

BUILDING TEAM

Building Owner :

Viet Hung company, VIHAJICO

Architect :

Kume Sekkei

General Contractor :

Cotec company

Mechanical Engineer :

Energy Modeler :

Lighting Design :

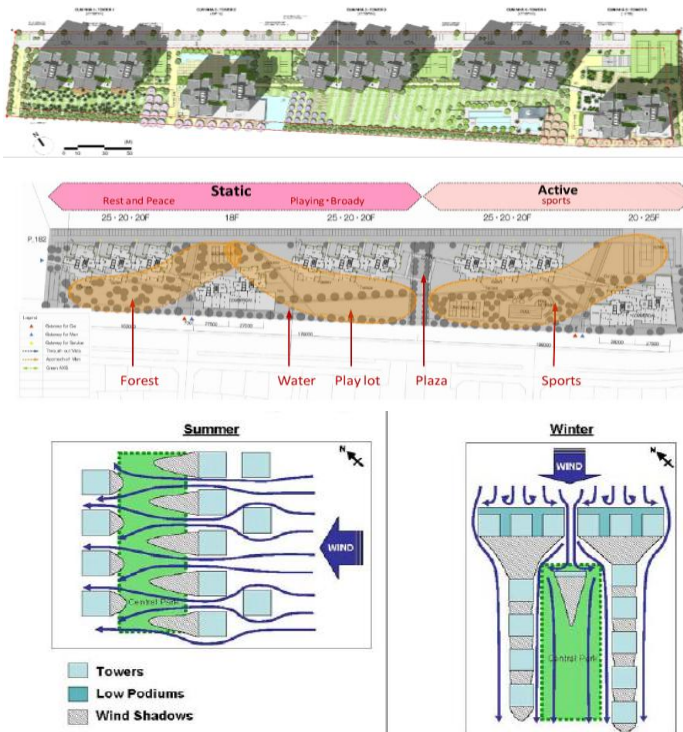
Structural, Civil Engineer

Delta DCMC

Environmental Consultant :

CPG company

SITE PLAN



The blocks are located as zigzag shapes; therefore, the apartments have daylighting, good and diverse views.

Orientation of buildings is considered clearly, which does not face to East or west and may utilize the prevailing wind from the South and the South-East.

Ventilation gaps/clefts are installed surrounding the buildings are to get more daylighting and ventilation into auxiliary space (restroom, kitchen...). Therefore most of their spaces have natural ventilation and daylighting. Garden is in the middle of blocks with ponds for evaporative cooling.

Guidelines for wind flows:

- + Tower only, no podium to allow more channels for air to move at ground level
- + Staggered tower arrangement across park.
- + Taller tower along edge of park to accelerate air movement through wind tunnel effect.

BUILDING ENVELOPE

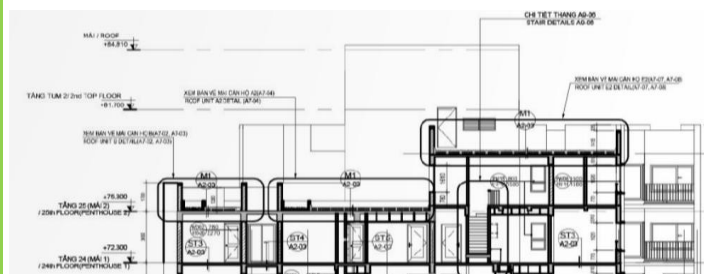
PASSIVE APPROACHES

ROOF

Type : Technical roof with non-HVAC system

Materials (ext to int):

Concrete + insulation+ plaster void+ plasterboard/ And technical roof without HVAC



WALLS

Materials (ext to int) :

Non-baked brick, low U-value for better insulation (Uvalue is ~1.39 W/m2K)

Glazing Percentage :

about 30%



Non-baked brick, Which just complies with EEBC 09:2013/BXD Energy efficiency building codes

- 1 - Technical roof and insulated roof
- 2 - Non-baked brick from recycled material with low U-value for better insulation, (mova motar)
- 3 - Balcony as solar shading in some spaces
- 4 - Vegetalisation of the surroundings
- 5 - Water Efficient equipment
- 6 - Evaporated cooling
- 7 - Natural ventilation for all main function spaces/auxiliary spaces
- 8 - Daylighting for all main function spaces/auxiliary spaces

WINDOWS

SOLAR SHADING

Using balcony as shading, and some short horizontal shading

NATURAL VENTILATION

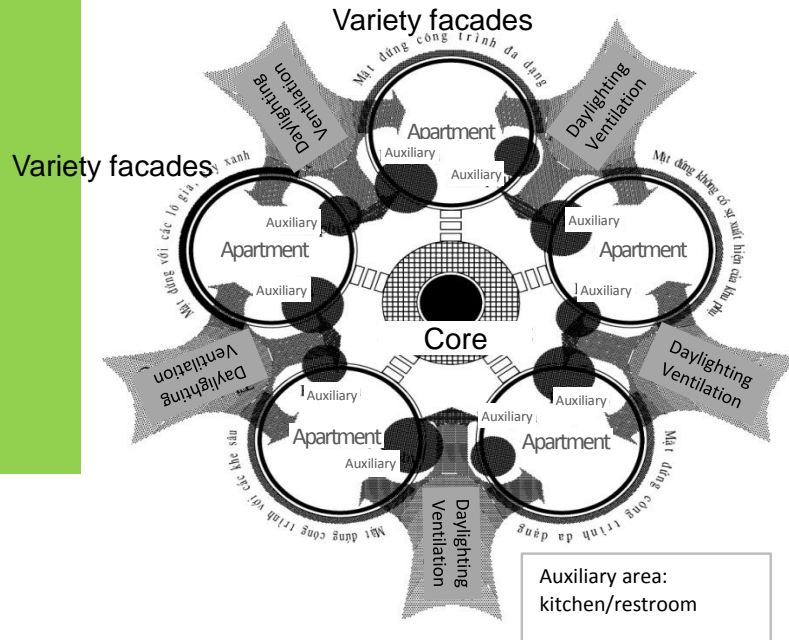
Cross natural vent.

