FINAL PROJECT

ERASMUS STUDENT

JUNE 2013

KAHO SINT-LIEVEN AALST

BACHELOR IN CONSTRUCTION

THE KEPPEKOUTER

ESTHER CAYUELA LOPEZ

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5.. Comparative study

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BUILDING PARKING, KEPPEKOUTER

This project is based on the study of a parking building in Ninowesteenweg 190 - Korte Keppestrat, in the town of Erembodegem.

This building is made by Van de Walle Construction, and the constructor´s project manager is Mr. Roel Bonte. The Kaho tutor of the project is Mr. Filip Vanlangenhove.

The building is called "Keppekouter" it´s principal function is to serve as parking to a pair of office buildings with the same design, one of those buildings is already built (Block A),however the construction of the other one is paralyzed until the promoter sales the offices.

The parking has 3.5 floors above ground level, with a total height of 12.40 m. Characterized by being divided in two parts with alternate levels that differ from each other half plant height.
It has two ramps, located on opposite sides, which create the circular motion of the vehicles in the building. There are two staircases and an elevator whose box is located in the center of the building.
The building has two basements and a mezzanine. The foundation of the building was carried out in situ, to the ground level on one side of the building, and +1.40 m in the other (to the mezzanine meeting with top slab).
The rest of the structure from the ground +0,5 on one side and ground on the other until the cover, is made using prefabricated elements.
The walls of the building are precast concrete panels, whose holes are reinforced with two safety rails. The building has no windows and interior finishes due to its intended use.
The surface finish of the floor is going to be made by pouring a layer of concrete of at least 8cm thick armor located on the entire surface of the floor, intended to spread evenly efforts receiving structure.
After concreting the floor it will be polished.

CRANE

It is a tall crane ballasted flat about 50m and 60m range. Both dimensions are much bigger than the ones required for building construction. The election of this crane has been done because it let us to work in both buildings. Once the Block A was finished, started the construction of the park, using the same crane. Due to it´s large dimension, it was not necessary to protect adjacent buildings because all of them were outside the reach of the crane, except the office building (Block A), however it´s maximum height ,is far more than 3 meters height crane hook.

Regarding the excavation, there was a gas line, which didn´t affect directly to the scope of the excavation but it was located on one side which could hamper it´s stability due to the emptying of land.

For this porpouse we conducted a Berlina wall on the side of the excavation closer to the buried gas pipelines. The construction process of this wall consist in a kneeling before the digging are incrusted profiles, in tour case a metallic ones, to serve as guides for the rear ramming metal panels intended to contain the thrust of the land so the excavation is carried out vertically, without landslides that could affect the stability of the ground content.

Sunk of the containment metal panels on the ground.

Lands contained by the Berlina wall are not affected by the excavation, being stable, so the pipes buried in them are not affected.
Once the driving thereof is done the earthworks can start.

The water pipes are done with their buried connections with the water exit, located in the fenced perimeter of the work.
Electrical conductions are connected with underground cables from the general conduction, out of the work perimeter, to the generator next to the crane tower.

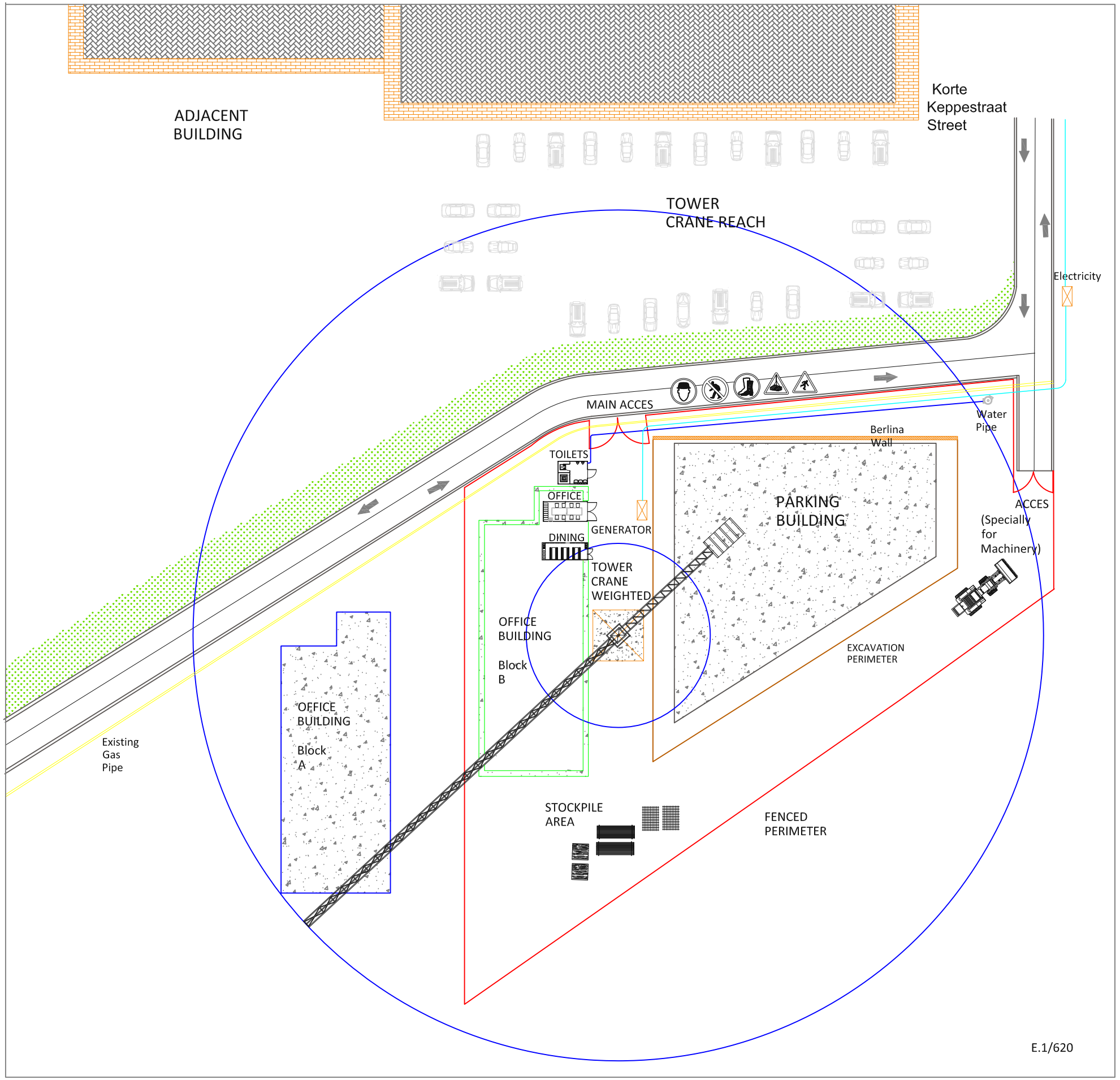
The plot has two entrances. The main entrance is closer to the huts, and the secondary is typically used by the machinery, it has more maneuver space.

Stockpile area is not completely defined, because sometimes stockpiled outside the designated area for convenience and proximity to the time of executing.

SITE INSTALLATION PLAN
CRANE

SITEHUTS

BERLINA WALL



WATER PIPE

UNDERGROUND
CONNECTION

ELECTRICITY
GENERATOR

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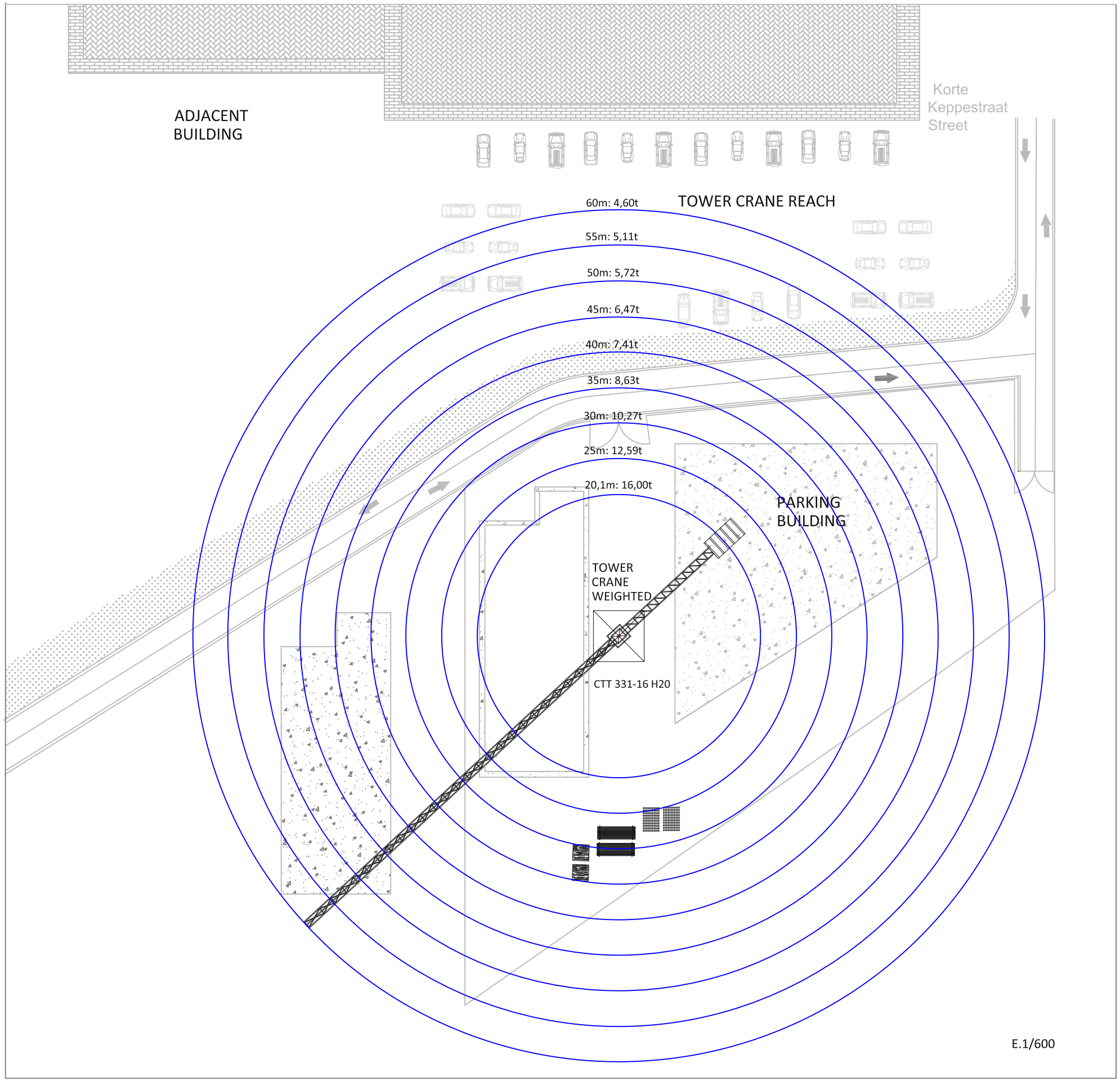
SITE INSTALLATION PLAN
CRANE



WEIGHTED CRANE

FENCED

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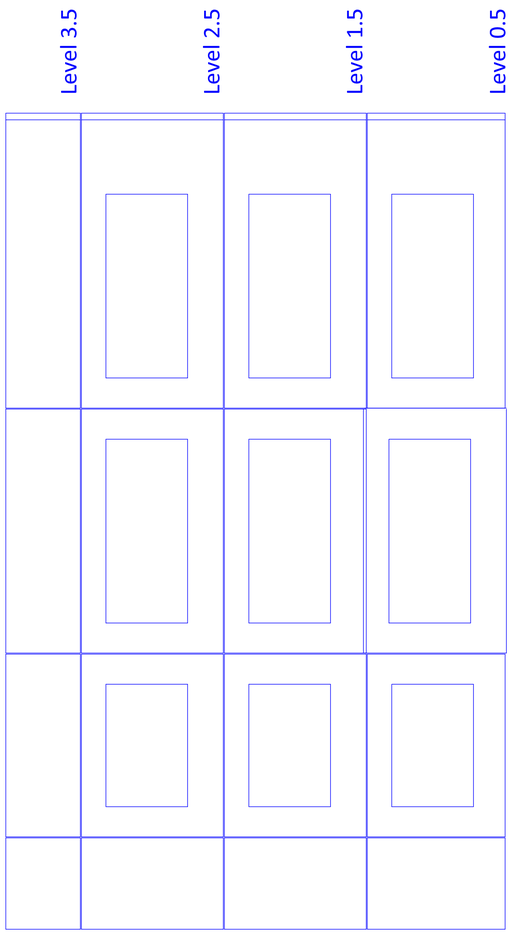
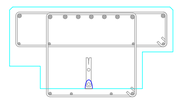
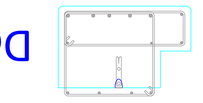




