


Mediterranean Institute for Advanced Research (IMéRA)

by Elisabeth LETEISSIER / 2016-06-14 11:52:40 / France / 9279 / FR

Renovation



Primary energy need :

110 kWh_{ep}/m².an

(Calculation method : RT existant)

ENERGY CONSUMPTION

Consumption Range (kWh _{ep} /m ² .an)	Class
< 50	A
51 à 90	B
91 à 150	C
151 à 230	D
231 à 330	E
331 à 450	F
> 450	G

Economical building (A, B, C) | *Building* (B) | *Energy-intensive building* (D, E, F, G)

Building Type : School, college, university
Construction Year : 1960
Delivery year : 2015
Address 1 - street : 13004 MARSEILLE, France
Climate zone : [Csb] Coastal Mediterranean - Mild with cool, dry summer.

Net Floor Area : 3 200 m² SHON
Construction/refurbishment cost : 4 400 000 €
Cost/m2 : 1375 €/m²

General information

Located on the historical and classified site of the Observatory Longchamp in Marseille moved IMéRA, Institute of Advanced Studies, the fourth in France. IMéRA welcomes researchers and artists from all sources in residence. Research develop the interactions between human and social sciences, arts and sciences.

To this end, the two buildings have been restructured: the House of Astronomers (Groundfloor + 2) built in the XIXth century by Henry ESPERANDIEU and a building from the 1960ies (Groundfloor + 1) by Nicolas MARGARITIS.

The IMéRA program includes the creation of workplaces, meetings, meetings and accommodation, with administrative offices and annexes: 13 units, reception area, open plan offices and workshops, conference rooms and co-working, relaxation area and office. The development of outdoor pathways, planting, lighting, allowed to upgrade the site accessibility and safe setting.

The construction took place in occupied site in two phases of work. The second phase of work has encountered the problem of asbestos (increased regulation 2012) . The restructuring of these different eras buildings was conducted in compliance with the site's history classified perimeter under historical monuments, and thus its architectural and landscape heritage, in the interests of overall consistency. The project is minimalist. The use of wood on the site for canopy appeared as obvious in the interiors as exteriors. Pre-gray wood project thread has renewed the image of the frame which is now one with his environment and says the new vocation places.

The wood is therefore implicit in the whole project, both in the friendly interior design proposed in the House of Astronomers (restoration of Versailles flooring and rafters, joinery identically, acoustic lining bamboo ...), but also in the heaviest restructuring of the building in the 1960's years.

The last heating system restructuring (not originally isolated) was essential: its shell is treated with glass wool insulation (leading 0, 140mm project) by the outside frame Spruce and Douglas wood siding skylight, with treatment with matt gray saturator water type Protex Owatrol; loggias metal / wood reported in south facade provide sun protection and private outdoor extension.

Outgrowths of existing built were demolished to restore the original volume. The project harnesses the rationality of the building: regular pattern, volumetric simplicity, structural clarity, transparency, sun protection hats. Housing, lobby and workspaces are through and benefit from this dual orientation of thermal comfort and an effective natural ventilation. Access to housing is individualized North facade. The servants boxes (sanitary / kitchen) of the housing, the recesses of the windows are wooden dressing Okume varnish.

The roof is vegetated with pre-grown in extensive bins. A connecting bridge was created to manage the relationship with the building called "Cube" whose restoration is coming: metal frame with wooden decking lpe, covering the underside of the roof branded CTBX Okume varnish.

A slice of optional work (scheduled 2017) regarding the "Cube" as an extension of the building: it is the development of offices, a projection room, workshops versatile artists' sound and image " and a room of public exhibition... the cubic volume is stripped of all its built emergences, an exterior insulation is fitted with a slatted cladding Douglas pre-gray; sun protection is ensured by opening flaps treated in the same way as the facades.

Sustainable development approach of the project owner

The Contracting authority, Rectorate of Aix-Marseille and IMÉRA user are aware of the stakes of this restructuring on a heavily wooded historic site, located in the City, agreed to waive certain prejudices (sometimes justified) including related to the use of wood: the intervention had to be discreet in its landscape perception, it was also to improve the thermal properties of buildings, allow use lower cost (in terms of consumption) adapted to the new functions, and minimize in the maintenance time. The Rectorate is now more aware of the need to change their approach / practice especially concerning the aspect environmental quality of buildings. Which was not necessarily the case previously.

