


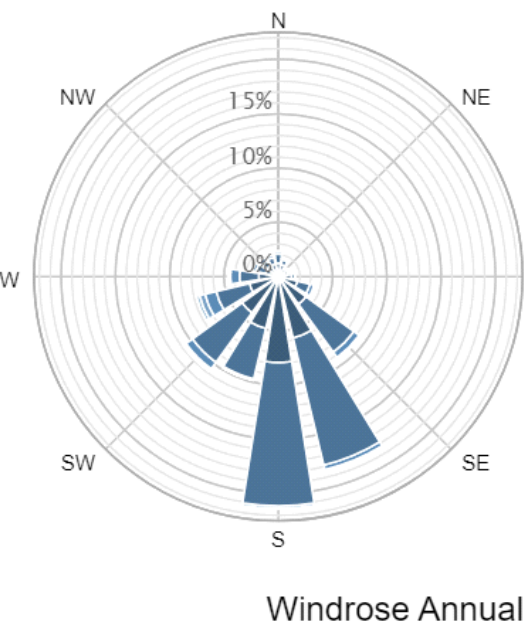


RENDERING VIEW

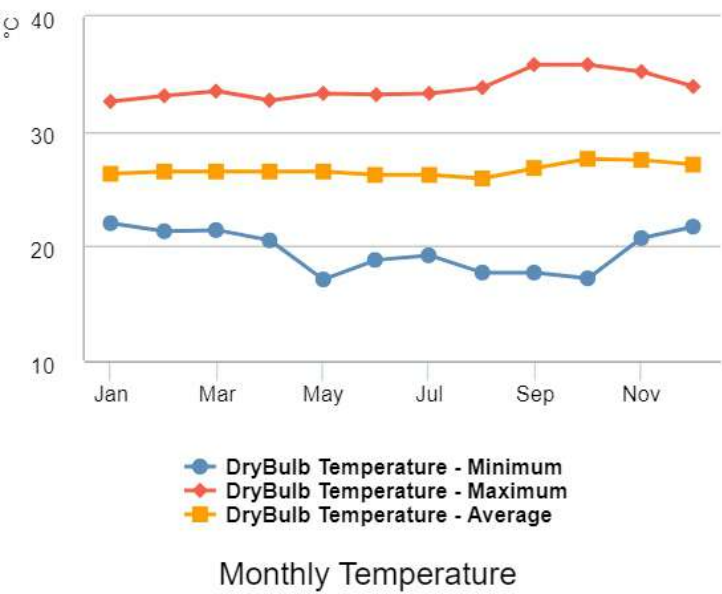
 <p>Indonesia DfGE Design Competition 2023</p>	<p>Breathing Dormitory</p>	<p>DFGE-23-0014</p>	<p>001</p>
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BREATHING DORMITORY

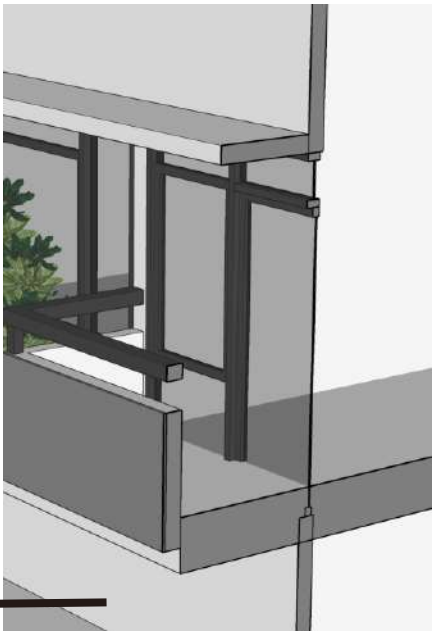
Weather Station ID: 1458677
NW 4.5 km away



Weather Station ID: 1458677
NW 4.5 km away



Plants
plants are made in the balcony area to reduce the sun's heat entering the dormitory unit.



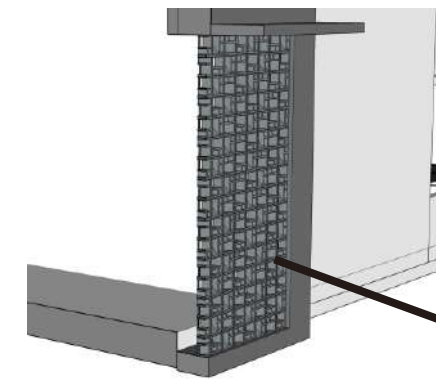
Cross ventilation

- Make it easier for wind to enter the building
- Economic use of air conditioning

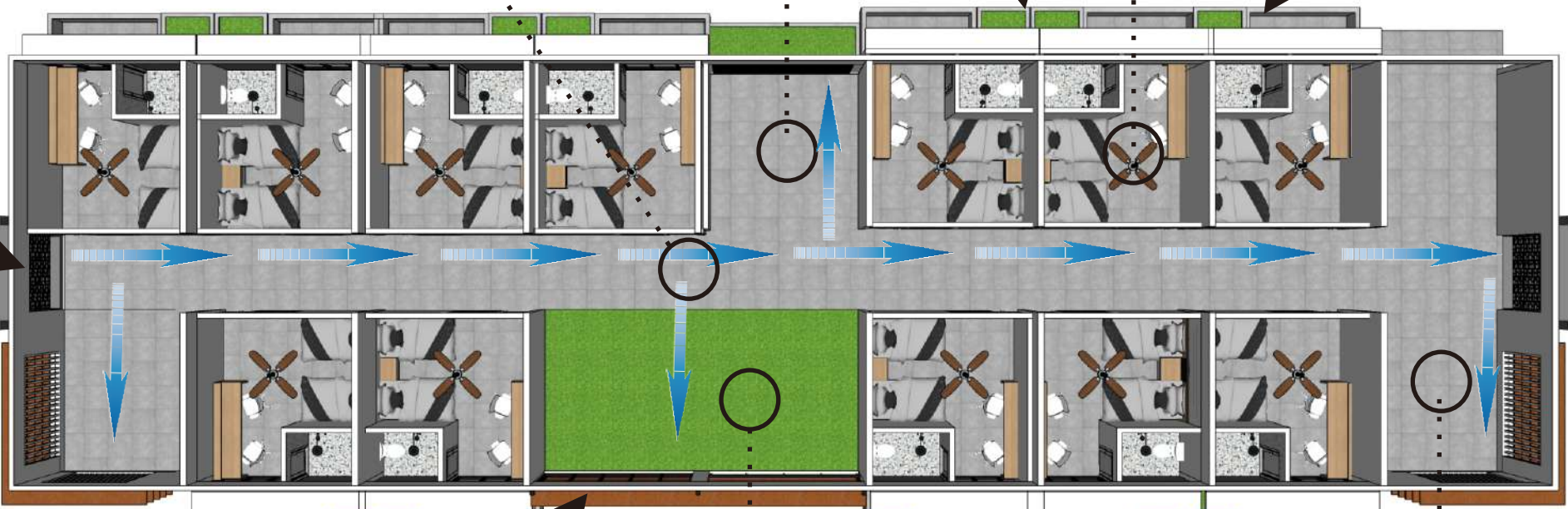
Main stairs

Celling Fan

Shading Pad
shading pads are used on each balcony of the dormitory unit to reduce incoming sunlight and to prevent rainwater from entering the unit.



