



European Project Semester

PROJECT OUTLINE

Project dates: March – June 2017

Title: Building bio-climatic design (Passiv'Haus)

Project activity areas:

Architecture
Civil engineering
Thermal and mechanical engineering
Project management

Keywords:

Sustainable development, Green building,
Energy management, eco-design

Tutor's name and coordinates

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Project origin

Civil Engineering Department

Project technical background:

This project deals with the design of a bio-climatic house, located in the South of France, in a city near Tarbes (65).

From the plans of the land and some photos, the objectives of this project are as follows :

- To draw the plans of the house
- To optimize the orientation of the house (soil properties)
- To optimize window area of the house (solar irradiation)
- To design the power generation system (renewable energy)
- To design the heating system (main system and supplementary if necessary)
- To design the lighting system
- To design the air-conditioning system
- To choose the adapted insulation (floor, walls, roof base)
- To evaluate the solution proposed with ClimaWin / CYPE softwares



The primary energy consumption (PEC) of this bio-climatic house will be lower than **15 kWh/m²/year**, limit determined for a “passive house”.

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Studied topics:

The aim of this project is to design a "passive house".

This step is a major ranging rod in order to obtain the building permit and so to begin the construction work.

The following topics will be covered in this projet :

- Exposure of the house
- Construction materials
- Electricity production
- Heat production
- Hot water production for sanitary purposes
- Lighting

The recruitment of students in civil engineering, in thermal and mechanical engineering, in architecture will enable to constitute an adapted team work to lead this project.