Architectural description

This operation is located in historic listed site of Marseille at the end of the East / West axis leading to the Old Port, consisting of Longchamp Boulevard and Canebière, and one of the few remaining green setting in the heart of town. It was therefore relevant in this restructuring project using bio-based materials, to have an approach to strengthen and enhance the natural look of the site, forming part of it. The treated areas (exterior insulation) regained the qualities of thermal comfort from nonexistent (no insulation), a fellowship is made possible with the surrounding woodlands, the intervention was smooth, attentive to potential poetics of what was already there. For the new envelope of façades, it was decided to treat the wood siding with a humidifier with water (gray color): indeed in a geographical context rather hostile to this type of material (we are in Marseille, board sea), this service helps reduce the aging of wood and standardize its color changes with time. This allowed in this case to convince the project owner and the user the choice of wood outside material.

Building users opinion

Having passed through a winter and a summer already committed, we are completely satisfied with thermal comfort and quality of the air in the building. About of natural brightness, it is also fully satisfactory. As for sound quality, the pieces are perfectly insulated and allow us to work collectively in excellent conditions.

If you had to do it again?

Some difficulties were encountered during the construction such as asbestos in coated facades. Stakeholders have a little way of environmental issues to bring the project to the harsh reality of the costs of work.

However, after delivery of the operation, the Client appears convinced of the relevance to propose solutions adapted to the climate and local materials, incorporating systems that promote sustainability and comfort of use, with consumption costs lightened and thus taking into account the deferred costs related to the operation of the delivered building. Therefore, to facilitate the work of all and be better together, it would probably be ready to be part of a global environmental approach the type Mediterranean Sustainable Buildings (BDM) or HQE certification.

See more details about this project

<http://www.leteissier-corriol.fr/projet/institut-mediterraneen-de-recherche-avancee-imera-marseille-13/>

<http://www.leteissier-corriol.fr/actualites/>

Stakeholders

Stakeholders

Function : Contractor

Rectorat d'Académie Aix-Marseille - DESR - Aix en Provence

Marc BRUANT, Directeur de l'Enseignement Supérieur et de la Recherche - Mail : marc.bruant@ac-aix-marseille.fr

<https://www.ac-aix-marseille.fr>

Holder and financier of the project

Function : Others

Institut Méditerranéen de Recherche Avancé (IMÉRA) - Marseille

Emmanuel GIRARD-REYDET Secrétaire Général

<http://www.imera.univ-amu.fr>

Function : Construction Manager

LETEISSIER CORRIOL Architecture & Urbanisme - Marseille

Elisabeth LETEISSIER co-gérante SARL - agence@leteissier-corrio.fr - 04 91 48 04 00

<http://www.leteissier-corriol.fr>

Design and construction of the IMÉRA building project

Function : Thermal consultancy agency

TPFI Ingénierie - Marseille

Christian GRENET, Directeur d'Agence - Mail : a.grenet@tpfi.fr

<http://www.tpfi.fr>

Design office and Organization, Management, Coordination: thermal studies on the existing / 2 phases of work in occupied site

Function : Company

GFC Construction - Marseille

Adrien BERGUE - Mail : a.bergue@bouygues-construction.fr

<http://www.gfc-construction.fr>

asbestos removal / demolition / structural work

Function : Company

DACOS SARL - Carpentras

Mail : dacos.contact@dacos-menuiseries.fr - Tél : 04 90 65 76 05

frame wood / outdoor wood works / wood interior woodwork

Function : Other consultancy agency

Erick WOILLEZ ingénieur ECP - Marseille

Mail : ewoillez@aol.com - Tél : 04 96 12 22 66

Economist

Function : Environmental consultancy

David GIANCATARINA

david.giancatarina.photographe@gmail.com

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

Photographer

Type of market

Global performance contract

Energy

Energy consumption

Primary energy need : 110,00 kWh_{ep}/m².an

Primary energy need for standard building : 182,00 kWh_{ep}/m².an

Calculation method : RT existant

Breakdown for energy consumption : - Heating: 11 kWh_{EP} / m² / year

- Ventilation: 28 kWh_{EP} / m² / year

- Hot Water: kWh_{ep} 43 / m² / year

Initial consumption : 12,00 kWh_{ep}/m².an

Envelope performance

Envelope U-Value : 0,70 W.m⁻².K⁻¹

More information :

Creation of a new envelope on existing buildings with thermal insulation from the outside:

- Frame Spruce
- Glass wool insulation: initial 0, 140mm project
- Rain barrier
- Airspace
- Douglas siding skylight, with matt gray saturator water type Protex Owatrol.

