


# Multidisciplinary medical center of Taverny

by Anne-Julie MARTINON / 2021-01-13 16:15:13 / France / 3913 / FR

**New Construction**



Primary energy need :

## 117.1 kWhep/m<sup>2</sup>.an

(Calculation method : RT 2012 )

**ENERGY CONSUMPTION**

Consumption Range (kWhep/m <sup>2</sup> .an)	Grade	Category
< 50	A	Economical building
51 à 90	B	
91 à 150	C	
151 à 230	D	Building
231 à 330	E	
331 à 450	F	
> 450	G	
Energy-intensive building		

**Building Type** : Other building  
**Construction Year** : 2018  
**Delivery year** : 2020  
**Address 1 - street** : 1 Rue Jeanne Planche 95150 TAVERNY, France  
**Climate zone** : [Cfb] Marine Mild Winter, warm summer, no dry season.

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**Net Floor Area** : 1 147 m<sup>2</sup> SHON RT  
**Construction/refurbishment cost** : 2 883 357 €  
**Cost/m2** : 2513.82 €/m<sup>2</sup>

## General information

Initiated in July 2016, the multidisciplinary health center project led by the city of Taverny aims to bring together doctors in order to fight against the lack of professionals outside the big cities. Registered in a stretched site and bordered by the highway, we have designed a place that offers an interior quality of life, symbol of places of care like the old cloisters.

The template reflects the desire to integrate into the surrounding urban fabric by offering a harmonious living environment, balanced between solid and empty, mineral and vegetal, construction and green spaces. The organization of the building is based on the essential functionality for this type of program. The square plan results from a hierarchy of the level of privacy necessary for each place and is articulated around a common outdoor space.

The central patio provides natural lighting for the entire building, offers an exterior extension to the waiting rooms, and is also an intimate and sensory place where we find essences with medicinal properties, evoking the identity of the place.

Screened in the image of a forest of trees, the health center reflects our desire to provide the city with equipment that respects environmental issues. Wood is widely used, in structure and facade, for its durable qualities and its ability to trap a significant amount of CO2. The envelope is designed as a volume guaranteeing controlled climatology with protective facades, ensuring the well-being of users.

Emerging from the clearing and the wooden facades, four-sided roofs crown the whole and correspond to the scale of the existing constructions. They cover the building and allow lighting and ventilation of the interior circulation.

## Sustainable development approach of the project owner

The health center reflects the common desire of the contracting authority and the design team to offer the city a equipment that respects environmental issues. This led us to design a wooden architecture; material chosen for its durable qualities, its local origin, and its ability to trap a significant amount of CO2. Our commitment to a more virtuous and responsible architecture has also enabled the implementation of bioclimatic principles within the building: Canadian well, heat pump, etc.

## Architectural description

The project is equipped with a protective enclosure and a patio initiating the radioconcentric development of functions. Indeed, a system of grove plantations makes it possible to distance the treatment center from the street and the highway, thus ensuring the privacy of the practices.

The organization of the building, for its part, is based on the functionality essential for this type of program. The 28.5 m square plan results from a hierarchy of the level of privacy necessary for each place and is articulated around a common outdoor space. The patio, at the heart of the building, provides covisibility between the spaces and the natural lighting of all the circulations. On sunny days, it becomes an extension of waiting rooms, a quiet outdoor place for patients and doctors.

By drawing a square plan hollowed out by a cross patio, we have enabled an equal sharing of space and light. We have sought a uniformity of all places of care in order to guarantee the scalability and versatility of all. Each practitioner has a bright office with a protected view of the public space, while users wait in front of the tranquility of the interior garden.

## See more details about this project

<http://www.maa-j.fr/portfolio/pole-medical-pluridisciplinaire-taverny-95/>

## Photo credit

Graphic documents and site photos: MAAJ Architects

Photos: François-Xavier DA CUNHA LEAL and Florence VESVAL

## Stakeholders

### Contractor

Name : VILLE DE TAVERNY

Contact : 01 30 40 27 21

<https://www.ville-taverny.fr/>

### Construction Manager

Name : MAAJ ARCHITECTES

Contact : maa-j@maa-j.fr

<http://www.maa-j.fr/>

### Stakeholders

Function : Others

PRAXYS PAYSAGE

agence@praxys-paysage.fr

<http://praxys-paysage.fr/>

Landscaper

Function : Other consultancy agency

Bureau Michel Forgue (BMF)

bureau@bmf-conseil.fr

<https://www.bmf-conseil.fr/>

Economist

Function : Structures calculist

BATISERF

agence@batiserf.com

<https://batiserf.com/>

Structural design office

Function : Thermal consultancy agency

WOR Ingénierie

contact[a]bet-wor.com

<https://www.bet-wor.com/>

Fluid design office / VRD / HQE

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Function : Structures calculist

