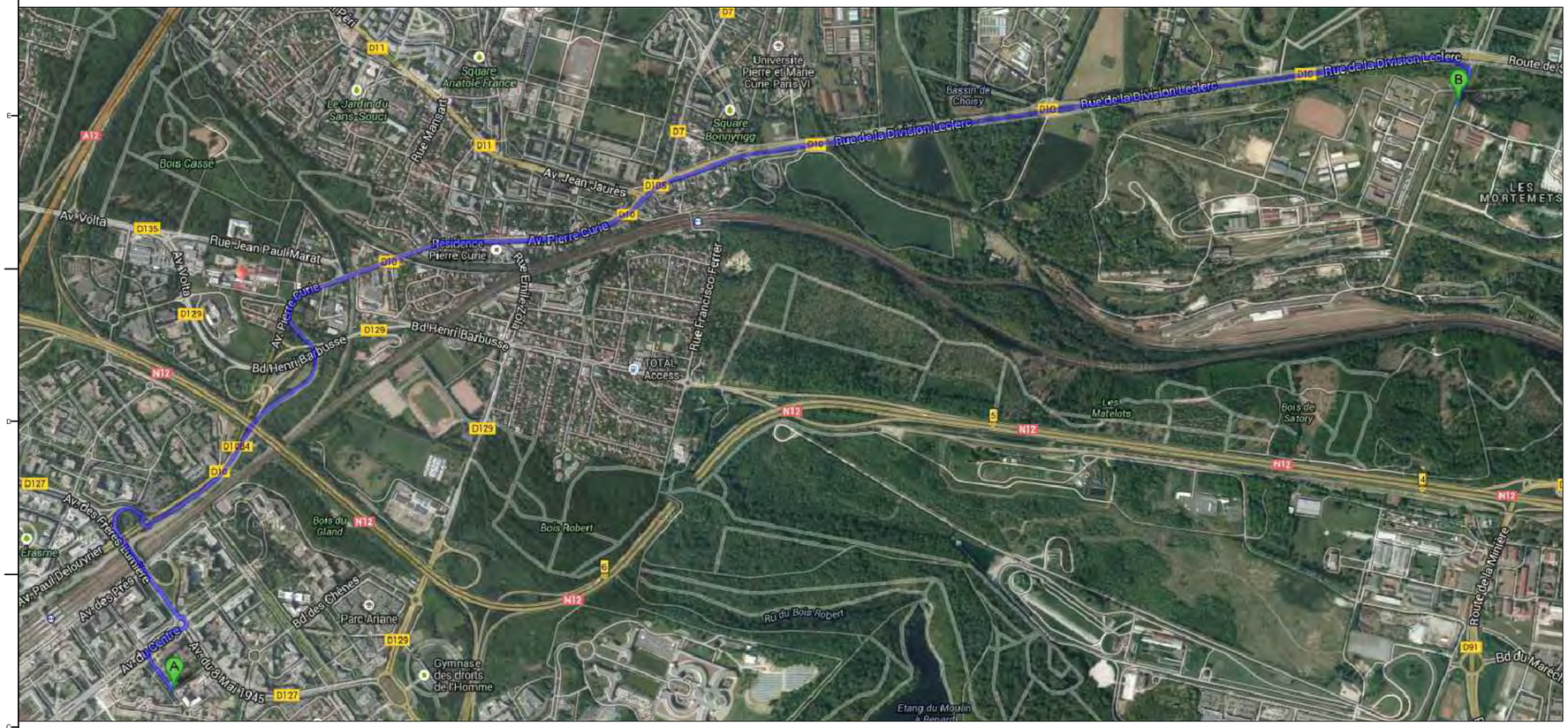
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DN	2013/07/01	DDc Submission
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	LC
Checked by	DN
Scale	-
Unit	-

DWG. Title
HEALTH AND SAFETY IN THE LOT AND SURROUNDINGS 1

DWG. No.	PAGE
HS-001	270

ROUTE TO THE NEAREST POLICE OFFICE



A: La Cite du Soleil

-Head northeast on Allée des Matelotstoward D10

-Turn left onto D10

-Slight right onto Av. de la Division Leclerc/D10

-At the roundabout, take the 1st exit onto the Av. des Frères Lumière/D127 ramp

- Keep left at the fork, follow signs for D127/Guyancourt/Quartier saint quentin

-Turn left onto Av. des Frères Lumière/D127

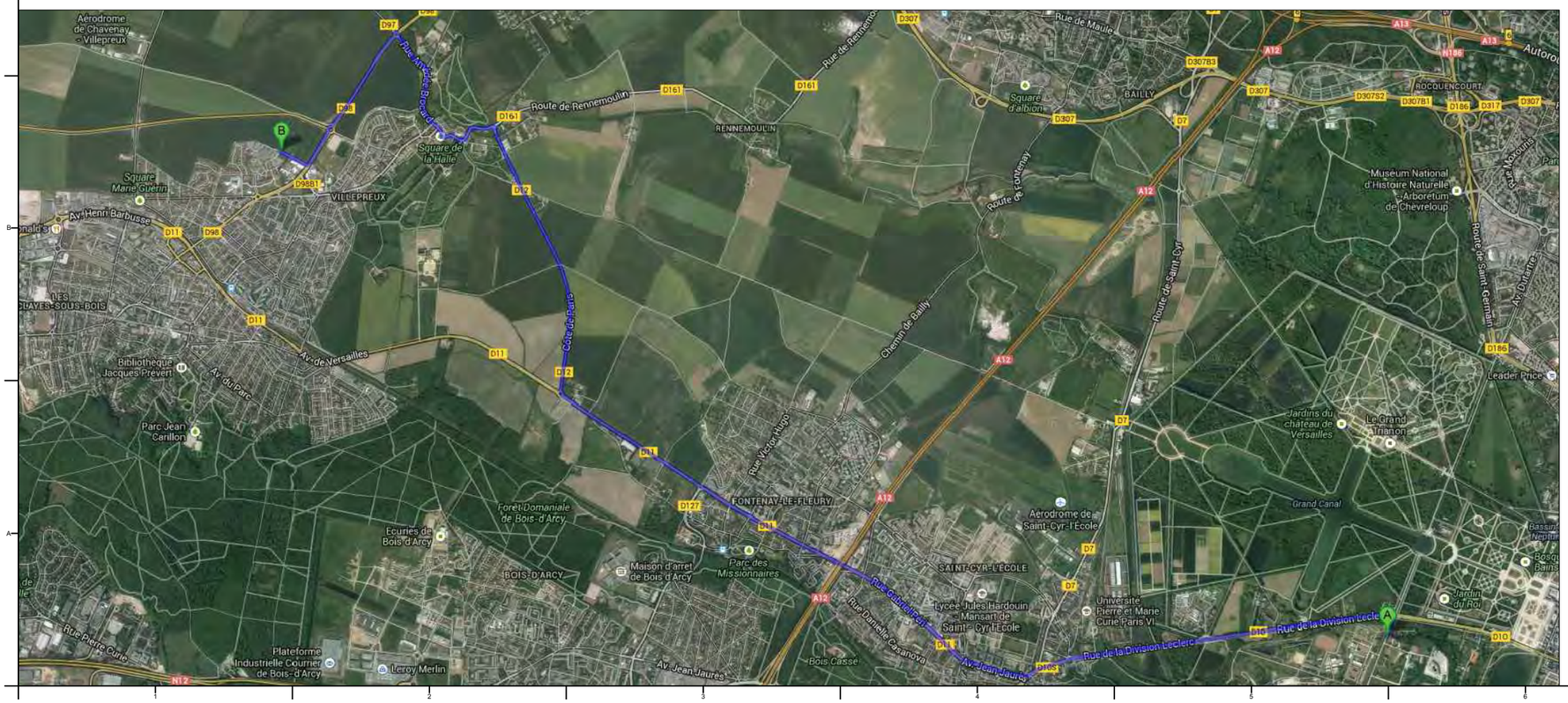
-Turn right onto Rue de la Division Leclerc

Distance: 5.8km , 9 mins

B: Commissariat de Police

Address: 1 Rue de la Division Leclerc
8280 Guyancourt, France

ROUTE TO THE FIRE STATION



A: La Cite du Soleil

-Head northeast on Allée des Matelotstoward D10

-Turn left onto D10

-Slight right onto Av. de la Division Leclerc/D10

-Turn right onto Av. Jean Jaurès/D11 Continue to follow D11

-At the roundabout, take the 2nd exit ontoRue Jules Massenet/D98

-Turn left onto D98

Distance: 11.3km , 18 mins

B: Sapeurs Pompiers des Yvelines

Address: Avenue de Pépinière
78450 Villepreux, France

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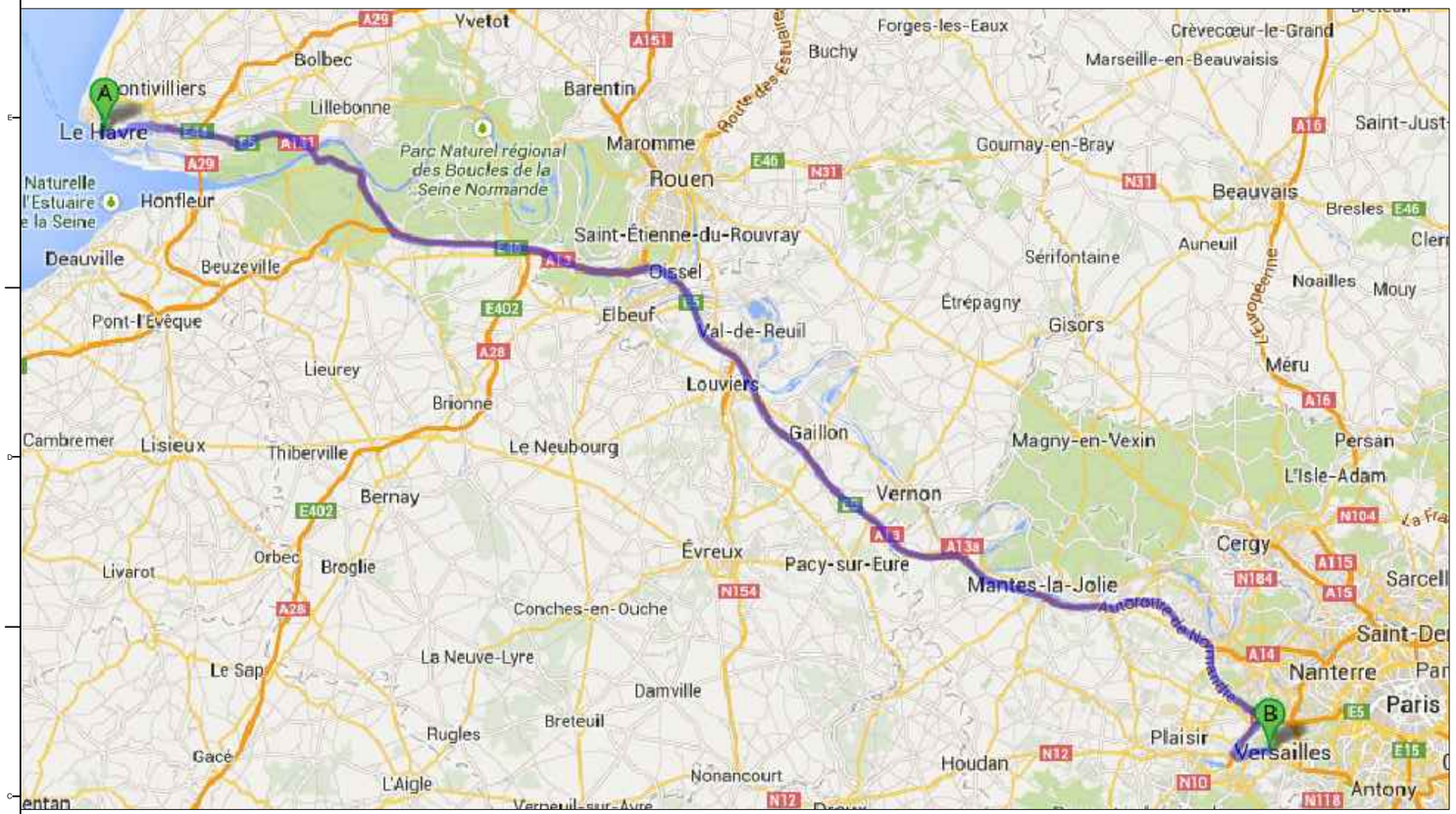
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ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	LC
Checked by	DN
Scale	
Unit	-

