Masen center

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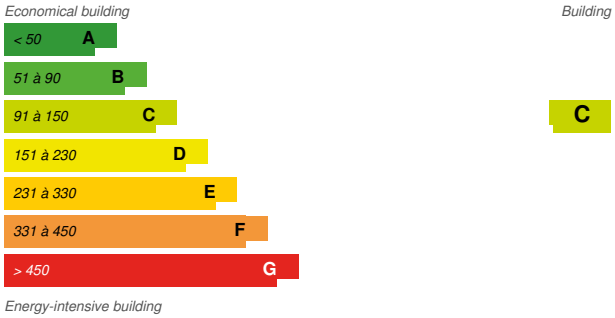
Primary energy need :
kWhep/m².an
(Calculation method : RTCM)

ENERGY CONSUMPTION



Building Type : Other building
Construction Year : 2015
Delivery year : 2017
Address 1 - street : route de Tasselmante 45000 OUARZAZATE, Maroc
Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 5 500 m² SRE
Construction/refurbishment cost : 11 000 000 €
Number of none : 7 none
Cost/m2 : 2000 €/m²

Certifications :

General information

The NOOR Ouarzazate complex is the cornerstone of an ambitious energy policy in Morocco, setting the target of 42% renewable energy by 2020. The complex includes a photovoltaic production plant, a pumping station and As part of this operation, the Moroccan solar energy agency, Masen, wanted the construction of a reception building at the heart of the central lane.

Named the "flagship building", the complex's reception building totals 5500 m2 SHON and includes a large atrium hosting a reception and exhibition area, a 320-seat auditorium, a multipurpose space, conference rooms, a business center, the management offices of the solar complex, a digital media library and finally relaxation areas. The ensemble aims to welcome tourists, the general public, the inhabitants of the region, students, lecturers and authorities.

The program is articulated in three bodies and opens on the solar parcel. The public spaces offer an **architectural itinerary** with double-height interior volumes, a set of monumental ramps, mezzanines and walkways, with the highlight of the great landscape of the region, offered at the top of the tower. belvedere.

The outdoor spaces accompany the landscaping concept of the Complex. The landscape quality of the site is given by:

- The variety of plant environments
- The alignment of trees directing the gaze and the course
- Management of pedestrian paths and planted strips
- The quality of soil materials

This landscaping project depicts the silhouette of the access station whose shape is strongly reminiscent of Berber tents.

The Masen Center has used Cap Terre and BETOM Ingéniérie to provide project management and project management assistance for the HQETM International - non-residential buildings certification.

See more details about this project

premier bâtiment d'afrique labellisé HQE

Data reliability

3rd part certified

https://www.construction21.org/maroc/data/sources/users/1760/evaluation-peb-masen-ouarzazate-realisation.xlsx

Stakeholders

Contractor

Name : Masen
Contact : (+212) 05 37 57 45 50
http://www.masen.ma/en/contact/

Construction Manager

Name : Guerin & Pedroza architectes
Contact : (+33) 01 42 46 34 26
http://www.guerinpedroza.com/

Stakeholders

Function : Certification company

BETOM / CAP TERRE

bjinah@cap-terre.com

http://cap-terre.com/
HQE responsible

Function : Designer

Anouar Alami / Archi + : architectes associé

Casablanca Prefecture

grouparchiplus.com
Project Manager

Function : Construction company

SGTM

2 Bd. Zerktouni - Casablanca 20000, Maroc Tél : (+212) 5 22 888 000

http://www.sgtm-maroc.com/presentation-2/
resumption of the call for tender relaunched by Masen and reinstatement of the CTP workers present at the beginning of the construction site

Jet Contractors

Quartier Industriel de Oued Ykkem - CP 12040 Skhirate - Maroc Mail: contact@jet-contractors.com

www.jet-contractors.com
photovoltaic technical solution

Owner approach of sustainability

Implementation of the RTCM Technical Regulation of Constructions in Morocco setting the energy performance of buildings since November 2015. The building is included in the pilot project of eco-district at the level of the city of Ourzazate.

The establishment of a "mechanism for promoting renewable energies and energy efficiency measures for tourism products". In October 2014, a convention was signed between the Ministry of Energy, Mines, Water and the Environment, the Ministry of Tourism.

Architectural description

The public spaces offer an **architectural itinerary** with double-height interior volumes, a set of monumental ramps, mezzanines and walkways, whose highlight is the panorama of the great landscape of the region, offered at the top of the belvedere tower.

In addition to its belvedere function, the tower is designed according to the ancestral method of the wind tower which allows thanks to a system of underground galleries, the natural cooling of spaces such as the auditorium and the atrium without any energy consumption .

Thus, the exposure to the sun of the buildings is optimal thanks to the exhibitions in the South which are limited or protected by a protective mesh. The buildings are characterized by high energy **performance** and good thermal, visual and acoustic comfort conditions.