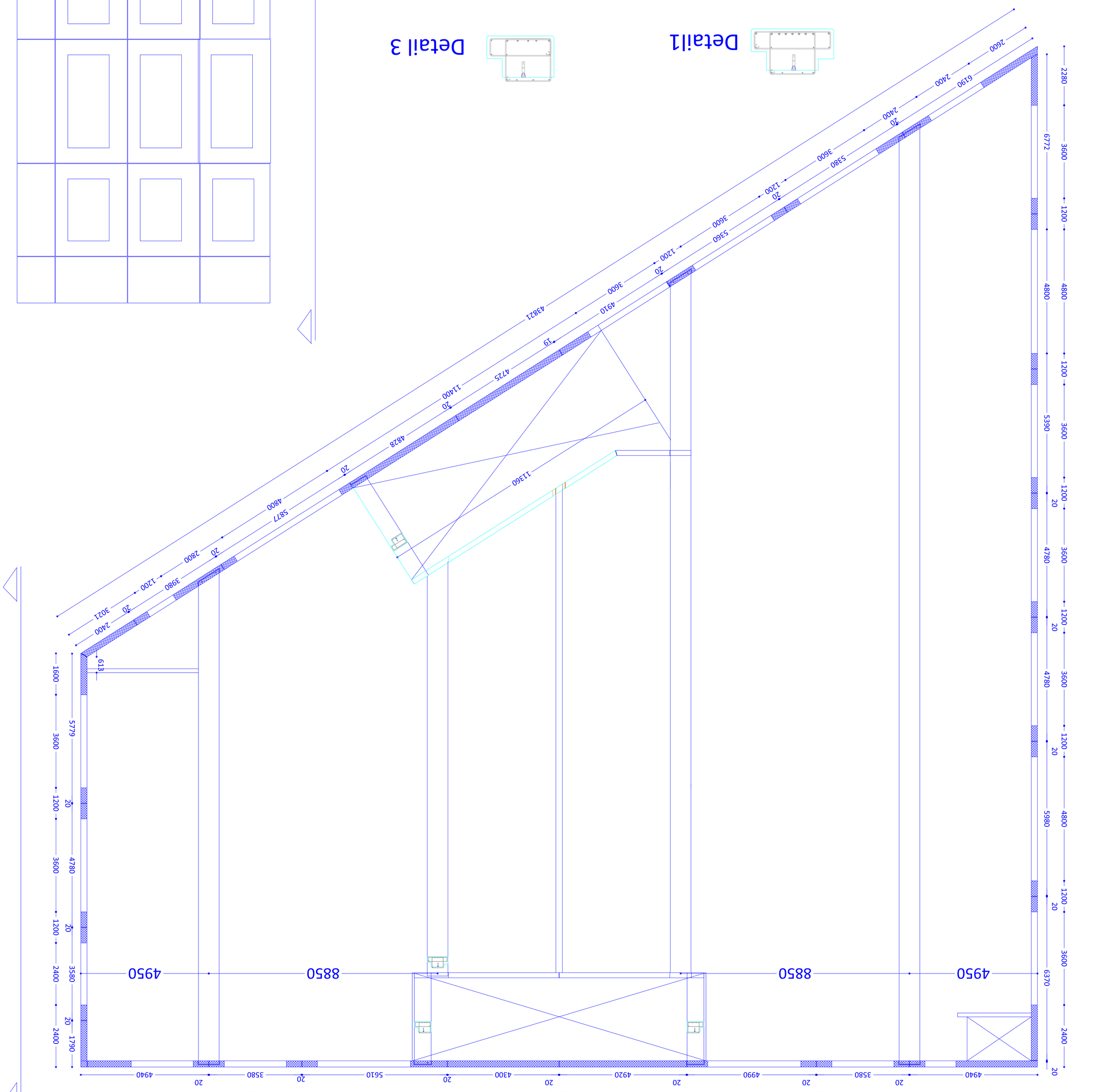
Detail 4

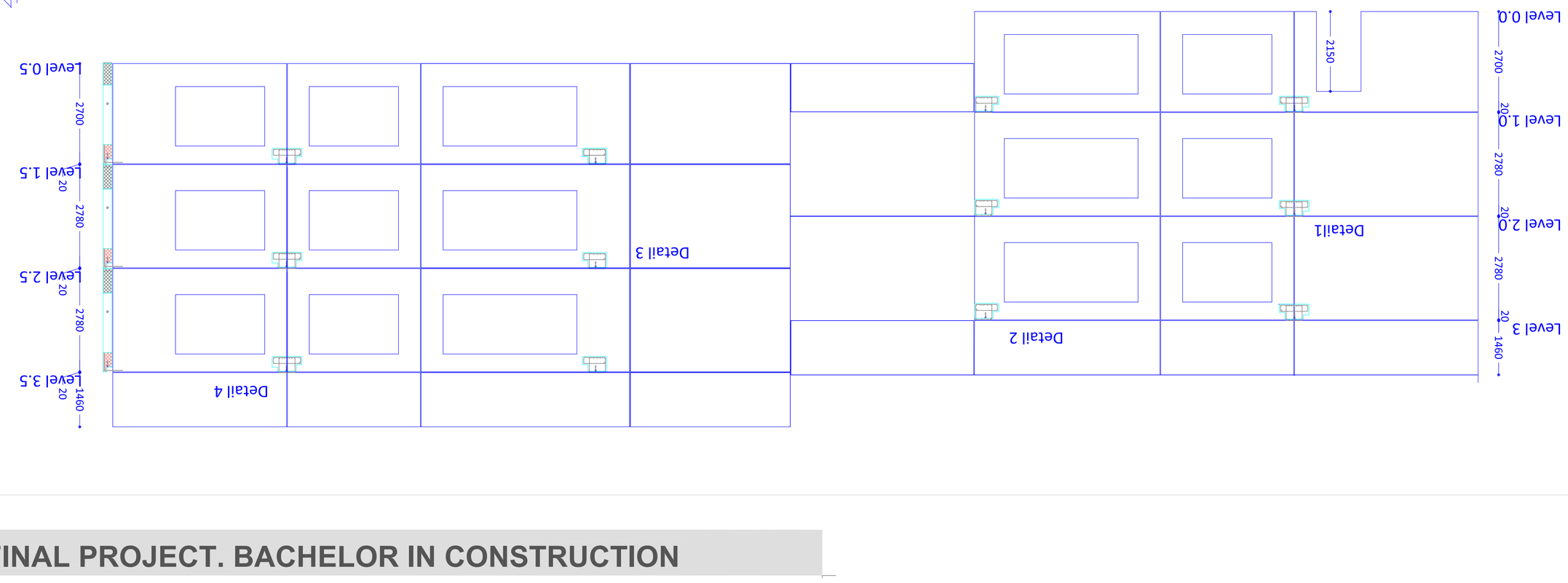
Detail 3



Detail 2

Detail1





REINFORCEMENT DETAILS AND PREFABRICATED PLATES

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2012-13

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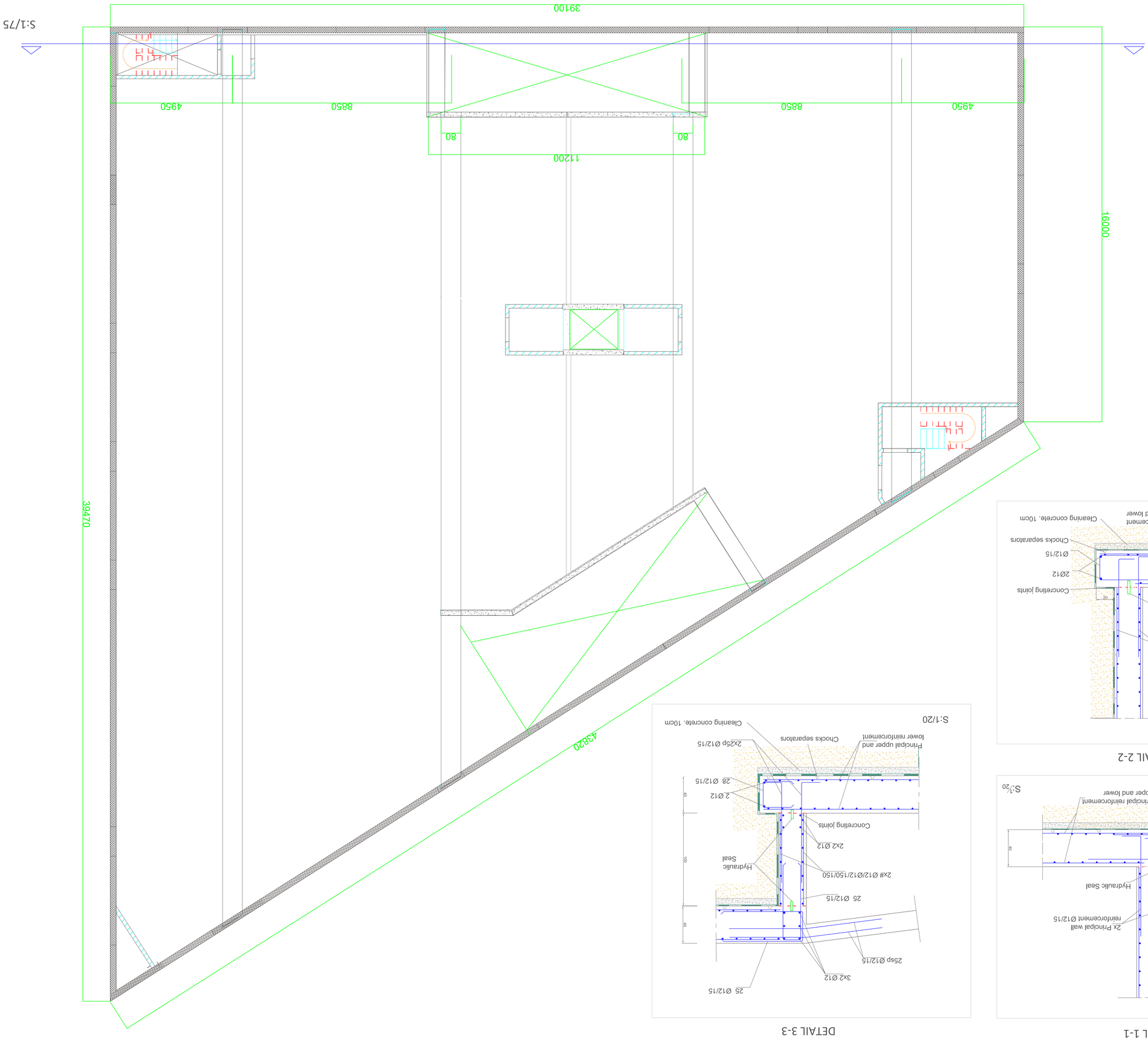

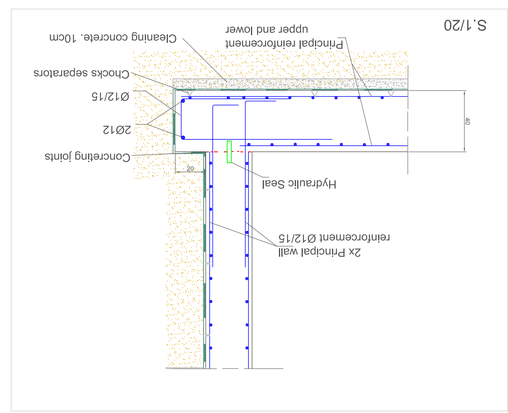

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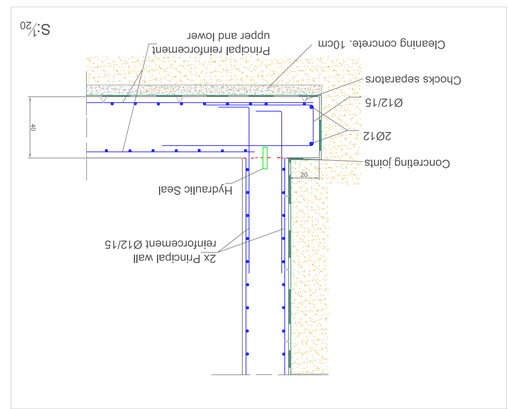
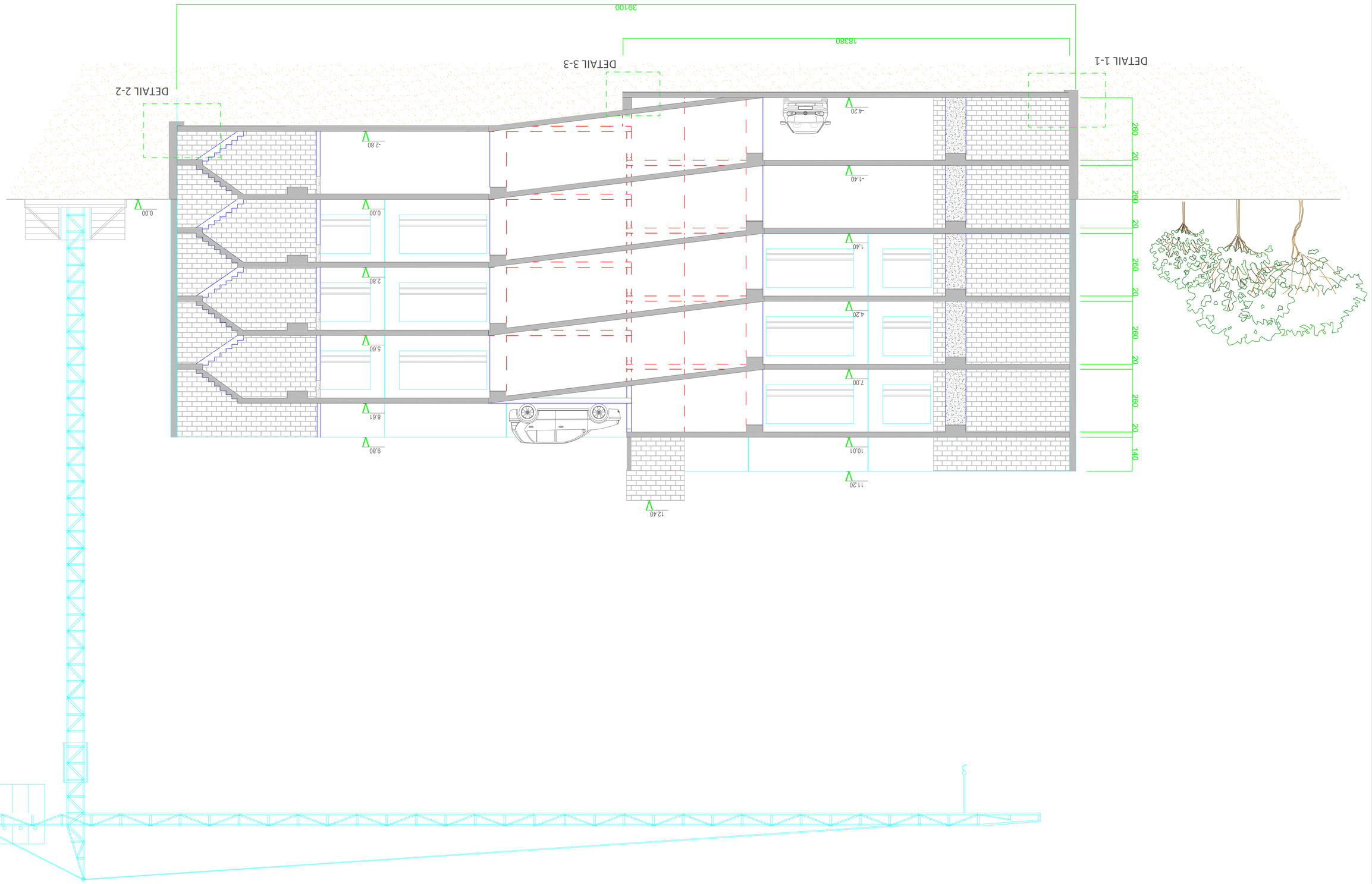


DETAIL 1-1

DETAIL 3-3



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PRINCIPAL SECTION

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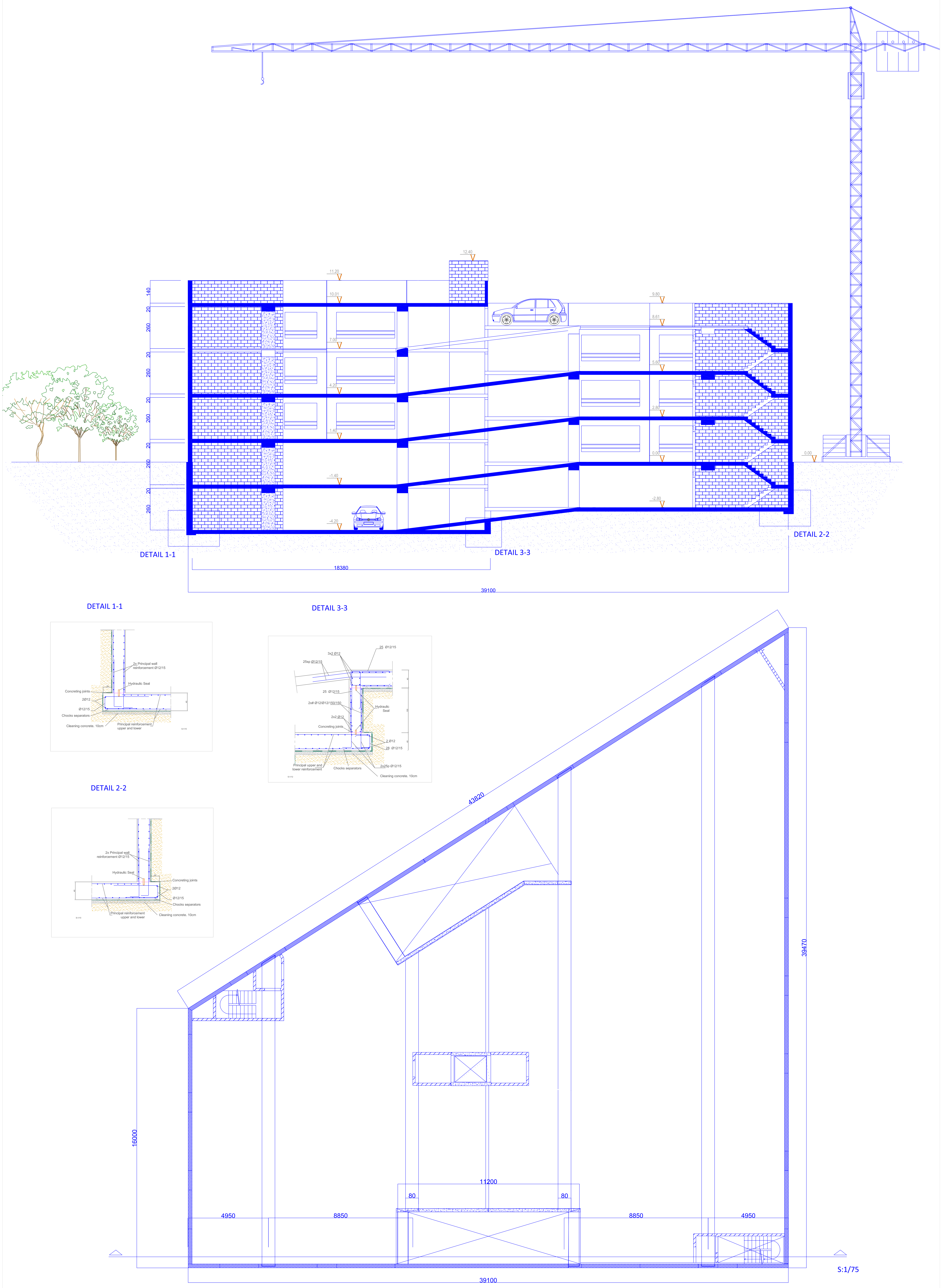
REINFORCEMENT DETAILS AND PREFABRICATED PLATES



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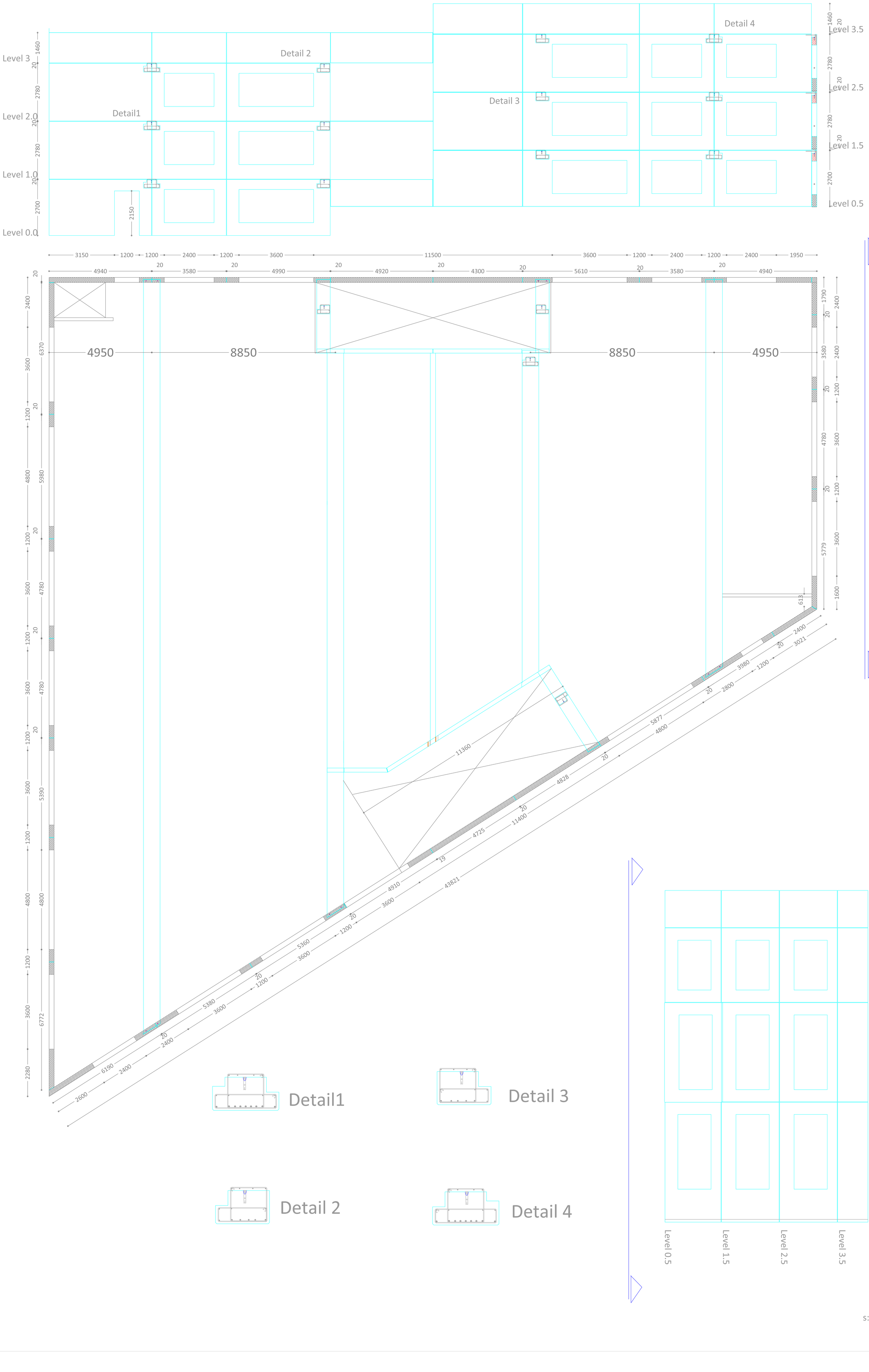
REINFORCEMENT DETAILS AND PREFABRICATED PLATES



