

Project Name: The Viva Residence  
Subproject Name: The Viva Residence 2BD Block T3&T4

## Project Details

Project Name <b>The Viva Residence</b>	Address Line1 Lo Lu, Truong Thanh Ward, District 9, Ho Chi Minh City
Number of Distinct Buildings <b>2</b>	Address Line2 Lo Lu, Truong Thanh Ward, District 9, Ho Chi Minh City
Number of EDGE Subproject(s) associated <b>6</b>	City <b>Ho Chi Minh City</b>
Total Project Floor Area (m <sup>2</sup> ) <b>159,537.36</b>	State/ Province <b>District 9</b>
Project Owner Name <b>Ez land</b>	Postal Code <b>70000</b>
Project Owner Email <b>green@ardorgroup.com.vn</b>	Country <b>Vietnam</b>
Project Owner Phone <b>Office 84 - 385274784</b>	Project Number <b>1000609764</b>
Share with Investor(s) or Bank(s)? <b>No</b>	

Associated Subproject(s)  
The Viva Residence 1BD Block T3&T4, The Viva Residence 2BD Block T1&T2, The Viva Residence 2BD Block T3&T4, The

## Subproject Details

Subproject Name <b>The Viva Residence 2BD Block T3&amp;T4</b>	Address Line1 Lo Lu, Truong Thanh Ward, District 9, Ho Chi Minh City
House or Apartment Block Name <b>The Viva Residence 2BD Block T3&amp;T4</b>	Address Line2 Lo Lu, Truong Thanh Ward, District 9, Ho Chi Minh City
Subproject Multiplier for the Project <b>1</b>	City <b>Ho Chi Minh City</b>
Certification Stage <b>Preliminary</b>	State/ Province <b>Ho Chi Minh City</b>
Status <b>Certificate Issued</b>	Postal Code <b>700000</b>
Auditor <b>Hai Nguyen Hang</b>	Country <b>Vietnam</b>
Certifier <b>SGS</b>	Subproject Type <b>New Building</b>

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## Location Data



## Building Data

## Area Details

	Default	User Entry
Type of Unit Flats/Apartments	Bedrooms/Unit (m <sup>2</sup> ) <del>24.4</del>	22.11
Average Unit Area (m <sup>2</sup> ) 64.58	Kitchen (m <sup>2</sup> ) <del>7.6</del>	6.22
Bedrooms/Unit (no.) 2	Living/Dining (m <sup>2</sup> ) <del>23.3</del>	19.27
Floors (no.) 19	Bathroom (m <sup>2</sup> ) <del>4.5</del>	6.99
Units (no.) 248	Utility, Balcony, Service Shaft** (m <sup>2</sup> ) 9.99	
Occupancy (People/Unit) (no.) 3	Gross Internal Area (m <sup>2</sup> ) 65	
	External Wall Length m/Unit (m) <del>9.0</del>	15
	Roof Area/Unit (m <sup>2</sup> ) <del>3.4</del>	5.44
	Window to Floor Ratio (%) 20.9%	
	Common Area/Unit (m <sup>2</sup> ) <del>16.8</del>	31.27

\*\*The Utility, Balcony, Service Shaft (m<sup>2</sup>) field is equal to the remaining space required to total the Gross Internal Area (m<sup>2</sup>).

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## Building Systems

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Does the building design include an AC system?

No

Does the building design include a space heating system?

