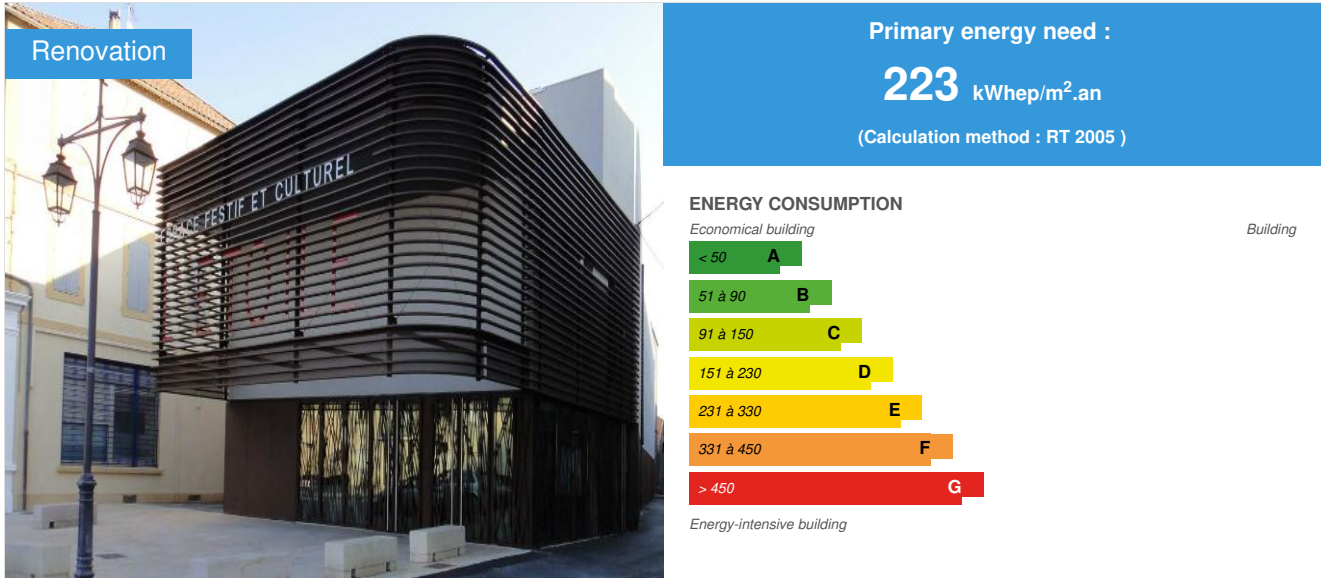


Cultural and festive center: L'Etoile in Châteaurenard

by Nicolas Guignard / 2014-07-18 00:00:00 / France / 5665 / FR



Building Type : Concert or conference hall, theater
Construction Year : 2012
Delivery year : 2012
Address 1 - street : Avenue Leo Lagrange 13160 CHÂTEAURENARD, France
Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 2 359 m² SHON
Construction/refurbishment cost : 5 509 300 €
Number of Seat : 1 170 Seat
Cost/m² : 2335.44 €/m²

Certifications :



General information

- **BDM Approach: Silver level for construction phase**
- Program: The former movie theater and the Etoile room change into a multipurpose room that can accommodate about 900 people and an auditorium for 270 people.

Municipality of Châteaurenard is committed in the "AGIR pour l'Energie-Villes lauréates" program (Act for energy-winner cities) since 2008. L'Etoile is a pilot project chosen by the city as part of this program. Therefore this project has to be completely exemplary.

Restructuring of old movie theaters and l'Etoile room into a cultural center reaching the **BBC Effinergie Renovation level** is a priority for the city, since it allows the downtown revitalization. This unique equipment, cultural and festive, is composed of two separate rooms. One is dedicated to banquets, traditional festivities, trade fairs and trade shows. The other is dedicated to culture thanks to an auditorium that could host conferences and varied cultural and artistic programming (theater, classical music, conferences ...).

Sustainable development approach of the project owner

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Restructuring of old movie theaters and l'Etoile room into a cultural center reaching the BBC Effinergie Renovation level is a priority for the city, since it allows the downtown revitalization. The main objective of this reorganization is to respond to the urgent need expressed by associations from Châteaurenard and make available exemplary and "pedagogical" equipment from environmental quality standpoint.

The pre-programming phase incorporating an environmental approach accordingly to the Codebaque and EPC (Energy performance certificate) charters has required the intervention of an Assitant to the contracting authority specialized in Environmental Quality. The programming phase helps to determine, with all project stakeholders, future needs and tenure of the building as well as energy and environmental objectives. Energy consumption (Cep) 40% lower than reference consumption (CEPref) without photovoltaic production has been settled. Proper design studies on energy aspects helps to compare several energy solutions as well as different systems adapted to expected environments and comforts.