DWG. Title
HEALTH AND SAFETY IN THE LOT AND SURROUNDINGS 2

DWG. No.	PAGE
HS-002	271

TRUCKS ROUTE FROM "Le Havre" TO "La Cite du Soleil"



A: LE HAVRE

-Head west on Av. du Général Leclerc toward Pl. de l'Hôtel de ville

-Take the 1st left onto Pl. de l'Hôtel de ville

-Turn right onto Bd de Strasbourg

-Continue onto Cours Lafayette

-Continue onto Quai Colbert

-Slight left onto D6015

-Keep left to stay on D6015

-Continue onto N282

-Continue onto A131

-At the roundabout, take the 3rd exit onto N182

-Slight left onto E5

- Continue onto A131/E5

-Merge onto A13/E5

-Take the exit onto A12 toward Saint-Quentin-en-Yvelines

-Take the exit toward Évry/Lyon/Dreux/Saint-Quentin-en-Yvelines/Bois-D'Arcy/Versailles-Satory

-Keep right at the fork, follow signs for Saint-Cyr-l'École

-Turn left onto D129

-Slight right onto Av. Volta/D129 Continue to follow D129

-At the roundabout, take the 3rd exit onto Rue Emile Zola

-Turn right onto Av. Pierre Curie/D10

- Slight right to stay on Av. Pierre Curie/D10

-Turn right onto Allée des Matelots

Distance: 191 km, 1 hour 56mins

B:La Cite du Soleil

PROBLEM	RISKS	ADOPTED MEASURES
Dangers caused by weather	Heavy rain due to slippery floors	Drive slowly
Traffic problem during shipping	Traffic jam due to spent more time	To do another preparation during waiting for trucks
Road contruction	Road blocked	Plan B (other route)
Complex traffic system	Get lost	Arrange the route clearly before departure

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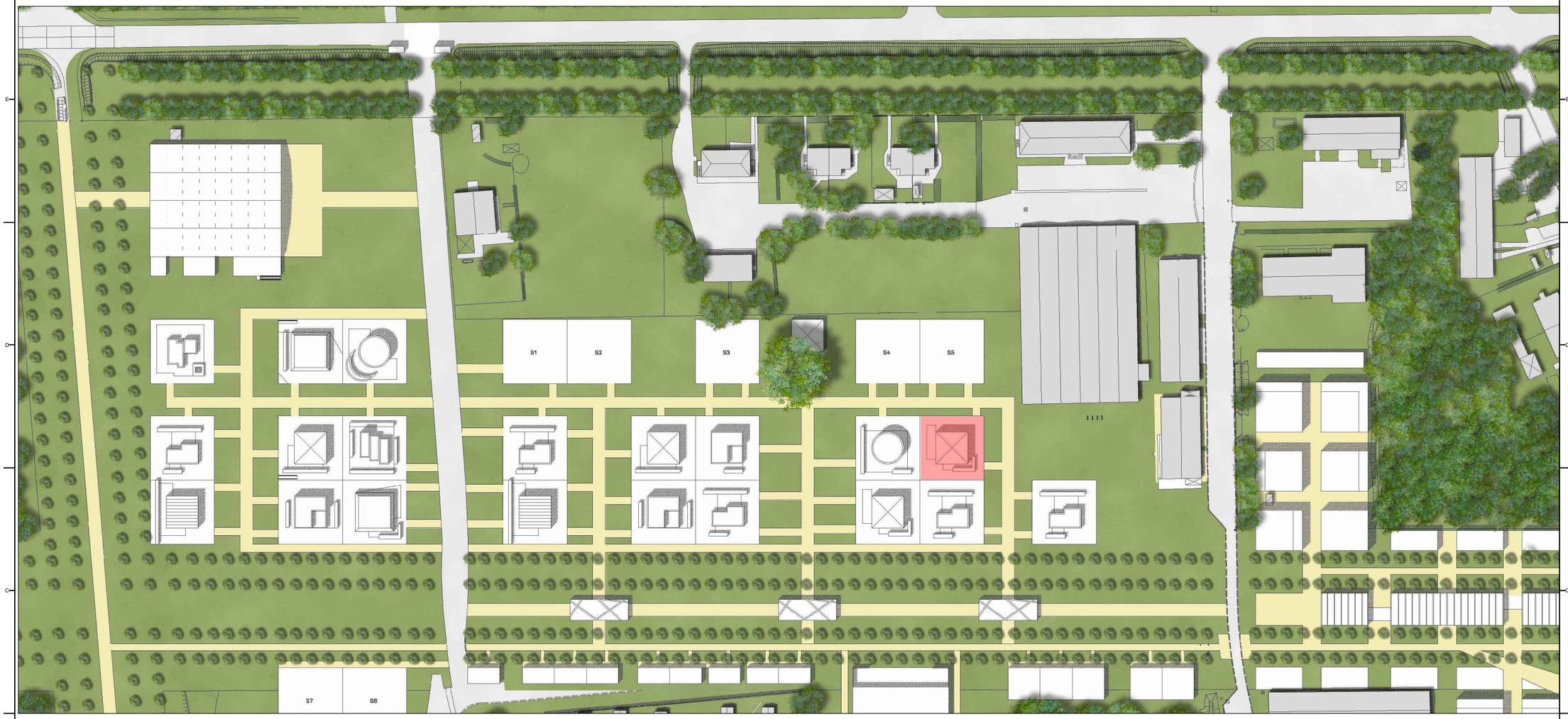
Unit: -

DWG. Title: HEALTH AND SAFETY DURING THE OUTSIDE LOGISTIC

DWG. No.: HS-101

PAGE: 272

SITE VIEW



PROBLEM	RISKS	ADOPTED MEASURES
Dangers caused by weather	Ground subsidence Getting stuck of heavy equipment Getting stuck of heavy components	Provision of lifting devices Support plates for heavy vehicles' legs
Dangers due to the great number of people on shipping to the site	Unclear arrangement danger of injury increases	No access for unauthorized persons Access only in coordination with construction/shift supervisor High visibility vest in compliance with the color scheme required by site operations for every person entering construction site
Too many access possibilities to the lot	Unclear arrangement danger of unauthorized access	Security officers for control Site fence Clearly marked pedestrian access to construction site
Too small distances from lot and trees/ plants	Obstruction of vehicle' movements Obstructions due to small distances between construction grounds Obstruction of vehicle' movements	No changes possible - steady crane - site fence - unloading/loading materials in the storage area inside the lot - unauthorized and external persons who invade the lot
Ground limitations	Obstruction / limitations through on-site security installations	Securing existing escape routes No dangerous works close to this area

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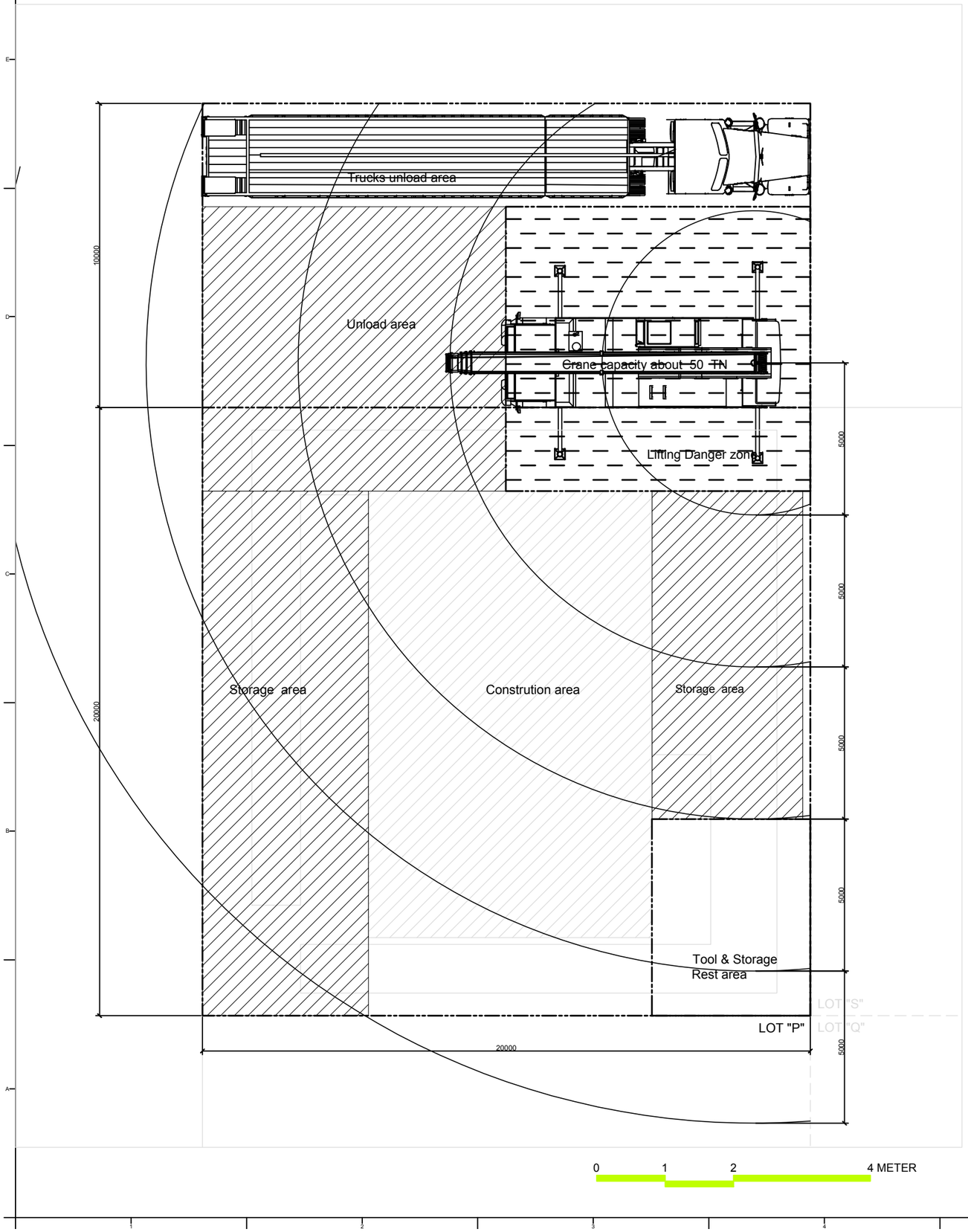
DWG. Title: HEALTH AND SAFETY DURING THE INSIDE LOGISTIC

DWG. No.: HS-201

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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 Denial 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-slide mats on slipping surfaces Regularly remove water from the foor 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

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DWG. Title: HEALTH AND SAFETY DURING LOAD / UNLOAD

DWG. No. HS-301

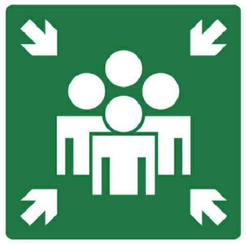
PAGE 274



Fall because of barriers



Don't stand under forklift



First aid kit



Fall of objects



Authorized personnel only



Point of ressemblement



Forklift way



Don't made fire



Warning



Don't run on worksite



Fire extinguisher



Loading area



Don't pass under load

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Scale	-
Unit	-

DWG. Title
HEALTH AND SAFETY SIGNPOSTING

DWG. No. HS-302

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!
PPE MUST BE WORN ON THIS SITE




