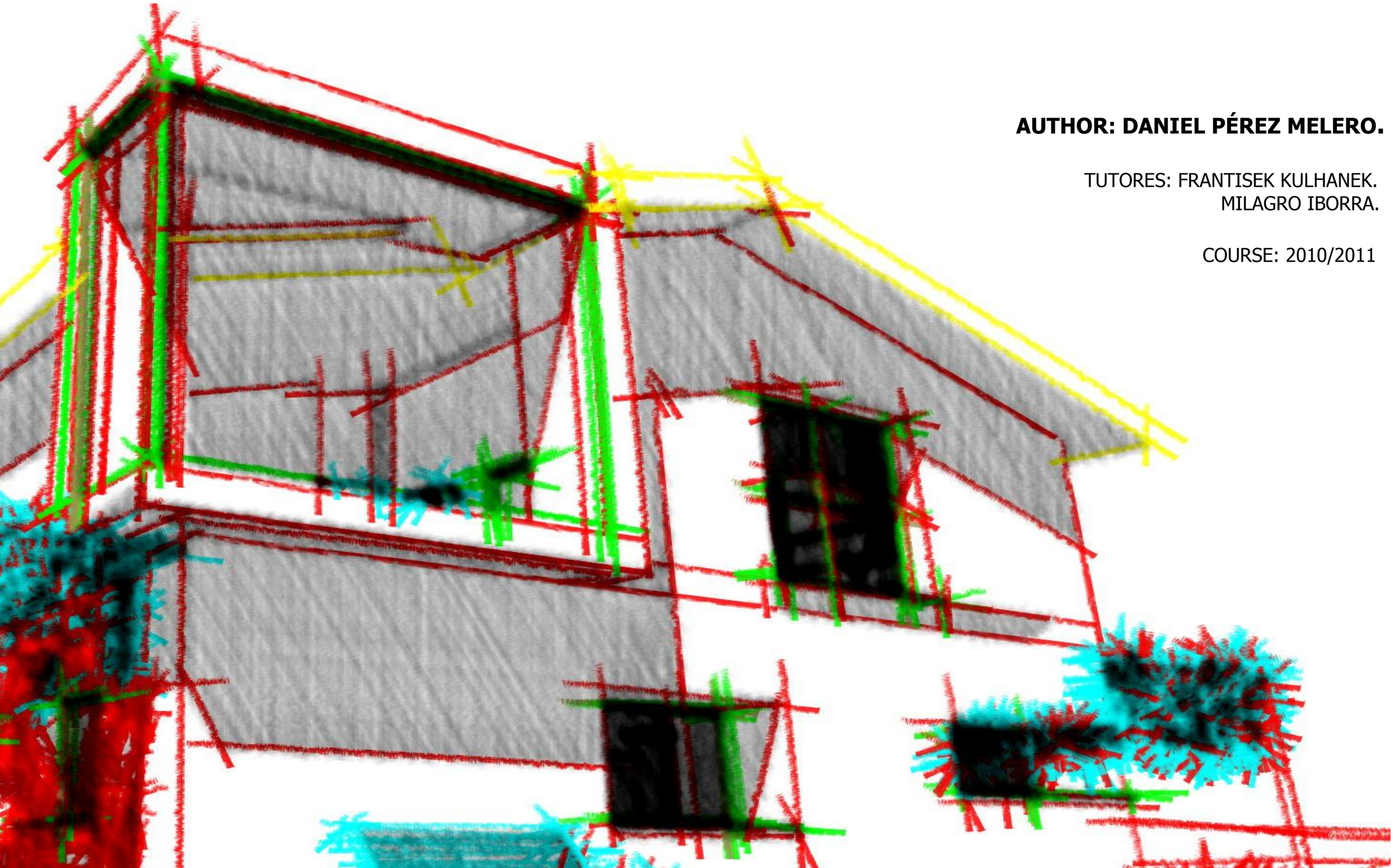
FAMILY HOUSE IN PRINCIPADO DE ASTURIAS (SPAIN)



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INDEX

INDEX

INDEX

1. PREVIOUS DATA:

Project:	Basic and Execution.
Project:	Expansion and Reform of family house.
Location:	Bañugues - Gozón – Asturias - Spain
Promotion:	Private.
Conditions:	Free.
Developer:	Mrs. Graciela Pisonero Castro
Architect:	Mr. Daniel Pérez Melero
Building Engineer:	Mr. Daniel Pérez Melero
Number of Buildings:	1
Number of Homes:	1
Number of Floors below ground:	0
Number of Floors above ground:	2
Total Ground Floor House:	135.73 m2.
Total First Floor:	129.43 m2.
Total House:	265.16 m2
Total Ground Floor Tools Room :	71.65 m2.
Total Floor Garage:	76.67 m2.
Total Auxiliary Built:	148.32 m2.
Total Ground Floor Porch:	53.87 m2.
Total First Floor Porch:	44.73 m2.
Total Porch:	98.60 m2

2. THE PLOT

For the implementation of this project, it has a plot built and located with a seating capacity of approximately 1,162 m2, surrounded by public access roads on all fronts, except for its boundary East

DESCRIPTIVE MEMORY

is at other land boundary different ownership. This is a plot slopes gently towards the east and configuration irregular.

Being a built plot, the volume is maintained (only extend new porches) services and infrastructure has characteristics of a population center, it is road and pedestrian access, water supply networks and electricity supply foot parcel and existing horizontal network of sanitation.

At the No. 1 position and plot graphically shows the location of the works and relief previously described in more detail, and their relationship and distances to other buildings, boundaries, roads, etc..

3. THE PROYECT - ARCHITECTURAL CONDITIONS

On an old building made by a two-storey outbuildings want to do an extension and reform while maintaining the current volumes of construction (only create new porches open to the outside), not to distort the existing due regard to topography and existing buildings

The project proposes two floors of housing, ground floor is raised the day area with a large living room, bathroom and pantry kitchen, bedroom, bathroom and study, plus the stairs to the upper floor.

This plant maintains a storage space for existing. On the top floor raises the master bedroom with bathroom and dressing room, plus two other bedrooms and bathroom. Given the difference in level of access to the parcel from the west to the south of it, the garage area is on the first floor of which is accessed through a newly constructed covered porch

The materials chosen are based on durability, composition, color and building economics

4. MEASUREMENTS

Ground floor house	useful	built
Living room	45.33 m2	
Kitchen	19.17 m2	
Pantry	7.16 m2	
Toilet	3.71 m2	

Bathroom	4.33 m2	
Bedroom	13.87 m2	
Studio	6.74 m2	
Staircases	10.40 m2	135.73 m2
Total ground floor house	110.81 m2	135.73 m2

Ground floor tools room	**useful**	**built**
Storage room	64.46 m2	71.65 m2

Ground floor Porch	**useful**	**built**
South Porch	26.58 m2	
North Porch	27.29 m2	
Total ground floor porch	53.87 m2	53.87 m2

First floor house	**useful**	**built**
Bedroom	27.48 m2	
Bathroom	18.83 m2	
Dressing room	7.19 m2	
Clearing-service	2.47 m2	
Corridor	12.10 m2	
Bedroom	17.48 m2	
Bathroom	8.34 m2	
Staircases	4.36 m2	
Bedroom	13.70 m2	
Total first floor house	111.95 m2	129.43 m2

First floor garage	**useful**	**built**
Garage	62.54 m2	
Toilet	6.32 m2	
Total floor garage	68.86 m2	76.67 m2

DESCRIPTIVE MEMORY

First floor porch	**useful**	**built**
Porch	5.36 m2	
Porch garage	37.36 m2	
Total first floor porch	42.72 m2	44.73 m2
TOTAL HOUSE	**222.76 m2**	**265.16 m2**
TOTAL PORCH	**96.59 m2**	**98.60 m2**
TOTAL GARAGE	**133.32 m2**	**148.32 m2**
TOTAL BUILT	**452.67 m2**	**512.08 m2**

5. APPLICATION OF THE C.T.E.

The basic requirements are, agreed with the Planning Building Law ("Ley de Ordenación de la Edificación"), and related to the functionality, safety and habitability.
These requirements are established to ensure the safety of people, the welfare of society and the protection of environment, buildings must be designed, maintained and conserved in such a manner that satisfies these basic requirements.

5.1. STRUCTURAL SAFETY

Structural safety, so that will not occur in the building, or parts thereof, damages are caused or affect foundations, supports, beams, slabs, bearing walls or other structural elements, and compromise directly the mechanical strength and stability of the building.
The basic aspects are taken into account when adopting the structural system for the building are mainly: mechanical strength and stability, safety, durability, economy, ease constructive, modulation and market potentials.

5.2. FIRE SAFETY

Safety in case of fire, so that the occupants can evacuate the house in safe conditions, can be limit the spread of fire inside the house and the adjacent and allow the action of fire-fighting equipment and rescue.

Urban conditions: the villa is easily accessible to fire-fighters. The outdoor space immediately next to building carries out the enough conditions for the intervention of the fire-fighting services. All structural elements are fire resistant for longer than the largest sector of fire resistance. There must be no type of material because of its low fire resistance, flammability or toxicity might damage security of the building or its occupants.

5.3. UTILIZATION SAFETY

Use safety, so that normal use of the house is no risk of injury to people. The configuration of the space, fixed or movable components that are installed in the house, should be designed so that can be used for their intended purpose within the limitations of use of the house, which are described below, without meaning a risk of injury to users.

5.3.1. HYGIENE, HEALTH AND ENVIRONMENTAL PROTECTION

Hygiene, health and environmental protection, so as to achieve acceptable conditions of safety and tightness in the indoor environment of the house and it's not detrimental to the environment in their immediate environment, ensuring proper management of all types of waste.

The villa meets the requirements of habitability, healthiness, energy saving and functionality required for this use.

The whole house has the means to prevent the presence of water or inadequate moisture from precipitation, the land or condensation, and have the means to prevent penetration or, case, allow them to escape without producing damage.

The house has space and resources available to remove ordinary waste generated in their regular form consistent with the public collection system.

The house has the means to ensure that their premises can be aired properly, removing the pollutants that occur regularly during normal use, so they can provide a adequate outside air flow and ensure the removal and expulsion of stale air by contaminants.

The building has adequate means to provide the hygienic equipment with safe water for consumption sustainable manner, providing sufficient flow for its operation, without altering the properties for consumption and preventing the possible returns that may contaminate the network, incorporating means for saving and control of water.

The building has adequate means to remove the wastewater generated independently with precipitation water.

DESCRIPTIVE MEMORY

5.3.2. PROTECTION AGAINST NOISE

Protection against noise, so that the perceived noise doesn't endanger the health of individuals and allows them to carry out satisfactorily their activities.

All vertical structural elements (interior partitions and facades) have sound insulation required for the intended use in the premises that they enclose.

All the components horizontal (general slabs separating each of the floors and roofs), have the sound insulation required for intended uses in the premises that they limit.

5.3.3. ENERGY SAVING AND THERMAL INSULATION

Energy saving and thermal insulation, so as to achieve a rational use of necessary energy for the proper use of the building.

The proposed building has a right surrounding to limit energy demand necessary to achieve the thermal comfort depending on the weather of Asturias, the intended use and the summer and winter.

6. SPECIFIC REGULATIONS PERFORMANCE

State rules:

"EHE08"

It meets the requirements of Structural Concrete Instruction "(Instrucción de Hormigón Estructural") and complement its determinations with Structural Security Basic Documents ("DB-SE").

"NCSE'02"

It complies with the required parameters for Earthquake Resistant Construction Rule ("Norma de Construcción Sismorresistente") and that justified in the memory of the project implementation structures

"REBT"

Royal Decree 842 / 2002 of August 2, 2002, Low Voltage Electrotechnical Regulations("R.D. Reglamento Electrotécnico de Baja Tensión")

RITE

Regulation of heating in buildings and technical instructions complementary. R.D.1751/1998.

7. GENERAL DESCRIPTION ABOUT PARAMETERS WHICH DETERMINE THETECHNICAL PRECAUTIONS OF THE PROJECT

It is understood as such, all those parameters determine the choice of specific building system. These parameters can come determined by land conditions, the neighbouring plots, the functional program requirements, etc.

7.1. STRUCTURAL SYSTEM

7.1.1. Foundation

The size and type of foundation depends on the nature of the ground and the load carried by it. The bearing capacity of a soil means the maximum load per unit area which the ground will safely support. When foundations are laid in poor soil, it is often necessary to excavate to a greater depth, where solid base can be obtained.
The execution of the foundation will be very careful, adapting to the fatigue properties of the land, according to results of geotechnical investigation of the subsoil, and intending the foundation base over 1.80 m below ground level, is set to 2.50 Kp/cm2.
The foundation is made of isolated reinforced concrete footings, it must be suitable to the field and be able to withstand and transmit loads to which it has been calculated and abide by the rules of the CTE, NCSR-02, Earthquake Resistant Construction Rule and EHE (Instruction of Structural Concrete), Instruction to design and implementation of one-way slabs structural concrete made from prefabricated components.

7.1.2. Bearing structure

The supporting structure consist of reinforced concrete frames made of square, rectangular or circular section piers and flat beams, getting the largest monolithic, homogeneity and stiffness, being subject to the Instruction of Structural Concrete (EHE), which is graphed on the attached drawings and details.
The stairs will consist of concrete slabs reinforced section and under this project and training steps made with bricks.

DESCRIPTIVE MEMORY

The basic aspects are taken into account when adopting the structural system for building are mainly the mechanical strength and stability, safety, durability, economy, ease of construction, modulation and market opportunities.
The basis of calculation adopted and compliance basic safety requirements performance conform to current documents.

7.1.3. Fire safety

The support structure should maintain the fire resistant the necessary time to be able with requerements contained in the CTE DB-SI, safety in case of fire.

7.1.4. Protection against noise

The structure floor should have isolation to guarantee the correct sound lever to each of the building to CTE DB-HR.

7.2. ENVELOPE SYSTEM

The parameters that determine the technical provisions of the building envelope system consist of all partitions bordering the living spaces with outside environment and all partitions inside the living areas which at the same time contact with the outside environment are summarized bellow.

7.2.1. Facades for coating.

The facades consist of hollow walls, two leaves resting on the slabs. leaves are made of ceramic bricks with thermal insulation cavity between them.

7.2.2. Outdoor metalwork

The outdoor metalwork will be aluminium with thermal break and sub-frame. all glazing will be double and the leaves are mostly sliding in windows and hinged in door.

7.2.3. Roof

The roof will be built over cyclopean concrete to create the slopes. To evacuate the raining water from the slopes created with cyclopean concrete, and the water will run to the pipes placed in the terrace.

7.2.4. Use safety

In facades and roofs it's studied the location, size and characteristics of the void spaces and the glass part of them to be able with the demands of safety rules against the risk of falls or hit with fixed or practicable elements.

7.2.5. Healthiness: Moisture protection

For the adoption of envelope system for the facade was taken into account especially the rainfall in the area to be located and Asturias degree of exposure to wind. To resolve the constructive solutions shall be the characteristics of the cladding expected and the impermeability degree recommended by the NTE.

7.2.6. Fire safety

In choosing to the elements and constructive solutions in the envelope system, it will be taken into account compliance with the basic demands of foreign and spread of fire

7.2.7 .Protection against noise

All the building elements of the envelope system will have acoustic insulation required to guarantee a sound level suitable to the uses set out in the areas that define, in accordance with CTE DB-HR, protection against noise.

7.3. INDOORS PARTITIONS

The indoors partitions meet the CTE requirements, which justification is developed in the memory of execution project.
Internal partition means the construction element of the building which divides the interior into separated enclosures.

DESCRIPTIVE MEMORY

Also be described in this section those elements of the woodwork as part of the indoor partitions (indoor woodwork).

7.3.1. Use safety

Impact risk: to avoid the risk of impact the height of the walls, ceiling and doors is limited, the impact risk with glazed doors to be protected or should resist without breaking a certain impact level and large glass surfaces are identified or marked.
Catching risk: the location of the sliding doors shall be avoiding catching with the opening system. The doors with interior lock will have an unlock system from the outside.

7.3.2. Fire safety

The partitions which are considered in this section are affected the spread inside.
Partitions separate fire sectors, particular risk local and areas and hidden spaces.

7.3.3. Protection against noise

The indoors partitions have acoustic insulation against air sound R (dB) that meets the required levels by NBE CA-88 Rule.

7.4. FINISH WORKS SYSTEM

The section sets out the main parameters that determine the forecasting outdoor and indoor covering techniques that will have the finish works which are projected in this house.

7.4.1 Use safety

Finishes should be chosen so as to limit the risk and impact crashes reported in the CTE DB-SUA, use safety

7.4.2 Fire safety

The building elements used in coatings for ceilings, walls and floors shall meet the conditions for fire reaction, are set in the CTE DB-SI, fire safety.

7.5. ENVIRONMENTAL FITTING-OUT SYSTEM

The choice of materials and systems to ensure the hygiene, health conditions and environment protection, so as to achieve acceptable conditions of safety and tightness in the indoor environment of building, and it isn't detrimental to the environment in their immediate environment, ensuring proper management of all types of waste.
The conditions described shall conform to the parameters established in the CTE DB-HS, and in particular the following:

7.5.1. Protection against moisture

For the choice of system and operational solutions adopted was taken into account especially the rainfall in the area to be located and Prague degree of exposure to wind. To resolve the constructive solutions shall be the characteristics of the siding expected and the impermeability degree recommended by the CTE DB-HS 1.

7.5.2. Waste collection and evacuation

The planned building will have areas and means to extract the ordinary waste generated in a manner consistent with the public system of collection, to facilitate the proper segregation of such waste at source, collection of container and its subsequent management, according to the requirements of the CTE DB-HS 2.

7.5.3. Indoor air quality

All places of the villa are adequately ventilated by removing pollutants that occur on a regular basis during normal use thereof, so as to provide a sufficient flow of outside air and to ensure the removal and expulsion of stale air pollutants by. In the building project is planned the installation of air conditioning system, estimates that within the technical and economic availability, it's the better condition for the indoor environment.

DESCRIPTIVE MEMORY

The evacuation of combustion products of the thermal plants will be produced by the roof of the building, according to the stipulated regulations in CTE DB-HS 3.

7.6. SERVICES SYSTEM

It means the whole service system of the building necessary for the proper work thereof.
In the project of the villa there are the hot and cold water installation, water evacuation and electricity, also the earth wire. All the plumbing and equipment shall comply with specific regulations for installation and use, and avoid the introduction of fumes, noise and vibration in the house, according to the applicable rules.

7.6.1. Water supply

The water supply will be made by the general connection. It will be installed a distribution plumbing of drinkable water, starting from the public service, will be in all the consume points in the building, under appropriate conditions of flow and pressure.

7.6.2. Rain and sewage waters evacuation

The house is equipped with two independent systems, one is for the rain water and the other is for sewage water. This both systems aren't connected with each other, the rain water will go to the general pipe of clean water of the cleaning station to be used for other purposes. The dark water will go to the general sewer pipe and it will not be recycled.

7.6.3. Electric supply

It will be projected a installation which by connecting with the public supply service, distributes electricity at low voltage to meet the demands and needs of the building. It shall comply with the "Reglamento Electrotécnico para Baja Tensión" (R.D.
842/2002 el 2 de Agosto. BOE 224, 18/09/02).

7.6.4. Telephony

It provides the building of the facility necessary for the occupants have access to telephone service.

DESCRIPTIVE MEMORY

7.6.5. Telecommunications

Telecommunications will be the described in the project by the specific technician.

7.6.6. Garbage collection

It is made according to the CTE DB-HS.

7.6.7. Solar sheet system

The villa will have a solar system in accordance with the basic requirement of CTE DB-HE. At least it will use for sanitary hot water.

1. DEMOLITIONS

Demolition work necessary for the expansion and reform of this housing will be made in reverse order of construction. Work will begin dismantling the curved ceramic tiles, and continue with the demolition of the structure wooden deck. Subsequently proceed with the demolition of all interior partitions and removed and the sanitary wares and sealing of existing facilities.

Then the network will be demolished housing floor and finally destroy the walls of masonry needed to make up with the new levels of project. Considered in this chapter the removal of all interior and exterior carpentry.

In carrying out these works at all times comply with the Health and Safety Act Business and municipal law enforcement (scaffolding, fences, tarps, container for debris, etc). Also, it will have 1 mobile fire extinguisher in good use (seal and date), in a visible position fast access where necessary use.

2. PACKAGING LAND AND LAND MOVEMENT

Opening bracing beams and footings in order to consolidate new metal supports. Such work will be done manually, at all times to the existing foundation and walls. Opening trenches and pits for sanitation pipes and manholes, including breaking the existing pavement.

When the excavation is any abnormality was not intended as a variation of the strata and / or its features, underground water courses, construction debris, archaeological, will stop the work, at least in that pit, and communicated to the Technical Department.

Be available on site for each worker the means which may serve for contingencies and help the handlers that may accidents.

Not accumulate field excavation, or other materials, along the edge of the drain, this should be separate from a distance not less than twice the depth of the recess in the edge unless authorized, in each case by the TM.

Daily and before starting work will review the status of the shoring, reinforcing them if necessary. It must also check that there is no significant seats in the existing buildings and the appearance of cracks.

CONSTRUCTIVE MEMORY

These preparations will be extremely labor disruptions after more than a day and after climatic changes such as rain or frost.

3. FOUNDATION AND STRUCTURE

3.1. Background data.

It has sought a structural solution formed by reinforced concrete footings which depart metal pillars to form the roof slab or first floor in the area old house and auxiliary area, thus making a separate structure from the current masonry walls. At that level, you have a framework of metal beams and pillars, avoiding the formation of new perimeter load-bearing walls. Structure is designed so that the provision of the pillars with little disruption in the distribution of plants building.

Field data.

- In determining the soil characteristics of a study available ground prior
- Class of land: sandy clay.
- Minimum depth of top: 1 m.
- Maximum pressure: 0.2 N/mm2.

3.2. Structural systems designed.

The foundation to make, will seat a minimum depth of 0.80 cm. or to the definition of strong force, which considers the Architect. All this is made of reinforced concrete HA/25/B/40/IIa and armor B-500S, shape and dimensions specified in the relevant foundation and structure plans.
The first layer will consist of a lean concrete D-200 10 cm. thickness or until the appearance of firmer ground.

The foundation, with materials and depths described consist in the execution of shoes and ditch runs tied the hub of all steel columns to support the different floors, all section and reflected in the corresponding high levels of structure. The structure will consist of all columns and steel beams, as well as beams, hoops chained edge perimeter and concrete and armor HA/25/B/20/IIa B-500 S, sections and dimensions reflected in the relevant structure plans.

On the whole structural assembly, in area ground floor ceiling housing, support the slab way of singing 25 +5 cm., consisting of semi-resistant reinforced concrete beams, precast concrete slabs, corrugated steel armor B-500 S at times negative EHE mesh distribution according to the absorption of heat loads and rheological, and stuffed sinuses and concrete compression layer HA/25/B/20/IIa.

The floor deck shall consist of sandwich panel type THERMOCHIP "or similar sheet formed by insulation board and seen finishing groove pine.

3.3. Method of calculation.

3.3.1. Foundations.

It has been considered as having calculus permissible ground pressure of 2.00 N/mm2., pursuant to above. For the calculation of the foundation has used the specific software.

The purpose of that application is the design of shallow foundations isolated reinforced concrete footings with eccentric inclusion in the area of joint ownership.

In all cases, get the dimensions on the ground, the edge of the shoe and armor along two orthogonal directions. To do this, we assume the hypothesis of uniform distribution pressures on the ground.

For the calculation of foundation slabs is considered the elastic response of the field as a function of ballast module. Allowed the principles of the theory and practice of Soil Mechanics in defining permissible stress field. The response of this law will, therefore, linear and rectangular even in the case of eccentric loads.

As a method of calculation uses the method of Ultimate Limit States, according to the Chapter II of the Instruction EHE.

3.3.2. Structure.

The calculation and dimensioning of structures have been designed with one-way slabs (top floor), and sandwich panel type THERMOCHIP "or similar consisting insulation and finish panel pine seen grooving on deck, taking action both vertical and horizontal.

CONSTRUCTIVE MEMORY

As a method of calculation uses the method of Ultimate Limit States, according to the Chapter II of the Instruction EHE.

4. ACTIONS TAKEN IN CALCULATING.

4.1. Gravitational action

Forged Floor Roof	
Unidirectional. HA semiviguetas 25 +5 cm., interaxis 70 cm., Blocks alig. Concrete	
Use overload	2.00 kN/ m²
Total load calculation	7.50 kN/ m²
Forged Housing: Panel on metal belt	
Use overload	1.00 kN/ m²
Total load calculation	2.00 kN/ m²

The snow load is considered in the estimation of actions on the areas covered.
His analysis was conducted according to DB SE AE, for a topographic altitude in the range from 0 to 200 m.

4.2. Aeolian action.

The value of the wind action has been established based on the height above ground level, taking into account the situation of the building as exposed and included in the wind Y. That question is translated into action acting in the horizontal plane of the plates, as well as charges orthogonal to the cover flaps. Not considered the shielding of the remaining buildings.

4.3. Thermal and rheological action.

According to paragraph 6.1 of the DB SE AE, the study is not prescriptive and thermal actions rheological structures composed of pillars and beams where expansion joints are available to proper distance.

This amount is estimated at up to 40 m, even though it may be increased to 50 m. if the media do not have a high rigidity. Based on the above parameters, it is estimated that this project is in the area described by the regulations. Moreover, concrete joints shall be established at distances less than 10 m, leaving 48-hour interval between two consecutive concreted.

4.4. Seismic action.

According to the Earthquake Resistant Construction Standard: General and Construction Party NCSE-02, and considering both the location of the building in an area of seismic acceleration calculation below 0.06 g, and their structural characteristics (concrete) is not considered mandatory of the seismic action, so it was not considered in the calculation, although it has taken into account the design of structural elements.

4. 5. Simultaneity of actions

Resistive elements have been calculated taking into account the requests for the most unfavorable combinations of actions, according to the criteria of concurrency described.

5. RED HORIZONTAL SANITATION

There will be a horizontal network consolidation of separate systems, with a minimum slope 1.5%, will consist of boxes or records and standing of downspout changes direction and casting sinks PVC pipe of different diameters.

The boxes are made with solid brick laid with cement and sand mortar 1:6 that will build on a concrete base and shall be drawn on the inside with waterproof cement mortar and sand, etc., and take concrete cover registrable with metal corners.

6. COVER

The case has been resolved by plaques formed by phenolic chipboard 22 mm. thick extruded polystyrene insulation 60 mm. and board finish seen pine shaving 10 mm thick, set all at half-metallic structure projected.

CONSTRUCTIVE MEMORY

On the inclined planes are placed, nailed on mixed ceramic tile battens. At points where the top deck, presents discontinuity, will be ensured by sealing Bibs corrugated iron.

The gutters and collecting water bowls, copper will be square, with a width sufficient to facilitate the collection of water and minimum overlaps of 80 mm. The downspouts will be well Copper same, subject to the wall with clips of the same material, safeguarding the bottom cast iron shield.

The brick chimneys are coated with materials of the same characteristics as the facade.

7. MASONRY

The outer enclosure housing area (from the first slab) shall consist of factory machetón half-mast and double hollow brick, sitting in any case with cement and sand mortar 1:6 and forming chamber with extruded polystyrene insulation 5 cm. thick.

The interior of the outer ply is paloteado waterproofed mortar cement and sand 1 / 4, thus fulfilling all the conditions and thermal noise attenuation and resistance fire required by current regulations, and ensuring the tightness of walls.

The stone masonry walls on the ground floor and party wall plate will be coated with 6 cm. double insulation and plasterboard, metal anchored to the wall by omegas.
The pillars located on facades, will be coated inside with insulation and hollow brick simple, and externally with thin bricks of LHS, like the songs of forged, ensuring form the non-appearance of thermal bridges and gaps.

8. CARPENTRY

All exterior carpentry is made with lacquered aluminum with thermal break in color choose double glazing consists of 4-6-4 "Climalit" or similar, with neoprene gaskets.

9. COATINGS AND PAVEMENT

Outside the porch flooring will be laid with mortar rustic tiles 1 / 6. The flooring housing will parquet oak antichoc placed on metal sound.

In the kitchen, pantry and bathrooms provided the flooring is ceramic tile with attached slip cement glue. In the garage flooring will semigres

The staircases are expected in oak, according to design.

The interior trim vertical and horizontal or inclined, will trim and insightful cast.

The bathrooms and kitchen fronts will be tiled with tiles attached with adhesive cement.

The finish of the walls are adorned and lucid in plastic paint color to determine by the City, giving a warm and comfortable for habitation. The study of color, will be decided on site according to criteria which depend on the overall color.

The exterior walls will be coated with mortar aditivazo and pigmented monolayer.

10. FACILITIES PLUMBING

Comply with all applicable regulations. The plumbing installation to which reference is made in this section includes the following sections:

A) Indoor facilities supply hot water

Conform the general internal network building and private networks for both cold and hot water.
The network will start the counter at the entrance of the plot.

Supply classification has been made taking into account the minimum installed flow which includes the "Basic Rules for Water Supply Facilities."

B) Sanitary appliances and fittings

It plans to install devices in white vitreous china. All appliances as equivalent to the type faucet valve seat piece with enough design tested and control keys on ramalillos supply.

