


## ACLEDA Institute of Business

by EDGE Buildings / 2019-06-06 13:55:28 / Internazionale / 6931 / EN



**Renovation**

**Primary energy need :**  
kWhpe/m<sup>2</sup>.year  
(Calculation method : )

**ENERGY CONSUMPTION**

| Consumption Range (kWhpe/m <sup>2</sup> .year) | Grade | Category                  |
|--|-------|---------------------------|
| < 50   | A     | Economical building       |
| 51 à 90  | B     |                           |
| 91 à 150                                       | C     |                           |
| 151 à 230                                      | D     |                           |
| 231 à 330                                      | E     |                           |
| 331 à 450                                      | F     |                           |
| > 450  | G     | Energy-intensive building |

**Building Type :** School, college, university  
**Construction Year :** 2017  
**Delivery year :** 2018  
**Address 1 - street :** Anlong Kangan Village, Sangkat Khmuonh, Khan Sen Sok 12000 PHNOM PENH, Other countries  
**Climate zone :** [Aw] Tropical Wet & Dry with dry winter.

**Net Floor Area :** 25 196 m<sup>2</sup>  
**Number of Pupil :** 2 866 Pupil

**Certifications :**



**Proposed by :**



### General information

For years, ACLEDA Bank recruited the largest number of college graduates in Cambodia. As the demand for skilled professionals began to outpace the supply of graduates, ACLEDA Bank decided to build their own business school to address the shortage of higher education institutions. Today, the ACLEDA Institute of Business offers Associate, Bachelor and Master-degree levels for over 3,000 students the fields of business, banking and finance. The school also provides training to over 3,000 additional participants. Students at the ACLEDA Institute of Business study subjects such as micro small and medium enterprise (MSME) lending, financial planning, loan management and more.

ACLEDA Bank also believes that investing in education must be done responsibly. The green campus, which consists of three education buildings, administrative offices, a library and a dormitory, are resource-efficient, allowing for a reduced carbon footprint and lower operational costs. The campus uses less energy and water with features like energy-efficient air-conditioning and a black water treatment recycling system. Construction materials such as cored bricks for walls also reduce the embodied energy in materials.

ACLEDA Bank was first established as a locally owned, non-profit organization that helped rural entrepreneurs gain financing. The bank now employs over 12,000 employees and has more than 250 branches that provide financing to mostly microfinance borrowers and MSMEs. From lending to entrepreneurs to educating its country's future professionals, ACLEDA Bank is dedicated to the sustainable development of Cambodia. The ACLEDA Institute of Business has received final EDGE certification from thinkstep-SGS.

## See more details about this project

<https://www.edgebuildings.com/projects/acleda-institute-of-business/>

## Photo credit

Photos courtesy of ACLEDA Business Institute

## Stakeholders

### Contractor

Name : PISNOKA International Corporation Ltd

Contact : [khou\\_soklay\[at\]pisnoka.com](mailto:khou_soklay@pisnoka.com)

<http://www.pisnoka.com.kh/>

### Construction Manager

Name : HSnK Architecture & Engineering Company

Contact : [hanoon\[at\]hsnk.co.kr](mailto:hanoon@hsnk.co.kr)

<http://hsnk.co.kr/eng/>

### Stakeholders

Function : Investor

ACLEDA Bank

[acledabank\[at\]acledabank.com.kh](mailto:acledabank@acledabank.com.kh)

<https://www.acledabank.com.kh/kh/eng/>

ACLEDA Bank decided to build their own business school to address the shortage of higher education institutions.

## Energy

### Energy consumption

Initial consumption : 36,30 kWhpe/m<sup>2</sup>.year

### Envelope performance

More information :

Roof U-value: 1.99

Wall U-value: 1.86

Glass U-value: 5.75

### More information

7 kWh/m<sup>2</sup>.year : cooling Energy

3 kWh/m<sup>2</sup>.year : fan energy

2 kWh/m<sup>2</sup>.year : hot water

6 kWh/m<sup>2</sup>.year : lighting Energy

10 kWh/m<sup>2</sup>.year : catering Energy

2 kWh/m<sup>2</sup>.year : equipment, lift, STP, water pumps

### Real final energy consumption

## Renewables & systems

### Systems

#### Heating system :

- No heating system

#### Hot water system :

- Boiler fuel

#### Cooling system :

- VRF Syst. (Variable refrigerant Volume)