HARD HAT




SAFETY GLASSES




REFLECTIVE JACKET






WORK CLOTHES

SAFETY GLOVES




SAFETY BOOTS



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Drawn by	LC
Checked by	DN
Scale	-
Unit	-

DWG. Title: HEALTH AND SAFETY PPE

DWG. No.: HS-303

PAGE: 270

Where the worker are:
On the ground

ALL SAFETY RULES MUST BE FOLLOWED







Footing Lofting Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Datum Point	Spacing	Sand Box	Coordinate positioning	Horizontal correction				
Woker	6	4	4	6	4				
Note									

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Drawn by	MS
Checked by	DN
Scale	-
Unit	-

DWG. Title: Phase 1

DWG. No.: HS-401

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Where the worker are:
On the ground On the mezzanine floor
On the Floor

ALL SAFETY RULES MUST BE FOLLOWED



Modular Unit Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Modular Unit 1~5 Modular Unit 11~12	M.E.P Ststem Under Unit	Unit combination	Building positioning correction					
Woker	8	4	4	6					
Note									

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Drawn by MS
Checked by DN
Scale -
Unit -

DWG. Title
Phase 2

DWG. No. HS-402
PAGE 278

Where the worker are:
On the ground
On the Floor
On the mezzanine floor

ALL SAFETY RULES MUST BE FOLLOWED





Main Structure & Interior Insulation & M.E.P System Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Stair Unit and Terrace Unit Assembly and Lifting	Interior Insulation Assembly	M.E.P System Tube and trunking	Interior Upper Floor Insulation					
Woker	5	4	4	6					
Note									

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Drawn by: MS

Checked by: DN

Scale: -

Unit: -

DWG. Title: Phase 3

DWG. No.: HS-403

PAGE: 279

Where the worker are:
On the ground On the mezzanine floor
On the Floor

ALL SAFETY RULES MUST BE FOLLOWED



Additional components & M.E.P System Shaft Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Additional components	M.E.P System Shaft							
Woker	6	4							
Note									

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Drawn by MS

Checked by DN

Scale -

Unit -

DWG. Title

Phase 4

DWG. No. HS-404

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Where the worker are:

On the ground	On the mezzanine floor
On the Floor	On the roof

ALL SAFETY RULES MUST BE FOLLOWED



Main Structure & Roof Unit Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	2F Main Structure	Rooof Unit							
Woker	6	4							
Note									

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Drawn by: MS

Checked by: DN

Scale: -

Unit: -

DWG. Title: Phase 5

DWG. No.: HS-405

PAGE: 281

Where the worker are:

On the ground	On the mezzanine floor
On the Floor	On the roof

ALL SAFETY RULES MUST BE FOLLOWED



Solar Panel & Bayer Roof Panel & Louver Panel Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Solar Panel & Solar Panel Electricity System	Bayer Roof Panel	Louver Panel						
Woker	6	4	6						
Note									

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Drawn by	MS
Checked by	DN
Scale	-
Unit	-

DWG. Title: Phase 6

DWG. No.: HS-406

PAGE: 282

Where the worker are:
On the ground On the mezzanine floor
On the Floor

ALL SAFETY RULES MUST BE FOLLOWED





Green Core & M.E.P Wire & Water System Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Green Core Structure & Panel & Water System	M.E.P Wiring & Piping System							
Woker	6	4							
Note									

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ST	2014/04/30	CD Submission

Drawn by MS

Checked by DN

Scale -

Unit -

DWG. Title

Phase 7

DWG. No. HS-407

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Where the worker are:

On the ground	On the mezzanine floor
On the Floor	On the roof

ALL SAFETY RULES MUST BE FOLLOWED



Bayer Wall System & Roof Cover System Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Bayer Wall System Structure & Panel	Roof Cover & Gutter System							
Woker	6	6							
Note									

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Drawn by	MS
Checked by	DN
Scale	-
Unit	-

DWG. Title: Phase 8

DWG. No.: HS-408

PAGE: 284

Where the worker are:

On the ground	On the mezzanine floor
On the Floor	On the roof

ALL SAFETY RULES MUST BE FOLLOWED



Roof Waterproof & Equipment & Lighting Test Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Roof Waterproof	Equipment & Lighting Test							
Woker	6	6							
Note									

Solar Decathlon Europe

Project: ORCHID HOUSE

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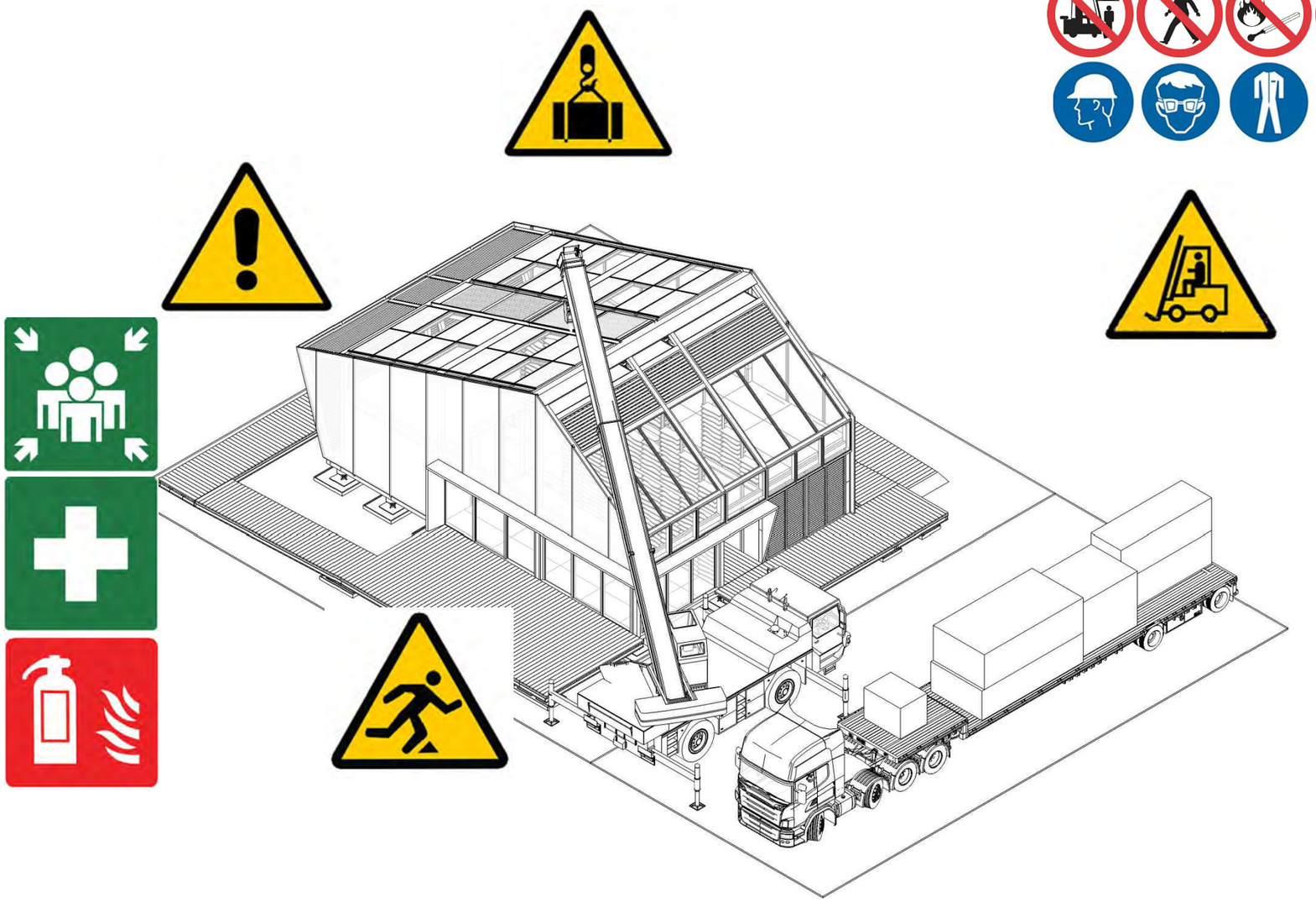
DWG. Title: Phase 9

DWG. No.: HS-409

PAGE: 285

Where the worker are:
On the ground
On the Floor
On the mezzanine floor

ALL SAFETY RULES MUST BE FOLLOWED



Outdoor Terrace & Planting & Furniture Phase

Step	1	2	3	4	5	6	7	8	9
Work Deatail	Outdoor Terrace Structure & Handrail & LIghting	Outdoor Planting & Green Core Planting	Furniture	Appliances	System Test	Lot Clean			
Woker	6	6	6	6	6	6			
Note									

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Scale: -
Unit: -

DWG. Title: Phase 10

DWG. No.: HS-410

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Where the worker are:

On the ground — On the mezzanine floor

On the Floor — On the roof

ALL SAFETY RULES MUST BE FOLLOWED









0 1 2 5 METER

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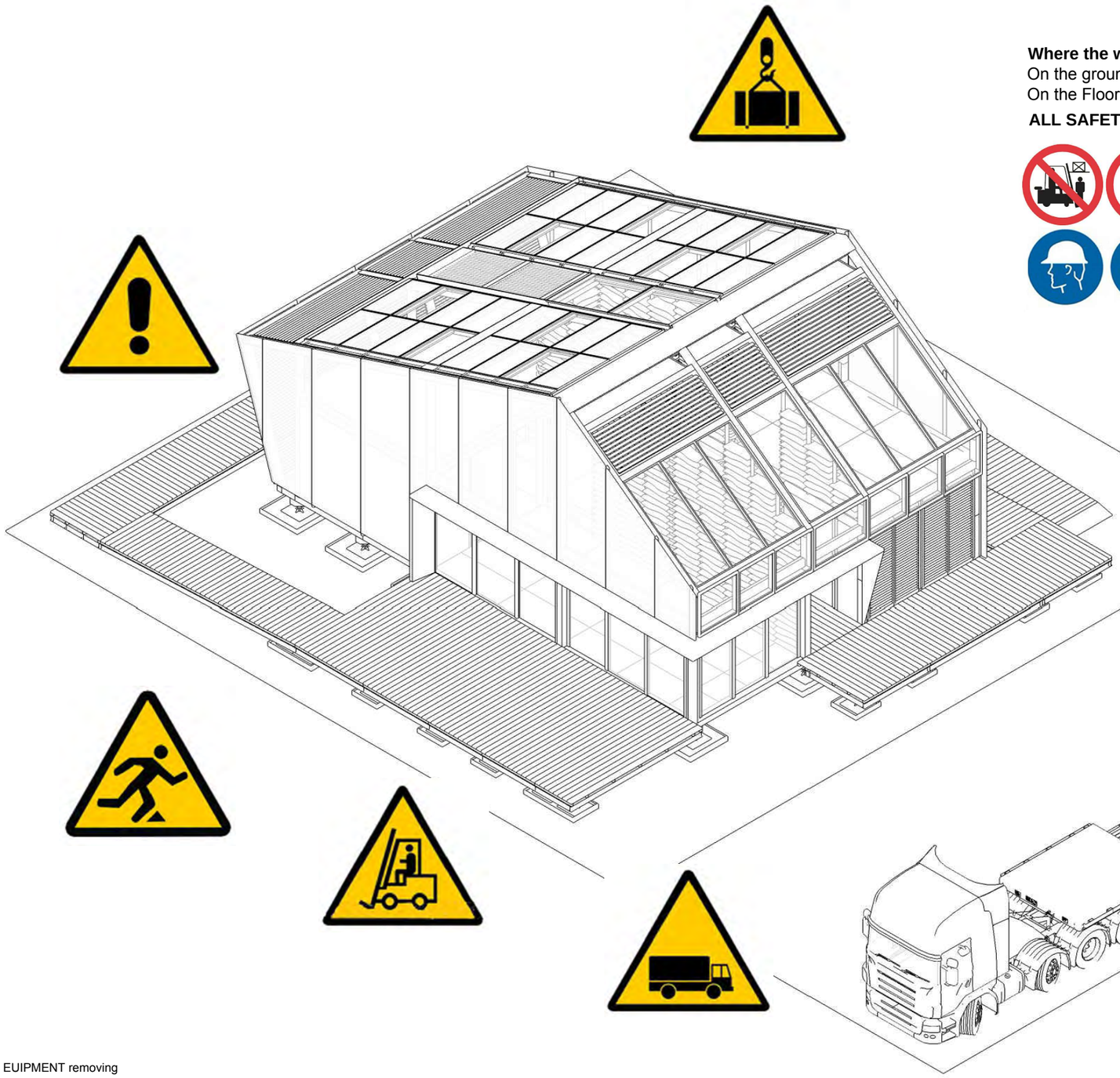
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DWG. Title

