ATHLETE RESIDENCE NISSAN

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UNIVERSITAT POLITÈCNICA DE VALÈNCIA

HÖGSKOLAN HALMSTAD

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1. PERSONAL INFORMATION

1.1 PROJECT AUTHORS

The Project has been developed by Eduardo Pérez Escribano and Andreas Farakos Ricós. Both are Construction Engineering students at the Polytechnical University of Valencia (UPV) in Valencia, Spain.

1.2 PROJECT SUPERVISOR

Åke Spångberg, teacher of Civil engineering in the School of Business and Engineering at Construction Engineering Programme at Halmstad University is the Project supervisor.

Carolina Sabina Fernández Aparicio, teacher of the Higher Technical School of Building Engineering, at the Department of Architectural Technology of the Polytechnic University of Valencia (UPV), is the supervisor of the project by part of the UPV.

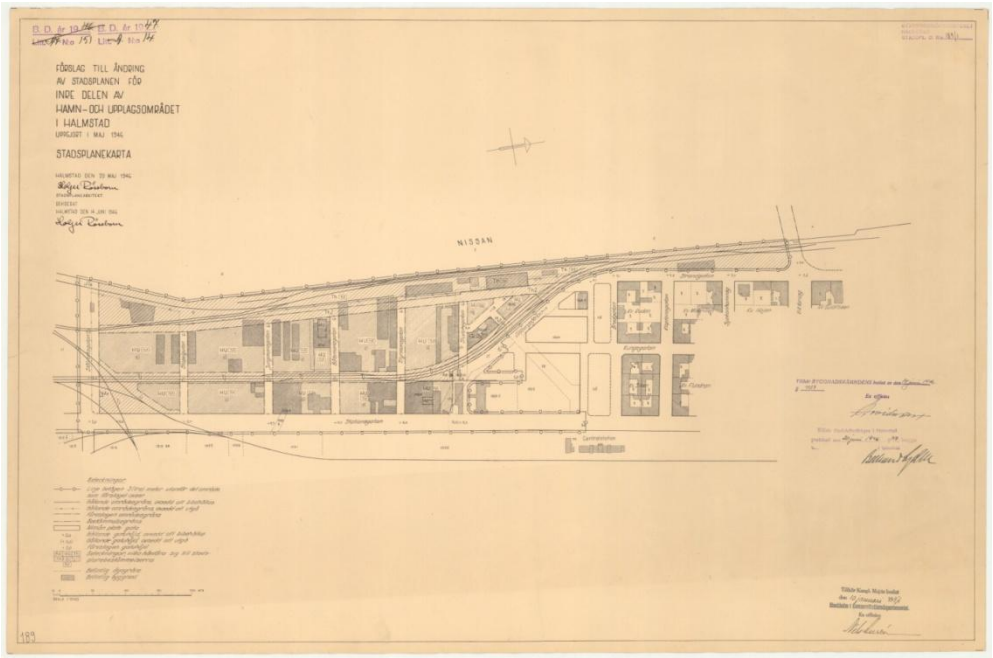
2. DATA AND PROJECT

2.1 BUILDING PRECEDENTS

Halmstad was founded close to the Nissan River in 1307. In 1320's the town moved to the present day town centre.

Halmstad is an industrial and recreational city with a port. It is a quiet city at the mouth of Nissan in the province of Halland on the Swedish west coast.

All areas around the river have always been important places for trade. From the 19th century all the whole area has been full of industries. However, a few years ago this



area started to change and nowadays there are plans for making this zone more attractive to inhabitants and tourists.
As soon as possible all industries around this area will be reallocated. This is a main reason why the city is growing in this area, so we decided to use this area to build a cultural-sports complex with residence for athletes.

2.2 DESCRIPTION OF THE AREA. SITE LOCATION.

The site is located next to the river Nissan, in an area very close to the city center and the main railway station and bus Halmstad.

Currently the land is used as car parking for people that live in nearby buildings or to hold events that require a large empty space such as a fairground.

The four streets that surround and define the plot are: Strandgatan, Stuvaregatan, Styrmansgatan and Stationsgatan.

The plot area is 15,500 m2, is empty except for a small building, owned by the power company, which will be demolished.

The buildings surrounding our plot are:

1- It is an industrial building of wood, sloping roof plant and used as storage for sailing elements such as boats, masts, sails, etc. This building will be demolished in the coming years.

2- It is a brick building; it has three floors with pitched roof covered by tiles. It is used as a hotel and hostel.

3- In an industrial building brick made with larger dimensions than the first.

4- It is an industrial building wooden two storey pitched roof. It is managed by a catering company and also used as a restaurant.

2.3 PROJECT DESCRIPTION AND PROJECT OBJECTIVE

The project involves the construction of a sports-cultural complex with residence for athletes.

In this project we will focus on the construction of the Residence for Athletes and Café / Restaurant.

The idea of doing this project we had it long time ago. We come from Valencia, a city where the sport is very widespread and where public administration promotes the sport, with the help of the federations, by conducting sports competitions and construction of this type sports complexes; the sport-cultural complex of the Petxina, the complex of the market de Abastos, or the one of the neighborhood of Nazareth are some of the examples.

Moreover, Halmstad also offers this type of opportunity in sporting. City teams are located in the country's elite in sports like football, handball and table tennis and sports facilities are spread throughout the city and perfectly preserved. Also in 2010, opened a large sports complex, the Halmstad Arena, where there are facilities for hockey, handball, swimming, soccer and many other sports facilities.

With this project, our intention is to place Halmstad above other cities in Sweden as "cradle" for new athletes, both Swedish and other nationalities. The magnificent facilities, top level clubs and special residence will make that the young athletes who wish to advance in their sports career and become professionals choose Halmstad as the city to get it.

3. DESIGN OF THE COMPLEX

The area of the site is 15.500m^2 and, in addition to the residence for athletes, the complex will consist of the following facilities:

- Sports Hall
- Hall of Athletics
- Fitness Centre
- Space for martial arts
- Auditorium and Conferences Hall
- Cafe / Restaurant

4. DESIGN OF THE RESIDENCE

To carry out this point we consulted Chapters 3 and 4 of the Swedish Building Regulations (BFS), Swedish rules for the construction of buildings, similar to the Código Técnico de la Edificación in Spain (CTE). We must be very careful with the design conditions as they are very important for the proper functioning of the housing and avoid possible future problems.

4.1 ROOM HEIGHT

Following the regulation section 3:311, height of habitable rooms and workrooms are not less than 2.40 meters.

4.2 DESIGN OF THE DWELLINGS

A BUILDING:

	USEFUL AREA	BUILT AREA
FIRST FLOOR	106.70 m^2	166,21 m^2
SECOND FLOOR	254 m^2	447,70 m^2
THIRD FLOOR	434 m^2	517 m^2
TOTAL:	**794,7 m^2**	**1131 m^2**

B BUILDING:

	USEFUL AREA	BUILT AREA
FIRST FLOOR	116 m^2	177,78 m^2
SECOND FLOOR	364 m^2	460 m^2
THIRD FLOOR	443 m^2	530 m^2
TOTAL:	**923 m^2**	**1.167,78 m^2**

C BUILDING:

	USEFUL AREA	BUILT AREA
FIRST FLOOR	155 m^2	207.8 m^2
SECOND FLOOR	313 m^2	385 m^2
THIRD FLOOR	313 m^2	385 m^2
TOTAL:	**781 m^2**	**978 m^2**

D BUILDING:

	USEFUL AREA	BUILT AREA
FIRST FLOOR	332 m^2	409 m^2
SECOND FLOOR	360,5 m^2	446 m^2
THIRD FLOOR	360,5 m^2	446 m^2
TOTAL:	**1053 m^2**	**1.301 m^2**

The residence will have 4 buildings with 3 floors each on the ground floor rooms will be located the laundry, rooms for the facilities, bike parking, restaurant-cafeteria, offices and the reception of the residence.

In the other 2 floors is where the rooms for sports, cooking and entertainment area are.
Access to buildings: The entrances have been designed to be accessible for disabled people.
Roads in the exterior areas can be used by physically disabled people. People with visual and/or hearing impairment and people who become easily confused have sufficient space for handling wheelchair. Residential activity building is provided with rooms for people sitting in a wheelchair.

4.3 CLIMATE ZONE

Before deciding the materials used in this project, it has been necessary to consider the climate zone where Halmstad is.
Sweden is divided into three climatic zones. Halmstad is located in the Halland area which is in the climate zone III. It means that houses will be designed to specific energy consumption, electric power for heating and

average heating transfer coefficient for the structural elements that enclose the building.
In the following table show the maximum values used in houses that have new heating method such as district heating.

Climate zone	III
Specific energy	55
Installed capacity for heating	4,5
U m	0,40

The materials used in the project are in accordance with data described above.

5. TECHNICAL DESCRIPTION

5.1 CONDITIONING OF THE AREA

5.1.1 Demolition

First we proceed to the demolition of the house, owned by the power company. The demolition will be manually to keep items that can be recycled and then demolish the house.

Next, remove the topsoil, approximately 20cm and stockpiled for further transport, considering it always says the BFS. The land clearing will be done by mechanical means, already it is a very large plot.
Then the land transport to landfill, or wherever appropriate, will be made.

5.1.2 Ground works

First, remove the topsoil, approximately 20cm, and pile it up for further transport, considering always what BFS says. The land clearing will be done by mechanical means, because it is a very large plot.

Then, the soil transport will be made to the ground dump or wherever appropriate place.

Once the place is clean, proceed to raise again the areas to be excavated, leaving witnesses in order to make the relevant checks at any time.
The excavation was carried out by mechanical methods, adopting the necessary measures to prevent damage to public roads. Land set aside will be transported by truck to the dump.
The excavation of trenches for the footings will be at a depth of 1.50 m.

5.2 FOUNDATION

Isolated footings are used to support single pillars. Each individual isolated footing provides support for each individual pillar; they act as a base for it. They transfer the superimposed structural load to a wide range soil. All columns in this project are square. Furthermore they are made with reinforced cement concrete. The size of the footing should be 120x120x100 cm.

The ditches will be filled up with prepared reinforced concrete HA-30/B/25/IIIa+H with 300 kg/cm^2 of characteristic resistance. This concrete will be prepared for marine ambient and freezing (IIIa+H). This concrete will be elaborated, transported and put in work according to the BFS. First layer of about 100mm of thickness will be spilled with cleaning concrete in the base of the foundation.
The reinforcements, for the foundation and for the pillars, will be put on the cleaning concrete. After that comes the filling of the foundation with the concrete, taking care about reinforcements do not move and that has the necessary covering.

The type of steel used for the reinforcement of the foundation will be the B500S.

5.3 STRUCTURE

The building's structure will be made mostly of steel. It will be rolled steel sections used for construction of the pillars and beams. For the pillars HEB sections will be used, the size of the profiles that will be used will be between HEB 200 to HEB 260. For the beams IPN sections will be used of sizes ranging from IPN 200 to IPN 320. The joints between pillars and beams are hyper-static joints made by welding in workshop and on site. The metal structure is protected against fire by coating rigid plates.

On the other hand, the slabs are formed of prestressed hollow-core slabs of section of 120 cm wide and 30 cm thick. The beams have an L rolled section welded to the IPN's soul, and on that L the hollow-core slabs will be supported. After the hollow-core is placed, a layer of reinforced concrete of 5 cm thick will be put to work jointly with the various hollow-core slabs.

5.4 WALLS

5.4.1 Closure

The exterior closing consists of an outer sheet made with exposed brick and an inner sheet made with gypsum panels with a self-supporting lattice structure of galvanized steel.

To define the closure we have relied on the proposed solutions Isover Company.

The wall is insulated on the outside with ISOVER Skalmursskiva 33 giving a comprehensive layer of insulation with minimal thermal bridges and few joints.

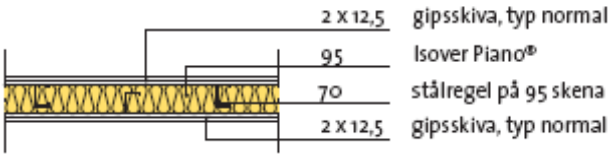
Steam brake interposed between the carcass and ISOVER Skalmursskiva 33 causing the cable draws can be made in the innermost insulating layer without unnecessarily perforates the foil. ISOVER Vario KM Duplex UV used for air sealing and vapor barrier in buildings with normal moisture load indoors, houses and dry premises.

To achieve proper functioning of the enclosure as thermal insulation refers to the coefficient of heat transmission of the whole wall must not exceed 0'18 W/m²xºC.

PROPIETIES	
U-value [W/m² ·ºC]	0,10
Fire class:	REI 30
Noise reduction [dB]:	
$R'_w+C_{50-3150}$	68
$R'_w+C_{tr,50-3150}$	60
Isolation Thikness [mm]:	360
Wall thikness [mm]:	524

5.4.2 Partition

The inner partitions will be made using gypsum panels with a self-supporting lattice structure of galvanized steel. The width of the partition will be 145 mm and the layers that form them are:



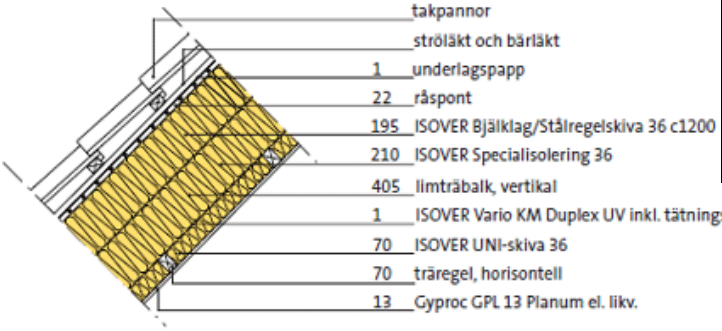
PROPIETIES	
Fire class	EI60
Noise reduction [dB]	R´w=55 R´w+C50-3150=48

The gypsum of the partitions in the bathrooms and kitchens will be waterproof and treated to prevent moisture absorption.

5.5 ROOF

To achieve proper functioning of the roof, as thermal insulation refers to, the coefficient of heat transmission of the whole roof must not exceed 0'13 W/m²xºC.

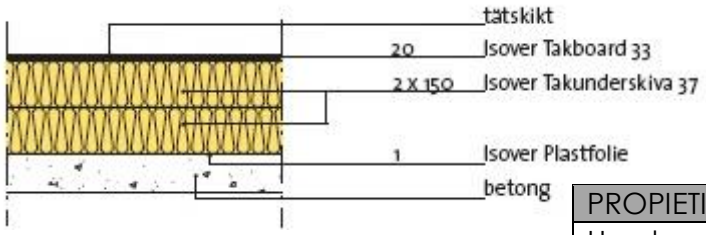
The building's roof will be a sloping roof with concrete tiles above a metal structure. The slope of the roof will be 45° and the thickness of the insulation will be of 475 mm. The cover layers are as follows:



PROPIETIES		
U-value [W/m²•°C]	Fire class	Noise r eduction [dB]
0,081	REI30	R´w+C50-3150=48 R´w+C tr50-3150=37

5.6 FLOORS

They are made with hollow-core slabs with concrete topping; all of it makes 350 mm of thickness. Above of this slabs the next layers will be put:



PROPIETIES	
U-value [W/m²•°C]	0,11
Noise reduction [dB]	R´w+C50-3150=57 R´w+C tr50-3150=49

5.7 COATING

5.7.1 Roof coating

All the ceilings of the building will have a false ceiling with stucco plates, of dimensions 1000x600mm sustained with esparto and paste of stucco E35 type, with perimeter section of 80x200 and executed with stucco molding according to the regulation.

5.7.2 Walls coating

5.7.2.1 Kitchen and bathroom

The coating of the kitchen and bathroom will be tiles of stoneware enameled, of approximate format 25x25cm, resistant to cleaning products, received with glue cement, executed according to the regulations.

5.7.2.2 Rooms and corridors

For the coating of the room's wall white and green plastic paint will be used with a 3 mm of thickness, washable two hands.

5.7.3 Floor Coating

The floor on the kitchens and the bathrooms will be ceramic tiles with a thickness of 13 mm and measurements of 35 x 35mm, received with glue cement.

On the room's floor floating wooden pavement will be used.

In the rest of the building vinyl sheet will be put over the termal-acustic insulation.

5.8 SANITATION INSTALLATIONS

Storm water and sewage will be conducted through downspouts and buried PVC collectors to open drainage, layout and dimensions specified in the drawings.

All the joints and elbows will go with their corresponding meetings of union and special pieces. Every water-drainages of sanitary apparatuses and sinks will have their corresponding individual siphon.

5.8.1 Smoke ventilation and gases.

The evacuation of vapor and gases will be made through conduits of forced ventilation, type "shunt", formed by double pieces prefabricated.

Ventilation in the kitchens will arrange an extractor to smoke and gases, with centrifugal ventilator. It will demand that the extractors have official certificate.

5.9 CARPENTRY

The interior carpentry will be of pine wood, with moldings of pine varnished, fixing hooks of galvanized steel and closing chrome. External carpentry shall consist of aluminum windows and doors, with blinds of the same material.
The number, type and characteristics of carpentry, exterior and interior, are included in the project plans carpentry.

5.9.1 Glass

The glazing in windows will be 4/6/4, made with double insulating glass, made up of colorless glass 4 mm, in the interior, dehydrated air chamber of 6 mm sealed, and colorless glass 4 mm in the outside, with double sealed of butyl and polysulfide, executed with continuous cross section and neoprene joint.

The glazing for the facade will be made with insulating double glass, made up of security glass 4+4mm in the interior, dehydrated air chamber of 12mm, perimeter sealed, and outer glass laminated of 6+6+6 mm.

5.9.2 Defenses

Metal railings shall be provided on the stairs and balconies. These metal elements are protected with anti-rust paint.

5.10 INSTALLATIONS

5.10.1 Electrical installations

The electrical installation shall be in accordance with Swedish Regulation for Electrical Installation.
The electrical installation shall consist of General Protection Box, Line spreader; Centralization of Accountants, Single Derivations and General Distribution Box in each building will depart four circuits (one for lighting, one of appliances, heating and another one for other uses). Also, install a line driving force for lift and a line of lighting and auxiliary lighting common areas and equipment power amplification and antenna distribution collective.

The distribution of the various elements of the installation will be done following the guidelines contained in the plane of Electrical Installation of the project. The mechanisms will be recognized quality, respecting

protection and volumes ban. It made the proper connection and grounding of the entire facility

The electrical system will be made interlocked, with copper conductor of double protected plastic isolation with flexible tube of P.V.C., verified and measured, according to the construction regulations and Electro-technical Regulation of Low Tension. It will have a general box of protection and magneto thermal switches in each circuit. The mechanisms, boxes, etc., will be of the series Niessen Stylo or similar. The building will be prepared with telephony and antenna TV, A.M. and FM.

According to Electrical Code Requirements and Energy Efficient Specifications one part of the kitchen lighting wattage must be High Efficiency (fluorescent or equivalent) and switched separately from other lights, the kitchen counter tops will be provided with some electrical outlets, respecting always the protection volumes in security terms.

Will be provide a minimum of 2 - 20 amp electric circuits for kitchen appliances, 2 small-appliance ranch circuits for outlets in the kitchen limited to supplying wall and counter space outlets only. The home electrical wiring for kitchens requires a 4-wire oven receptacle for electric a range.

5.10.2 Hot and cold water

From the supply connection through a general isolation valve, centralized counters in specific enclosure with access from the hall and single pipes until stopcock to each home or premises. In each room, there will be two networks, one of cold water and one hot water to serve different home appliances.

There will be an installation for heating and other for hot water.
The hot water is produced and stored in accumulation deposits in a specific room and to be distributed later throughout the building to make it reach every home and every tap.

Shall be provided energy counters for heating and volume counters for the hot water. The heating system for each user also has an ambient thermostat associated to a valve device that lets you select the desired time and temperatures.

All the network of hot and cold water distribution will be made with electrolytic copper pipe with meetings welded, in dimensions and

diameters according to plane of project. It will be installed, verified and measured according to regulation.

Joining pipe:
The method of joining copper tubing systems and fittings is capillary weld.

Plumbing fixtures:
The sanitary apparatuses will be of vitrified white porcelain. The faucets and other bathroom fittings will be made of stainless steel, mono-control with airflow and individual siphon of water-drainage. The total plumbing fixtures will be accredited.

5.10.3 Heating

For heating of buildings will be used district heating. District heating is a method for large scale production and distribution of heat. Heat is produced in a plant, by combustion of combustible, such as coal, oil, natural gas, biomass, and waste, and the distribution is done through a pipe to the consumer, which is used for heating, through radiators, or hot water production. District heating is based on economies of scale, that is, to a great delivery system to many users in a particular geographic area (e.g. urban areas).

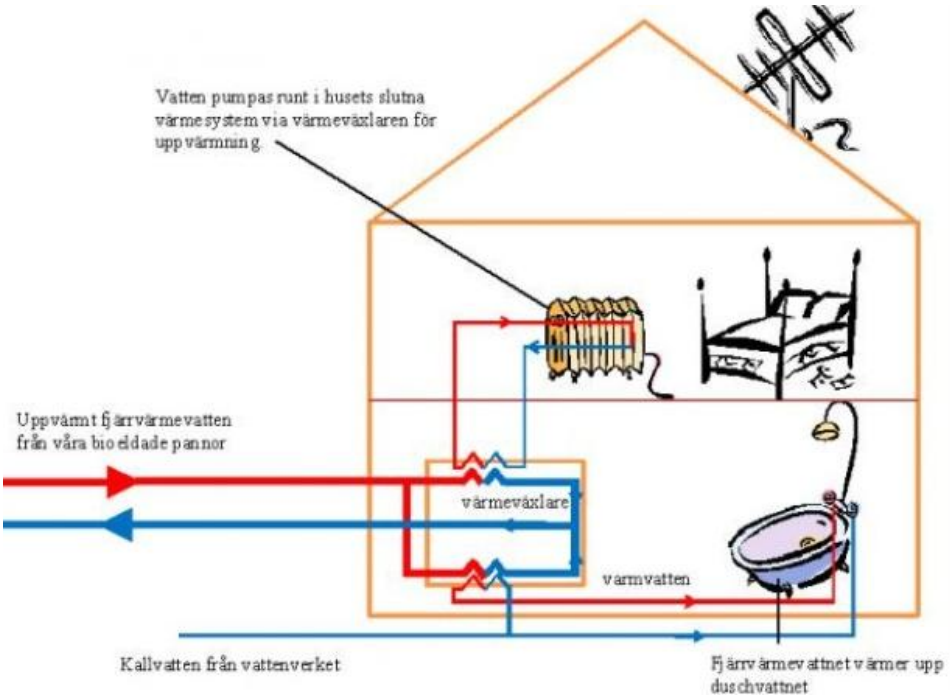
District heating requires that the subscriber has a central heating system. This system will be placed on the ground floor of each building. In each district was previously installed a substation where the heat is transferred from the distribution of heat distributor (primary side) to the house heating and hot water system (secondary side). This will be done through a heat exchanger which transfers heat without mixing the water from the general network and the water from the installation of the building. It is the most common method in Sweden.

The heat exchanger has an electrically operated valve that controls the temperature of the radiator and hot water system.
The exchanger is in turn controlled by a regulator whose function is to maintain constant temperature of hot water and controlling the temperature radiator system to comply with the heating current.

To measure the amount of energy a counter is placed on the primary side. Energy meter measures both the flow of water as the flow and return water temperature.

The heating network has to have regulatory elements that constantly adapt to external conditions temperature.

The following outline is not the exact installation of the building, but it serves to understand how to perform the heat exchange:



5.11 VARIOUS

Will be placed an extractor hood with the corresponding ventilation in the kitchen and, as well, the corresponding furnishing in kitchen, rooms and bathroom.

5.12 AVERAGE THERMAL TRANSMITANCE:

$$U_m = \frac{(\sum_{i=1}^{n} U_i A_i + \sum_{k=1}^{m} l_k \Psi_k + \sum_{j=1}^{p} \chi_j)}{A_{om}}$$

- U_i: Thermal transmittance for a single part of the building envelope (W/m2K).
- A_i: The surface area of the single part *i* of the building envelope facing the heated indoor air (m2). For windows, doors, gates and the like, Ai is calculated using the external frame dimensions.
- Ψ_k: Thermal transmittance for the linear thermal bridge *k* (W/mK).
- l_k The length in relation to the heated indoor air of the linear thermal bridge *k*(m).

- χ_j Thermal transmittance for the point shaped thermal bridge *j* (W/K).

- A_{om} Total surface area of the building envelope facing the heated indoor air (m2). The building envelope refers to those structural elements that separate heated parts of dwellings or non-residential premises from the outdoor, the ground or partially heated spaces.

U_i wall = 0,100 W/m²·ºC
U_i roof = 0,081 W/m²·ºC
U_i floor = 0,110 W/m²·ºC

The values of Ψ_k, l_k *and* χ_j do not reflect on the formula because we are doing an approximate thermal calculation, to do with exactitude we calculate the values.

A Building:

A_i wall = 1008 m²
A_i roof = 445 m²
A_i floor = 1053 m²
A_{om} = 2506 m²

$$Um = \frac{(0{,}10 \times 1008) + (0{,}081 \times 445) + (0{,}110 \times 1053)}{2506} = 0{,}100828$$

The thermal average transmittance of the building envelopment do not excess the values given in the tables 9.2 of the Swedish regulation. That number is 0.40. So, the A building is in order with it.

B Building:

A_i wall = 770 m²
A_i roof = 385 m²
A_i floor = 810 m²
A_{om} = 1965 m²

$$Um = \frac{(0{,}10 \times 770) + (0{,}081 \times 385) + (0{,}110 \times 810)}{1965} = 0{,}100399$$

The thermal average transmittance of the building envelopment do not excess the values given in the tables 9.2 of the Swedish regulation. That number is 0.40. So, the B building is in order with it.

C Building:

A_i wall = 884 m²
A_i roof = 523 m²
A_i floor = 1002,12 m²
A_{om} = 2409,12m²

$$Um = \frac{(0{,}10 \times 884) + (0{,}081 \times 523) + (0{,}110 \times 1002{,}12)}{2409{,}12} = 0{,}100035$$

The thermal average transmittance of the building envelopment do not excess the values given in the tables 9.2 of the Swedish regulation. That number is 0.40. So, the C building is in order with it.

D Building:

A_i wall = 868 m²
A_i roof = 523 m²
A_i floor = 958,67 m²
A_{om} = 2349,97m²

$$Um = \frac{(0{,}10 \times 868) + (0{,}081 \times 523) + (0{,}110 \times 958{,}67)}{2349{,}97} = 0{,}099838$$

The thermal average transmittance of the building envelopment do not excess the values given in the tables 9.2 of the Swedish regulation. That number is 0.40. So, the D building is in order with it.

6. PROTECTION AGAINST FIRE

6.1 LAWS AND REGULATIONS

To carry this point we followed the Chapter 5 of the Swedish Building Regulations (BFS), Swedish rules for the construction of buildings.

6.2 SAFETY IN CASE OF FIRE

6.2.1 Documentation

According to BFS 2011:26 section 5:12, the fire protection documentation is drawn up in the followings pages. This document set the conditions on which fire protection is to be based and the design of fire protection.

In this documentation are set out the fire resistance classes of the building and its components, compartments, escape strategy.

6.2.2 Fire Resistance classes

According to the paragraph 5.2 of the BFS our Occupancy class is 3, this class includes dwellings where residents are likely to have good local knowledge and have the ability to evacuate without assistance and cannot assume to be awake.

Classification for buildings in Sweden are as follows: These Br0, Br1, Br2 or Br3 follow general recommendation of the Board's Design Regulations (BKR) section 5:21

The residential activity of the building falls into the classification, Class Br2 due to that the building area is greater than 200 m^2 and that are not divided into fire compartments not exceeding this size by compartment walls in the fire resistance class specified in 5:562.

6.2.3 Escape in the event of fire.

All buildings designed in this project allow satisfactory escape routes in case of fire. This implies either complete evacuation of people who are present in a building. Special attention has been paid in the common building as the risk is higher; as people may be injured by the fall of structural or non-structural elements or due to panic and congestion, and the risk that persons may be trapped.

As is described in the regulations, in premises where people are present other than occasionally must be provided with not less than two mutually independent escape routes and if premises have more than one storey, at least one escape route shall be provided on each storey. For this reason the common building is provided with four escape routes.

6.2.4 Travel distance to and along an escape route

The travel distance inside a fire compartment to the nearest escape route allows perfectly to a compartment be evacuated before critical conditions.
The maximum travel distance from the furthest area is 26 meters and regulation advice being less than 30 meters when the escape can be used in two directions.

6.2.5 Access. The dimensions of escape routes

Escape routes have been designed to be spacious and to allow such ease of movement that they are capable of serving the number of persons for which they are intended.

Following the BFS 2011:26 section 5:334, at a residential activity building the width of an escape route could be not less than 0'9m. In this case the width of the main access is 1.50 m.

6.2.6 Doors in escape routes

All doors in the escape route open outwards in direction of escape and they are easily identify able as exits. Doors situated in one escape route have been chosen to be open easily; however, exterior doors are possible to open into an escape route from places of assembly by merely pushing against the door or by opening it with an easily operated handle.

Furthermore the doors in escape routes can be fitted with a device which permits persons to return after they have passed through. The force needed to open the door should not exceed 130 N applied to normal opening devices.

6.2.7 Lighting and guidance signs

Guidance signs for escape have been situated in every door or point where the people can get confused to find the escape way. Illuminated signs will be hanged on top of each door for every escape route; also floor plans with escape routes will be placed near exit doors. The size of these panels will be appropriate to be clearly visible.

Emergency lighting permit the escape, in a safely and effective way, even during a power failure. It is also provided in all stairways which are used in escape from a building with more than eight storeys. Emergency lighting shall be provided the guidance signs are provided with emergency lighting unless this is evidently unnecessary. The emergency lighting shall perform its function in every escape route which has not been blocked by fire.

When a power failure happens the emergency lighting will provide the intended illumination at least 60 minutes.

Electric cables for emergency have fire resistance in accordance with class EI 30.

6.2.8 Evacuation alarm

As it is shown on the BFS 2011:26, the building is provided with devices of fire detection and evacuation alarms.
Automatic fire alarm system in will be installed, smoke detectors and loudspeaker will be also installed. The system will send a signal to a staffed position when persons are present in the building.
The alarm can be activated automatically or manually when a fire is indicated.

Signals will be audible in all areas where people are present other than occasionally. The early detection of fire and evacuation alarms in this building is obtained by installing an appropriate number of wired or battery operated self-contained smoke alarms. One alarm will be put in each room and in each kitchen of the building.

The place where alarms are placed is shown in the fire protection plans.

6.2.9 Protection against the spread of fire inside a fire compartment.

In spaces other than escape routes and such premises as mentioned in 5:521 the following surface finishes should be selected:

6.2.9.1 Ceiling surfaces have surface finish of not less than Class C-s2,d0 (Class II), applied to material of Class A2-s1,d0 (non-combustible material) or fire protection cladding.

6.2.9.2 Wall surfaces have surface finish of not less than Class D-s2,d0 (Class III).

6.2.10 Protection against the spread of fire and fire gases between fire compartments

The following areas; stairways, boiler rooms, storage rooms, and escape routes are examples of self contained fire compartment.

The structural and non-structural elements shall be constructed to not less than the fire resistance class Br2 and Br3. The fire resistance should be not less than EI 60.

6.2.11 Doors

As we can see in the section 5:534 of the BFS, the fire resistance in doors, in structural or nonstructural elements, that separate the building in compartments must not be lower than Class E30.

Doors and similar into, or inside, escape routes are self closing. Doors and similar into spaces which are normally kept locked, situated above storey where people are present other than occasionally, need not however be self closing.

Self-closing doors are fitted with a door stop provided that this automatically closes when fire gases are detected near it.

6.2.12 External walls and windows

Exterior walls, in buildings in classes Br2 and Br3, shall be designed to ensure that fire spread along the façade surface is limited. (BFS 2011:26).
Facade cladding is made of low ignitability materials or comply with the requirement for surface finish Class D-s2, d0 (Class III).

6.2.13 Windows in exterior walls

Windows in different fire compartments which face one another have been designed and situated so that the spread of fire between the compartments is impeded.
It is not possible for such windows to be opened other than by a tool, key or similar.

Table 5:553 ***Examples of the design of windows in exterior walls facing one another or placed one above the other vertically. This applies between fire compartments with requirements equivalent to EI 60 or less.***

Relative positions	Distance (m) between windows	Design of exterior walls
Window in opposite (parallel) exterior walls	< 5.0	A window in class E 30, or both in E 15
	≥ 5.0	–
Window in inner corners generally	< 2.0	A window in class E 15
	≥ 2.0	–
Windows placed above each other vertically	< 1.2	E 30
	≥ 1.2	–

(BFS 2011:26).

6.2.14 Boiler rooms

In accordance with BFS 2002:19 regulation the boiler room has be designed as a self contained fire compartment.

Ceiling and wall surfaces are clad with material of not less than Class B-s1, d0 on fire protection cladding (Class I on fire protection cladding) and the floor is made of material of Class A1fl (non-combustible material).

6.2.15 Roof covering

Design of roof covering has been done with following recommendations:
Roof covering on a material of Class A2-s1, d0 (non-combustible backing) may be made of Class T.

7. STUDY OF SAFETY AND HEALTH

7.1 DESCRIPTIVE MEMORY. ANTECEDENTS

7.1.1 Object of the Safety and Health.

Safety and Health study establishes, during the construction of the work, the forecasts respect to prevention of risks and occupational accidents so that all the works that compose this work develop surely, avoiding dangerous actions or situations by lack of foresight, lack of information on the possible risks or means insufficiency, as well as the sanitary services common to the workers.
It will serve to give basic directives to the companies' contractors to carry out his obligations in prevention field of professional risks taking easy his development under the control of the Coordinator in Security and Health during the execution of the work.

7.1.2 General information.

Safety and Health study:

Location:

Promoter:

Author of Safety and Health study:

Promoter: HÖGSKOLAN I HALMSTAD

Budget execution of the project:

Implementation time:

Number of workers anticipated for the totality of the project will not surpass the number of 20 workers with different specialties.

7.1.3 Environmental Conditions.

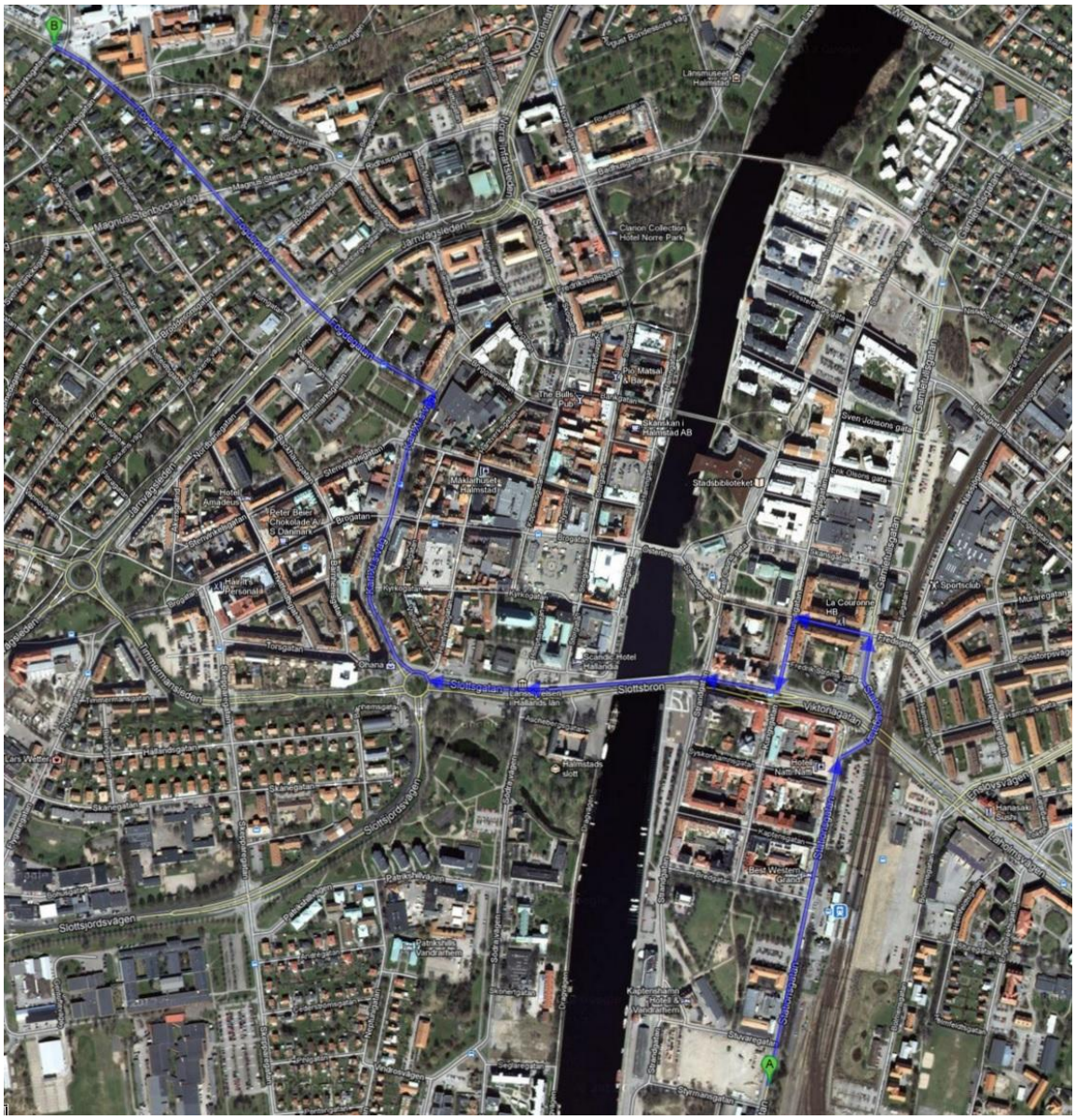
The plot on which will execute the work has a rectangular shape, as shown in the site plan attached, and has an area of approximately 15.500 square meters and substantially horizontal terrain.
The site adjoins three industrial buildings houses with no more than two floors and another building of three floors used as a hotel.
The streets that surround it are totally urbanized, so it is equipped with all necessary amenities.
The streets that surround the site are traveled above all of vehicles of all kinds. Not a lot of pedestrians because is an area mostly industrial.
Referring to the services, the plot has provision of electrical energy, water supply and residual water evacuation, included paved road access. It will be a road and a pedestrian access as is explained in the study.

7.1.4 General characteristics of the work specified in the technical description.

The constructive characteristics of this project are totally defined in the Technical Description.

7.1.5 Nearest medical facility.

The nearest hospital is the Halland sjukhus Halmstad, Lasarettsvägen 6, 30233 (Halmstad)
The phone number is 035-13 10 00
The plans detail the route to follow from the worksite if it was necessary and shall be located in a visible and accessible place to all workers.



7.2 SAFETY INSTRUCTIONS FOR THE MOVEMENT OF PERSONS INSIDE THE BUILDING PLACE AND THE USE OF PROVISIONAL ELECTRIC AUXILIAR AND WATER SUPPLY

It is intended to describe in this chapter a number of necessary rules (preventive measures, personal protective clothing, etc) to access and stay safely in the building site. These rules shall fulfill all persons accessing the work, regardless which are their roles (workers, suppliers, technical assistance, etc) and must be exposed in the building place, clearly visible in the access, in locker rooms and notice board.

Preventive resources or otherwise the legal representatives of each company to perform any work on the site, shall deliver a copy of these rules to all workers on the site (including freelancers, subcontractors or suppliers). In such delivery shall be recorded

worker's signature written by delivering a copy of the registration of the same to the Safety Coordinator.

The register is one of the measures taken to control access to work required by the RD From 1627 to 1697.

All persons accessing the building site should understand both written and spoken Swedish. Otherwise, both the rules listed below, the signs placed in the work or any instruction, training or information provided to them, must be in the language you can read or speak (as appropriate). These translations are borne by the contractor concerned.

7.2.1 Rules for access and movement:

- Do not go into work site without talking before with preventive resources; must know for effective control of access to work, for your sake and of other workers.

- Any person entering the work site shall be provided with safety footwear with metal plant and toe, and protection helmet. Both protections must be in good condition. Remember that those protections have validity after which do not guarantee their effectiveness.

- Never walk over rubble (could suffer a sprain, a slip, a fall...).

- Never stepping on a board or piece of wood that is left on the floor. It may have a nail left by forgetting or being cleansing.

- If you watch a warning sign blocking the ways avoid crossing. Such signs are indicating a restricted area or prohibited. If you need to cross consult the preventive resources and they will tell you what is the right thing to do.

- Heed the signs existing around the work site.

- Do not remove, under any circumstances, collective protection without advice and warned the preventive resources to take the necessary preventive measures before leaving an unprotected area. Only under the supervision of such preventive resources protection can be removed.

- If you find any protection in poor condition or misplaced, immediately warn the preventive resources.

- Do not go running within work, it could end with an injury.

- If found obstacles with operators working on them, avoid them changing way.

- If you have to use some electric auxiliary box and you have any questions ask the preventive resources.

- Always act on the side of safety asking when a doubt appears.

7.2.2 Rules for using Electric power supply

- Check the pertinent information about electric facilities. It is also necessary to check places where cables of high intensity are.

- It is forbidden to connect bare wires directly to the connection without the use of the corresponding plug.

- Each outlet supply electricity to a single device, machine or machine tools.

- The tension is always on "female" plug, never in the "male" to avoid direct electrical contacts.

- The outlets shall be provided with omnipolar cut switches that allows stop them when they are not in use.

- Regarding the use of extension cords will be considered the following:

    - If you are for short periods of time, may be laid on the ground, but close to the vertical parameters.
    - If it is going to stay a long period of time should be hung at a minimum height of 2 m to the workplace.
    - If is necessary a splice, use standard connections.

- It is forbidden to manipulate the electrical panels. If an abnormality appears in one of them, immediately tell preventive resources, they will advise the relevant technical to proceed to repair.

7.2.3 Water supply

This kind of underground canalizations of drinkable water, residual or of watering are conductions with flow and variable pressure before a break or overflow, they present flood risk, with nuisances and delays.

In our work, the installation of a provisional net of supply of drinkable water will be executed to satisfy the necessities. Once it is hired the supply with the supplier company, it will be settled the accountant, the general key and the exit to the different distributions. The supply connection is located in Strandgatan. It will settle a derivation for the work huts that it will be protected and signalled.

7.3 PROVISIONAL FACILITIES OF WORK SERVICE OF HYGIENE

Based on the maximum number of workers who can be found in work, we will determine the furniture necessary and elements for these facilities. In our case, the greater presence of simultaneous personnel obtains with 20 workers, determining the following sanitary elements:

Showers:	2
Toilets:	2
Washbasins:	2
Mirrors:	2

The clothes will be provided with seats and individual ticket offices, with +key, to keep the clothes and the footwear. It must be had hot water and fries in showers and washbasins. Also, dining rooms equipped with tables and chairs in sufficient number will

settle. In case restaurants exist next to the lot or bars are understood that the work is equipped for the dining room necessities. There will be a container for sweepings collection. Perfect state of cleaning and conservation will stay in. In the work office one will settle a medicine kit of first aid with the minimum content indicated by the effective legislation, and a multipurpose dry dust extinguisher.

7.4 RISK IDENTIFICATION AND PREVENTIVE MEASURES TO BE TAKEN IN DIFFERENT WORK ACTIVITIES DURING CONSTRUCTION PROCESS.

In this section is explained the relation between the different works which is expected to be involved in project implementation and the adoption of preventive measures for their realization.
At each point the inherent risks are identified for each work execution, as well as preventive and protective measures to be taken to control and reduce the risks. The security plan should define how they will actually perform the work, following the instructions in the project implementation, which must be approved by the designated Safety Coordinator for the execution of the work. Furthermore, the safety plan should introduce their own working procedures of the contractor, since at this time there is no company assigned to carry out the work, and more specifically identifying their own specific risks and preventive measures and technical protections they intend to take to control and reduce.

7.4.1 Previous works to the realization of the work:

Before the start of any work, proceed to place a protective fence to prevent access to the work place to any external person, placing in it a pedestrian access and one for vehicle access. The fence should be strong, stable, fixed and blind, and must have a minimum of 2 m height. In the fenced construction plans detailing the situation and composition. In each of those access, signboards should be placed at least with the following legends (or similar):

- "Access is prohibited to any external person from the work".
- "It is mandatory to wear a helmet and protective footwear for circulate around the building site".
- "During the movement of workers around the work, respect the traffic signs and indications of preventive resources"

In addition, should be placed in a visible place in each of the entries, a copy of the rules or instructions for the movement of persons in the work.
Prior to the execution of the next phase it shall do the cleaning and clearing the site. The equipment chosen to do it will be a front loader and a dump truck to transport rubble to landfill.

During the previous phase to the execution of the work will be defined the services which can be affected and that they are necessary for the execution in different phases of the same one, if the provisional installation of electricity can damage at third, even it can cause serious accidents. The provisional installation of water, besides being able to cause damages at third, will also become special attention to the connection of conductions of water that they can be the cause of detachments of the land.
Finally for the execution of these works will check the existence of air or underground conductions and to obtain the pertinent information on the same ones. For the storing of materials and machinery, it loads and it discharges, as well

as the auxiliary works will be used the space of the lot occupied by the constructions that will be carried out.

7.4.2 Land movement and excavation:

Land Movement:
This section includes the excavation of footings and the well for the crane by mechanical means and replan of excavation lines, sinkers checking and manual refining of the excavation.

Excavation:
There will be the digging of the well for the tower crane, and the consequent process of installation.

Risks identification

- Fall in the same level or the different level of people or machinery
- Landslide of the land, buries (for filtrations, vibrations, it overloads, etc.)
- Accidents, blows and collisions with machines and vehicles
- Overturns and false maneuvers of the machinery for movement of lands (excavating machines and trucks)
- Fall of objects from a superior level. Due to the edge of the hole because of the difference in height between ground level and the bottom of the excavation.
- Floods
- Noise and vibrations
- Overexertion

Preventive measures

- Prevention resources should be vigilant at all times the condition of the land, warning of any abnormality seen in charge of the work, the site manager and security coordinator in the implementation phase, and ordered the rest of the stoppage of workers and removal work area precarious.
- In case of a burst pipe of water pipe or because of the rain, damage may have occurred in the field, preventive resources will monitor that any operator access to the affected area (slopes, terrain cuts, etc..), Waiting that the site management and safety coordinator in progress give the necessary orders to secure the correct solution of the problems.
- If is necessary the circulation in the vicinity of any type of machinery (machinery excavation, concrete trucks, dumpers, etc..), They must circulate at least 3 m away from the crown in the case of light weight vehicles or 4 m in the case of heavy weight vehicles, must be well marked with tape attached to supports or similar. Preventive resources must check at any time that such signaling is in perfect condition.
- No material should be collected on the edges of the excavation.

- Anybody won't work simultaneously in vertical different levels of the same one. In the event of having to work under these conditions, the operative of the inferior level will remain with the helmet of security during his work.

- When the level of noise taken place by the used machinery will be equal or bigger than 80 decibels the operatives has to use auditory plugs.

Collective protection

It shall be protected with a guard railing located one meter from the excavation as shown in the drawings.

Individual protections:

- Protection helmet
- Proper security footwear
- Leather gloves against mechanical risks
- Work clothes
- Raincoats for humid or rainy atmospheres
- Auditory protection in works with pneumatic machinery
- Glasses against projections
- Mask of filter mechanic (against powder)
- Harness (if necessary)

7.4.3 Foundation:

Placing the reinforcement of the footings after excavation. Steel reinforcement, concrete pouring, vibrating and curing of the foundation.
To perform foundation work will be used ladders resting on the ground and planks and boards to create walkways when concreting and vibrating.

Risks identification

- Fall in the same level or the different level of people or machinery
- Landslide of the land, buries (for filtrations, vibrations, it overloads, etc.)
- Accidents, blows and collisions with machines and vehicles
- Overturns and false maneuvers of the machinery for movement of lands (excavating machines and trucks)

- Fall of objects from a superior level. Due to the edge of the hole because of the difference in height between ground level and the bottom of the excavation.

- Floods

- Noise and vibrations

- Overexertion

Preventive measures

- No materials will be collected or allowed the passage of vehicles at the edge of the excavation wells.

- Monitor the activities of the workers who are working in the foundation trenches, making sure that there will be no abnormality in the terrain, especially at the time of introduction of the reinforcement and pouring and vibrating of the concrete slab.

Collective protection

It shall be protected with a guard railing located one meter from the excavation as shown in the drawings.

Individual protections:

- Protection helmet

- Proper security footwear

- Leather gloves against mechanical risks

- Work clothes

- Raincoats for humid or rainy atmospheres

- Auditory protection in works with pneumatic machinery

- Glasses against projections

- Mask of filter mechanic (against powder)

7.4.4 Structure:

In this phase, the work carried out is the accomplishment of a compound structure by steel columns, steel beams and Pre-stressed hollow-core slab.

Preventive measures and collective protections linked to the identification of the risk:

Composite Slab Placement: Effective protection of the risk of falling from a forged operators running the lower level will be through the use of guardrails.

To protect from the risk of falling at different levels through the holes existing slab will use guardrails and horizontal protection formed by horizontal networks that covers completely the holes, as shown in the drawings.
In the case of small holes left in the slab for passing installations, should be protected with wood boards with a minimum thickness of 5 cm nailed to the slab using steel nails.

The access to the different floors will be through ladders, anchored to the slab with nails. It must exceed the superior slab a minimum of 100cm or 3 steps. The stairs shall have a proper inclination as shown in the drawings.

From the first floor slab (slab 2nd) should be placed safety nets hanging type of way that always around the perimeter is protected. Safety nets will serve both to protect people from the risk of falls from height, as to prevent falling materials or tools.

To install safety nets, shall provide, whenever possible, of collective protection (guardrails) in all affected plants to prevent the risk of falling at different levels who are workers performing that operation.
If that is not possible will be provided to all affected workers seatbelts tied to the structure, blocking the other operators in the area that is unprotected by other guard rails or signaling.

By the time you've put all the rails and have held the networks can afford the move to the affected plants to all operators of the site without the need to be protected with safety belt.
This operation must be monitored by the preventive resources, must stop work in case of finding any deficiency, communicate to Safety Coordinator immediately so you can give the necessary instructions for proper correction.

Dismissed the use of shelters because of being away from the street, avoiding the falling objects or particle projection to passersby. Although if during the course of the work is thought necessary to place these shelters may be placed by the Project Manager criterion.

While the placement of the metal supports and beams it can be identified the risk of fall in the same level or the different level of people, accidents, blows and collisions with the steel profiles, fall of objects from a superior level, finger entrapment hazard and other.

Identification of proper risks from the welding works like burns, overexertion, direct and indirect electric contacts, explosion welding machine, entrapment between engagements and transmissions, during the setting operations to point or assembly, the inherent accidents from the auxiliary equipment to use, dermatosis for contacts with fibers and others.

<u>Individual protections:</u>

- Protection helmet
- Proper security footwear
- Leather gloves against mechanical risks

- Work clothes
- Raincoats for humid or rainy atmospheres
- Auditory protection in works with pneumatic machinery
- Glasses against projections
- Mask of filter mechanic (against powder)
- Security Harness

Individual protections for welding works:

- Welder's glasses
- Welder's helmet
- Hand or fixed welder's screen
- Leather gloves
- Rubber gloves or of PVC
- Leather wrists that cover the arms
- Leather leggings
- Leather apron

7.4.5 Facades:

In this phase will take place the construction of the facades, interior walls and setting of installations. Also the construction of the roof.

For the execution of the facade shall use tubular scaffolding and before removing guardrails shall be limited the area unprotected by a sign of danger (railing or similar), you can access that zone only fitted seatbelts.

Risks identification

- Fall in the same level or the different level of people or machinery.
- Accidents, blows and collisions with machines and tools.
- Fall of objects from a superior level.
- Noise and vibrations
- Overexertion

Preventive measures

If it is necessary to remove the protective railings shall follow:

- Proper stock of the parts of the railing.
- Proper signing in the areas without railing to warn the workers
- If is necessary to work within an area without protection and exists the risk of fall from different level the worker must wear a security harness properly tied. Work should be carried out in a way that no one is in the same position for a long time.

Collective protection

It shall be protected with a guard railing placed on the slab edge as shown in the drawings.

Individual protections:

- Protection helmet
- Proper security footwear
- Leather gloves against mechanical risks
- Work clothes
- Raincoats for humid or rainy atmospheres
- Auditory protection in works with pneumatic machinery
- Glasses against projections
- Mask of filter mechanic (against powder)
- Security Harness

7.4.6 Installations:

7.4.6.1 Plumbing installation:
The plumbing installation involves centralization, placing pvc downspouts, copper piping, installation of pvc in housing, pipe fitting, galvanized iron collector installation, installation of toilets, heaters and sinks.

Risks identification

- Fall in the same level or the different level of people.
- Accidents, blows and collisions with tools.
- Fall of objects from a superior level.

- Stepping on sharp objects or materials.
- Entrapment between heavy pieces.
- Burns
- Lack of lightning
- Overexertion

Preventive measures

- Tubes for pipelines will be collected on a surface as leveled as possible on wooden stringers defined by several support points to prevent the ducts slipping or rolling.
- Work areas will be kept clean to avoid risk of stepping.
- Forbidden abandon of lighters or burning torches.
- Lighting for plumbing works shall be a minimum of 100 lux measured at a height above the floor, around 2 m.

7.4.6.2 Electrical and telecommunications installations:

The electrical and telecommunications installation includes the installation of centralization, telecommunications installation and electrical connections single pipe installation and housing boxes, installation of copper housing, installing copper wire connections, placing mechanisms housing (including video intercom), placement of lighting throughout the house, installing antennas, general installation in the basement for parking of vehicles (including tubing, wire, screens, mechanisms, emergency telecommunications records, etc..), installation provisional electrical work.

Risks identification

- Fall in the same level or the different level of people.
- Accidents, blows and collisions with tools.
- Fall of objects from a superior level.
- Electrocution or burns
- Stepping on sharp objects or materials.
- Entrapment between pieces
- Lack of lightning
- Overexertion

Preventive measures

- Work areas will be kept clean to avoid risk of stepping.
- Lighting for plumbing works shall be a minimum of 100 lux measured at a height above the floor, around 2 m.
- Is completely prohibited the installation, revision or uninstallation under current. Before starting one of those works the supply connection will be disconnected from the electric network, placing in the connection place a big sign, which read: "DO NOT CONNECT, MEN WORKING WITH THE NETWORK".
- All electrical equipment shall be periodically reviewed by qualified personnel, especially in the time when a failure is detected, at which point is declared "out of service" through electrical disconnection.
- Functioning tests of the electrical installation shall be announced to all staff of the work before it started, to prevent accidents.
- The tools used by electricians installers shall be protected with standard insulation against contacts with electricity.

7.4.6.3 Elevator installation:

Risks identification

- Fall in the same level or the different level of people through the elevator shaft.
- Fall of objects from a superior level
- Electric contact
- Stepping on objects or materials.
- Entrapment between heavy pieces
- Lack of lightning
- Overexertion

Preventive measures

- Work areas will be kept clean to avoid risk of stepping.
- The hoistway lighting will be installed throughout its development. The lighting level in the work is 200 lux.
- Electric lighting by using portable watertight lampholders of security with insulated handle, supplied with 24 volts.
- Work clothes not be loose, so that it cannot produce a catch of it with pulleys or counterweights.

- Is prohibited during the development of the whole work, throwing debris through the hole for the installation of the elevator to avoid blow accidents.

Collective protection

The perimeter of the mobile platform for work is surrounded by railings 1'00m. high, formed of bar railing, and baseboard, with a security system in case of sudden descent.

Individual protections:

- Harness or security belt. The work inside the elevator shaft will be made with security belt tied to a strong point in the structure.

7.4.6.4 Finishes:

Within the works for finishes is involved the pavements and tiling, the installation of the false ceiling and painting works.

7.4.6.5 Pavements and tiling

Risks identification

- Fall in the same level
- Cuts on the feet by stepping on tools and materials with sharp edges.
- Crushing and blows because of misplaced stocks, or in transport and placement of the elements, or tools.
- Electric contact
- Entrapment between the pieces
- Lack of lightning
- Overexertion

Preventive measures

- Work areas will be kept clean to avoid risk of stepping.
- Lighting for plumbing works shall be a minimum of 100 lux measured at a height above the floor, around 2 m.
- All the areas will have enough lightning.
- The tile collection, never arranged in a way that hinder the crossing sites, to prevent accidents because of trip over.

- The place will be tidy of tools, not on the floor.

7.4.6.6 False ceiling installation

Risks identification

- Fall in the same level or the different level of people
- Foreign objects in the eyes.
- Lack of lightning
- Overexertion

Preventive measures

- Work areas will be kept clean to avoid risk of stepping.
- Lighting for plumbing works shall be a minimum of 100 lux measured at a height above the floor, around 2 m.
- All the areas will have enough lightning.
- The gypsum boards collection, never arranged in a way that hinder the crossing sites, to prevent accidents because of trip over.
- The place will be tidy of tools, not on the floor.
- Scaffolds for the installation of false ceilings on ramps will have a horizontal work surface surrounded with railings.

Collective protection

The perimeter of the mobile platform for work is surrounded by railings 1'00m. high, formed of bar railing, and baseboard.

Individual protections:

Antiprojections protective eyewear, for accidents due to particle projection on the eyes.

7.4.6.7 Painting works

Risks identification

- Fall in the same level or the different level of people
- The derivatives of the work in harmful atmospheres (intoxications).
- Derivatives from the breakage of hoses of the compressors.
- Intoxication

- Explosion or fire.
- Lack of lightning
- Overexertion

Preventive measures

- Work areas will be kept clean to avoid risk of stepping.
- Lighting for plumbing works shall be a minimum of 100 lux measured at a height above the floor, around 2 m.
- All the areas will have enough lightning.
- The place will be tidy of tools, not on the floor.
- Will be installed a fire extinguisher near the door to the paint store.
- No smoking or eating in the rooms that is painted with paints that contains organic solvents or toxic pigments.
- Personnel who handle organic solvents (or toxic pigments) will be advised of the need for personal hygiene (hand and face).
- Daily review of all compressor hoses, replacing all those that are in poor condition.
- The paintings, (varnishes, solvents, etc..), shall be stored in well-ventilated places.
- Avoid the formation of harmful atmospheres.

Collective protection

Forbidden the use of ladders on the balconies, without previously collective protection means (railings, networks, etc..) To avoid the risk of falling into the void.

Individual protections:

- Harness or security belt (if no collective protections). The work inside the elevator shaft will be made with security belt tied to a strong point in the structure.

7.5 RISK IDENTIFICATION AND PREVENTIVE MEASURES TO BE TAKEN IN DIFFERENT AUXILIARY EQUIPMENT INVOLVED IN

In this section is cited a list of auxiliary equipment that are expected to be involved in the implementation of the project and safe work procedures required for use. However, it should be remembered that the present Safety and Health Study

At each point the risks are identified existing depending on each auxiliary equipment, the installation, maintenance and removal thereof. Also suggest preventive measures and protections to be taken to control and reduce the risks. In the Security Plan is defined which auxiliary equipment should be used, identifying the own risks and indicating the measures to be taken, taking into account the current stipulated by the manufacturer. All this must be approved by the Security Coordinator designated to carry out the work. The contractor shall include in the security plan the preventing plan relating to auxiliary equipment used in the work.

The following preventive measures will be common to all the risks listed below:

- The Contractor shall inform and train all workers (both own as subcontractors) on the proper use of auxiliary equipment.

- The Preventive Resources must check while you are using the auxiliary equipment as mentioned in the points below, and that their condition is correct.

7.5.1 Ladders

Is a portable apparatus consisting of two parallel parts or slightly convergent beams joined at intervals and used to raise or lower a person from one level to another. It will use single ladders of a stretch, double scissor ladders and extension ladders.

Risks identification and preventive measures.

- Fall in height due to lateral sliding of the head of the stairs (poorly supported, poorly placed ladder, wind, sliding of the user, etc.).

  Preventive measures:
  Hold the ladder at the top, tying it properly on the head.

- Fall in height due to a slip of the foot of the stairs (non-skid shoes, floor sagging or sloping, low-slope, upper support on the wall, etc.).

  Preventive measures:
  All ladders used in the work, shall have anti-slippery shoes, the inclination of the ladder should be right as indicated by the manufacturer in the security information which must deliver.

- Fall in height due to an imbalance climbing loads or moving laterally to do work.

- Fall in height because a broken step, beam or other part of the ladder (old, poorly repaired, existence of knots, ...).

- Falling objects on other people like support staff or a worker that circumstantially has passed under or beside the ladder.

- Direct or indirect electrical contacts when using a metal ladder for electrical work or near power lines.

7.5.2 Platform for Materials unloading.

Auxiliary equipment used to make the distribution of materials and equipment for work. This consists of a metal structure of folding struts held to the slab. It has protection guardrails that cannot be removed.

Risks identification and preventive measures.

- Objects falling on people due to traffic or performing any work under the vertical of the platform and its area of influence.

Preventive measures:
A sign shall be placed in the vertical of the platform to warn and prevent the passage to any person.

- Fall of people at different levels along the edge of the platforms.

Preventive measures:
Correct assembly of the guardrails.

- Wrong assembly of the platform.

Preventive measures
Correct holding to the structure.

7.5.3 Sawhorses scaffolds

They consist of a horizontal board of 60 cm. minimum width, placed on two support in a inverted "V" shape.

Risks identification and preventive measures.

- Fall of people at different levels.

Preventive measures:
For works in balconies and for works at heights of more than 2 m, the platform will need guardrails formed by handrail, a rail or intermediate rail and baseboard.
The sawhorses always mounted perfectly leveled with correct anchor between its elements.
Distance between axes greater than 2.5.
Minimum width of the platform: 60 cm (three boards anchored to each other)
Minimum thickness: 7 c
The metal sawhorses to support platforms work located 2 or more feet high, is stiffened each other, by "cross of St. Andrew".

- Risk by overturning.

Preventive measures:
Work platforms shall not protrude from the sides of the axle stands over 40cm.

- Fall of people at same levels.

Preventive measures:
Working platforms will allow the circulation and intercom necessary for carrying out the work.
Shall be prohibited on the platforms on scaffolds, let materials or tools. They can fall on people or make them stumble and fall when walking on them.

- Derivatives from using wooden planks with small section or in poor condition.

7.5.4 Tubular metal scaffolds

The tubular metal scaffolds are auxiliary buildings resting on the floor which serve to support the various work platforms located at different heights; they comply, as applicable, service functions, Load and protection. In this work will be used to carry out several works as are the façade construction on every floor, partitions on different floors, plumbing, electrical, revoked, etc.., As indicated in the relevant sections.

Risks must be identified according to the following phases:
- Installation and uninstall of the scaffold.
- Using the scaffold.

The scaffold is more than six feet, then the following requirements must be met to comply with the RD 2177/2004.

Risks identification and preventive measures.

During the installation and uninstallation of scaffolding are identified the following risks:

- Fall of people at different levels.

Individual protections:

Everyone responsible for the installation should wear, before boarding, a harness-type safety belt attached to a lifeline. The quoted string must be subject to a independent strength point of the supporting structure of the scaffolds.
Preventive measures
Do not start a new level without having completed the starting level with all elements of stability

Collective protection:

Work platforms will have mounted on the vertical a solid railing 1'00 m. high, formed by rail, intermediate rail and baseboard.
Vertical communication tubular scaffold will be resolved by using prefabricated stairs.

- Overexertion.
Preventive measures:

All operators have received training on ergonomics, especially concerning the work listed above.

- Falling objects.
Preventive measures
The bars, tubular modules and boards, will be hoisted by slings standard.

II. During the use of scaffolding are identified the following risks:

- Fall of people at different levels.

Individual protections:

Everyone responsible for the installation should wear, before boarding, a harness-type safety belt attached to a lifeline. The quoted string must be subject to a independent strength point of the supporting structure of the scaffolds.

Collective protection:

Work platforms will have mounted on the vertical a solid railing 1'00 m. high, formed by rail, intermediate rail and baseboard.
Vertical communication tubular scaffold will be resolved by using prefabricated stairs.

Preventive measures
Work platforms shall have a minimum of 60 cm. wide.
It is strictly forbidden use support for tubular scaffolds composed of drums, piles of various materials.
It is forbidden to use scaffolding on sawhorses (small sawhorses) supported on platforms from the tubular scaffolding.
Tubular scaffolding is assembled at a distance exceeding 30 cm. from the vertical surface on which you work.
Tubular scaffolds will be firmly anchoring to the vertical.
You may not make "plasticenes" directly on the working platforms in preventing slippery surfaces that could make fall down the workers.

- Overexertion.
preventive measures
All operators have received training on ergonomics, especially concerning the work listed above.

- Falling objects.

Preventive measures
Work platforms shall be limited front and side with a baseboard of 20 cm.

Shoring
- Fall from height of the props during transport maneuvers at high.

Preventive measures

The props will be collected neatly by horizontal layers of a single strut height and depth you want, with the only exception that each layer is provided perpendicularly to the next lower.

- Entrapment of fingers (extension and retraction).
Preventive measures
Telescopic struts will be transported to the arm or shoulder with pins and grips installed in position to inmobile the ability to extend or retract the struts.

- Fall of shoring elements on the feet.

Individual protection:
Workers handling props must go provided with safety footwear with metal toe.

- Breakage by material fatigue prop.
Preventive measures
The load distribution on the surfaces will be evenly distributed. Expressly prohibited in this work the overloads.

- Rupture of the props by poor condition.

- Slide of the prop because of lack of wedging or nailing.
Preventive measures
Planks supporting sleepers from props inclined to the vertical will be minted. The props support always perpendicular to the face of the plank.
The props are nailed to the sleeper and the joist, for greater stability.

- Crash of the formwork because of the arrangement of props.

7.5.5 Concreting Turret

Is a small platform that is often used to help to guide the bucket or bucket of the crane during concreting operations like for pillars or other elements.

Risks identification and preventive measures.

- Falls of persons at different levels.

Collective protection:
It will have a platform railing 1'00 m. in height formed by a handrail, intermediate bar and a skirting board 15 cm. tall.
Access to the platform will be closed by a chain or rod always that people remain on it.

Preventive measures

The platforms have minimum dimensions of 1'10 by 1'10 m. (the minimum needed to stay two men).
The rise and descent of the platform is carried out through a ladder.
Forbidden the transport of persons or objects on the concreting platform.

7.6 RISK IDENTIFICATION AND PREVENTIVE MEASURES TO BE TAKEN WITH DIFFERENT MACHINES AND TOOLS USED IN THE WORK

For the definition of each machine or tool has been adopted as described above.

7.6.1 Wheel loader

The wheel loader is a necessary machines because they are suitable for different jobs, but especially for land movements.
The loader is comprised by a mechanical shovel in a tractor with pneumatics, equipped with a bucket whose lifting movement is accomplished by two articulated arms to perform various functions.

Identification of risks:

- Run over.
- Overturning of the machine.

Preventive measures

The bucket for land transport, remain as low as possible in order to move with maximum stability.
The movement on uneven terrain is performed at slow speed.

Entrapment.

Preventive measures
They should not be made "adjustments" with the machine in motion or the engine running, can result in injury.
It mustn't work with the machine breakdown situation.
Must be repaired first and then restart the job.

Fall of persons from the machine.

Preventive measures
Forbidden the transport people inside the bucket.

- Hearing problems.

Individual Protections

In order to control the risk, drivers should be provided with hearing protectors. Similarly, operators who must work in near the machine (always outside the range of the same) must use the above hearing protectors.

7.6.2 Hydraulic Backhoe Wheel

Identification of risks:

- Run over
- Overturning of the machine.

Preventive measures

- The backhoe shall be equipped with rollover protection or cabin safety.

- The bucket for land transport, remain as low as possible in order to move with maximum stability.

- The movement on uneven terrain is performed at slow speed.

- Entrapment.

Preventive measures

They should not be made "adjustments" with the machine in motion or the engine running, can result in injury.
It mustn't work with the machine breakdown situation.
Must be repaired first and then restart the job.

- Fall of persons from the machine.

Preventive measures

- Forbidden the transport people inside the bucket

- Fall of heavy objects or land on people.

Preventive measures

- Forbidden in this work use the backhoe as a crane, for the introduction of pieces, pipes, etc.., inside the ditches.
- Drivers shall ensure that there is no danger for workers who are in the interior of pits or trenches next the place of excavation.

7.6.3 Dumper

The dumper is a vehicle used in construction for the transport of materials.

Identification of risks:

- Overturning of the machine during pouring.

Preventive measures
In the pouring of land or other material along ditches and embankments must be placed a cap that prevents the advance of the dumper beyond a safe distance from the edge of the gap, taking into account the natural angle of the slope.

- Overturning of the machine in transit.

Preventive measures
With the loaded vehicle should be facing backwards to descend the ramps, slowly and avoid sudden braking.
Use shall be prohibited on slopes or ramps exceeding 20% in humid areas and 30% in dry.

A revised load before starting off to watch their proper disposal and not cause imbalance in the stability of the dumper.

- Run over of people.

Preventive measures
When leaving the vehicle parked stop the engine and use the handbrake.

The charges will be appropriate to the type of bucket available and never hinder the driver's vision.
Expressly forbidden in this work, dumpers driving at speeds above 20 miles per hour.

- Shock due to poor visibility or incorrect transportation.

Preventive measures
Establish unobstructed roads and signalize danger zones.
The charges will be appropriate to the type of bucket available and never hinder the driver's vision.
In anticipation of accidents, forbidden the transport of pieces (props, boards...) that protrude laterally from the dumper.

- Fall of persons carried.

Preventive measures
The dumper driver should not carry passengers.

Preventive action rules for machinists.

- To raise or lower the machine, use the steps and handholds provided for that function, prevent injury from falling.
- Do not climb using the tires, covers, and fender chains, prevent falling accidents.
- Raise and lower the machine from the front grasping with both hands, it's safer.
- Never jump straight to the ground, if not for imminent danger to you.
- Do not try to make "adjustments" with the machine in motion or the engine running can cause injuries.
- Do not allow unauthorized persons access to the machine, can cause accidents or injury.
- Do not work with the machine breakdown situation. Repair it first then repeats the job.
- To avoid injury, rest the spoon on the floor, stop the engine, set the parking brake and chock the machine, and then perform the needed service operations.
- Do not release the brakes of the machine stop position, if he has not installed the locking lugs on the wheels.
- Monitor the tire pressure, work with your inflated to the pressure recommended by the manufacturer of the machine.

7.6.4 Tower Crane

The use of this equipment shall be in accordance with the manufacturer's instructions.
The crane shall have the appropriate maintenance book and carried out following law.

Identification of risks:

- Falls at different levels.

  Protective equipment:
  The crane operator of this work will wear a seatbelt class c moored to the solid, safe point.

  Preventive measures.
  In no case may ride the crane structure any person without authorization to do so. Just can climb assemblers, installers, etc.., following the plan of assembly, maintenance and disassembly of the crane, as well as security measures included therein.
  Is forbidden the suspension or air transport of passengers by the hook of the crane tower.
  It is expressly forbidden to prevent the risk of falls from crane operator, to work sitting on the edges of the slabs or perching on the structure of the crane.

- Overexertion.

  Preventive measures
  In the work to do by crane at any time the charge must be forced manually for its displacement, the crane must do the effort.
  All operators will be trained on ergonomics, especially concerning the work listed above.

- Tipping or falling of the crane.

  Preventive Measures
  Is forbidden to load the bucket for concrete above the maximum rated load of the crane that supports it.
  The tower crane to set up in this work, will be equipped with a sign in a visible place which clearly set the maximum allowable tip load.
  The work with the tower crane will be paralyzed , for security reasons, under a wind regime at or above 60 km / h.
  The tower crane will be equipped with load-limiting mechanisms (for the hook) and load displacement (for the boom), in preventing tipping.
  There will be available in the work a tare weight with maximum load on the crane tip so it can be checked its condition at any time.
  The tower crane installed in this work, will be mounted explicitly following all the maneuvers that the manufacturer gives, omitting or changing safety aids or recommended.

- Spill or collapse of the load during transport.

Preventive Measures

Lifting the prefabricated elements runs suspending the load by two points such that the load is stable.
The supporting cables which have a 10% broken wires, will be replaced immediately, giving account to the Health and Safety Coordinator during execution of work.
The crane will have normalized steel hooks fitted with safety catch.
Hit with the load to people or things during air transport.
It is forbidden to workers to stay in areas of shake loads during operations to perform.
Circulation shall be prohibited under suspended loads.
Upon completion of any work period (morning, evening, weekend), will be in the tower crane the following maneuvers:
- Lift the hook to the limit to the mast.
- Let the boom to position "weathervane".
- Set the controls to zero.
- Disconnect the power from the machine. This maneuver involves switching off the power supply after the crane in the overall picture of the work.

Preventive standards for crane operators (crane operators).

- Stay in a construction zone that offers maximum safety, comfort and visibility, preventing accidents.
- If you must work on the edge of floor, ask to install strong points to tie the belt. These points should be outside the crane, otherwise if the crane falls, you will fall with it.
- At all times should have the burden in sight to avoid accidents;if is out of his field of vision, seek the assistance of a person to guide you. Do not take unnecessary risks.
- Avoid suspended loads on men working. If you must perform maneuvers over them, alert to be evicted.
- Do not attempt to "Settings" on the keypad or the control panel of the crane. Tell the anomalies to the Prevention Service for repair.
- Do not allow unauthorized persons access to the keypad, the control panel or the crane structures.
- Eliminate from your diet completely alcoholic drinks to handle safely the crane.
- If you must handle for any reason the electrical system, first make sure that it is cut into the overall picture, and hung somewhere the following legend: "DO NOT CONNECT, MEN WORKING ON CRANE"
- Do not try to lift loads that for some reason are stuck to the ground. You can bring down the crane.
- Do not try to "pull" loads by inclined tension of the cable. You can bring down the crane.
- Don't remove the electrical safety mechanisms of the crane.
- Do not try to swing the load for easy downloading in plants. Threatening of fall his fellow who receive it.
- Do not leave objects suspended from the crane hook during evenings or weekends. These objects that are wished not to be stolen, should be preserved in the stores, not hanging from the hook.

- Inform immediately Prevention Service about a breakage of the safety latch of the hook for immediate repair. Meantime let the crane out of service; prevent accidents.

7.6.5 Forklift

The construction hoists consist essentially of a platform that slides over a rigid lateral guide anchored to the structure of the building. They are used to raise or lower materials only, being totally forbidden to use to transport people and can stop the platform at different levels of the work.

Identification of risks:

- Fall of persons or objects at different levels.

Collective protection:

Is placed a pair of closing doors covering the gap to forklift, formed by rails, intermediate rail and baseboard in each plant where the forklift runs.
Similarly, the elevator will be provided with railings on all exposed sides (both on each side of the platform as in front of it). Will consist of rail, intermediate rail and baseboard.

Preventive measures
In all the plant doors of the forklift, is placed a signpost, in which the workers are warned about the strictly forbidding to open the rails when the platform is moving or on another floor.
They train all workers who will be use the forklift on the correct use of collective protection of the same.

The exterior railings can only be opened in the event that the platform is on the ground floor and have free access from it.

- Entrapment by or between objects.

Collective protection:
It will enclose a security area at the base of the forklift to prevent the movement of people under it. Such enclosure shall be made with metal fencing that has the same characteristics as the fencing of the work.
The doors to the lift platform shall be placed far enough from the edge of the slab to avoid entrapment in the event that a person looks out.
Shall be provided the forklift with a brake under the platform to stop operation of the same in the event of a collision with an object or a person.

Preventive measures
In all the plant doors of the forklift plant, is placed a signpost that will warn the workers about the forbidding of look out over the railing of the elevator, the use thereof for the transportation of people and stay in space left between the rail and the lift platform.

All workers will be formed and informed about how to use the elevator on the correct way and use collective protection.

- Fall of the platform.

Collective protection:
The elevator will be provided with a load limiter which prevents the operation of the machine when it exceeds the maximum permissible load.
Also, will be provided with fall protection devices in case of breakage of supporting cable.
The platform shall have a brake on it to stop its operation if it encounters an obstacle in its path (protruding objects, etc..).
Will also have a limit device to prevent falling off the side guide or guides.

Preventive measures
In all the plant doors of the forklift, is placed a signpost that warn the workers about the maximum allowable load, transformed into materials, so that it is easily understood by anyone.
The employees will be formed about how to use the elevator on the right way to place the materials on the platform, so as to avoid the risk of collapse of the same or trapping objects structure between the platform and the floors of the building.

7.7 TYPE OF MATERIALS AND ELEMENTS.

In this chapter is identify which materials can provide chemical or physical hazards, indicating what preventive measures should be taken to control them.
However, they should always take into account the safety recommendations given by manufacturers or suppliers of materials.

7.7.1 Cement and derivatives (concrete, mortar, etc):

7.7.1.1 Chemical:

The cement is very aggressive and it can cause dermatitis because of the contact. To avoid this risk, the workers who work with it or derivatives thereof, shall be provided of leather gloves and overalls to protect them of that contact.
As a preventive measure to keep in mind, operators should not eat or drink while handling the pure product, they must keep good personal hygiene.

7.7.1.2 Physical hazards:

Since during application (either in the form of mortar, either in the form of concrete) is easy (no avoidable risk) to jump a drop or splinter in the eye, must be considered and protected with some form of protective eyewear.
When pouring concrete, they shall be provided with waterproof safety boots that have steel toe and insole.
As cement is a very fine material (almost dust), the workers who will be using it as raw material for the production of mortars or concretes and may be exposed to inhalation of the same, shall be provided with protective mask.

7.7.2 Polyurethane foam:

7.7.2.1 Chemical:

Polyurethane foam is a very aggressive, which can cause severe damage to skin contact. To avoid this risk, the workers who work with him or derivatives thereof, shall be provided at all times of long rubber gloves, overalls, eye protection (anti-projections glasses) and appropriate filter mask, to protect them of that contact.
As a preventive measure to keep in mind, operators should not eat or drink while handling the pure product, they must keep good personal hygiene.

7.7.2.2 Physical hazards:

As for its application (either in the form of mortar, either in the form of concrete) is easy (no avoidable risk) to jump a drop or splinter in the eye, must be considered and protected with some form of protective eyewear.

7.7.2.3 Other risks:

The polyurethane foam material is very flammable, so it is completely forbidden to smoke or ignite any fire both during application and in the vicinity of the material applied or stockpiled. The preventive resources should be vigilant that this is being done in this way, operator warning anyone who disobeys the rules. In addition, a poster flag should be placed to inform all workers of the danger both in stores and in the workplace.
Since a fire can occur even having taken the necessary steps to not happen (an accident), there must be a fire extinguisher in the work place and should have the workers sufficient training on handling the product on the proper use with the fire extinguishing available means.

7.7.3 Plastic paint:

7.7.3.1 Physical hazards:

The plastic paint is a liquid material that in its implementation may produce eye damage or nostrils. These risks depend on the application form. Should be applied by mechanical means (air pistol, ...), you must use eye protection (glasses) and nostrils (protective mask). Should be applied by manual means (roller, brushes, ...), it will only be necessary to use protective eyewear.

7.8 PRESENCE OF PREVENTIVE RESOURCES OF THE CONTRACTOR

Given the nature of the construction and the forecast risks, in compliance with Article 4.3 of Law 54/2003 of 12 December, on the regulatory reform of occupational risk prevention, which is incorporated by Article 32 bis , presence of prevention resources to the Law on Prevention of Occupational Risks, each contractor shall assign the presence of preventive resources on the building site.

For this purpose in the Health and Safety Plan, the contractor shall define preventive resources assigned to the work, which must have sufficient training and have the means to monitor compliance with the measures contained in the Plan, ensuring its effectiveness.

In the present study, we have estimated an exclusive dedication for preventive resources, which must be analyzed by the contractor at the time, not only to make the security plan, but also during the execution of the works and shall put sufficient human resources to ensure that the security plan is effective and reaches the level of protection provide

Signed: Andreas Farakos and Eduardo Pérez Escribano
Building Engineers

Collegiate No. XXXXXX,

8. EMERGENCY ACTION PLAN

8.1 AIM OF THE EMERGENCY PLAN

The aim of the Emergency Plan is to determine the actions to take in case of emergencies. Each working group will be formed and trained to deal with an abnormal situation classified as "Emergency" to prevent or minimize injury or damage that may be caused to the people as well as tools, equipment, machinery and facilities work.

Moreover, it will be established the necessary measures to evacuate quickly and safely to all workers who are inside the work and those outside it who may be in distress. Will be announced the responsibles and contacts of interest in order to be prepared for an efficient evacuation.

8.2 RESPONSIBLE FOR EMERGENCY PLAN

Emergency plan coordinators

- Eduardo Perez Escribano: 076 125 2705
- Andreas Farakos Ricos: 076 656 4464

The Coordinator is responsible for maintenance of equipment. The Coordinator may be contacted for further information on or explanation of the Plan.

Other information of interes in case of Emergency.

- FIRE +46 (0)290-443 55

- POLICE: 112

- AMBULANCE +46 (0)280-143 71

COMPANY NAME AND ADDRESS/LOCATION:

Hospital:

This information will be accessible for every worker in the entrance to the building site.

8.3 DEFINITIONS:

Emergency:
Situation caused by a fire, earthquake or the rescue of trapped workers requiring immediate action, including robbery, assault, or any minor accident.

Evacuation:
Is the action to vacate a unit, service or place in which an emergency has been declared.

Escape route:
Expeditious path, marked, continuous and secure that leads from any point in the system to the safety zone.

Safety Zone:
Place of temporal refuge outdoors, it should comply with the characteristics of providing life safety of those who reach that point. This point will be considerably clear and easily accessible.

Types of evacuation:
- Partial Evacuation: will be held only when necessary or required to evacuate any areas independently. The decision will be taken by the general coordinator or the responsible of the floor.

- Total Evacuation: will take place when the emergency is such as to require evacuate completely independences. The decision will be taken by the administrator of the work or by the general coordinator.

In the plans of the emergency plan will be, at least, fully identified for the completion of each phase of the work the position of:

- Work site
- Work site exit
- Escape route
- Floor exit
- Building exit
- Safety zone
- Extinguishers
- Stockpiles areas
- Scaffolding

Also really important is the placement of every necessary signal and plans of evacuation to let know every worker how to act depending where they are in that moment.

8.4 DEVELOPMENT

8.4.1 Fire

Rules of procedure:
If you detect fire:
- Shout or use the alarm system provided by the company.

- Use extinguishers in a fire only if is incipient, back to the wind and going always to the base of the fire.

- If the fire is in a house, keep as many doors closed to keep down the fire.

- Communicate to the General Coordinator of the evacuation.

- Follow the flow chart for emergencies (ANNEX).

If the fire is out of control, because it could not be cut off with fire extinguishers, and is increasing its intensity, must begin the total evacuation, orderly, of the work and immediately call the fire department.

Behaviour during the emergency evacuation. Recommendations:
- Do not run but act fast.

- Do not yell, do not increase the panic.

- Form a queue and do not turn around.

- If smoke reaches the dependencies keep walking crouched.

- If you must cross a closed door before opening, touch it and verify that it is not hot. If it's hot, find another way out.

- When you get the safety zone, stay there until further instructions.

- Keep portable fire extinguishers to open path into if necessary.

- Bring towels, washcloths or wet clothes well.

- Go closing all the doors after passing them, isolating the fire and reducing the quantity of air.

- If the sector by which is taking place the evacuation is invaded by smoke and fire, making it impossible to continue along it, crawl as close as possible from the ground, covering your mouth and nose with something wet if possible, to help cool and filter gases and fumes, and go to a safe place. Try to block any space they

leave the doors and if possible wet thoroughly all over the place, especially the doors, to keep out the smoke and flames.

- If your clothing catches fire do not run. Let yourself fall to the ground and, covering your face with the hands, begin to roll until smother the flames.

- If you couldn't go out and you are isolated somewhere, try to let know the others about your presence and location, by telephone or radio, or just shouting through a window or hole. Look for elements that might attract attention.

8.4.2 Earthquake

During the earthquake:
- If you are inside the building, stay inside and not try to run to the outside.

- Stay away from structural scaffolding and windows.

- Also be sure not to be around ledges where tools or uninsured tiles could fall. If you are outdoors, move away as possible from the facades, posts, wires and tall trees.

- Stay next to columns, pillars, structural walls or under lintels or if you prefer under a desk or table until you pass the quake.

- Be careful and stay away from any furniture or object that could tip over and fall like shelves, boxes, ornaments, etc..

After the earthquake:

- If you need light, use flashlights , never use matches, lighters or candles, it may have been a gas leak.

- Report to the General Coordinator of the damage.

- Follow the evacuation instructions.

8.4.3 Terrorist acts and assaults

Depending on the stage of the work, its characteristics and dimensions, will establish the necessary security measures.

Shall provide radios to, in case of detection of any suspected acts of any person external the work, be able to give notice to both workers and the Coordinator.

It will control the entry and exit doors:
- Not be allowed entry into the work without asking anyone and verify why is in the building place and what will do.

- No access is allowed to vehicles unregistered and non-authorized.

- When a stranger ask to speak with someone of the staff from the work, do not let him entry for any reason. Shall demand Identification and then search for the requested person.

- All workers will sign the attendance book every day.

In case of terrorist attack or assault:

- Try to alert the security company through the radio. If is possible, call the police.

- Never shall resist the assailants, let alone whether they are armed or seem violents. Keep calm and observe as many details that can help to the later investigation.

- If someone is hurt or injured shall provide first aid and shall take as soon as possible to the nearest medical center.

8.5 ANNEXES

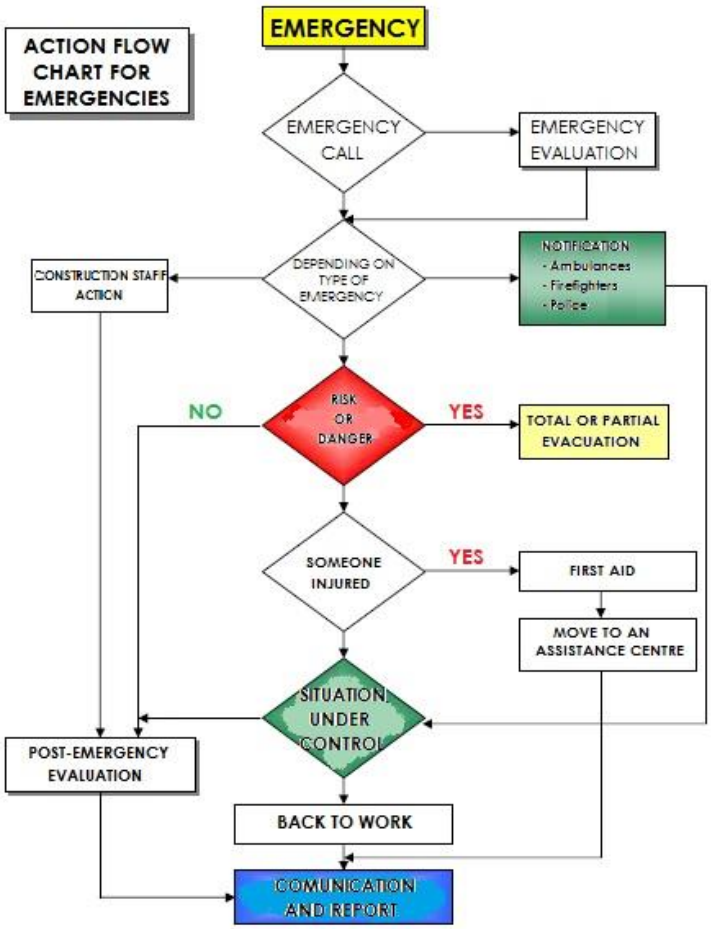
Connections for radiators, ventilation and hot water.

Parallel connection is a variant of the substation where the heat exchangers are connected between the district heating system supply and return lines. A heat exchanger serves the radiator circuit and the second hot water. This coupling is the most common.

The coupling can be advantageously used for apartments buildings.

To get a constant hot water temperature is important to select control equipment, which interacts well with other equipment. The control valve can withstand the differential pressure variations occurring between the district heating supply and return line, and have good controllability of the entire control range.

If the differential pressure across the substation or load terminal varies greatly with the advantage two parallel sequence-controlled steering valves will be used. It is important that both valves are balanced among themselves to expected to arise the flows.



9. QUALITY CONTROL

9.1 ANTECEDENTS

The following Plan of Quality Control of Building, writes up by the Construction Engineers Eduardo Pérez Escribano and Andreas Farakos Ricós, by order of Högskolan i Halmstad.

It is going to made up a Residence for athletes. That project is located in the street of Strandgatan with Stuvaregatan, in the locality of Halmstad (Sweden).

The object is the study and the definition of the necessary works that guarantee the quality specified in the execution project and according to the current regulations.

Data of the construction:

- Numbers of buildings: 4
- Constructed total surface: 4577.78 m2

9.2 PRESCRIPTIONS OF CONTROL OF MATERIAL

We have to check if the materials that we receive at the construction site with mark, seal or guaranty certificate obey the Swedish regulations.

9.2.1 Test of Materials

Concrete:

The concretes to use will be made in concrete plant and the tests will be the corresponding ones to the statistical control fixed to the project.

Test of statistical control of the concrete.

- Determination of the consistency by Abram's Cone.
- Resistance to compression divided the work in lots.

Determination of lot numbers:

Superior limit	TYPE OF STRUCTURAL ELEMENTS		
	STRUCTURES THAT HAVE COMPRESSED ELEMENTS (lifting Walls,supports piles...)	STRUCTURES WITH ELEMENTS EXCLUSIVELY SUBMISSIVE FLEXION (Retaining walls, forged with metallic supports)	MASSIVE (Shoes, bridge abutments, blocks)
WORK concrete designation.	**C, D**	In this work we do not have of this type of structural elements.	**To, B**
Volume of concrete	50 ms ^{3}	100 ms ^{3}	100 ms ^{3}
Time of set up	2 Weeks	2 Weeks	1 Weeks
Surface	500 m^2	1000m^2	-
Nº plants	2	2	-

* With Seal or Mark of Quality these limits increase reflected in the table increase

to the double. In this case we have not requested Seal of Quality.

Steel:

According to the application norm the accomplishment of the following tests of control is mandatory:

- Test of control at normal level. (Certified products)

For the steel to use, the level of control fixed to the execution project is normal. The structural steel that will be used in our building will be HEB and IPN profiles.

Cement floor tiles:

When the cement has a seal or mark of quality, officially recognized by the competent Administration, of a State member of the European Union or that is part in the Agreement on the European Economic Space, it will exempt to him of the anticipated test of reception in this Instruction, except for reasonable doubts and without damage of the faculties that correspond to the work director.

In such case, the provider will have to contribute, in the act of the reception, a copy of the corresponding certificate emitted by authorized organism and, in his case, of the one of equivalence.

In opinion of the work director or the person in charge of the reception and, in any case, when the component cement as of products or elements with structural use is used, a preventive sample will be due to conserve during, at least a term of one hundred days. The responsibility on the quality of the given remittances, correspond to the provider of the same ones.

9.2.2 Prescriptions of the execution control

9.2.2.1 Factors of risk

According to the data that appear in Project of Execution, the risk factors which they determine the justification of the execution control, according to LC-91 (Quality regulation in the construction)

- DIMENSIONAL
  Nº of buildings: 4 (>12) Degree 3º **Factor of risk: D=3**

- STRUCTURAL
  Maximum distance: > 6…Degree 2º **Factor of risk: =2**

- SISMIC
  Seismic zone: Zone V (Under) Degree 1° **Factor of risk: S=1**

- GEOTECHNIC
  Superficial lying of foundation: slab
  Degree 2º phreatic level > 3 (m)
  Degree 1º, Land non aggressive **Factor of risk: G=2**

- ENVIRONMENTAL AGGRESSIVENESS
  Marine atmosphere:
  Degree 1º aggressive industrial and maritime **Factor of risk: T=1**

- CLIMATIC
  Coastal region: Zone W, Degree 1º **Factor of risk: C=1**

- WIND
  Situation: exposed
  Degree 1º, height of building 13 < 30 m **Factor of risk: V=1**

9.2.2.2 Execution control to carry out

For the planning of the execution control we will establish the minimum units of inspection, in agreement with the current instruction and with the content of the Project of execution.

- Superficial Foundation

By each 500 m² of plant will justify the following verifications of the following phases of execution:

- Reframing of axes: 1 verification.
- Excavation of the land: 2 verifications.
- Positioning of reinforcements: 2 verifications.
- Work putting of the concrete: 1 verification
- Compaction of the concrete: 1 verification
- Meetings: 1 verification.
- Cured of the concrete: 1 verification.

- Supports

By each 500 m² and without exceeding two plants, the following verifications of the following phases of execution will be justified:

- Reframing: 2 verifications.
- Positioning of reinforcement: 2 verifications.
- Formwork: 1 verification.
- Spill and compaction of the concrete: 2 verifications.
- Cured concrete: 1 verification.
- Take out formwork: 2 verifications.

- Final verification: 1verification.
- Tests of information: 1 verification.

- Steel beams and pillars

  By each 500 m² and without exceeding two plants, the following verifications of the following phases of execution will be justified:

  - Levels and reframing: 2 verifications.
  - Formwork of forget beams: 2 verifications.
  - Positioning of pieces of the forged one: 1 verifications.
  - Positioning of reinforcement: 2 verifications.
  - Spill and compaction of the concrete: 2 verifications.
  - Cured concrete: 1 verification.
  - Take out formwork: 2 verifications.
  - Final verification: 1verification.

- Test

  According to the current regulation, for the indicated factors of risk in the last section of the present plan of control, the justification of the accomplishment of test on watch for the acceptance of the followings parts of work is obligatory:

  - Outer carpentry
    Test on watch: Runoff
    The test will made by means of a diffuser of shower, connected to a hose, will project water in rain form on the receiver carpentry glass wall. The test will be stay during 8 hours.

  - Water system installation
    Test on watch: **Water tightness and Pressure**
    Installation of plumbing net of the building particular Installation of plumbing Hydraulic testing takes place the test at level of the road with a pressure of 20 kg/cm2.
    All the installation will fill of water maintaining opened the terminal faucets until the security purge has been complete and it is not left anything of air. Then the faucets that have served as purge and the one of the power supply will be closed. Next using the pump, previously connected kg/cm2 will be put to him into operation until reaching a pressure of 20.
    Once obtained, the key of passage of the pump will be closed and it will be come to recognize all the installation to make sure that loss does not exist. Next the pressure will be diminished until arriving at the on watch one, with a minimum of 6 kg/cm2, and this pressure will stay during fifteen minutes. One will occur by good the installation if during this time the reading of the pressure gauge has

remained constant. The alluded to pressures talk about level of the road.

- Cleaning installation. Horizontal network
  Test on watch: **Water tightness**
  It will be verified that to full conduit, appreciable losses in 24 hours do not exist.

- Network of water-drainages
  Test on watch: **Drain spouts operation**
  Synchronizing the operation of 20 % of the apparatuses and the flat evacuation of cover.

9.2.3 Conditions of acceptance and reception

The project of execution arranges the followings conditions of acceptance and rejection to the materials and the phases of execution:

CONCRETES
In case that Fest > 0.9 fck the lot will be accepted, if Fest < 0.9 fck, we will be come to make by decision of the Director of work, or at the request of anyone of the parts, the studies and test that come from between the detailed ones next. In which case the judgment base will be transferred to the result of these last ones.
Study of the security of the elements that compose the lot.
Test of complementary information to consider the resistance of the concrete put in work, in agreement current regulation.

STEEL
The condition of acceptance and rejection will be the stipulated in the current regulation.

REINFORCEMENT
In order to accept a lot of the piece's sample of beam filling and resistance elements.

9.2.4 Programming of the quality control

9.2.4.1 Programming of the material control

It is predicted to use concrete made in prepared concrete power station.
Unless this power station is in possession of a seal of quality, it will have documentarily to credit the control of quality of the components of the concrete according to the current regulation.

The steel structure is also expected to be prepared in the workshop. Some of the beams and pillars will be already joined so you have to make the smallest possible welds on site.