CONSTRUCTIVE MEMORY

C) Technical

The speed of water in the system is 1.5 m / sec.
The operating pressure by means of a pressure group when it is below 10 MCDA, or through pressure reducing valves, when it exceeds 30 MCDA, considering the worst point in each case.

Counter Status: A farm Input
Hot water: Boiler mixed with diesel powered with battery and storage.
Air located in garage floor installed in accordance with the rules and regulations that these facilities required by law. The hot water tank will be connected to plate.

Sun projected onto the south facing deck spoiler, which will support the hot water, thus getting reduced energy consumption.

11. FACILITIES ELECTRICITY

The electrical system will be implemented in its entirety under the current Regulations Low Voltage Electrical. Be taken into account, however, the special of energy supplier.
The installation will start from the connection and meter box at the entrance to the farm.

Copper conductors are insulated with polyvinyl chloride. Based on the degree of electrification established, the estimated needs and with the provisions IM BT 022, the circuits are distributed according to plans.

Usage points are determined in accordance with the instructions contained in the BT MI 022.
The minimum nominal diameter of the protective tubes are determined in accordance with the provisions of MI BT 019, depending on the number and size of wire to be accommodated.
In the bathroom, electrical installation will be carried out in accordance with BT MI 024.

At the root of the facilities will be placed inside the control panel and protection, Next to this table, put another of the same features for placement of the ICP.

- A nominal operating voltage of 220 V.

- That any electrical outlet, supports a minimum value of 10 amps in circuits lighting, and 16 amp circuits for other uses.
- The protection grounding of electrical outlets.
- The protective separation between frames or grids and parallel pipes water, heating and gas, so that is not less than 30 cm. and greater than or equal to 5 cm. facilities for telephone, intercom or antennas.

12. GROUND FACILITIES

In the constructive solutions of the ground facilities, will be resolved:
- The start line with no other pipes used for it not provided for this purpose.
- A contact voltage less than 24 ohms, from the farthest point of the installation.
- The connection to the main line of descent to land lines to protect housing, antennas, the lightning rod and metal masses of the building.
- Connection to driving casket buried by registrable.

13. FACILITIES HEATING and A.C.S.

The heating power is defined by the heat required, the calculation should be based on:

- The loss of heat from the heated environment, taking into account the Hygrothermal conditions required by the Technical Standards of Design and transmission coefficients All facilities shall comply with the regulation of heating, air conditioning and Hot Water, in order to rationalize their energy consumption, and its Complementary Technical Instructions.

System installation:

Hot water heating radiators under windows, bitubular driving system that will run under flooring and combination boiler, fuel by diesel. DHW production instant in the same boiler with tank and air tank located in boiler room basement floor. Installed in accordance with the rules and provisions for these facilities required by law. The hot water tank in the boiler will be connected a solar panel projected onto the south facing deck spoiler, which will support the hot water, thus getting reduced energy consumption.

CONSTRUCTIVE MEMORY

Radiators: In plate, located under the installation diagrams in habitable rooms, equipped with single or double convector as required by the heat transfer accurately. They are provided with key manual control and trap.

14. INSTALLATION OF SOLAR ENERGY HARVESTING FOR PRODUCTION OF ACS

The installation of each unit will be based on the capture of solar energy for water production heating and consist of the following systems, necessary for its operation:

Collection system
Accumulation system
Exchange system
Hydraulic circuit
Regulation and control system

Baseline data for the design and calculation of the system are composed of two groups of parameters that define the conditions of use and climate. The minimum size of the facilities is performed according to the requirements of the CTE and HE4 DB ratios established. Consumption is considered A.C.S. single-family housing of 30 liters / day person.

15. FACILITIES AUDIOVISUAL.

15.1. TELEPHONE SYSTEMS AND INTERCOM.

In the constructive solutions of the elements making up the installation will resolve:

- The laying of lines in a pipeline, in conduit, with the possibility of registration to facilitate installation, connection and repair of circuits.

- The protective separation between the telephone and intercom facilities and other pipelines parallel water, gas or electricity so that it is greater than or equal to 5 cm.
The telephone system, so as specified by the Company directly.

15.2. INSTALLATION OF TV AND FM ANTENNAS.

The installation of TV antenna and FM, will be defined by the gain in dB its outreach team based on:

- The ability to capture audio-visual signals of TV and FM.

- In the constructive solutions of the elements making up the antenna and its installation distribution network, will be resolved:

- The location of the antenna mast on a resistive element for this purpose, so Nations that do not cause their damage to the lining of the roof.

- The distance between mast so that it is greater than or equal to 5 m.

- That the catchment of the antenna is away from any high voltage electrical network, at least once and half the height of the mast.

- The laying of distribution lines so that they are contained in a pipeline under tube, with the possibility of registration to facilitate laying, connection and repair.

- That the antenna is protected by ground.

- Protection of the materials from environmental aggression and other materials compatible.

16. BOOK OF SPECIFICATIONS

The purpose of these specifications is to define the criteria for establishing the relationship between agents involved in the works defined in this project and provide a basis for carrying out the contract work between the developer and the contractor.

16.1. General conditions

CONSTRUCTIVE MEMORY

16.1.1. The contract

Of the diverse types of contract, it is chosen for the contract for units of work, which measures, values, judges and pays the works dividing the total cost in the corresponding units of work.

FORMALIZATION OF THE CONTRACT

The contracts will formalize by means of private document, in general, that will be able to rise up to public writing by request of any of the parts and in agreement with the in force dispositions.

The contractor, before formalizing the writing, will have signed also the foot of the "Schedule of conditions" that will govern the work in the planes, picture of prices and in the general budget.

They will be of account of the successful bidder all the expenses that there causes the extension of the document in which the contract is obtained.

REASONS OF THE RESCISSION OF THE CONTRACT

They will be considered to be sufficient reasons for the rescission of a contract those that later distinguish themselves:

- Death or disability of the contractor.
- Bankruptcy of the contractor. In the previous cases if the inheritors of the contractor or syndics were offering to go to I dig the works, under the same conditions stipulated in the contract, the owner can admit or reject the offer, without in this last case they have those rights to some indemnification.

Also they will be reasons justified for the rescission of the contract:

- The alterations of the same one for the reasons:

a) The modifications of the project in such form that represents fundamental alterations of the same one, in the opinion of the director of work and, in any case, providing that the variation of the budget

of execution, as consequence of the mentioned modifications, represents approximately 25 %, as minimum of the amount of that one.

b) The modification of units of work, providing that these represent variations, more or less, of 40 % as minimum of some of the units of the project that have been modified.

- The suspension of the begun work and in any case, providing that for reasons foreign to the contract one does not give beginning to the work awarded in the term of three months and to depart from the adjudication. In such a case the return of the bail will be automatic.

- The suspension of the begun work providing that the term of suspension has exceeded of one year.

- The breach of the conditions of the contract, when it indicates carelessness and bad faith, with prejudice of the interests of the work.

- The completion of the term of the work without well-taken reason.

- The bad faith in the execution of the works.

16.1.2. Obligatory arbitration

It divides both they promise to submit in his differences to the arbitration of amicable compounders, designated one of them for the owner, different for the contract and an Engineer for the official corresponding college. In addition one of these compounders will be obligatorily the director of work.

16.1.3. Competent jurisdiction

In case of not coming to agreement for the previous procedure, both parts remain obliged to submit the discussion of all the questions that could arise as derivatives of his contract to the authorities and ordinary courts, in accordance with the in force legislation, resigning the common right and the jurisdiction of his domicile, being competent the jurisdiction where the work was nailed.

16.1.4. Responsibility of the contractor

CONSTRUCTIVE MEMORY

The contractor is responsible for the execution of the works in the conditions established in the contract and in the documents that compose the present project.

The memory will not have the conside ration of project document.
Since consequence of it will come forced to the demolition and reconstruction from everything executed evil, without there could use as excuse, which the director of work has examined and recognized the construction during the work, not the fact that the partial liquidations should have been paid.

16.1.5. Accidents of work

In case of accidents happened to the workmen with motive and in the exercise of the works for the execution of the work, the contractor will be abided by the ready thing in this regard in the in force legislation, being in any case, only one responsible for his fulfillment and without for no concept the property could remain affected for responsibilities of any type.

The contractor this one bound to adopt the safety measures that the in force dispositions to avoid in possible you injure to the workers or to the pedestrian, not only in the scaffoldings, but in all the places of the work.

Of the accidents and prejudices of any kind that, for not fulfilling the legislated exceeds the matter, they could happen or strike, he will be the contractor the responsible only one, or his representatives in the work, since it thinks that in the contracted prices all the necessary expenses are included to complement the due above mentioned legal dispositions.

16.1.6. Damages to third

The contractor will be responsible for all the accidents that for inexperience and / or carelessness were striking so much in the building in which the works are affected as in the contiguous ones. It will be, therefore, of his account the credit of the corresponding indemnifications, when there was place to it, of all the hurts and prejudices that had been caused during the execution of the works.

The contractor will fulfill the requirements that prescribe the in force dispositions on the matter, must demand, when it was needed, the voucher of such a fulfillment.

16.1.7. Payments to arbitrary

The payment of taxes and arbitraments, police officers or of another species, so much recounted to fences, system of illumination, etc., whose credit will be done during the time of the execution of the work, as those owed to concepts inherent in the works that are realized, they are chargeable to the contract, providing that in the particular conditions of the project the opposite is not stipulated. Nevertheless to the contractor there will be restored the amount of all those concepts that the director of work considers to be just to do it.

16.1.8. Announcements and cartels

Without previous authorization of the owner it will be able to put neither in the works, nor in his fences on any more inscriptions or announcements that the suitable ones to the regime of the works and the city police.

There exempts of this measure the cartel optional announcer of the work who will be placed by request of the director of work and will run to account of the contractor.

16.1.9. Copies of documents

The contractor has right to extract copies to his coast, of the planes, budgets, schedule of conditions, and also of other documents of the project.

The Technical Engineer, if the contractor requests it, authorizes these copies with his signature, once it has confronted them.

16.2. Conditions of technicians

16.2.1. Agents obligations

The responsibilities of the different agents involved in the building are regulated by Law 38/99 Building Management (L.O.E.)

CONSTRUCTIVE MEMORY

DEVELOPER

a) Decide, drives, software and financed with own resources or outside, the building work for themselves or their subsequent disposal, delivery or transfer to third parties under any title.

b) Takes the lead the entire process of building, developing the management necessary to perform the work originally contemplated, and bear all the cost involved.

BUILDING CONTRACTOR

a) To organize constructed works, writing the plans of work that are needed and projecting or authorizing the provisional facilities and auxiliary means of work.

b) To elaborate, when it is needed, the safety plan and hygiene of the work in application of the corresponding study and to have in any case the execution of the preventive measures, guarding over his fulfillment and over the observance of the in force regulation as for safety and hygiene in the work.

c) To sign with the Engineer, the record of I restate of the work.

d) To show the headquarters of the whole personnel that intervenes in the work and to coordinate the interventions of the subcontractors.

e) The competence assures each and every of the materials and constructive elements that should be in use, verifying the preparations in work and rejecting, on own initiative or for prescription of the Technical Engineer, the supplies or prefabricated that do not possess the guarantees or documents of suitability needed by the procedure of application.

f) To guard the book of orders and follow-up of the work and to give informed to the annotations that are practiced in the same one.

g) To facilitate the precise materials to the Technical Engineer, in advance sufficiently, for the fulfillment of his assignment.

h) To prepare the partial certifications of work and the offer of final liquidation.

i) To sign with the promoter the minutes of provisional and definitive receipt.

j) To coordinate the assurances of accidents of work and damages to third during the work.

THE CONTRACT MANAGER

a) To verify the adequacy of the foundation projected to the royal characteristics of the soil.

b) To write the complementary ones or rectified of the project that is needed.

c) To be present at the works, its nature and complexity needs all the times, in order to solve the contingencies that take place and to give the complementary instructions that are precise to obtain the correct solution.

d) To coordinate the intervention in work of other technical personnel who, in his case, meet to the direction with own function in partial aspects of his speciality.

e) To approve the partial certifications of work, the final liquidation and to advise the promoter forthwith of the receipt.

f) To prepare the final documentation of the work and to send and to sign in union of the Technical Engineer, the final certificate of the same one.

BUILDING EXECUTION MANAGER

a) To write the document of studies and analysis of the project.

b) To plan, in view of the architectural project, the contract and the technical regulation of application, the quality control and economically of the works. c) To write when it is needed, the study of the systems adapted to the risks of the work in the accomplishment of the work and to approve the safety plan and hygiene for the application of the same one.

CONSTRUCTIVE MEMORY

c) To affect the rest of the work and to prepare the corresponding record, signing it in union of the Engineer and of the Builder.

d) To verify the provisional facilities, auxiliary means and safety systems and hygiene in the work, controlling his correct execution.

e) To order and to direct the execution of the material in accordance with the project, the technical procedure and the procedure of good construction.

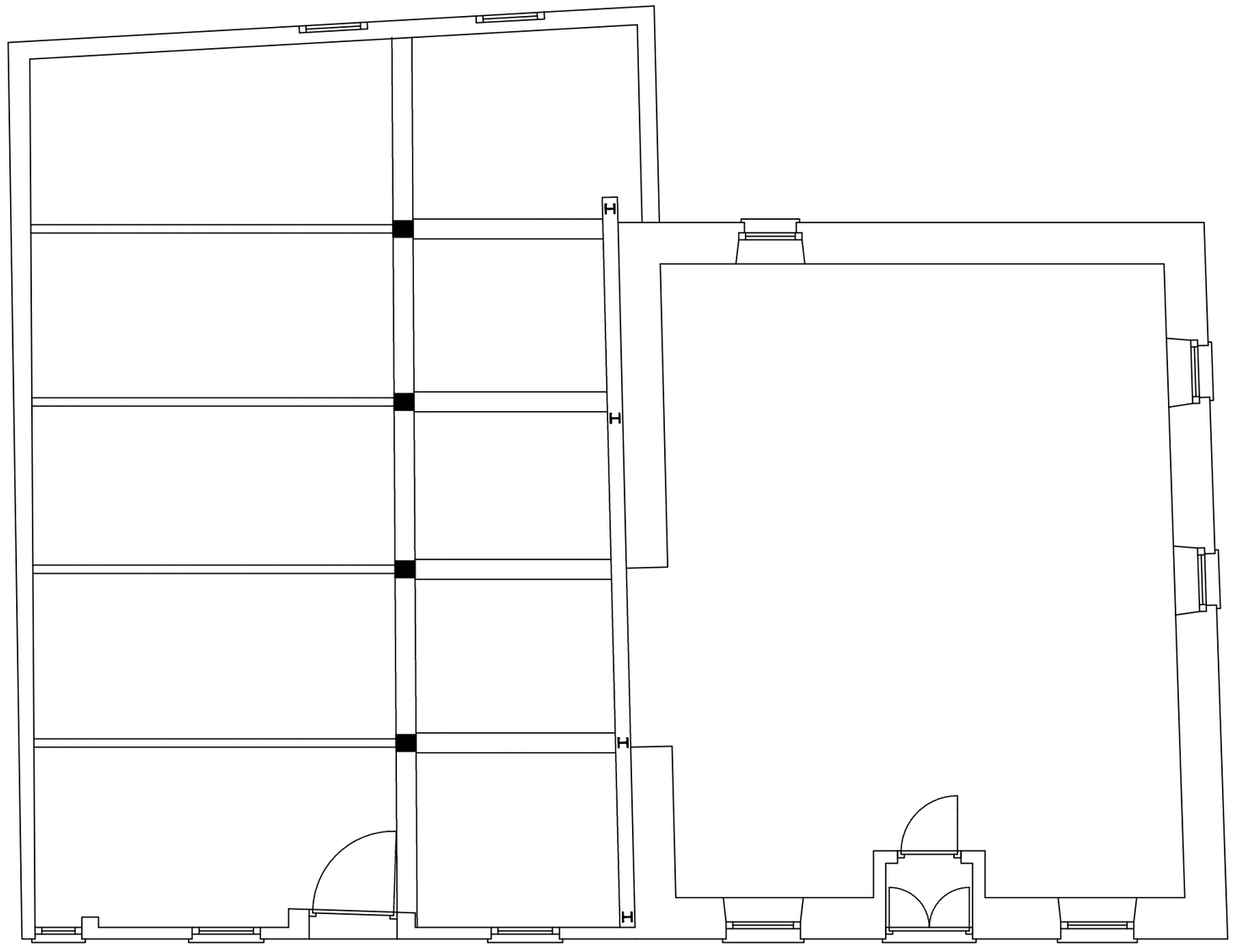
f) To realize or to arrange the tests and material testing, facilities and other units of work according to the sampling rates programmed in the plan of control, as well as to affect other checking that turn out to be necessary to assure the constructive quality of agreement with the project and the technical applicable regulation. Of the results the builder will report punctually, him giving, in his case, the opportune orders; of the contingency not be solving he will adopt the measures that correspond realizing to the Engineer.

g) To realize the measurements of work executed and to give conformity, according to the established relations, to the valued certifications and to the liquidation of the work.

h) To sign, in union of the engineer, the final certificate of the work.

INDEX

INDEX



PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PÉREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
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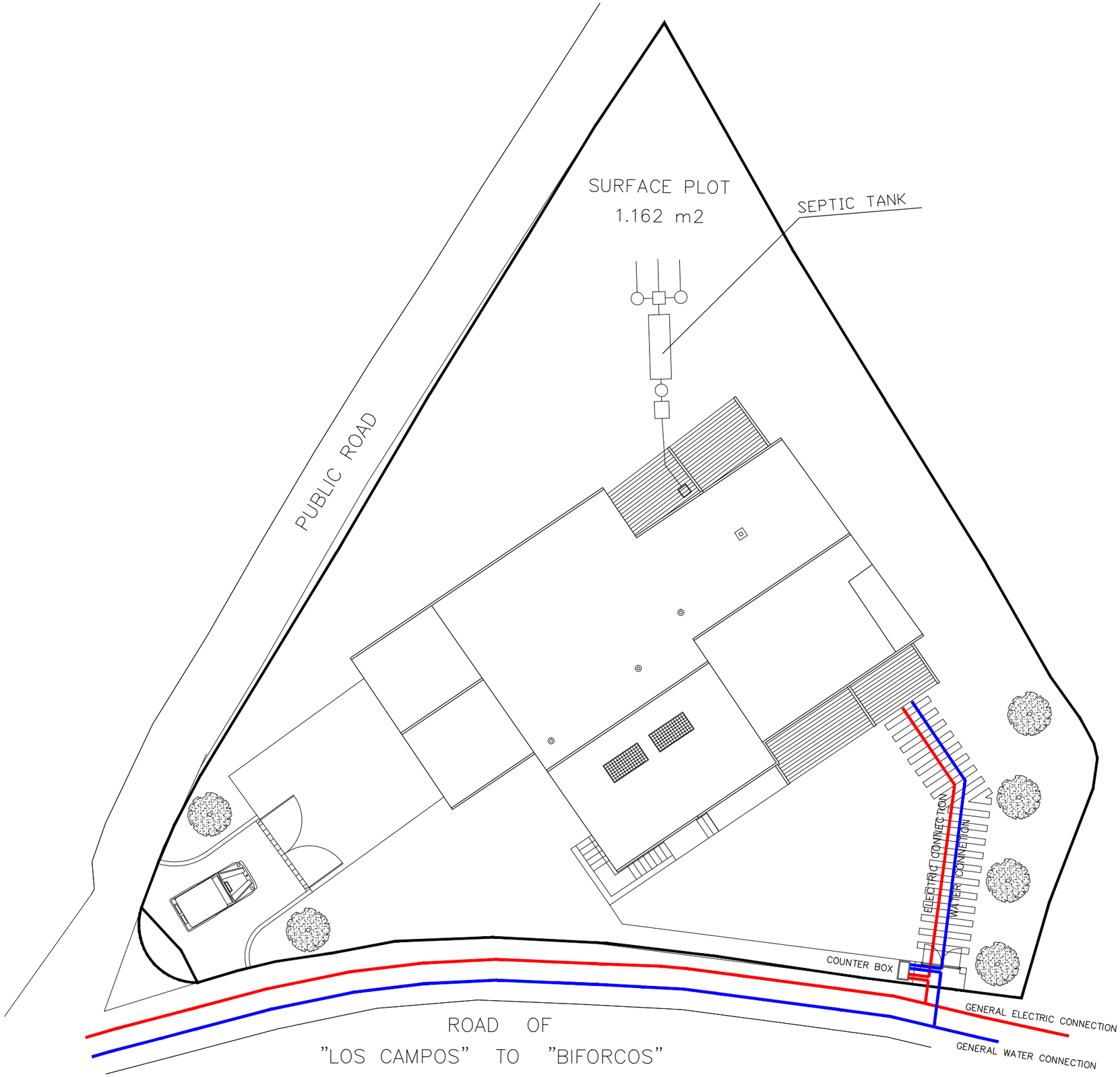

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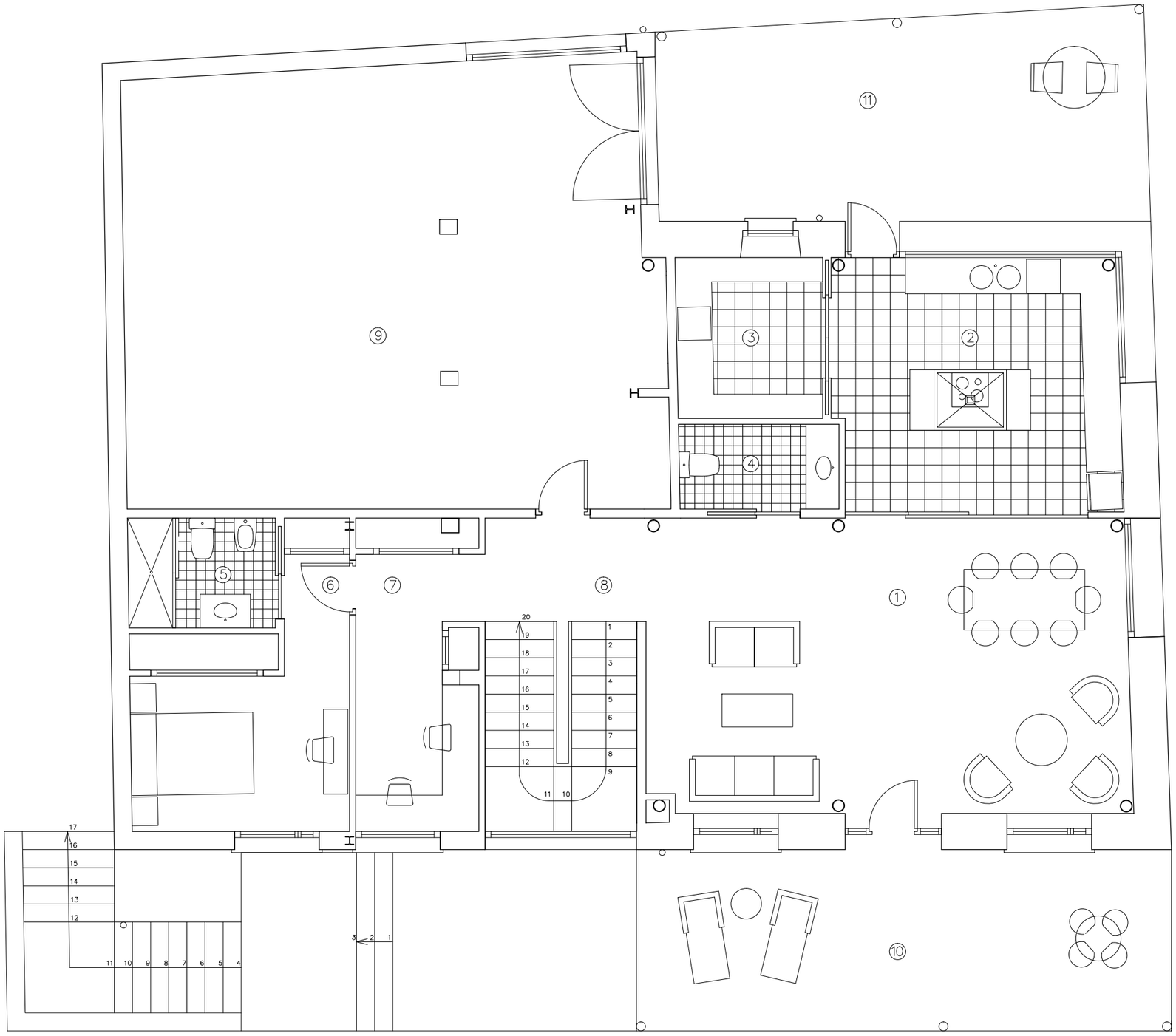

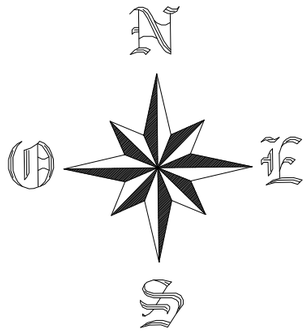

SINGLE–FAMILY HOUSE

GROUND FLOOR HOUSE	USEFUL	BUILT
1.– LIVING ROOM	45.33 m²u	
2.– KITCHEN	19.17 m²u	
3.– PANTRY	7.16 m²u	
4.– TOILET	3.71 m²u	
5.– BATHROOM	4.43 m²u	
6.– BEDROOM	13.87 m²u	
7.– STUDIO	6.74 m²u	
8.– STAIRCASES	10.40 m²u	
TOTAL GROUND FLOOR HOUSE	110.81 m²u	135.73 m²c
9.– STORAGE ROOM	64.46 m²u	
TOTAL GROUND FLOOR TOOLS ROOM	64.46 m²u	71.65 m²c
GROUND FLOOR PORCHS		
10.– SOUTH PORCH	26.58 m²u	
11.– NORTH PORCH	27.29 m²u	
TOTAL GROUND FLOOR PORCH	53.87 m²u	53.87 m²c
TOTAL GROUND FLOOR	229.14 m²u	261.25 m²c
TOTAL HOUSE	222.76 m²u	265.16 m²c
TOTAL PORCH	96.59 m²u	98.60 m²c
TOTAL GARAGE	133.32 m²u	148.32 m²c
TOTAL BUILT	452.67 m²u	512.08 m²c

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DATA	SCALE	Nº PLAN	PLAN NAME
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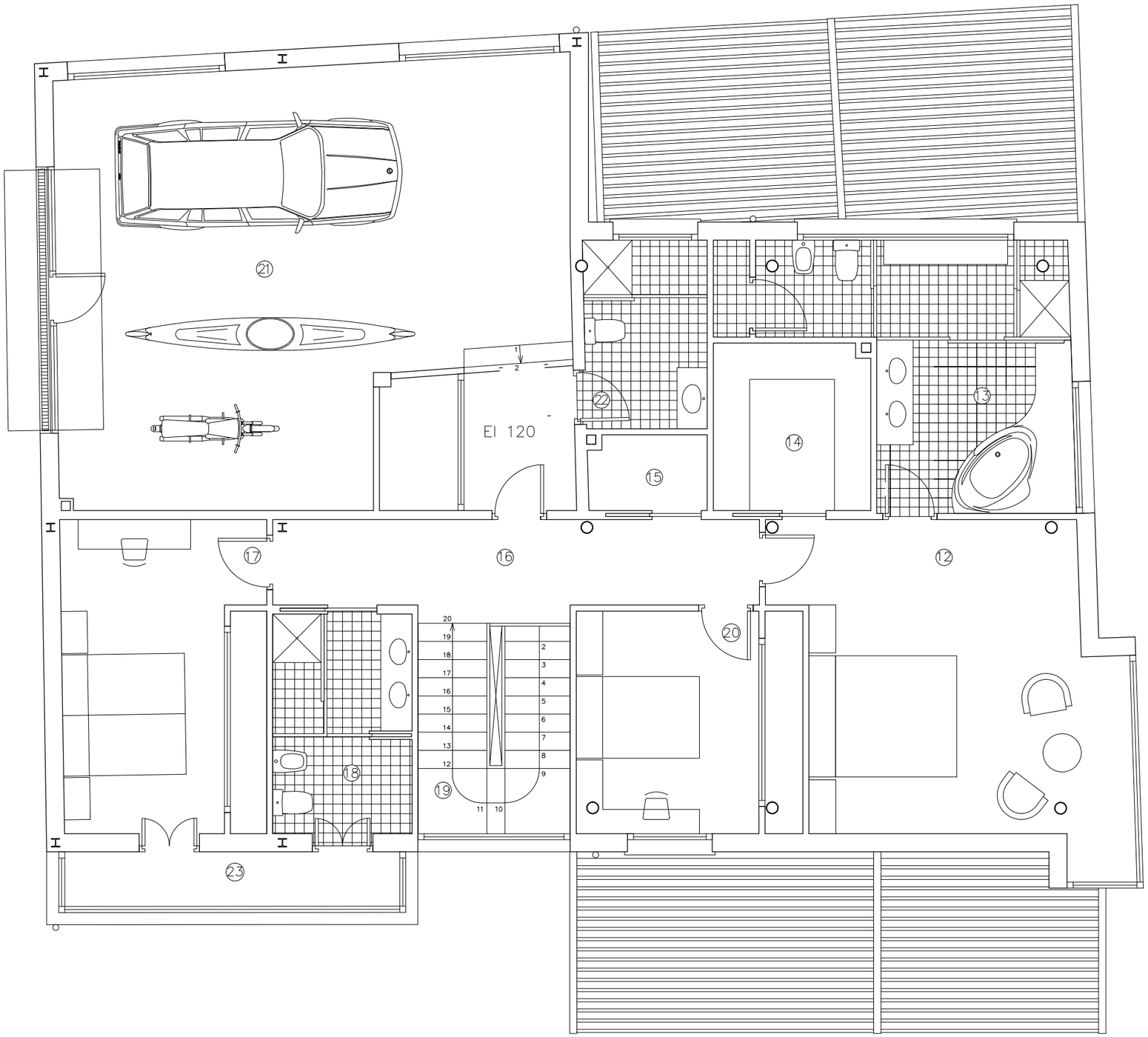

