Escola Politècnica Superior d'Edificació de Barcelona
UNIVERSITAT POLITÈCNICA DE CATALUNYA

ENGINEERING TOIN THE CONSTRUCTION

FINE PROJECT OF DEGREE

REHABILITATION, ENERGETIC AND CHANGE OF MULTIFAMILY BUILDING USE IN FRONT.

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SUMMARY:

The present document, represents the written part or descriptive and constructive memory of my Fine Project of Degree.

The second part, is represented by a set of maps where him grafíen the constructive solutions that have been adopted, in all the floors of the object building of study.

This project, consists of the rehabilitation, energetic adequacy and change of you of multifamily building in front, with the creation of 3 housings of similar characteristic compositivities.

A first study has been carried out, in order to identify the injuries of the building, attempting to find out the causes of the injuries and proposing a technical intervention in order to subheal them.

One time we have brought to term the works of rehabilitation, a second study has been carried out, in order to carry out a suitable and coherent distribution of the created housings, using the parts next to façades for placing the rooms, the room to be - canteen and the kitchen, using the current hole of box of scale and hoist, to place the new box of scale and elevator.

You paginate them following they show all the process carried out to arrive to the present study and like this creating one memory where the current state and the reformed one is described, together with the previous study of rehabilitation, calculations of facilities and structure, among other.

FIRST BLOCK – BEEN CURRENT

1 INTRODUCTION.

In first place, a study of the building as such will be carried out.

We will divide the project into two important blocks. The first block will consist of the study of the current state of the building and the second block will consist of the study about the intervention that will be carried out in the building.

Previously to describe the current state of the building, a small historical memory, which will facilitate us the understanding of the different constructive phases of the building object of study, the origin and the evolution of the same one, the use, the constructive characteristics, will be carried out...

Next, we will start the study of the first block, description of the current state, where in first place we, the constructive description of the outer walls, interior walls, partition walls, cover, openings and windows, box of scale, coatings, will place the building and the environment, the urbanistic characteristics, facilities, constructive system of being forged, pillars, used materials; and finally, we will analyze the existing pathologies to be able to carry out the aware reform which sleep their problems and their lacks.

For a better understanding of the pathological study, I have designed some cards that joints with the distinguished maps the understanding of the state of the building will facilitate us in a way month clear and graphic.

All the former study will go accompanied with some maps, which will help us to understanding, the study of the current, pathological and constructive state, with more facility.On finishing this first block, we will continue with the proposal of intervention, of change of use and energetic adequacy that will be all this the one that will shape the second block.

In this second block, we will analyze the needs and demands of the proposal of intervention, we will describe and we will justify graphically the new distribution, the finishes, the new facilities and the new structure in the maps. All this taking into account the Technical Code of the Construction and the new Decree of habitability 55/2009, among other distinguished regulations in the annex.

Him important in this block, the installation of the aerogenerator as a significant element of the proposal of intervention. An environmental study has been carried out, she indicates us that the installation of this him viable, we will describe in that it consists, where we will place it, among other used technical elements, in order to achieve an important energetic saving, and make the possible maximum a building vehicle energetic enough, combining the different options of renewable energies.

The methodology for the composition of the work has been the one acquired along the done university studies and to the experience itself|herself acquired in the my work, since the projects of change of you sleep quite usual.

To manage to create all the work, I have carried out in a first place, a rising of maps, to make pictures for the pathological study, etc.

Illustrations of the current façade of our object building of study:

Façade C/ Muntanyà

Round Façade of Joan Peiró

2. HISTORICAL MEMORY.

2.1. Origins and evolution.

The object building of study placed to the confluence among the street Muntanyà number 97 and Round of Joan Peiró number 126 consisted in the training of ground floor and semibasement floor constructed in year 1.969.

We can observe that the object building of study has been constructed in three differentiated stages.

These stages would be formed by the following ones;

In a first stage the construction of ground floor and semibasement floor in year 1.969, in a second stage about year 1.990 the construction of first and second and as last a third stage constructed in year 2.002 formed for the third floor cover and scale badalot and therefore exhausts the maximum edificable.

