



HIGH RISE RESIDENTIAL AND COMMERCIAL BUILDING Y1 CAPITALAND - FELIX EN VISTA

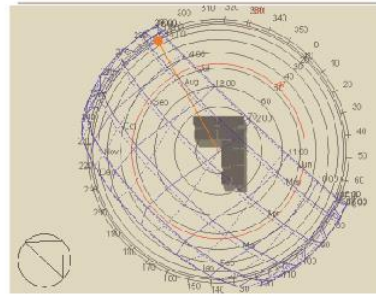


High rise residential and commercial building Y1 Capitaland - Felix En Vista

- Address: Block Y1, Thanh My Loi Ward, District 2, Ho Chi Minh City
- Total height: 35 floors
- Total floor area (Blocks B&C): About 84,256 m²

Energy efficiency technical assistance: Project "Energy Efficiency Improvement in Commercial and High-Rise Residential Buildings in Vietnam" (Project EECB)

Goal: To reduce energy consumption by at least 25% compared to the requirements of Vietnam Energy Efficiency Building Code QC09:2013/BXD



THE MAIN BENEFITS

53%

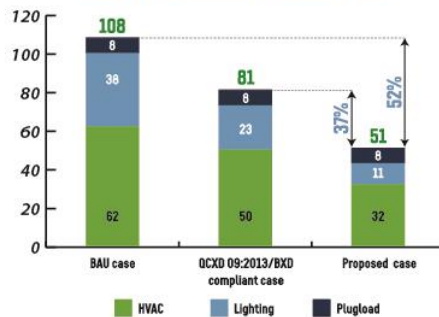
TOTAL ENERGY SAVING

↓ **4,762 MWh/year** Energy use reduction compared to BAU case
↓ **3,883 tCO₂e/year** GHG emission reduction compared to BAU case

HVAC 48%*
Lighting 70%*

* Respective Energy consumption improvement of the proposed case compared to BAU case

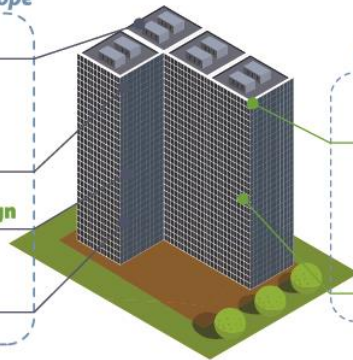
Energy use intensity (kWh/m²/year)



TECHNICAL DESIGN

Building envelope

- Insulated roof (Polystyrene)
- Use of efficient materials (CMU blocks) with lower heat transmission properties
- Natural - cross ventilation design
- High performance glazing (SHGC: 0.49)



Main design features of active systems

- High COP AC split units (COP: 3.28)
- Led lighting in all areas

FINANCIAL INFORMATION

Incremental cost
Proposed case compared to BAU case

+2%

Payback period

1 year 6 months

Annual energy cost saving
Proposed case compared to BAU case

VND 13.2 billions/year
(Block B&C)

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NEW ADMIN AND EDUCATIONAL BUILDING, COLLEGE OF URBAN WORKS CONSTRUCTION

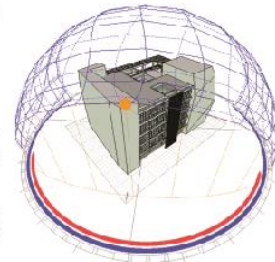


New admin and educational building, College of Urban works construction

- Address: Yen Thuong, Gia Lam, Hanoi
- Total height: 5 floors.
- Total floor area: 3,875 m²

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Goal: To reduce energy consumption by at least 25% compared to the requirements of Vietnam Energy Efficiency Building Code QC09:2013/BXD



THE MAIN BENEFITS

55%

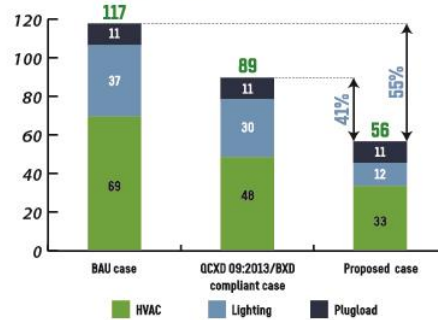
TOTAL ENERGY SAVING

- ↓ **245 MWh/year** Energy use reduction compared to BAU case
- ↓ **200 tCO₂e/year** GHG emission reduction compared to BAU case

- HVAC 52%***
- Lighting 68%***

* Respective Energy consumption improvement of the proposed case compared to BAU case

Energy use intensity (kWh/m²/year)



TECHNICAL DESIGN

Building envelope

- Insulated roof
- High performance glazing (SHGC: 0.55)
- Non-Ac-ed buffer zones located on most irradiated orientations
- Efficient shading devices to prevent external heat gain on other orientations
- Optimised orientations



Main design features of active systems

- CCA system, using geothermal capacity to provide radiant cooling (and heating) for most of the building cooling (heating) demand
- Chilled water chiller to complement the cooling load (COP: 5.17)
- LED light and daylight control system
- PV electricity generation on site

FINANCIAL INFORMATION

Incremental cost Proposed case compared to BAU case

+4,8%

Payback period

4 năm 6 tháng

Annual energy cost saving Proposed case compared to BAU case

VND 657 millions/year

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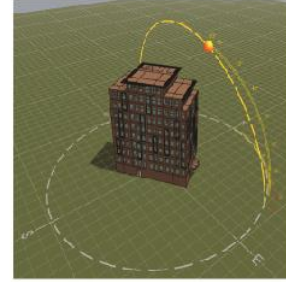
THE GOLDEN LOTUS