SINGLE–FAMILY HOUSE

FIRST FLOOR HOUSE	USEFUL	BUILT
12.– BEDROOM	27.48 m²U	
13.– BATHROOM	18.83 m²U	
14.– DRESSING ROOM	7.19 m²U	
15.– CLEARING–SERVICE	2.47 m²U	
16.– CORRIDOR	12.10 m²U	
17.– BEDROOM	17.48 m²U	
18.– BATHROOM	8.34 m²U	
19.– STAIRCASES	4.36 m²U	
20.– BEDROOM	13.70 m²U	
TOTAL FIRST FLOOR HOUSE	111.95 m²U	129.43 m²C
FLOOR GARAGE		
21.– GARAGE	62.54 m²U	
22.– TOILET	6.32 m²U	
TOTAL FLOOR GARAGE	68.86 m²U	76.67 m²C
FIRST FLOOR PORCH		
23.– PORCH	5.36 m²U	
24.– PORCH GARAGE	37.36 m²U	
TOTAL FIRST FLOOR PORCH	42.72 m²U	44.73 m²C
TOTAL FIRST FLOOR	223.53 m²U	250.83 m²C
TOTAL HOUSE	222.76 m²U	265.16 m²C
TOTAL PORCH	96.59 m²U	98.60 m²C
TOTAL GARAGE	133.32 m²U	148.32 m²C
TOTAL BUILT	452.67 m²U	512.08 m²C

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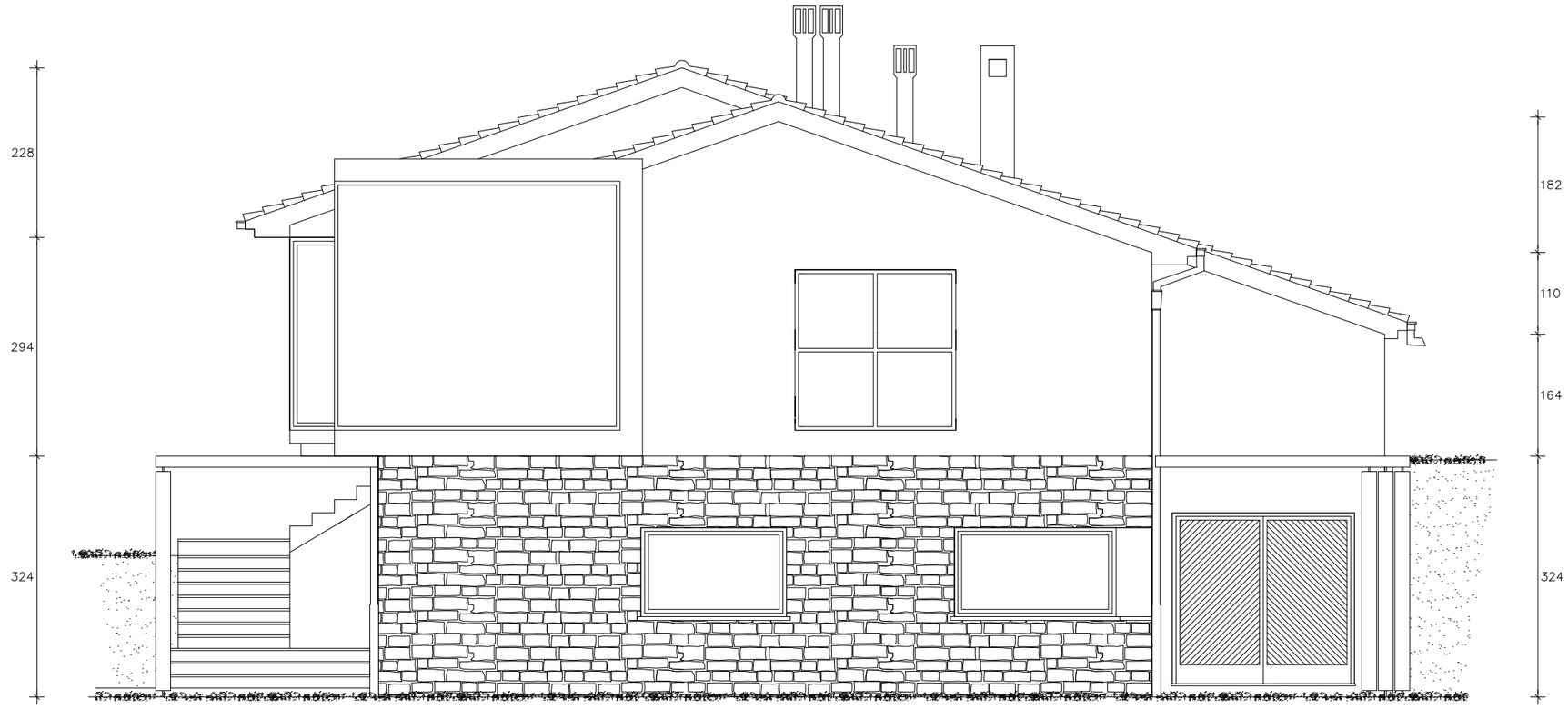
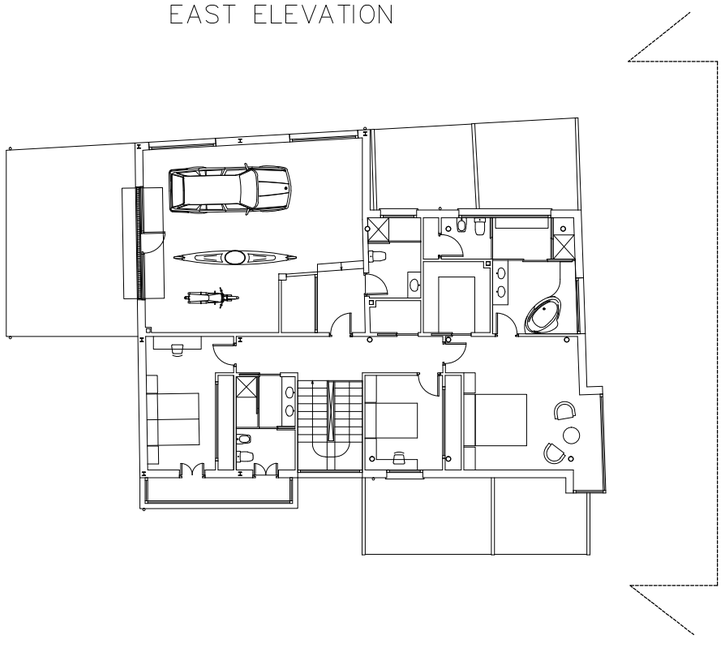


EAST ELEVATION



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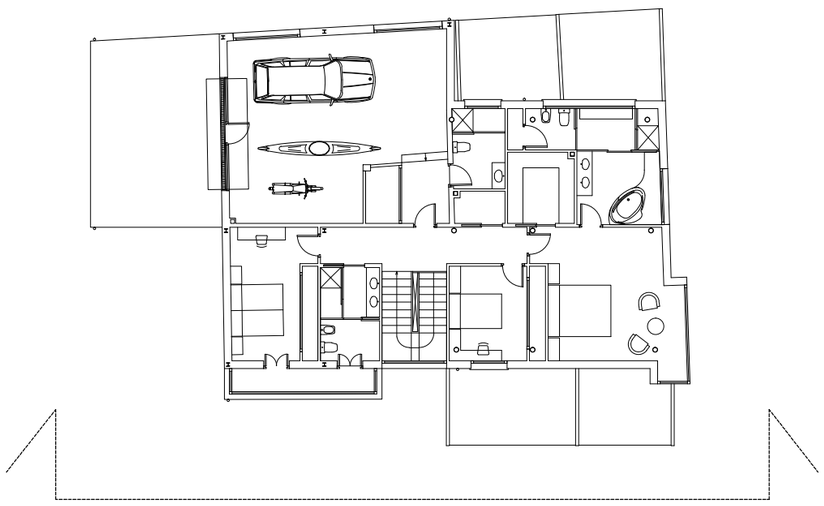
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 04	PLAN NAME: EAST ELEVATION

SOUHT ELEVATION



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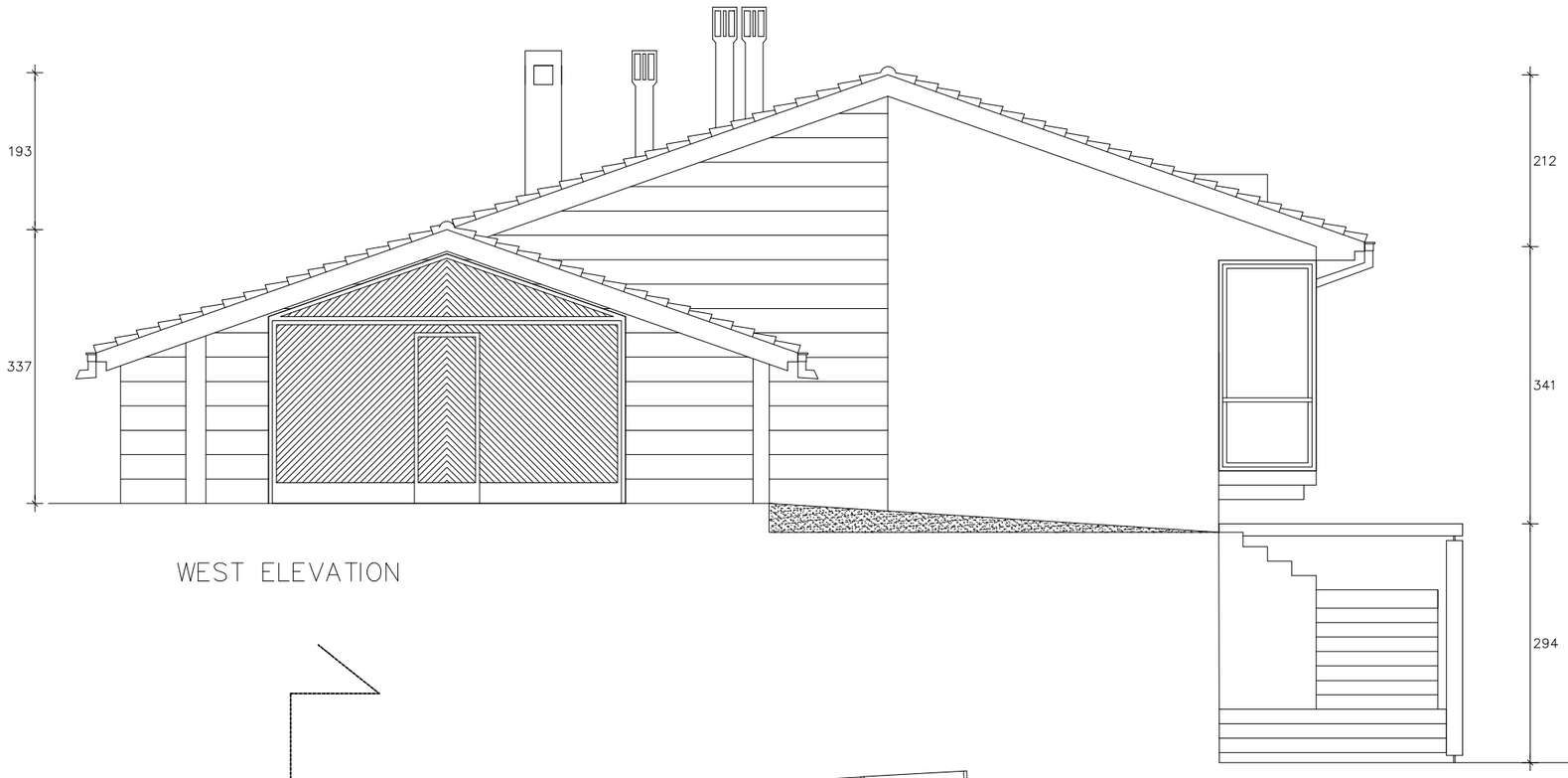
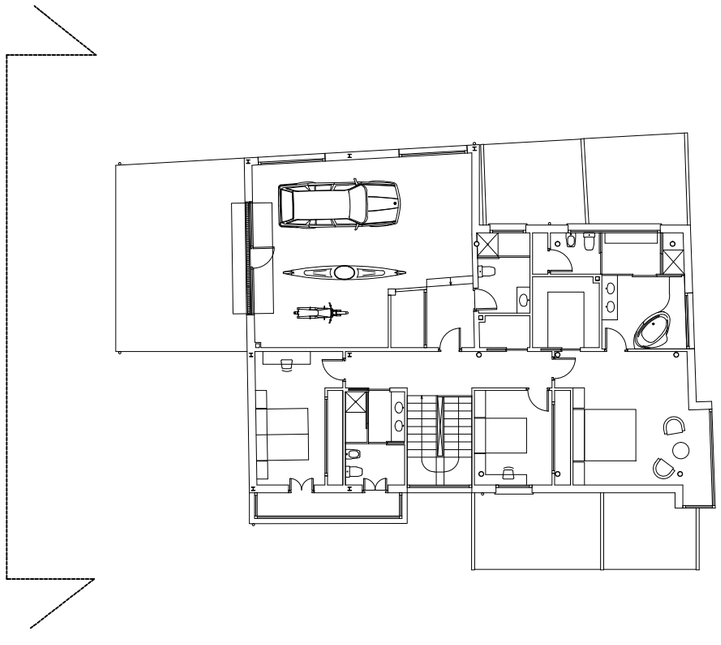
	AUTHOR: DANIEL PéREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 05	PLAN NAME: SOUHT ELEVATION



WEST ELEVATION



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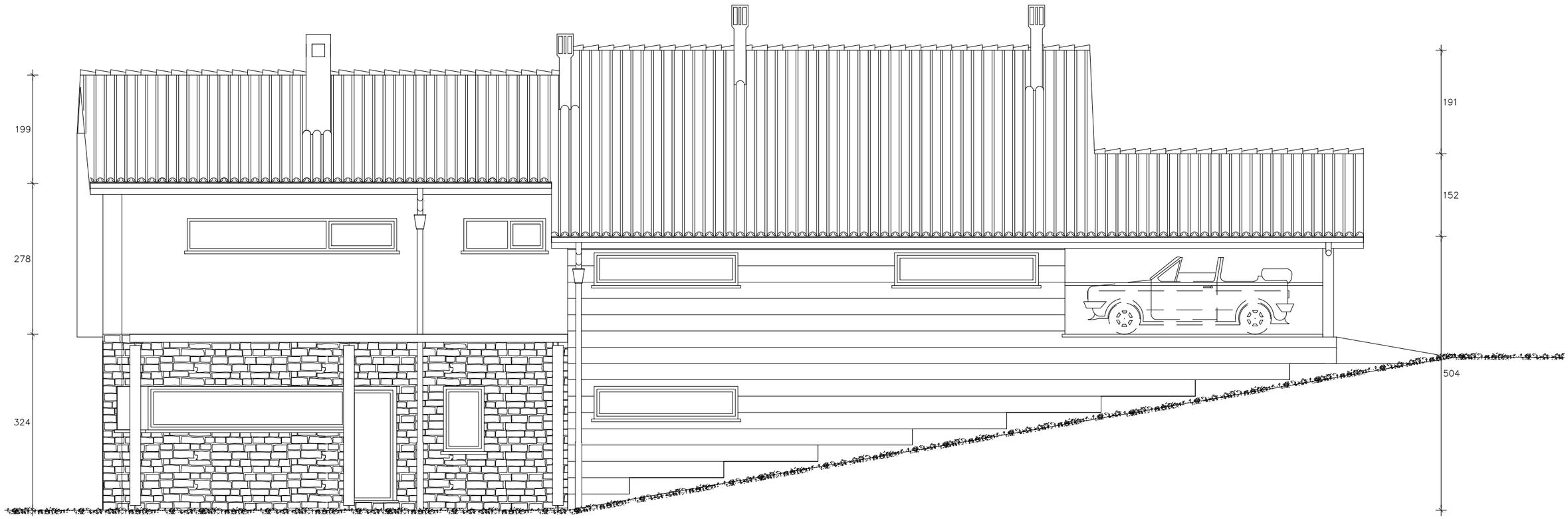
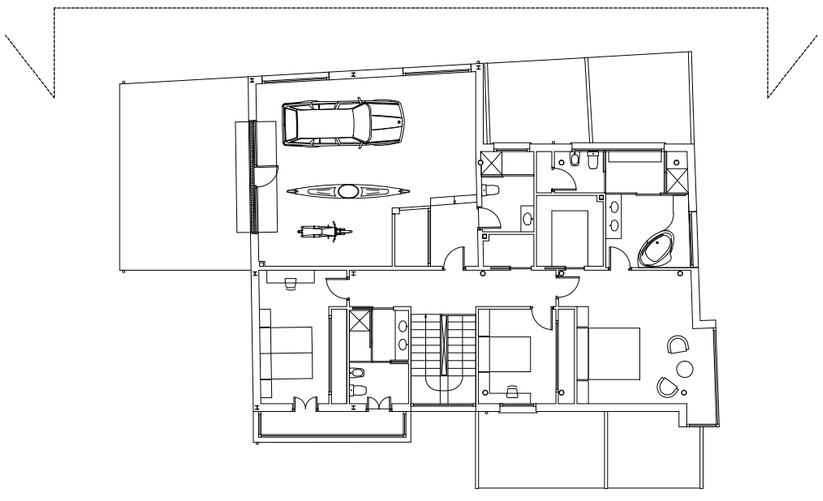


NORTH ELEVATION



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	AUTHOR: DANIEL PÉREZ MELERO		
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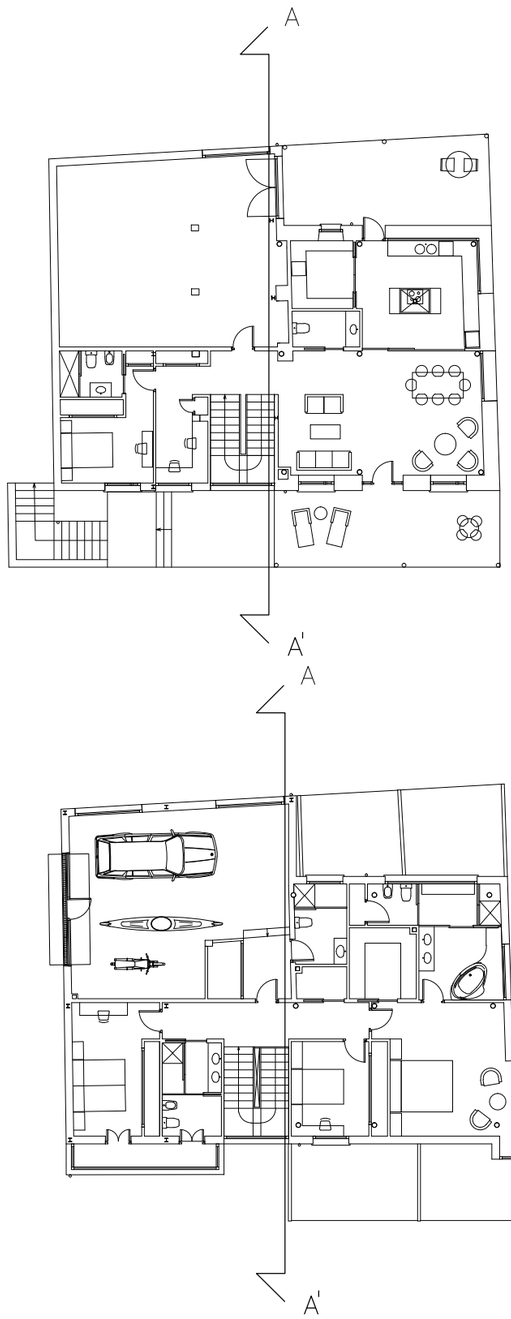

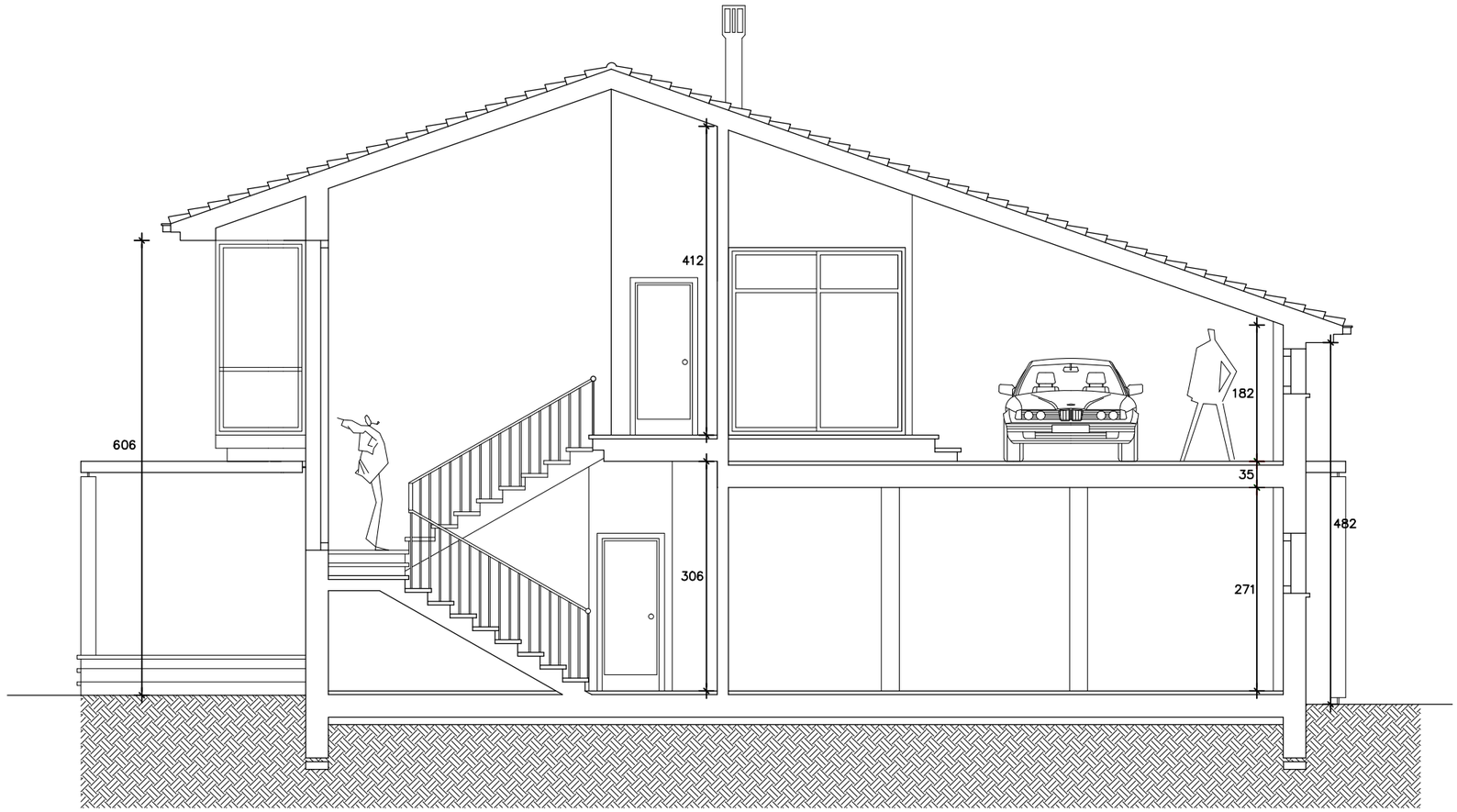

SECTION A–A'

	PROYECT EXPANSION AND REFORM OF FAMILY HOUSE LOCATION BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
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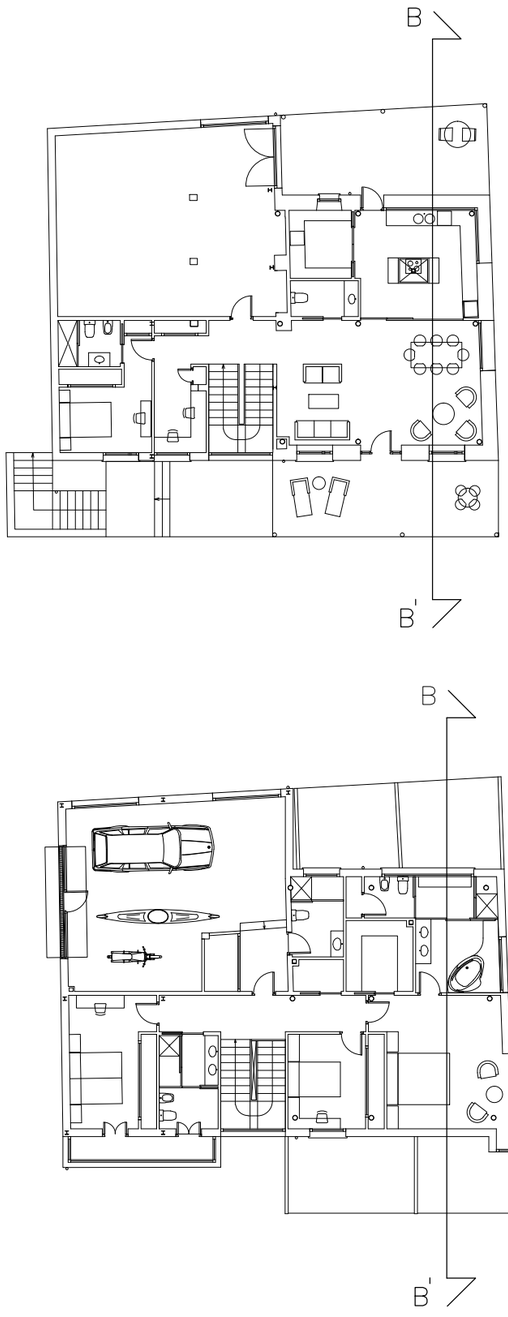
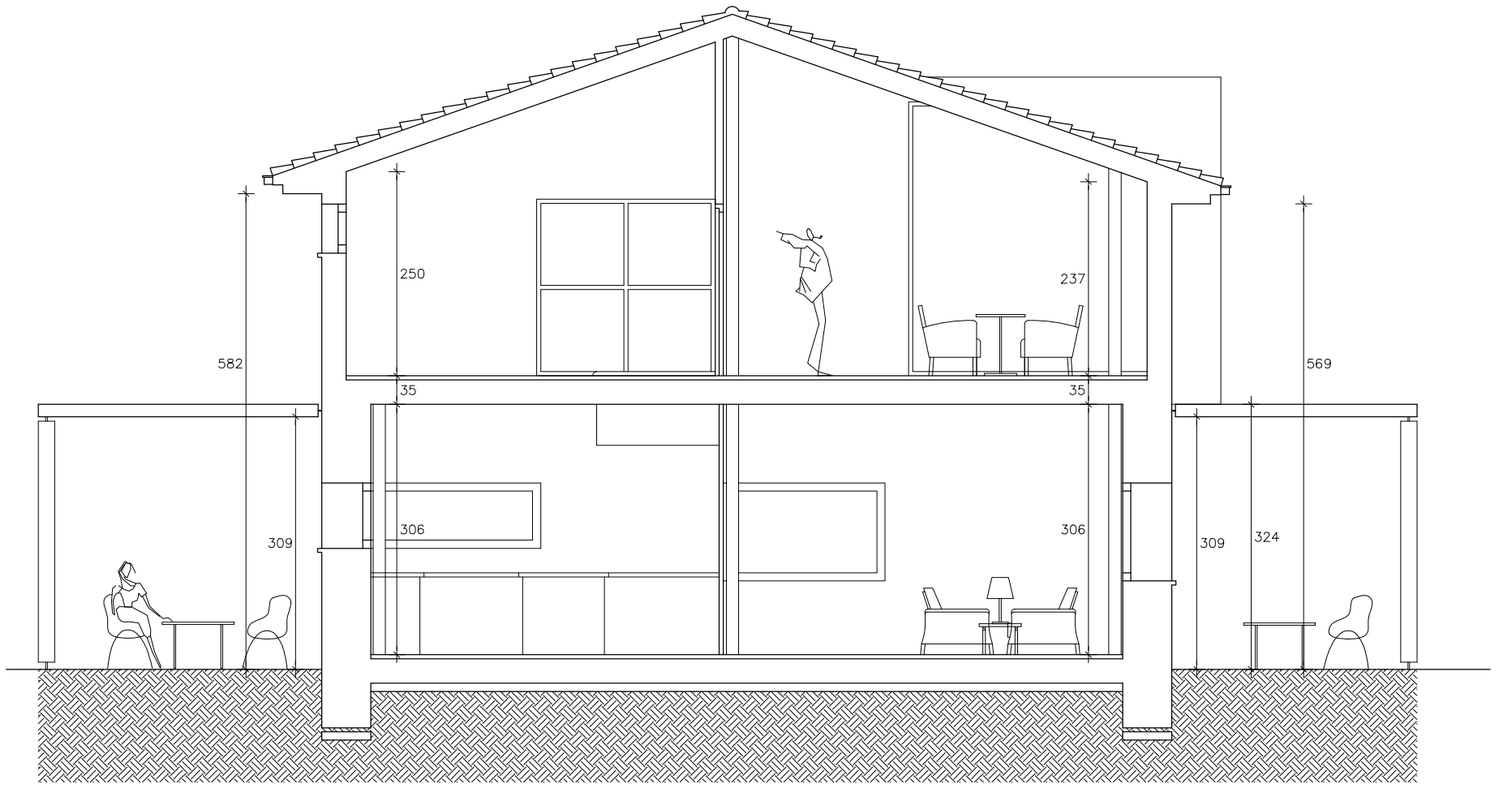
	TUTOR FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA JUNE 2011	SCALE 1:75	Nº PLAN 08	PLAN NAME SECTION A-A'