If you had to do it again?

The Masen Center, coupled with the Noor complex in Ouarzazate, is the cornerstone of an ambitious energy policy, setting the target of 42% renewable energy by 2020, to loosen Morocco's dependency on the instability of the country. hydrocarbon market.

Energy

Energy consumption

Primary energy need for standard building : 481,00 kWhep/m^2.an

Calculation method : RTCM

Final Energy : 125,00 kWhef/m^2.an

Breakdown for energy consumption :
70 kWhef / m2.an air conditioning
5 kWhef / m2.an heating
20 kWhef / m2.an ventilation
5 kWhef / m2.years DHW
25 kWhef / m2.an Lighting

More information :
The energy of solar origin, reaches a consumption level of 35KW m2 / year, an objective of 30% lower compared to the reference consumption.

Envelope performance

More information :
-Open opaque:
Current facade: Up = 0.56 W / m²K
Floor Top on Outside: Up = 0.42 W / m²K
Floor on land-full: Up = 0,21 W / m²K

-Vitrages
Coeff U: 2.558 W / m2.K

Real final energy consumption

Year of the real energy consumption : 2 015

Renewables & systems

Systems

Heating system :
- Solar thermal

Hot water system :
- Solar Thermal

Cooling system :
- Solar cooling

Ventilation system :

- Natural ventilation

Renewable systems :

- Solar photovoltaic

Renewable energy production : 100,00 %

Environment

Life Cycle Analysis

Eco-design material :

Moreover, the materials were chosen according to their insertion in the site, local resources and their ability to age well while the extremely efficient envelope (double insulated hollow brick walls) has high insulating properties (cork in roofing) contributing to strict control of energy consumption.

Water management

Following the analysis of the site, the development access to the site includes the following measures:
• Rainwater recovered from roads and buildings in the R + D zone will be used to water the plantations.
This principle will promote the development of spontaneous vegetation seasonally;
• The need to provide only plants that can adapt with a minimum of water supply, see none,
except for the first years after their installations and the exceptional years of drought;
• Respect the route already established despite the need for a very large embankment and the disruption of Chaabas eco-systems;
• Spatial organization in an informal and asymmetrical manner to better respond to site conditions (risk of loss of certain elements that will be very visible in a formal organization, views to the south side thalwegs, and the north side of the building front) L proposed development therefore consists mainly of the creation of landscaped waterways along the route, to recover the waters
storm. On the South side, the valley drains the water coming from the road, following its slope of flow, which makes a saving
considerable in the way of the sanitation of the way by the cancellation of the looks with grid and more than 2000ml of pipe of Ø400.
Similarly, on the North side, water from future buildings in the R + D zone, as well as runoff from sites
North of the track, by natural drainage of the ground, are intercepted by a landscaped valley. Rainwater harvesting nets are created to promote the creation of environments conducive to the development of spontaneous vegetation.

Comfort

Health & comfort :

The choice of the site was guided by the concern not to disturb any natural and human environment by the use of agricultural land or pastoral routes, which would have jeopardized the vital resources of the local populations. The project was not to jeopardize either customary practices in the management of water and space.

Releases from sanitation are controlled thanks to the hybrid micro station. The exterior lighting is designed to optimize the feeling of comfort and security [(The light level is offered at 10 to 15 LUX (compared to 20 LUX for an urban road, with a 60% drop in the middle of the night)] No noisy activities identified as harmful No visual pollution from identified lighting

Acoustic comfort :

The solar complex is on a desert site that is Masen's property, no outside sources of significant noises.

The technical equipment is grouped in the technical area on the ground floor and a terrace far away from the sensitive outdoor spaces on the north side to limit the noise pollution of outdoor spaces. The systems are mounted on anti-vibratile devices to limit the impact noises (spring, anti-vibratile pad).

Costs

Energy bill

Forecasted energy bill/year : 28 525,80 €
Real energy cost/m2 : 5.19
Real energy cost/none : 4075.11

Building Environnemental Quality

Building Environmental Quality

- biodiversity
- acoustics
- waste management (related to activity)
- water management
- renewable energies
- integration in the land
- products and materials

Contest

Reasons for participating in the competition(s)

Coherence with the local policy of planning and sustainable development of the territory:

Justification according to the operation of taking into account the issues of sustainable urban development, especially with regard to the rational exploitation of networks or resources available locally (energy, renewable energy, water, sanitation), and with a view to minimizing the new constraints (waste, infrastructure maintenance, services). The project itself contributes to the sustainable development of the site: construction of a solar complex in the Ouarzazate desert. The operation is located on a desert plot, 10 km from the city of Ouarzazate and does not exploit existing networks. Masen integrates in its policy the study of the environmental impacts on the site and the surroundings of its projects and identifies the measures to be put in place.

Building candidate in the category

Energie & Climats Chauds

Bas Carbone

Prix du public

Date Export : 20230425062723