Proyecto Final de Grado
Grado en Arquitectura Técnica

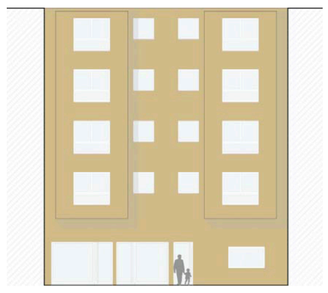
modalidad de intercambio académico curso 2012-2013

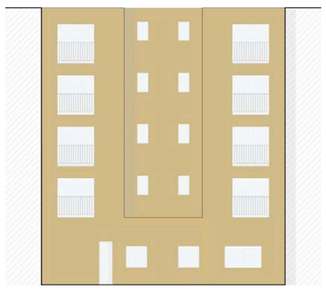
DENMARK - HORSENS

VIA UNIVERSITY

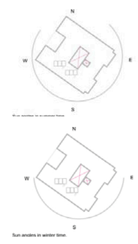
Outline

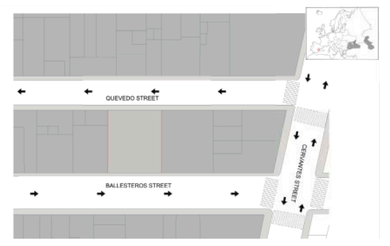
UTIEL 'S BUILDING





Facades





Site Plan

Layout Analysis

Clients demands for dwelling:

The building should contain 2 room apartments. The area of the apartment should be around 90 m2 gross.

The ground floor should be divided in two parts:
- Entrance of people in the dwelling.
- Office.

The basement should be divided in:
- Office: file rooms.
- Dwelling: storage rooms.

As minimum an apartment should contain:
- Hall with biult-in wardrobe.
- Fitted kitchen with all mdern facilities, dishwasher, cupboards/worktop space.
- Livig room with flexible furniture plan and access to the kitchen.
- Two bedrooms for 2 people each of them, with fitted cupboard for clothes, bed line, etc. Flexible furniture plan.
- Bathroom with toilet, washbasin and shower cabin. Cupboard toilet for articles. Considerations should be made for possible placement of washing machine/dryer.

Every storey is divided into two separate apartments. Every flat has 2 bedrooms, 2 bathrooms, kitchen and livingroom.

The size of the apartment: 80 m2.

TWO BEDROOM APARTMENT:

Option A: Apartment for a couple with one child. Bedroom space is divided into two big bedrooms. One for parents and the other for the children. A corridor connects the bedrooms with the bathroom and the livig room.

Option B: Apartment for a couple with two children.

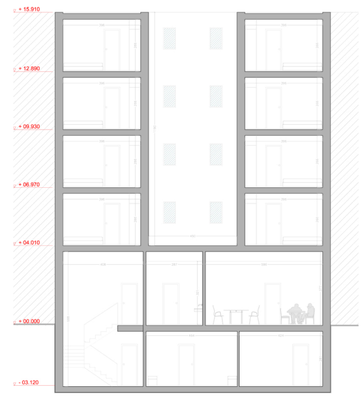
The apartments are made acording to the regulations concerning design, layout and fitting out of buildings.

The design and fitting out of the dwelling, and the size and layout of individual rooms, must be such that both the dwelling as a whole and the individual rooms are adequate for their intended use. (BR 10 3.3.1. (1)).

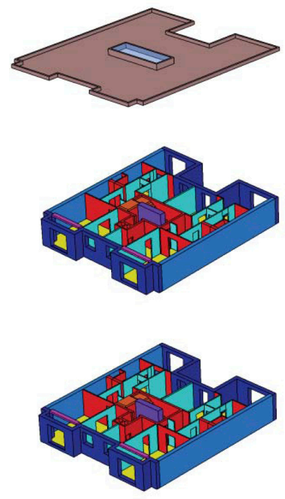
The municipal council may required documentation of compliance with this requirement, for examenpl, an exposition of furniture layout optiones. In addition to hablitable rooms, a dwelling must have a kitchen, bathroom and lavatory. (BR 08 3.3.1.(2)).

