



# WAVE - VINCI Energies headquarters

by David DESABLENCE / 2019-05-03 10:04:39 / France / 11096 / FR

Primary energy need :

43 kWh/m<sup>2</sup>.an

(Calculation method : RT 2012 )

**ENERGY CONSUMPTION**

*Economical building*

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

*Energy-intensive building*

Building **A**

**Building Type** : Office building < 28m  
**Construction Year** : 2018  
**Delivery year** : 2019  
**Address 1 - street** : 8 Avenue des SAULES 59160 LOMME, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 1 723 m<sup>2</sup>  
**Construction/refurbishment cost** : 3 300 000 €  
**Number of Work station** : 100 Work station  
**Cost/m2** : 1915.26 €/m<sup>2</sup>

**Certifications :**



**Proposed by :**



## General information

At the heart of the EURATECHNOLOGIES district in Lille, VINCI Immobilier operates the regional headquarters of VINCI Energies. The building called WAVE is a technological showcase that enhances the well-being of occupants and demonstrates the new uses of a Smart Building. #IOT #smart #energies #health # efficiency # R2S

## Sustainable development approach of the project owner

VINCI Immobilier has programmed the demonstrator building at the VINCI Energies regional headquarters

The stated intention of the spirit of the building is to highlight the new technologies adapted to the tertiary sector: IOT / Control of building facilities by smartphone or web. The user is at the center of the building design. The driving principle is "Measure to improve": Installation of sensors / actuators that allow a permanent

optimization of the consumption of the frame and an optimal use of the utilities. (Ex: Activation of heating according to occupation of spaces, lighting on detection of presence and luminosity) Analysis of the interaction between occupant and frame. Free night cooling for automatic refresh of the interior. "Water Micro stop".

## Architectural description

Optimum brightness by full height window. Renunciation to be air conditioned using athermic windows. Concrete in structure + brick facing. Motorized and intelligent blinds controlled according to the weather. DECK bamboo terrace planted with local species simple maintenance, which operates the link between the buildings of the program and promotes the "connections" human. Landscaped patio on the edge of the ground floor offices. Reasoned watering of green spaces. Brick local perennial. Large room with soft mobility (bike rack + electric bike station). Natural ventilation of car parks by moucharabieh. Roof in capacity to receive photovoltaic panels.

## Building users opinion

Building delivered in June 2019. No feedback yet

## If you had to do it again?

Basically nothing would change. Nevertheless, the lessee could be more involved upstream of the design of the program to better understand the utilities development (eg access management), renewable energy and non-planned home consumption, equipment to develop IRVE.

## See more details about this project

<http://www.vinci-immobilier-entreprise-commercial.com/programme/euratech-lot-14-lille/>

[maquette BIM](#)

## Photo credit

VINCI Energies / David DESABLENCE

## Stakeholders

### Contractor

**Name :** VINCI IMMOBILIER

**Contact :** Stéphane MAZUY Directeur Regional Hauts de France

<http://www.vinci-immobilier-institutionnel.com/>

### Construction Manager

**Name :** Cabinet BABIN + RENAUD / Architecte du programme "triptic" dont fait parti le Bâtiment WAVE

**Contact :** Eric BABIN Architecte e.babin[at]babin-renaud.com

### Stakeholders

**Function :** Contractor representative

Vinci ENERGIES France Tertiaire Nord Est

Eric PLUMEY / Directeur Général

<https://www.vinci-energies.com/>

Engineering design and use

**Function :** Company

Smart Building Energies

Frédéric THOUOT / chef d'entreprise

<https://www.smart-building-energies.com>

Design of a building dedicated WEB platform (DATA + EXPLOITATION)

**Function :** Company

DELPORTE

Jean Christophe LUTIAU / chef d'entreprise

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

Electricity CFO CFA

Function : Company

SANTERNE FLUIDES

Stéphane CARRE / chef d'entreprise

HVAC / Plumbing

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Function : Company

LESOT

Pascal NACINOVICH / chef d'entreprise

ENR / Photovoltaic system installation in self-consumption

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Function : Company

NAE

Pierre VANDERBEKEN / chef d'entreprise

Access Control / Security / Intrusion Detection

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Function : Designer

ARP Astrance

Arnaud FERRAND / directeur aménagement

<https://arp-astrance.com/>

Council Well-being at work / Interior fittings / Ergonomics

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Function : Construction company

HOLBAT / GCC

<http://www.gcc-groupe.com/fr/page/construction.html>

Structural work / fenced.

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## Contracting method

Separate batches

## Type of market

Global performance contract

## Energy

### Energy consumption

Primary energy need : 43,00 kWh/m<sup>2</sup>.an

Primary energy need for standard building : 77,00 kWh/m<sup>2</sup>.an

Calculation method : RT 2012

Breakdown for energy consumption : Heating: 11.4 / DHW: 6 / Lighting 10.3 / Ventilation 15 / Hydraulic 0.2 /

### Envelope performance

Envelope U-Value : 0,22 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Concrete + external insulation + facing brick.

