First building of "Campus Now Living Spaces"

by GA Smart Building / 2020-07-31 13:32:55 / France / 11558 / FR

Primary energy need :

75 kWhep/m².an

(Calculation method : RT 2012)

ENERGY CONSUMPTION

Economical building — *Building*

< 50	A	
51 à 90	B	B
91 à 150	C	
151 à 230	D	
231 à 330	E	
331 à 450	F	
> 450	G	

Energy-intensive building

Building Type : Office building < 28m
Construction Year : 2019
Delivery year : 2020
Address 1 - street : 7 rue Alain Fournier 31300 TOULOUSE, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 4 873 m²
Construction/refurbishment cost : 14 500 000 €
Number of Work station : 600 Work station
Cost/m2 : 2975.58 €/m²

Certifications :

General information

Located in the Saint-Martin-du-Touch district, in Toulouse and 500 meters from the future Airbus Saint Martin station on the 3rd metro line, the 1st office building of the “Now Living Spaces” Campus covers nearly 5,000 m² . It is leased by the Alten Group and sold to UNOFI. The “Now Living Spaces” Campus into which it is integrated is a 16,000 m² real estate complex, made up of three other tertiary buildings, a silo car park with 380 places pre-equipped with electric charging points and a space 600 m² for bicycles with showers and lockers. The complex will also offer its users a 300 m² terrace, as well as service areas such as a company restaurant, cafeteria and concierge ... The ambition of this campus, designed by Label Architecture and CDA, is to offer a dynamic and inspiring work environment that allows its future occupants to work in contact with nature, in an ecosystem that reconciles well-being and productivity. The campus has been designed with a strong biophilic approach while putting the comfort of users at the center of the reflection. A true green setting, “Now Living Spaces” was thus imagined as a breathing space, in which employees move in a privileged environment, in the heart of the Toulouse aeronautical complex. The buildings are open and designed to interact with nature. In order to make the most of the outdoor spaces, the 1,500 m² landscaped park is also furnished with furniture and offers a fitness trail. "Now Living Spaces" aims for the HQE® level "Excellent" certification as well as the new Ready to Osmoz labels for the quality of life at work and user comfort, as well as the R2S label which values the quality of the connectivity of the building. The operation was also selected as a pilot site for the future 4 Grids certification

to qualify the energy management of a building.

Sustainable development approach of the project owner

The building has strong environmental ambitions and aims

- HQE® BD Excellent certification (programming, design, production)
- the Ready2Services (R2S) label which promotes the quality of the building's connectivity
- the new Ready to OsmoZ label for quality of life at work and user comfort
- the operation was also selected as a pilot site for the future 4 Grids certification to qualify the energy management of a building

Architectural description

A true green setting, the “NOW Living Spaces” Campus has been designed as a breathing space, where employees work in a privileged environment.

The buildings were designed with a biophilic approach which postulates that contact with nature has a beneficial effect on the well-being and productivity of the occupants.

To bring this green lung to life, the landscaped park is equipped with furniture, Wi-Fi, USB sockets and power.

The workspaces have been designed to offer maximum flexibility of layout with large modular trays that the occupants can convert into open space or partition to measure. This usage functionality allows each employee to work in optimal conditions.

Facades

Fronts of the ground floor:

- Full height glazing and powder coated grilles in dark color.

Facades of the floors:

- South and North facades: dark concrete, powder coated aluminum joinery with full height glazing and sun shades
- North facade: passageways that can be converted into relaxation areas on each level
- East and West facades: light colored concrete with glazed frames

Types of office space

- Free heights: 3 m under ceilings on the ground floor and 2.70 m in the levels
- False floors on all office surfaces: 12 cm of free plenum
- Possible layouts: thanks to smoke extraction from facade to facade, all types of installations possible (open spaces of more than 300 m², partitioned offices, flex office, etc.)
- Office trays divisible into 2 or 3 lots