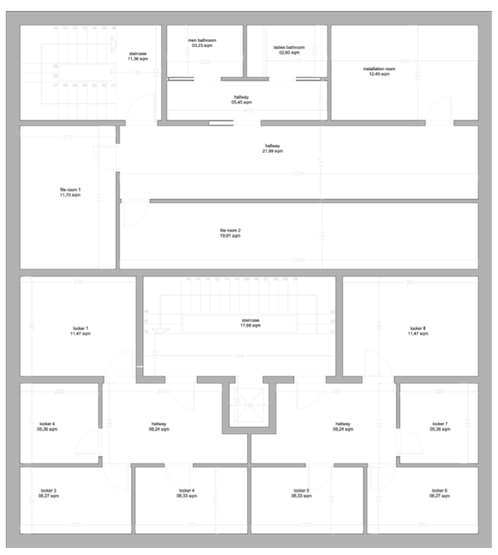
Doors on the access fllorr of a dwelling must have a clear width of no less than 0.77m (BR 08 3.3.3.(1)). Storm porches, entrance halls, corridors and similar access spaces must be laid out so as to allow unobstructed passage across their full width (BR 08 3.3.4. (1)).

This requirement may be complited with by a clear width of no less than 1.0 m in the access spaces. If there are doors or cupboard doors at the sides of a circulation space, the width of that space should be increased by at least 0.3 m. Greater clearance improves comfort and user-friendliness (BR 08 3.3.4 (1)).