9.2.4.2 Programming of the execution control

For the accomplishment of the indicated controls of execution in section 9.2.2.2 of the present memory, the inspection units will be determined that next are related. If by the development of the execution of the work the anticipated division were considered inadequate, will be able to modify this programming staying, in any case, the conditions that control book for each part of work indicates.

9.2.4.3 Programming of test of watch

According to "Libro de Control LC-91", for the indicated factors of risk in section 9.2.2.1 of the present study, the justification of the accomplishment of tests on watch for the acceptance of the following parts of work is obligatory:

Outer carpentry Run-off By means of a diffuser of shower, connected to a hose, will project water in rain form on the received carpentry whit glass. The test will stay during eight hours.
The test described in the previous section, before embedding the particular conductions of plumbing will be made.

Installation of cleaning horizontal Network Water tightness suspended conductions will be verified that to full conduit, appreciable losses in 24 hours do not exist. Network of water-drainages operation of downspouts synchronizing the operation of 20% of the apparatuses and the flat evacuation of cover.

9.2.5 Application norm

For the Quality Control, object of the present study, it's applied the regulation that is followed related.

- Dispositions of Quality Control: Building Construction Quality Control regulation and documentation.

- Basic regulation: According to the data that appear in the project, the risk factors which they determine the justification of the execution control.

- Dispositions of normalization and homologation: The Ministry of Public Works and Urbanism, models of lists of credits on the authorization of use for the manufacture and use of resistant elements for floors and covers.

9.2.6 Budget

The budget of the quality control is in one of the chapters of the main budget

9.2.7 Sheet of conditions

9.2.7.1 Specifications

A) General character.
The provision, the identification, the control of reception of the materials, the tests, and, in their case, the tests on watch, will be made in agreement with the specified norm in the dispositions of obligatory character:

B) Conditions of provision and identification.
All the identified materials will arrive at work and in perfect conditions for their use. For it, they will be transported in suitable vehicle and, if it is necessary, in packages that guarantee their immutable. The operations of load and unloading will be such that do not produce deterioration in the materials or the packages.

The following aspects will consider:

Cements
Transport facilities suitable of and storage will be provided in standardized coats of 25 or 50 kg or in bulk in that guarantee their conservation. Each game will provide accompanied of letters patent and annexed documentation, which will contain the following data at least:

1. Name and address of the providing company.
2. Provision date.
3. Identification of the factory that has produced the cement.
4. Identification of the centre sender (factory, point of expedition, centre of distribution)
5. Identification of the vehicle that transports it.
6. Amount that is provided.
7. Denomination and designation of the cement and trade name.
8. Password of the certificate in accordance with the prescribed requirements or number of certificate corresponding to mark of equivalent quality.
9. Name, address and buyer destiny.
10. Reference of the order.

In the letters patent or annexed documentation the restrictions of use, in their case, and the characteristics of the provided cement in which they will have to appear the nature and the nominal

proportion in mass of all the components, as well as the indication will be indicated of which this proportion, of anyone of the components of the cement does not exceed, in but or less, 5% in the provided game. This possible variation, within the permissible limits, will not be able to suppose in any case a change of the type of cement.

Barren for concrete:
Each load of barren will go accompanied of a leaf of provision, which will be at any moment to disposition of the Work Direction, and in that appear like minimum the following data:
- Name of the provider
- Nº of series of the provision leaf
- Name of the quarry
- Date of delivery
- Name of the petitioner
- Type of barren
- provided Amount of barren
- Designation of the barren one (d/D)
- Identification of the provision place

Plasters and Stucco:
In each coat, or the letters patent if the product is provided in bulk, they will have to appear the following data: Name of the manufacturer or trade name of the product, designation of the product, according to current regulation.

Concrete:
In the case of using prepared concrete of power station the provision will be made in suitable facilities. Each concrete load will go accompanied of a leaf of provision that will be at any moment to disposition of the Work Direction and in which they appear, like minimum, the following data:

1. - Name of the power station of concrete manufacture.
2. - Serial number of the provision leaf
3. - Date of delivery.
4. - Name of the petitioner and the person in charge of the reception.
5. - Specification of the concrete:
    a) Designation.
    b) Type, class and marks of the cement.
    c) Consistency.
    d) So large maximum of the barren one.
    e) Type of additive.
    f) Origin and amount of addition (ash-gray silica steering wheels or smoke), if there is it, and in opposite case express

indication that it does not contain it.
6. - Specific designation of the place of the provision (name and place).
7. - Amount of concrete that composes the load, in m3 of fresh concrete.
8. - Identification of the truck concrete mixer and the person that comes to unloading
9. - Hour limit of use for the concrete.

In case of using concrete made in work it will exist, to disposition of the Work Management, a book where it will appear:

- The nominal metering or metering to use in work, as well as any correction made during the process, with its corresponding justification.
- Relation of suppliers of raw materials for the elaboration of the concrete.
- Description of the equipment used in the elaboration of the concrete.
- Reference to the calibrated document of the balance of metering of the cement.
- Registry of the number of kneaded employees in each lot dates of set up the concrete and results of the made tests, in its case.

Steel for reinforcement:

All the steel that is used in the work will present/display the marks corresponding to its identification. For the steel that have a recognized symbol or each game will credit that it is in possession of same and the specific certificate of adhesion in the case of bars or the wires, and will go accompanied of the certificate of guarantee of the manufacturer. For the steel that do not have a recognized symbol or each game will go accompanied of the results of the tests corresponding to the composition chemical, characteristic mechanical and geometric, conducted by an credited organism of certification and/or test or by organism of the Public Administration. In the case of bars or corrugated wires, in addition the specific certificate to adhesion will be accompanied.

Case of materials with quality certificate:

When a material with some certificate of guarantee is received in work, because it shows a symbol or mark of quality is accredited by the MINER, or as in the case of forged it has Authorization of Use, or it must come accompanied by an assayer's certificate as it is obligatory in steel, or in accordance with prescribed requirements like the cement, the constructor will give to the facultative direction

certificate documents to build consequently.

TAKING OF SAMPLES:

The taking of samples will be mandatory in all the materials whose reception by means of tests settles down in the programming of control, and in that, during the march of the work, it considers the direction facultative. Also it will be taken, even though are not mandatory tests of reception, shows preventive of the cement, which will be conserved in work. It will be made at random by the facultative direction, which will be able to delegate in personnel of the credited laboratory, being able to be present the constructor or person delegated by this one. The sampling procedure will be made in agreement with the norm of each product and in sufficient amount for the accomplishment of the tests and test back. The two rests will be conserved in work for the accomplishment of the test if outside necessary. These samples will be conserved in work during at least 100 days if it is perishable materials (conglomerates), or until the definitive reception of the made constructive units with each one of the materials. In the case of not having to make tests, it will be enough with taking these two last samples.

Taking of cement samples, plasters or stucco:

When one is package product at random take three coats from the first one, second and third of all the material that constitutes a lot. From each coat equal amounts of product will be obtained that will be the different samples. Each sample will be formed by 8 kilograms that will be packaged in suitable containers with double cover, one to pressure and another one to spiral, that will be sealed so that they offer guarantees. Inside each package it will be had a label with all the data of identification of the sample and the corresponding lot. The same identification will be arranged in the outside of the package.

Taking of concrete samples:

The sample taking will be made in suitable containers, constructed of impermeable material and immutable by the cement. The sample will when coming out obtain from the concrete mixer or truck concrete mixer, happening the container through the unloading current, or causing that current happiness happens through the container, during the precise time that it allows to obtain the volume of necessary sample. Care will be had of which the speed of unloading is not as small as to produce the segregation of the concrete. The samples are taken in the interval of spill between 1/4 and 3/4 from the unloading.

In the exceptional assumption that the samples did not take shelter

in this interval it will have to be pointed out the interval from which the sample in documents comes on the matter (act of taking of samples and results of the tests).

If one is to verify the kneaded uniformity of a same one, the samples are taken approximately to 1/4 and 3/4 from the unloading. In case of not being possible when coming out to take samples from the concrete mixer or the truck concrete mixer, these will unload completely, taking the sample at random, of five points different from the formed pile. The volume of the sample will be superior to the necessary amount for the accomplishment of the tests and it will go to the execution of the tests not having had to pass but of 15 minutes between the taking of sample and its use.

Taking of steel samples for reinforcements:

I f the steel is provided in work in bars for its assembly on work foot, 6 test tubes will be taken from 70 cm. in length, of each diameter, manufacturer and lot; that they will be packed and they identified. If the steel mounts in factory, the taking of samples will be able to be made of anyone of the following ways: In work taking the bars at random.

Identification of the samples:

All the samples will be identified being pointed out the following points:

- Denomination of the product.

- Name of the manufacturer or trade name.

- Date of arrival to work.

- Denomination of the game or lot that corresponds the sample.

- Name of the work.

- Number of units or amount, in mass or volume that constitutes the sample.

- It will be pointed out if it shows seal, it has homologation or it accompanies some assayer's certificate to him.

Conservation of the samples:

All the samples will be conserved with immutable guarantees:

Under cover, protect of the humidity of the ground, safe from the inclemency and most isolated of nobody I mistreat. These measures will be adopted especially in the case of conglomerates and very especially in the concrete samples that necessarily will have to

conserve in work at least 24 hours. The constructor will have to contribute average the suitable ones that guarantees the conservation in the indicated terms and it will be in charge of his safekeeping.

TEST ACCOMPLISHMENT:

All the tests necessary to judge the quality of the materials, as well as the tests on watch, will be due to make by an credited laboratory in the corresponding areas.

E) TEST BACK

When during the control process anomalous results are obtained that imply rejection of the game or corresponding lot, the constructor will have right to make test back to his coast, by means of the samples conserved in work. For it, he will come himself as he follows:

The two samples will be sent to two laboratories different from the contracted one by the promoter, previously accepted by the facultative direction. If one of both results were unsatisfactory the material will be rejected, if both results were satisfactory it will be accepted.

DECISIONS DERIVED FROM THE CONTROL PROCESS:

In case of non statistical control or not to the one hundred percent, whose results are non in agreement, and before the rejection of the material, the facultative direction will be able to happen to make a statistical control or to the one hundred percent, with the samples conserved in work. The acceptance of a material or its rejection on the part of the facultative direction as well as the decisions made like demolition, reinforcement or repair, will have to be accepted by the promoter or constructor. Before the non satisfactory results of control, and before taking the decision from acceptance or rejection, the facultative direction will be able to make the tests of information or tests on watch that it considers opportune.

9.2.7.2 Economic Conditions

Previously the cost of the programming of the control of the quality will be in charge of the promoter whom it will contract with an credited laboratory or officially recognized, accepted by the facultative direction, in the corresponding areas. The laboratory will have to send copies of acts of tests to the Promoter, to the Architect and the Foreman or Technical Architect.
When by results that imply rejection must make back tests and was negative, the cost of these tests and the possible economic consequences that they derive here will repel the constructor. Also,

when there are necessary tests of information. They will be in charge of the constructor the average materials, auxiliary humans and necessary means for the conservation of samples or the accomplishment of tests "in situ", like complementary tests on watch. If during the control process some material was rejected, and divides or everything of this material it was placed in work, the cost of the demolitions, reinforcements, repairs or of the adopted measures, in its case, by the facultative direction they will be the responsibility of the constructor without damage from which this one derives responsibilities to the manufacturer of the product at issue.

9.2.7.3 Facultative and Legal conditions

It is obligation and responsibility of the promoter-proprietor the accomplishment by his account of the tests and tests relative to materials and executed work units that are predicted in the Project of Execution of works, the Study of Control of Quality and Book of Control, or that is determined in the course of the construction on the part of the integral technicians of the Facultative Direction. To this end, it will have to contract to the tests and tests required with laboratories credited or accreditation granted by another Public and registered Administration.

It is obligation of the constructor to anticipate - in conjunction with the property of works and in the times established for execution of same the terms and means for the sampling and reception of materials, and in their case, of the mandatory tests and tests according to the directions of the Project of Execution, Study of Control, Book of Control or that settles down by orders of the Facultative Direction, facilitating the work to develop with existing means in the work. Also it will have to facilitate the Director of the Control copies of documents of reception of the materials.

The rejection of materials or work units submissive quality control, could not be justificatory cause of delay or breach of terms been suitable for the execution of the different chapters from work, nor from increase in the costs that happen by new materials or work games that there are to recover.

The integral Technicians of the Facultative Direction will be responsible in the scope of their respective competition of the quality control of works, without damage of which, those tests and tests that are not carried out by causes that are not to them imputable, will be exclusive responsibility of the promoter and/or constructor that with its conduct has given rise to the omission of the diligence due.

The direction of the quality control that develops to the Technical Architect or Foreman will brief through forms of Control book.

The Architect Director of works comes forced to put documentary

record through Order book, and in its case writing up the corresponding modified Project, of any variation that are introduced in the Project of Execution of works, having had to make delivery to the Property, constructor and Technical Architect of works of the documentation who justifies the introduced modifications, being exonerated of all responsibility the Technical Architect to whom - in its due time knowledge of the operated changes did not occur him in order to adapt such to its professional assignment.

Halmstad, _____

The Construction Engineers

10_GANTT CHART

WORK ORGANIZATION. GANTT DIAGRAM.

Name of the project: Athlete Residence Nissan

Starting date: June 12th, 2013

Completion date: May 26th, 2015

*Clarification:

Being considered a project of big dimensions has been decided to install two cranes to expedite the work. In this way the four buildings have been divided into two blocks. Each crane will service its corresponding block, making possible to double the number of resources, always taking into account a proper efficiency of the crane use. This will get a reduction of the time required to complete the work as is shown in the following Gantt diagrams.

Total number of days: 713 days

Total number of weeks: 102 weeks

Total number of months: 24 months

Total number of hours: 17112 hours

Maximum number of workers: 75 (39 between buildings A-B; 36 between buildings C-D)

Gantt diagrams:

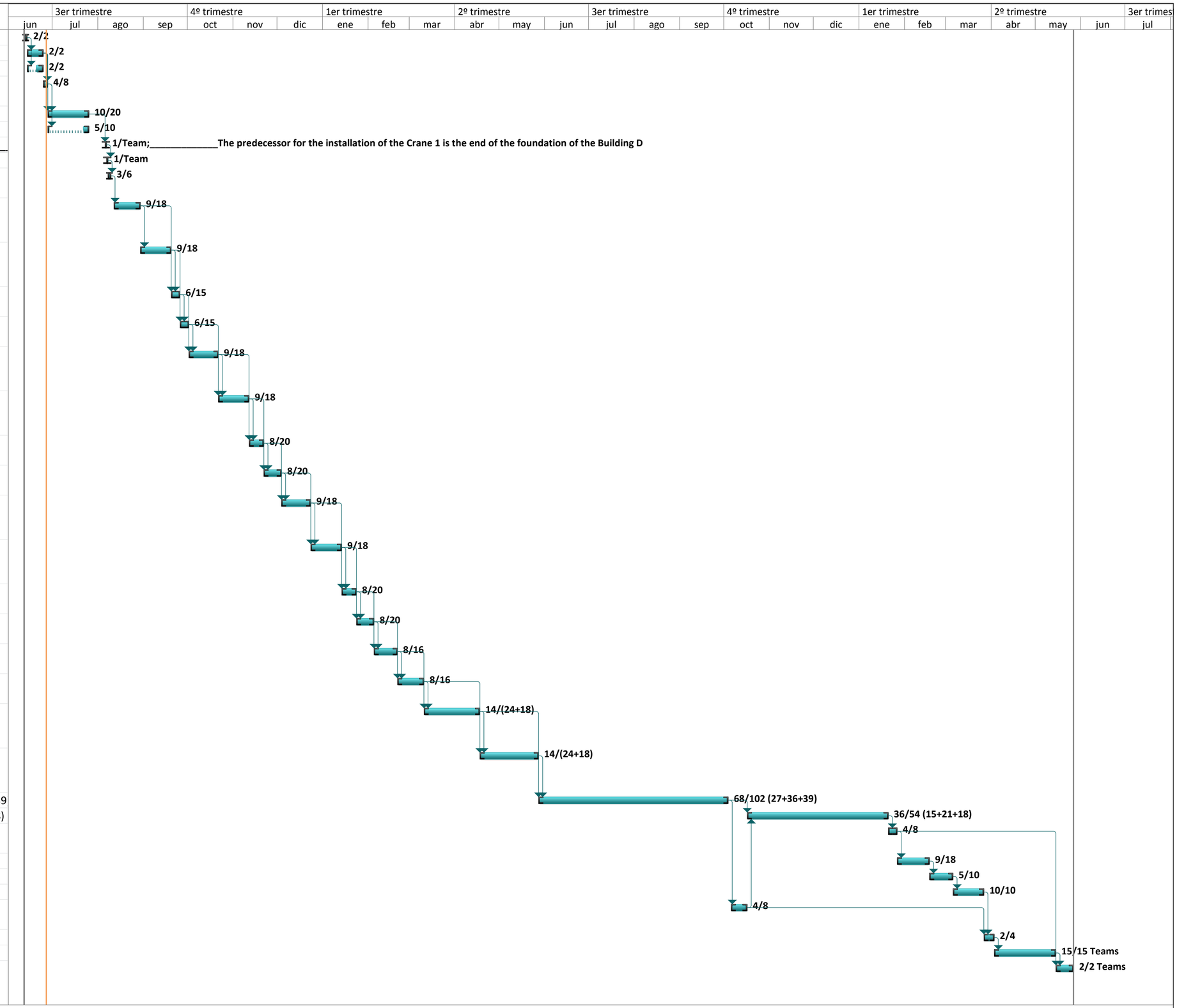
1. Work simultaneity diagram between the buildings A and B.

2. Work simultaneity diagram between the buildings C and D.

3. Simultaneity diagram between the two blocks.

10.1 _GANTT CHART: A AND B BUILDING

Id	Activity	Duration	Start	End	Number of resources/workers
1	Earthwork	2 días	12/06/13	13/06/13	2/2
2	Excavation	7 días	14/06/13	24/06/13	2/2
3	Transport rubbish	4 días	14/06/13	24/06/13	2/2
4	Perimetral fence installation	3 días	25/06/13	27/06/13	4/8
5	Foundation	20 días	28/06/13	25/07/13	10/20
6	Sanitary sewerage	5 días	28/06/13	25/07/13	5/10
7	Installation Crane 1	1 día	06/08/13	06/08/13	1/Team;_____
8	Installation Crane 2	1 día	07/08/13	07/08/13	1/Team
9	Anchoring plates f/supports	2 días	08/08/13	09/08/13	3/6
10	Structure: Supports and girders; 1st floor; Building A	14 días	12/08/13	29/08/13	9/18
11	Structure: Supports and girders; 1st floor; Building B	15 días	30/08/13	19/09/13	9/18
12	Structure: Precast slab; 1st floor; Building A	4 días	20/09/13	25/09/13	6/15
13	Structure: Precast slab; 1st floor; Building B	4 días	26/09/13	01/10/13	6/15
14	Structure: Supports and girders; 2nd floor; Building A	14 días	02/10/13	21/10/13	9/18
15	Structure: Supports and girders; 2nd floor; Building B	15 días	22/10/13	11/11/13	9/18
16	Structure: Precast slab; 2nd floor; Building A	8 días	12/11/13	21/11/13	8/20
17	Structure: Precast slab; 2nd floor; Building B	8 días	22/11/13	03/12/13	8/20
18	Structure: Supports and girders; 3rd floor; Building A	14 días	04/12/13	23/12/13	9/18
19	Structure: Supports and girders; 3rd floor; Building B	15 días	24/12/13	13/01/14	9/18
20	Structure: Precast slab; 3rd floor; Building A	8 días	14/01/14	23/01/14	8/20
21	Structure: Precast slab; 3rd floor; Building B	8 días	24/01/14	04/02/14	8/20
22	Roof: Ligthweight steel structure; Building A	12 días	05/02/14	20/02/14	8/16
23	Roof: Ligthweight steel structure; Building B	12 días	21/02/14	10/03/14	8/16
24	Roof: isolation, underlay boards, battens and tiles; Building A	28 días	11/03/14	17/04/14	14/(24+18)
25	Roof: isolation, underlay boards, battens and tiles; Building A	28 días	18/04/14	27/05/14	14/(24+18)
26	Facade	93 días	28/05/14	03/10/14	68/102 (27+36+39
27	Partitions	68 días	17/10/14	20/01/15	36/54 (15+21+18)
28	Coatings: tiling Kitchens and Bathrooms	4 días	21/01/15	26/01/15	4/8
29	Coatings: PVC and wood	16 días	27/01/15	17/02/15	9/18
30	Coatings: false ceiling	12 días	18/02/15	05/03/15	5/10
31	Coatings: painting	15 días	06/03/15	26/03/15	10/10
32	Exterior Carpentry and Defenses	9 días	06/10/14	16/10/14	4/8
33	Interior Carpentry	5 días	27/03/15	02/04/15	2/4
34	Installations	30 días	03/04/15	14/05/15	15/15 Teams
35	Installation bathroom fittings, kitchen furniture and others	8 días	15/05/15	26/05/15	2/2 Teams

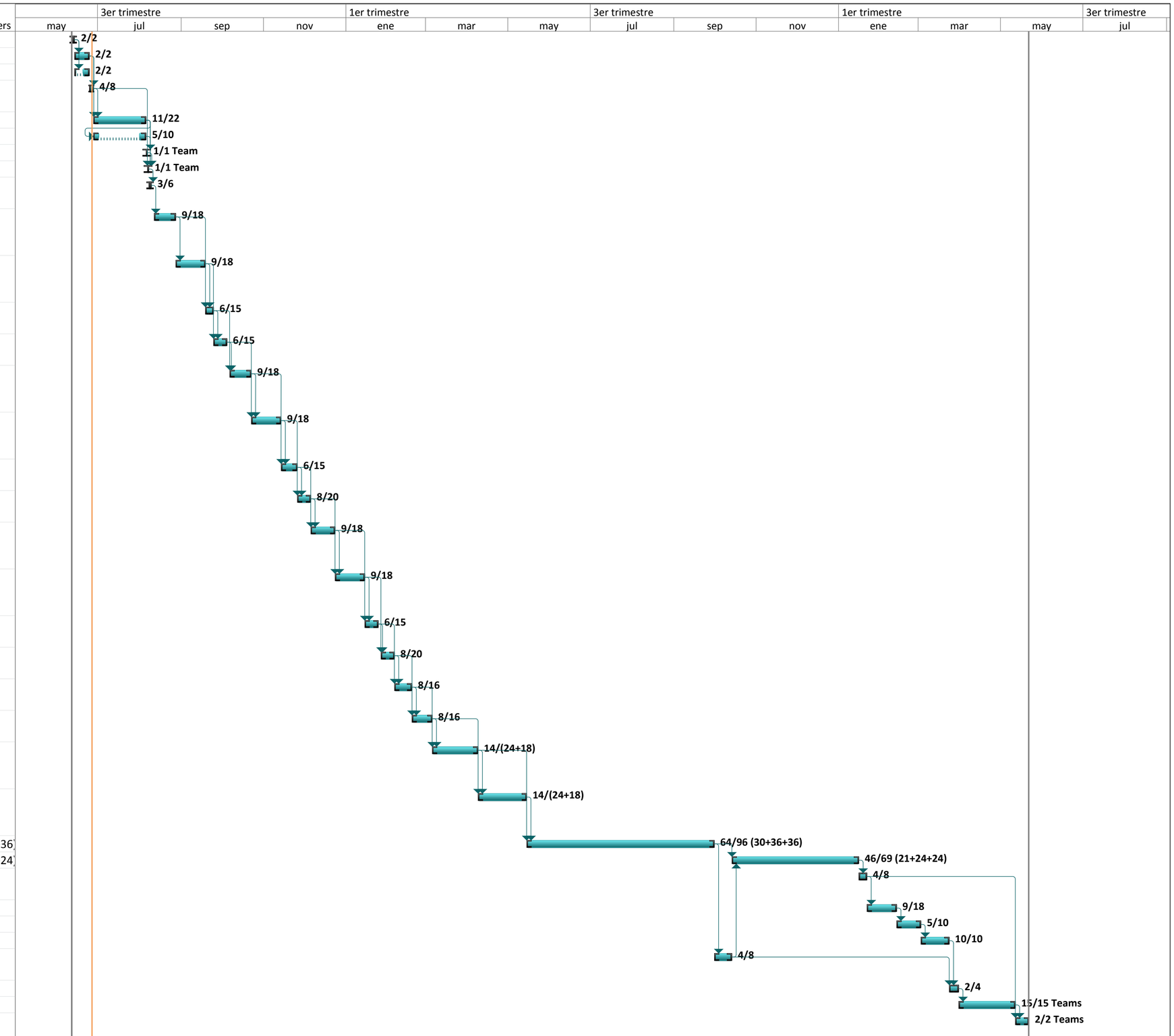


Proyecto: Halmstad Organization
Fecha: 27/06/13

Tarea	Resumen	Hito externo	Resumen inactivo	Informe de resumen manual	Sólo fin		
División	Resumen del proyecto	Tarea inactiva	Tarea manual	Resumen manual	Fecha límite		
Hito	Tareas externas	Hito inactivo	Sólo duración	Sólo el comienzo	Progreso		

10.2_GANTT CHART: C AND D BUILDING

Id	Activity	Duration	Start	End	Predecessors	Number of resources/workers
1	Earthwork	2 días	12/06/13	13/06/13		2/2
2	Excavation	7 días	14/06/13	24/06/13	1	2/2
3	Transport rubbish	4 días	14/06/13	24/06/13	1	2/2
4	Perimetral fence installation	3 días	25/06/13	27/06/13	2	4/8
5	Foundation	27 días	28/06/13	05/08/13	2;4	11/22
6	Sanitary sewerage	5 días	28/06/13	05/08/13	5	5/10
7	Installation Crane 1	1 día	06/08/13	06/08/13	5	1/1 Team
8	Installation Crane 2	1 día	07/08/13	07/08/13	4;6;5;7	1/1 Team
9	Anchoring plates f/supports	2 días	08/08/13	09/08/13	8	3/6
10	Structure: Supports and girders; 1st floor; Building C	12 días	12/08/13	27/08/13	9	9/18
11	Structure: Supports and girders; 1st floor; Building D	16 días	28/08/13	18/09/13	10	9/18
12	Structure: Precast slab; 1st floor; Building C	4 días	19/09/13	24/09/13	11;10	6/15
13	Structure: Precast slab; 1st floor; Building D	8 días	25/09/13	04/10/13	12;11	6/15
14	Structure: Supports and girders; 2nd floor; Building C	12 días	07/10/13	22/10/13	13;12	9/18
15	Structure: Supports and girders; 2nd floor; Building D	16 días	23/10/13	13/11/13	14;13	9/18
16	Structure: Precast slab; 2nd floor; Building C	8 días	14/11/13	25/11/13	15;14	6/15
17	Structure: Precast slab; 2nd floor; Building D	8 días	26/11/13	05/12/13	16;15	8/20
18	Structure: Supports and girders; 3rd floor; Building C	12 días	06/12/13	23/12/13	17;16	9/18
19	Structure: Supports and girders; 3rd floor; Building D	16 días	24/12/13	14/01/14	18;17	9/18
20	Structure: Precast slab; 3rd floor; Building C	8 días	15/01/14	24/01/14	19;18	6/15
21	Structure: Precast slab; 3rd floor; Building D	8 días	27/01/14	05/02/14	20;19	8/20
22	Roof: Ligthweight steel structure; Building C	9 días	06/02/14	18/02/14	21;20	8/16
23	Roof: Ligthweight steel structure; Building D	11 días	19/02/14	05/03/14	21;22	8/16
24	Roof: isolation, underlay boards, battens and tiles; Building C	24 días	06/03/14	08/04/14	22;23	14/(24+18)
25	Roof: isolation, underlay boards, battens and tiles; Building D	26 días	09/04/14	14/05/14	24;23	14/(24+18)
26	Facade	99 días	15/05/14	30/09/14	25;24	64/96 (30+36+36
27	Partitions	68 días	14/10/14	15/01/15	26;32	46/69 (21+24+24
28	Coatings: tiling Kitchens and Bathrooms	4 días	16/01/15	21/01/15	27	4/8
29	Coatings: PVC and wood	16 días	22/01/15	12/02/15	28	9/18
30	Coatings: false ceiling	12 días	13/02/15	02/03/15	29	5/10
31	Coatings: painting	15 días	03/03/15	23/03/15	30	10/10
32	Exterior Carpentry and Defenses	9 días	01/10/14	13/10/14	26	4/8
33	Interior Carpentry	5 días	24/03/15	30/03/15	32;31	2/4
34	Installations	30 días	31/03/15	11/05/15	33	15/15 Teams
35	Installation bathroom fittings, kitchen furniture and others	8 días	12/05/15	21/05/15	34;28	2/2 Teams

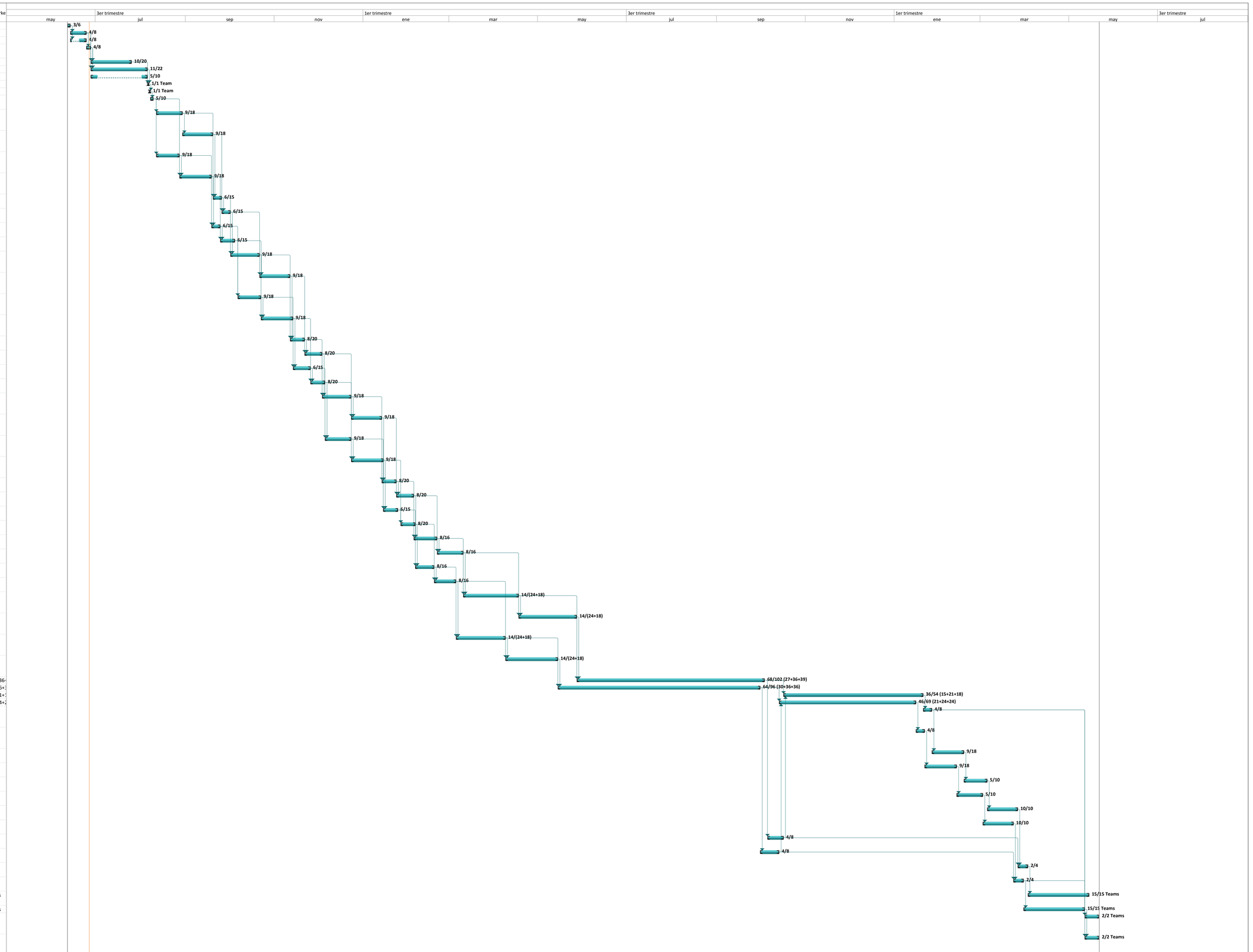


Proyecto: Halmstad Organization
Fecha: 27/06/13

Tarea	Resumen	Hito externo	Resumen inactivo	Informe de resumen manual	Sólo fin
División	Resumen del proyecto	Tarea inactiva	Tarea manual	Resumen manual	Fecha límite
Hito	Tareas externas	Hito inactivo	Sólo duración	Sólo el comienzo	Progreso

10.3_GENERAL GANTT CHART

Id	Activity	Duration	Start	End	Predecessors	Number of resources/worke
1	Earthwork	2 días	12/06/13	13/06/13		3/6
2	Excavation	7 días	14/06/13	24/06/13	1	4/8
3	Transport rubbish	4 días	14/06/13	24/06/13	1	4/8
4	Perimetral fence installation	3 días	25/06/13	27/06/13	2	4/8
5	Foundation Buildings A+B	20 días	28/06/13	25/07/13	2;4	10/20
6	Foundation Buildings C+D	27 días	28/06/13	05/08/13	2;4	11/22
7	Sanitary sewerage	4,5 días	28/06/13	05/08/13		5/10
8	Installation Crane 1	1 día	06/08/13	06/08/13	6;5	1/1 Team
9	Installation Crane 2	1 día	07/08/13	07/08/13	8	1/1 Team
10	Anchoring plates f/supports	2 días	08/08/13	09/08/13	9	5/10
11	Structure: Supports and girders; 1st floor; Building A	14 días	12/08/13	29/08/13	10	9/18
12	Structure: Supports and girders; 1st floor; Building B	15 días	30/08/13	19/09/13	11	9/18
13	Structure: Supports and girders; 1st floor; Building C	12 días	12/08/13	27/08/13	10	9/18
14	Structure: Supports and girders; 1st floor; Building D	16 días	28/08/13	18/09/13	10;13	9/18
15	Structure: Precast slab; 1st floor; Building A	4 días	20/09/13	25/09/13	12;11	6/15
16	Structure: Precast slab; 1st floor; Building B	4 días	26/09/13	01/10/13	15;12	6/15
17	Structure: Precast slab; 1st floor; Building C	4 días	19/09/13	24/09/13	14;13	6/15
18	Structure: Precast slab; 1st floor; Building D	8 días	25/09/13	04/10/13	17;14	6/15
19	Structure: Supports and girders; 2nd floor; Building A	14 días	02/10/13	21/10/13	16;15	9/18
20	Structure: Supports and girders; 2nd floor; Building B	15 días	22/10/13	11/11/13	19;16	9/18
21	Structure: Supports and girders; 2nd floor; Building C	12 días	07/10/13	22/10/13	18;17	9/18
22	Structure: Supports and girders; 2nd floor; Building D	16 días	23/10/13	13/11/13	21;18	9/18
23	Structure: Precast slab; 2nd floor; Building A	8 días	12/11/13	21/11/13	20;19	8/20
24	Structure: Precast slab; 2nd floor; Building B	8 días	22/11/13	03/12/13	23;20	8/20
25	Structure: Precast slab; 2nd floor; Building C	8 días	14/11/13	25/11/13	22;21	6/15
26	Structure: Precast slab; 2nd floor; Building D	8 días	26/11/13	05/12/13	25;22	8/20
27	Structure: Supports and girders; 3rd floor; Building A	14 días	04/12/13	23/12/13	24;23	9/18
28	Structure: Supports and girders; 3rd floor; Building B	15 días	24/12/13	13/01/14	27;24	9/18
29	Structure: Supports and girders; 3rd floor; Building C	12 días	06/12/13	23/12/13	26;25	9/18
30	Structure: Supports and girders; 3rd floor; Building D	16 días	24/12/13	14/01/14	29;26	9/18
31	Structure: Precast slab; 3rd floor; Building A	8 días	14/01/14	23/01/14	28;27	8/20
32	Structure: Precast slab; 3rd floor; Building B	8 días	24/01/14	04/02/14	31;28	8/20
33	Structure: Precast slab; 3rd floor; Building C	8 días	15/01/14	24/01/14	30;29	6/15
34	Structure: Precast slab; 3rd floor; Building D	8 días	27/01/14	05/02/14	33;30	8/20
35	Roof: Ligthweight steel structure; Building A	12 días	05/02/14	20/02/14	32;31	8/16
36	Roof: Ligthweight steel structure; Building B	12 días	21/02/14	10/03/14	32;35	8/16
37	Roof: Ligthweight steel structure; Building C	9 días	06/02/14	18/02/14	34;33	8/16
38	Roof: Ligthweight steel structure; Building D	11 días	19/02/14	05/03/14	37;34	8/16
39	Roof: isolation, underlay boards, battens and tiles; Building A	28 días	11/03/14	17/04/14	35;36	14/(24+18)
40	Roof: isolation, underlay boards, battens and tiles; Building A	28 días	18/04/14	27/05/14	39;36	14/(24+18)
41	Roof: isolation, underlay boards, battens and tiles; Building C	24 días	06/03/14	08/04/14	38;37	14/(24+18)
42	Roof: isolation, underlay boards, battens and tiles; Building D	26 días	09/04/14	14/05/14	41;38	14/(24+18)
43	Facade Buildings A+B	93 días	28/05/14	03/10/14	40;39	68/102 (27+36+
44	Facade Buildings C+D	99 días	15/05/14	30/09/14	42;41	64/96 (30+36+
45	Partitions Buildings A+B	68 días	17/10/14	20/01/15	43;55	36/54 (15+21+
46	Partitions Buildings C+D	68 días	14/10/14	15/01/15	44;56	46/69 (21+24+
47	Coatings: tiling Kitchens and Bathrooms ; Buildings A+B	4 días	21/01/15	26/01/15	45	4/8
48	Coatings: tiling Kitchens and Bathrooms ; Buildings C+D	4 días	16/01/15	21/01/15	46	4/8
49	Coatings: PVC and wood; Buildings A+B	16 días	27/01/15	17/02/15	47	9/18
50	Coatings: PVC and wood; Buildings C+D	16 días	22/01/15	12/02/15	48	9/18
51	Coatings: false ceiling; Buildings A+B	12 días	18/02/15	05/03/15	49	5/10
52	Coatings: false ceiling; Buildings C+D	12 días	13/02/15	02/03/15	50	5/10
53	Coatings: painting; Buildings A+B	15 días	06/03/15	26/03/15	51	10/10
54	Coatings: painting; Buildings C+D	15 días	03/03/15	23/03/15	52	10/10
55	Exterior Carpentry and Defenses; Buildings A+B	9 días	06/10/14	16/10/14	43	4/8
56	Exterior Carpentry and Defenses; Buildings C+D	9 días	01/10/14	13/10/14	44	4/8
57	Interior Carpentry; Buildings A+B	5 días	27/03/15	02/04/15	55;53	2/4
58	Interior Carpentry; Buildings C+D	5 días	24/03/15	30/03/15	56;54	2/4
59	Installations Buildings A+B	30 días	03/04/15	14/05/15	57	15/15 Teams
60	Installation Buildings C+D	30 días	31/03/15	11/05/15	58	15/15 Teams
61	Installation bathroom fittings, kitchen furniture and others; Buildings A+B	8 días	12/05/15	21/05/15	58;47	2/2 Teams
62	Installation bathroom fittings, kitchen furniture and others; Buildings C+D	8 días	12/05/15	21/05/15	60;47	2/2 Teams



ACTIVITY	MEASUREMENT	RESOURCES	TIME-CONSUMPTION	(u)	Time-Con X MEASUR (h)	Time-Con X MEASUR (d)	INCREASE RESOURCES	FINAL DURATION (d)
EARTHWORK					**457,2**	**59**	**15**	**16**
Earthwork: clearing and cleaning e= 25 cm, mechanical means, without load nor transport to rubbish dump.	975,85 m3	Ordinary labourer	0,025	h	48,79	6	3	2
		Wheel loader backhoe	0,05	h				
Footings excavation with mechanical means, without load nor transport to rubbish dump.	253,44 m3	Ordinary labourer	0,025	h	202,75	26	4	7
		Wheel loader backhoe	0,8	h				
Transport rubbish dump from clearing and cleaning to rubbish dump.	1229,29 m3	Front loader tires 100 CV	0,02	h	122,93	16	4	4
		Dump truck 10 t.	0,1	h				
Perimetral fence installation	275,76 m	1st construction Official	0,3	h	82,73	11	4	3
		Ordinary construction laborer	0,3	h				
FOUNDATION AND SANITARY SEWERAGE					**1239,39**	**161**	**36**	**47**
Carrying out of placement cleaning concrete e=12 cm	142,56 m2	1st construction Official	0,06	h	17,1	3	2	2
		Ordinary construction labourer	0,12	h				
Carrying out of footings 160 x160x100 cm	253,44 m3	1st construction Official	0,864	h	218,97	28	4	7
		Specialized construction laborer	0,864	h				
Carrying out of ISOVER slab on ground Building A	166,21 m2	1st construction Official	0,864	h	143,61	18	3	6
		Specialized construction laborer	0,864	h				
Carrying out of ISOVER slab on ground Building B	177,78 m2	1st construction Official	0,864	h	153,6	20	4	5
		Specialized construction laborer	0,864	h				
Carrying out of ISOVER slab on ground Building C	207,80 m2	1st construction Official	0,864	h	179,54	23	4	6
		Specialized construction laborer	0,864	h				
Carrying out of ISOVER slab on ground Building D	409 m2	1st construction Official	0,864	h	353,38	45	4	12
		Specialized construction laborer	0,864	h				
Installation sanitary drainage, supply connection sewerage system	3 u	2nd Official	0,75	h	4,5	1	1	1
		Specialized labourer	1,5	h				
		Air Compressor.c=2,5m3/min	1	h				
		Pneumatic hammer chopper	1	h				
Installation sanitary drainage, carrying out of siphonic manholes and crossing manhole.	18 u	1st construction Official	2	h	36	5	4	2
		Specialized construction laborer	1	h				
Installation sanitary drainage, installation of buried collectors PVC dimater 160 mm	141,05 m	1st construction Official	0,35	h	49,37	7	4	2
		Specialized construction laborer	0,35	h				
Crane Installation	2 u	Installer team	1	d	16	2	1	2
Anchoring plates on footings; dimensions 380x380x30mm	99 u	1st construction Official	0,68	h	67,32	9	5	2
		Construction labourer	0,68	h				
STRUCTURE					**7941,52**	**1017**	**192**	**255**
STRUCTURE FIRST FLOOR					**2398,56**	**307**	**60**	**77**
Positioning of steel supports Building A first floor	8945,86 Kg	1st construction Official	0,02	h	178,92	23	4	6
		Construction labourer	0,02	h				
Positioning of steel supports Building B first floor	9303,70 Kg	1st construction Official	0,02	h	186,1	24	4	6
		Construction labourer	0,02	h				
Positioning of steel supports Building C first floor	7514,52 Kg	1st construction Official	0,02	h	150,3	19	4	5
		Construction labourer	0,02	h				
Positioning of steel supports Building D first floor	9661,53 Kg	1st construction Official	0,02	h	193,23	25	4	7
		Construction labourer	0,02	h				
Positioning of steel girders and joists Building A for first slab	10667,20 Kg	1st construction Official	0,03	h	320	40	5	8
		Construction labourer	0,03	h				
Positioning of steel girders and joists Building B for first slab	11093,90 Kg	1st construction Official	0,03	h	332,82	42	5	9
		Construction labourer	0,03	h				
Positioning of steel girders and joists Building C for first slab	8960,45 Kg	1st construction Official	0,03	h	268,81	34	5	7
		Construction labourer	0,03	h				
Positioning of steel girders and joists Building D for first slab	11520,60 Kg	1st construction Official	0,03	h	345,62	44	5	9
		Construction labourer	0,03	h				
Positioning of reinforced precast slab Building A First floor	166,21 m2	1st construction Official	0,22	h	36,57	5	3	2
		Construction labourer	0,22	h				
Positioning of reinforced precast slab Building B First floor	177,78 m2	1st construction Official	0,22	h	39,11	5	3	2
		Construction labourer	0,22	h				
Positioning of reinforced precast slab Building C First floor	207,8 m2	1st construction Official	0,22	h	45,72	6	3	2
		Construction labourer	0,22	h				
Positioning of reinforced precast slab Building D First floor	409 m2	1st construction Official	0,22	h	89,98	12	3	4
		Construction labourer	0,22	h				
Concreting of the compressive layer on the slab, Building A first floor	166,21 m2	1st construction Official	0,22	h	36,57	5	3	2
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
Concreting of the compressive layer on the slab, Building B first floor	177,78 m2	1st construction Official	0,22	h	39,11	5	3	2
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
Concreting of the compressive layer on the slab, Building C first floor	207,8 m2	1st construction Official	0,22	h	45,72	6	3	2
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
Concreting of the compressive layer on the slab, Building D first floor	409 m2	1st construction Official	0,22	h	89,98	12	3	4
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				

STRUCTURE SECOND FLOOR					2740,84	351	66	89
Positioning of steel supports Building A Second floor	8945,86 Kg	1st construction Official	0,02	h	178,92	23	4	6
		Construction labourer	0,02	h				
Positioning of steel supports Building B Second floor	9303,70 Kg	1st construction Official	0,02	h	186,1	24	4	6
		Construction labourer	0,02	h				
Positioning of steel supports Building C Second floor	7514,52 Kg	1st construction Official	0,02	h	150,3	19	4	5
		Construction labourer	0,02	h				
Positioning of steel supports Building D Second floor	9661,53 Kg	1st construction Official	0,02	h	193,23	25	4	7
		Construction labourer	0,02	h				
Positioning of steel girders and joists Building A for second slab	10667,20 Kg	1st construction Official	0,03	h	320	40	5	8
		Construction labourer	0,03	h				
Positioning of steel girders and joists Building B for second slab	11093,90 Kg	1st construction Official	0,03	h	332,82	42	5	9
		Construction labourer	0,03	h				
Positioning of steel girders and joists Building C for second slab	8960,45 Kg	1st construction Official	0,03	h	268,81	34	5	7
		Construction labourer	0,03	h				
Positioning of steel girders and joists Building D for second slab	11520,60 Kg	1st construction Official	0,03	h	345,62	44	5	9
		Construction labourer	0,03	h				
Positioning of reinforcd precast slab Building A Second floor (and half shared area Buildind A-B)	447,70 m2	1st construction Official	0,22	h	98,5	13	4	4
		Construction labourer	0,22	h				
Positioning of reinforced precast slab Building B Second floor (and half shared area Buildind A-B)	460 m2	1st construction Official	0,22	h	101,2	13	4	4
		Construction labourer	0,22	h				
Positioning of reinforced precast slab Building C Second floor	385 m2	1st construction Official	0,22	h	84,7	11	3	4
		Construction labourer	0,22	h				
Positioning of reinforced precast slab Building D Second floor	446 m2	1st construction Official	0,22	h	98,12	13	4	4
		Construction labourer	0,22	h				
Concreting of the compressive layer on the slab, Building A Second floor (and half shared area Buildind A-B)	447,70 m2	1st construction Official	0,22	h	98,5	13	4	4
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
Concreting of the compressive layer on the slab, Building B Second floor (and half shared area Buildind A-B)	460 m2	1st construction Official	0,22	h	101,2	13	4	4
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
Concreting of the compressive layer on the slab, Building C Second floor	385 m2	1st construction Official	0,22	h	84,7	11	3	4
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
Concreting of the compressive layer on the slab, Building D Second floor	446 m2	1st construction Official	0,22	h	98,12	13	4	4
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
STRUCTURE THIRD FLOOR					2802,12	359	66	89
Positioning of steel supports Building A Second floor	8945,86 Kg	1st construction Official	0,02	h	178,92	23	4	6
		Construction labourer	0,02	h				
Positioning of steel supports Building B Second floor	9303,70 Kg	1st construction Official	0,02	h	186,1	24	4	6
		Construction labourer	0,02	h				
Positioning of steel supports Building C Second floor	7514,52 Kg	1st construction Official	0,02	h	150,3	19	4	5
		Construction labourer	0,02	h				
Positioning of steel supports Building D Second floor	9661,53 Kg	1st construction Official	0,02	h	193,23	25	4	7
		Construction labourer	0,02	h				
Positioning of steel girders and joists Building A for third slab	10667,20 Kg	1st construction Official	0,03	h	320	40	5	8
		Construction labourer	0,03	h				
Positioning of steel girders and joists Building B for third slab	11093,90 Kg	1st construction Official	0,03	h	332,82	42	5	9
		Construction labourer	0,03	h				
Positioning of steel girders and joists Building C for third slab	8960,45 Kg	1st construction Official	0,03	h	268,81	34	5	7
		Construction labourer	0,03	h				
Positioning of steel girders and joists Building D for third slab	11520,60 Kg	1st construction Official	0,03	h	345,62	44	5	9
		Construction labourer	0,03	h				
Positioning of reinforced precast slab Building A roof floor (and half shared area Buildind A-B)	517 m2	1st construction Official	0,22	h	113,74	15	4	4
		Construction labourer	0,22	h				
Positioning of reinforced precast slab Building B roof floor (and half shared area Buildind A-B)	530 m2	1st construction Official	0,22	h	116,6	15	4	4
		Construction labourer	0,22	h				
Positioning of reinforced precast slab Building C roof floor	385 m2	1st construction Official	0,22	h	84,7	11	3	4
		Construction labourer	0,22	h				
Positioning of reinforced precast slab Building D roof floor	446 m2	1st construction Official	0,22	h	98,12	13	4	4
		Construction labourer	0,22	h				
Concreting of the compressive layer on the slab, Building A roof floor (and half shared area Buildind A-B)	517 m2	1st construction Official	0,22	h	113,74	15	4	4
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
Concreting of the compressive layer on the slab, Building B roof floor (and half shared area Buildind A-B)	530 m2	1st construction Official	0,22	h	116,6	15	4	4
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
Concreting of the compressive layer on the slab, Building C roof floor	385 m2	1st construction Official	0,22	h	84,7	11	3	4
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
Concreting of the compressive layer on the slab, Building D roof floor	446 m2	1st construction Official	0,22	h	98,12	13	4	4
		Construction labourer	0,22	h				
		Vibrator gas needle ø30-50mm	0,107	h				
ROOF					7981,5	1001	84	150
Carrying out of lightweight galvanized steel structure for roof Building A (and half shared area Buildind A-B)	517 m2	1st construction Official	1,45	h	749,65	94	8	12
		Construction labourer	1,45	h				
Carrying out of lightweight galvanized steel structure for roof Building B (and half shared area Buildind A-B)	530 m2	1st construction Official	1,45	h	768,5	96	8	12
		Construction labourer	1,45	h				

Carrying out of lightweight galvanized steel structure for roof Building C	385 m2	1st construction Official	1,45 h	558,25	70	8	9
		Construction labourer	1,45 h				
Carrying out of lightweight galvanized steel structure for roof Building D	446 m2	1st construction Official	1,45 h	646,7	81	8	11
		Construction labourer	1,45 h				
Positioning of insolation for roof Building A (and half shared area Buildind A-B)	517 m2	1st construction Official	1,4 h	724	91	8	12
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,2 h				
Positioning of insolation for roof Building B (and half shared area Buildind A-B)	530 m2	1st construction Official	1,4 h	742	93	8	12
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,2 h				
Positioning of insolation for roof Building C	385 m2	1st construction Official	1,4 h	539	68	6	12
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,2 h				
Positioning of insolation for roof Building D	446 m2	Oficial 1ª construcción	1,4 h	624,4	78	6	13
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,2 h				
Positioning of underlay boards, battens and tiles for ROOF Building A (and half shared area Buildind A-B)	517 m2	1st construction Official	1,4 h	723,8	91	6	16
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,2 h				
Positioning of underlay boards, battens and tiles for ROOF Building B (and half shared area Buildind A-B)	530 m2	Oficial 1ª construcción	1,4 h	742	93	6	16
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,2 h				
Positioning of underlay boards, battens and tiles for ROOF Building C	385 m2	1st construction Official	1,4 h	539	68	6	12
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,2 h				
Positioning of underlay boards, battens and tiles for ROOF Building D	446 m2	Oficial 1ª construcción	1,4 h	624,4	78	6	13
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,2 h				
FACADE				**9340**	**1177**	**132**	**192**
FACADE FIRST FLOOR				**1960,41**	**248**	**40**	**46**
Carrying out of the external layer of bricks FACADE Building A First floor	127,83 m2	1st construction Official	2,25 h	287,61	36	6	6
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the external layer of bricks FACADE Building B First floor	136,73 m2	1st construction Official	2,25 h	307,64	39	8	5
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the external layer of bricks FACADE Building C First floor	159,82 m2	1st construction Official	2,25 h	359,6	45	6	8
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the external layer of bricks FACADE Building D First floor	314,56 m2	Oficial 1ª construcción	2,25 h	707,76	89	8	12
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the internal layer FACADE Building A First floor	127,83 m2	1st construction Official	0,403 h	51,52	7	3	3
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of the internal layer FACADE Building B First floor	136,73 m2	1st construction Official	0,403 h	55,1	7	3	3
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Carrying out of the internal layer FACADE Building C First floor	159,82 m2	Oficial 1ª construcción	0,403 h	64,41	9	3	3
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of the internal layer FACADE Building D First floor	314,56 m2	1st construction Official	0,403 h	126,77	16	3	6
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
FACADE SECOND FLOOR				**3547,68**	**447**	**46**	**71**
Carrying out of the external layer of bricks FACADE Building A Second floor	344,33 m2	1st construction Official	2,25 h	774,74	97	8	13
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the external layer of bricks FACADE Building B Second floor	353,79 m2	1st construction Official	2,25 h	796,03	100	8	13
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the external layer of bricks FACADE Building C Second floor	296,1 m2	1st construction Official	2,25 h	666,23	84	7	12
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the external layer of bricks FACADE Building D Second floor	343,02 m2	Oficial 1ª construcción	2,25 h	771,8	97	8	13
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the internal layer FACADE Building A Second floor	344,33 m2	1st construction Official	0,403 h	138,73	18	4	5
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				

Carrying out of the internal layer FACADE Building B Second floor	353,79 m2	1st construction Official	0,403 h	142,58	18	4	5
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Carrying out of the internal layer FACADE Building C Second floor	296,1 m2	Oficial 1ª construcción	0,403 h	119,33	15	3	5
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of the internal layer FACADE Building D Second floor	343,02 m2	1st construction Official	0,403 h	138,24	18	4	5
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
FACADE THIRD FLOOR				**3831,91**	**482**	**46**	**75**
Carrying out of the external layer of bricks FACADE Building A Third floor (and half shared area Buildind A-B)	397,62 m2	1st construction Official	2,25 h	894,65	112	8	14
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the external layer of bricks FACADE Building B Third floor (and half shared area Buildind A-B)	407,62 m2	1st construction Official	2,25 h	917,15	115	8	15
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the external layer of bricks FACADE Building C Third floor	296,1 m2	1st construction Official	2,25 h	666,23	84	7	12
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the external layer of bricks FACADE Building D Third floor	343,02 m2	Oficial 1ª construcción	2,25 h	771,8	97	8	13
		Assembly Carpenter	1,2 h				
		Specialized construction laborer	1,45 h				
Carrying out of the internal layer FACADE Building A Third floor (and half shared area Buildind A-B)	397,62 m2	1st construction Official	0,403 h	160,24	20	4	5
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of the internal layer FACADE Building B Third floor (and half shared area Buildind A-B)	407,62 m2	1st construction Official	0,403 h	164,27	21	4	6
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Carrying out of the internal layer FACADE Building C Third floor	296,1 m2	Oficial 1ª construcción	0,403 h	119,33	15	3	5
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of the internal layer FACADE Building D Third floor	343,02 m2	1st construction Official	0,403 h	138,24	18	4	5
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
PARTITIONS				**3316,28**	**420**	**72**	**136**
PARTITIONS FIRST FLOOR				**282,92**	**36**	**16**	**20**
Placement pre-frame for inner walls Building A First floor	82,415 m2	1st construction Official	0,403 h	33,21	4	2	2
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Placement pre-frame for inner walls Building B First floor	82,415 m2	1st construction Official	0,403 h	33,21	4	2	2
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Placement pre-frame for inner walls Building C First floor	59,1 m2	1st construction Official	0,403 h	23,82	3	2	2
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Placement pre-frame for inner walls Building D First floor	127,11 m2	1st construction Official	0,403 h	51,22	7	2	4
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building A First floor	82,415 m2	1st construction Official	0,403 h	33,21	4	2	2
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building B First floor	82,415 m2	1st construction Official	0,403 h	33,21	4	2	2
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building C First floor	59,1 m2	1st construction Official	0,403 h	23,82	3	2	2
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building D First floor	127,11 m2	1st construction Official	0,403 h	51,22	7	2	4
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
PARTITIONS SECOND FLOOR				**1633,22**	**208**	**30**	**60**
Placement pre-frame for inner walls Building A Second floor	560,23 m2	1st construction Official	0,403 h	225,77	29	4	8
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Placement pre-frame for inner walls Building B Second floor	560,23 m2	2nd construction Official	0,403 h	225,77	29	4	8
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Placement pre-frame for inner walls Building C Second floor	393,63	1st construction Official	0,403 h	158,63	20	3	7
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				

Placement pre-frame for inner walls Building D Second floor	512,27	1st construction Official	0,403 h	206,44	26	4	7
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building A Second floor	560,23 m2	1st construction Official	0,403 h	225,77	29	4	8
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building B Second floor	560,23 m2	1st construction Official	0,403 h	225,77	29	4	8
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building C Second floor	393,63	1st construction Official	0,403 h	158,63	20	3	7
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building D Second floor	512,27	1st construction Official	0,403 h	206,44	26	4	7
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
PARTITIONS THIRD FLOOR				**1400,14**	**176**	**26**	**56**
Placement pre-frame for inner walls Building A Third floor	415,64 m2	1st construction Official	0,403 h	167,5	21	3	7
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Placement pre-frame for inner walls Building B Third floor	415,64 m2	1st construction Official	0,403 h	167,5	21	3	7
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Placement pre-frame for inner walls Building C Third floor	393,63 m2	1st construction Official	0,403 h	158,63	20	3	7
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Placement pre-frame for inner walls Building D Third floor	512,27 m2	1st construction Official	0,403 h	206,44	26	4	7
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building A Third floor	415,64 m2	1st construction Official	0,403 h	167,5	21	3	7
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building B Third floor	415,64 m2	1st construction Official	0,403 h	167,5	21	3	7
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building C Third floor	393,63 m2	1st construction Official	0,403 h	158,63	20	3	7
		Assembly Carpenter	0,403				
		Specialized construction laborer	0,403 h				
Carrying out of inner walls Building D Third floor	512,27 m2	1st construction Official	0,403 h	206,44	26	4	7
		Assembly Carpenter	0,403 h				
		Specialized construction laborer	0,403 h				
INSTALATIONS				**1.344**	**168**	**30**	**30**
Electricity installation				256	32	6	6
Plumbing installation				320	40	6	7
Sanitary installation (housing)				320	40	6	7
Heating installation				256	32	6	6
Fire protection installation				192	24	6	4
COATINGS				**4505,24**	**565**	**56**	**47**
Placement tiling for bathrooms and kitchen	507 m2	1st construction Official	0,4 h	202,8	26	8	4
		Ordinary construction laborer	0,2 h				
Placement PVC pavement	1207,80 m2	1st construction Official	0,16 h	193,25	25	8	4
		Specialized construction laborer	0,16 h				
Placement Laminate flooring for rooms	1492 m2	1st construction Official	0,6 h	895,2	112	10	12
		Carpentry assistant	0,6 h				
Placement False ceiling	3484,80 m2	1st construction Official	0,25 h	871,2	109	10	12
		Ordinary construction labourer	0,25 h				
Painting works	11713,96 m2	1st Official painting	0,2 h	2342,79	293	20	15
CARPENTRY				**400,56**	**52**	**12**	**14**
Exterior carpentry	121 u	1st construction Official	1,2 h	145,2	19	4	5
		Carpentry assistant	1,2 h				
Interior carpentry	229 u	1st construction Official	0,6 h	137,4	18	4	5
		Carpentry assistant	0,6 h				
Placement of Defenses (interior and exterior)	235,92 m	1st construction Official	0,5 h	117,96	15	4	4
		1st Official	0,5 h				
BATHROOM FITTINGS AND OTHER FURNITURE				**240**	**30**	**4**	**8**
Installation of bathroom fittings, kitchen and other furniture				240	30	4	8
		Total Activity HOURS		**35.526**	**Total duration activities NO simultaneity (days)**		**895**

11_BUDGET

ITEM MEASUREMENTS AND COSTS BY CHAPTERS

Nº Item		Description	Measurement	Price	Cost
1		**EARTHWORK**			
1.1	m3	Exc-empty. machine.compact soils ..... (ltm1.1)	975,85	25,56	24.942,73
1.2	m3	Transport rubbish dump <10km.mech. load..... (ltm1.3)	1.118,41	50,08	56.009,97
1.3	m3	Exc-empty footings machine. compact soils ..... (ltm1.2)	142,56	348,85	49.732,06
		TOTAL CHAPTER 1.....			**130.684,76**
2		**SANITARY DRAINAGE**			
2.1	ud	Supply connection sew erage system..... (ltm2.1)	3,00	9.191,91	27.575,73
2.2	ud	Siphonic manhole 63x63x80 cm..... (ltm2.2)	4,00	2.046,42	8.185,68
2.3	ud	Crossing manhole 51x51x65 cm..... (ltm2.3)	14,00	1.539,12	21.547,68
2.4	m.	Collector buried.PVC.160mm. ..... (ltm2.4)	141,05	1.128,62	159.191,85
		TOTAL CHAPTER 2.....			**216.500,94**
3		**FOUNDATION**			
3.1	m2	Cleaning concrete e=12 cm..... (ltm3.1)	142,56	118,54	16.899,06
3.2	ud	Footings 160x160x100 IIIa+Qb 30 ..... (ltm3.2)	99,00	3.065,75	303.509,25
3.3	m2	ISOVER slab on ground (Styrolit) ..... (ltm3.3)	1.090,00	3.212,16	3.501.254,40
		TOTAL CHAPTER 3.....			**3.821.662,71**
4		**STRUCTURE**			
4.1	kg	Steel S275JR for supports ..... (ltm4.1)	106.276,82	24,38	2.591.028,87
4.2	kg	Steel girders and joists..... (ltm4.2)	126.726,38	27,14	3.439.353,95
4.3	ud	Anchoring plate 380x380x30mm..... (ltm4.3)	99,00	989,23	97.933,77
4.4	ud	Precast module of stairs..... (ltm4.4)	42,00	7.439,99	312.479,58
4.5	m2	Reinforced precast slab e=30cm. ..... (ltm4.5)	1.726,89	3.880,91	6.701.904,67
		TOTAL CHAPTER 4.....			**13.142.700,84**
5		**ROOF**			
5.1	m2	Isover Vario Duplex..... (ltm5.1)	1.878,00	3.842,23	7.215.707,94
5.2	m2	Lightw eight galvanized steel structure ..... (ltm5.2)	1.878,00	745,68	1.400.387,04
		TOTAL CHAPTER 5.....			**8.616.094,98**
6		**FACADE**			
6.1	m2	ISOVER ventilated system 296 mm..... (ltm6.1)	3.520,74	3.460,77	12.184.471,37
		TOTAL CHAPTER 6.....			**12.184.471,37**
7		**PARTITIONS**			
7.1	m2	Isover partition gypsum system..... (ltm7.1)	4.114,58	1.080,28	4.444.898,48
		TOTAL CHAPTER 7.....			**4.444.898,48**

ITEM MEASUREMENTS AND COSTS BY CHAPTERS

Nº Item		Description	Measurement	Price	Cost
8		**COATINGS**			
8.1		**PAVEMENTS AND TILING**			
8.1.1	m	Oak baseboard agl 70x10 ..... (ltm8.1)	1.571,60	32,44	50.982,70
8.1.2	m2	Laminate flooring oak 2 pan..... (ltm8.2)	1.492,00	197,00	293.924,00
8.1.3	m2	Stonew are flooring 35x35 C1F jnt min CG2 ..... (ltm8.3)	507,00	134,77	68.328,39
8.1.4	m2	Flooring rolls PVC antiestatic adh cond..... (ltm8.4)	1.207,80	70,99	85.741,72
		TOTAL SUBCHAPTER 8.1			**498.976,81**
8.2		**PAINTING**			
8.2.1	m2	Paint plast vin int vert w h ..... (ltm8.5)	3.484,80	49,85	173.717,28
8.2.2	m2	Paint plast vin int hrz w h ..... (ltem8.6)	8.229,16	50,45	415.161,12
		TOTAL SUBCHAPTER 8.2			**588.878,40**
8.3.1	ud	PAVEMENTS AND TILING ..... (Chap08.1)	1,00	498.976,81	498.976,81
8.3.2	ud	PAINTING ..... (Chap08.2)	1,00	588.878,40	588.878,40
8.3.3	m2	False ceiling plaster-18 w /met choring..... (ltm8.7)	3.484,80	336,79	1.173.645,79
		TOTAL CHAPTER 8.....			**2.261.501,00**
9		**PLUMBING, SANITATION**			
9.1	ud	Main connection <15m Ø50mm..... (ltm9.1)	4,00	2.805,61	11.222,44
9.2	Ml	Drainpipe rain PVC 125 mm ..... (ltm9.2)	7,00	21.775,34	152.427,38
9.3	ML	Rigid copper pipe 26-28 mm ..... (ltm9.3)	35,00	9.270,10	324.453,50
9.4	ud	Water installation toilet-w ashbasin..... (ltm9.4)	94,00	3.605,36	338.903,84
9.5	ud	Water installation kitchen ..... (ltm9.5)	9,00	4.790,71	43.116,39
9.6	m	Copper pipe Water distrib. ø 18 mm 30%acc ..... (ltm9.6)	1.340,00	83,41	111.769,40
9.7	ud	Battery meter for w ater inx 28 hou 2 file w /cont..... (ltm9.7)	4,00	11.955,63	47.822,52
9.8	m.	Sanitary drainpipe.PVC.125mm. ..... (ltm9.8)	420,80	587,95	247.409,36
9.9	m.	Sanitary drainpipe.PVC.100mm. ..... (ltm9.9)	190,51	28.483,62	5.426.414,45
9.10	m.	Sanitary drainpipe.PVC.60mm. ..... (ltm9.10)	93,44	29.765,08	2.781.249,08
9.11	m.	Sanitary drainpipe.PVC.50mm. ..... (ltm9.11)	77,61	21.775,34	1.689.984,14
		TOTAL CHAPTER 9.....			**11.174.772,50**

ITEM MEASUREMENTS AND COSTS BY CHAPTERS

Nº Item		Description	Measurement	Price	Cost
10		**ELECTRICITY INSTALLATION**			
10.1	Ml	Earth connection structure (ltm10.1)	15,00	47.243,05	708.645,75
10.2	ML	Circuit "various uses" PVC (ltm10.2)	100,00	24.705,27	2.470.527,00
10.3	ud	Circuit breaker panel 160A (ltm10.3)	2,00	441.286,33	882.572,66
10.4	m	Distribution line copper 3x70+1x35 Ø110 (ltm10.4)	400,00	142,26	56.904,00
10.5	ud	Centralization meters 3 colu f/gnal serv (ltm10.5)	4,00	4.166,49	16.665,96
10.6	m	Single-phase ind. branch 3x10 tb flx (ltm10.6)	4,00	86,90	347,60
10.7	m	Three-phase ind. branch 5x10 tb flx (ltm10.7)	4,00	98,14	392,56
10.8	ud	Main general distribution box EB f/5 circ (ltm10.8)	4,00	711,93	2.847,72
10.9	ud	Lighting system for stairs 10H 3V (ltm10.9)	24,00	6.719,51	161.268,24
10.10	ud	Ins emergency lightning system for stairs 10H 3V (ltm10.10)	12,00	4.407,52	52.890,24
10.11	ud	Ins lighting hoistway 10H 3V (ltm10.11)	12,00	1.294,18	15.530,16
10.12	ud	Line elevator 10H 3V (ltm10.12)	4,00	2.048,05	8.192,20
10.13	ud	Line RITI 10H 3V (ltm10.13)	4,00	863,46	3.453,84
10.14	m	Line 4x10 tb flx PVC (ltm10.14)	4,00	81,88	327,52
10.15	ud	Automatic thermal-magnetic breakers 25A bipolar (ltm10.15)	12,00	77,39	928,68
10.16	ud	Differencial circuit breaker 25A bip 30mA (ltm10.16)	12,00	181,69	2.180,28
10.17	ud	Recessed switch medium quality (ltm10.17)	112,00	49,99	5.598,88
10.18	ud	Bipolar recessed switch (ltm10.18)	112,00	52,67	5.899,04
10.19	ud	Domestic current outlet med qua reces 25A (ltm10.19)	112,00	62,12	6.957,44
10.20	ud	Light point emb commuted 60W (ltm10.20)	112,00	1.063,47	119.108,64
		TOTAL CHAPTER 10			**4.521.238,41**
11		**HEATING INSTALLATION**			
11.1	ud	Circulator 0-6m3/h 0-5.8mca (ltm11.2)	8,00	1.073,35	8.586,80
11.2	ud	Acummulator w/coil 200l w/prot cat (ltm11.1)	8,00	14.210,62	113.684,96
11.3	ud	Radiator analog 900W 600x690X100 (ltm11.4)	98,00	3.155,27	309.216,46
11.4	ud	Radiator analog 900W 600x1290X100 (ltm11.3)	104,00	4.026,13	418.717,52
		TOTAL CHAPTER 11			**850.205,74**
12		**FIRE PROTECTION INSTALATION**			
12.1	ud	Hose reel 25 fix cabin 750x600x195 (ltm12.1)	10,00	4.017,83	40.178,30
12.2	ud	Detc smoke conve opt (ltm12.2)	112,00	443,34	49.654,08
12.3	ud	Fire extinguiser (ltm12.3)	21,00	776,32	16.302,72
12.4	ud	Signboard 297x148 evacuation (ltm12.4)	24,00	102,28	2.454,72
12.5	ud	Signboard 297x148 firefighters (ltm12.5)	24,00	102,28	2.454,72
		TOTAL CHAPTER 12			**111.044,54**
13		**OTHER INSTALATIONS**			
13.1	ud	Network distr cltv TV 2 plants 24-28 viv (ltm13.1)	4,00	35.518,92	142.075,68
13.2	ud	Power outlet tf RJ12, 6 contacts (ltm13.2)	104,00	54,32	5.649,28
13.3	ud	Television power outlet TV-R (ltm13.3)	104,00	58,76	6.111,04
		TOTAL CHAPTER 13			**153.836,00**

ITEM MEASUREMENTS AND COSTS BY CHAPTERS

Nº Item		Description		Measurement	Price	Cost
14		**CARPENTRY**				
14.1		**Interior carpentry**				
14.1.1		**Housing carpentry**				
14.1.1.1	ud	Entrance door varnished oak veneer	(EFTM.2cac)	119,00	2.591,26	308.359,94
14.1.1.2	ud	Slide door oak veneer 1 sh-82.5 (bathrooms)	(EFTM.6ccaj)	100,00	3.143,23	314.323,00
		TOTAL SECTION 14.1.1				**622.682,94**
14.1.2		**Shared areas**				
14.1.2.1	ud	Hinger door oak veneer 2 sh-72.5	(EFTM.1ceaj)	26,00	2.406,56	62.570,56
		TOTAL SECTION 14.1.2				**62.570,56**
		TOTAL SUBCHAPTER 14.1				**685.253,50**
14.2		**Exterior carpentry**				
14.2.1	ud	Door 2sh 180x210 lac col	(EFTL90bd)	66,00	2.609,42	172.221,72
14.2.2	ud	Window slid 2sh 137x190 2fix side 40 mnblc	(EFTL.3hhht)	37,00	1.599,61	59.185,57
14.2.3	ud	Window slid 2sh 100x350 2fix side 40 mnblc	(EFTL.3hhht2)	18,00	1.578,13	28.406,34
		TOTAL SUBCHAPTER 14.2				**259.813,63**
14.3		**Defences**				
14.3.1	ud	Railing 100 galv 20x40 L=4m	(RAILBALC.4)	23,00	1.306,88	30.058,24
14.3.2	ud	Railing Al squa curv 100cm	(EFSB.5acbs12)	42,00	1.565,88	65.766,96
14.3.3	ud	Railing 100 galv 20x40 L=3.64m	(RAILBALC.<4)	10,00	1.189,26	11.892,60
		TOTAL SUBCHAPTER 14.3				**107.717,80**
		TOTAL CHAPTER 14				**1.052.784,93**
15		**BATHROOM FITTINGS AND OTHER FURNITURE**				
15.1	ud	Steel sink 2 spaces + drainer 120x50 cm.,	(D26PD801)	10,00	2.054,50	20.545,00
15.2	ud	Countertop sink Roca Olimpo w hite	(D26FP010)	94,00	2.459,70	231.211,80
15.3	ud	Toilet Roca Victoria high tank/w hite,	(D26LA001)	94,00	2.285,31	214.819,14
15.4	ud	Acry Show er tray 90x75cm squa/rect drain	(EIFS.5haab)	93,00	1.200,26	111.624,18
15.5	ud	Bidet w hite w o/cover eco	(EIFS21aaa)	24,00	1.266,92	30.406,08
		TOTAL CHAPTER 15				**608.606,20**

ITEM MEASUREMENTS AND COSTS BY CHAPTERS

Nº Item		Description	Measurement	Price	Cost
16		**OTHERS**			
16.1	ud	Hydraulic lift 6people 3stp (EITA.3bba)	4,00	39.423,84	157.695,36
16.2	ud	Supported bar aff disabled WC (ESMR.8ab)	29,00	179,34	5.200,86
16.3	ud	Support bar hrz disabled 30 show er (ESMR.8dd)	28,00	80,63	2.257,64
16.4	ud	Tow el rail 600 chro-w hite (ESMR16ae)	190,00	66,64	12.661,60
16.5	ud	Closet bathroom countertop 110x83x59 (ESMR19fa)	98,00	1.383,35	135.568,30
16.6	ud	Letterbox exterior 24x9x32 paint col (ESMR49bb)	100,00	60,99	6.099,00
16.7	ud	Fridge-freezer 185x69.5x59.5 cm (ESMR46ci)	11,00	838,90	9.227,90
16.8	ud	Washing machine 10prog-850rpm (ESMR45ab)	4,00	630,62	2.522,48
16.9	ud	Kitchen extractor hood 218x127x304 (ESMR40ah)	8,00	3.092,96	24.743,68
16.10	ud	Kitchen furniture oak 55 1door (ESMR32dga)	54,00	382,85	20.673,90
16.11	ud	Kitchen furniture oak 55 w /draw ers (ESMR32dgc)	20,00	457,62	9.152,40
16.12	ud	Kitchen furniture oven roak w /sup (ESMR30da)	8,00	121,80	974,40
16.13	ud	Neon sign 250x185x75 (ESIL.1a)	16,00	408,18	6.530,88
16.14	ud	Electric Stove eco 4oven (COCELEC)	8,00	3.723,10	29.784,80
16.15	ud	Electric Stove eco 4oven Industrial Kitchen 100 pers (COCELECIND)	4,00	6.089,20	24.356,80
16.16	ud	Kitchen extractor hood 218x127x304 Industrial Kit (ESMR40ahFINDK)	4,00	12.189,20	48.756,80
		TOTAL CHAPTER 16			**496.206,80**
17		**HEALTH AND SAFETY**			
17.1	ud	Booth size metal surface 2.35x6.00 (ltm17.1)	2,00	39.627,91	79.255,82
17.2	ud	Storehouse 6.00x2.40m (ltm17.2)	3,00	37.316,71	111.950,13
17.3	ud	Mirror changing rooms/toilets. (ltm17.3)	2,00	303,34	606,68
17.4	ud	Clothes hanger cabins (ltm17.4)	2,00	71,95	143,90
17.5	ud	Simple bench w /shoerack lg200cm (ltm17.5)	2,00	962,08	1.924,16
17.6	ud	Metallic bench 5p (ltm17.6)	4,00	309,81	1.239,24
17.7	ud	Met Locker 30x50x180cm 2le 2sp (ltm17.7)	2,00	473,64	947,28
17.8	ud	First-aid kid (ltm17.8)	2,00	528,72	1.057,44
17.9	m	Debris pipe (ltm17.9)	3,00	353,64	1.060,92
17.10	m2	Planking 20x7cm (ltm17.10)	6,52	79,84	520,56
17.11	m2	Anti-falling safety net PP 20x20mm (ltm17.11)	566,85	189,19	107.242,35
17.12	ud	Prtotection helmet adj/roulette (ltm17.12)	8,00	8,36	66,88
17.13	ud	Helmet w ith hearing protection (ltm17.13)	8,00	46,82	374,56
17.14	ud	Gloves gen cot-rub (ltm17.14)	10,00	28,20	282,00
17.15	ud	Harness 1 tie point (ltm17.15)	4,00	68,74	274,96
17.16	m	Metal fence pref. galv blind sheet (ltm17.16)	275,76	273,53	75.428,63
17.17	ud	Cone PVC 90cm refl nor (ltm17.17)	20,00	247,05	4.941,00
17.18	ud	Prohibition signal (ltm17.18)	5,00	140,89	704,45
17.19	ud	Warning signal (ltm17.19)	5,00	134,16	670,80
17.20	ud	Obligation signal (ltm17.20)	5,00	140,89	704,45
17.21	ud	Recommendation signal (ltm17.21)	5,00	159,49	797,45
17.22	ud	Manual siren (ltm17.22)	2,00	81,06	162,12
17.23	h	Workers training (ltm17.23)	3,00	150,00	450,00
17.24	ud	Individual educational material (ltm17.24)	10,00	140,00	1.400,00
		TOTAL CHAPTER 17			**392.205,78**
18		**QUALITY CONTROL**			
18.1	ud	Test of materials (ltm18.1)	1,00	245.600,00	245.600,00
18.2	ud	Test on w atch (ltm18.2)	1,00	124.400,00	124.400,00
		TOTAL CHAPTER 18			**370.000,00**

ITEM MEASUREMENTS AND COSTS BY CHAPTERS

Nº Item		Description	Measurement	Price	Cost
19		**Indirect Costs Study**			
19.1	M	Administrative (ltm19.1)	1,00	15.282,41	15.282,41
19.2	M	Manager (ltm19.2)	2,00	19.498,25	38.996,50
19.3	M	Crane operator (ltm19.3)	0,60	17.917,31	10.750,39
19.4	M	Guardian (ltm19.4)	1,00	7.799,30	7.799,30
19.5	ud	Services (electricity, w ater,...) (ltm19.5)	1,00	421,58	421,58
19.6	ud	Ground connections (ltm19.6)	20,00	210,79	4.215,80
19.7	M	Crane (ltm19.7)	2,00	42.158,40	84.316,80
19.8	M	Freight hoist (ltm19.8)	4,00	3.161,88	12.647,52
19.9	ud	Services consumption (ltm19.9)	1,00	2.107,92	2.107,92
19.10	ud	Office materials (ltm19.10)	1,00	420,16	420,16
19.11	ud	Others (ltm19.11)	1,00	1.053,96	1.053,96
19.12	M	Site manager (ltm19.12)	1,00	26.348,99	26.348,99

TOTAL CHAPTER 19..... 204.361,33

TOTAL 64.753.777,31

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap01 EARTHWORK

Itm1.1 **m3** **Exc-empty. machine.compact soils**

Clearing and cleaning the area of compact soils with a depth average of 25 cm, mechanical means, without load nor transport to rubbish dump.

O01OA070	0,025 h.	Ordinary labourer	211,40	5,29	
M01ME060	0,025 h.	Wheel loader backhoe	790,90	19,77	
%0200	2,000 %	Auxiliar means	25,10	0,50	
			Labor cost		5,29
			Machinery		19,77
			Others		0,50
			TOTAL ITEM		**25,56**

The overall cost of the item is TWENTY FIVE SEK con FIFTY SIX .

Itm1.3 **m3** **Transport rubbish dump <10km.mech. load**

Ground rubbish transport in truck< 15 T to rubbish dump, distance <10 km (<20km round trip), even loading and unloading by mechanical means.

M01ME110	0,020 h.	Front loader tires 100 CV	500,90	10,02	
M01MT020	0,100 h.	Dump truck 10 t.	390,80	39,08	
%0200	2,000 %	Auxiliar means	49,10	0,98	
			Machinery		49,10
			Others		0,98
			TOTAL ITEM		**50,08**

The overall cost of the item is FIFTY SEK con EIGHT .

Itm1.2 **m3** **Exc-empty footings machine. compact soils**

Footings excavation in compact soils with dimensions 160x160x100 cm, mechanical means, without load nor transport to rubbish dump.

O01OA070	0,025 h.	Ordinary labourer	211,40	5,29	
M01ME060b	0,800 h.	Wheel loader backhoe	420,90	336,72	
%0200	2,000 %	Auxiliar means	342,00	6,84	
			Labor cost		5,29
			Machinery		336,72
			Others		6,84
			TOTAL ITEM		**348,85**

The overall cost of the item is THREE HUNDRED AND FORTY EIGHT SEK con EIGHTY FIVE .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap02 SANITARY DRAINAGE

ltm2.1	**ud**	**Supply connection sewerage system** Connection to the general drainage network of the city, smooth PVC Series SN-4, annular rigid nominal 4 kN / m², 160 mm in diameter, by adhesive bonding. Formed by: breaking the pavement with compressor, manual digging of sanitation trenches in areas with hard consistency, placement of unreinforcement concrete pipe, with rubber seal of 20 cm. (inside diameter) posterior filled and replacement unreinforcement concrete pavement H-150, including auxiliary means.			
O01OA040	0,750 h.	2nd Official	192,87	144,65	
O01OA060	1,500 h.	Specialized labourer	179,38	269,07	
M01MC010	1,000 h.	Air Compressor.c=2,5m3/min	440,74	440,74	
M01MC050	1,000 h.	Pneumatic hammer chopper	115,07	115,07	
E02EES020	7,200 m3	Exc.trench sanita. hard soil by hand	739,90	5.327,28	
E03CAE020	8,000 m.	Concrete pipe buried.D=20cm	287,33	2.298,64	
P01HC080	0,720 m3	Concrete from central	828,41	596,46	
		Labor cost			7.035,00
		Machinery			555,81
		Materials			1.601,10
		TOTAL ITEM			**9.191,91**

The overall cost of the item is NINE THOUSAND AND ONE HUNDRED AND NINETY ONE SEK con NINETY ONE .

ltm2.2	**ud**	**Siphonic manhole 63x63x80 cm.** Recordable siphon manhole 63x63x80 cm. internal measures, built with solid brick of half a foot thick, received with cement mortar, placed on concrete slab of unreinforcement concrete H-100, grouted and polished on the inside with cement mortar, with siphon formed for an long elbow 87.5 º of PVC, and prefabricated reinforced concrete cap, completely finished and including auxiliary means, not including the excavation or filling posterior perimeter.			
O01OA030	2,000 h.	1st Official	205,73	411,46	
O01OA060	1,000 h.	Specialized labourer	179,38	179,38	
P01HC030	0,085 m3	Unreinforcement concrete H-100/40 central	779,93	66,29	
P05LT020	110,000 ud	Brick solid 24x12x4	9,50	1.045,00	
P01MC040	0,055 m3	Mortar 1/6 prepared in central	753,58	41,45	
P01MC010	0,035 m3	Mortar 1/3 prepared in central	835,26	29,23	
P02TP110	1,000 ud	Elbow 87,5º long PVC san.110 mm.	56,49	56,49	
P02AW030	1,000 ud	Manhole cap Reinf concr. 70x70x6 cm.	217,12	217,12	
		Labor cost			590,84
		Materials			1.455,58
		TOTAL ITEM			**2.046,42**

The overall cost of the item is TWO THOUSAND AND FORTY SIX SEK con FORTY TWO .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm2.3		**ud**	**Crossing manhole 51x51x65 cm** Unrecordable buried manhole of 51x51x65 cm. internal measures, built with solid brick of half a foot thick, received with cement mortar, placed on concrete slab of unreinforcement concrete H-100, grouted and polished on the inside with cement mortar, and closed superiorly with a panel of tongued in groove boards and concrete slab H-150 lightly reinforced with mesh, fully finished and sealed with cement mortar and including auxiliary means, not including the excavation or filling posterior perimeter.			
O01OA030	1,700	h.	1st Official	205,73	349,74	
O01OA060	0,850	h.	Specialized labourer	179,38	152,47	
P01HC030	0,060	m3	Unreinforcement concrete H-100/40 central	779,93	46,80	
P05LT020	70,000	ud	Brick solid 24x12x4	9,50	665,00	
P01MC040	0,035	m3	Mortar 1/6 prepared in central	753,58	26,38	
P01MC010	0,025	m3	Mortar 1/3 prepared in central	835,26	20,88	
P05LG140	2,500	ud	Ceramic furring brick m-h 80x25x4	81,20	203,00	
P03AM080	0,570	m2	Mesh 15x30x4 -1,001 kg/m2	79,00	45,03	
P01HC070	0,035	m3	Concrete H-150/20 central	852,13	29,82	
			Labor cost			502,21
			Materials			1.036,91
			TOTAL ITEM			**1.539,12**

The overall cost of the item is ONE THOUSAND AND FIVE HUNDRED AND THIRTY NINE SEK con TWELVE .

Itm2.4		**m.**	**Collector buried.PVC.160mm.** Collector of smooth PVC Series SN-4 buried in the foundation slab or suported on river sand, annular rigid nominal 4 kN/ m², 160 mm in diameter, with gasket, proportional part for sealing and auxiliar means.			
O01OA030	0,350	h.	1st Official	205,73	72,01	
O01OA060	0,350	h.	Specialized labourer	179,38	62,78	
P02TF030	1,000	m.	Fibercement tube sanit.160 mm.	860,95	860,95	
P02TF310	0,400	ud	Rubber ring tub.fibr.sanit.160 mm.	300,09	120,04	
P01AA020	0,070	m3	River sand 0/5 mm.	183,39	12,84	
			Labor cost			134,79
			Materials			993,83
			TOTAL ITEM			**1.128,62**

The overall cost of the item is ONE THOUSAND AND ONE HUNDRED AND TWENTY EIGHT SEK con SIXTY TWO .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap03 FOUNDATION

Itm3.1	**m2**	**Cleaning concrete e=12 cm** Blinding concrete layer HM 15/P/40/IIa prepared for the base of foundation and placed.			
MOOA.8a	0,060 h	1st construction Official	221,20	13,27	
MOOA11a	0,120 h	Specialized construction laborer	215,10	25,81	
PBPC.1daa	0,130 m3	H 15 L dmax 40	593,40	77,14	
%0200	2,000 %	Auxiliar means	116,20	2,32	
			Labor cost		39,08
			Materials		77,14
			Others		2,32
			TOTAL ITEM		**118,54**

The overall cost of the item is ONE HUNDRED AND EIGHTEEN SEK con FIFTY FOUR .

Itm3.2	**ud**	**Footings 160x160x100 IIIa+Qb 30** Footing square of 160 x160 cm. and 100 cm. edge, reinforced concrete HA-30/B/20/IIIa from central, with an amount of 30 kg., B 500 S steel, including elaboration and placing process, not including formwork.			
MOOA.8a	0,864 h	1st construction Official	221,20	191,12	
MOOA11a	0,864 h	Specialized construction laborer	215,10	185,85	
PBPC.5abbc	2,888 m3	Concrete 30 S Dmax 20 IIIa+Qb.	790,95	2.284,26	
MMMH.5c	0,300 h	Vibrator gas needle ø30-50mm	14,20	4,26	
ECDZ.4bj	30,000 kg	B 500 S corruø6-16	12,33	369,90	
AUX0.02	0,020 %	Auxiliar means	1.518,10	30,36	
			Labor cost		548,27
			Machinery		4,26
			Materials		2.475,66
			Others		37,56
			TOTAL ITEM		**3.065,75**

The overall cost of the item is THREE THOUSAND AND SIXTY FIVE SEK con SEVENTY FIVE .

Itm3.3	**m2**	**ISOVER slab on ground (Styrolit)**			
Mooas5fs	0,864 h	1st construction Official	221,20	191,12	
gsgsggsfdf	0,864 h	Specialized construction laborer	215,10	185,85	
zdfgrscrthd78	1,050 m2	Isolation Styrolit Isolerskiva S80 100mm	392,95	412,60	
TEQUIERO.	1,050 m2	Drainage material	426,80	448,14	
f45sd2dgs	1,050 m2	Geotextil layer	320,60	336,63	
EEHL.1baaf	1,050 m3	Renif Concrete-30/P/40/IIIa+Qb reinf f/slab	1.538,57	1.615,50	
AUXME0.20	0,020 %	Auxiliar means	1.116,20	22,32	
			Labor cost		376,97
			Materials		2.812,87
			Others		22,32
			TOTAL ITEM		**3.212,16**

The overall cost of the item is THREE THOUSAND AND TWO HUNDRED AND TWELVE SEK con SIXTEEN .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap04 STRUCTURE

Itm4.1	**kg**	**Steel S275JR for supports** Steel S275JR in supports with laminated profiles serie HEB, simple pieces, welded structure.			
PEAP10a	1,100 m2	Steel S275JR profile medium value	9,10	10,01	
PRCP.8cbc	0,050 l	Anti-oxid primer met matte col	114,30	5,72	
%0350	20,010 %	Auxiliar means	15,70	3,14	
MOOM11amet	0,020 h	1st Official steel	148,89	2,98	
MOOM11amet2	0,020 h	Specialized steel labourer	126,60	2,53	
		Labor cost			5,51
		Materials			15,73
		Others			3,14
		TOTAL ITEM			**24,38**

The overall cost of the item is TWENTY FOUR SEK con THIRTY EIGHT .

Itm4.2	**kg**	**Steel girders and joists** Steel S275JR in girders and joists with laminated profiles serie IPN, IPE y HE, simple pieces, welded structure.			
PEAP10a	1,100 m2	Steel S275JR profile medium value	9,10	10,01	
PRCP.8cbc	0,050 l	Anti-oxid primer met matte col	114,30	5,72	
%0350	20,010 %	Auxiliar means	15,70	3,14	
MOOM11amet	0,030 h	1st Official steel	148,89	4,47	
MOOM11amet2	0,030 h	Specialized steel labourer	126,60	3,80	
		Labor cost			8,27
		Materials			15,73
		Others			3,14
		TOTAL ITEM			**27,14**

The overall cost of the item is TWENTY SEVEN SEK con FOURTEEN .

Itm4.3	**ud**	**Anchoring plate 380x380x30mm** Anchoring plate for metal support, focusing on the foundation, steel S275JR, dimensions 380x380 mm., And 30 mm. thick, anchoring armor compound by steel bars AE-215 L, including bores, threads, nuts, cleaning and painting.			
PEAC17a	34,006 kg	Steel S275JR in plates	14,90	506,69	
PEAA.1bg	10,000 kg	Steel ø18 AE-215-L in bar	7,40	74,00	
ERPP.8cbc	0,693 m2	Prim a-ox st met matte col	15,90	11,02	
MOOM11amet	1,266 h	1st Official steel	148,89	188,49	
MOOM11amet2	1,266 h	Specialized steel labourer	126,60	160,28	
PERC0.3	0,030 %	Auxiliar means	1.625,00	48,75	
		Labor cost			351,76
		Materials			588,61
		Others			48,86
		TOTAL ITEM			**989,23**

The overall cost of the item is NINE HUNDRED AND EIGHTY NINE SEK con TWENTY THREE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm4.4		**ud**	**Precast module of stairs** Supply and installation of prefabricated stair stretch of concrete. Even steps, anchors, installation by crane and needed propping.			
MOOM.8a	0,055	h	1st Official	220,80	12,14	
MOOM11a	0,050	h	Construction labourer	215,10	10,76	
%0200	2,000	%	Auxiliar means	22,90	0,46	
PUNT21.	0,020	Ud	Telescopic metal shore, 3.00 m high	110,70	2,21	
O01OA070	0,025	h.	Ordinary labourer	211,40	5,29	
mq07KSF20	0,101	h	Self-propelled crane telesc boom 40t 35m work	8.000,78	808,08	
STAPRE25	1,100	m2	Precast slab with steps for stair Reinf Concrete	6.000,95	6.601,05	
			Labor cost			28,19
			Machinery			808,08
			Materials			6.601,05
			Others			2,67
			TOTAL ITEM			**7.439,99**

The overall cost of the item is SEVEN THOUSAND AND FOUR HUNDRED AND THIRTY NINE SEK con NINETY NINE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm4.5		**m2**	**Reinforced precast slab e=30cm.** Reinforced precast conrete slab, hollow-core of dimensions 120x30 cm, including placement, pouring and vibration of compressive layer.			
MOOA.8a	0,220	h	1st construction Official	221,20	48,66	
MOOA12a	0,220	h	Ordinary construction labourer	217,40	47,83	
PEHF.1c	1,050	m2	Reinforced concrete slab precast 120X30cm	240,00	252,00	
PBAA.1a	0,050	m3	Water	17,00	0,85	
PBPC.5abbb	0,125	m3	Concrete 30 Pl TM 20 IIIa+Qa.	112,26	14,03	
MMMH.5c	0,107	h	Vibrator gas needle ø30-50mm	14,20	1,52	
PEAM.3cb	1,050	m2	Mesh ME 20x20 ø 6-6	15,10	15,86	
%0400	910,000	%	Auxiliar means	380,80	3.465,28	
EEHW.1ba	1,000	kg	Steel for concrete B 500 S ø6-16	11,63	11,63	
MOO23asA	0,110	h	Construction assistant	211,40	23,25	
			Labor cost			125,01
			Machinery			1,52
			Materials			288,87
			Others			3.465,51
			TOTAL ITEM			**3.880,91**

The overall cost of the item is THREE THOUSAND AND EIGHT HUNDRED AND EIGHTY SEK con NINETY ONE .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap05 ROOF

Itm5.1	**m2**	**Isover Vario Duplex** sloping Roof			
MOOA.8a	1,400 h	1st construction Official	221,20	309,68	
MOOA11a	1,200 h	Specialized construction laborer	215,10	258,12	
CARP106.1	1,200 h	Assembly Carpenter	212,50	255,00	
WATERTIG	1,500 m2	Watertight foil 22mm	679,80	1.019,70	
STUDHOR45	1,050 m2	Wood stud, horizontal 45mm	99,90	104,90	
PLAST13b	1,050 m2	Gypsum board 13mm	320,80	336,84	
ISOVER36c	1,050 m2	Mineral wool Isover UNI-skiva 36, 45mm	279,90	293,90	
RASTREL	1,050 m	Galvanized metal lath 3m / m	2,42	2,54	
PQTT.4bc	12,000 u	Arabic concrete tile 42x30 grey	8,00	96,00	
HHSKN.4	1,050 m2	Underlay board 1mm	14,80	15,54	
PNTS.1caf	1,050 m2	Panel EPS 0.043 e20mm	1,69	1,77	
ISO36C12	1,050 m2	Mineral wool Isover Bjälklagsskiva 36 C1200 195mm	520,90	546,95	
ISO36C12b	1,050 m2	Mineral wool Isover Bjälklagsskiva 36 C1200 170mm	500,90	525,95	
%0200	2,000 %	Auxiliar means	3.766,90	75,34	

Labor cost	822,80
Materials	2.944,09
Others	75,34
TOTAL ITEM	**3.842,23**

The overall cost of the item is THREE THOUSAND AND EIGHT HUNDRED AND FORTY TWO SEK con TWENTY THREE .