No

## Key Assumptions for the Base Case

Default	User Entry	Default	User Entry
Fuel Used for Hot Water			
Electric Resistance	Electric Resistance		
Fuel Used for Space Heating		Jan	
Electricity	Electricity	26.0	
Cost of Electricity (VND/kWh)		Feb	
1,789.90		26.8	
Cost of Diesel Fuel (VND/L)		Mar	
22,427.60		28.0	
Cost of LPG/Natural Gas (VND/L)		Apr	
41,404.80		29.2	
Cost of Water (VND/kL)		May	
12,680.22		28.8	
CO <sub>2</sub> Emissions g/kWh of Electricity (g/kWh)		Jun	
560.00		27.8	
Window to Wall Ratio (%)		Jul	
30%		27.5	
Solar Reflectivity for Paint - Wall (%)		Aug	
40%		27.4	
Solar Reflectivity for Paint - Roof (%)		Sep	
30%		27.2	
Hot Water Boiler Efficiency (%)		Oct	
80%		27.0	
Roof U-value (W/m <sup>2</sup> .K)		Nov	
1.73		26.7	
Wall U-value (W/m <sup>2</sup> .K)		Dec	
1.80		26.0	
Glass U-value (W/m <sup>2</sup> .K)		Latitude (Deg)	
5.40		±0.8	11
Glass SHGC (Factor)			
0.57			
AC System Efficiency (COP)			
2.70			