Material Roster
one of the materials used in this dormitory is a roster in the form of a hole. so that the wind can enter easily into the dormitory building.



Emergency Stairs



Innercourt/breathing space
- Reduces heat in the tropics
-Creates oxygen
- carbon gas absorber



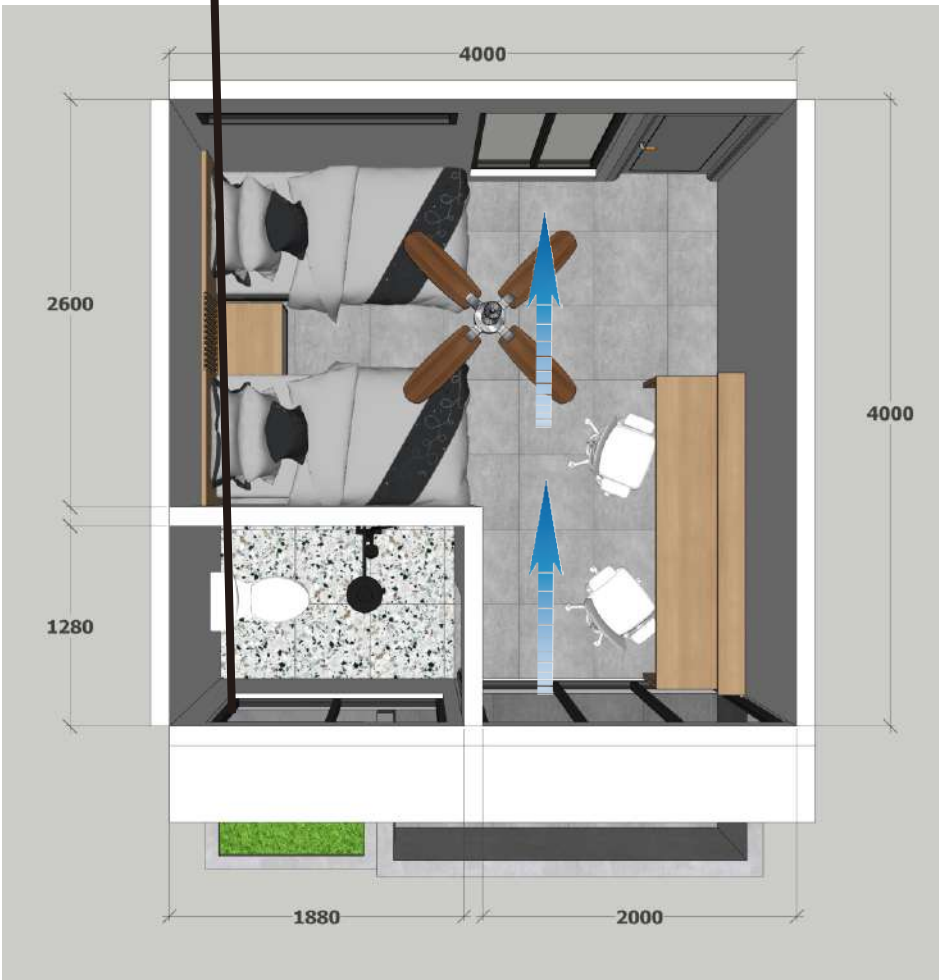
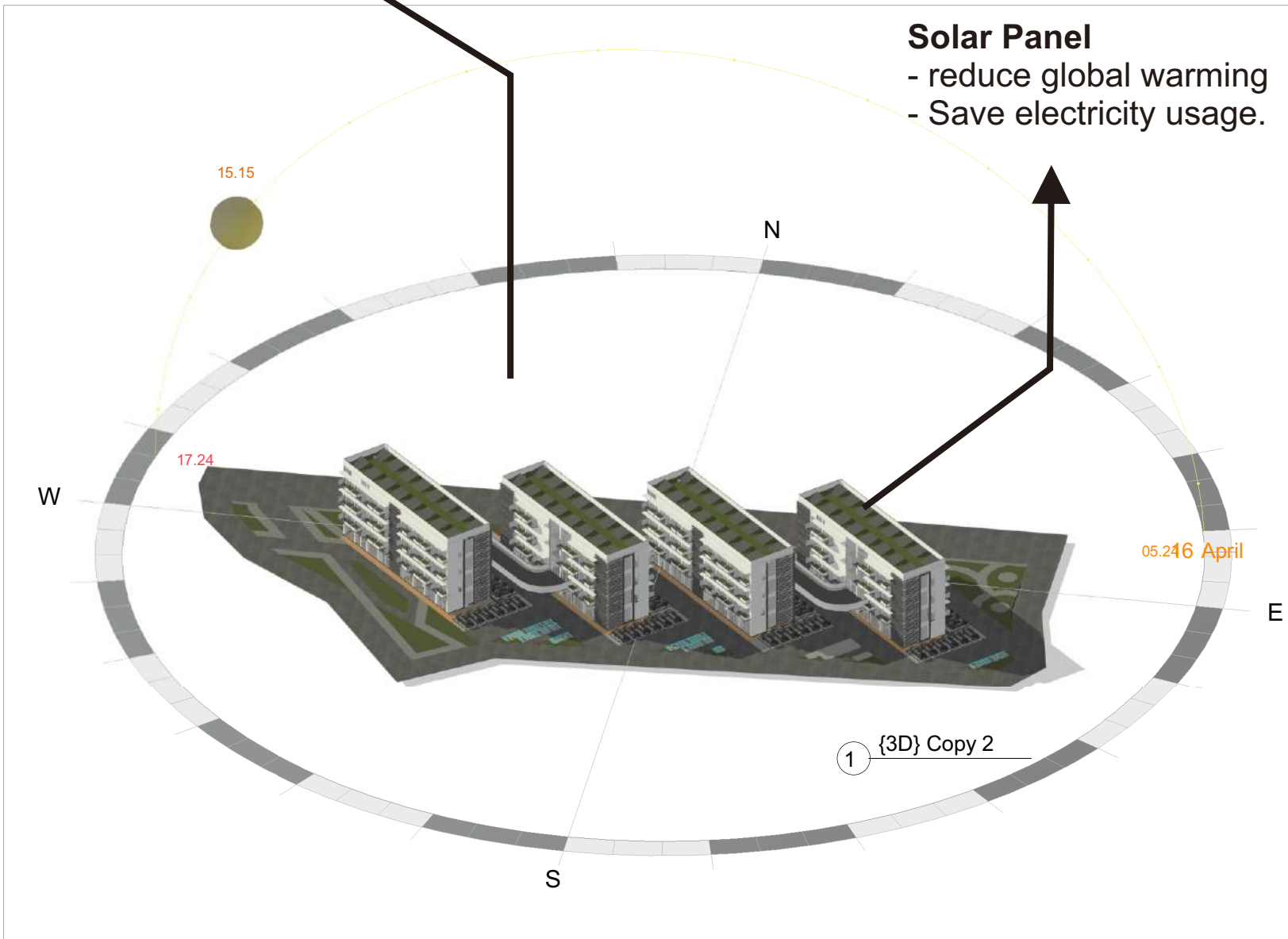
Horizontal Shading

This shading is used in the service ladder area and in the lounge area. to reduce incoming sunlight. because the dormitory lounge area is open without any glass.

