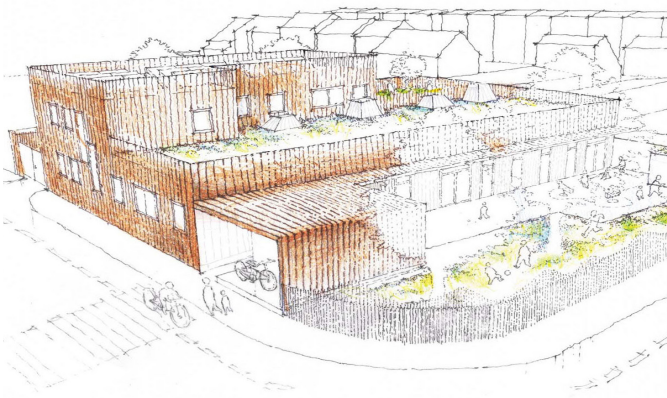


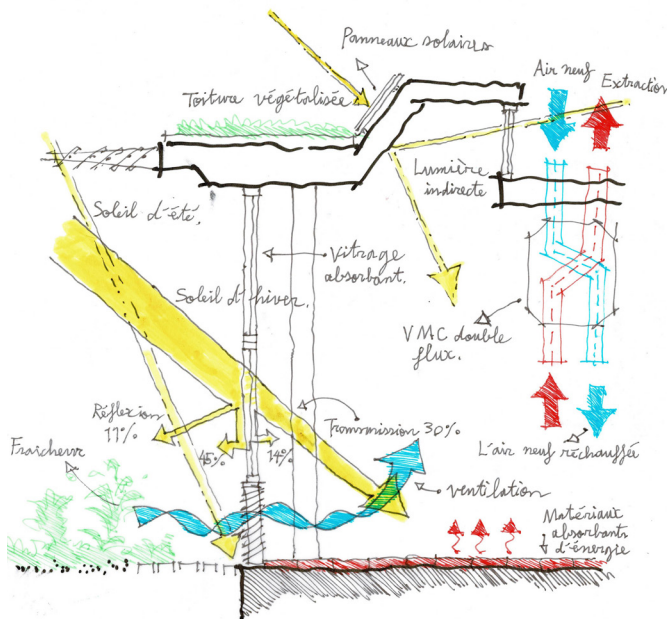
A passivhaus standard childcare facility in Charleville-Mézières

The city of Charleville Mézières wishes to build a new nursery in Passivhaus standard..

According to the bio climatic design of the envelope, we proposed a south orientation of the main facade with the games rooms. And a simple and compact volume to limit energy loss. The building is in timber frame construction with concrete floors to provide thermal inertia. Bio-based materials guarantee environmental quality, healthy indoor air, and natural and warm atmospheres. The interiors are connected by sliding elements; so that the children can move freely between the different play groups..