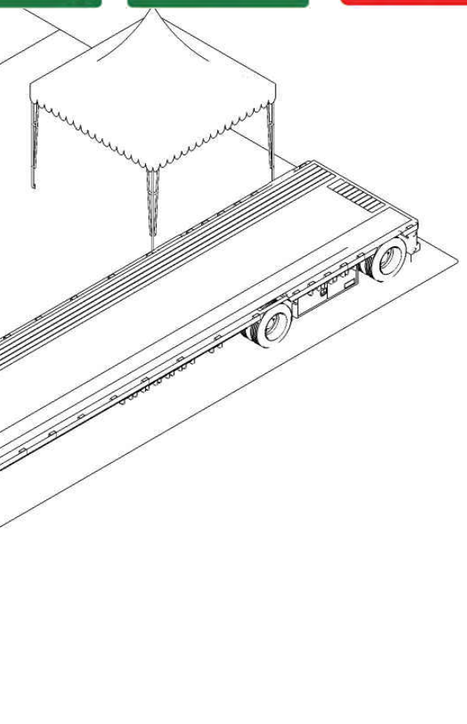
HEALTH AND SAFETY DURING MAINTENANCE

DWG. No.	PAGE
HS-501	287









INTERIOR EUIPMENT removing

Step	1	2	3	4	5	6	7			
Work detail	Plants removing	accessory removing	Furniture removing	Kitchen/Appliance/Lamp equipment	Machinery room	Outside pipeline/Lamps	Outside handrail			
Worker	6	4	6	4	2	4	4			
Note										

Where the worker are:
On the ground On the mezzanine floor
On the Floor

ALL SAFETY RULES MUST BE FOLLOWED

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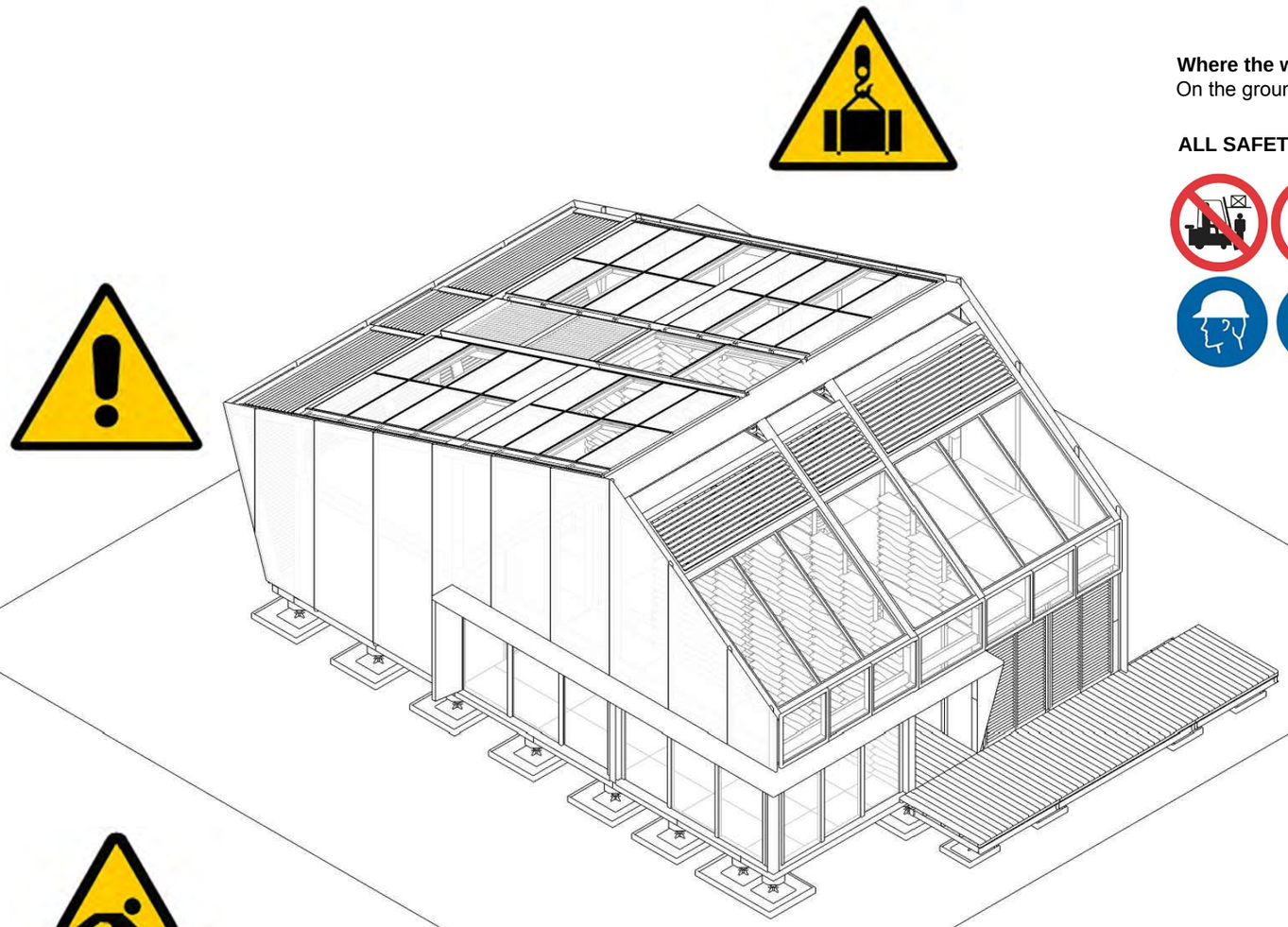
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Unit	-

DWG. Title: Disassembly Phase 1

DWG. No.: HS-601

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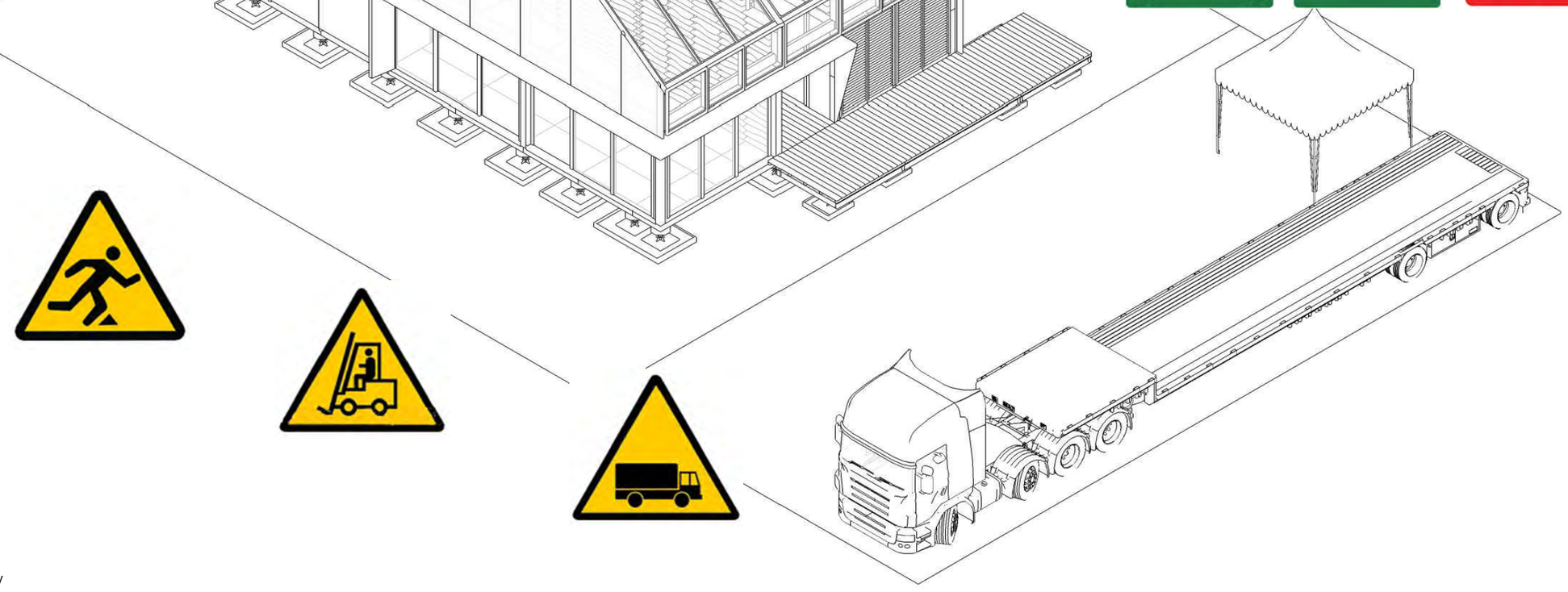


Where the worker are:
On the ground On the Floor

ALL SAFETY RULES MUST BE FOLLOWED







Outside disassembly

Step	1	2	3	4						
Work detail	Outside WPC/deck	Outside footing	East/West Bayer board	South Eletric Blinds						
Worker	6	2	5	3						
Note										