#### Ventilation system :

- Natural ventilation

#### Renewable systems :

- No renewable energy systems

## Products

### Product

**Product category :** Table 'c21\_italy.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '0'

Reduced Window to Wall Ratio - WWR of 45.21 %

Insulation of Roof and external walls

Variable Refrigerant Flow (VRF) Cooling System - COP of 3.41

Energy-Saving Light Bulbs for internal and external spaces

Occupancy Sensors in Bathrooms

**Product category :** Table 'c21\_italy.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '14'

Low-Flow Faucets in All Other Bathrooms - 5.03 L/min

Single Flush/Flush Valve Water Closets in Bathrooms - 6 lt/ flush

Water-Efficient Urinals in All Other Bathrooms - 3 L/flush

EDW11 Black Water Treatment and Recycling System

**Product category :** Table 'c21\_italy.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '0'

**Product category :** Table 'c21\_italy.innov\_category' doesn't exist SELECT one.innov\_category AS current,two.innov\_category AS parentFROM innov\_category AS oneINNER JOIN innov\_category AS two ON one.parent\_id = two.idWHERE one.state=1AND one.id = '9'

Mineral Wool : roof insulation

Cored bricks with plaster on both sides for internal and external walls

Cored (with Holes) Bricks with Plaster on Both Sides: Internal Walls

Cored (with Holes) Bricks with Internal & External plaster: External Walls

Insulation of External Walls: U-value of 1.95

Insulation of Roof: U-value of 0.46

## Costs

### Construction and exploitation costs

#### Additional information on costs :

Incremental Cost: 241 160.97\$

Payback in Years: 23.09 Yrs.

To know more about incremental cost: <https://www.edgebuildings.com/edge-cost-model/>

## Energy bill

Forecasted energy bill/year : 36 850,97 €

Real energy cost/m2 : 1.46

Real energy cost/Pupil : 12.86

## Health and comfort

### Water management

Consumption from water network : 22 344,00 m<sup>3</sup>

Water Consumption/m2 : 0.89

Water Consumption/Pupil : 7.8

7 m3/day : shower

8 m3/day : water faucets

18 m3/day : cafeteria

25 m3/day : landscaping

2 m3/day : other

Final Water Use: 1862 m<sup>3</sup>/Month

Water Savings: 12395.28 m<sup>3</sup>/Year

### Comfort

**Health & comfort :** This campus has been built and equipped with the security, fire protection, energy conservation, control and telecommunication, occupational health and IT systems at all the buildings.

## Carbon

### GHG emissions

GHG in use : 24,00 KgCO<sub>2</sub>/m<sup>2</sup>/year

CO<sub>2</sub> Emissions from electricity Generation: 0.8 kg/kWh ; CARBON EMISSIONS: 208.07 tCO<sub>2</sub>/Year

## Contest

### Reasons for participating in the competition(s)

**Cambodia** has a tropical **climate** with warm temperatures throughout the year.

**Energy** (35% energy savings): Reduced window to wall ratio, insulation of roof, variable refrigerant volume (VRV) cooling system, energy-saving lighting and occupancy sensors in bathrooms.

**Water** (44% water savings): Low-flow faucets and a black water treatment recycling system.

**Materials** (32% less embodied materials): Cored bricks with plaster on both sides for internal and external walls.

### Building candidate in the category

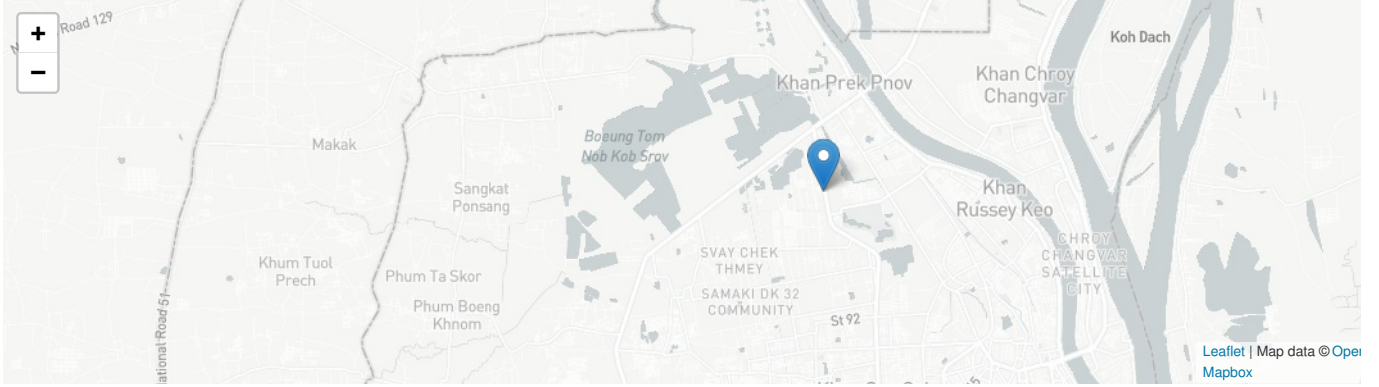


Energy & Hot Climates





Users' Choice



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