

CS 11: EHPAD Ste Clotilde, Coulanges sur Yonne

RENOVATION APPROACH DOCUMENT

outPHit

Deep retrofits made faster, cheaper and more reliable

Call: H2020-LC-SC3-2018-2019-2020 / H2020-LC-SC3-EE-2020-1

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OUTPHIT – DEEP RETROFITS MADE FASTER, CHEAPER AND MORE RELIABLE

outPHit pairs such approaches with the rigour of Passive House principles to make deep retrofits cost-effective, faster and more reliable. On the basis of case studies across Europe and in collaboration with a wide variety of stakeholders, outPHit is addressing barriers to the uptake of high quality deep retrofits while facilitating the development of high performance renovation systems, tools for decision making and quality assurance safeguards.

outphit.eu



CS11_EHPAD STE CLOTILDE_COULANGES SUR YONNE

Renovation Approach Description

TABLE OF CONTENTS

1.	Executive Summary	3
2.	Description of the existing building	6
2.1.	Building data	6
2.2.	Owner data.....	6
2.3.	Location description	6
2.4.	Original situation.....	6
2.5.	Plans and pictures of the existing building	7
2.6.	Envelope of the existing building	8
2.7.	Technical equipment of the existing building	9
2.8.	Energy efficiency of the existing building	9
3.	Renovation approach description	11
3.1.	EnerPHit standard approach	11
3.2.	Design / Consultancy teams.....	11
3.3.	Design / Construction periods.....	11
3.4.	Plans and pictures of the renovation	11
3.5.	Envelope of the renovated building.....	14
3.6.	Technical equipment of the renovated building.....	15
3.7.	Summer comfort	15
3.8.	Energy efficiency of the renovated building	16
3.9.	Predicted energy savings	17
3.10.	RES strategy	17
4.	Project challenges and opportunities	18
5.	Current project status	19
6.	Lessons learnt and guidelines for replication	20
7.	Pre-Monitoring description (if applicable).....	21

CS11_EHPAD STE CLOTILDE_COULANGES SUR YONNE

Renovation Approach Description

1. Executive Summary

FR-CS11, EHPAD Sainte Clotilde, Coulanges sur Yonne

BEFORE:



AFTER:



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Renovation Approach Description

ORIGINAL SITUATION

1970 built NONRES Building in the outskirts of Coulanges sur Yonne. EHPAD means medicalised retreat homes for elderly people

MODERNISATION PROPOSAL

“Semi prefabricated” global retrofit. The renovated part is a 2-storey building (on the left of the mansion), some facades will be renovated using prefabricated modules. A new building is added to the compound (on the right of the mansion)

EFFICIENCY IMPROVEMENT

The renovated part is Passive retrofit: “EnerPHit” standard. The new building is “Passive Classic” level

PHPP VERIFICATION SHEET BEFORE RETROFIT

Bill basis: Electric consumption: **165 kWh/m².a** (78.000 €/a)

PHPP VERIFICATION SHEET AFTER RETROFIT

		Surface de Référence Energétique m²		Critères		Conforme?²
				Critères	Critères alternatifs	
Chauffer	Besoin de chauffage kWh/(m².a)	22	≤	20	-	non
	Puissance de chauffe W/m²	17	≤	-	-	
Refroidir	ifroidissement + déshumidification kWh/(m².a)	2	≤	15	15	oui
	Puissance de refroidissement W/m²	5	≤	-	12	
	Fréquence de surchauffe (> 25°C) %	-	≤	-	-	-
	Fréquence d'humidité excessive (> 12 g/kg) %	3	≤	10	-	oui
Etanchéité à l'air	Test d'infiltrométrie n ₅₀ 1/h	1,0	≤	1,0	-	oui
Energie primaire non-renouvelable (EP)	Consommation d' EP kWh/(m².a)	141	≤	129	-	non
Energie primaire renouvelable (EP-R)	Consommation d'EP-R kWh/(m².a)	89	≤	-	-	-
	Production d'énergie renouvelable (par rapport à kWh/(m².a)	6	≥	-	-	
	l'emprise au sol de la zone bâtie)					