Detail1

Detail 3

Detail 2

Detail 4

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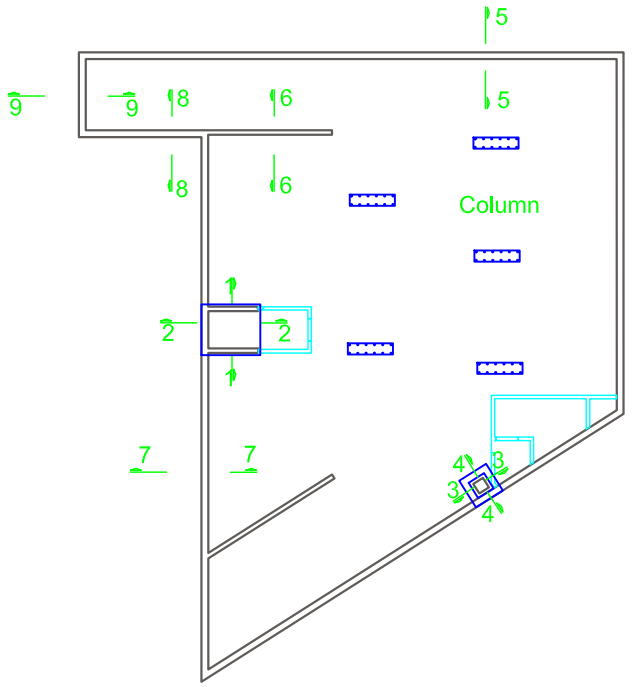

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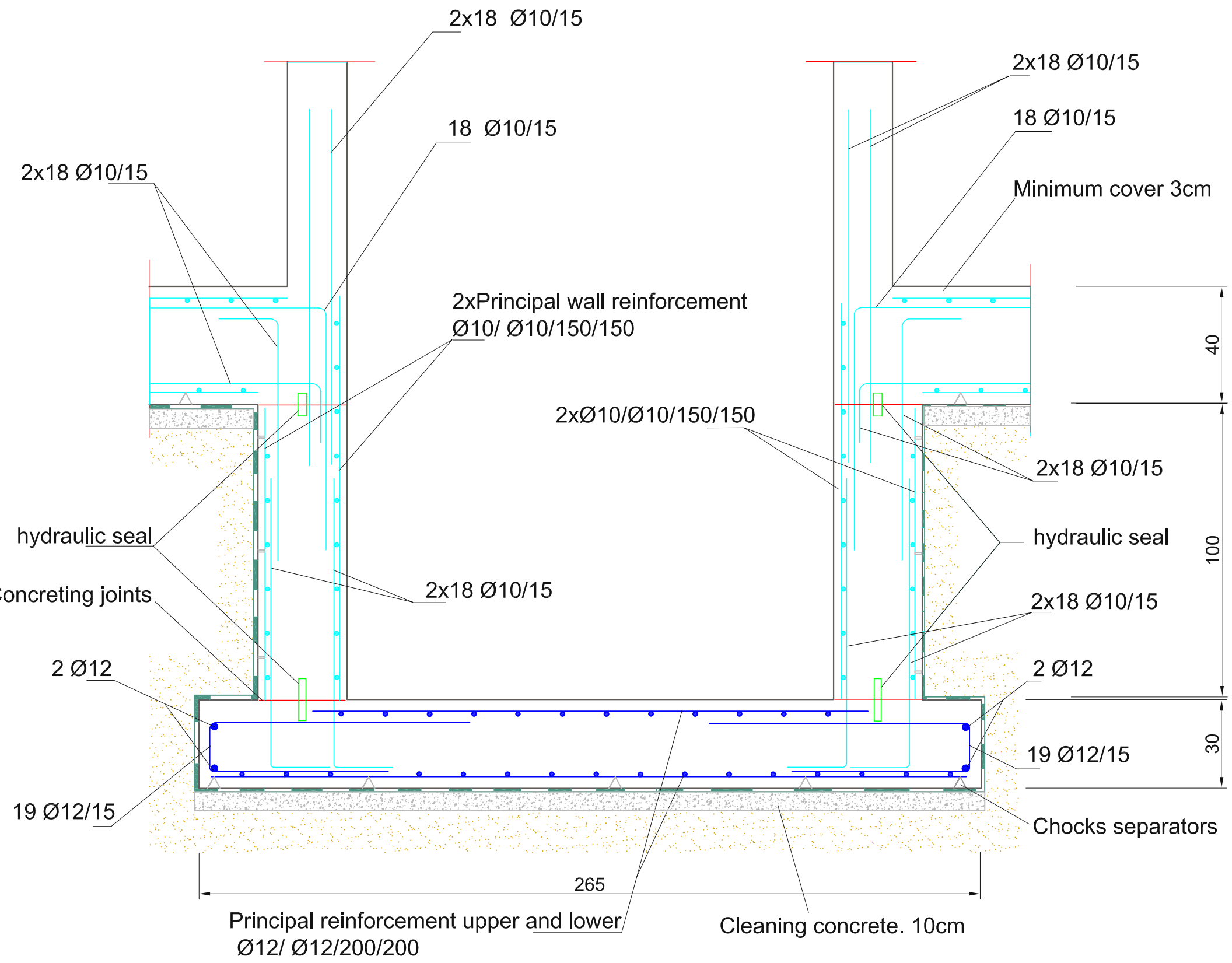

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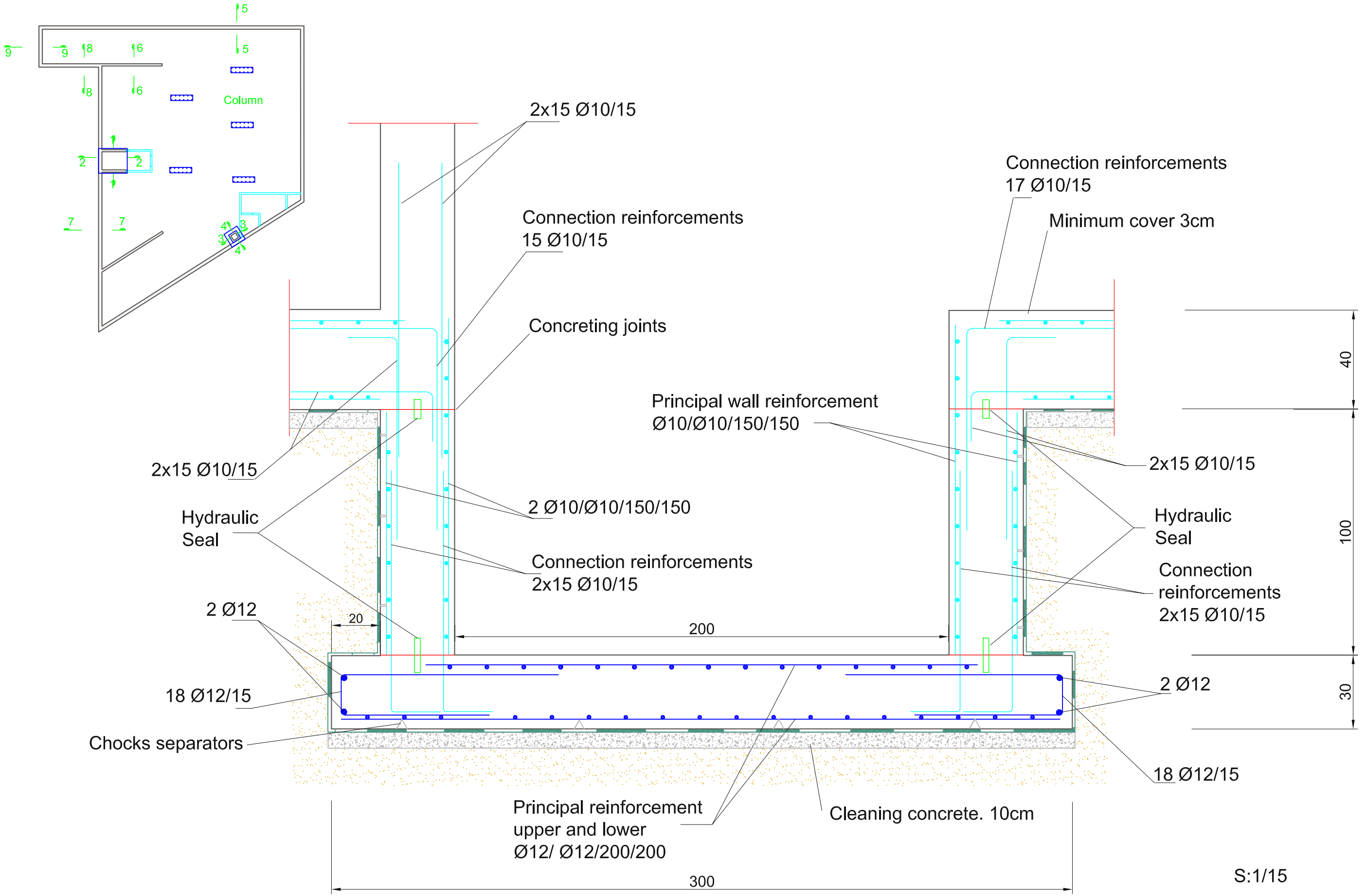

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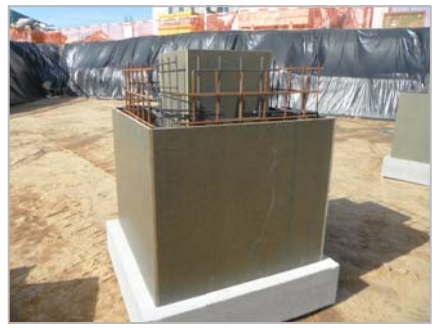