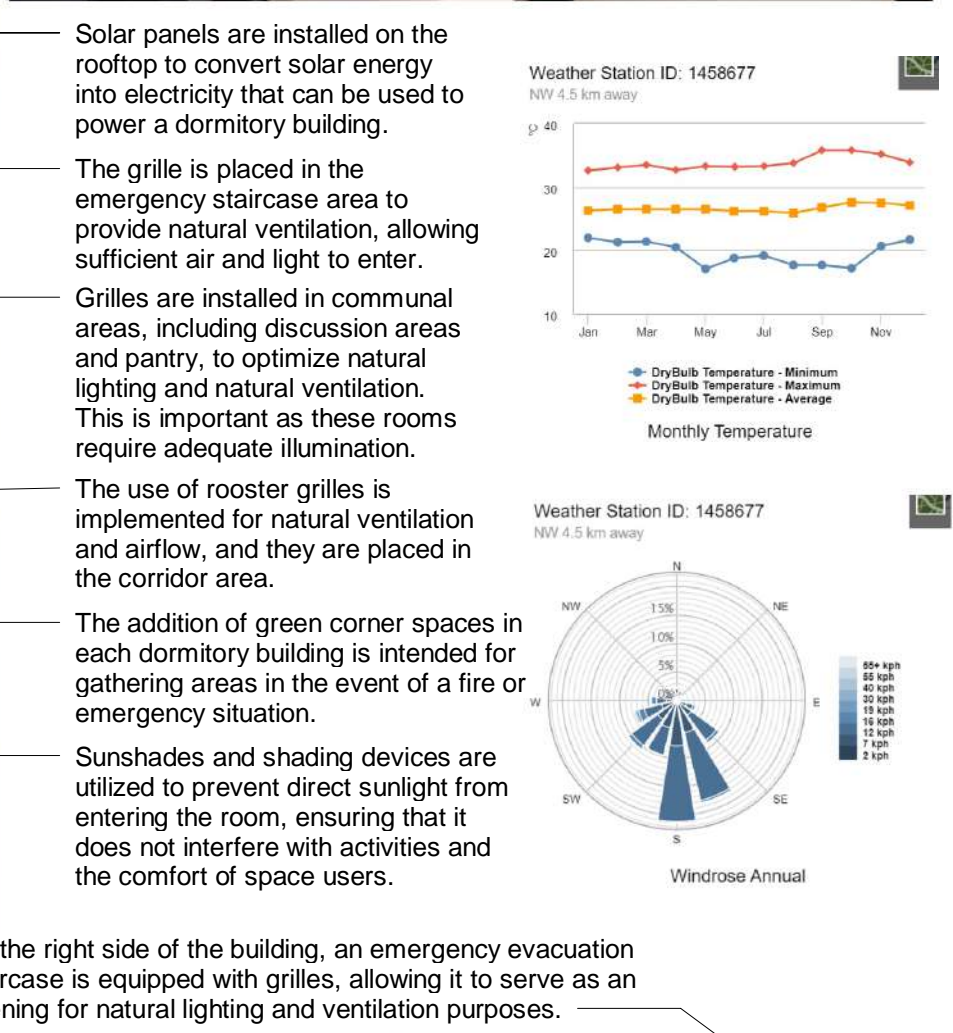
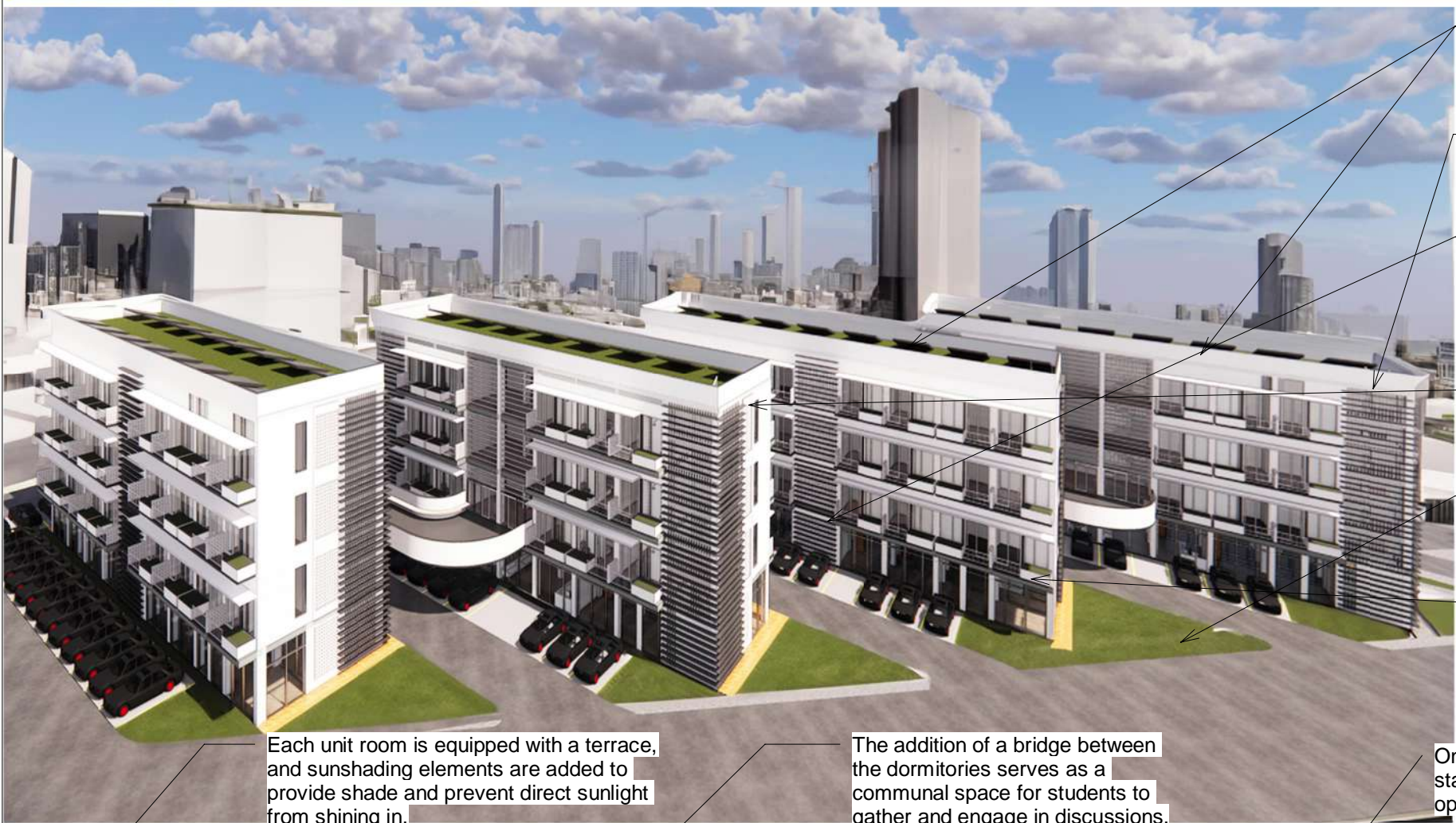
Building Orientation
the orientation of the building is made not to face the afternoon sun

