Simone-Veil School

by Ana Pachon / 2021-03-10 16:28:00 / France / 6907 / FR

Primary energy need :

61.5 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 : School, college, university
Construction Year : 2018
Delivery year : 2019
Address 1 - street : 177 Rue Henri Barbusse r 95100 ARGENTEUIL (95), France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 5 833 m²
Construction/refurbishment cost : 18 000 000 €
Number of Pupil : 400 Pupil
Cost/m2 : 3085.89 €/m²

Certifications :

General information

Located in Argenteuil in the Val-d'Oise, the Simone-Veil School is a new building inaugurated on the occasion of the start of the school year in September 2019, part of the transformation of the Val-Notre Dame district. Built on three levels, this complex has 20 classes from kindergarten to elementary school, several activity rooms and a multipurpose room.

Program : 5,833 m 2

Contracting Authority : City of Argenteuil

Architect : Ville d'Argenteuil Architects

- Building in 90% wood construction: Wood Structure CLT design (technique and exposed wood)
- Using virtuous design materials (wood insulation, linoleum, local wood, paint algo, etc.)
- Energy Design: district heating network connection, CTA turbofan and CO2 sensors, LED lighting

- Carbon Energy level (E + C- label) E3C1 with connection to the district heating network

Sustainable development approach of the project owner

Environmental ambitions were the priority for this project. The aim was to forget the image of the old industrial site on which the school group is built by opting for a contemporary architecture, giving pride of place to natural, biobased materials. and low-carbon like wood. From the mesh facades to the posts supporting the courtyard, including the window frames and the building's framework, this virtuous material is omnipresent, which has earned the building the " E + C" label. - "with an E3C1 level (called" low consumption ").

Today, the schoolchildren and educational staff of the Simone Veil School have the joy of living in a pleasant place to live, which benefits from an atypical appearance and efficient thermal insulation capacities.

Architectural description

Faced with the dual issue of lead time and an eco-responsible construction method, the proposal aims to design the prefabricated structure of the building in solid cross-laminated timber panel (CLT) and timber frame walls (MOB). Among the advantages of this construction technique in wood, many apply to school programs: increased thermal and acoustic insulation, healthy indoor climate, light material and surface gain compared to a traditional construction, is particularly resistant to fires, less finishing if the appearance of the wood is retained (1 section of the circulation wall and the classroom wall on the blackboard side).

See more details about this project

https://www.terao.fr/portfolio_item/nouveau-lycee-dargenteuil-100-bois-label-ec-niveau-carbone-2/
https://www.myral-pro.com/fr/realisations-isolation-thermique-exterieur/groupe-scolaire-simone-veil-argenteuil-95_116.html

Photo credit

City of Argenteuil Architects - Myral

Stakeholders

Contractor

Name : Ville d'Argenteuil
Contact : Joël MISCHKE
https://www.argenteuil.fr/

Construction Manager

Name : Ville d'Argenteuil Architectes
Contact : Joël MISCHKE
https://www.argenteuil.fr/

Stakeholders

Function : Thermal consultancy agency

TERAO

Paul Clément

https://www.terao.fr/
Support for the Contracting Authority and the Project Management in the definition of low carbon performance objectives

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Function : Other consultancy agency

CET Ingéniérie

http://cet-ingenierie.fr/
Design office

Function : Company

SAS Poulingue

https://www.poulingue.fr/
Construction

Energy

Energy consumption

Primary energy need : 61,50 kWhep/m^2.an

Primary energy need for standard building : 107,90 kWhep/m^2.an

Calculation method : RT 2012

Real final energy consumption

Final Energy : 62,00 kWhef/m^2.an

Envelope performance

More information :
53.5 Bbio - 79.2 Bbio max, i.e. a gain of 32%

More information

61.5 CEP 107.9 CEP.max 39.7 kWhef for RT uses (within the meaning of the RT calculation) 62 kWhef including consumption excluding RT (within the meaning of the E + C- standard)

Renewables & systems

Systems

Heating system :
- Condensing gas boiler
- Urban network

Hot water system :
- Condensing gas boiler
- Urban network

Cooling system :
- No cooling system

Ventilation system :
- Nocturnal ventilation
- Double flow heat exchanger

Renewable systems :
- No renewable energy systems

Solutions enhancing nature free gains :
Protections solaires, orientation

Environment

Urban environment

Located between Henri-Barbusse and Michel-Carré streets, the school group will help relieve the surrounding schools of Ambroise-Thomas, Jean-Jacques-Rousseau and Anne-Frank. A place to meet the reception needs of the district, where the population to be educated is increasing.