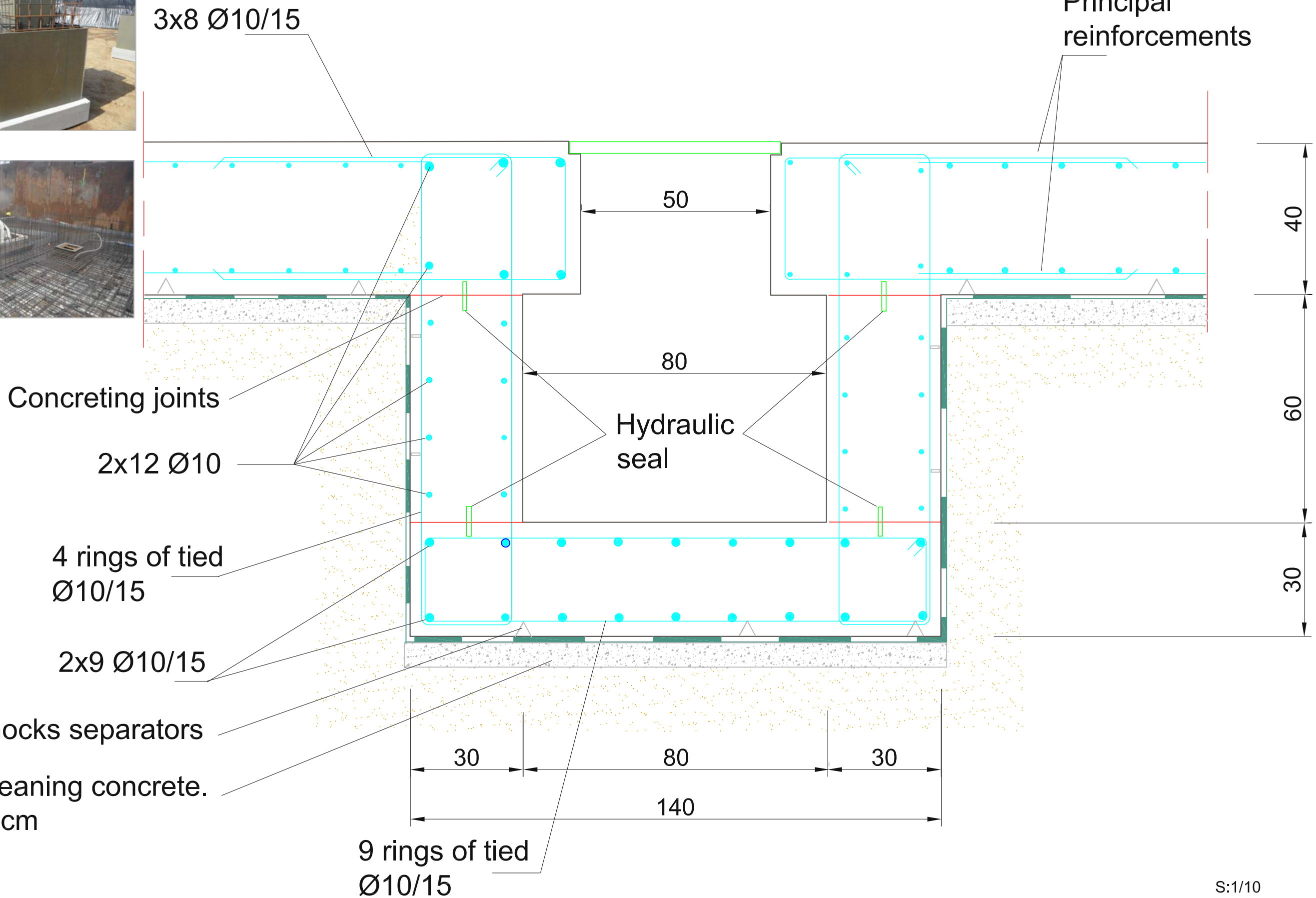

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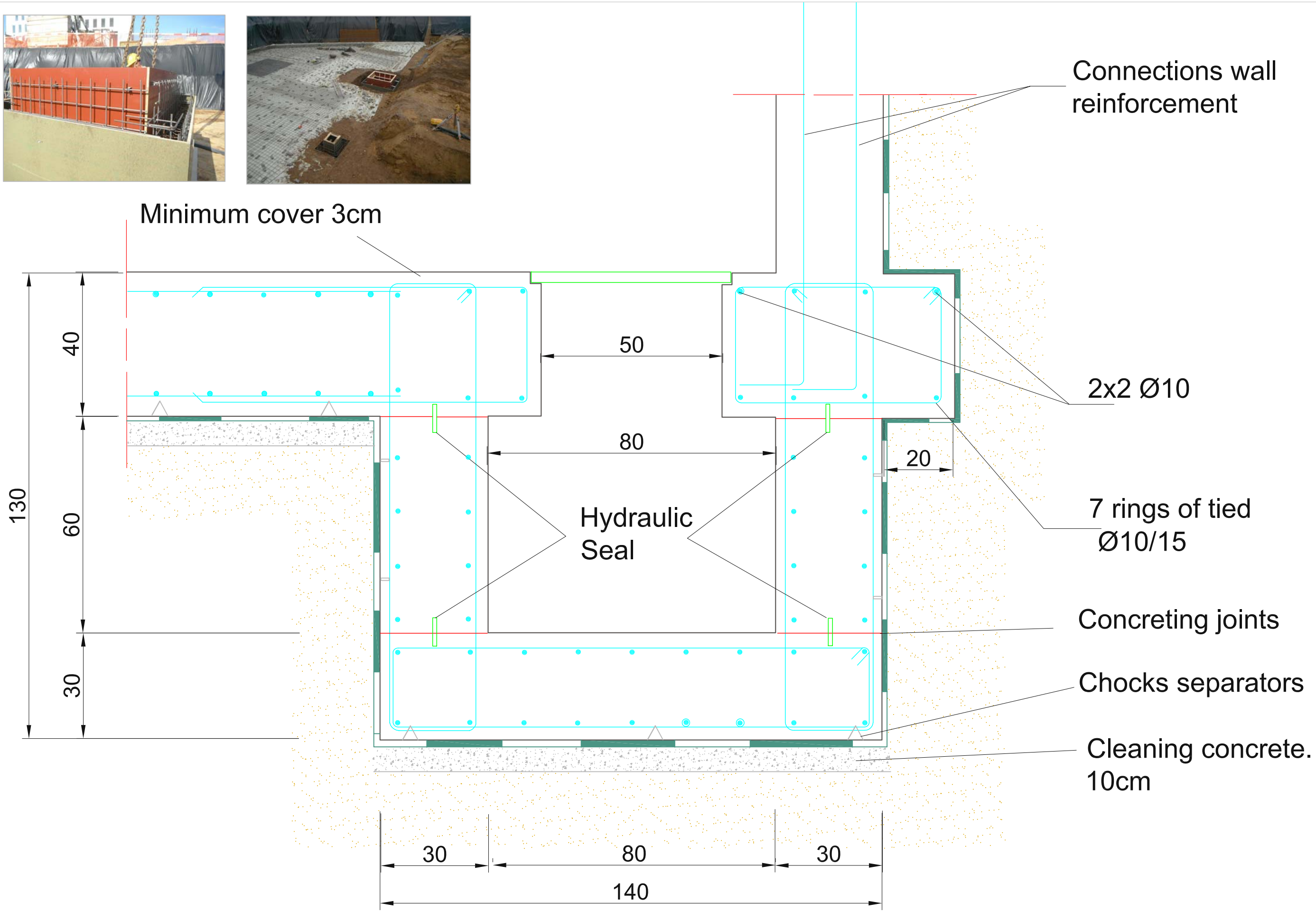
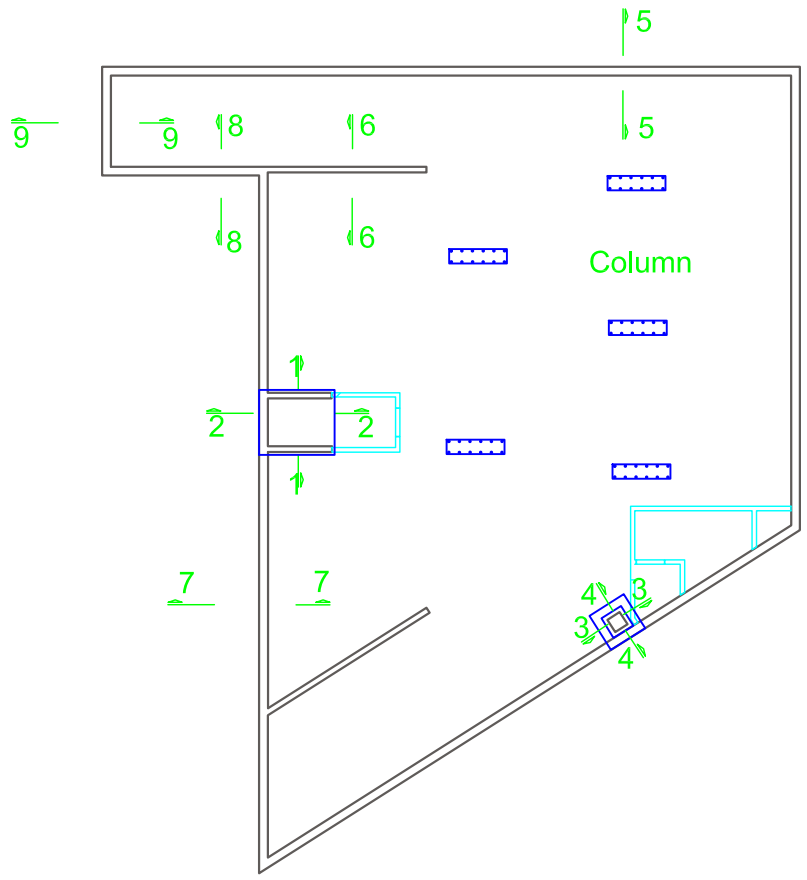
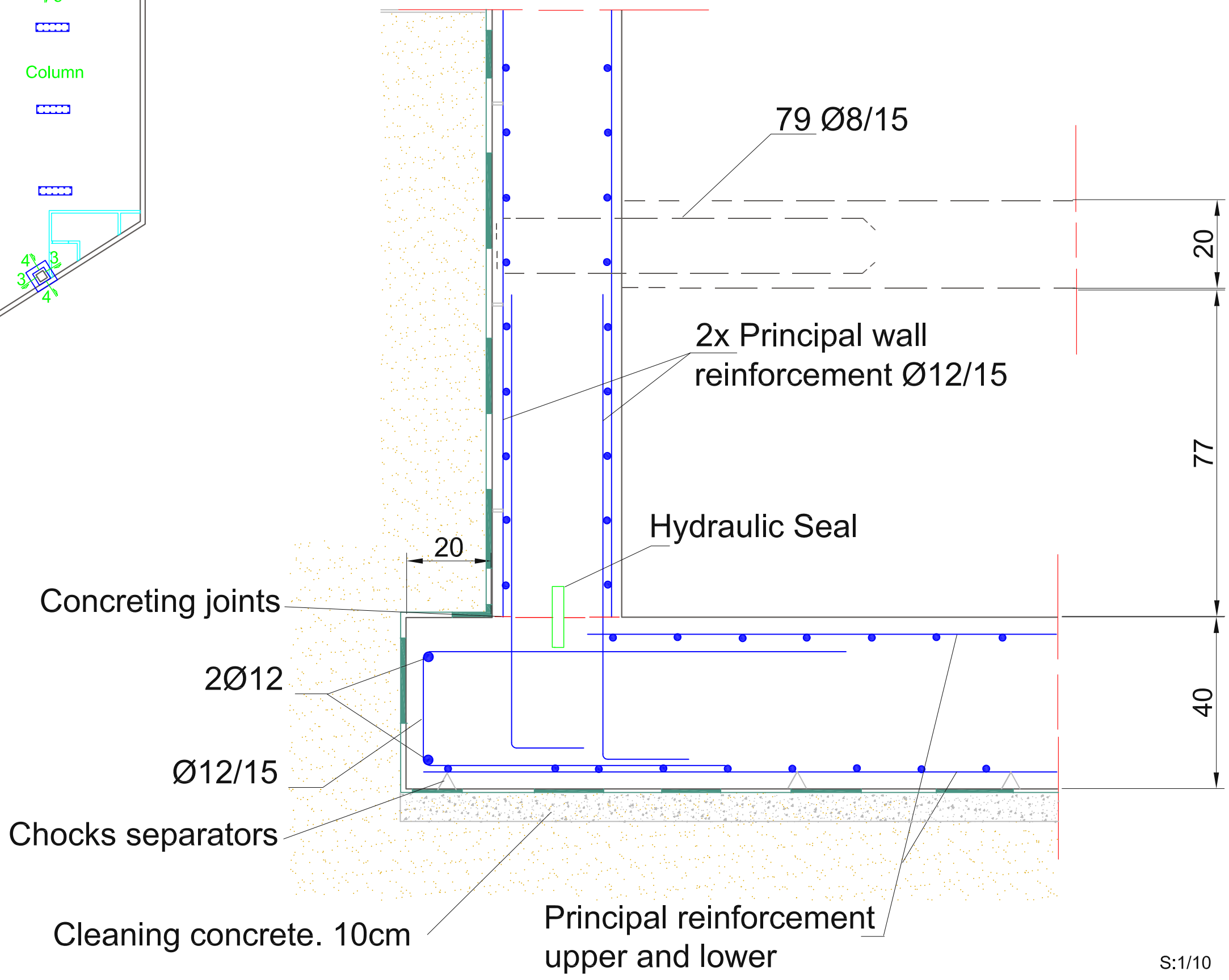

Minimum cover 3cm
Connections wall reinforcement
2x2 Ø10
7 rings of tied Ø10/15
Concreting joints
Chocks separators
Cleaning concrete. 10cm
Hydraulic Seal
130
40
60
30
50
80
20
30
80
30
140





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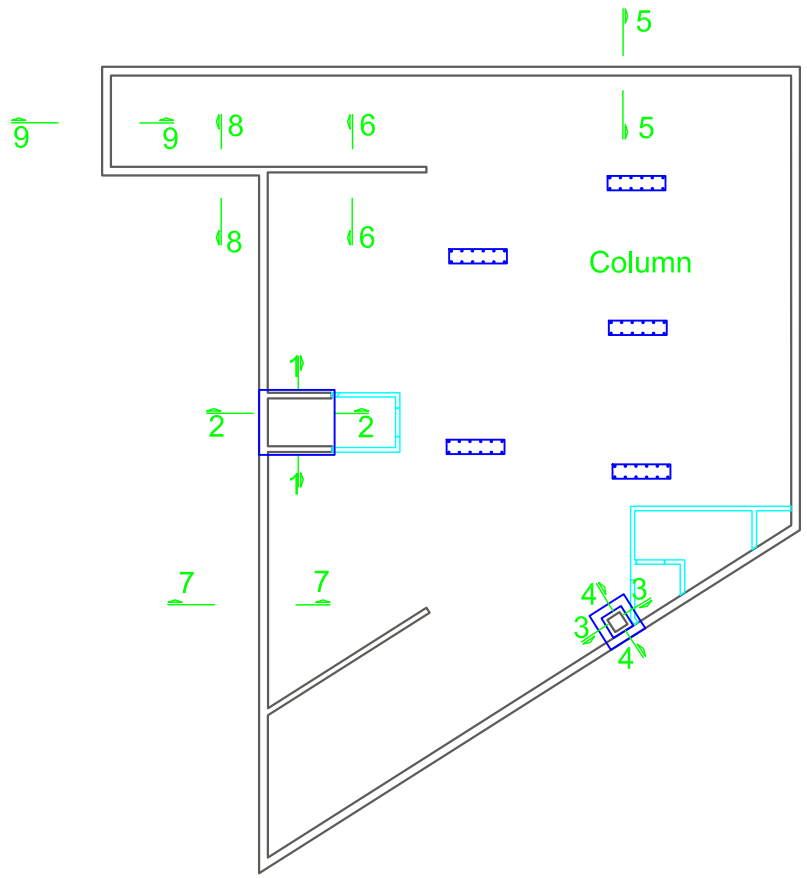

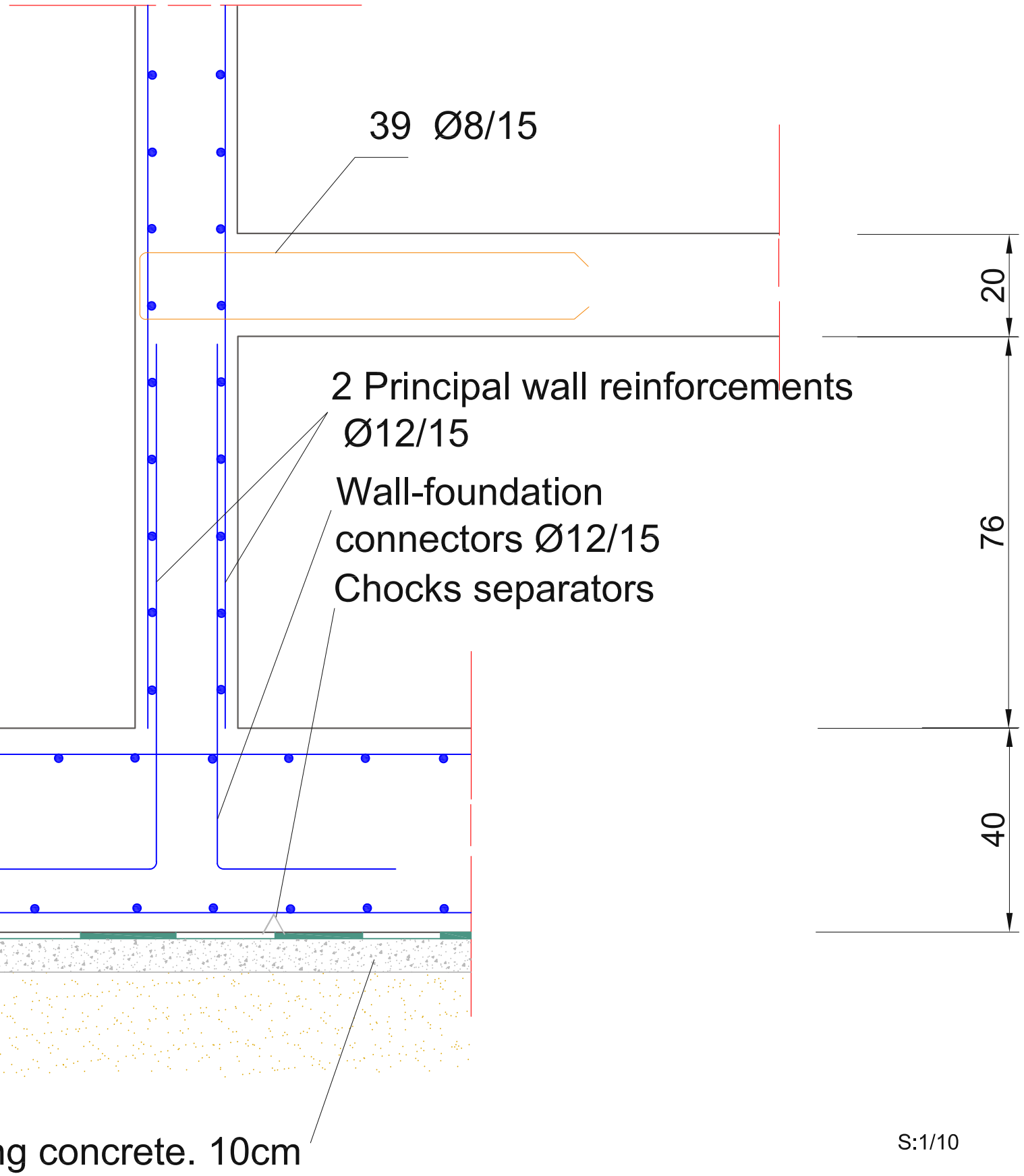

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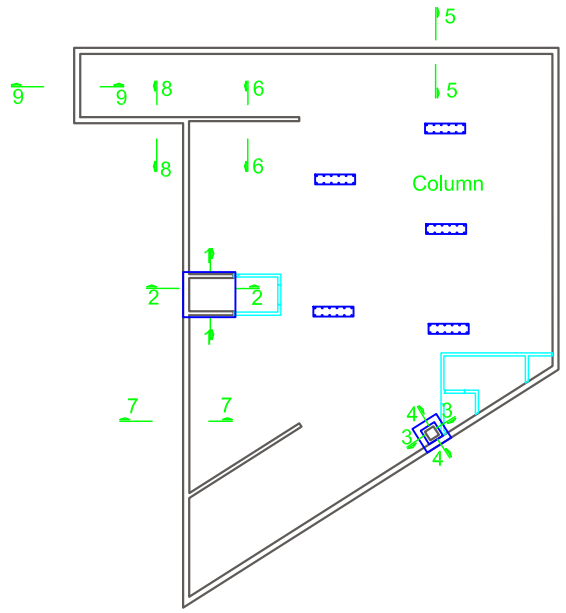