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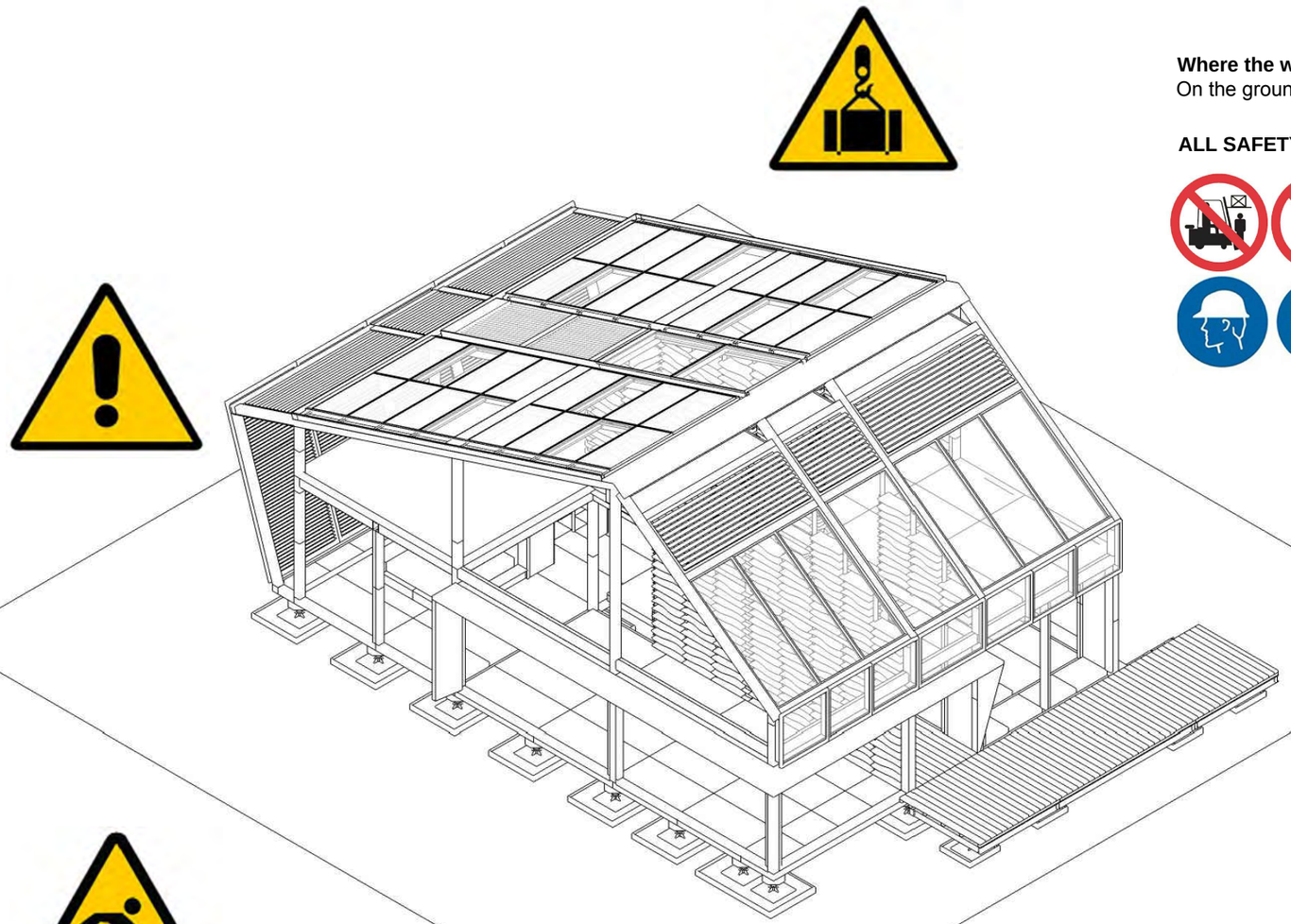
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Scale	-
Unit	-

DWG. Title: Disassembly Phase 2

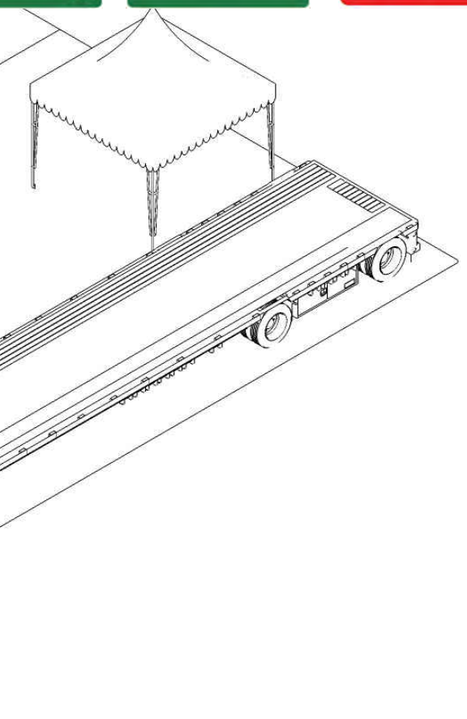
DWG. No.: HS-602

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Where the worker are:
On the ground On the Floor

ALL SAFETY RULES MUST BE FOLLOWED

First Floor disassembly

Step	1	2	3	4	5	6	7	8	9	
Work detail	1F Interior floor	Aluminium window	Sensor removing	1F Ceiling	1F Wooden wall	Bathroom	Kitchen Island	Work Station removing	Thermal wall removing	
Worker	4	2	2	4	6	4	3	4	4	
Note										

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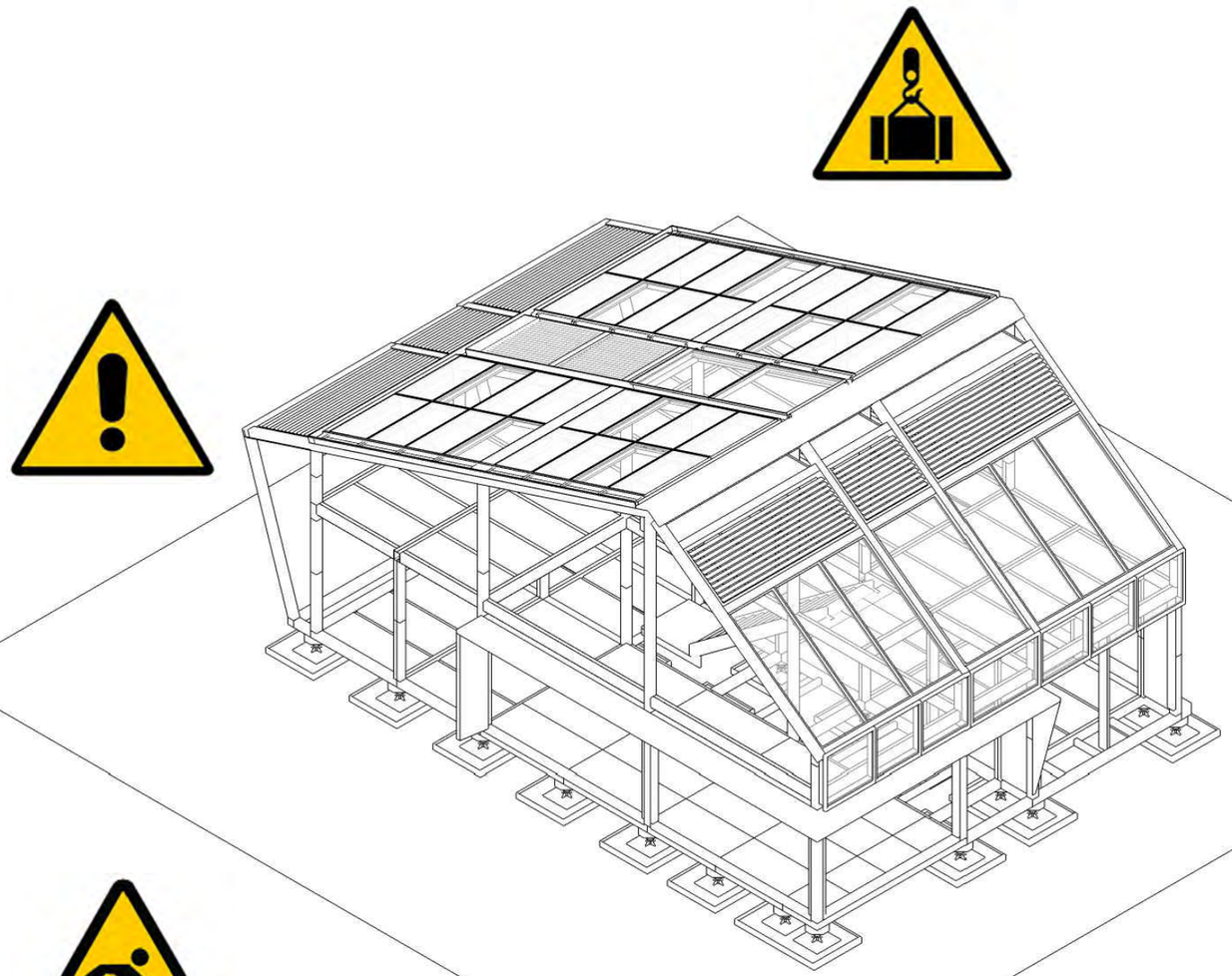
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Unit: -

DWG. Title: Disassembly Phase 3

DWG. No.: HS-603

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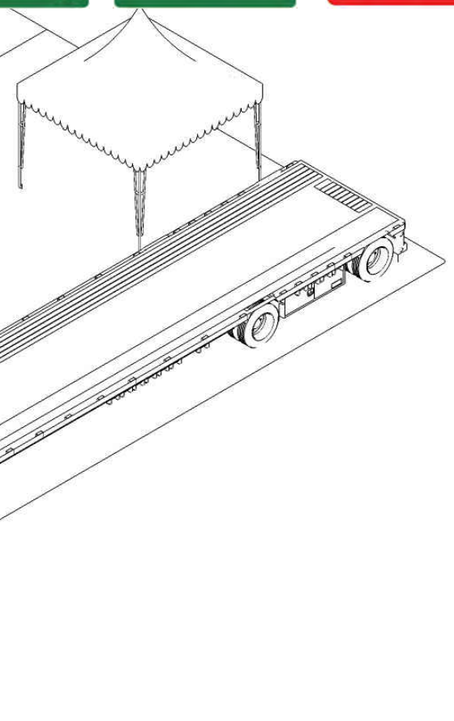


Where the worker are:
On the ground On the mezzanine floor
On the Floor

ALL SAFETY RULES MUST BE FOLLOWED







Second Floor disassembly

Step	1	2	3	4	5	6	7	8	9	
Work detail	2F WPC	2F Equipment/Appliance	Water wall removing	2F pipline	Green core	1F Upper wooden box	2F Upper wooden box	Window/Door disassembly	Tea terrance/Entrance WPC	
Worker	3	5	8	4	4	6	6	4	8	
Note										

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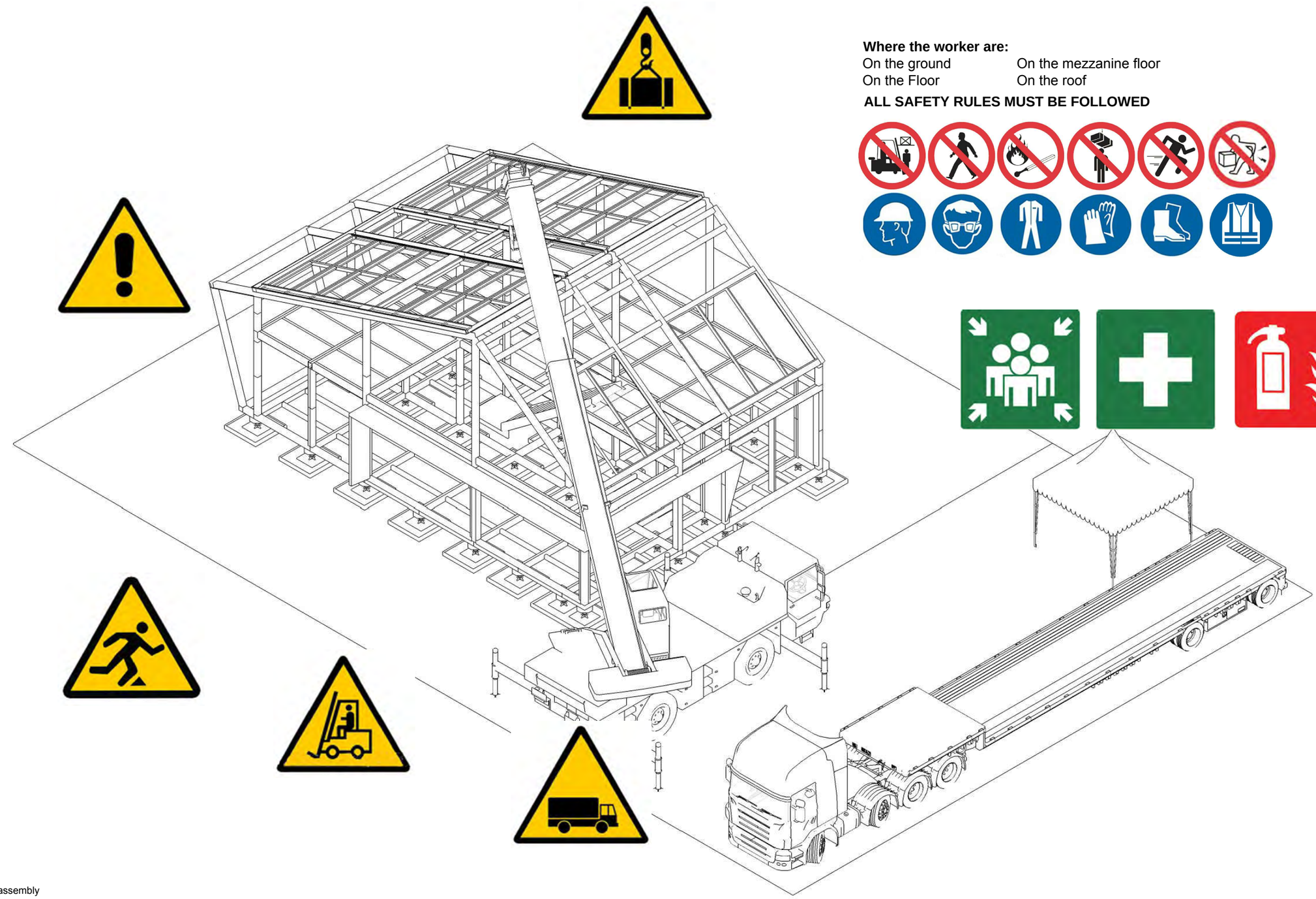
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Scale: -
Unit: -

