

# PALM TREE RESIDENTIAL AREA / Hanoi, Vietnam



## Geocoordinates

Latitude Longitude  
 Nouth East  
 21°1'42"N 105°5'12"E

## BUILDING FEATURES

### Construction type :

- New Building pr.
- Renovated pr.

### Programming :

- Social
- Private
- Mix

### Typology :

Type	Nb	Area (m <sup>2</sup> )
A		70.9
B		83.3
C		91.8
Penhouse		163.3-178.8
Sky villa		154.2

Total number of units : 13

Number of storeys : 19-22-25  
 Number of apartments: 1500

Total Net Floor Area : 169654,6m<sup>2</sup>

Total land area: 40100m<sup>2</sup>  
 Total construction area: 9020m<sup>2</sup>

### Performance Standards :

Green building prize of Vietnam  
 Architecture association 2015

### Total Cost :

Cost Per m<sup>2</sup> :  
 15 million VND/m<sup>2</sup> = \$675/m<sup>2</sup> (much lower than other buildings as same level because of the position)

Date of completion :  
 2015

Energy use:  
 About 40-60kWh/m<sup>2</sup>.year (each apartment only)



## BUILDING DESCRIPTION

Project: Palm Tree Residential Area, Ecopark, Hung Yen  
 Building investor: Viet Hung Company (VIHAJICO)  
 Architecture designer: Kume Sekkei

Total land area: 40,100m<sup>2</sup>

Ecopark blocks were designed in accordance with the functional city model with full utilities. The buildings are covered by trees surrounding and water ponds, which are combined harmonizing between citizens and nature.

The investor also create new bus lines for citizens and visitors. So that the distance between ecopark and city center may be not a trouble for citizens to come.



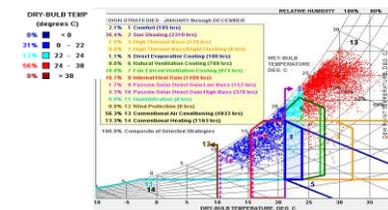
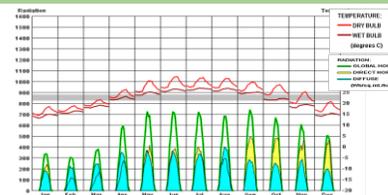
## CLIMATE ANALYSIS

Hanoi has a warm humid subtropical climate with plentiful precipitation. The city experiences the typical climate of Northern Vietnam with 4 different seasons. Summer, from May until August, is characterized by hot and humid weather with abundant rainfall. September to October is fall, characterized by a decrease in temperature and precipitation. Winter, from November to January, is dry and cool. The city is usually cloudy and foggy in winter. The averages rainfall is 1,680 millimetres (66.1 in) per year and the most precipitation is from May to September.

The average temperature is 23.6°C (74°F) with a mean relative humidity of 79%. The highest recorded temperature was 42.8°C (109°F) on SMay 1926 while the lowest recorded temperature was 2.7 °C (37 °F) on January 1955.



## HOURLY AVERAGES



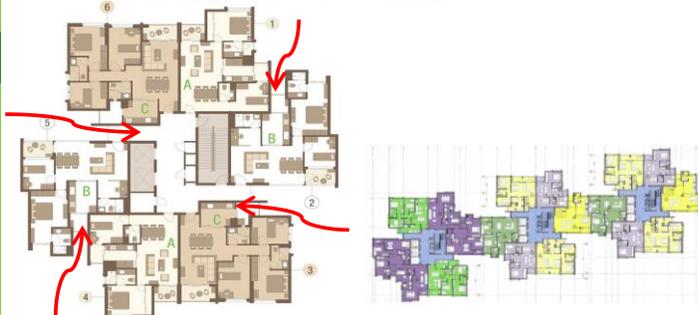


**WINDOWS**  
**SOLAR SHADING**  
 Using balcony as shading, and some short horizontal shading

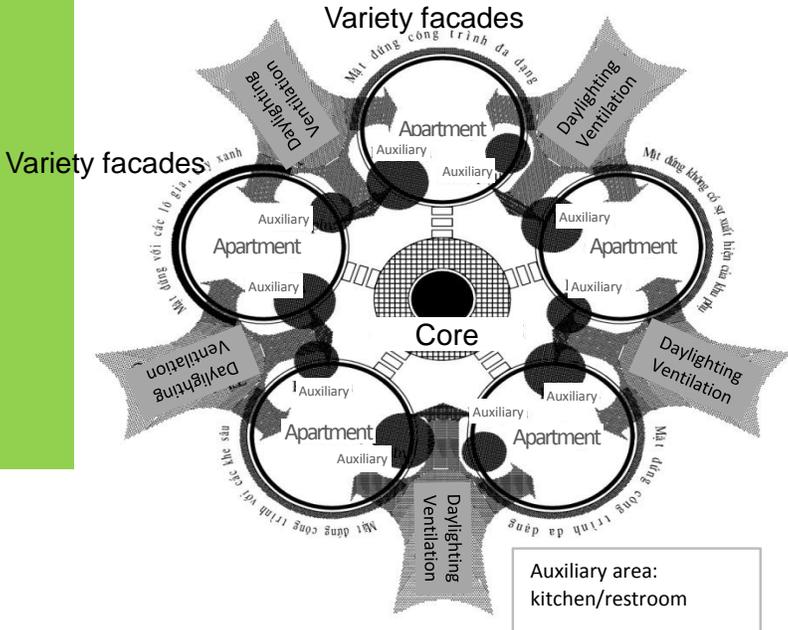
**NATURAL VENTILATION**

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.