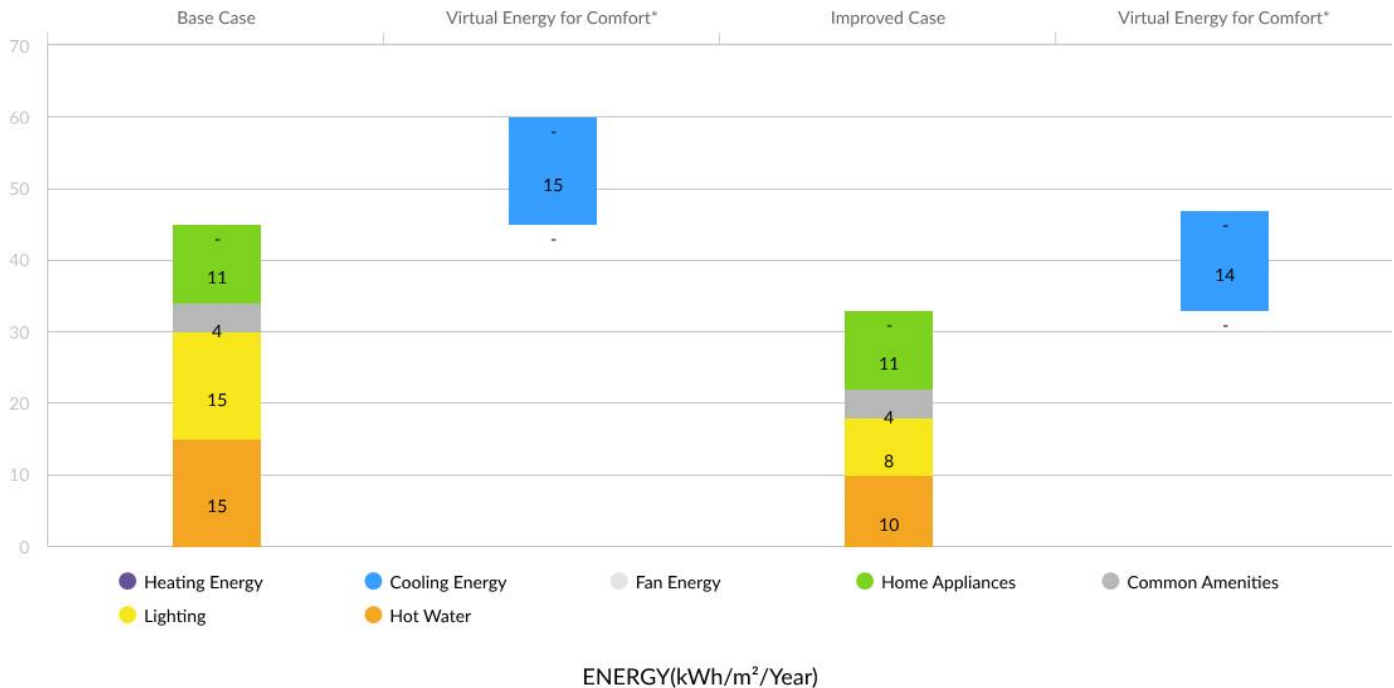
## Results

Final Energy Use (kWh/Month/Unit) <b>178.72</b>	Operational CO <sub>2</sub> Savings (tCO <sub>2</sub> /Year/Unit) <b>0.44</b>
Final Water Use (kL/Month/Unit) <b>7.27</b>	Embodied Energy Savings (MJ/Unit) <b>86,564.54</b>
Base Case Utility Cost (VND/Month/Unit) <b>588,187.27</b>	Incremental Cost (VND/Unit) <b>31,537,716.66</b>
Utility Cost Reduction (VND/Month/Unit) <b>176,110.67</b>	Payback in Years (Yrs.) <b>14.92</b>
Energy Savings (MWh/Year) <b>196.39</b>	Water Savings (m <sup>3</sup> /Year) <b>13,610.59</b>
Embodied Energy in Materials Savings (GJ) <b>21,468.01</b>	Total Subproject Floor Area (m <sup>2</sup> ) <b>23,770.8</b>
Carbon Emissions (tCO <sub>2</sub> /Year) <b>297.84</b>	

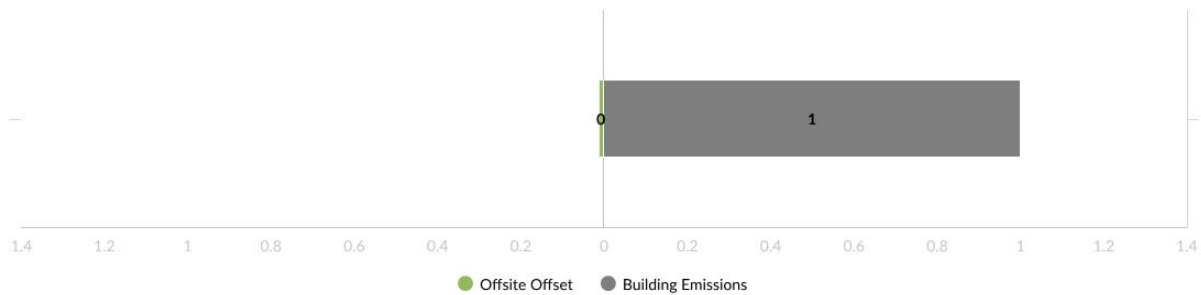
## ENERGY SAVINGS

Energy Efficiency Measures 22.38%

Meets EDGE Energy Standard



## Carbon Emissions: 1.20 tCO<sub>2</sub>/Year/Unit



## Energy Efficiency Measures 22.38%

- |   |   |
|---|---|
| ✓ HME01 Reduced Window to Wall Ratio - WWR of 35.4%<br>WWR % <b>35.40</b>                           | HME13 High-Efficiency Boiler for Hot Water - Efficiency of 95%                                  |
| HME02 Reflective Paint/Tiles for Roof - Solar Reflectivity (albedo) of 0.7                          | HME14 Heat Pump for Hot Water - COP of 3  |
| HME03 Reflective Paint for External Walls - Solar Reflectivity (albedo) of 0.7                      | HME15 Energy-Efficient Refrigerators and Clothes Washing Machines                               |
| ✓ HME04 External Shading Devices - Annual Average Shading Factor (AASF) of 0.31<br>AASF <b>0.31</b> | ✓ HME16 Energy-Saving Light Bulbs - Internal Spaces   |
| ✓ HME05 Insulation of Roof : U-value of 0.5<br>W/m <sup>2</sup> .K <b>0.50</b>                      | ✓ HME17 Energy-Saving Light Bulbs - Common Areas and External Spaces                            |
| ✓ HME06 Insulation of External Walls : U-value of 2.18<br>W/m <sup>2</sup> .K <b>2.18</b>           | ✓ HME18 Lighting Controls for Common Areas and Outdoors   |
| HME07 Low-E Coated Glass : U-value of 3 W/m <sup>2</sup> .K and SHGC of 0.45                        | HME19 Solar Hot Water Collectors - 50% of Hot Water Demand                                      |
| HME08 Higher Thermal Performance Glass : U-value of 1.9 W/m <sup>2</sup> .K and SHGC of 0.28        | HME20 Solar Photovoltaics - 25% of Total Energy Use   |
| HME09 Natural Ventilation   | HME21 Smart Meters  |
| HME10 Ceiling Fans in All Habitable Rooms   | HME22 Other Renewable Energy for Electricity Generation   |
| HME11 Air Conditioning System - COP of 3.5  | HME23 Offsite Renewable Energy Procurement - Equal to 100% of Total Operational CO <sub>2</sub> |
| HME12 High-Efficiency Boiler for Space Heating - Efficiency of 95%                                  | HME24 Carbon Offset - 100% of Total CO <sub>2</sub>   |