Lighting

- Offices and meeting rooms: LED recessed luminaires
- Lighting levels: 300 lux at the level of the worktop
- Hall, elevator landings, circulation and sanitary facilities: LED recessed spotlights

Sun treatment

- Motorized blinds programmable via the GTC
- Brises soleil terraces on the south gable

Photo credit

Stakeholders

Contractor

Name : GA Promotion
Contact : Jérôme Pinna
https://www.ga.fr/

Construction Manager

Name : GA Entreprise
Contact : Romain Dithurbide
https://www.ga.fr/

Energy

Energy consumption

Primary energy need : 75,00 kWhep/m^2.an

Primary energy need for standard building : 110,00 kWhep/m^2.an

Calculation method : RT 2012

Breakdown for energy consumption : Breakdown of consumption kWh EP / m² / year Heating: 22.9 Cooling: 13.50ECS: 7.00 Lighting: 14.80 Auxiliaries: 13.30

Real final energy consumption

Final Energy : 139,70 kWhef/m^2.an

Envelope performance

Envelope U-Value : 0,76 $W.m^{-2}.K^{-1}$

More information :

Exterior wall: 10 cm concrete panel / 12 cm rock wool / BA13 plate Terrace roof: 21 cm concrete floor / 12 cm polyurethane Low floor on basement: 21 cm concrete slab / 12 cm flocking Carpentry: Double glazing + single glazing frame with integrated motorized blinds

Building Compactness Coefficient : 0,90

Indicator : I4

More information

Realization of a dynamic energy simulation (SED). Establishment of an online platform to monitor occupants' consumption (MYGAPEO Portal).

Renewables & systems

Systems

Heating system :

- Heat pump
- Others
- Fan coil
- Others

Hot water system :

- Individual electric boiler

Cooling system :

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

Ventilation system :

- Nocturnal Over ventilation
- Double flow heat exchanger

Renewable systems :

- Heat pump

Other information on HVAC :

The interior comfort of the building is separated into two types of space: The central areas are treated by a double flow air handling unit, a cooling unit connected to fan coils. The peripheral areas are treated by autonomous air handling modules manufactured by GA Smart Building (MTA). The module integrates an air / air heat pump and an autonomous dual-flow air handling unit installed in the facade of the building.

Heating - air conditioning - ventilation. The first day offices are treated individually and autonomously by air handling modules integrated into the facade and arranged either spandrel or vertically. The air exchange of the air handling modules on the front is carried out through powder-coated aluminum louvered grilles. The central areas and common areas are treated by ceiling fan coils, connected to a rooftop air handling unit. The regulation of these devices by the building's BMS allows each user to freely adjust his comfort parameters, or to impose operating instructions on a device or a set of devices located in the same room. Technical building management: All buildings are managed by Gapéo, an open protocol building management system, combining high-performance equipment with centralized technical management (GTC). This solution provides users with great ease of use, while reducing operating costs through rationalized use of

energy. The GTC makes it possible to:
• Manage heating and air conditioning for all buildings, device by device or zone by zone
• Manage motorized blinds • Manage alarms or technical faults
• Manage building access
• Control the building's energy consumption

Solutions enhancing nature free gains :
Système double baie GA Smart Building : châssis vitré respirant composé d'un double vitrage et d'un simple vitrage en extérieur. Un store vénitien motorisé est installé entre les deux châssis. Système de free-cooling par la CTA et les systèmes de décentra

Smart Building

BMS :
The building integrates Gapéo®, the Centralized Technical Management system equipped with Artificial Intelligence developed by GA Smart Building, which allows to monitor and manage the comfort and the environmental and energy performance. Thanks to this software, all connected equipment ensures the thermal and visual comfort of the building. The reversible air handling module performs both heating and cooling functions, with optimum air quality. The free-standing luminaires, equipped with an electronic dimmer and a detector, analyze and adapt to the available natural light and the presence of the user at his desk. Gapéo integrates an artificial intelligence module to process the tens of thousands of information sent per second by this equipment coupled with sensors. This artificial intelligence module was developed by GA in partnership with the start-up Vesta-Systems and the INP (Institut national Polytechnique de Grenoble). The day before, he anticipates the building's temperature for the next day, depending on the weather forecast, the presence and the habits of users. According to production forecasts and consumption needs, it calls on production sources such as photovoltaic or geothermal panels. It also adjusts the settings of each individual equipment accordingly. With this artificial intelligence module, the Gapéo software intelligently optimizes the operation of GA equipment to reduce energy consumption and optimize user comfort.