2.2. Constructive description, the Building.

An important singularity of this building, have mentioned with anteriority, him their construction in three differentiated phases.

In a beginning, the building consisted only of ground floor and semibasement floor. These two floors were constructed to the year 1.969, in a zone in that little inhabited and far period of the center of Mataró.

The tone of the brick used on the façade, him a relevant visual effect to see the different constructive stages that we will see next.

<u>First Phase:</u>

In this phase, the constructive system was different to what nowadays is made. The forged ones were constructed with small beams prestressed selfresistant, tongue-and-groove and the one finished of pavement. This phase, although him the most antique, it does not have important pathologies (to see pathologies in the section 5 where the pathological study is carried out).

Can be observed as in the first phase of the building was constructed with brick and the one finished of façade was dipped in batter and painted.

In the descriptive memory, the structural elements and the constructive characteristics of this phase will be fallen upon.

Pictures of the first phase:

Ground floor

Ground Floor and Semibasement Floor

Second Phase

In this second phase, the first floor was constructed and second, to the year 1.990, In these floors, the ones forged already changed with respect to the former one. These, were constructed by selfresistant small beams and ceramic rain throwing slope.

From this second phase, the outer walls that form the façade were carried out of work view. In this period this type of finish was very common. As it kept on happening the weather, this zone kept on being revalorized, and the demand of floors started to grow, the possibility was studied of to increase the building in two floors, and how the urbanistic regulations of Mataró fulfilled perfectly, was constructed.

Plants First and Second

Third Phase.

In this third and last phase, the third floor was constructed.This floor him quite current, was constructed about the year 2.002, with this floor, and according to the urbanistic regulations of Mataró the maximum edificabilitat of the building is exhausted.

Already in this floor, can see himself one forged with a constructive system modern month, esta constituted by semi small beam of concrete and I turn around of expanded polystyrene. And it can differ clearly, due to that the construction of this floor still not esta finished totally.

The outer carpentry was not put in that period and the building remained.

It plants Third and Covered floor.

It plants Third and Covered floor.

It plants Third and Covered floor.

This building, him interesting constructively, because there are 3 constructive systems differentiated according to the period that goes carried out, and because I will proceed to the study more detailed in the following section of the project.

3. DESCRIPTIVE MEMORY OF THE CURRENT STATE.

3.1. Object of the project.

The goal of the present project him to describe and to appraise the works of rehabilitation, energetic adequacy and change of you of a multifamily building in front in accordance with the valid regulations.

Treats himself of a project of reform interior of a building of ground floor and three floors diaphanous, without specific use, for their adequacy of building multifamily with 3 houses, parking lot and the energetic exploitation of the building the main object of study will be.

The building finds itself placed in the street Muntanyà number 97 corner with Round of Joan Peiró number 126, in the Municipal Term of Mataró, province of Barcelona.

3.2. Promoter.

The present Project of rehabilitation, energetic adequacy and change of multifamily building use in front, he comes motivated for the realization of the Final Project of Degree of Engineering in the Construction, to the Superior Polytechnic School of Barcelona, of Department of Architectural Constructions II with Manuel Agustiño Otero as a tutor of the present project.

3.3. Writer pupil of the project.

Noelia Robles Olmo.