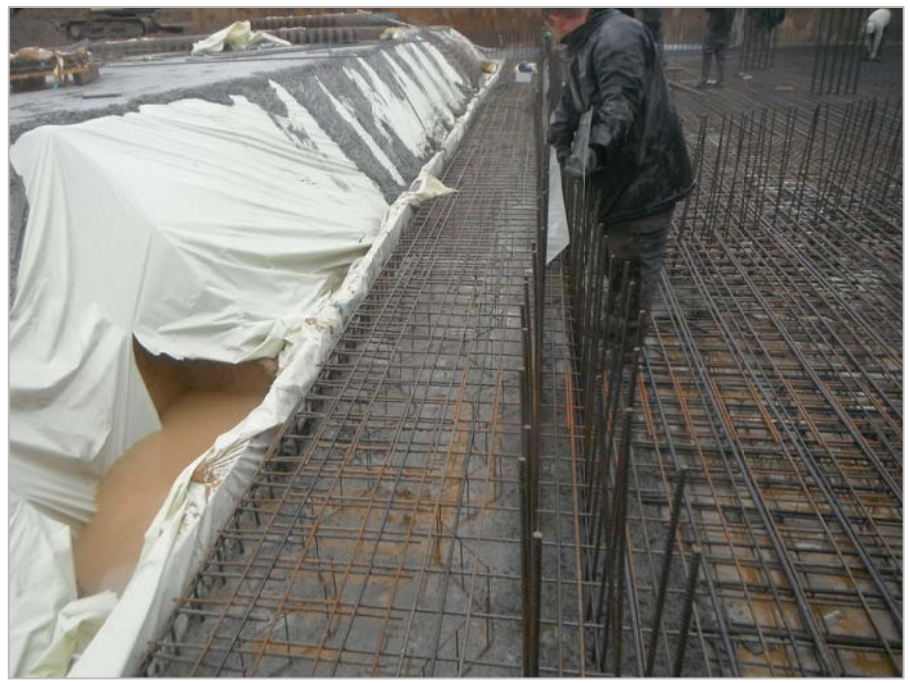

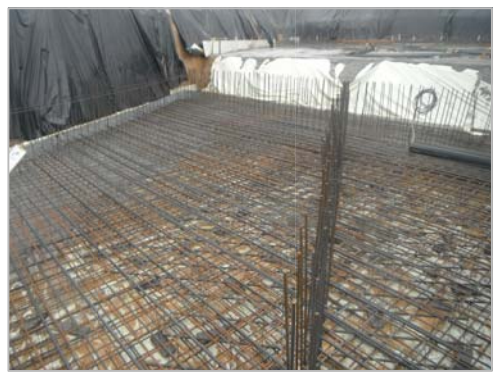

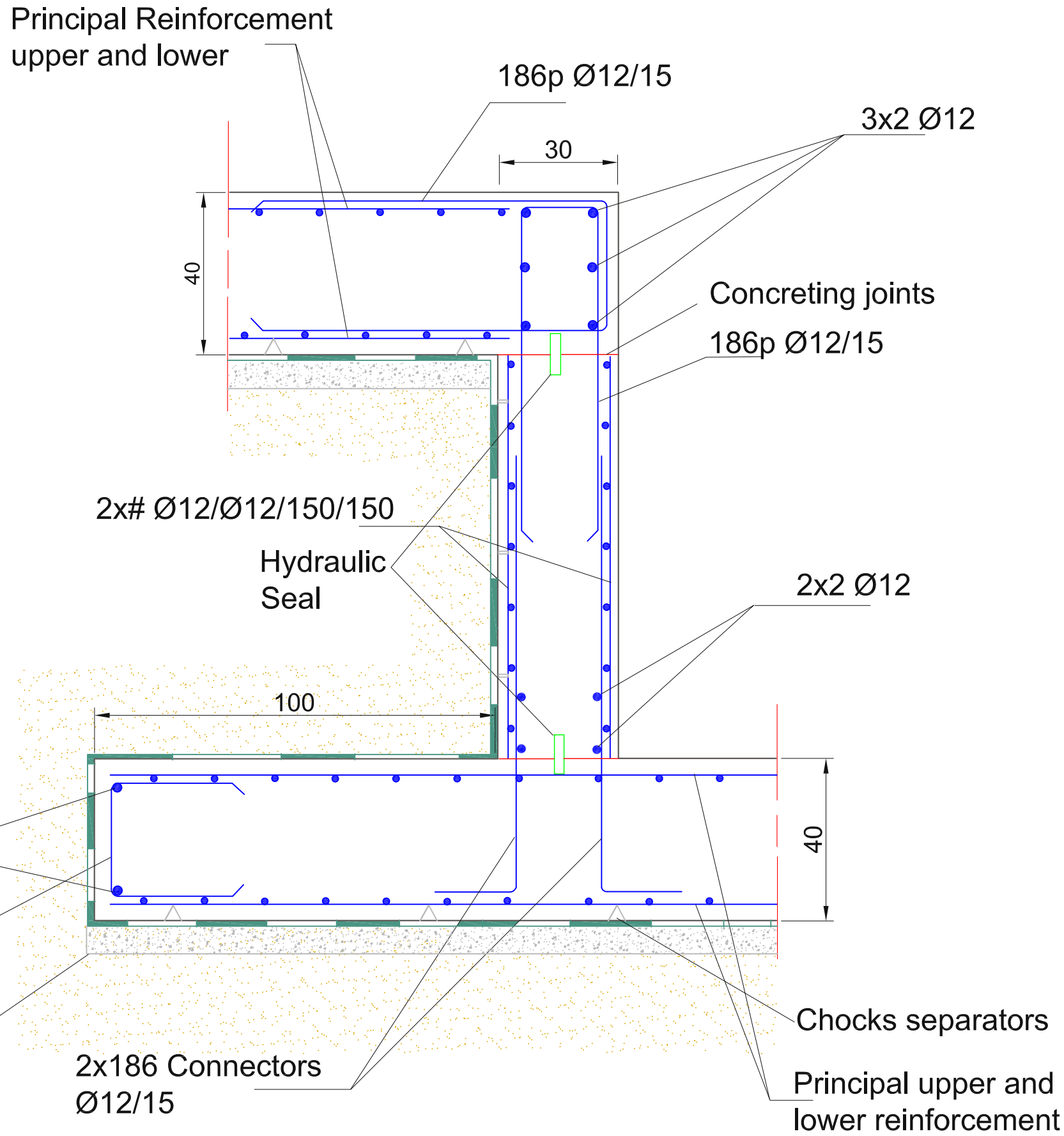

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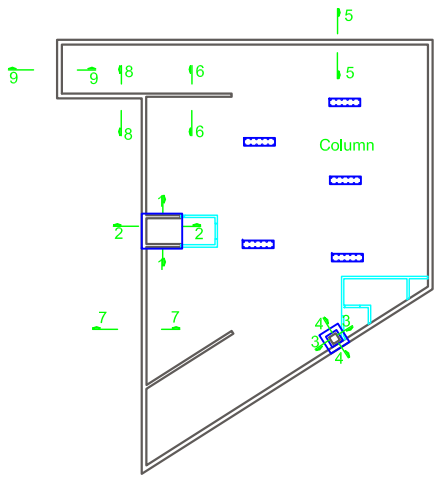
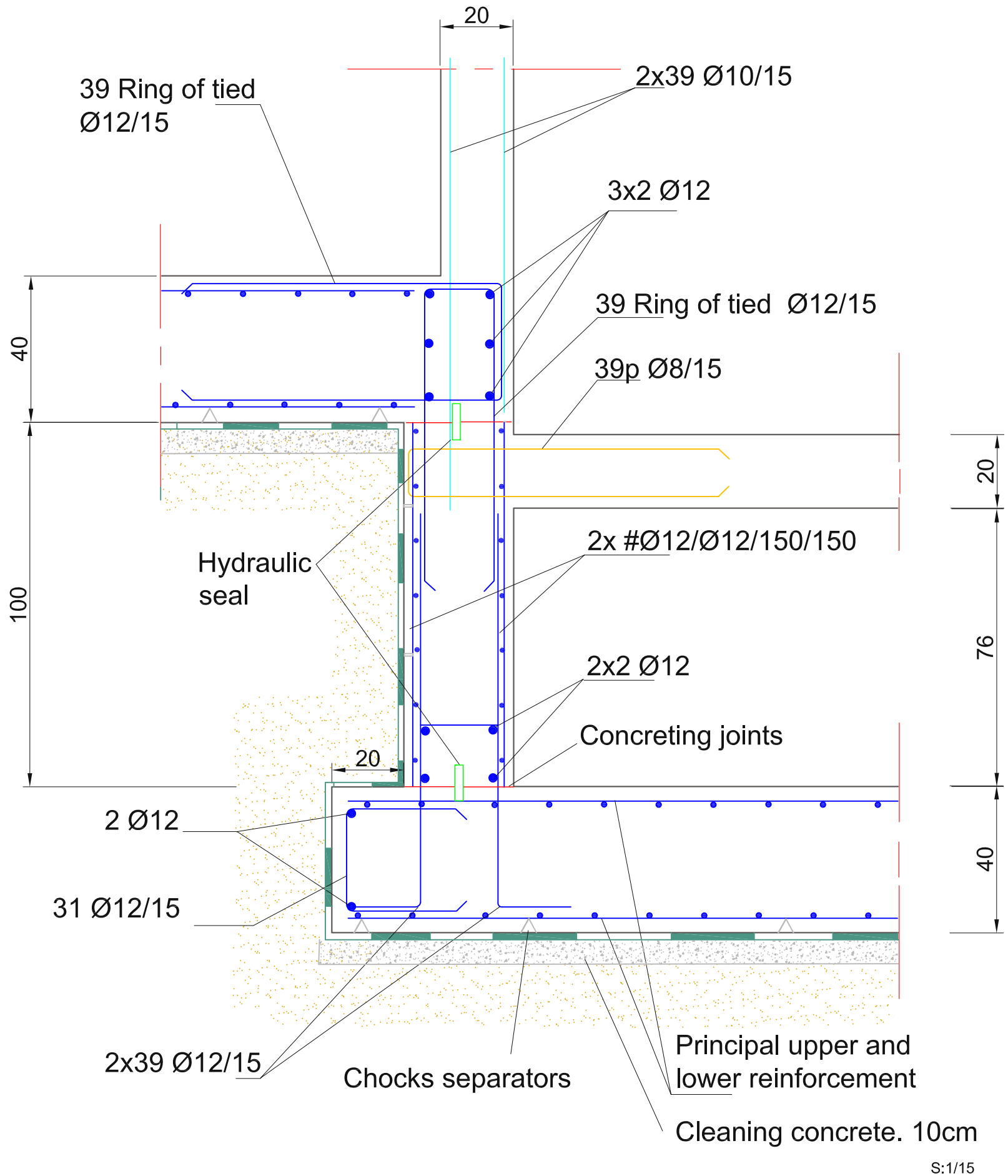
FINAL PROJECT. BACHELOR IN CONSTRUCTION





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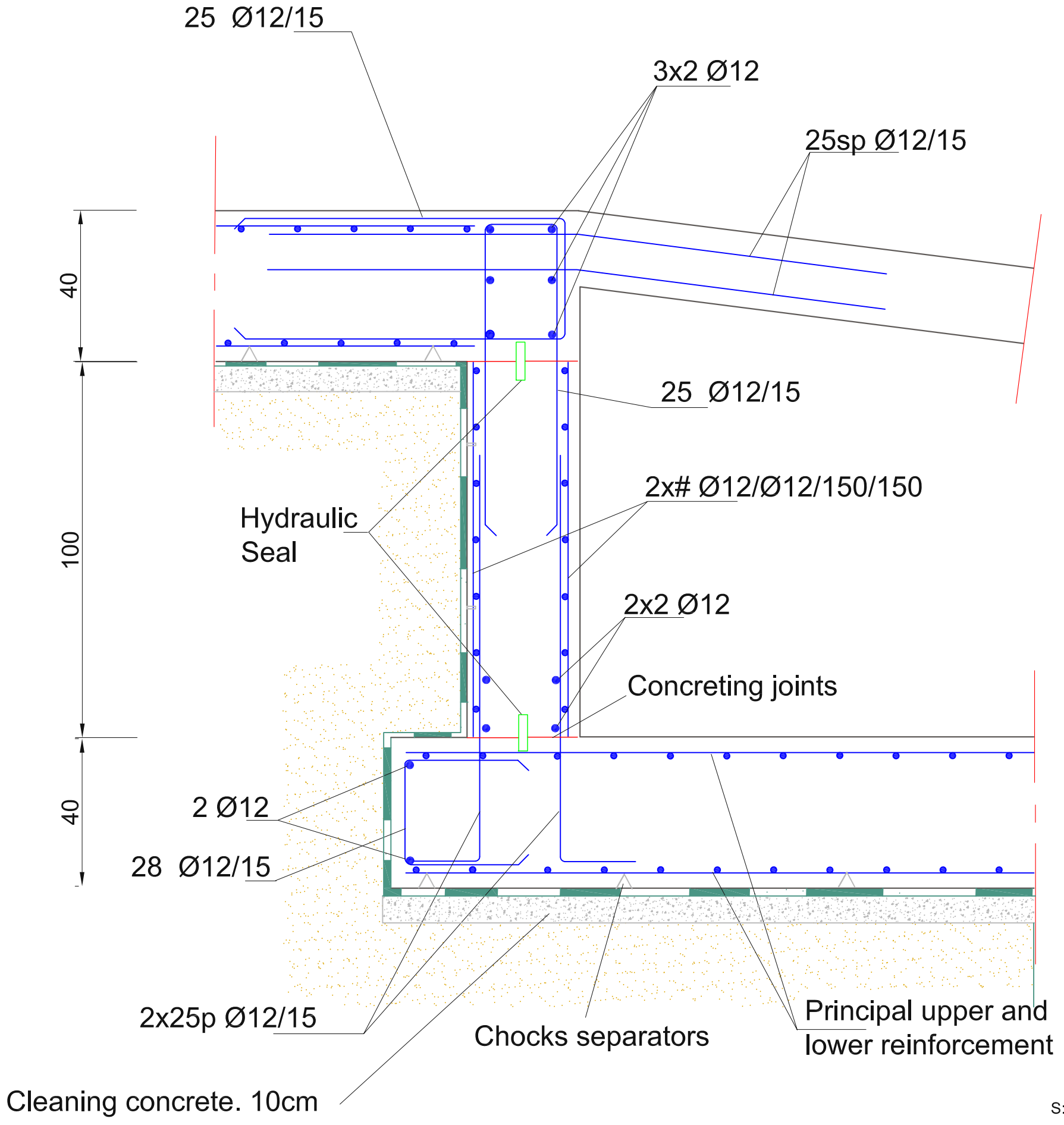
FINAL PROJECT. BACHELOR IN CONSTRUCTION



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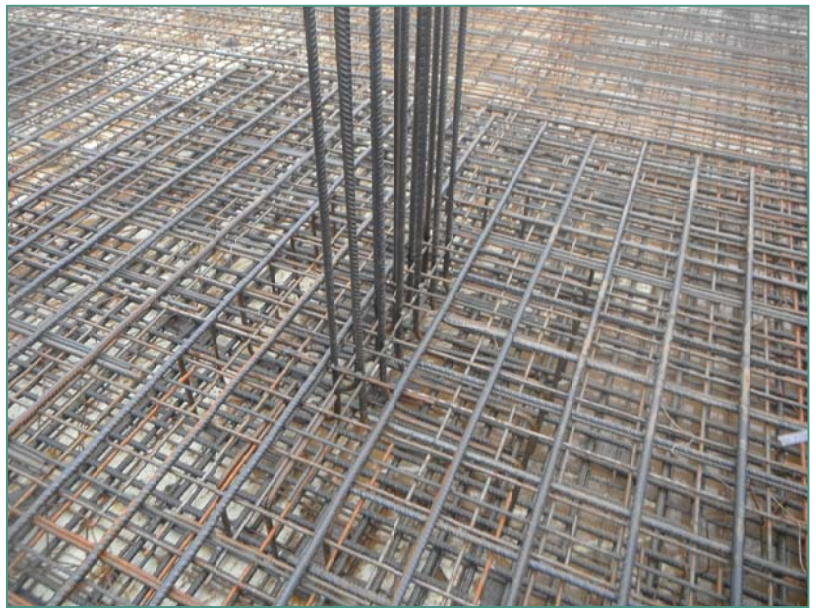