Indicator : EN 13829 - q50 » (en m<sup>3</sup>/h.m<sup>3</sup>)

Air Tightness Value : 0,80

Users' control system opinion :

Not applicable before one year of use.

### More information

The building will be occupied in August 2019. the listing will be updated after one year of use.

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### Systems

#### Heating system :

- Condensing gas boiler
- Radiant ceiling

#### Hot water system :

- Other hot water system

#### Cooling system :

- No cooling system

#### Ventilation system :

- Free-cooling
- Double flow heat exchanger

#### Renewable systems :

- Solar photovoltaic

#### Renewable energy production : 10,00 %

30 photovoltaic panels, mark REC reference Twin Peak 2 of 290Wc, are installed on the terrace of the building, for a total power of 8.7 kWp. The Fronius SYMO inverter is equipped with a Datamanager card for the return of information from the installation to the WEB WAVE platform developed by SBE. The production of these panels is re-injected onto the electrical panel in order to be fully consumed.

#### Solutions enhancing nature free gains :

Vitres Athermiques / orientation SUD / Automatisation des stores / Appareils éclairages gradables et Détection de présence.

### Smart Building

#### BMS :

GTB controllable via a dedicated WEB platform built with Microsoft AZURE.

All systems described are connected to GTB:

Smartphone access control (progressive elimination of badges)

Photovoltaic EN self-production

Dimmable LED lighting

Presence, temperature and brightness sensors

Control of the HVAC by users via their Smart Phone.

Reservation of meeting rooms coupled with Outlook.

Global parking management with IOT (real-time occupancy tracking) and booking coupled with Outlook.

Measurement of energy consumption.

IRVE intelligent.

Reconfiguration of actuator sensors in case of re-partitioning spaces Via the WEB platform (Modularity / Flexibility)

Use of wireless / battery-free objects. (Switches / Door Openings / Meeting Room / Lighting Room Configuration)

Augmented Reality for visitors to the building since the reception.

BIM operating

FTTD

Data analysis with IA. (Decrease of consumption / improvement of uses)

#### Smartgrid :

Instant self-consumption via photovoltaic panels.

#### Users' opinion on the Smart Building functions :

The presentation to the occupants of the WEB platform for the use of building functionality has generated a lot of interest. The application will have to be simple and user-friendly.

A strong sense of pride emerges from having a contemporary building and using the latest technologies.

## Environment

### Urban environment

Land plot area : 3 300,00 m<sup>2</sup>

Built-up area : 3 100,00 %

Green space : 600,00

Euratechnologies is the first French incubator (150 projects per year). The district includes 300 companies and 4,000 employees. The TRIPTIC program, which

includes the WAVE building, is part of this ecosystem dedicated to innovation and entrepreneurship actors. Two metro stations 10 minutes. A regional station and a European station 15 minutes by public transport. An international airport 20 minutes. At the heart of the European Metropole de Lille, which has 90 municipalities and 1.2 million inhabitants.

## Products

### Product

#### WAVE COMPUTER PLATFORM

Smart Building Energies

Frédéric THOUOT / Chef d'entreprise

<https://www.smart-building-energies.com>

Product category : Management / Others

SBE aggregates all HVAC data, CFO CFA, IT, Access and Security Security, to provide building users with a WEB / CLOUD control service for building components.

The concept "All in one" appealed to users.

The ease of Smartphone (dedicated App) allows a quick start of all the features of the building.

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WAGO / AUTOMATE of control of the technical organs of the building

WAGO

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

Product category : Finishing work / Electrical systems - Low and high current

PLCs are the first part of the order of the technical organs via the WEB, and necessary for the reassembly of the DATAs necessary for the operation of the web platform WEB management of the facilities of the building.

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Microsoft AZURE

MICROSOFT

<https://azure.microsoft.com/fr-fr/free/cloud-services/>

<https://azure.microsoft.com/fr-fr/overview/what-is-azure/>

Product category : Management / Others

The design of the WAVE Building Management Service WEB platform was under construction with the MICROSOFT AZURE Bricks.

Users of the platform quickly understood that the services developed were "customized" specifically for them. It is a flexible and simple way to answer all their requests for building management.

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Central access control.

VANDERBILT

<https://vanderbiltindustries.com/fr/produits/controle-dacces>

Product category : Finishing work / Electrical systems - Low and high current

The access control center of the building is piloted in WEB version, being able to associate the badges and any other system like the QR code or the smart phone.

The multiplication of the possibilities of systems of access opening is appreciated by all (Badges, telephone, QR code). the simple management and WEB access rights is a plus that allows good management of badges that can "go astray".

## Costs

### Construction and exploitation costs

Reference global cost : 1 900,00 €

Renewable energy systems cost : 35 000,00 €

Reference global cost/Work station : 1900

Total cost of the building : 3 300 000 €

Additional information on costs :

Program including underground parking, a shared terrace and a common hall.

## Health and comfort

### Indoor Air quality

Analysis of the air quality by sensor connected to the building management platform. COZY AIR.

