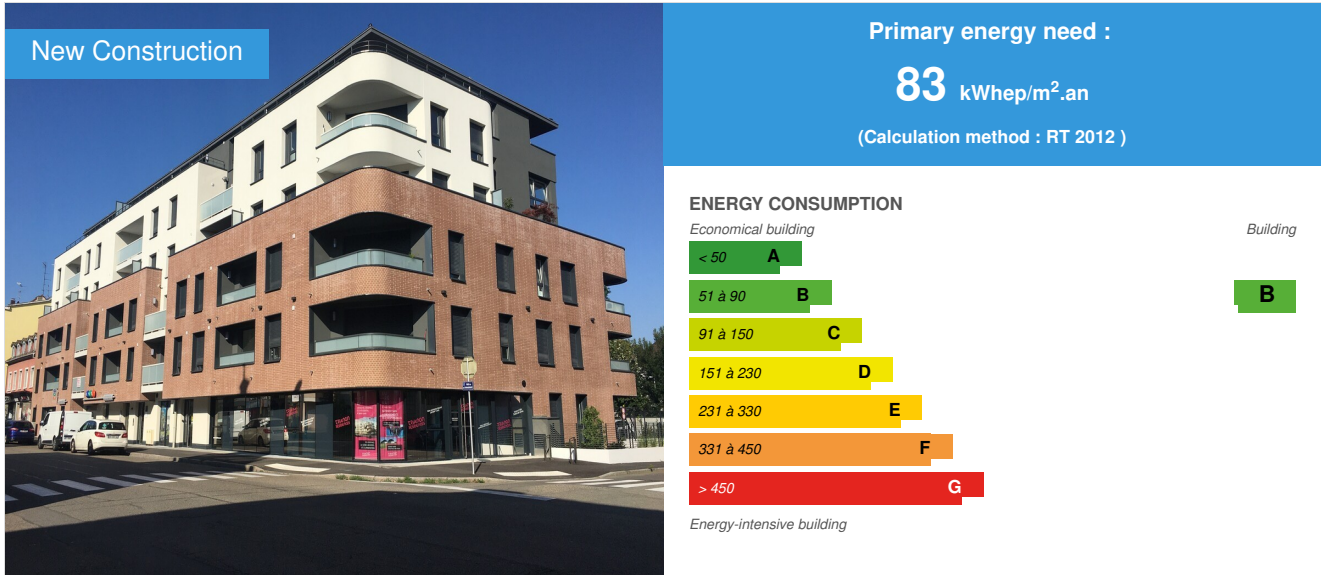


Heart Déco Residence - a building with a depolluting facade

by Hélène MEYER / 2022-10-18 00:00:00 / France / 785 / FR



Building Type : Collective housing < 50m
Construction Year : 2017
Delivery year : 2021
Address 1 - street : 22 rue de huingue 68300 SAINT-LOUIS, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 3 500 m²
Construction/refurbishment cost : 4 800 000 €
Cost/m2 : 1371.43 €/m²

General information

Case study proposed by Pôle Fibres Energivie as part of the Build & Connect conference.

"Today, the need for innovation, in a broad sense, both technical and social, is fundamental. A first contribution consists in striving to reduce the various environmental impacts of the residences built. A second part consists in developing an original and societal conception of collective housing. This is our challenge."

Cédric Simonin, CEO of Trianon Résidences

Designing the habitat of the future, this is the most ambitious mission that the Alsatian developer and builder Trianon Résidences has undertaken. In concrete terms, the company aims to **promote innovation to design more sustainable and healthier buildings without losing quality of life.**

The Heart Déco program, a residence of 51 apartments and an office space on the first floor in Saint-Louis (68), fits into this framework. The project's particularity is its façade, which is equipped with depolluting properties, thus being able to absorb polluting particles present in the air. This is a first for a residential building in France! The building is also remarkable for its energy performance and for the quality of the air inside its apartments.

The program was **awarded the Silver Pyramid for Innovation at the regional level in 2019.**

Innovation for ecology: a façade that purifies the air

The building's facade is made of cement bricks containing products formulated from TX Active® technology. This technology works according to **the natural phenomenon of photocatalysis**, absorbing the harmful substances and compounds created by human pollution and neutralizing them with light.

As a result, the facade is endowed with depolluting, self-cleaning and bactericidal properties, being able to **absorb the equivalent of the pollution emitted by 20 cars in one year!**

More information on the technology in the "Solutions" tab.