Solar Panel
- reduce global warming
- Save electricity usage.

Cross ventilation
cross ventilation occurs in each dormitory unit because there is a window in the dormitory hallway that can be opened out towards the dormitory balcony



DENAH UNIT



Each unit room is equipped with a terrace, and sunshading elements are added to provide shade and prevent direct sunlight from shining in.

The addition of a bridge between the dormitories serves as a communal space for students to gather and engage in discussions.

On the right side of the building, an emergency evacuation staircase is equipped with grilles, allowing it to serve as an opening for natural lighting and ventilation purposes.



2 Southwest View
1 : 500

The addition of a rooster facade is used to optimize natural ventilation and lighting in dormitory buildings.

The addition of sunshading to the building helps prevent direct sunlight from entering the occupants' rooms, reducing heat buildup.

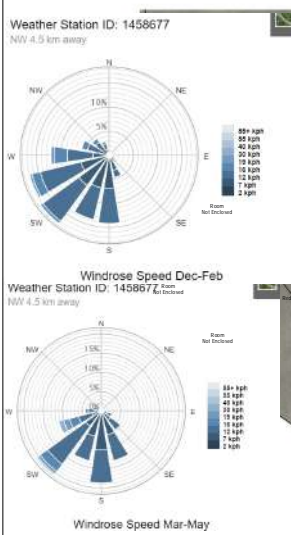


3 Southeast View
1 : 500

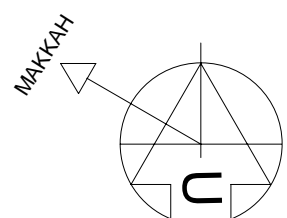
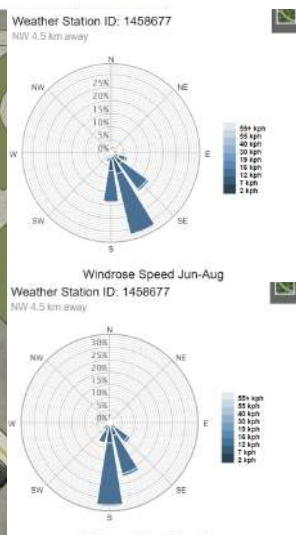
In the dormitory design, a double-loaded system is employed, enabling each corridor access to accommodate two rooms, with each room featuring two beds.