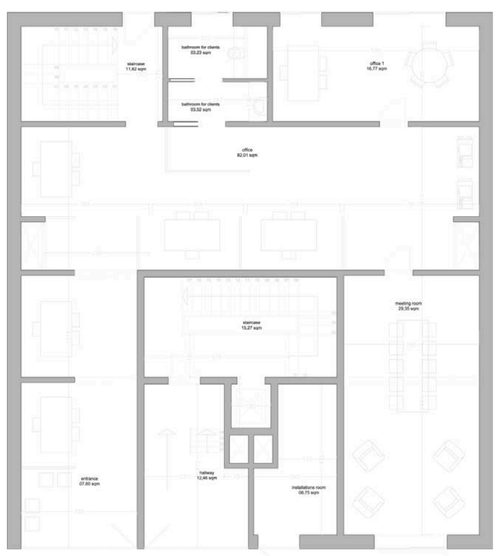


Section



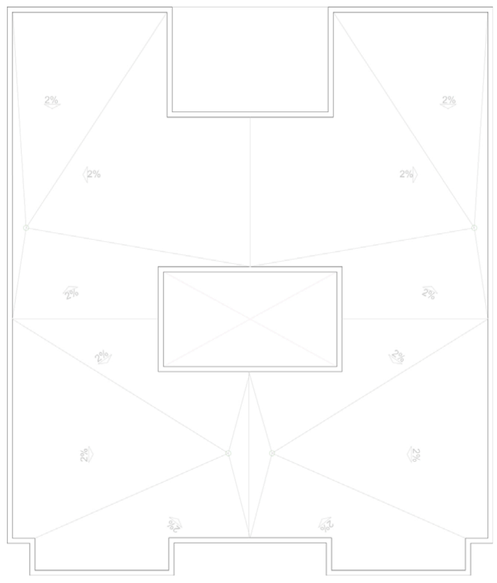


Basement

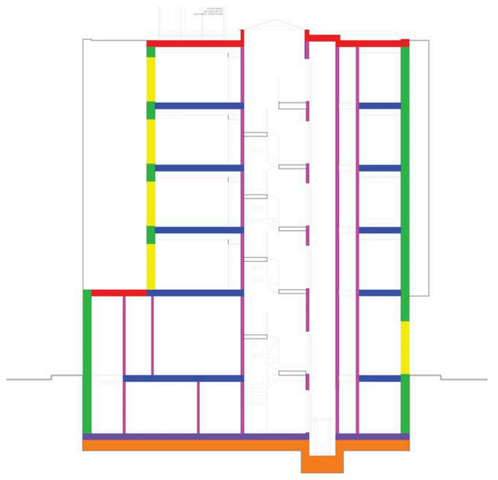


Ground Floor

Type Floor



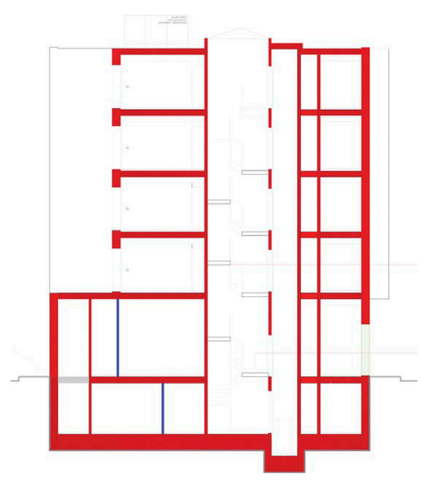
Roof

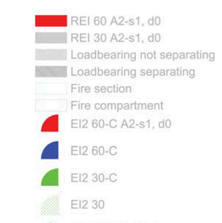


U-value Analysis

Building Regulations 2010.
7.3.2. Thermal insulation of building elements:

- External walls and basement walls in contact with the soil (Minimum value: 0.15 W/m2k)
- Windows and external doors, including glass walls (Minimum value: 1.40 W/m2k)
- Suspended floors below floors with underfloor heating adjoining rooms are heated (Minimum value: 0.10 W/m2k)
- Ceiling and roof construction, including jamb walls, flat roofs and sloping walls directly adjoining the roof (Minimum value: 0.10 W/m2k)
- Foundations (Minimum value: 0.12 W/m2k)
- Partition walls and suspended upper floors adjoining rooms/spaces that are unheated or heated to a temperature more than 5 k lower than the temperature in the rooms/spaces concerned (Minimum value: 0.40 W/m2k)
- Basement floor (Minimum value: 0.10 W/m2k)





Fire Analysis

Structure analysis

Sustainability Analysis

I'm going to use solar panels for heating and hot water. They are going to be placed on the roof, facing south and with a tilt of 45º.

To supply the whole building we will need 6 solar panels in two series of three. The area of one of this panels is 1.39 sqm, so the total area of this 6 panels will be around 8.40 sqm, as you can see in the plan we are going to put them in to lines of 3 panels each line.

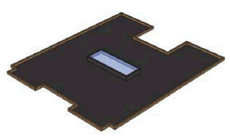
Extraction from: SBi-direktion 213 - Energy requirements for buildings.

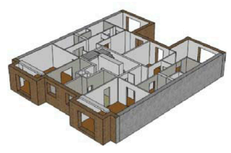
Domestic hot water consumption (litres/m2 years)

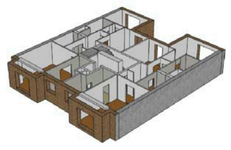
In dwellings is accepted a yearly consumption of hot domestic water of 250 litres per m2 heated floorage. The consumption is assumed uniform distributed over the year. In dwellings however a yearly consumption of hot domestic water is assumed to be at least 21 m³ per dwelling and maximal 60 m³ per dwelling, corresponding to at least one person and maximal four persons per dwelling.

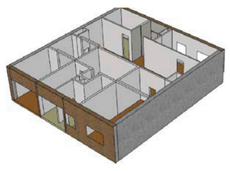
In other buildings than dwellings a yearly consumption of hot domestic water is normally assumed to be 300 litres per m2 heated floorage.

