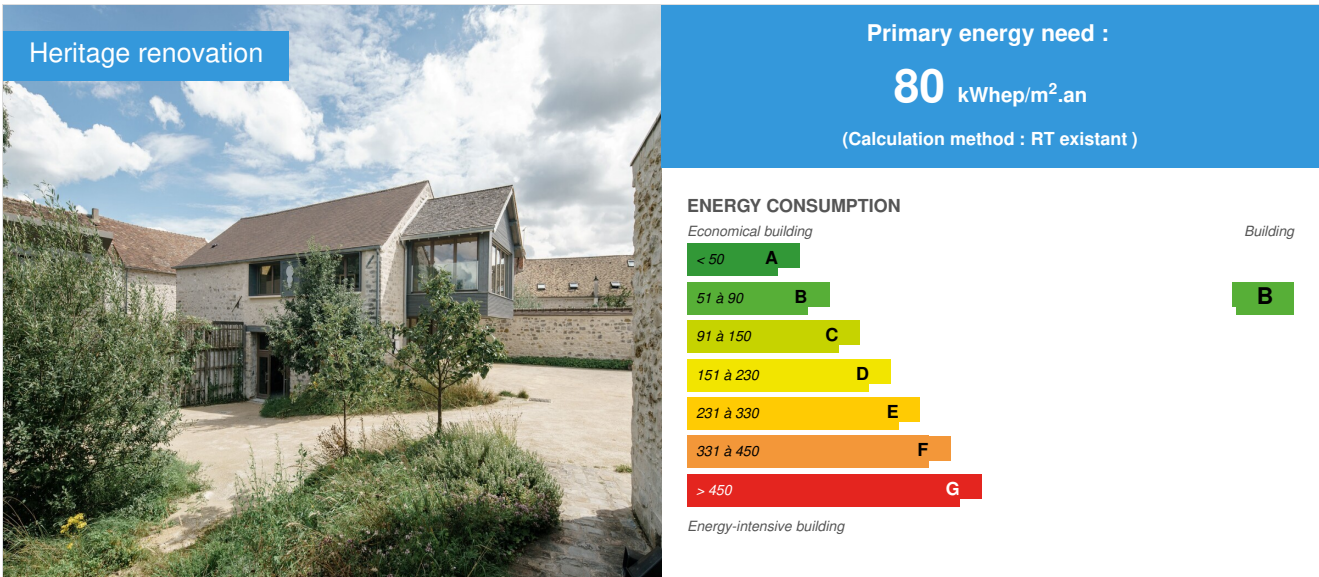


Rehabilitation of a barn in a Third Place

by [jean-marc Pitet](#) / 2022-05-25 00:00:00 / France / 1167 / FR



Building Type : Other building
Construction Year : 1880
Delivery year : 2021
Address 1 - street : 20 Boulevard Lyautey 91490 MILLY-LA-FORET, France
Climate zone : [Cfb] Marine Mild Winter, warm summer, no dry season.

Net Floor Area : 185 m²
Construction/refurbishment cost : 525 000 €
Cost/m2 : 2837.84 €/m²

General information

The project is located in the heart of Milly-la-Forêt, on the plot of an old farm transformed into the Maison du Parc naturel régional du Gâtinais français. The barn is positioned in a constraining situation: adjacent to the separating limits, mainly oriented to the north and surrounded by different levels of base.

The project proposes a **rehabilitation and an extension of the barn by preserving the characteristics of the rural architecture of the French Gâtinais**. The construction favors the **use of bio-sourced materials** and the extension is treated in a contemporary way by taking inspiration from the characteristic elements of the vernacular architecture, in particular the beehives and dryers. The project is presented as follows:

- Three levels are organized in the barn for its activities with a low first floor in half level and an interior structure in wood. The north façade is modified: the barn's carriage door is replaced by a wooden glazed frame and a large horizontal bay is created under the eaves of the roof. The existing roof is preserved, only pierced by flush roof windows on the southern slope.
- An extension is created on the west façade to accommodate a meeting room. This cantilevered extension signals the commitment of the French Gâtinais Regional Nature Park to sustainable and biosourced architecture. It presents a volume with a double slope roof at the R+2 level, suspended from the existing gable. It consists of a wood frame, a roof of wood shingles, wood cladding, interior insulation in plant fibers and wood joinery high performance protected by external blinds. A horizontal bay is created under the extension to light individual offices; it accompanies and emphasizes the extension of the cantilevered structure.

The project **combines modern techniques with traditional know-how** :

- The stone masonry and lime renderings are preserved. The interior wall finishes are also made of lime plaster.
- The use of hemp concrete on old masonry ensures a very good thermal comfort while promoting local know-how and short channels.

- The existing framework is preserved and the new frame is designed around the existing trusses. Entirely modeled in 3D, the framework was digitally shaped and assembled in one month.
- A flexible rainwater collection tank is integrated into the lower level for sanitary purposes.
- Electric vehicle charging stations are located under the extension.
- The Cep energy performance objective is set at 80 kWhep/m².year. The summer/winter comfort levels are optimized (inertia, cold wall sensation, phase shift...).
- The furniture is made from reused wood by an integration company.

All of these recommendations contribute to limiting the ecological footprint of the construction, to thermal comfort and to the qualitative atmosphere of the project.