Itm5.2	**m2**	**Lightweight galvanized steel structure** Lightweight galvanized metal structure made by Omega profiles, C or U, cold rolled, screw connections, even final assembly and placement on last slab for uninhabitable deck.			
PAJFL35.b	1,100 m2	Steel S275JR prof med. value Omega, C, U	90,00	99,00	
MOOM.8a	1,450 h	1st Official	220,80	320,16	
MOOM11a	1,450 h	Construction labourer	215,10	311,90	
%0200	2,000 %	Auxiliar means	731,10	14,62	

Labor cost	632,06
Materials	99,00
Others	14,62
TOTAL ITEM	**745,68**

The overall cost of the item is SEVEN HUNDRED AND FORTY FIVE SEK con SIXTY EIGHT .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap06 FACADE

Itm6.1 **m2** **ISOVER ventilated system 296 mm**

m2 exterior walls

Solution made with 13mm of plasterboard, 120mm timber stud with insulation Isover UNI-Skiva 33 between, a vapour control and airtightness membrane "Isover VARIO DUPLEX", another 170mm of timber stud with the same insulation between, 13mm of plasterboard, 80mm of insulation Isover Fasadskiva 31 and one clear cavity. After this, the external finish will be made with facing brick solution of 25x12x5cm made with cement nortar boards and M40" ,I aid in running bond with 1,2cm concave joints. Timber stud are made with softwood and it includes wall ties. Thermal insulation constists of blankets of glass mineral wool water repelent, bonded with thermosetting resins, incorporated under a veil of glass reiforced on one side The total thickness of the wall is 536mm. This measure includes all materials necesaries as scafflod, cramps, mineral wool panels, timber stud, plasticfolie and labor costs. Cleaning it is also included.

MOOA.8a	2,250 h	1st construction Official	221,20	497,70	
MOOA11a	1,200 h	Specialized construction laborer	215,10	258,12	
CARP106.1	1,450 h	Assembly Carpenter	212,50	308,13	
POLYFO	1,500 m2	Polyesthirene foil 1mm Isover Vario KM	60,90	91,35	
PLAST13b	1,050 m2	Gypsum board 13mm	320,80	336,84	
EFFC.3abfb	1,050 m2	Fab arm 1CV LM 24x11.5x5 e11.5	478,83	502,77	
ISOVER33.	1,050 m2	Mineral wool Isover Skalmurskiva 33 100mm	350,87	368,41	
ISOVER33b.	1,050 m2	Mineral wool Isover Skalmurskiva 33 150mm	480,87	504,91	
ISOVER33a	1,050 m2	Mineral wool Isover UNI-skiva 33, 120mm	412,87	433,51	
STUD120	1,050 m	Wood stud, vertical 120mm	130,20	136,71	
AUXI5612	0,020 %	Auliar means	1.116,20	22,32	

Labor cost	1.063,95
Materials	2.374,50
Others	22,32
TOTAL ITEM	**3.460,77**

The overall cost of the item is THREE THOUSAND AND FOUR HUNDRED AND SIXTY SEK con SEVENTY SEVEN .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
CHAPTER Chap07 PARTITIONS						
Itm7.1		**m2**	**Isover partition gypsum system**			
CARP106.1	0,403	h	Assembly Carpenter	212,50	85,64	
ISOVER36b	1,050	m2	Mineral wool Isover UNI-skiva 36, 95 mm	350,87	368,41	
MOOA11a	0,403	h	Specialized construction laborer	215,10	86,69	
PLAST13	1,050		Gypsum board normal type 12.5mm	299,90	314,90	
STEELJO	1,050		Steel joists 70	100,90	105,95	
%0200	2,000	%	Auxiliar means	961,60	19,23	
1stOFFIPART	0,403	h	1st construction Official	246,80	99,46	
			Labor cost			271,79
			Materials			789,26
			Others			19,23
			TOTAL ITEM			**1.080,28**

The overall cost of the item is ONE THOUSAND AND EIGHTY SEK con TWENTY EIGHT .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap08 COATINGS

SUBCHAPTER Chap08.1 PAVEMENTS AND TILING

ltm8.1		**m**	**Oak baseboard agl 70x10**		
			Oak baseboard chipboard, 70x10mm, spiked knuckle pine wood 60x60x30 mm.		
MOOC.8a	0,100	h	1st Offical carpentry	168,30	16,83
MOOC10a	0,100	h	Carpentry assistant	152,90	15,29
PRLD63aa	1,050	m	Baseboard oak agl 70x10	0,00	0,00
PRWW69a	2,000	u	Knuckle Pine wood 6x6x3cm	0,00	0,00
%0100	1,000	%	Auxiliar means	32,10	0,32
			Labor cost		32,12
			Others		0,32
			TOTAL ITEM		**32,44**

The overall cost of the item is THIRTY TWO SEK con FORTY FOUR .

ltm8.2		**m2**	**Laminate flooring oak 2 pan**		
			Laminate flooring of oak, three layers pressed 1st quality, arranged with the fiber direction perpendicular, slabs of 2400x200x15 mm with a wearing surface of 4 mm, with drawing of 2 panels, varnished with ray application of ultraviolet and heat, placed on polyethylene sheet and foil to dampen noise, with glued tongue and groove joints slats.		
MOOC.8a	0,600	h	1st Offical carpentry	168,30	100,98
MOOC10a	0,600	h	Carpentry assistant	152,90	91,74
PRLD62ab	1,000	m2	Laminate flooring oak 2 pan	0,42	0,42
PNIS.2c	1,050	m2	Sheet PE e=0.15mm	0,00	0,00
PNIA.3c	1,050	m2	Geotextil FP-150 gr/m2	0,00	0,00
PBUA11a	0,100	kg	Adhesive for wood	0,00	0,00
%0200	2,000	%	Auxiliar means	193,10	3,86
			Labor cost		192,72
			Materials		0,42
			Others		3,86
			TOTAL ITEM		**197,00**

The overall cost of the item is ONE HUNDRED AND NINETY SEVEN SEK.

ltm8.3		**m2**	**Stoneware flooring 35x35 C1F jnt min CG2**		
			Stoneware flooring with minimum joint (1.5 - 3 mm) made with single color glazed stoneware tile 35x35 cm, placed in a thin layer with normal tile adhesive fast set (C1F) and grouting with cementitious grout improved (CG2), even cuts and cleaning.		
MOOA.8a	0,400	h	1st construction Official	221,20	88,48
MOOA12a	0,200	h	Ordinary construction labourer	217,40	43,48
PRRB.2db	1,050	m2	Stoneware glaz 35x35cm mcol	0,11	0,12
PBUA50aba	4,000	kg	Adh cement C1 F	0,00	0,00
PBUR.1b	0,285	kg	Mtr joints cement CG2	0,00	0,00
PBAA.1a	0,003	m3	Water	17,00	0,05
%0200	2,000	%	Auxiliar means	132,10	2,64
			Labor cost		131,96
			Materials		0,17
			Others		2,64
			TOTAL ITEM		**134,77**

The overall cost of the item is ONE HUNDRED AND THIRTY FOUR SEK con SEVENTY SEVEN .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm8.4		**m2**	**Flooring rolls PVC antiestatic adh cond** Homogeneous PVC flooring in rolls of 15.00x1.25 m,. permanent antistatic, with brazed joints, placed with conductive adhesive on a layer of smoothing paste.			
MOOA.8a	0,160	h	1st construction Official	221,20	35,39	
MOOA12a	0,160	h	Ordinary construction labourer	217,40	34,78	
PRFS.7bab	1,100	m2	Roll PVC 15x1.25m e2mma-est	0,11	0,12	
PBUA.5a	0,350	kg	Adhesive conductor f/pav flx	0,00	0,00	
PBUS22a	0,800	m	Weld bead ø 4mm	0,00	0,00	
PRWW30a	2,000	kg	Smoothing paste f/pav flexible	0,00	0,00	
%0100	1,000	%	Auxiliar means	70,30	0,70	
			Labor cost			70,17
			Materials			0,12
			Others			0,70
			TOTAL ITEM			**70,99**

The overall cost of the item is SEVENTY SEK con NINETY NINE .

SUBCHAPTER Chap08.2 PAINTING

Itm8.5		**m2**	**Paint plast vin int vert wh** Coating based on high-quality vinyl emulsion, thixotropic appearance, brightness and whiteness with high resistant exterior, with greater gloss than 70%, on PVC angle of 85 °, with satin finish, in white on a vertical surface of plaster, prior sanding of small adhesions and imperfections, coat of primer sealer for plaster or cement and hand finished with plastic paint.			
MOON.8a	0,200	h	1st Official painting	215,70	43,14	
PRCP.3bba	0,060	l	Paint int plas vinyl sat wh	33,70	2,02	
PRCP13fb	0,064	l	Water putty smo	67,10	4,29	
PINHZTL	0,020	%	Auxiliar means	20,00	0,40	
			Labor cost			43,14
			Materials			6,31
			Others			0,40
			TOTAL ITEM			**49,85**

The overall cost of the item is FORTY NINE SEK con EIGHTY FIVE .

Item8.6		**m2**	**Paint plast vin int hrz wh** Coating based on high-quality vinyl emulsion, thixotropic appearance, brightness and whiteness with high resistant exterior, with greater gloss than 70%, on PVC angle of 85 °, with satin finish, in white on a horizonta l surface of plaster, prior sanding of small adhesions and imperfections, coat of primer sealer for plaster or cement and hand finished with plastic paint.			
MOON.8a	0,200	h	1st Official painting	215,70	43,14	
PRCP.3bba	0,060	l	Paint int plas vinyl sat wh	33,70	2,02	
PRCP13fb	0,064	l	Water putty smo	67,10	4,29	
PINTHZL.	0,020	%	Auxiliar means	50,00	1,00	
			Labor cost			43,14
			Materials			6,31
			Others			1,00
			TOTAL ITEM			**50,45**

The overall cost of the item is FIFTY SEK con FORTY FIVE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm8.7		**m2**	**False ceiling plaster-18 w/met choring** Continuous false ceiling done with plasterboard 18 mm of honed edge, on longitudinal structure 60x27 mm. and perimeter profile of 30x30 mm, anchoring with hanging rod, even proportional hanging parts, grading and treatment of joints, ready to paint.			
MOOA.8a	0,250	h	1st construction Official	221,20	55,30	
MOOA12a	0,250	h	Ordinary construction labourer	217,40	54,35	
PFPC.1af	1,150	m2	Plaster panel normal 18mm	54,40	62,56	
PFPP11a	2,600	m	Fix plaster screeds f/panel 70x0.60mm	20,90	54,34	
PFPP12a	1,700	m	Profile U 30x30x0.6 mm	19,00	32,30	
PFPP15a	20,000	u	Screw 25mm f/plasterboard	2,00	40,00	
PFPP.5a	1,800	m	Paperband microperf. alt r	6,00	10,80	
PFPP.8b	0,700	kg	Joint paste panel plaster w/tape	14,50	10,15	
PFPP.7a	0,400	kg	Assist paste plasterboard	10,40	4,16	
PRTW13b	0,700	u	Adjustable descent	8,90	6,23	
%0200	2,000	%	Auxiliar means	330,20	6,60	
					Labor cost	109,65
					Materials	220,54
					Others	6,60
					TOTAL ITEM	**336,79**

The overall cost of the item is THREE HUNDRED AND THIRTY SIX SEK con SEVENTY NINE .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap09 PLUMBING, SANITATION

Itm9.1	**ud**	**Main connection <15m Ø50mm** Connection to the general network through Fiber Cement pipelines, 315 mm in diameter, composed of collar, head, reducing nut, double buttress, sphere valve, male threaded sleeve, 15 m low density polyethylene tube, 50 mm in diameter and 10 atmospheres imput pressure, including recordable manhole 40x40 cm 24x11 perforated brick, 5x9 cm, 5 cm slab of unreinforced concrete HM-20 with sink hole, trench digging and rights and permissions for the connection, without replacement of pavement, fully installed, connected and in perfect working order.			
MOOF.8a	3,500 h	1st Official plumber.	148,90	521,15	
MOOA12a	3,500 h	Ordinary construction labourer	217,40	760,90	
PIFA.1aic	1,000 u	Connection<15m fc network ø315mm	0,84	0,84	
PISA.9cd	1,000 u	Record. manhole squa PP 40x40cm tap sinkho.	0,63	0,63	
PBPO.1cbbc	0,008 m3	Concrete 20 smooth 20 mm CEM II/A-P 32.5 R IIa	253,97	2,03	
PIFA16a	1,000 u	Rights for connection	1,69	1,69	
%0200	2,000 %	Auxiliar means	1.287,20	25,74	
EFFC.1bdfa	0,800 m2	Brick BP 24x11.5x9 e 11.5 cm	203,12	162,50	
ECAE.1cab	3,600 m3	Excv manual means w/load	369,48	1.330,13	
		Labor cost			2.722,61
		Machinery			0,04
		Materials			14,51
		Others			68,44
		TOTAL ITEM			**2.805,61**

The overall cost of the item is TWO THOUSAND AND EIGHT HUNDRED AND FIVE SEK con SIXTY ONE .

Itm9.2	**Ml**	**Drainpipe rain PVC 125 mm** PVC pipe of 125 mm. Saenger F series grey colour, even elbows, grafts and other accessories, fully installed.			
U01FY105	0,100 H.	1st Official plumber	150,00	15,00	
U01FY110	0,050 H.	Plumber assistant	393,90	19,70	
U25AD006	1,000 Ml	Pipe PVC-F sanitary. 50 mm.	21.401,39	21.401,39	
U25DA007	0,200 Ud	Elbow-87 m-h PVC evac.125 mm.	144,99	29,00	
U25DD007	0,200 Ud	Connection simple PVC evac.125m	136,57	27,31	
U25XH008	0,500 Ud	Drainpipe fastening PVC 125 m	536,60	268,30	
U25XP001	0,030 Kg	Glue for PVC	488,00	14,64	
		Labor cost			34,70
		Materials			21.740,64
		TOTAL ITEM			**21.775,34**

The overall cost of the item is TWENTY ONE THOUSAND AND SEVEN HUNDRED AND SEVENTY FIVE SEK con THIRTY FOUR .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm9.3		**ML**	**Rigid copper pipe 26-28 mm** Supply pipe of rigid copper 26-28 mm., with a millimeter from wall, from meter room to general housing valve, pp accessories of the same material and corrugated tube for protection or isolation according to current regulations, fully installed and tested at 20 Kg/cm2. of pressure.			
U01FY105	0,140	H.	1st Official plumber	150,00	21,00	
U01FY110	0,140	H.	Plumber assistant	393,90	55,15	
U24LA007	1,000	Ml	Copper pipe 26*28 mm	8.038,66	8.038,66	
U24LD013	0,300	Ud	Copper elbow de 28 mm.	3.850,96	1.155,29	
			Labor cost			76,15
			Materials			9.193,95
			TOTAL ITEM			**9.270,10**

The overall cost of the item is NINE THOUSAND AND TWO HUNDRED AND SEVENTY SEK con TEN .

Itm9.4		**ud**	**Water installation toilet-washbasin** Network Installation for cold water with galvanized iron pipe, according to basic rules for indoor facilities of water supply, PVC drainage network in a bathroom with a toilet and a washbasin, including pp internal network or drains, including shank to downspouts without sanitary fittings.			
D25DA000	8,000	Ml	Galvanized steel pipe 1/2"	123,56	988,48	
D25DA010	3,000	Ml	Galvanized steel pipe 3/4"	162,62	487,86	
D25NL030	1,000	Ml	Drainpipe rain PVC 110 mm	230,51	230,51	
D25NA530	1,500	Ml	Pipe PVC 50 mm. serie C	117,54	176,31	
D25NA580	1,000	Ml	Pipe PVC 75 mm. serie C	184,13	184,13	
D25NA520	1,500	Ml	Pipe PVC 40 mm. serie C	871,79	1.307,69	
D25ND210	1,000	UD	Siphon trap PVC 110 mm	230,38	230,38	
			Others			3.605,36
			TOTAL ITEM			**3.605,36**

The overall cost of the item is THREE THOUSAND AND SIX HUNDRED AND FIVE SEK con THIRTY SIX .

Itm9.5		**ud**	**Water installation kitchen** Hot and cold water network Installation in kitchen with galvanized steel pipe, according to basic rules for indoor facilities of water supply, drain network PVC with outlets for sink, washing machine and dishwasher, including pp inside network or downpipes and drains, without devices.			
D25DA000	18,000	Ml	Galvanized steel pipe 1/2"	123,56	2.224,08	
D25DA010	6,000	Ml	Galvanized steel pipe 3/4"	162,62	975,72	
D25NA530	4,500	Ml	Pipe PVC 50 mm. serie C	117,54	528,93	
D25NA580	3,000	Ml	Pipe PVC 75 mm. serie C	184,13	552,39	
D25NA510	1,000	Ml	Tubería PVC 32 mm. serie C	145,55	145,55	
U26GX001	2,000	Ud	Brass tap 1/2"	182,02	364,04	
			Materials			364,04
			Others			4.426,67
			TOTAL ITEM			**4.790,71**

The overall cost of the item is FOUR THOUSAND AND SEVEN HUNDRED AND NINETY SEK con SEVENTY ONE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm9.6		**m**	**Copper pipe Water distrib. ø 18 mm 30%acc** Water supply pipe made of copper, diameter 18 mm, from meters to crossing valve, even clamping jaws, masonry aids and a tube price increase of 30% in respect of joints, fittings and accessories fully installed and tested.			
MOOA.8a	0,100	h	1st construction Official	221,20	22,12	
MOOF.8a	0,200	h	1st Official plumber.	148,90	29,78	
MOOF11a	0,200	h	Plumber specialist	126,60	25,32	
PIFC.5daab	1,050	m	Tb Cu ø18mm bar 30%acc	4,33	4,55	
%0200	2,000	%	Auxiliar means	81,80	1,64	
			Labor cost			77,22
			Materials			4,55
			Others			1,64
			TOTAL ITEM			**83,41**

The overall cost of the item is EIGHTY THREE SEK con FORTY ONE .

Itm9.7		**ud**	**Battery meter for water inx 28 hou 2 file w/cont** Battery of divisional meter of stainless steel, 2 files, for 28 housing, composed of body, feeding tube and flange 2 1/2" diameter, installation of 28 meters for cold water of 5 mm, 28 inlet and outlet of nominal diameter 15 mm with accessory for retention, blind pipe for reserves, connection plates, brackets, fastening elements and classification tables of meters, nominal pressure from 50 to 60 bar and maximum operating temperature of 200 ° C, fully installed, connected and in good working order.			
MOOF.8a	7,000	h	1st Official plumber.	148,90	1.042,30	
MOOF11a	7,000	h	Plumber specialist	126,60	886,20	
MOOA12a	3,000	h	Ordinary construction labourer	217,40	652,20	
PIFA.8tb	1,000	u	Battery of meters inx 28hou 2files	436,35	436,35	
%0200	2,000	%	Auxiliar means	3.017,10	60,34	
EIFG70ba	28,000	u	Valv inlet meter 15mm	58,07	1.625,96	
EIFG70da	28,000	u	Valv outlet meter 15mm	53,90	1.509,20	
EIFR.3aab	28,000	u	Water meter simpl steam uni 15mm	205,11	5.743,08	
			Labor cost			9.251,42
			Materials			2.469,71
			Others			234,50
			TOTAL ITEM			**11.955,63**

The overall cost of the item is ELEVEN THOUSAND AND NINE HUNDRED AND FIFTY FIVE SEK con SIXTY THREE .

Itm9.8		**m.**	**Sanitary drainpipe.PVC.125mm.** Sanitary drainpipe of smooth PVC Series SN-4 buried in the slab, annular rigid nominal 4 kN/ m², 125 mm in diameter, with gasket, proportional part for sealing and auxiliar means.			
U01FY105	0,100	H.	1st Official plumber	150,00	15,00	
U01FY110	0,050	H.	Plumber assistant	393,90	19,70	
U25DA007	0,200	Ud	Elbow-87 m-h PVC evac.125 mm.	144,99	29,00	
U25DD007	0,200	Ud	Connection simple PVC evac.125m	136,57	27,31	
U25XH008	0,500	Ud	Drainpipe fastening PVC 125 m	536,60	268,30	
U25XP001	0,030	Kg	Glue for PVC	488,00	14,64	
U25AD006125	1,000	Ml	Pipe PVC-F sanitary.125 mm.	214,00	214,00	
			Labor cost			34,70
			Materials			553,25
			TOTAL ITEM			**587,95**

The overall cost of the item is FIVE HUNDRED AND EIGHTY SEVEN SEK con NINETY FIVE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm9.9		**m.**	**Sanitary drainpipe.PVC.100mm.** Sanitary drainpipe of smooth PVC Series SN-4, annular rigid nominal 4 kN/ m², 100 mm in diameter, with gasket, proportional part for sealing and auxiliar means.			
U01FY105	0,100	H.	1st Official plumber	150,00	15,00	
U01FY110	0,050	H.	Plumber assistant	393,90	19,70	
U25AD006100	1,000	Ml	Pipe PVC-F sanitary.100 mm.	21.401,39	21.401,39	
U25DA007100	0,200	Ud	Elbow-87 m-h PVC evac.100 mm.	14.499,11	2.899,82	
U25XH008100	0,500	Ud	Drainpipe fastening PVC 100 m	5.366,13	2.683,07	
U25XP001100	0,030	Kg	Glue for PVC	48.821,41	1.464,64	
			Labor cost			34,70
			Materials			28.448,92
			TOTAL ITEM			**28.483,62**

The overall cost of the item is TWENTY EIGHT THOUSAND AND FOUR HUNDRED AND EIGHTY THREE SEK con SIXTY TWO .

Itm9.10		**m.**	**Sanitary drainpipe.PVC.60mm.** Sanitary drainpipe of smooth PVC Series SN-4, annular rigid nominal 4 kN/ m², 60 mm in diameter, with gasket, proportional part for sealing and auxiliar means.			
U01FY105	0,100	H.	1st Official plumber	150,00	15,00	
U01FY110	0,050	H.	Plumber assistant	393,90	19,70	
U25XP001	0,030	Kg	Glue for PVC	488,00	14,64	
U25AD00660	1,000	Ml	Pipe PVC-F sanitary. 60 mm.	21.401,39	21.401,39	
U25DA00760	0,200	Ud	Elbow-87 m-h PVC evac. 60 mm.	14.499,11	2.899,82	
U25DD00760	0,200	Ud	Connection simple PVC evac.60m	13.657,31	2.731,46	
U25XH00860	0,500	Ud	Drainpipe fastening PVC 60 m	5.366,13	2.683,07	
			Labor cost			34,70
			Materials			29.730,38
			TOTAL ITEM			**29.765,08**

The overall cost of the item is TWENTY NINE THOUSAND AND SEVEN HUNDRED AND SIXTY FIVE SEK con EIGHT .

Itm9.11		**m.**	**Sanitary drainpipe.PVC.50mm.** Collector of smooth PVC Series SN-4 buried in the foundation slab or suported on river sand, annular rigid nominal 4 kN/ m², 60mm in diameter, with gasket, proportional part for sealing and auxiliar means.			
U01FY105	0,100	H.	1st Official plumber	150,00	15,00	
U01FY110	0,050	H.	Plumber assistant	393,90	19,70	
U25AD006	1,000	Ml	Pipe PVC-F sanitary. 50 mm.	21.401,39	21.401,39	
U25DA007	0,200	Ud	Elbow-87 m-h PVC evac.125 mm.	144,99	29,00	
U25DD007	0,200	Ud	Connection simple PVC evac.125m	136,57	27,31	
U25XH008	0,500	Ud	Drainpipe fastening PVC 125 m	536,60	268,30	
U25XP001	0,030	Kg	Glue for PVC	488,00	14,64	
			Labor cost			34,70
			Materials			21.740,64
			TOTAL ITEM			**21.775,34**

The overall cost of the item is TWENTY ONE THOUSAND AND SEVEN HUNDRED AND SEVENTY FIVE SEK con THIRTY FOUR .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost

CHAPTER Chap10 ELECTRICITY INSTALLATION

Itm10.1		**Ml**	**Earth connection structure** Earth connection to structure in limestone terrain for buildings with bare copper wire of 1x35 m2 electrodes of D = 14.3 mm. and 2 m. length with aluminothermic welding connection.			
U01FY630	0,180	H.	1st Official electricist	46.296,12	8.333,30	
U01FY635	0,180	H.	Electricist labourer	37.878,67	6.818,16	
U30GA001	1,000	Ml	Bare copper wire 35mm	12.247,43	12.247,43	
U30GA010	1,000	Ud	Earth pike 2000/14,3 i/b	19.844,16	19.844,16	
			Labor cost			15.151,46
			Materials			32.091,59
			TOTAL ITEM			**47.243,05**

The overall cost of the item is FORTY SEVEN THOUSAND AND TWO HUNDRED AND FORTY THREE SEK con FIVE .

Itm10.2		**ML**	**Circuit "various uses" PVC** Circuit "various uses" made with corrugated PVC pipe D = 16/gp. 5 copper conductors insulated unipolar for a nominal voltage of 750 V. section 2.5 mm2., in single phase system, (active, neutral and protective) included pp. recordable boxes and power strips.			
U01FY630	0,250	H.	1st Official electricist	46.296,12	11.574,03	
U01FY635	0,250	H.	Electricist labourer	37.878,67	9.469,67	
U30JW121	1,000	Ml	Tube PVC corrugated D=16	505,06	505,06	
U30JW002	3,000	Ml	Rigid conductor 750V	1.052,17	3.156,51	
			Labor cost			21.043,70
			Materials			3.661,57
			TOTAL ITEM			**24.705,27**

The overall cost of the item is TWENTY FOUR THOUSAND AND SEVEN HUNDRED AND FIVE SEK con TWENTY SEVEN .

Itm10.3		**ud**	**Circuit breaker panel 160A** Circuit breaker panel 160A including short-circuit bases and calibrated fuses of 160A to protect the distribution line located in the wall (facade).			
U01FY630	1,000	H.	1st Official electricist	46.296,12	46.296,12	
U01FY635	1,000	H.	Electricist labourer	37.878,67	37.878,67	
U30CI001	1,000	Ud	Circuit breaker panel 160A (III+N)+F	357.111,54	357.111,54	
			Labor cost			84.174,79
			Materials			357.111,54
			TOTAL ITEM			**441.286,33**

The overall cost of the item is FOUR HUNDRED AND FORTY ONE THOUSAND AND TWO HUNDRED AND EIGHTY SIX SEK con THIRTY THREE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.4		**m**	**Distribution line copper 3x70+1x35 Ø110** Distribution line installed with four insulated copper conductors RV 0.6 / 1 kV, three conductors of phase of 70 mm2 and a neutral conductor of 35 mm2, protected under rigid PVC pipe of 110 mm diameter and degree of mechanical protection 7, even share of fasteners and special parts, as the length executed from the general protection box to the centralization of meters, fully installed, connected and in good working order.			
MOOA.8a	0,100	h	1st construction Official	221,20	22,12	
MOOE11a	0,200	h	Electricity specialist	126,60	25,32	
PIEC.4aaj	3,150	m	Cable Copper rig RV 0.6/1kV 1x70	22,72	71,57	
PIEC.4aah	1,050	m	Cable Copper rig RV 0.6/1kV 1x35	11,92	12,52	
PIEC16jc	1,050	m	Rigid tube PVC 110mm 40%acc	7,56	7,94	
%0200	2,000	%	Auxiliar means	139,50	2,79	
			Labor cost			47,44
			Materials			92,03
			Others			2,79
			TOTAL ITEM			**142,26**

The overall cost of the item is ONE HUNDRED AND FORTY TWO SEK con TWENTY SIX .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.5		**ud**	**Centralization meters 3 colu f/gnal serv** Centralization of meters for residential building with general switch breaker in charge of 250A and clock with 3 columns with 27 holes for meters equipped with a busbar module, a module fuse, three triple modules for meters and terminal module outlet with earth connection, a column switching and measuring module for general services and meters module supplies indirect measure of intensity for more than 63 a, zero halogen cabling including both single-phase and three-phase; placed, connected and in good operating condition.			
MOOE.8a	4,500	h	1st Official electricity	148,90	670,05	
MOOE11a	4,500	h	Electricity specialist	126,60	569,70	
PIEA.7a	1,000	u	Switch unit gnal 250A	246,14	246,14	
PIEA.7d	1,000	u	Clock unit	40,02	40,02	
PIEA.7e	9,000	u	Triple unit meters	90,91	818,19	
PIEA.7f	3,000	u	Bedraggled unit	104,75	314,25	
PIEA.7g	3,000	u	Fuses unit	104,75	314,25	
PIEA.7h	3,000	u	Terminal outlet unit	89,34	268,02	
PIEA.7b	1,000	u	General services unit	120,15	120,15	
PIEA.7c	1,000	u	Cutting unit ser gnal	40,02	40,02	
PIEA.7i	1,000	u	Meter unit indirect measure	684,00	684,00	
%0200	2,000	%	Auxiliar means	4.084,80	81,70	
			Labor cost			1.239,75
			Materials			2.845,04
			Others			81,70
			TOTAL ITEM			**4.166,49**

The overall cost of the item is FOUR THOUSAND AND ONE HUNDRED AND SIXTY SIX SEK con FORTY NINE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.6		**m**	**Single-phase ind. branch 3x10 tb flx** Single-phase individual branch installed with copper wire and insulation H07V-R 750 V, formed by phase + neutral + earth 10 mm2, flexible tube isolated low double-layer corrugated PVC 40 mm in diameter and with a degree of mechanical protection 7 measure the length run from the centralization of counters to individual control panel, including share of fasteners and special parts, fully installed, connected and in good working order.			
MOOE.8a	0,300	h	1st Official electricity	148,90	44,67	
MOOA.9a	0,100	h	2nd construction official	221,90	22,19	
PIEC.2be	3,150	m	Cable Copper flexible 450/750V 1x10	5,25	16,54	
PIEC19fa	1,050	m	Tb flx db layer PVC 40mm	1,71	1,80	
%0200	2,000	%	Auxiliar means	85,20	1,70	
			Labor cost			66,86
			Materials			18,34
			Others			1,70
			TOTAL ITEM			**86,90**

The overall cost of the item is EIGHTY SIX SEK con NINETY .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.7		**m**	**Three-phase ind. branch 5x10 tb flx** Three-phase individual branch installed with copper wire and insulation H07V-R 750 V, consists of 3 phases + neutral + earth 10 mm2, flexible tube isolated under double-layer corrugated PVC 40 mm in diameter and with a degree of protection mechanical 7 measure the length run from the centralization of counters to individual control panel, including share of fasteners and special parts, fully installed, connected and in good working order.			
MOOE.8a	0,300	h	1st Official electricity	148,90	44,67	
MOOA.9a	0,100	h	2nd construction official	221,90	22,19	
PIEC.2be	5,250	m	Cable Copper flexible 450/750V 1x10	5,25	27,56	
PIEC19fa	1,050	m	Tb flx db layer PVC 40mm	1,71	1,80	
%0200	2,000	%	Auxiliar means	96,20	1,92	
			Labor cost			66,86
			Materials			29,36
			Others			1,92
			TOTAL ITEM			**98,14**

The overall cost of the item is NINETY EIGHT SEK con FOURTEEN .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.8		**ud**	**Main general distribution box EB f/5 circ** Installation of main distribution box of housing with a basic electrification, with box and self-extinguishing insulated door and control devices, switching and general protection by PIA 2x25 1 A and 1 mA RCD 2x25A/30 five circuits: 1 for lighting with 1 PIA of 10 A, 1 for general washes and fridge with 1 PIA of 16 A, 1 for outlets in bathrooms and kitchen staff with 1 PIA of 16 A, 1 for washing machine, dishwasher and heat with 1 PIA 20 A and 1 for cooking and baking with 1 PIA 25 A, fully installed, connected and in good working order.			
MOOE.8a	1,700	h	1st Official electricity	148,90	253,13	
MOOA.9a	0,800	h	2nd construction official	221,90	177,52	
PIEA.5bca	1,000	u	Distribution box monoph 7 emb	18,87	18,87	
PIED.3aaba	1,000	u	Diff cir break. 25A bip 30mA	98,65	98,65	
PIED.1bbba	1,000	u	Diff cir break. 10A up+N C 6KA	29,05	29,05	
PIED.1cbba	2,000	u	Diff cir break. 16A up+N C 6KA	29,62	59,24	
PIED.1dbba	1,000	u	Diff cir break. 20A up+N C 6KA	30,47	30,47	
PIED.1ebba	1,000	u	Diff cir break. 25A up+N C 6KA	31,04	31,04	
%0200	2,000	%	Auxiliar means	698,00	13,96	
			Labor cost			430,65
			Materials			267,32
			Others			13,96
			TOTAL ITEM			**711,93**

The overall cost of the item is SEVEN HUNDRED AND ELEVEN SEK con NINETY THREE .

Itm10.9		**ud**	**Lighting system for stairs 10H 3V** Lighting system for stairs and landings of 3 floors with 3 ceiling fixtures with incandescent lamp 75 W and 3 temporized pushbuttons 10A/250 V medium quality with engraved bell / light and bright viewfinder per plant, a switch differential bipolar rated 25 A class AC and with a rated current of 30 mA and automatic circuit breaker rated 16 A single pole + N, C trip curve 6 kA breaking capacity, made with a copper line Single phase + neutral + ground phase of 1.5 mm2 low double-layer corrugated hose PVC diameter 13.5 mm, measured from the General Service switchboard Community to receptors, even small items and special parts, fully installed, connected and in good operating condition.			
EIEM.1cbba	1,000	u	Therm-magn switch 16A unipolar+N	68,19	68,19	
EIEM.3aaba	1,000	u	Diff cir. breaker 25A bip 30mA	138,60	138,60	
EIEM24accd	9,000	u	Light point button temp 75W	647,53	5.827,77	
EIEL.1aaaa	19,000	m	Line 3x1.5 tb flx PVC	36,05	684,95	
			Labor cost			5.276,25
			Materials			1.311,77
			Others			131,49
			TOTAL ITEM			**6.719,51**

The overall cost of the item is SIX THOUSAND AND SEVEN HUNDRED AND NINETEEN SEK con FIFTY ONE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.10		**ud**	**Ins emergency lightning system for stairs 10H 3V** Installation of emergency lighting for stairs and landings, 3 floors, comprising 2 emergency lighting fluorescent lamp 70 lumens per plant and automatic circuit breaker rated 10 A single-pole + N, C trip curve type and power 6 kA cut, made with a copper line with phase-phase + neutral + earth under section 1.5 mm2 double corrugated hose PVC layer 13.5 mm in diameter, measured from electrical general service community to the receivers, even small items and special parts, fully installed, connected and in good working order.			
EIEM.1bbba	1,000	u	Therm-magn breaker 10A unipolar+N	67,61	67,61	
EIEM24aaag	6,000	u	Light point 70lum	609,16	3.654,96	
EIEL.1aaaa	19,000	m	Line 3x1.5 tb flx PVC	36,05	684,95	
			Labor cost			3.721,47
			Materials			599,77
			Others			86,28
			TOTAL ITEM			**4.407,52**

The overall cost of the item is FOUR THOUSAND AND FOUR HUNDRED AND SEVEN SEK con FIFTY TWO .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.11		**ud**	**Ins lighting hoistway 10H 3V** Installation of lighting of the hoistway composed of an incandescent lamp per floor, one in the elevator pit and one in the top part, an differencial circuit breaker rated current 25A AC bipolar + N class with a default rated current of 30 mA, an automatic thermal-magnetic circuit breaker rated 10A bipolar type C trip curve and 6 kA breaking capacity, made with a copper line with phase-phase + neutral + earth under section 1.5 mm2 PVC rigid pipe 13.5 mm. in diameter, measured from the General Service switchboard Community to recipients, even small items and special parts, fully installed, connected and in good working order.			
MOOE.8a	1,170	h	1st Official electricity	148,90	174,21	
PILA.1ae	5,000	u	Inca lamp 60W	1,02	5,10	
%0200	2,000	%	Auxiliar means	179,30	3,59	
EIEM.1bcba	1,000	u	Therm-magn breaker 10A bipolar	71,43	71,43	
EIEM.3aaba	1,000	u	Diff cir. breaker 25A bip 30mA	138,60	138,60	
EIEL.1aaaa	25,000	m	Line 3x1.5 tb flx PVC	36,05	901,25	
			Labor cost			1.064,67
			Materials			204,05
			Others			25,46
			TOTAL ITEM			**1.294,18**

The overall cost of the item is ONE THOUSAND AND TWO HUNDRED AND NINETY FOUR SEK con EIGHTEEN .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.12		**ud**	**Line elevator 10H 3V** Line and protection for the supplying of the elevator machinery consisting of a circuit breaker rated current AC 40 A pole class with default nominal 300 mA and automatic circuit breaker rated 32 A pole + N, type D curve and breaking capacity 10 kA, made with a copper line phase 3 phase + neutral + ground under section 10 mm2 flexible pipe corrugated PVC double layer of 32 mm. in diameter, measured from the General Service switchboard community until the elevator control panel, even small items and special parts, fully installed, connected and in good working order.			
EIEL.1cbea	19,000	m	Line 5x10 tb flx PVC	85,77	1.629,63	
EIEM.1ffcb	1,000	u	Therm-magn switch 32A tetrapolar	209,14	209,14	
EIEM.3bbca	1,000	u	Diff circ. breaker 40A tetrap 300mA	209,28	209,28	
			Labor cost			1.289,89
			Materials			718,04
			Others			40,12
			TOTAL ITEM			**2.048,05**

The overall cost of the item is TWO THOUSAND AND FORTY EIGHT SEK con FIVE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.13		**ud**	**Line RITI 10H 3V** Line and protection for supplying the enclosure of telecommunications, automatic circuit breaker rated current 25A unipolar + N up to 400V, Type C trip curve and cutting power 6 kA, made with a copper line with phase + neutral phase + land section 6 mm2 flexible pipe corrugated PVC double layer of 25 mm. in diameter, measured from the general service electrical panel to the trade community, including small items and special parts, fully installed, connected and in good working order.			
EIEL.1abda	19,000	m	Line 3x6 tb flx PVC	41,78	793,82	
EIEM.1ebba	1,000	u	Therm-magne switch 25A unipolar+N	69,64	69,64	
			Labor cost			657,39
			Materials			189,12
			Others			16,95
			TOTAL ITEM			**863,46**

The overall cost of the item is EIGHT HUNDRED AND SIXTY THREE SEK con FORTY SIX .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.14		**m**	**Line 4x10 tb flx PVC** Line of three-phase copper with insulation rated voltage 0.6 / 1 kV consists of 3 phases + earth 10 mm2, flexible tube placed under double corrugated PVC layer 32 mm in diameter, even smaller proportion of materials and parts special, fully installed, connected and in good working order.			
MOOA.9a	0,170	h	2nd construction official	221,90	37,72	
MOOE.8a	0,170	h	1st Official electricity	148,90	25,31	
PIEC.4aae	4,200	m	Cable Copp rig RV 0.6/1kV 1x10	3,64	15,29	
PIEC19eb	1,050	m	Tb flx db layer PVC 32mm 30%acc	1,86	1,95	
%0200	2,000	%	Auxiliar means	80,30	1,61	
			Labor cost			63,03
			Materials			17,24
			Others			1,61
			TOTAL ITEM			**81,88**

The overall cost of the item is EIGHTY ONE SEK con EIGHTY EIGHT .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.15		**ud**	**Automatic thermal-magnetic breakers 25A bipolar** Automatic thermal-magnetic breakers of nominal current 25 A bipolar, up to 400V, with curve type C and 10 kA breaking capacity, fully installed, connected and in good working order.			
MOOE.8a	0,250	h	1st Official electricity	148,90	37,23	
PIED.1ecbb	1,000	u	Auto therm-magn break 25A bip C 10KA	38,64	38,64	
%0200	2,000	%	Auxiliar means	75,90	1,52	
			Labor cost			37,23
			Materials			38,64
			Others			1,52
			TOTAL ITEM			**77,39**

The overall cost of the item is SEVENTY SEVEN SEK con THIRTY NINE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.16		**ud**	**Differencial circuit breaker 25A bip 30mA** Differential circuit breaker of nominal current 25 A bipolar, with rated fault current 30 mA, class A, fully instalada-do, connected and in good working order.			
MOOE.8a	0,250	h	1st Official electricity	148,90	37,23	
PIED.3aabb	1,000	u	Diffe circ breaker 25A bip 30mA	140,90	140,90	
%0200	2,000	%	Auxiliar means	178,10	3,56	
			Labor cost			37,23
			Materials			140,90
			Others			3,56
			TOTAL ITEM			**181,69**

The overall cost of the item is ONE HUNDRED AND EIGHTY ONE SEK con SIXTY NINE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.17		**ud**	**Recessed switch medium quality** Recessed switch of medium quality with full mechanism of 10A/250 V with key frame and even small equipment and fully installed, connected and in good working order.			
MOOA.9a	0,080	h	2nd construction official	221,90	17,75	
MOOE.8a	0,170	h	1st Official electricity	148,90	25,31	
PIED17baab	1,000	u	Reces switch medium quality	4,79	4,79	
PIED15baaa	1,000	u	Embed frame 1 elem medium quality	1,16	1,16	
%0200	2,000	%	Auxiliar means	49,00	0,98	
			Labor cost			43,06
			Materials			5,95
			Others			0,98
			TOTAL ITEM			**49,99**

The overall cost of the item is FORTY NINE SEK con NINETY NINE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.18		**ud**	**Bipolar recessed switch** Bipolar recessed switch of medium quality with full mechanism of 10A/250 V with key, even small items, fully installed, connected and in good working order.			
MOOA.9a	0,080	h	2nd construction official	221,90	17,75	
MOOE.8a	0,170	h	1st Official electricity	148,90	25,31	
PIED18bab	1,000	u	Switch bip reces qlty medium	7,42	7,42	
PIED15baaa	1,000	u	Embed frame 1 elem medium quality	1,16	1,16	
%0200	2,000	%	Auxiliar means	51,60	1,03	
			Labor cost			43,06
			Materials			8,58
			Others			1,03
			TOTAL ITEM			**52,67**

The overall cost of the item is FIFTY TWO SEK con SIXTY SEVEN .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.19		**ud**	**Domestic current outlet med qua reces 25A** Domestic current outlet of medium quality for recessed installation, 2-pole + earth side, with full mechanism 25A, 230 V, including pin, fully installed, connected and in good working order.			
MOOA.9a	0,080	h	2nd construction official	221,90	17,75	
MOOE.8a	0,170	h	1st Official electricity	148,90	25,31	
PIED23baab	1,000	u	Domestic current outlet reces 25A	16,68	16,68	
PIED15baaa	1,000	u	Embed frame 1 elem medium quality	1,16	1,16	
%0200	2,000	%	Auxiliar means	60,90	1,22	
			Labor cost			43,06
			Materials			17,84
			Others			1,22
			TOTAL ITEM			**62,12**

The overall cost of the item is SIXTY TWO SEK con TWELVE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm10.20		**ud**	**Light point emb commuted 60W** Embedded light point double commuted, installed with copper wire with an isolation of nominal voltage 450/750 V formed by phase + neutral + ground of 1.5 mm2 section under corrugated hose PVC double layer 13.5 mm diameter, even commutator switch average quality 10A/250A and incandescent lamp 60 W, fully installed, connected and in good working order.			
MOOE.8a	0,150	h	1st Official electricity	148,90	22,34	
PILA.1ae	2,000	u	Inca lamp 60W	1,02	2,04	
%0200	2,000	%	Auxiliar means	24,40	0,49	
EIEL.1aaaa	26,000	m	Line 3x1.5 tb flx PVC	36,05	937,30	
EIEM13baab	2,000	u	Comm interr nor emb	50,65	101,30	
			Labor cost			957,10
			Materials			85,44
			Others			20,93
			TOTAL ITEM			**1.063,47**

The overall cost of the item is ONE THOUSAND AND SIXTY THREE SEK con FORTY SEVEN .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost

CHAPTER Chap11 HEATING INSTALLATION

Itm11.2 **ud** **Circulator 0-6m3/h 0-5.8mca**

Circulator for recirculation circuits in hot water systems up to 10 bar pressure and 110 °C temperature, with flow regulator for 0-6 m3/h, 0-5.8 mca pressure, three-speed selector and built-in capacitor, even game fittings for pipe connection, all installed wiring and good working.

MOOF.8a	3,000	h	1st Official plumber.	148,90	446,70
MOOF11a	3,000	h	Plumber specialist	126,60	379,80
PIFE.7c	1,000	u	Circu 0-6 m3/h y 0-5.8 mca	205,16	205,16
PIFG36c	2,000	u	Sluice gate valve Br ø1"	10,32	20,64
%0200	2,000	%	Auxiliar means	1.052,30	21,05

Labor cost	826,50
Materials	225,80
Others	21,05
TOTAL ITEM	**1.073,35**

The overall cost of the item is ONE THOUSAND AND SEVENTY THREE SEK con THIRTY FIVE .

Itm11.1 **ud** **Acummulator w/coil 200l w/prot cat**

Stainless steel accumulator with coil, 200 l capacity, for installation of hot water up to 8 bar at 90 °C, fu ll control panel that includes thermometer, thermostat control and switch summer / winter, safety valve with gauge , angle air vent supply or top part(depending on type, horizontal or vertical), shutoff valves (inlet, outlet, drain ...), power protected, valve, fittings and brackets, to mount vertically and horizontally with cathodic protection equipment for aggressive water, fully installed, connection and in good working order, even tests.

MOOF.8a	4,500	h	1st Official plumber.	148,90	670,05
MOOF11a	4,500	h	Plumber specialist	126,60	569,70
MOOA12a	1,500	h	Ordinary construction labourer	217,40	326,10
PIFE.1db	1,000	u	Acumm w/coil 200l w/prot cat	11.450,50	11.450,50
PIFG34a	1,000	u	Valve esph fund ø15mm(1/2")	73,73	73,73
PIFG34e	4,000	u	Valve esph fund ø40mm(1 1/2")	144,90	579,60
PICC20bab	1,000	u	Valve seg ø3/4´´ preta 3-7kg	87,50	87,50
PIFG37d	2,000	u	Valve retn brass ø32mm	48,70	97,40
PIFR.4bb	1,000	u	Pressure gauge esph ø63mm	46,00	46,00
PICC36bbc	1,000	u	Angle air vent aut f/rad met ø3/8´´	31,40	31,40
%0200	2,000	%	Auxiliar means	13.932,00	278,64

Labor cost	1.565,85
Materials	12.366,13
Others	278,64
TOTAL ITEM	**14.210,62**

The overall cost of the item is FOURTEEN THOUSAND AND TWO HUNDRED AND TEN SEK con SIXTY TWO .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm11.4		**ud**	**Radiator analog 900W 600x690X100** Radiator of aluminum, analog, CE mark, thermal fluid using high performance 560x1000X50 mm dimensions (H x W x D), 900 W power and consists of 7 elements, individual control and analog control with 5-position selector : unemployment, antifreeze, day, night and comfort, fully installed, tested and working properly.			
MOOF.8a	0,200	h	1st Official plumber.	148,90	29,78	
MOOF12a	0,200	h	Plumbing labourer	122,10	24,42	
%0200	2,000	%	Auxiliar means	54,20	1,08	
PICC11aemen	1,000	u	Radiator analog 900W 600x690X100	3.099,99	3.099,99	
			Labor cost			54,20
			Materials			3.099,99
			Others			1,08
			TOTAL ITEM			**3.155,27**

The overall cost of the item is THREE THOUSAND AND ONE HUNDRED AND FIFTY FIVE SEK con TWENTY SEVEN .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm11.3		**ud**	**Radiator analog 900W 600x1290X100** Radiator of aluminum, analog, CE mark, thermal fluid using high performance 560x1000X50 mm dimensions (H x W x D), 900 W power and consists of 7 elements, individual control and analog control with 5-position selector : unemployment, antifreeze, day, night and comfort, fully installed, tested and working properly.			
MOOF.8a	0,200	h	1st Official plumber.	148,90	29,78	
MOOF12a	0,200	h	Plumbing labourer	122,10	24,42	
PICC11ae	1,000	u	Radiator analog 900W 600x1290X100	3.892,99	3.892,99	
%0200	2,000	%	Auxiliar means	3.947,20	78,94	
			Labor cost			54,20
			Materials			3.892,99
			Others			78,94
			TOTAL ITEM			**4.026,13**

The overall cost of the item is FOUR THOUSAND AND TWENTY SIX SEK con THIRTEEN .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost

CHAPTER Chap12 FIRE PROTECTION INSTALATION

Itm12.1 **ud** **Hose reel 25 fix cabin 750x600x195**

Fire hose reel to transport and project water from a fixed point from a supply network to the fire place, with CE marking, consisting of fixed cabinet dimensions 750 x 600 x 195 mm built in steel painted in beige with punching side for ventilation, punching entry for water connection and drill holes in the bottom for drainage, integral hinge and lock on ABS easy-open, stainless steel solid door, fixed spool 1mm sheet of 525 mm diameter, semi-rigid hose 25 mm in diameter and 20 m long, sphere valve output to 180 ºC with threads of 1", conic lance 25 m and lock, according to the specifications provided in the Regulations for Fire Protection, fully installed, tested and working properly.

MOOF.8a	1,500	h	1st Official plumber.	148,90	223,35
MOOF11a	1,500	h	Plumber specialist	126,60	189,90
PIIB.1aba	1,000	u	Hose reel 25 fix door 750x600x195	3.525,80	3.525,80
%0200	2,000	%	Auxiliar means	3.939,10	78,78

Labor cost	413,25
Materials	3.525,80
Others	78,78
TOTAL ITEM	**4.017,83**

The overall cost of the item is FOUR THOUSAND AND SEVENTEEN SEK con EIGHTY THREE .

Itm12.2 **ud** **Detc smoke conve opt**

Complete Optical Smoke Detector, power supply 2-wire, dual LED status indication, remote pilot outlet with CE marking, even base for seen tube, connectable to detection of conventional central, according to the specifications and the Regulations of fire Protection, fully installed, tested and working properly.

MOOE.8a	0,500	h	1st Official electricity	148,90	74,45
MOOE11a	0,500	h	Electricity specialist	126,60	63,30
PIIL.1b	1,000	u	Detc smoke conve opt	296,90	296,90
%0200	2,000	%	Auxiliar means	434,70	8,69

Labor cost	137,75
Materials	296,90
Others	8,69
TOTAL ITEM	**443,34**

The overall cost of the item is FOUR HUNDRED AND FORTY THREE SEK con THIRTY FOUR .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm12.3		**ud**	**Fire extinguiser** Portable fire extinguisher permanently pressurized with ABC multipurpose powder extinguishing agent and 6 kg capacity CE marked for extinguishing fires of type A, B and C with an efficiency 21A-113B-C, made of steel and protected externally with epoxy painted red propellant N2, quick release valve, pressure gauge and check valve re-movable internal pressure tested at 23 kg/cm2 pressure and a temperature of use of -20 º C / +60 º C, according to the specifications provided in the Regulations Fire Protection.			
MOOA11a	0,450	h	Specialized construction laborer	215,10	96,80	
PIIE.1be	1,000	u	Fire extingusr porta pow ABC 6 kg	664,30	664,30	
%0200	2,000	%	Auxiliar means	761,10	15,22	
			Labor cost			96,80
			Materials			664,30
			Others			15,22
			TOTAL ITEM			**776,32**

The overall cost of the item is SEVEN HUNDRED AND SEVENTY SIX SEK con THIRTY TWO .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm12.4		**ud**	**Signboard 297x148 evacuation** Interior signboard, for evacuation, of dimensions 297x148 mm. in polystyrene 1mm. thick, two directions (emergency exit or similar).			
PSIR.5aa	1,000	u	Signboard 297x148 evacuation	90,80	90,80	
%0100	1,000	%	Auxiliar means	90,80	0,91	
O01OA070	0,050	h.	Ordinary labourer	211,40	10,57	
			Labor cost			10,57
			Materials			90,80
			Others			0,91
			TOTAL ITEM			**102,28**

The overall cost of the item is ONE HUNDRED AND TWO SEK con TWENTY EIGHT .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm12.5		**ud**	**Signboard 297x148 firefighters** Interior signboard, for firefighting, of dimensions 297x148 mm. in polystyrene 1mm. thick, two directions (emergency exit or similar).			
PSIR.5ab	1,000	u	Signboard 297x148 firefighters	90,80	90,80	
%0100	1,000	%	Auxiliar means	90,80	0,91	
O01OA070	0,050	h.	Ordinary labourer	211,40	10,57	
			Labor cost			10,57
			Materials			90,80
			Others			0,91
			TOTAL ITEM			**102,28**

The overall cost of the item is ONE HUNDRED AND TWO SEK con TWENTY EIGHT .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap13 OTHER INSTALATIONS

Itm13.1 **ud** **Network distr cltv TV 2 plants 24-28 viv**

Complete collective distribution network TV + dual downpipe (all doubled until the entry into the apartment) for building between 24-28 houses (with 2 sockets), divided into 12-14 apartments per floor (except ground floor) at an average distance of 10 m of the plant record, consisting on 1 unit and an average distance of 6 meters with delivery splits distributors (if needed), drifters for plant, distribution coaxial cable, buffer amplifiers (if required), user access points, delivery housing, housing coaxial cable and TV outlets + FI, fully installed, tested and in good working condition.

EIAR.7c	12,000 u	User Acces Point 10m	1.303,61	15.643,32	
EIAR.8a	12,000 u	Armored distributor 2 outp	270,20	3.242,40	
EIAR.9c	6,000 u	Armored splitter 8 outp	531,59	3.189,54	
EIAR11a	6,000 m	Coaxial cable RTV 29dB/100m	66,65	399,90	
EIAR10a	24,000 u	Outlet for RTV 6m	543,49	13.043,76	
			Labor cost		3.968,28
			Materials		30.854,10
			Others		696,54
			TOTAL ITEM		**35.518,92**

The overall cost of the item is THIRTY FIVE THOUSAND AND FIVE HUNDRED AND EIGHTEEN SEK con NINETY TWO .

Itm13.2 **ud** **Power outlet tf RJ12, 6 contacts**

Telephone power outlet type RJ12, 6-contact, complete mechanism, key frame and even small items, fully installed, connected and in good working order.

MOOA.9a	0,080 h	2nd construction official	221,90	17,75	
MOOE.8a	0,170 h	1st Official electricity	148,90	25,31	
PIED33a	1,000 u	Toma tf RJ12, 6 contacts	9,03	9,03	
PIED15baaa	1,000 u	Embed frame 1 elem medium quality	1,16	1,16	
%0200	2,000 %	Auxiliar means	53,30	1,07	
			Labor cost		43,06
			Materials		10,19
			Others		1,07
			TOTAL ITEM		**54,32**

The overall cost of the item is FIFTY FOUR SEK con THIRTY TWO .

Itm13.3 **ud** **Television power outlet TV-R**

Television power outlet type TV-R, normal configuration, 75 W impedance and 47-862 MHz frequency band, complete mechanism and key-framed even small items, fully installed, connected and in good working order.

MOOA.9a	0,080 h	2nd construction official	221,90	17,75	
MOOE.8a	0,170 h	1st Official electricity	148,90	25,31	
PIED32a	1,000 u	Television power point TV-R	13,39	13,39	
PIED15baaa	1,000 u	Embed frame 1 elem medium quality	1,16	1,16	
%0200	2,000 %	Auxiliar means	57,60	1,15	
			Labor cost		43,06
			Materials		14,55
			Others		1,15
			TOTAL ITEM		**58,76**

The overall cost of the item is FIFTY EIGHT SEK con SEVENTY SIX .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost

CHAPTER Chap14 CARPENTRY

SUBCHAPTER Chap13.1 Interior carpentry

SECTION Cap13.1.1 Housing carpentry

EFTM.2cac		**ud**	**Entrance door varnished oak veneer**			
			Entrance door varnished oak veneer, 1 blind sheet 203x82.5x4cm with pine pre-doorframe 130x45mm, 130x30mm doorframe, cover-joints 80x15mm, 95mm brassed hinges and lock with doorknob, even received, setting the iron fittings, leveled, small equipment and final adjustment.			
MOOC.8a	1,200	h	1st Offical carpentry	168,30	201,96	
MOOC10a	1,200	h	Carpentry assistant	152,90	183,48	
PFTM10acp	5,500	m	Doorframe Wood oak veneer 130x30mm	74,70	410,85	
PFTM.2cca	1,000	u	Wood sheet	934,90	934,90	
PFTM20acd	11,000	m	Cover-joints Wood oak veneer 80x15mm	16,70	183,70	
PFTZ22bb	3,000	u	Hinge rectangular 95mm	30,90	92,70	
PFTZ.2baa	1,000	u	Lock with knob cyl	111,00	111,00	
PFTZ.5ba	1,000	u	Inlayed lock seg cil 60mm	42,00	42,00	
%0300	3,000	%	Auxiliar means	2.160,60	64,82	
EFTY.1lc	1,000	u	Pre-doorframe pine 1 -82.5 130x45mm	96,31	96,31	
ERPP.5cbaa	3,500	m2	Synthetic varnish	77,01	269,54	
				Labor cost		737,55
				Materials		1.781,71
				Others		72,00
				TOTAL ITEM		**2.591,26**

The overall cost of the item is TWO THOUSAND AND FIVE HUNDRED AND NINETY ONE SEK con TWENTY SIX .

EFTM.6ccaj		**ud**	**Slide door oak veneer 1 sh-82.5 (bathrooms)**			
			Puerta de paso corredera chapada en roble barnizada, de 1 hoja ciega lisa de 203x82.5x3.5cm, con precerco de pino de 150x45mm, cerco de 150x30mm, tapajuntas de 70x12mm, cierre embutido, incluso recibido y aplomado del cerco, ajustado de la hoja, fijación de los herrajes, nivelado, pequeño material y ajuste final, según NTE/PPM-9.			
MOOC.8a	1,400	h	1st Offical carpentry	168,30	235,62	
MOOC10a	1,400	h	Carpentry assistant	152,90	214,06	
PFTM10act	5,500	m	Doorframe MDF oak vaneer 150x30mm	74,70	410,85	
PFTM.1ccba	1,000	u	Hoja agl roble 72.5 cie lisa	934,90	934,90	
PFTM20acb	11,000	m	Cov-joints MDF oak vaneer 70x12mm	16,70	183,70	
PFTZ14a	1,000	u	Mec prta crra 85Kg p/int	678,70	678,70	
PFTZ15a	1,000	u	Crr embt col plata p/vent-prta	15,40	15,40	
%0300	3,000	%	Auxiliar means	2.673,20	80,20	
EFTY.1nc	1,000	u	Precerco pino 1 hj-82.5 150x45mm	120,26	120,26	
ERPP.5cbaa	3,500	m2	Synthetic varnish	77,01	269,54	
				Labor cost		801,79
				Materials		2.253,59
				Others		87,85
				TOTAL ITEM		**3.143,23**

The overall cost of the item is THREE THOUSAND AND ONE HUNDRED AND FORTY THREE SEK con TWENTY THREE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
SECTION Cap13.1.2 Shared areas						
EFTM.1ceaj		**ud**	**Hinger door oak veneer 2 sh-72.5** Hinged passage door oak veneer, varnished, 2 smooth sheets 203x72.5x3.5cm with pine pre-doorframe 150x45mm, 150x30mm frame, cover-joints 70x12mm, 80mm brassed hinges and lock with knob, even received and plumb the doorframe , fitted of the sheet, ironwork setting, leveled, small equipment and final adjustment.			
MOOC.8a	1,750	h	1st Offical carpentry	168,30	294,53	
MOOC10a	1,750	h	Carpentry assistant	152,90	267,58	
PFTM10act	6,200	m	Doorframe MDF oak vaneer 150x30mm	74,70	463,14	
PFTM.1ccca	2,000	u	Sheet agl oak 82.5 smooth	98,94	197,88	
PFTM20acb	13,200	m	Cov-joints MDF oak vaneer 70x12mm	16,70	220,44	
PFTZ22aa	6,000	u	Hinge circular 80mm	45,00	270,00	
PFTZ.2aca	2,000	u	Lock and know esp	12,74	25,48	
%0300	3,000	%	Auxiliar means	1.739,10	52,17	
EFTY.1ne	1,000	u	Pre-doorframe pine 2 sh-72.5 150x45mm	168,68	168,68	
ERPP.5cbaa	5,800	m2	Synthetic varnish	77,01	446,66	
			Labor cost			1.131,80
			Materials			1.210,52
			Others			64,24
			TOTAL ITEM			**2.406,56**

The overall cost of the item is TWO THOUSAND AND FOUR HUNDRED AND SIX SEK con FIFTY SIX .

SUBCHAPTER Chap13.2 Exterior carpentry

Code	Quantity	Ud	Description	Price	Subtotal	Cost
EFTL90bd		**ud**	**Door 2sh 180x210 lac col** Hinged entrance double door of 1.80m widht and 2.10m height made of lacquered aluminum profiles of 60 microns with quality seal Qualicoat, colour, intermediate and lower base of the same material, embedded hinges and zinc lock, adjustable swing latch, to receive glazing, even cutting, preparation and profile connections, fixing battens, pin and hanger ironwork and security, placing seam sealing and cleaning.			
MOOM.8a	6,000	h	1st Official	220,80	1.324,80	
MOOM11a	0,500	h	Construction labourer	215,10	107,55	
PFTL40bd	1,000	u	Door 2sh 180x210 lac col	1.125,90	1.125,90	
%0200	2,000	%	Auxiliar means	2.558,30	51,17	
			Labor cost			1.432,35
			Materials			1.125,90
			Others			51,17
			TOTAL ITEM			**2.609,42**

The overall cost of the item is TWO THOUSAND AND SIX HUNDRED AND NINE SEK con FORTY TWO .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
EFTL.3hhht		**ud**	**Window slid 2sh 137x190 2fix side 40 mnblc** Sliding double window with a fixed side panel 40cm wide, with splayed monoblock system, blind guides and incorporated aluminum slats, made of anodized aluminum 15 microns with a quality seal EWAA-Euras with European channel, inner seal, sealing in the doorframe corners and accessories to ensure proper operation, finished in natural color for glazing up to 18mm, received directly into a wall hole 150x150cm through each disposed anchoring pins every 50cm and every less than 25cm in the corners taken with cement mortar, including staking, placement, plumb and level, assembly and regulation by silicone perimeter sealing and cleaning.			
MOOA.8a	0,900	h	1st construction Official	221,20	199,08	
MOOA12a	0,900	h	Ordinary construction labourer	217,40	195,66	
MOOM.8a	0,450	h	1st Official	220,80	99,36	
PFTL.2hhht	1,000	u	Window slid 2sh 137x190 2fix side 40	1.025,90	1.025,90	
PBPM.1da	0,010	m3	Cem mort M-5 man	613,17	6,13	
%0200	2,000	%	Auxiliar means	1.526,10	30,52	
ENTW.1a	6,000	m	Seal jnt sili w/flit gun	7,16	42,96	
			Labor cost			533,94
			Materials			1.034,73
			Others			30,94
			TOTAL ITEM			**1.599,61**

The overall cost of the item is ONE THOUSAND AND FIVE HUNDRED AND NINETY NINE SEK con SIXTY ONE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
EFTL.3hhht2		**ud**	**Window slid 2sh 100x350 2fix side 40 mnblc** Sliding double window with a fixed side panel 40cm wide, with splayed monoblock system, blind guides and incorporated aluminum slats, made of anodized aluminum 15 microns with a quality seal EWAA-Euras with European channel, inner seal, sealing in the doorframe corners and accessories to ensure proper operation, finished in natural color for glazing up to 18mm, received directly into a wall hole 150x150cm through each disposed anchoring pins every 50cm and every less than 25cm in the corners taken with cement mortar, including staking, placement, plumb and level, assembly and regulation by silicone perimeter sealing and cleaning.			
MOOA.8a	0,900	h	1st construction Official	221,20	199,08	
MOOA12a	0,900	h	Ordinary construction labourer	217,40	195,66	
MOOM.8a	0,450	h	1st Official	220,80	99,36	
PFTL.2hhht	1,000	u	Window slid 2sh 137x190 2fix side 40	1.025,90	1.025,90	
PBPM.1da	0,010	m3	Cem mort M-5 man	613,17	6,13	
%0200	2,000	%	Auxiliar means	1.526,10	30,52	
ENTW.1a	3,000	m	Seal jnt sili w/flit gun	7,16	21,48	
			Labor cost			514,02
			Materials			1.033,38
			Others			30,73
			TOTAL ITEM			**1.578,13**

The overall cost of the item is ONE THOUSAND AND FIVE HUNDRED AND SEVENTY EIGHT SEK con THIRTEEN .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost

SUBCHAPTER Chap13.3 Defences

RAILBALC.4		**ud**	**Railing 100 galv 20x40 L=4m**			
EFSB.1baca	4,000	m	Railing 100 galv 20x40	326,72	1.306,88	
			Labor cost			884,00
			Materials			397,24
			Others			25,64
			TOTAL ITEM			**1.306,88**

The overall cost of the item is ONE THOUSAND AND THREE HUNDRED AND SIX SEK con EIGHTY EIGHT .

EFSB.5acbs12		**ud**	**Railing Al squa curv 100cm** Railing 100cm height, made of hollow adonized aluminium profiles of 15 microns, silver colour, sanded and polished, frame formed by top and bottom rails, frames every 0.96m, posts 30x30mm every 12cm, curved handrail of 19x64mm, including special pieces.			
EFSB.5acbb	2,560	m	Railing Al squa curv 100cm	611,67	1.565,88	
			Labor cost			565,76
			Materials			954,50
			Others			45,62
			TOTAL ITEM			**1.565,88**

The overall cost of the item is ONE THOUSAND AND FIVE HUNDRED AND SIXTY FIVE SEK con EIGHTY EIGHT .

RAILBALC.<4		**ud**	**Railing 100 galv 20x40 L=3.64m**			
EFSB.1baca2	3,640	m	Railing 100 galv 20x40	326,72	1.189,26	
			Labor cost			804,44
			Materials			361,49
			Others			23,33
			TOTAL ITEM			**1.189,26**

The overall cost of the item is ONE THOUSAND AND ONE HUNDRED AND EIGHTY NINE SEK con TWENTY SIX .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap15 BATHROOM FITTINGS AND OTHER FURNITURE

D26PD801	**ud**	**Steel sink 2 spaces + drainer 120x50 cm.,** Stainless steel sink with two spaces and drainer 120x50 cm., With mixer taps model COINTRA GARDA, soap dispenser to be fitted with drain valve 32 mm., Individual siphon PVC 40 mm., framing square faucet 1/2 "Chrome and flexible tube 20 cm., fully installed.			
U01FY105	1,500 H.	1st Official plumber	150,00	225,00	
U27PD801	1,000 Ud	Steel sink 120x50 2 spa+drain	658,90	658,90	
U26GC022	1,000 Ud	Mixer tap sink GARDA chrome	208,56	208,56	
U26XA001	2,000 Ud	Conection tube flexible 20 cm.	93,64	187,28	
U26AG001	2,000 Ud	Framing square faucet 1/2" chrome	63,55	127,10	
U27VL001	1,000 Ud	Soap dispenser univ. 1 l.	67,33	67,33	
U25XC002	2,000 Ud	Straight steel valve sink 2 spaces	156,78	313,56	
U25XC402	1,000 Ud	Tubular siphon vertical	41,03	41,03	
MOOA.8a	0,500 h	1st construction Official	221,20	110,60	
MOOA12a	0,500 h	Ordinary construction labourer	217,40	108,70	
AUXLAV001	0,020 %	Auxiliar means	322,00	6,44	
			Labor cost		444,30
			Materials		1.603,76
			Others		6,44
			TOTAL ITEM		**2.054,50**

The overall cost of the item is TWO THOUSAND AND FIFTY FOUR SEK con FIFTY .

D26FP010	**ud**	**Countertop sink Roca Olimpo white** Countertop sink serie Elena 1.05 m. Roca, standard model of 1.50 m., with white sink 1.10x0,53 m. Olimpo with Roca faucets Monodin in white or similar, drain valve 32 mm, framing square faucet 1/2"chrome, indivudual siphon 40 mm of PVC and flexible tube 20 cm., fully installed.			
U01FY105	1,000 H.	1st Official plumber	150,00	150,00	
U01AA007	0,500 H.	First official	221,20	110,60	
U26GA222	1,000 Ud	Mixer tap Monodín white	241,56	241,56	
U26AG001	2,000 Ud	Framing square faucet 1/2" chrome	63,55	127,10	
U26XA001	2,000 Ud	Conection tube flexible 20 cm.	93,64	187,28	
U26XA011	1,000 Ud	Small chain cap	7,19	7,19	
U27FP010	1,000 Ud	Sink Olimpo 110x53 white	998,99	998,99	
U25XC101	1,000 Ud	Straight valve sink/bidet w/cap	61,86	61,86	
U25XC401	1,000 Ud	Tubular siphon horizontal	349,38	349,38	
AUXLAV001	0,020 %	Auxiliar means	322,00	6,44	
MOOA.8a	0,500 h	1st construction Official	221,20	110,60	
MOOA12a	0,500 h	Ordinary construction labourer	217,40	108,70	
			Labor cost		479,90
			Materials		1.973,36
			Others		6,44
			TOTAL ITEM		**2.459,70**

The overall cost of the item is TWO THOUSAND AND FOUR HUNDRED AND FIFTY NINE SEK con SEVENTY .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
D26LA001		**ud**	**Toilet Roca Victoria high tank/white,** Toilet Roca Victoria model with high tank in white, plastic cistern, mechanism, plastic seat cover, framing square facuet 1/2 "chrome, flexible tube 20 cm., PVC single connection 110 mm., Fully installed.			
U01FY105	1,500	H.	1st Official plumber	150,00	225,00	
U27LA011	1,000	Ud	Inodoro Victoria t. alto blanco	752,10	752,10	
U26XA001	1,000	Ud	Conection tube flexible 20 cm.	93,64	93,64	
U26AG001	1,000	Ud	Framing square faucet 1/2" chrome	63,55	63,55	
U27VX001	1,000	Ud	Toilet lid. Victoria plastic	72,90	72,90	
U27LA001	1,000	Ud	High tank plastic. w/mecanism	789,70	789,70	
U25DD005	1,000	Ud	Simple conection PVC drain. 90m	19,85	19,85	
U25AA005	0,700	Ml	Tub. PVC drain.90 mm.	23,60	16,52	
U25AA002	1,500	Ml	Tub. PVC drain.40 mm.	18,90	28,35	
INDTOI001	0,020	%	Auxiliar means	219,79	4,40	
MOOA.8a	0,500	h	1st construction Official	221,20	110,60	
MOOA12a	0,500	h	Ordinary construction labourer	217,40	108,70	
			Labor cost			444,30
			Materials			1.836,61
			Others			4,40
			TOTAL ITEM			**2.285,31**

The overall cost of the item is TWO THOUSAND AND TWO HUNDRED AND EIGHTY FIVE SEK con THIRTY ONE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
EIFS.5haab		**ud**	**Acry Shower tray 90x75cm squa/rect drain** Acrylic shower tray 90x75 cm dimensions, square / rectangular, white, or matte, non-slip bottom and drain set, including drain valve 1 1/2 ", siphon tube, placed and masonry aids.			
MOOA.8a	0,500	h	1st construction Official	221,20	110,60	
MOOA12a	0,500	h	Ordinary construction labourer	217,40	108,70	
MOOF.8a	0,500	h	1st Official plumber.	148,90	74,45	
MOOF11a	0,500	h	Plumber specialist	126,60	63,30	
PIFS.5haab	1,000	u	Acry Shower tray 90x75cm squa/rect drain	743,98	743,98	
PIFG24bb	1,000	u	Low quality valve 1 1/2"x80mm	35,30	35,30	
PISC.1bc	2,000	m	Drain tube PVC sr-B Ø40mm 40%acc	20,20	40,40	
%0200	2,000	%	Auxiliar means	1.176,70	23,53	
			Labor cost			357,05
			Materials			819,68
			Others			23,53
			TOTAL ITEM			**1.200,26**

The overall cost of the item is ONE THOUSAND AND TWO HUNDRED SEK con TWENTY SIX .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
EIFS21aaa		**ud**	**Bidet white wo/cover eco** White vitrified porcelain bidet, economic quality, with fixing set, including drain valve 1 1/2 ", siphon tube, placed and masonry supports.			
MOOA.8a	0,500	h	1st construction Official	221,20	110,60	
MOOA12a	0,500	h	Ordinary construction labourer	217,40	108,70	
MOOF.8a	1,000	h	1st Official plumber.	148,90	148,90	
MOOF11a	1,000	h	Plumber specialist	126,60	126,60	
PIFS21aaa	1,000	u	Bidet white wo/cover eco	678,98	678,98	
PIFG22ab	1,000	u	Valv drain man siph 1 1/4"x63mm	57,50	57,50	
PISC.1bd	0,500	m	Drain tube PVC sr-B Ø40mm 50%acc	21,60	10,80	
%0200	2,000	%	Auxiliar means	1.242,10	24,84	
			Labor cost			494,80
			Materials			747,28
			Others			24,84
			TOTAL ITEM			**1.266,92**

The overall cost of the item is ONE THOUSAND AND TWO HUNDRED AND SIXTY SIX SEK con NINETY TWO .

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

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EITA.3bba **ud** **Hydraulic lift 6people 3stp**

Hydraulic lift with CE marked for 6 people (nominal load 450 kg) with 3 stops, 0.6 m / s speed and cabin 2.22 m high and 100x120cm (W x D) permanent electric lighting 50 lux minimum, emergency light , overload signal, and cabin and hallway doors telescopic opening side two sheets 80x200 cm with stainless steel finish (corridor doors with fire resistance E 30); installed in hollow 150x150 cm with 1.20 m trench and 3.40 m free security space measured from the last stop, light 50 lux at least 1 m from the roof of the cabin and on the bottom of the trench with machine room of 180x180x200 cm next to the gap at the level of the 1st stop, with lighting 200 lux at floor level including tractor group protected to direct electrical contact, cables and guides for upward and downward vertical displacement of the cabin, safety devices, automatic door lock, safety chute, speed limiter, shock absorber at the end of travel and limit switch.

MOOM.8a	88,500 h	1st Official	220,80	19.540,80	
MOOM11a	88,500 h	Construction labourer	215,10	19.036,35	
PITA.3bba	1,000 u	Hydraulic lift 6people 3stp	73,67	73,67	
%0200	2,000 %	Auxiliar means	38.650,80	773,02	
			Labor cost		38.577,15
			Materials		73,67
			Others		773,02
			TOTAL ITEM		**39.423,84**

The overall cost of the item is THIRTY NINE THOUSAND AND FOUR HUNDRED AND TWENTY THREE SEK con EIGHTY FOUR .

ESMR.8ab **ud** **Supported bar aff disabled WC**

Affixed support bar cantilever on the wall 82.5 cm. for WC, disabled, stainless steel tube without welding grinding, 30 mm. in diameter and 1.5 mm. thick, bolted with three anchor points for three fixing screws, even trim 75 mm. in diameter.

MOOC.8a	0,300 h	1st Offical carpentry	168,30	50,49	
PSMW30ab	1,000 u	Support bar aff WC	125,33	125,33	
%0200	2,000 %	Auxiliar means	175,80	3,52	
			Labor cost		50,49
			Materials		125,33
			Others		3,52
			TOTAL ITEM		**179,34**

The overall cost of the item is ONE HUNDRED AND SEVENTY NINE SEK con THIRTY FOUR .

ESMR.8dd **ud** **Support bar hrz disabled 30 shower**

Affixed horizontal support bar on the wall 30 cm. for shower, disabled, stainless steel tube without welding grinding, 30 mm. in diameter and 1.5 mm. thick, bolted with three anchor points for three fixing screws, even trim 75 mm. in diameter.

MOOC.8a	0,200 h	1st Offical carpentry	168,30	33,66	
PSMW30dd	1,000 u	Support bar hrz 30 shower	45,39	45,39	
%0200	2,000 %	Auxiliar means	79,10	1,58	
			Labor cost		33,66
			Materials		45,39
			Others		1,58
			TOTAL ITEM		**80,63**

The overall cost of the item is EIGHTY SEK con SIXTY THREE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR16ae		**ud**	**Towel rail 600 chro-white** Towel rail for sink, to screw, measuring 600 mm., White vitrified porcelain or smooth chrome.			
MOOA.8a	0,100	h	1st construction Official	221,20	22,12	
PSMR19ae	1,000	u	Tower rail 600 chro-white	43,21	43,21	
%0200	2,000	%	Auxiliar means	65,30	1,31	
			Labor cost			22,12
			Materials			43,21
			Others			1,31
			TOTAL ITEM			**66,64**

The overall cost of the item is SIXTY SIX SEK con SIXTY FOUR .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR19fa		**ud**	**Closet bathroom countertop 110x83x59** Bathroom closet for countertop sink of dimensions 110x83x59 cm., White lacquered wood, glossy finish, with drawers, 2, 3 or 4 doors and height adjustable interior shelf, marble countertop 20 mm. thick and fixing set anchors.			
MOOC.8a	0,750	h	1st Offical carpentry	168,30	126,23	
PSMR23fa	1,000	u	Closet bath countertop 110x83x59	1.243,42	1.243,42	
%0100	1,000	%	Auxiliar means	1.369,70	13,70	
			Labor cost			126,23
			Materials			1.243,42
			Others			13,70
			TOTAL ITEM			**1.383,35**

The overall cost of the item is ONE THOUSAND AND THREE HUNDRED AND EIGHTY THREE SEK con THIRTY FIVE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR49bb		**ud**	**Letterbox exterior 24x9x32 paint col.** Letterbox 24x9x32 cm., for exterior, manufactured in stainless steel sheet and painted in epoxy polyester in various colours.			
MOOA.8a	0,200	h	1st construction Official	221,20	44,24	
PSMR52bb	1,000	u	Letterbox ext 24x9x32 paint col.	16,15	16,15	
%0100	1,000	%	Auxiliar means	60,40	0,60	
			Labor cost			44,24
			Materials			16,15
			Others			0,60
			TOTAL ITEM			**60,99**

The overall cost of the item is SIXTY SEK con NINETY NINE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR46ci		**ud**	**Fridge-freezer 185x69.5x59.5 cm** Fridge-freezer, 2 motors, dimensions 185x69.5x59.5 cm., 420 l. total capacity, freezer 144 l., automatic defrost and reversible doors.			
MOOC.8a	0,500	h	1st Offical carpentry	168,30	84,15	
PSMR49ci	1,000	u	Fridge-freezer 185x69.5x59.5 cm	746,44	746,44	
%0100	1,000	%	Auxiliar means	830,60	8,31	
			Labor cost			84,15
			Materials			746,44
			Others			8,31
			TOTAL ITEM			**838,90**

The overall cost of the item is EIGHT HUNDRED AND THIRTY EIGHT SEK con NINETY .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR45ab		**ud**	**Washing machine 10prog-850rpm** Washing machine, 85x59.6x58 cm dimensions., 10 programs, 850 rpm, 4 buckets for detergent and additives.			
MOOC.8a	0,500	h	1st Offical carpentry	168,30	84,15	
PSMR48ab	1,000	u	Washing machine 10prog-850rpm	540,23	540,23	
%0100	1,000	%	Auxiliar means	624,40	6,24	
			Labor cost			84,15
			Materials			540,23
			Others			6,24
			TOTAL ITEM			**630,62**

The overall cost of the item is SIX HUNDRED AND THIRTY SEK con SIXTY TWO .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR40ah		**ud**	**Kitchen extractor hood 218x127x304** Kitchen extractor hood with dimensions 124x82x124 mm., Speed ??2500 r / min, free discharge flow 80 m3 / h,.			
PSMR41a	1,000	u	Kitchen extrt hood 218x127x304	2.875,90	2.875,90	
%0100	1,000	%	Auxiliar means	2.875,90	28,76	
MOOC.8ac412	0,500	h	Installer	192,30	96,15	
MOOC.8ac412as	0,500	h	Installer assitant	184,30	92,15	
			Labor cost			188,30
			Materials			2.875,90
			Others			28,76
			TOTAL ITEM			**3.092,96**

The overall cost of the item is THREE THOUSAND AND NINETY TWO SEK con NINETY SIX .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR32dga		**ud**	**Kitchen furniture oak 55 1door** Kitchen furniture stand to place continuous upper benches 70x55x60 cm., With a door, closing spring hinges, solid oak wood, sanded, stained and protected by special varnish, body dark oak melamine 19 mm. thick, base matching on the finish and adjustable interior shelf, even ironwork.			
MOOC.8a	1,270	h	1st Offical carpentry	168,30	213,74	
PSMR32dga	1,000	u	Kitc furn oak 55 1door	165,32	165,32	
%0100	1,000	%	Auxiliar means	379,10	3,79	
			Labor cost			213,74
			Materials			165,32
			Others			3,79
			TOTAL ITEM			**382,85**

The overall cost of the item is THREE HUNDRED AND EIGHTY TWO SEK con EIGHTY FIVE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR32dgc		**ud**	**Kitchen furniture oak 55 w/drawers** Kitchen furniture stand to place continuous upper benches 70x55x60 cm., with independent drawers on metal rails, solid oak wood, sanded, stained and protected by special varnish, body dark oak melamine 19 mm. thick, base matching on the finish and adjustable interior shelf, even ironwork.			
MOOC.8a	1,270	h	1st Offical carpentry	168,30	213,74	
PSMR32dgc	1,000	u	Kitc furn oak 55 drawers	239,35	239,35	
%0100	1,000	%	Auxiliar means	453,10	4,53	
			Labor cost			213,74
			Materials			239,35
			Others			4,53
			TOTAL ITEM			**457,62**

The overall cost of the item is FOUR HUNDRED AND FIFTY SEVEN SEK con SIXTY TWO .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR30da		**ud**	**Kitchen furniture oven roak w/sup** Kitchen furniture base for oven with supports for superior panel with controls, solid oak wood, sanded, stained and protected by special varnish with body dark oak melamine 19 mm. thick without ventilation support, with heel matching on the finish, even ironwork.			
MOOC.8a	0,280	h	1st Offical carpentry	168,30	47,12	
PSMR30da	1,000	u	Kit fur oven oak w/sup	73,47	73,47	
%0100	1,000	%	Auxiliar means	120,60	1,21	
			Labor cost			47,12
			Materials			73,47
			Others			1,21
			TOTAL ITEM			**121,80**

The overall cost of the item is ONE HUNDRED AND TWENTY ONE SEK con EIGHTY .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESIL.1a		**ud**	**Neon sign 250x185x75** Neon sign for portals and floors, dimensions 250x185x75 mm.			
MOOA.8a	0,200	h	1st construction Official	221,20	44,24	
PSIL.1a	1,000	u	Neon sign floors 250x185x75	359,90	359,90	
%0100	1,000	%	Auxiliar means	404,10	4,04	
			Labor cost			44,24
			Materials			359,90
			Others			4,04
			TOTAL ITEM			**408,18**

The overall cost of the item is FOUR HUNDRED AND EIGHT SEK con EIGHTEEN .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
COCELEC		**ud**	**Electric Stove eco 4oven** Electric stove, economic quality 4 ovens, electric oven, double glazed door, dimensions 85x54x55 cm.			
PSMR43cc	1,000	u	Electric stove eco 4oven	3.499,80	3.499,80	
%0100	1,000	%	Auxiliar means	3.499,80	35,00	
MOOC.8ac412	0,500	h	Installer	192,30	96,15	
MOOC.8ac412as	0,500	h	Installer assitant	184,30	92,15	
			Labor cost			188,30
			Materials			3.499,80
			Others			35,00
			TOTAL ITEM			**3.723,10**

The overall cost of the item is THREE THOUSAND AND SEVEN HUNDRED AND TWENTY THREE SEK con TEN .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
COCELECIND		**ud**	**Electric Stove eco 4oven Industrial Kitchen 100 pers.** Electric stove, economic quality 4 ovens, electric oven, double glazed door, dimensions 85x54x55 cm.			
ElecoveIND	1,000	u	Electric stove eco 4oven Industrial kitchen 100p	5.900,90	5.900,90	
MOOC.8ac412	0,500	h	Installer	192,30	96,15	
MOOC.8ac412as	0,500	h	Installer assitant	184,30	92,15	
			Labor cost			188,30
			Materials			5.900,90
			TOTAL ITEM			**6.089,20**

The overall cost of the item is SIX THOUSAND AND EIGHTY NINE SEK con TWENTY .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
ESMR40ahFINDK		**ud**	**Kitchen extractor hood 218x127x304 Industrial Kit** Kitchen extractor hood with dimensions 124x82x124 mm., Speed ??2500 r / min, free discharge flow 80 m3 / h,.			
PSMR41aIND	1,000	u	Kitchen extrt hood 872x508x1212	12.000,90	12.000,90	
MOOC.8ac412	0,500	h	Installer	192,30	96,15	
MOOC.8ac412as	0,500	h	Installer assitant	184,30	92,15	
				Labor cost		188,30
				Materials		12.000,90
				TOTAL ITEM		**12.189,20**

The overall cost of the item is TWELVE THOUSAND AND ONE HUNDRED AND EIGHTY NINE SEK con TWENTY .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost

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Itm17.1		**ud**	**Booth size metal surface 2.35x6.00**			
			Booth size metal surface 2.35x6.00x2.30m of 14.50m2, structure and enclosure in galvanized steel, insulated with fiberglass blanket 60mm thick, chipboard floor boards coated by continuous sheet 2mm PVC, insulated with expanded polystyrene sheet 50mm, door 1mm galvanized sheet also insulated galvanized steel sheet of 0.60mm for 220V electrical grounding, panels for 40W fluorescent tubes and plugs for a 1500W power, including placement.			
MOOA.9a	2,500	h	2nd construction official	221,90	554,75	
MOOA12a	2,500	h	Ordinary construction labourer	217,40	543,50	
MMBC.3bec	1,000	u	Booth size metal surface 2.35x6.00	31.925,00	31.925,00	
%0002	20,000		Auxiliar means	33.023,30	6.604,66	
				Labor cost		1.098,25
				Machinery		31.925,00
				Others		6.604,66
				TOTAL ITEM		**39.627,91**

The overall cost of the item is THIRTY NINE THOUSAND AND SIX HUNDRED AND TWENTY SEVEN SEK con NINETY ONE .

Itm17.2		**ud**	**Storehouse 6.00x2.40m**			
			Prefabricated booth for storehouse work 6.00x2.40m, coated galvanized steel and galvanized sheet metal side closure, waterproof chipboard flooring, window and door, including placement.			
MOOA.9a	2,500	h	2nd construction official	221,90	554,75	
MOOA12a	2,500	h	Ordinary construction labourer	217,40	543,50	
MMBC.7d	1,000	u	Storehouse 6.00x2.40m	29.999,00	29.999,00	
%0002	20,000		Auxiliar means	31.097,30	6.219,46	
				Labor cost		1.098,25
				Machinery		29.999,00
				Others		6.219,46
				TOTAL ITEM		**37.316,71**

The overall cost of the item is THIRTY SEVEN THOUSAND AND THREE HUNDRED AND SIXTEEN SEK con SEVENTY ONE .

Itm17.3		**ud**	**Mirror changing rooms/toilets.**			
			Mirror for changing rooms and toilets.			
MOOA12a	0,100	h	Ordinary construction labourer	217,40	21,74	
MMBE.1a	1,000	u	Mirror for changing rooms and toilets.	278,60	278,60	
%0100	1,000	%	Auxiliar means	300,30	3,00	
				Labor cost		21,74
				Machinery		278,60
				Others		3,00
				TOTAL ITEM		**303,34**

The overall cost of the item is THREE HUNDRED AND THREE SEK con THIRTY FOUR .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.4		**ud**	**Clothes hanger cabins**			
			Clothes hanger, shower cabins and toilet.			
MOOA12a	0,100	h	Ordinary construction labourer	217,40	21,74	
MMBE.2a	1,000	u	Clothes hanger cabins	49,50	49,50	
%0100	1,000	%	Auxiliar means	71,20	0,71	
			Labor cost			21,74
			Machinery			49,50
			Others			0,71
			TOTAL ITEM			**71,95**

The overall cost of the item is SEVENTY ONE SEK con NINETY FIVE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.5		**ud**	**Simple bench w/shoerack lg200cm**			
			Bench locker with single seat, with grilled over 200cm shoerack, iron pipe manufactured in white lacquered and natural lacquered spruce slats, seat depth 36cm and 42cm seat height.			
MOOA12a	0,100	h	Ordinary construction labourer	217,40	21,74	
MMBE.3aac	0,500	u	Simple bench w/shoerack lg200cm	1.560,00	780,00	
%0001	20,000		Auxiliar means	801,70	160,34	
			Labor cost			21,74
			Machinery			780,00
			Others			160,34
			TOTAL ITEM			**962,08**

The overall cost of the item is NINE HUNDRED AND SIXTY TWO SEK con EIGHT .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.6		**ud**	**Metallic bench 5p**			
			Metallic bench with seats for five people.			
MOOA12a	0,100	h	Ordinary construction labourer	217,40	21,74	
MMBE.5a	0,500	u	Metallic bench 5p	570,00	285,00	
%0100	1,000	%	Auxiliar means	306,70	3,07	
			Labor cost			21,74
			Machinery			285,00
			Others			3,07
			TOTAL ITEM			**309,81**

The overall cost of the item is THREE HUNDRED AND NINE SEK con EIGHTY ONE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.7		**ud**	**Met Locker 30x50x180cm 2le 2sp**			
			Metal locker, size 30x50x180cm two levels with two spaces of dimensions 30x50x90, made of cold rolled sheet, ST42 steel, 0.7mm thickness 1.0 mm body and doors, folds and edges with no sharp edges, door with concealed hinges and reinforced with omega-shaped plate on the inside of the blade, vents in the top and bottom support for identification card, individual lock with two keys, including placement.			
MOOA12a	0,100	h	Ordinary construction labourer	217,40	21,74	
MMBE.9bbb	0,333	u	Met Locker 30x50x180cm 2le 2sp	1.120,00	372,96	
%0001	20,000		Auxiliar means	394,70	78,94	
			Labor cost			21,74
			Machinery			372,96
			Others			78,94
			TOTAL ITEM			**473,64**

The overall cost of the item is FOUR HUNDRED AND SEVENTY THREE SEK con SIXTY FOUR .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.8		**ud**	**First-aid kid**			
			First aid kit with minimum content required.			
MOOA12a	0,200	h	Ordinary construction labourer	217,40	43,48	
MMBE10a	1,000	u	First-aid kid	480,00	480,00	
%0100	1,000	%	Auxiliar means	523,50	5,24	
			Labor cost			43,48
			Machinery			480,00
			Others			5,24
			TOTAL ITEM			**528,72**

The overall cost of the item is FIVE HUNDRED AND TWENTY EIGHT SEK con SEVENTY TWO .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.9		**m**	**Debris pipe**			
			Polyethylene downspout with chains to dumping of debris, with mouth and clamping supports, including physical placement and removal.			
MOOA11a	0,400	h	Specialized construction laborer	215,10	86,04	
MPCB.7a	0,300	m	Debris pipe	467,30	140,19	
MPCB.8a	0,100	u	Debris mouthpiece	658,80	65,88	
MPCB.9a	0,020	u	Restraint brackets debris pipe	129,43	2,59	
%2000	20,000	%	Auxiliar means	294,70	58,94	
			Labor cost			86,04
			Machinery			208,66
			Others			58,94
			TOTAL ITEM			**353,64**

The overall cost of the item is THREE HUNDRED AND FIFTY THREE SEK con SIXTY FOUR .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.10		**m2**	**Planking 20x7cm**			
			Boarded for horizontal holes protection with pine planks of 20x7cm, nailed, even flagging tape attached to 1m high with uprights.			
MOOA11a	0,100	h	Specialized construction laborer	215,10	21,51	
MMEM.1cd	0,400	m3	Amtz wood board 7.6x15-20cm. 4 us	55,13	22,05	
MPSS.5a	0,040	u	Signaling pole	39,02	1,56	
MPSS.3a	1,600	u	Bicolor band	13,39	21,42	
%0002	20,000		Auxiliar means	66,50	13,30	
			Labor cost			21,51
			Machinery			45,03
			Others			13,30
			TOTAL ITEM			**79,84**

The overall cost of the item is SEVENTY NINE SEK con EIGHTY FOUR .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.11		**m2**	**Anti-falling safety net PP 20x20mm** Anti-falling safety net made ??of polypropylene mesh of high tenacity of 20x20mm dimensions, including tied with polypropylene wiring rope 14mm diameter, and polypropylene rope for braiding 8mm in diameter and clamping hooks, assembly, installation and removal.			
MOOA.8a	0,200	h	1st construction Official	221,20	44,24	
MOOA11a	0,200	h	Specialized construction laborer	215,10	43,02	
MPCR.1aa	1,100	m2	Safety net polypropylene 20x20mm	29,60	32,56	
MPCR.2aga	0,400	m	Rope wiring polypropylene ø14mm	14,80	5,92	
MPCR.2adb	0,200	m	Rope plait polipropileno ø8mm	2,80	0,56	
MPCR.3a	1,100	u	Fastening hook	28,50	31,35	
%0002	20,000		Auxiliar means	157,70	31,54	
			Labor cost			87,26
			Machinery			70,39
			Others			31,54
			TOTAL ITEM			**189,19**

The overall cost of the item is ONE HUNDRED AND EIGHTY NINE SEK con NINETEEN .

Itm17.12		**ud**	**Prtotection helmet adj/roulette** Helmet protection against impact or shock produced against falling objects, adjustable roulette, amortized in 10 uses.			
MPIC.2b	1,000	u	Prtotection helmet adj/roulette	6,96	6,96	
%0001	20,000		Auxiliar means	7,00	1,40	
			Machinery			6,96
			Others			1,40
			TOTAL ITEM			**8,36**

The overall cost of the item is EIGHT SEK con THIRTY SIX .

Itm17.13		**ud**	**Helmet with hearing protection** Protection helmet for normal use, with hearing protectors, amortized in 10 uses.			
MPIC.5a	1,000	u	Helmet with hearing protection	46,36	46,36	
%0100	1,000	%	Auxiliar means	46,40	0,46	
			Machinery			46,36
			Others			0,46
			TOTAL ITEM			**46,82**

The overall cost of the item is FORTY SIX SEK con EIGHTY TWO .

Itm17.14		**ud**	**Gloves gen cot-rub** Pair of general purpose gloves manufactured in cotton-rubber.			
MPIM.1ag	1,000	u	Gloves gen cot-rub	23,50	23,50	
%0001	20,000		Auxiliar means	23,50	4,70	
			Machinery			23,50
			Others			4,70
			TOTAL ITEM			**28,20**

The overall cost of the item is TWENTY EIGHT SEK con TWENTY .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.15		**ud**	**Harness 1 tie point** Anti-falling harness responsible for press the body to hold it and prevent it from falling, formed by bands, buckles and adjusting elements, with a tie point.			
MPIX13a	0,200	u	Harness 1 tie point	286,40	57,28	
%0001	20,000		Auxiliar means	57,30	11,46	
			Machinery			57,28
			Others			11,46
			TOTAL ITEM			**68,74**

The overall cost of the item is SIXTY EIGHT SEK con SEVENTY FOUR .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.16		**m**	**Metal fence pref. galv blind sheet** Metal fence prefabricated of galvanized blind sheet 2.00 m high and 1 mm thick, with weather protection, galvanized supports spaced every 2.00m on concrete bases, including placement.			
MOOA.8a	0,300	h	1st construction Official	221,20	66,36	
MOOA12a	0,300	h	Ordinary construction labourer	217,40	65,22	
MPST.1a	0,200	m	Metal fence pref. galv blind sheet	539,70	107,94	
MPST.5a	0,200	u	Metal support	87,00	17,40	
MPST.4a	0,200	u	Concrete basis	69,50	13,90	
%0100	1,000	%	Auxiliar means	270,80	2,71	
			Labor cost			131,58
			Machinery			139,24
			Others			2,71
			TOTAL ITEM			**273,53**

The overall cost of the item is TWO HUNDRED AND SEVENTY THREE SEK con FIFTY THREE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.17		**ud**	**Cone PVC 90cm refl nor** Cone signaling of PVC, 90 cm high and normal reflection, even placement.			
MOOA12a	0,050	h	Ordinary construction labourer	217,40	10,87	
MPSS.4fa	0,500	u	Cone PVC 90cm refl nor	390,00	195,00	
%0001	20,000		Auxiliar means	205,90	41,18	
			Labor cost			10,87
			Machinery			195,00
			Others			41,18
			TOTAL ITEM			**247,05**

The overall cost of the item is TWO HUNDRED AND FORTY SEVEN SEK con FIVE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.18		**ud**	**Prohibition signal** Circular prohibition sign 60cm diameter, normalized, with galvanized metal support dimensions 80x40x2mm and 2.00m high, even placement.			
MOOA11a	0,100	h	Specialized construction laborer	215,10	21,51	
MPSP.1a	0,333	u	Prohibition signal	221,30	73,69	
MPSP.7a	0,333	u	Galv. steel support	133,00	44,29	
%0100	1,000	%	Auxiliar means	139,50	1,40	
			Labor cost			21,51
			Machinery			117,98
			Others			1,40
			TOTAL ITEM			**140,89**

The overall cost of the item is ONE HUNDRED AND FORTY SEK con EIGHTY NINE .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.19		**ud**	**Warning signal** Triangular warning sign 70cm in length, normalized, with galvanized metal support dimensions 80x40x2mm and 2.00m high, even placement.			
MOOA11a	0,100	h	Specialized construction laborer	215,10	21,51	
MPSP.2a	0,333	u	Warning signal	201,30	67,03	
MPSP.7a	0,333	u	Galv. steel support	133,00	44,29	
%0100	1,000	%	Auxiliar means	132,80	1,33	
			Labor cost			21,51
			Machinery			111,32
			Others			1,33
			TOTAL ITEM			**134,16**

The overall cost of the item is ONE HUNDRED AND THIRTY FOUR SEK con SIXTEEN .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.20		**ud**	**Obligation signal** Circular sign of obligation with 60cm diameter, normalized, with galvanized metal support dimensions 80x40x2mm and 2.00m high, even placement.			
MOOA11a	0,100	h	Specialized construction laborer	215,10	21,51	
MPSP.3a	0,333	u	Obligation signal	221,30	73,69	
MPSP.7a	0,333	u	Galv. steel support	133,00	44,29	
%0100	1,000	%	Auxiliar means	139,50	1,40	
			Labor cost			21,51
			Machinery			117,98
			Others			1,40
			TOTAL ITEM			**140,89**

The overall cost of the item is ONE HUNDRED AND FORTY SEK con EIGHTY NINE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.21		**ud**	**Recommendation signal** Recommendation signal in a square of length 60cm, normalized, with galvanized metal support dimensions 80x40x2mm and 2.00m high, even placement.			
MOOA11a	0,100	h	Specialized construction laborer	215,10	21,51	
MPSP.4a	0,333	u	Recommendation signal	276,60	92,11	
MPSP.7a	0,333	u	Galv. steel support	133,00	44,29	
%0100	1,000	%	Auxiliar means	157,90	1,58	
			Labor cost			21,51
			Machinery			136,40
			Others			1,58
			TOTAL ITEM			**159,49**

The overall cost of the item is ONE HUNDRED AND FIFTY NINE SEK con FORTY NINE .

