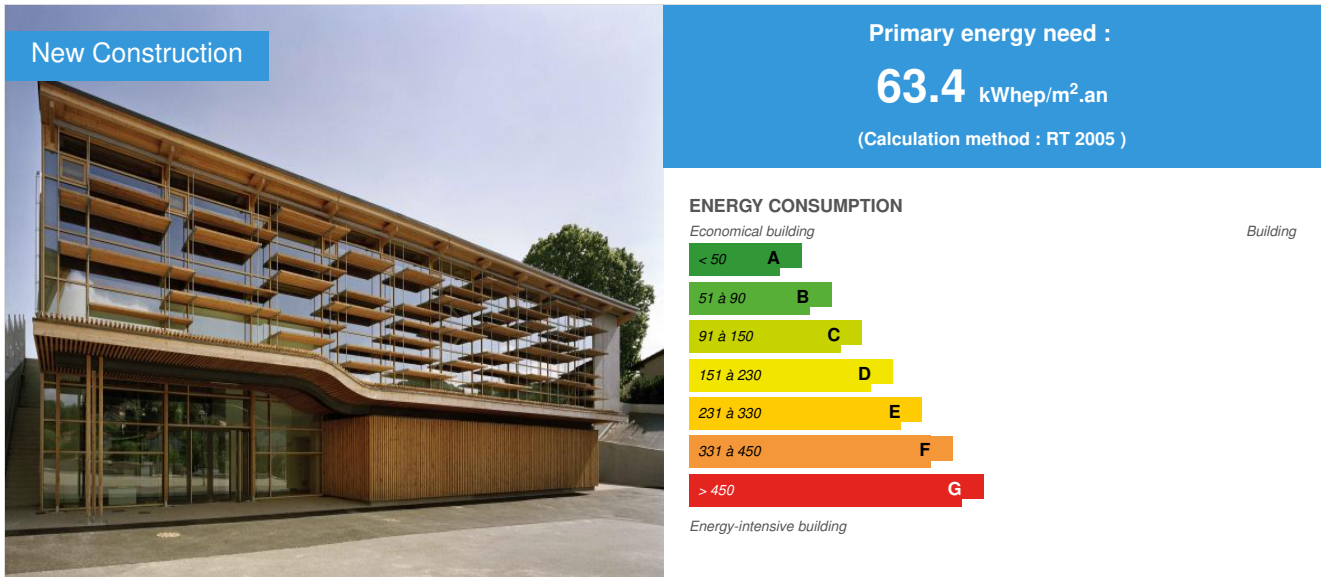


Gymnasium nitescent in Saint-Martin-en-Haut

by [Tekhne Architectes](#) / 2013-02-04 16:26:44 / France / 16203 / FR



Building Type : Indoor gymnasium, sports hall, stadium
Construction Year : 2012
Delivery year :
Address 1 - street : Collège le Petit Pont 69850 SAINT-MARTIN-EN-HAUT, France
Climate zone : [Csa] Interior Mediterranean - Mild with dry, hot summer.

Net Floor Area : 1 747 m² Other
Construction/refurbishment cost : 2 727 000 €
Cost/m2 : 1560.96 €/m²

General information

First prize of Wood construction in 2012, the BBC label gymnasium of Saint-Martin-en-Haut offers a quality of use that improves significantly the city of tomorrow.

The gymnasium of Saint-Martin-en-Haut is an impressive box 45m long by 25 wide and 10 high, which is discreetly installed in the rural village of Monts du Lyonnais. How to melt a giant in his site? From above, embedded in the natural slope, it disappears in its green roof, leaving open the great views of the surrounding hills. From below, it has no monumentality on the forecourt of the college, any one façade of wood and glass. The interior has the same sense of obviousness and comfort. Largely lit by filtered natural light, the room is immediately qualified by its remarkable structure formed by a stunning wooden frame tree. Sobriety, results from prior energy optimization research. The south façade enhances the passive solar gain, while leveraging what the constant temperature of the heart project forming Canadian well, for the renewal of air.

Summer thermal comfort is provided by sunscreens on the south façade and natural ventilation through: glazed opening frames motorized placed in opposition and height in the north and south sides of the gymnasium, are controlled by the indoor temperature. Residual heating needs are covered by a low temperature underfloor heating powered by a wood pellet boiler. Natural light, very generous, is supplemented by artificial lighting graduated to adapt to different occupations of the largest room: minimum light, use school sporting event or competition. The wood used in the structure (poles and structures), front (wall curtains and litelage) and inner epidermis gives a calm and serene in the great hall. The dressing blade horizontal, tight seal on the first 3 meters away and then gradually absorbing felt protects a guarantor of acoustic comfort.

The choice of using materials with low embodied energy is a fundamental position. This is an opportunity for the agency Teckné, to reiterate the importance and contribution of wood in the perception of the contemporary city.

SUB Award 2013: this building contribution to the city of the future

Crêt encased in respect of the village and its surroundings landscape, sports equipment offers exceptional light and hygrothermal comfort in a room magnified by the tree structure of wood.

