



# Senones sports complex

by Ludovic GUTIERREZ / 2021-02-23 12:08:13 / France / 3495 / FR

**Primary energy need :**

63 kWhep/m<sup>2</sup>.an

(Calculation method : Other )

**ENERGY CONSUMPTION**

Consumption Range (kWh/m <sup>2</sup> .an)	Grade
< 50	A
51 à 90	B
91 à 150	C
151 à 230	D
231 à 330	E
331 à 450	F
> 450	G

*Building* B

*Economical building* (A, B, C) | *Energy-intensive building* (D, E, F, G)

**Building Type** : Indoor gymnasium, sports hall, stadium  
**Construction Year** : 2019  
**Delivery year** : 2020  
**Address 1 - street** : Rue du Breuil 88210 SENONES, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

**Net Floor Area** : 870 m<sup>2</sup> SHON  
**Construction/refurbishment cost** : 845 000 €  
**Number of Seat** : 175 Seat  
**Cost/m<sup>2</sup>** : 971.26 €/m<sup>2</sup>

Proposed by :



General information

This case study presents the rehabilitation of the former Senones swimming pool into a sports complex. The swimming pool being disused since the 80s and in the state of urban wasteland, it is for the town hall to give new life to this space and to reaffirm its central role in the municipality.

## Originally, a disused swimming pool, in the heart of an industrial wasteland

The former swimming pool was built in the 1970s, when the textile industry was still very present in Senones. In ten years, the town has lost 3,000 jobs with the closure of factories. It no longer had the means to bear the cost of maintaining this infrastructure (between 100,000 and 150,000 € / year), which led to its decommissioning in the 1980s. The building went through various successive phases, from abandonment to the squat, until the launch of this rehabilitation project by the town hall. This project is part of the mayor's desire to create structuring poles in the municipality (school pole, sports pole, etc.).

## Restructuring constraints: doing with the existing building

The structure of the original swimming pool lent itself rather well to the rehabilitation. The architect chose to backfill the two pools of the swimming pool in order to make a dojo and a weight room. A dance hall replaced the old bath / shower unit. Each of the three spaces has its own sanitary block. The part of the former

swimming pool which contained the water filtration systems and the boiler room has been transformed into a central corridor. The belvedere, which allowed spectators to watch the swimmers, has become a meeting room for associations.

The architect had to adapt to several constraints linked to the rehabilitation. He had to deal with the basic structure, made of glulam on reinforced concrete walls. In addition, the building had certain flaws: for example, there was a missing floor slab in the former sanitary area, which limits the stability and inertia of the building. Finally, since the swimming pool is located within the perimeter of a listed building, the architect had to take into account the opinion of the Architect of Buildings of France, who refused certain aesthetic aspects, such as the first choice of color presented. On the plus side, the building had a good basic foundation.

## Efficient energy systems

The new sports complex is equipped with two systems that guarantee the building's energy performance. 7 solar collectors, manufactured by Viessmann, have been installed on the south facade to provide DHW (see the diagram in the solutions tab). Each sensor has an absorption surface of 2.3 m. They cover around 75% of the ECS. The project manager has chosen thermal solar rather than photovoltaic to ensure the profitability of the installation. A gas condensing boiler, with a power of 120 kW, was installed in the middle of the building.

## Sustainable development approach of the project owner

The project owner is the town hall of Senones. The objective was to reduce the environmental impact and the cost of managing the building, by greatly improving its energy performance. The project leaders therefore carried out a renovation of the insulation, in particular in rock wool (renovation of the roof to reach  $R = 8.2$ , of the facade to reach  $R = 6$  and of the floors to reach  $R = 5$ ), and have installed optimal energy systems. This type of operation also makes it possible to avoid demolition-reconstruction, which consumes a lot of resources and energy. Finally, the project integrates the social pillar of sustainable development: it participates in the creation of a dynamic and clearly identifiable sports center in the town and its surroundings, which can benefit local associations.

## Architectural description

The architect kept the structure and the main form of the former pool, of the Muscovite type. He chose to color the exterior facade to better breathe life into the building. The interior of the building was also fitted out, following for the most part the basic structure. The large outdoor pool measuring 12.50 m by 25 m has become a weight room. The small pool inside the 6x12 m building has been transformed into a 10x23 m dojo. The bath / shower part is now a dance hall of 150 m<sup>2</sup> with parquet floor.