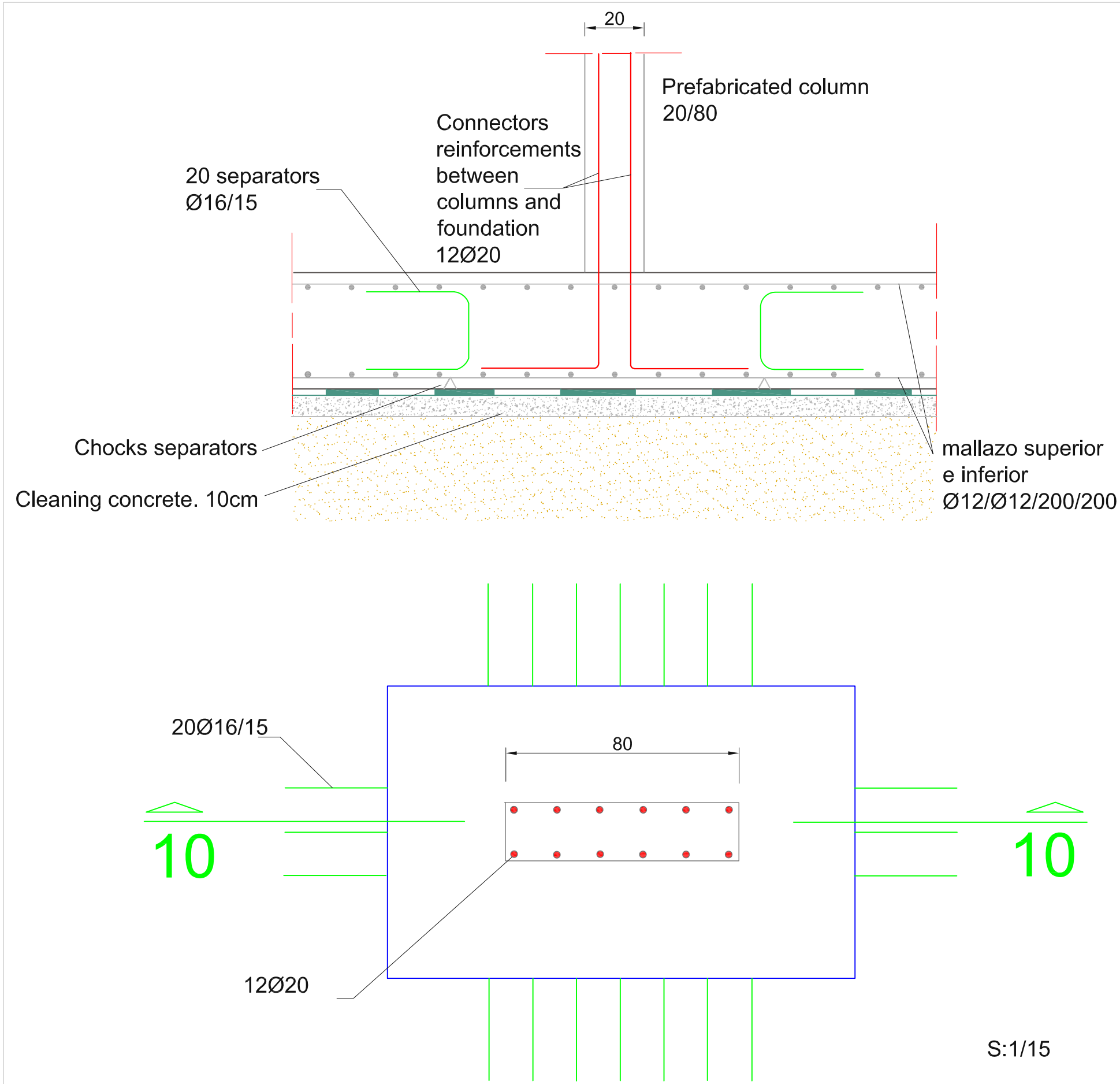

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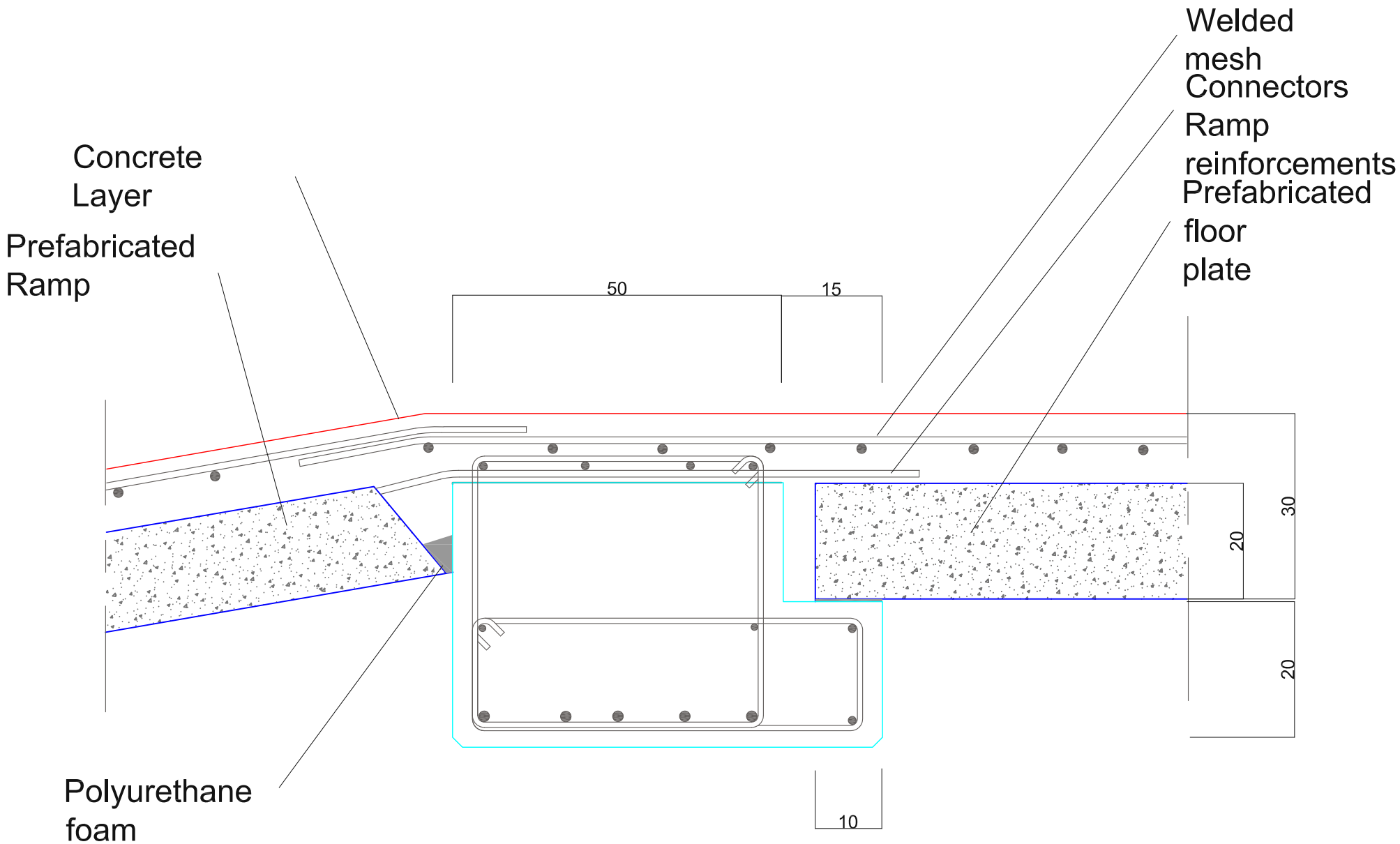
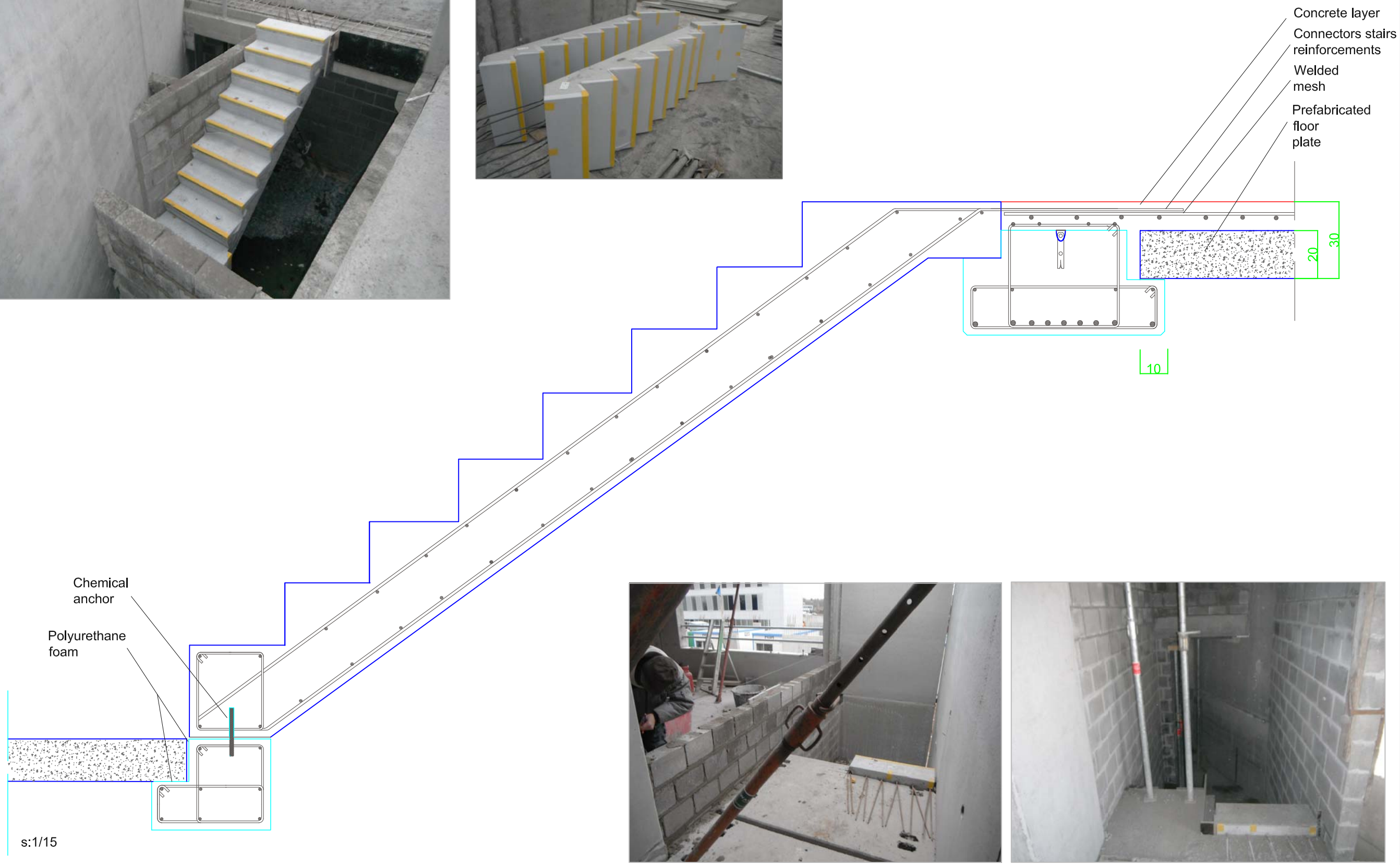
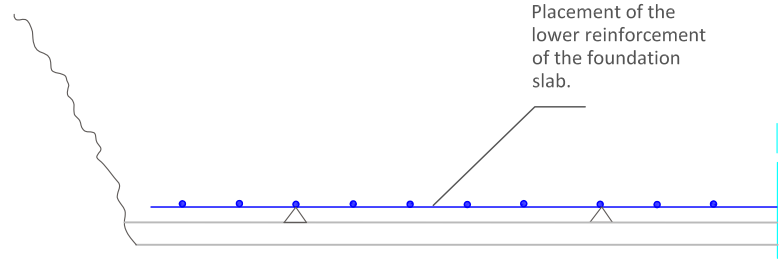

Concrete Layer
Prefabricated Ramp
Welded mesh Connectors
Ramp reinforcements
Prefabricated floor plate
50
15
30
20
20
10
Polyurethane foam

S.1/8


Concrete layer
Connectors stairs reinforcements
Welded mesh
Prefabricated floor plate
30
20
10
Chemical anchor
Polyurethane foam
s:1/15

STEP 1

STEP 2



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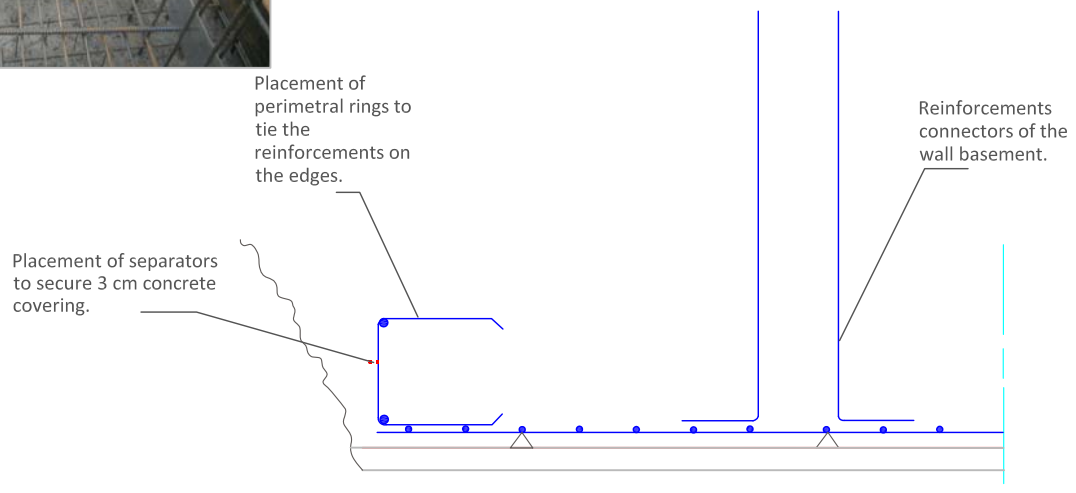

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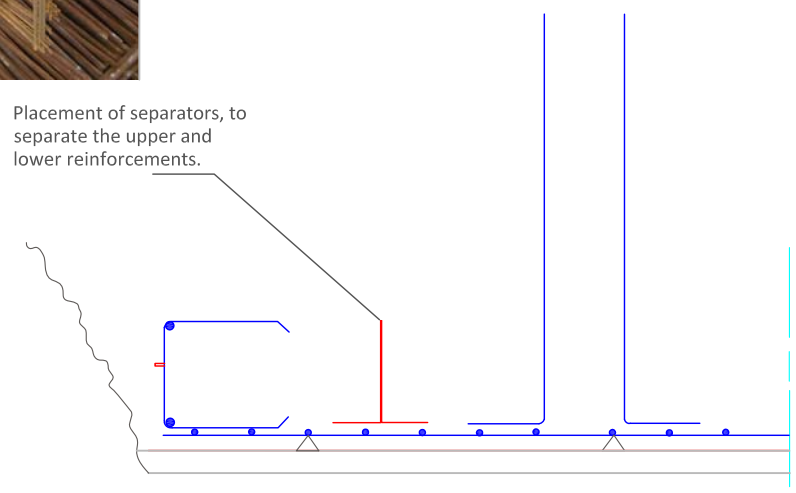
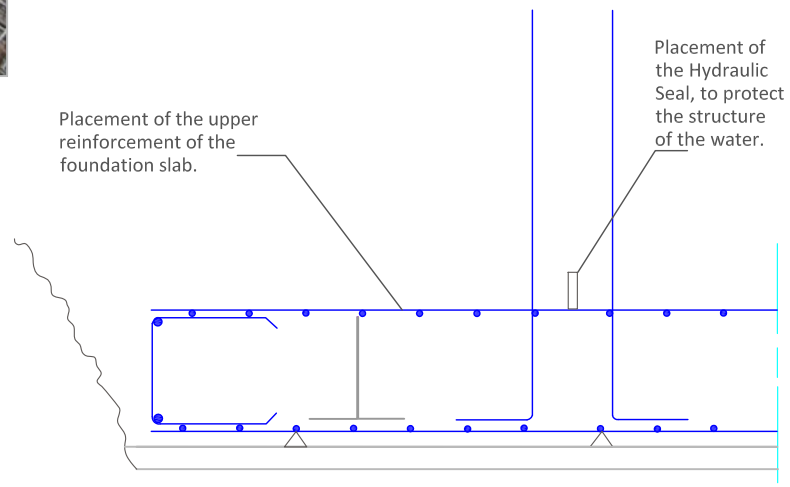


CONSTRUCTIVE TECHNIQUE

DETAILED DRAWINGS

STEP 5



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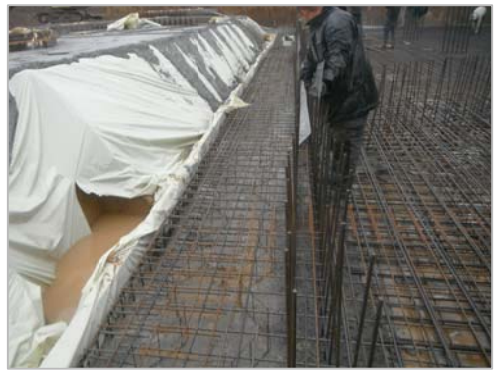

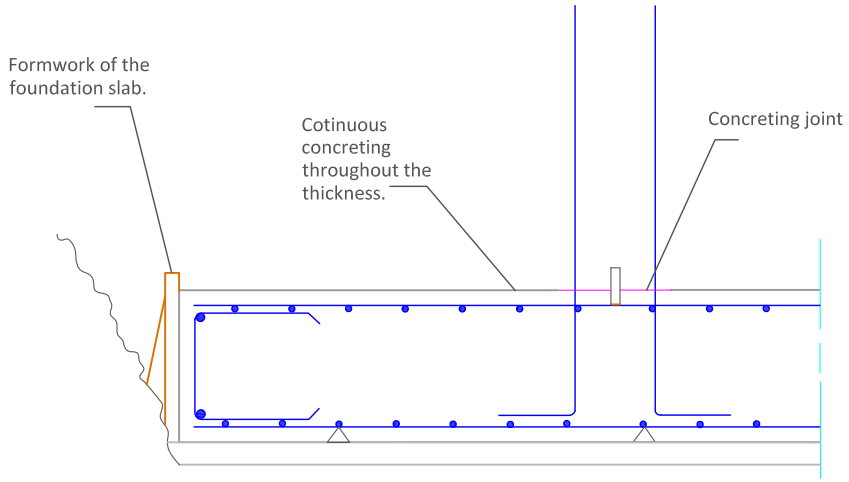

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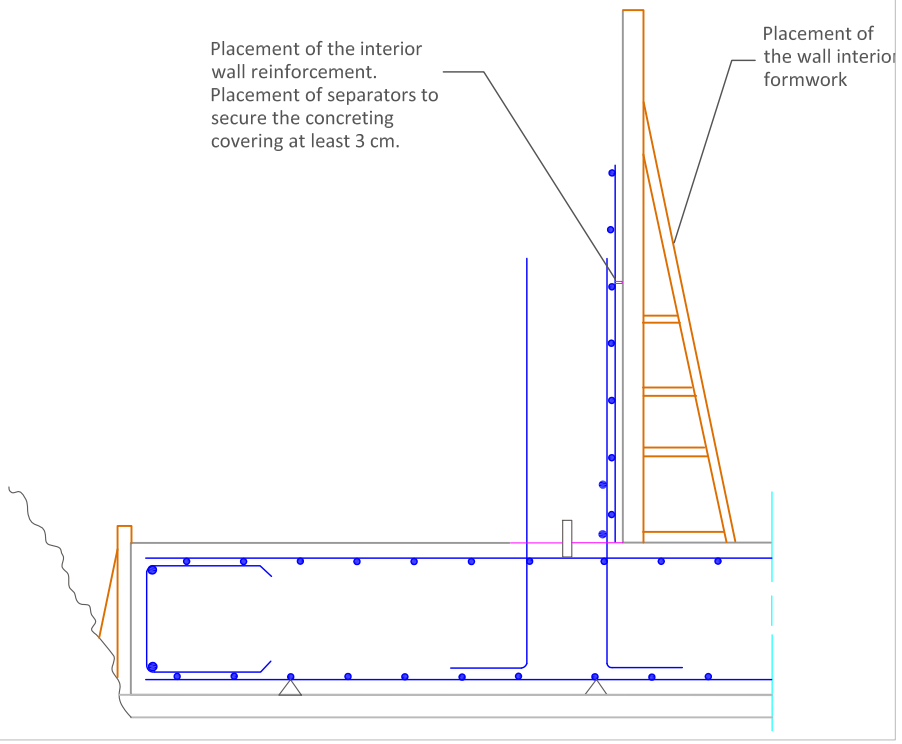
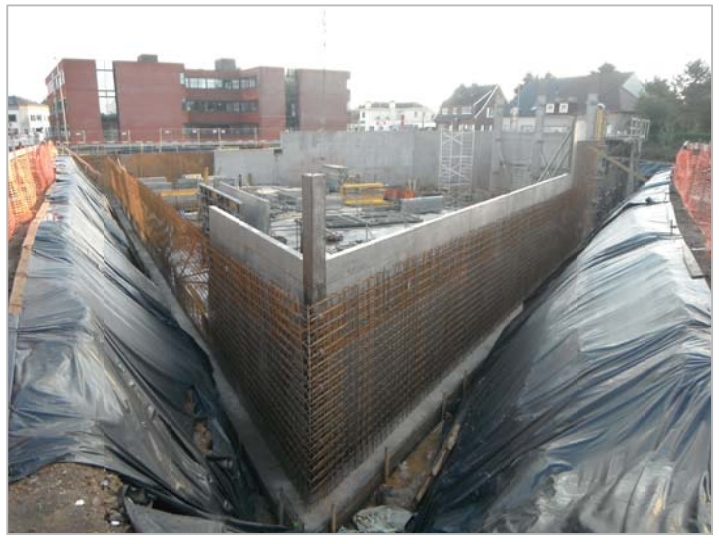
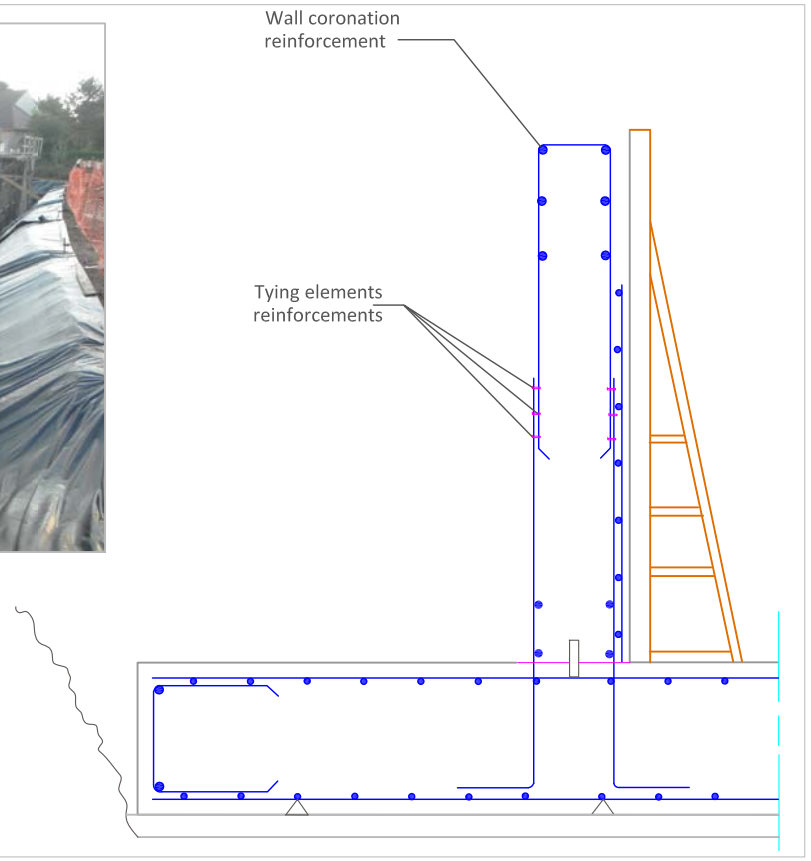