3.4. Antecedents.

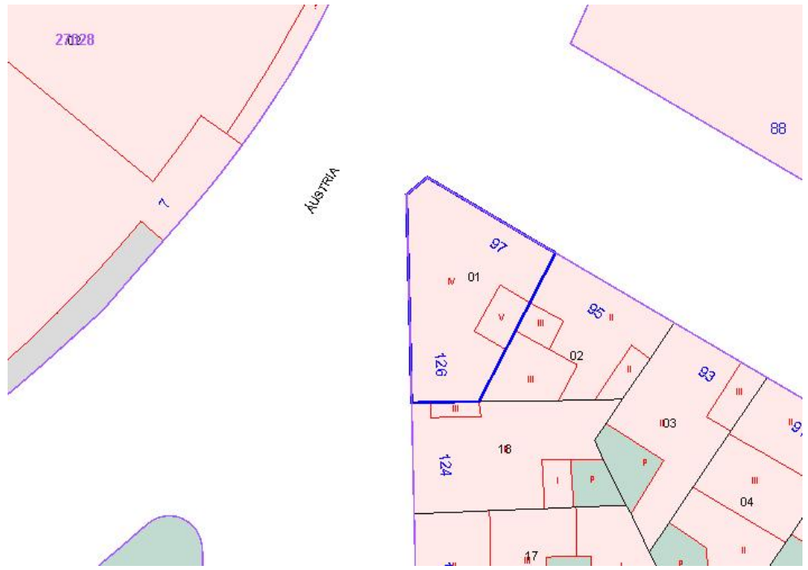
Urbanistically, the project has been solved following the guidelines of the General Plan of Ordering of Mataró.

Regarding their contributions, the building fulfills the basic requirements of quality established by the Law of Construction Ordering (LOE law 38/1999), and developed mainly by the Technical Code of the Construction (CTE RD. 314/2006).

Equally fulfillment is given to the subtraction of technical regulations, of state, autonomic and municipal area that she is for her of application, how she can be the Decree of Habitability published in the Official Newspaper of the Generalitat de Catalunya (DECREE 55/2009).

3.5. Placement and Situation

The town, placed in the region of the Maresme, has a topographic height of 119 m. The present object project of rehabilitation and change of use, is placed in consolidated urban ground, the façade of the building, she is lined up with two streets, street Muntanyà number 97 and Round of Joan Peiró number 126 of Mataró, province of Barcelona.



3.5.1. Site and lintels.

The object building of study, is irregular in a polyhedral way.

Building in front, is not set forth ion sea actions and has a façade directed at North and a façade directed at South-East.

The main ticket in the building is carried out across the street Muntanyà.

The site in question consists of 90,38 m² of surface, length of façade in the street Muntanyà of 9,51 ml. and in Round of Joan Peiró of 13,08 ml; and their construction started, in first phase in year 1.969 and it finished in year 2.002. All this specified in the historical memory.

3.6. Geographical and climatological datum.

Province:	BARCELONA
Latitude of calculation:	41,40
Latitude [º/min]:	41,24
Altitude [m]:	95,00
Relative humidity half [%]:	68,00
Speed half of the wind [Km/hr]:	***12,00***
Maximum temperature in the summer [º C]:	31,00
Minimum temperature in the winter [º C]:	2,00

Months January February March April May June July August Sept.Oct. Nov. Dec. Annual
Tª. environment [ºC]: 9,40 9,90 12,30 14,60 17,70 21,60 24,40 24,20 21,70 17,50 13,50 10,20 16,4
Tª. half a water net [º C]: 12,0 12,0 12,0 12,0 12,0 1 2,0 12,0 12,0 12,0 12,0 12,0 12,0 12,0

This study, carried out according to AEMET, makes viable the incorporation in our building of a domestic aerogenerator, that will provide us electrical energy and that we will achieve that our building, it is more self-sufficient energetically.

In the annexes, we will find the calculation, patent medicine for the solar energy y the domestic aerogenerator.

3.7. Urbanistic characteristics.

The Town has the General Plan of Municipal Urbanistic Ordering approved of definitively by the Commission of Urban Planning of Barcelona.

The location of the island where the site is in question, an urbanistic qualification of key 1c has and the regulations describe the construction like alignment in the avenues, minimum façade superior to 5,00 ml. according to map of regulation of the urban ground.

The construction will place about the alignment of occupying street 100% of the front of allotment, minimum façade superior to 5,00ml., it gauges the heights of the construction for PB+3PP, with a minimum height of PB of 3,50m.

The regulatory height will be 12,40 ml. and it accepts the use of multifamily house. The maps gauge a suitable for building depth of 12,00 ml. and a density of houses corresponding to the surface about grazing destined to houses divided by 85.