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.22		**ud**	**Manual siren** Acoustic siren for emergency warning and composed of sound module of power 25W 113dB, 12V, built in highly resistant polycarbonate, even placement.			
MOOE.8a	0,200	h	1st Official electricity	148,90	29,78	
MOOA12a	0,200	h	Ordinary construction labourer	217,40	43,48	
MPSA.1b	0,200	u	Manual siren	35,00	7,00	
%0100	1,000	%	Auxiliar means	80,30	0,80	
			Labor cost			73,26
			Machinery			7,00
			Others			0,80
			TOTAL ITEM			**81,06**

The overall cost of the item is EIGHTY ONE SEK con SIX .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm17.23		**h**	**Workers training** Workers training in compliance with health and safety standards.			
				Sin descomposición		
				TOTAL ITEM.....		**150,00**

The overall cost of the item is ONE HUNDRED AND FIFTY SEK.

Itm17.24		**ud**	**Individual educational material** Individual Educational Material for safety and health training.			
				Sin descomposición		
				TOTAL ITEM.....		**140,00**

The overall cost of the item is ONE HUNDRED AND FORTY SEK.

DESCOMPOSED PRICES

Code	Quantity Ud	Description	Price	Subtotal	Cost

CHAPTER Chap18 QUALITY CONTROL

Itm18.1	**ud**	**Test of materials**			
TESTSTEE	1,000 ud	Ave. section equiv./ section/ elastic limit/ TEST TUBE	10.000,00	10.000,00	
TESTCON	248,000 ud	Concrete test	950,00	235.600,00	
			Others		245.600,00
			TOTAL ITEM.....		**245.600,00**

The overall cost of the item is TWO HUNDRED AND FORTY FIVE THOUSAND AND SIX HUNDRED SEK.

Itm18.2	**ud**	**Test on watch** Test of run-off in facades trying jointly the closing of factory and the carpentry in the most unfavorable cloth. 1 Determinations x 32.000 SEK = 32.000 SEK Test of water tightness on flat covers, verifying the water-drainages of the cover and their drain spout 2 Determinations x 31.200 SEK = 62.400 SEK Hydraulic testing in the general installation of the building, verifying undertaken, tube of feeding and group of pressure. 1 Determinations x 30.000 SEK = 30.000 SEK			
TESTFAC	1,000 ud	Test of run-off in facades	32.000,00	32.000,00	
TESTCOV	2,000 ud	Test of water tightness on flat covers	31.200,00	62.400,00	
HIDTEST	1,000 ud	Hydraulic testing in the general installation	30.000,00	30.000,00	
			Others		124.400,00
			TOTAL ITEM.....		**124.400,00**

The overall cost of the item is ONE HUNDRED AND TWENTY FOUR THOUSAND AND FOUR HUNDRED SEK.

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost

CHAPTER Chap19 Indirect Costs Study

Itm19.1 **M** **Administrative**

Sin descomposición

TOTAL ITEM **15.282,41**

The overall cost of the item is FIFTEEN THOUSAND AND TWO HUNDRED AND EIGHTY TWO SEK con FORTY ONE .

Itm19.2 **M** **Manager**

Sin descomposición

TOTAL ITEM **19.498,25**

The overall cost of the item is NINETEEN THOUSAND AND FOUR HUNDRED AND NINETY EIGHT SEK con TWENTY FIVE .

Itm19.3 **M** **Crane operator**

Sin descomposición

TOTAL ITEM **17.917,31**

The overall cost of the item is SEVENTEEN THOUSAND AND NINE HUNDRED AND SEVENTEEN SEK con THIRTY ONE .

Itm19.4 **M** **Guardian**

Sin descomposición

TOTAL ITEM **7.799,30**

The overall cost of the item is SEVEN THOUSAND AND SEVEN HUNDRED AND NINETY NINE SEK con THIRTY .

Itm19.5 **ud** **Services (electricity, water,...)**

Sin descomposición

TOTAL ITEM **421,58**

The overall cost of the item is FOUR HUNDRED AND TWENTY ONE SEK con FIFTY EIGHT .

Itm19.6 **ud** **Ground connections**

Sin descomposición

TOTAL ITEM **210,79**

The overall cost of the item is TWO HUNDRED AND TEN SEK con SEVENTY NINE .

Itm19.7 **M** **Crane**

Sin descomposición

TOTAL ITEM **42.158,40**

The overall cost of the item is FORTY TWO THOUSAND AND ONE HUNDRED AND FIFTY EIGHT SEK con FORTY .

Itm19.8 **M** **Freight hoist**

Sin descomposición

TOTAL ITEM **3.161,88**

The overall cost of the item is THREE THOUSAND AND ONE HUNDRED AND SIXTY ONE SEK con EIGHTY EIGHT .

Itm19.9 **ud** **Services consumption**

Sin descomposición

TOTAL ITEM **2.107,92**

The overall cost of the item is TWO THOUSAND AND ONE HUNDRED AND SEVEN SEK con NINETY TWO .

Itm19.10 **ud** **Office materials**

Sin descomposición

TOTAL ITEM **420,16**

The overall cost of the item is FOUR HUNDRED AND TWENTY SEK con SIXTEEN .

DESCOMPOSED PRICES

Code	Quantity	Ud	Description	Price	Subtotal	Cost
Itm19.11		**ud**	**Others**			
				Sin descomposición		
				TOTAL ITEM.....		**1.053,96**

The overall cost of the item is ONE THOUSAND AND FIFTY THREE SEK con NINETY SIX .

Itm19.12		**M**	**Site manager**			
				Sin descomposición		
				TOTAL ITEM.....		**26.348,99**

The overall cost of the item is TWENTY SIX THOUSAND AND THREE HUNDRED AND FORTY EIGHT SEK con NINETY NINE .

BUDGET SUMMARY

Chapter	Summary	Cost
Chap01	EARTHWORK	130.684,76
Chap02	SANITARY DRAINAGE	216.500,94
Chap03	FOUNDATION	3.821.662,71
Chap04	STRUCTURE	13.142.700,84
Chap05	ROOF	8.616.094,98
Chap06	FACADE	12.184.471,37
Chap07	PARTITIONS	4.444.898,48
Chap08	COATINGS	2.261.501,00
Chap09	PLUMBING, SANITATION	11.174.772,50
Chap10	ELECTRICITY INSTALLATION	4.521.238,41
Chap11	HEATING INSTALLATION	850.205,74
Chap12	FIRE PROTECTION INSTALATION	111.044,54
Chap13	OTHER INSTALATIONS	153.836,00
Chap14	CARPENTRY	1.052.784,93
Chap15	BATHROOM FITTINGS AND OTHER FURNITURE	608.606,20
Chap16	OTHERS	496.206,80
Chap17	HEALTH AND SAFETY	392.205,78
Chap18	QUALITY CONTROL	370.000,00
Chap19	Indirect Costs Study	204.361,33
	TOTAL MATERIAL EXECUTION	**64.753.777,31**
	13,00 % General expenses 8.417.991,05	
	6,00 % Industrial profit..... 3.885.226,64	
	SUM OF G.E. y I.P.	12.303.217,69
	16,00 % V.A.T. 12.329.119,20	12.329.119,20
	OVERALL COST	**89.386.114,20**
	GENERAL BUDGET TOTAL	**89.386.114,20**

The overall cost of the general budget is EIGHTY NINE MILLIONS AND THREE HUNDRED AND EIGHTY SIX THOUSAND AND ONE HUNDRED AND FOURTEEN SEK.

, June 12th of 2013.

PROPERTY PROJECT MANAGEMENT

12_DRAWINGS

N

	ATHLETE RESIDENCE NISSAN	12/06/2013
	LOCATION DRAWING	SCALE 1:5000
HÖGSKOLAN HHH HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	1

Stationsgatan

Stuvaregatan

SPORTS HALL

SPORTS HALL

CONFERENCE HALL

EXPOSITION HALL

Styrmangatan

D Building

B Building

A Building

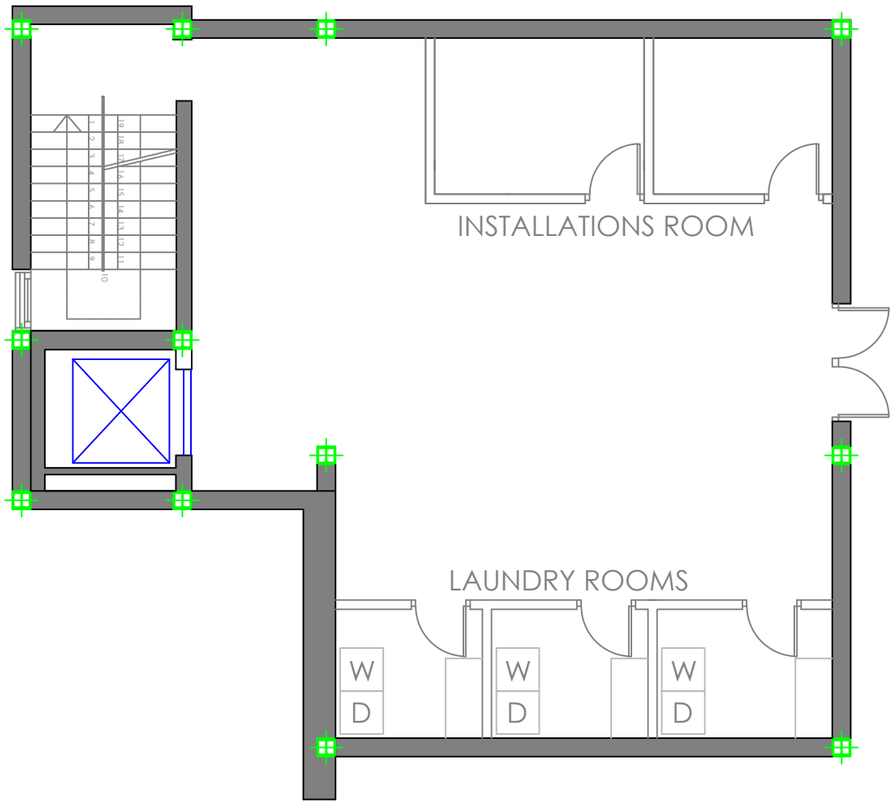
C Building

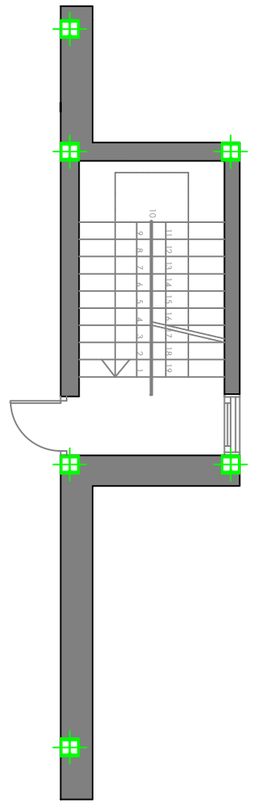
Strandgatan

River Nissan

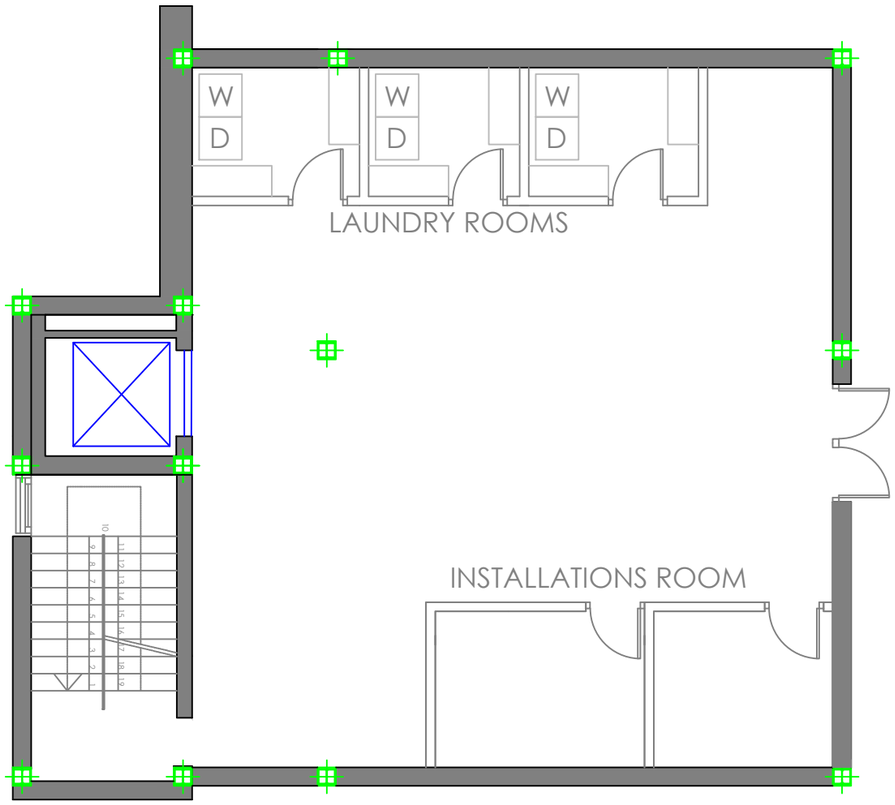
N

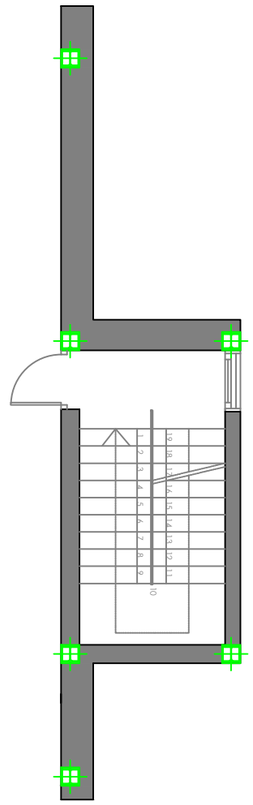
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SITE DRAWING	SCALE 1:1000
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	2



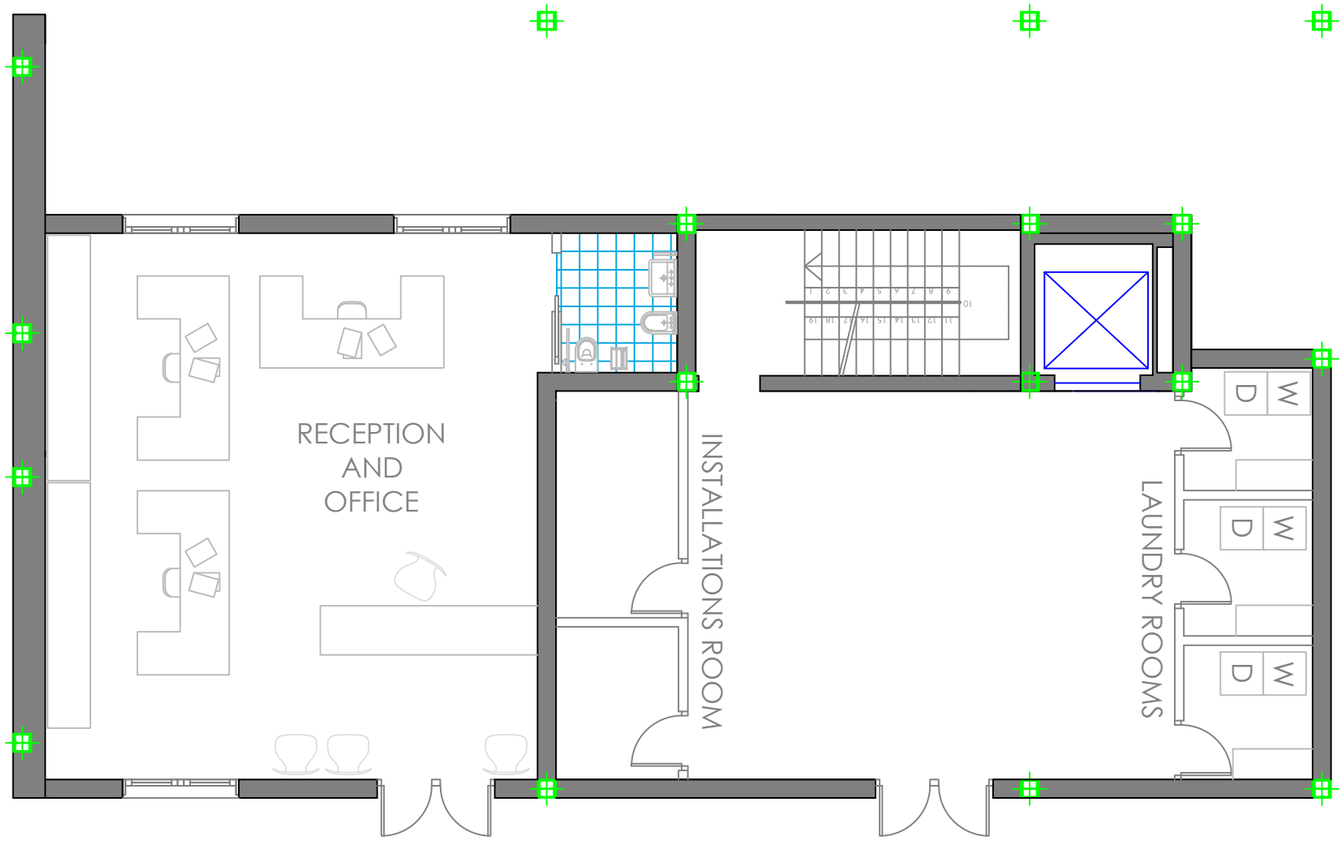


HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: FIRST FLOOR BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.1

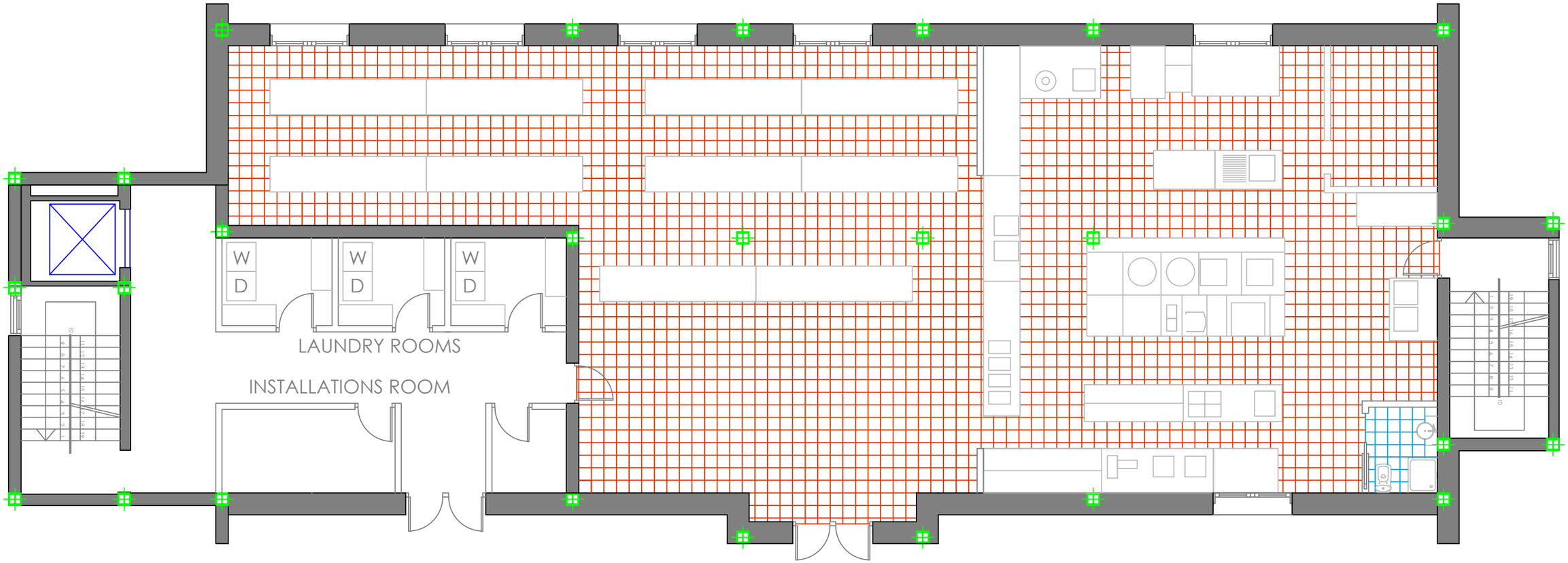




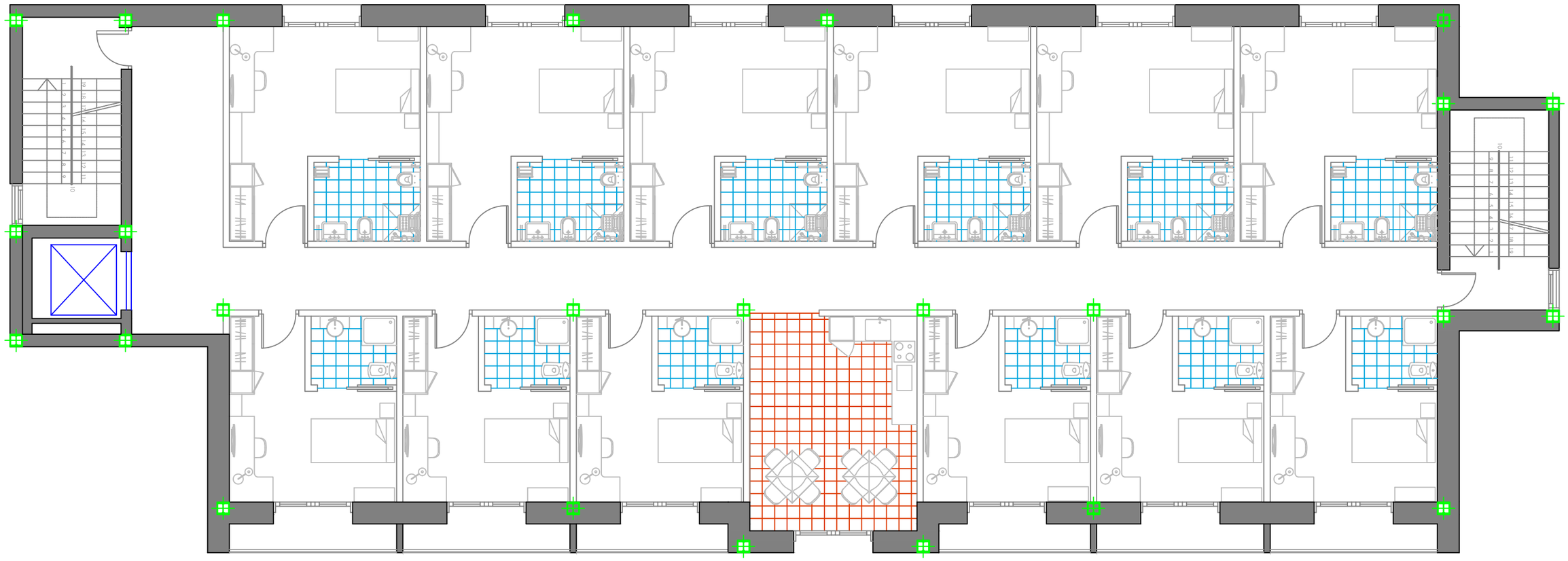
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: FIRST FLOOR BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.2



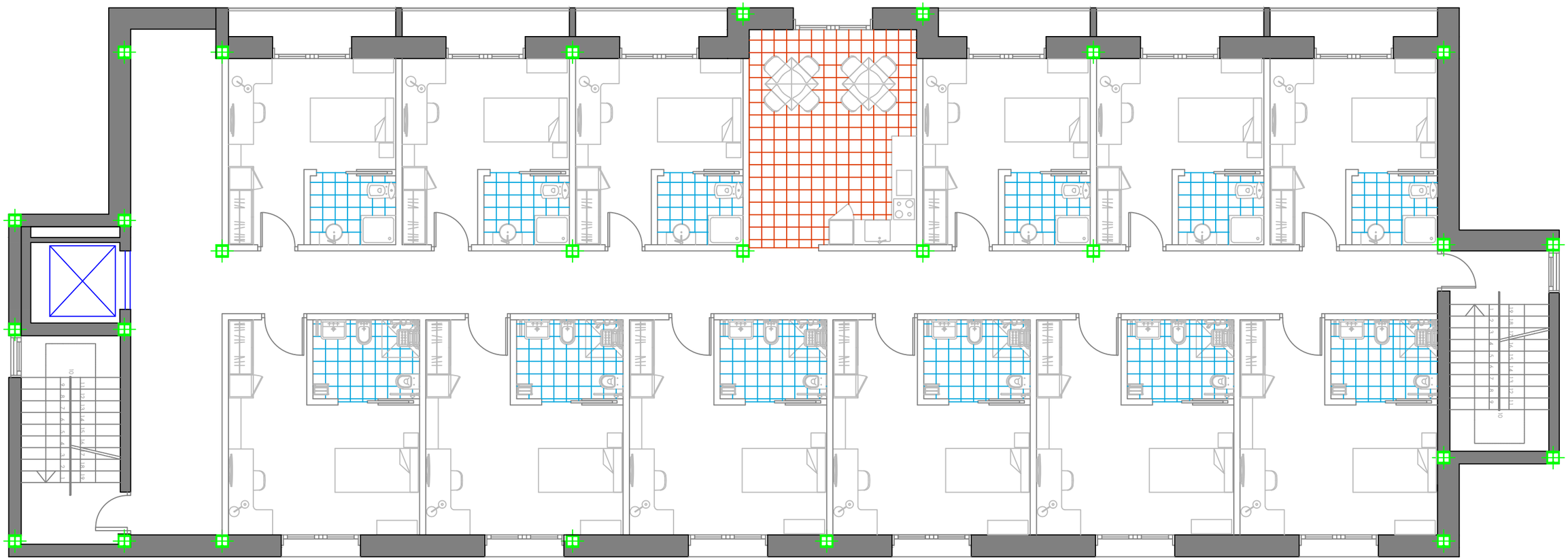
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: FIRST FLOOR BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.3



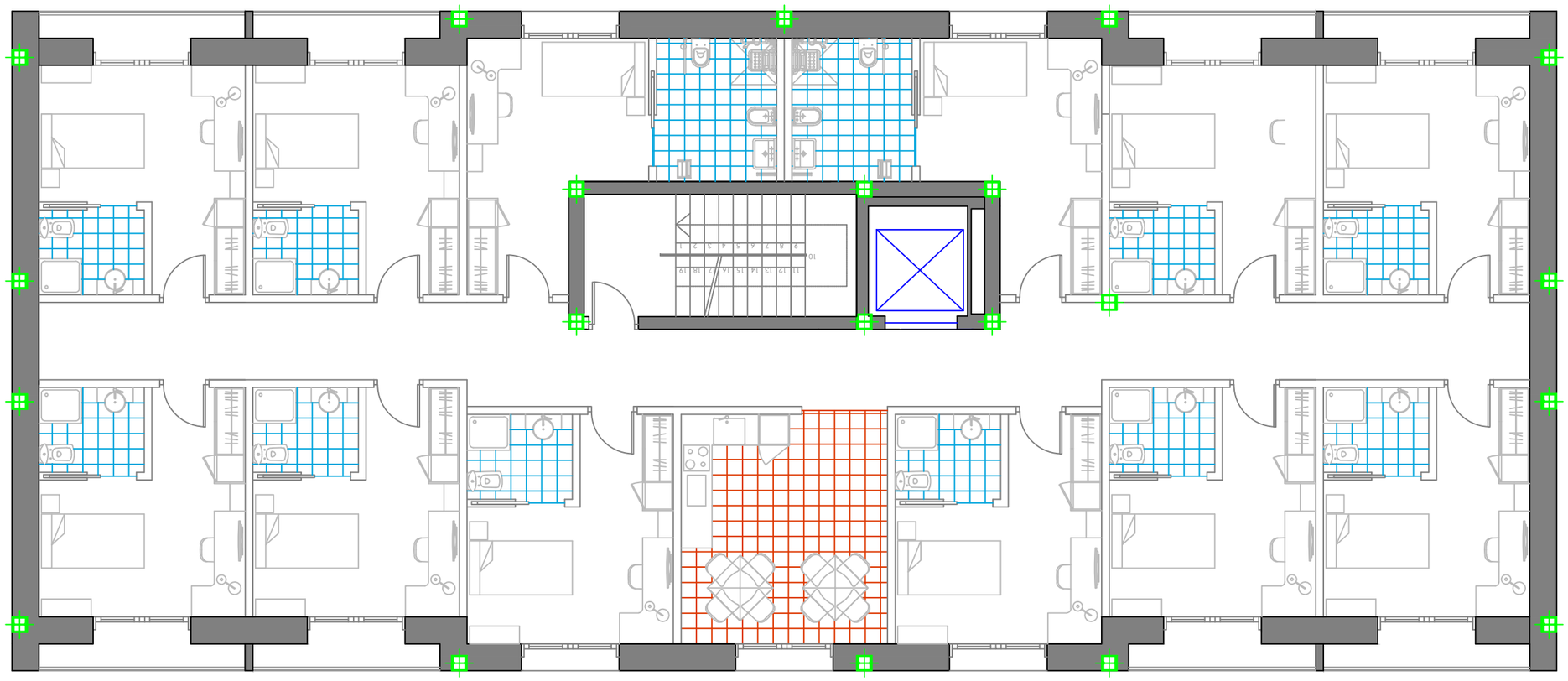
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: FIRST FLOOR BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.4



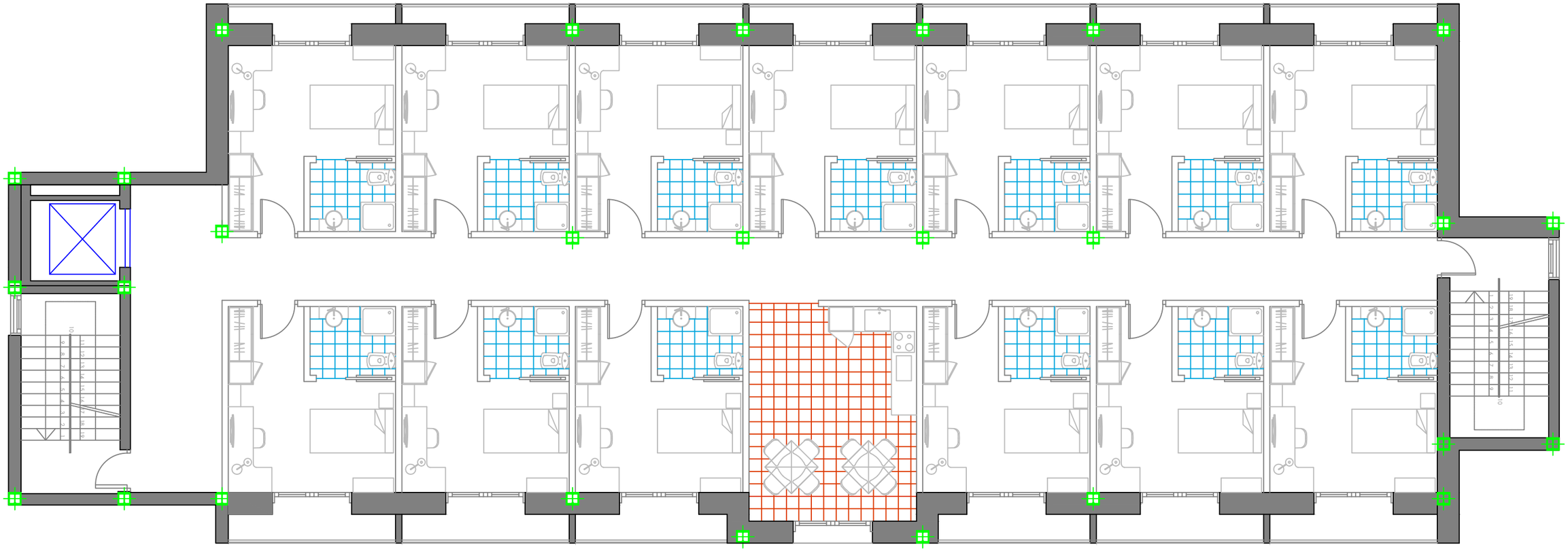
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: SECOND FLOOR BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.5



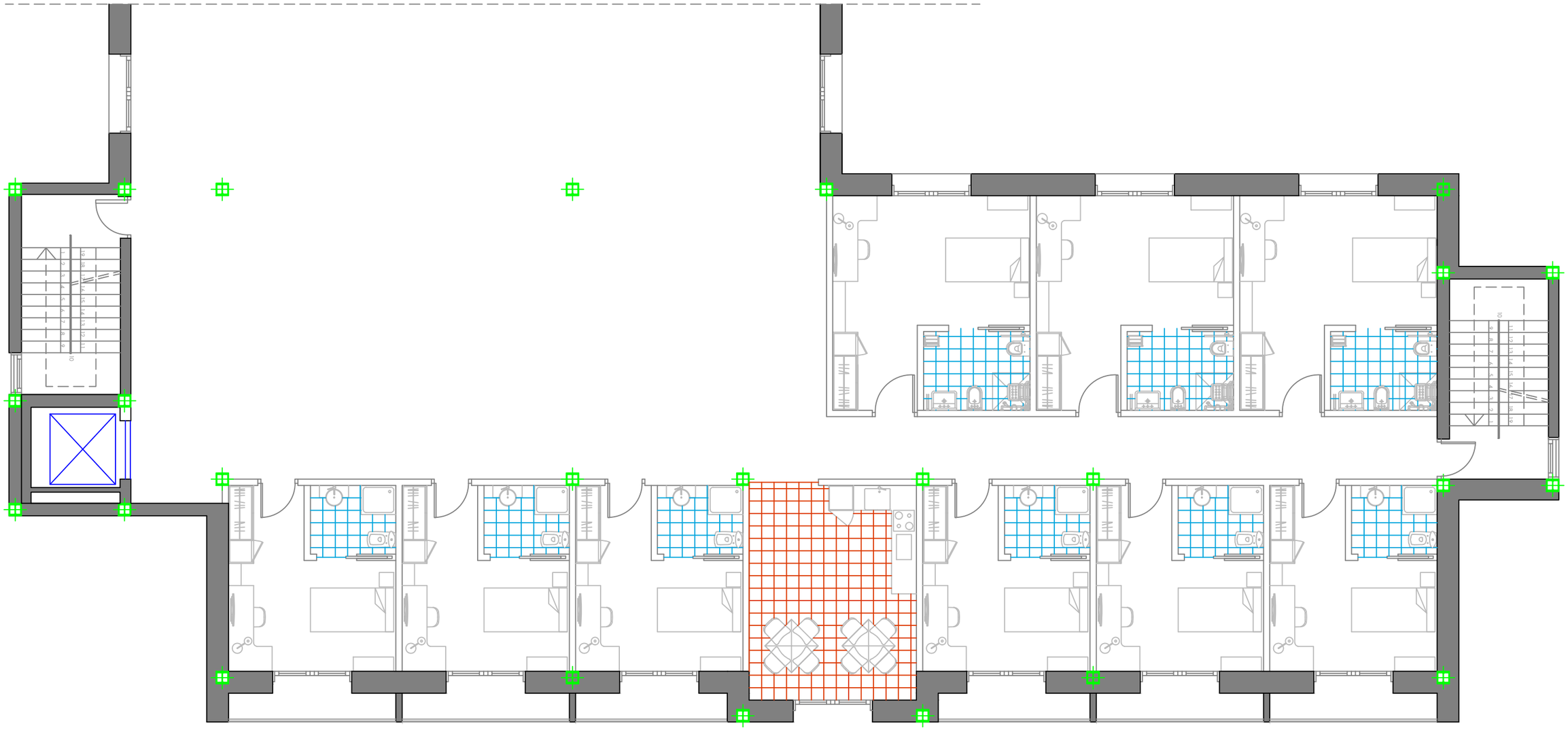
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: SECOND FLOOR BUILDING B	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.6



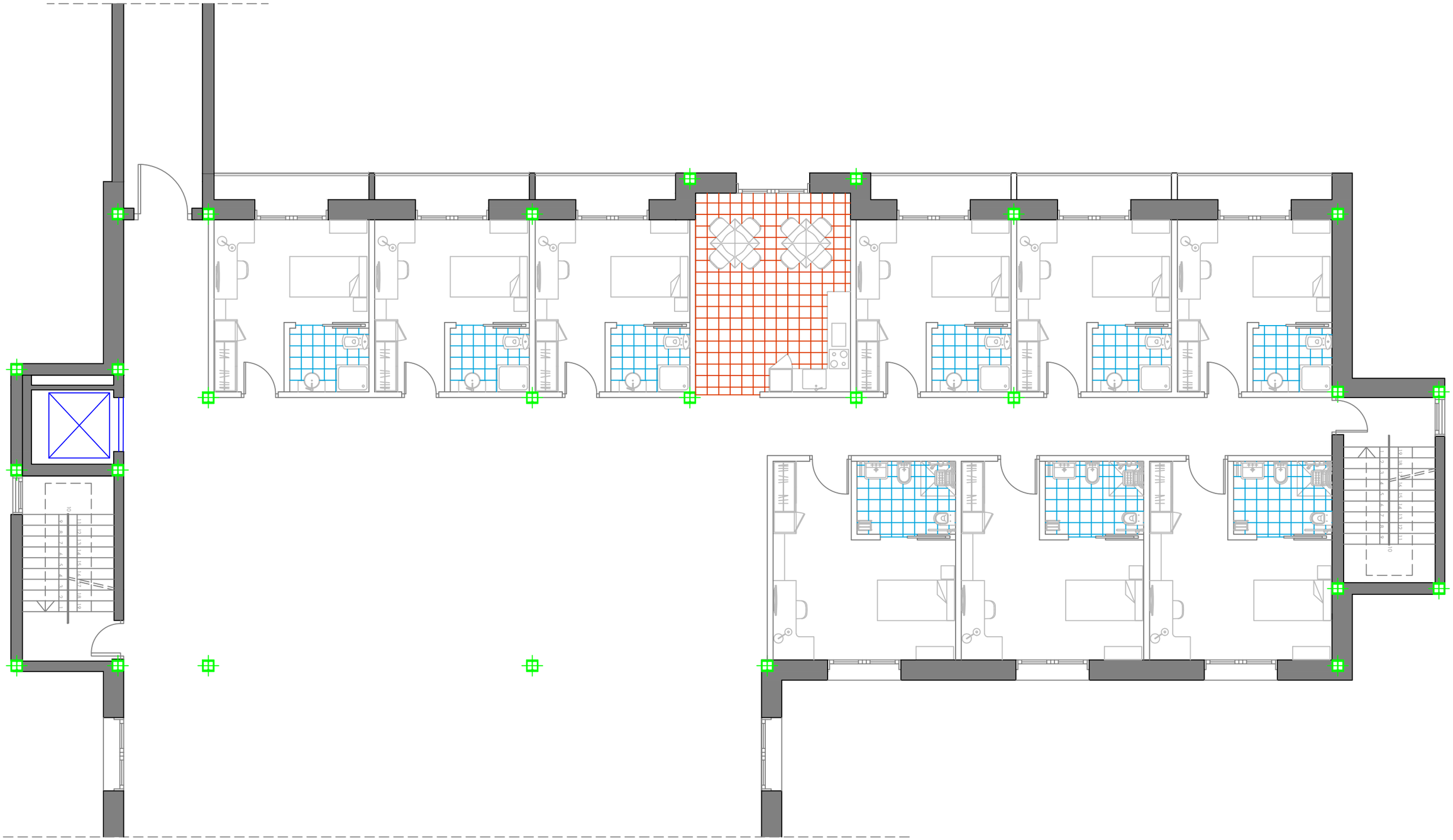
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: SECOND FLOOR BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.7



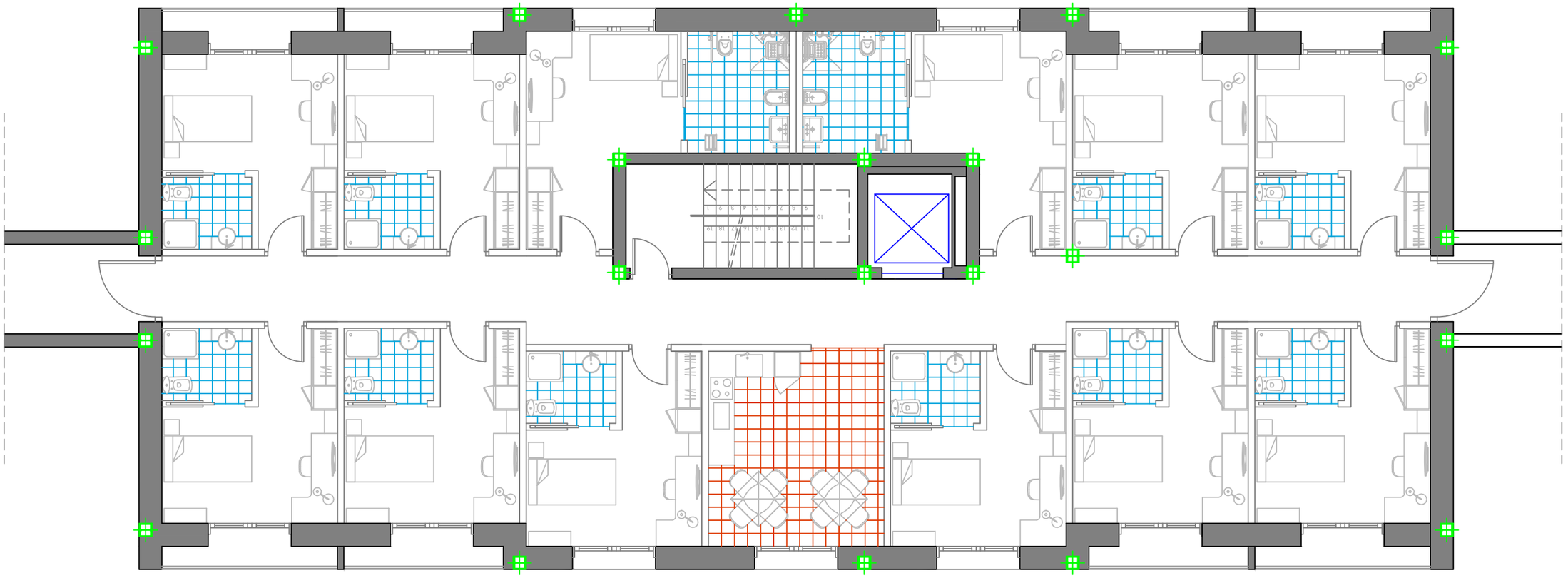
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: SECOND FLOOR BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.8



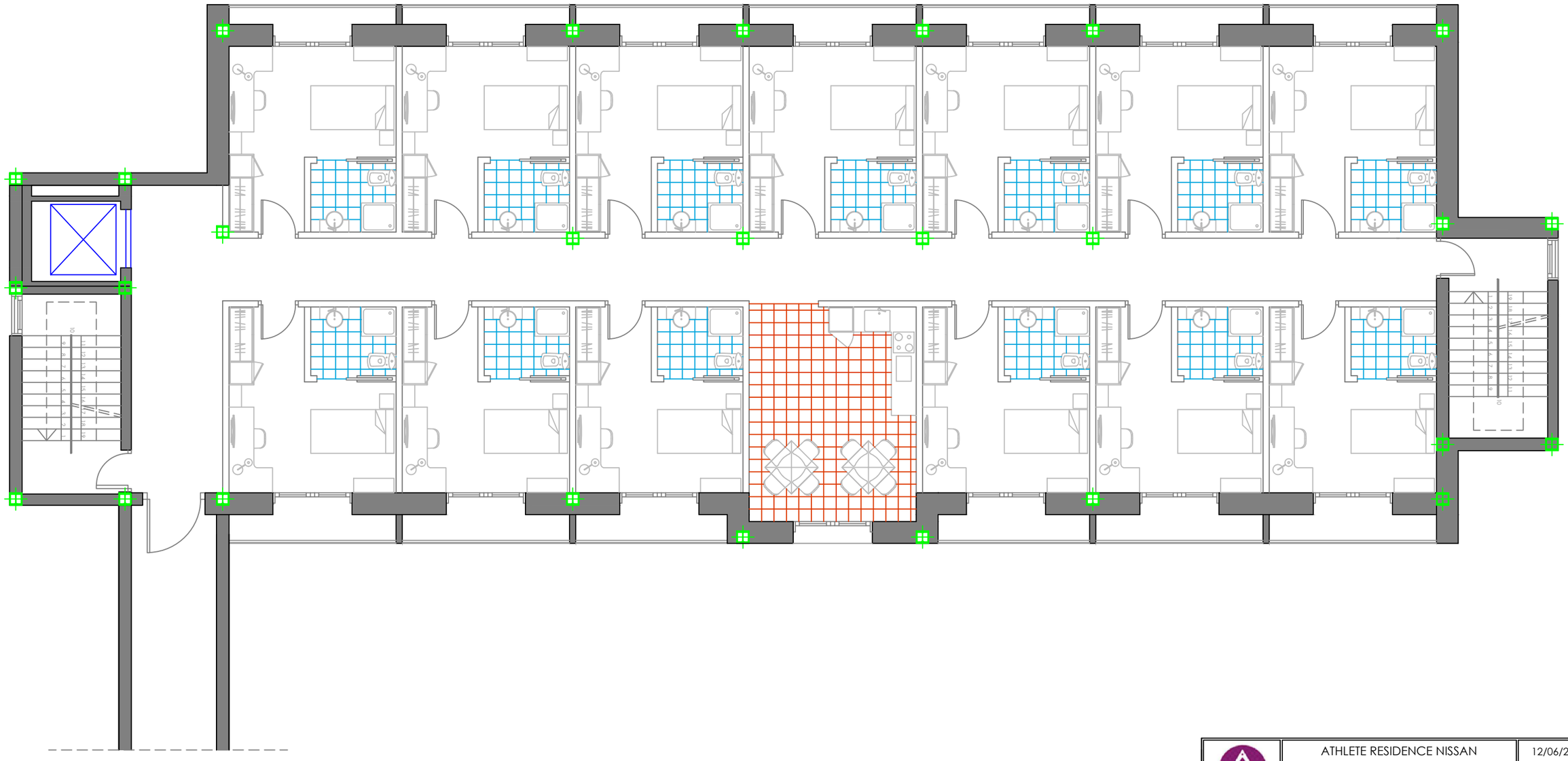
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: THIRD FLOOR BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.9



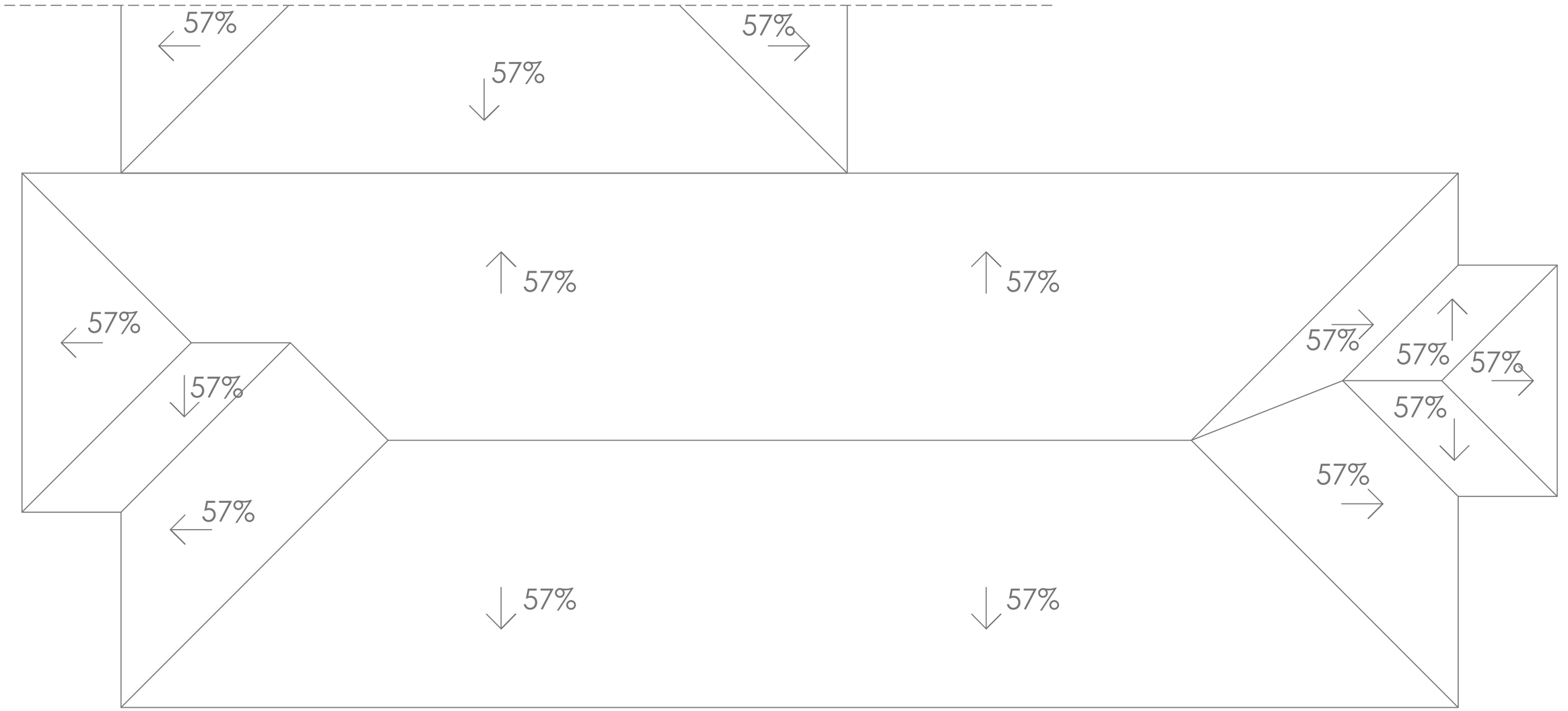
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: THIRD FLOOR BUILDING B	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.10



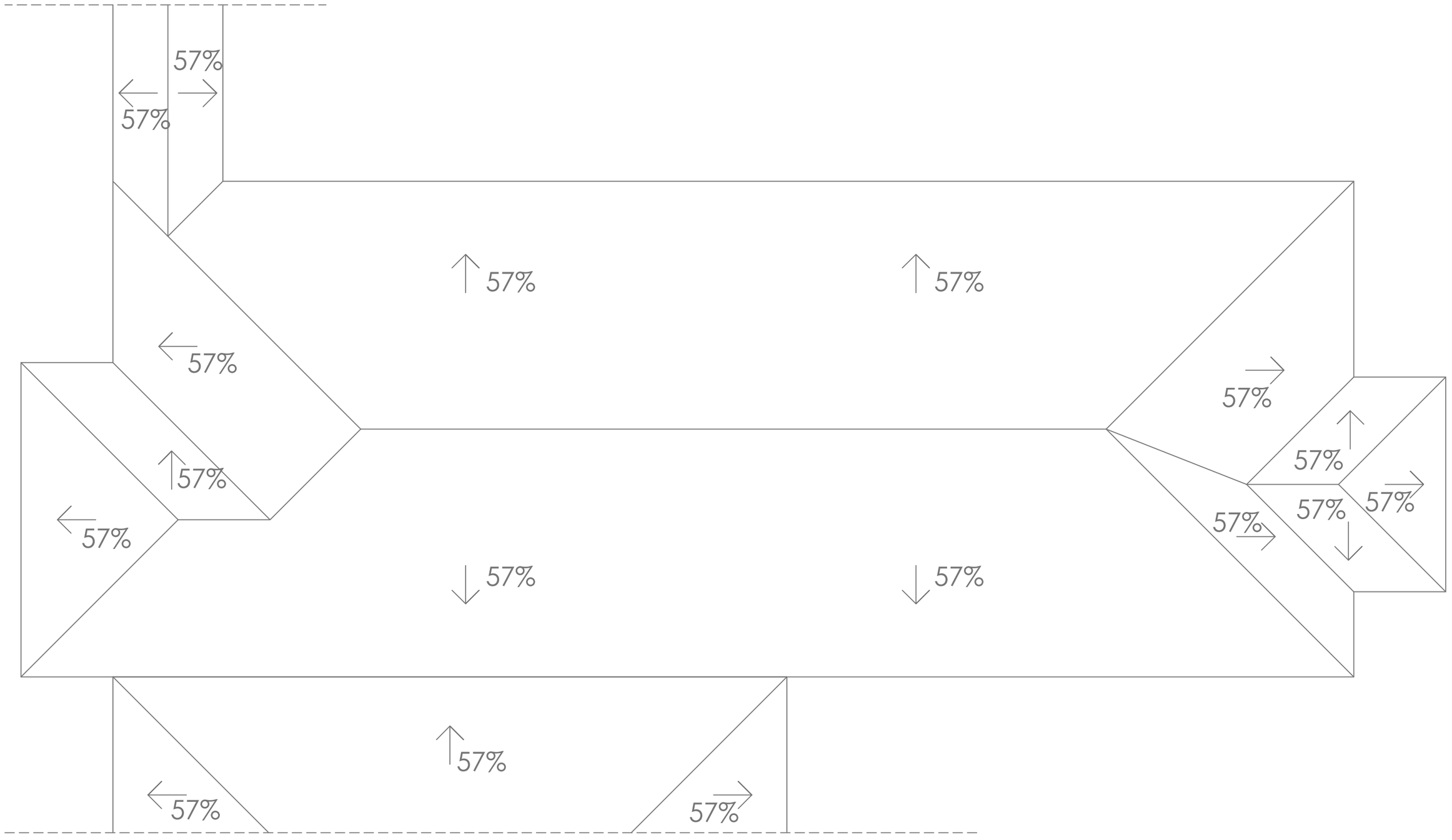
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: THIRD FLOOR BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.11



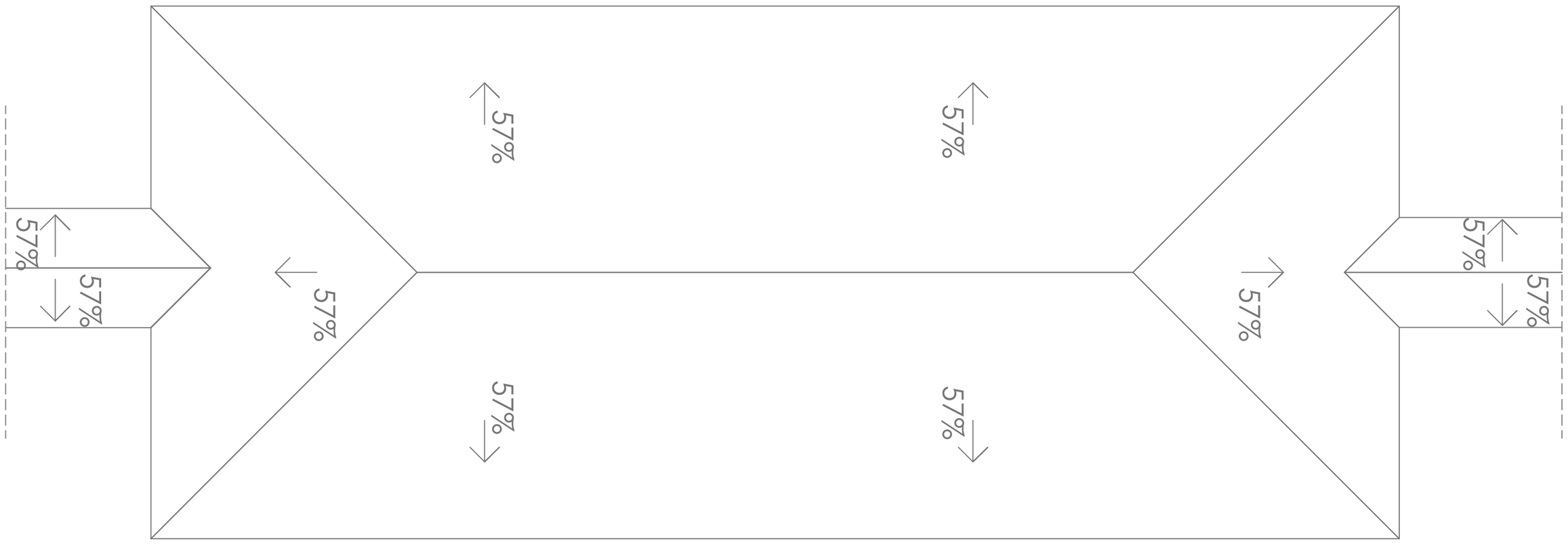
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: THIRD FLOOR BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.12



	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: ROOF BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.13



	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: ROOF BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.14



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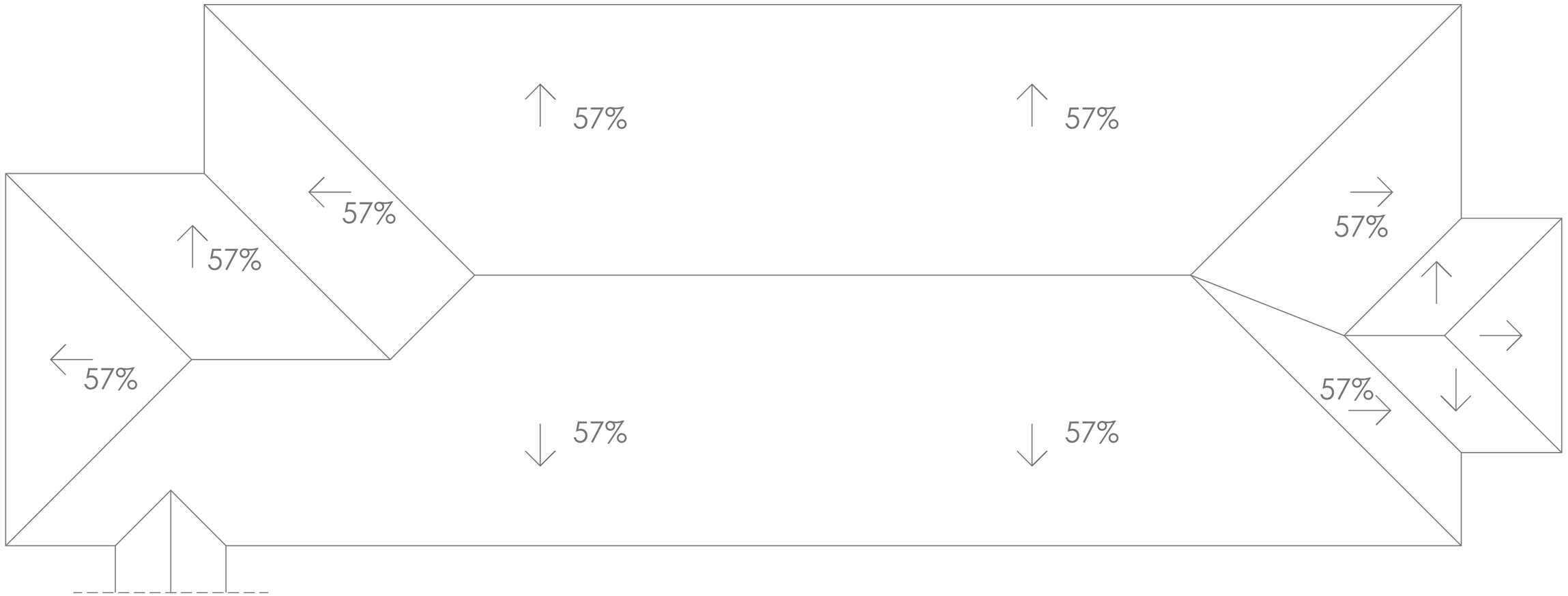
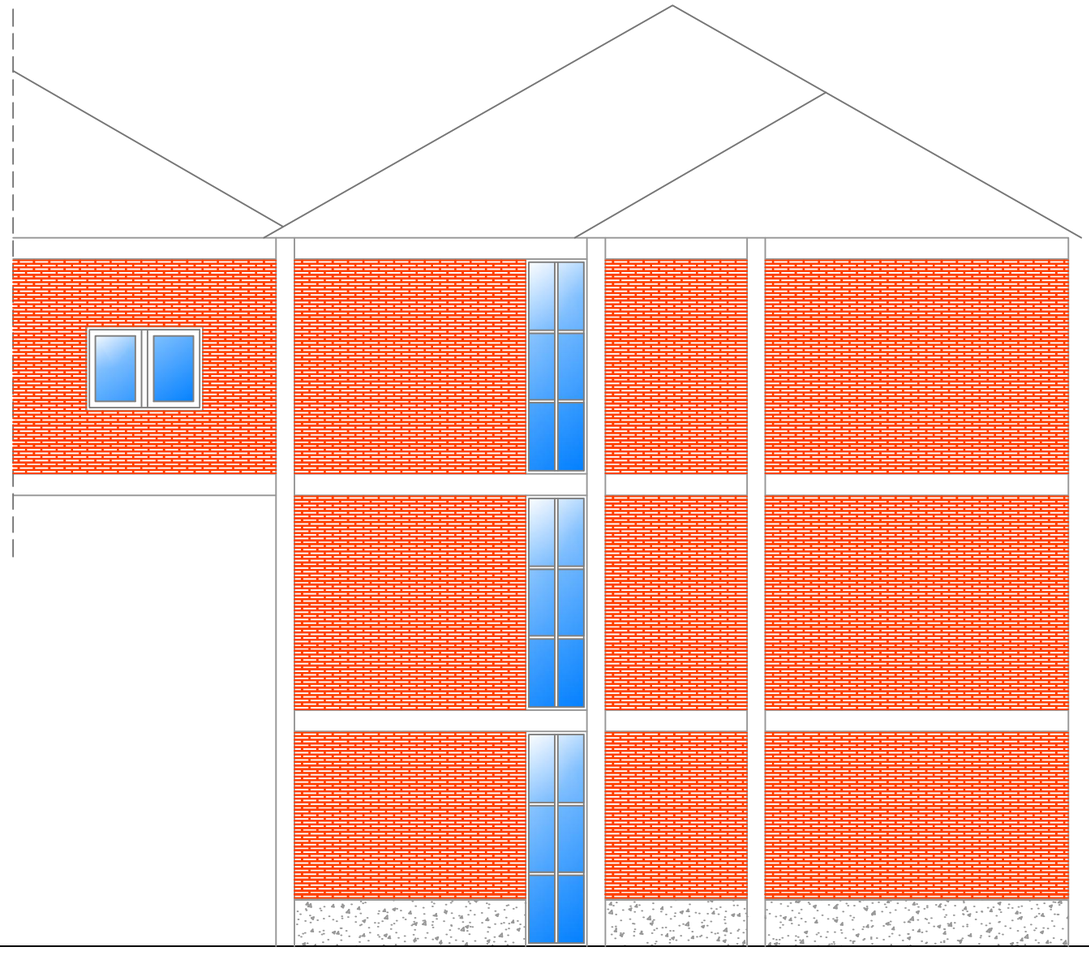
	DISTRIBUTION DRAWINGS: ROOF BUILDING C	SCALE 1:100
HÖGSKOLAN HHH HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.15

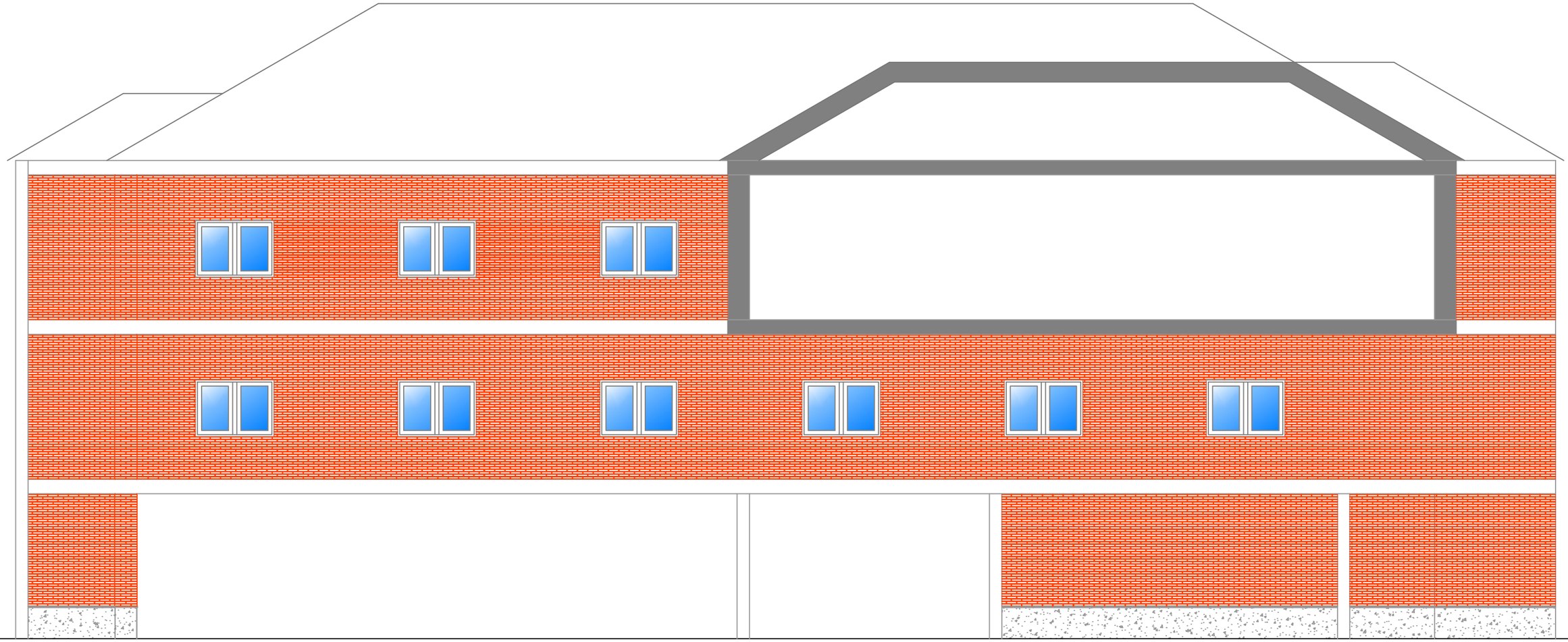


	ATHLETE RESIDENCE NISSAN	12/06/2013
	DISTRIBUTION DRAWINGS: ROOF BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	3.16

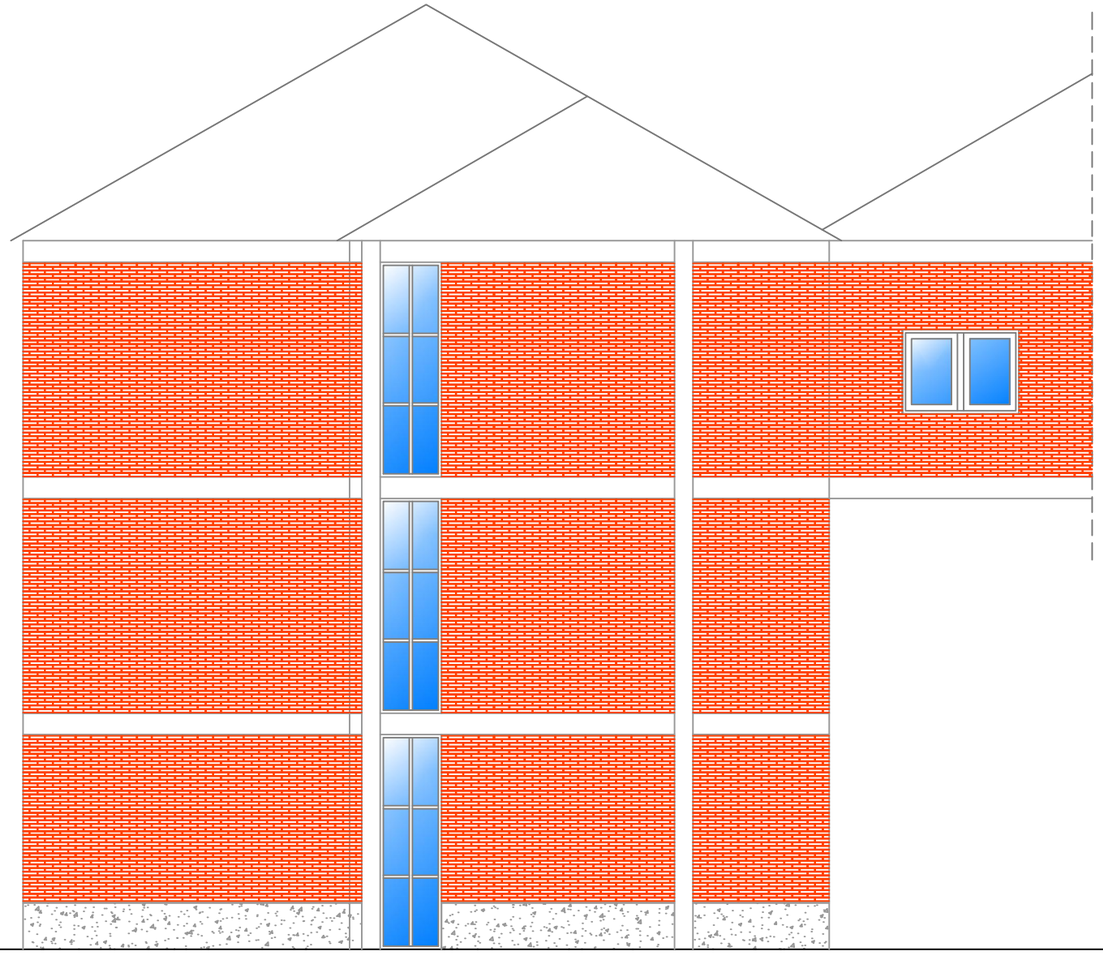
	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING A, NORTH VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.1



	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING A, WEST VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.2

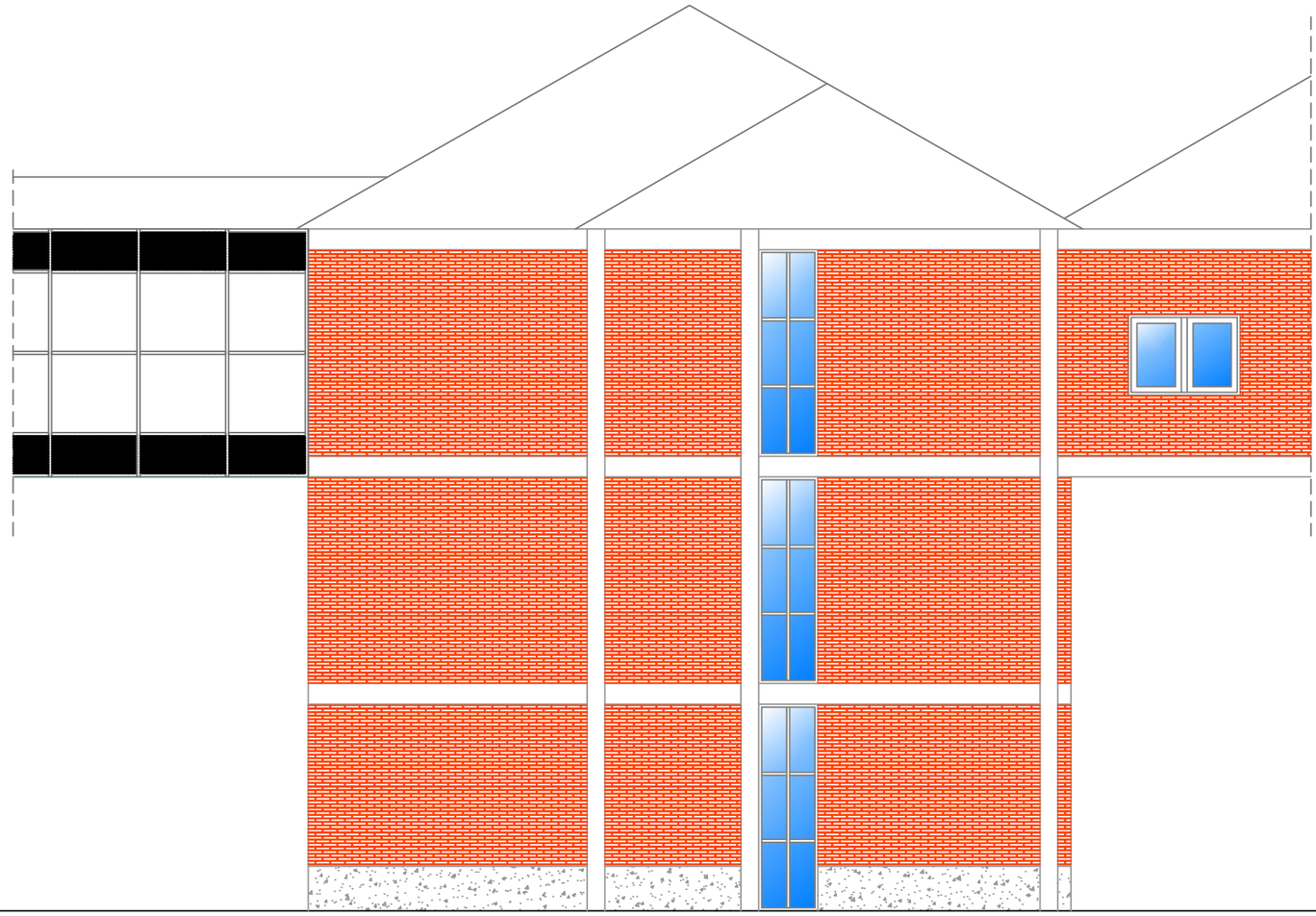


	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING A, SOUTH VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.3

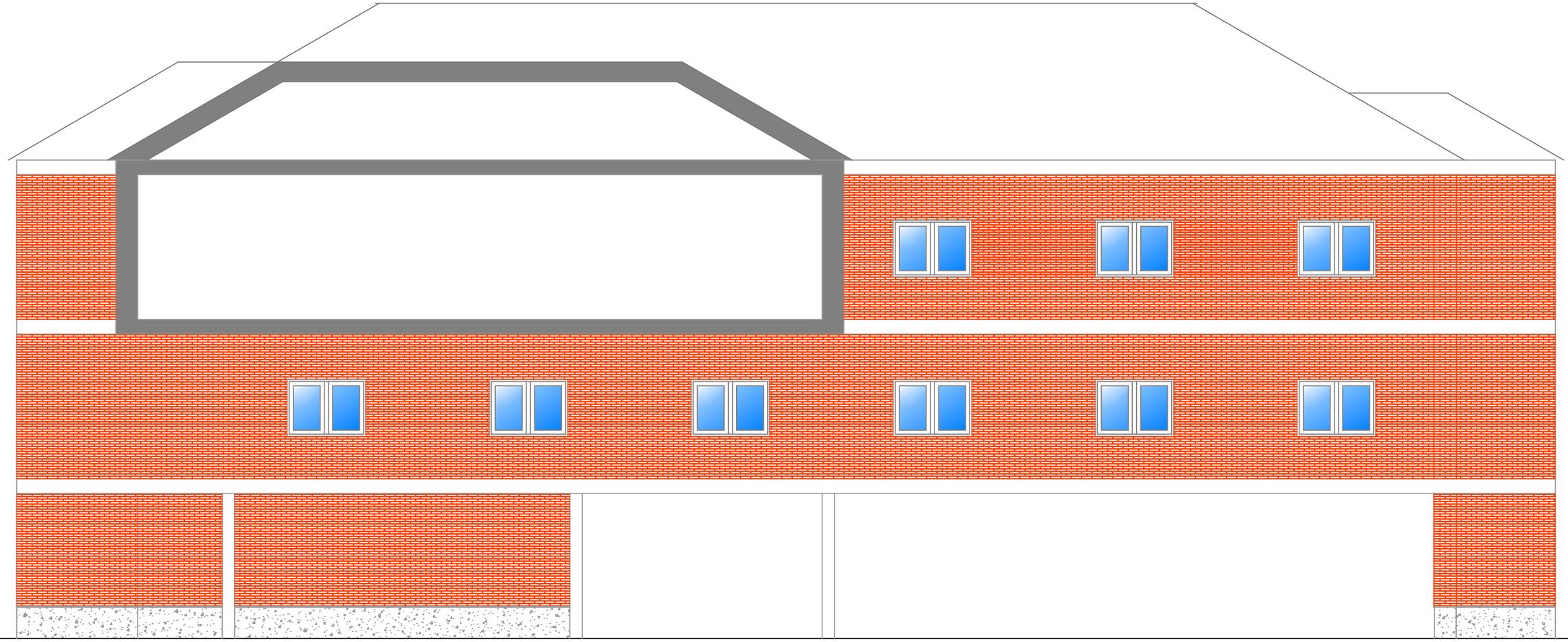


	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING A, EAST VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.4

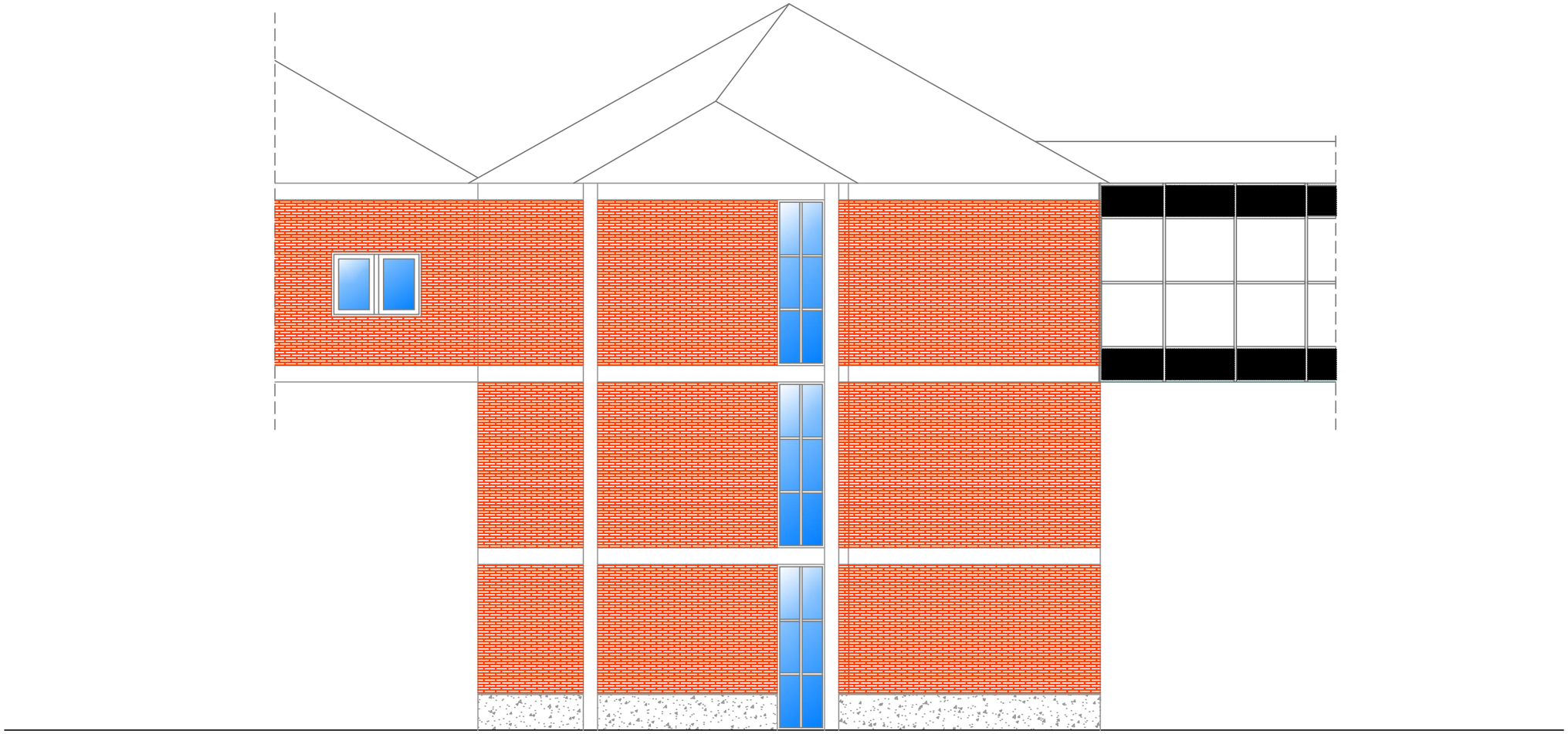
	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING B, NORTH VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.5



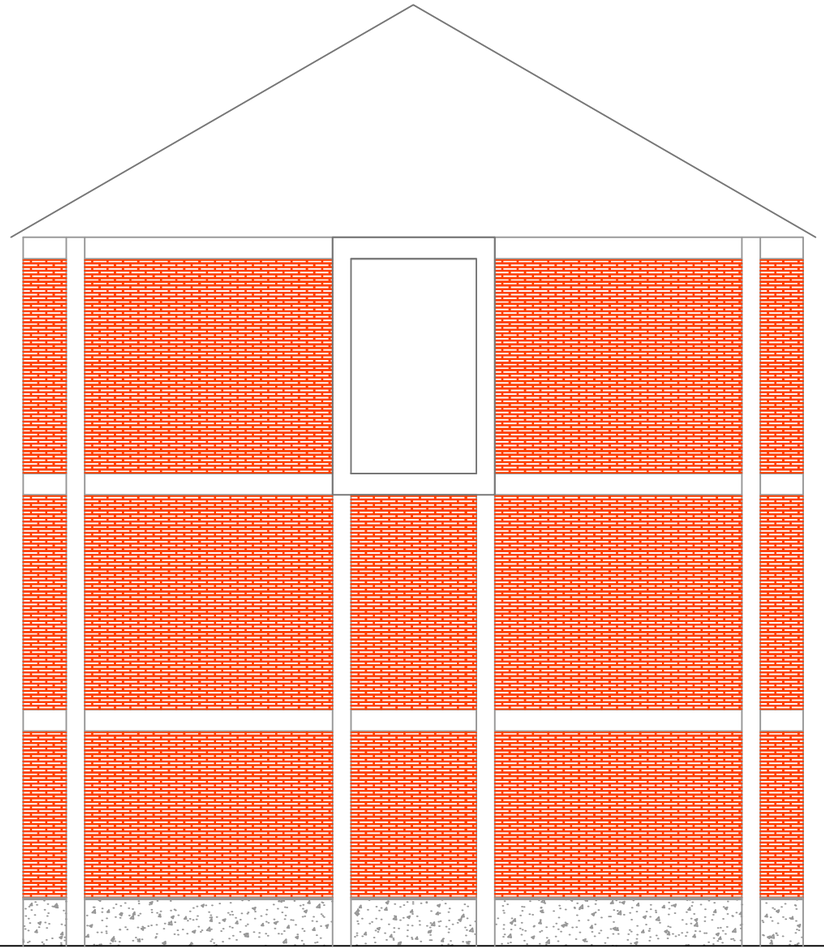
	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING B, WEST VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.6



	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING B, SOUTH VIEW	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.7

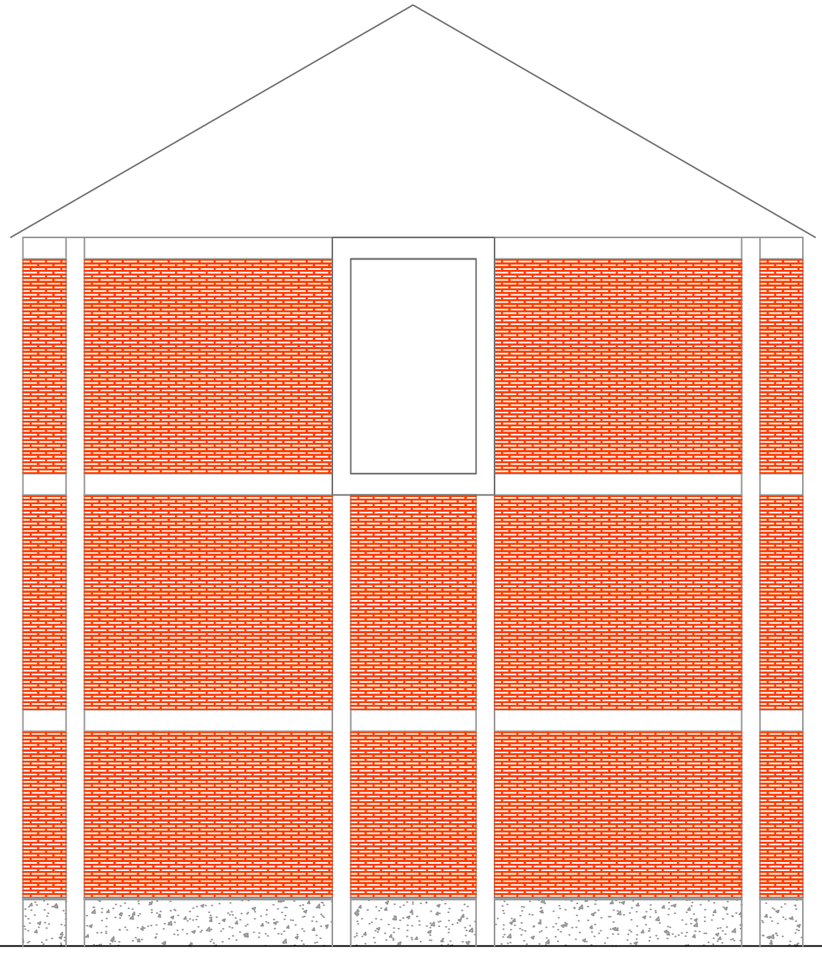


	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING B, EAST VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.8



	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING C, NORTH VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.9

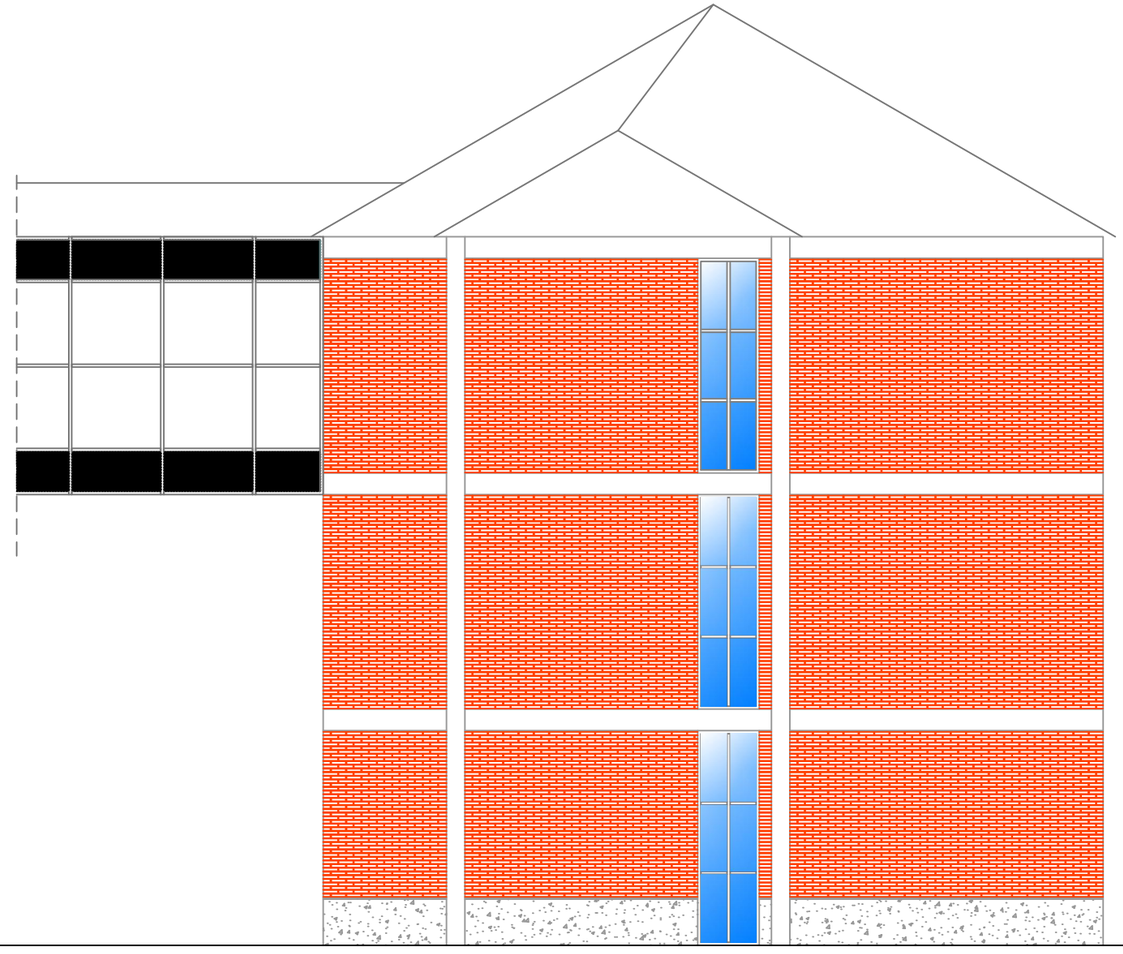
	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING C, WEST VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.10



	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING C, SOUTH VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.11

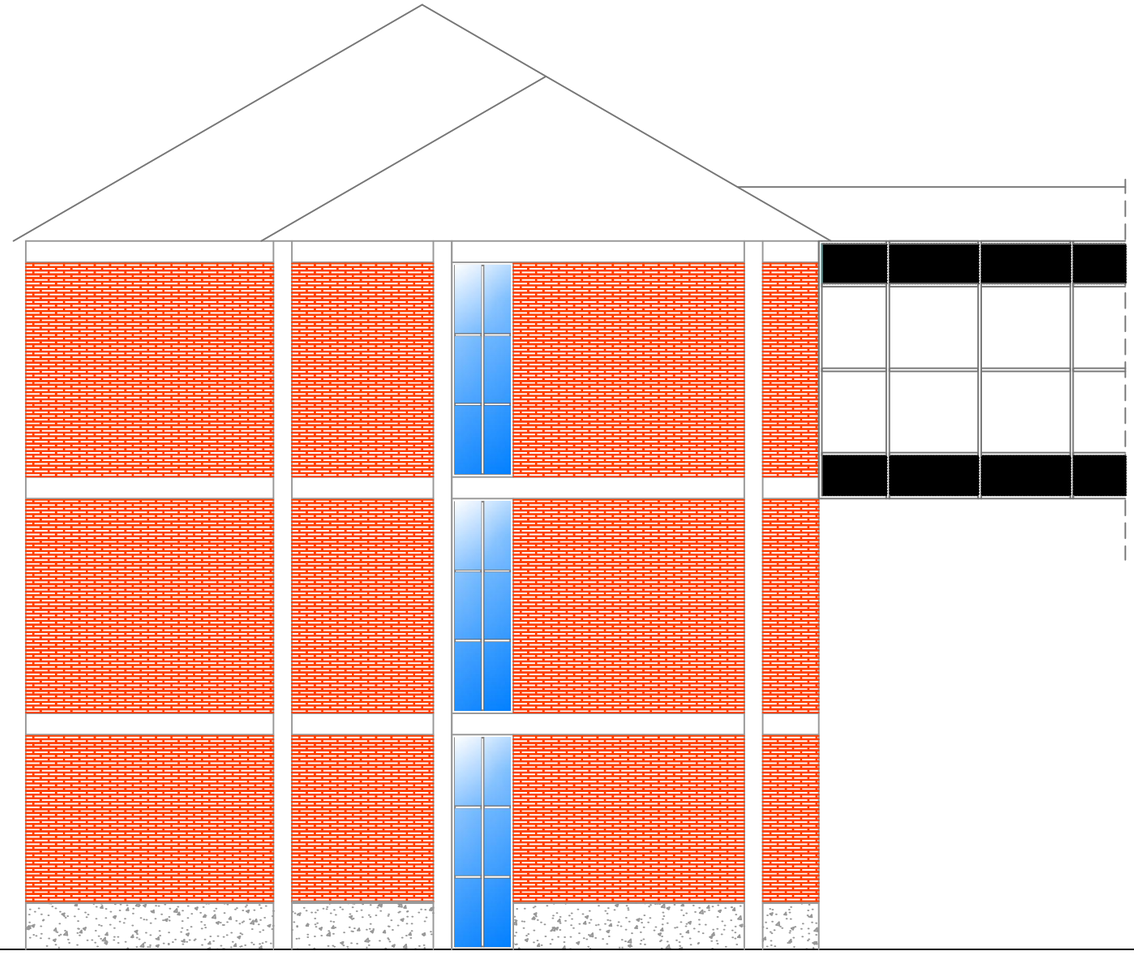
	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING C, EAST VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.12

	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING D, NORTH VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.13