4 Northeast View
1 : 500



5 Northwest View
1 : 500



6 SITE PLAN
1 : 500

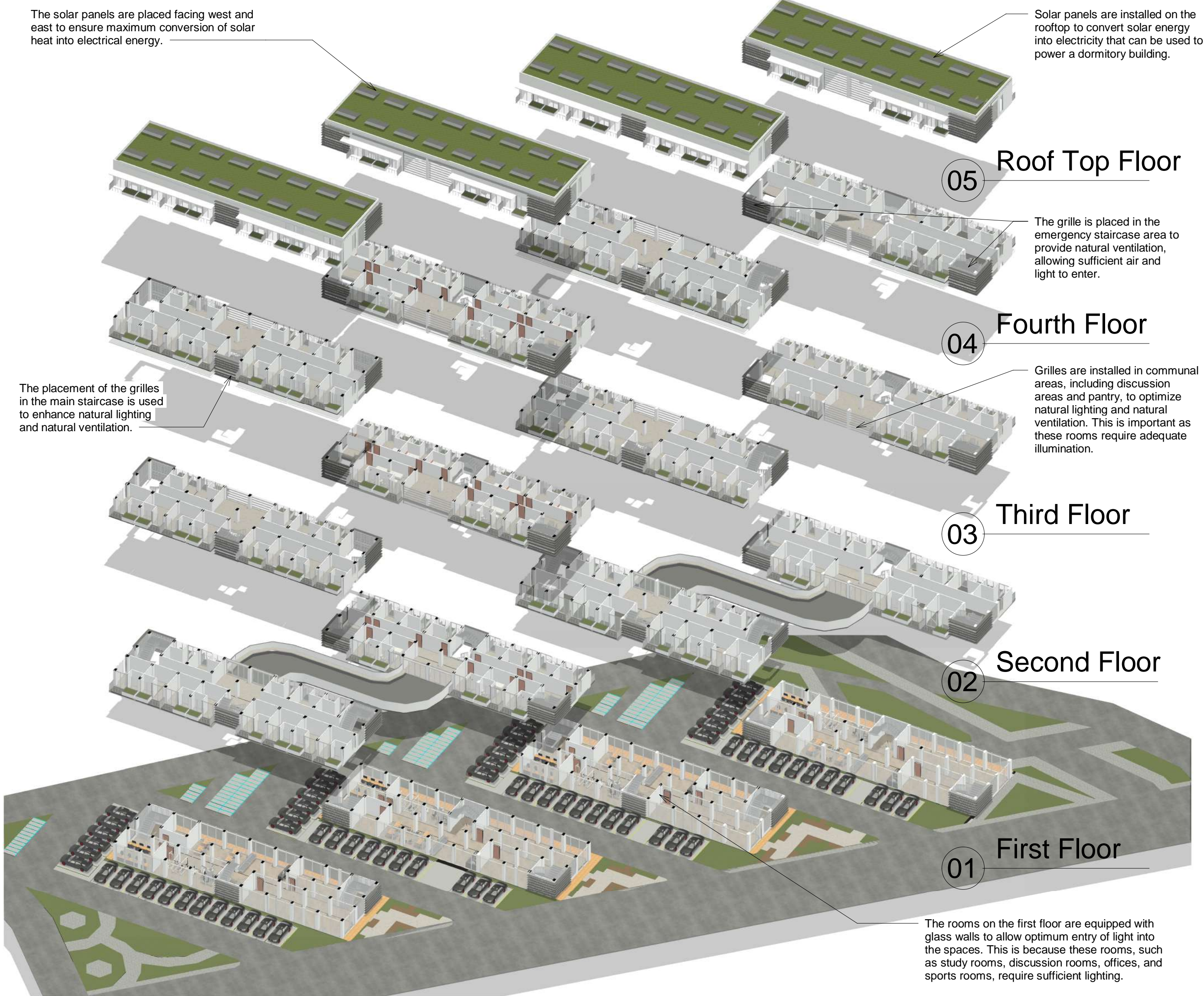


Indonesia
DfGE Design
Competition 2023

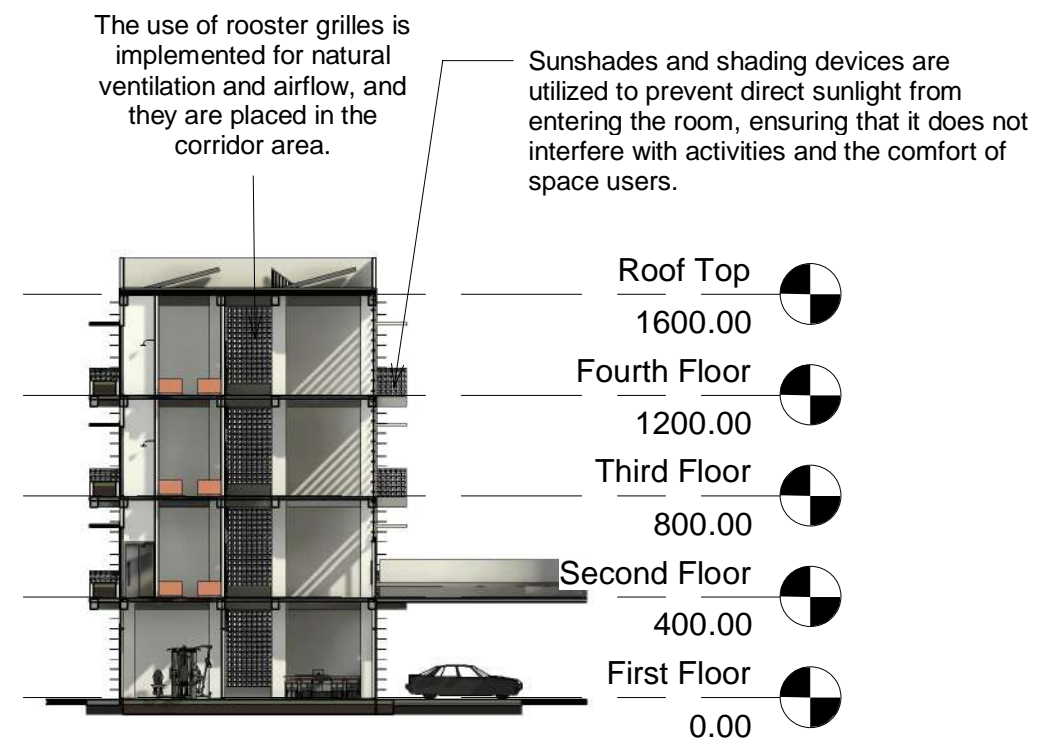
Breathing Dormitory

DFGE-23-0014

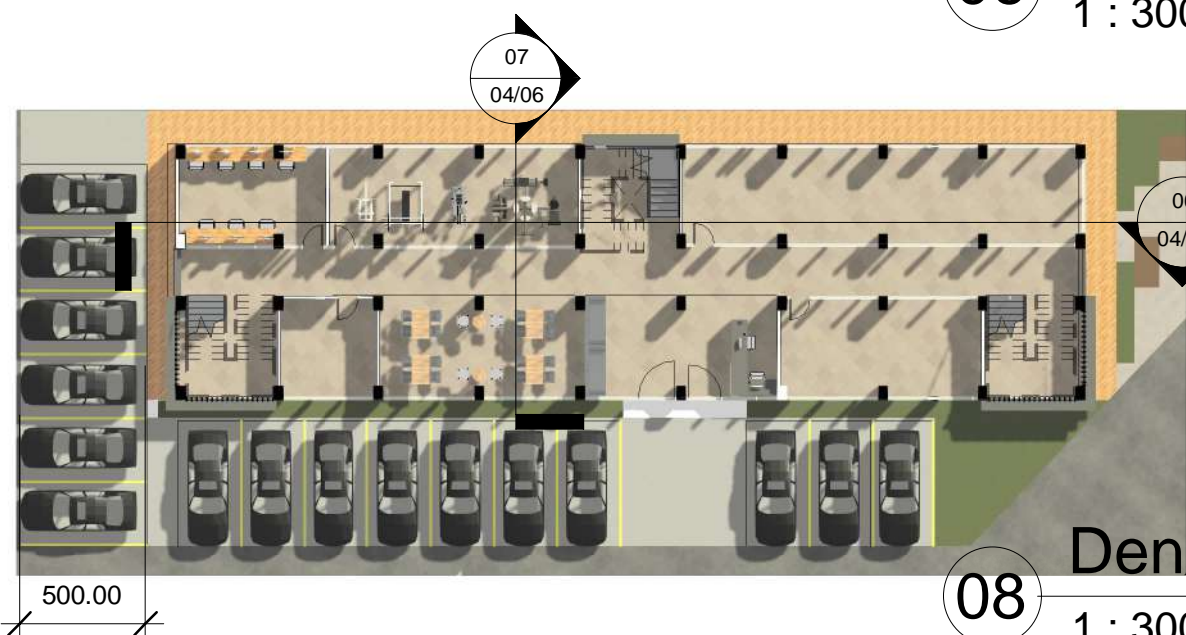
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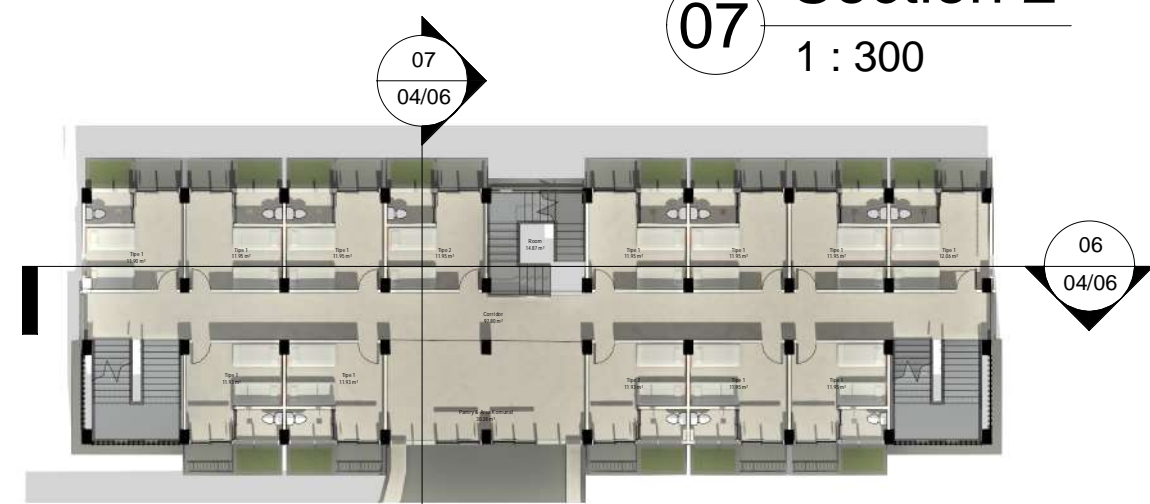
06 Section 1
1 : 300



