Sindibad Beach Resort - T1A and T1B

by Zakaria SADIK / 2018-06-10 19:44:53 / Maroc / 15493 / FR

Primary energy need :

132.69 kWhep/m².an

(Calculation method :)

ENERGY CONSUMPTION

Economical building — *Building*

< 50	A	A
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 : Collective housing > 50m
Construction Year : 2014
Delivery year : 2017
Address 1 - street : Rond point Boulevard Abdelhadi Boutaleb et Boulevard Sidi Abderrahmane، R320 20000 CASABLANCA, Maroc
Climate zone : [Cfc] Marine Cool Winter & summer- Mild with no dry season.

Net Floor Area : 52 460 m² Other
Construction/refurbishment cost : 24 000 000 €
Number of Dwelling : 258 Dwelling
Cost/m2 : 457.49 €/m²

Certifications :

General information

In the heart of Casablanca, the Sindibad Beach Resort project stands in the singularity of an exceptional site on the edge of a natural cliff and facing the ocean. The land of 60ha in total, reserve 28ha for the residential project, which will be carried out in four phases, the first with 258 units, out of a total of 1000.

In resolutely contemporary architecture with a refined style, the villas, duplex houses, penthouses, lofts and apartments inaugurate a new style of life conducive to escape.

A group of four investors won the State's Call for Expression of Interest for the entire operation, which includes a theme park, hotels, a clubhouse and a residential complex. The Sindibad Beach Resort (SBR) promotional holding company was created to carry the project as MOA. SOMED remains as investor and ALMOD as MOA delegate.

The Ph. Madec agency did the masterplan on behalf of the group at the time of the MAI, then an architectural competition was organized for the different sectors. The initial concept included a "green habitat" approach, with the decision to certify occurring during the implementation phase.

ALTO EKO was commissioned to carry out the certification and was commissioned as AMO HQE by SBR, who also undertakes by this contract to respect the certification rules. The project management is composed of the architecture firm JLA Studio, BET Oger, Artelia as OPC.

Data reliability

3rd part certified

Stakeholders

Contractor

Name : Sindibad Beach Resort
Contact : M. Rachid BENNANI
http://www.sindibad.ma

Construction Manager

Name : JLA Studio
Contact : 30 rue Ghomara souissi, Rabat - Maroc
https://www.jlastudio.com

Stakeholders

Function : Others

Atelier Philippe Madec

24 bis, Rue Mar Joffre, 35000 Rennes

https://www.atelierphilippemadec.fr
Sustainable urbanism. The development of the site has been the subject of an international consultation and has been imagined using an eco-responsible approach. The project SINDIBAD, as it was conceived and designed by Philippe Madec is a project both tou

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Function : Assistance to the Contracting Authority

ALTO EKO

Zakaria SADIK

http://alto-eko.com
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Contracting method

Separate batches

Owner approach of sustainability

"A flagship project for the city of Casablanca. Through this major urban project, whose challenge is to combine modernity and heritage, we wish to affirm strong values and citizens for the city of Casablanca. The SINDIBAD project aims to contribute to strengthening the economic and tourist attractiveness of the city while promoting this exceptional natural site. This vast urban complex, endowed with a park dedicated to leisure activities, upscale residential housing as well as a hotel complex is part of a desire to improve the quality of life of the inhabitants in a sustainable way ... ", Mr. Tarafa Marouane , CEO of SOMED

http://sindibad.ma/site/Decouvrir-Le-projet

Architectural description

At the heart of the Casablanca mega-city, nestles an oasis of greenery with unique natural heritage. Spread over some 60 hectares, SINDIBAD manages to reconcile respect for nature and urban architecture. Both live in perfect harmony, whether in the residential area, which hosts villas, lofts and apartments, high standing or Sindibad Park , which includes different universes, an amusement park, a wildlife park, a varied restoration, large green areas, and several bodies of water. Moreover, the vision of this project as carried by SOMED, is to offer an outstanding living environment for residents, an unforgettable recreational experience for visitors, and a green haven for all. An avant-garde eco-friendly complex is born. Aware that our greatest wealth lies in the natural site that houses our project, we have labeled all our residences "Green Habitat". Each link of the realization has been conceived in the respect of the environment in collaboration with international experts of the constructions. From the layout of spaces, to the choice of materials used, through the restoration of the natural park that borders the site, all our decisions bear the seal of our civic commitment.