CURRENT SITUATION

Project in design phase “APSV3”. Financing plan in revision

CHALLENGES OF THE PROJECT

main challenge is to realize retrofit + newbuild in a near-hospital environment working 24/7. We consider use of prefab module a real chance for his retrofit. But financial plan remains a real big question. The project needs a few more euros to be viable. Otherwise, it will be retrofitted in a less ambitious manner, which will be a shame for all projects participants. A FEDER files has been entered. To be decided later this year by the board of the EHPAD.

RENOVATION APPROACH USED

EHPAD Ste Clotilde is a 24/365 care institution, with a huge interest in having a reduced renovation time. As such prefab modules are a good solution for retrofitting a lived-in building.

CS11_EHPAD STE CLOTILDE_COULANGES SUR YONNE

Renovation Approach Description

But we have to take into account, prefab solutions are not well known (in all details) and its full interest may lack of positive argumentation. Fear is that reduced work on site won't be enough emphasized and not taken enough in the costs descriptions.

OTHER DOWNLOADABLE MATERIALS (optional)

Link of materials related to the project that could be useful and/or of interest (TBD)

CS11_EHPAD STE CLOTILDE_COULANGES SUR YONNE

Renovation Approach Description

2. Description of the existing building



2.1. Building data

Year of construction:	1971 + 1890
Treated Floor Area:	3162
Number of floors:	5
Number of apartments:	xxx
Building typology (residential / other):	non-res
Main construction type (e.g. massive)	Masonry

2.2. Owner data

Name:	EHPAD Ste Clotilde
City:	Coulanges sur Yonne (Burgundy)
Type (private / housing association):	care institution