SECTION B–B'

	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE		
	LOCATION: BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PéREZ MELERO		
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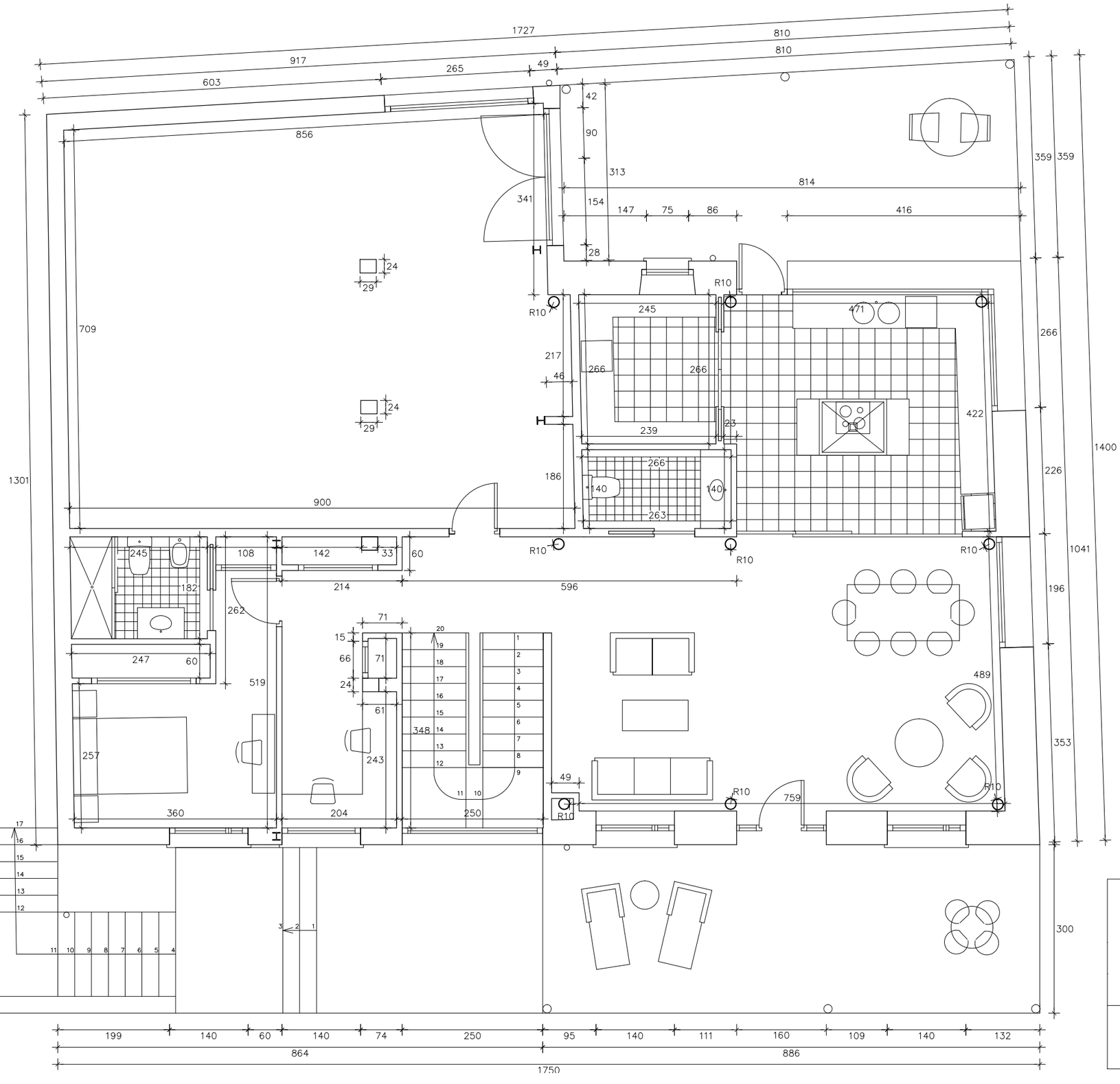

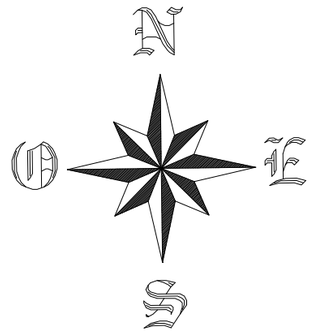

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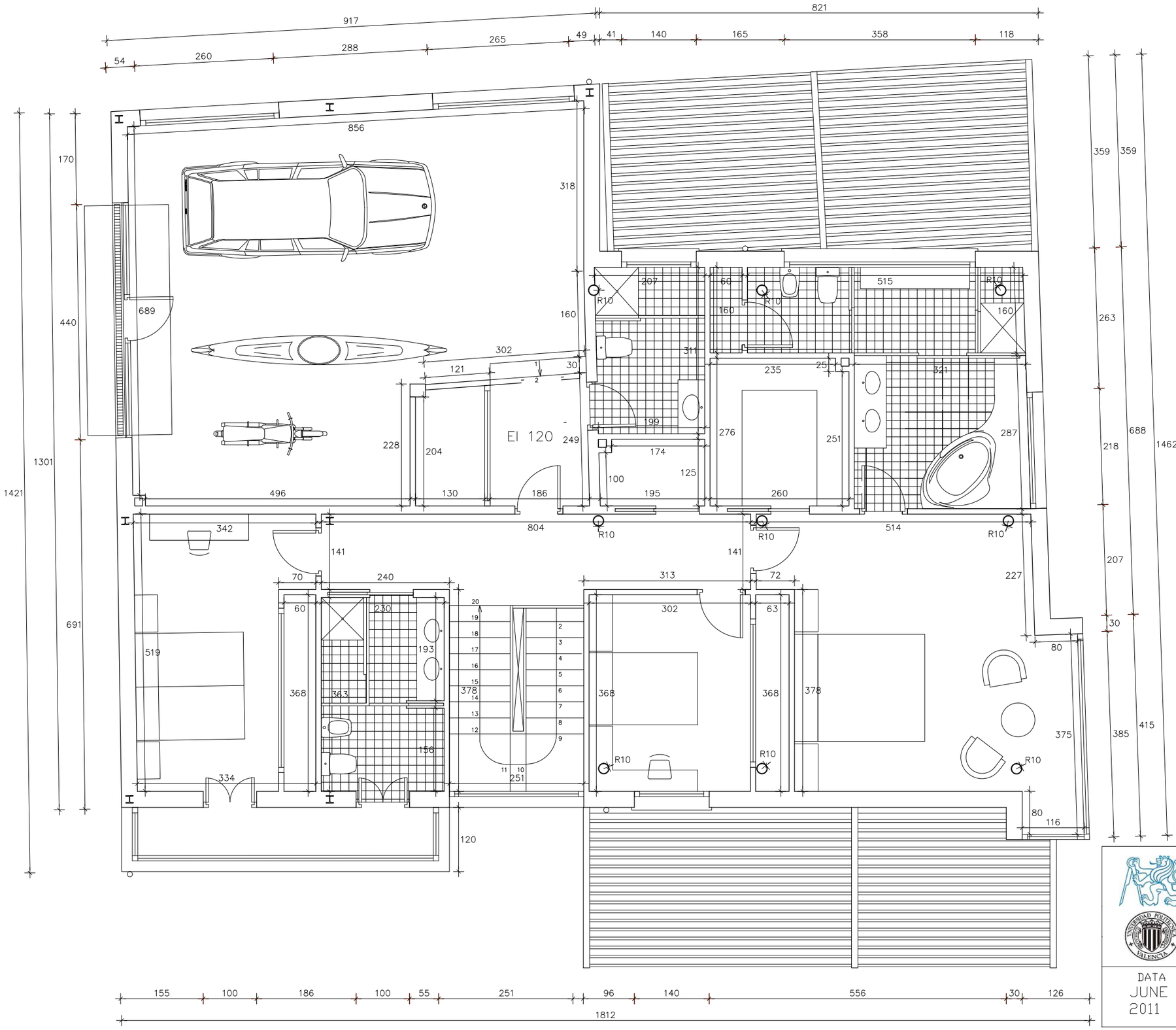
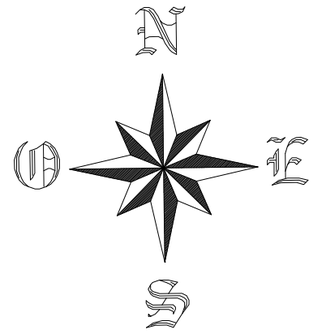
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 10	PLAN NAME: ANNOTATION PLAN: GROUND FLOOR





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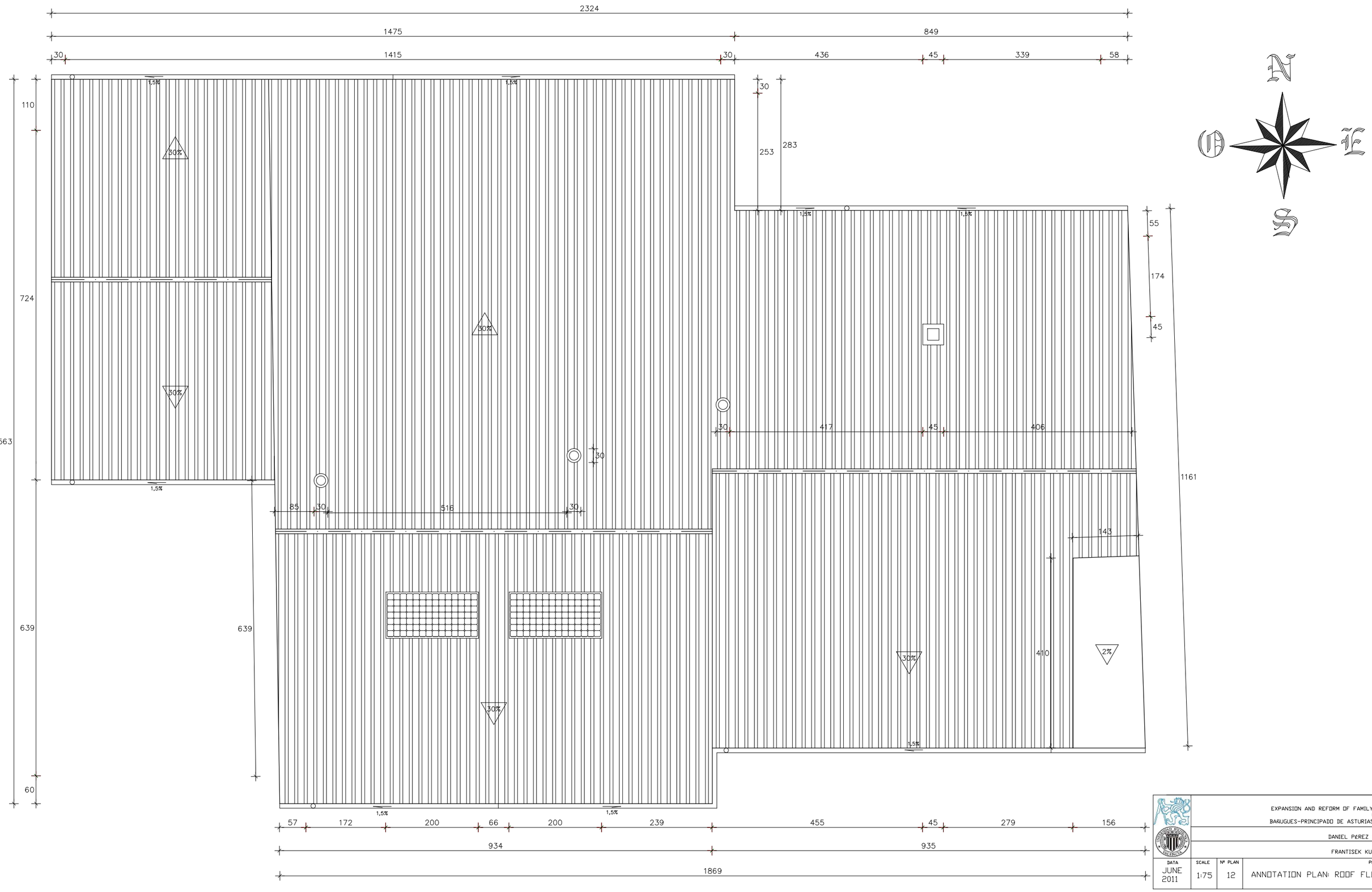
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 11	PLAN NAME: ANNOTATION PLAN: FIRST FLOOR

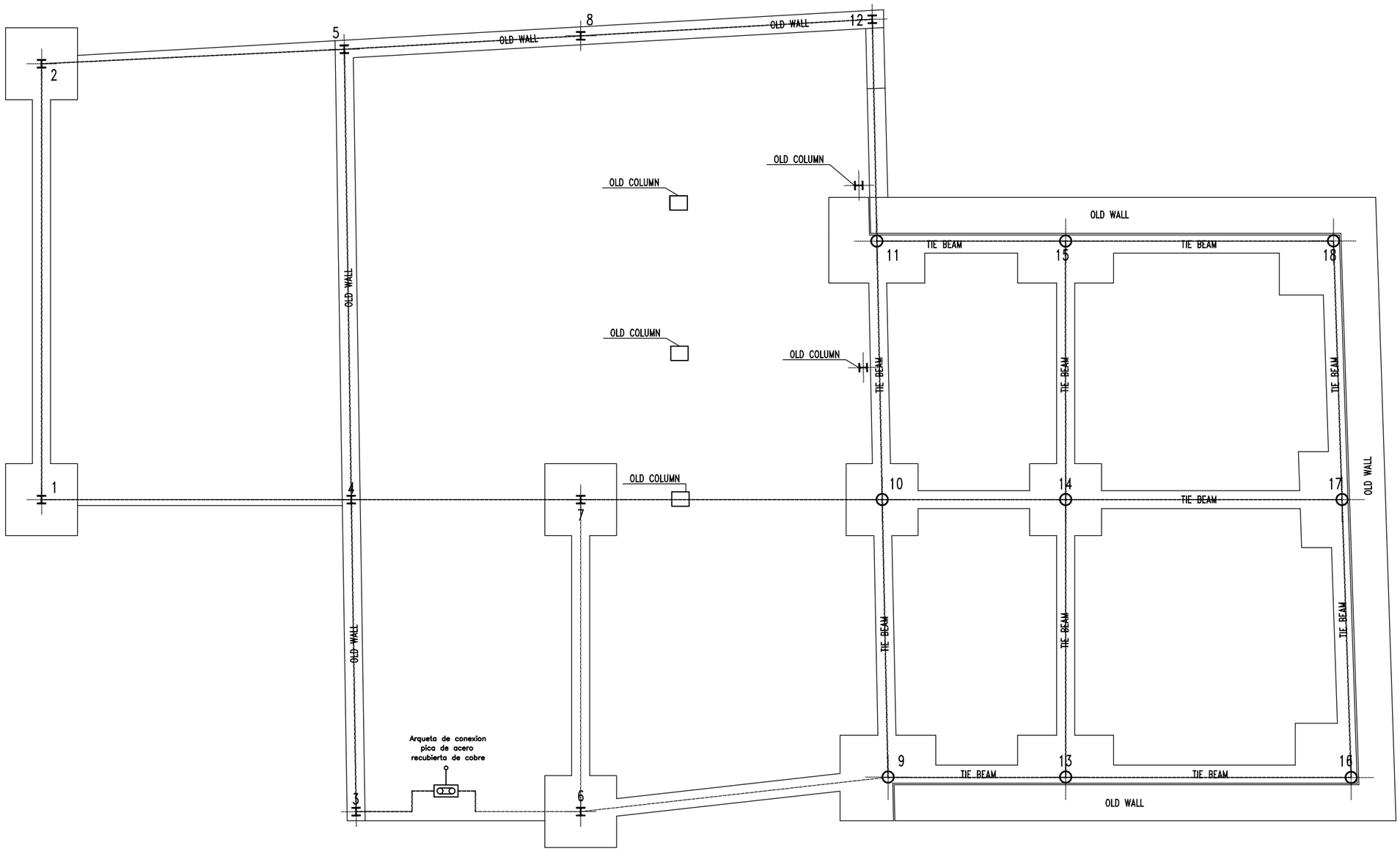


N

W E

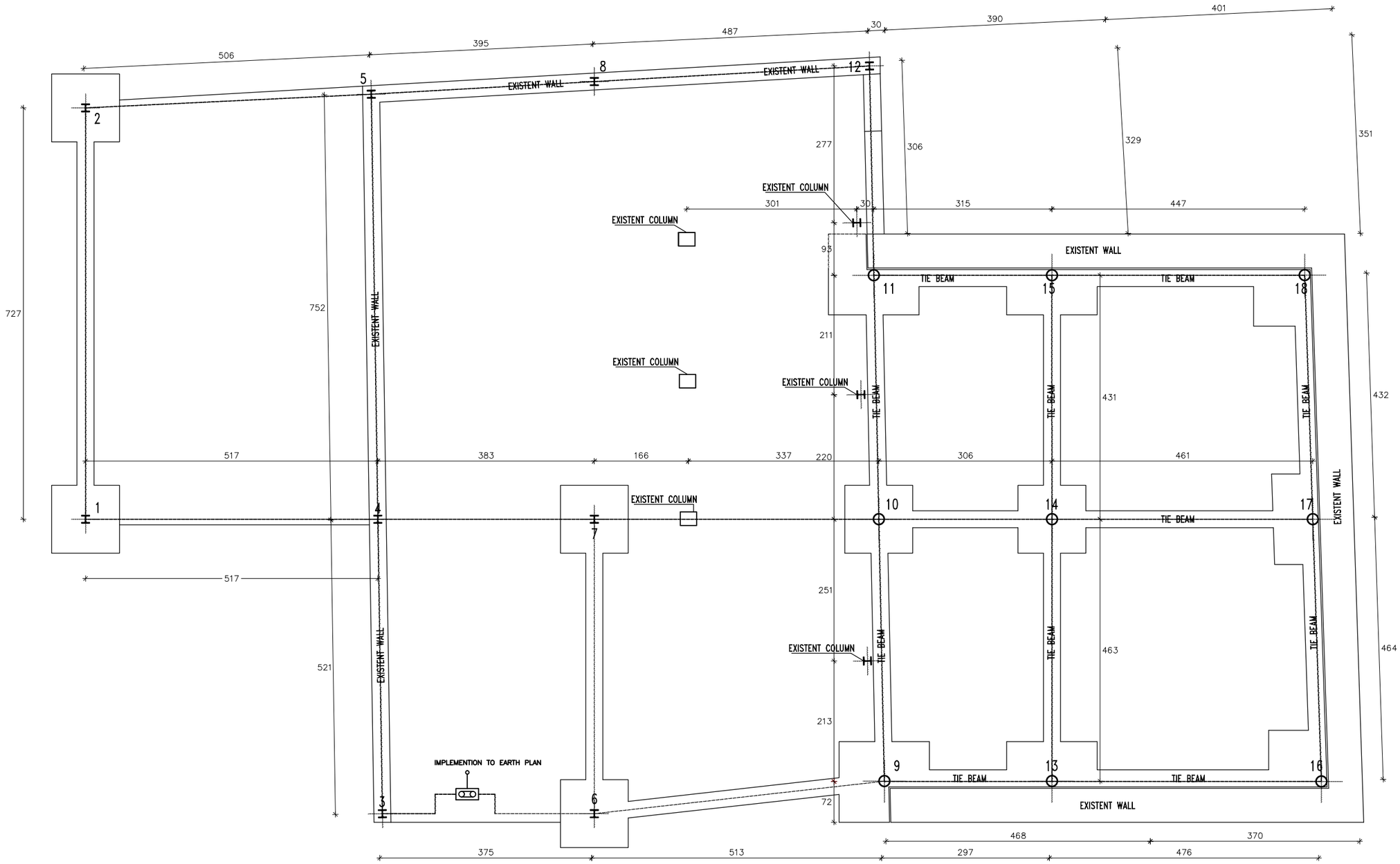
S

PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BARUGUES-PRINCIPADO DE ASTURIAS-SPAIN			
AUTHOR: DANIEL PÉREZ MELERO			
TUTOR: FRANTISEK KULHANEK			
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 12	PLAN NAME: ANNOTATION PLAN: ROOF FLOOR



FOUNDATION AND IMPLEMENTION TO EARTH PLAN

	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE		
	LOCATION: BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PéREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 13	PLAN NAME: FOUNDATION AND IMPLEMENTION TO EARTH PLAN



FOUNDATION AND IMPLEMENTION TO EARTH PLAN

	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PéREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 14	PLAN NAME: FOUNDATION AND IMPLEMENTION TO EARTH PLAN

FOUNDATION AND IMPLEMENTION TO EARTH PLAN

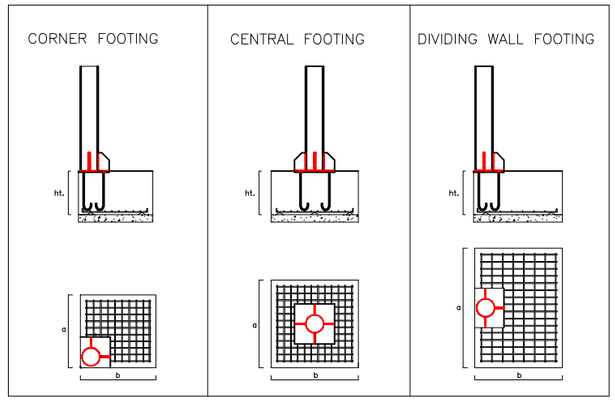
SOIL RESISTANCE= 0.2 N/mm2

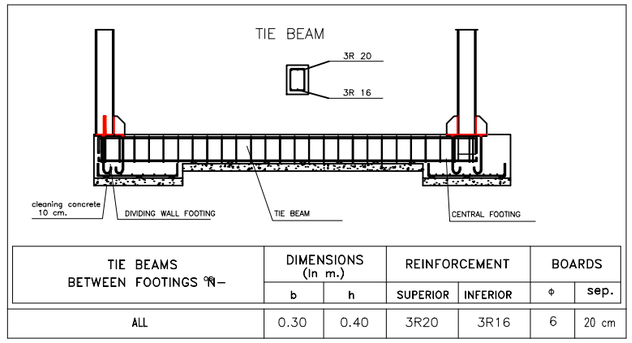
FOOTINGS TABLE						
SOIL RESISTANCE 0,20 N/mm2		DIMENSIONS (en m.)			REINFORCEMENT ON EACH DIRECTION	
FOOTINGS Nº	FOOTING TYPE	a	b	ht	Fe (a)	Fe (b)
1–2–6–7–10–14	CENTRAL	1.20	1.20	0.60	12R12	12R12
16–18	CORNER	1.00	1.00	0.60	10R12	10R12
9–11–13–15–17	DIVIDING WALL	0.80	1.60	0.60	16R12	8R12

COLUMNS TABLE		
Nro.	GROUND FLOOR	FIRST FLOOR
1–2–3–4–5–8		HEB-180
6–7	HEB-180	HEB-180
9–10–11–13–14–15–16–17–18	HEB-180	HEB-180
12		HEB-140

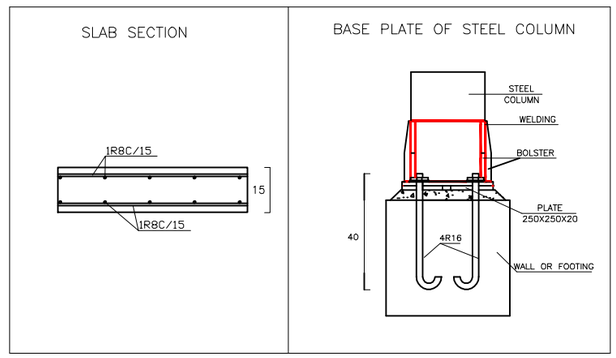
CHARACTERISTICS TABLE ACCORDING TO "EHE"						
CONCRETE						
IN LOAD BEARING ELEM.	Concrete type	Control level	Nominal covering (mm) side	superior	inferior	Security parcial coefficients γc)
Walls	HA-25/B/20/IIa	ESTADISTIC	35	35	35	Permanent situations 1,50
Band	HA-25/B/20/IIa	ESTADISTIC	35	35	35	
Slabs	HA-25/B/20/IIa	ESTADISTIC	35	35	35	Accidental situations 1,30
Beams/Columns						
NOTE: Walls must have formworks on both sides and footings must have a layer of cleaning concrete of 10cm thickness						
STEEL						
IN LOAD BEARING ELEM.	Steel type	Control level	The steel used in the reionforcement must be warrant.			Security parcial coefficients γs)
Walls	B 500 S	NORMAL				Permanent situations 1,15
Band	B 500 S	NORMAL				
Slabs	B 500 S	NORMAL				Accidental situations 1,00
Beams/Columns	S 275 JR	NORMAL				

EXECUTION					
Execution control level	Parcial security coefficients for Limit States				
	ACTION TYPE	Permanent Situation Favorable effect	Desfavorable effect	Accidental situation Favorable effect	Desfavorable effect
NORMAL	Changeable	γQ = 0,00	γQ = 1,60	γQ = 0,00	γQ = 1,00
	Permanent	γG = 1,60			





TIE BEAMS BETWEEN FOOTINGS Nº-	DIMENSIONS (in m.) b	h	REINFORCEMENT SUPERIOR	INFERIOR	BOARDS Φ	sep.
ALL	0.30	0.40	3R20	3R16	6	20 cm



PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PÉREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011		15	FOUNDATION MEMORY

CEILING SLAB IN GROUND FLOOR

Slab height	= 25+5 cm
Loads due to use	= 2.00 kN/m.^{2}
Total loads	= 7.50 kN/m.^{2}

	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE		
	LOCATION: BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PÉREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 16	PLAN NAME: CEILING SLAB IN GROUND FLOOR

CHARACTERISTICS TABLE ACCORDING TO "EHE"

CONCRETE

IN LOAD BEARING ELEM.	Concrete type	Control level	Nominal covering (mm) side	superior	inferior	Security parcial coefficients γc)
Walls	HA-25/B/20/IIa	ESTADISTIC	35	35	35	Permanent situations
Band	HA-25/B/20/IIa	ESTADISTIC	35	35	35	1,50
Slabs	HA-25/B/20/IIa	ESTADISTIC	35	35	35	Accidental situations
Beams/Columns						1,30

NOTE: Walls must have formworks on both sides and footings must have a layer of cleaning concrete of 10cm thickness

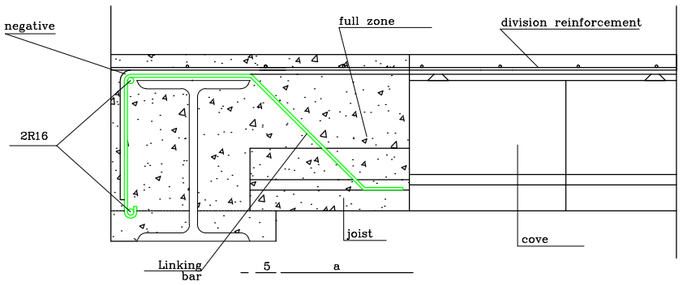
STEEL

IN LOAD BEARING ELEM.	Steel type	Control level		Security parcial coefficients γs)
Walls	B 500 S	NORMAL	The steel used in the reionforcement must be warrant.	Permanent situations
Band	B 500 S	NORMAL		1,15
Slabs	B 500 S	NORMAL		Accidental situations
Beams/Columns	S 275 JR	NORMAL		1,00

EXECUTION

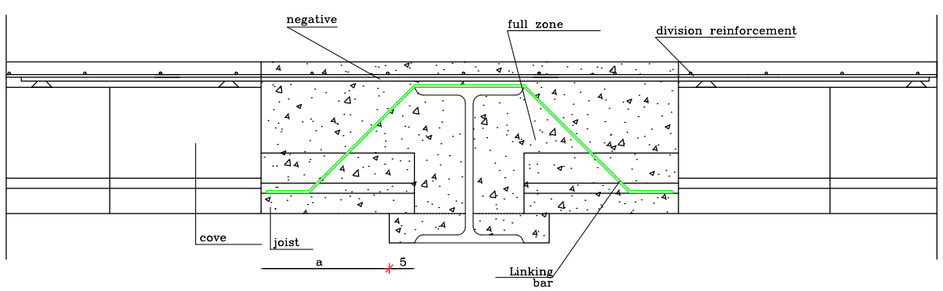
Execution control level	Parcial security coefficients for Limit States				
	ACTION TYPE	Permanent Situation		Accidental situation	
		Favorable effect	Desfavorable effect	Favorable effect	Desfavorable effect
NORMAL	Changeable	γQ = 0,00	γQ = 1,60	γQ = 0,00	γQ = 1,00
	Permanent	γG = 1,60			

