District town hall in Saint-Etienne

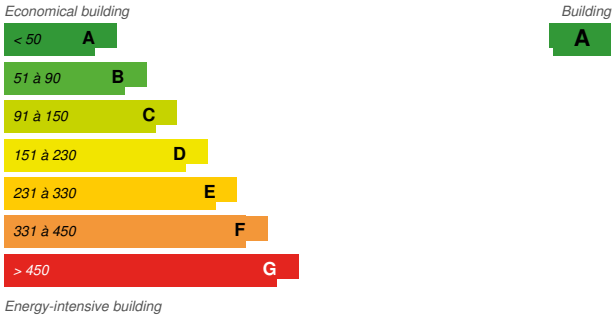
by Julien RIVAT / 2013-02-08 14:53:45 / France / 8213 / FR

Primary energy need :

65 kWhep/m^2.an

(Calculation method : RT 2012)

ENERGY CONSUMPTION



Building Type : Office building < 28m
Construction Year : 2012
Delivery year :
Address 1 - street : 94 boulevard Alexandre de Fraissinette 42100 SAINT-ETIENNE, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 380 m^2 SHON
Construction/refurbishment cost : 650 300 €
Cost/m2 : 1711.32 €/m^2

Certifications :

General information

To reduce travel, improve both quality and quantity, to bring in the outlying districts of St Etienne downtown, services to the population, the municipality wanted to make a local municipality in the district Métare.

This project is set in the continuity of the existing shopping center, in a former business located at one end of the commercial.Only a slight inclination of the northern façade creates a hook, to enhance the entrance to the district town hall.The existing cap is maintained and slightly-thickened to allow revegetation of the roof. The cap is encapsulated and supervises the building to souligner.Les horizontal cladding facades are pierced wood rétifiés randomly. The principle of cross-linking is a process of "cooking" the wood at high temperature without adding any chemicals.

Only the eastern façade is vegetated and gives the impression of a continuous roof / façade. The heating the entire building is for a heat pump Brine / water. First three vertical geothermal probes, 90 m depth, are installed in the building. Thereafter, the heat pump will supply a network-type floor heating radiator. In case of strong heat, this system is reversible, it is possible to cool by turning on the pump heat.

The building is insulated, partitionned and painted with a minimum of materials emitting VOCs (volatile organic compounds), formaldehyde, fiber , particles and

fibers toxiques. The town hall has been designed to achieve HQE requirements and get the BBC Effinergie label (low consumption label).

Sustainable development approach of the project owner

Objective of the Client: The provisional program of the near Town Hall is based on experiments conducted by other local government authorities or utility companies. The principles used to segment consist primarily public to adapt the response of the institution to the specific request of the user. The City of Saint-Etienne, mindful of the repercussions of its projects on the environment, is part of a High Environmental Quality (HQE). Hall of near future will qualify BBC Effinergie. Integration into the City of the Future: This project also raises the issue of rehabilitation of built heritage of the 20th century and its integration into the contemporary city. How to restore to a new use and a new face? To prepare the city for the future, it may be necessary to first identify the basic elements that make up the city of today and the question of their futures and their ability to change. This project proposes an answer based on the conservation of bearing elements and liaison with adjoining existing environment by integrating energy performance, design and innovation.

Architectural description

- Building in the continuity of a single all commercial ground floor. - North and South Frontage wooden retified two species spruce and poplar. - Green roof for rainwater retention and visual comfort for buildings around. - Plant wall supplied by a drip storm drains. - Double glazed aluminum joinery and high performance. - Double insulation inside and outside. - Geothermal heating and underfloor heating. - VMC double flux detector with CO^2. - False ceiling curved wood in the lobby

Building users opinion

Satisfied, calm and clear space. Very good soundproofing qualities between rooms.

If you had to do it again?

Dimensions of windows overlooking the green wall that seems a bit small.