Acoustique Vivié et Associés (AVA)

contact[a]acoustique-vivie.fr

Acoustic study office

## Type of market

Global performance contract

## Energy

### Energy consumption

Primary energy need : 117,10 kWh<sub>ep</sub>/m<sup>2</sup>.an

Primary energy need for standard building : 124,80 kWh<sub>ep</sub>/m<sup>2</sup>.an

Calculation method : RT 2012

Breakdown for energy consumption : Heating: 27.5 kWh EP Conditioning: 0 kWh EPECS: 18 kWh Lighting: 20.3 kWh Ventilation auxiliaries: 50.9 kWh Hydraulic auxiliaries: 0.3 kWh EP

### Real final energy consumption

Final Energy : 117,10 kWh<sub>ef</sub>/m<sup>2</sup>.an

### Envelope performance

Building Compactness Coefficient : 0,26

Indicator : EN 13829 - q50 » (en m<sup>3</sup>/h.m<sup>3</sup>)

Air Tightness Value : 1,00

## Renewables & systems

### Systems

Heating system :

- Condensing gas boiler
- Heat pump
- Radiant ceiling

Hot water system :

- Individual electric boiler

Cooling system :

- Canadian well

Ventilation system :

- Double flow heat exchanger
- Canadian well

Renewable systems :

- Energy recovery from waste
- Heat pump

Solutions enhancing nature free gains :

Toiture végétalisée

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### Urban environment

Land plot area : 3 454,00 m<sup>2</sup>

Built-up area : 664,00 %

Green space : 1 737,00

The town of Taverny has the particularity of being crossed by the A115 motorway which divides the town in two. The southern part made up of the Beauchamps sector is then disconnected from its center by this artery. This part of the city therefore suffers from a lack of infrastructure and needs to be reinvested. The operation is part of the process of upgrading this sector.

The plot allocated to the project is directly affected by this issue. It is surrounded on one side by a stretched and quiet residential area and on the other by the dense and noisy A115. From then on, our position was to offer a place which offers an interior quality of life symbolizing places of care like the old cloisters. Coupled with the project owner's ambitions in terms of ecological exemplarity, we were able to carry out a project whose structure and facade are expressed in wood

## Costs

### Construction and exploitation costs

Cost of studies : 348 530 €

Total cost of the building : 3 231 887 €

## Health and comfort

### Comfort

#### Health & comfort :

We considered this medical center as a precious, calm place, where the landscape project pays particular attention to the visitor's journey and creates the first level of intimacy. The use of a vertical wooden frame on the facade reinforces this desire to protect treatment areas by creating a natural setting for the building.

The intervention built, is based on functionality, essential for this type of program. The square plan results from a hierarchy of the level of privacy necessary for each place. **The patio**, at the heart of the building, provides covisibility between the common spaces and natural lighting of all the circulation. On sunny days, it becomes an extension of the waiting rooms, a quiet outdoor place for patients and doctors. Its cross shape can accommodate the waiting rooms. Their locations, which are essential in the patient referral system, are visible from all the traffic of the pole.

On the outskirts, the consultation rooms surround the project. We have sought a uniformity of all the places of care in order to guarantee the scalability and the versatility of the whole. In addition, the dividing walls are not structural, which makes it possible to completely reorganize the spaces. We have the intuition that the project is not an end in itself, but rather the beginning of a story and a necessary appropriation for the proper functioning of a building. We want, through our approach, to allow our buildings to stand up to time.

#### Acoustic comfort :

##### With regard to the isolation of facades:

The plot is under the direct influence of the Rue d'Herblay, classified as category 4, and especially the A115 motorway, classified as category 2 (according to the decree of 30/05/1996, modified on 23/07/2013). Thus the acoustic performance of the envelopes of the premises will have to be reinforced from the point of view of their acoustic insulation: up to 38dB depending on the orientation of the premises. The criteria are relatively restrictive, and can be met with facades at  $RA_{tr} \geq 38dB$ , equipped with consistent glazed or opaque infills. Lightweight facades will be fitted with full-surface non-threaded lining (i.e. interrupted by internal vertical and horizontal partitions). The ventilation system shall be double flow. These criteria are before the results of in situ measurements.

##### In terms of internal acoustic insulation

The project provides for a homogeneous distribution of the entities according to their uses. The targeted isolations between common premises (office, consultation, care, etc.) will be  $DnTA \geq 42dB$ .  $DnTA \geq 27dB$  insulation will be retained for the common rooms with circulation. For this, partitions at  $RA \geq 50dB$  (thickness according to structural or not) will be provided between rooms, 42dB on corridor associated with doors and glazed walls at  $RA \geq 30dB$ . Isolations between levels will be achieved by mixed wood concrete floors on a CLT base associated with false ceilings in the ground floor pH. Impact noise will be dealt with by the floor coverings associated with the mixed floors above, possessing an index  $\Delta Lw \geq 19dB$  in order to allow compliance with impact noise limited to 60dB in the reception areas. The floor coverings in the premises (and corridors, etc.) will be flexible with an integrated underlay, hard floors glued to a resilient screed.