- 8 nursery classes, 12 elementary (gradual opening over several school years)
- 2 leisure centers (nursery and elementary)
- several activity rooms
- catering common to the entire school group, with 2 nursery / elementary canteens
- 1 playground for kindergarten, 2 for elementary
- caretaker's accommodation
- multipurpose room, open outside school hours and days for residents of the area
- 1 service road between Michel-Carré and Henri-Barbusse streets

Costs

Construction and exploitation costs

Total cost of the building : 18 000 000 €

Carbon

GHG emissions

GHG in use : 7,60 $KgCO_2/m^2/an$

Methodology used :
E + C-

GHG before use : 719,00 $KgCO_2 /m^2$

Building lifetime : 50,00 année(s)

, ie xx in use years : 94.61
E + C-

Life Cycle Analysis

Material impact on GHG emissions :
719

Contest

Reasons for participating in the competition(s)

L'enjeu clé - Conception bas carbone et biosourcée :

La réduction de l'impact carbone des énergies en exploitation

- En s'inspirant de la démarche négawatt, les besoins énergétiques ont été réduits, notamment par une enveloppe performante type BBC.
- Afin de répondre aux besoins restants, notamment chauffage et ECS, le bâtiment sera approvisionné par le réseau urbain d'Argenteuil en déploiement sur la ZAC, principalement alimenté par la combustion de déchets ménagers, pour une extraction minimale d'énergie fossile.
- CTA double flux, capteurs de CO2 et éclairage LED.
- Le niveau de performance équivalent selon le référentiel E+C- est le niveau E3C1.

La réduction de l'impact carbone des matériaux

- L'atout principal de la construction est sa structure bois, sur près de la totalité des éléments (murs porteurs, planchers, façade, escalier). La superstructure est ainsi une combinaison de différentes techniques constructives (murs à ossature bois, CLT, planchers O'portune®) en fonction des contraintes techniques (isolation bois, linoléume et bois local).
- La recherche de revêtements apparents (murs bois en circulation, absence de faux plafonds) a également contribué à la réduction de l'impact carbone lié au second œuvre.
- Autre point notable, l'utilisation de peinture à base d'algues, produite en Bretagne, Algo, sur l'ensemble des surfaces peintes.
- Pour une réduction de l'impact carbone de 200 kgeqCO2/m² par rapport à une construction « standard », soit un gain de 20% de CO2, ou l'équivalent de la compensation carbone des émissions de 120 Français sur une année.

Building candidate in the category

Bas Carbone

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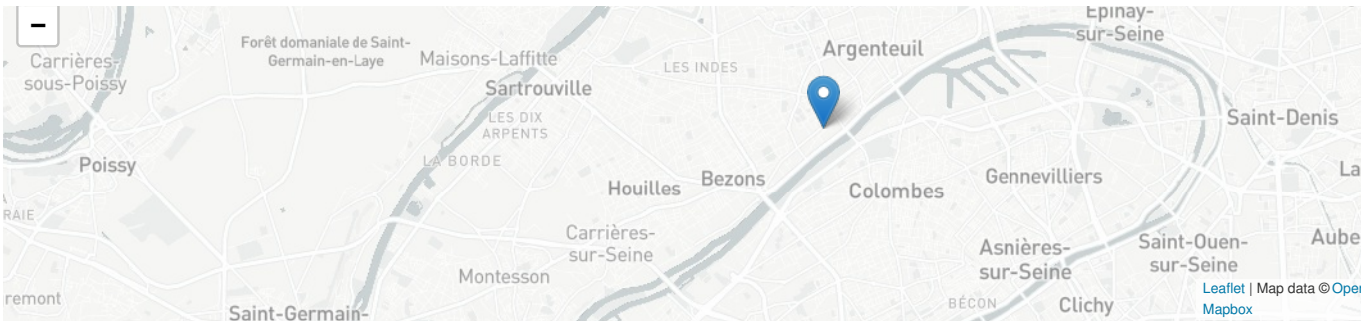

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