

Transformation of the Ford Galliéni garage into offices

by [Véronique POITOUX](#) / 2022-03-28 00:00:00 / France / 1628 / [FR](#)



Extension + refurbishment

Primary energy need :

65.5 kWhep/m².an

(Calculation method : RT 2012)

Building Type : Office building < 28m

Construction Year : 1950

Delivery year : 2020

Address 1 - street : 82 rue Saint-Jérôme 69007 LYON, France

Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 5 636 m²

Construction/refurbishment cost : 900 000 €

Cost/m2 : 159.69 €/m²

Certifications :



Proposed by :



General information

The purpose of this project was to design a site to gather GRDF's tertiary activities in the South-East region, i.e. to bring together 375 employees, previously spread over 5 sites. For its realisation, **the conservation of the heritage value of this former Ford garage from the 1950s**, an emblematic place on Avenue Berthelot, had to be combined with the need to **adapt the site to the company's activities by adding a new high-performance, green office building**. In addition, this project reflects the desire to build the city on the city and reduce heat islands.

The emphasis is on climate engineering with the collaboration of Clévia (Eiffage Energie Systèmes) and Adexsi. The building is designed using innovative and efficient energy systems that reduce energy consumption while ensuring summer comfort for occupants, earning it the Effinergie+ building label.

Efficient energy systems

Adiabatic cooling

The reduction of energy consumption due to the regulation of the temperature of the premises is first and foremost integrated into the design of the building. Its **high inertia** protects against heat peaks by storing heat and releasing it by diffusion, thus delaying the rise in temperature.

In addition, climate engineering is used to optimise the use of energy for heating and cooling the building. At night, **an over-ventilation system provided by a double flow air handling unit (AHU) with energy recovery** uses the night-time coolness to evacuate the heat accumulated during the day. For the hottest days, an active air conditioning system consisting of refrigeration units located on the roof complements the AHU.

Finally, the emphasis is on technological innovation with **an adiabatic module attached to the AHU**, which recycles hot air and minimises the need to use active air conditioning during prolonged periods of intense heat. This solution is both environmentally and economically sound and ensures the low carbon impact of the building.

Thus, particular attention is paid to the summer comfort of the occupants and to well-being at work, while minimising the environmental impact. The distribution of cold and heat was entrusted to **a 4-pipe system controlled by an "intelligent" supervision system**, which allows the distribution of heat and cold in the premises, while supplying the fan coil units and the water coils of the AHU.

Diagram of adiabatic installation GRDF project

Natural gas heating

In the technical room on the roof, **two 136 kW natural gas condensing boilers** ensure a suitable indoor temperature, even when outside temperatures are low. This system also ramps up quickly to avoid unnecessary energy consumption when the building is unoccupied.

Thanks to these systems, the building complies with RT2012 with a Bbio -20% and Cep -40%.

Conservation of the site's heritage

This project aims to **preserve the industrial structure of the building, while adapting the aesthetics of the envelope to modern standards**. Indeed, the historic facade of the site has been preserved, despite constraints such as the absence of windows, the particularly thick walls and the 2.20m high floors instead of the recommended 3.50m. The contemporary choice of solid cut stone as a material was a real challenge due to economic, technical and seismic constraints. Negotiations were undertaken with the Architectes des Bâtiments de France (ABF), the City of Lyon and the Metropolis to successfully complete this heritage enhancement.

The former Ford garage

A participatory design process

Working groups were organised between employees and architects to enable the former to share their conception of suitable work spaces. This was done in particular with regard to the layout of offices, open spaces, work bubbles and furniture. Taking into account the changes in teleworking implemented since the beginning of the Covid-19 pandemic, the workstations are not nominative, which makes it possible to optimise the use of the space. From the outset, the building has been designed **to respond to current lifestyles and potential future changes in use**. This increases its reversibility and therefore its lifespan.

In addition to the canteen, a concierge service and a private planted area, the complex includes the "village square", a pleasant space where employees can meet, with the aim of stimulating the exchange of ideas, collaboration and the birth of innovations.