If you had to do it again?

On the sidelines of COP 22 and at a ceremony organized by the Morocco Green Building Council, the residential complex Sindibad Beach Resort has been awarded HQE certification with the mention for Phase I of the program by Mrs. Corinne Block-Raguin , Executive Director of Cerway, who said: "I am pleased to present this certificate to one of Casablanca's largest integrated residential projects. HQE certified buildings are environmentally friendly and put health and comfort at the heart of the concerns for greater satisfaction of their owners.

Sindibad Beach Resort thus becomes the first residential complex to be delivered to Morocco holding the High Environmental Quality certification phase realization with an "EXCEPTIONAL" level. HQE certification, recognized by CERWAY as an independent organization, certifies housing that is healthy, safe, comfortable, economically efficient and environmentally friendly.

Building users opinion

No return of the occupants yet, because project in delivery.
Otherwise, Ms. Corinne Block-Raguin, Executive Director of Cerway, said, "I am pleased to present this certificate to one of Casablanca's largest integrated residential projects. HQE certified buildings are environmentally friendly and put health and comfort at the heart of the concerns for greater satisfaction of their owners.

Energy

Energy consumption

Primary energy need : 132,69 kWhep/m^2.an

Primary energy need for standard building : 380,40 kWhep/m^2.an

Calculation method :

Final Energy : 41,86 kWhef/m^2.an

Envelope performance

Envelope U-Value : 0,45 $W.m^{-2}.K^{-1}$

Building Compactness Coefficient : 1,11

Indicator : EN 13829 - q50 » (en m3/h.m3)

Air Tightness Value : 1,70

Renewables & systems

Systems

Heating system :

- Heat pump
- Fan coil
- VAV System

Hot water system :

- Individual electric boiler
- Solar Thermal

Cooling system :

- Reversible heat pump
- VRV Syst. (Variable refrigerant Volume)

Ventilation system :

- Natural ventilation
- Nocturnal ventilation
- compensated Air Handling Unit

Renewable systems :

- Solar Thermal

Renewable energy production : 30,00 %

Environment

GHG emissions

GHG in use : 3,59 $KgCO_2/m^2/an$

Methodology used :
Elecricity emission factor in Morocco, source Mohammed VI Foundation for the Protection of the Environment

Elecricity emission factor in Morocco, source Mohammed VI Foundation for the Protection of the Environment

Life Cycle Analysis

Eco-design material :

The materials were chosen for their functional, aesthetic qualities, their performance in the management of energy and hygrothermal comfort as well as the ease of maintenance.

The environmental and health data of these materials are considered in the choices made on the project. We used the ACV data of concrete, the first LCAs performed in Morocco in accordance with the requirements of the following standards: EN 15804 + A1 and EN ISO 14025: 2010. For other materials, the environmental data comes from the European database.

The interior finishing materials are chosen on the same criteria, as well as on health aspects, such as the ECOLABEL European label and A + classification.

Water management

Green spaces favored on the SBR site have an important function in the management, evaporation and partial treatment of rainwater. In addition, it improves the permeability of the ground which allows to promote the infiltration of rainwater and thus the supply of the water table and the reduction of the load on the rainwater network of the community of Casablanca.
The roof waters are redirected to the landscaped basins of Sindibad Park. This approach, conceived by the urban planner Philippe MADEC, makes it possible to preserve the natural functioning of the site.
To reduce the expenses related to the consumption of drinking water in homes, it is set up right to all sanitary devices hydro-saving devices to reduce water consumption without degrading comfort of use.