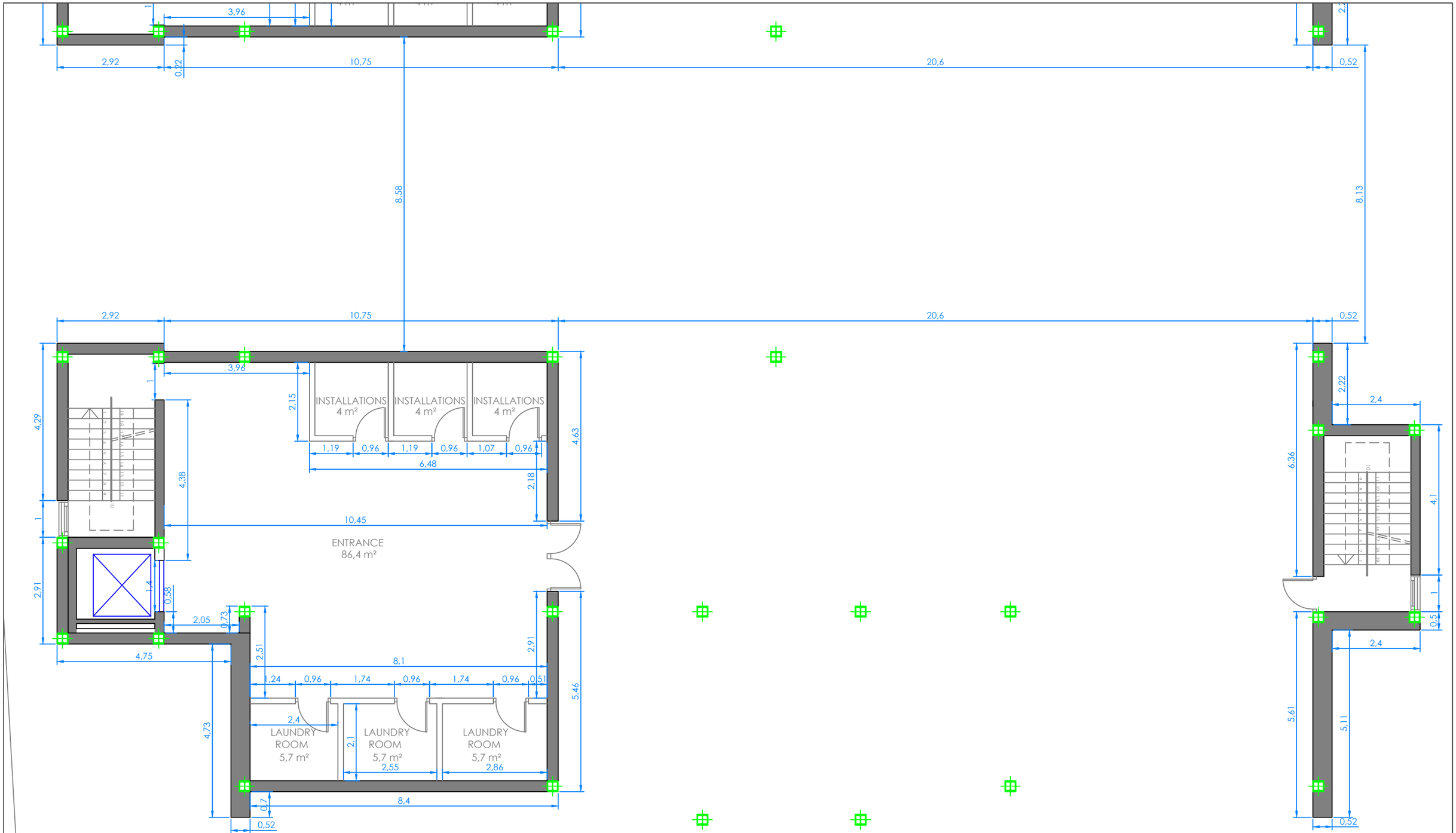


	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING D, WEST VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.14

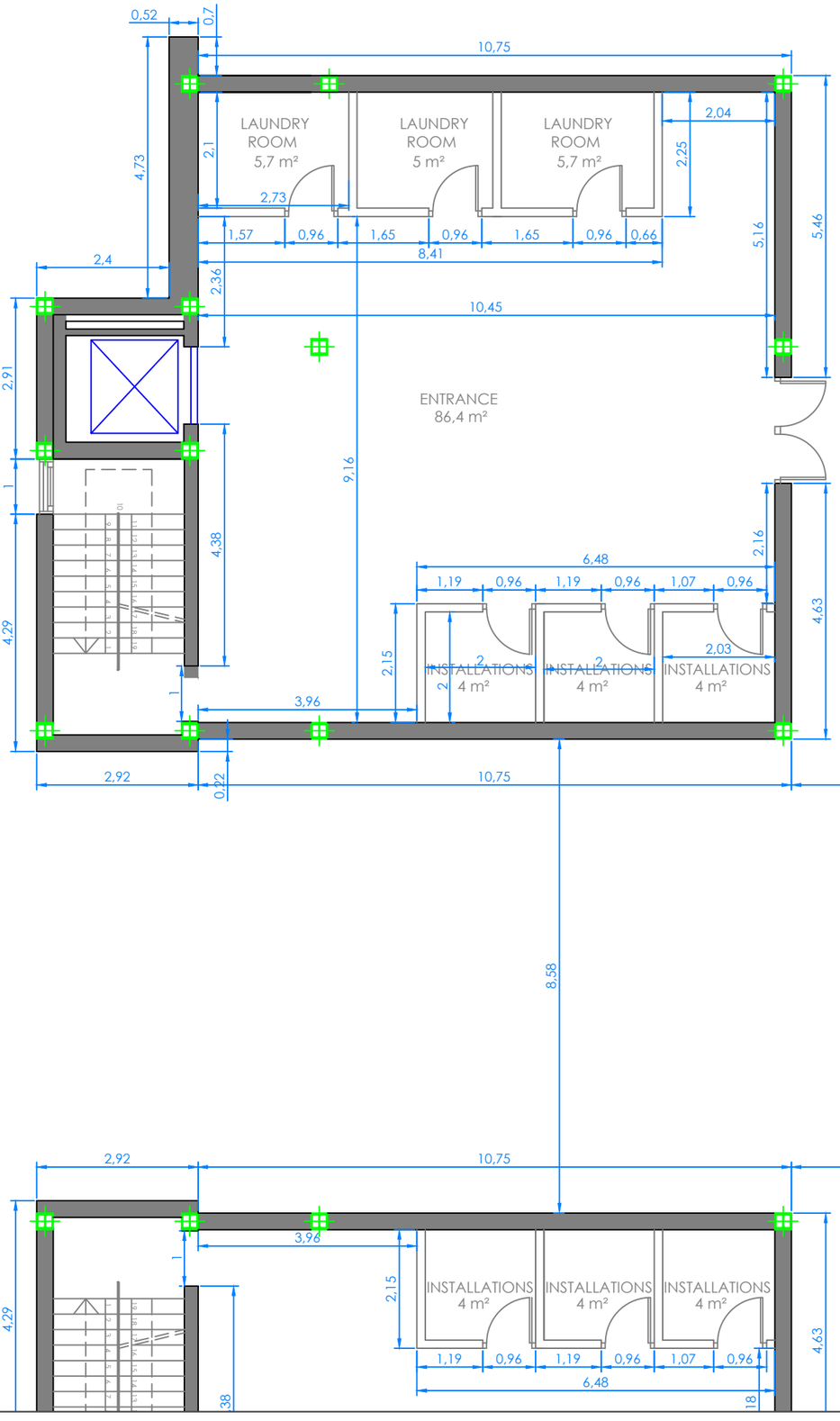
	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING D, SOUTH VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.15



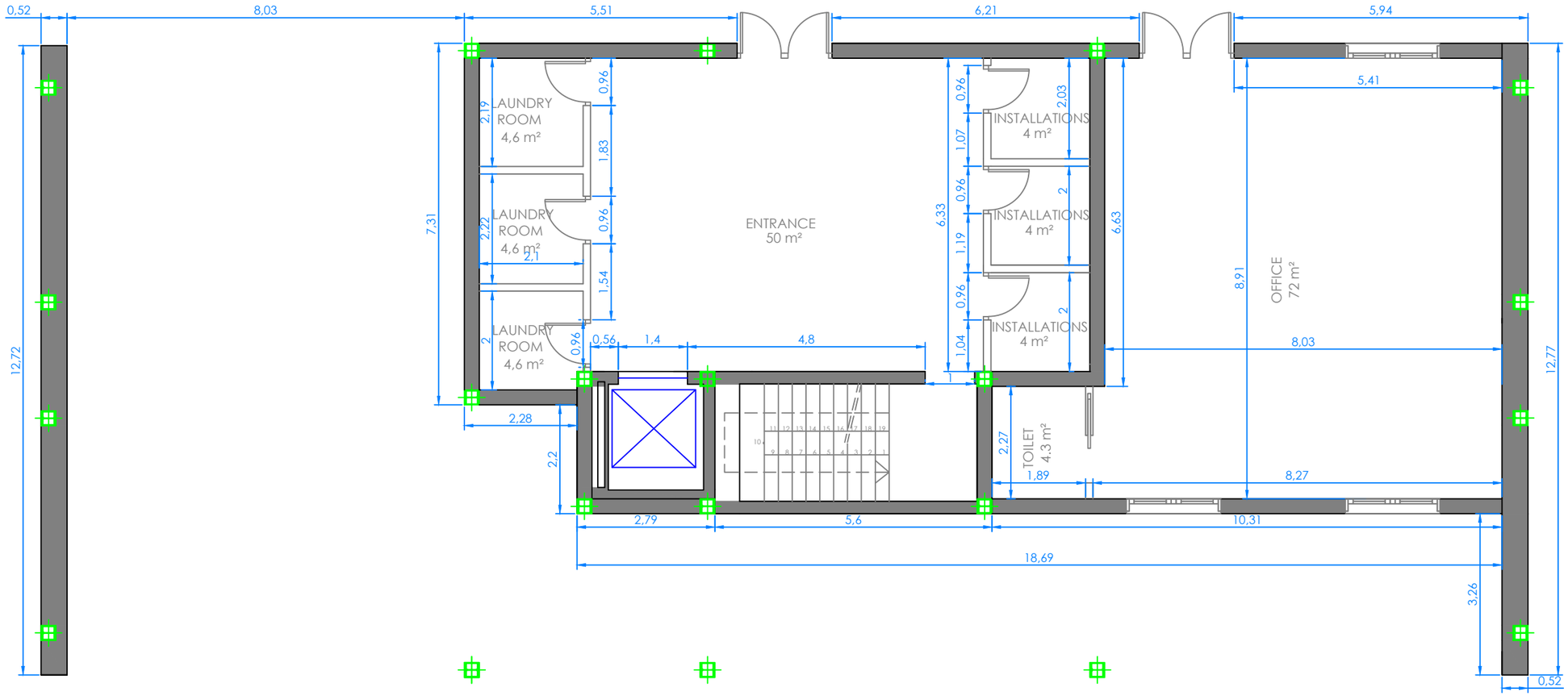
	ATHLETE RESIDENCE NISSAN	12/06/2013
	FACADE DRAWINGS: BUILDING C, EAST VIEW	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	4.16



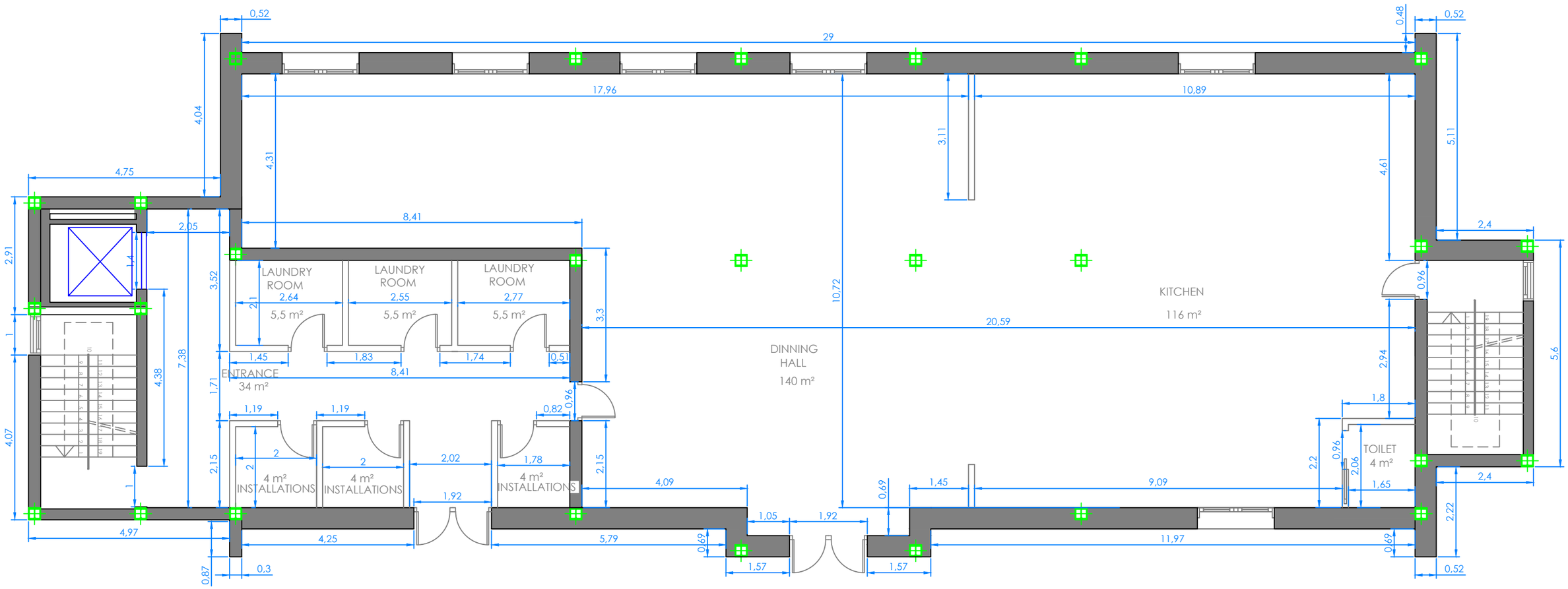
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: FIRST FLOOR BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.1



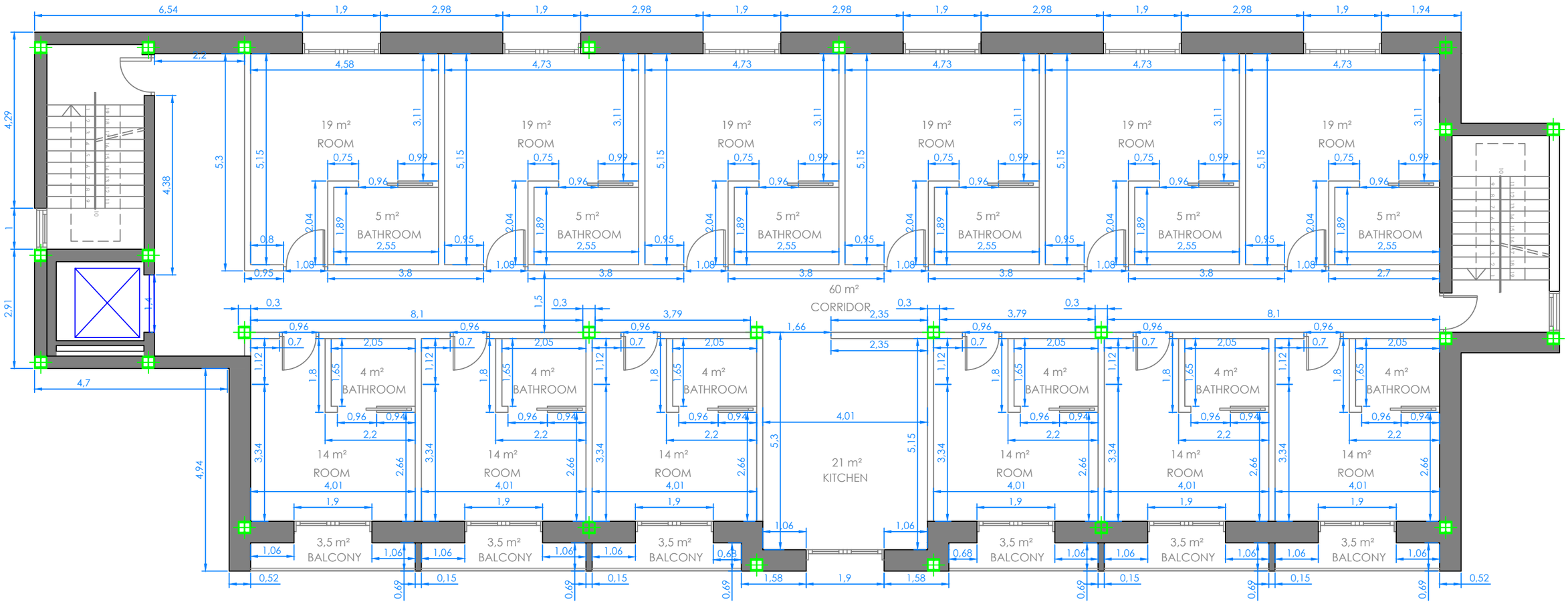
	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: FIRST FLOOR BUILDING B	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.2



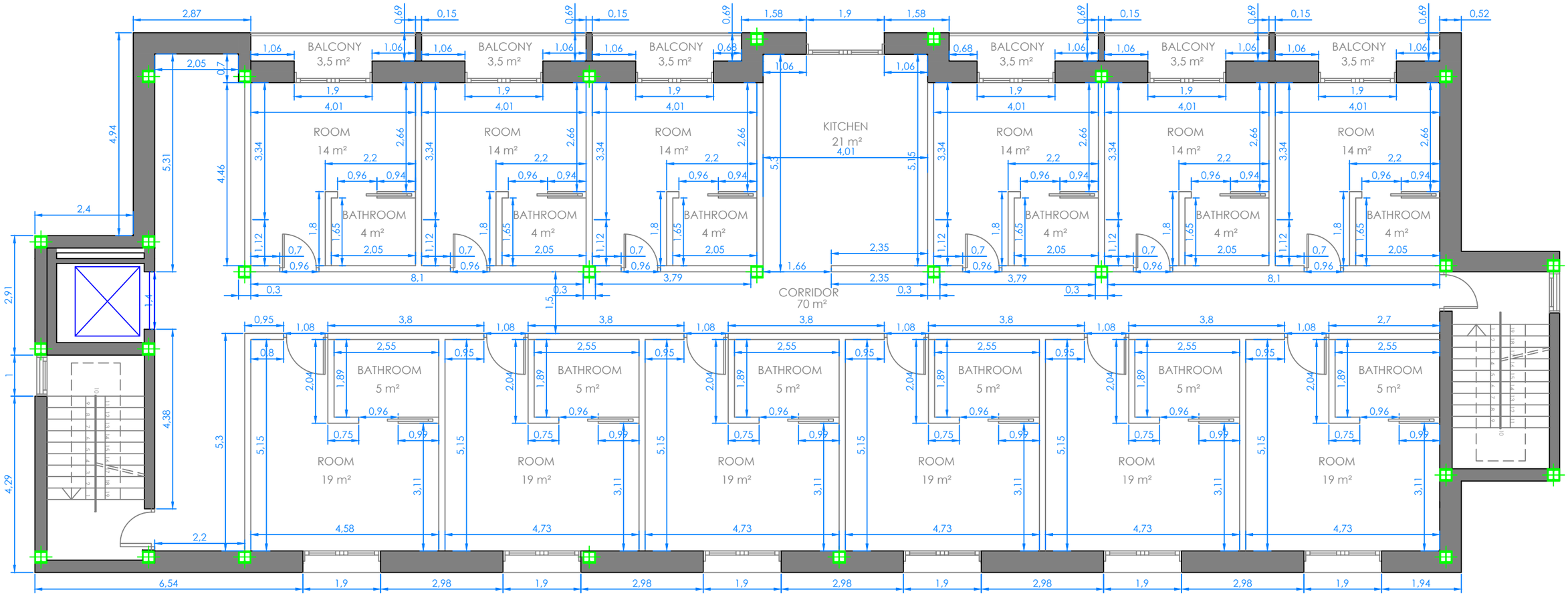
	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: FIRST FLOOR BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.3



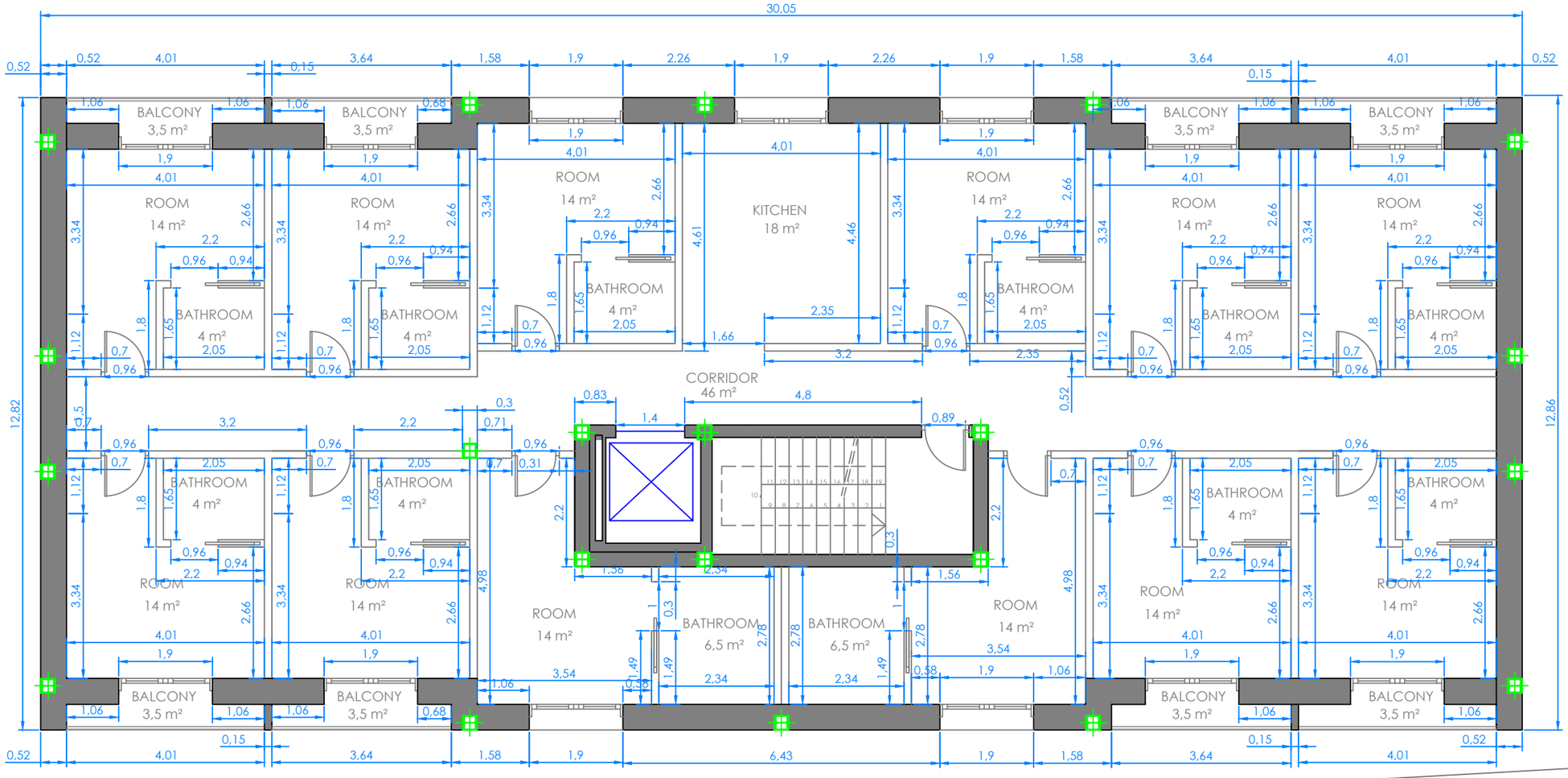
	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: FIRST FLOOR BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.4



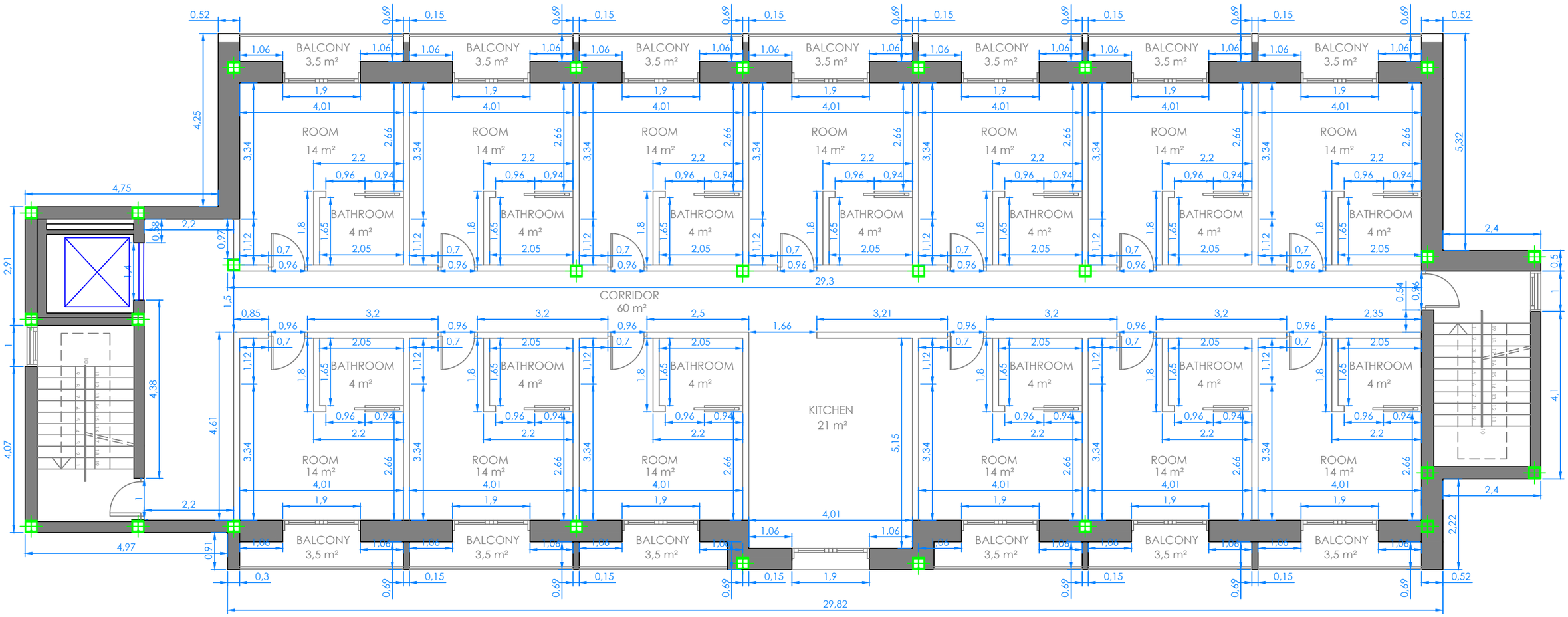
	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: SECOND FLOOR BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.5



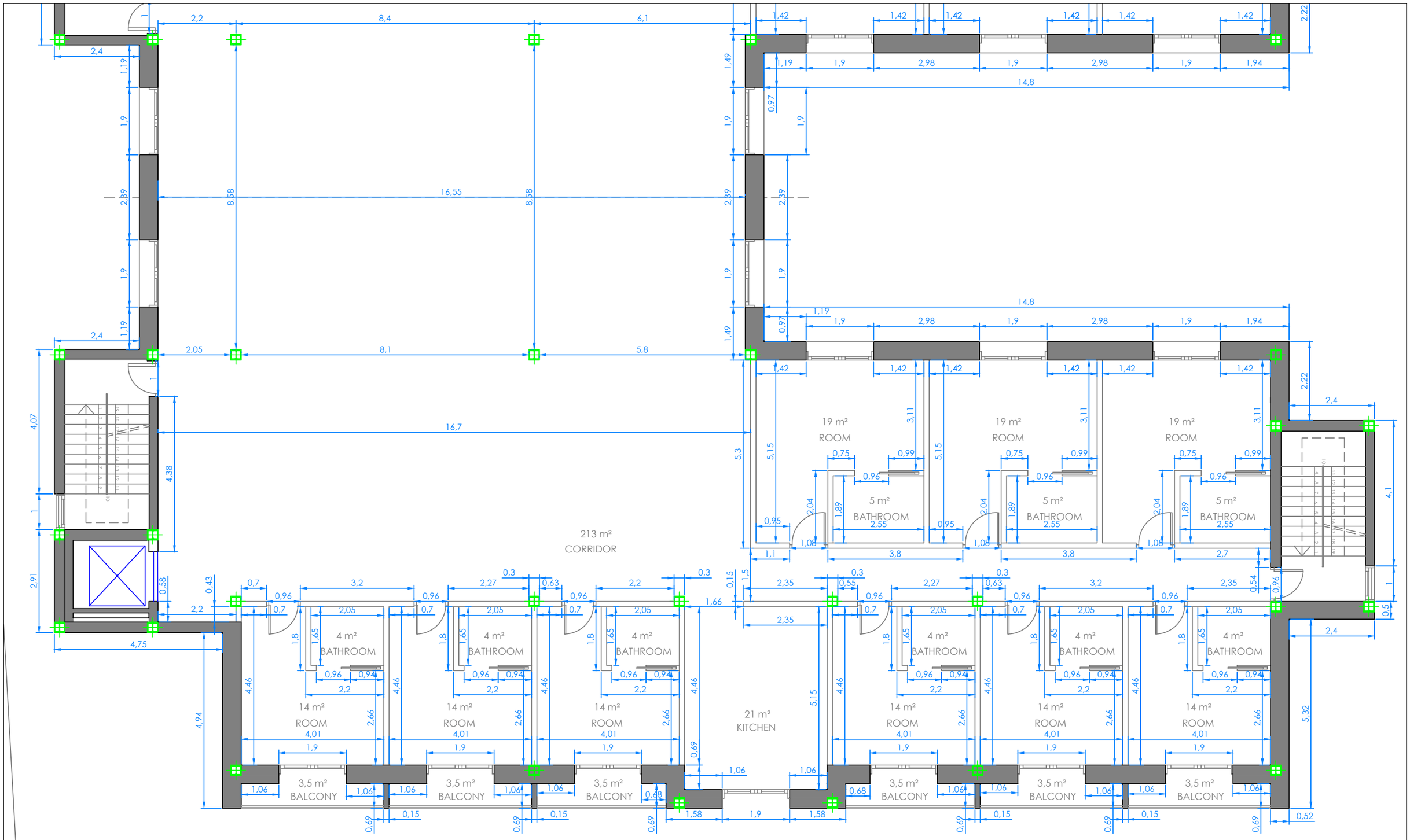
	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: SECOND FLOOR BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.6



	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: SECOND FLOOR BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.7



	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: SECOND FLOOR BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.8



	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: THIRD FLOOR BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.9

PASSAGE
10 m²

CORRIDOR
213 m²

BALCONY
3,5 m²

ROOM
14 m²

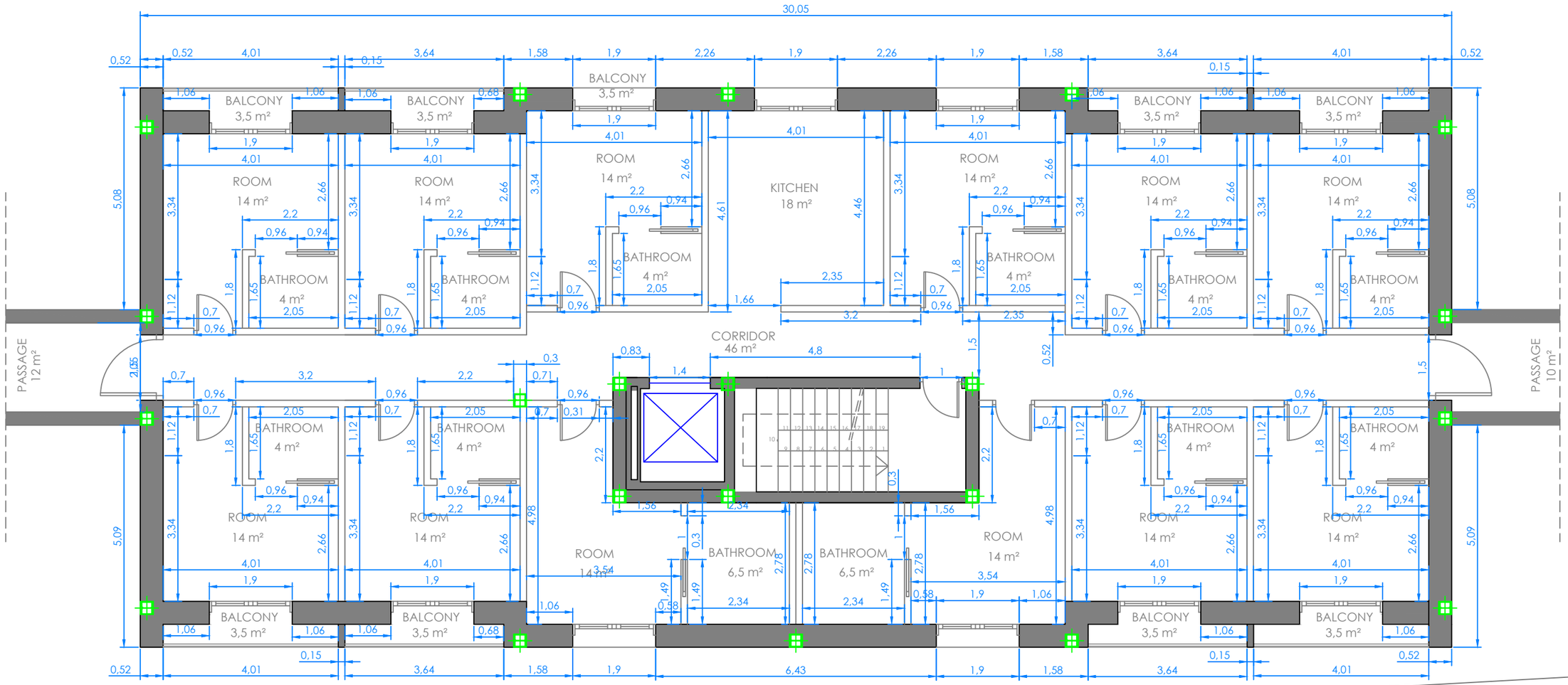
BATHROOM
4 m²

KITCHEN
21 m²

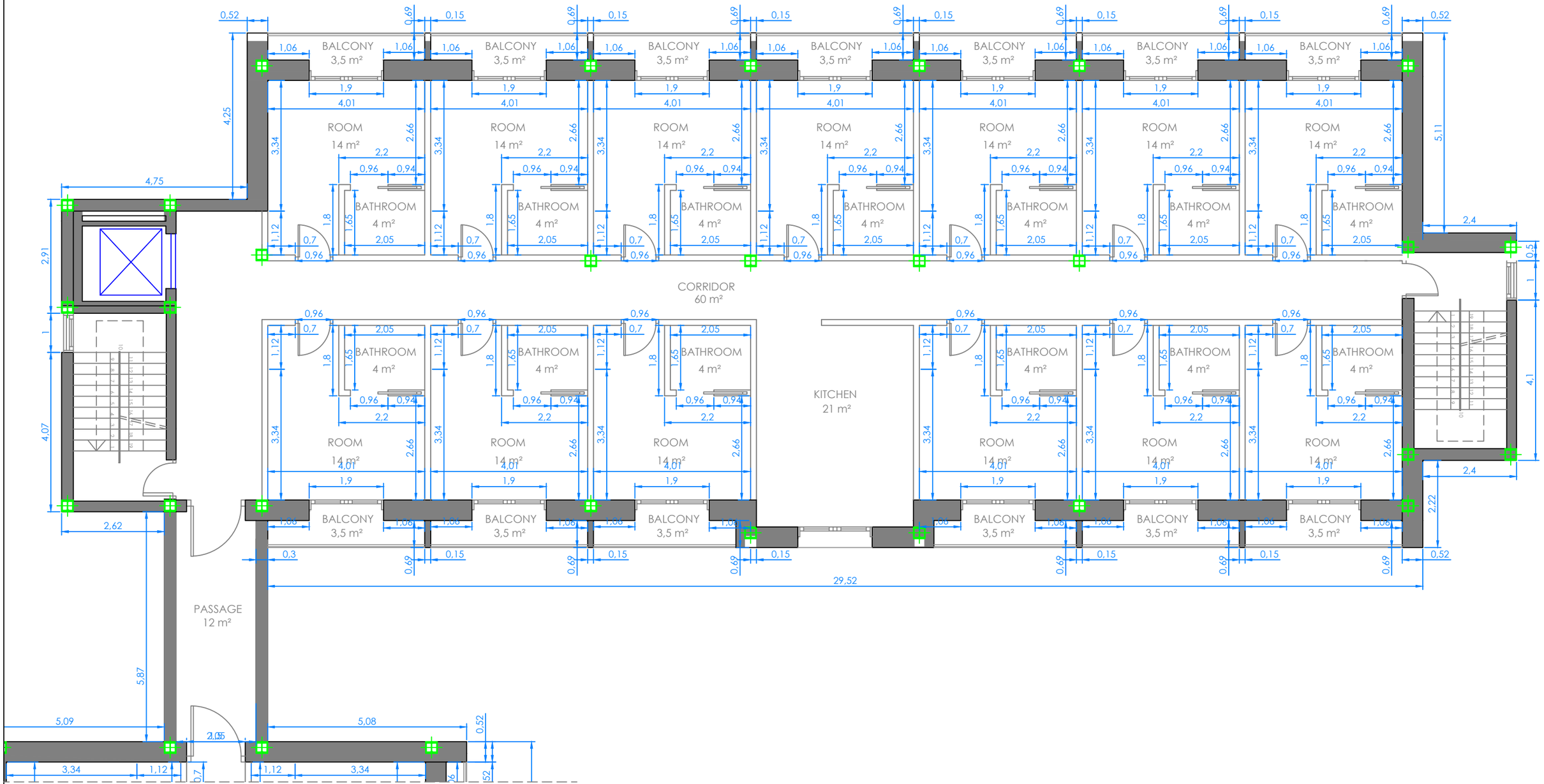
ROOM
19 m²

BATHROOM
5 m²

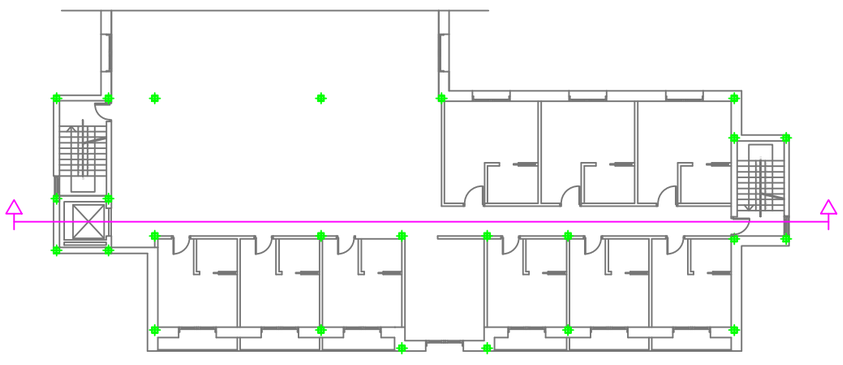
	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: THIRD FLOOR BUILDING B	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.10



	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: THIRD FLOOR BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.11

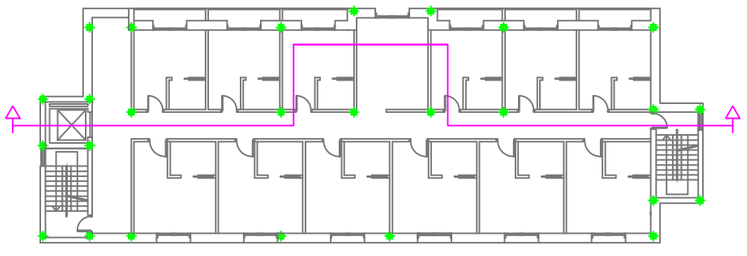


	ATHLETE RESIDENCE NISSAN	12/06/2013
	AREA AND MEASUREMENT DRAWINGS: THIRD FLOOR BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	5.12



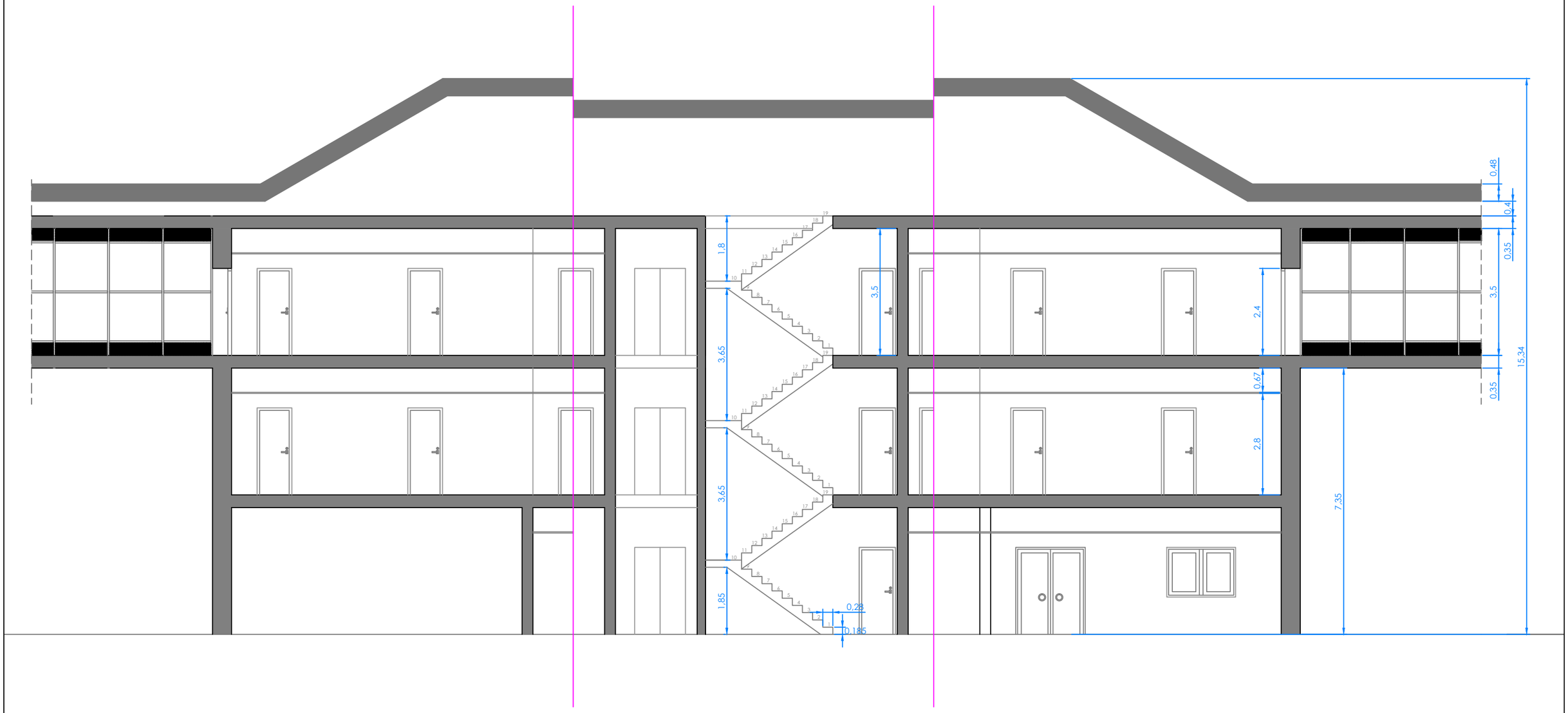
A Building

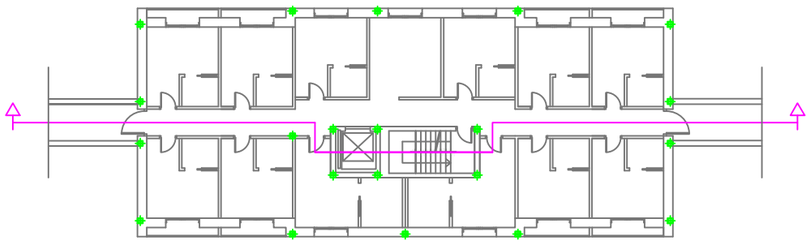
	ATHLETE RESIDENCE NISSAN	12/06/2013
	LONGITUDINAL SECTION DRAWINGS: BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	6.1



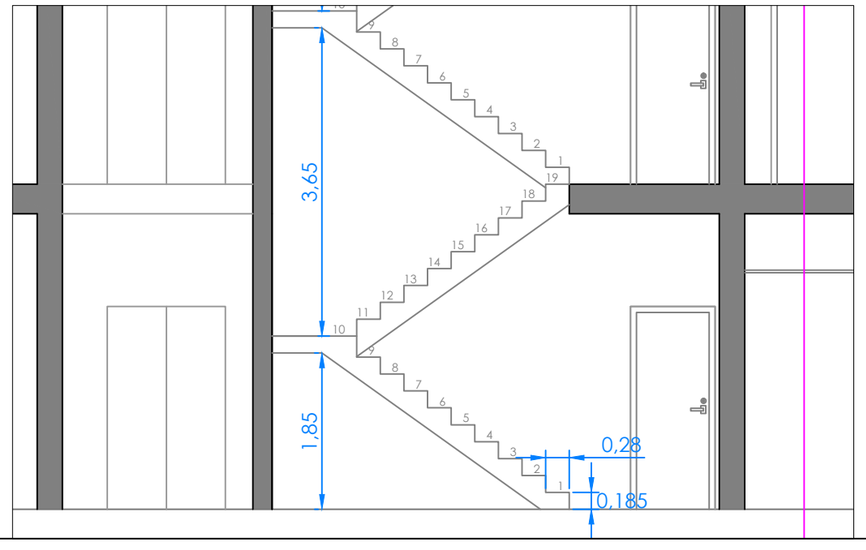
B Building

	ATHLETE RESIDENCE NISSAN	12/06/2013
	LONGITUDINAL SECTION DRAWINGS: BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	6.2

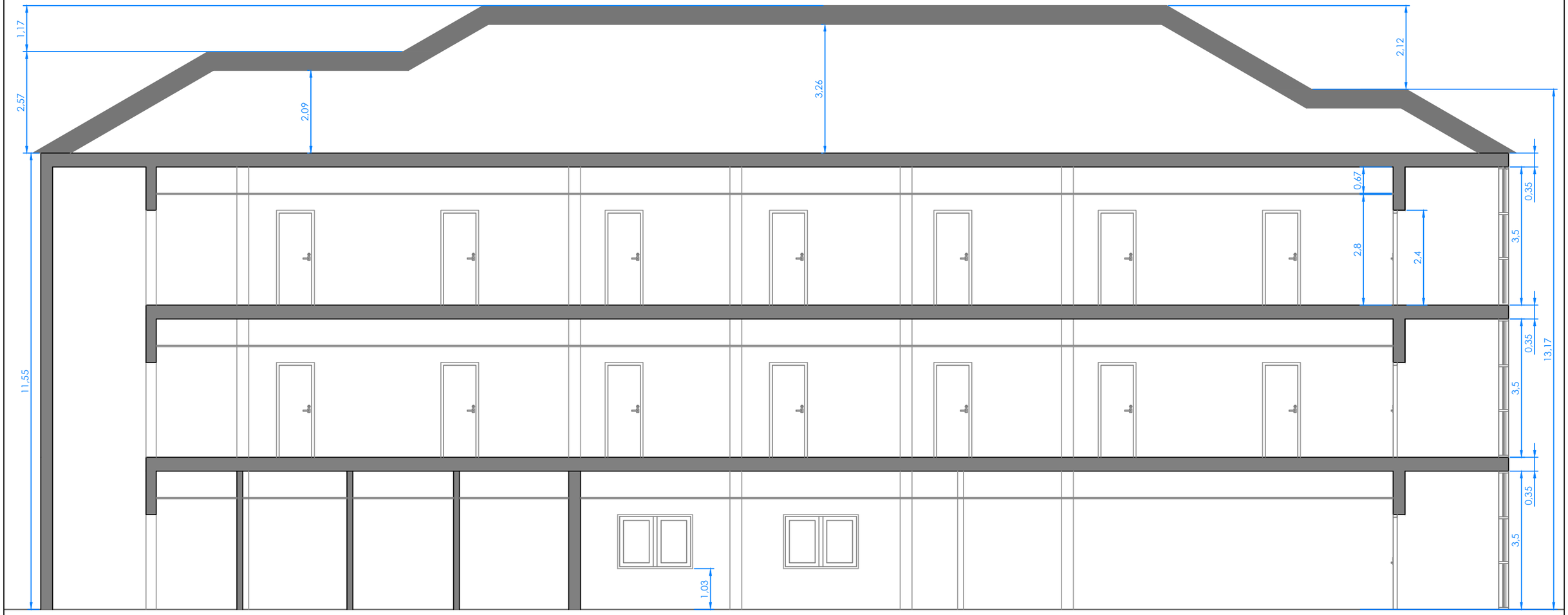


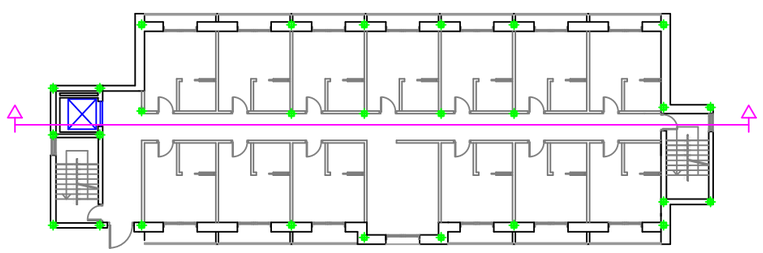


C Building



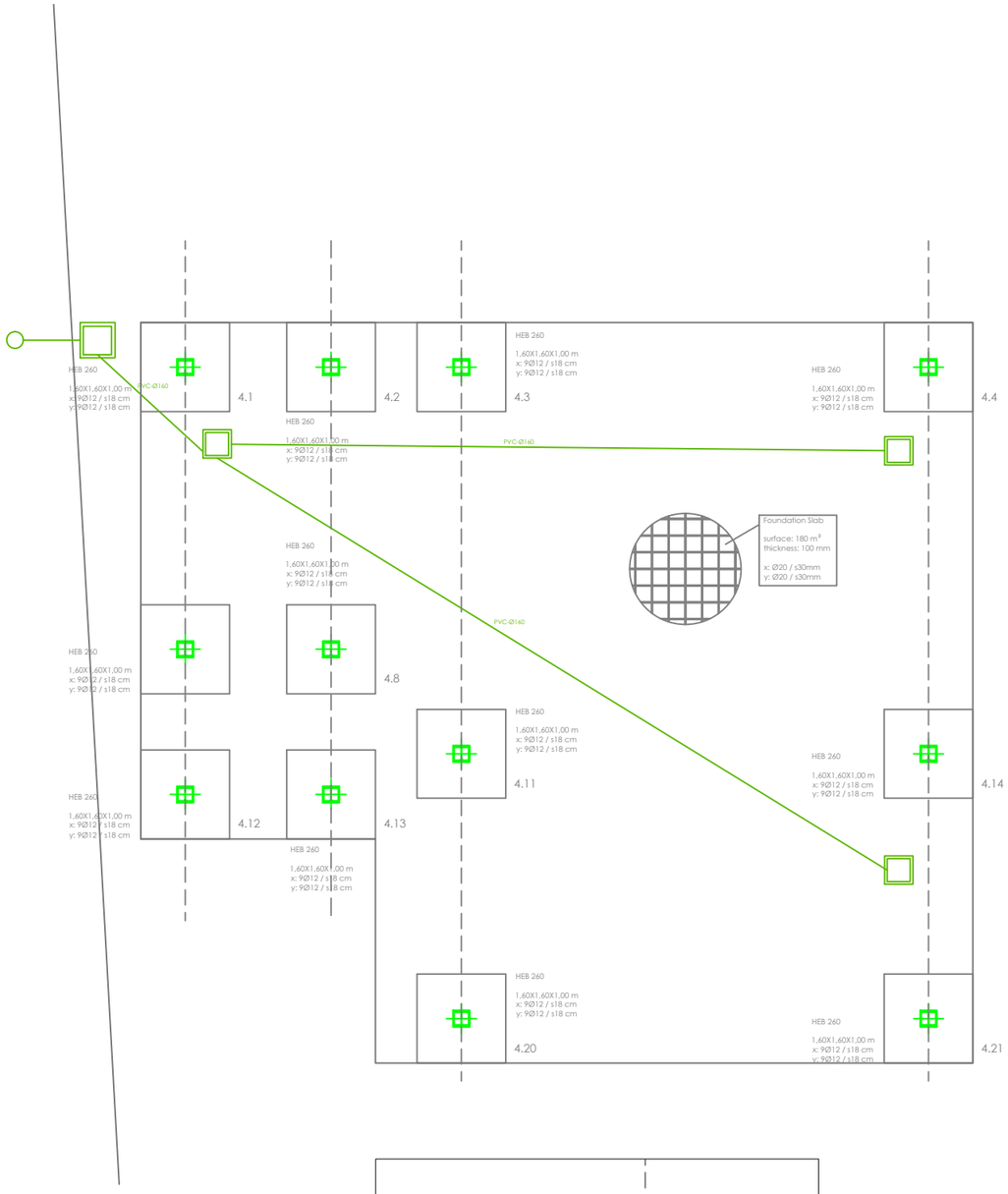
	ATHLETE RESIDENCE NISSAN	12/06/2013
	LONGITUDINAL SECTION DRAWINGS: BUILDING C	SCALE 1:120
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	6.3

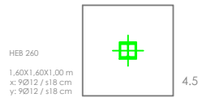


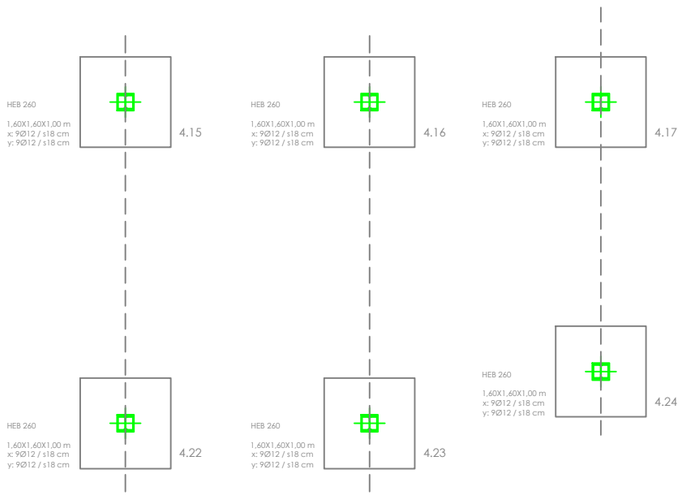


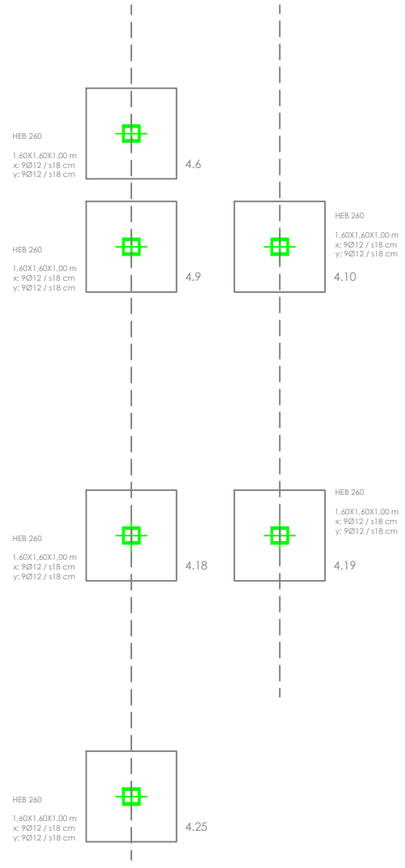
D Building

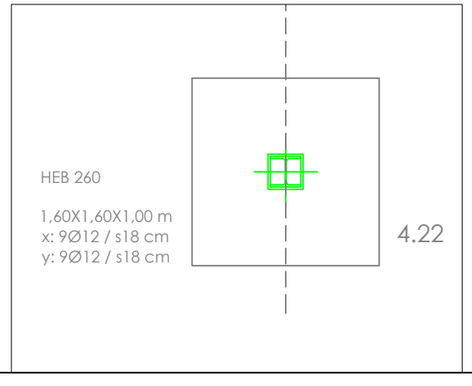
	ATHLETE RESIDENCE NISSAN	12/06/2013
	LONGITUDINAL SECTION DRAWINGS: BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	6.4



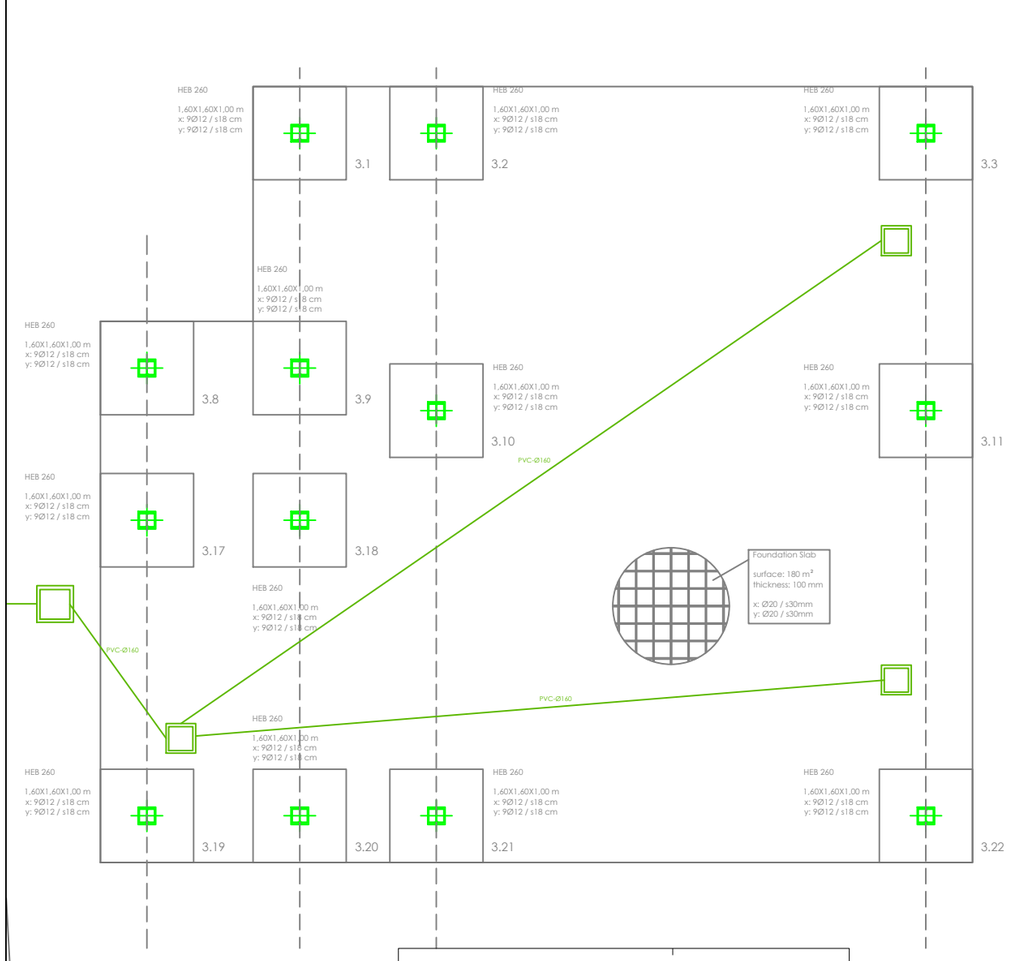


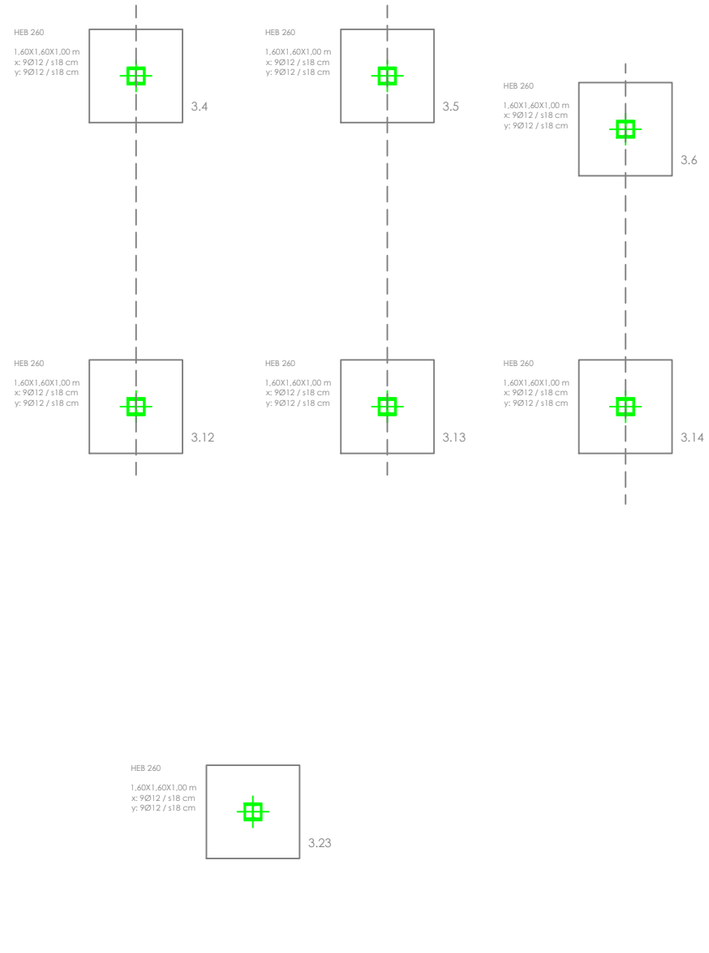


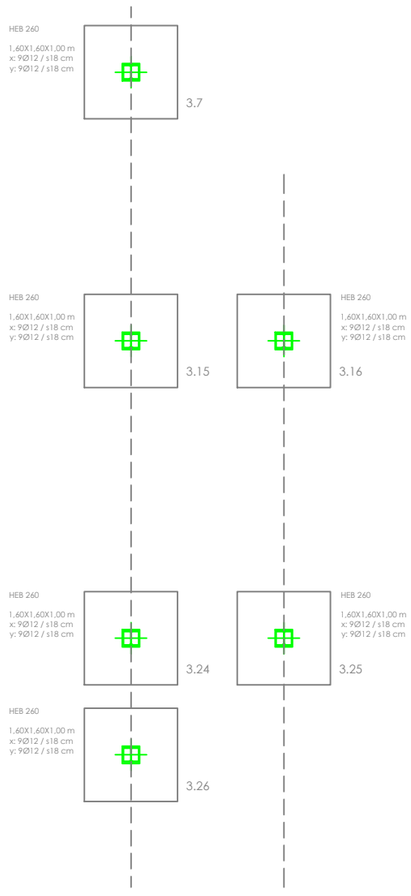


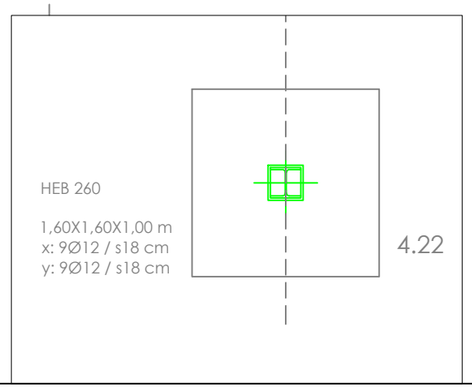


	ATHLETE RESIDENCE NISSAN	12/06/2013
	FOUNDATION DRAWINGS: BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.1

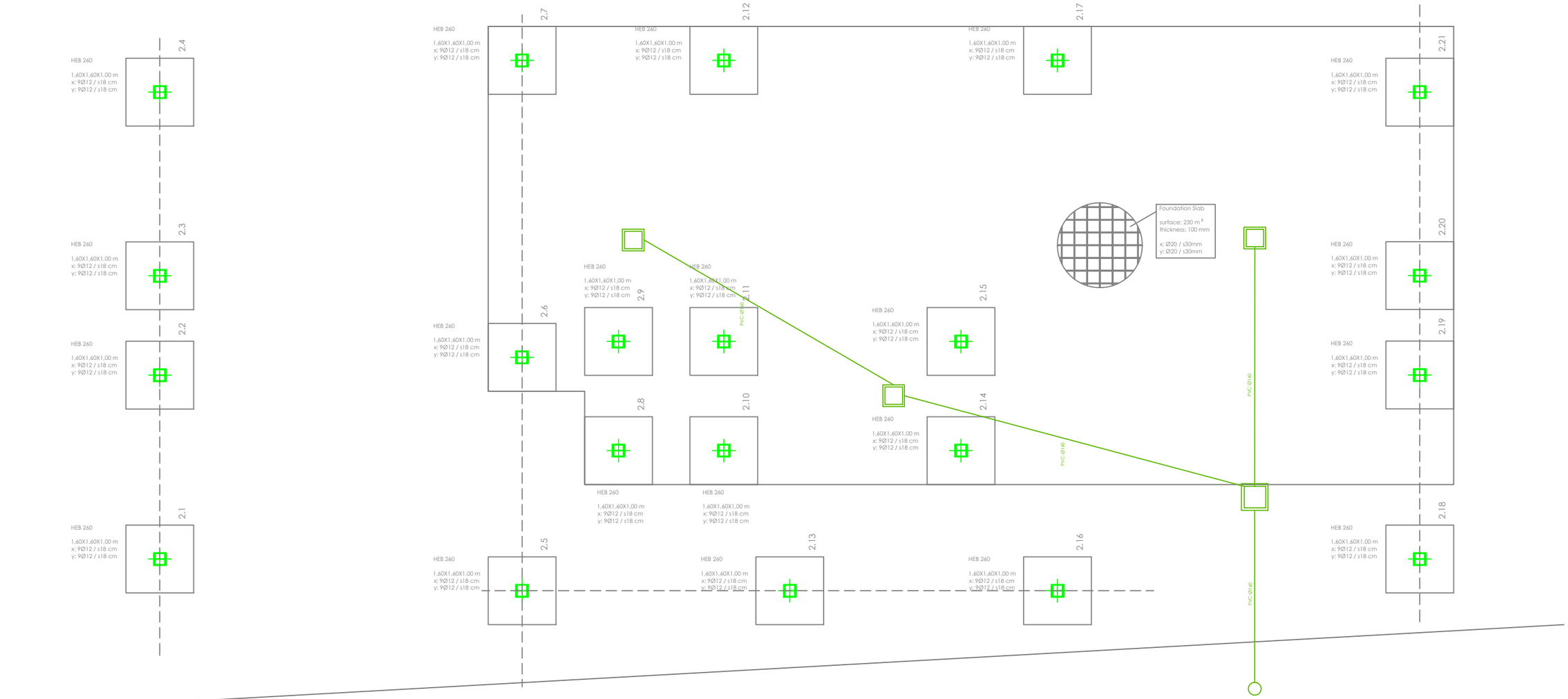


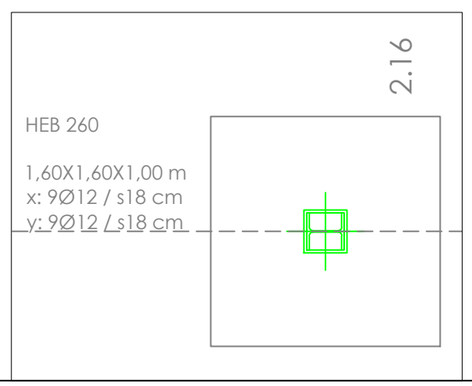




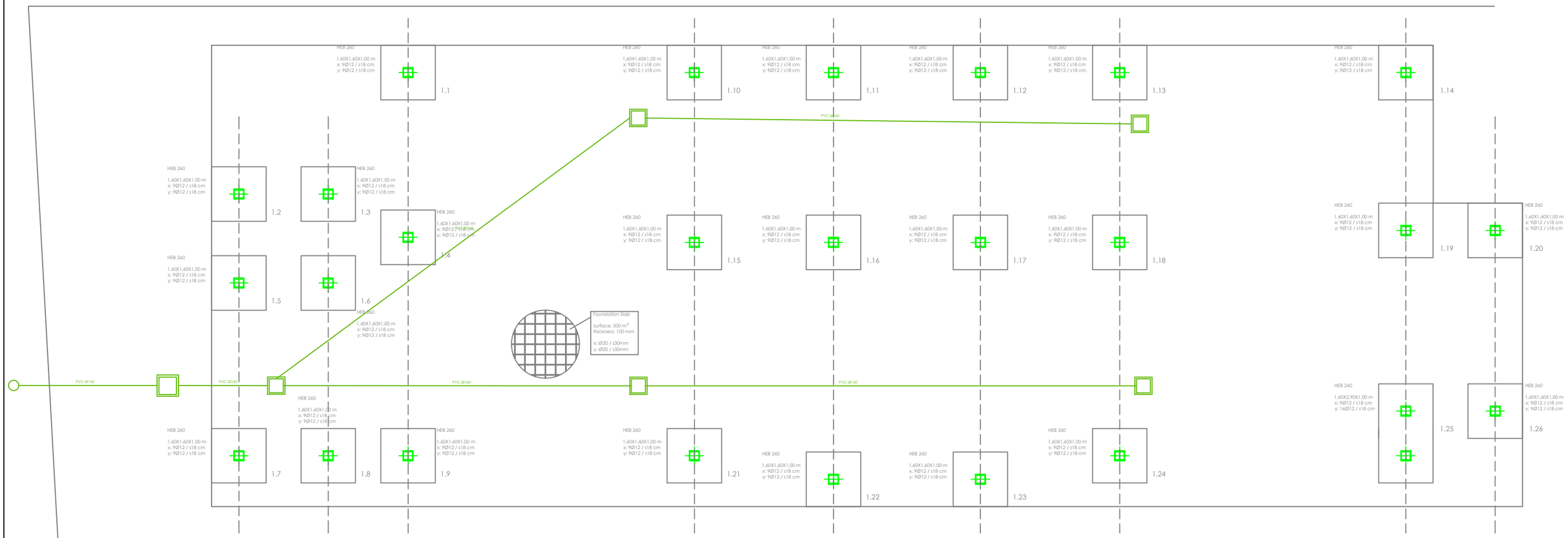


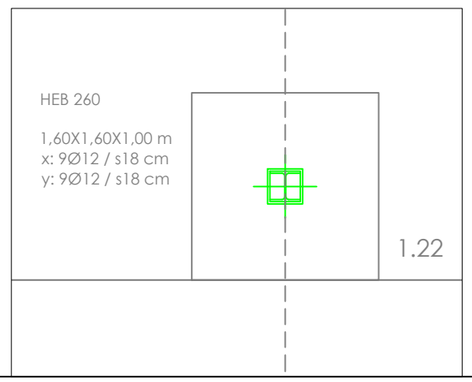
	ATHLETE RESIDENCE NISSAN	12/06/2013
	FOUNDATION DRAWINGS: BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.2



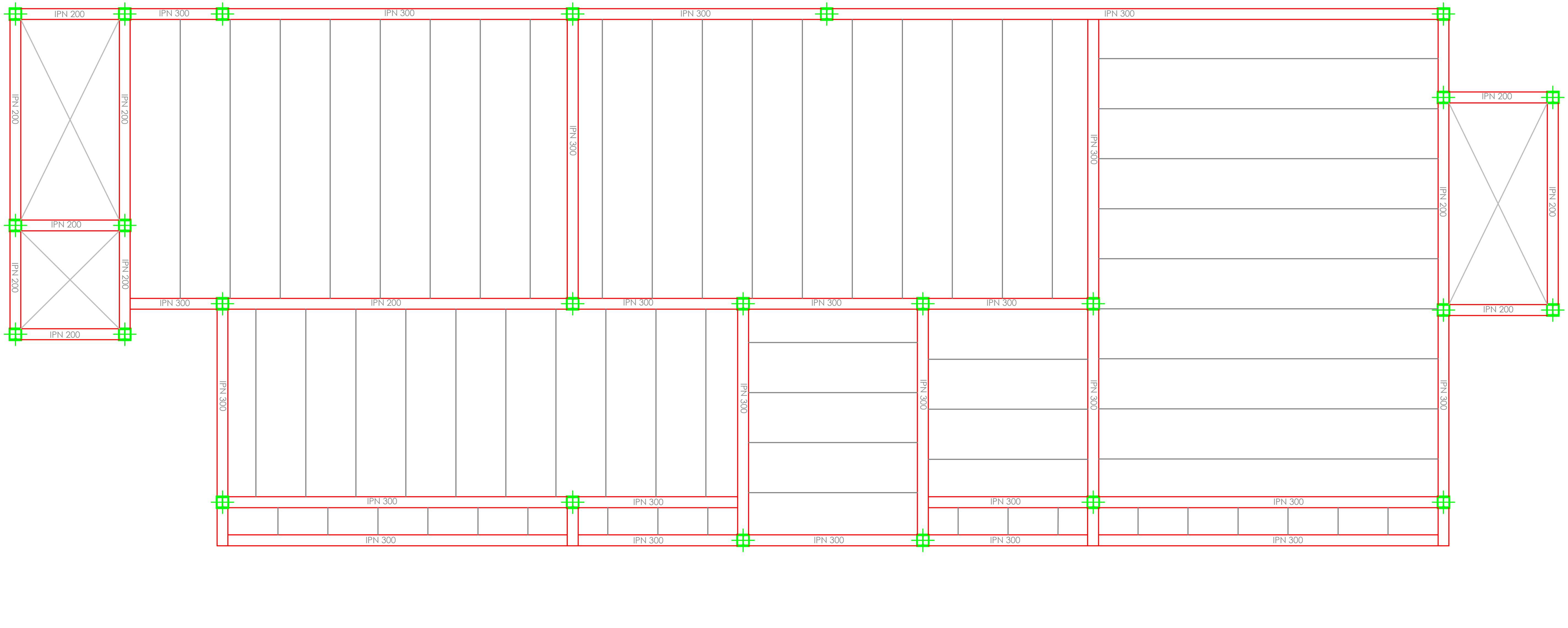


	ATHLETE RESIDENCE NISSAN	12/06/2013
	FOUNDATION DRAWINGS: BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.3





	ATHLETE RESIDENCE NISSAN	12/06/2013
	FOUNDATION DRAWINGS: BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.4



ATHLETE RESIDENCE NISSAN

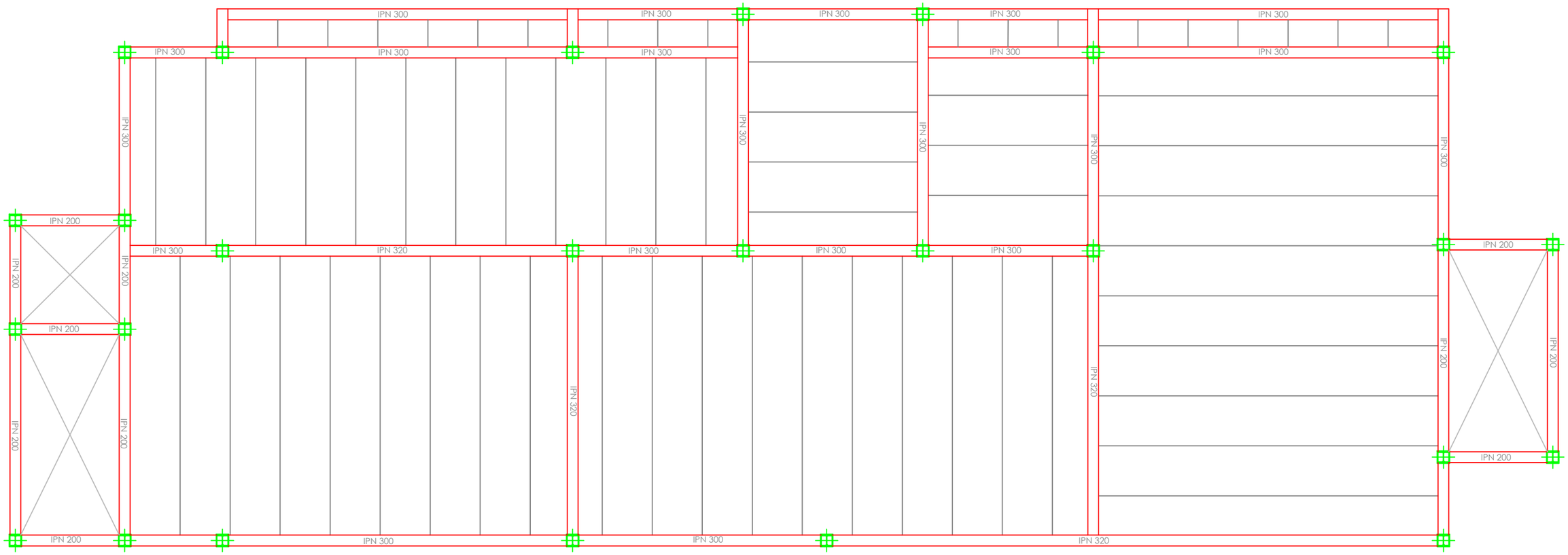
12/06/2013

STRUCTURE DRAWINGS:
FIRST FLOOR SLAB, BUILDING A

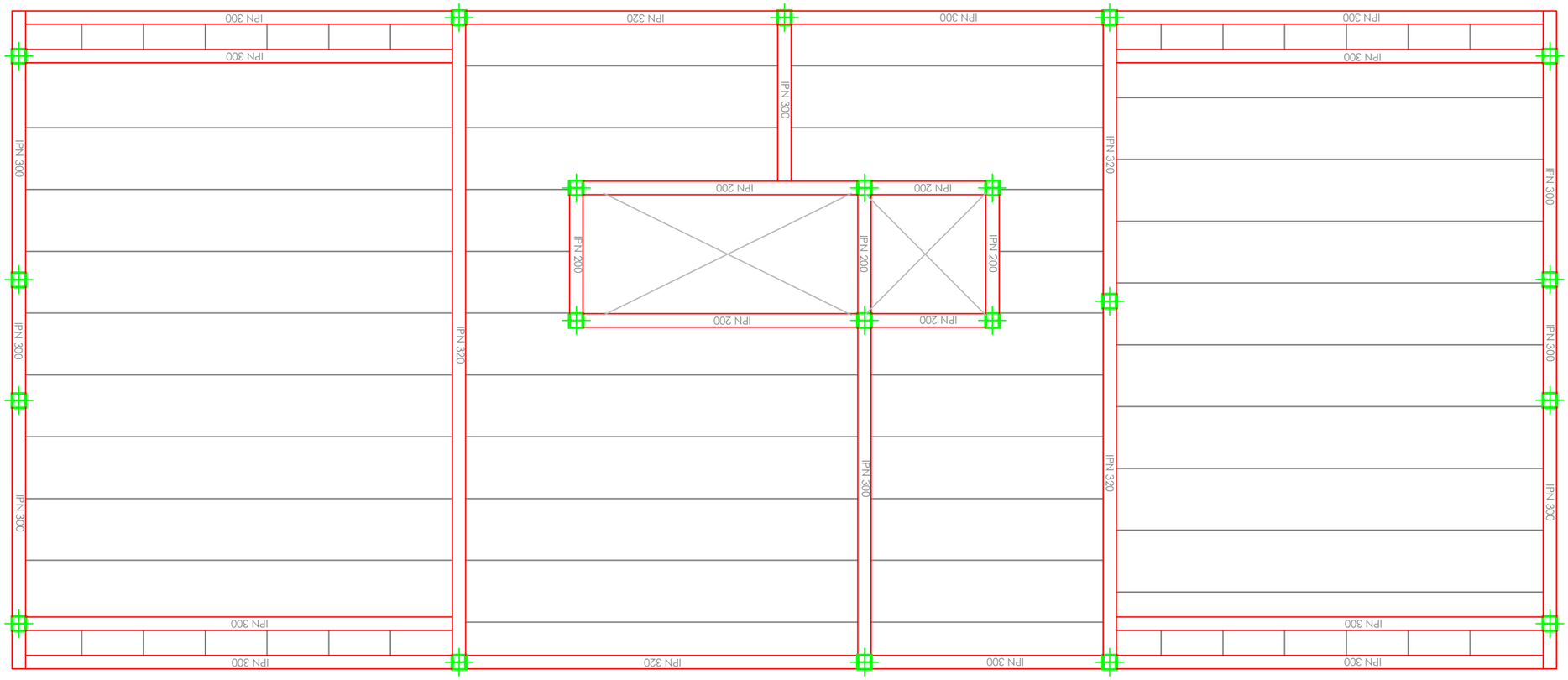
SCALE
1:100

FARAKOS RICÓS, ANDREAS
PÉREZ ESCRIBANO, EDUARDO

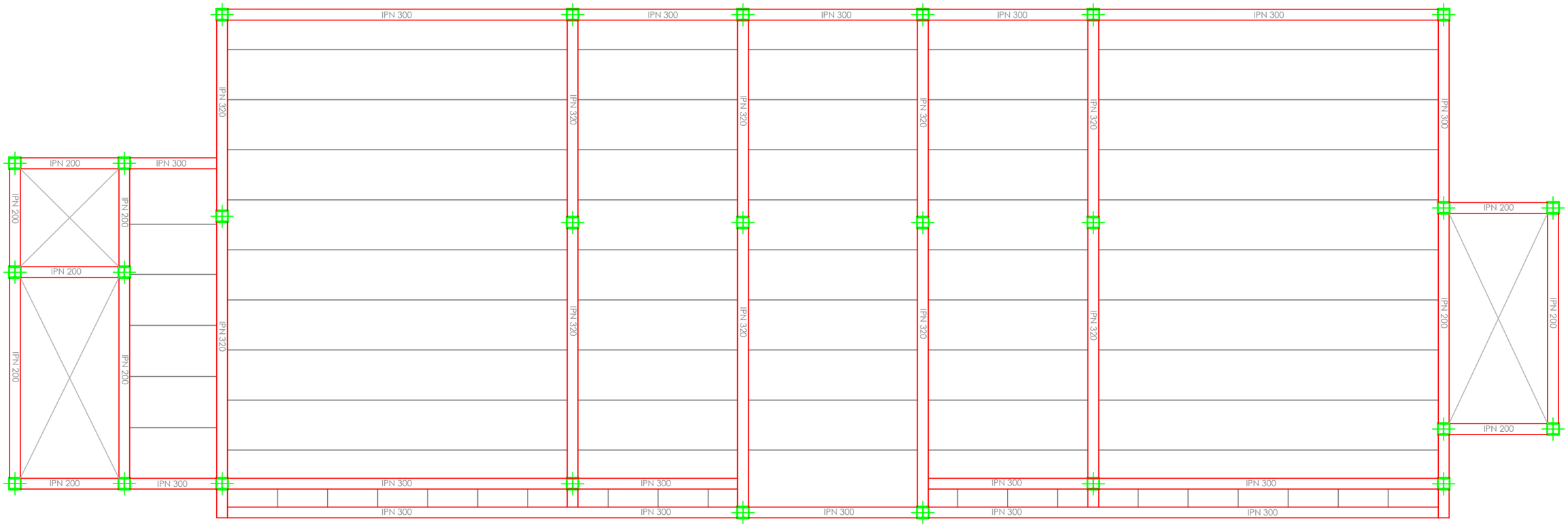
7.5



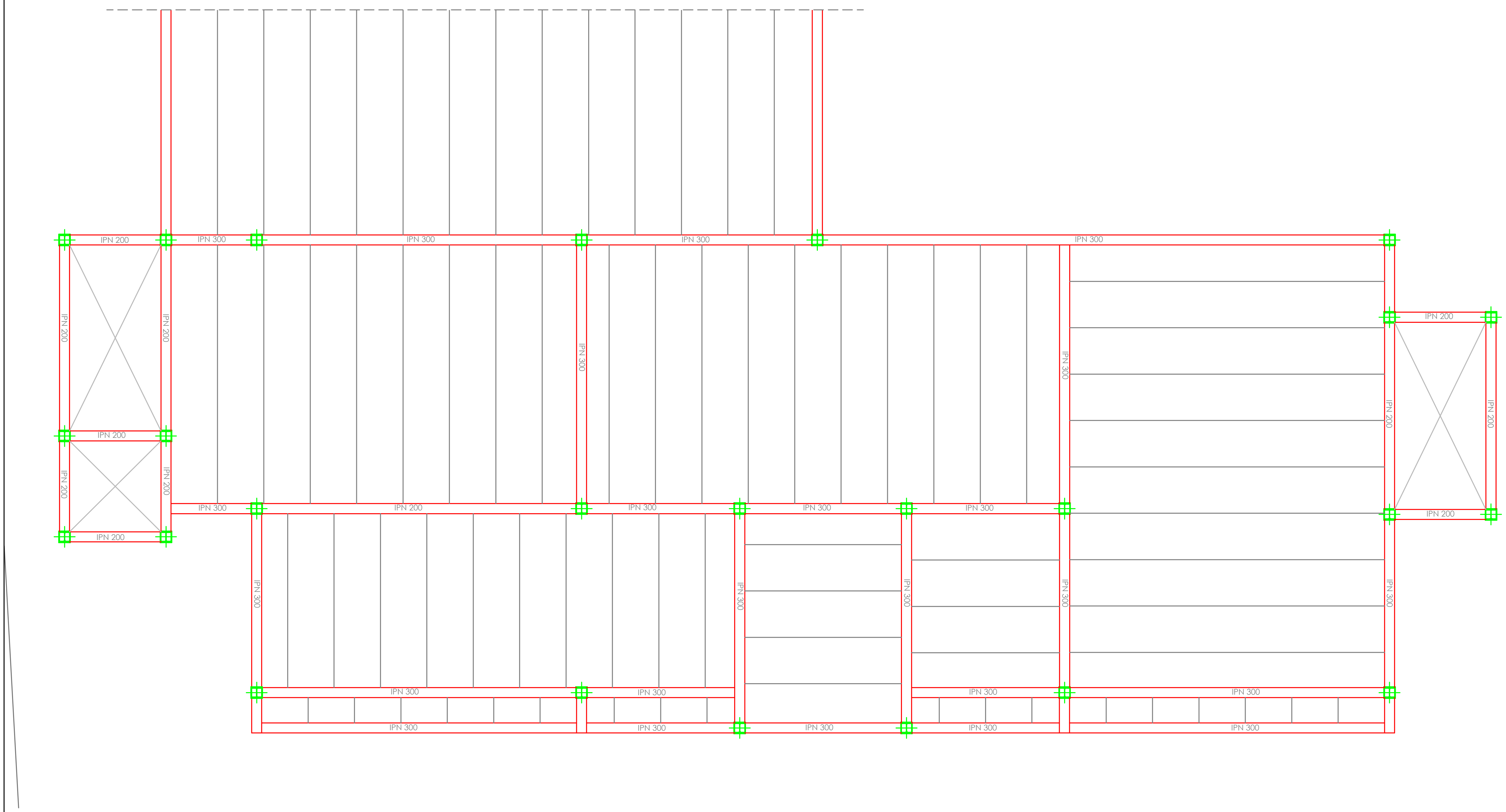
	ATHLETE RESIDENCE NISSAN	12/06/2013
	STRUCTURE DRAWINGS: FIRST FLOOR SLAB, BUILDING B	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.6



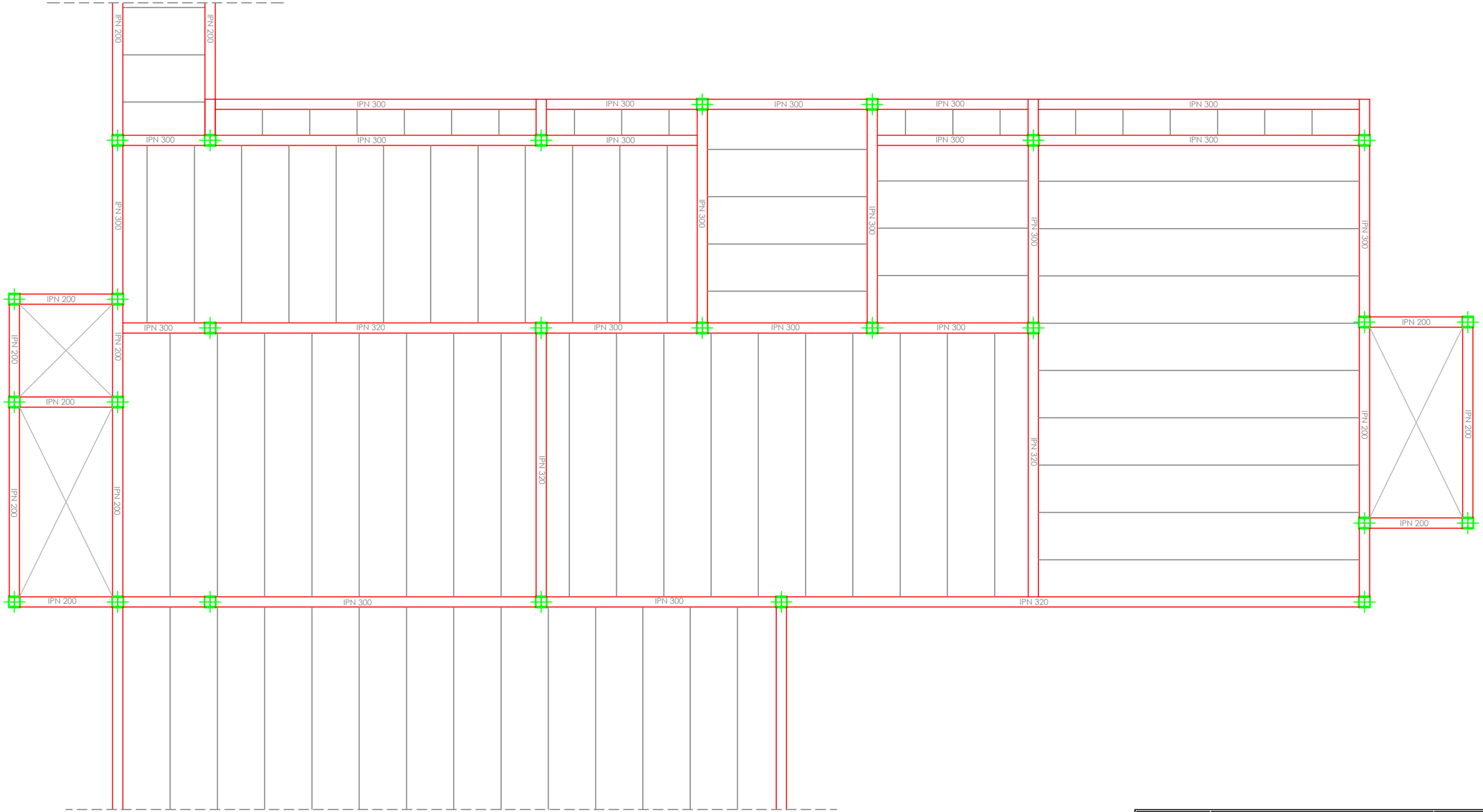
	ATHLETE RESIDENCE NISSAN	12/06/2013
	STRUCTURE DRAWINGS: FIRST FLOOR SLAB, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.7



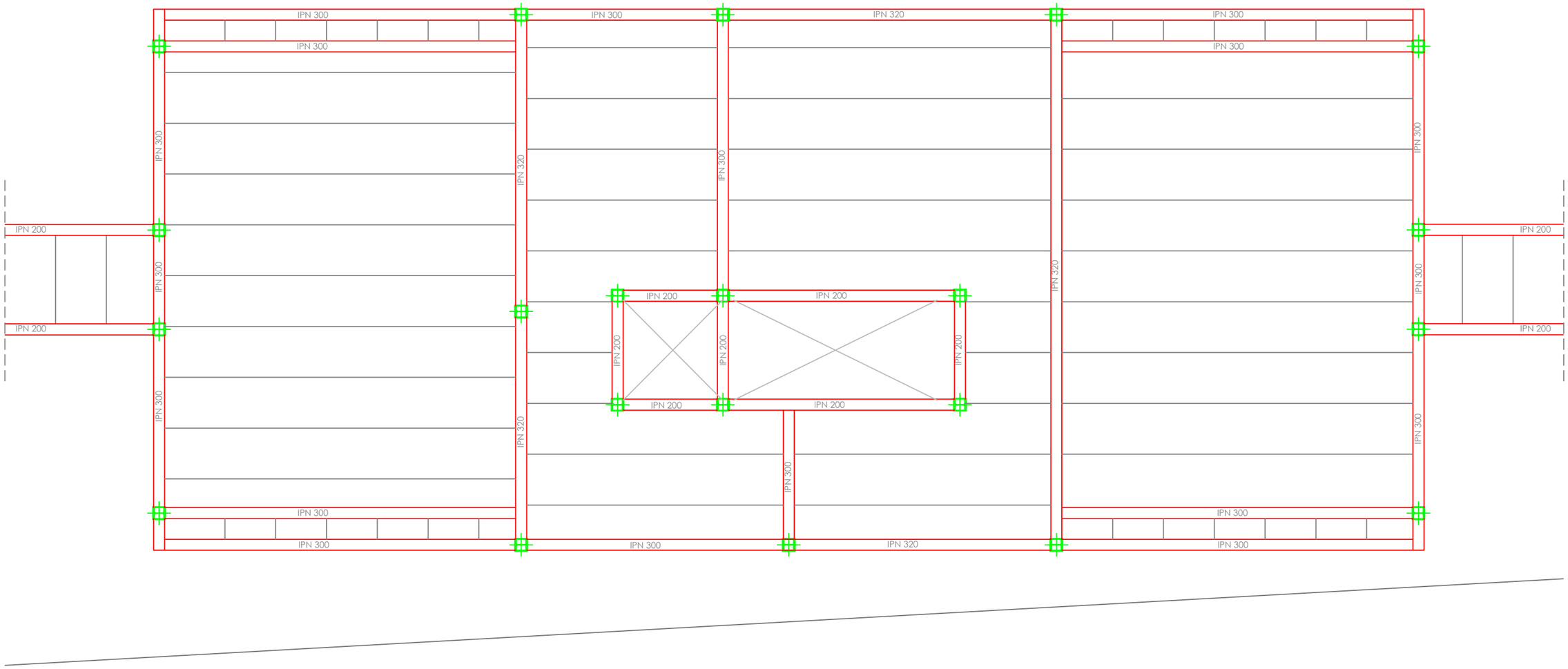
	ATHLETE RESIDENCE NISSAN	12/06/2013
	STRUCTURE DRAWINGS: FIRST FLOOR SLAB, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.8



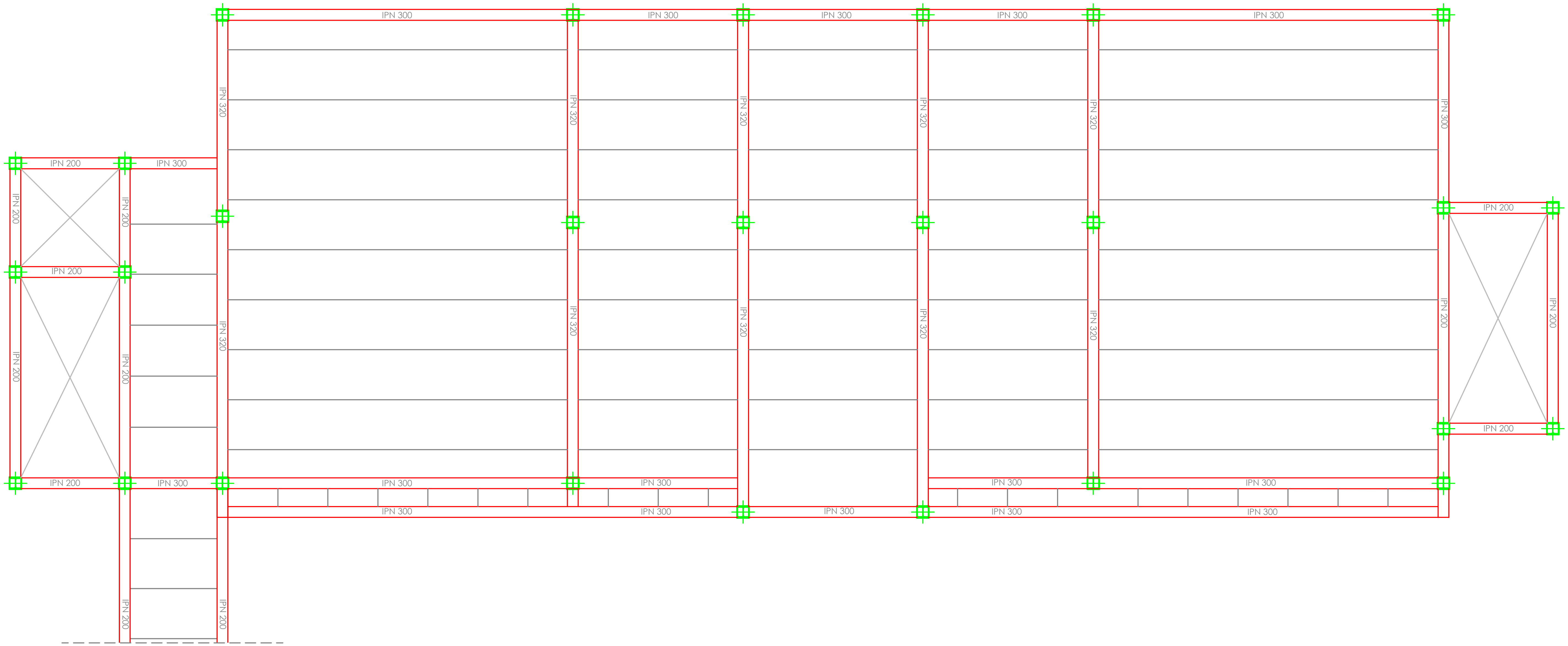
ATHLETE RESIDENCE NISSAN		12/06/2013
STRUCTURE DRAWINGS: SECOND FLOOR SLAB, BUILDING A		SCALE 1:100
FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO		7.9