07 Section 2
1 : 300



08 Denah It. 1
1 : 300



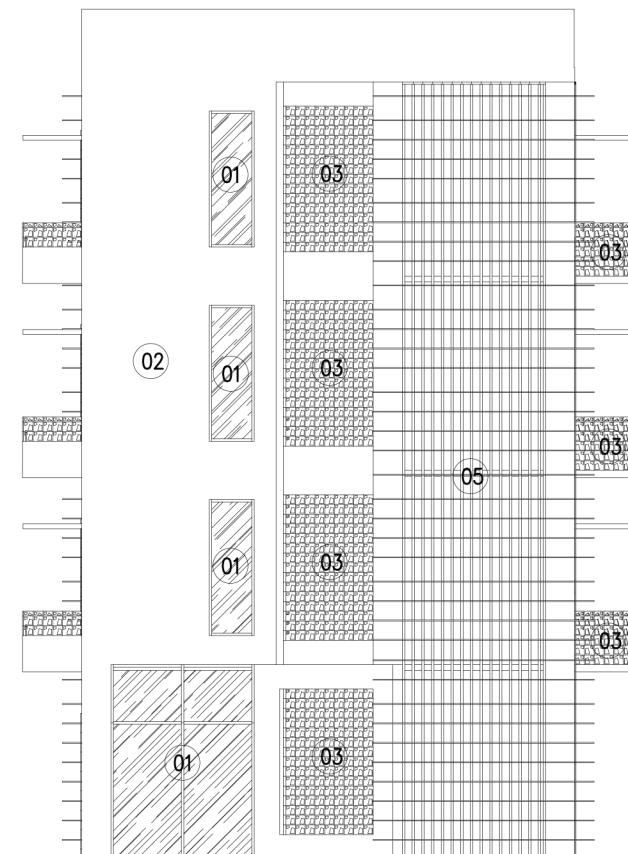
09 Typical Floor (2-4)
1 : 300



Number of rooms : 208
Student capacity : 416
Car parking capacity : 70
Motorbike parking capacity : 98

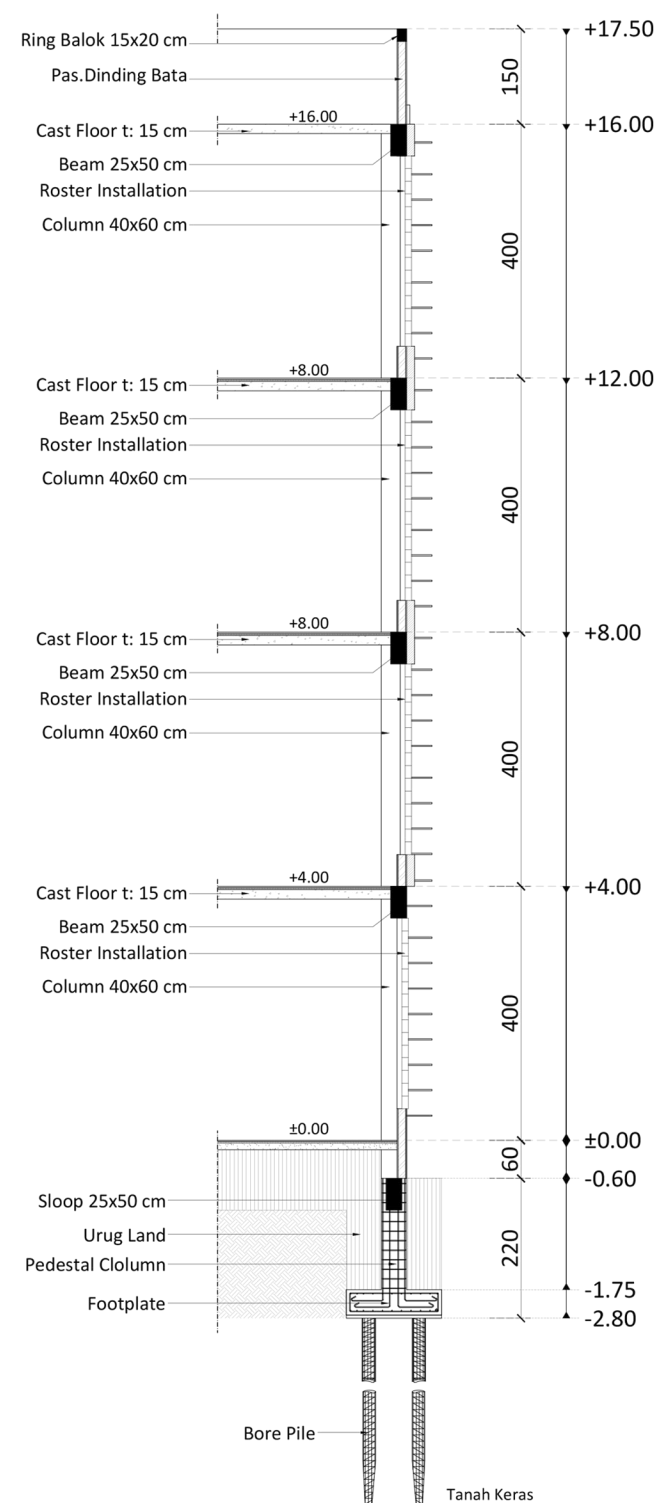
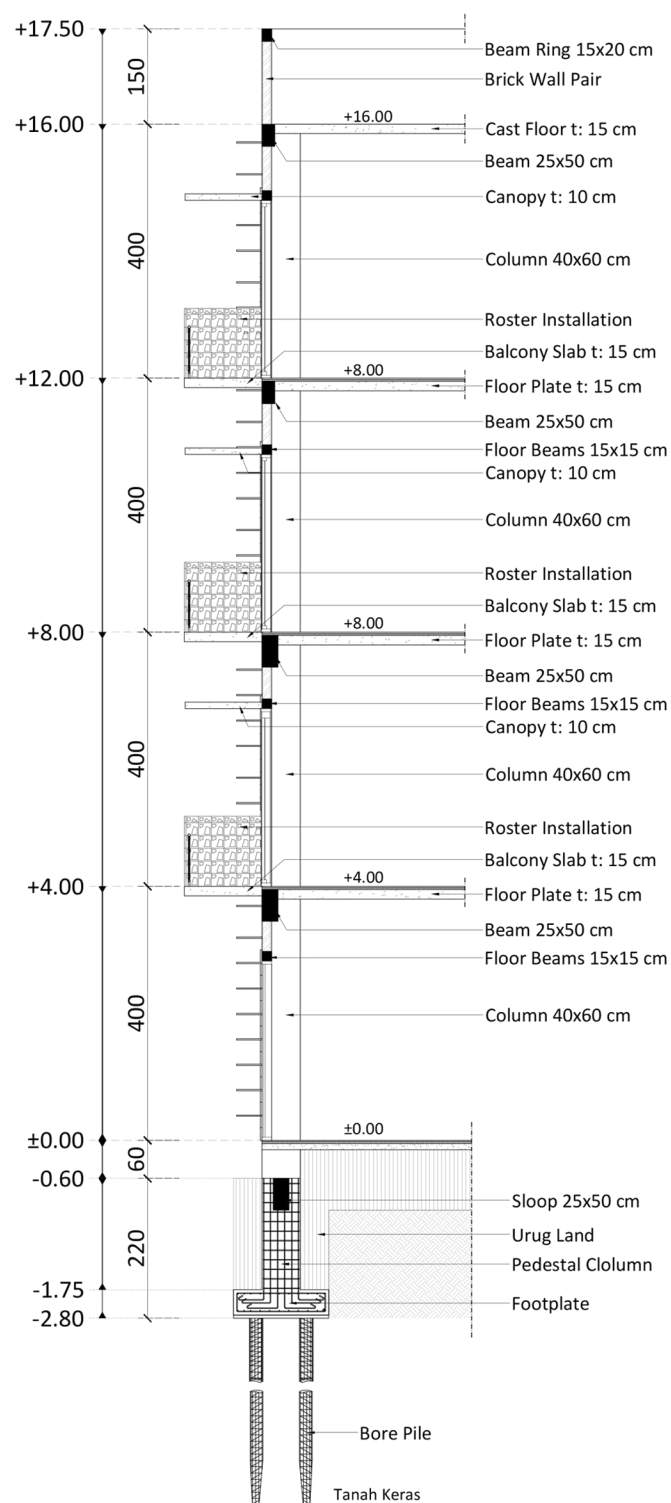
Details