DWG. Title: Disassembly Phase 4

DWG. No.: HS-604

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Where the worker are:

On the ground
On the Floor
On the mezzanine floor
On the roof

ALL SAFETY RULES MUST BE FOLLOWED

Roof disassembly

Step	1	2	3	4	5	6	7	8		
Work detail	Roof cover board	North Bayer board	Roof ridge Fans	Smart skin	Solar panel	North Eletric Blinds	Solar water heater	Water tank		
Worker	4	3	4	3	3	4	2	6		
Note										

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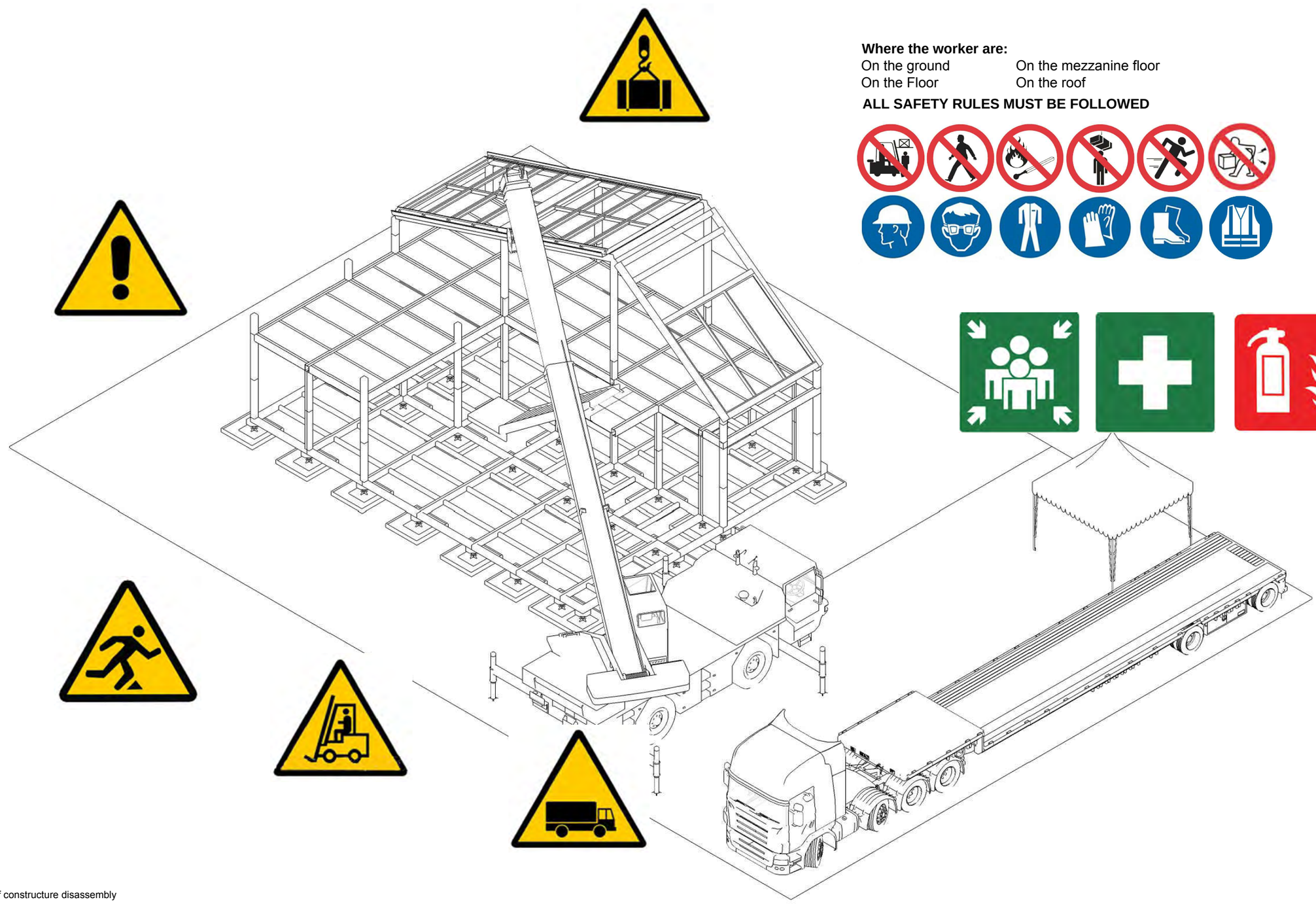
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Unit: -

DWG. Title: Disassembly Phase 5

DWG. No.: HS-605

PAGE: 292



Where the worker are:

On the ground	On the mezzanine floor
On the Floor	On the roof

ALL SAFETY RULES MUST BE FOLLOWED

East Roof constructure disassembly

Step	1	2	3	4						
Work detail	E1,E2,E3,E4 unit disassembly	Roof Unit 5~7 disassembly	Roof Unit 9~11 disassembly	East column						
Worker	5	3	4	3						
Note										

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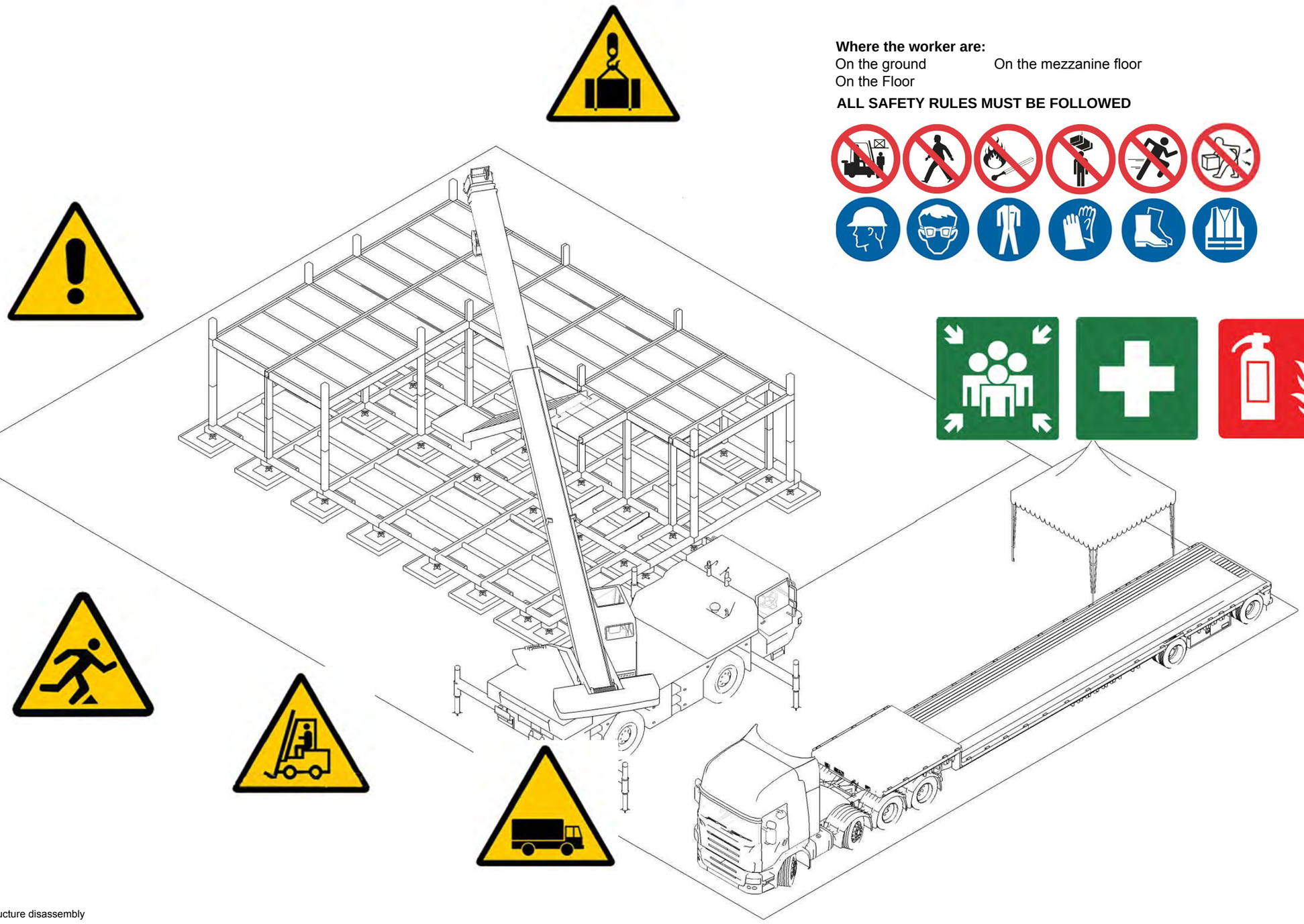
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Unit: -

DWG. Title: Disassembly Phase 6

DWG. No.: HS-606

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Where the worker are:
On the ground
On the Floor
On the mezzanine floor

ALL SAFETY RULES MUST BE FOLLOWED

Tea terrance constructure disassembly

Step	1	2	3	4	5					
Work detail	Roof Unit 1~3 removing	2F unit disassemby	Roof Unit 9~11 disassembly	West column	East/North canopy					
Worker	4	6	4	3	6					
Note										

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Drawn by: SC
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Scale: -
Unit: -

DWG. Title: Disassembly Phase 7

DWG. No.: HS-607

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Where the worker are:
On the ground On the mezzanine floor
On the Floor

ALL SAFETY RULES MUST BE FOLLOWED





West Roof constructure disassembly

Step	1	2								
Work detail	Unit 6~10 disassembly	Tea terrance footing								
Worker	4	4								
Note										

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Unit	-

DWG. Title: Disassembly Phase 8

DWG. No.: HS-608

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Where the worker are:
On the ground
On the Floor
On the mezzanine floor

ALL SAFETY RULES MUST BE FOLLOWED





Unit 1~5 constructure disassembly

Step	1	2								
Work detail	Unit 1~5 disassembly	Unit 1~5 removing								
Worker	6	4								
Note										

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DWG. Title: Disassembly Phase 9