Justificatory table of the fulfillment of the urbanistic Regulations compared between the valid Plan of Municipal Urbanistic ordering of Barcelona and the project of reference is attached:

Planing:	General Plan of Urban Ordering of Mataró
Zoning:	Urban zone key 1c

	Planing	**Project**
Ordering	General plan of Ordering of Mataró, for the key 1c	General plan of Ordering of Mataró, for the key 1c
Alignment	Alignment in avenue	Allignment avenue
Raised Regulatory (ARM)	12,40 m (PB + 3PP)	12,40 m (PB + 3PP)
Minimum façade	6,00m.	9,51 ml. for the street Muntanyà and 13,08 ml. for Round of Joan Peiró.
Parking		1 places from parking lot for house
Using	Multifamily House use in all House categories	Multifamily House

Justification of density sengons PGOUM:

Superficie constructed for floor:	90,38 m² x 4 floor = 361,52 m²
	361,52 m² ÷ 85 = 4,25 *(no. Maximum houses posibles).*

With regard to the number of parking lot squares, in the floor by semibasement a square will be destined for house, given that there is not none, according to valid regulations.

In our case all squares of parking lot do not have room, therefore, the purchase of so many squares of pàrking of new creation (according to regulations in Mataró) will be carried out, as houses it has the building, these squares will be linked to each one of the created houses.

The squares of proposed parking, can be chosen according to the proportionate map by the Town Council.

The services and infrastructures that it orders the building sleep the enough ones to consider them as such: access, potable water, purification of waters, deliveries of light, etc.

3.8. Description of the Current.

3.8.1. Justification.

It is a matter of carrying out the study of use change, at present not described with houses, it will therefore be necessary to modify the kernel of vertical communication, adapting it to the prescriptions of the CTE and the Decree of habitability 55/2009.

We will study the adequacy of the building to the environmental criteria, ecoeficiència and sostenibilitat that stem from the current standards of comfort and the incorporation in the building of the electrical selfgeneration and thermal exploitation.

3.8.2. Original volumetry.

The building will keep original with the same volumetry.

Substantially the openings of façade will not be modified, since the outer vertical ornaments of the building are carried out with seen ceramic brick.

New volumes are not accepted due, the edificabilitat of the building is from PB+3PP and at present is edified at 100%.

3.8.3. Characteristics of the terrain.

The terrain where placed esta the building, esta structured at two levels, on the part of the street Muntanyà ±0,00 is placed in a height m., and on the part of Round of Joan Peiró placed ion height -1,48 m., therefore the difference of level between both streets is from 1,48m. approximately.

4. CONSTRUCTIVE MEMORY OF THE CURRENT STATE.

4.1. General description of the building.

The town, placed in the region of the Maresme, has a topographic height of 119m.

The present object project of rehabilitation and change of use, is placed in consolidated urban ground, the façade of the building, it is lined up with two streets, street Muntanyà number 97 and Round of Joan Peiró number 126 of Mataró, province of Barcelona.

The building is irregular in a polyhedral way.

The site in question consists of 90,38 m² of surface and 361,52 m² of surface constructed total, length of façade in the street Muntanyà of 9,51 ml. and in Round of Joan Peiró of 13,08 ml; and their construction started, in first phase in year 1.969 and it finished in year 2.002. All this specified to the historical memory.

In an outer way it can be seen that the building is worn away due al pas of the weather and to a lack of maintenance (painting in badly been, oxidation, facilities in disuse, outer carpentry in deficient state...).

In semibasement floor we find space destined for garage, zone of warehouse placed under attic of ground floor in deficient state, aseo placed under attic of ground floor totally en desús. In ground floor we find space destined to commercial, totally diaphanous use, the entry in the building, the main scale of access to floor first, and auxiliary scale of access to semibasement floor.

It plants first and second we find a space destined for warehouse of sanitary devices, zone of collection of samples of these and zone of office, an aseo and balcony in deficient state.

In floor third at present is the unfinished work, without paving, without outer carpentry and therefore totally deficient.