The diagram illustrates the details of a wall system, showing three horizontal sections and a vertical section. The wall is composed of several panels, each labeled with a number in a circle. The panels are arranged in a grid pattern. The horizontal sections show the wall from the side, with the panels labeled 01, 02, 03, and 04. The vertical section shows the wall from the front, with the panels labeled 01, 02, 03, and 04. The wall is shown in cross-section, revealing the internal structure and components. The panels are made of different materials, indicated by the hatching patterns. The wall is supported by a foundation, and the top is finished with a ceiling. The details show the connection between the wall panels and the foundation, ceiling, and other components.

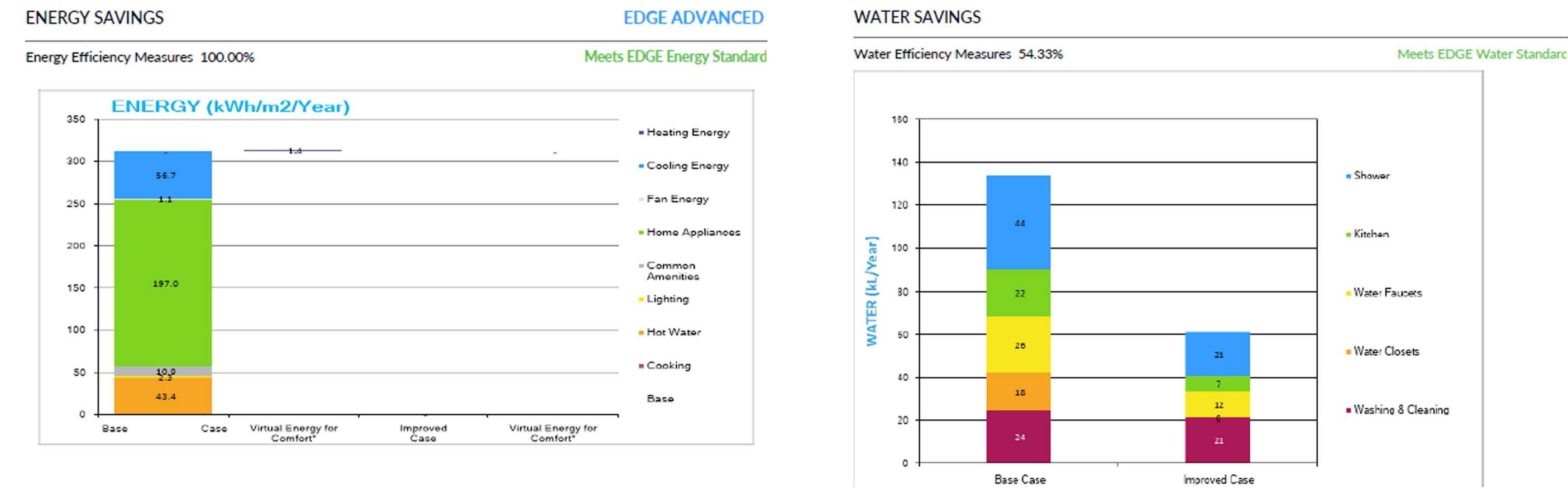


The diagram illustrates a cross-section of a building facade with the following components and dimensions:

- Elevations:**
 - +17.50
 - +16.00
 - +12.00
 - +8.00
- Dimensions:**
 - 150 (vertical distance between +17.50 and +16.00)
 - 400 (vertical distance between +16.00 and +12.00)
- Structural Details:**
 - Beam Ring 15x20 cm
 - Brick Wall Pair
 - Cast Floor t: 15 cm
 - Beam 25x50 cm
 - Canopy t: 10 cm
 - Column 40x60 cm
 - Roster Installation
 - Balcony Slab t: 15 cm
 - Floor Plate t: 15 cm
 - Beam 25x50 cm



EDGE Assessment



HME09 - Natural Ventilation Compliance Check

ROOM DEPTH TO CEILING HEIGHT RATIO (D:H)								MINIMUM AREA OF OPENING			
Space Type	Space/Room Name	Opening Type	Room Depth (m) E.g. 5	Ceiling Height (m) E.g. 5	Maximum D:H Allowed	D:H of Space	Within Maximum D:H Limits?	Room Area (m²) E.g. 30	Opening Area (m²) E.g. 5	Minimum Required Opening Area (%)	Meets the Minimum Area Requirements?
Bedroom	r.tidur	Cross-ventil...	4.00	2.80	5.00	1.43	Yes	13.2	510	20%	2.64 Yes

