


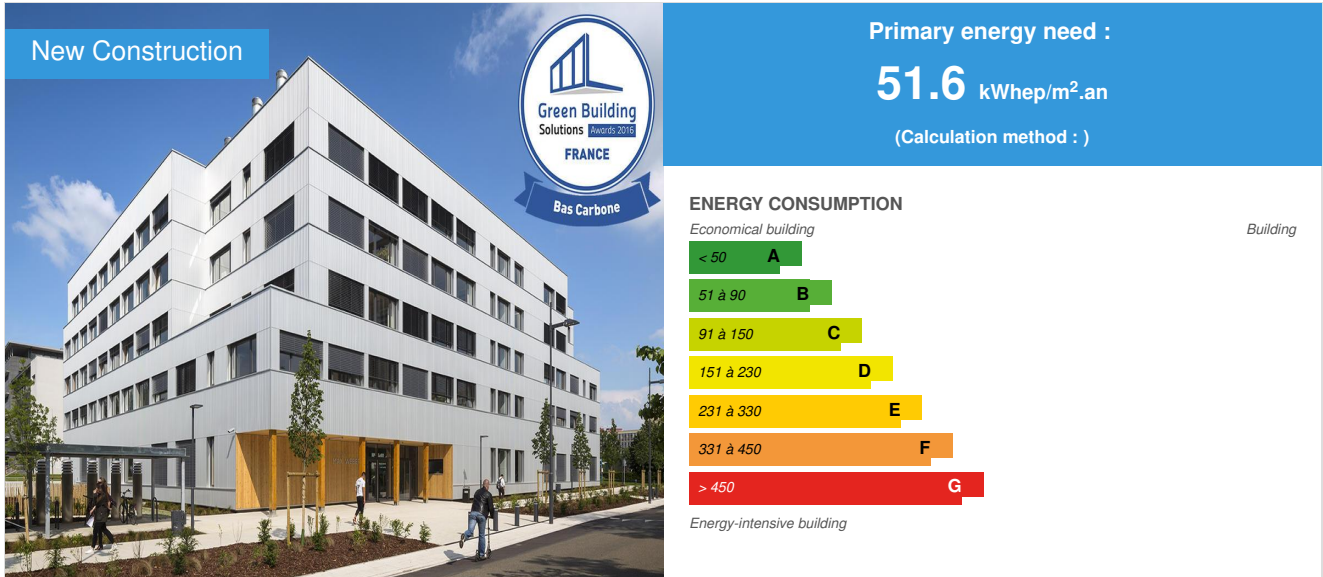


# Max Weber Building / Paris West Nanterre La Défense University

by [pascal gontier](#) /  2016-07-01 16:37:15 / France /  20690 /  FR



**Building Type** : School, college, university  
**Construction Year** : 2014  
**Delivery year** : 2016  
**Address 1 - street** : 200 avenue de la République 92000 NANTERRE CÉDEX, France  
**Climate zone** : [Cbc] Mild, dry winter, warm and wet summer.

**Net Floor Area** : 4 904 m<sup>2</sup>  
**Construction/refurbishment cost** : 11 271 905 €  
**Number of Pupil** : 124 Pupil  
**Cost/m2** : 2298.51 €/m<sup>2</sup>

## General information

Max Weber Building is a pioneer building that reviews in depth the standards of the office building, and uses environmental requirements as a motor of innovation and architectural design. Its 5 levels are 100% wooden structure, including elevator shafts and stairways, while the office space - Flexible and scalable - are free of false ceilings and raised floors false. This passive building without air conditioning, is naturally ventilated through an architectural device that manifests roof by 25 ventilation stacks of 3.70 meters high.

## Sustainable development approach of the project owner

The University of Nanterre wanted to incorporate a High Environmental Quality for all of its operations on campus. This should incorporate the requirements of the master plan of the campus and the climate plan of the city of Nanterre. He was asked the project management team to integrate this approach to environmental quality early in the design phase and reasoning about the full life of the building (production / use and exploitation / deconstruction).

Targeted HQE targets are:

3 Targeted levels: Base (B) High Performance (P), Very High Performance (HP)

## ECO BUILDING

- 01 "harmonious relationship with the immediate environment" HP
- 02 "Integrated choice of products, systems and construction processes": P
- 03 'Chantier low nuisance "HP

## ECO MANAGEMENT

- 04 "Energy Management": P
- 05 "Water Management": P
- 06 "Waste management activities": B
- 07 "Maintenance - Sustainability of environmental performance": P

## COMFORT

- 08 'Hygrothermal comfort ": P
- 09 "Acoustic comfort": P
- 10 "Visual comfort": B
- 11 "Olfactory comfort": B

## HEALTH

- 12 "sanitary quality of spaces": B
- 13 "Health Air Quality": P
- 14 "Water Quality": B

The environmental approach of the client was ambitious and project management went beyond that demand, particularly on the target 2 (integrated choice of products ...), No. 4 (power management ), No. 7 (maintenance, sustainability ...), No. 10 (visual comfort) and No. 12.