In badalot floor we find the scale main without paving, without handrail, without encasing, etc.

4.2. Description of the constructive elements.

Some pathological cards where the injury, the cause and the appropriate intervention are described are attached.

These cards will facilitate us the reading of the diagnostic of the object building of study that we next carry out.

4.2.1. Structural system.

It is important to take that the building was constructed in three phases clearly differentiated, since it can observe itself so much to the change of tone of the brick used in the different periods, as the one finished of the outer closing of ground floor, into account.

Also, the three phases are differentiated by the different constructive systems of the forged ones;In semibasement floor and ground floor the ceilings are formed by small beams prestressed selfcarrying, separate with an interaxle of 60 cm., prop of tongue-and-groove and ceramic rain throwing slope.

It plants first and second plants the ceilings they are formed by semi small beams of concrete, sorted out with an interaxle of 60 cm., ceramic rain throwing slope, about this placed one machimbrat, layer of compression and pavement finish.

It plants third ceiling formed for, semi small beam of concrete, sorted out with an interaxis of 60 cm., and rain throwing slope of polyethylene expanded filled in with concrete.

The structural system of the object building of study is based in pillars of perforated ceramic brick factory in all floors, where some summers of iron are backed up in ground floor, and summers of concrete in floor first, it plants second and plants third.

The small beams and semi small beams of the ceilings of the different floors lean about the summers of concrete respectively.

4.2.2. Current foundation.

It is they will carry out some geotècnics studies in the terrain, to know exactly the characteristics of our terrain, a recognition of the terrain of 2 points of study, 2 surveys, has been programmed as it indicates us the DB HIM-C for this type of building and terrain, yet we do not have the results of the geotècnic study, we can affirm, for geotècnics studies that we have of cabbage buildings · lindants in ours, that the terrain him cohesive, formed for "grit".

With respect to the conditions of the neighboring constructions, the building existing in the side

South what is attached the object building of study, the building consists of ground floor plant and transitable cover, it does not present any important pathology that it affects in ours. In the other one side, the construction neighboring, of more recent construction, formed by ground floor and floor.

The type of existing foundation, consists of a superficial foundation where, shoes moved to all the perimeter of the building and isolated shoes corresponding to each one of the four pillars that sustain the building, are differentiated these isolated shoes are arriostrades among yes. The depth of the foundations is been unaware, but it is necessary to say that the terrain shows good characteristics, fact that discarding great depths of foundation makes us.

The type of ground of the zone is granitic with decomposition. "Grit".

Therefore, a terrain can be considered cohesive and suitable for bearing the loads derived from the intervention.

Structural pathologies are not observed although a recalculation will be necessary from the new descent from loads that the new kernel of vertical communication will provoke.

3.2.3. Vertical structure.

Closings outer to ground floor and semibasement floor formed by factory of solid "gero" of 30 cm. of thickness. placed with cement mortar, requirement dipped in batter and painting.

Closings outer to floor first, it plants second, plants third and handrail plants covered formed by factory of seen brick 24x11,5x4 cm. placed in one expensive seen with cement, formed by ceramic pieces of reddish color, camera of air of 11,50 cm. of width.

Inner closings formed by partition wall of 4 cm., of thickness of superbrick of 60 cm. and 7 cm. of thickness, coated with chalk, placed with cement mortar.

4.2.4. Horizontal structure.

The ceiling of semibasement floor and ground floor is formed by small beams prestressed selfcarrying, this type of small beams they used themselves in that period when the first phase of the building was constructed, the small beams were separate an interaxis of 60 cm., ceramic rain throwing slope and above it is carried out through a prop of tongue-and-groove, layer of compression and pavement after stoneware. Summers of concrete in semibasement floor and ground floor.

The first and second esta ceiling of floor formed by semi small beams of concrete, placed with an interaxis of 60 cm., ceramic rain throwing slope and above it is carried out through a prop of tongue-and-groove,layer of compression and pavement after stoneware.

Summers of concrete in floor first and it plants second.