Commitments in favor of indoor air quality

Trianon Residences is working to improve the quality of the indoor air of the residences put on the market. To do so, the developer has gone beyond its responsibilities as a developer and is committed to **ensuring that the homes do not contain traces of VOCs or allergens**. Monitoring is performed throughout the project, from design to delivery, to ensure that these commitments are met.

A collaboration with specialists from the medical corps of the CHU of Strasbourg has made it possible to carry out a diagnosis of the impact of the various construction materials used on the quality of the indoor air and consequently on the health of the inhabitants. The materials were then mapped in such a way as to favor those with the least negative impact or those that are virtuous. For example, on this residence, plasterboard equipped with a depolluting technology. Designing well-ventilated homes also helps improve indoor air quality.

In terms of construction processes, **a Green Building Charter** has been set up. It is based on four major principles:

- Organization of site cleanliness;
- Optimization of waste management and sorting;
- Reduction of nuisance and pollution;
- Preservation of used resources.

Upon delivery of the program, **a research firm tests the air** to verify its quality on several parameters such as relative humidity, carbon dioxide or mold.

The developer also takes on an advisory role by **providing a Good Housekeeping Guide to each resident**. This guide raises awareness of the importance of good housekeeping for good air quality and impacts on well-being and health.

A building heated with renewable and local resources

The residence is **connected to the local district heating system**, of which 90% of the heat is produced by the combustion of biomass coming from a radius of less than 100 km: forestry chips, corn cobs, deconstruction wood, etc.

The advantages of this energy system are multiple:

- Valorization of local resources;
- Lower operating costs compared to conventional heating systems;
- Financial savings for the inhabitants;
- Preservation of air quality thanks to the filtration systems installed on the installations.

Photo credit

Trianon Résidences

Stakeholders

Contractor

Name : SCCV SAINT LOUIS HUNINGUE

Construction Manager

Name : drlw architectes

Contact : drlw[at]drlw-archi.com / 03.89.60.01.01

<https://drlw.fr/>

Stakeholders

Function : Assistance to the Contracting Authority

Trianon Résidences

<https://www.trianon-residences.fr/>

Project owner and developer

Function : Thermal consultancy agency

NRJ diags

<https://nrjdiags.fr/>

Energy Performance Diagnosis / air tightness tests / thermal certificate at the end of the work

Function : Company

Prevel Signalisation

03.89.65.52.07

Cartel work of art

Function : Company

Giamberini & Guy

03.89.30.06.36

Earthworks

Function : Company

Socoval

03.89.37.06.86 / info[a]socoval.fr

Structural works

Function : Company

Werner

03.89.52.15.25

Electricity

Function : Company

Stallini

03.89.33.58.90 / cschuller[a]stallini.fr

Heating / ventilation / sanitary

Function : Company

Orly Arkedia

03.89.27.92.60

Wood structure

Function : Company

Schoenenberger

Steel roofing / waterproofing / zinc plating

Function : Structures calculist

SOCOTEC 68

03.89.36.30.20

Acoustic study / technical control

Function : Other consultancy agency

Expert Gerard Coulombel

Expert in building

Function : Other consultancy agency

Compétence Géotechnique 25

03.81.80.73.24 / france-comte[a]competence-geotechnique.fr

Geotechnical study

Function :

BESB - R.VONESCH

03.89.53.82.40 / contact[a]besb.fr

Function : Thermal consultancy agency

Elithis Ingénierie

Fluid and energy design missions

Function : Construction Manager

CARRE EST

03.89.317.317 / accueil.lutterbach[a]carre-habitat.com

Main contractor for the execution of the project

Function : Other consultancy agency

AMS Ingénierie

Technical studies - VRD

Function : Others

Qualiconsult Sécurité

SPS coordination

Function : Other consultancy agency

Age Géomètres Experts

Surveyor missions

Contracting method

Separate batches

Type of market

Global performance contract

Energy

Energy consumption

Primary energy need : 83,00 kWhep/m².an

Calculation method : RT 2012

Renewables & systems

Systems

Heating system :

- Urban network

Hot water system :

- Urban network

Cooling system :

- No cooling system

Ventilation system :

- Humidity sensitive Air Handling Unit (Hygro B

Renewable systems :

- No renewable energy systems

Urban environment

In the heart of St. Louis, residents enjoy privileged access to the city's shops, schools, leisure activities and public transportation. They are thus encouraged to opt for soft mobility for their daily trips.