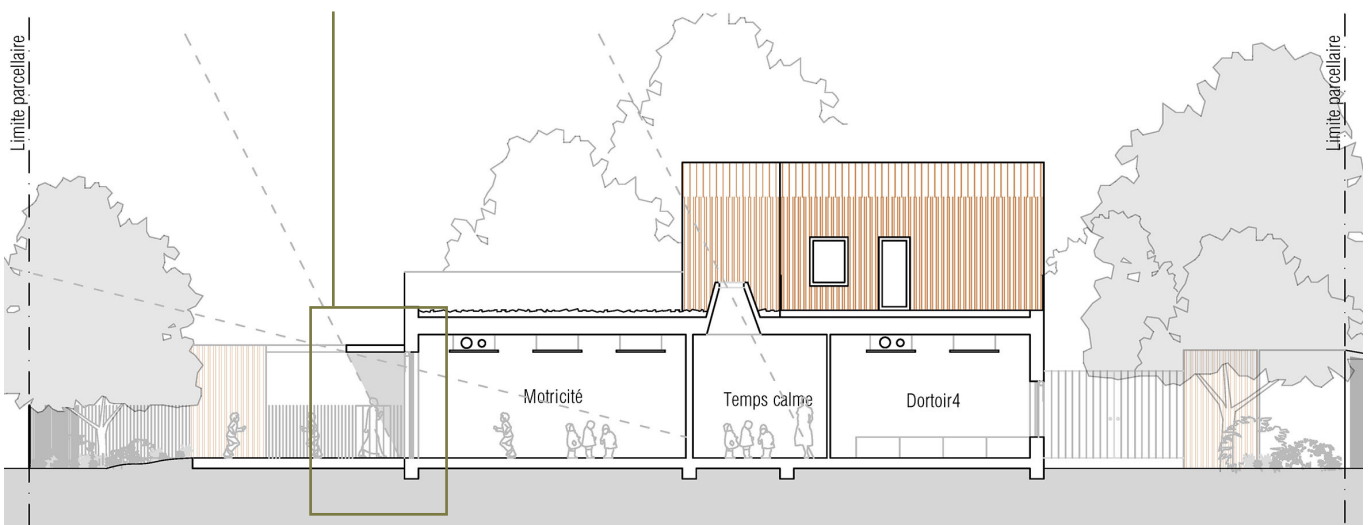
Sketch of insertion in the urban context



Passive Envelope Design Principles



Ground-floor plan



South- North section of the building

Restricted Competition
 Surface: 500m²
 Construction: -
 Client: Ville de Charleville-Mézières
 Pl. de l'Hôtel de Ville, 08000 Ch-Mézières
 Location: 42 rue de la Vieille Meuse, Charleville-Mézières
 Program: Construction of a passive nursery.
 Mission: Competition

Submitted
 Building Costs BT: 1200 k€
 Completion -

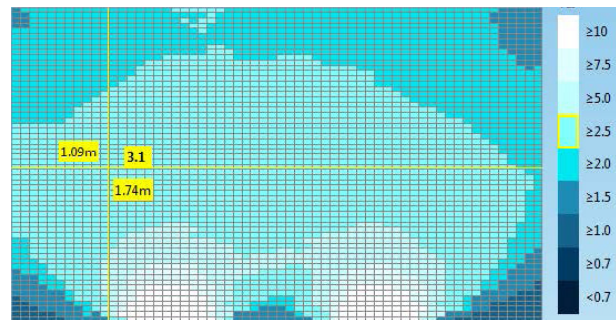
PASSIVE NURSERY – CH-MÉZIÈRES (08)
 Construction of a nursery with the Passivhaus standard - Charleville-Mézières 2021

RETHINK (representative) with Gies Architekten, BeA (engineering)





Surface de Référence Énergétique m²		501,0	Critères alternatifs		Conforme?²
Chauffer	Besoin de chauffage kWh/(m²a)	15	15	-	oui
	Puissance de chauffe W/m²	12	-	10	
Refroidir	roidissement + déshumidification kWh/(m²a)	-	-	-	oui
	Puissance de refroidissement W/m²	-	-	-	
	Fréquence de surchauffe (> °C) %	10	10	-	
	Fréquence d'humidité excessive (> 12 g/kg) %	0	20	-	
Étanchéité à l'air	Test d'infiltrométrie n50 1/h	0,6	0,6	-	oui
Energie primaire non-renouvelable (EP)	Consommation d' EP kWh/(m²a)	120	120	-	oui
Energie primaire renouvelable (EP-R)	Consommation d'EP-R kWh/(m²a)	20	60	60	oui
	Production d'énergie renouvelable kWh/(m²a) (par rapport à l'emprise au sol de la zone bâtie)	10	-	-	



Thermal calculation on the envelope, compliance with Passivhaus objectives

Daylight Factor calculations, example in infant space

Passive Envelope Design

The design of the glazed surfaces was carried out according to the orientation of each of the facades. To the south, a cap protects against overheating in summer, and marks a courtyard at the entrance. Thermal calculations were carried out by the design office to validate compliance with Passivhaus objectives. The Daylight Factor has been calculated in each room according to its orientation to guarantee comfortable natural lighting.