2.3. Location description

Climate data is Auxerre, Burgundy region in the temperate cool climate

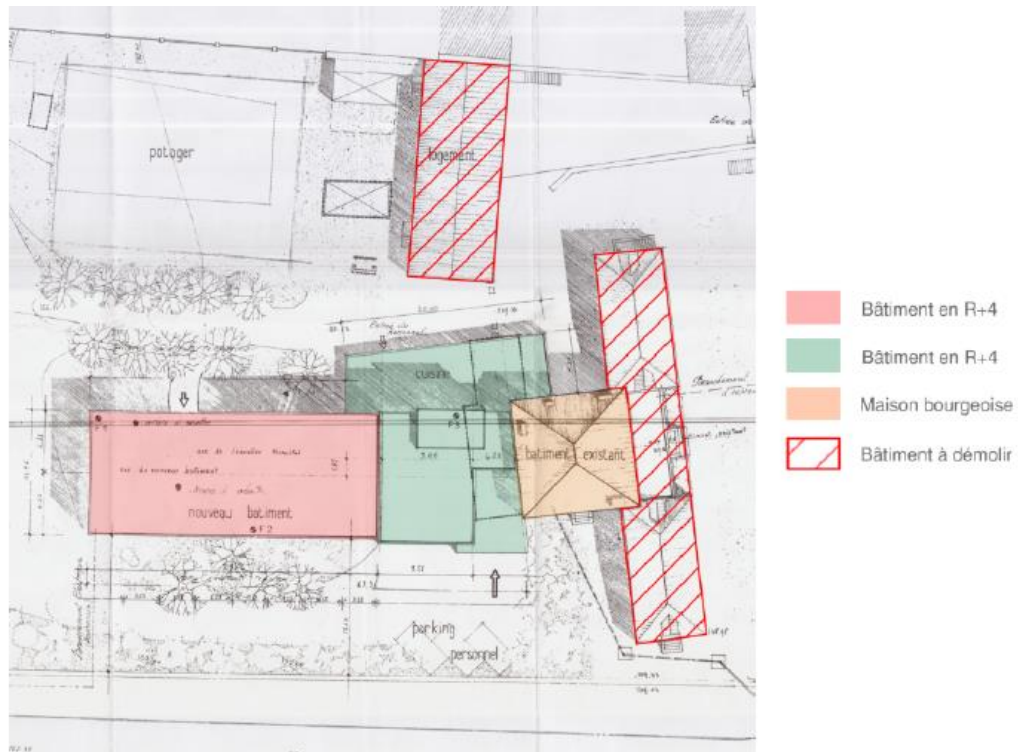
2.4. Original situation

Care Institution for elderly people created late XIXth “Hospice” in the Mansion House and extended in the seventies with a 4 levels concrete building

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Renovation Approach Description

2.5. Plans and pictures of the existing building



2.6. Envelope of the existing building

External walls

Material:	Stone + Reinforced concrete
Thickness:	xxx [cm]
Surface (Render / Brick / Cladding):	xxx
U-Value:	xxx [W/(m ² K)]

Basement walls (delete if not applicable)

Material:	Stone + Reinforced concrete
Thickness:	xxx [cm]
Surface (Render / Brick / Cladding):	xxx
U-Value:	xxx [W/(m ² K)]

Floor slab / Basement ceiling

Material:	Concrete
Thickness:	xxx [cm]
Surface (Render / Brick / Cladding):	xxx
U-Value:	xxx [W/(m ² K)]

Roof / Top floor ceiling

Material:	Tiles / Concrete
Thickness:	xxx [cm]
Surface (Render / Brick / Cladding):	xxx
U-Value:	xxx [W/(m ² K)]

Windows

Material:	Single glaze
Thickness:	xxx [cm]
Material (Wood / Plastic / Aluminium):	xxx
U-Value (Uw, installed):	xxx [W/(m ² K)]

2.7. Technical equipment of the existing building

Ventilation

Ventilation concept: xxx

Add short description if required

Heating, Cooling and DHW

Heating: electric direct

Cooling: none

Domestic hot water: electric direct

2.8. Energy efficiency of the existing building

Passive House Planning Package (PHPP)

PHPP calculation: PHPP_XX.X

Space heating demand: xxx [kWh/(m²a)]

Heating Load: xxx [W/m²]

Overheating frequency: xxx %

Cooling demand: xxx [kWh/(m²a)]

Cooling Load: xxx [W/m²]

Primary Energy Demand: xxx [kWh/(m²a)]

PER Demand: xxx [kWh/(m²a)]

Final Energy demand

Final energy demand gas: 0 [kWh/(m²a)]

Final energy demand oil: 0 [kWh/(m²a)]

Final energy demand electricity: 165 [kWh/(m²a)]

Final energy demand other: unk [kWh/(m²a)]

Available consumption before renovation

Annual energy consumption gas: 0 [kWh/(m²a)]

Annual energy consumption oil: 0 [kWh/(m²a)]

Annual energy consumption electricity: 165 [kWh/(m²a)]

Annual energy consumption other: unk. [kWh/(m²a)]

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Renovation Approach Description

Available energy costs before renovation

Annual energy costs gas:	0 [€/m ² a]
Annual energy costs oil:	0 [kWh/(m ² a)]
Annual energy costs electricity:	xxx [kWh/(m ² a)]
Annual energy costs other:	xxx [kWh/(m ² a)]

PHPP verification sheet before retrofit

No PHPP before retrofit

CS11_EHPAD STE CLOTILDE_COULANGES SUR YONNE

Renovation Approach Description

3. Renovation approach description

Short description of renovation approach building:

- The renovation of EHPAD Ste Clotilde is huge: Ste Clotilde has never been retrofitted and urge for it. It's demolition of old buildings + removal of 2 storey of the existing '70s building + construction of new spaces.
- Th renovation part is to be renovated with prefab modules in order to speed up time spent on site and reduce nuisance on a 24/365 site
- What measures will be carried out? (in general: Façade/Roof/Floor insulation, windows, ventilation, heating)
- Will RES be implemented?