The third esta ceiling of floor constituted by semi small beams of concrete placed with an interaxle of 60 cm., I turn around of expanded polystyrene, filled in with mortar, without paving. Summers of concrete in floor third.

All ceilings have the same dimension although the lights among summers can modify some centimeters in the different floors, due to the different stages of construction of the building.

The structural system of the object building of study is based in pillars of perforated ceramic brick factory in all floors, where some summers of iron are backed up in ground floor, and ground floor and summers of concrete in floor first, it plants second and plants third.

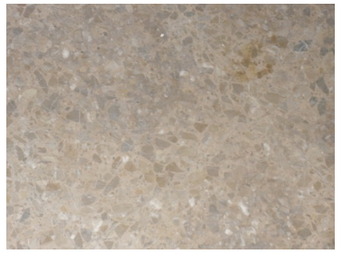
The small beams and semi small beams of the ceilings of the different floors lean about the summers of steel and concrete respectively.

4.2.5. Cover.

We will speak about a covered floor, transitable, with an irregular form since it covers all the building as such. The finish is formed by tiles of dimensions 30x30cm. reddish color, rough finish, placed with joint of 1 cm.

4.2.6. Façade.

The façades are formed by factory of brick of different types, dipped in batter and painted in ground floor, compound for: wall of 15 cm. of brick "gero" to encase, camera of insulation and interior partition wall of 4 cm., holds with mortar of cement, with training of pillars in the jambs of all openings.



The outer walls of the senior part of façade his ceramic brick expensive seen.

The free height among forged in ground floor him of 2,22 m., the free height among forged in floor first is of 2,87 m., in floor second the free height among forged it is of 2,87 m., in floor third the free height among forged it is of 2,87 m., finally, in badalot floor the free height is from 2,50 m.

The openings of the main façade have been walled up with wood to avoid the possible employment of the building.

4.2.7. Inner partitiions.

Walls of main scale box of 15 cm. of thickness formed by brick "gero" of 14x29x10 cm. placed with mortar of cement and coated with plaster and paintings.

In semibasement floor, the inner partitions are formed for manufactures of ceramic brick of 4 cm. of thickness, taken with mortar of cement, plastering for a face and tiled with glue cement for the other one.

Moreover, in the same floor there is a division with factory of brick "gero" of 14x29x10 cm. of 15 cm. of thickness, placed with mortar of cement and coated with plaster and paintings for both sides.

In ground floor, there are not inner partitions.

In floor first, the inner partitions are formed for manufactures of ceramic brick of 4 cm. of thickness, taken with mortar of cement, plastering for a side and tiled with glue cement for the other one.

In floor second, the inner partitions are formed for manufactures of ceramic brick of 4 cm. of thickness, taken with mortar of cement, plastering for a side and tiled with glue cement for the other one, the inner distribution him exactly the first one same than in floor.

In floor third, there are not inner partitions. This floor is totally diaphanous, with the exception of the new training of against formed partition walls for manufactures of ceramic brick of 7 cm. of thickness, taken with mortar of cement, without encasing.

4.2.8. Openings and windows.

The façade directed at street Muntanyà, esta formed for:

This is, the door of ticket of the building composada by door and card, of iron painted with black color oxide.

The ventanalls of ground floor, both of identical dimensions, formed by a preframe of stainless steel and translucent glass with greenish tone, it is found in a state quite deteriorated.

The sleep balconeres of aluminum of two sliding leaves of white color. In these, some counterwindows of four leaves formed by sliding sheets of wood can be observed.

The lintels of the balconeres of floor first and second, are embedded in weary walls of brick expensive seen some 14 cm. approximately for each side. These sleep of white color concrete.

The lintels of floor third, they are not embedded in the wall and have the same characteristics than the rest. In this floor there is not carpentry in the existing openings.

The façade directed at Round of Joan Peiró, esta formed for:

In semibasement floor we find a window of aluminum of two leaves of white color, with some grilles of iron painted in color white in been mentally handicapped person and door of ticket in garage of iron automatic.