Environment

Urban environment

Land plot area : 4 375,00 m^2

Built-up area : 29,00 %

In the heart of the western Toulouse aeronautical complex, located in Saint-Martin-du-Touch, the 1st building of the NOW Living Spaces Campus offers a dynamic and inspiring working environment to its future occupants.

- Bus lines 2 and 63
- Metro line 1 20 minutes by bus
- Metro line C in 2025
- Les Ramassiers SNCF station 14 minutes by bus
- Airport 7 minutes by car
- Access to the ring road 3 minutes by car
- Research points for electric cars
- 25 minutes from the city center by bike
- 600 m² of parking space dedicated to two wheels
- Stop of the future metro line at 500m
- Bus stop at the foot of the building

Products

Product

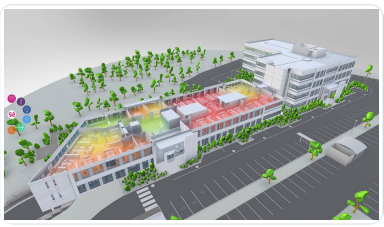
Gapéo, Active Performance Management by Computer

GA Smart Building

ga[a]ga.fr

https://www.ga.fr/nos-metiers/construction-batiments/gapeo/

Product category : Management / Facility management



Gapéo is a centralized technical management system equipped with artificial intelligence designed by GA Smart Building, which makes it possible to monitor and manage the comfort and the environmental and energy performance of each building.
Connected to several thousand sensors located throughout the building, Gapéo does not just execute, it is intelligent. It learns from employees' behavior, integrates their habits and takes weather forecasts into account.

The solution improves the daily comfort of the occupants. They have a smartphone application allowing them to control the parameters of their comfort by adjusting the heating and light while controlling the quality of the indoor air.

FullBIM

GA Smart Building

ga[a]ga.fr

https://www.ga.fr/nos-metiers/construction-batiments/fullbim-maquette-numerique/

Product category : Management / Others

FullBIM is a digital BIM (Building Information Modeling) model, ie a technical and “experiential” projection of what exactly the building will be like. From the design, to the construction and until the operation of the building, the FullBIM model gives a vision that is both precise and global of the project.

From the insert in the concrete to the partitioning, including the technical lots, each component is modeled in BIM. BIM modeling of the building's structure, envelope and all networks allows teams to visualize the entire project. GA thus resolves any synthesis problems that could occur on site upstream, reduces delays and makes its after-sales service more efficient.

The FullBIM digital model can also simulate technical data such as acoustics, heat, sunshine or consumption.

Hygrometry rate, occupancy rate, the data integrated into the BIM platform gives an inventory of the building in real time.
At the end of the site, upon delivery of the Executed Works File, the FullBIM model is given to the customer. It thus has all the information relating to the building and its operation.

In the operational BIM phase, the 3D digital model lives on, continues to evolve throughout the project and even beyond.

FullBIM is a collaborative working tool that simplifies things. Internally, GA Smart Building deploys a team of BIM Managers exclusively dedicated to this technology. Each department has a specialized BIM contact.

The goal? Maintain a common and coherent digital approach, set up inter-business gateways using the BIM model and provide the necessary support to all BIM contributors and users.

A benchmark between all stakeholders, the BIM model helps management methods evolve. It makes work more collaborative and more efficient at each stage of the construction.

For each project, GA Smart Building provides training on the BIM model to its partners and subcontractors. This is an asset for the entire real estate profession in the digital transition phase.