See more details about this project

Stakeholders

Stakeholders

Function : Construction Manager

Atelier d'Architecture RIVAT

53 cours Fauriel 42100 Saint-Etienne, 04 77 38 01 66, clauderivat@aol.com

Function : Certification company

CERTIVEA

Certivéa 4, avenue du Recteur Poincaré 75016 Paris, eric.querry@certivea.fr

http://www.certivea.fr/home

Type of market

Global performance contract

Energy

Energy consumption

CEEB : 0.0001

Primary energy need : 65,00 kWhep/m^2.an

Primary energy need for standard building : 150,00 kWhep/m^2.an

Calculation method : RT 2012

Breakdown for energy consumption : Heating: 17.9 Cooling: 6.71 Lighting: 9.79

Initial consumption : 350,00 kWhep/m^2.an

Real final energy consumption

Final Energy : 59,00 kWhef/m^2.an

Envelope performance

Envelope U-Value : 0,32 $W.m^{-2}.K^{-1}$

More information :
Composition of the main facades:
- Cladding thermally treated wood
- Pare rain
- Insulation 190mm Rockmur naked
- Wall agglomerated hollow 20 cm lime plaster for airtightness
- 100mm + 13mm Placomur

Building Compactness Coefficient : 0,80

Indicator : I4

Air Tightness Value : 0,43

More information

Being collected by GTC

Renewables & systems

Systems

Heating system :
- Geothermal heat pump
- Low temperature floor heating

Hot water system :
- Individual electric boiler

Cooling system :
- Reversible heat pump
- Floor cooling

Ventilation system :
- Double flow heat exchanger

Renewable systems :
- Heat Pump on geothermal probes

Renewable energy production : 83,00 %

Smart Building

BMS :
GTC Town of St Etienne-existing system when creating the building

Environment

Urban environment

Land plot area : 380,00 m^2

Built-up area : 100,00 %

Neighborhood is primarily residential tall buildings. Project implementation in the only commercial "bar". Passing through Boulevard noisy and with heavy traffic.

Products

Product

RETIBOIS (thermally treated wood)

RETIWOOD

36, avenue Hoche 75008 Paris

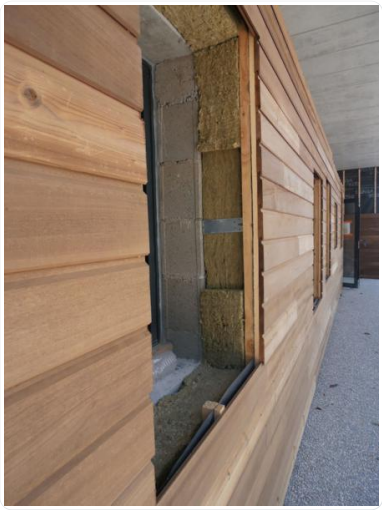
http://www.retiwood.com

Product category : Autres / Autres

Retification is the first heat treatment of wood.
Result of research at the Ecole Supérieure des Mines de St Etienne, the patented process of cross-linking, developed since 1997 is the reference in the field of ecological preservation of wood.
No chemical modified by the action of heat controlled to a degree, the thermally treated wood is stable, exceptionally durable and 100% natural.
Applied to local species, the cross-linking allows poplar, pine, ash ... to be used outdoors in the most exposed situations without changing appearance.

Perfect acceptance of the product since it doesn't require any treatment in the long term (no varnish). In addition, it is a local process.

https://www.construction21.org/france/data/sources/users/1458/bois-retifie.doc



Costs

Construction and exploitation costs

Global cost/Work station : 32500
Reference global cost/Work station : 1450
Global cost : 650 000,00 €
Reference global cost : 1 450,00 €
Renewable energy systems cost : 75 300,00 €

Health and comfort

Water management

Water Self Sufficiency Index : 0.35
Water Consumption/m2 : 0.12
Water Consumption/Work station : 2.35
Consumption from water network : 47,00 m^3
Consumption of harvested rainwater : 25,00 m^3
Public building: the water can not be recycled or recovered. The reclaimed water is used to irrigate the green wall.

Indoor Air quality

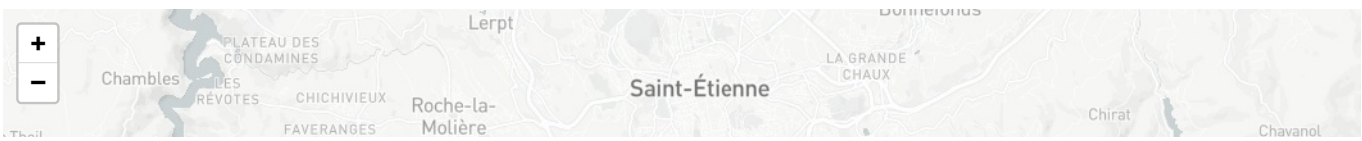
Choice of materials based on their data sheets and their FDES

Carbon

GHG emissions

GHG in use : 12,30 $KgCO_2/m^2/an$

Contest



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