END REST ON THE INFERIOR PART OF METALIC JOIST



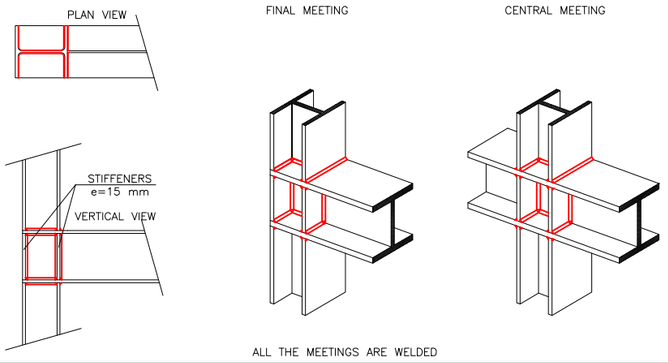
a and ls dimension must appear in slabs plans
Linking bar must be at both side of the joist

INTERMEDIATE REST ON THE INF. PART OF METALIC JOIST

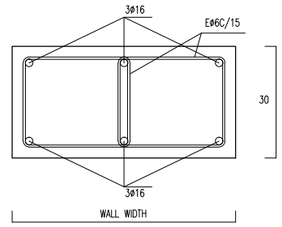


a and ls dimension must appear in slabs plans
Linking bar must be at both side of the joist

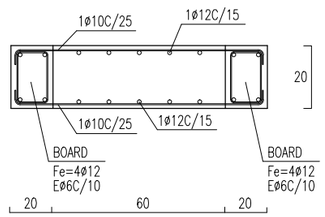
MEETINGS IN INTERMEDIATE FLOORS GENERAL DETAILS



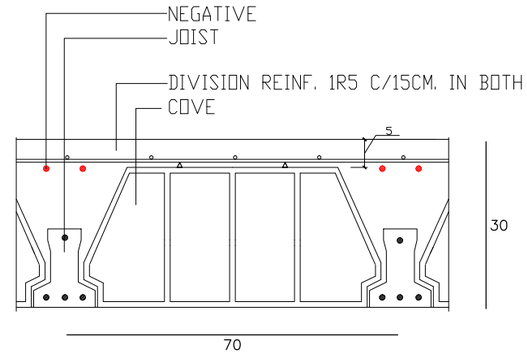
BOARD ON EXISTING WALL SECTION



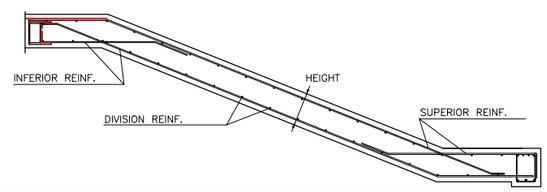
STAIRS SLAB SECTION



SLAB SECTION

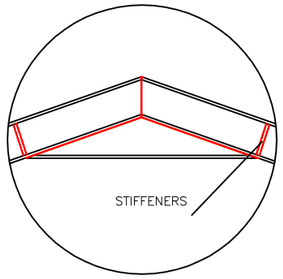


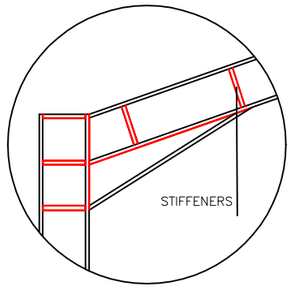
REINFORCEMENT IN GULLY SLABS

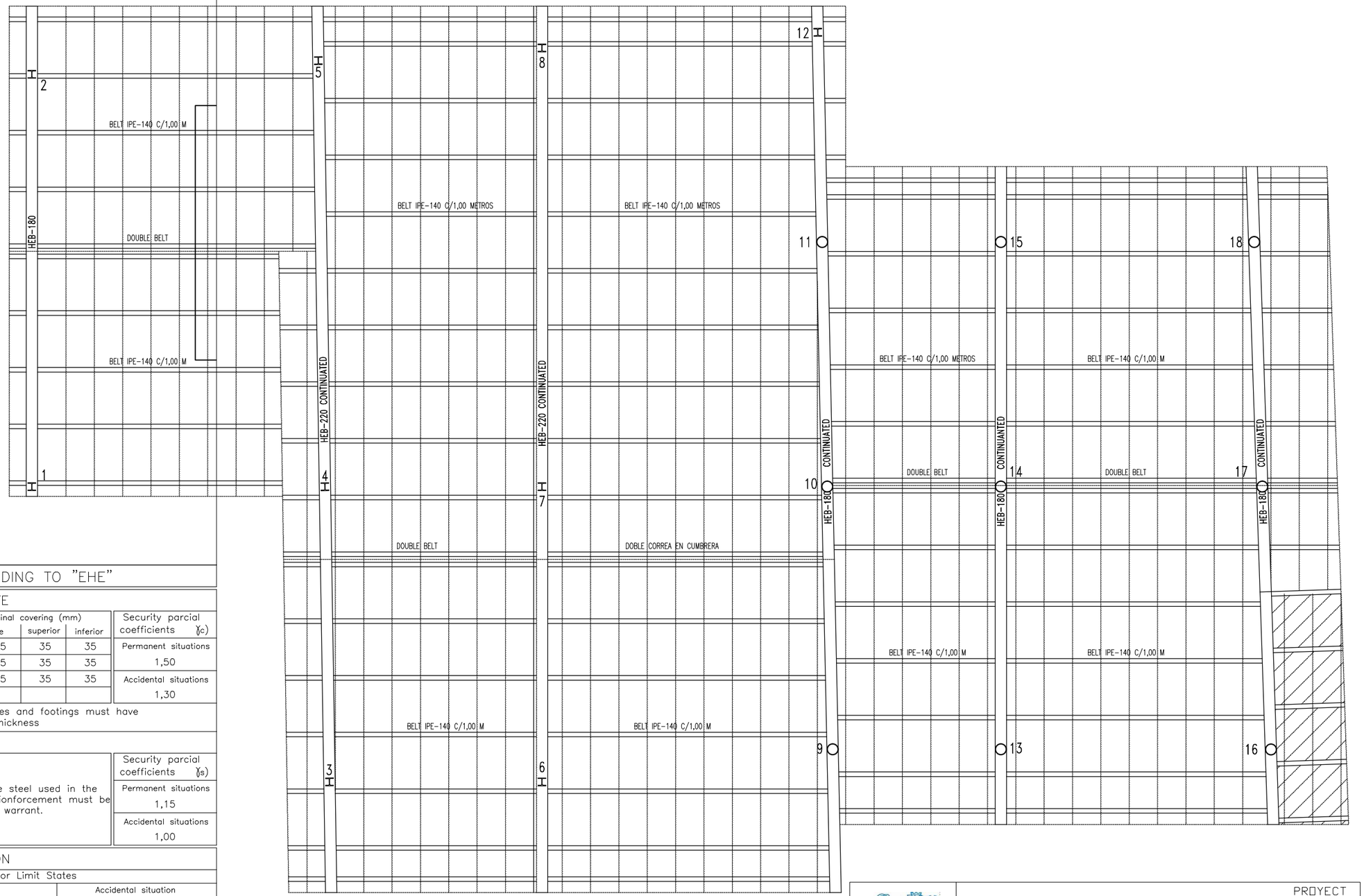


	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PÉREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE:	Nº PLAN: 17	PLAN NAME: SLAB MEMORY

GENERAL DETAILS OF ROOF







CHARACTERISTICS TABLE ACCORDING TO "EHE"

CONCRETE

IN LOAD BEARING ELEM.	Concrete type	Control level	Nominal covering (mm) side	superior	inferior	Security parcial coefficients γ_c)
Walls	HA-25/B/20/IIa	ESTADISTIC	35	35	35	Permanent situations
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Slabs	HA-25/B/20/IIa	ESTADISTIC	35	35	35	Accidental situations
Beams/Columns						1,30

NOTE: Walls must have formworks on both sides and footings must have a layer of cleaning concrete of 10cm thickness

STEEL

IN LOAD BEARING ELEM.	Steel type	Control level		Security parcial coefficients γ_s)
Walls	B 500 S	NORMAL	The steel used in the reionforcement must be warrant.	Permanent situations
Band	B 500 S	NORMAL		1,15
Slabs	B 500 S	NORMAL		Accidental situations
Beams/Columns	S 275 JR	NORMAL		1,00

EXECUTION

Execution control level	Parcial security coefficients for Limit States				
	ACTION TYPE	Permanent Situation Favorable effect	Desfavorable effect	Accidental situation Favorable effect	Desfavorable effect
NORMAL	Changeable	γ_Q = 0,00	γ_Q = 1,60	γ_Q = 0,00	γ_Q = 1,00
	Permanent	γ_G = 1,60			

CEILING STRUCTURE IN FIRST FLOOR

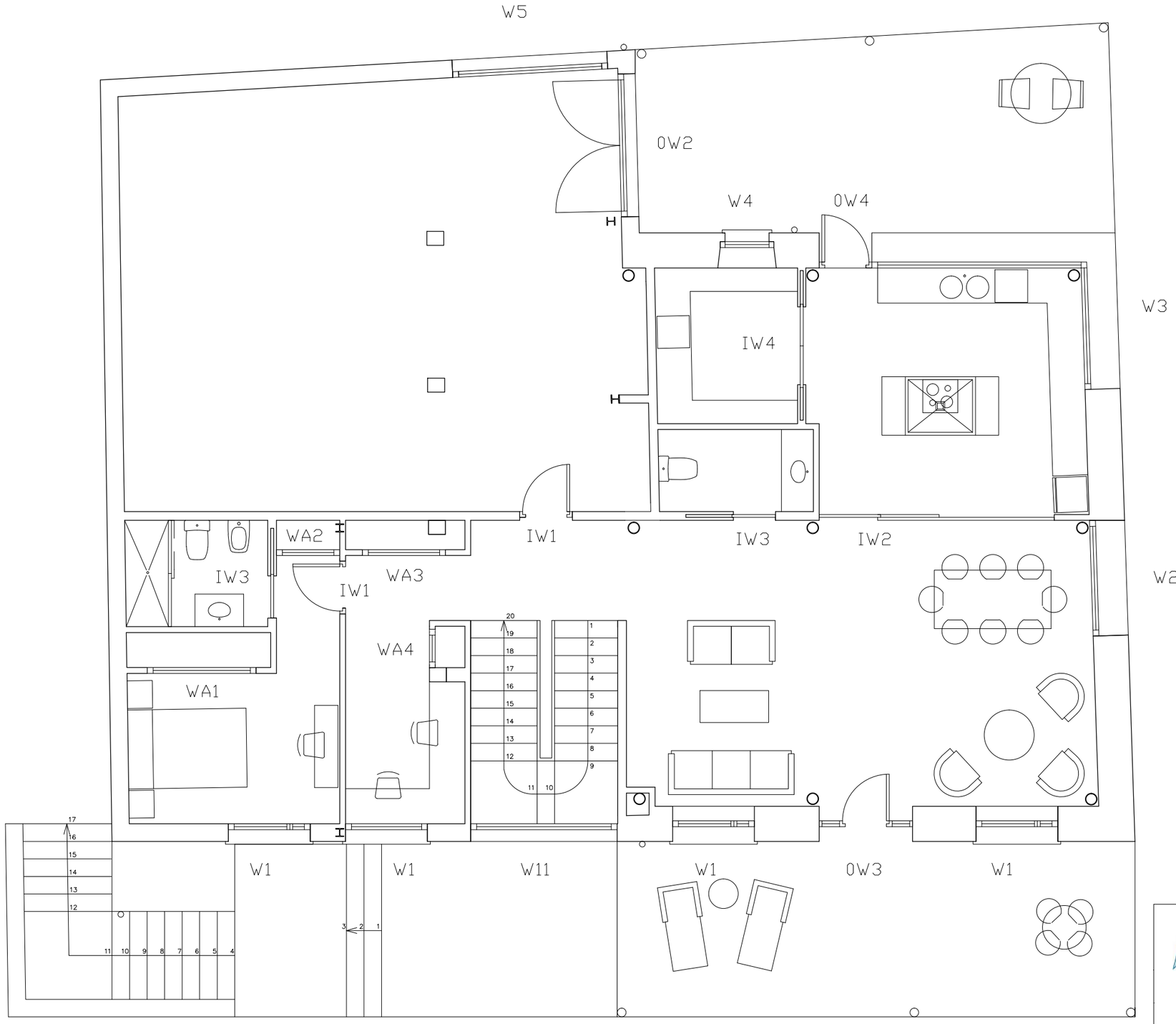
Panel on metalic beams

Load due to use = 1.00 kN/m.^{2}

Total loads = 2.00 kN/m.^{2}

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PÉREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	18	CEILING STRUCTURE IN THE FIRST FLOOR



N

W E

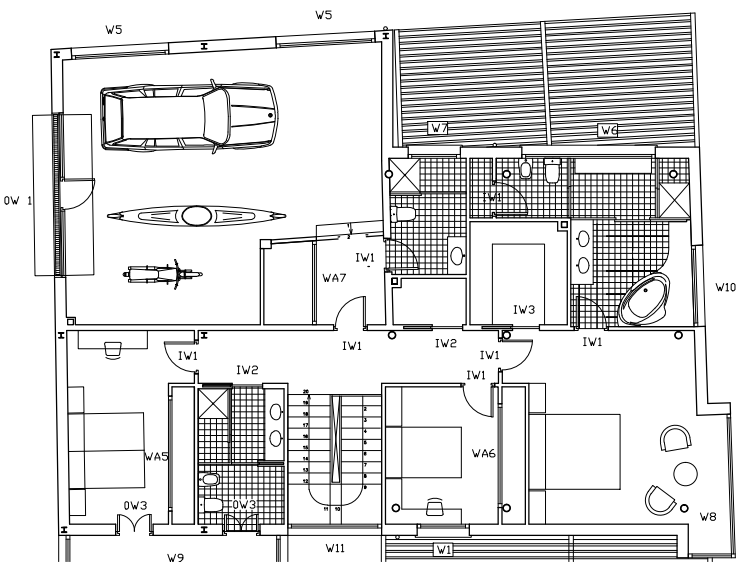
S

CARPENTRY	
W	WINDOW
OW	OUTDOOR WOODWORKS
IW	INDOOR WOODWORKS
WA	WARDROBE

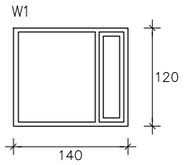
CARPENTRY GROUND FLOOR

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PéREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

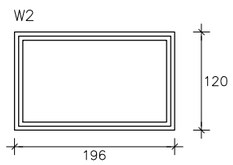
DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	19	CARPENTRY GROUND FLOOR


W5
W5
W7
W6
OW 1
IW1
WA7
IW3
W10
IW1
IW2
IW1
IW1
IW2
IW1
WA5
WA6
OW3
OW3
W8
W9
W11
W1

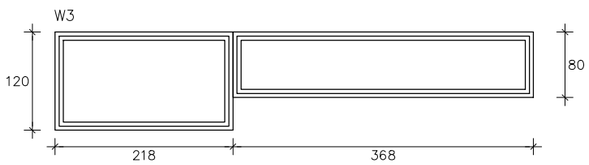

N
O
E
S



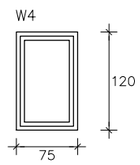
TYPE	W1
DIMENSIONS	140x120 cm
MATERIAL	ALUMINIUM
NUMBER	5



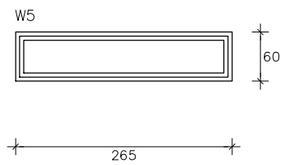
W2
196x120 cm
ALUMINIUM
1



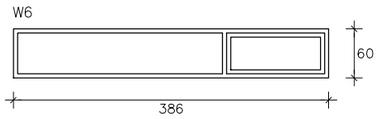
W3	
218x120 cm	368x80 cm
ALUMINIUM	ALUMINIUM
1	1



W4
75x120 cm
ALUMINIUM
1

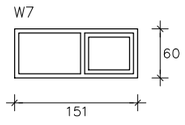


W5
265x6 cm
ALUMINIUM
3

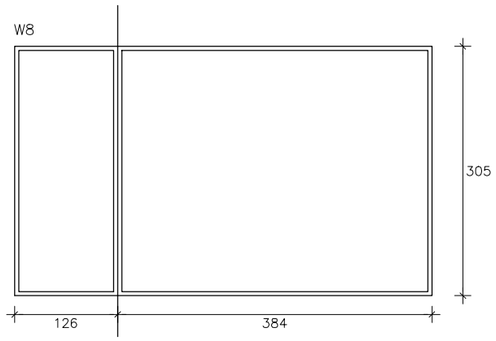


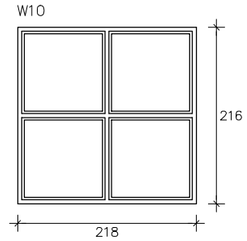
TYPE
DIMENSIONS
MATERIAL
NUMBER

W6
368x60 cm
ALUMINIUM
1

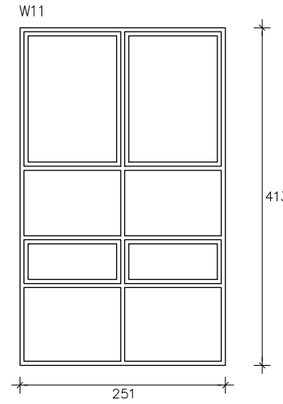


W7
151x60 cm
ALUMINIUM
1

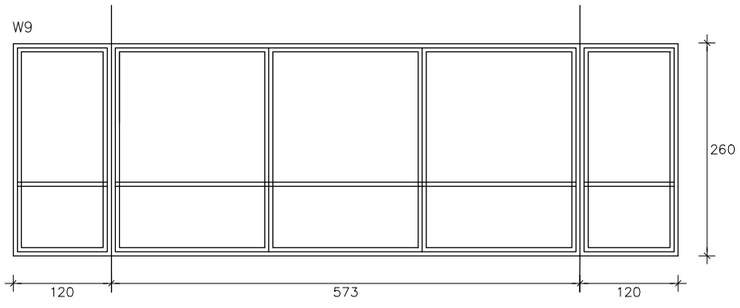




W10
218x216 cm
ALUMINIUM
1



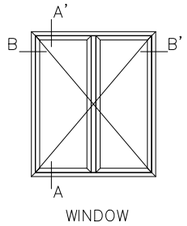
W11
251x413 cm
ALUMINIUM
1



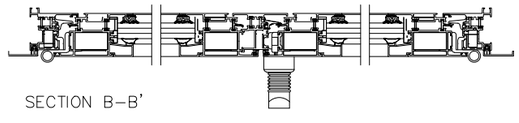
TYPE
DIMENSIONS
MATERIAL
NUMBER

W9	
120x260 cm	573x 260 cm
ALUMINIUM	ALUMINIUM
2	1

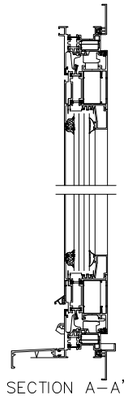
W8	W8
126x305 cm	384x305 cm
ALUMINIUM	ALUMINIUM
1	1



WINDOW



SECTION B–B'

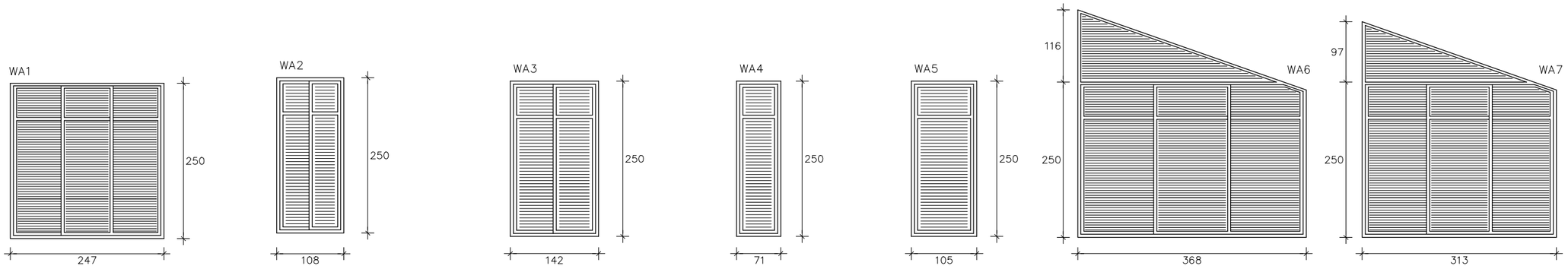


SECTION A–A'

SCALE 1:50

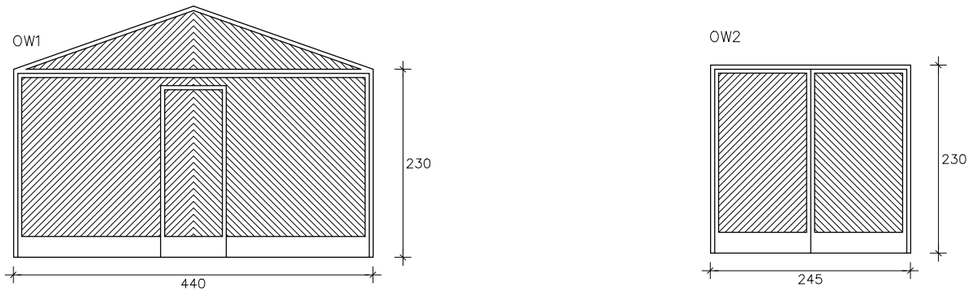
	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE		
	LOCATION: BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PÉREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 21	PLAN NAME: CARPENTRY: WINDOWS

WARDOBRE



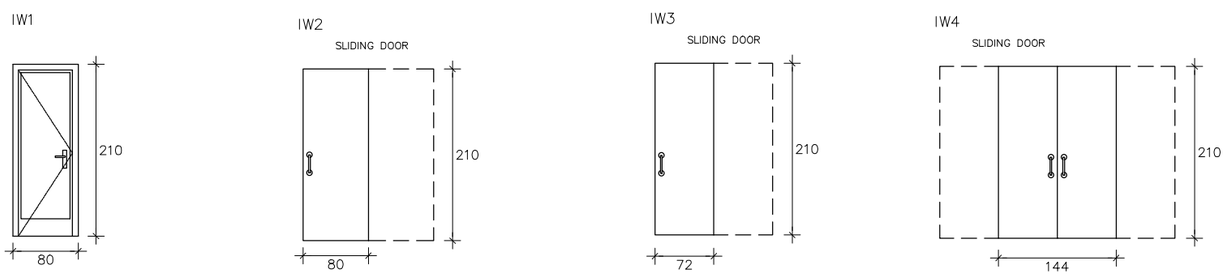
TYPE	WA1	WA2	WA3	WA4	WA5	WA6	WA7
DIMENSIONS	247x250 cm	108x250 cm	142x250 cm	71x250 cm	105x250 cm	368x250 cm	313x250 cm
MATERIAL	PINO WOOD	PINO WOOD	PINO WOOD	PINO WOOD	PINO WOOD	PINO WOOD	PINO WOOD
NUMBER	1	1	1	1	1	1	1

OUTDOOR METALWORK



TYPE	OW1	OW2	OW3	OW4
DIMENSIONS	240x230 cm	245x210 cm	160x210 cm	90x210 cm
MATERIAL	ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM
NUMBER	1	1	1	1

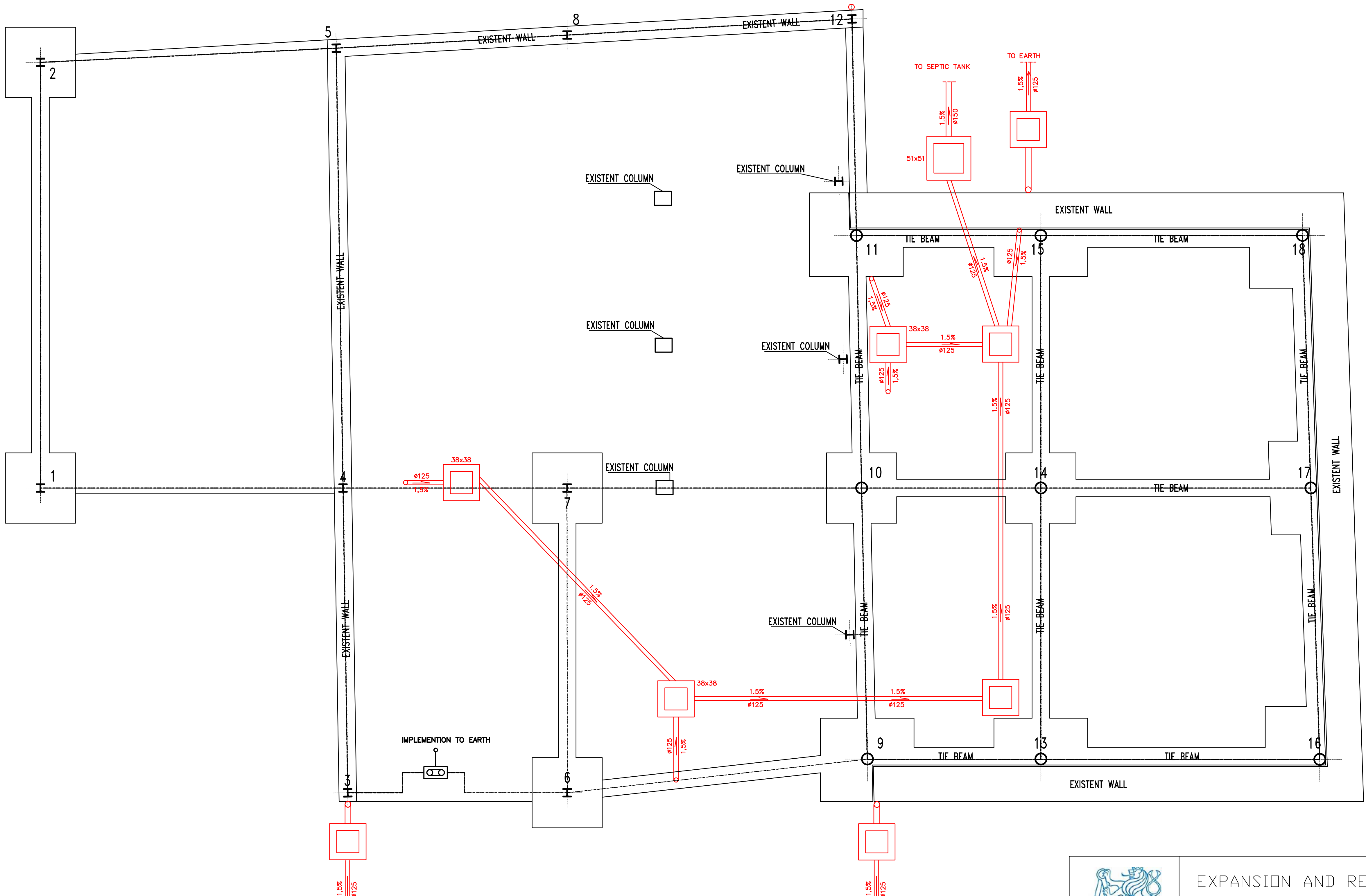
INDOOR WOOKWORK



TYPE	IW1	IW2	IW3	IW4
DIMENSIONS	80x210 cm	80x210 cm	72x210 cm	144x210 cm
MATERIAL	PINO WOOD	PINO WOOD	PINO WOOD	PINO WOOD
NUMBER	7	2	2	1

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PéREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

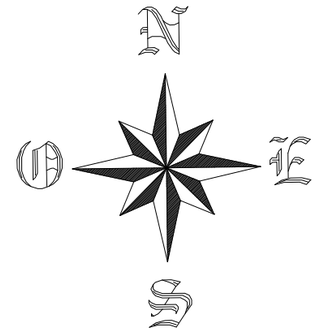
DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	22	CARPENTRY: WARDOBRES, OUTDOORS AND INDOORS



SEWAGE FOUNDATION

PROYECT	EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION	BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR	DANIEL PÉREZ MELERO
TUTOR	FRANTISEK KULHANEK / MILAGRO IBORRA