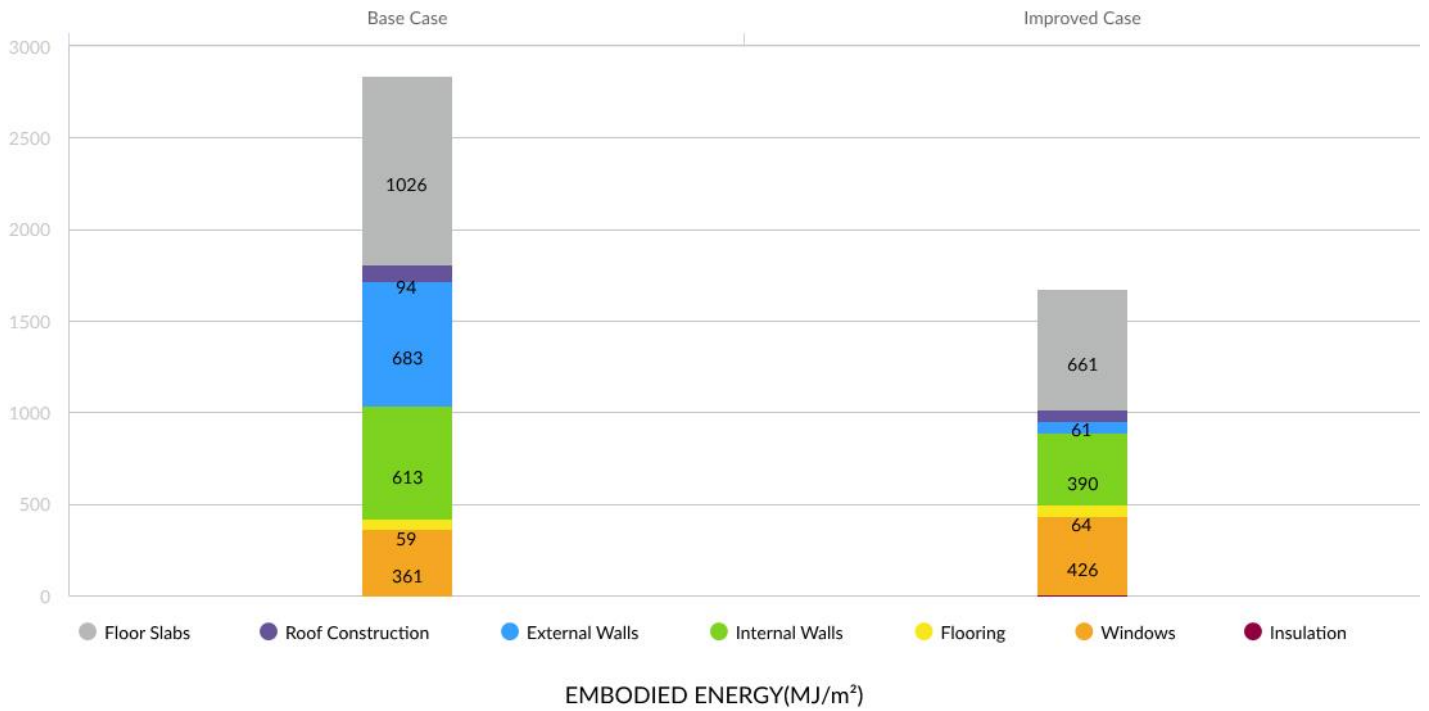
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## Embodied Energy Savings