Natural Ventilation

Natural Ventilation Final Energy Use =	0.00	kWh/ month
Energy savings =	100%	%

Space Type	Space/Room Name	Opening Type	Room Depth (m)	Ceiling Height (m)	D:H of Space	Within Maximum D:H Limits?	Room Area (m²)	L (m)	H (m)	Opening Area (m²)	Minimum Required Opening Area (%)	Meets the Minimum Area Requirements?	Recommendation
LR	Bed Room	CV	4.00	2.80	5.00	1.43	Yes	13.20	2.55	2.00	5.10	20%	2.64 Yes
Note:													
	SSS	Single Sided - Single Opening											
	SSM	Single Sided - Multiple Openings											
	CV	Cross Ventilation											
	Space Type :	BR	Bed Room										
		LR	Living Room										
		K	Kitchen										

Specitication

Model name	Indoor unit	FTX225NVIM4		FTX235NVIM4		FTX250NVIM4	
	Outdoor unit	RX225NVIM4		RX235NVIM4		RX250NVIM4	
Capacity	Cooling	Rated (Min.-Max.)	kW	2.45 (0.6-3.9)	3.45 (0.6-5.3)	4.95 (0.6-5.8)	4.95 (0.6-5.8)
	Heating	Rated (Min.-Max.)	kW	8,400 (2,000-13,300)	11,800 (2,000-18,100)	15,900 (2,000-19,800)	15,900 (2,000-19,800)
	Cooling	Rated (Min.-Max.)	kW	3.6 (0.6-7.5)	5.0 (0.6-9.0)	6.3 (0.6-9.4)	6.3 (0.6-9.4)
	Heating	Rated (Min.-Max.)	kW	12,300 (2,000-25,000)	17,100 (2,000-30,700)	21,500 (2,000-32,100)	21,500 (2,000-32,100)
Power supply				1 phase, 220-240 V, 50 Hz			
Running current	Cooling	Rated	A	2.1-2.0-2.0	3.2-3.0-2.9		5.3-5.1-4.8
	Heating	Rated	A	2.9-2.9-2.7	4.4-4.4-4.3		6.5-6.2-6.0
Power consumption	Cooling	Rated (Min.-Max.)	W	430 (110-880)	680 (110-1,330)	1,150 (110-1,600)	1,150 (110-1,600)
	Heating	Rated (Min.-Max.)	W	620 (100-2,010)	1,000 (100-2,530)	1,410 (100-2,640)	1,410 (100-2,640)
COP	Cooling	Rated	WW	5.70 (5.45-4.43)	5.07 (5.45-3.98)	4.28 (5.45-3.63)	4.28 (5.45-3.63)
	Heating	Rated	WW	5.81 (6.00-3.73)	5.00 (6.00-3.56)	4.47 (6.00-3.56)	4.47 (6.00-3.56)
Indoor unit		FTX225NVIM4		FTX235NVIM4		FTX250NVIM4	
Front panel colour		White		White		White	
Airflow rate (l/s)	Cooling	m³/min	10.7 (0.79)	12.1 (0.89)	15.8 (0.94)	15.8 (0.94)	15.8 (0.94)
	Heating	(dm)	11.7 (415)	13.3 (469)	14.4 (517)	14.4 (517)	14.4 (517)
Fan speed				5 steps, quiet and automatic			
Sound pressure levels (HL/LS)	Cooling	dB (A)	38/26/19	42/27/19		47/30/23	47/30/23
	Heating	dB (A)	38/26/19	42/27/19		47/30/23	47/30/23
Dimensions (H x W x D)		mm		255 x 195 x 370	255 x 195 x 370	255 x 195 x 370	255 x 195 x 370
Machine weight		kg		15	15	15	15
Outdoor unit		RX225NVIM4		RX235NVIM4		RX250NVIM4	
Casing colour		Heavy white		Heavy white		Heavy white	
Compressor type		Hermetically sealed swing type		Hermetically sealed swing type		Hermetically sealed swing type	
Refrigerant charge (R-32)		kg		1.34		1.34	1.34
Sound pressure levels (HL/LS)	Cooling	dB (A)	46	46	46	49	49
	Heating	dB (A)	46	46	46	50	50
Dimensions (H x W x D)		mm		555 x 795 x 300	555 x 795 x 300	555 x 795 x 300	555 x 795 x 300
Machine weight		kg		43	43	43	43
Operation range	Cooling	°CDB		22-32	22-32	22-32	22-32
	Heating	°CWB		16-24	16-24	16-24	16-24
	Liquid			85.4	85.4	85.4	85.4
	Gas			85.5	85.5	85.5	85.5
Piping connection	Drain	mm		Indoor unit: L.D. #16.0, O.D. #18.0	Indoor unit: L.D. #16.0, O.D. #18.0	Indoor unit: L.D. #16.0, O.D. #18.0	Indoor unit: L.D. #16.0, O.D. #18.0
				Outdoor unit: L.D. #15.9	Outdoor unit: L.D. #15.9	Outdoor unit: L.D. #15.9	Outdoor unit: L.D. #15.9
Max. piping length		m		30	30	30	30
Max. height difference		m		12	12	12	12
Measurement conditions							
1. Cooling capacity is based on indoor temp: 27°CDB, 19°CWB; outdoor temp: 35°CDB; piping length 7.5 m							
2. Heating capacity is based on indoor temp: 20°CDB; outdoor temp: 7°CDB, 5°CWB; piping length 7.5 m.							
3. Sound pressure levels are based on the temperature conditions 1 and 2 above. There are anechoic chamber values. These values are normally somewhat higher during actual conditions as a result of ambient conditions.							

TX465SEN

Ego

Fixed Shower Head

Min. Water Pressure 0.05 MPa

Max. Water Pressure 0.75 MPa

Flow Rate 12 l/m

CAD Drawing .DWG

Manual .PDF

Revit .RFA

Object .OBJ

urusara 7

Japan Technology

reddot design award winner 2013

Solar Panel Diagram

Load

Sunlight

Electron Flow

Photon

Hole Flow

p-type silicon

n-type silicon

Junction

Apa itu Lampu Philips LED?

Lampu Philips LED lebih hemat!

Keterangan

Umur Lampu

Daya Listrik (Watt)

Pemakaian Listrik (KWh/Tahun)

Biaya Operasional/Tahun

LED 3W

LED 7.5W

LED 10.5W

LED 4W

LED 9W

LED 14W

LED 7W

LED 9.5W

GLASS PERFORMANCE DATA

SINGLE MONOLITHIC

DOUBLE GLAZING IGU

LAMINATED

DOUBLE GLAZING IGU WITH LAMINATED GLASS

PVB Interlayer

PVB Interlayer