Renewables & systems

Systems

Heating system :

- Condensing gas boiler

Hot water system :

- Individual electric boiler

Cooling system :

- No cooling system

Ventilation system :

- Humidity sensitive Air Handling Unit (Hygro B)
- Double flow heat exchanger

Renewable systems :

- No renewable energy systems

Environment

Urban environment

Land plot area : 16 718,00 m²

Built-up area : 6,70 %

Green space : 2 000,00

IMéRA site is located east of downtown Marseille, after the East / West axis leading to the Old Port, consisting of Longchamp and La Canebière Boulevard. The project takes place on the site of the former Marseille Observatory, adjacent to the palace and Longchamp Park. The green lung in the heart of town, various plant species have been preserved there.

IMéRA finds its place in a historic urban site very well connected by metro and various bus lines. The proximity of major equipment such as multimedia hub and the wasteland of the Belle de Mai, the Museum of Fine Arts and the Museum of Natural History confirms the relevance of the location of the research institute turned to the fields of science and Arts.

Products

Product

Saturator gray PROTEXT

DURIEU (OWATROL)

Email : info@durieu.com - Adresse : ZI La Marinière 2, bis rue Charles de Gaulle 91070 Evry-Bondoufle - Phone +33 1 60 86 48 70

<http://www.produits-traitement-bois.com/saturateur-textrol-protex-durieu-owatrol-c102x2111042>

Product category : Second œuvre / Peinture, revêtements muraux

A complementary treatment on exterior wood cladding Douglas was proposed to delay and standardize its aging: we have proposed to use the gray saturateur Protex.

Wood provided to the market was a planed, better corresponding to the urban park Longchamp site, and better adapted to receive a finishing treatment. The application of the product is a relevant proposal: it is a matte appearance saturateur developed to penetrate the wood thoroughly, ensuring long term additional protection against climatic aggressions (UV, bad weather ...) and other various molds and mosses ... while providing an aesthetic treatment to the problem of aging of wood (timer).

This pre-grisement (leaving veins exposed wood) standardizes the outset rendering of the façade, partly under canopy as unprotected cladding (the marks of time are very different depending on the locations of the woods, buildings without treatment).

This treatment is non-film forming, no sanding or etching is required over time. The treatment can be repeated a few years later, but this is not essential. There are different color options for this humidifier.

The cladding Douglas could quite obviously age naturally outside, but the proposal gray humidifier provides additional protection and an aesthetic uniformity over time, adapted to the implantation site of Imera in Marseille: urban, by the sea, with strong climatic unfavorable aging of the wood. This additional treatment was performed for the benefit of the image of the final operation.

The owner and the user were then convinced and reassured by laying a wood exterior siding. Because one of the real problems of the use of wood in exterior cladding -when it is not located in the mountain- is the poor acceptance of aging wood, the heterogeneity of its color changes, and questioning - justified in my view in the midst of urban-sustainability. Moreover, in the case of rehabilitation where volumes can be complex (existing caps, unhooked facades, etc ...), differences in aging of wood are further accentuated: the pre-grisement wood seems so much more justified.