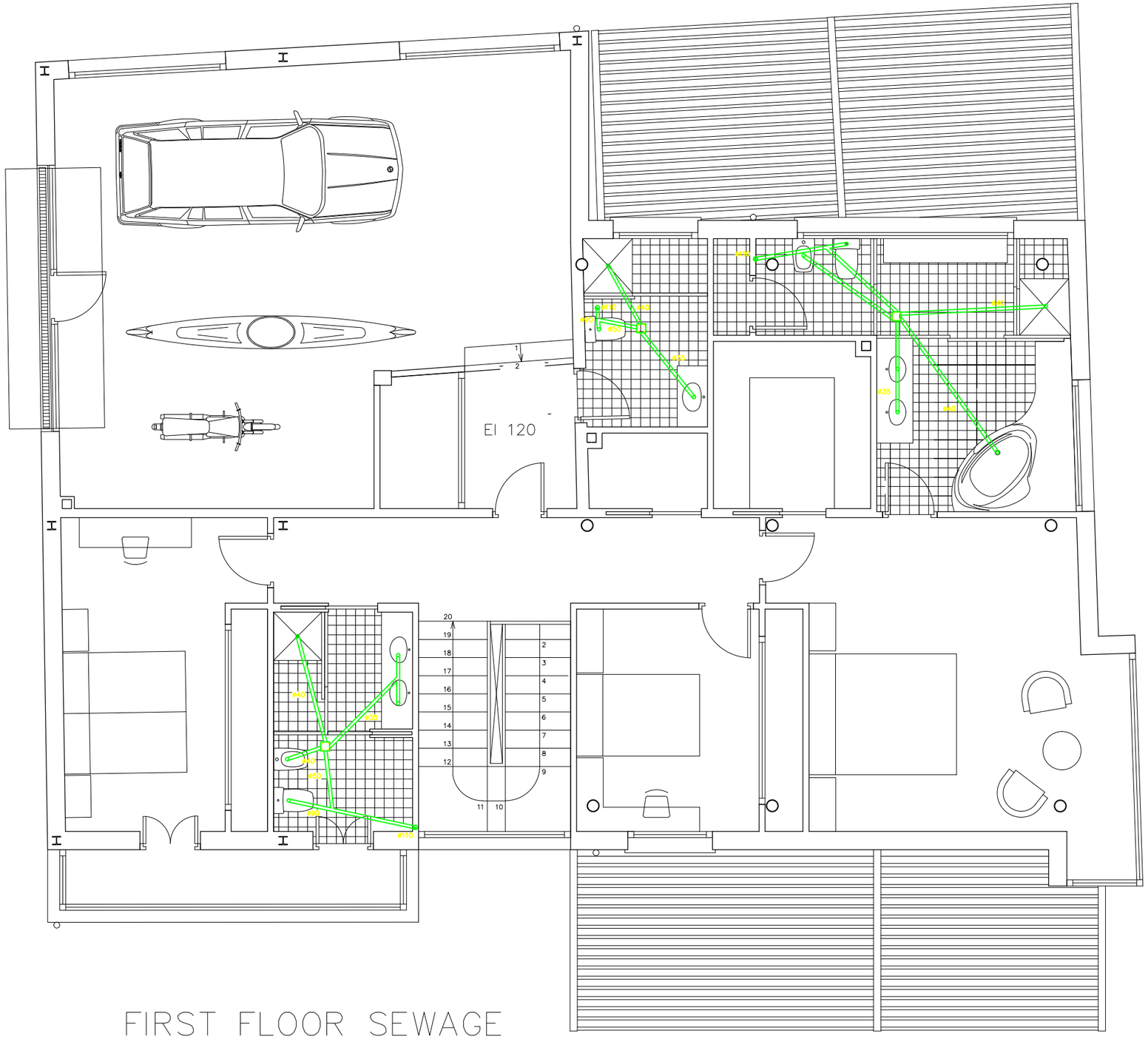
DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	23	SEWAGE FOUNDATION



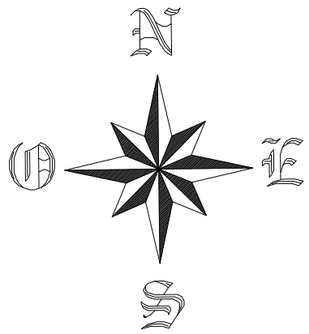
SEWAGE	
	SIPHON POT
	WASTES DOWNPIPE WASTES DOWNPIPE P.V.C.
	RAIN DOWNPIPE P.V.C.
	UNDERGROUND COLECTOR (CEMENT/PVC)
	HANGING COLECTOR (CEMENT/ PVC)
	DRAINAGE BOX
	DRAIN BOX
	MAIN DRAIN BOX

GROUND FLOOR SEWAGE

	PROYECT EXPANSION AND REFORM OF FAMILY HOUSE LOCATION BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR DANIEL PÉREZ MELERO		
	TUTOR FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA JUNE 2011	SCALE 1:75	Nº PLAN 24	PLAN NAME GROUND FLOOR SEWAGE



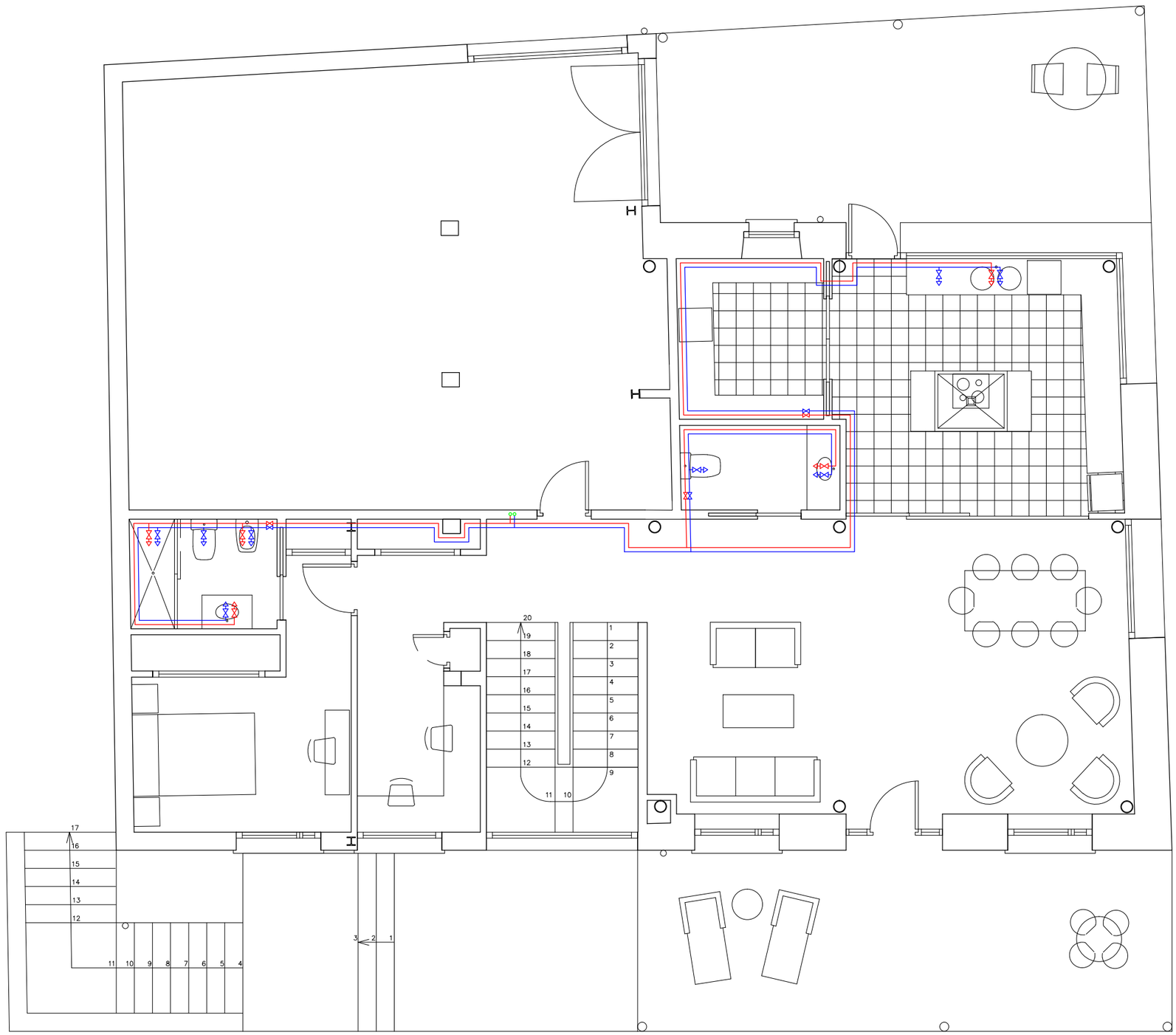
FIRST FLOOR SEWAGE

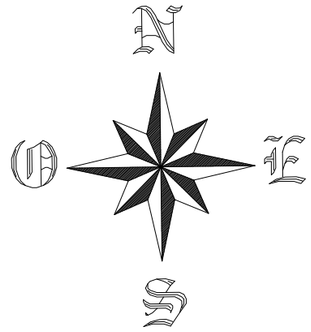


SEWAGE	
	SIPHON POT
	WASTES DOWNPIPE WASTES DOWNPIPE P.V.C.
	RAIN DOWNPIPE P.V.C.
	UNDERGROUND COLECTOR (CEMENT/PVC)
	HANGING COLECTOR (CEMENT/ PVC)
	DRAINAGE BOX
	DRAIN BOX
	MAIN DRAIN BOX

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PéREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	25	FIRST FLOOR SEVAGE



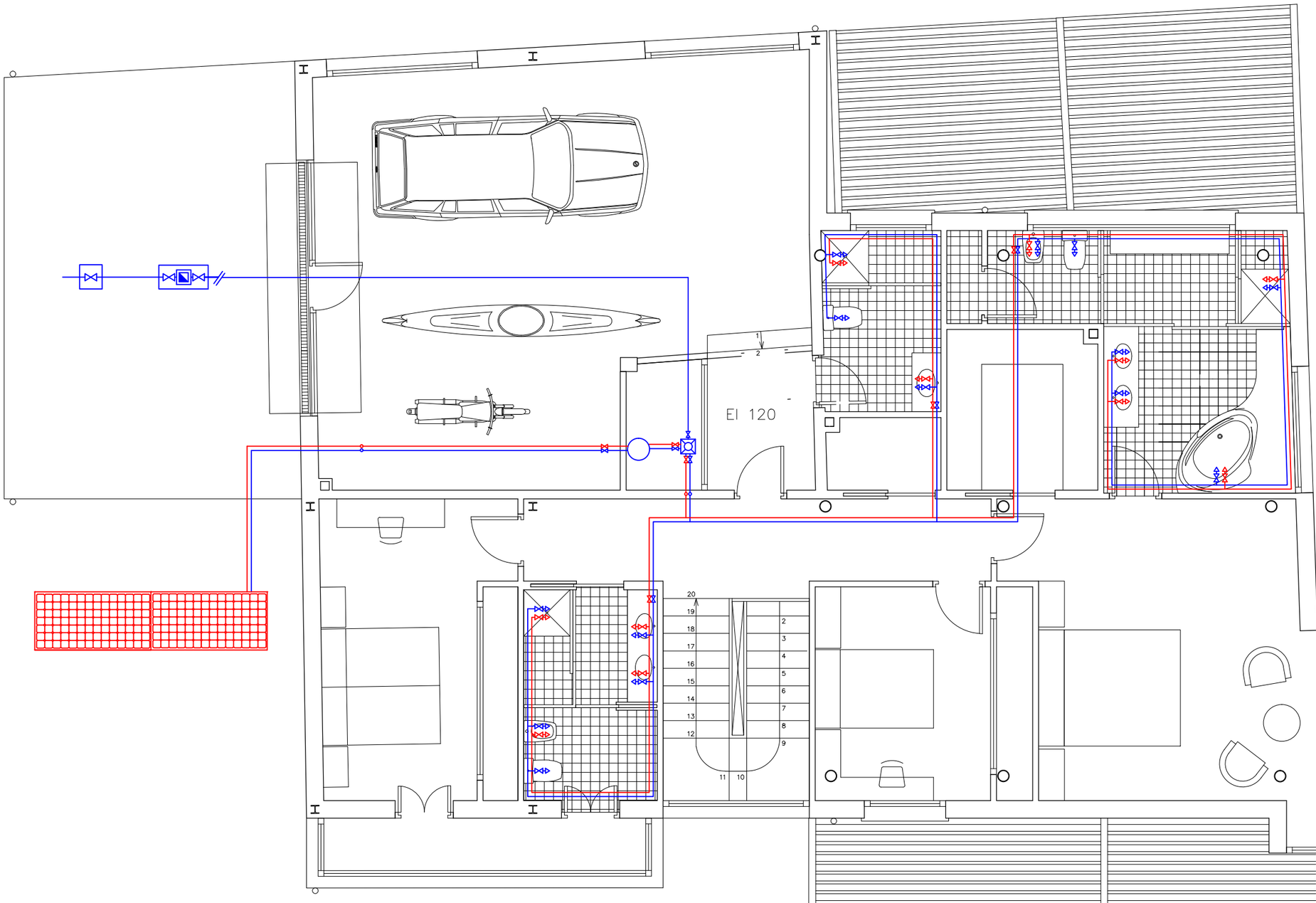


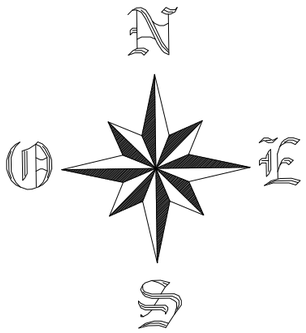
PLUMBING
HOT WATER
COLD WATER
WATER METER
GENERAL VALVE
SHUTOFF VALVE WATER
INSTANTANEOUS GAS HEATER
INDIVIDUAL GAS HEATER AND STORAGE
INDIVIDUAL ELECTRIC HEATER AND STORAGE
COLOCATED TAP

GROUND FLOOR PLUMBING

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PÉREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	26	GROUND FLOOR PLUMBING

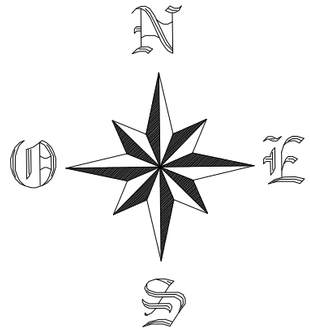




PLUMBING
HOT WATER
COLD WATER
WATER METER
GENERAL VALVE
SHUTOFF VALVE WATER
INSTANTANEOUS GAS HEATER
INDIVIDUAL GAS HEATER AND STORAGE
INDIVIDUAL ELECTRIC HEATER AND STORAGE
COLOCATED TAP

FIRST FLOOR PLUMBING

PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BARUGUES-PRINCIPADO DE ASTURIAS-SPAIN			
AUTHOR: DANIEL PÉREZ MELERO			
TUTOR: FRANTISEK KULHANEK			
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 27	PLAN NAME: FIRST FLOOR PLUMBING

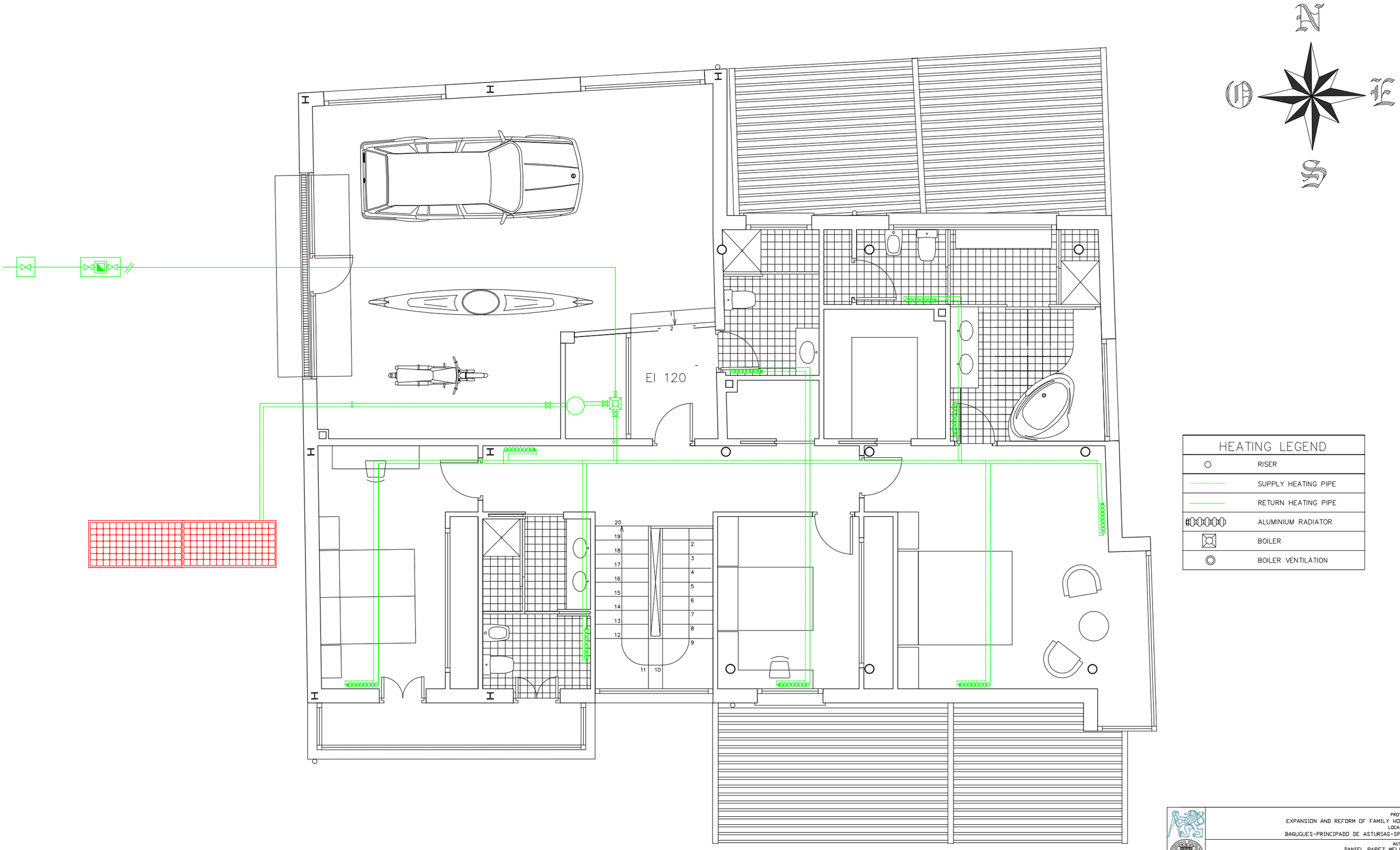


HEATING LEGEND	
○	RISER
	SUPPLY HEATING PIPE
	RETURN HEATING PIPE
	ALUMINIUM RADIATOR
	BOILER
	BOILER VENTILATION

HEATING GROUND FLOOR.

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PéREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

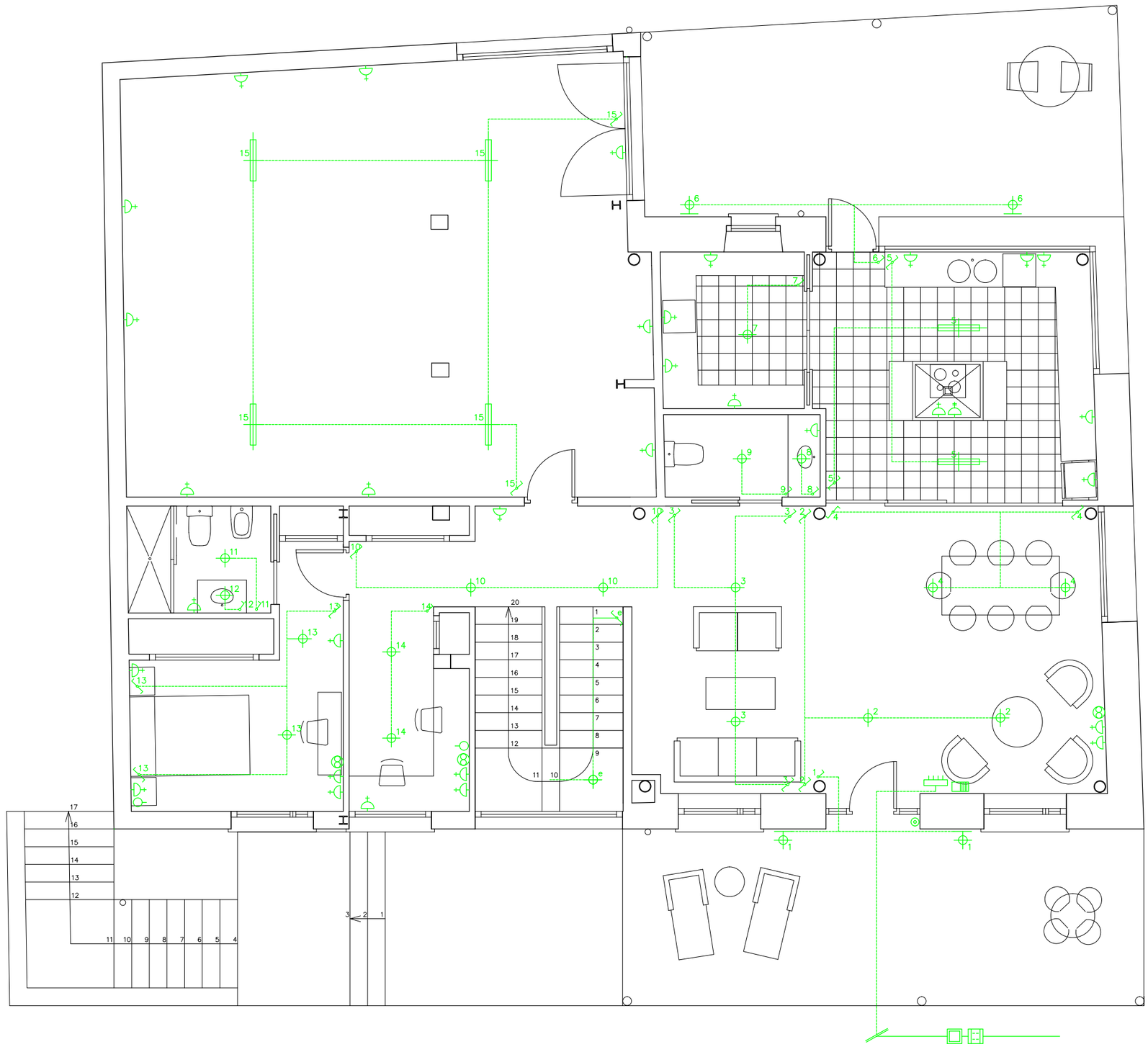
DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	28	HEATING GROUND FLOOR

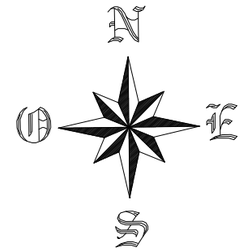


HEATING LEGEND	
○	RISER
----------	SUPPLY HEATING PIPE
————	RETURN HEATING PIPE
	ALUMINIUM RADIATOR
	BOILER
	BOILER VENTILATION

HEATING FIRST FLOOR.

	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BARUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PéREZ MELERO		
	TUTOR: FRANTISEK KULHANEK		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 29	PLAN NAME: HEATING FIRST FLOOR





LOW VOLTAGE

- PROTECTION GENERAL BOX
- CENTRALIZATION OF COUNTER BOXES
- DISTRIBUTION GENERAL BOX
- INTERIOR INSTALATION
- DEVIATION BOX
- BUTTON
- BUZZING
- SWITCH
- CONMUTADOR
- FOUR-WAY SWITCH (COMMUTED)
- POWER POINT WITH GROUND PLACEMENT 10/16 A.
- POWER POINT WITH GROUND PLACEMENT 25 A.
- PROTECTION BOX DRIVING FORCE LINES
- ---- DEVIATION FOR STAIRS LIGHTING
- IMPENDANCE EARTHED BAR
- ---- MAIN LINE OF UNDERGROUNG TUBE

INTERNAL DEVICES

- SINGLE LIGHT POINT
- FLUORESCENT EQUIPMENT
- WALL INCANDESCENT EQUIPMENT

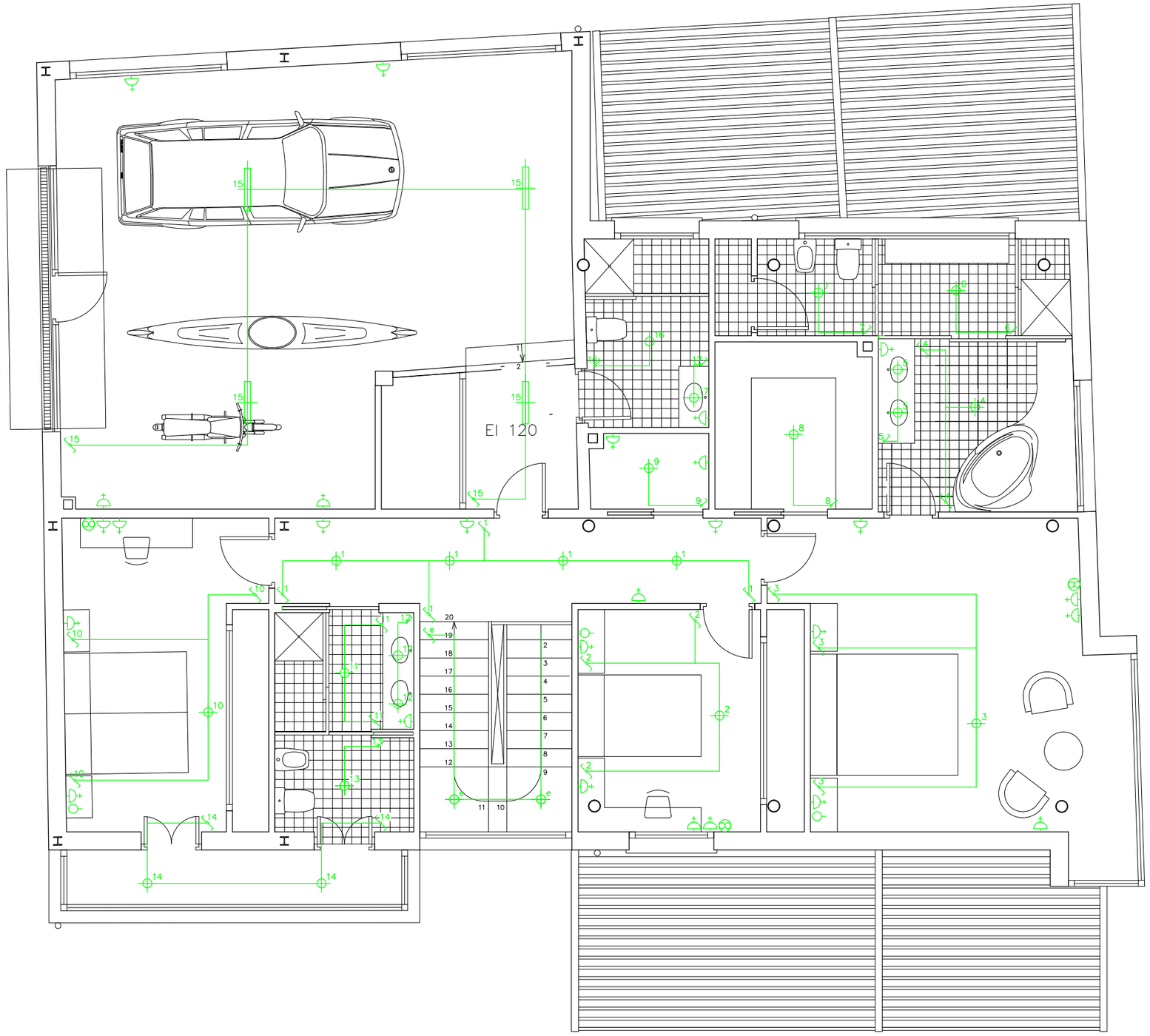
AUDIOVISUAL DEVICE

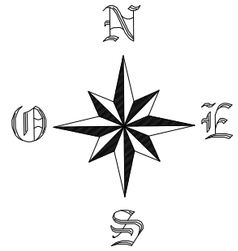
- T.V. CONNECTION
- TELEPHONE CONNECTION
- ELECTRIC ENTRYPHONE

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PÉREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	30	ELECTRICITY GROUND FLOOR

ELECTRICITY GROUND FLOOR





LOW VOLTAGE
PROTECTION GENERAL BOX
CENTRALIZATION OF COUNTER BOXES
DISTRIBUTION GENERAL BOX
INTERIOR INSTALATION
DEVIATION BOX
BUTTON
BUZZING
SWITCH
CONMUTADOR
FOUR-WAY SWITCH (COMMUTED)
POWER POINT WITH GROUND PLACEMENT 10/16 A.
POWER POINT WITH GROUND PLACEMENT 25 A.
PROTECTION BOX DRIVING FORCE LINES
---- DEVIATION FOR STAIRS LIGHTING
IMPENDANCE EARTHED BAR
---- MAIN LINE OF UNDERGROUNG TUBE