STEP 8





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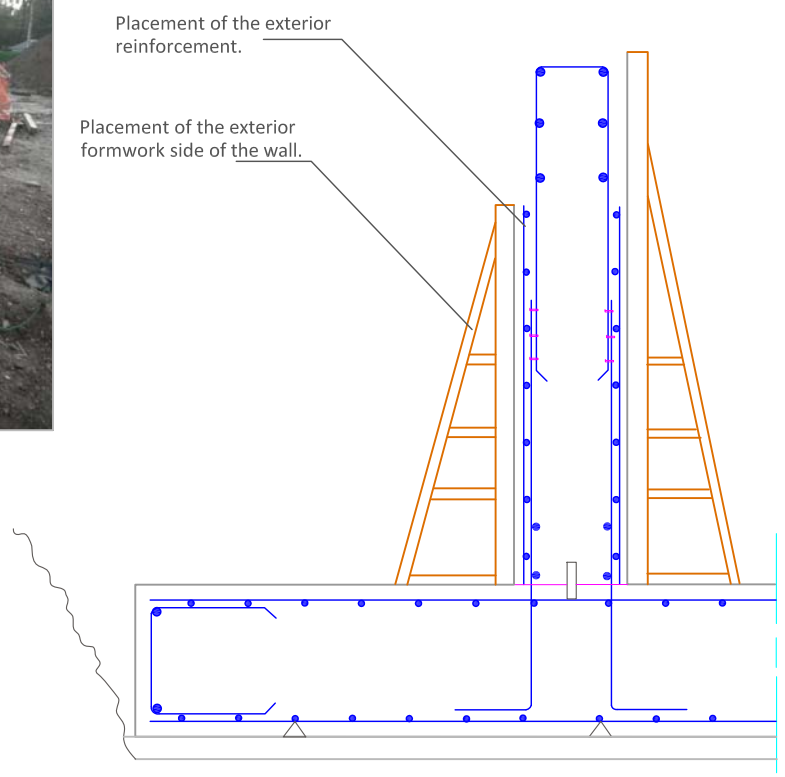
STEP 9



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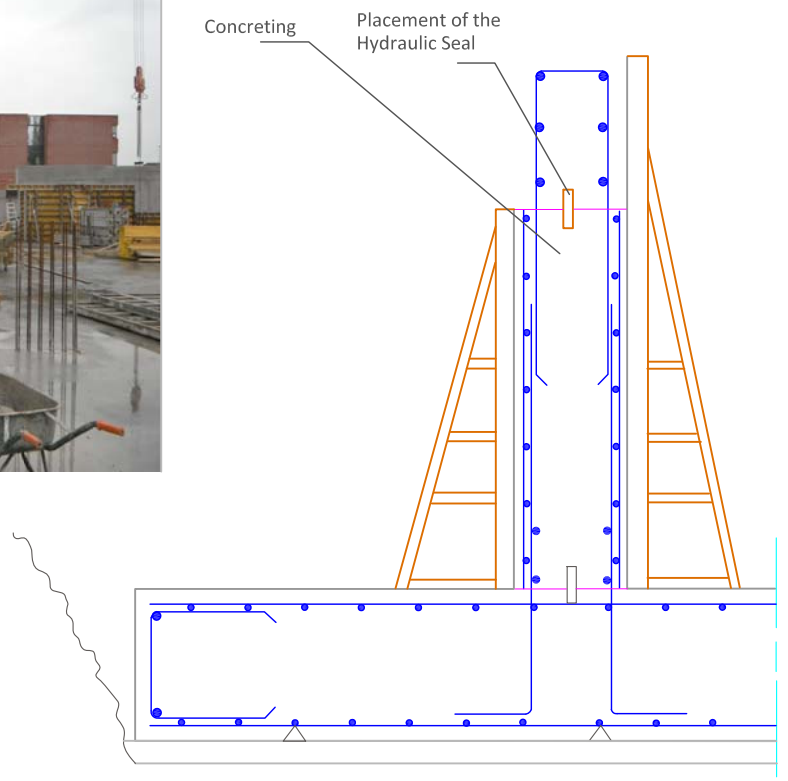

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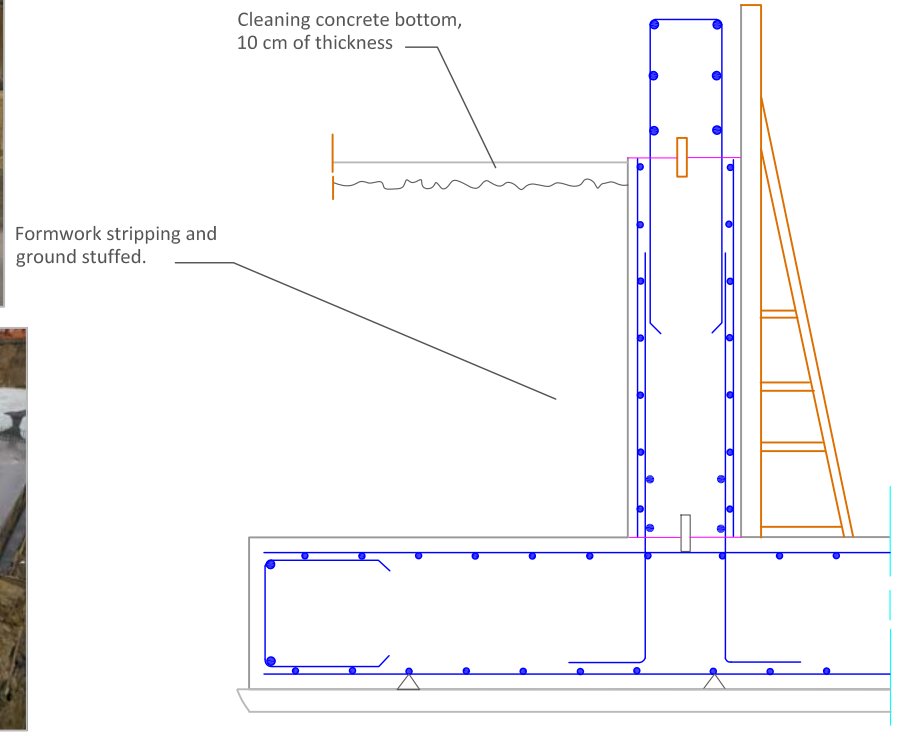

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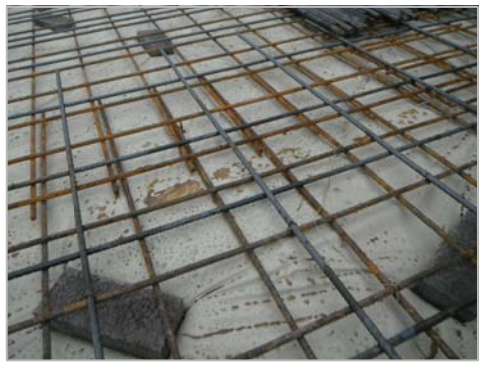

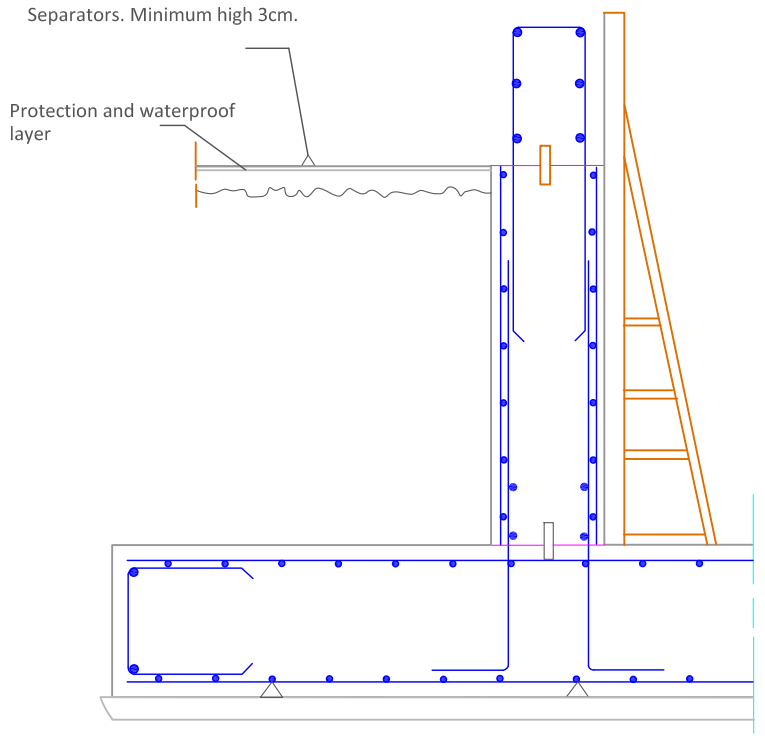

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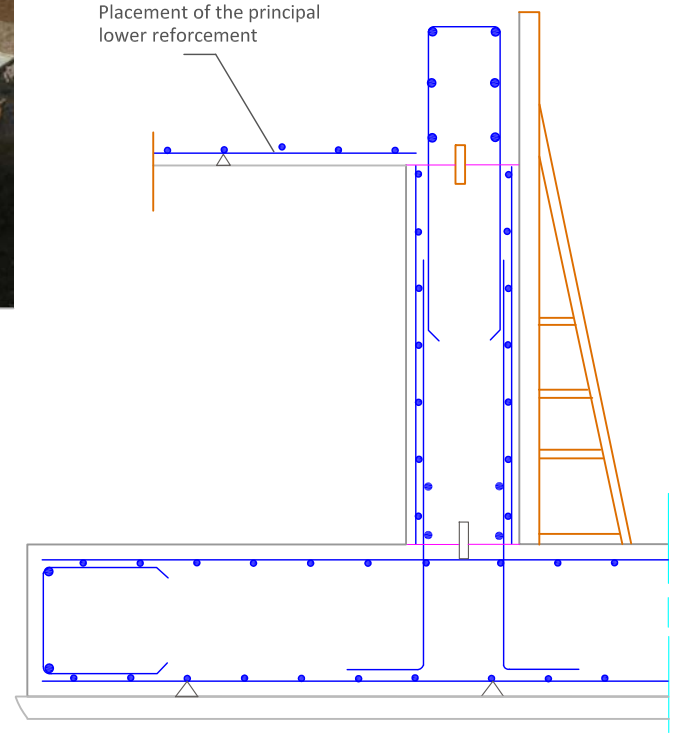

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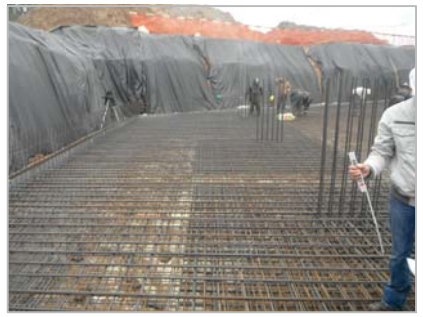

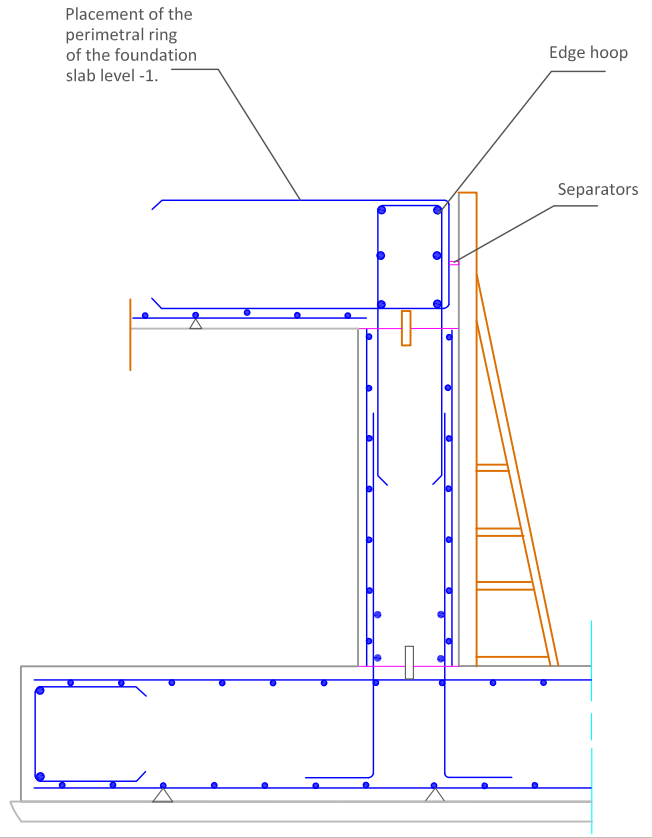

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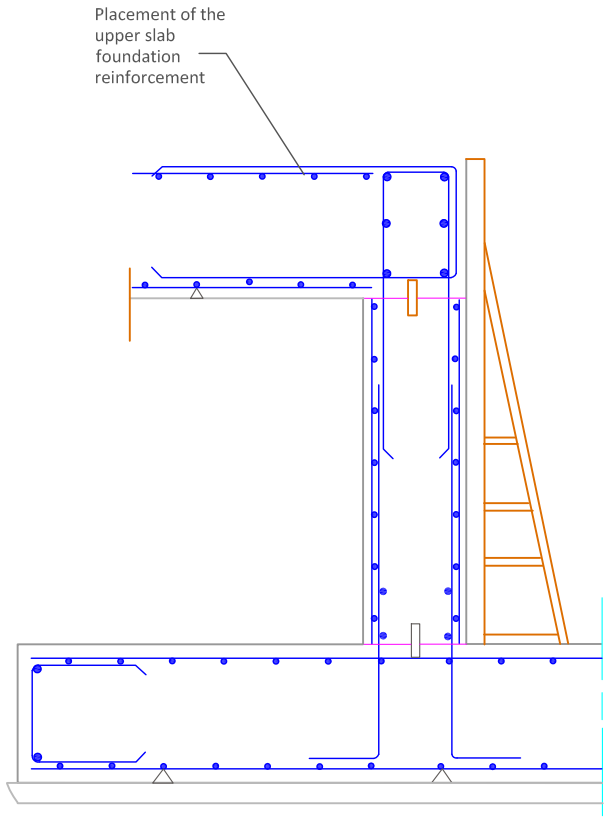

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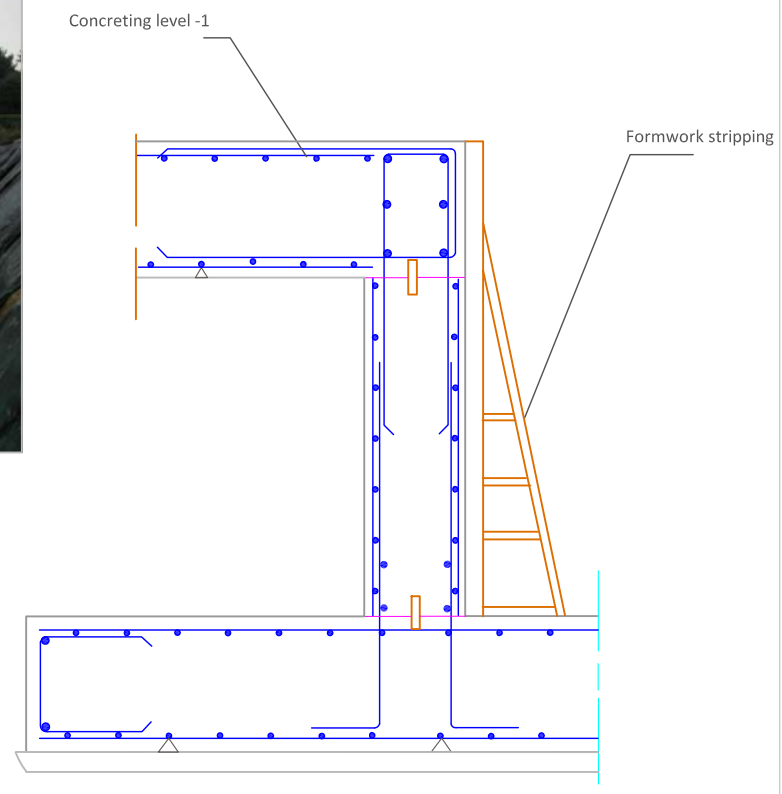


FINAL PROJECT. BACHELOR IN CONSTRUCTION

MANUFACTURED CONSTRUCTION

Overview

The prefabricated building initially arose as an attempt to reduce costs and increase the speed of construction. To this end devised various strategies, but they all went to shift part of the construction process to factories, and try to repeat processes, modularity, integration, standardization and optimization.