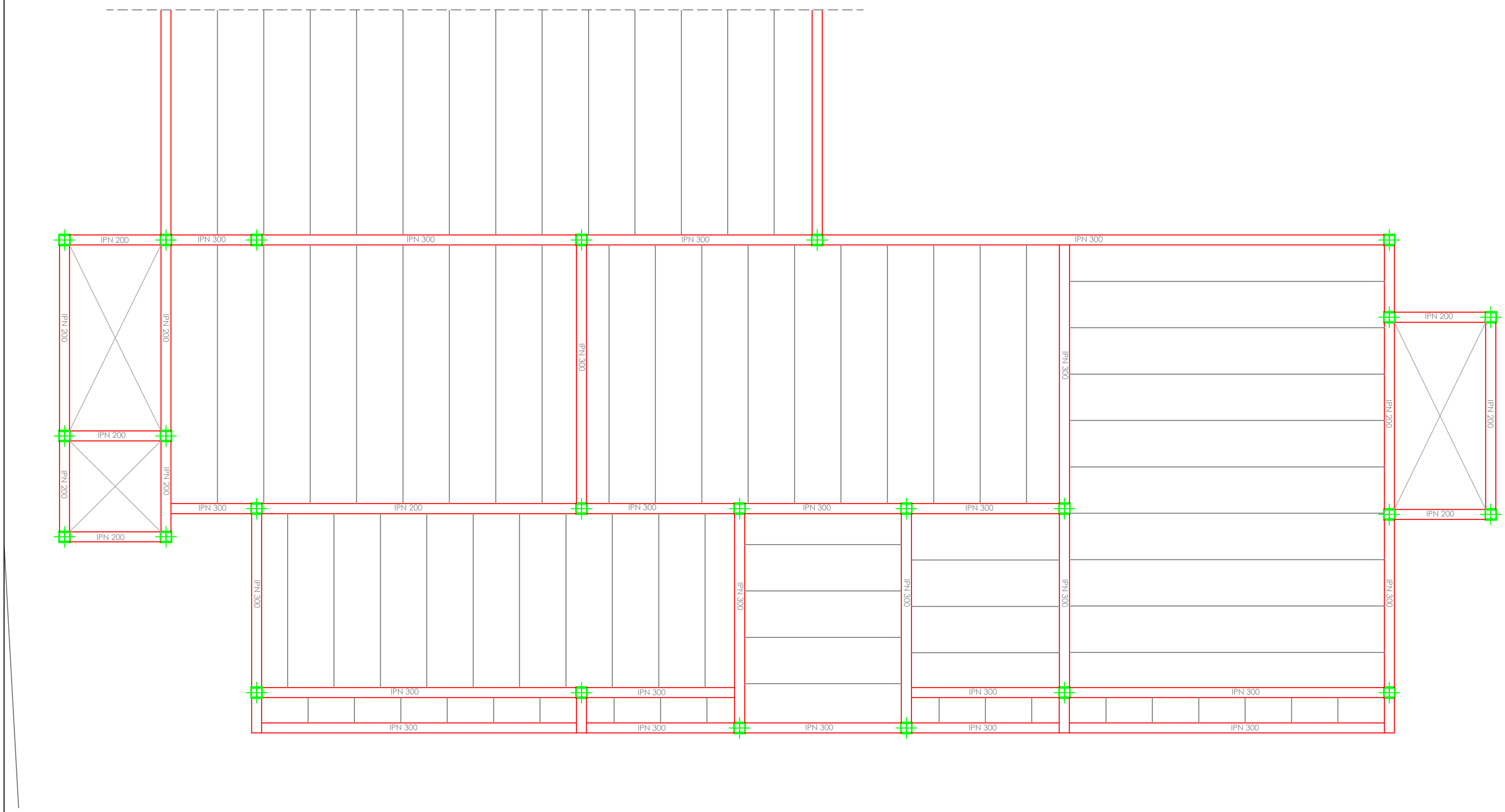
	ATHLETE RESIDENCE NISSAN	12/06/2013
	STRUCTURE DRAWINGS: SECOND FLOOR SLAB, BUILDING B	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.10



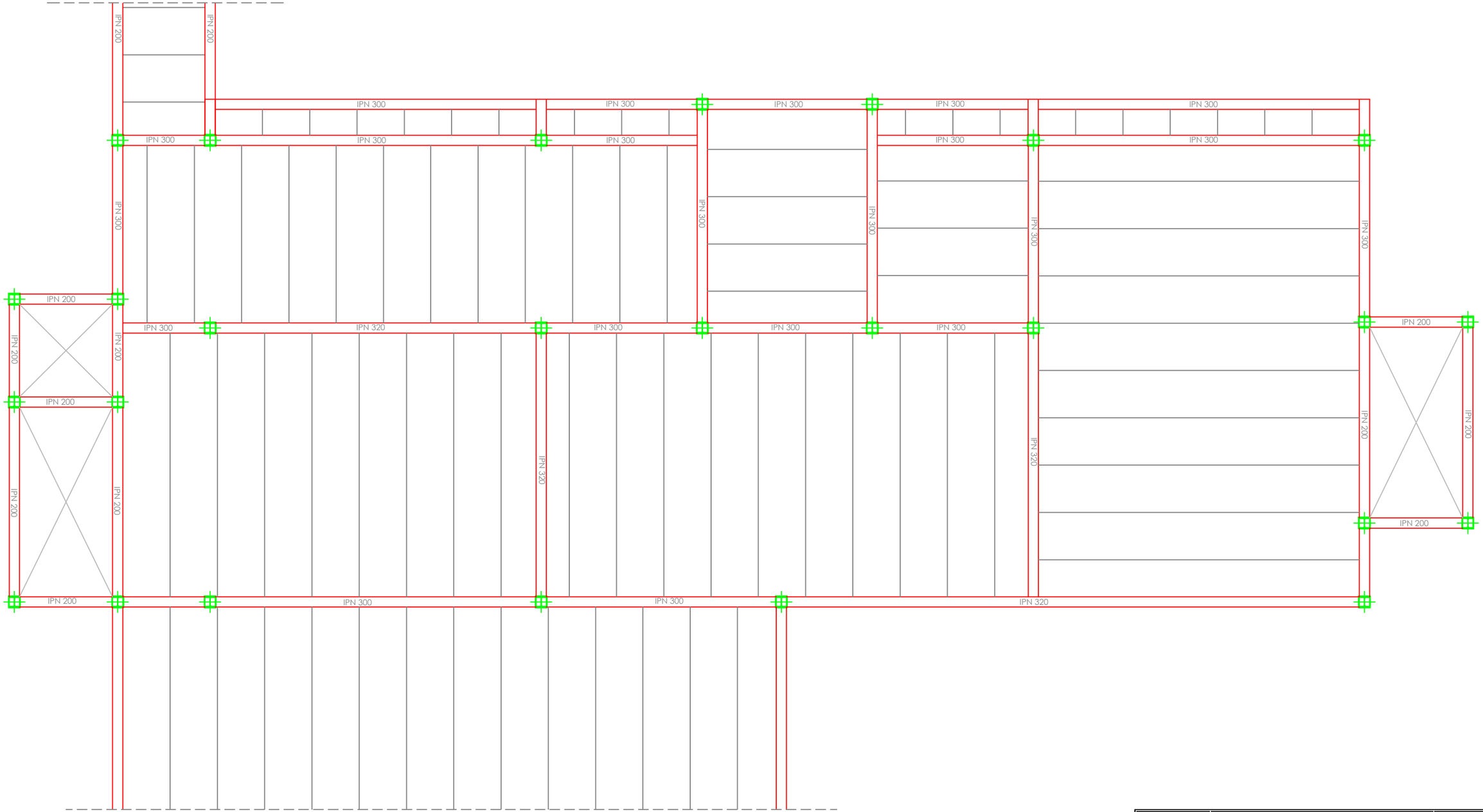
	ATHLETE RESIDENCE NISSAN	12/06/2013
	STRUCTURE DRAWINGS: SECOND FLOOR SLAB, BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.11



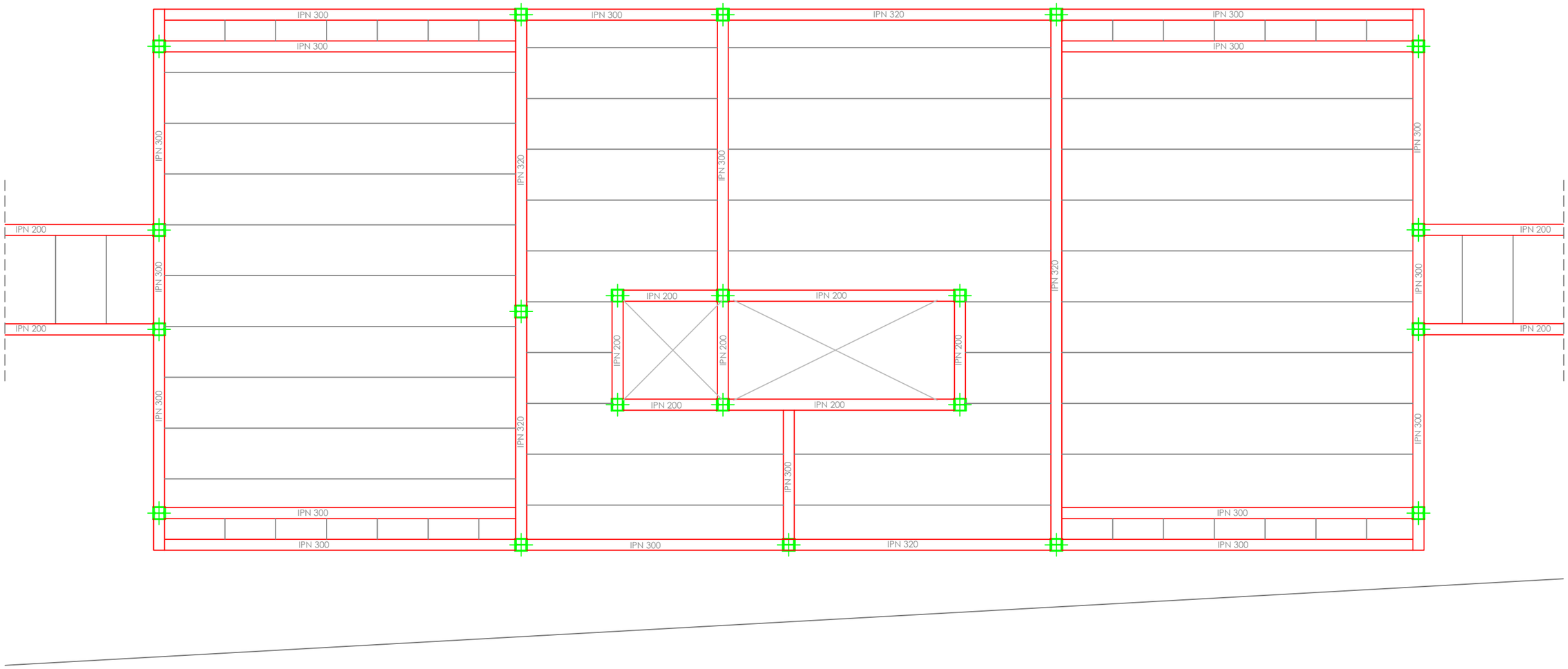
	ATHLETE RESIDENCE NISSAN	12/06/2013
	STRUCTURE DRAWINGS: SECOND FLOOR SLAB, BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.12



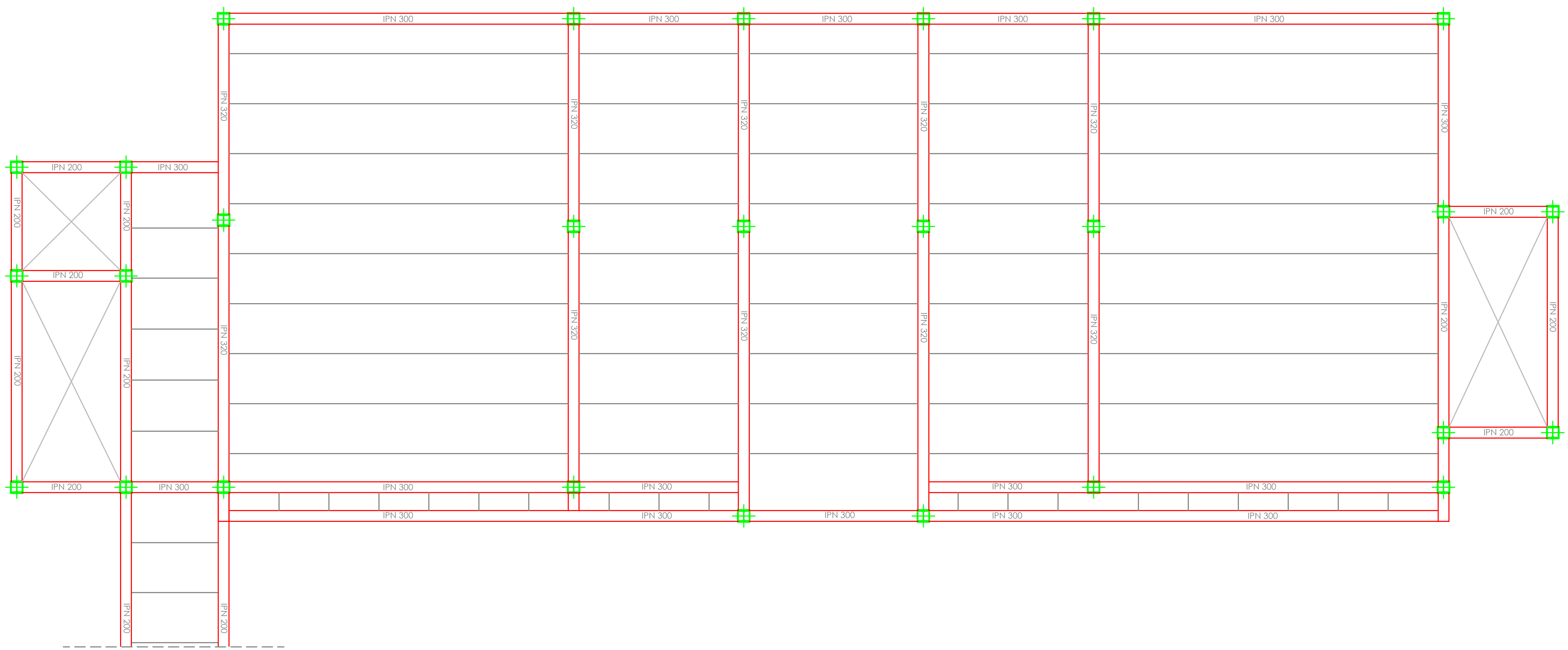
	ATHLETE RESIDENCE NISSAN	12/06/2013
	STRUCTURE DRAWINGS: THIRD FLOOR SLAB, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.13



	ATHLETE RESIDENCE NISSAN	12/06/2013
	STRUCTURE DRAWINGS: THIRD FLOOR SLAB, BUILDING B	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.14



	ATHLETE RESIDENCE NISSAN	12/06/2013
	STRUCTURE DRAWINGS: THIRD FLOOR SLAB, BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	7.15



ATHLETE RESIDENCE NISSAN

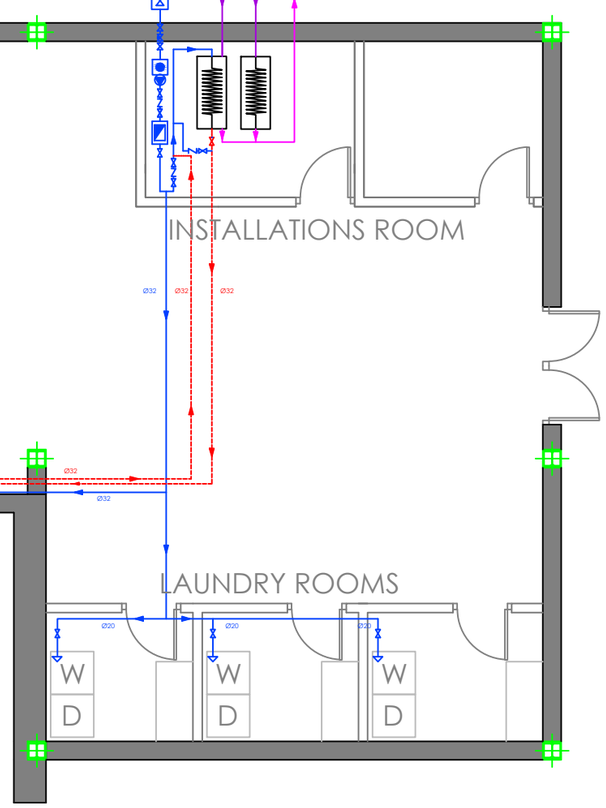
12/06/2013

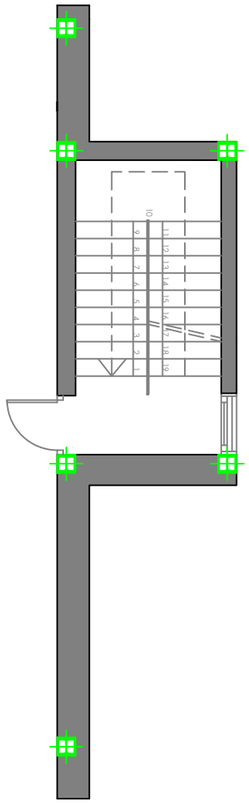
STRUCTURE DRAWINGS:
THIRD FLOOR SLAB, BUILDING D

SCALE
1:100

FARAKOS RICÓS, ANDREAS
PÉREZ ESCRIBANO, EDUARDO

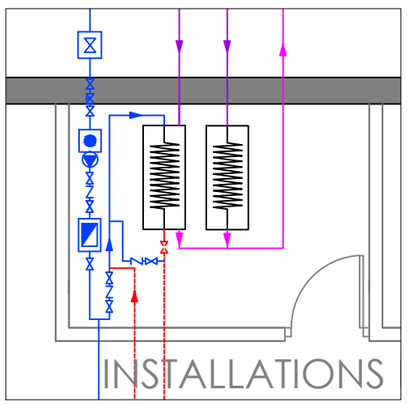
7.16



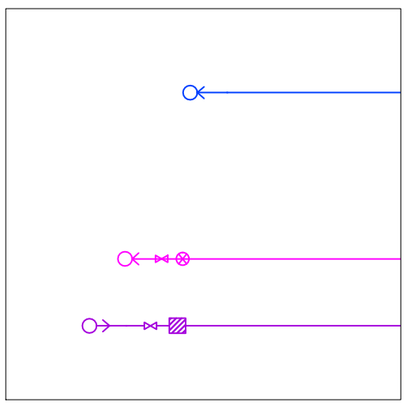


PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärrvärme return pipe

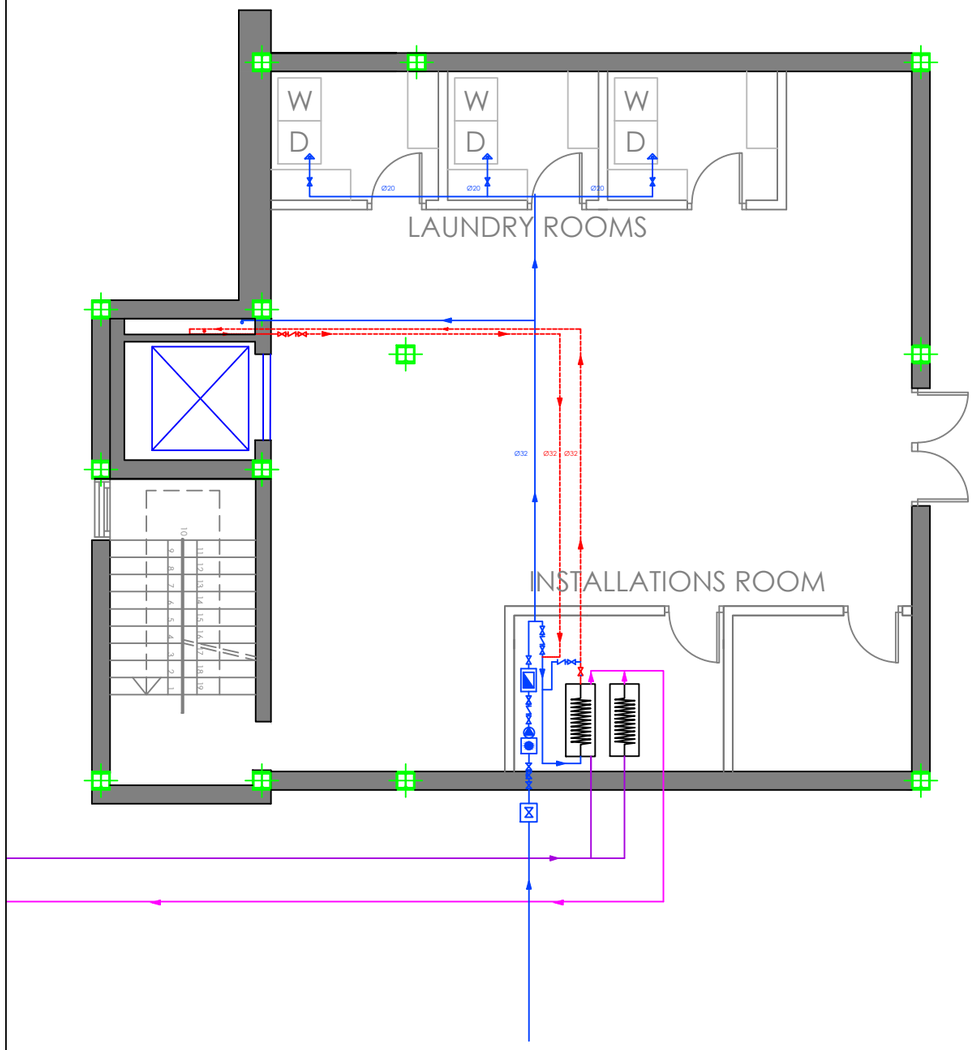


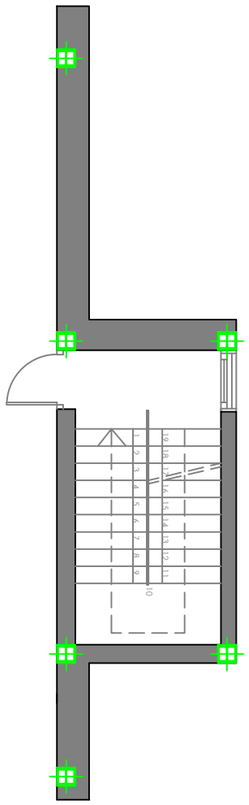
INSTALLATION ROOM



SUPPLY CONNECTION

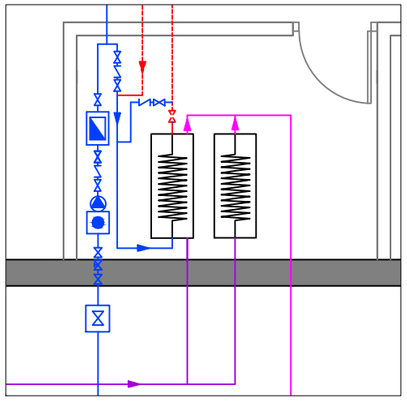
	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.1



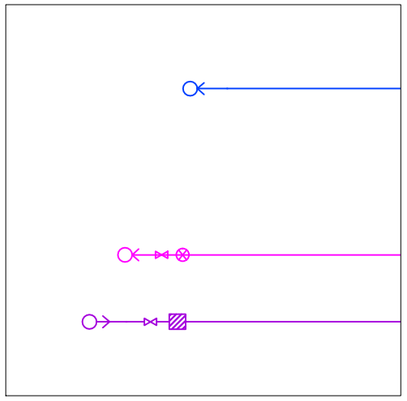


PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärvärme return pipe

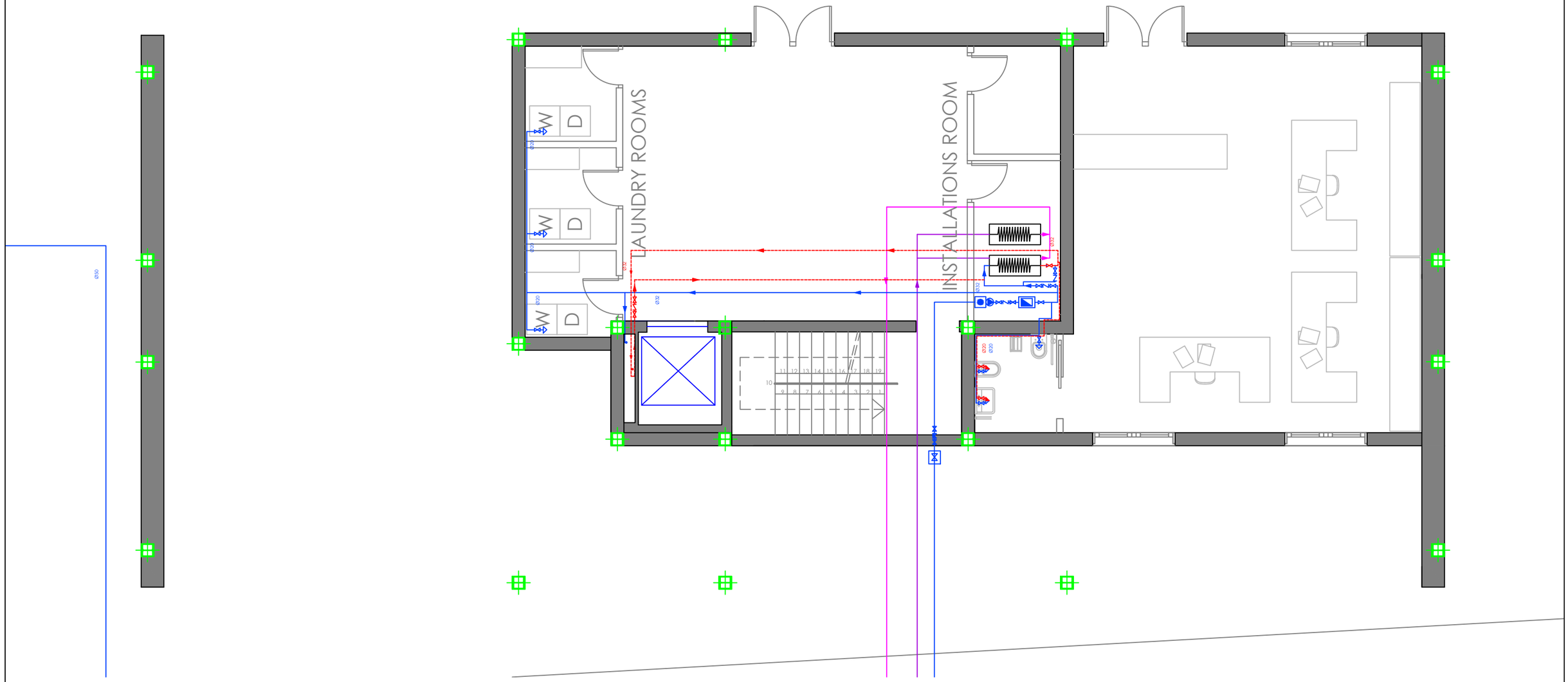


INSTALLATION ROOM



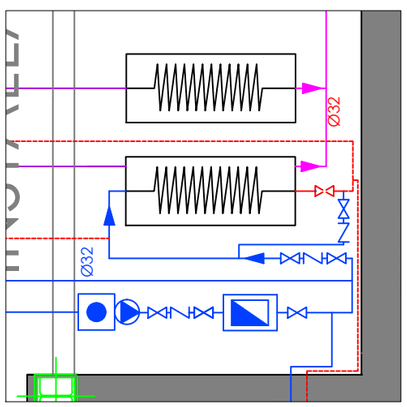
SUPPLY CONNECTION

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: FIRST FLOOR BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.2

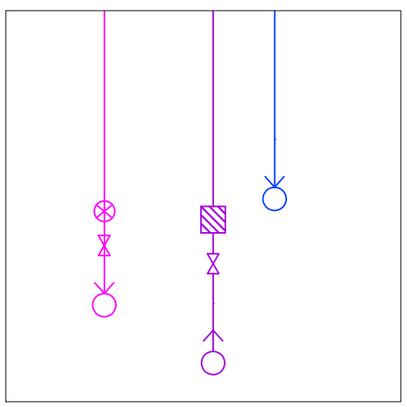


PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärvärme return pipe

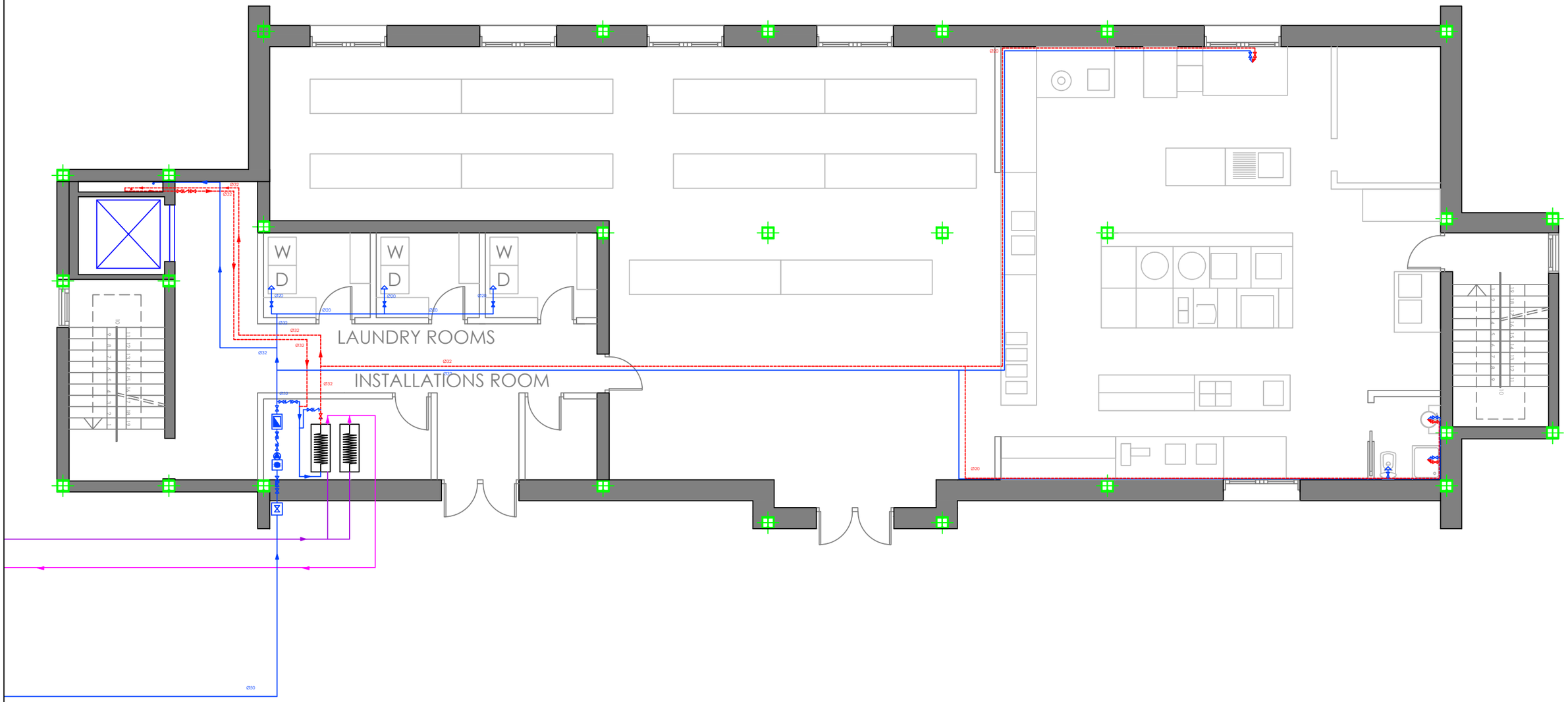


INSTALLATION ROOM



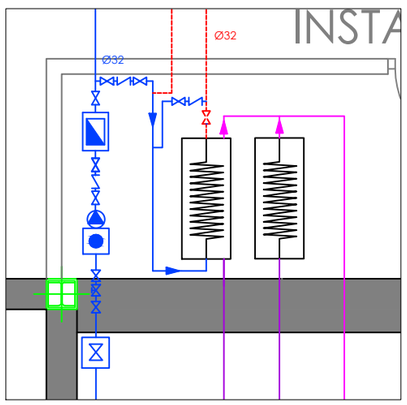
SUPPLY CONNECTION

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: FIRST FLOOR BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.3

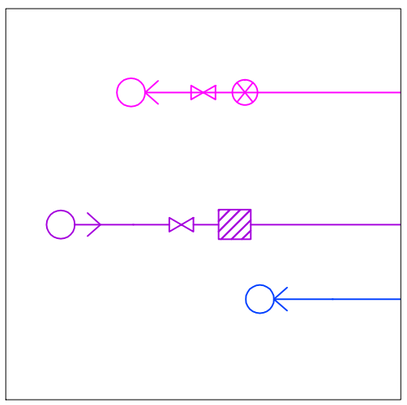


PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärrvärme return pipe

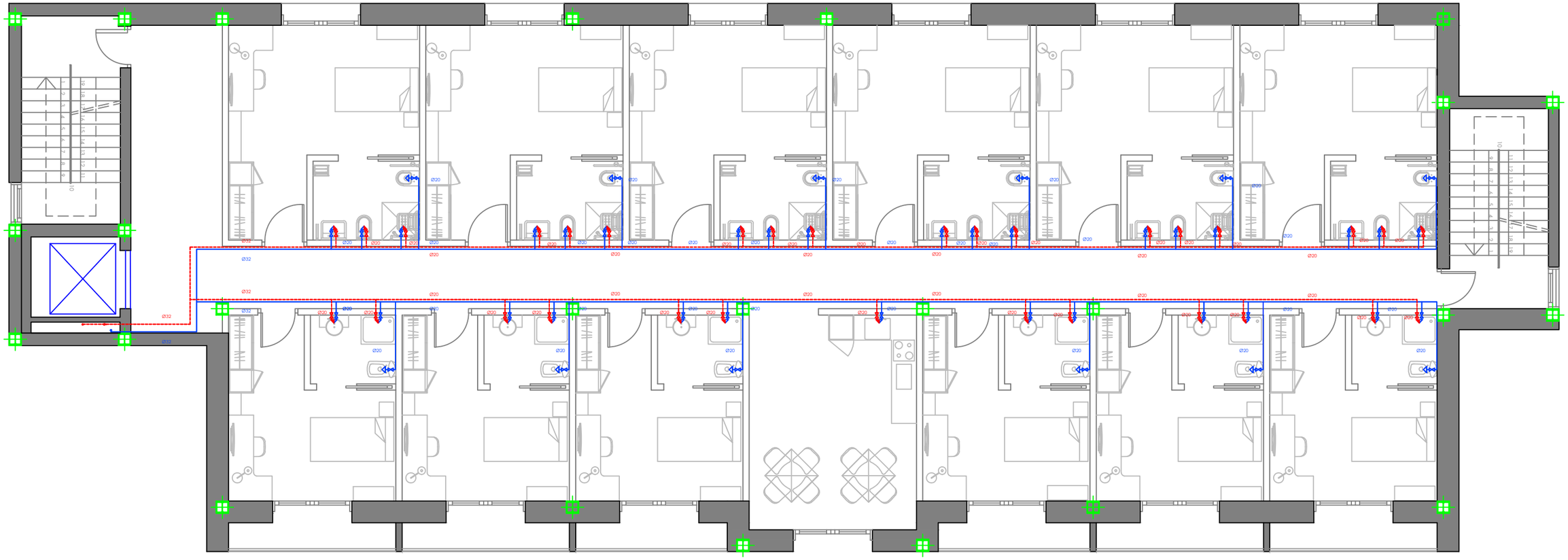


INSTALLATION ROOM



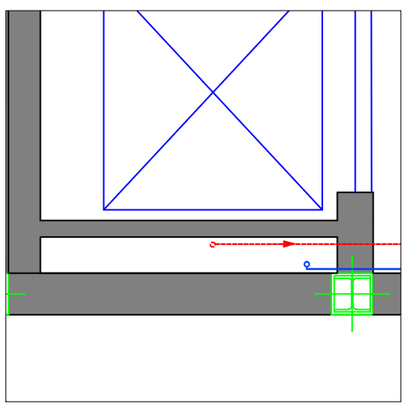
SUPPLY CONNECTION

	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.4

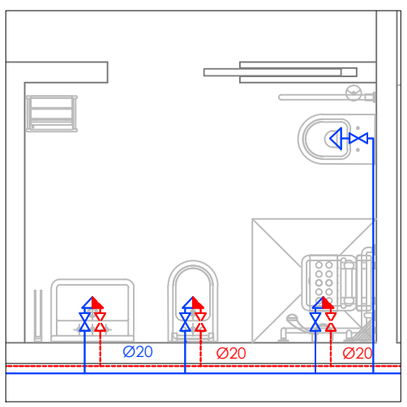


PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärvärme return pipe

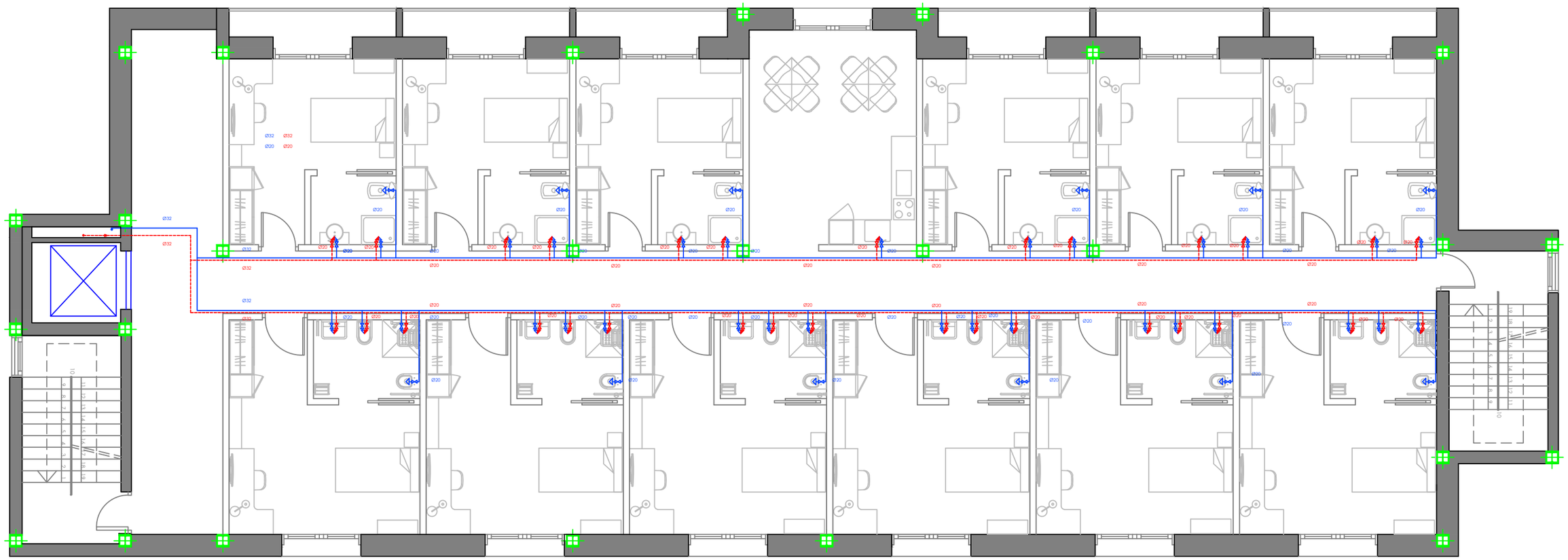


SERVICES RISER DETAIL



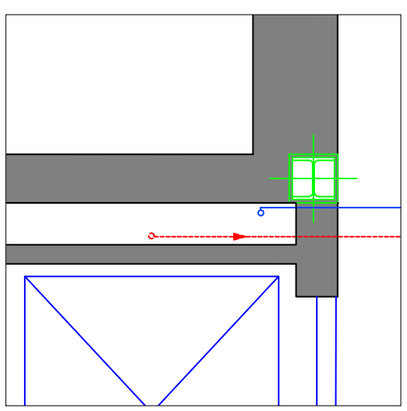
BARHROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.5

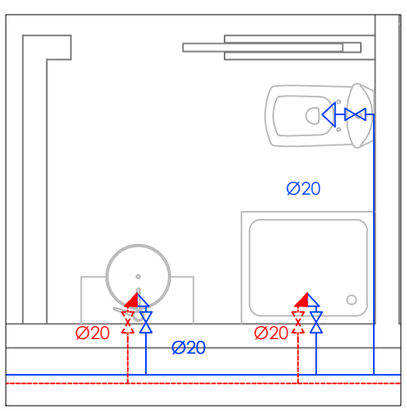


PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärrvärme return pipe

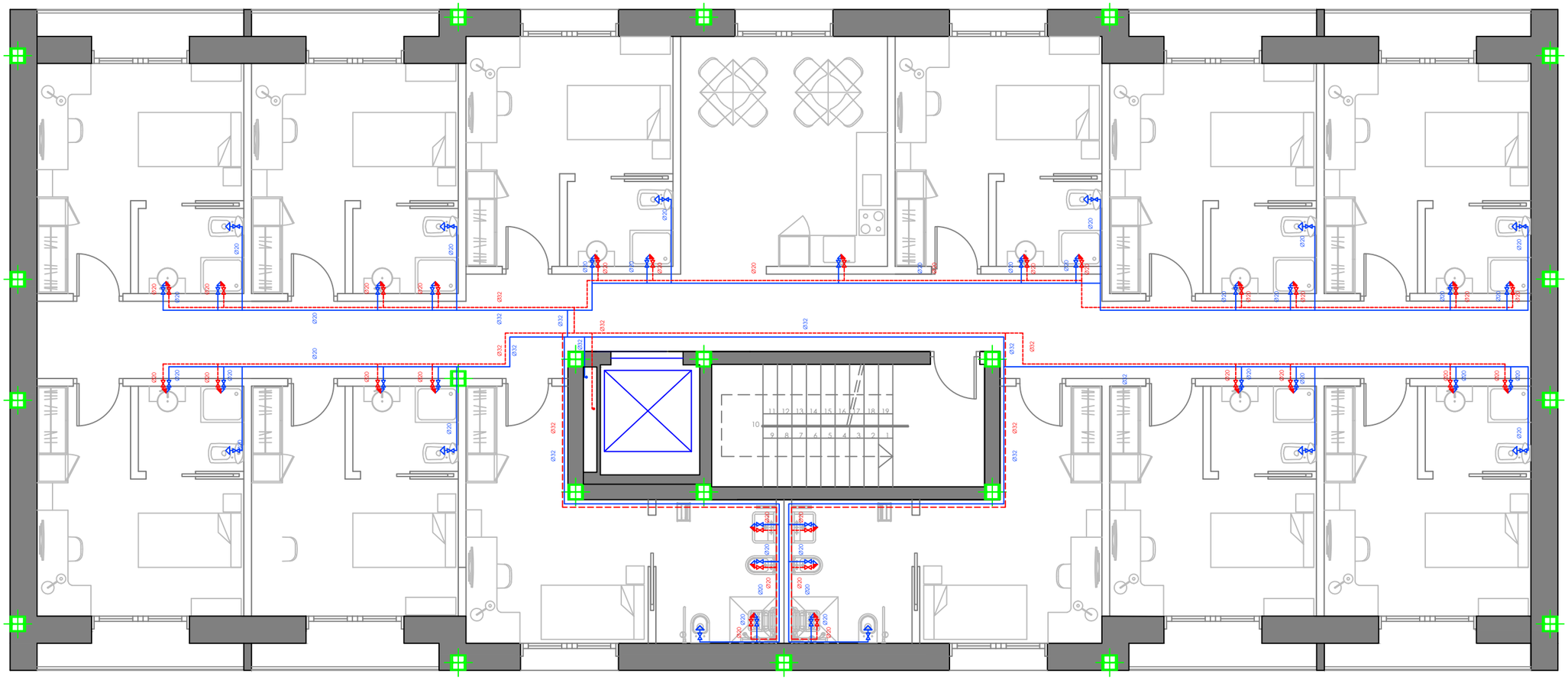


SERVICES RISER DETAIL



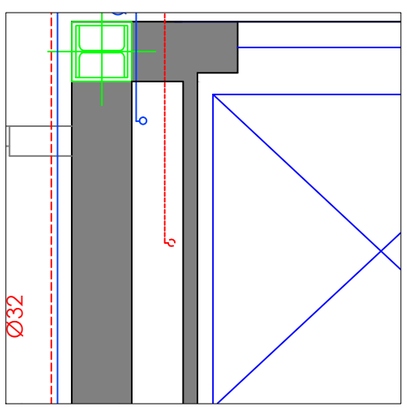
BARHROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.6

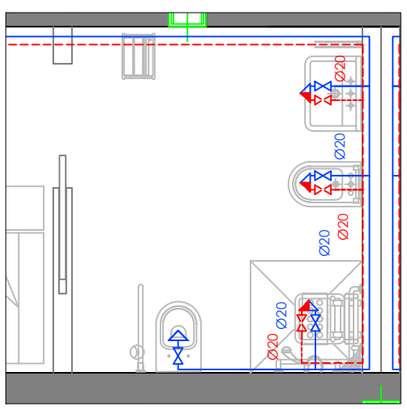


PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärvärme return pipe

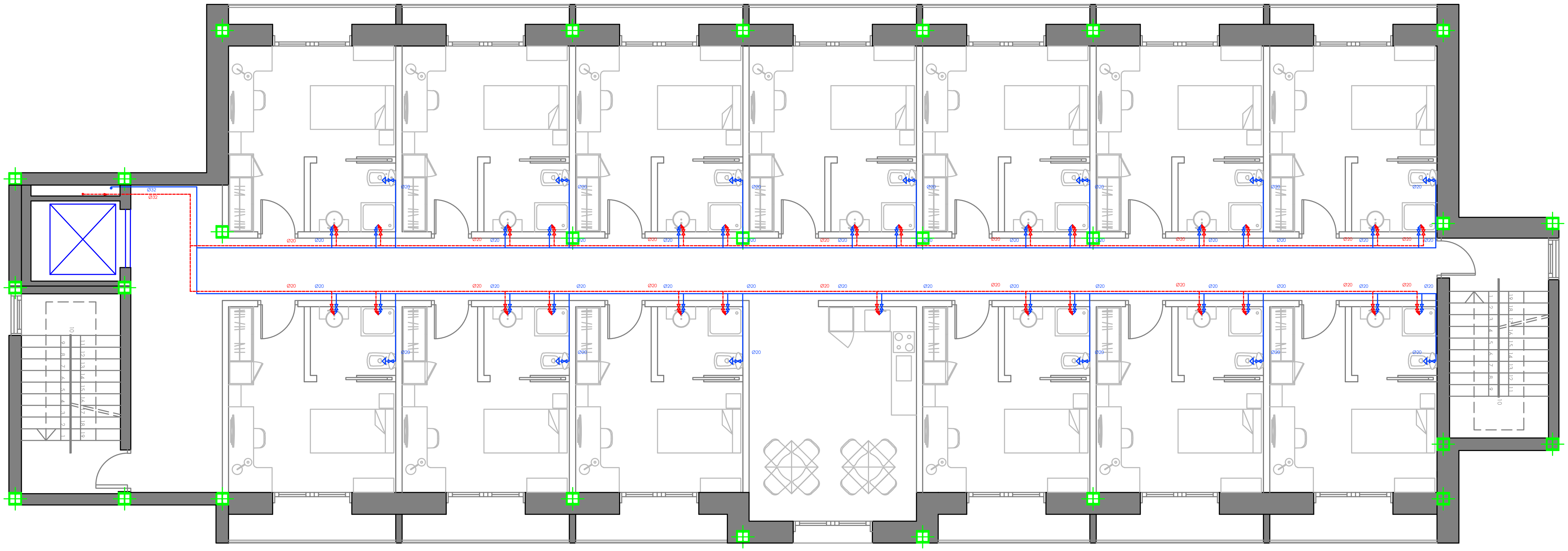


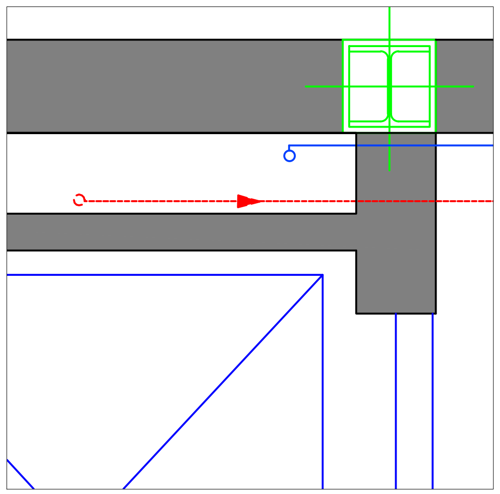
SERVICES RISER DETAIL



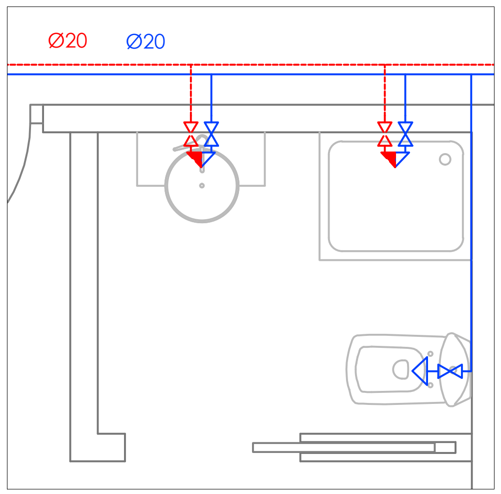
BARHROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.7





SERVICES RISER DETAIL



BATHROOM DETAIL

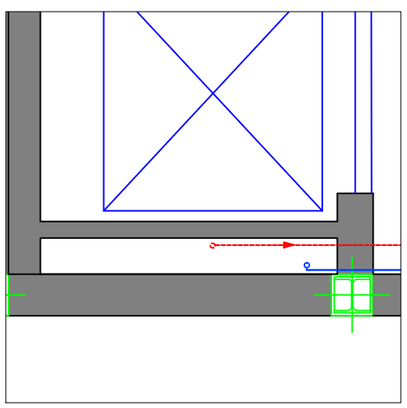
PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärvärme return pipe

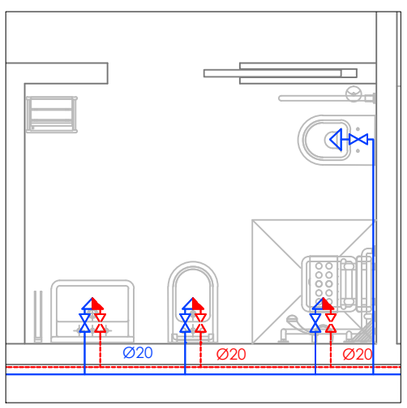
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.8

PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärrvärme return pipe

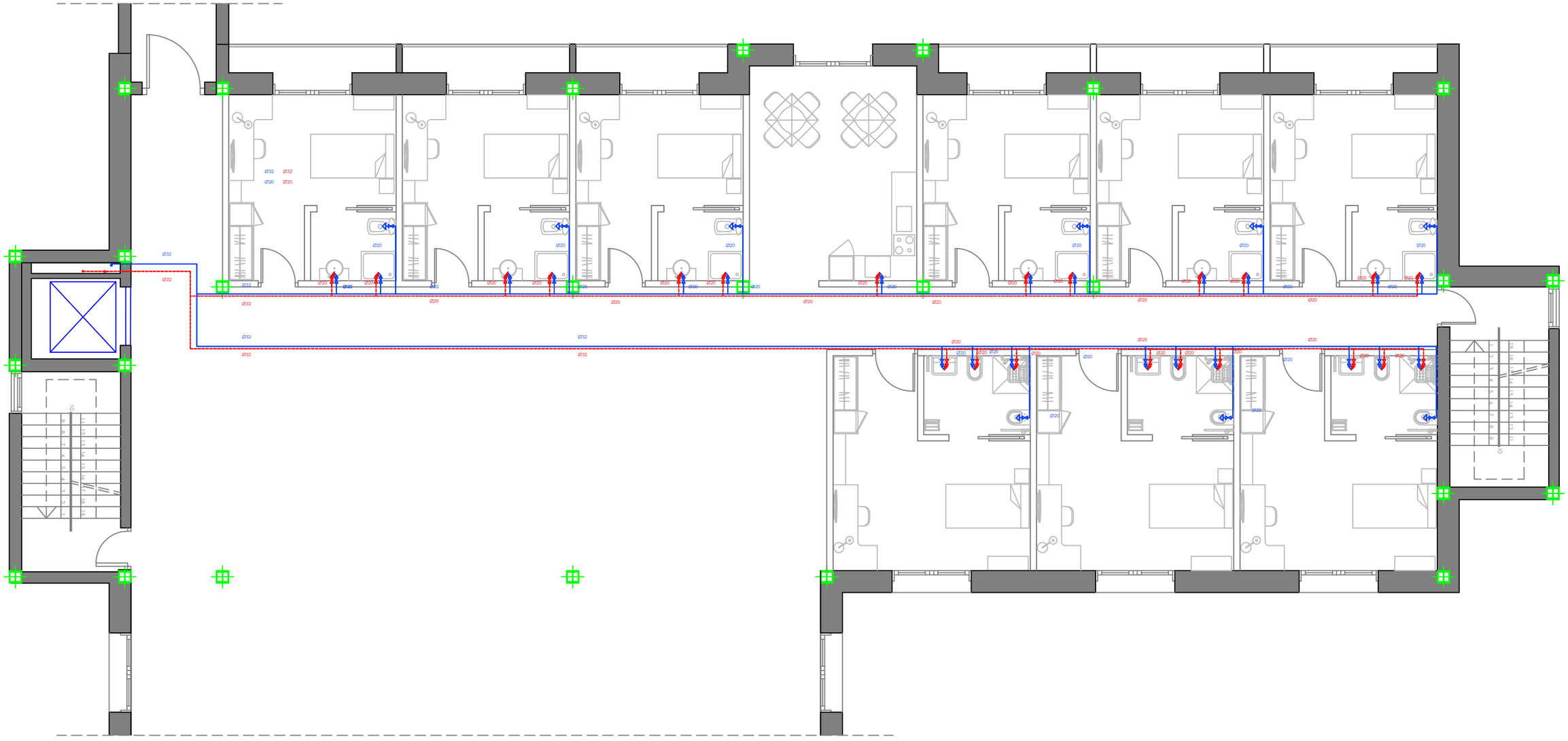


SERVICES RISER DETAIL



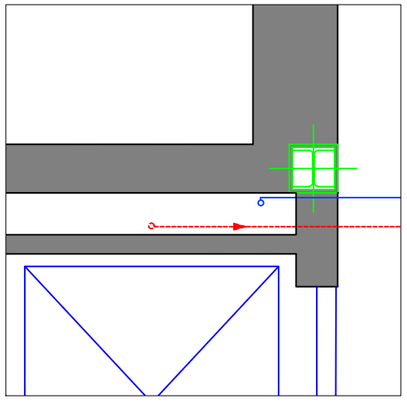
BARHROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.9

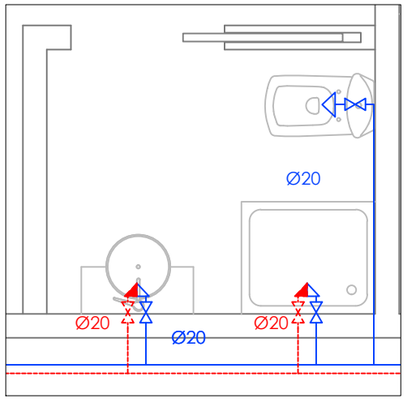


PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärvärme return pipe



SERVICES RISER DETAIL

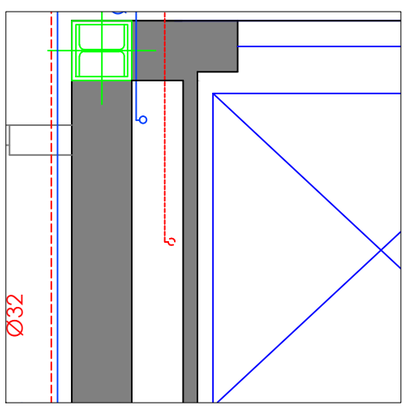


BARHROOM DETAIL

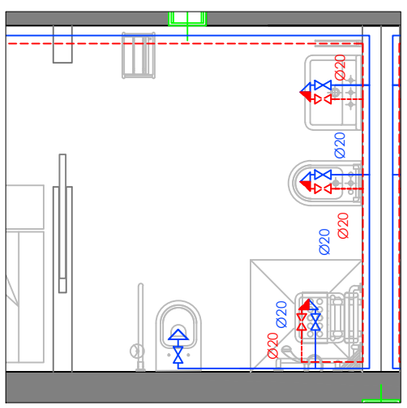
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.10

PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärvärme return pipe

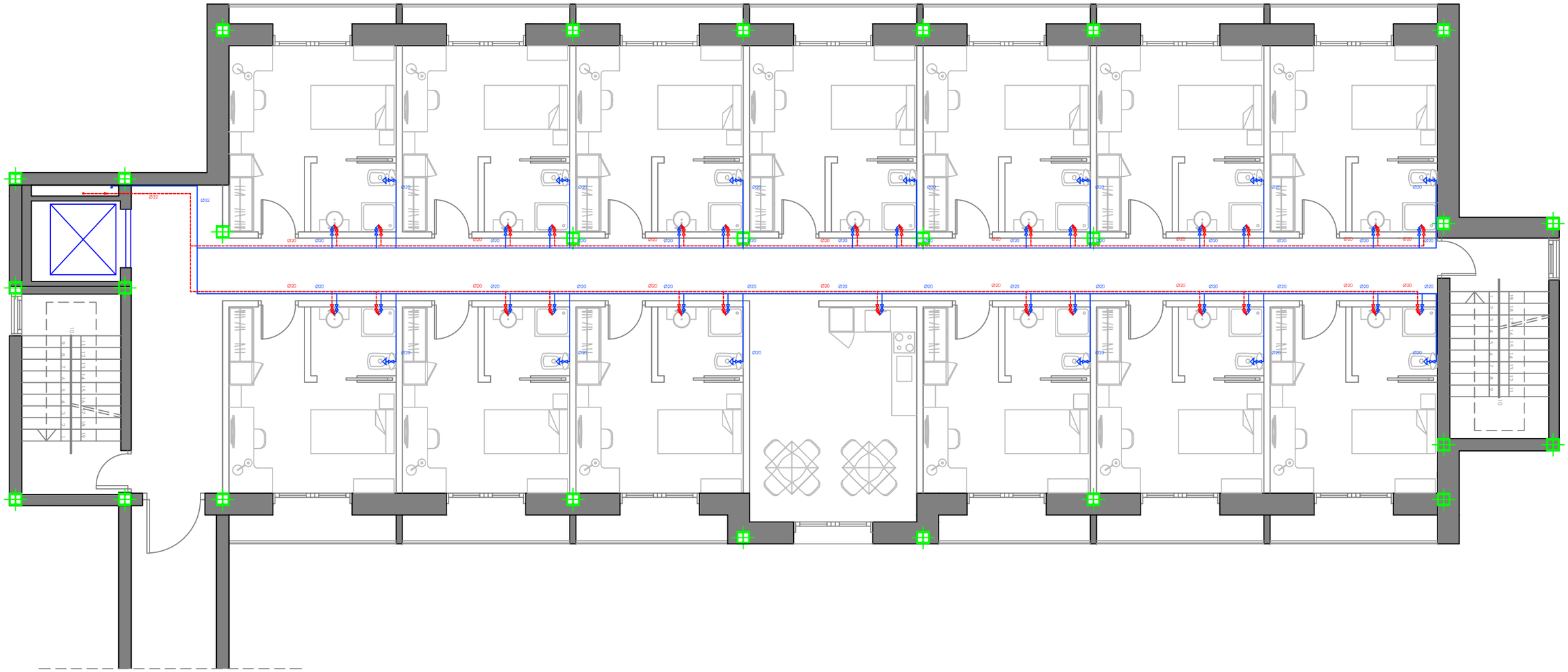


SERVICES RISER DETAIL



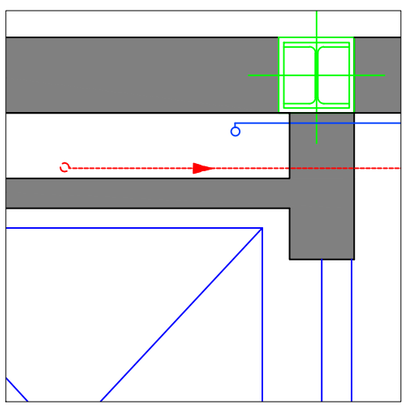
BARHROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.11

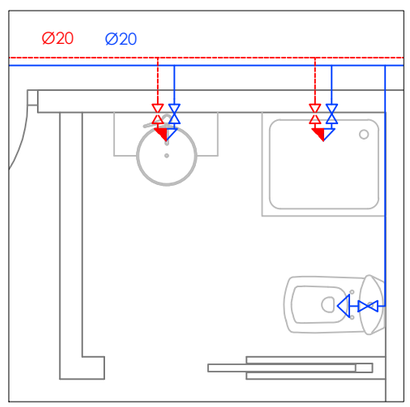


PLUMBING, HOT WATER AND FJÄRRVÄRME LEGEND

	Supply connection (differents installations/colours)
	Building stopcock
	General meter
	Stopcock
	Retention valve
	Booster pump
	Door valve
	Tank
	Cold water tap
	Hot water tap
	Water mixer
	Flow direction (differents installations/colours)
	Heat exchanger
	Cold water copper pipe
	Hot water copper pipe
	Fjärrvärme supplying pipe
	Fjärvärme return pipe

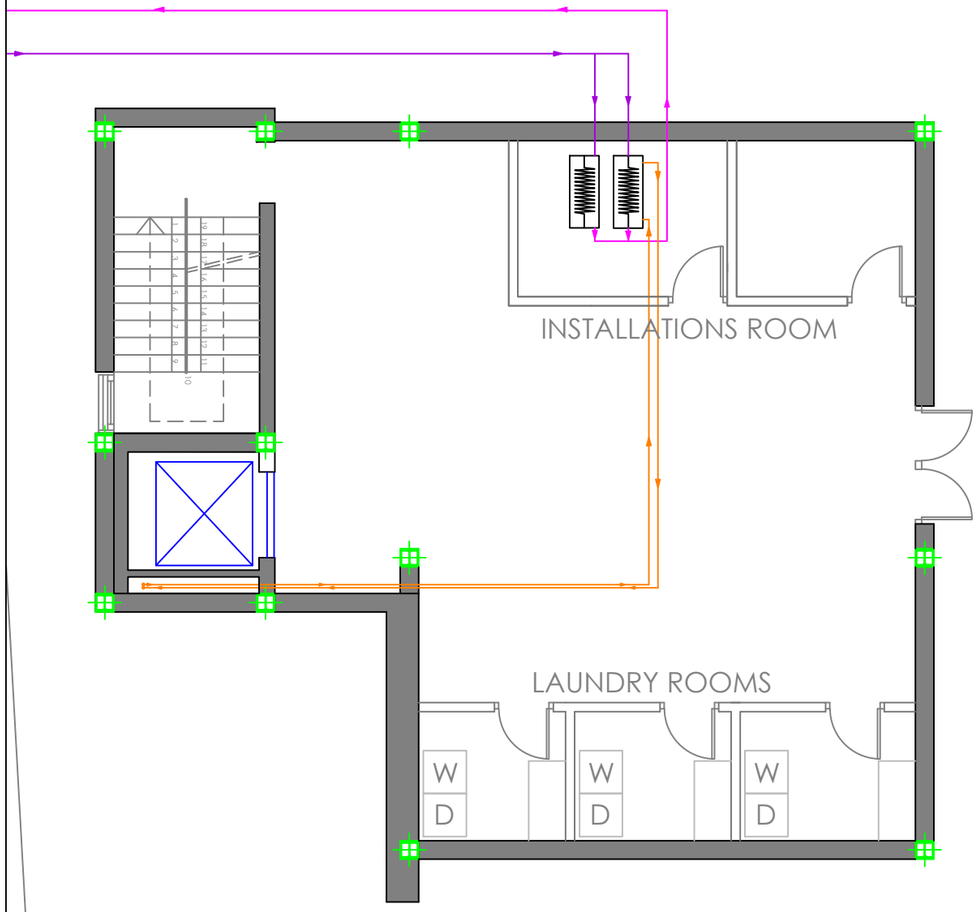


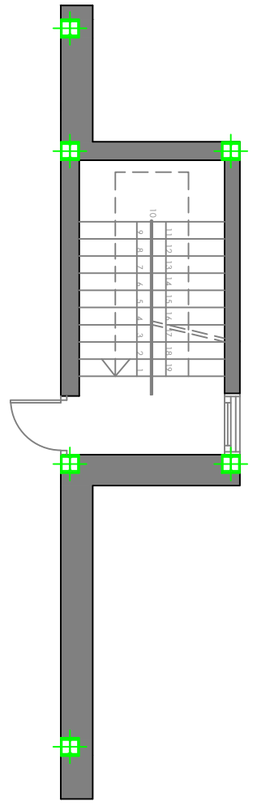
SERVICES RISER DETAIL



BATHROOM DETAIL

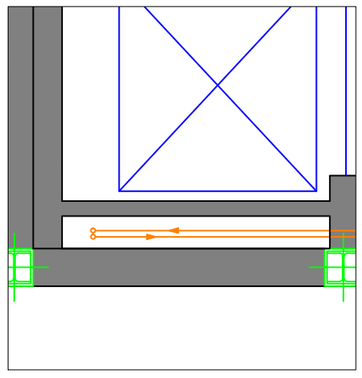
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	WATER INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	8.12



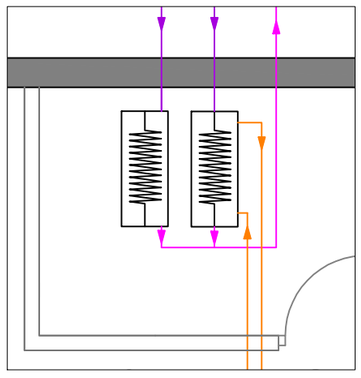


FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator



SERVICES RISER DETAIL



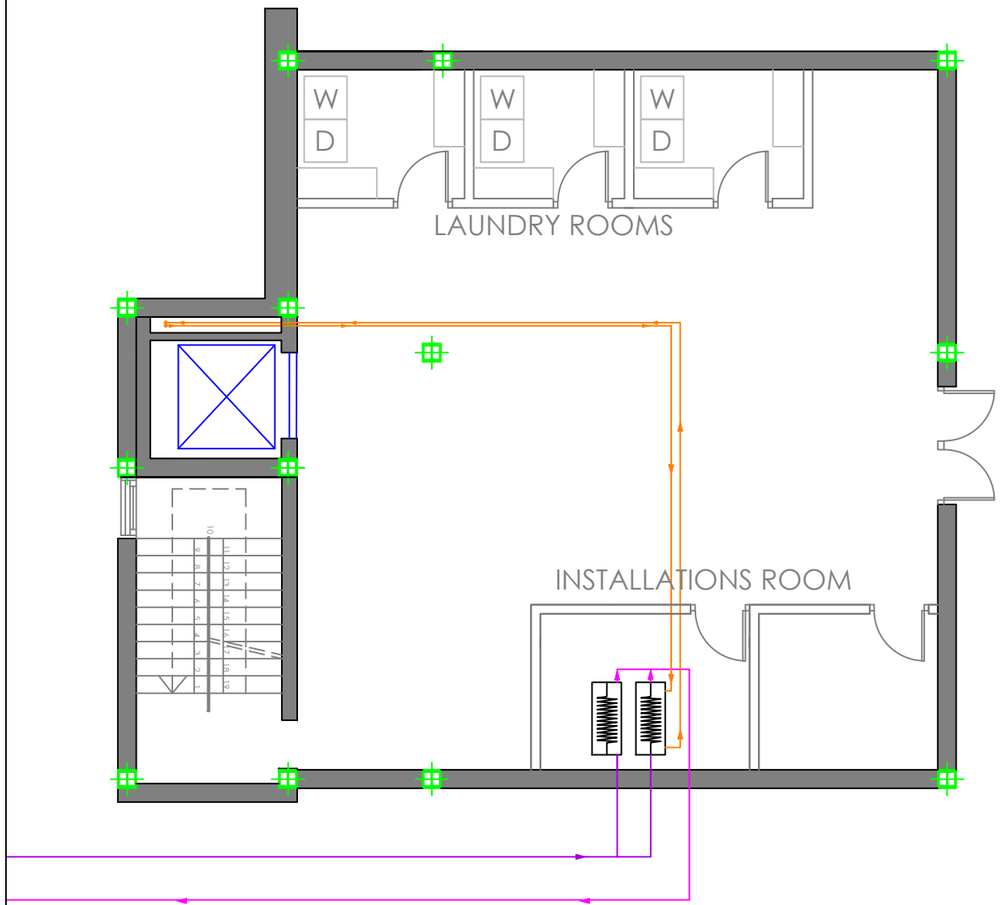
INSTALLATION ROOM DETAIL

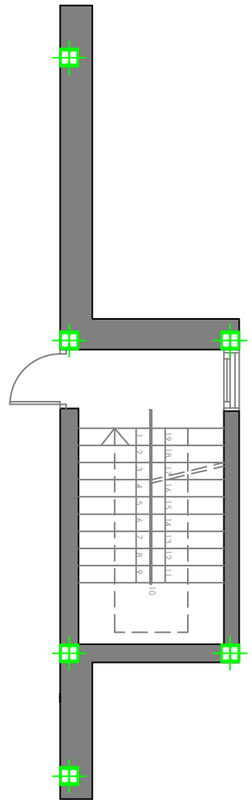
ATHLETE RESIDENCE NISSAN | 12/06/2013

HEATING INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING A | SCALE 1:100

FARAKOS RICÓS, ANDREAS
PÉREZ ESCRIBANO, EDUARDO

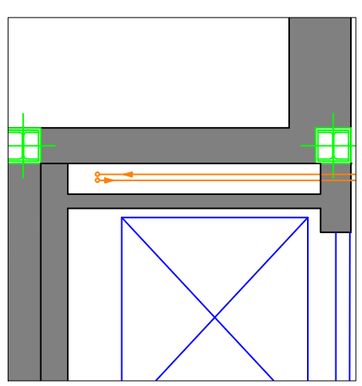
9.1



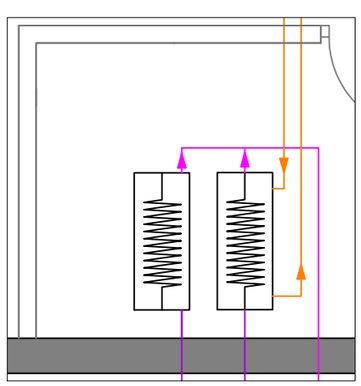


FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärrvärme return pipe
	Temperture regulator
	Radiator

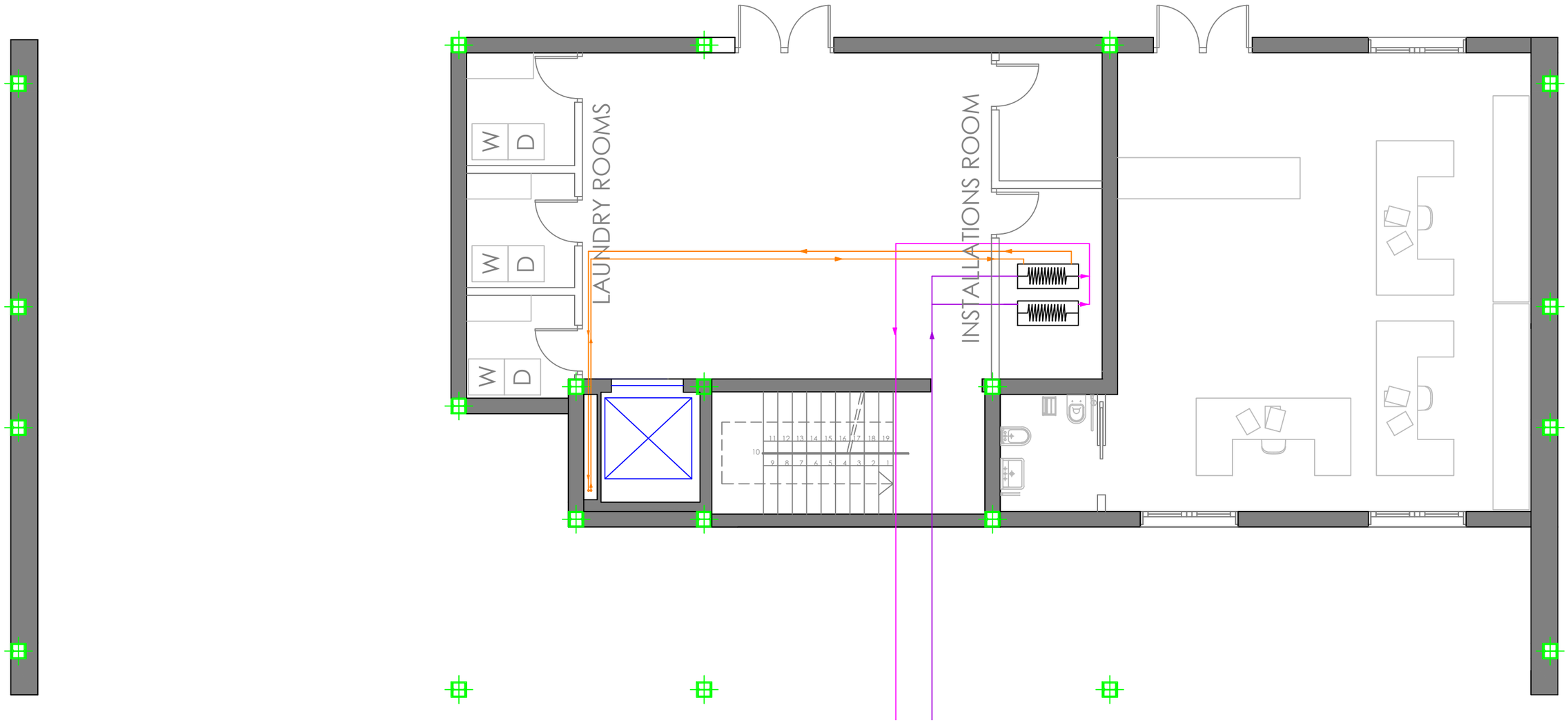


SERVICES RISER DETAIL



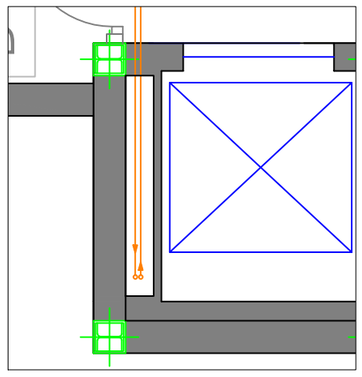
INSTALLATION ROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.2

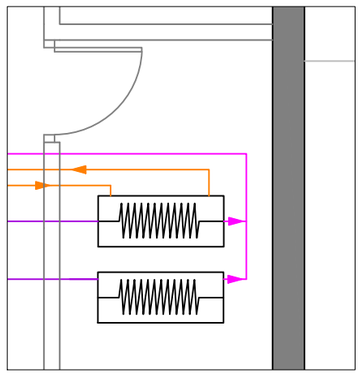


FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator

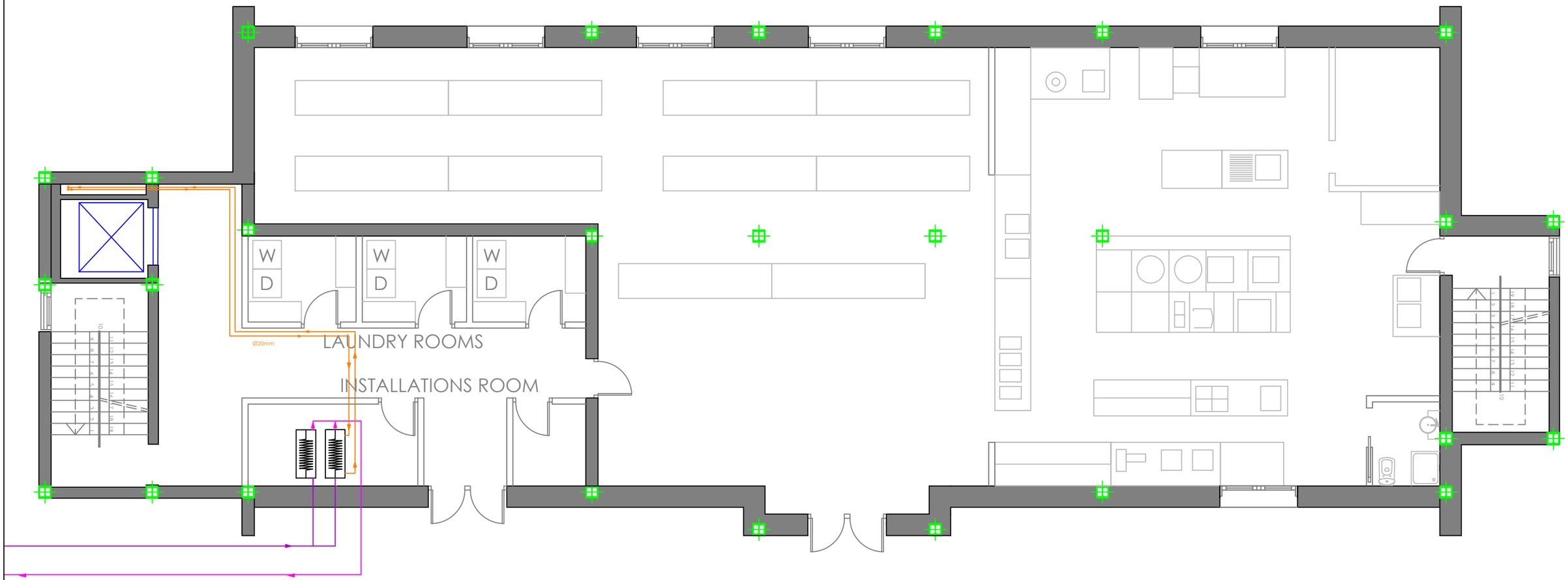


SERVICES RISER DETAIL



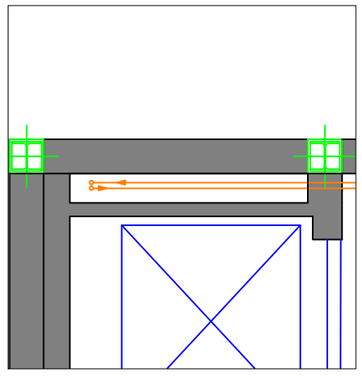
INSTALLATION ROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.3

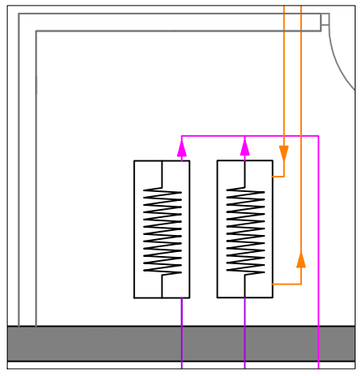


FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator

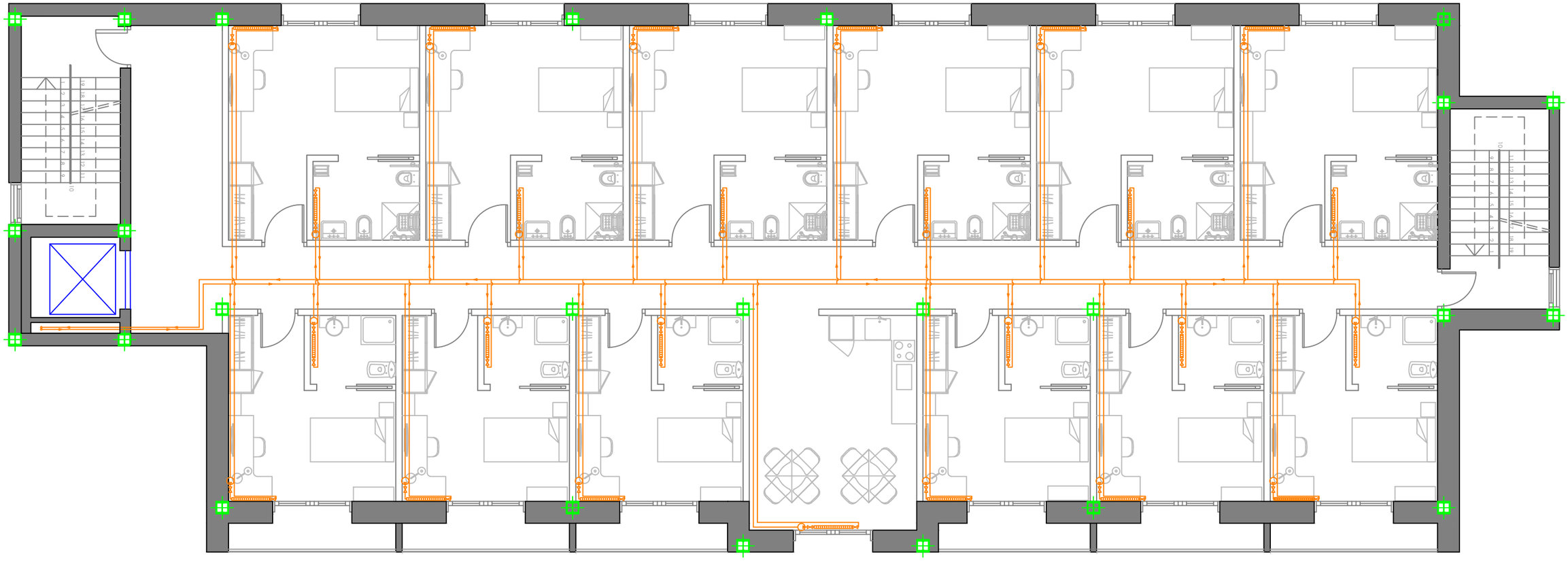


SERVICES RISER DETAIL



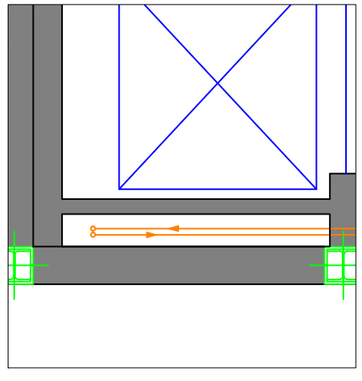
INSTALLATION ROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.4

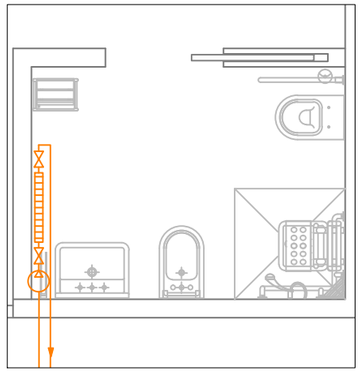


FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator

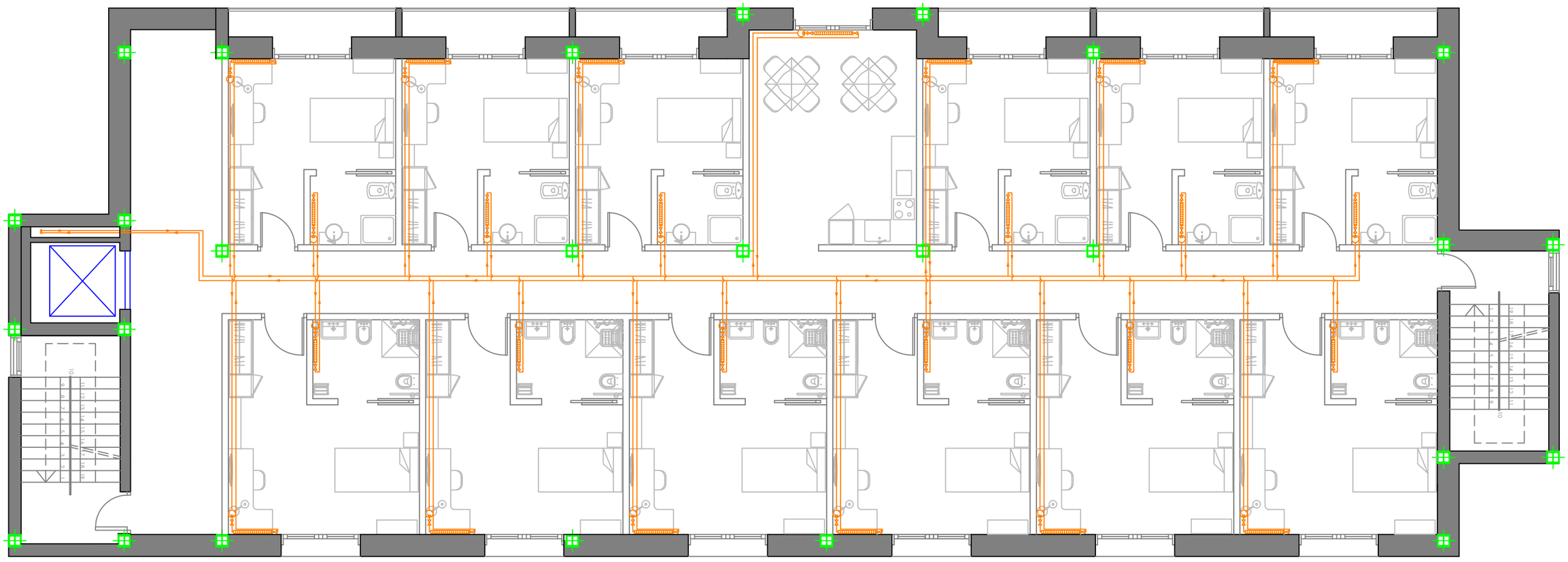


SERVICES RISER DETAIL



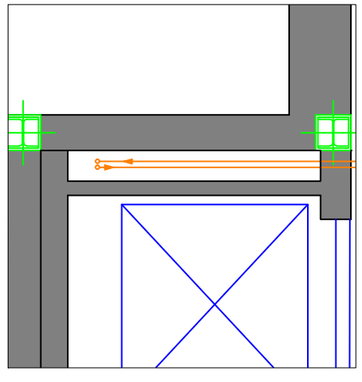
BATHROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.5

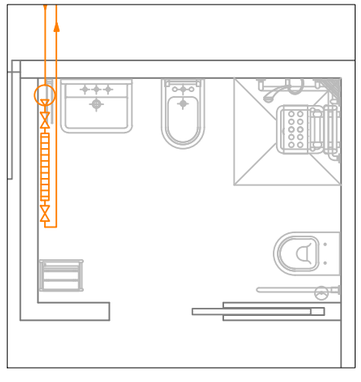


FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator



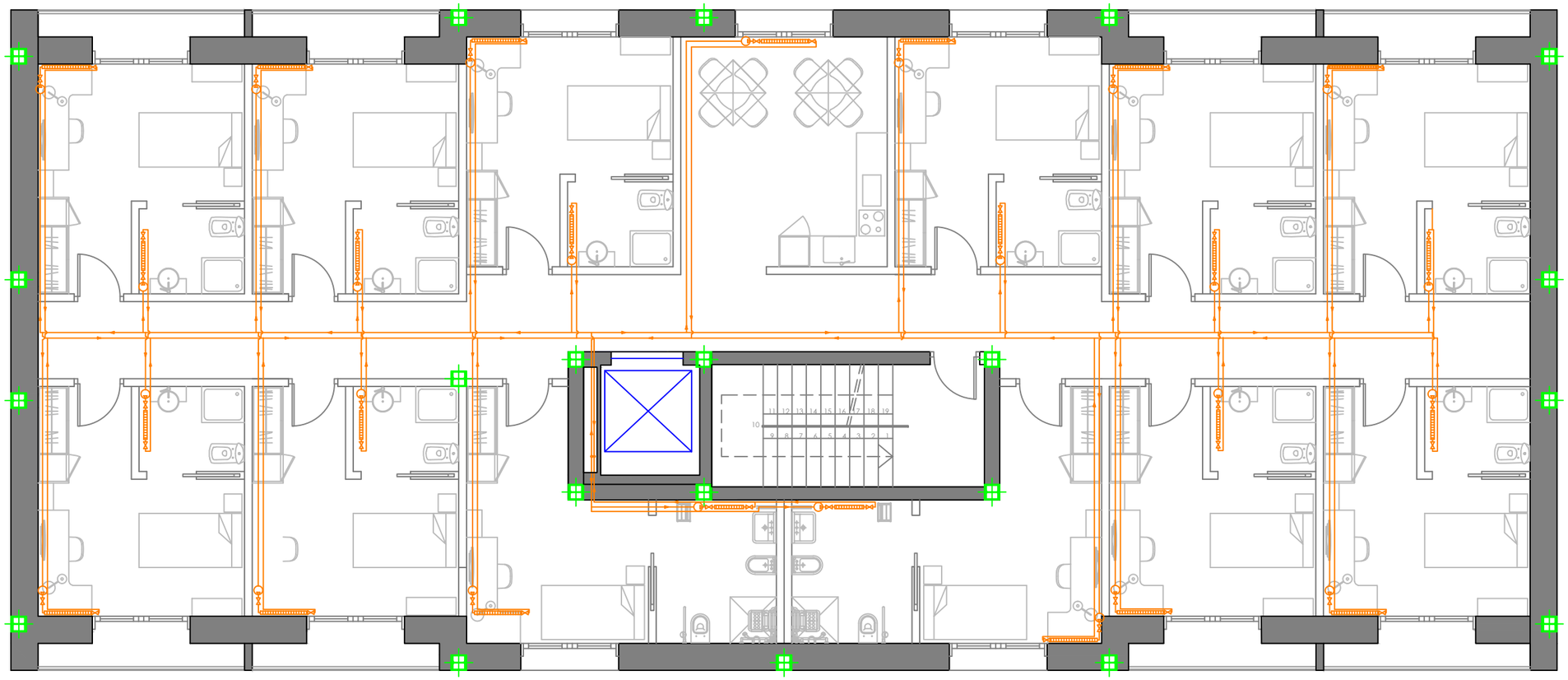
SERVICES RISER DETAIL



BATHROOM DETAIL

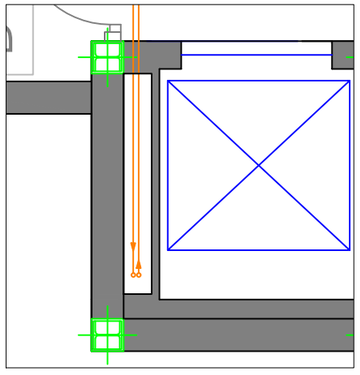
HÖGSKOLAN HALMSTAD

	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.6

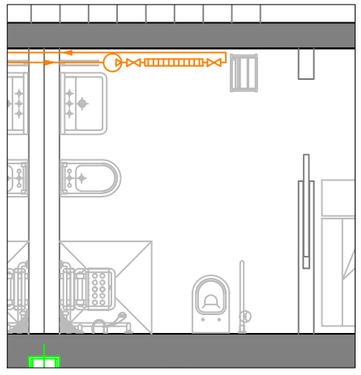


FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator

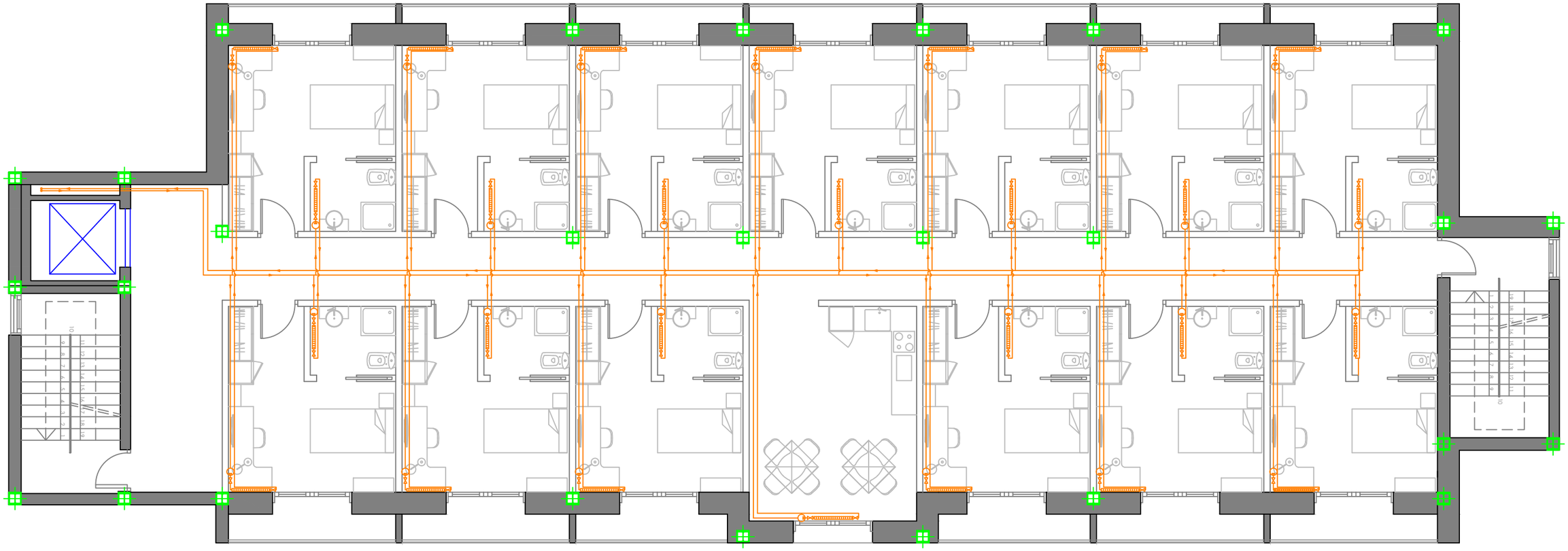


SERVICES RISER DETAIL



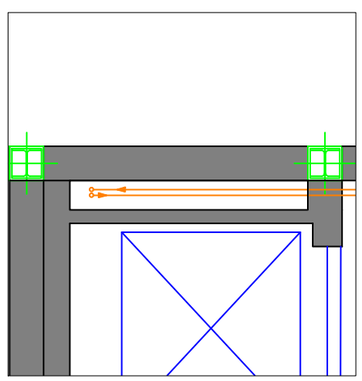
BATHROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.7

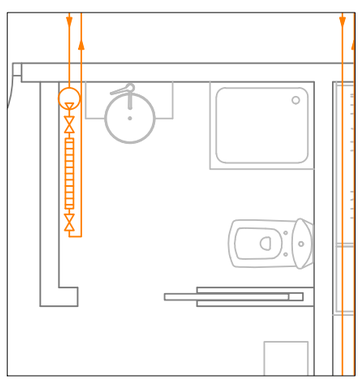


FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator



SERVICES RISER DETAIL

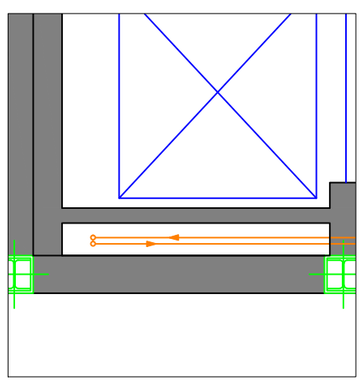


BATHROOM DETAIL

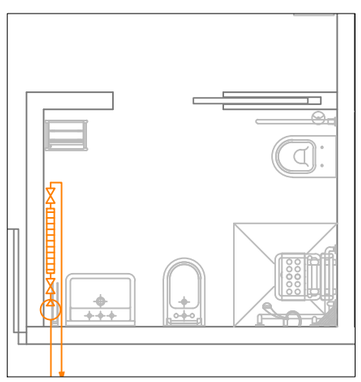
	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.8

FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator



SERVICES RISER DETAIL

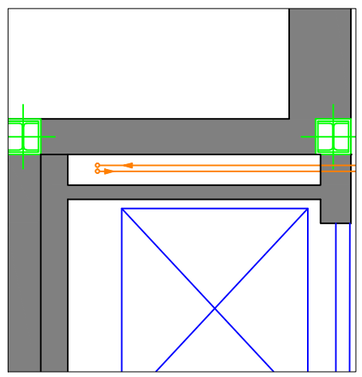


BATHROOM DETAIL

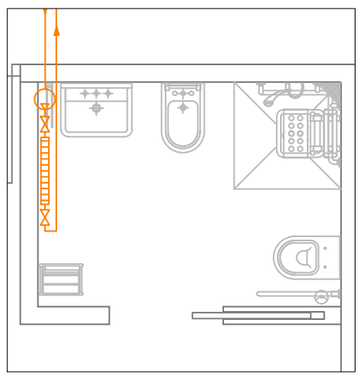
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.9

FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator

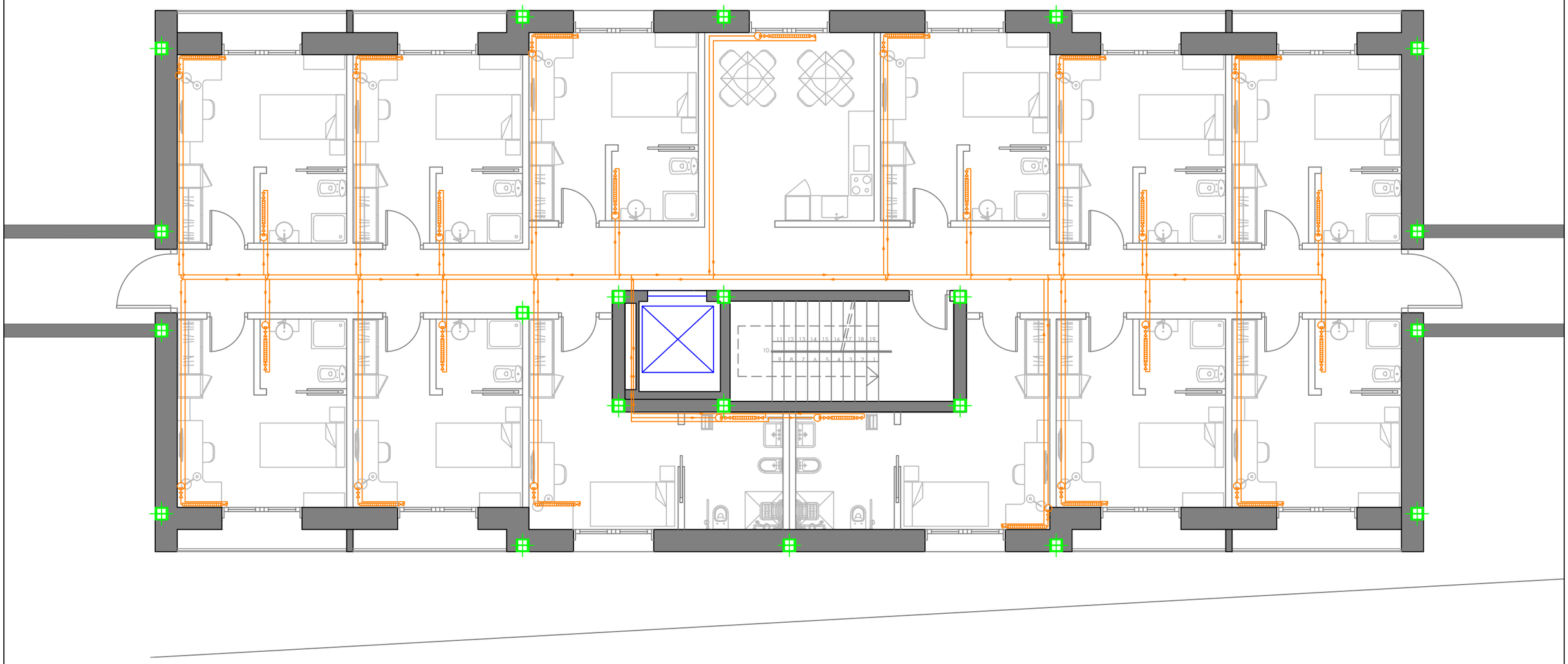


SERVICES RISER DETAIL



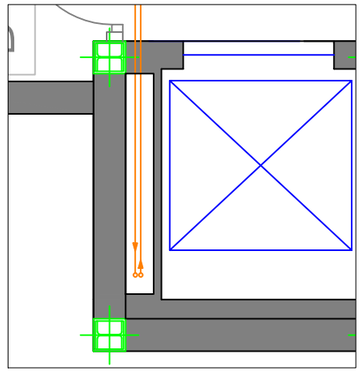
BATHROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING B	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.10

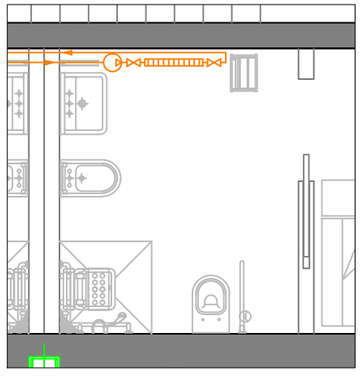


FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator



SERVICES RISER DETAIL

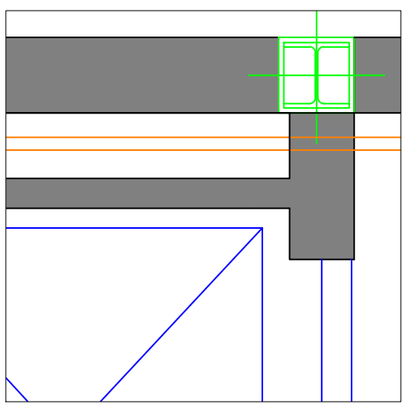


BATHROOM DETAIL

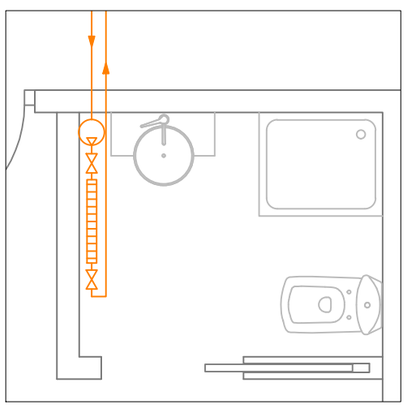
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.11

FJÄRRVÄRME AND HEATING INSTALLATION LEGEND

	Supply connection (differents installations/colours)
	Stopcock (differents installations/colours)
	Flow direction (differents installations/colours)
	Heat exchanger
	Fjärrvärme supplying pipe
	Fjärvärme return pipe
	Temperture regulator
	Radiator

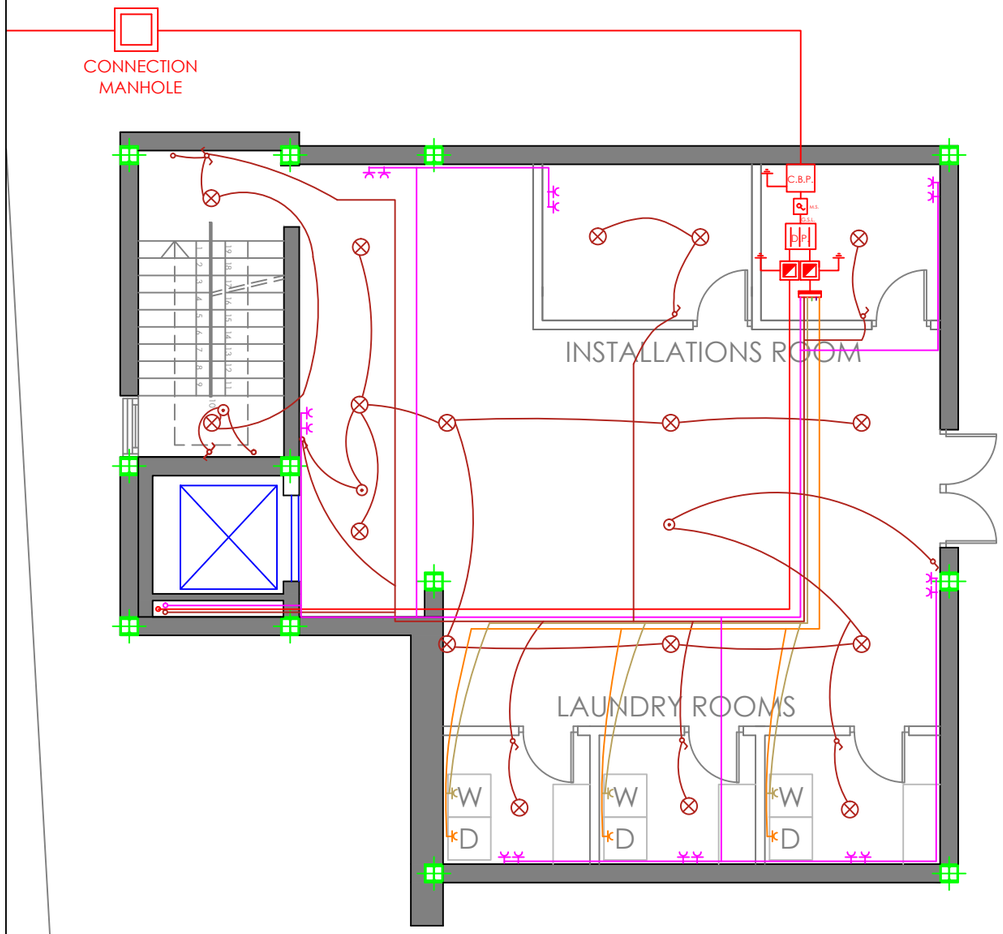


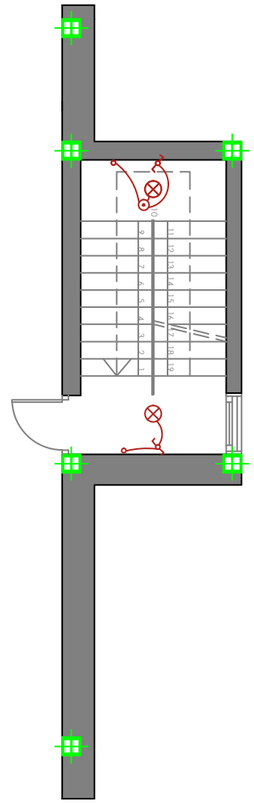
SERVICES RISER DETAIL



BATHROOM DETAIL

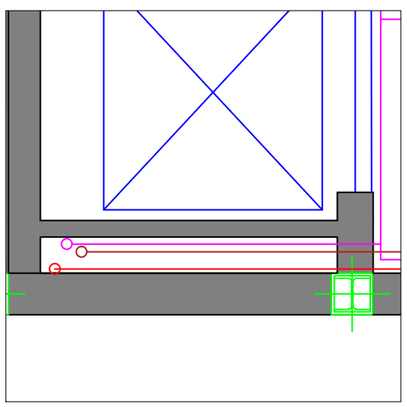
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEATING INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	9.12



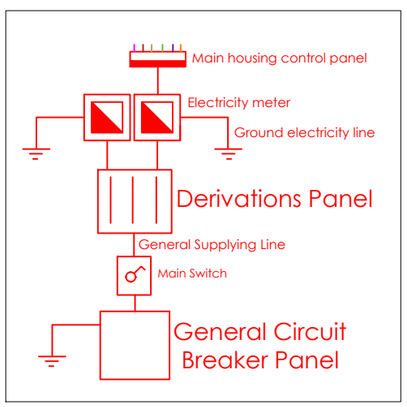


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit	TF	Telephone outlet
	Washing machine/dishwasher	EXT	Extractor hood with switch
	Light point	TV	Television outlet

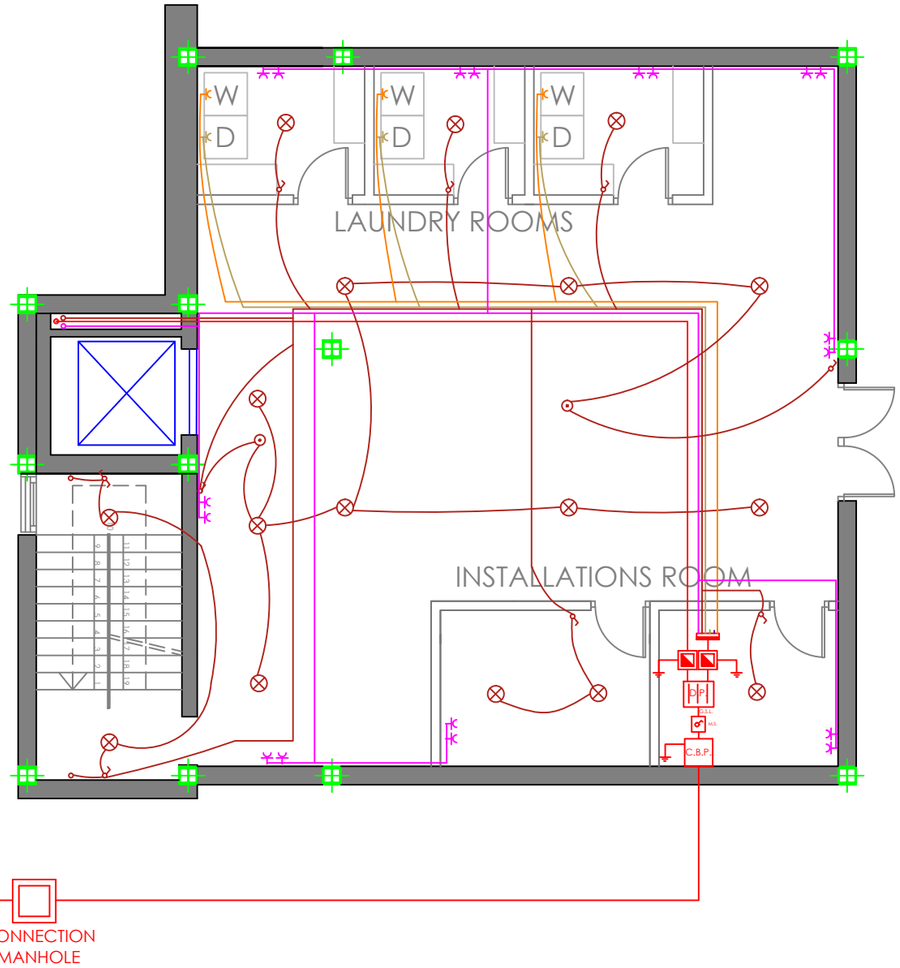


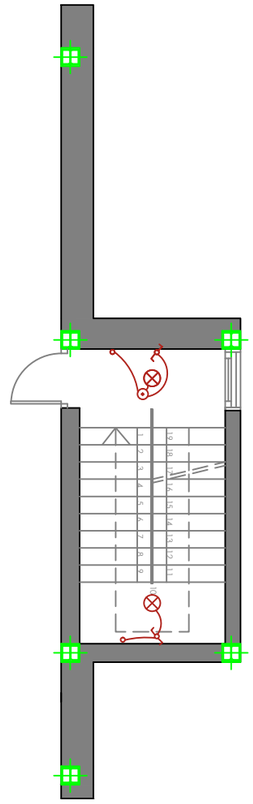
SERVICES RISER DETAIL



INSTALLATION ROOM DETAIL

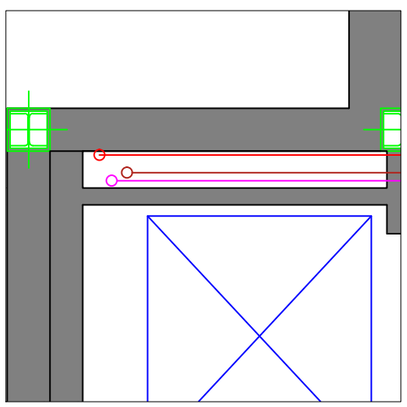
	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.1



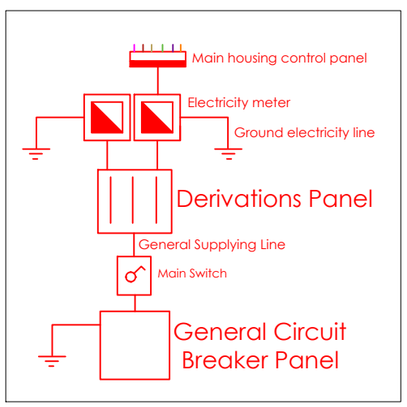


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit		Telephone outlet
	Washing machine/dishwasher		Extractor hood with switch
	Light point		Television outlet

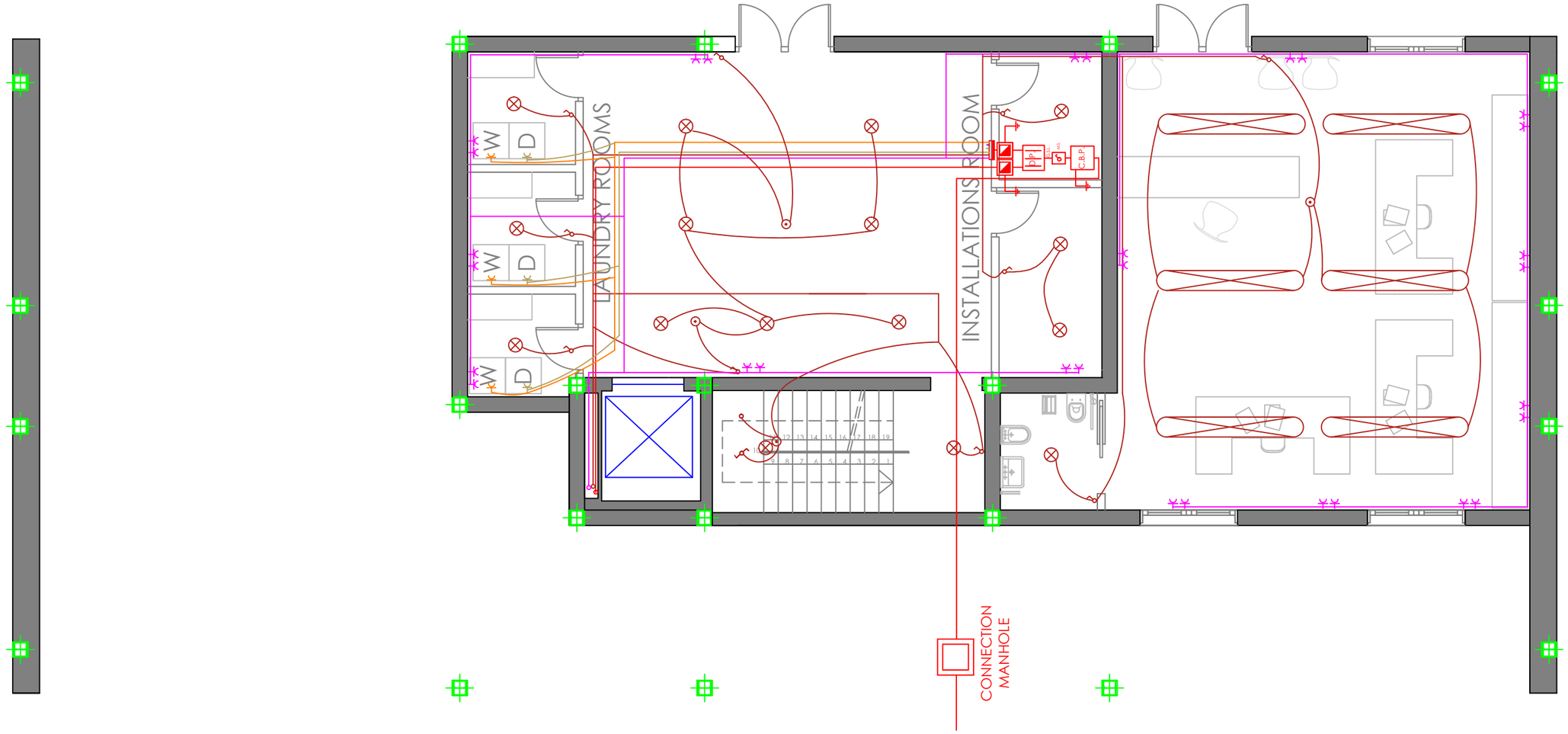


SERVICES RISER DETAIL



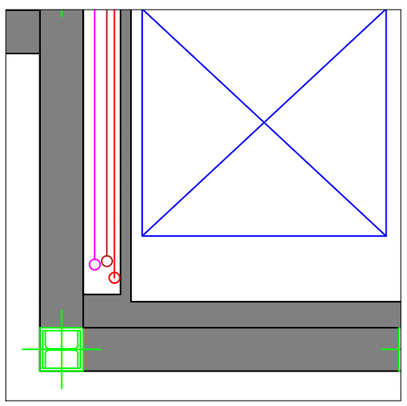
INSTALLATION ROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING B	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.2

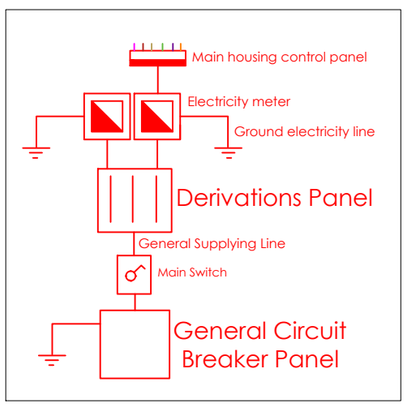


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit		Telephone outlet
	Washing machine/dishwasher		Extractor hood with switch
	Light point		Television outlet

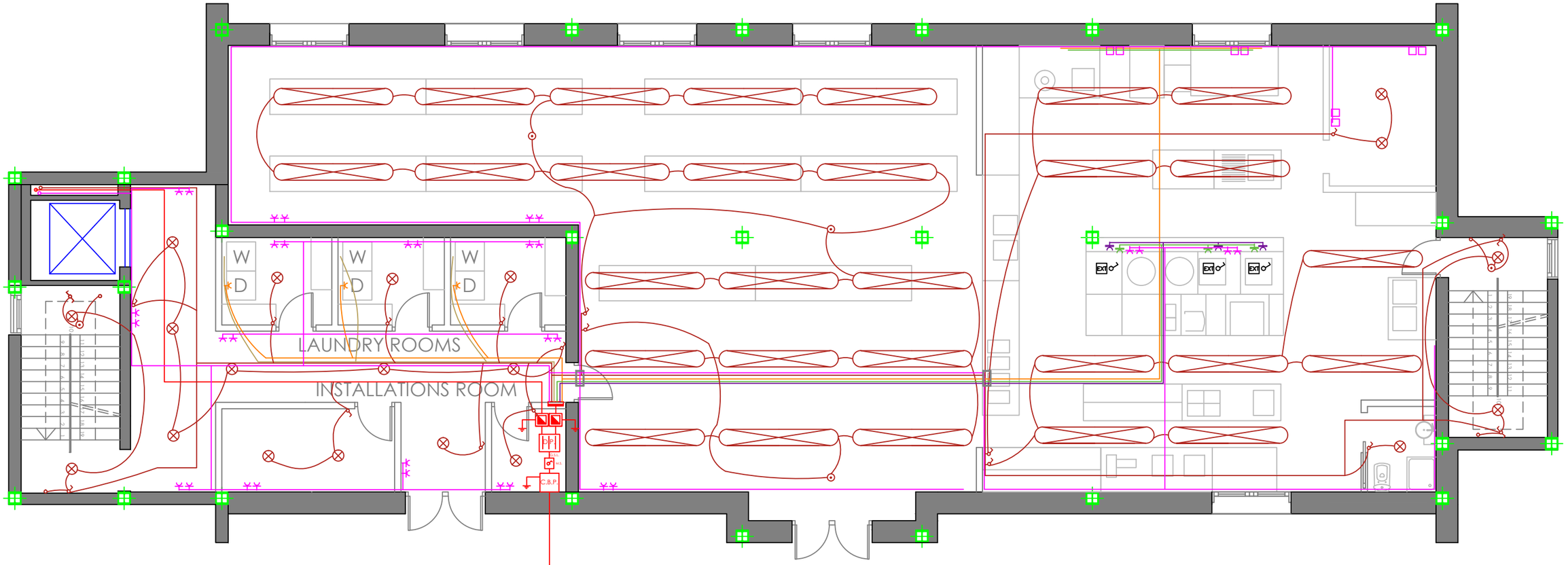


SERVICES RISER DETAIL



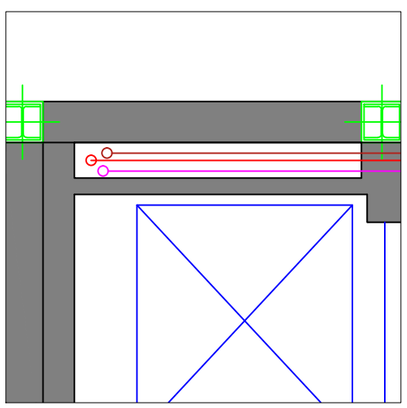
INSTALLATION ROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.3

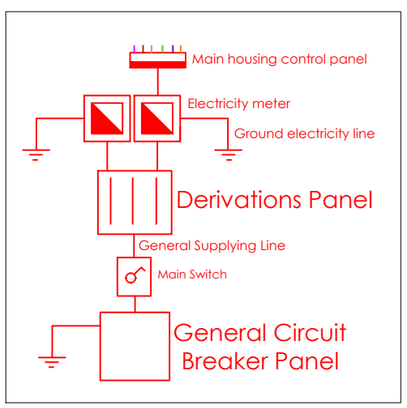


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit		Telephone outlet
	Washing machine/dishwasher		Extractor hood with switch
	Light point		Television outlet

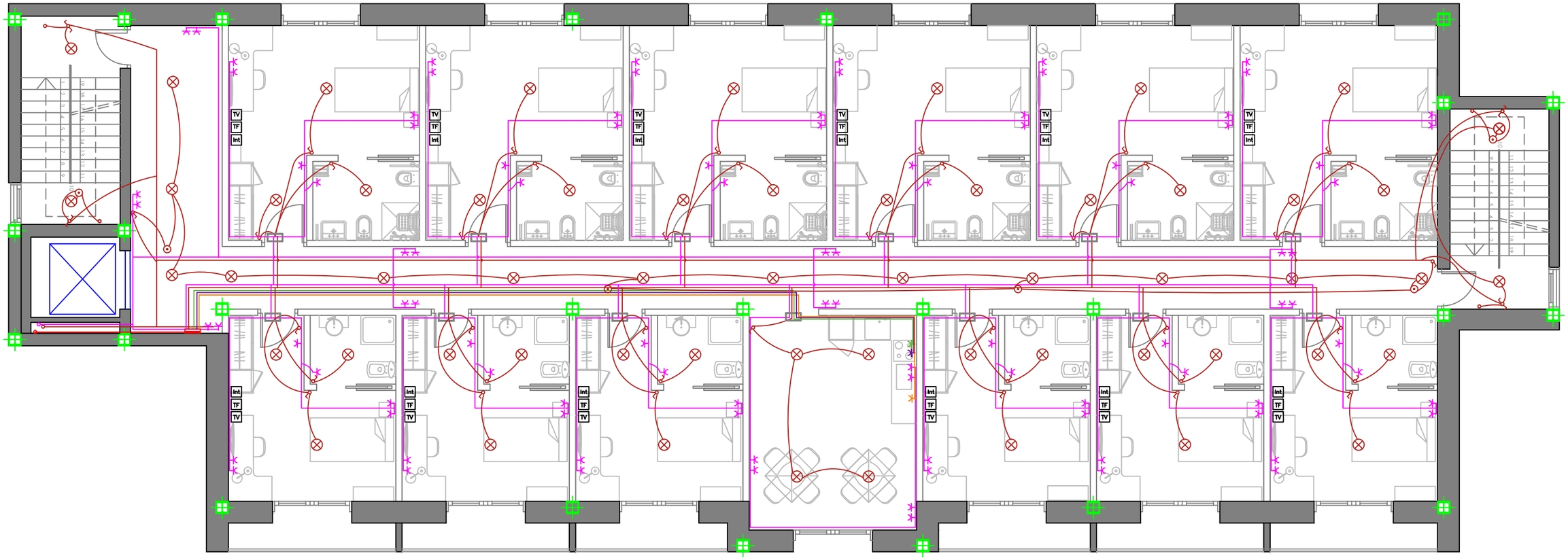


SERVICES RISER DETAIL



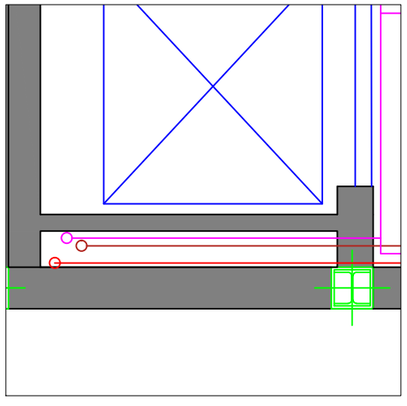
INSTALLATION ROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.4

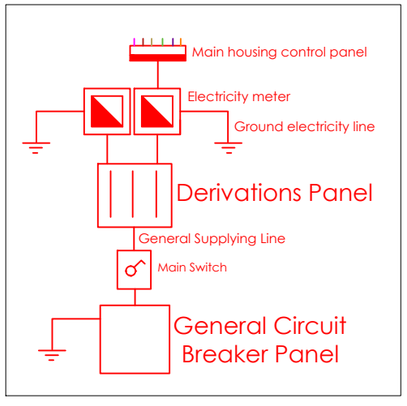


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit	TF	Telephone outlet
	Washing machine/dishwasher	EXT	Extractor hood with switch
⊗	Light point	TV	Television outlet

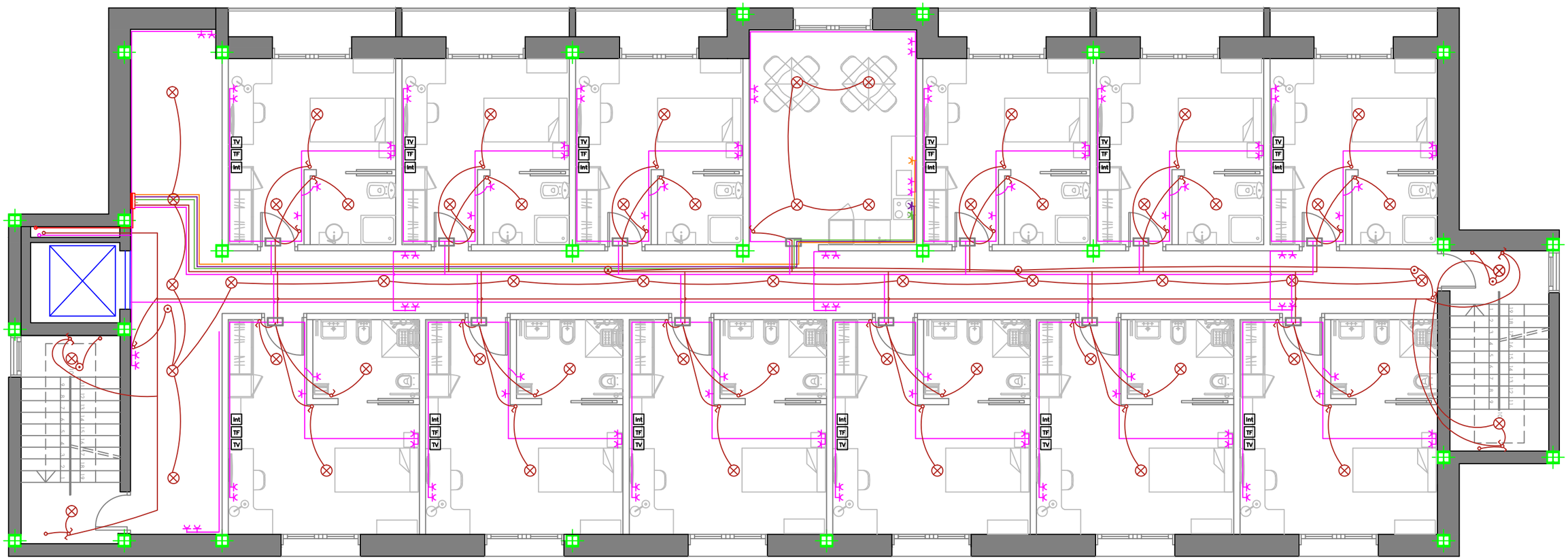


SERVICES RISER DETAIL



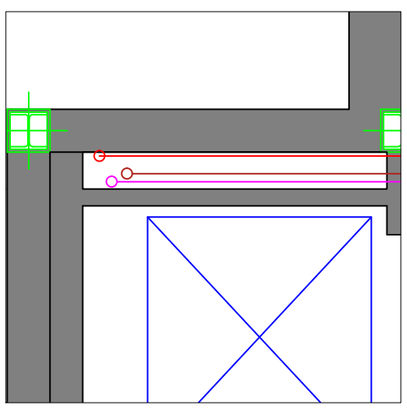
INSTALLATION ROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.5

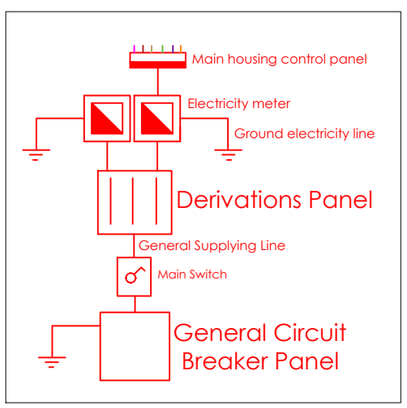


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit	TF	Telephone outlet
	Washing machine/dishwasher	EXT	Extractor hood with switch
	Light point	TV	Television outlet

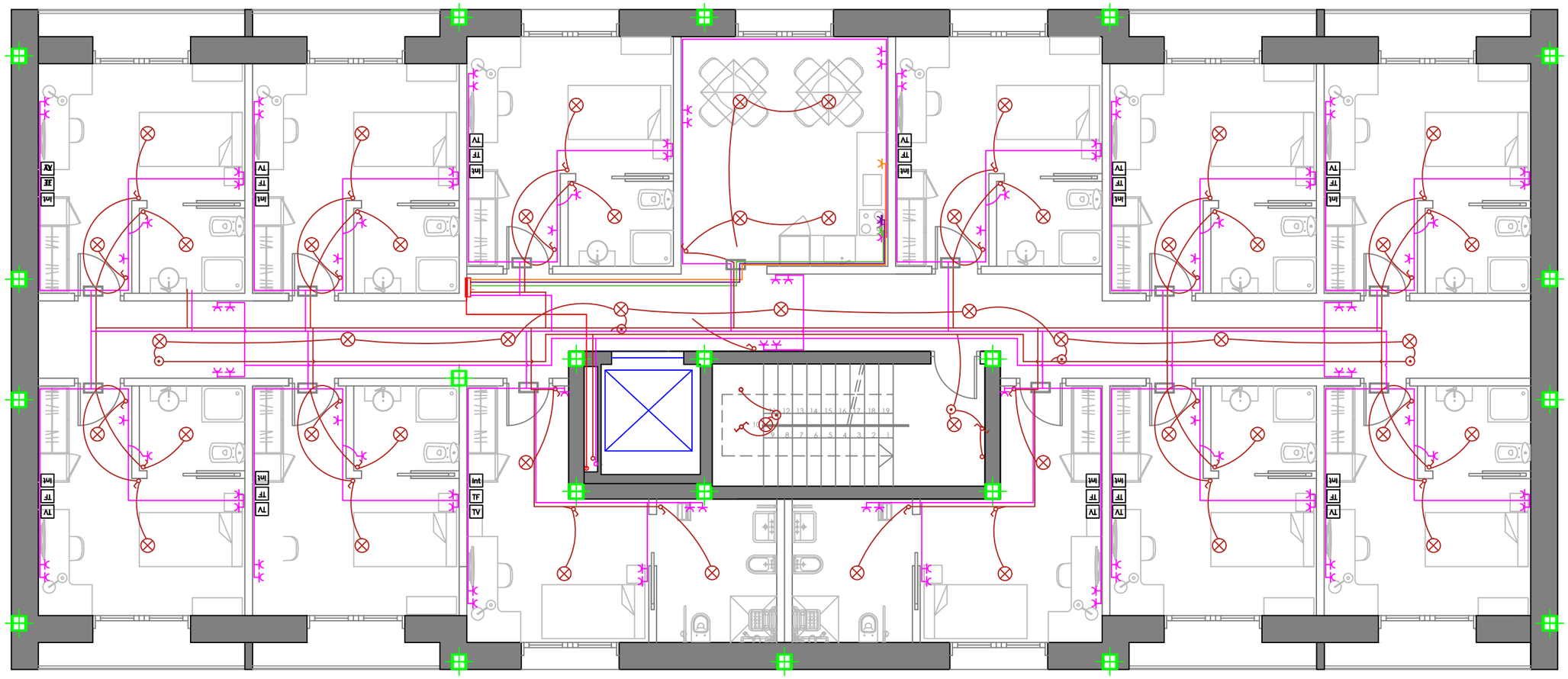


SERVICES RISER DETAIL



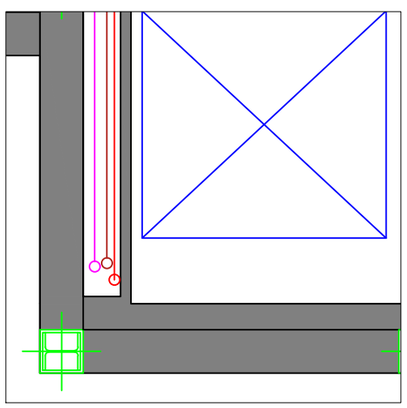
INSTALLATION ROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.6

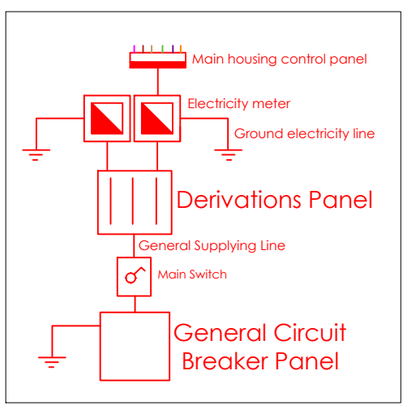


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit		Telephone outlet
	Washing machine/dishwasher		Extractor hood with switch
	Light point		Television outlet

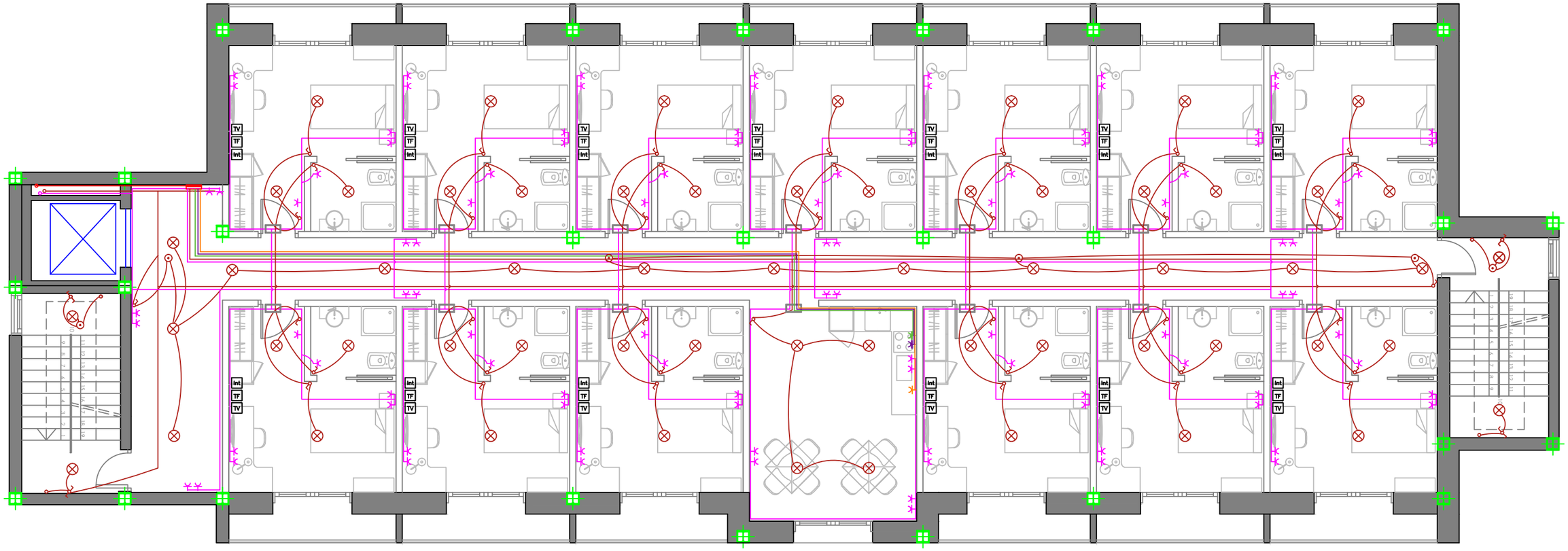


SERVICES RISER DETAIL



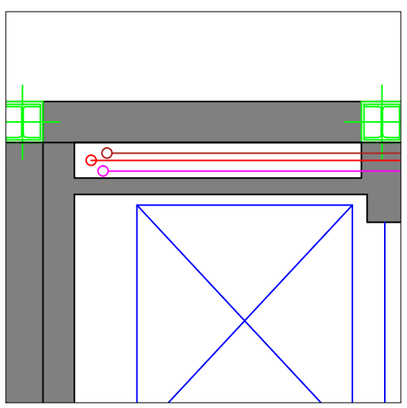
INSTALLATION ROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.7

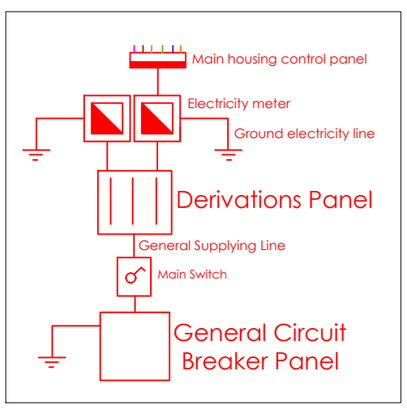


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit	TF	Telephone outlet
	Washing machine/dishwasher	EXT	Extractor hood with switch
⊗	Light point	TV	Television outlet



SERVICES RISER DETAIL

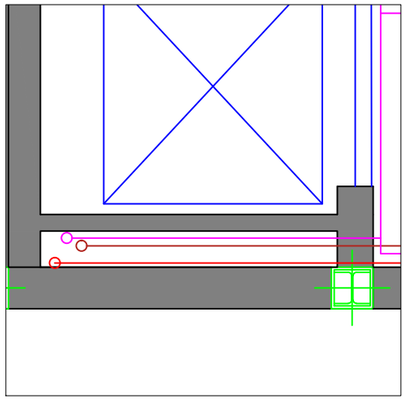


INSTALLATION ROOM DETAIL

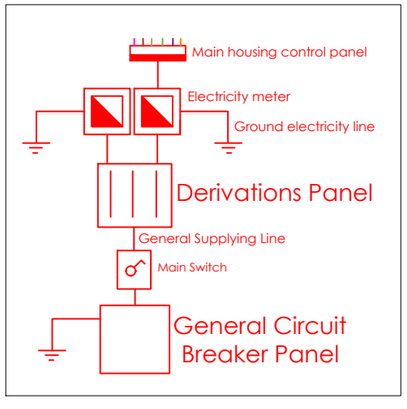
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.8

ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit		Telephone outlet
	Washing machine/dishwasher		Extractor hood with switch
	Light point		Television outlet

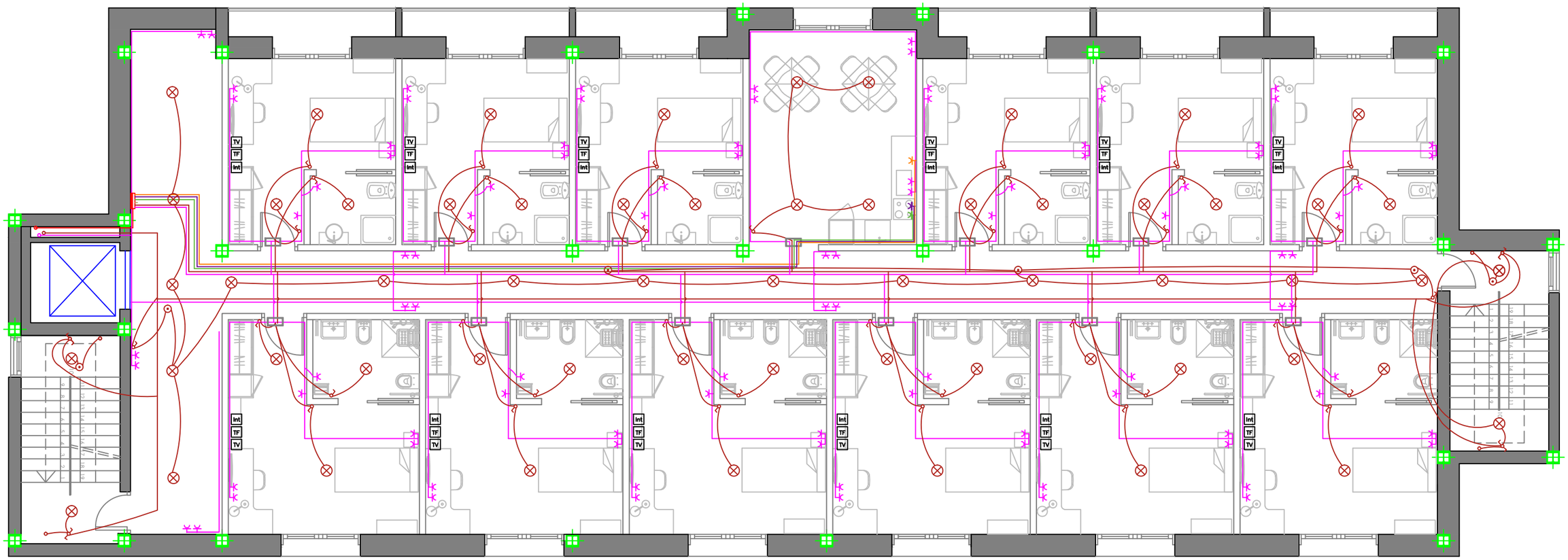


SERVICES RISER DETAIL



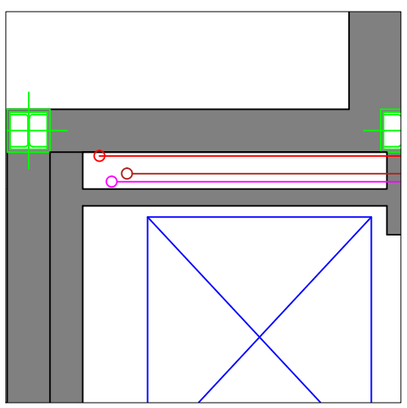
INSTALLATION ROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.9

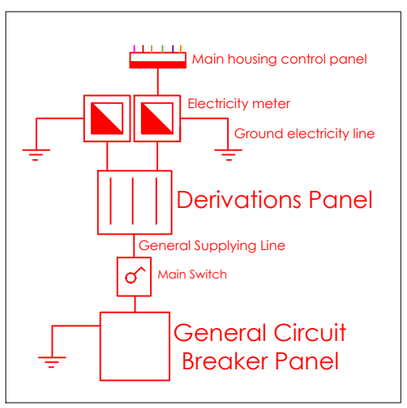


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit	TF	Telephone outlet
	Washing machine/dishwasher	EXT	Extractor hood with switch
	Light point	TV	Television outlet



SERVICES RISER DETAIL

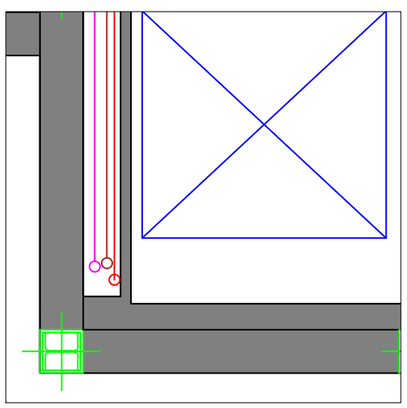


INSTALLATION ROOM DETAIL

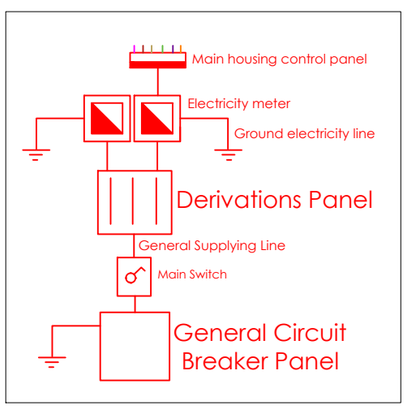
	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.10

ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit		Telephone outlet
	Washing machine/dishwasher		Extractor hood with switch
	Light point		Television outlet

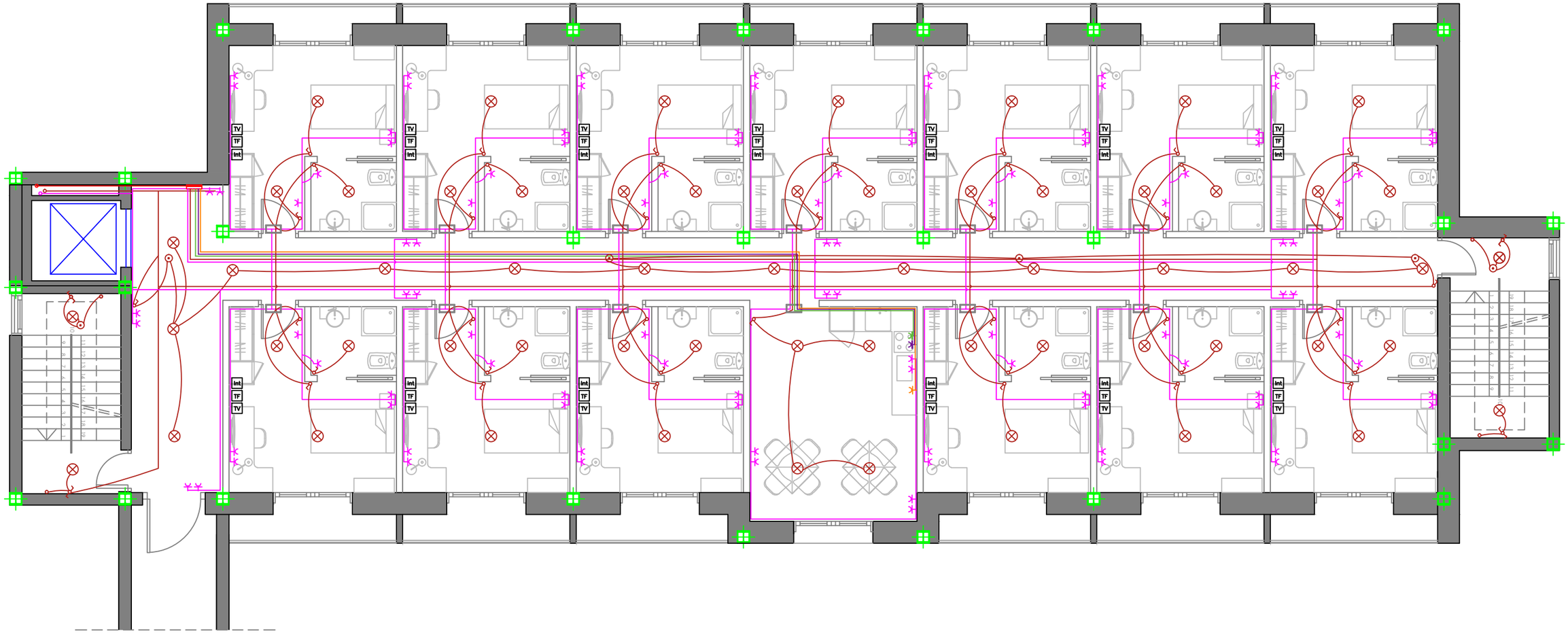


SERVICES RISER DETAIL



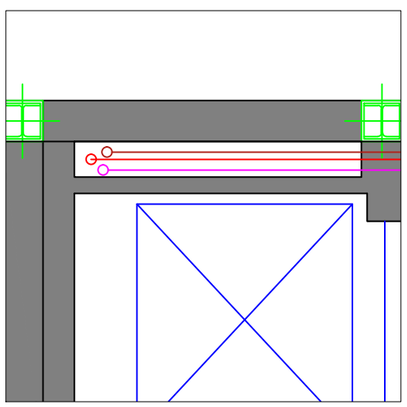
INSTALLATION ROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.11

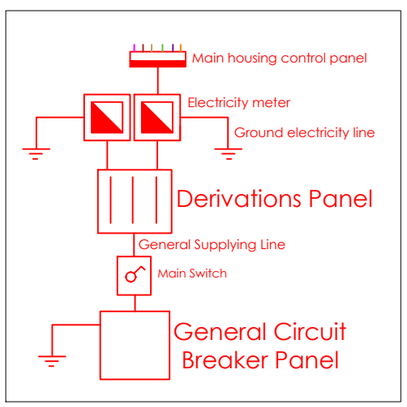


ELECTRICITY LEGEND

	Main housing control panel		Light point
	Distribution box		Switch
	Electricity meter		Waterproof switch
	Ground electricity line		Commuted switch
	General use outlet circuit		Movement detector
	Lighting outlet circuit		Outlet 16A
	Dryer machine outlet circuit		Waterproof outlet
	Kitchen outlet circuit		Kitchen outlet 25A
	Oven outlet circuit		Telephone outlet
	Washing machine/dishwasher		Extractor hood with switch
	Light point		Television outlet

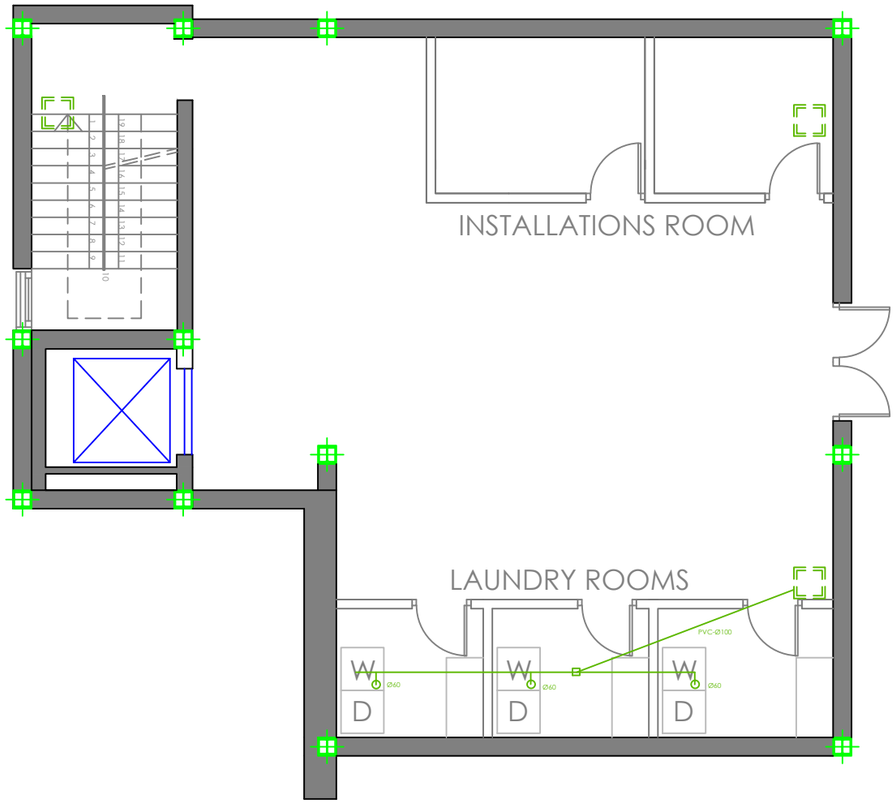


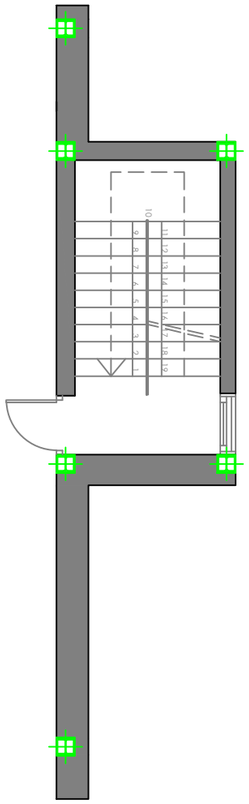
SERVICES RISER DETAIL

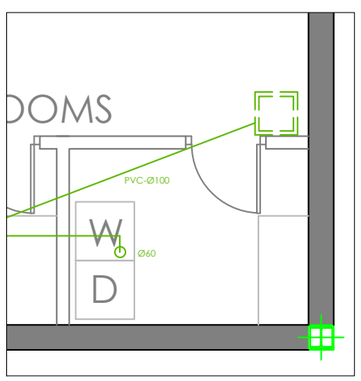


INSTALLATION ROOM DETAIL

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	ELECTRICITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	10.12

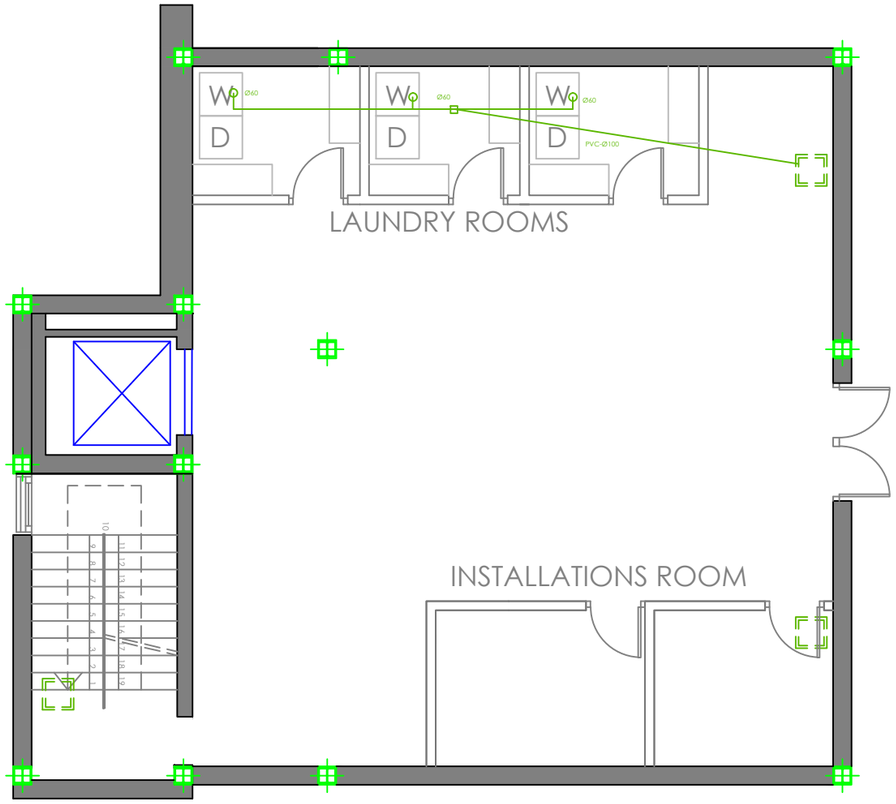


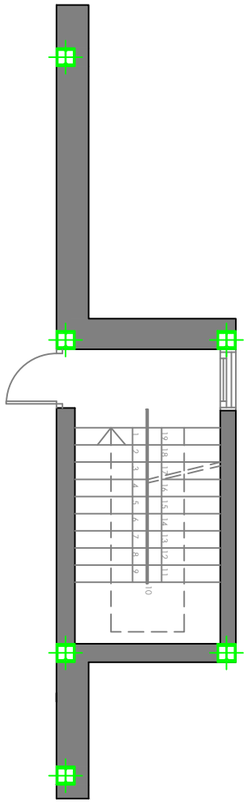


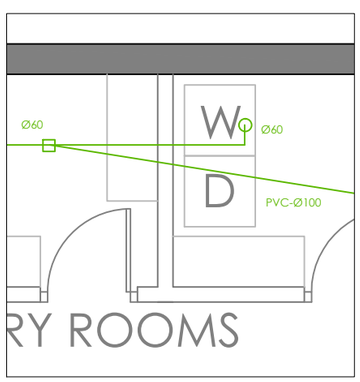


INSTALLATION ROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.1

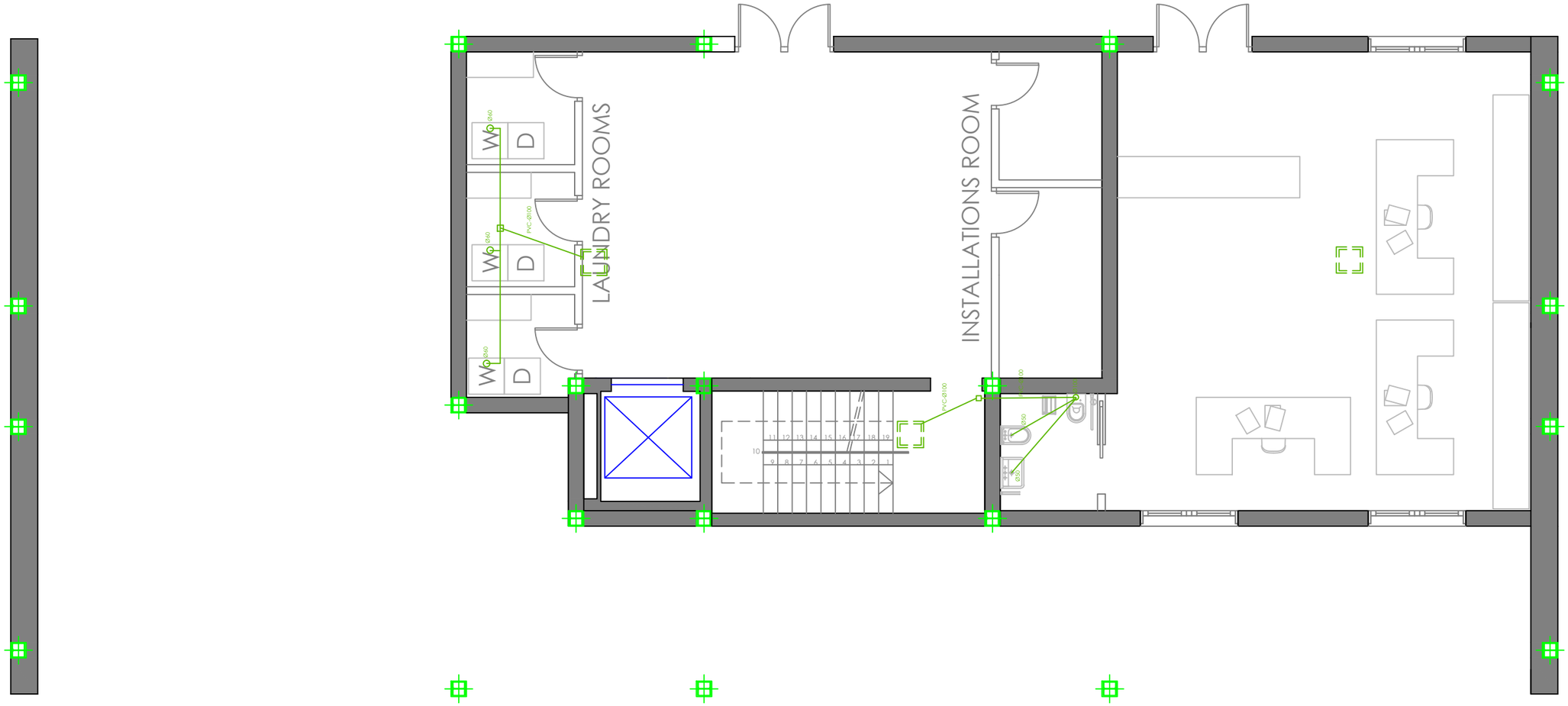


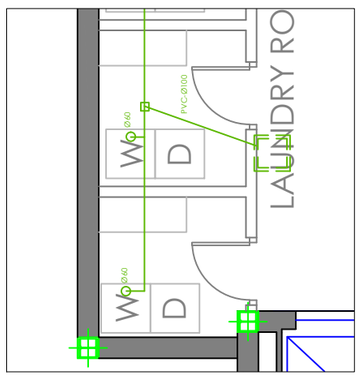




INSTALLATION ROOM DETAIL

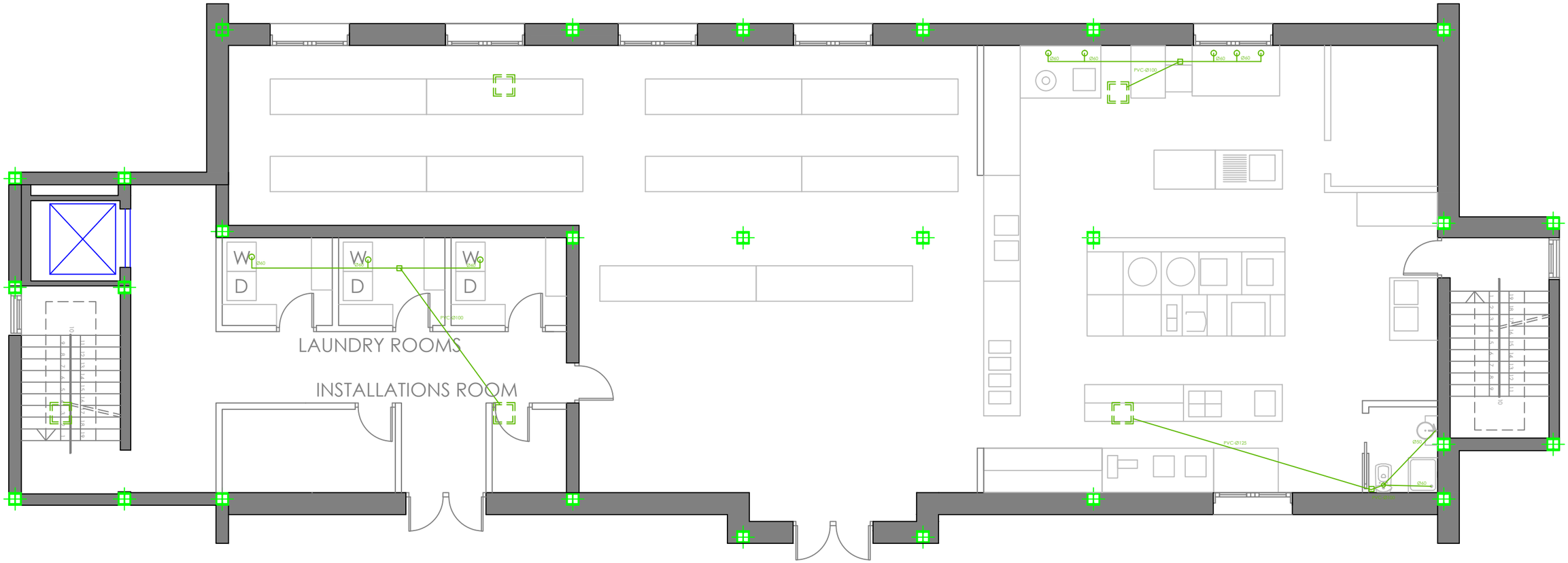
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.2

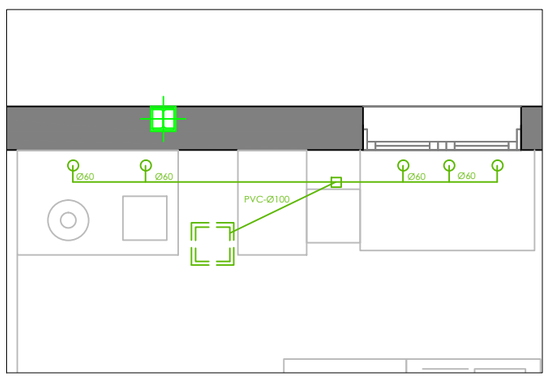




INSTALLATION ROOM DETAIL

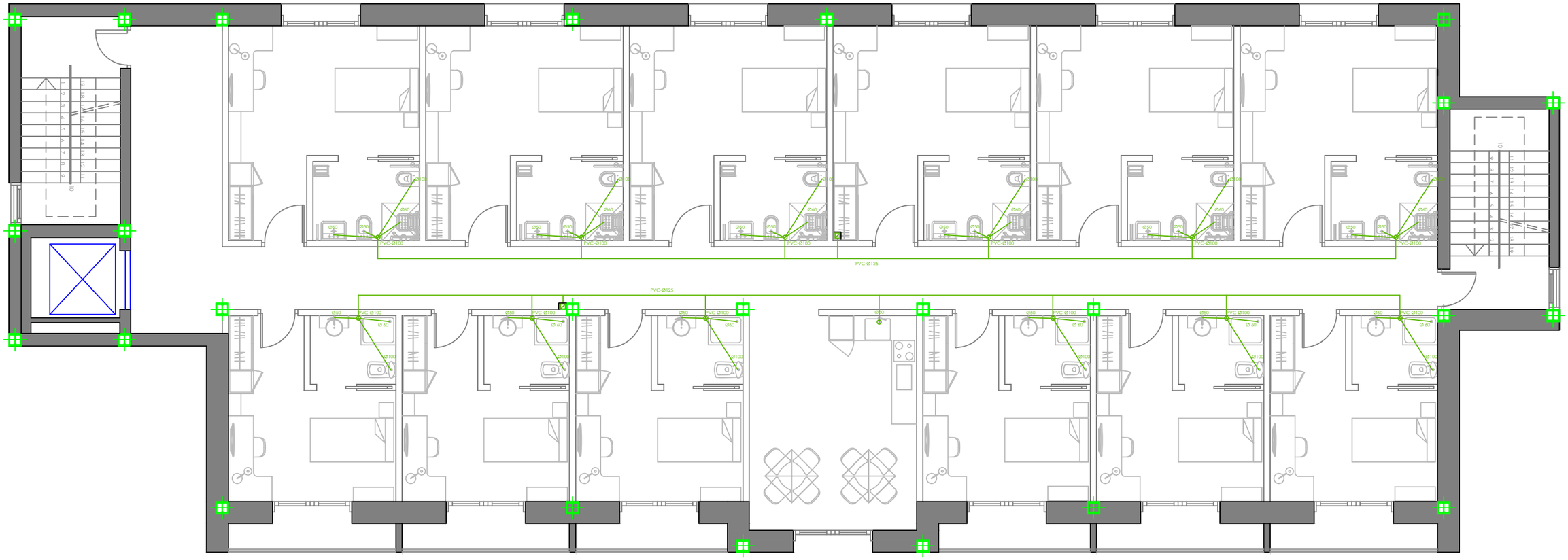
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.3

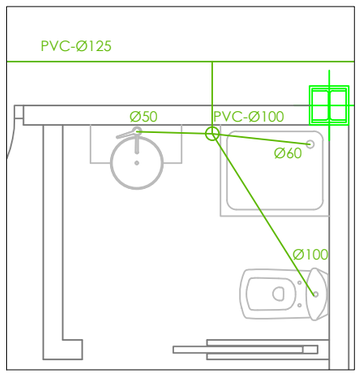




KITCHEN INSTALLATION DETAIL

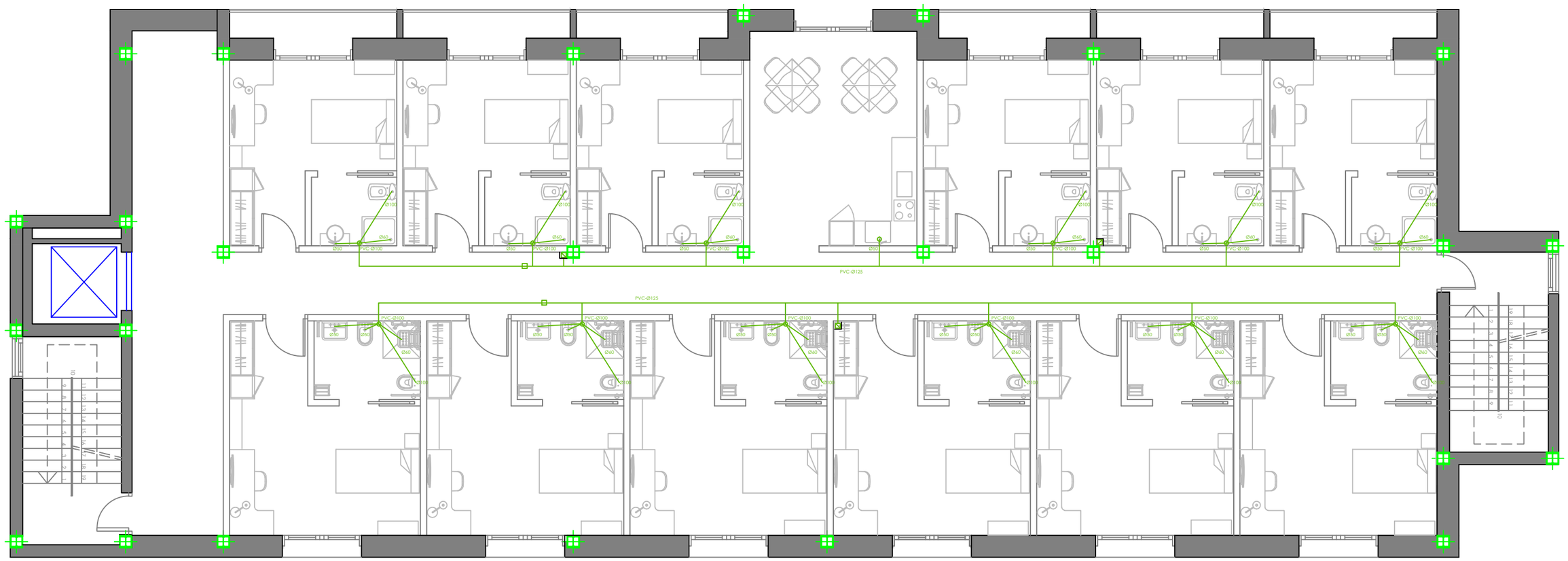
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: FIRST FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.4

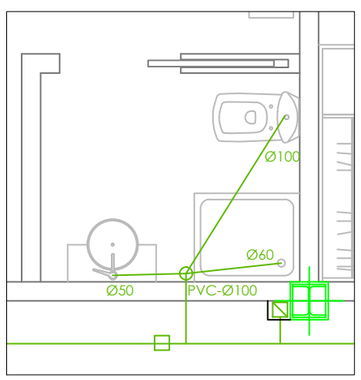




BATHROOM DETAIL

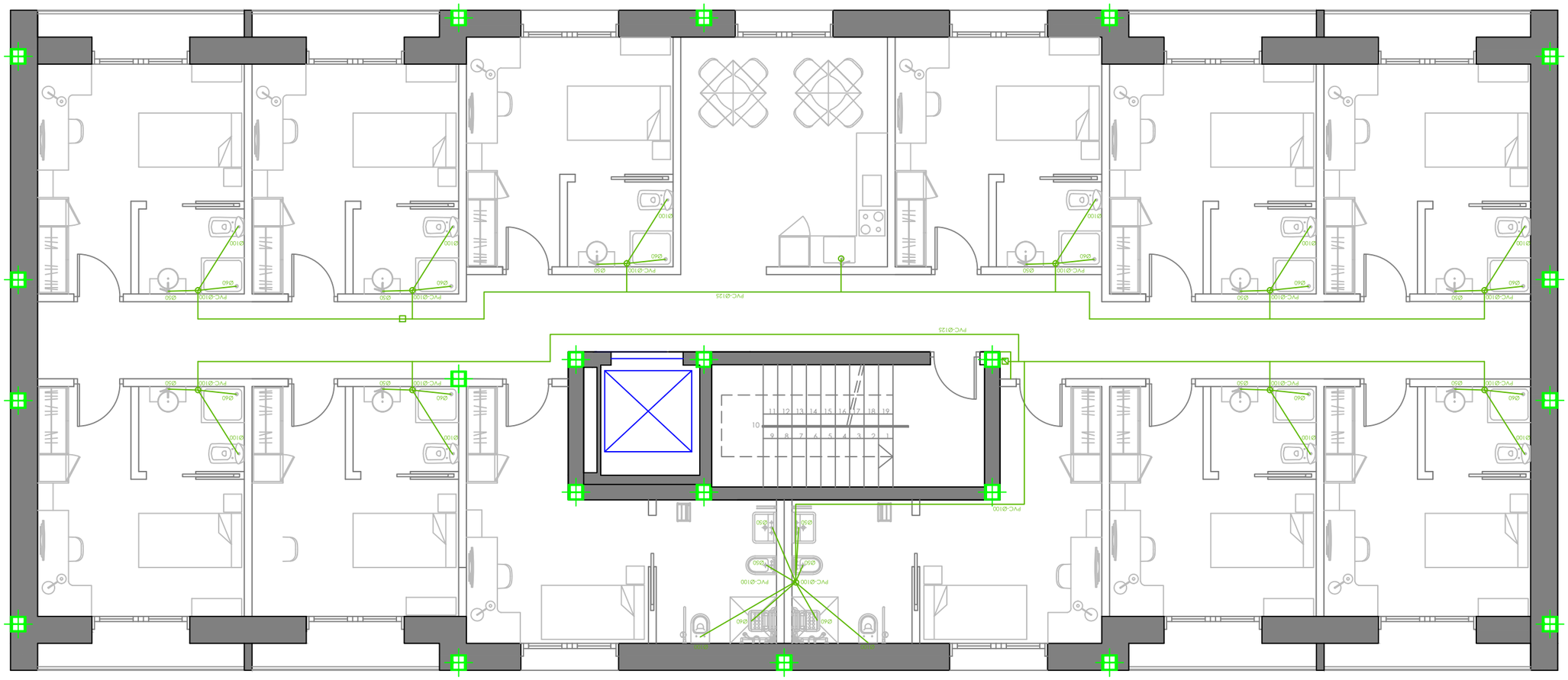
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.5

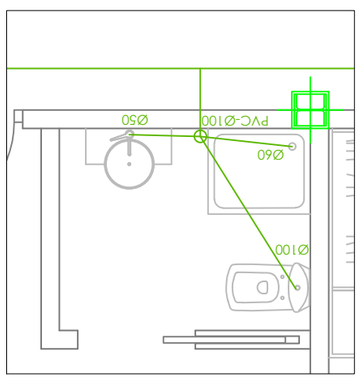




BATHROOM DETAIL

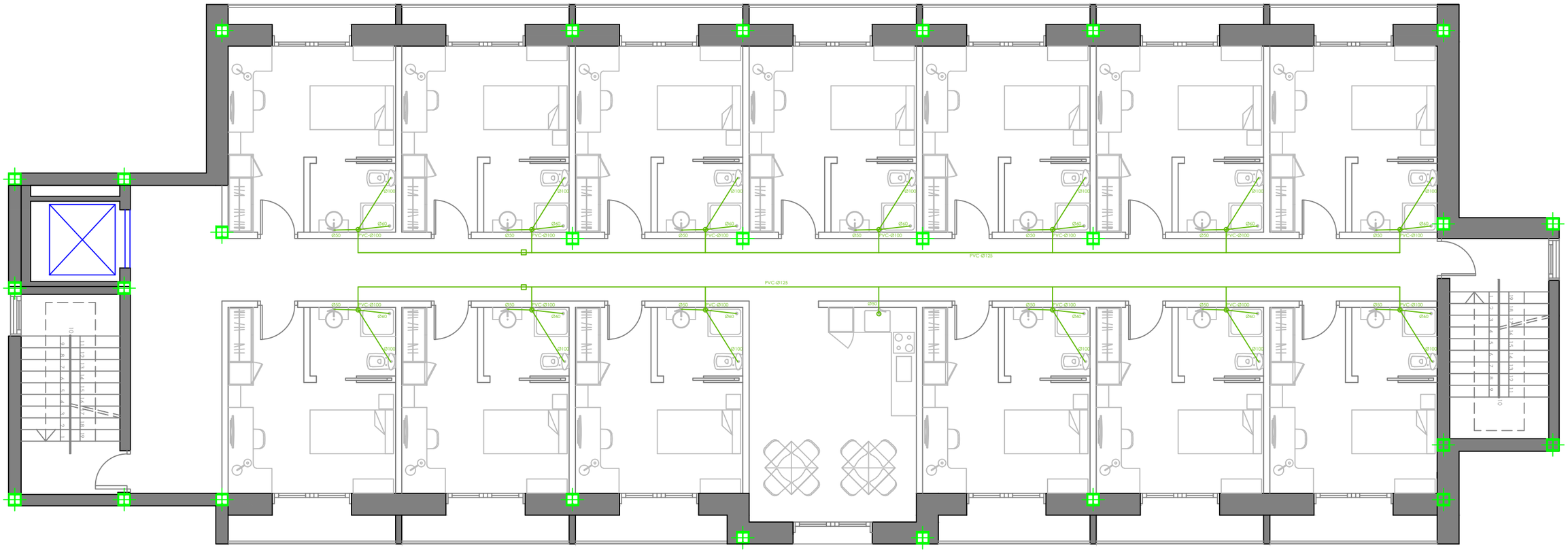
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.6

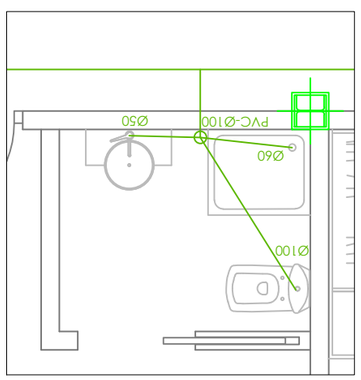




BATHROOM DETAIL

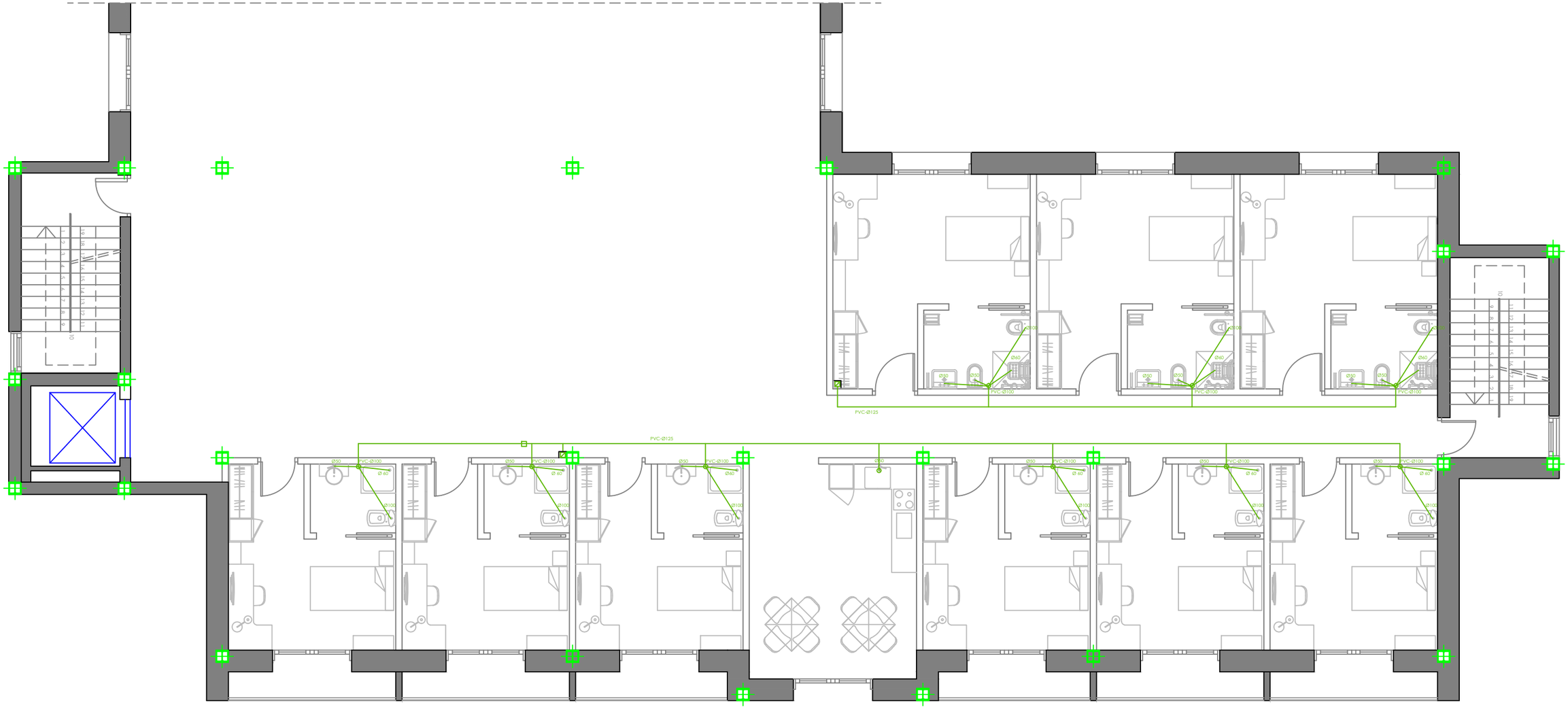
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.7





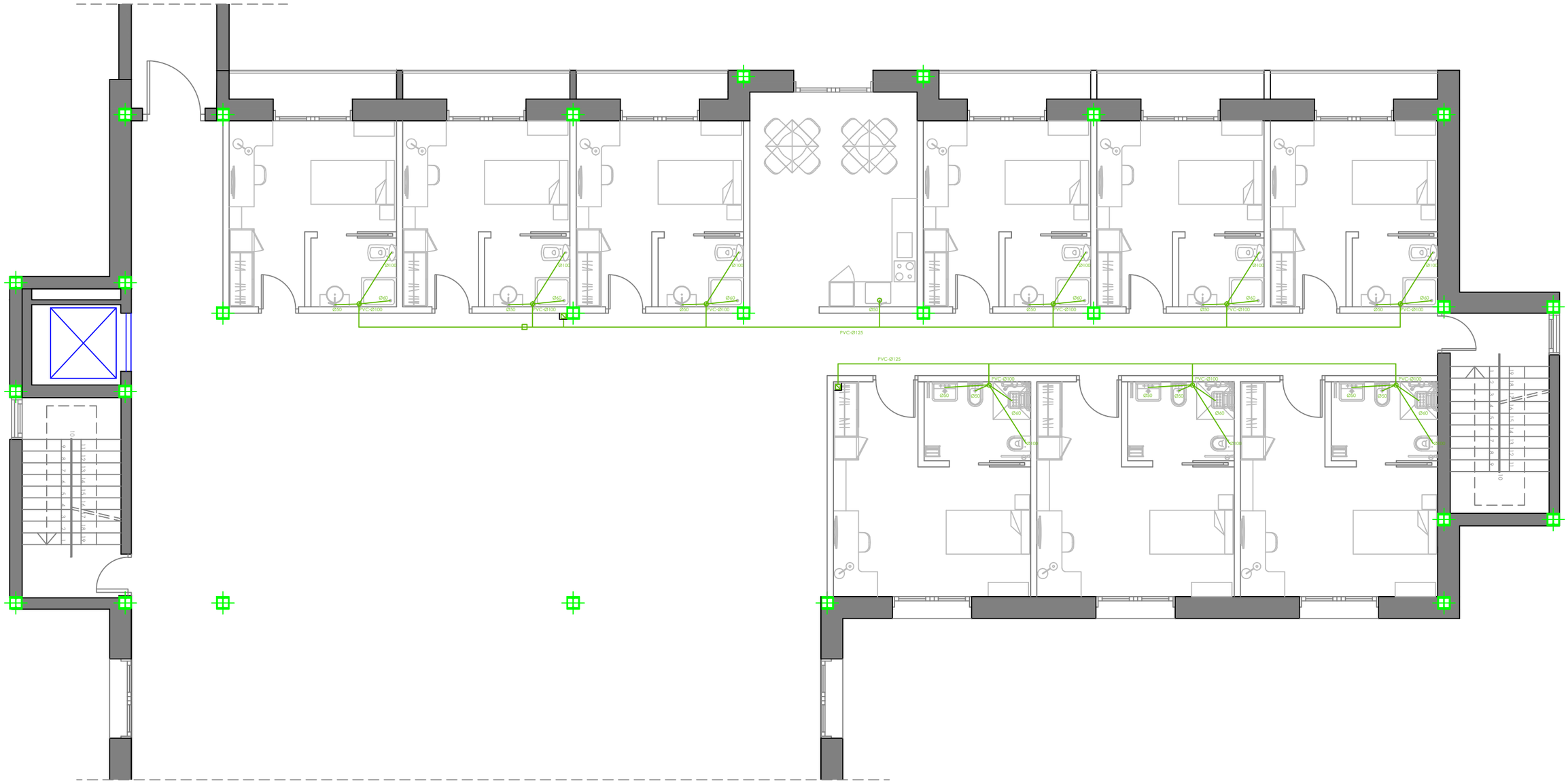
BATHROOM DETAIL

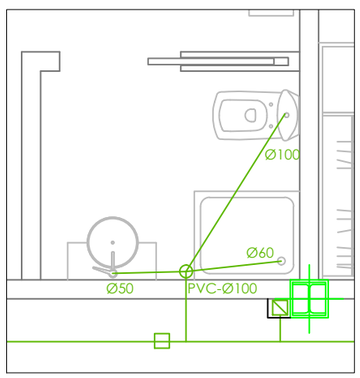
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.8



BATHROOM DETAIL

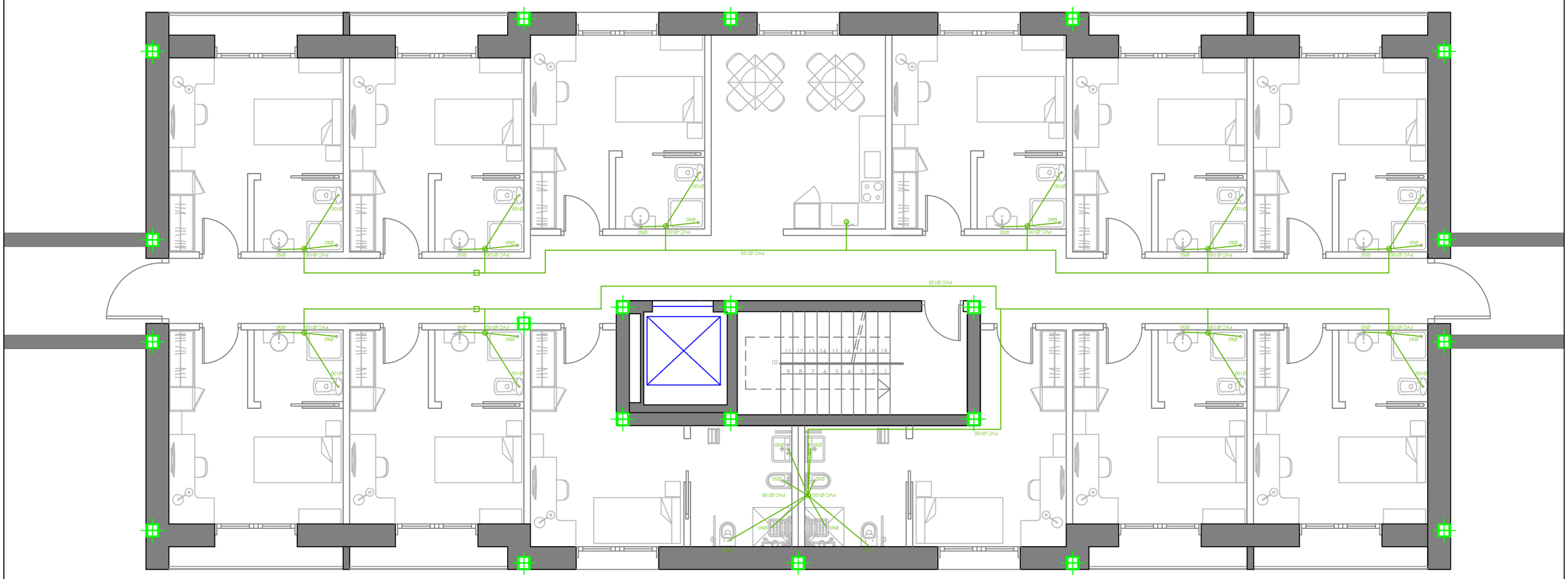
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.9

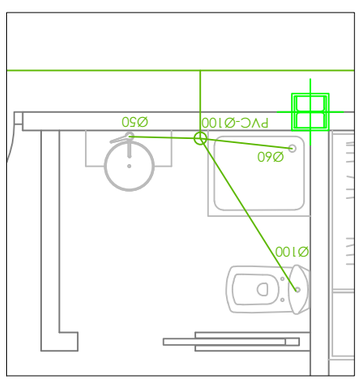




BATHROOM DETAIL

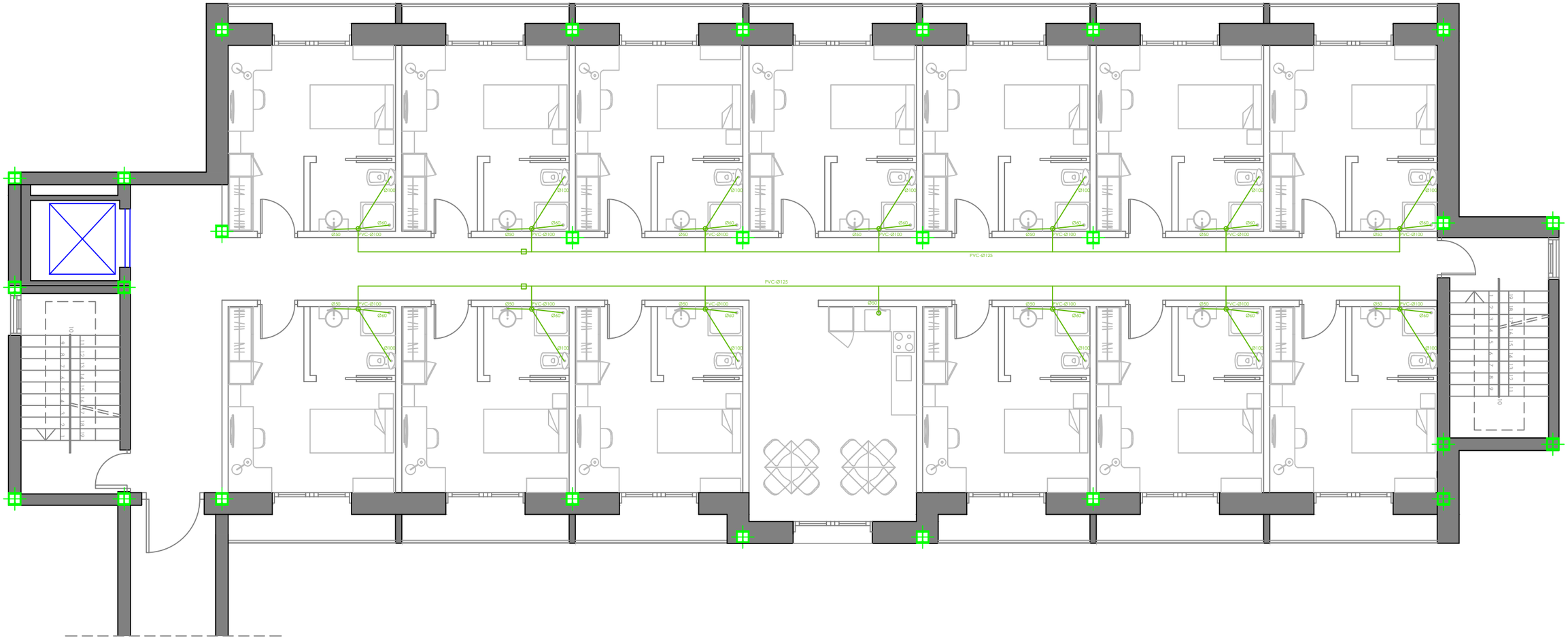
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: SECOND FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.10