Add an outside picture

3.1. EnerPHit standard approach

EnerPHit standard target (class):	Classic
Climate Zone	temperate cool
EnerPHit verification method:	calculation

3.2. Design / Consultancy teams

Name:	Karawitz arch / Fleury / Maya / EOC /
City:	xxx
Type (private / housing association)	xxx

3.3. Design / Construction periods

Design period:	xx.2020 – xx.2022
Construction period:	xx.2023 – xx.2027

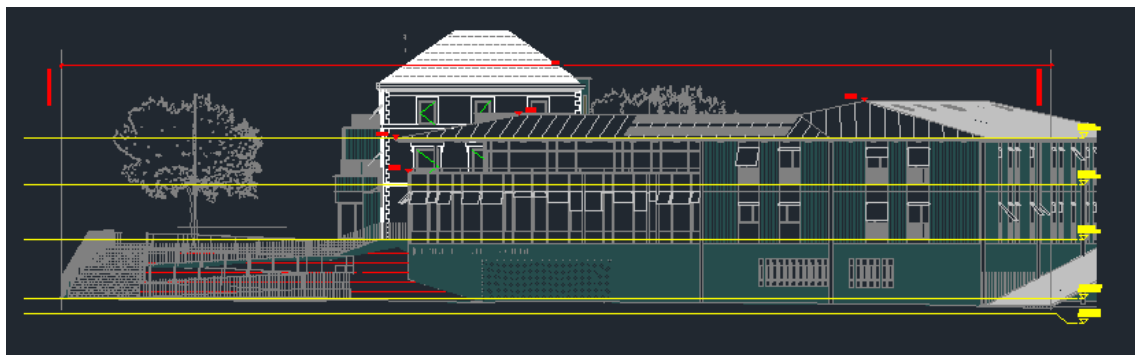
3.4. Plans and pictures of the renovation

- Plans: 1-2 Groundfloor Plans / 1 section and elevation if available
- Details: 2-3 connection details
- Pictures: 3-4 pictures maximum, inside or outside

Renovation Approach Description



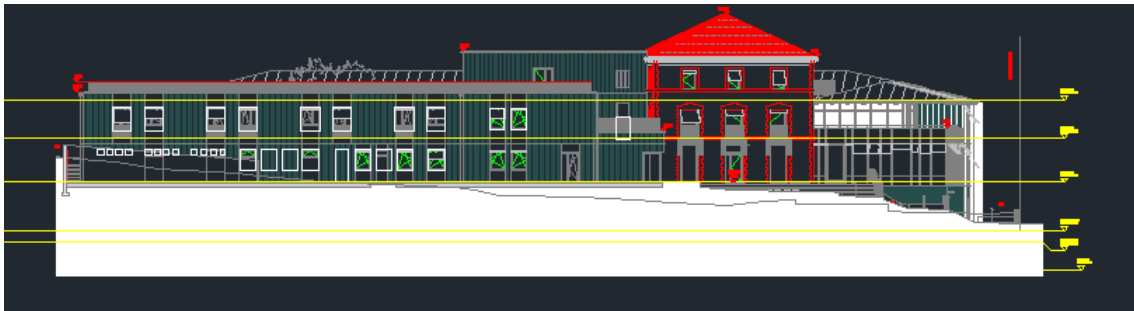
South façade:



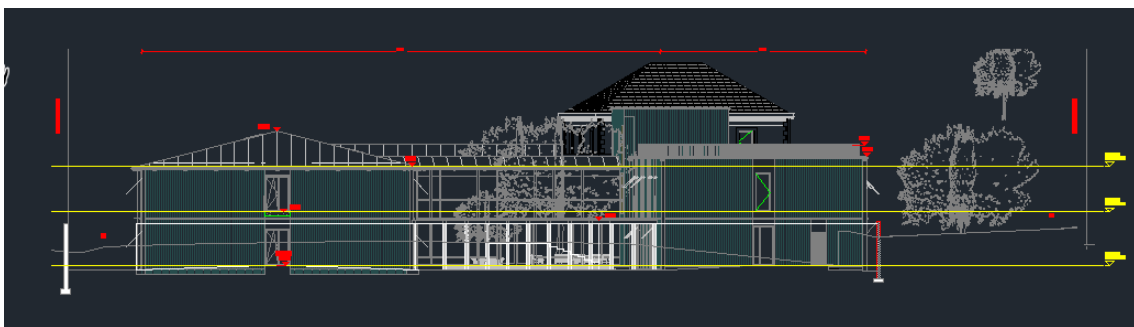
West facade:

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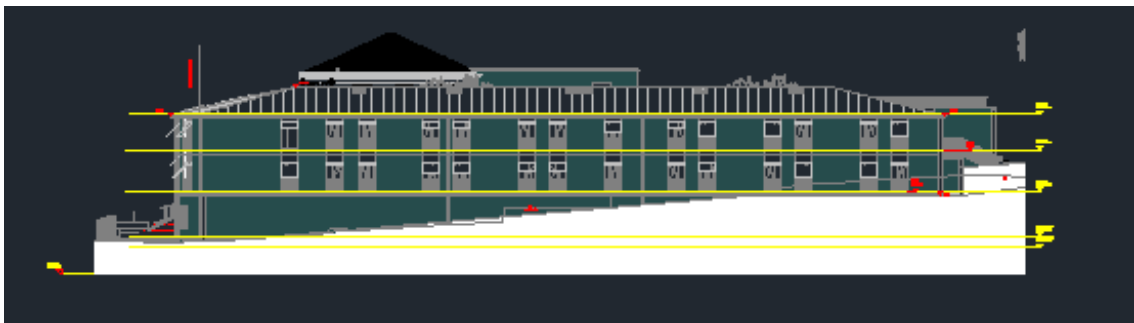
Renovation Approach Description



North façade:



East Façade:



CS11_EHPAD STE CLOTILDE_COULANGES SUR YONNE

Renovation Approach Description

3.5. Envelope of the renovated building

External walls

Brique platrière	0,500				
Lame d'air	0,240				
Brique pleine (P+C)	0,733				
OSB	0,130				
Isolant laine de bois	0,036	Poutre I	0,130		
Isolant laine de bois	0,036			Poutre I	0,130
Isolant laine de bois	0,036	Poutre I	0,130		
Fibre de bois pare-pluie	0,042				

Material:

Thickness: 59 [cm]

Surface (Render / Brick / Cladding): xxx

U-Value: 0,164 [W/(m²K)]

Floor slab / Basement ceiling

Béton plein armé (acier > 2%) (P+C)	2,500				
Perlite en vrac	0,134				

Material: xxx

Thickness: 110 [cm]

Surface (Render / Brick / Cladding): xxx

U-Value: 0,160 [W/(m²K)]

Roof / Top floor ceiling

Isolant laine de bois	0,036				
OSB 3	0,130				
Ouate de cellulose	0,041	Poutre I pré-isolée (Bois)	0,130		
Ouate de cellulose	0,041			Poutre I pré-isolée (Bois)	0,130
Ouate de cellulose	0,041	Poutre I pré-isolée (Bois)	0,130		
CLT 120L3s	0,130				

CS11_EHPAD STE CLOTILDE_COULANGES SUR YONNE

Renovation Approach Description

Material:	xxx
Thickness:	48 [cm]
Surface (Render / Brick / Cladding):	xxx
U-Value:	0,105 [W/(m ² K)]

Windows

Material:	Triple glazing
Thickness:	xxx [cm]
Material (Wood / Plastic / Aluminium):	xxx
U-Value (Uw, installed):	xxx [W/(m ² K)]