DWG. No.: HS-609
PAGE: 296

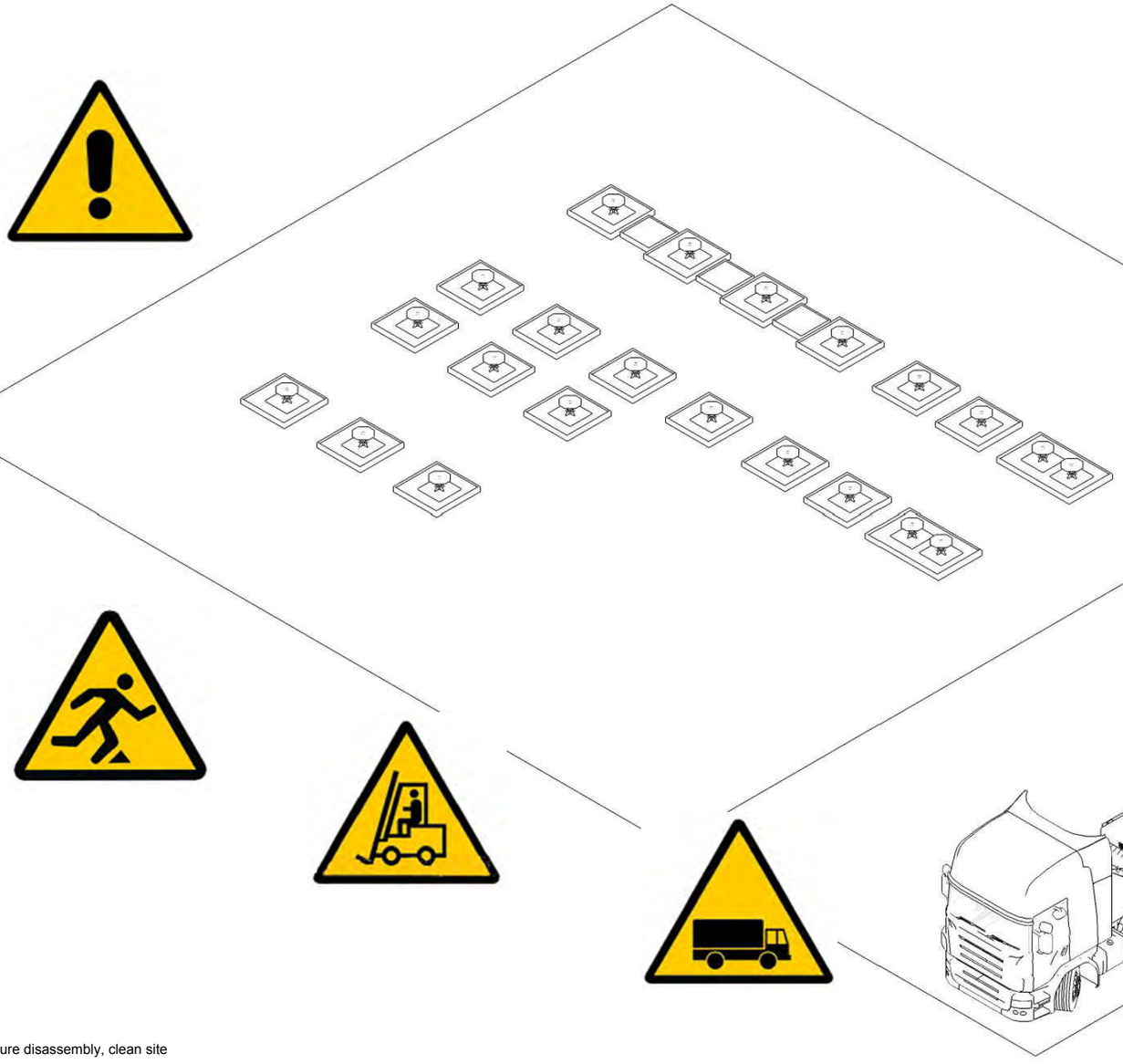


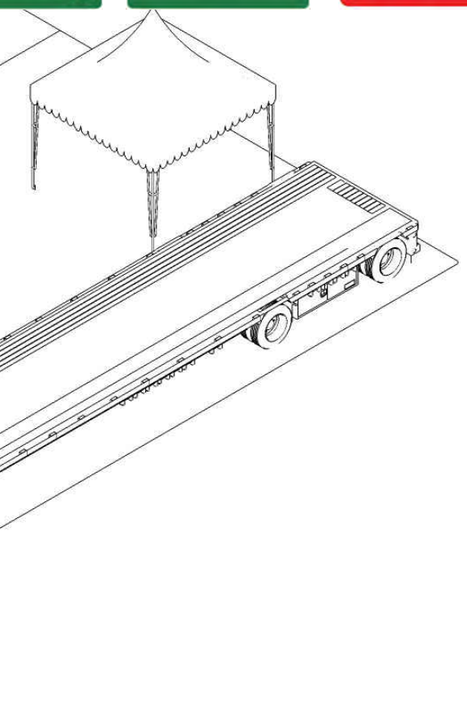
Where the worker are:
On the ground
On the Floor

ALL SAFETY RULES MUST BE FOLLOWED









Unit 11~12 constructure disassembly, clean site

Step	1	2	3	4						
Work detail	Unit 11~12 disassembly	Unit 11~12 removing	Footing removing	Site cleaning						
Worker	6	4	6	10						
Note										

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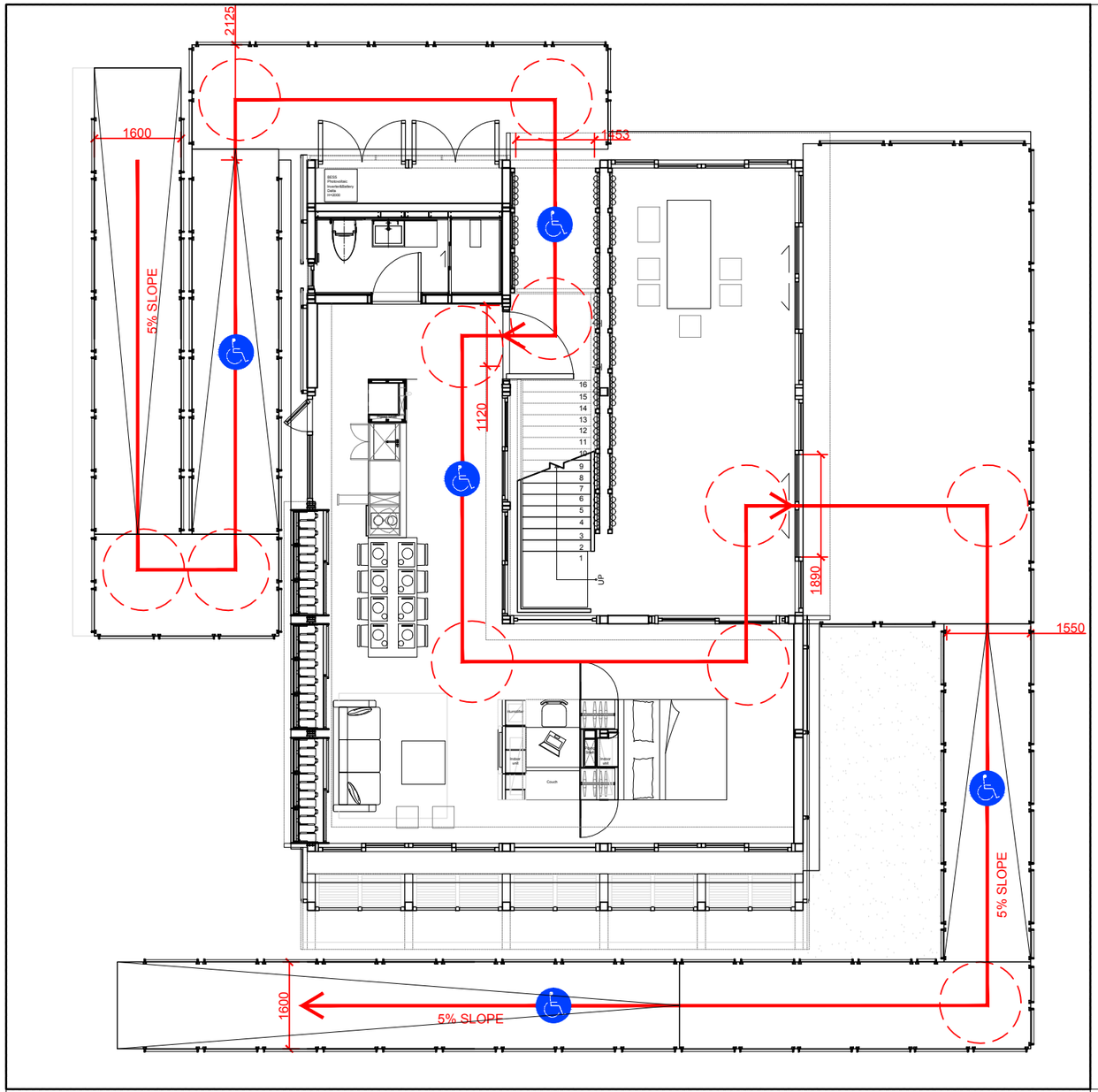
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DWG. Title: Disassembly Phase 10

DWG. No.: HS-610

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0 1 2 5 METER

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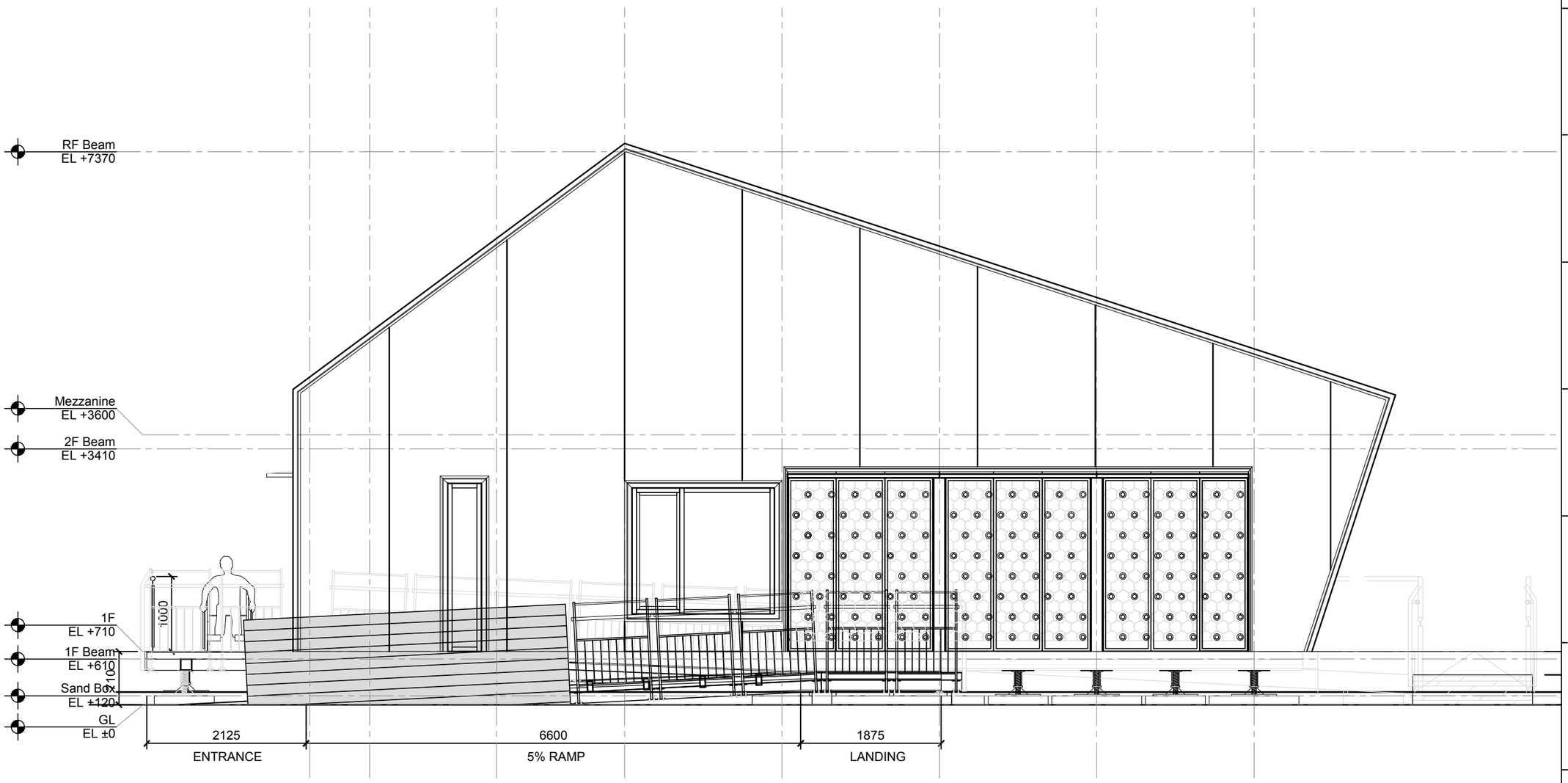
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Unit	mm

DWG. Title

SITE ACCESSIBILITY PLAN

DWG. No.	PAGE
PT-001	298



0 1 2 5 METER

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Unit	mm

DWG. Title

SITE ACCESSIBILITY ELEVATION

DWG. No. PT-002

PAGE 299

PHOTOSHOT (1 MIN)

Experience the northwest side of Orchid House. Guide will explain the concept, design and background knowledge of Orchid House and the city issue in Taipei. Friendly guide will start the tour form this spot, introducing the concept of Orchid House.