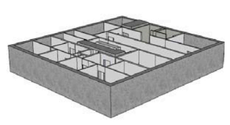
Scheme Design + Detail 1

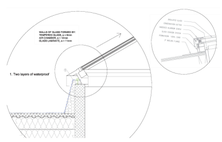


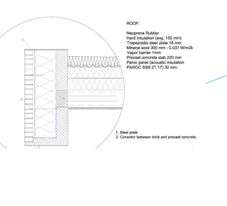


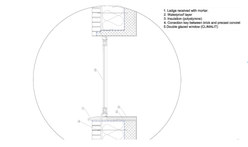


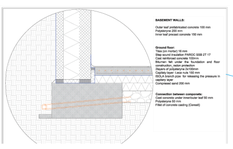


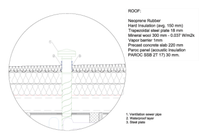


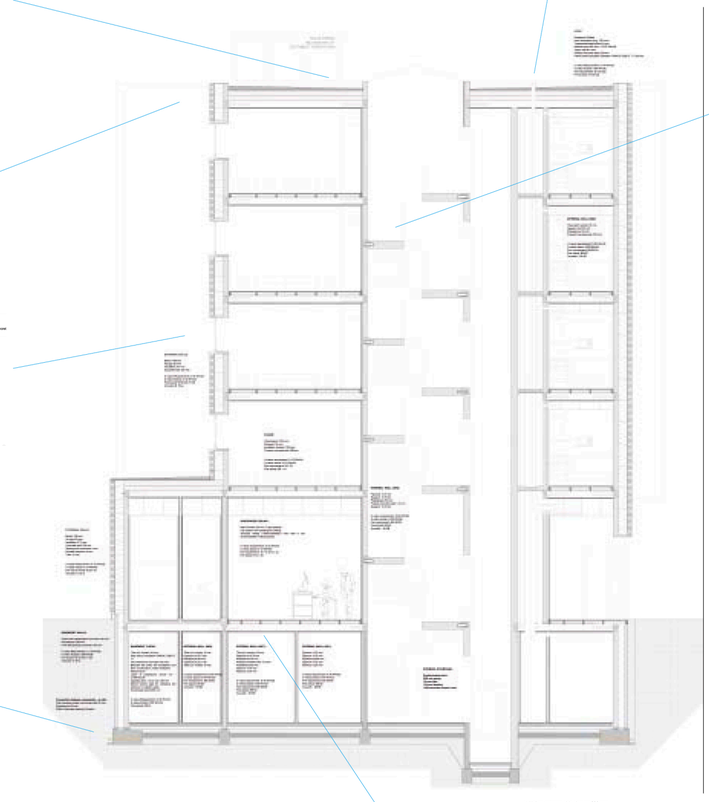


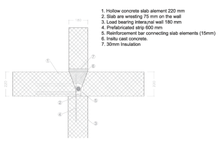




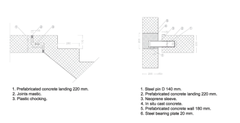


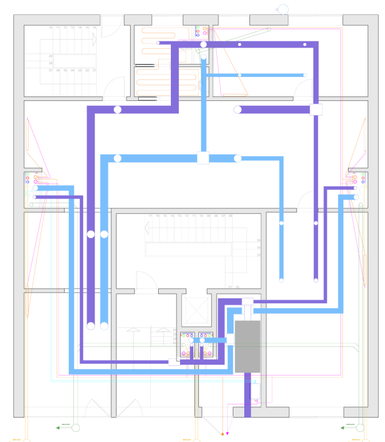






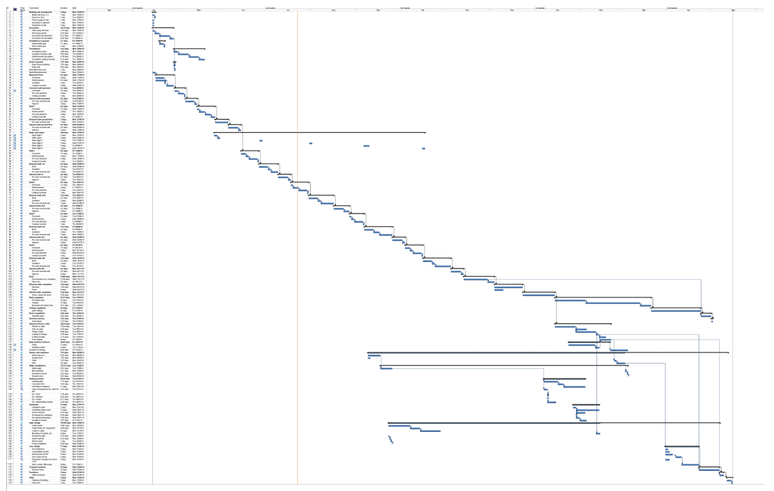
Details





Installations

Work duration: 1 year.
Total budget: 6.725.987 DKK



Main Planning

Alumno: **CARLOTA ROMERO NAVARRO**

tutor destino: **JORGEN NIELSEN**

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