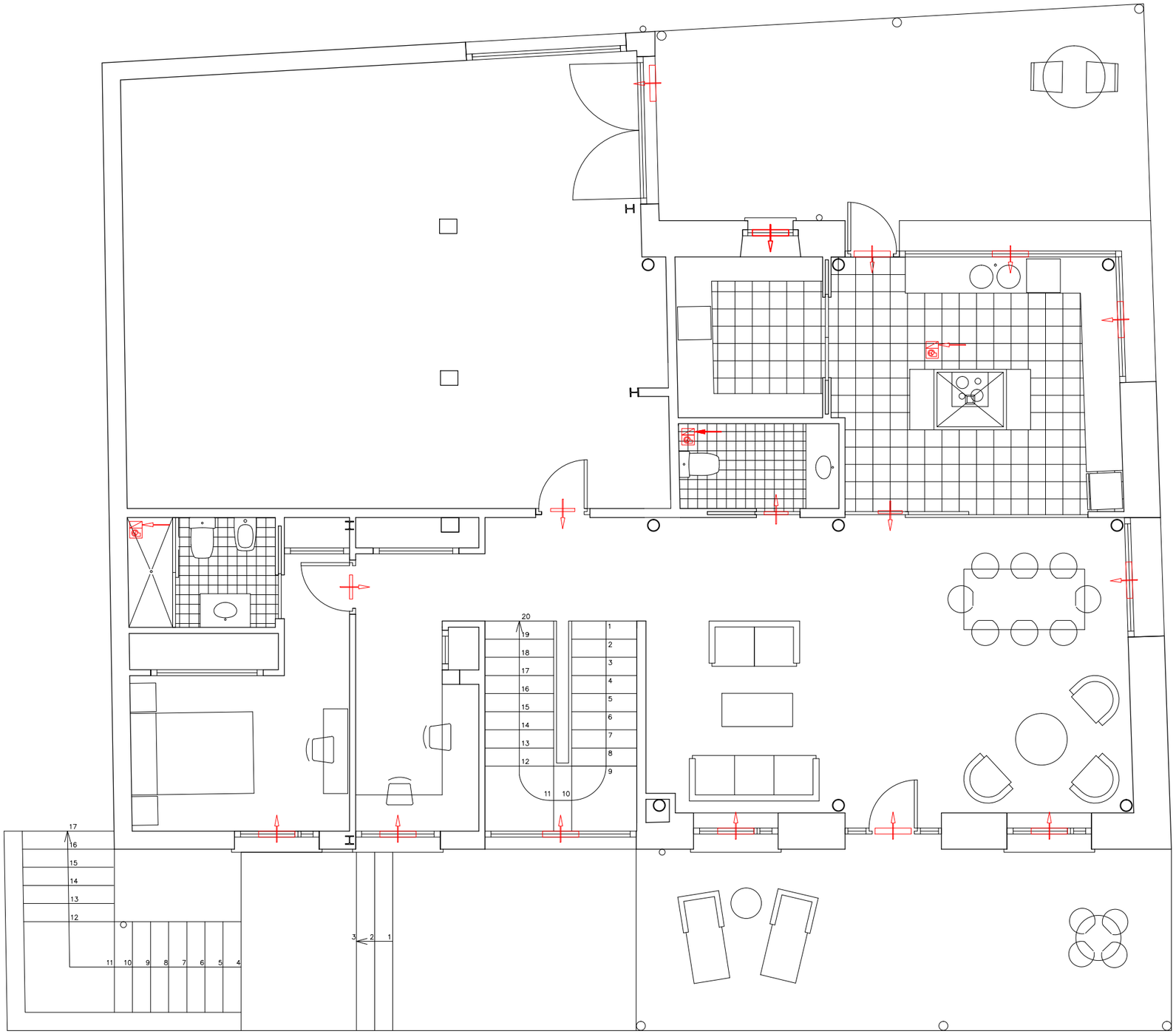
INTERNAL DEVICES
SINGLE LIGHT POINT
FLUORESECENT EQUIPMENT
WALL INCANDESCENT EQUIPMENT

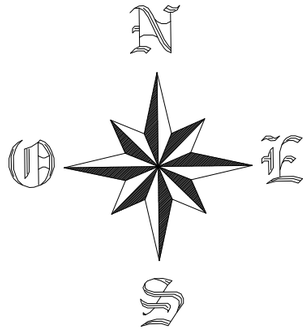
AUDIOVISUAL DEVICE
T.V. CONNECTION
TELEPHONE CONNECTION
ELECTRIC ENTRYPHONE

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PÉREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	31	ELECTRICITY FIRST FLOOR

ELECTRICITY FIRST FLOOR

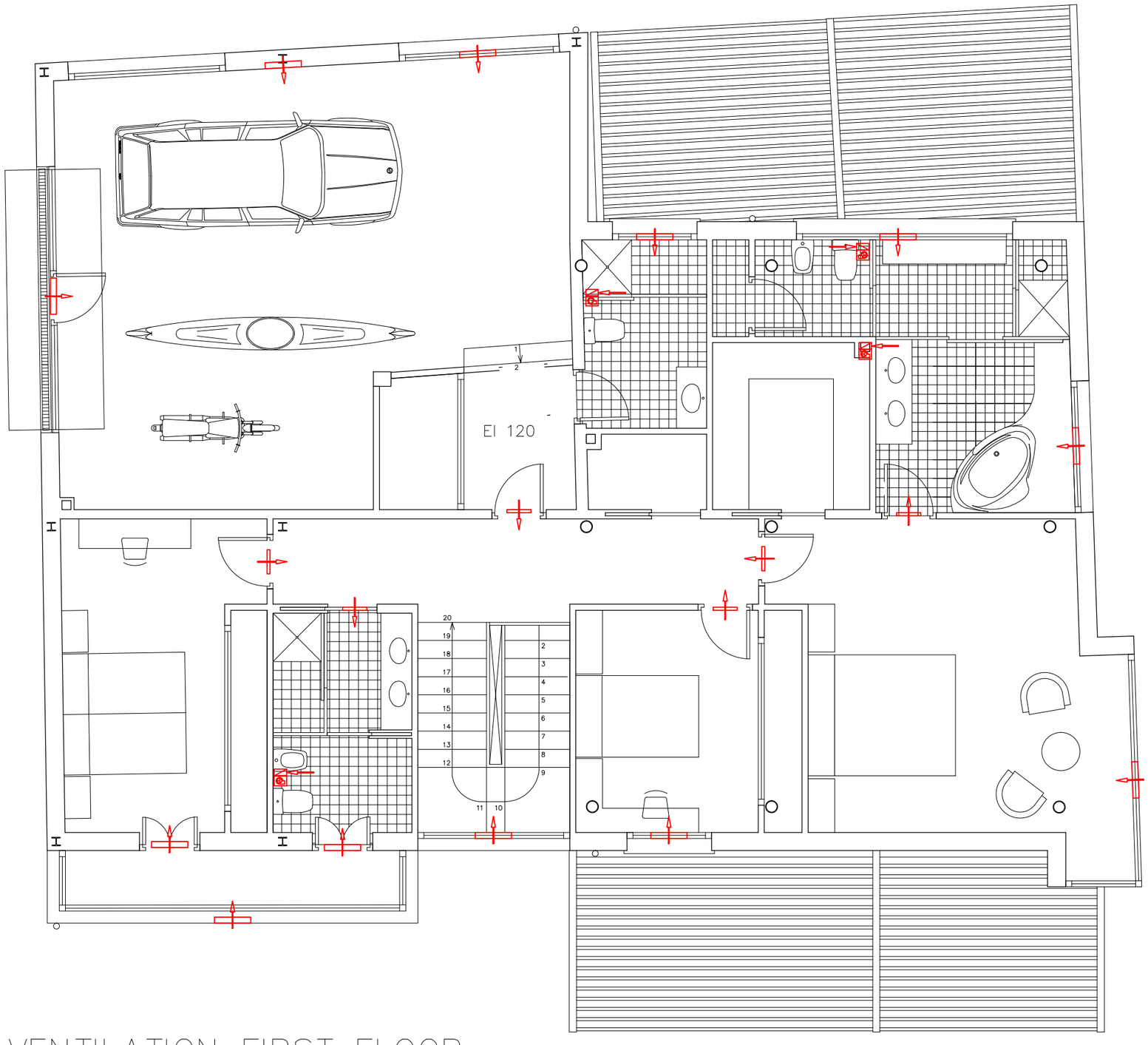


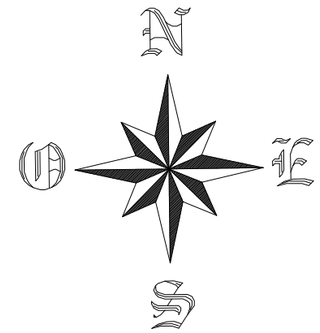


VENTILATION
EXTRACTION DUCT
SUPPLY HOLE IN WINDOW
SUPPLY HOLE IN DOOR
EXTRACTION HOLE
FAN

VENTILATION GROUND FLOOR

	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE		
	LOCATION: BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PÉREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 32	PLAN NAME: VENTILATION GROUND FLOOR



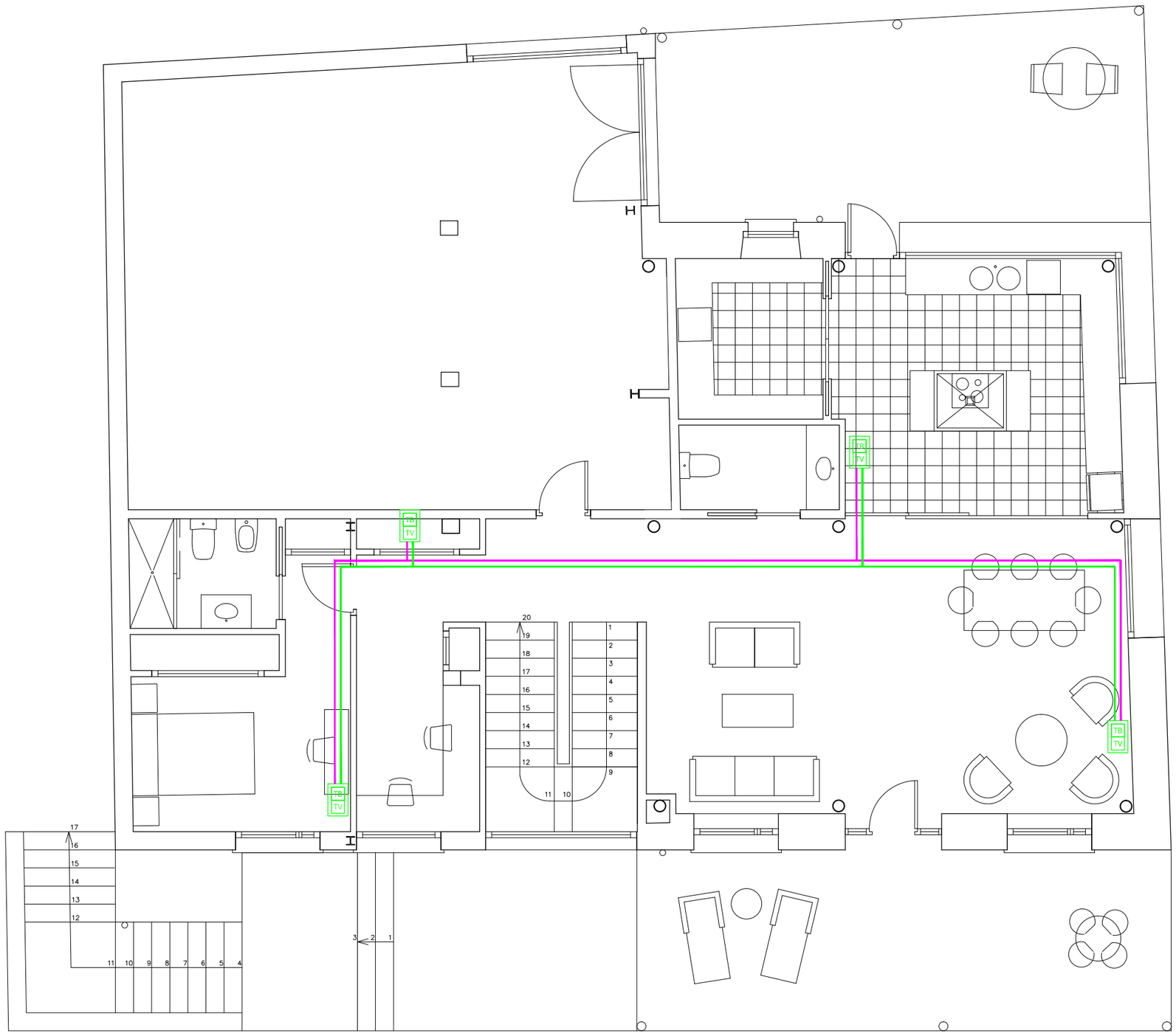


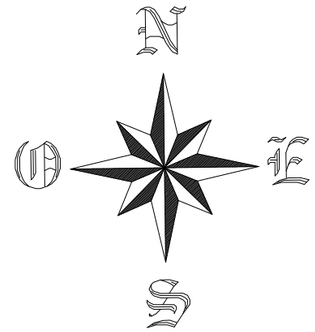
VENTILATION
EXTRACTION DUCT
SUPPLY HOLE IN WINDOW
SUPPLY HOLE IN DOOR
EXTRACTION HOLE
FAN

VENTILATION FIRST FLOOR

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PÉREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	33	VENTILATION FIRST FLOOR



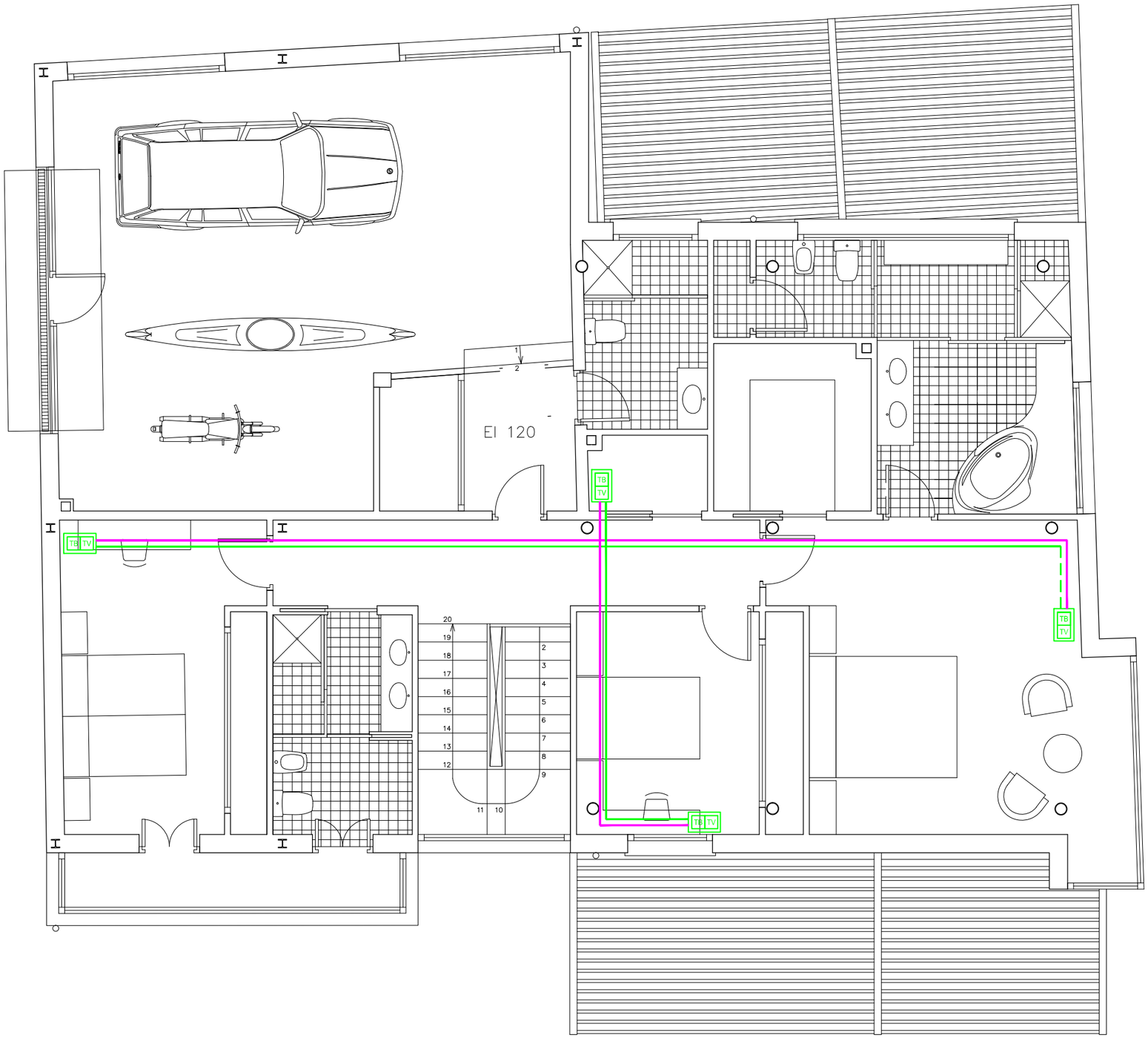


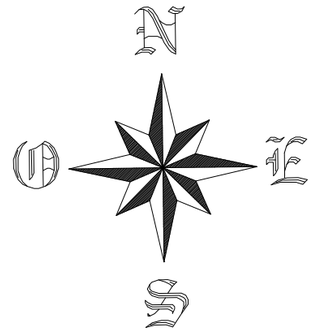
———	TELEPHONE WIRE LINE
———	COAXIAL TV WIRE LINE
TB	TELEPHONE NETWORK 10x17x4 cm FINAL POINT
(TB)	BASIC TELEPHONE CONNECTION FINAL POINT
TV	RTV NETWORK 20x30x6 cm FINAL POINT
(TV)	FINAL TELEVISION CONNECTION
Distribuci- n FM-Tv	DISTRIBUTION BOX FOR TV/RADIO

COMUNICATIONS GROUND FLOOR

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PÉREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	34	COMUNICATIONS GROUND FLOOR



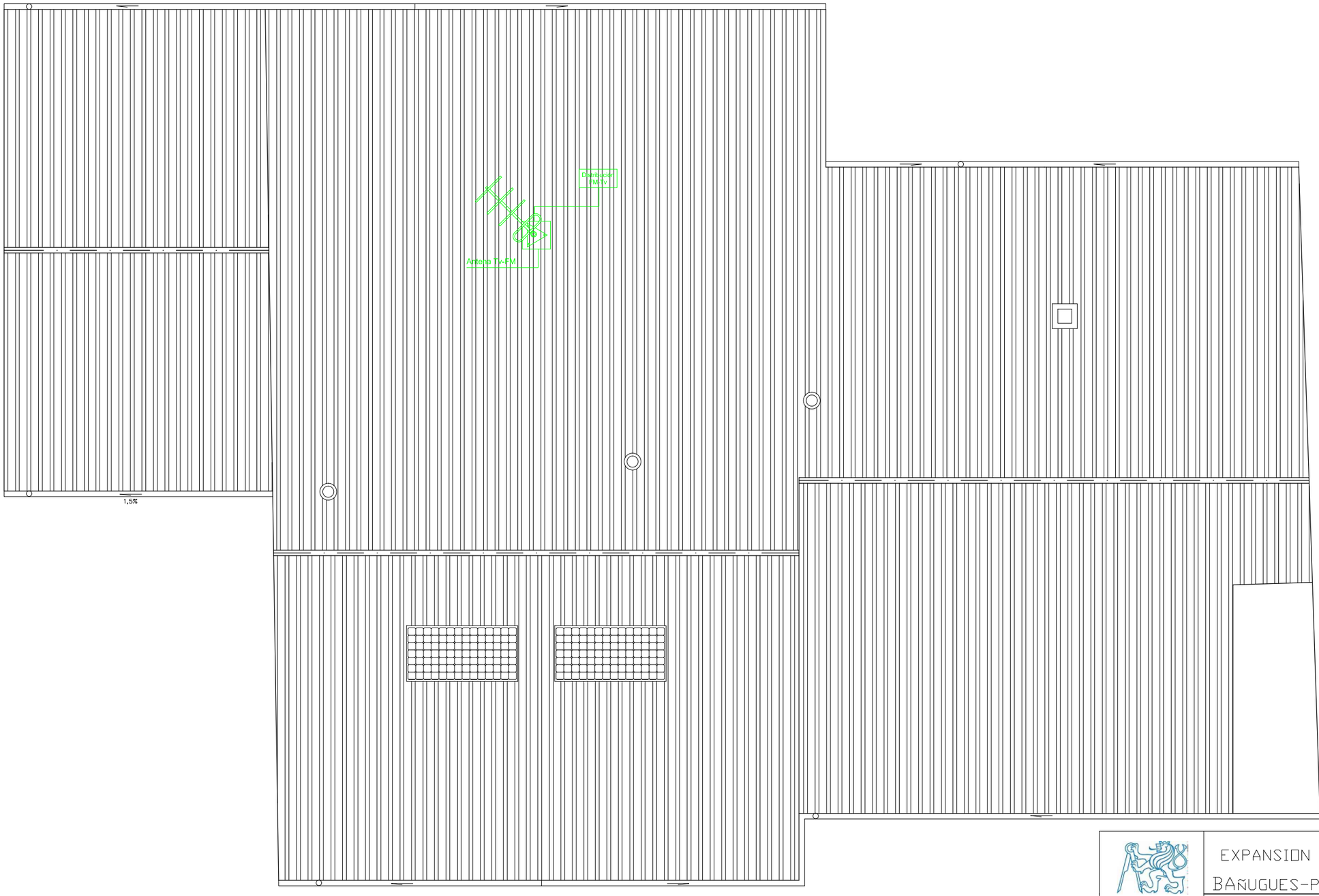


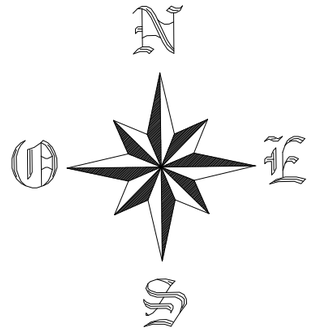
———	TELEPHONE WIRE LINE
———	COAXIAL TV WIRE LINE
TB	TELEPHONE NETWORK 10x17x4 cm FINAL POINT
(TB)	BASIC TELEPHONE CONNECTION FINAL POINT
TV	RTV NETWORK 20x30x6 cm FINAL POINT
(TV)	FINAL TELEVISION CONNECTION
Distribuci· n FM-Tv	DISTRIBUTION BOX FOR TV/RADIO

COMUNICATIONS FIRST FLOOR

PROYECT
EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION
BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR
DANIEL PÉREZ MELERO
TUTOR
FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	35	COMUNICATIONS FIRST FLOOR



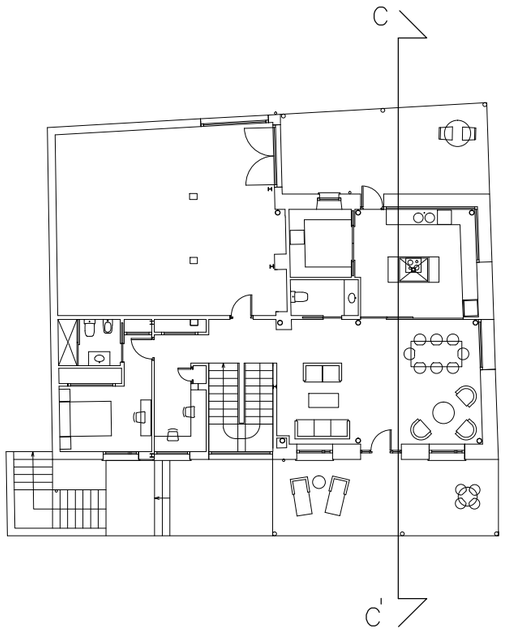


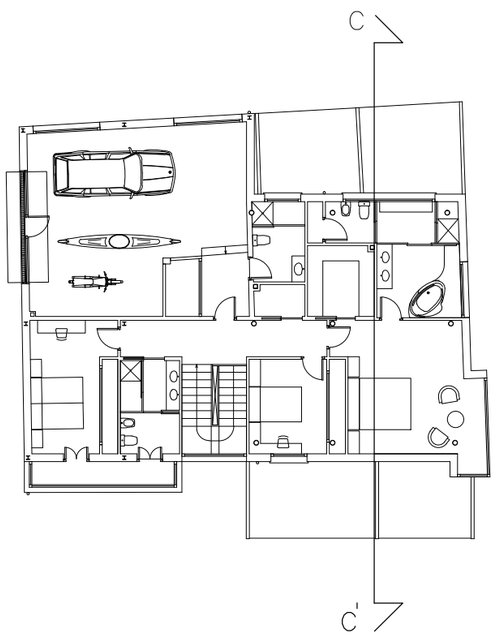
COMUNICATIONS ROOF FLOOR

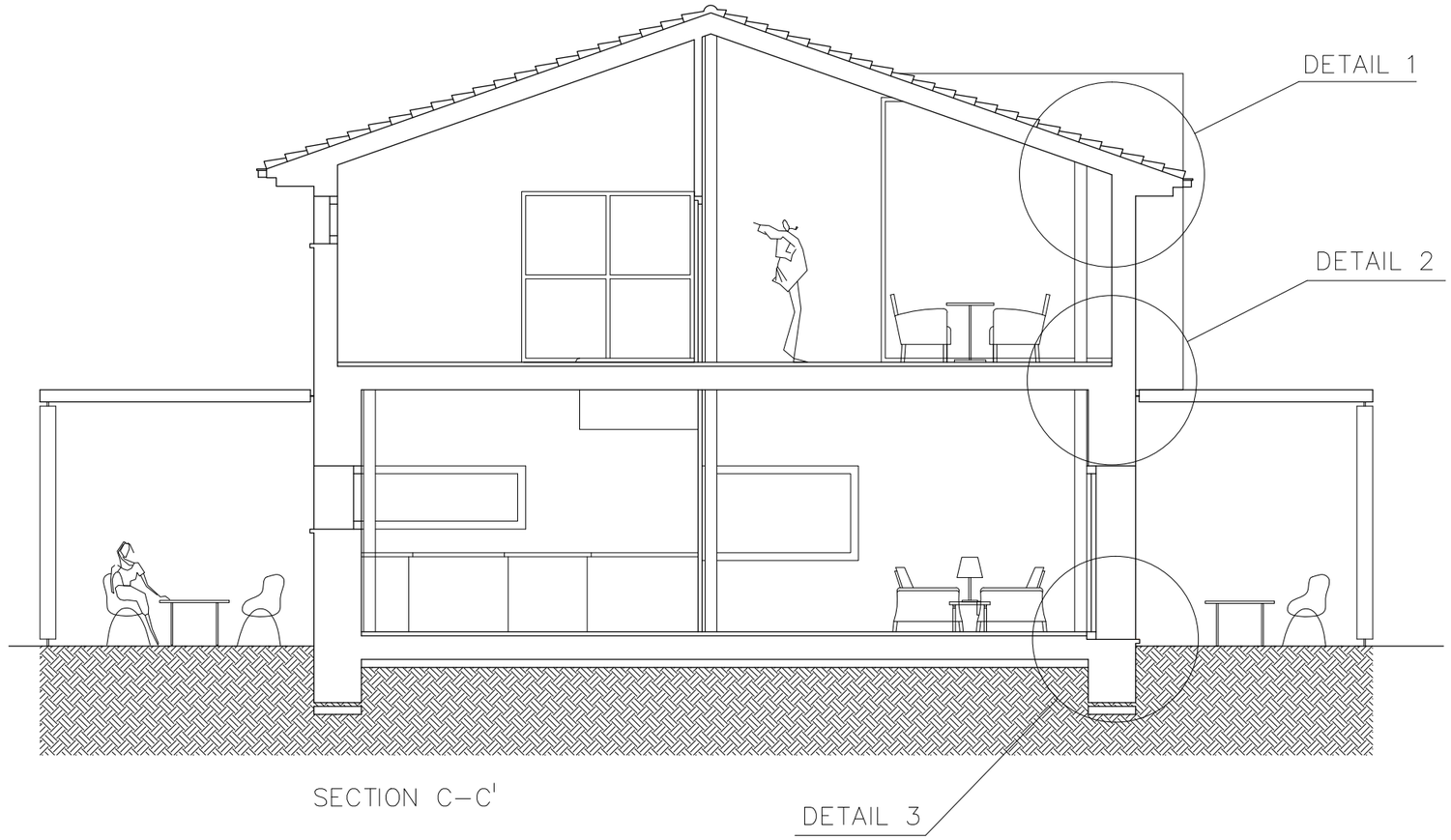
ANTENNA FOR SIGNAL RECEPTION
OF UHF – VHF + FM

PROYECT	EXPANSION AND REFORM OF FAMILY HOUSE
LOCATION	BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN
AUTHOR	DANIEL PéREZ MELERO
TUTOR	FRANTISEK KULHANEK / MILAGRO IBORRA

DATA	SCALE	Nº PLAN	PLAN NAME
JUNE 2011	1:75	36	COMUNICATIONS ROOF FLOOR

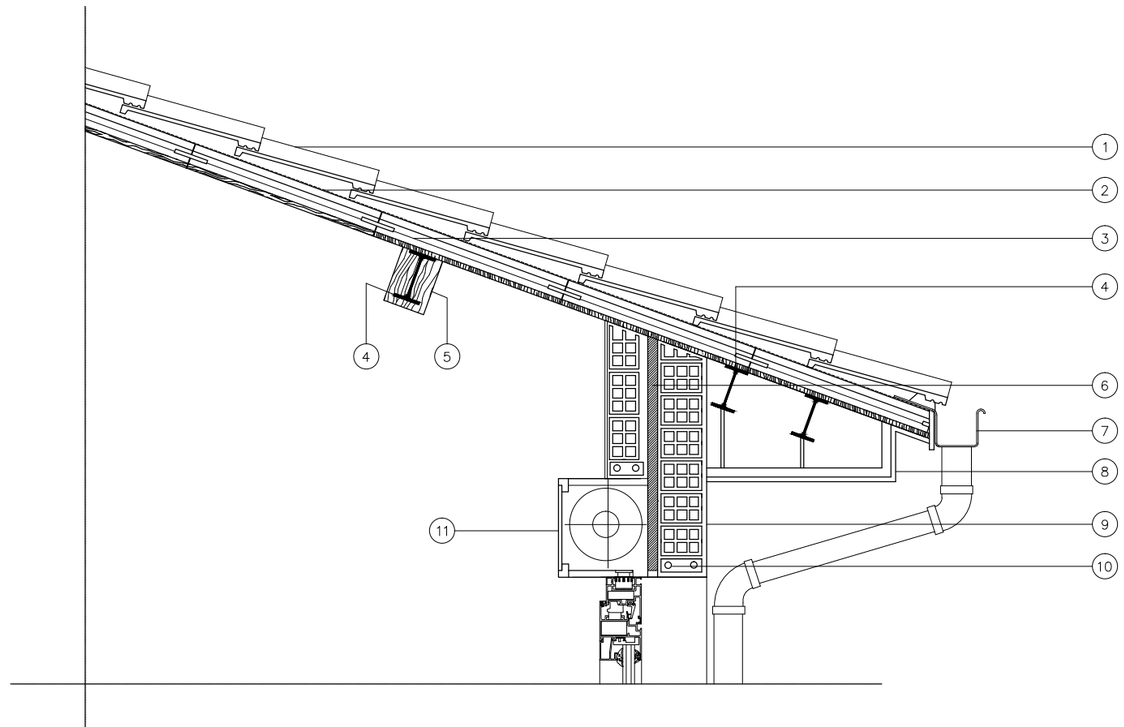






SECTION C-C'