FIRST IMPRESSION (Depends on the visitors in queue)

Visitors will get a general view of Orchid House. Then experience the passage designed to access the house.

BATHROOM & KITCHEN (2 MINS)

The kitchen serves a multifunctional task-the center piece is an island that can be converted into a dining table for formal occasions.

FIRST GLIMPSE (10 SECS)

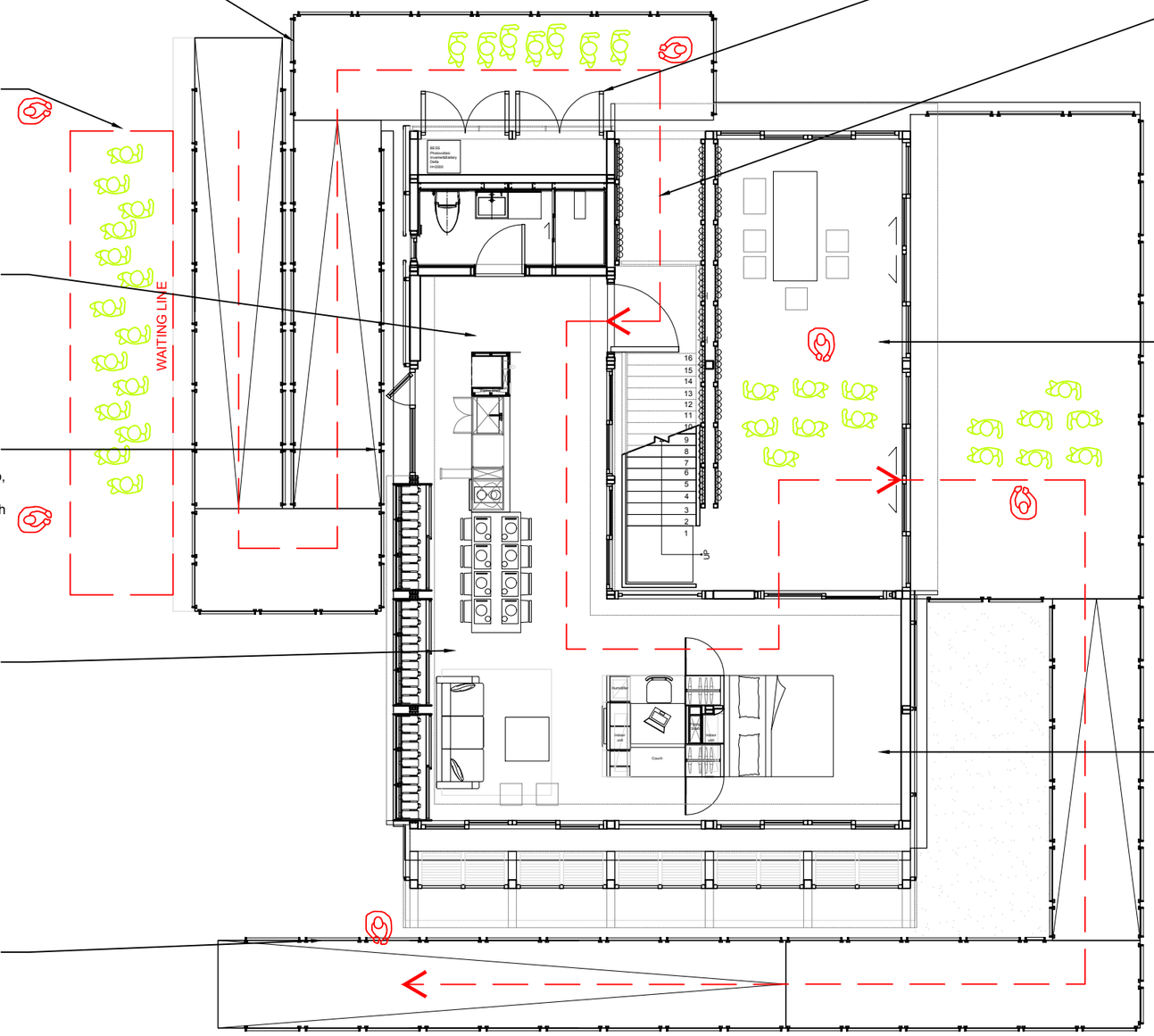
At the middle of the west ramp, we provide a translucent glimpse into the House through the window.

LIVING ROOM & THERMAL MASS (2 MINS)

The Living Room features abundant natural light and can be filtered and adjusted by louvers as well as the liquid thermal wall on the west side. Further details will be provided to explain how the thermal wall conserves energy and maintains comfortable temperatures both day and night.

FEEDBACK & GET THE VOTE CARD (3 MINS)

Get more Q&A before finishing the tour and get a vote card.



MECHANICAL ROOM (3 MINS)

Guide will explain the mechanical system including.

ENTRANCE & GREEN CORE (3 MINS)

Guide will introduce the concept of Green Core and Taiwanese orchid.

TEA TERRACE & PHOTOSHOT (5 MINS)

The space offers visitors shading comfort while they enjoy traditional Chinese Tea and appreciating the Winter Camp made by the senior high schoolers. Besides, the deck will offer a space for occasional rest.

BEDROOM & WORKSTATION (2 MINS)

Guide will explain how we conceived the L-shape house and how it serves as a prototypical solution to Taipei rooftop. Some general description of city issues will be provided.

0 1 2 5 METER

Solar Decathlon Europe

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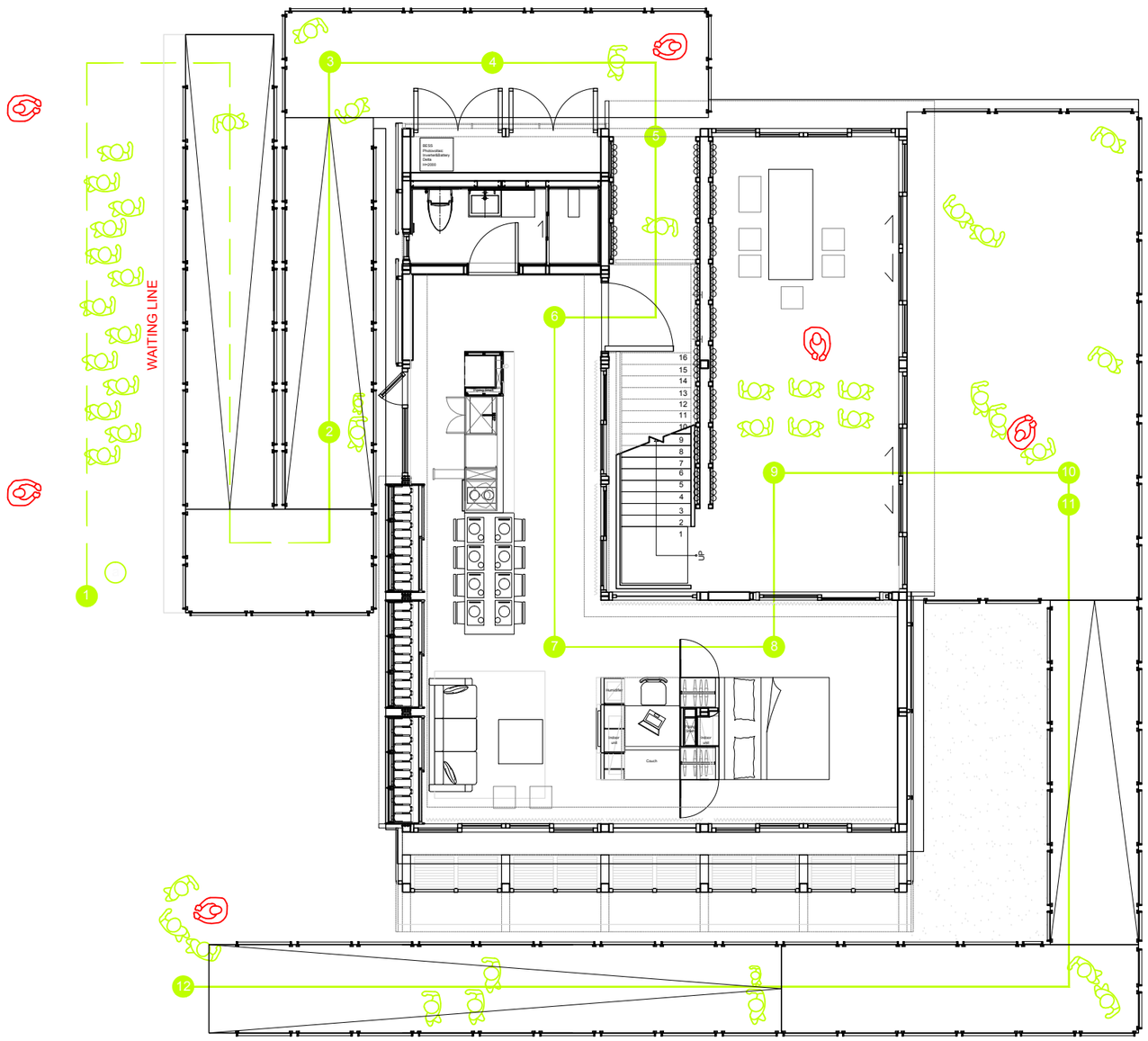
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Unit	mm

DWG. Title

HOUSE TOUR PLAN

DWG. No. PT-101

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- VISITOR
- TEAM UNICODE MEMBER
- 1 FIRST IMPRESSION (depends on the visitors in queue)
- 2 FIRST GLIMPSE (10 secs)
- 3 PHOTOSHOT 1 (1 min)
- 4 MECHANICAL ROOM (3 mins)
- 5 ENTRANCE & GREEN CORE (3 mins)
- 6 BATHROOM & KITCHEN (2 mins)
- 7 LIVING ROOM & THERMAL MASS (2mins)
- 8 BEDROOM & WORKSTATION (2 mins)
- 9 TEA TERRACE (5 mins)
- 10 PHOTOSHOT 2 (2 mins)
- 11 PHOTOSHOT 3 (2 mins)
- 12 FEEDBACK & GET THE VOTE CARD (3 mins)

0 1 2 5 METER

Solar Decathlon Europe

Project: ORCHID HOUSE

Institution: 國立交通大學 National Chiao Tung University

NCTU Architecture 國立交通大學建築研究所

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Consultants:

Note:

N

Mark	Date	Description
DN	2013/04/01	SD Submission
DN	2013/07/01	DDc Submission
ST	2013/11/01	DD Submission
ST	2014/03/03	CD Submission
ST	2014/04/30	CD Submission

Drawn by	YW
Checked by	DN
Scale	1:100
Unit	MM

DWG. Title

HOUSE TOUR GENERAL INFORMATION

DWG. No. PT-201

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