## Architectural description

A strong environmental ambition presided over the design of Max Weber building. It helped re-examine in depth the nature of the office space available to researchers and propose new architectural tracks.

Office buildings are indeed too often ultra standardized products that often find their identity in a formal bidding at the façades and decoration.

Max Weber building was designed to avoid, thanks to a strong environmental ambitions, the trivialization of workspaces for researchers. This is indeed an atypical building, completely wooden, passive, and with natural ventilation in winter and summer. The materials used are used where they are most adapted and appear as what in the truth of their joints. For this, the false ceilings and air conditioning were banned from offices and controlled mechanical ventilation. Contrary to common practice, the structure is not concrete but entirely of wood, which visible, highly branded interior spaces and gives them a unique and warm character. The hallways are not blind but enlightened course and views to the outside. The three cages of wooden stairs also bathe in natural light with wide views.

Large office windows consist of two opening, allowing occupants to customize the management of their atmosphere.

The floors raw concrete, covered with linoleum, contribute to the inertia and summer comfort in the premises without the need to use an air conditioner.

To achieve this, the problems related to acoustics and integration of networks have thus been designed in a different logic, very early, at the architectural competition, along with the project structure and organization of spaces.

Retaining the architectural style fits in harmony with the existing buildings, and is distinguished by a simple volume, slightly cut the corners gentle terraces and outdoor spaces in piles. Its aluminum siding hints from the outside, thanks to generous openings regularly arranged, the strong presence of wood in the interior spaces, while large chimneys on the roof signal a singular ventilation.

Here, the architectural expression of the building is marked by the contrast between gloss and smoothness of the outer skin of aluminum and matte nature, organic and warm wood used for interior spaces.

## Building users opinion

Returns from the Head of the University's heritage: it speaks of a building seductive effect with its users. People completely appropriate the building and say hello to each other! The stairs are a real architectural object that impresses.

## See more details about this project

<http://www.ekopolis.fr/realisations/batiment-max-weber-universite-paris-ouest-nanterre>

<http://www.arenidf.org/publication-arene/le-b%C3%A2timent-max-weber-universit%C3%A9-paris-ouest-nanterre-la-d%C3%A9fense>

<https://www.construction21.org/france/data/sources/users/7592/enveloppepassivenanterre.docx>

## Stakeholders

### Stakeholders

Function : Designer

Atelier Pascal Gontier

pascal.gontier

<http://www.pascalgontier.com>

Conception

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**Function :** Contractor

Université Paris Ouest Nanterre La Défense

Patrick Bobin

<https://www.u-paris10.fr>

Contracting Authority

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**Function :** Contractor representative

ICADE PROMOTION

Chloé Ader

<https://www.icade.fr>

Representative of the Paris West University Nanterre La Défense

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**Function :** Assistance to the Contracting Authority

SLH -

Sophie Brindel Beth

AMO HQE

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**Function :** Thermal consultancy agency

INEX

Eric Hutter

<https://www.inex.fr>

Fluids

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**Function :** Structures calculist

Batiserf

Philippe Clément

<https://www.batiserf.com>

Timber structure

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**Function :** Structures calculist

Jean Paul Lamoureux

JP Lamoureux

<https://www.lamoureux.acoustics.fr>

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**Function :** Other consultancy agency

Cabinet MIT

Pierre MIT

Economy

SNRB

Jérôme Anastasio

<https://www.snrb.com>

General enterprise

Charpente Houot

Rémi Brossolet

<http://www.charpente-houot.com/>

Wood Enterprise

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## Contracting method

Macro packages

## Type of market

## Energy

### Energy consumption

Primary energy need : 51,60 kWhEP/m<sup>2</sup>.an

Primary energy need for standard building : 71,50 kWhEP/m<sup>2</sup>.an

Calculation method :

Breakdown for energy consumption : Heating: 20.00 kWhEP / m<sup>2</sup> / year

Cooling: 0.20 kWhEP / m<sup>2</sup> / year

Hot Water: 5.40 kWhEP / m<sup>2</sup> / year

Lighting: 13.10 kWhEP / m<sup>2</sup> / year

Auxiliaries: 12.80 kWhEP / m<sup>2</sup> / year

### Real final energy consumption

Final Energy : 32,21 kWhEP/m<sup>2</sup>.an

### Envelope performance

Envelope U-Value : 0,66 W.m<sup>-2</sup>.K<sup>-1</sup>

More information :