☒ Yes
 ☒ No

Porosity :



To avoid the use of air-conditioning, several passive strategies are used : insulation roof, cross ventilation by ventilation clefts/gaps, reduce heat, orientation according to prevailing winds. The large and dense garden and vegetalisation of building access permit to limit heat accumulation. Artificial lights are reduced to accurate requirement. And water ponds for evaporate cooling.



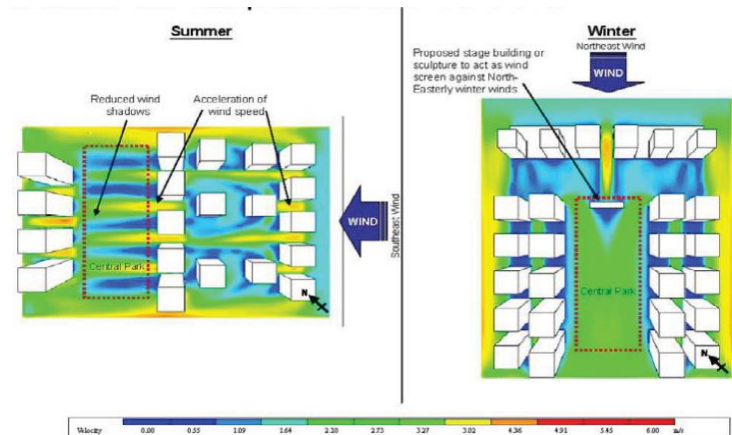
The buildings with ventilation gaps/clefts surrounding can get more daylighting and ventilation into auxiliary space (restroom, kitchen...). Therefore most of spaces have natural ventilation and daylighting.

DESIGN TOOLS

Construction complex comprises 13 dwelling units. The building complex is recognized with the following items:

- + Sustainable site: arrange the building according prevailing winds, with water ponds, for optimizing ventilation and evaporate cooling.
- + Friendly environmental material with non-baked materials.
- + Solid waste control.
- + Utilizing renewable energy for street light. And using energy efficiency appliances.
- + Passive strategies for building form, and envelope

Building energy tool was used for analysing microclimate, which surrounding buildings, then to arrange the buildings



ENERGY SYSTEMS

- ☒ Interior lighting
Installed by the occupants
- ☒ Exterior lighting
Type : solar energy lighting
Controls : timer switch according the sun
- ☒ Air-conditioning
Type : Inverter air-conditioning
- ☐ Mechanical vent.
Location ?
- ☐ Ceiling fans
Type / Number per rm
- ☒ Lift
- ☐ Plug loads
Controls ?
- ☐ Energy analysis

ENERGY EFFICIENCY SYSTEMS



Street lights use solar energy and timer switches according the level of daylight. Energy efficiency appliances are used including air-conditioners, fridges, washing machines (inverter system), televisions, LEDs and fluorescents. Heating/cooling systems are installed by tenants

ENERGY FEATURES

- ☐ DWH
Type : solar
- ☒ Photovoltaics
Type of mounting : for street lights.

RENEWABLE ENERGY SYSTEMS



Domestic solar water systems are installed in only private houses but not in the highrise buildings. Street lights use solar energy.

SITE INTEGRATION



Trees are grown for shading and water ponds are installed for evaporative cooling. Reducing the concrete surface by weed area is to increase permeable surface.

More weed and trees surface helps to reduce heat island effect.

Water ponds also reduce the heat by 2-3°C surrounding the buildings.

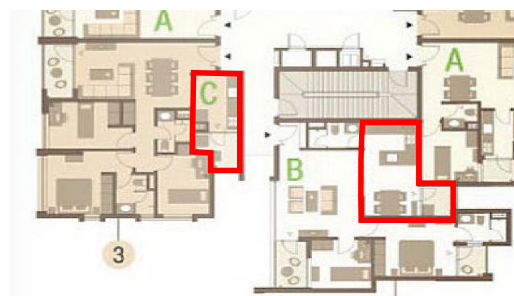


OTHER STRUCTURAL ISSUES



Balcony is built next to the kitchen to increase natural ventilation, reduce the bad smell and keep it clean and dry to ensure the indoor air quality.

The buildings with **ventilation gaps/clefts** surrounding can get more daylighting and ventilation into auxiliary space (restroom, kitchen...). Therefore most of the spaces have natural ventilation and daylighting.



LESSONS LEARNED / FEEDBACK

Contact person :

CPG company for planning
Kume sekkei for architecture

Institution :**Website :**

<http://khudothiecopark.vn/chung-cu-ecopark/>

Photos credits :**Design team (Architect, energy consultancy) :**

Palm Tree Residential Building is a modern residential area with smart design, open spaces and effective utility service. The project is surely an optimized choice for families.

Users :

The building with great infrastructure and landscape surrounding. The outdoor activities are often performed here to attract people to live. However, it is quite far from city center.

Maintenance

Service maintenance is quite good until now.

Others :

The blocks are in a new eco-residential area with full infrastructure. It is far from city center; however, the bus is convenience to go. The citizens can also use their private vehicles for travelling.