Indoor Air quality

Measurement of indoor air quality on the Sindibad BeachResort project - Phase 1 '", a first in Morocco in the building sector.

Sindibad Beach Resort (SBR) has implemented measures of the quality of indoor air at the end of interior finishing work. These measurements were carried out by an independent laboratory and controlled in France by the EUROFINS laboratory (world leader in the field) and following the HQE Association's Guide for a Better Indoor Air Quality (IAQ).

The quality of the air on the site and inside the houses is assured by several parameters. In the first place, the sanitary quality of the site and the development of the spaces, that is translated by the removal of the site sources of urban pollution of Casa. The data from Météo Maroc prove that the South zone of Casablanca offers an optimal sanitary quality of the outside ai (see Atmo index for Casablanca followed by Météo Maroc). In addition, the project has reserved several green spaces that contribute to the improvement of the quality of the air, the enrichment of biodiversity to the improvement of the "ecological quality of the site" and its hygrometry.

In terms of interior finishes, which have a significant influence on the quality of indoor air, they have been chosen for their sanitary, functional and aesthetic qualities. On the sanitary side, these interior finishing materials are tested and labeled ECOLABEL European with an A + level.

Comfort

Health & comfort :

Health Theme:

- Air quality: Measurement of indoor air quality by an accredited laboratory

- Healthy materials: Choice of materials certified A + and eco-labeled, Implementation of materials that meet the requirements of the Scientific Center of Building Technology.

- Water quality: Elimination of the risk of Legionella, Rinsing and disinfection of the network

- Electromagnetic waves: Distance of electromagnetic wave sources from sensitive living spaces, transformer station located outside the building, electric panels are also removed from spaces with permanent occupation, Compliance with international norms and standards, Electrical distribution designed in ways to avoid the creation of electromagnetic fields.

Theme of comfort:

- Acoustic comfort: Acoustic insulation by double glazing and insulation of walls and roofs with high-performance insulation, deployment of equipment with low noise emission, a site with little exposure to external noise due to its positioning, realization of acoustic measurements before delivery of noise emission

- Thermal comfort: Implementation of A + certified materials, Thermal insulation with high performance glazing, Insulation implementation allowing to deminimise consumption related to air conditioning

- Visual Comfort: Absence of light mask, wide windows that allow optimal natural light, Sun protection and treatment to reduce the risk of dazzling

- Olfactory Comfort: Closed and air-conditioned waste areas with washable floors and washable walls, extraction of stale air from the bathrooms thanks to the VMC.

Acoustic comfort :

Despite the lack of regulations, an acoustician was commissioned to integrate acoustic comfort from the design phase and follow up to delivery.

An acoustician was hired on the project to ensure compliance of the acoustic comfort indicators according to the New French Acoustic Regulation (NRA), one of the most stringent acoustic regulations in the world.

Acoustic measurements were taken before the housing was delivered to ensure that the objectives were respected.

Products

Product

DESIGN BUILDER

DesignBuilder Software Ltd

be.bioconsulting@gmail.com

http://designbuildermaroc.com

Product category : Table 'c21_china.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 = '19'