Materials Efficiency Measures 40.94%

Meets EDGE Materials Standard





		Proportion %	Thickness (mm)	Steel Rebar (kg/m <sup>2</sup> )
HMM01	Floor Slabs In-Situ Reinforced Concrete Slab 300 mm Steel : 33 kg/m <sup>2</sup>		218	16.82
HMM02	Roof Construction In-Situ Reinforced Concrete Slab 300 mm Steel : 33 kg/m <sup>2</sup>	Type 1 100%	221	16.3
HMM03	External Walls Common Brick Wall with Internal & External Plaster 200 mm	Type 1 100%	140.44	
HMM04	Internal Walls Common Brick Wall with Plaster on Both Sides 100 mm	Type 1 21.09% Type 2 78.91%	121.45 105.65	
HMM05	Flooring Ceramic Tile	Type 1 20.56% Type 2 79.44%		
HMM06	Window Frames Aluminium Single Glazing	Type 1 100%		Single Glazing
HMM07	Wall Insulation Polystyrene U : ~ 1 W/m <sup>2</sup> k	No Insulation		
HMM08	Roof Insulation Polystyrene U : ~ 4 W/m <sup>2</sup> k	Polystyrene		

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## EDGE Certification Checklist

Building Type	Certification Stage	Subproject Name
Homes	Preliminary	The Viva Residence 2BD Block T3&T4
Energy Measures		Preliminary Audit Requirements
HME01	Reduced Window to Wall Ratio	<ul style="list-style-type: none"> <li>✓ Calculation of "Glazing Area" and "Gross Exterior Wall Area" for each façade of the building and the average building area weighted WWR using the WWR calculator</li> <li>✓ All façade elevation drawings showing glazing dimensions and general building dimensions.</li> </ul>
HME04	External Shading Devices	<ul style="list-style-type: none"> <li>✓ All façade elevation drawings highlighting the provision of horizontal and vertical shading devices.</li> <li>✓ Window details clearly showing the depth of the shading device and the calculation of the proportion.</li> <li>✓ If vertical and horizontal shading are not provided on all windows, the design team will need to provide the output from the solar shading design software.</li> </ul>
HME05	Insulation of Roof	<ul style="list-style-type: none"> <li>✓ A roof construction detail drawing showing the type and thickness of insulation material. Ideally the roof detail drawing should be annotated with the U Value of the roof.</li> <li>✓ Calculations of U value either using the formula or U value calculators.</li> <li>✓ Manufacturer's data sheet of specified insulation material for the roof.</li> </ul>
HME06	Insulation of External Walls	<ul style="list-style-type: none"> <li>✓ External walls construction detail drawing showing the type and thickness of the insulation material. Ideally the external walls detail drawing should be annotated with the U Value of the external walls.</li> <li>✓ Calculations of U value either using the formula or U value calculators.</li> <li>✓ Manufacturer's data sheet of specified insulation material for the external walls.</li> </ul>
HME16	Energy-Saving Light Bulbs - Internal Spaces	<ul style="list-style-type: none"> <li>✓ Lighting schedule listing type and number of bulbs specified.</li> <li>✓ Electrical layout drawings showing the location and type of all installed bulbs.</li> </ul>
HME17	Energy-Saving Light Bulbs - External Spaces	<ul style="list-style-type: none"> <li>✓ Lighting schedule listing type and number of bulbs specified.</li> <li>✓ Electrical layout drawings showing the location and type of all installed bulbs.</li> </ul>
HME18	Lighting Controls for Corridors and Staircases	<ul style="list-style-type: none"> <li>✓ Electrical layout drawings showing type and location of sensors/controls.</li> <li>✓ Specification of the sensors/controls from manufacturer.</li> </ul>
Water Measures		Preliminary Audit Requirements
HMW01	Low-Flow Showerheads	<ul style="list-style-type: none"> <li>✓ Plumbing drawings/specifications including make, model, and flow rate of the showerhead(s).</li> <li>✓ Manufacturer's data sheet for the showerhead(s) confirming the flow rate at 3 bar.</li> </ul>