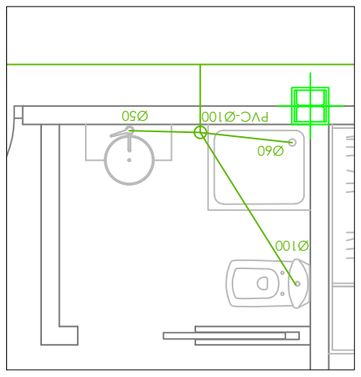




BATHROOM DETAIL

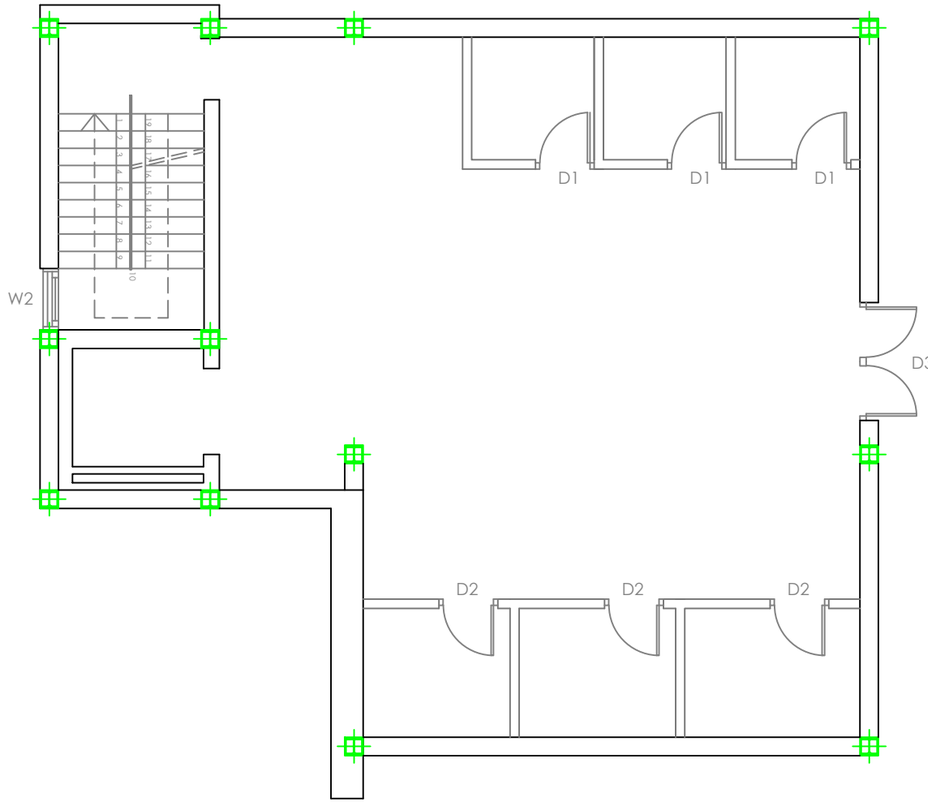
	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.11

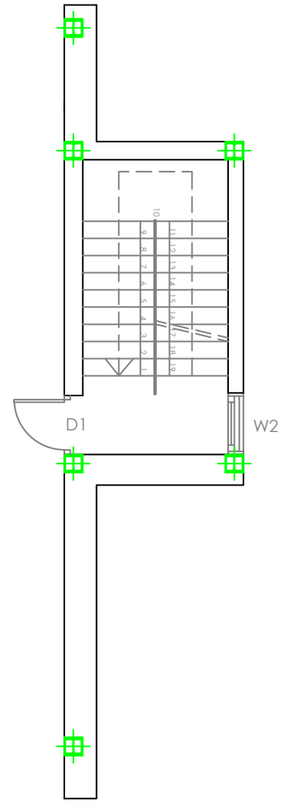


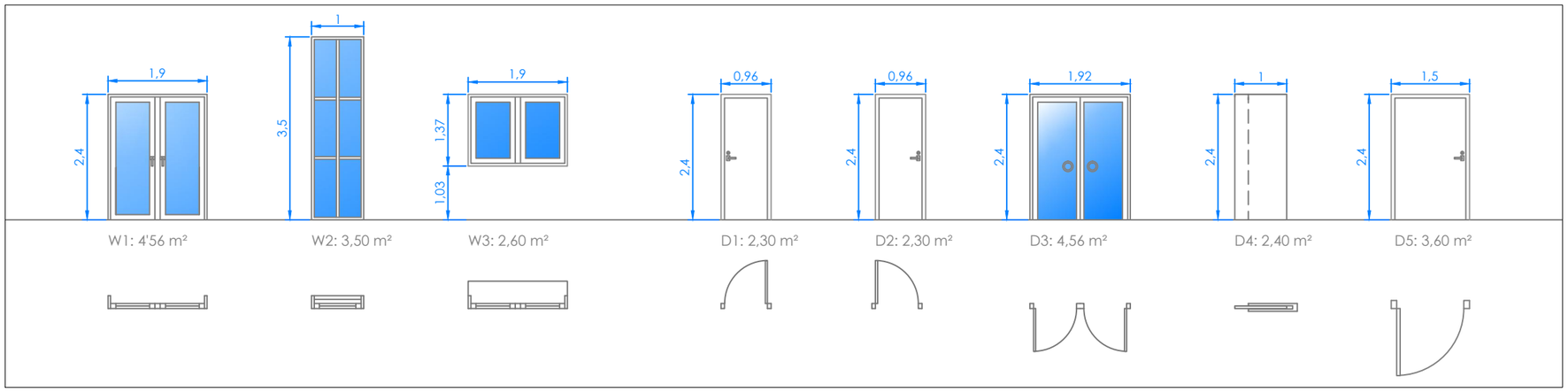


BATHROOM DETAIL

	ATHLETE RESIDENCE NISSAN	12/06/2013
	SALUBRITY INSTALLATION DRAWINGS: THIRD FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	11.12

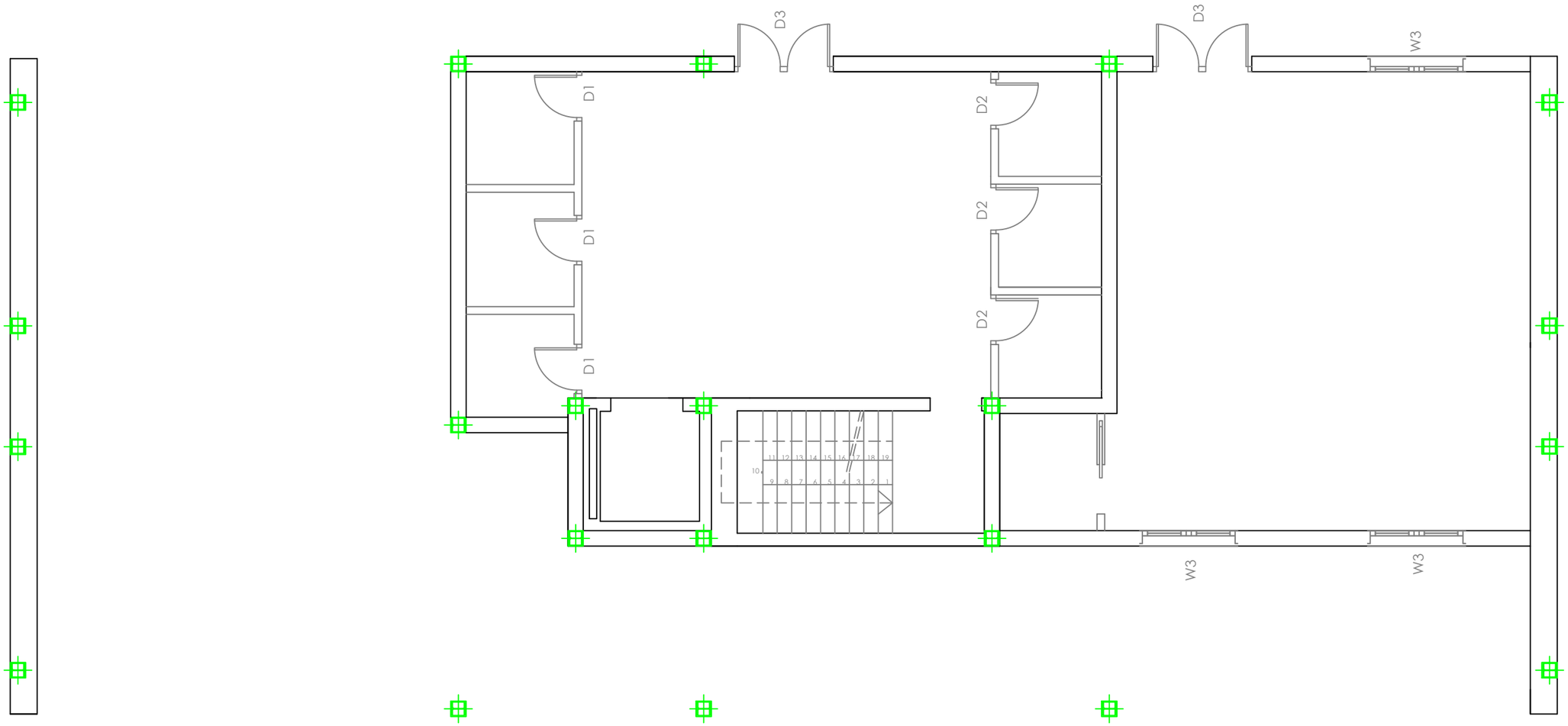


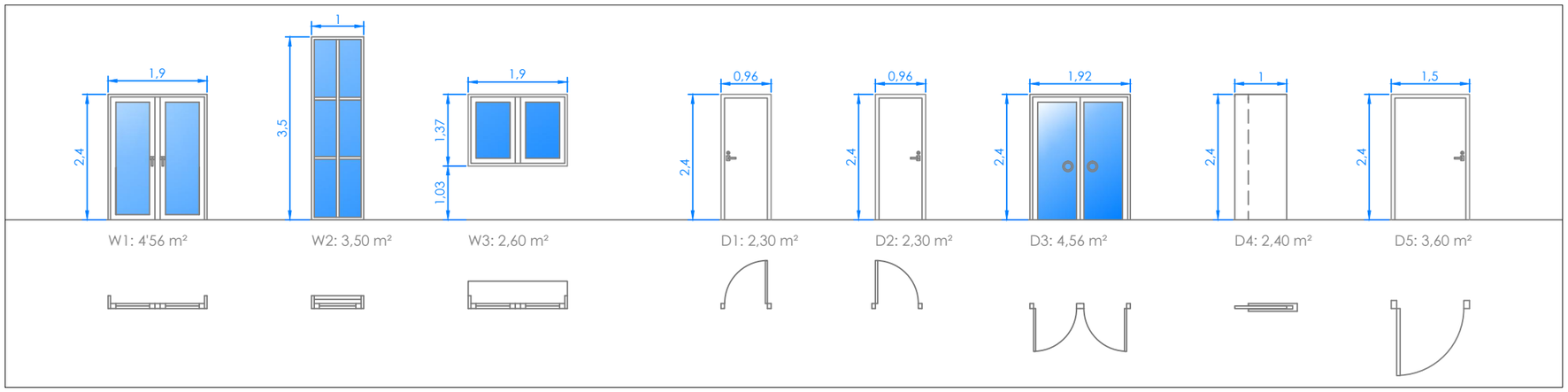




CARPENTRY TIPOLOGY

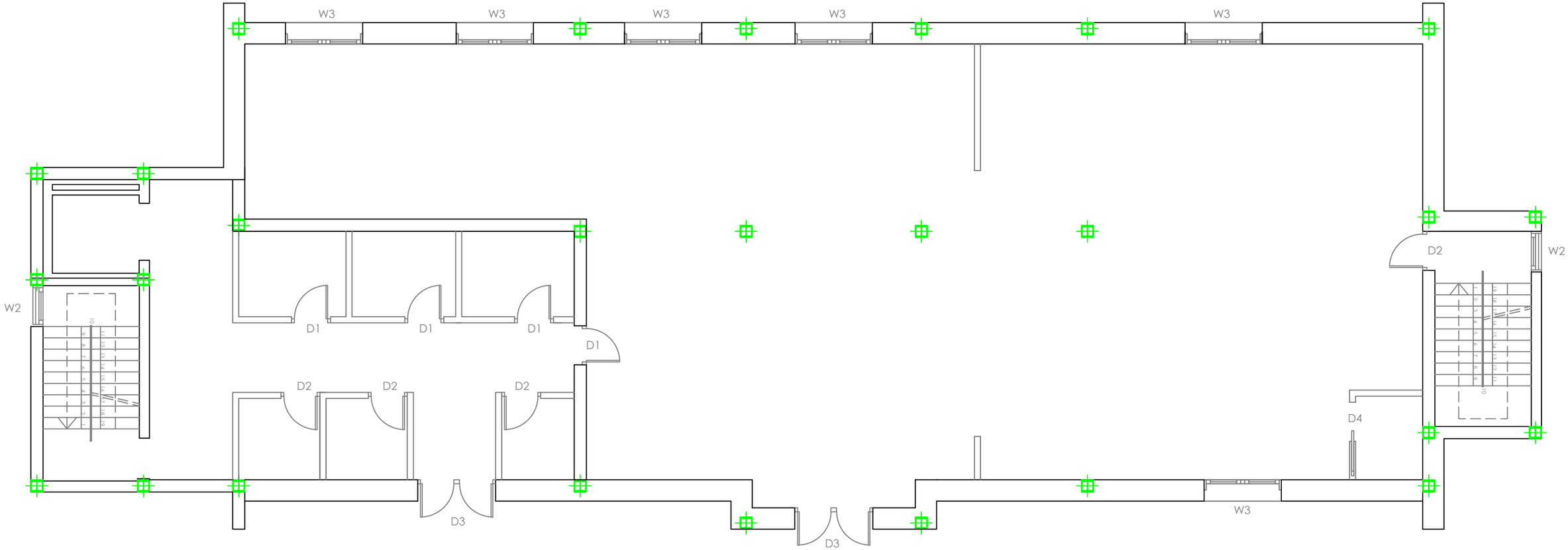
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: FIRST FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.1

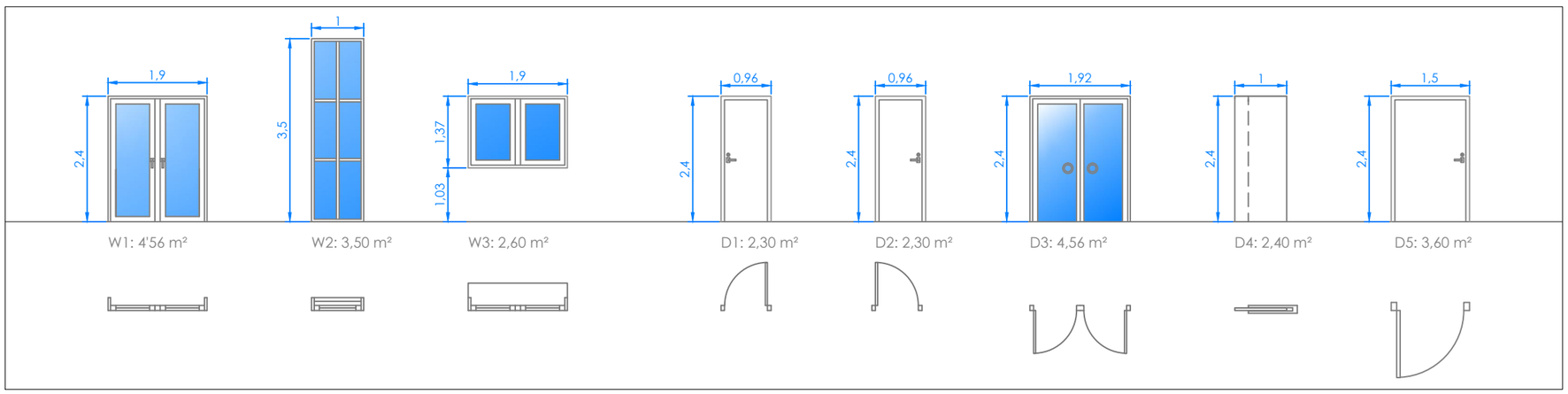




CARPENTRY TIPOLOGY

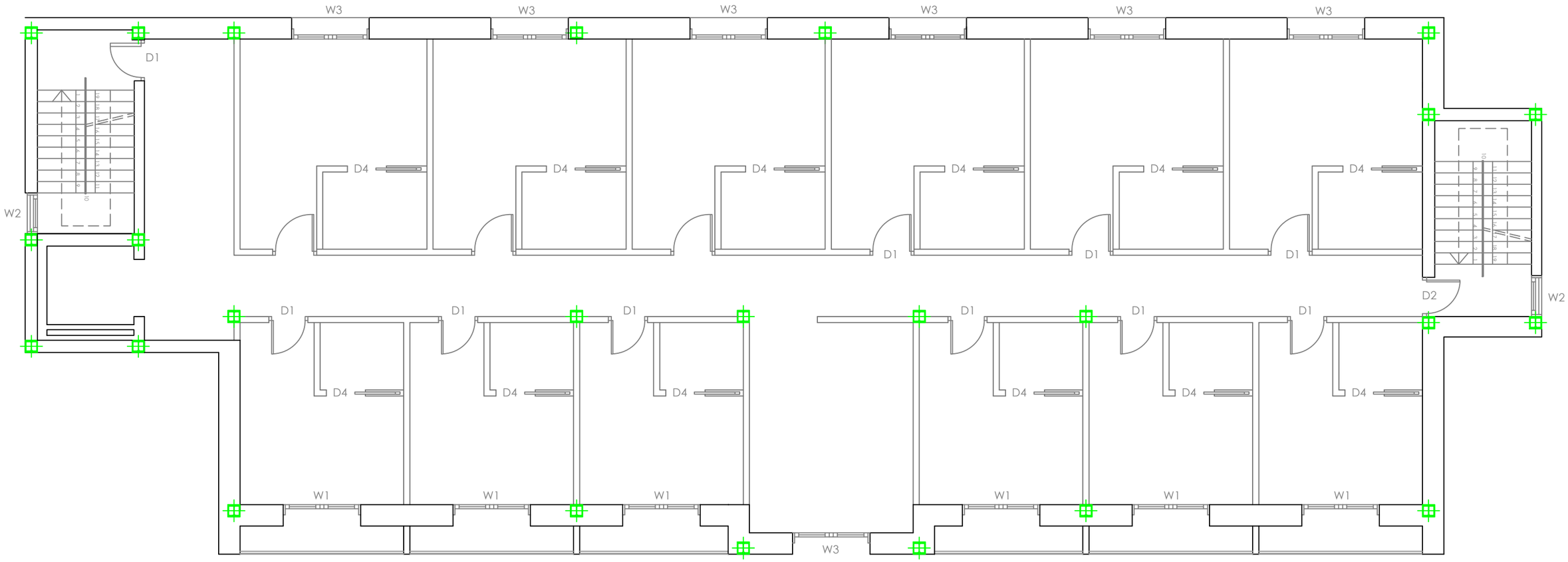
	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: FIRST FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.3

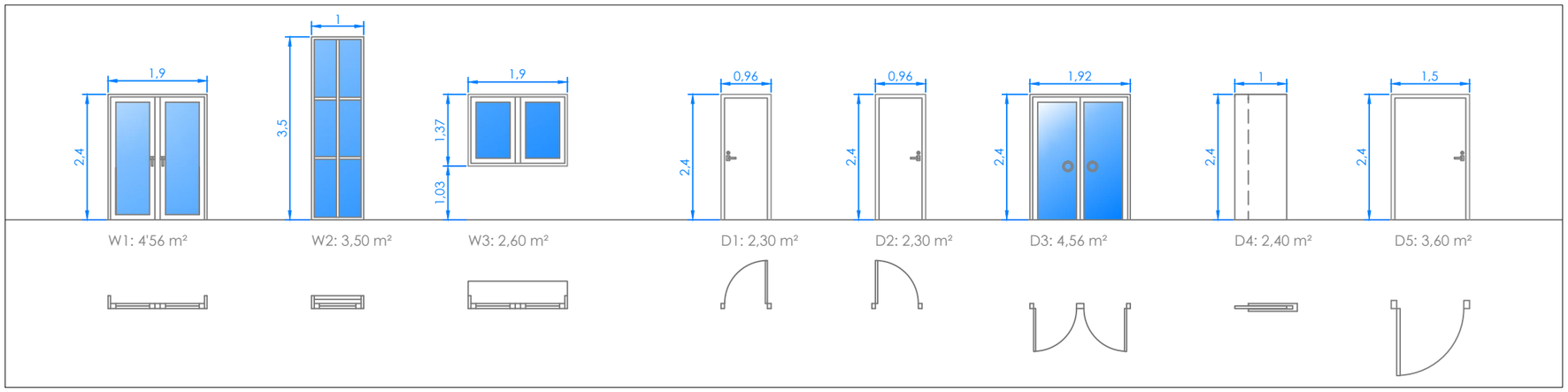




CARPENTRY TIPOLOGY

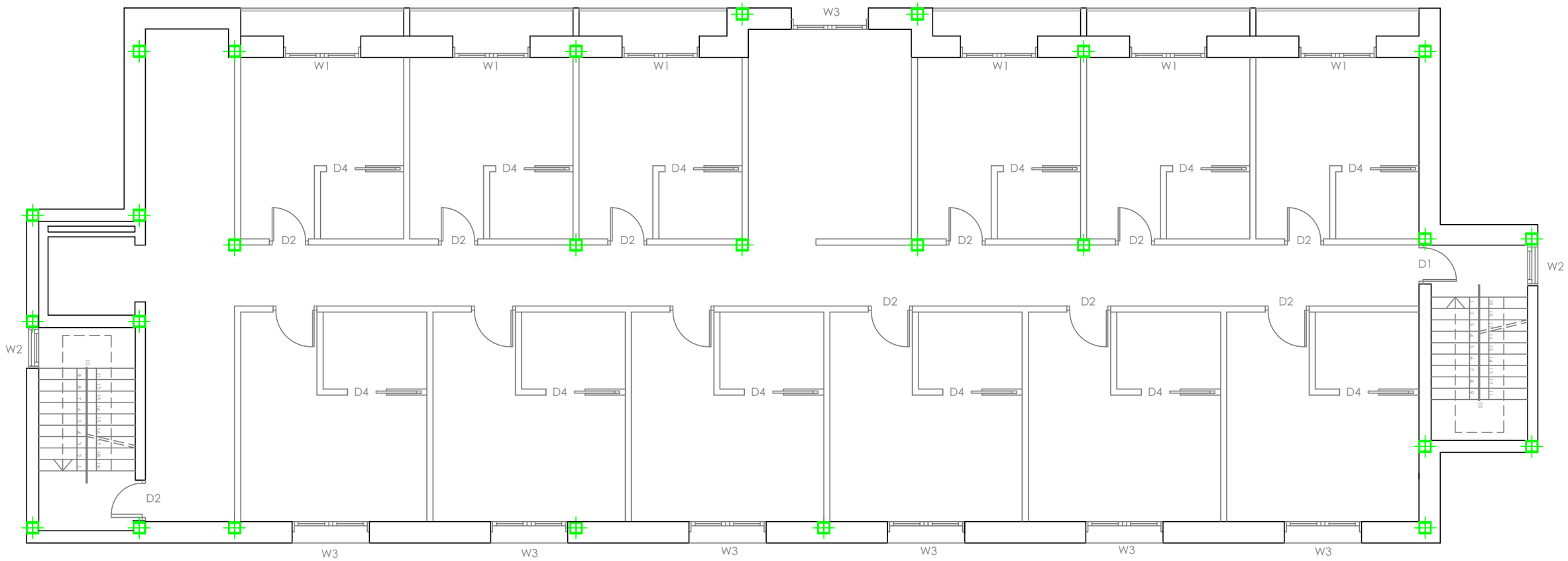
HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: FIRST FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.4

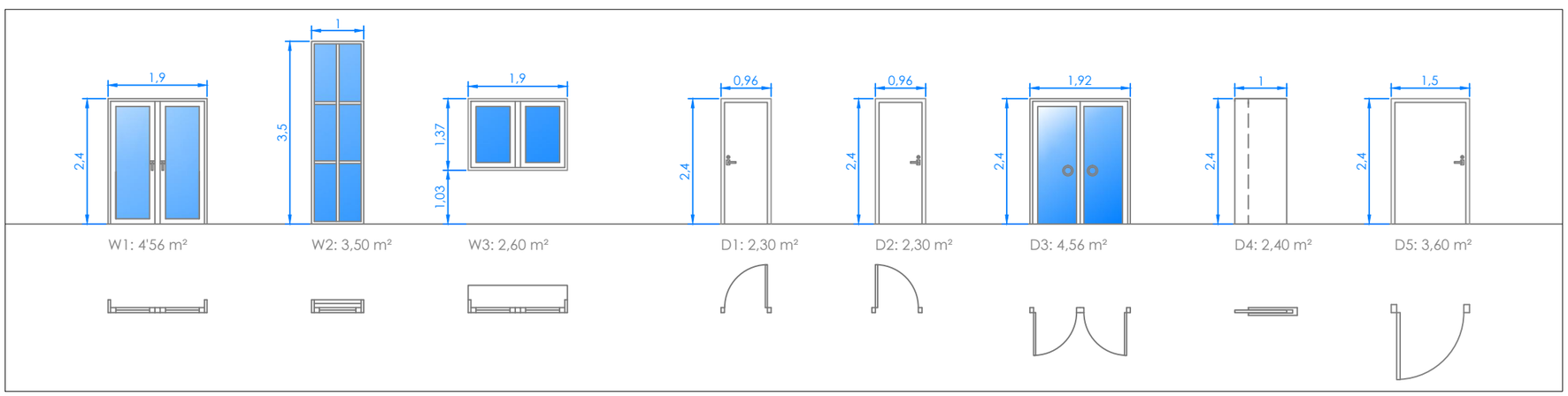




CARPENTRY TIPOLOGY

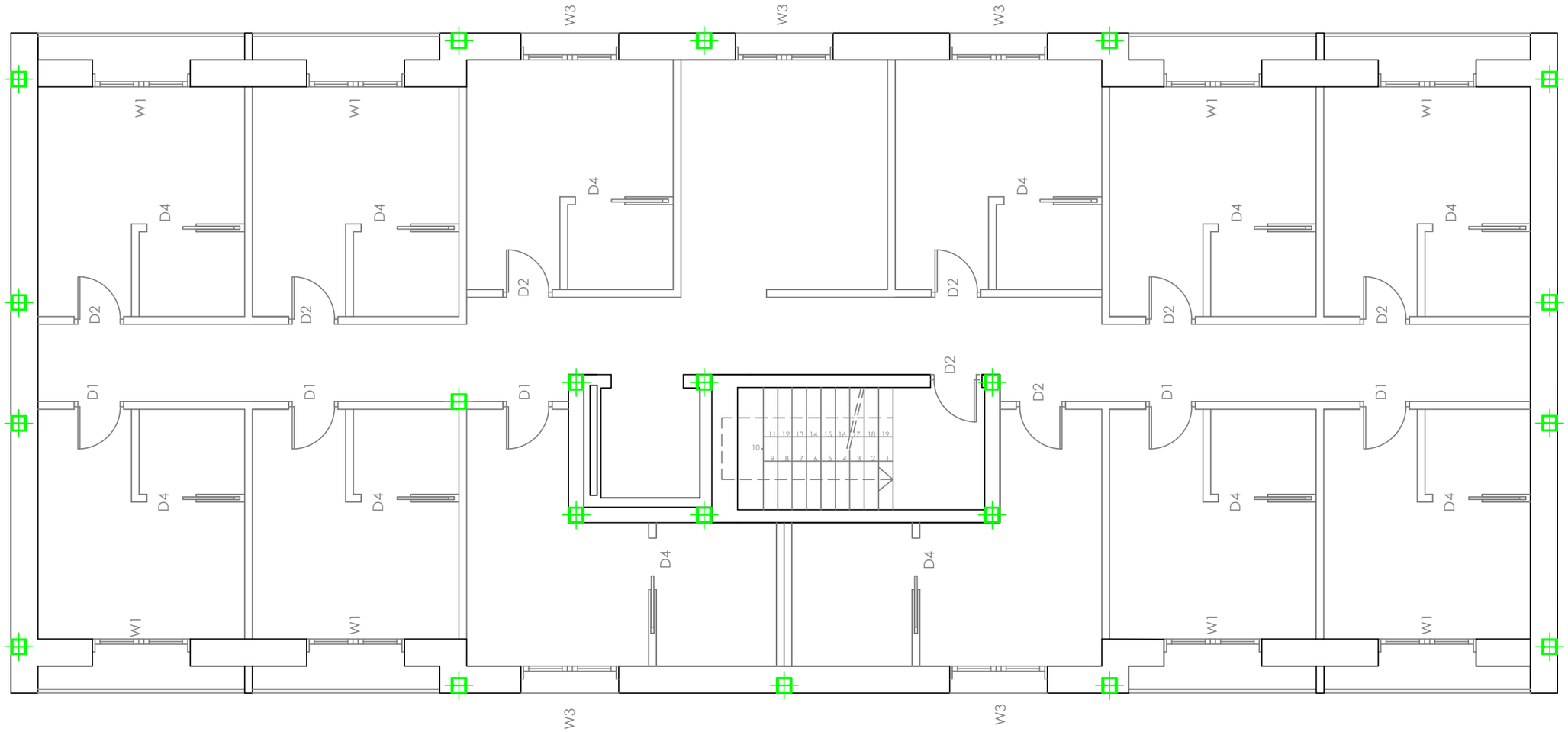
	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: SECOND FLOOR, BUILDING A	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.5

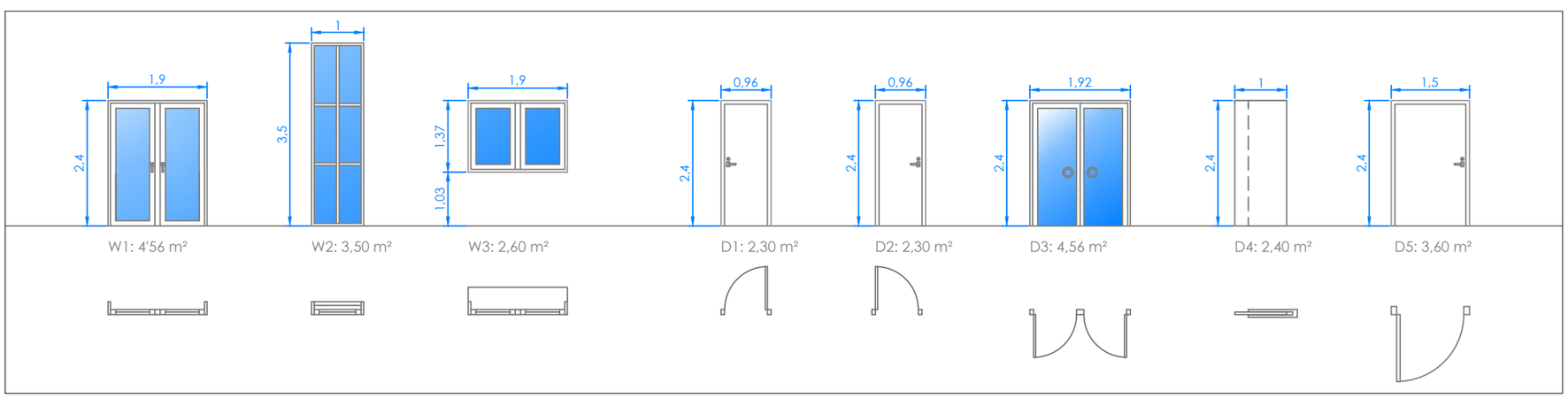




CARPENTRY TIPOLOGY

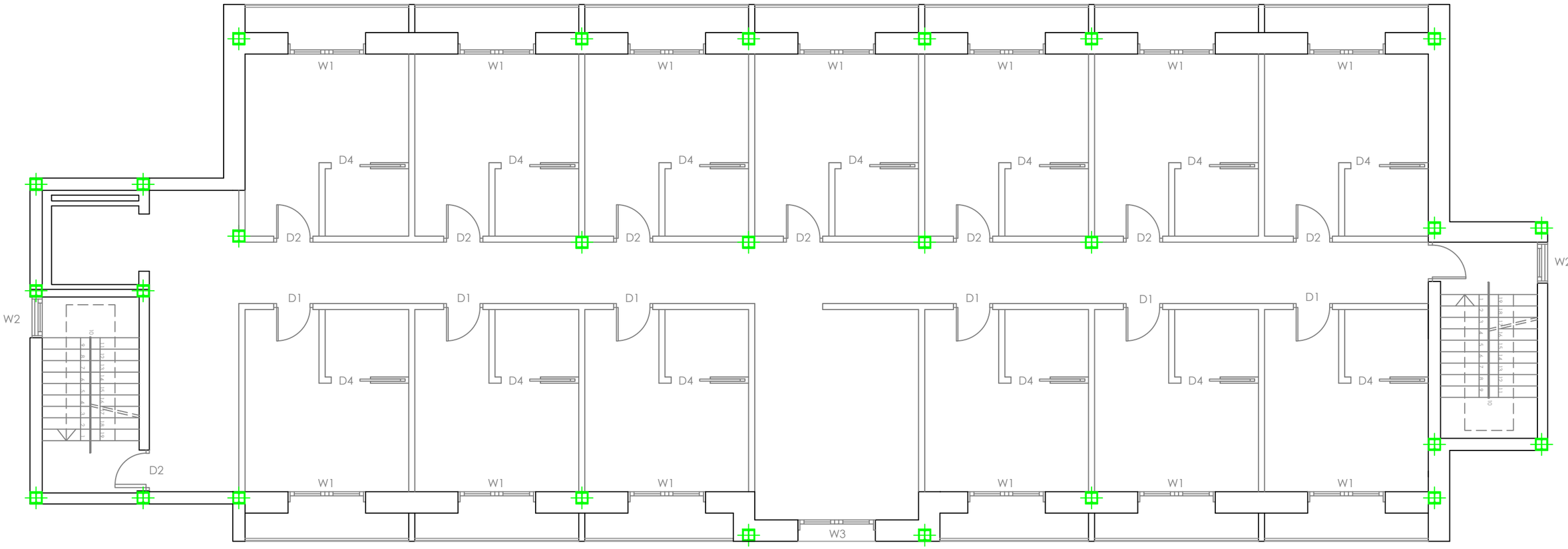
	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: SECOND FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.6

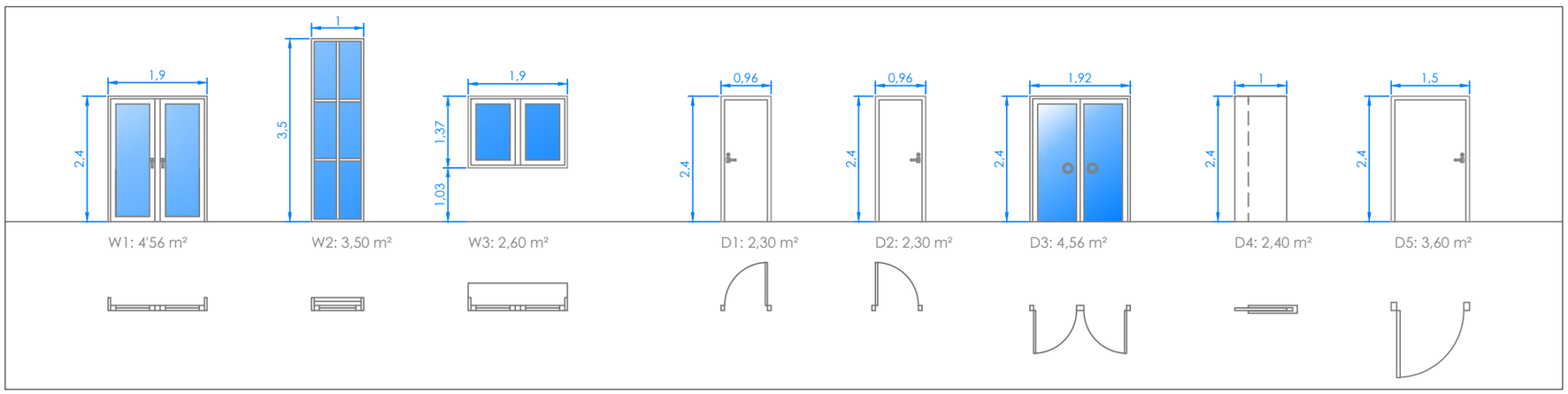




CARPENTRY TIPOLOGY

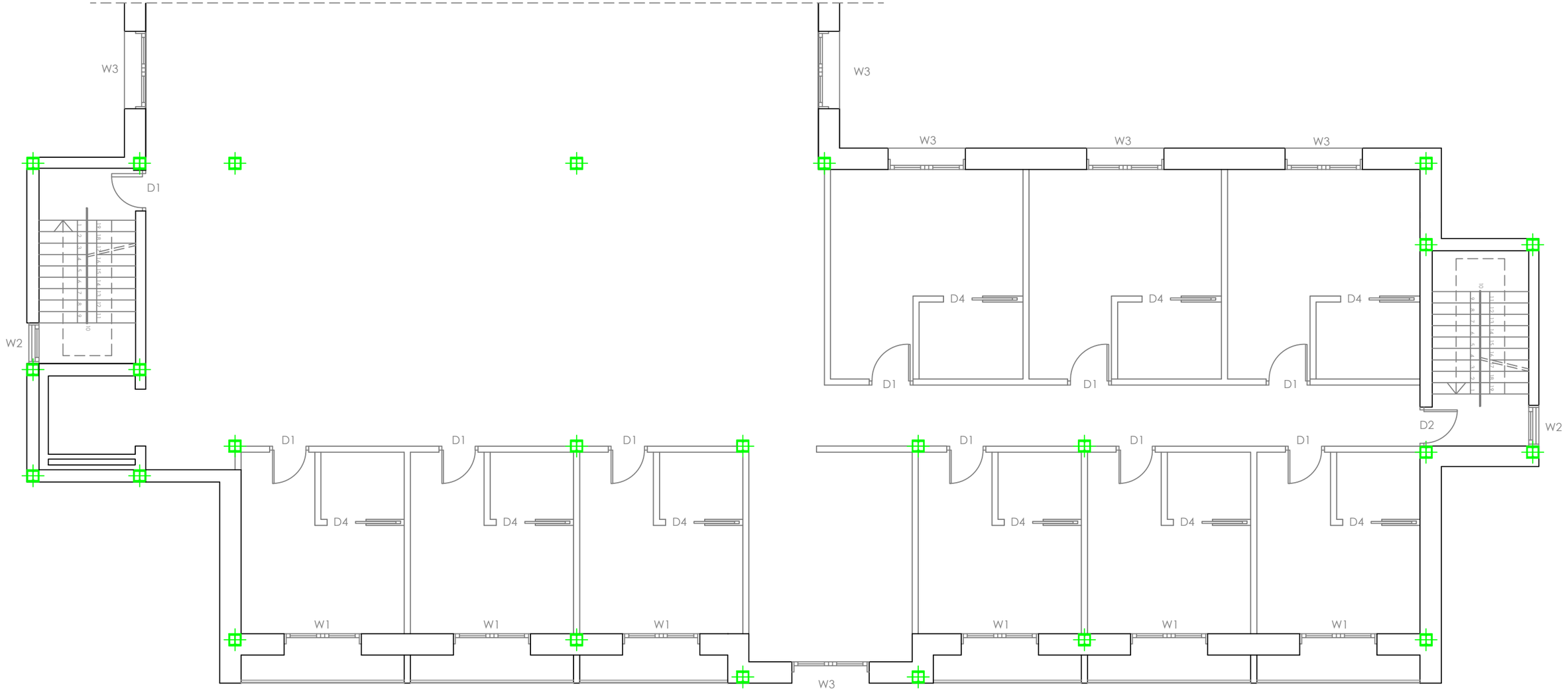
	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: SECOND FLOOR, BUILDING C	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.7

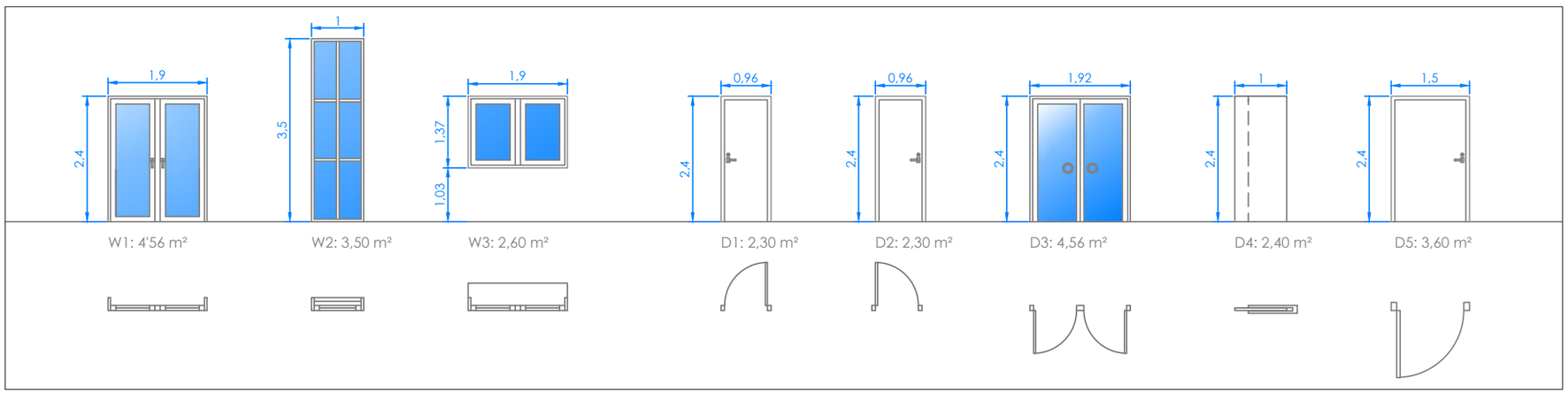




CARPENTRY TIPOLOGY

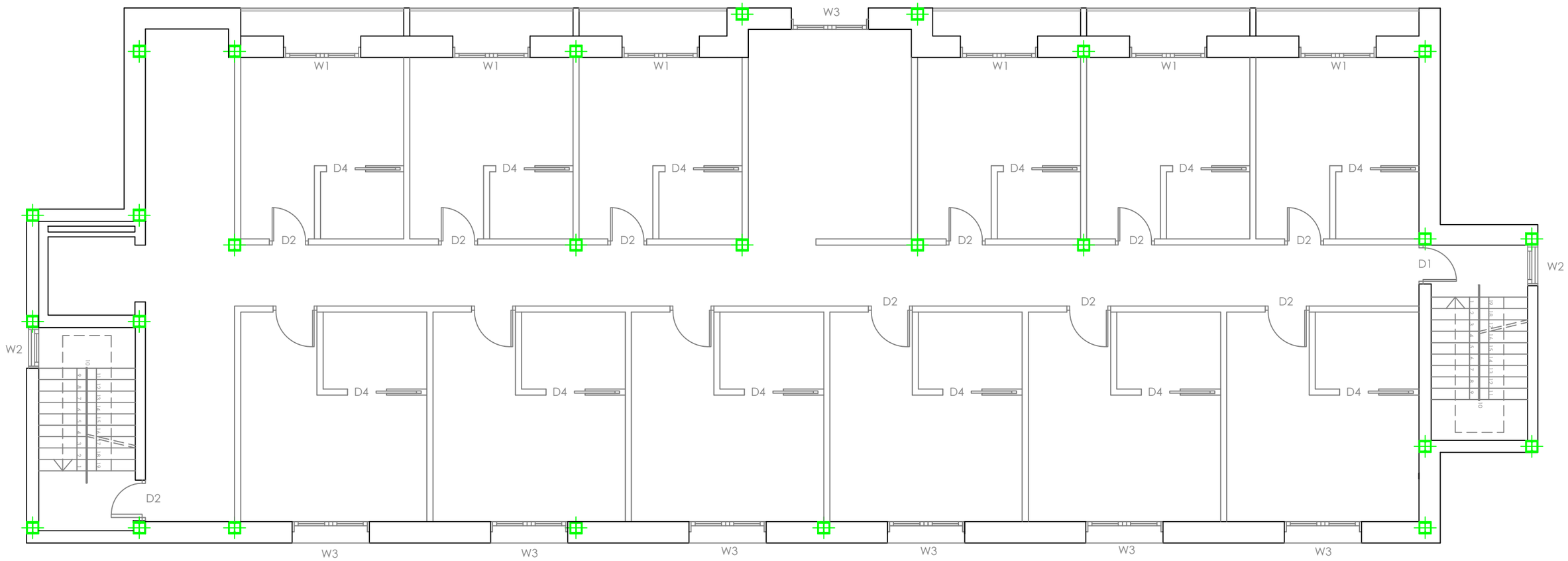
	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: SECOND FLOOR, BUILDING D	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.8

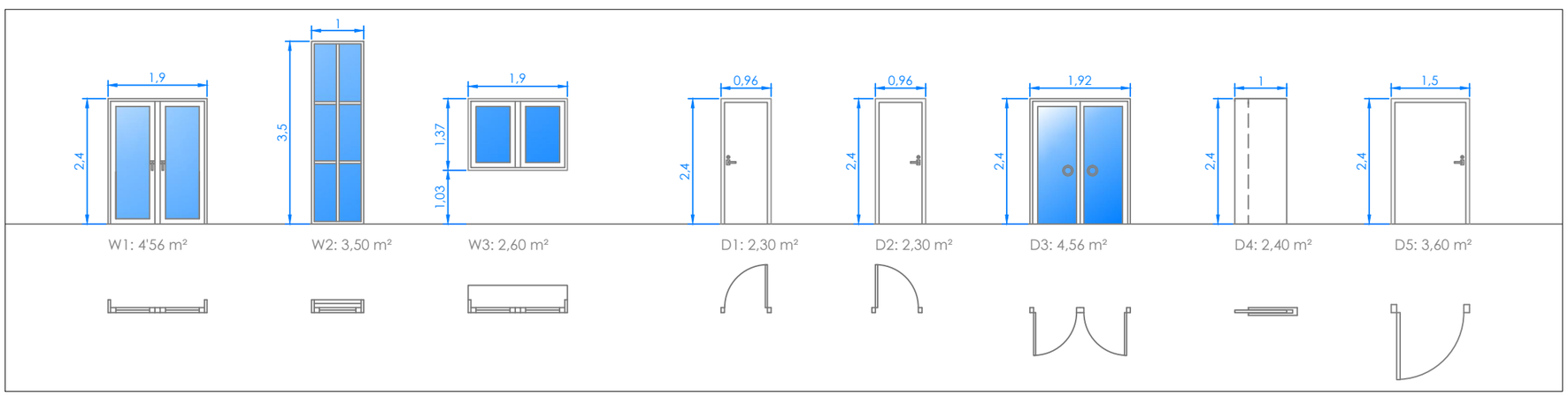




CARPENTRY TIPOLOGY

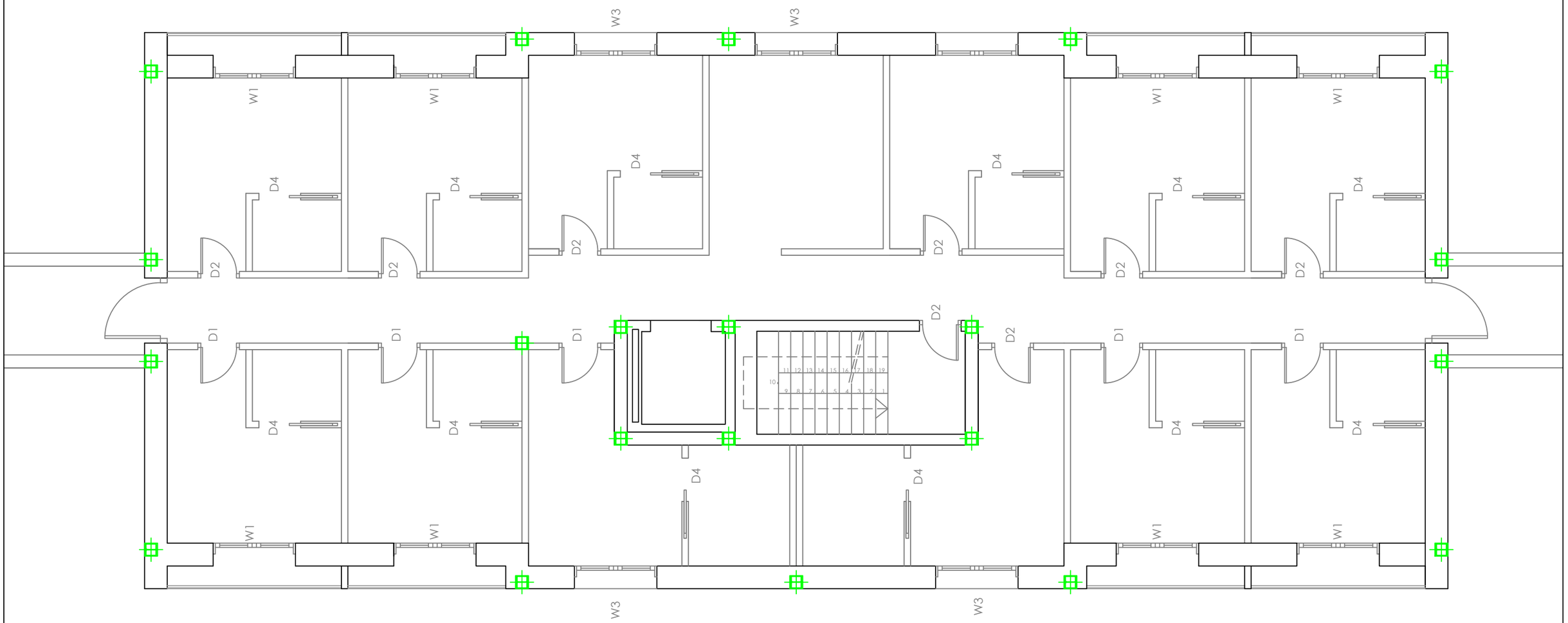
	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: THIRD FLOOR, BUILDING A	SCALE 1:100
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.9

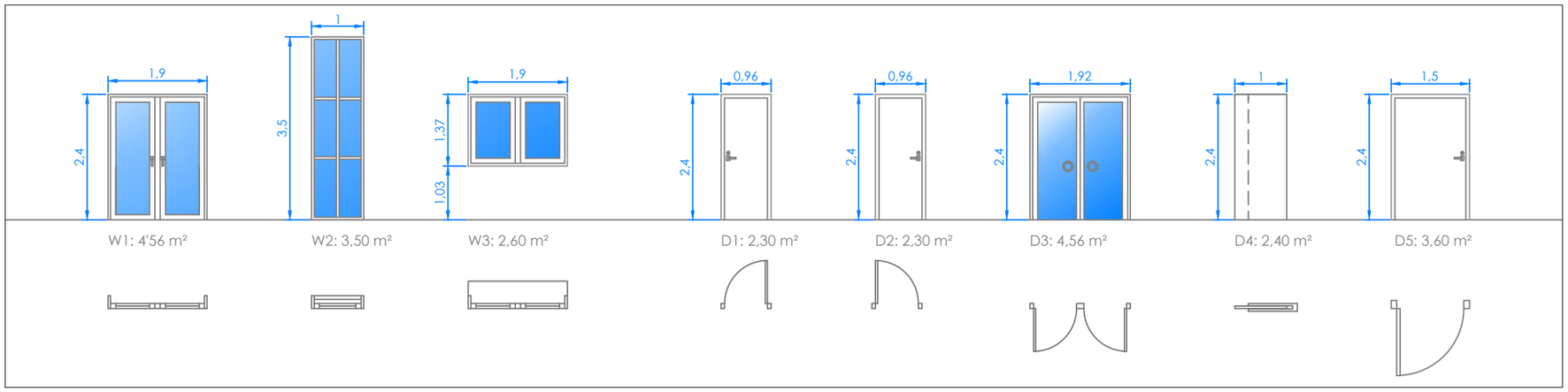




CARPENTRY TIPOLOGY

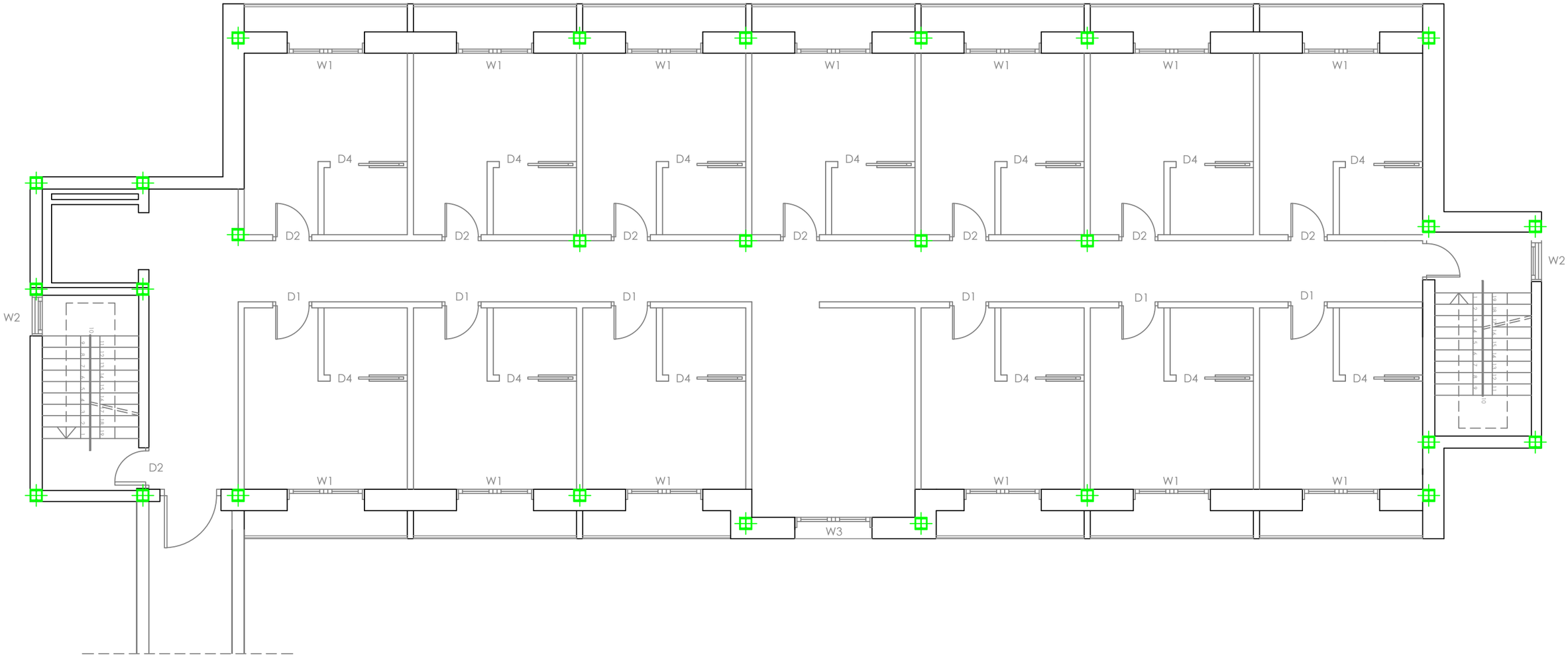
	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: THIRD FLOOR, BUILDING B	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.10

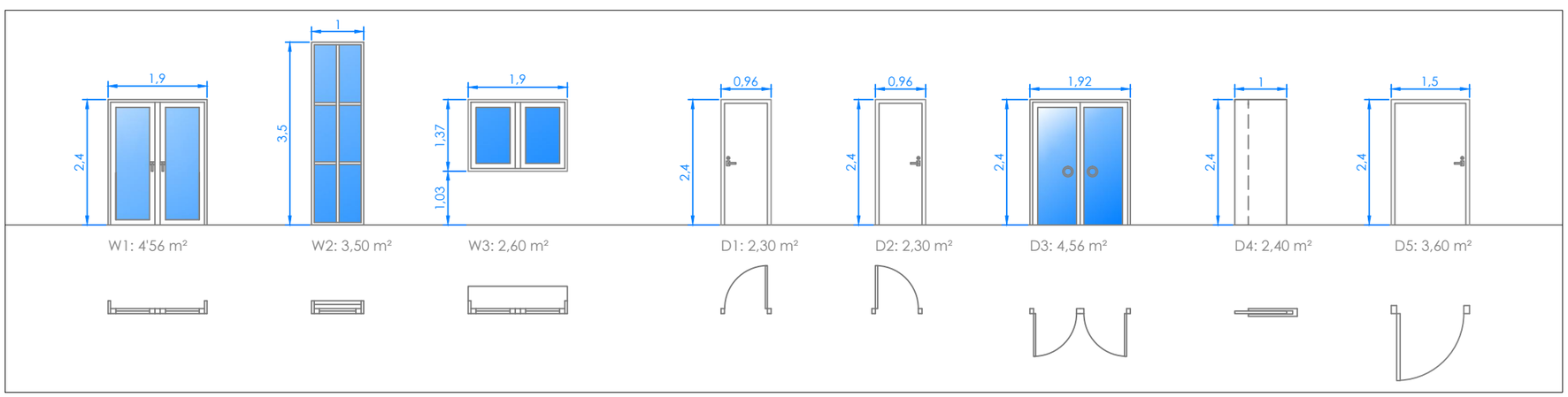




CARPENTRY TIPOLOGY

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: THIRD FLOOR, BUILDING C	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.11





CARPENTRY TIPOLOGY

HÖGSKOLAN HALMSTAD	ATHLETE RESIDENCE NISSAN	12/06/2013
	CARPENTRY DRAWINGS: THIRD FLOOR, BUILDING D	SCALE 1:100
	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	12.12

Pedestrian Access

Vehicle Access

Pedestrian Access

SALUBRITY INSTALLATION

WATER INSTALLATION

ELECTRICITY INSTALLATION

OFFICE + LOCKER ROOM (4 FLOORS)

OFFICE + LOCKER ROOM (2 FLOORS)

STOREHOUSE

STOREHOUSE

MATERIAL STORAGE AREA

30m

CRANE 1

R26,15

CRANE 2

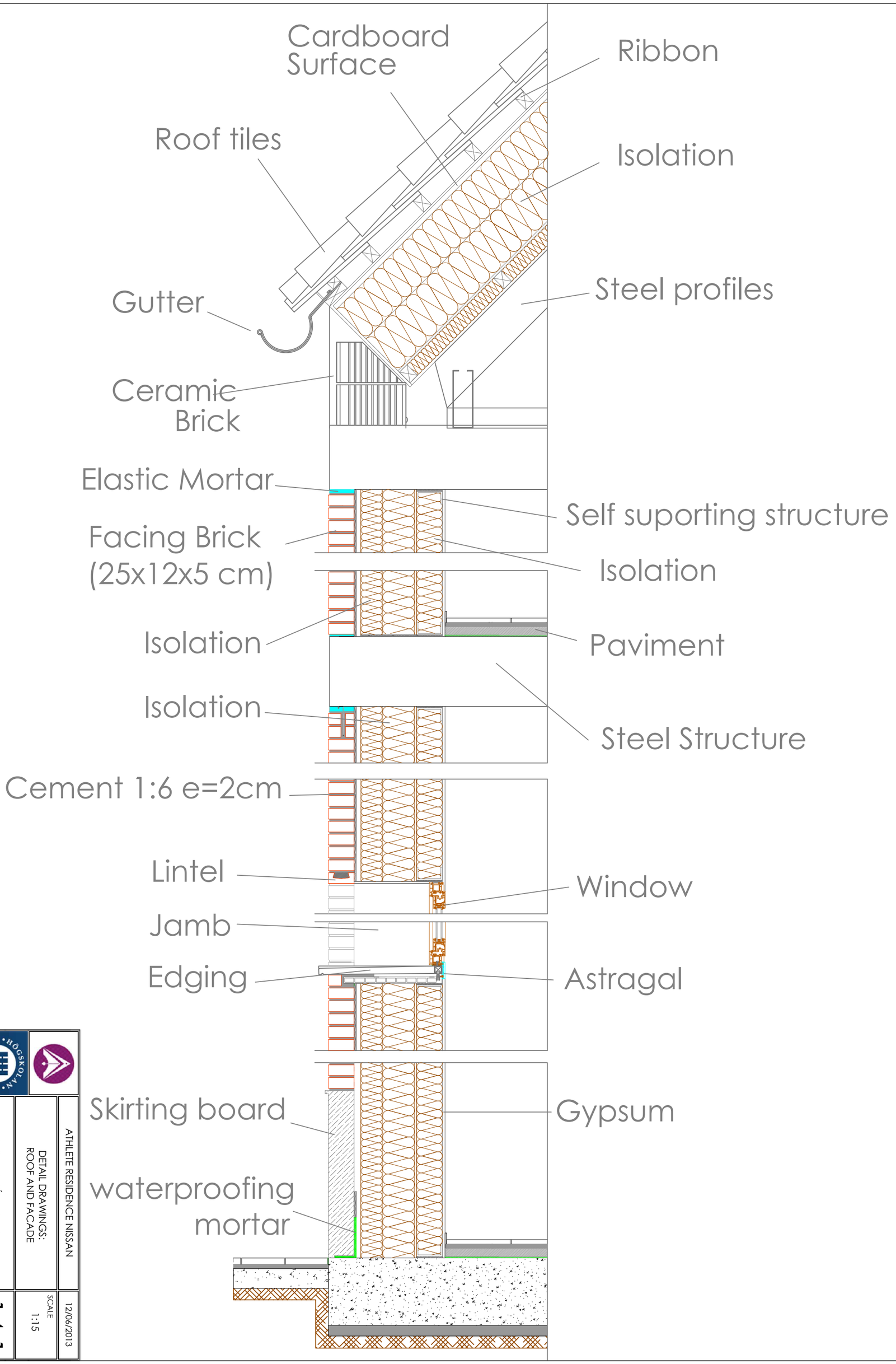
D Building

C Building

B Building

A Building

	ATHLETE RESIDENCE NISSAN	12/06/2013
	SETTING-UP DRAWINGS: ALL THE BUILDINGS	SCALE 1:275
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	13



ATHLETE RESIDENCE NISSAN

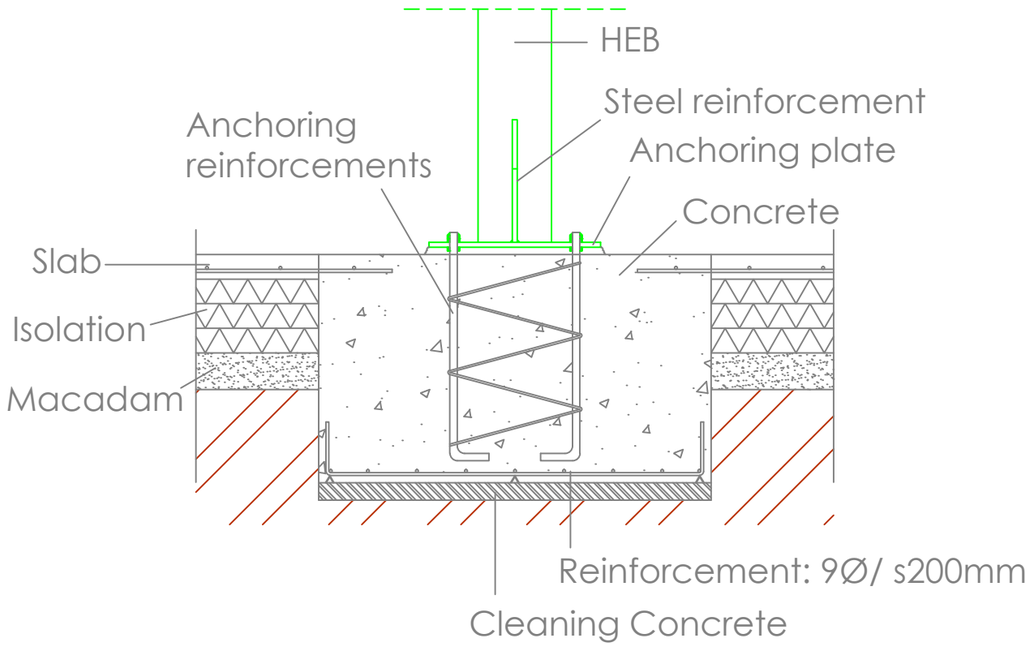
DETAIL DRAWINGS: ROOF AND FACADE

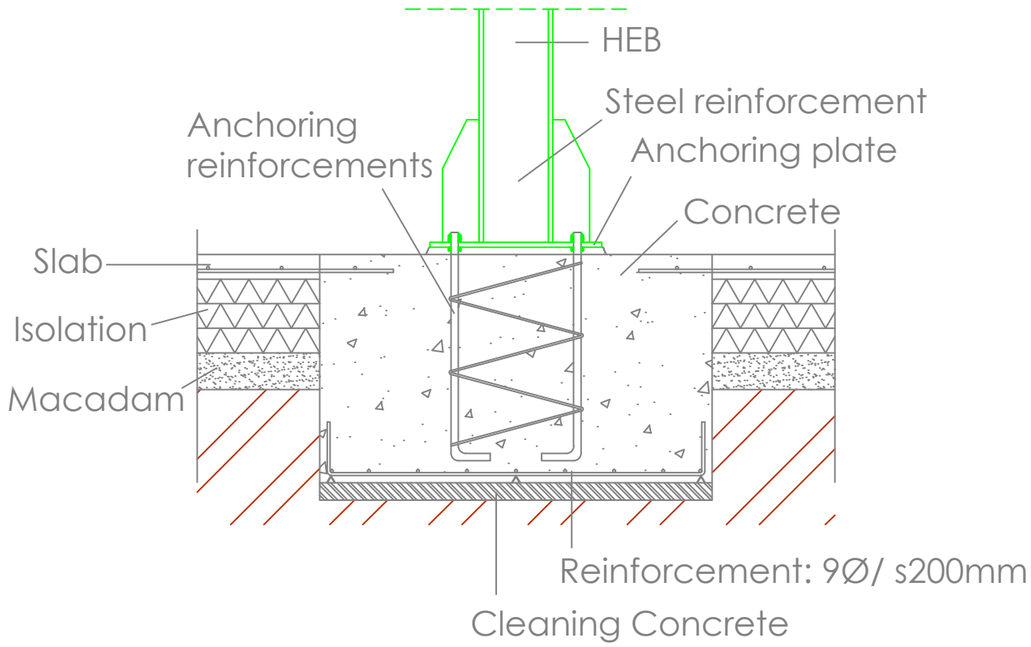
FARAKOS RICÓS, ANDREAS
PÉREZ ESCRIBANO, EDUARDO

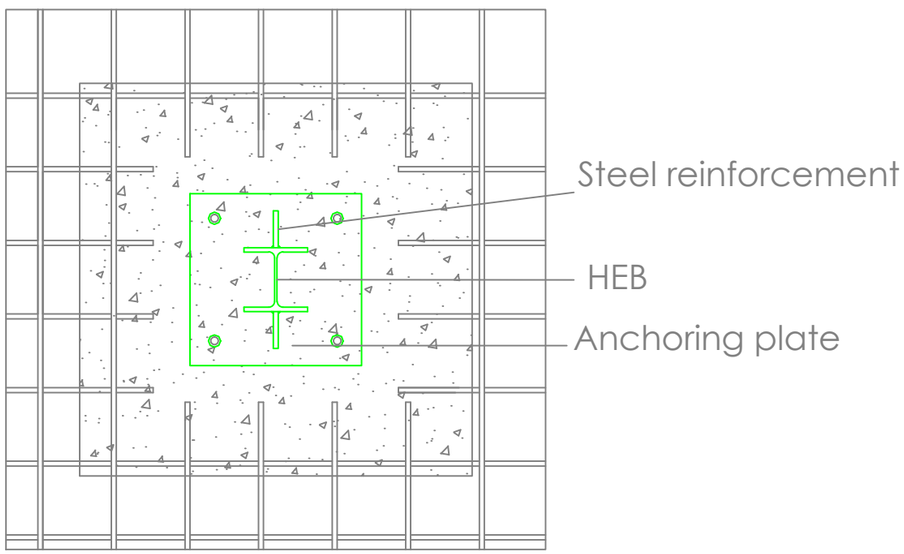
SCALE 1:15

12/06/2013

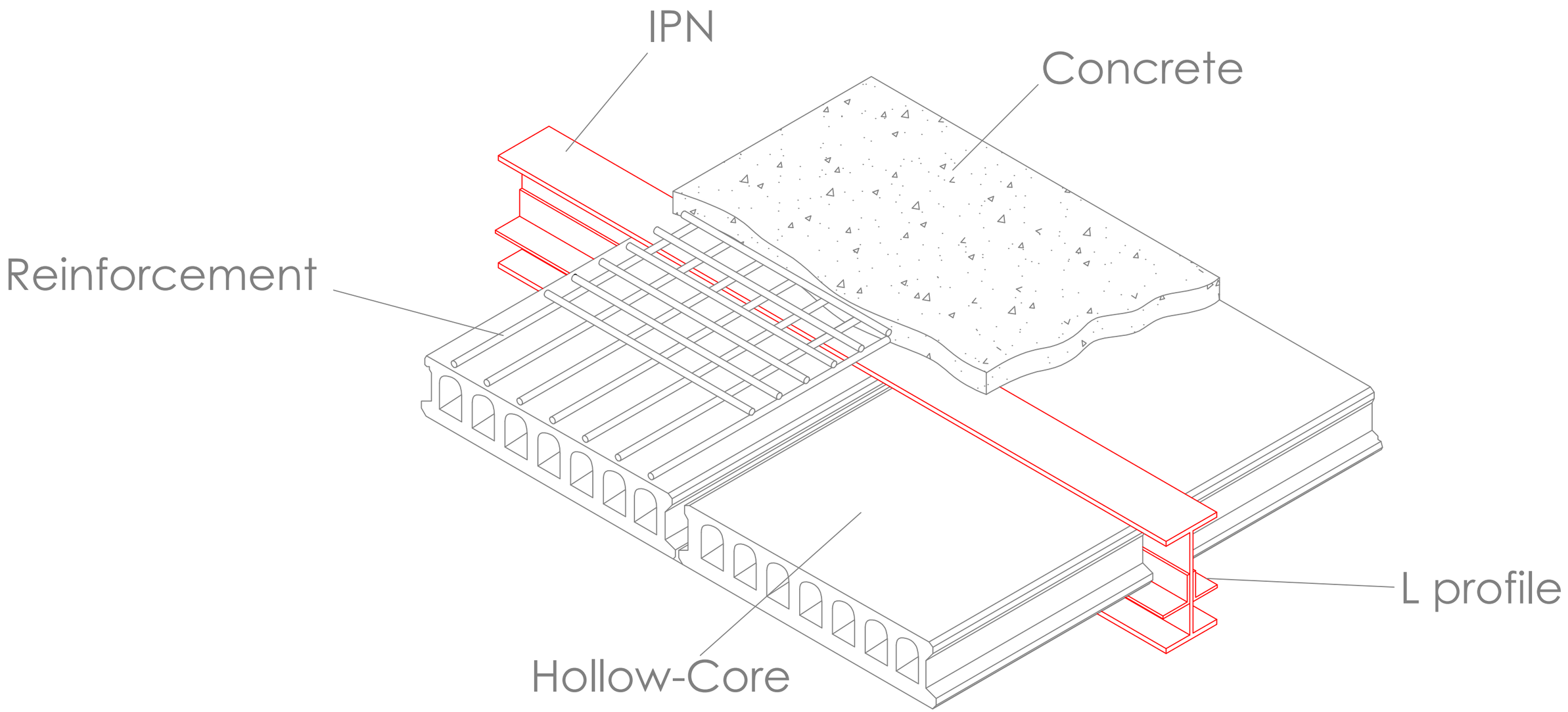
14.1





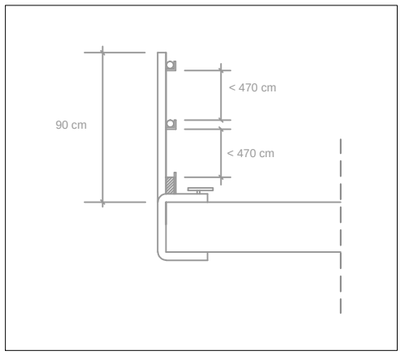


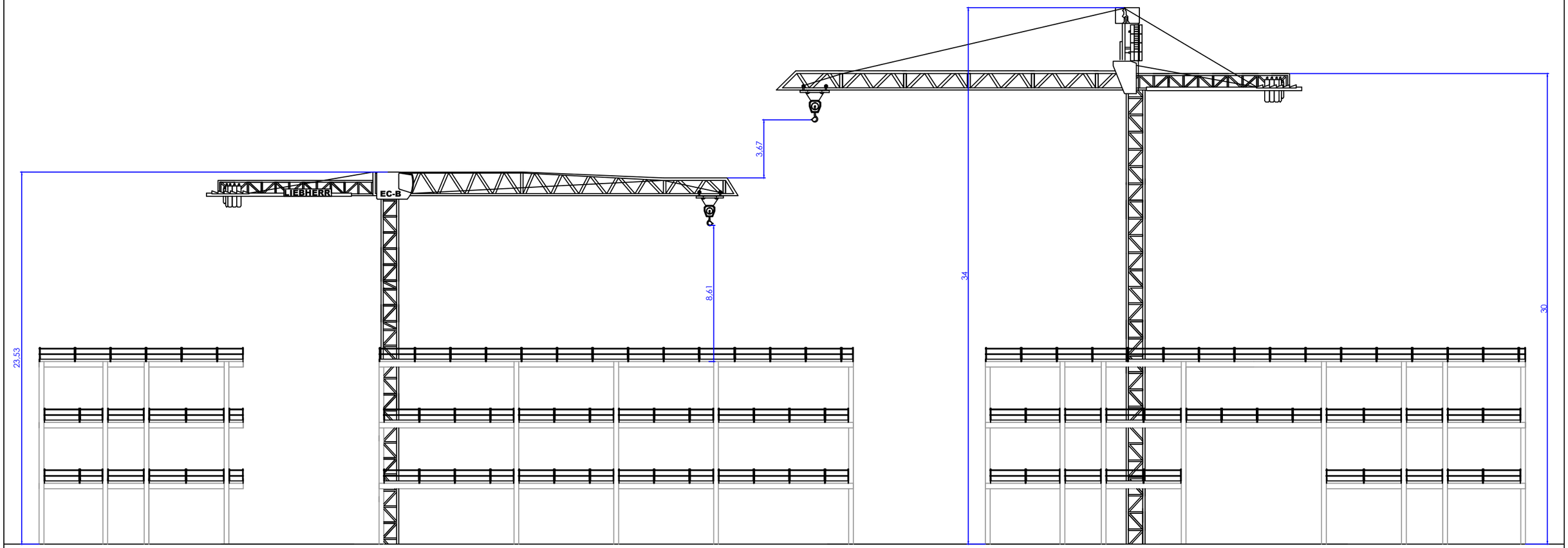
	ATHLETE RESIDENCE NISSAN	12/06/2013
	DETAIL DRAWINGS: FOUNDATION	SCALE 1:25
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	14.2



	ATHLETE RESIDENCE NISSAN	12/06/2013
	DETAIL DRAWINGS: SLAB	SCALE 1:15
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	14.3

HAND RAIL DETAIL





	ATHLETE RESIDENCE NISSAN	12/06/2013
	HEALTH AND SAFETY DRAWINGS: ALL THE BUILDINGS	SCALE 1:250
HÖGSKOLAN HALMSTAD	FARAKOS RICÓS, ANDREAS PÉREZ ESCRIBANO, EDUARDO	15

13.1_Appendix 1:

License documentation

Halmstad
Byggnadskontoret
Box 153, 301 05 HALMSTAD

ANSÖKAN

Datum
2013-06-12

Om sökanden/byggherren är ett företag ska bevis om firmatecknare medsändas

Ansökan avser (Ifylls i tillämpliga delar)

☒ Bygglov ☐ Tidsbegränsat bygglov högst fem år (t o m datum) ☐ Marklov ☐ Rivningslov

☐ Periodiskt tidsbegränsat bygglov (fr o m - t o m datum) . . . . . .

☐ Bygglov där förhands-besked lämnats (datum) . . . . . ☐ Ändring/Förnyelse av bygglov (dnr) . . . . . .

☐ Villkorsbesked har lämnats (dnr) . . . . . .

Fastighet och sökande/byggherre

Fastighetsbeteckning ★ Oket	**Fastighetens adress** ★ Stunaregatan	
Sökanden: Förnamn ★ Eduardo	**Efternamn** ★ Pérez Escribano	**Organisations-/Personnummer** ★
Utdelningsadress (gata, box etc) Hemmansvagen	**Telefon dagtid** (även riktnr) 073436729	**Telefon kvällstid** (även riktnr)
Postnummer 302 62	**Postort** Halmstad	**E-postadress** edu-ardo@hotmail.com
Faktureringsadress (om annan än ovan)		**Företagets projektnummer**
Byggherre: Förnamn Eduardo	**Efternamn** Pérez Escribano	**Organisationsnummer**
E-postadress edu-ardo@hotmail.com	**Telefon dagtid** (även riktnr) 073436729	**Telefon kvällstid** (även riktnr)
Fastighetsägare, tomträttsinnehavare (om annan än sökanden) Andreas Farakos Ricós		

Kontaktperson

Kontaktperson: Namn Andreas Farakos Ricós	**Telefon dagtid** (även riktnr) 074452658	**Telefon kvällstid** (även riktnr)
E-postadress andreasfarakos@gmail.com		

Ärende

Ange orsak ★

☒ Nybyggnad ☐ Tillbyggnad ☐ Ombyggnad ☐ Rivning

☐ Ändring ☐ Ändrad användning: Från Till

☐ Inredande av ytterligare bostad/lokal ☐ Annat (se anvisningar)

Byggnad

☐ En-bostadshus ☐ Enbostads-hus i grupp ☐ Rad-, par-, kedjehus ☐ Två-bostadshus ☐ Fritidshus ☐ Flerbostads-hus

Antal berörda lägenheter

☐ Industri- och lagerbyggn ☐ Garage och förråd ☒ Student-bostadshus ☐ Hus för äldre eller funktionshindrade ☐ Annat special-bostadshus

därav specialbostad

☐ Annan byggnad eller anläggning, ange vilken

Areauppgifter m m

Byggnadsarea ★ 7478 m²	**Nytillkommen bruttoarea** ★ m²	**Därav bruttoarea bostäder** ★ m²	**Nytillkommen bostadsarea** (boarea) ★ 103/7 m²
Planerad upplåtelseform för eventuella bostadslägenheter ★			

Byggnadsarbetena avses att påbörjas	**Datum** ★ 2014-01-01	Planerad byggtid	**Antal månader** ★ 24	Uppskattad sammanlagd produktionskostnad, inkl moms	**1 000-tal kronor** ★

Halmstad

★ = Obligatoriskt fält

Kontrollansvarig

Anmäls på särskild blankett

☐ Riksbehörig kontrollansvarig är anmäld	**Behörighetsklass** ☐ Normal art	☒ Komplicerad art
☐ Söker godkännande för aktuellt projekt		

Utvändiga material och färger (vid ny- och tillbyggnad, ombyggnad samt ändring)

Fasadbeklädnad — **Annat** — **Färg** (NCS-nr)

☒ Tegel ☐ Betong ☐ Plåt ☐ Trä ☐ Puts ☐ Glas

Takbeläggning

☒ Lertegel ☐ Betong ☐ Plåt ☐ Papp ☐ Skiffer ☐ Koppar

Fönster — **Fönsterbågar**

☐ Isolerglas ☐ Treglas ☒ En-/Tvåglas ☐ Trä ☐ Plast ☒ Lättmetall

Anslutning till	**Kommunalt**	**Gemensamhets-anläggning**	**Enskild anläggning**
Vatten	☐	☐	☐
Avlopp	☐	☐	☐
Dagvatten	☐	☐	☐

Uppvärmningssätt

Grundläggningssätt

Information

NPBL 9 kap 22 § Om ansökningen är ofullständig, får byggnadsnämnden förelägga sökanden att avhjälpa bristerna inom en viss tid. Föreläggandet ska innehålla en upplysning om att ansökan kan komma att avvisas eller att ärendet kan komma att avgöras i befintligt skick om föreläggandet inte följs.

Om föreläggandet inte följs, får byggnadsnämnden avvisa ansökan eller avgöra ärendet i befintligt skick.

Sakkunnigutlåtande (NPBL 8 kap 4 §)

☐ Tillgänglighet	☐ Funktionalitet	☐ Konstruktion	☐ Energihushållning
☐ Brandsäkerhet	☐ Miljö och hälsa	☐ Vatten och avlopp	☐ Buller
☐ Kulturhistoriskt värde			

Bilagor

Bifogade handlingar

☐ Situationsplan	☒ Nybyggnadskarta (tomtkarta)	☒ Planritningar	☐ Rivningsplan
☒ Sektioner	☒ Fasadritningar	☐ Bevis om färdigställandeskydd	
☐ Byggfelsförsäkring		☒ Teknisk beskrivning	☒ Anmälan kontrollansvarig

Annat

Om ansökan avser rivning eller ändrad användning ange

Husets ursprungliga byggnadsår eller användning under den senaste 10-årsperioden

Antal lägenheter före åtgärden	**Antal hissar före åtgärden**	**Antal hissar som installerats**

Beskrivning av projektet och eventuella förtydliganden till ovan lämnade uppgifter

Avgift

Avgift betalas enligt av kommunen fastställd taxa

Ovanstående personuppgifter kommer att behandlas enligt personuppgiftslagen (PuL)

Sökandens underskrift ..... **Namnförtydligande** .....

Kommunens uppgifter

Datum för beslut	**Län**	**Kommun**	**Församling**

Halmstad

★ = Obligatoriskt fält

Anvisningar och förklaringar

Arbetena får inte påbörjas innan startbesked har lämnats eller annat överenskommits med kommunens byggnadsnämnd.

Kommunen debiterar enligt särskild taxa för hanteringen av bygglovet.

OBS! Glöm inte att underteckna ansökan

Blanketten består till stor del av kryssrutor. Endast ett kryss ska markeras i varje stycke. Om flera alternativ är möjliga markera det som överväger. Om oklarhet råder om detta kan förtydliganden göras i rutan Beskrivning av projektet

Sökanden är den som undertecknar blanketten och till vilken kommunens faktura för bygglovet kommer att ställas

Byggherre: Den som för egen räkning utför eller låter utföra projekterings-, byggnads-, rivnings- eller markarbeten

Fastighetsägare: Samtliga fastighetsägare och innehavare av särskild rätt, t ex arrendator, servitutshavare

Kontaktperson: Med kontaktperson avses den person som kan lämna kompletterande uppgifter om detta ärende

Ärende: Här anges det huvudsakliga ändamålet med denna ansökan

Nybyggnad: Uppförande av en ny byggnad eller flyttning av en tidigare uppförd byggnad till en ny plats

Tillbyggnad: Ändring av en byggnad som innebär en ökning av byggnadens volym

Ombyggnad: Ändring av en byggnad som innebär att hela byggnaden eller en betydande och avgränsad del av byggnaden påtagligt förnyas

Ändring av byggnad: En eller flera åtgärder som ändrar en byggnads konstruktion, funktion, användningssätt, utseende eller kulturhistoriska värde

Underhåll: En eller flera åtgärder som vidtas i syfte att bibehålla eller återställa en byggnads konstruktion, funktion, användningssätt, utseende eller kulturhistoriska värde

Annat beskrivs kort, och kan förtydligas i rutan Beskrivning av projektet

Byggnad: Här anges vilken typ av byggnad ansökan avser

Enbostadshus är ett friliggande bostadshus med en bostadslägenhet

Enbostadshus i grupp utgör minst två friliggande enbostadshus som är avsedda att försäljas, hyras ut eller upplåtas med bostadsrätt

Parhus är två direkt sammanbyggda enbostadshus med skilda ingångar från det fria

Radhus är tre eller flera direkt sammanbyggda enbostadshus

Kedjehus är två eller flera med varandra via garage, förråd eller liknande sammanbyggda enbostadshus

Tvåbostadshus är ett friliggande bostadshus med två bostadslägenheter antingen belägna i skilda plan eller bredvid varandra och i det senare fallet med gemensam ingång från det fria

Fritidshus är ett hus med planerad huvudsaklig användning för fritidsboende

Flerbostadshus (hyreshus) är den sammanfattande benämningen på bostadshus med tre eller flera bostadslägenheter. Hit räknas även sammanbyggda tvåbostadshus

Studentbostadshus är avsett att vara varaktigt förbehållet studerande vid universitet eller högskola

Hus för äldre eller funktionshindrade är bostad avsedd för äldre och för personer med funktionshinder där boendet är förenat med service, stöd och/eller personlig omvårdnad

Annat specialbostadshus avser hus för annat ändamål än hus för äldre eller funktionshindrade och studentbostad. Dessa bostäder är avsedda för temporärt boende och hyrs ut med reducerat besittningsskydd

Areauppgifter: Se särskilda skisser sidan 4 som visar hur dessa beräknas

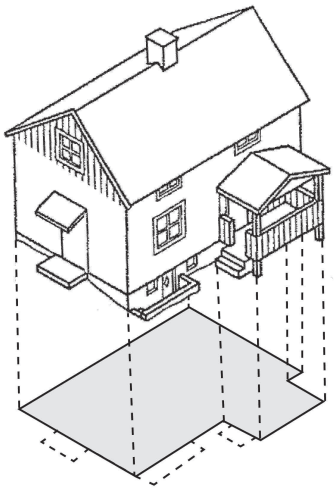
Upplåtelseform redovisar hur lägenhetsinnehavarna disponerar lägenheterna och indelas i hyresrätt, bostadsrätt samt äganderätt

Rivningsorsak kan vara t.ex. nybyggnad av bostäder, brand, uthyrningssvårigheter m.m

Vid behov kan beskrivning av projektet och eventuella förtydliganden skrivas på baksidan eller på särskilt papper

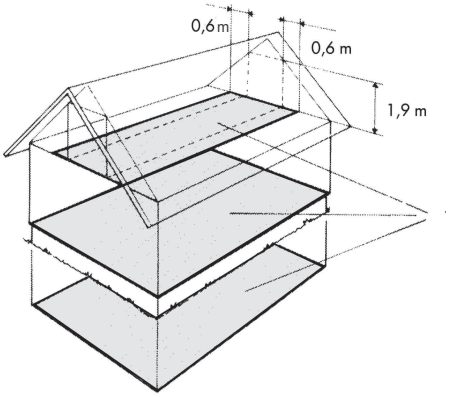
★ = Obligatoriskt fält

AREABEGREPP



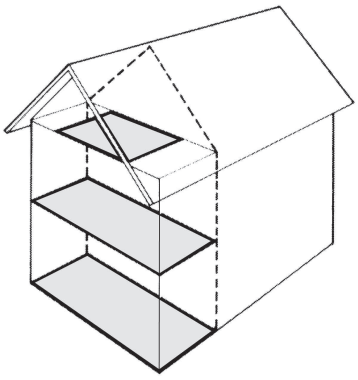
BYGGNADSAREA

Area som en byggnad upptar på marken, inklusive utkragande byggnadsdelar som väsentligt påverkar användbarheten av underliggande mark.
(Carport ingår i byggnadsarean).



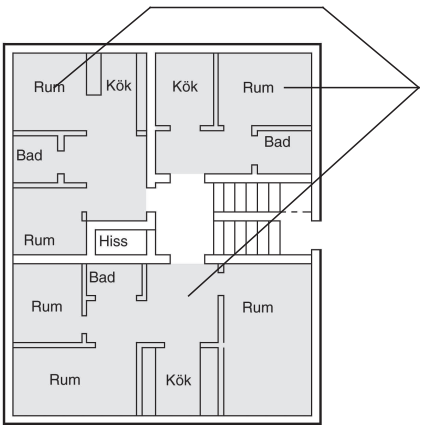
BRUTTOAREA

Area av mätvärda delar av våningsplan, begränsad av omslutande byggnadsdelars **utsida** eller annan för mätvärdhet angiven begränsning.
(Det är summan av bruttoarean i byggnadens våningsplan som skall anges.)



TILLKOMMANDE BRUTTOAREA

Vid tillbyggnad (och även vid påbyggnad och inredning av vind) räknas bara tillkommande area.



BOSTADSAREA (Boarea)

Bostadsarean är utrymmen ovan mark inrättade för boende, begränsad av omslutande väggars **insida** eller annan för mätvärdhet angiven begränsning.
(Det är summan av bostadsarean i byggnadens lägenhet som skall anges.
För specialbostäder anges enbart summan av arean i de enskilda lägenheterna.)

En mera omfattande beskrivning av ovanstående begrepp finns i Svensk Standard SS021053.
Även kommunens byggnadsnämnd kan hjälpa till med tolkning av ovanstående.

Halmstad
BYGGNADSKONTORET

BESTÄLLNING AV NYBYGGNADSKARTA/ENKEL NYBYGGNADSKARTA/UTDRAG FRÅN PRIMÄRKARTA

FASTIGHET

Fastighetsbeteckning*	Fastighetens gatuadress*
Oket	Stuvaregatan

BESTÄLLARE

Företag eller personnamn*	Kontaktperson(företag eller organisationer)	Organisations-/Personnummer*
Eduardo Pérez Escribano		
Postadress, postnr och ort* (hit skickas karta och faktura om inget annat anges på denna blankett)		Telefon (även riktnummer)
Hemmansvägen		073436729
E-portadress (underlättar vid kommunikation)		Telefon, mobil
edu-ardo@hotmail.com		

FAKTURAMOTTAGARE (om annan än beställare)

Företag eller personnamn		Organisations-/Personnummer
Postadress, postnr och ort		Telefon (även riktnummer)
E-portadress (underlättar vid kommunikation)	Referenskod	Telefon, mobil

ÅTGÄRD

☒ Nybyggnad ☐ Tillbyggnad

BYGGNAD

☒ Enbostadshus ☒ Industri ☐ Garage ☐ Mur/Plank
☐ Annat:

KARTANS OMFATTNING

☐ Hela fastigheten ☐ Del av fastigheten (skiss bifogas)

ÖVRIGA UPPLYSNINGAR

NAMNTECKNING

Datum	Namnteckning	Namnförtydligande

FÖR BYGGNADSKONTORETS NOTERINGAR

Nybyggnadskarta enkel primär

Gällande planer _____

Till Tekniska kontoret _____ Återkom _____

Karta levererad _____

Faktura.nr _____ Fakturabelopp _____

*OBLIGATORISKA UPPGIFTER
(Beställningen är bindande)
Er ansökan kommer att behandlas enligt personuppgiftslagen (PUL), §10 punk 8.
Avgift tas ut enligt taxa antagen av kommunfullmäktige.

Halmstads kommun, Byggnadskontoret, Lantmäteri & kartavdelningen
Box 153, 301 05 Halmstad • Besöksadress: Rådhuset • Tel 035-13 72 30 • Fax 035-13 72 82
Organisationsnr: 212000-1215 • E-post: byggnadskontoret@halmstad.se • www.halmstad.se

Halmstad
Byggnadskontoret
Box 153, 301 05 HALMSTAD

Översiktlig
TEKNISK BESKRIVNING
Datum

Denna blankett används lämpligen i ärenden
med särskild handlingsförteckning från sökanden

Egenskapskrav enligt PBF (2011:338) 3 kap 7-26 §

Fastighet

Fastighetsbeteckning
Oket

Undergrund

Grundundersökning utförd	Typ av undergrund	Markradonförhållanden
☐ Ja ☒ Nej		☐ Högradon ☐ Normal-radon ☐ Lågradon ☐ Ej undersökt

Grund

Typ		
☐ Källare	☐ Krypgrund	☒ Hel platta
Grundförstärkning		**Annat system**
☐ Fyllning, packning	☐ Pålar/Plintar	

Stomme och anslutande delar

Bärande delar i våningsplan					**Ritning nr**
☐ Yttervägg	☐ Innervägg	☒ Pelare			
☐ Trä	☐ Betong	☒ Stål	☐ Lättbetong	☐ Tegel	**Annat material**
Vertikala bärande delar				**Annat material**	**Ritning nr**
☐ Trä	☐ Betong	☒ Lättbetong			
Takkonstruktion					**Ritning nr**
☐ Ramverk	☒ Fackverk	☐ Balk	☐ Uppstolpad		
Fasadbeklädnad					
☐ Trä	☐ Tegel	☐ Kalksandsten	☐ Puts	**Annat material**	
☐ Betong	☐ Plåt				
Takbeläggning				**Annat**	**Taklutning, grader**
☐ Papp	☒ Tegel	☐ Betong	☐ Plåt		
Fönster					
☒ 2-glas	☐ 3-glas	☐ 4-glas	☐ Förseglade rutor		

Värmeinstallation

☐ Anläggning i byggnaden	☒ Fjärrvärme	☐ Annan gemensam anläggning	
Uppvärmning			**Värmeåtervinning** (beskriv)
☒ Vattenradiator	☐ Luftvärme	☐ Golvvärme	☐ Elradiator
Energislag			**Annat energislag**
☐ Olja	☐ Gas	☐ El	☐ Fast bränsle

Värmeisolering

Beräkning, skiss eller beskrivning av konstruktion	
UM (krav) =	UM (medel) =

Ljudisolering

Beräkning, skiss eller beskrivning av konstruktion (Krav: 52 dB horisontell riktning, 53 dB vertikal och diagonal riktning)		
dB: Horisontal	**Vertikal**	**Diagonal**
dB mellan lägenheter		

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Halmstad

Luftbehandlingsinstallation

☐ Självdragsventilation (S) ☐ Fläktstyrd frånluft (F) ☐ Fläktstyrd till- och frånluft (FT)

☐ Värmeåtervinning ☐ Kylanläggning ☐ Befuktningsanläggning

Annan installation

Vatteninstallation

☒ Kommunal anläggning ☐ Gemensam/Samfälld anläggning

Sannolikt flöde i förbindelsepunkt, l/s

☐ Egen anläggning

Avloppsinstallation

Spillvatten, ansluten till

☒ kommunal anläggning ☐ gemensam/samfälld anläggning

Sannolikt flöde i förbindelsepunkt, l/s | **Lägsta golvnivå** (plushöjd, m)

☐ egen anläggning

Regnvatten, ansluten till

☒ kommunal anläggning ☐ gemensam/samfälld anläggning

Sannolikt flöde i förbindelsepunkt, l/s | **Lägsta golvnivå** (plushöjd, m)

☐ egen anläggning

Dräneringsvatten, ansluten till

☒ kommunal anläggning ☐ gemensam/samfälld anläggning

Lägsta golvnivå (plushöjd, m)

☐ egen anläggning

Övrigt

Stomsystem

☐ Helt förtillverkat ☐ Delvis förtillverkat ☐ Helt platsbyggt

Skyddsrum

☐ Ja ☒ Nej

Experimentbyggande

☐ Ja ☒ Nej

Typgodkännande

☐ Ja, bilägg kopia av godkännandet ☐ Nej

Allmänna upplysningar

Byggherre Eduardo Pérez Escribano	**Ansvarig arbetsledare** (frivillig uppgift)
Arkitekt Andreas Farakos Ricós y Eduardo Peréz Escribano	**Byggnadskonstruktör**
VVS-konstruktör	**Beskrivningen utförd av**

Underskrift (sökande)

.....

Kommunens yttrande

Vatten och avlopp anslutet till allmän anläggning

☐ Ja ☐ Nej

Bygglov

☐ lämnat ☐ ej lämnat ☐ erfordras ej

Fastighetsbildning

☐ ansökan lämnad ☐ erfordras ej

Detaljplan/Områdesbestämmelser

☐ finns ☐ erfordras ☐ erfordras ej

Markundersökning

☐ finns ☐ erfordras ☐ erfordras ej

Teknisk beskrivning granskad för bygglov

☐ utan erinringar ☐ med erinringar enligt bifogat yttrande

Datum	**Kontaktperson i kommunen: Namn**	**Telefon** (även riktnr)

13.2_APPENDIX 2:

PICTURES OF THE AREA

APPENDIX 2:
AREA PICTURES

13.3_APPENDIX 3:

VIRTUAL PICTURES OF THE BUILDINGS

APPENDIX 3:
VIRTUAL PICTURES OF THE BUILDINGS

APPENDIX 3:
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