Photo credit

kardham

Stakeholders

Contractor

Name : Groupe COGV

Construction Manager

Name : Atelier Régis Gachon Architecte

Contact : Régis Gachon

<https://www.ateliergachon.com/>

Stakeholders

Function : Designer

Cécile Rémond Architecte du Patrimoine

Cécile Rémond

http://www.archipatrimoine.fr/index_mobile.html

Rehabilitation architect

Function : Thermal consultancy agency

GC2E - Groupe Certificat Economie Energie

<https://gc2e.fr/>

Function : Company

Clévia

<https://www.clevia.com/>

Installer of the adiabatic cooling module

Function : Company

Groupe Adexsi

Gérard Gaget et Mathieu Carage

<https://www.adexsi.com/fr>

Starting up the adiabatic module

Function : Company

Souchier Boullet

<https://www.souchier-boullet.com/>

Adiabatic module supplier

Function : Developer

MANDELAURE IMMO

Function : Company

GRDF

<https://www.grdf.fr/>

Tenant

Energy

Energy consumption

Primary energy need : 65,50 kWh/m².an

Calculation method : RT 2012

Envelope performance

More information :

The insulation used for the interior walls is PREGYMAX R1.90 thermo-acoustic lining; R2.75 and R3.40.

For the ceiling, it is formed by screwing PREGY plasterboard onto a metal frame with PREGYMETAL hangers with a double thickness facing

Plate th=15mm

GR32 glass wool insulation e=260mm

On the ceiling of the floors: a SIERRA OP mineral slab in smooth fiberglass, for acoustic performance

Renewables & systems

Systems

Heating system :

- Gas boiler
- Fan coil

Hot water system :

- Gas boiler

Cooling system :

- Others
- Fan coil

Ventilation system :

- Nocturnal Over ventilation
- Double flow heat exchanger

Environment

Urban environment

Land plot area : 1 650,00 m²

Located in the heart of the historic center of Lyon, on an emblematic avenue, the Lyon Gallieni head office benefits from an ideal location. The site has privileged access to public transport. Nevertheless, it is a very mineral urban area, and therefore susceptible to heat islands. In addition, the architectural constraints are important in order to ensure continuity between the buildings and monuments of avenue Berthelot.

This project contributes to enhancing the attractiveness of the district and highlights the nearby Saint-Michel church.

Products

Product

Adiabox NFG 30000 adiabatic module

SOUCHIER-BOULLET

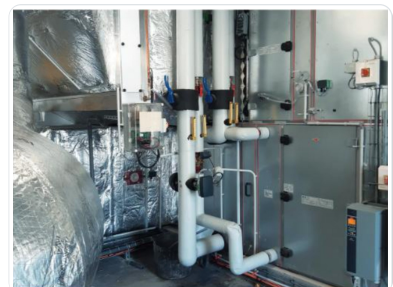
<https://www.clevia.com/>

Product category : HVAC, électricité / ventilation, cooling

This module is a cooler that supports, at low cost, adiabatic cooling during prolonged periods of strong heat waves. Attached to the Air Treatment Unit, it recovers the air taken up by the latter, cools it and humidifies it before blowing it into the building.

Contrary to popular belief, the module does not increase the humidity of the building because only the freshness is transmitted to the supply air.

The durability of the installation is ensured by its electrical power of around 100 W and low water consumption. In addition, its low operating and maintenance cost makes it an economical solution.



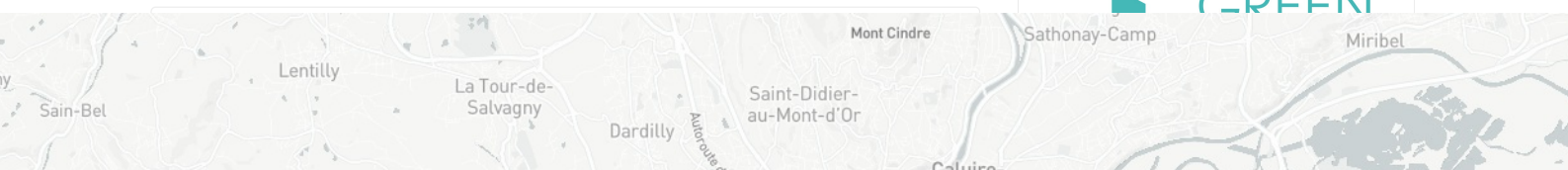
Costs

Contest

Reasons for participating in the competition(s)

- Une rénovation patrimoniale en plein centre-ville pour construire la ville sur la ville tout en conservant l'empreinte architecturale du quartier ;
- Un bâtiment végétalisé pour lutter contre l'effet d'îlot de chaleur urbain ;
- Un rafraîchissement optimisé grâce à une sur-ventilation assurée par une CTA double flux avec récupération d'énergie doublée d'un module adiabatique.

Building candidate in the category





Prix du public



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