### Comfort

#### Health & comfort :

Dimmable lighting. Natural brightness by bay window full height. Over-ventilation. Free automatic night cooling.

Adjustable and motorized sun breezes. DECK terrace open to offices, landscaped gardens. Access staircase gently sloping to promote walking.

#### Acoustic comfort :

Installation of a particular carpet associated with a ceiling whose Coefficient of sound absorption is 0.95.

**Daylight factor :** Baie vitrée pleine Hauteur. Brise soleil motorisés.

## Carbon

### GHG emissions

**GHG in use :** 3,00 KgCO<sub>2</sub>/m<sup>2</sup>/an

#### Methodology used :

RT 2012

**Building lifetime :** 30,00 année(s)

## Contest

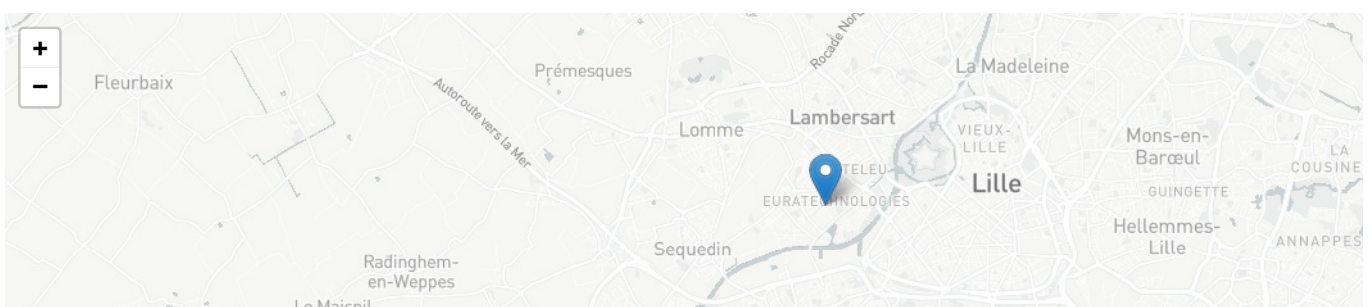
### Reasons for participating in the competition(s)

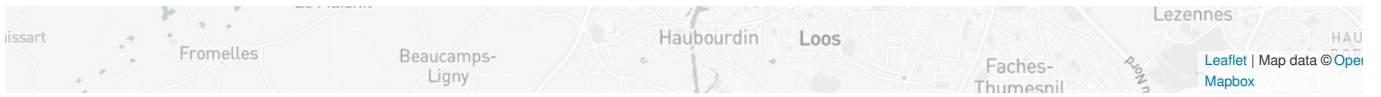
Le bâtiment WAVE qui abrite le siège Régional de VINCI Energies est le fruit d'une formidable collaboration entre **VINCI Immobilier, VINCI Energies** et tous les acteurs de la conception de ce bâtiment. Imaginé, pensé et réalisé en **parfaite collaboration entre toutes les entreprises, intégrant très en amont les solutions techniques**, ce projet à été mené de manière efficace pour obtenir un tel résultat.

**WAVE est un SMART BUILDING** dédié au **bien être** des occupants. Il est **simple, efficace et "sans couture"** pour les utilisateurs. Il est labellisé **BREEAM Very GOOD, EFFINERGIE + et R2S pour la connectivité.** (Premier bâtiment labellisé en Hauts de France) Le **quiétude** que développe cet espace de travail mérite sa place au sein du concours **SANTE CONFORT** des bâtiments tertiaires. C'est notre premier bâtiment tertiaire qui permettra une porosité raisonnable entre **lieu de vie et lieu de travail**, qui répond à une demande de plus en plus affirmé des utilisateurs. (Télé travail, flexibilité des espaces, plaisir et joie de vivre) L'accent a été mis sur le confort "naturel" qu'il procure aux occupants : Luminosité, Implantation géographique, Acoustique optimale, Pilotage intelligent du stationnement, Plateforme WEB de gestion du bâtiment dédiée et customisée qui a été inventée en partenariat avec **Microsoft AZURE**, Un système ENR pour l'autoconsommation et la recharge des IRVE, Un arrosage de la végétation raisonné, une gestion de l'éclairage et du chauffage selon l'occupation, une gestion des espaces de travail selon le taux de présence pour optimiser les M<sup>2</sup>, une ambiance Olfactive particulière, une décoration Artistique des "circulations" renouvelée régulièrement.

Une **application WEB + SmartPhone** a été inventée pour que chaque résidents puissent accéder aux **fonctionnalités des services** : Stationnement, éclairage, Thermie, réservation des espaces, statut de l'état de charge des Véhicules électrique, réservation de vélo au sein de la flotte entreprise. Enfin, **WAVE** est conçu pour nous fournir **toutes les données de son fonctionnement** et de son évolution, afin de pouvoir lui établir son "carnet de santé" permanent et **d'améliorer ses performances énergétiques.**

**Venez le visiter, nous vous ferons partager nos solutions !**





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