In floor first and it plants second we find, two balconeres and two windows of aluminum of two sliding leaves of white color in been mentally handicapped person and a handrail incorporated into the balconeres of iron painted in white.

In these, some counterwindows of four leaves formed by sliding sheets of wood in deficient conditions and even delivery lack of this counterwindow can be observed.

The lintels of the balconeres and windows of floor first and second they are embedded in weary walls of brick expensive seen some 14 cm. approximately for each side. These sleep of white color concrete.

The lintels of balconeres of floor third are not embedded in the wall and have the same characteristics than the rest. In this floor there is not carpentry in the existing openings.

4.2.9. Interior coatings.

The interior walls are plastered by a side.

The walls of the coating are coated, with ceramic tile vitrified of dark gray color of sizes 15x30 cm., in all their area.

The zone under the attic floor, finish dipped in batter and painting of white color.

On the ceilings there is placed clear sky of plates of plaster of 50x50 cm., in semibasement floor, plastering and painting.

4.2.10. Pavements.

The pavement of all floors, esta carried out with terrazzo of dimensions 30x30 cm., placed on a layer of sand and holds with mortar of cement.

Except, in the semibasement floor under the attic, carried out with pavement of ceramic stoneware of 30x30 cm., placed on a layer of sand and taken with mortar of cement and formed ground floor by pavement of ceramic stoneware of dimensions 25x25 cm., reddish tone and placed with mortar of cement.

4.2.11. Carpentry.

The balconeres and windows sustain the same dimensions in floor first, it plants second and plants third and are lined up by both sides.

Inner carpentry, formed by frame and door of melamine of "cerezo".

4.2.12. Scales.

Auxiliary scale that floor communicates semibasement with ground floor, carried out through structure of iron, the stairs are formed by a lath of wood and I bind with iron, the stairs are finished with pieces of marble taken with glue cement.

The training of the existing scale does not have handrails nor elements of security. Main scale, which the building communicates vertically from ground floor in badalot floor, carried out through slab of concrete of 20 cm., of edge. Acabat climbs gray color, holds with mortar of whitewash, with pieces of marble.

It climbs paved until floor second, the subtraction until badalot floor without encasing, and in the majority of the stretches without formation.

4.3. Facilities and existing services.

The building not elevator tea, a hole of hoist is appreciated en desús and in deficient conditions.

4.3.1. Electrical Installation.

The electrical installation him totally seen due to the commercial use that was destined, therefore the total replacement of this will be necessary.

At present installation in disuse.

The replacement will be proceeded it integrates of the electrical installation of the building in order to adapt oneself to the new use of this.

4.3.2. Instal·lació ACS.

The building due to the use that, careix of installation of sanitary devices like shower, was given her toilet, and in any floor she exists devices of kitchen, sink... therefore in the reform an installation of new plumbing will be projected.

Absence of insulation.

4.3.3. Heating Installation.

At present the building does not have thermal insulation in head of their elements.

There is not installation of heating.

4.3.4. Telephone Installation.

Telephonic Installation in deficient state and totally en deficient.

4.3.5. Installation of reorganization.

The building contains the infrastructures of sewerage.

4.4. Descent from burdens|loads.

The calculations carried out next agree based with him established to the Technical Code of the Construction (CTE), specifically, in the basic documents of structural security (DB-HIM), actions in the construction (DB-SE-AE), annex C.

As the current structure can be checked out in the annex of calculation it holds loads perfectly. (to see calculation annex).

5. PATHOLOGICAL STUDY.

5.1. Object of the diagnosis

In order to carry out the pathological study of the object building of study, a recognition of all injuries that the building shows will be made, and it is it will propose the intervention about the causes that have provoked these injuries.

The month pathologies majorities that presents the sleep building due to, an incorrect use, on the step of the time, ion the atmospheric agents, to the not to have a due maintenance, etc.

It is important to make a correct study of the building to be able to understand the existing pathology and to be able to propose the suitable intervention.

Another important aspect, for which it is important to carry out a pathological study in the building, is to be able to see the feasibility of the same one, since, this implies an important part of the budget.