The Golden Lotus
 - Address: No 7, Nam Quoc Cang street, Pham Ngu Lao ward, District 1, Ho Chi Minh city
 - Total height: 10 floors and 02 basements.
 - Total floor area (Above ground level): 6,210 m²

Energy efficiency technical assistance: Project "Energy Efficiency Improvement in Commercial and High-Rise Residential Buildings in Vietnam" (Project EECB)

Goal: To reduce energy consumption by at least 25% compared to the requirements of Vietnam Energy Efficiency Building Code QC09:2013/BXD



THE MAIN BENEFITS

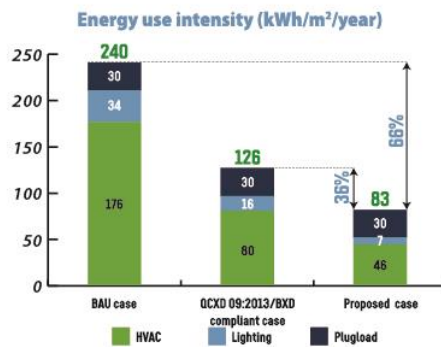
66%

TOTAL ENERGY SAVING

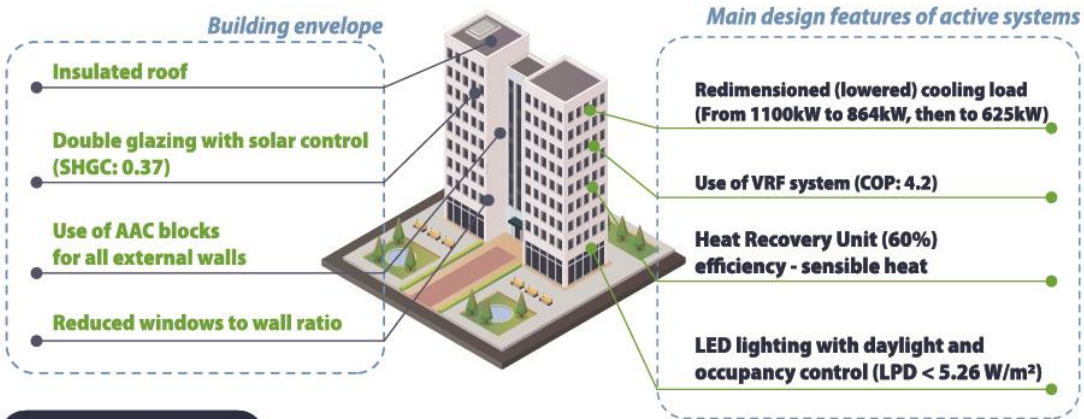
- 878 MWh/year Energy use reduction compared to BAU case
- 716 tCO₂e/year GHG emission reduction compared to BAU case

HVAC 75%*
 Lighting 79%*

* Respective Energy consumption improvement of the proposed case compared to BAU case



TECHNICAL DESIGN



FINANCIAL INFORMATION

Incremental cost
 Proposed case compared to BAU case
Under evaluation

Payback period
Under evaluation

Annual energy cost saving
 Proposed case compared to BAU case
VND 2.5 billions/year

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CONINCO BUILDING

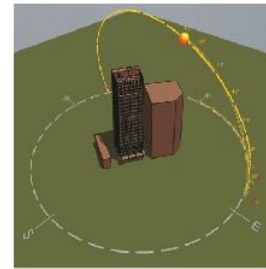


CONINCO Building

- Address: 4 Ton That Tung, Hanoi, Vietnam
- Total height: 20 floors (including technical floor) + 3.5 basements
- Total floor area: 26,313 m²

Energy efficiency technical assistance: Project "Energy Efficiency Improvement in Commercial and High-Rise Residential Buildings in Vietnam" (Project EECB)

Goal: To reduce energy consumption by at least 30% compared to the requirements of Vietnam Energy Efficiency Building Code QC09:2013/BXD



THE MAIN BENEFITS

42%

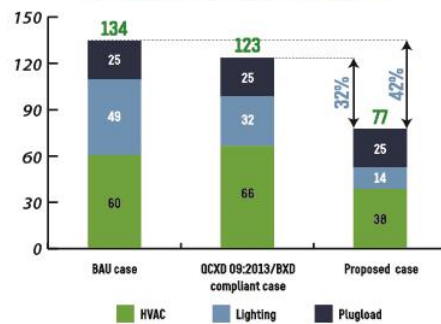
TOTAL ENERGY SAVING

- ↓ **1,156 MWh/year** Energy use reduction compared to BAU case
- ↓ **923 tCO₂e/year** GHG emission reduction compared to BAU case

- HVAC 37%***
- Lighting 51%***

* Respective Energy consumption improvement of the proposed case compared to BAU case

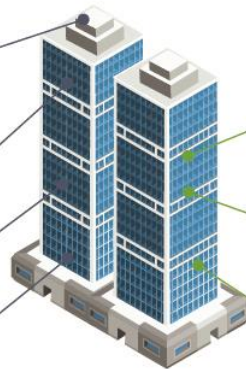
Energy use intensity (kWh/m²/year)



TECHNICAL DESIGN

Building envelope

- Insulated roof**
- High performance double glazing Low E, soft coat (SHGC: 0.217)**
- Overall Thermal Transfer Value 41% inferior to code requirements**
- 42% Cooling load reduction**



Main design features of active systems

- High COP VRF system**
- Heat recovery system**
- Use of LED lighting and daylight control system**

FINANCIAL INFORMATION

Incremental cost **\$ +0%**
Extra costs are completely offset by generated savings from resizing HVAC system

Payback period **0 year**

Annual energy cost saving **VND 3.2 billions/year**
Proposed case compared to BAU case

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