3.6. Technical equipment of the renovated building

Ventilation

Ventilation concept (central / decentral)	central with HR
Ventilation heat recovery efficiency	90 %
Ventilation specific efficiency	0,45 [Wh/m ³]
Ventilation standard air flow rate	2721 + 4517 [m ³ /h]
Add short description if required	

Heating, Cooling and DHW

Heating:	Wood boiler
Cooling:	HP
Domestic hot water:	Wood boiler

3.7. Summer comfort

Add short description of summer comfort approach, include

- Summer ventilation
- Temporary summer shading
- Fixed shading
- Reduction of internal heat gains
- Active Cooling if applicable

3.8. Energy efficiency of the renovated building

Passive House Planning Package (PHPP)

PHPP calculation:	PHPP_XX.X
Space heating demand:	24 [kWh/(m²a)]
Heating Load:	15 [W/m²]
Overheating frequency:	- %
Cooling demand:	4 [kWh/(m²a)]
Cooling Load:	7 [W/m²]
Primary Energy Demand:	102 [kWh/(m²a)]
PER Demand:	161 [kWh/(m²a)]

Airtightness n50 target: 1,0 1/h

Final Energy demand

Final energy demand gas:	0 [kWh/(m²a)]
Final energy demand oil:	0 [kWh/(m²a)]
Final energy demand electricity:	161/2.58 [kWh/(m²a)]
Final energy demand other (wood):	24 [kWh/(m²a)]

PHPP verification sheet after retrofit

3.9. Predicted energy savings

In space heating demand:	165 – 24 [kWh/(m ² a)]
Primary Energy Demand:	xxx [kWh/(m ² a)]
PER Demand:	xxx [kWh/(m ² a)]

Final energy demand gas:	xxx [kWh/(m ² a)]
Final energy demand oil:	xxx [kWh/(m ² a)]
Final energy demand electricity:	xxx [kWh/(m ² a)]
Final energy demand other:	xxx [kWh/(m ² a)]

3.10. RES strategy

Short description of the RES strategy

PV Systems

Location (Pitched / flat roof or façade):	xxx
Orientation (East / South / West):	xxx
PV Technology (Amorph/Mono/Poly):	xxx
PV area:	xxx [m ²]
Installed kW Peak	xxx [kW]
Annual electricity yield absolute:	xxx [kWh/a]

Solar Thermal Systems

Location (Pitched / flat roof or façade):	Pitched
Orientation (East / South / West):	South
Technology (Flat Plate / Evacuated tube):	Flat Plate
Solar collector area:	40 [m ²]
Solar contribution (DHW/Heating/Both):	Both
Annual solar contribution absolute:	20783 [kWh/a]

Add picture if available

4. Project challenges and opportunities

Project extremely challenging. Too much problems trying to get financial plan fixed. Too much time lost trying to get agreement with Region Burgundy. Architectural plan will remain. Thermal retrofit will be abandoned. Too bad: so much time lost!

Add pictures, sketches, details, diagrams, if available

CS11_EHPAD STE CLOTILDE_COULANGES SUR YONNE

Renovation Approach Description

5. Current project status

Short description of the lessons learnt, if available

Add pictures, sketches, details, diagrams, if available

CS11_EHPAD STE CLOTILDE_COULANGES SUR YONNE

Renovation Approach Description

6. Lessons learnt and guidelines for replication

If finance doesn't fit, no use to get any further. There's a huge responsibility of Burgundy Region in this disaster: not having any FEDER subsidy for two years for EHPAD renovation is main cause

7. Pre-Monitoring description (if applicable)

Short description of the pre-monitoring, include information on

- Comfort and hygiene: conclusions
- Thermography
- Air quality measurements: conclusions
- Satisfaction questionnaires: conclusions

Number of apartments: xxx

Period of pre-monitoring: xx.202x – xx.202x

Add pictures, sketches, details, diagrams, if available