Dynamic Thermal Simulation (STD) was performed with internationally recognized software according to the ASHRAE standard, namely, based on the American Energy + calculation engine. The DesignBuilder software has been selected by ALTO EKO to carry out this modeling since it meets the criteria of energy studies and comfort. The version used is V5.0.1.024.
The STD results expressed in kWh / m².an of final energy represent the energy consumption of the following systems:
▲Heating and cooling systems, including auxiliaries,
▲Systems of domestic hot water including auxiliaries,
▲Auxiliaries of ventilation,
▲Lighting systems,
▲ Local energy production systems.
3.2.Méthode
The DesignBuilder software is designed to integrate the energy problem right from the design phase of buildings. It simulates the dynamic thermal behavior of any building over a year, with a time step between five minutes and one hour.
For that, the simulation integrates in the most precise way possible, the elements influencing the envelope of the building (external loads) and the systems generating internal loads.
The modeling must take into account an analysis of the envelope and the equipment on a sufficient number of thermally homogeneous zones corresponding to specific exposures and to the modalities of occupation and exploitation of the building, privileging those which have been identified as places of discomfort. It will integrate the nature of the hosted activities and the resulting equipment, as well as any other parameters that may affect the energy balances.
The parameters to study for thermal comfort are:
• Geometric characteristics of buildings, exposure, meteorological data,
• The composition of the walls and the constituent elements of the buildings, the inertia of the building,
• The occupation conditions of the different zones and the equipment operating schedule,
• Solar gains and temperatures for each zone,
• Internal charges generated by installed equipment and other items,
• The inventory of equipment and their characteristics, either to apprehend the quantities of heat released, or as equipment that can be used differently to partially or completely answer the overheating issues (for example: natural ventilation, night-cooling ...).

DesignBuilder V5 adds a substantial set of new features and enhancements to the V4 including significant productivity improvements for LEED, HQE, BREEAM and the ASHRAE 90.1 PRM and a new scripting tool to customize EnergyPlus simulations.

Costs

Land plot area

Land plot area : 280 000,00 m^2

Parking spaces

In the basement buildings and outdoor parking spaces and villas.

Building Environnemental Quality

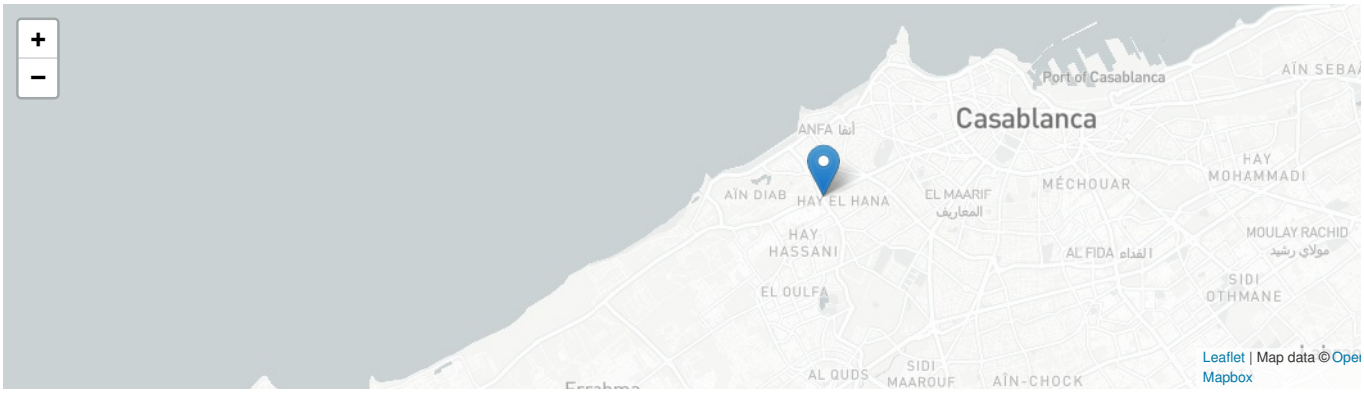
Building Environmental Quality

- Building flexibility
- indoor air quality and health
- biodiversity
- works (including waste management)
- consultation - cooperation
- acoustics
- comfort (visual, olfactive, thermal)
- waste management (related to activity)
- water management
- energy efficiency
- renewable energies
- maintenance
- building end of life management
- integration in the land
- mobility
- building process
- products and materials

Contest

Reasons for participating in the competition(s)

The environmental features of the project include: double brick wall envelope with insulation and air gap, thermal solar panels for the ECS (villas and duplex), bioclimatic approach with privileged West orientation, minimizing South orientation and incorporating breezes sliding sunscreens for sun protection, through flats to optimize natural ventilation, distribution of masses built around vegetated surfaces, facades in light colors.



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