Timber fram wall (wool insulation of wood and stone wool): 0.150 W / (m<sup>2</sup>K)

Terrace facility: 0.222 W / (m<sup>2</sup>K)Roof - Terrace: 0.155 W / (m<sup>2</sup>K)

Floor below: 0.152 W / (m<sup>2</sup>K)

Carpentry wood / aluminum: Uw: 1.3 W / (m<sup>2</sup>K)

Indicator :

Air Tightness Value : 1,01

## Renewables & systems

### Systems

Heating system :

- Urban network

Hot water system :

- Individual electric boiler

Cooling system :

- Canadian well

Ventilation system :

- Natural ventilation
- Free-cooling
- Double flow heat exchanger
- Canadian well

Renewable systems :

- No renewable energy systems

Other information on HVAC :

The hot water needed for health is produced by individual balloons to rapid heating.

### Smart Building

Users' opinion on the Smart Building functions : Steering of overventilation

## Environment

## Urban environment

Land plot area : 5 150,00 m<sup>2</sup>

Built-up area : 23,00 %

Green space : 2 000,00

Max Weber building is located within the grounds of the University of Paris Ouest Nanterre, large campus with different buildings of concrete and metal are evidence of French academic architecture built from the 60s Located along the alley of the University, west Campus, the land adjoins the building's entrance.

## Products

### Product

Sonovent

RENSON

Mme Laetitia Wajs-Sourimant

<http://www.rensonfrance.fr>

Product category : Génie climatique, électricité / Ventilation, rafraîchissement

Acoustic self-adjusting air intake Natural ventilation 2 versions-have-been installed in the project. Version Regulatory hygienic fixed rate and motorized release for overventilation

Perfect integration in the frame joinery Possible action by users for starting the-ventilation via a push button Easy maintenance from the inside



Hybrid extractor

Edmonds

sales@edmonds.com.au

<http://www.edmonds.com.au>

Product category : Génie climatique, électricité / Ventilation, rafraîchissement

The hybrid extractor allows:

- Increase the static pressure in the natural network,
- To take over when flows will be insufficient via a low energy mechanical extractor

Integration into an air extraction chimney located on the roof Visual signal building Low maintenance product



Canadian Well

PAM ELIXAIR

Pierre Caquelin - 01 47 17 14 23

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

Product category : Génie climatique, électricité / Ventilation, rafraîchissement

Canadian wells with underground pipe network

Earnings comfort and heating costs Better thermal conductivity than other materials Better durability and air quality



Wooden panels CLT

LIGNATEC / KLH

Michel DIDIER - 03 29 52 95 21

<http://www.lignatec.fr>

Product category : Gros œuvre / Structure, maçonnerie, façade

Cross laminated timber

Speed of implementation Highlighting of wood structure



Joinery Wood / Aluminium

Bieber

M. Jacques Bourges - 01 30 72 52 84

<http://www.bieber-bois.com/>

Product category : Second œuvre / Menuiseries extérieures

External Joinery Wood / Aluminium

Quality of the joinery



## Costs

## Health and comfort

## Water management

Consumption of harvested rainwater : 315,00 m<sup>3</sup>

Following the request of the project ownership, a volume of 20m<sup>3</sup> recovery of surface water is intended for watering green spaces. These needs over a period of 6 months, the mastery of work proposed to connect the tank to the health of so to cover these needs by building unsafe water when there is no need for watering. The study shows that the 20m<sup>3</sup> storage tank allows, if it is connected all year on the toilet, to cover 34% of health needs to be an annual saving of drinking water 315m<sup>3</sup>.

## Carbon

## GHG emissions

GHG in use : 4,93 KgCO<sub>2</sub>/m<sup>2</sup>/an

Methodology used :

Thermic Regulation Calculation

## Contest

## Reasons for participating in the competition(s)

A structure 100% wood including elevator shafts and escaliers- office ceilings in solid wood, without false plafonds- a passive type of building with natural ventilation device assistée- a building not a building Conditioned- modular , flexible and scalable - natural light in all the corridors : corridors , stairwells... The choice of wood responds to environmental consideration. Wood is indeed a bio-based material, renewable, recyclable, which absorbs carbon during its life and stores it in its construction.





Bas Carbone



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Coup de Coeur des Internautes