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HMW02	Low-Flow Faucets for Kitchen Sinks	<ul style="list-style-type: none"> <li>✓ Plumbing drawings/specifications including make, model, and flow rate of kitchen(s) faucet(s) or flow restrictor(s).</li> <li>✓ Manufacturer's data sheet for faucet(s)/flow restrictor(s) confirming the flow rate at 3 bar.</li> </ul>
HMW03	Low-Flow Faucets for Washbasins	<ul style="list-style-type: none"> <li>✓ Plumbing drawings/specifications including make, model, and flow rate of the washbasin faucet(s) or flow restrictor(s).</li> <li>✓ Manufacturer's data sheet for faucet(s)/flow restrictor(s) confirming the flow rate at 3 bar.</li> </ul>
HMW04	Dual Flush for Water Closets	<ul style="list-style-type: none"> <li>✓ Plumbing drawings/specifications including make, model, and flush volumes of water closet(s).</li> <li>✓ Manufacturer's data sheet for water closet(s) with information on the flush volume of the main and reduced flushes.</li> </ul>

**Material Measures**

**Preliminary Audit Requirements**

HMM01	Floor Slabs	<ul style="list-style-type: none"> <li>✓ Floor sections showing build-up of the floor; or</li> <li>✓ Manufacturer's data sheet for specified building material if applicable; or</li> <li>✓ Bill of quantities with the floor slab specification clearly highlighted.</li> </ul>
HMM02	Roof Construction	<ul style="list-style-type: none"> <li>✓ A section drawing of roof showing the materials and thicknesses; or</li> <li>✓ Manufacturer's data sheet for specified building material; or</li> <li>✓ Bill of quantities with the materials used for roof construction clearly highlighted.</li> </ul>
HMM03	External Walls	<ul style="list-style-type: none"> <li>✓ Façade drawings clearly marking the external wall specification selected; and</li> <li>✓ Drawings of the external wall sections; or</li> <li>✓ Manufacturer's data sheet for specified building material; or</li> <li>✓ Bill of quantities with the materials used for the external wall clearly highlighted.</li> </ul>
HMM04	Internal Walls	<ul style="list-style-type: none"> <li>✓ Drawings of the internal wall sections; or</li> <li>✓ Manufacturer's data sheet for building materials used for internal wall specifications if available; or</li> <li>✓ Bill of quantities with the materials used for the internal wall clearly highlighted.</li> </ul>
HMM05	Flooring	<ul style="list-style-type: none"> <li>✓ Drawings clearly marking the flooring specification selected; or</li> <li>✓ Manufacturer's data sheet for building materials used for floor specifications; or</li> <li>✓ Bill of quantities with the materials used for the flooring clearly highlighted.</li> </ul>
HMM06	Window Frames	<ul style="list-style-type: none"> <li>✓ Façade drawings clearly marking the window frame(s) specification; or</li> <li>✓ Manufacturer's data sheet for glazing specified; or</li> <li>✓ Bill of quantities with the windows/window frames clearly highlighted.</li> </ul>

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HMM08	Roof Insulation	<ul style="list-style-type: none"><li>✓ Drawings clearly marking the insulation specification selected; or</li><hr/><li>✓ Manufacturer's data sheet for insulation specified; or</li><hr/><li>✓ Bill of quantities with the insulation materials clearly highlighted.</li></ul>
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