Sustainable development approach of the project owner

"The town of St Martin en Haut already had a gymnasium. However when the General Council of Rhône decided to build a new public school in our area, it was obvious that it this one, already saturated by other schools, would be insufficient. Our municipality communities has proposed the construction of this second gymnasium, a prerequisite for the good running of the college.

using wood material was our priority for all it can bring: thermal insulation, sound insulation, beauty, serenity and obviously its lower environmental impact. All this provided to be perfectly controlled by the skilled artisan. At the architectural competition, we selected three firms with references in this field. We finally chose the architectural studio Tekhné, without any regret because the realization has exceeded our expectations.

In fact this building is exemplary both inside (for athletes and the public) and outside.

Inside

Occupation planning was already saturated (!) Both during school time (with our 1500 pupils) than during non-school time (evenings, weekends and holidays) by many local associations

Outside

This gymnasium is built along a major axis of circulation of the Monts du Lyonnais, one of the main entrances to the village of St Martin en Haut. This area which is thus "visible" has been completely renovated in a few years. It now hosts successively the college, the gymnasium and finally the municipal school cafeteria. It contributed to beautify the village and enhance the image of the town. '

Architectural description

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From above, embedded in the natural slope, it disappears in its green roof, leaving open the great views of the surrounding hills. From below, it has no monumentality on the forecourt of the college, only one façade of wood and glass.

The interior has the same sense of obviousness and comfort. Largely subdued natural light, the room is immediately qualified by its remarkable structure formed by a stunning wooden frame tree. This writing introduces organic simple geometry of the room.

Sobriety, prior to energy optimization research, is embodied in the choice of burial in the hill, under a green roof, a building of compact-isolated. The south facade enhances the passive solar gain, while leveraging what the constant temperature of the heart project forming Canadian well, for the renewal of air.

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See more details about this project

http://www.tekhne-architectes.com/#http://www.tekhne-architectes.com/%23/architectures/construction_d%92un_gymnase_bbc_16/

Stakeholders

Stakeholders

Function : Construction Manager

Tekhné architectes

s.viricel@tekhne-architectes.com

<http://www.tekhne-architectes.com/>

Contracting method

Separate batches

Type of market

Global performance contract

Energy

Energy consumption

Primary energy need : 63,40 kWhep/m².an

Primary energy need for standard building : 117,70 kWhep/m².an

Calculation method : RT 2005

Breakdown for energy consumption : Heating: EP 18.05 kWhep/m²

Cooling: 0.00 EP kWhep/m²

Domestic hot water production: 21.65 EP kWhep/m²

Fans: 0.52 EP kWhep/m²

Lighting: 8.07 EP kWhep/m²

Auxiliary: 0.61 EP kWhep/m²PV: 0.00 EP kWhep/m²

Real final energy consumption

Final Energy : 48,90 kWhf/m².an

Envelope performance

Envelope U-Value : 0,21 W.m⁻².K⁻¹

More information :

To ensure high energy performance sought, buried parts of the walls are insulated inside with 20 cm of polyurethane (lambda 0.031) in the lower part (covered with prefabricated panels for impact resistance approximately 3 m ht) and 15 cm of mineral wool (lambda 0.038) on the upper with perforated wooden slats forming acoustic absorbers. (R = 5 m²K / W).The paving, that receives a heated floor, is also isolated by 6 cm of rigid panel in direct support of heating pipes, and an additional 12 cm underside paving (R = 6 m²K / W).The roof is insulated with 2 x 12 cm polyurethane for a maximized thermal resistance (R = 9 m².K / W).The windows are wood with glazing 4/16/4 argon filled, for Uw = 1.4 W/m²K.

Indicator : I4

Air Tightness Value : 0,86

Renewables & systems

Systems

Heating system :

- Low temperature floor heating

Hot water system :

- Other hot water system

Cooling system :

- Others
- No cooling system

Ventilation system :

- Natural ventilation
- Nocturnal ventilation
- Double flow heat exchanger

Renewable systems :

- Solar Thermal
- Wood boiler
- Other, specify

Environment

Urban environment

The first objective was to find the right place for a facility of this scale to do coexist with surrounding suburban fabric.

The application of competition ranged equipment on top of the site, which shows a vertical drop of about 7 m. The designers visualized very quickly the landscape impact of a large mass installed on the top of the village and took the party to waive the application to install the gymnasium at the bottom of the field.

Products

Product

CMB

<http://www.cmb-bois.fr/web2/index.php>

Product category : Structural work / Structure - Masonry - Facade

Costs

Construction and exploitation costs

Global cost : 2 727 000,00 €

Carbon

GHG emissions

GHG in use : 10,20 KgCO₂/m²/an

Methodology used :

Emissions from heating, hot water preparation, ventilation, and lighting auxiliary, based on the French RT calculation consumption. CO₂/kWh_{ef} ratios are derived from the concept note "CO₂ content" of ADEME: 0234 for gas, 0.1 for light, 0.06 inches

Life Cycle Analysis

Eco-design material : Massive use of wood framing, cladding, curtain wall, interior finish

Contest