	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PéREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:75	Nº PLAN: 37	PLAN NAME: SECTION C-C'

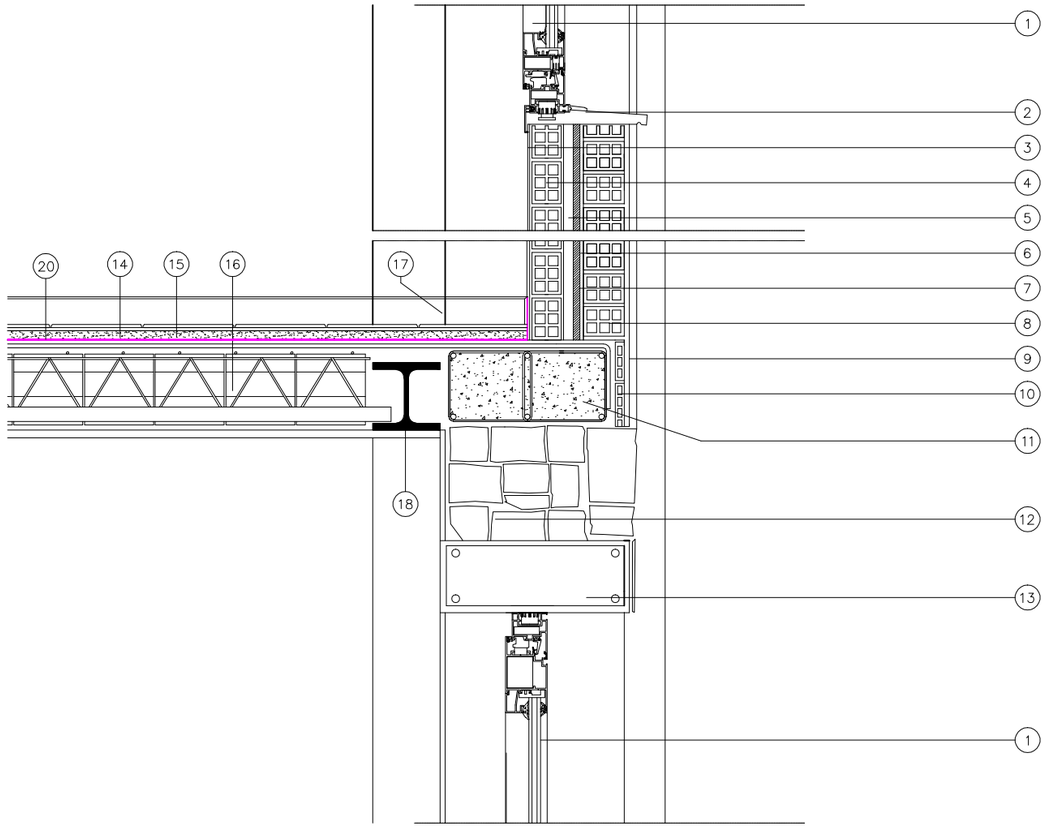


LEGEND

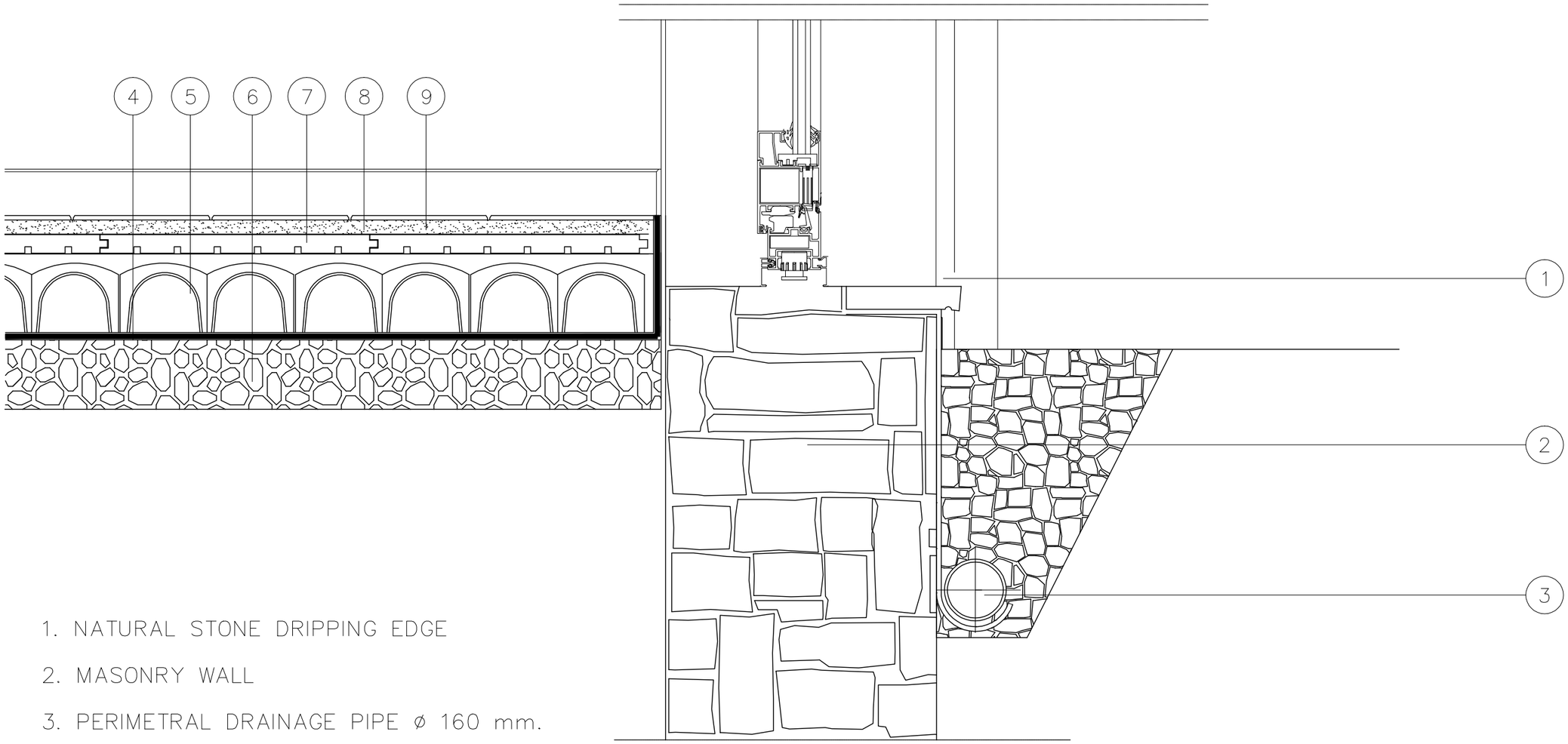
1. CERAMIC TILE ON BATTENS
2. WATERPROOF LAYER, STEAM BARRIER
3. SANDWICH PANNEL WITH MORTISE–AND–TENON–JOINT WOODEN FINISHING, THERMAL ISOLATION AND WATER RESISTANT PANEL
4. SHAPE IPE–140
5. WOODEN COVERING
6. EXTRUDED POLYSTYRENE ISOLATION 5 CM
7. CUPPER DUCT
8. EDGE CHAINING
9. MONOLAYER MORTAR EXTERNAL FINISHING
10. LOAD BEARING REINFORCED CONCRETE BEAM
11. LOUVER BOX

	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BAñUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PÉREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:20	Nº PLAN: 38	PLAN NAME: DETAIL 1

1. PAINTED STEEL EXTERNAL CARPENTRY
   DOUBLE GLASS 6+12+6
2. NATURAL STONE DRIPPING EDGE
3. BLACK PLASTER 1 CM TICKNESS
   WHITE PLASTER 0.5 CM TICKNESS
4. DOUBLE HOLLOW BRICKS WALL
5. EXTRUDED POLYSTYRENE ISOLATION 5 CMS
6. AIR TENT
7. WATER RESISTANT MORTAR INTERNAL
8. H.D.B WALL HALF LENGTH JOINT
9. MONOLAYER MORTAR EXTERNAL FINISHING
10. SIMPLE HOLLOW BRICKS WALL (3CM.)
11. REINFORCED CONCRETE BAND
12. MASONRY WALL
13. LOAD BEARING REINFORCED CONCRETE BEAM
14. MORTAR TO LEVEL OUT
15. RUSTIC GRES PAVEMENT
16. REINFORCED SLAB 25+5 CM WITH
    REINFORCED JOISTS AND CONCRETE COVES
17. CERAMIC BASEBOARD
18. SHAPE HEB-220
19. CHAPA 20 MM
18. LAMINA ANTIMPACTO



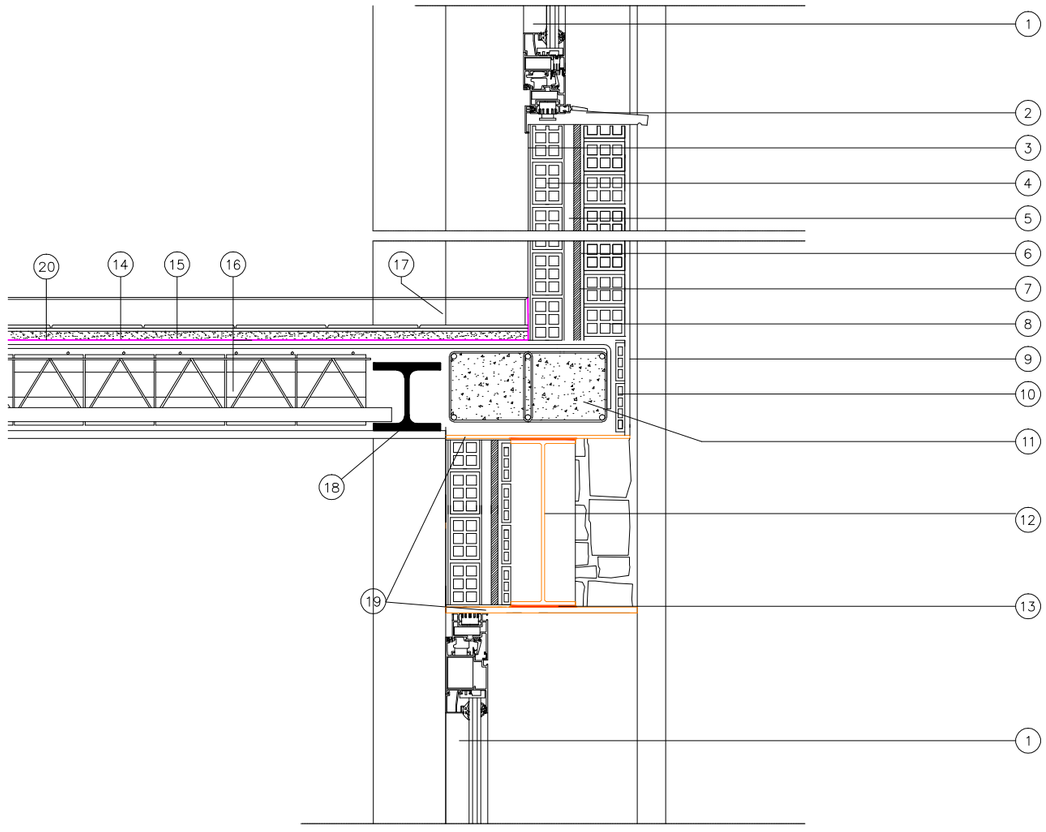
	PROYECT EXPANSION AND REFORM OF FAMILY HOUSE LOCATION BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR DANIEL PéREZ MELERO		
	TUTOR FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA JUNE 2011	SCALE 1:20	Nº PLAN 39	PLAN NAME DETAIL 2

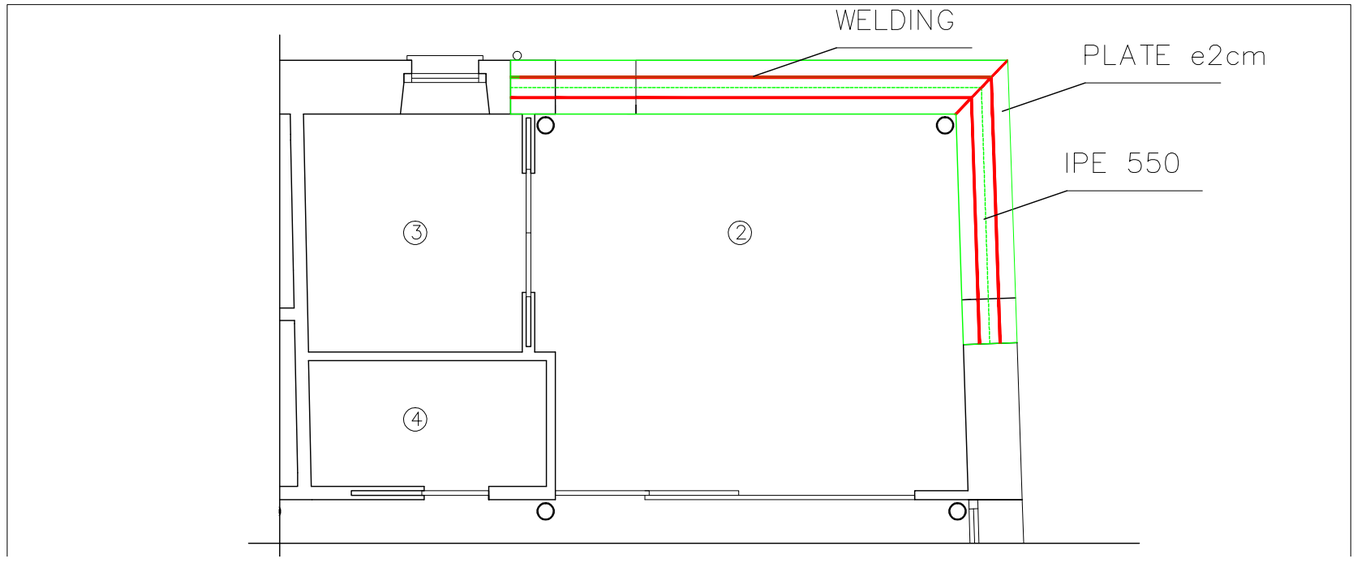


1. NATURAL STONE DRIPPING EDGE
2. MASONRY WALL
3. PERIMETRAL DRAINAGE PIPE ø 160 mm.
4. WATERPROOF LAYER
5. PVC COVES TO CONFORM A DRAINING PAVEMENT (15 CM)
6. CONCRETE PAVEMENT 10 CM. THICKNESS
7. EXTRUDED POLYSTYRENE THERMAL ISOLATION
8. MORTAR TO LEVEL OUT
9. RUSTIC GRES PAVEMENT

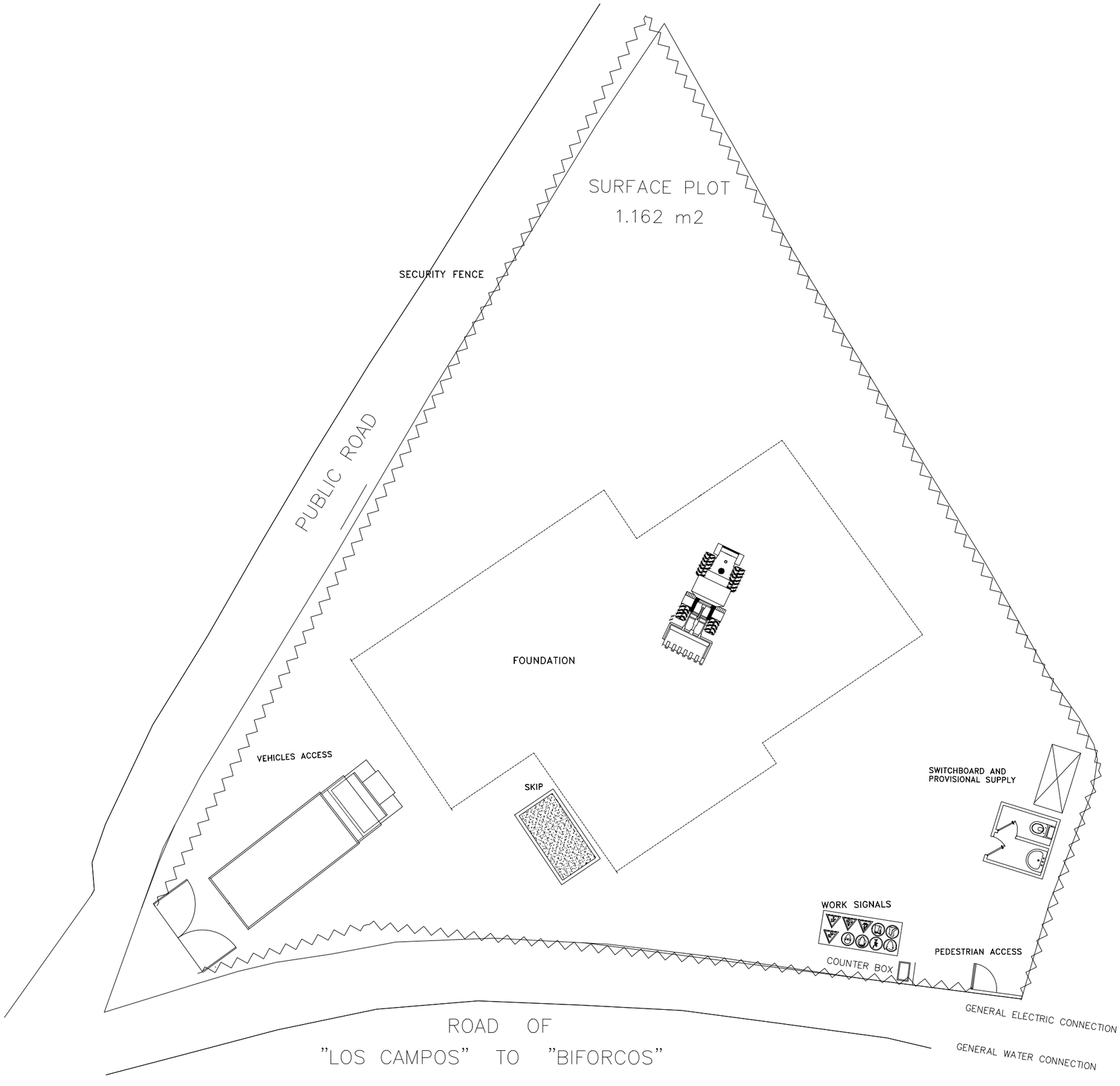
	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PÉREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:10	Nº PLAN: 40	PLAN NAME: DETAIL 3

1. PAINTED STEEL EXTERNAL CARPENTRY
   DOUBLE GLASS 6+12+6
2. NATURAL STONE DRIPPING EDGE
3. BLACK PLASTER 1 CM TICKNESS
   WHITE PLASTER 0.5 CM TICKNESS
4. DOUBLE HOLLOW BRICKS WALL
5. EXTRUDED POLYSTYRENE ISOLATION 5 CMS
6. AIR TENT
7. WATER RESISTANT MORTAR INTERNAL
8. H.D.B WALL HALF LENGTH JOINT
9. MONOLAYER MORTAR EXTERNAL FINISHING
10. SIMPLE HOLLOW BRICKS WALL (3CM.)
11. REINFORCED CONCRETE BAND
12. IPE 550
13. WELDING
14. MORTAR TO LEVEL OUT
15. RUSTIC GRES PAVEMENT
16. REINFORCED SLAB 25+5 CM WITH
    REINFORCED JOISTS AND CONCRETE COVES
17. CERAMIC BASEBOARD
18. SHAPE HEB-220
19. CHAPA 20 MM
20. LAMINA ANTIMPACTO

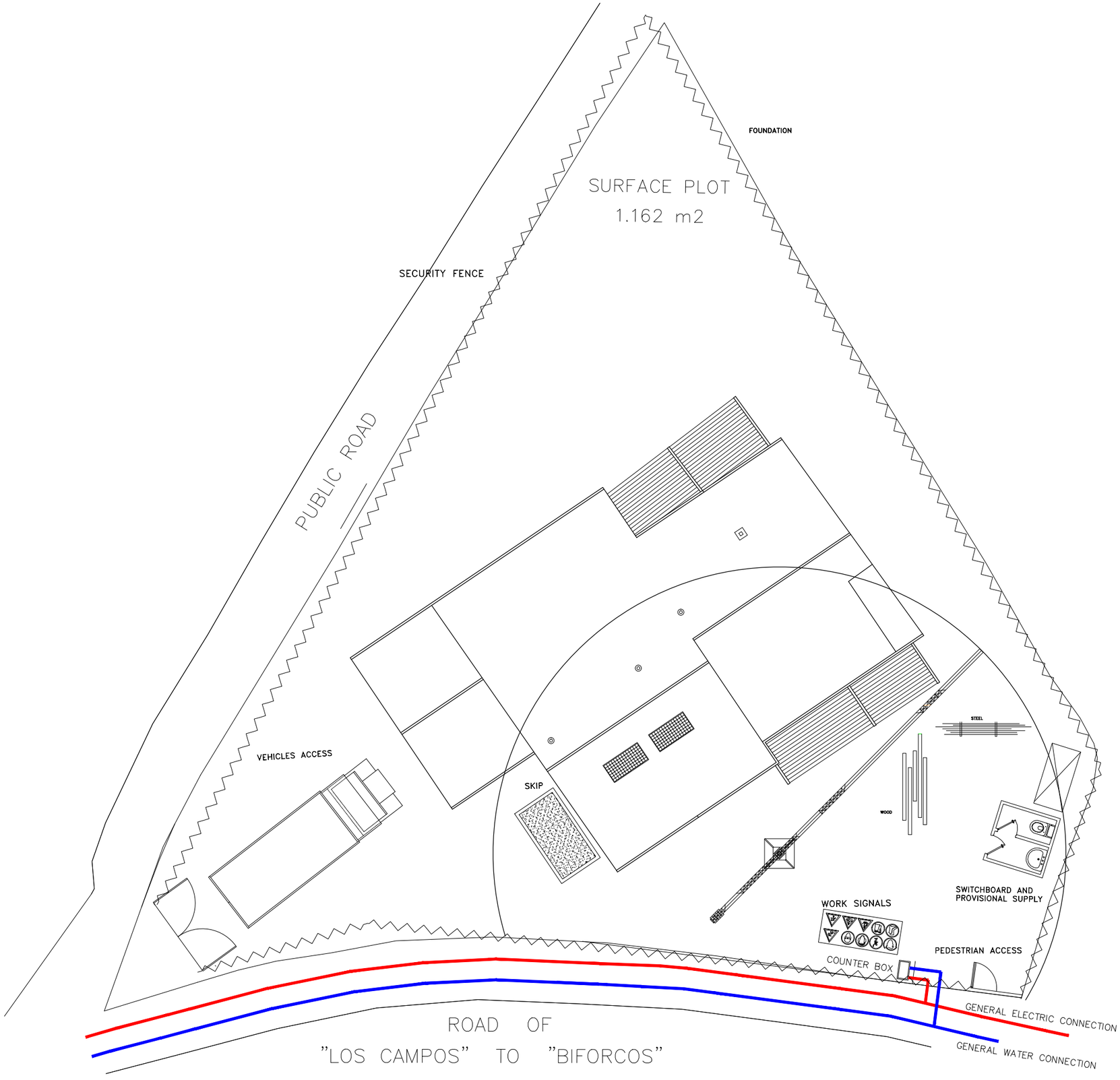




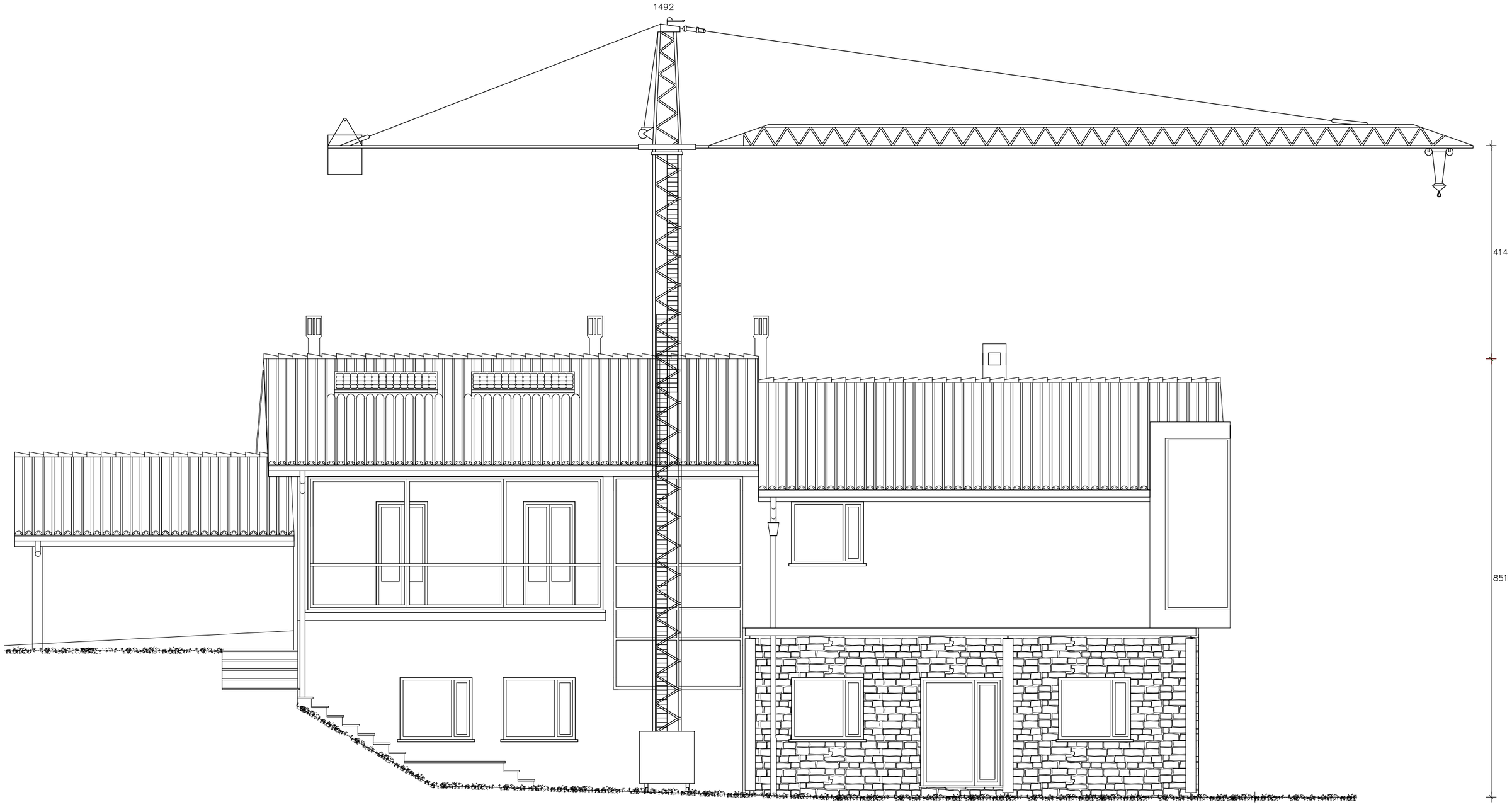
	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PéREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:20	Nº PLAN: 41	PLAN NAME: DETAIL 4



	PROYECT EXPANSION AND REFORM OF FAMILY HOUSE LOCATION BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR DANIEL PÉREZ MELERO		
	TUTOR FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA JUNE 2011	SCALE 1:200	Nº PLAN 42	PLAN NAME HIGINE AND SAFETY 1



	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PÉREZ MELERO		
	TUTOR: FRANTISEK KULHANEK / MILAGRO IBORRA		
DATA: JUNE 2011	SCALE: 1:200	Nº PLAN: 43	PLAN NAME: HIGINE AND SAFETY 2



	PROYECT: EXPANSION AND REFORM OF FAMILY HOUSE LOCATION: BAÑUGUES-PRINCIPADO DE ASTURIAS-SPAIN		
	AUTHOR: DANIEL PÉREZ MELERO		
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DATA: JUNE 2011	SCALE: 1:200	Nº PLAN: 44	PLAN NAME: HIGINE AND SAFETY 3