Materials and building site:

- Choice of materials: coatings materials are selected for each room according to the expected comfort of use: carpet in the auditorium, concrete floor in the L'Etoile room and the lobby, linoleum in offices and dressing rooms. All used wood are FSC or PEFC certified. Interior paints are guaranteed without volatile organic compound and with European ecolabel.
- Technical implementation: this renovation relied on local businesses' know-how. Wherever possible, an external insulation was preferred over an interior insulation to keep the inertia of the building and therefore store heat in winter and coolness in summer.
- Nuisance management: the proximity of housing and shops of high involve high requirements in terms of reduction of pollution during the construction phase and throughout the equipment's use. Prevention of noise pollution towards neighborhood was a priority.

Water and Waste:

- Reduction of energy consumption: The motion detectors associated to compact fluorescent lamps and T5 fluorescent tubes reduce electric consumption.
- Monitoring of electrical consumption: the specific electric meters for lighting, ventilation, heat pump and stage equipment
- Management and recovery of business waster: locals are equipped to waste sorting.

Comfort and Health

- Hydrothermal comfort (summer / winter): Large windows exposed between south-east and south-west are equipped with fixed sun breakers. Also, all premises are for intermittent use but has high inertia, which facilitates summer comfort. Given the occupancy, up to 1200 people for the Etoile room, the air conditioning is essential and ensured by the groundwater heat pump.
- Sound insulation: the theater has no windows and is soundproofed to avoid any discomfort for the neighborhood and even inside the building between the two rooms. The acoustic pressure was limited to 95 dB at night and 100 dB during the day. Geometry and texture of interior wall coverings contribute to the acoustic comfort for both artists and spectators. In addition to optimizing the acoustic comfort, perforated metallic coat that covers the sound insulation in the Etoile room, participates in the aesthetic quality of the place.
- Usability, aesthetics: architecture gives a contemporary character in this cultural center, while enhancing the historic facades. The main frontage cladding forms an extension at the entrance of the room. On the inside, the choice of colors has focused on two different atmospheres taking into account the distinct use of the two spaces, one festive and the other cultural. The room and its capacity can easily be adapted to different types of events since the chairs of the lower part of the room are removable and stackable.
- Accessibility: Works have been undertaken to facilitate access for disabled people. Thus, lift conforms to the latest PMR regulations (regulation on persons with reduced mobility) was installed.

Architectural description

Program: the old cinemas and living the star evolve into a multipurpose room that can accommodate nearly 900 people and an auditorium for 270 people.

The project is located in the Uab Area of the Local Development Plan in force in the town, so it has been subjected to the review of the Building Architects of France. Conservation of historic facades of the theater was a major issue. The pediment of the theater is stone du Gard has been preserved, the most significant items are highlighted by a facade coating has smooth lime stone color.

The idea is to compose a contemporary auditorium based on the original forms of theater Pecout to preserve the memory of this building for the people of Chateaurenard. This unique equipment, cultural and festive, is composed of two separate rooms. One is dedicated to banquets, traditional festivals, fairs and economic exposure. The other is a cultural vocation and auditorium type capable of hosting conferences and artistic cultural programming variee (theater, classical music, conferences ...). To meet the different functional needs expressed, the building must be flexible, friendly and high quality use while controlling the costs of operation. A major constraint was the exploitation of cinema and not continuousdisturbed by the construction phase.The function room is a multi-functional space for various activities (cafe-concert, the party hall, bingo, receptions) can accommodate approximately 800 people. The existing volume has been enlarged, maximizing floor space and increasing height, while remaining in the template allows the Planning Regulations. The transformation of the roof can adapt to phonic constraints, acoustic and SCENOGRAPHICAL. The former theater Pecout, into auditorium hosts performances of theater, music, dance as well as conferences or seminars.

The capacity of the auditorium, 270 seats, responds to the ambition of the city Chateaurenard today a cultural influence on North Alpilles. The entrance hall and exhibition hall, bar and home to the public take place at the corner of Avenue Leo Lagrange, opening onto a public space. They extend under the balcony of the theater and create a warm bond between the two rooms.Evolution of the project: The program was held even if the EXE plans have evolved a lot during construction.