## Photo credit

JMH architecture, Town Hall of Senones

## Stakeholders

### Contractor

Name : Commune de Senones

Contact : 03 29 57 91 43

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

### Construction Manager

Name : JMH Architecture

Contact : jmharchitecture[a]hotmail.fr

### Stakeholders

Function : Manufacturer

Viessmann France

<https://www.viessmann.fr/?>

Installation of boilers and heaters

Function : Company

SARL BIGEARD

contact[a]chauffage-bigeard.fr

Water and gas installation work

## Energy

## Energy consumption

Primary energy need : 63,00 kWhep/m<sup>2</sup>.an

Calculation method : Other

## Envelope performance

## More information

Due to the different uses of the building (swimming pool then wasteland), far removed from the current use, there are no initial consumption data that are representative.

## Renewables & systems

### Systems

Heating system :

- Condensing gas boiler

Hot water system :

- Condensing gas boiler
- Solar Thermal

Cooling system :

- No cooling system

Ventilation system :

- Single flow

Renewable systems :

- Solar Thermal

## Environment

### Urban environment

The rehabilitation of the swimming pool is part of a larger urban project, which consists of creating dynamic poles that bring together the city's equipment and services. The sports center, where the former swimming pool is located, being close to the school pole, the town hall wanted to link the two spaces. It mandated the CAUE des Vosges to propose an arrangement favorable to soft mobility (rollerblading, cycling, pedestrians), which includes green spaces and games for children.

## Products

### Product

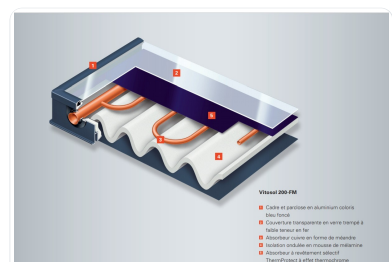
Vitosol plan solar collectors

Viessmann

<https://www.viessmann.fr/?>

Product category : Génie climatique, électricité / Chauffage, eau chaude

The high-performance flat panel collectors Vitosol 200-FM and Vitosol 100-FM are an ideal addition to various heating systems. With their absorber area of 2.3 m<sup>2</sup>, they can produce up to 70% of annual domestic hot water needs and represent an efficient addition to heating.



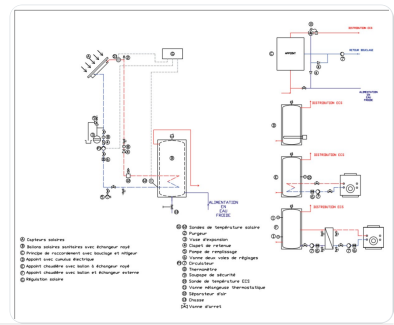
DHW storage tank with flooded exchanger

Viessmann

<https://www.viessmann.fr/?>

Product category : Génie climatique, électricité / Chauffage, eau chaude

This centralized collective DHW solar production system by preheating tank with flooded exchanger is applicable for installations with short hydraulic circuits (up to 20 or 25 m<sup>2</sup> of solar collectors).



Gas condensing boiler

Viessmann

<https://www.viessmann.fr/?>

Product category : Génie climatique, électricité / Chauffage, eau chaude

The Vitocrossal type CI is a gas condensing boiler for universal application areas from 75 to 318 kW. With a width of 680mm without cover. It is equipped with an Inox-Crossal heat exchanger and a cylindrical Matrix burner developed to be robust.



## Costs

### Construction and exploitation costs

Total cost of the building : 850 000 €

Subsidies : 595 000 €

## Carbon

### GHG emissions

GHG in use : 14,00 KgCO<sub>2</sub>/m<sup>2</sup>/an

## Contest

### Reasons for participating in the competition(s)

Beyond the technical aspect, the interest of this project consists in the rehabilitation of a wasteland in a contained budget corresponding to the local socio-economic reality.

The reorganization of the spaces was thus carried out in a frugal manner, following the existing as much as possible and optimizing it. The use of a mixed gas / solar thermal system for DHW and heating corresponds to a search for efficient, proven and easy-to-maintain solutions.

The project brought together mainly local actors, Viessmann also having a production unit in the region.

### Building candidate in the category



Energie & Climats Tempérés





Date Export : 20230513011928