Photo credit

abdpa / Daniele Rocco

Stakeholders

Contractor

Name : Parc Naturel Régional du Gâtinais français

Contact : Cathy Bos - Chargée de mission Architecture et Paysage - 01 64 98 23 38 - c.bos[a]parc-gatinais-francais.fr

<https://www.parc-gatinais-francais.fr/>

Construction Manager

Name : abdpa

Contact : Antoine Brochard - Architecte, Associé - 0175501481

<http://www.abdpa.com>

Stakeholders

Function : Thermal consultancy agency

LM Ingenieurs

Function : Other consultancy agency

C-TEK

Function : Company

Seve mobilier

Matthieu Renard - Directeur - 07 87 03 14 22

<https://seve-mobilier.fr/>

Reuse and integration furniture

Contracting method

Separate batches

Type of market

Global performance contract

Energy

Energy consumption

Primary energy need : 80,00 kWhep/m².an

Primary energy need for standard building : 98,00 kWhep/m².an

Calculation method : RT existant

Envelope performance

More information :

Hemp concrete insulation on existing masonry.
Wood fiber, and hemp flax on the roof slopes.

Renewables & systems

Systems

Heating system :

- Wood boiler

Hot water system :

- Individual electric boiler

Cooling system :

- No cooling system

Ventilation system :

- Free-cooling
- humidity sensitive Air Handling Unit (hygro A)
- Canadian well

Renewable systems :

- Wood boiler

Environment

Urban environment

The project is located in the center of Milly-la-Forêt, close to the town's facilities and shops. The plot of an old farm was divided during the creation of the house of the PNR of the French Gâtinais, realized by Joly and Loiret in 2009-2013. The barn remained unoccupied, without destination during the development of the site. It is located at the bottom of the plot, adjoining on two sides and with a variable level, which has complicated its use and rehabilitation.

Products

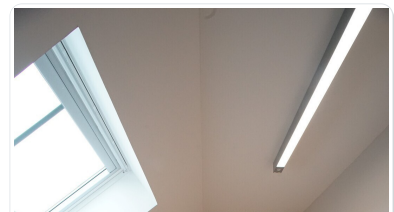
Product

SEVE Mobilier

+33 3 23 53 27 23

<https://seve-mobilier.fr/>

Product category : Finishing work / Indoor facilities



Costs

Construction and exploitation costs

Total cost of the building : 525 000 €

Circular Economy

Reuse : same function or different function

Batches concerned by reuse :

- o Structural works
- o Structural framework
- o Roofing
- o Facades
- o Indoor joineries

For each batch : Reused Materials / Products / Equipments :

The rehabilitation preserves the characteristics of the rural architecture of the barn: sandstone and limestone masonry, existing frameworks, flat tile roofs, zinc work... These elements are kept in place, reused in fact (132 m3 of masonry, 5.3 m3 of timber, 140 m² of tiles, 32 ml of zinc, 1 carriage porch...). Other elements are reworked, reorganized (flat tiles for the creation of roof windows, external doors condemned...).

The reuse also concerns the furniture resulting from the upcycling of wood of frame or joinery (oaks, fir, beech). From these materials, 6 individual desks, 4 double desks, 2 meeting tables and 8 storage boxes were made.

Field of use and material origin :

The integration company Seve Mobilier, based near Soissons, has collected, machined and assembled framework wood, floor elements or interior joinery, workshop scraps from the region.

Environmental assessment

Impacts avoided : water, waste, CO2 :

Little demolition in the barn, but adaptation of the existing. Much less impact than a demolition/reconstruction operation.

Categories	Avoided CO2 (kg)	Avoided water consumption (m3)	Avoided waste (kg)
Outdoor facilities	0	0	0
Exterior fittings / Locksmithing - Metalwork	0	0	0
Carpentry	302,8666667	4,8433	262,8357626
Partitions	0	0	0
Coverage	2216,76	11,6536	1223,181589
Roofing / Exterior fittings	0	0	0
Lighting	0	0	0
Safety lights	0	0	0
Climatic engineering equipment	0	0	0
Electrical equipment	0	0	0
Facades	0	0	0
False ceilings	0	0	0
False floors	0	0	0
False ceilings	0	0	0
Structural work	269406,6052	1818,211568	351022,252
Sanitary installations	0	0	0
Insulation	0	0	0
Exterior carpentry	0	0	0
Interior carpentry	173,326208	3,49438386	225,0903078
Furniture	1329,122753	12,36986045	901,8513461
Paint	0	0	0
Plumbing	0	0	0
Floor coverings	0	0	0
Floor and wall coverings	0	0	0
Wall coverings	0	0	0
Building security	0	0	0
Locksmithing - metalwork	0	0	0
VRD	0	0	0
TOTAL	Avoided CO2 (kg)	Avoided water consumption (m3)	Avoided waste (kg)
	273428,6808	1850,572712	353635,211

Km in a Nb of rectangular nb of years of household

	small car	bathubs	waste of a French person
Equivalent	2187429	12337	707

Equivalent trip Paris-Nice	2486,0
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The reuse operation has saved the equivalent of 2187429 kilometers traveled by a small car, or 2486 Paris-Nice trips, 12337 rectangular bathtubs filled with water and 707 years of household waste of a French person.

Social economy

Social economy and professional integration :

SEVE MOBILIER is a social integration structure with 6 employees and 25 employees on a professional integration path. Since its creation in 2015, more than 150 people have been trained and accompanied in the workshop.

Health and comfort

Water management

Recovery of rainwater for sanitary grey water, flexible tank of 8 m3.

Contest

Reasons for participating in the competition(s)

- Rénovation patrimoniale en conservant les caractéristiques de l'architecture rurale du Gâtinais français
- Mise en oeuvre de matériaux biosourcés
- Bon confort thermique et performances énergétiques efficaces
- Mobiliers réalisés à partir de bois de réemploi
- Réemploi de matériaux
- Bornes de rechargement électrique
- Récupération des eaux pluviales
- Production d'énergies renouvelables par chaudière-poele bois

Building candidate in the category



Prix du public