Costs

Health and comfort

Water management

Consumption from water network : 1 594,00 m^3

Water Consumption/m2 : 0.33

Water Consumption/Work station : 2.66

Indoor Air quality

All materials in contact with indoor air have an A + label.

Comfort

Health & comfort :

The 1st building of the NOW Living Spaces Campus is designed to meet the requirements of an HQE Sustainable Building Exceptional level certification and a Ready to Osmoz label.

- On air quality: the choice of a decentralized ventilation system and the use of non-emissive or A + certified products ensure good air quality in the premises.
- On hygrothermal comfort: decentralized air treatment systems associated with the Gapeo GTB allow occupants to finely control temperatures, blowing speeds and solar gains.
- On luminous comfort: a work of analysis in luminous autonomy was carried out. A motorized blind system that can be controlled for each frame makes it possible to manage the light input and glare.
- On well-being: 1,500 m² of green spaces

Calculated thermal comfort : Simulation Thermique Dynamique réalisée sous Pléiades. Température maximale été : 30°C ; Température minimale hiver: 16°C ; 27 heures d'inconfort sur l'année

Acoustic comfort :

The acoustic objectives have been set in line with the objectives of the HQE Sustainable Building certification:

- Façade insulation: DnT, A, tr = 31 to 40 dB depending on the façade
- Insulation between offices: Dn, T, A = 30 dB
- Office reverberation time: 0.9 s <Tr <1.1 s
- Equipment noise: LnAT <38 dB

Daylight factor : Calcul en autonomie lumineuse réalisé sous Pléiades : Autonomie supérieure à 68 % dans les locaux de bureaux.

Carbon

GHG emissions

GHG in use : 1 279,90 $KgCO_2/m^2/an$

Building lifetime : 50,00 année(s)

GHG Cradle to Grave : 1 619,20 $KgCO_2/m^2$

E + C- Method

Life Cycle Analysis

Material impact on GHG emissions :
1274

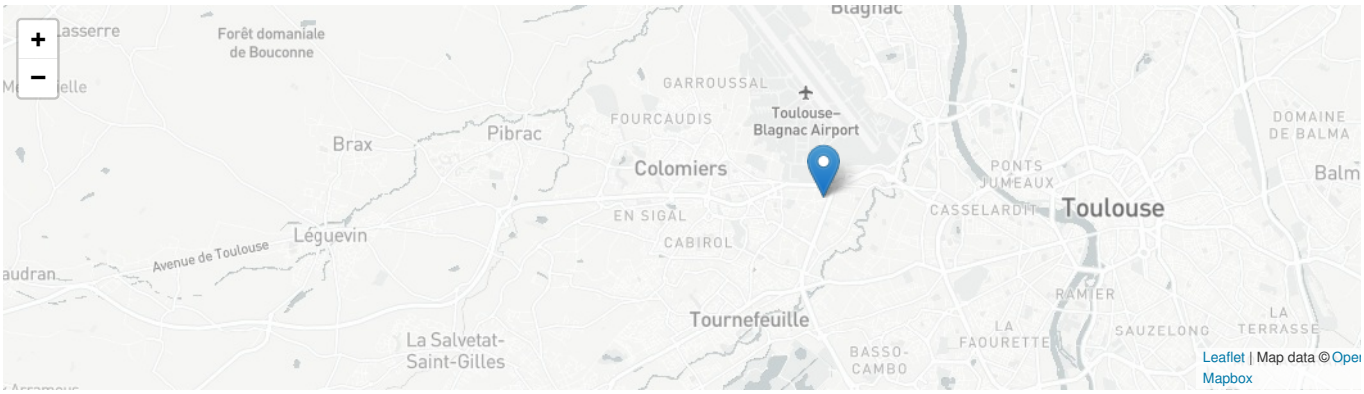
Material impact on energy consumption : 6 028,60 kWhEP

Contest

Building candidate in the category

Santé & Confort

GREEN SOLUTIONS AWARDS
POWERED BY Construction21.org



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