Costs

Construction and exploitation costs

Cost of studies : 310 210 €

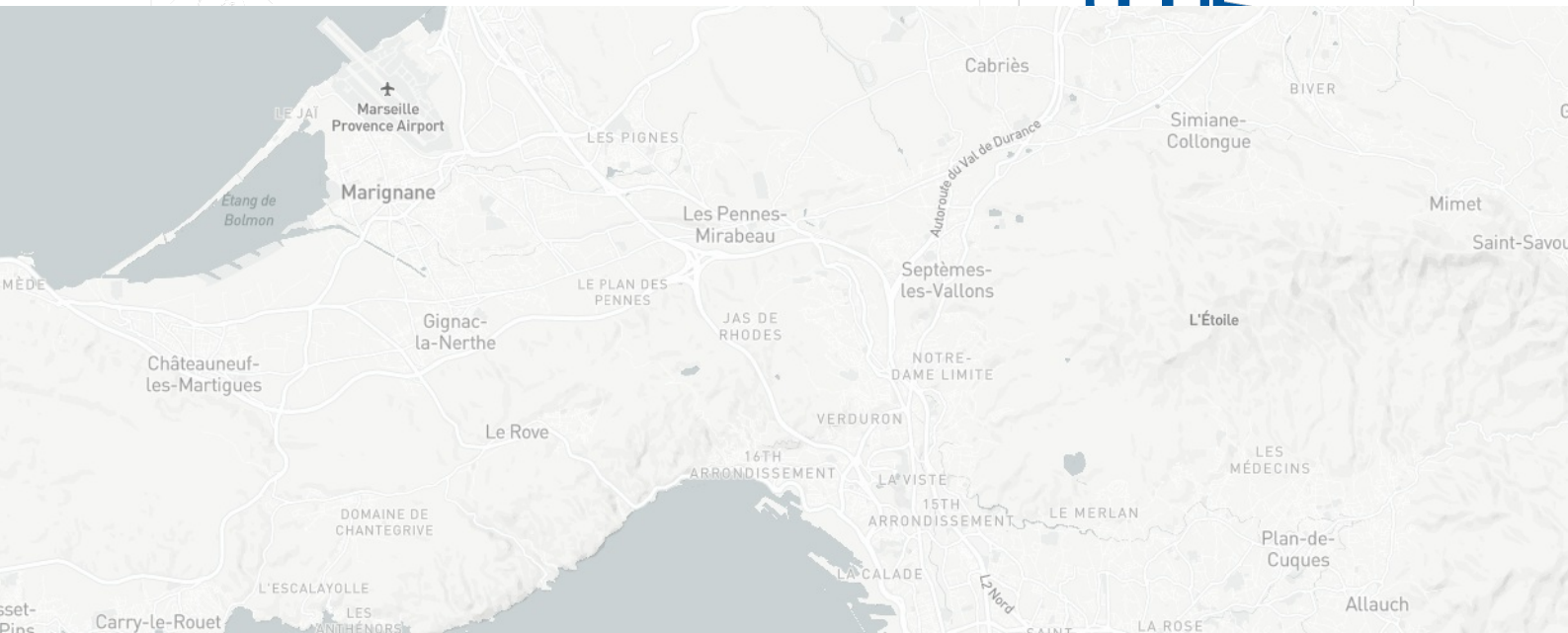
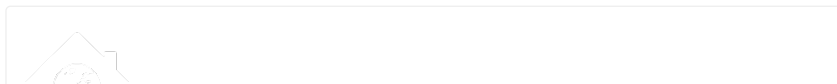
Total cost of the building : 4 885 000 €

Contest

Reasons for participating in the competition(s)

IMÉRA operation has been selected and presented at FORUM WOOD LYON 2016 in the category "Densification-rehabilitation". The draft IMÉRA enabled to highlight a historical place in a remarkable landscaped environment, and for the sake of sustainable development: innovation is to have proposed and obtained the use of wood in the center of Marseille, in the perimeter of the palace and park Longchamp. We made the choice of a structure adapted to the Mediterranean climate in a maritime context and suggest treatment with a pre-grisement of the timber (humidifier water) to ensure uniformity in its aging. The cladding of the existing facades enabled the establishment of an external insulation, rehabilitated buildings (not isolated from) thus obtaining a level of high performance thermal comfort. The restructuring of two buildings -House Astronomers and building created in the 1960's using a bio-based material wood, was also paid to contemporary interiors. Workplaces are treated in a neat ambiance, they are through, articulated about meeting places (circulations generous, friendly spaces) and decorated with external extensions. Accommodations are treated intermediate habitat, their access are individualized, they benefit from private areas. This operation by the originality of its mixed program, its location in Marseille, the environmental choices that were made and awareness on the subject that has resulted from a Master of Public Work, can justify us he seems a candidate for the Green Building Solutions Awards 2016.

Building candidate in the category





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