##### In terms of acoustic correction :

All the premises will receive effective absorbent treatments, so as to ensure excellent comfort and to limit the ambient interior noise levels as much as possible, particularly in the premises receiving the public. The large common areas of the hall and reception will receive very effective acoustic absorption treatments, for

example: disjointed elements laid floating on the underside of the high floor, in order to conserve the available height. This will be an obligation of result that we will maintain throughout the project in order to guarantee a very positive first impression and that visitors will feel comfortable in these premises as soon as they enter. The working areas will also receive absorbent elements in the ceiling, for example radiant heating panels which will be perforated, masking a layer of mineral absorbent on the back side, these elements will be laid floating under the high floor (ceiling), which will maximise their effectiveness. The large rooms (refectory/meeting rooms) will be fitted with additional acoustic correction wall panels.

#### Noise level of technical equipment:

The technical equipment will receive acoustic treatments adapted to the nature of the networks, such as: silencers on the ventilation networks, anti-vibration pads under rotating or vibrating equipment, treatments on the networks between rooms (running or in circulation as proposed in our project), linings in the technical rooms... The technical rooms are planned in a 6-sided concrete structure. The heat pumps (depending on the evolution of the project), could be located under the roof in LT in a light 'box in the box'. The assumptions taken into account at this stage, in terms of standardised sound levels LnAT for equipment noise, are Offices, consultation,...: LnAT£35dB(A), Reception hall / circulations: LnAT£40 to 45dB(A).

#### Environmental protection:

Externally, the maximum noise levels generated by the project's technical equipment will be based on the residual noise levels of the site. Regarding the limitation of noise levels in the environment, the project is obviously subject to the decree n°2006-1099 relating to the limitation of noise in the neighbourhood (for the protection of the environment). It is for this reason that measurements of the initial state of the site's noise environment will have to be carried out as soon as the winning team is appointed (carried out by a service provider appointed by the project owner, based on specifications that we will draw up as soon as they are appointed). The consequences of the results of these measurements are therefore unknown at this stage.

## Carbon

### GHG emissions

GHG in use : 6,00 KgCO<sub>2</sub>/m<sup>2</sup>/an

## Contest

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

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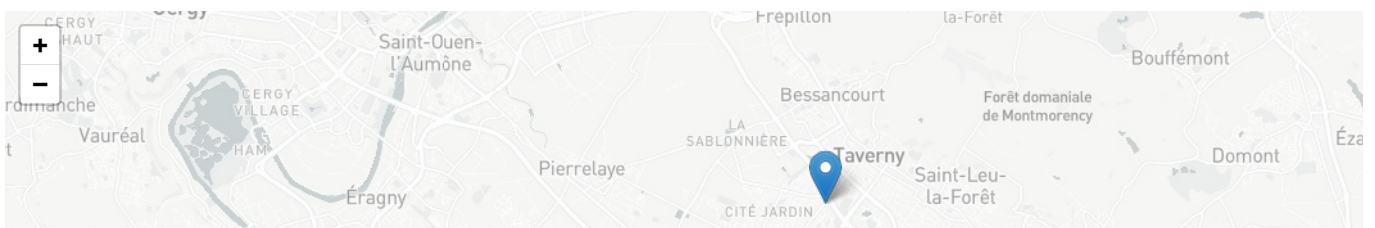
The built-in intervention is based on functionality, essential for this type of program. The square plan results from a hierarchy of the level of privacy necessary for each place. **The patio**, at the heart of the building, provides co-visibility between the common spaces and the natural lighting of all the circulations. On sunny days, it becomes an extension of the waiting rooms, a quiet outdoor place for patients and doctors. Its cross shape can accommodate the waiting rooms. Their locations, which are essential in the patient referral system, are visible from all the traffic of the pole.

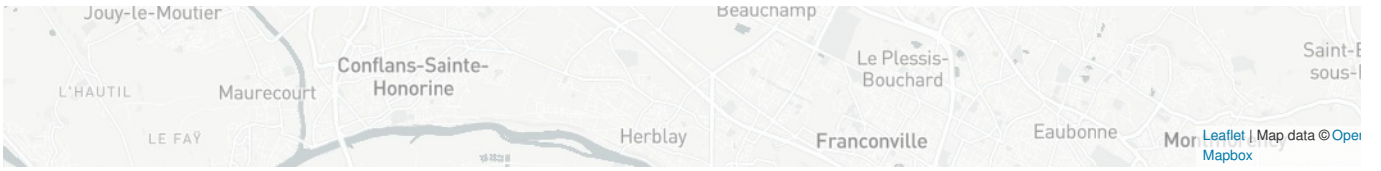
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### Building candidate in the category



Santé & Confort





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