See more details about this project

<http://www.enviroboite.net/espace-culturel-festif-etoile-chateaurenard>

Stakeholders

Function : Contractor

Ville de Châteaurenard

M. Grégoire: 04 90 95 34 39

<http://www.chateaurenard.com/>

Function : Assistance to the Contracting Authority

DoMEne

13300 Salon-de-Provence / 04.90.55.92.89 / raynal.domene@gmail.com

Function : Construction Manager

D+P Architectes

83130 Toulon / 04.94.75.21.61 / contact@dp-architectes.com

<http://dp-architectes.com/>

Function : Designer

Ariane Architecture

13160 Châteaurenard / 04 90 24 42 20 / contact@ariane-architecture.com

<http://www.ariane-architecture.com/>

Function : Environmental consultancy

Architecture & Technique

78180 Montigny le Bretonneux / 01.30.44.37.26 / arscen@wanadoo.fr

Function : Structures calculist

BEGP

83085 Toulon / 04.94.08.55.01 / bet@begp.fr

<http://www.begp.fr/>

Function : Other consultancy agency

ADRET

83500 La Seyne sur Mer / 04.94.10.87.50 / laseyne@adret.net

<http://www.adret.net/>

Function : Structures calculist

ALTIA

75002 Paris / 01.53.00.90.65 / altia@altia_acoustique.com

<http://www.altia-acoustique.com/>

Function : Others

EC 2G

83400 Hyères / 04.94.65.27.82 / garino-eco@wanadoo.fr

Function : Company

Mariani

84000 Avignon / 04.90.86.54.85 / jmm.mariani-sas@wanadoo.fr

Energy

Energy consumption

Primary energy need : 223,00 kWh/m².an

Primary energy need for standard building : 398,00 kWh/m².an

Calculation method : RT 2005

Initial consumption : 598,00 kWh/m².an

Envelope performance

Envelope U-Value : 0,36 W.m⁻².K⁻¹

More information :

Frame / cover:

- Auditorium roof: Hollow tiles on frame + 30cm mineral wool + acoustic false ceiling.

Roof

-L'étoile room: steel complex Haironville with 30 cm mineral wool.

-Roof terrace: two layers of 10 cm PIR PANEL AK (rigid polyurethane foam panels).

Walls / Envelope

- South and West frontages: external insulation Knauf Therm ITEX 160 mm PES.

- North frontage and party wall: 16 cm internal glass wool insulation.

Low Floor: non-isolated concrete slab.

External joinery:

- Aluminium joinery with thermal bridge. Low emissive double glazing, 15 mm Argon. Solar factor Sw = 0.35

Air Tightness Value : 1,70

Renewables & systems

Systems

Heating system :

- Geothermal heat pump
- Fan coil

Hot water system :

- Individual electric boiler

Cooling system :

- Reversible heat pump
- Fan coil

Ventilation system :

- Nocturnal Over ventilation
- Free-cooling
- Double flow heat exchanger

Renewable systems :

- Heat pump (geothermal)

Other information on HVAC :

Heating: The heat pump provides heating of the large rooms with blast air. For offices, an exchanger on CTA allows to reheat the incoming air.

Hot water: A 300 liter hot water cylinder was installed and two water heaters have been decentralized.

Cooling system: Overnight ventilation is planned in free-cooling via the CTA in the two large rooms and windows opening (cross-ventilation) in the office area. The groundwater heat pump (EER = 4.33) also participate in the refresh.

Ventilation: 2 types of CTA:

- CTA WESPER PR240 25000 m³ / h and 160 to PR 15000 m³ / h. (Exchanger 44%). Variable speed CMV 300W subwoofer.
- CTA ALDES high performance DFE type 3000 m³ / h (annexes) and 1000 m³ / h (offices). (Exchanger ~ 80%).

The water-water heat pump make use of calories of groundwater and allows electrical energy consumption about 30% below the base solution (a air / water heat pump).

The purchase cost is higher but the feedback on the heat pump installed more than 15 years ago in the Chateauréard library has prompted the contractor to equip the Etoile room with this type of heat pump.

A geothermal drilling draws the groundwater between 15 and 30 meters deep and another returns water at 35 meters. The necessary flow for the operation of this heat pump is close to 40 m³ / h and the temperature change between the extraction and the rejection will be around 5°C (+5°C in cooling mode, -5°C in heating mode).

Smart Building

BMS :

Specific electric meters for lighting, ventilation, heat pump and stage equipment. Overnight ventilation driven by BMS

Environment

Urban environment

The site is inserted in an very mineralized urban context, subject to the Mistral and in a Provençal atmosphere. The project is also located in the Uab Area (protected area) of the Local urbanism plan of the city.

Costs

Construction and exploitation costs

Total cost of the building : 5 509 300 €

Health and comfort

Indoor Air quality

Airflow are variable depending on the occupancy
Temperature and hygrothermal influence the ventilation rate

Carbon

Life Cycle Analysis

Eco-design material : Mineral wool; wood; mineral fiber

All used wood are FSC or PEFC certified.

Interior paints are guaranteed without volatile organic component and have European ecolabel.