The residence is perfectly integrated into the urban fabric, with its low brick façade and curves reflecting the architectural imprint of the neighborhood.

Products

Product

De-polluting cement bricks

BlocStar

contact[a]blocstar.eu / 09.72.42.04.84

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

Product category : Structural work / Structure - Masonry - Facade

Based on TX Active® technology, the photocatalytic cement in these bricks absorbs organic and inorganic pollutants from the air and neutralizes their harmful properties. It accelerates the natural oxidation process that breaks down pollutants.



In addition, it protects coatings from pollutant stains, thus preserving the aesthetics of the façade in the long term. It also reduces maintenance costs and needs.

This technology has been developed for more than 24 years, in technical partnership with the CSTB (Centre Scientifique et Technique du Bâtiment) and the CERIB (Centre d'Etudes et de Recherche de l'Industrie du Béton). The products are CE standardized and NF labeled.

The bricks can be adapted to the desired rendering of the facade, so they do not affect the aesthetics of the building.

This product is now available in all types of concrete and mortar for structural and non-structural use, for a wide variety of uses.

Plaster pannels - KNAUF KS 13 CLEANEO C

KNAUF

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

Product category :

These panels are equipped with Cleaneo technology, which gives them depolluting properties with respect to formaldehyde and thus improves indoor air quality.



Costs

Construction and exploitation costs

Total cost of the building : 4 800 000 €

Health and comfort

Indoor Air quality

Construction materials and processes have been selected to promote good indoor air quality. In partnership with experts such as Professor Frédéric De Blay, allergist at the University Hospital of Strasbourg, the impact of various building materials on indoor air quality was measured in order to favor those that reduce the presence of VOCs and allergens in homes.

Comfort

Health & comfort :

The apartments are heated by the floor, which allows a soft diffusion of heat for more comfort and energy savings.

Temperature level :

Results of the tests:

Humidity control :

Results of the tests:

Contest

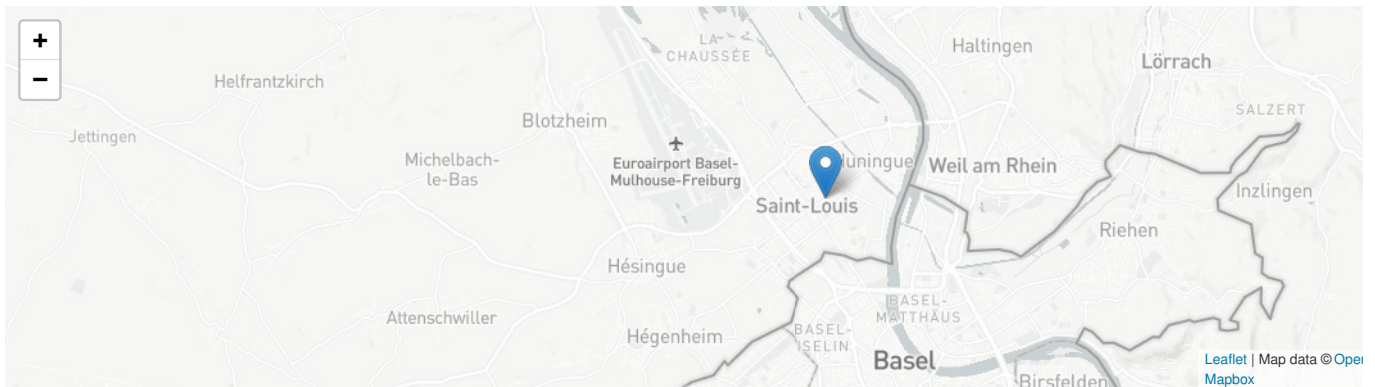
Reasons for participating in the competition(s)

- 1er bâtiment d'habitation à la façade dépolluante de France ;
- Une technologie novatrice pour réduire la pollution en ville ;
- Les logements sont raccordés au chauffage urbain local dont 90% de la chaleur est produite par la combustion d'une biomasse provenant d'un rayon de moins de 100 km ;
- Une démarche de recherche pour améliorer la qualité de l'air intérieur dans le cadre bâti ;
- Un projet collaboratif entre acteurs privés et publics.

Building candidate in the category



Prix du public



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