Prefabrication today be understood simply as the "industrialization of construction," that is, the application of production techniques in stationary high performance, high standards and quality control, leading not only to better finishes but also better prices due to economies of scale and the use of media and specialized production techniques-of accomplishments that can be achieved in situ.

Precast Concrete Elements are a traditional material but thanks to innovation can provide the most innovative solutions for modern constructions.

The evolution of raw materials, additives, pigments, molds and machinery cover finishes allow solutions ranging from the traditional look of artificial stone for rehabilitation, to ultramodern designs as fencing panels with photographic prints transparent blocks fiberglass.

Constructive solutions precast concrete products can be used in any project (building, commercial, infrastructure ...) and at any time within the construction process, but the best way to optimize results and make the most of the advantages of this solution is to design directly precast concrete thinking. Most products are:

- Closings

- Foundations

- Linear elements (beams, columns, girders)

- Floor elements (alveolar plates, slabs, beams and slabs, caissons, etc..)

- Elements for civil engineering (bridges, segments, frames, walls, sleepers etc.)

- Pipes and pipelines

- Paving

- Modular Buildings

- Other specific solutions (utility poles, street furniture, tanks, steps, stairs, etc..)

Thanks to modern production techniques and the use of software in the design and manufacturing dimensional tolerances are achieved with very low mechanical properties fully guaranteed. In addition, low water / cement used in the manufacture of concrete used and the optimization of compaction and curing methods confer Precast Concrete elements excellent finishing properties, strength and durability compared to other forms of traditional construction .

The use of precast concrete involves a multidisciplinary working philosophy, which should assist the architect, the manufacturer and the estimator. Most companies include in their commercial and technical advice and the calculations required to optimize the number of parts required by the architect's design. The manufacturers are primarily interested in optimizing designs and molds and exact calculations as industrialized construction leaves no margin for error and the results are always of the highest precision assembly and execution.

The collaboration between the prescriber and the manufacturer can get the most value for money in the whole construction process, an aspect that makes the method Industrialised greatest future.

Types of materials

The prefabricated building in Europe is mainly based on the use of three concrete materials: wood, steel and concrete. Even when you can industrialize and prefabricate all kinds of building elements, and any type of material, are the three most commonly used materials.

Wood construction has boomed in the last decade, mostly due to the high cost of housing. The prefabricated construction based on modules and grid, steel has a higher incidence in the market. In fact, in Spain are built about 12,000 homes a year with steel modules. Undoubtedly, this is due to the perception that steel construction is sturdy and durable wood construction. But, prefabricated metal building extends further in other types of buildings such as schools, hotels, gas stations, etc.. However, industrialization and prefabrication systems most widespread and are based on the desired use of reinforced concrete, particularly in Spain. No doubt based prefabrication concrete offers many possibilities that no other materials. Building a concrete base is more robust, more resistant to fire, more sound insulation, thermal inertia more, cheaper, and more environmentally friendly.

Applications

There are four different production systems precast

- Closed systems: the elements are manufactured according to internal specifications of the system itself. They respond only to internal compatibility rules and the architectural design has to be subordinated to the constraints of the system.

- Partial employment components: the range of products and services is more or less fixed admitting certain small dimensional variations or entity. Its use does not require a degree of industrialization and certain of its embodiments can be used in traditional clearly works or projects.

- Systems mecano: resulted from the evolution towards an opening "bounded" closed system, ready to be combined on multiple solutions supplied by different producers to voluntarily abide combinatorial language defined and bounded.

- Open systems: consisting of elements or components from different sources suitable to be placed in different types of works, industrialized or not, and in different contexts. Frequently use universal joints, modular ranges bounded and almost complete design flexibility

Industrialization involves optimizing des building of an industrial perspective: modular build and through standardized work routines, and with a higher degree of technology involvement. The main advantage of prefabricated products on the elements executed "in situ" is the remarkable quality of materials and finishes. This is because the precast elements are produced in a plant with extensive conditions and strict quality controls are mounted only in work pieces and the only problems that can arise are damaged from transport of those items. In this manner significantly reduces the space required for storage and production of work pieces, as well as the execution time of the building. This means that the overall cost of the work is also reduced.

Depending on their function can differentiate various elements

a) Structural Elements

• Structures lattice portal frames:

• Foundation Elements

- Piles:

- Footings

- Braces between footings

• Linear Elements

- Pillars

- Beams

- Other elements linear

• Elements Drawings

- Forged beam and vault

- Forged hollow core slabs

- Forged slabs

- Forged TT panels

• Structures of panels:

Flat elements are formed with wall and slab. Each element is the entire wall of a room, inside or outside, or forging for a module housing. In the case of excessively large modules (room housing a school classroom, etc..) Walls and floors can be divided into several elements that are easily transportable.

• Structures of complete modules:

They consist of the juxtaposition of prefabricated modules formed by the walls, floor or ceiling of the building each individual space.

b) Elements Cover

• Sloped Roofs:

- Covered with cambered beams

- Covered with constant section beams

- Covered in "sawtooth"

- Belts

• flat roof:

- Flat on forged

- Flat on timber frame and straps

- • Special covers with surface elements:

Advantages of Prefabricated Building

a) Quality of materials

The use of production machines allows a good and constant quality of the tested materials are selected, dosed and controlled. Such methods result in increased resistance adjusting materials construction methods.

Prefabricated pieces have geometric precision accuracy ensuring lace.

b) reduction in execution times

This technology helps reduce execution times because it eliminates blank time between different work tasks. All jobs meet a methodology developed in order concatenated.

c) Speeding up the pace of work by the production of elements in series.

Reducing work teams

It dispenses with the formwork and scaffolding systems.

The decrease in construction time may represent between a third and a quarter of the usual traditional works, to get the parts to the place of use, finished and ready to enter as soon as load are positioned in place. Allows construction regardless of adverse climates, eliminating the delays associated with in situ concrete (weather, timbering, formwork), and the floors immediately become platforms.

d) Sections with increased resistance

Repetitive use molds amortizes their initial cost and allows for greater structural strength sections.

e) Skilled labor

Both the molding and assembly are specific jobs that require previously trained personnel.

f) Economy

These constructs can improve work times with reduced fixed costs, control efficient relationship man / hours. The final total cost of the buildings made with precast concrete is lower, although the initial price is higher than that of traditional buildings, especially if one takes into account the quality of construction, speed of execution and handling facilities and application.

Disadvantages of Prefabricated Building

a) Structural aspect

Inconveniences deriving from the little or no stiffness against horizontal forces (eg. Wind pressure) by solving the problems in the joints, weakness of these structures.

b) Handling and transportation

Elements suffer transient load conditions during transport and installation, hoisting and adjustments, which may affect the structural strength of the part.

Gauges must be respected transport on the roads, and this is another variable to consider when assembling the precast pieces.

The collection, handling and transport form can affect parts when these operations are performed by trained personnel.

c) economic and financial aspect

These require a significant initial investment to start production system, but it is justified on large construction sites with reduced execution time.

d) On editing

Heavy equipment should be available for the assembly of structural elements and have enough space to maneuver with this machinery.

e) Upon making

Because this system must face problems to be solved during the manufacturing and assembly times, this requires engineering project of all facilities before the start of play.

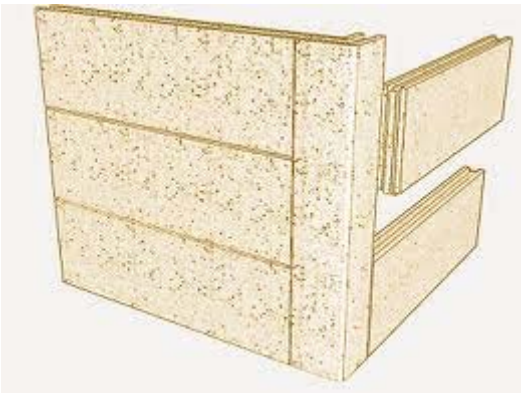
Coordination is essential task for facilities to prevent further work. An error in the resolution of these conflicts can lead to failure of the work (joints, time, cost, structural strength, etc..)

PREFABRICATED CLOSINGS

Introduction

The Precast Enclosures envelope systems are no structural function itself, its panels are prefabricated by fixing anchors resistant building structure.

While the chances of combining the panels enable the execution of any kind of wall you want, the systems are basically two: PANEL HORIZONTAL and VERTICAL PANEL. Each screw can be placed between or galceado pillars.



The advantages of the application of precast concrete panels and cladding of a building are:

- Easy and quick assembly.

- Versatility of finishes.

- Simplicity at the time of placing the woodwork, because it can be anchored to the panel or already included in it from the factory.

Usually, these systems are already workshop panels with exterior facade finishing incorporated therein. Inside trasdosados can go with traditional work.

For the laying of these enclosures, consider the following:

- The building's structural morphology.

- The design of the facade according to the professional designer.

- Prefabricated panel system used with their specific characteristics.

With this data, you must perform the cutting of the facade, arranged in the corresponding order. The cutting is performed before the beginning of the structure to provide the same mounting bases anchors the panels.

For carrying the facade must be done carefully to ensure the engagement staking parts.

Typologies

Horizontal Panel

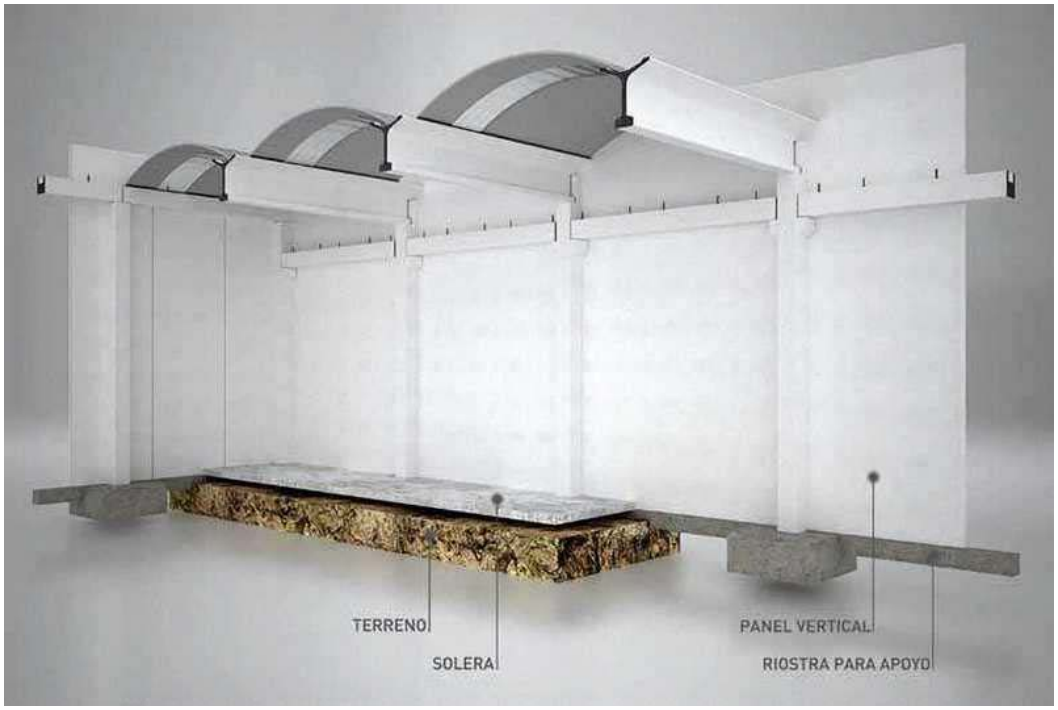
These panels are arranged with maximum dimension in the horizontal direction. Downloading its own weight on the struts of another panel foundation or whether they are simply screwed or on a hanger brackets if hung.

Screwed when they can be placed outside the structure or galceados when the panels between pillars ranging from a channel.

The horizontal boundary is the most common way to place the precast cladding due to its versatility with precast or any other structure.

Vertical Panel

These panels are arranged with maximum dimension in the vertical direction. Usually discharged its own weight on the ground plane. For anchoring is necessary to use a horizontal beam attached to the upper part (metal profile or portacanalón salvapilar), although in special cases may be hung



Architectural panel

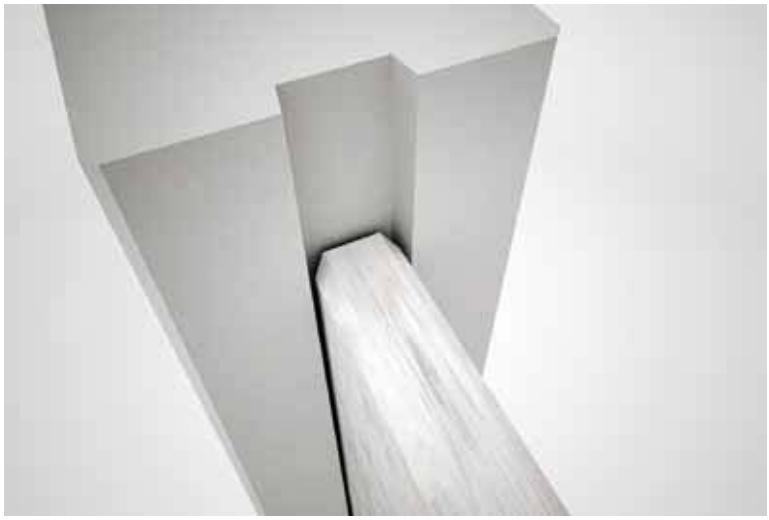
Besides the possibilities of finishing the prefabricated concrete offers also the panel may vary geometrically unique for architectural solutions. It is primarily intended panel housing construction and study of the thermal break

System Boards

These closures require a sealing system, must be the minimum necessary to fulfill its function and maintain that occur in meetings of these panels and the structural building elements or building.

- Horizontal boards. Panels are between mortar made with controlled shrinkage, this joint complies with the requirements of sealing and transmits vertical loads.

- Vertical boards. They are located between panels being sealed with silicone.



Mounting

In assembling the facades always works internationally with pieces of great size and weight, requiring organize tasks. Anchors should be provided the structure for safety belts or stop work when there are high wind speeds, and take care to frequently inspect the work aids and all other measures to ensure the safety when running the installation .

Materials

The usual materials are concrete panels with different finishes. For this reason, the weight they have, requires expertise and care in handling; should prevent parts from hitting as placement prevents any damage and repair is difficult.

Execution

Must be made setting out the panel plant on the structure indicating the distribution of the joints in order to absorb errors in execution. All information on the stakeout must turn in a plane mounting establishing criteria to the width of the boards, moving upward in the vertical version of the work. Located panel mounting area, is located the exact position and does the following in the order provided:

a. Plant location and placement polyurethane cord.

b. Mark the upper level and level panel.

c. Perform cross plumb or panel faces.

d. Check the plumb of the songs.

e. Strutting and tap welded anchors.

After the assembly of the entire plant and assuming that there is another complete plant this, we proceed to the execution of all the weld beads, cleaning and protection sheets with miniatures.

This is followed by filling and sealing the joints.

Then the panel assembly, is made of horizontal mounting of the plant: slabs, beams, and bind to the same sequence described in each case.

To plumb face supported as MPE <6 mm.

To position between adjacent faces, maximum error <15 mm.

If you exceed these limits, proceed to the calculation and justification of the panels failed.

Specs

For the Manufacture of Concrete is very important proportion of its components, which must be suitable to the efforts to which is subject.

Aggregates

They must be clean, with the minimum amount of clay or impurities which alter the hydration of cement.

Aggregates occupy between 60 and 75% of the volume of concrete and strongly influence the properties of Fresh Concrete and Hardened Concrete.

Water

Water will not salt or organic pollution. Drinking water is recommended.

Cement

Cement must be chosen appropriate considering the moisture and salt content in the soil. This will be stored in a dry and protected from moisture, qualifying for expeditions and class.

Formwork

The formwork is placed firmly and properly sealed to prevent loss of mortar. Be coated with oil or products intended to facilitate the subsequent stripping and reuse. If Wood be moistened prior to the placement of concrete, not absorbing moisture from the mixture. They can also be plywood, metal, rubber or plastic, depending on the surface to be concreted.

Mixed

It can be done in different ways, but all must ensure homogeneous final result. In small sites, the material may be mixed by hand, or with mixers. In medium-sized or large, will be used industrially manufactured Concrete, and transferred to work.

Placement

The concrete should be imprisoned in the molds, to prevent any gaps, for which we recommend the use of vibrators, or in small works, a rod.

Another placement procedure is the pressure projection. The materials are released by compressed air through a pipe, and out, are moistened.

Cured

The concrete will reach full strength if the mixture does not lose moisture rapidly, for which it must protect its surface to prevent drying out prematurely.

It is recommended that when temperatures are below 2 ° C and above 35 ° C, special precautions must be taken for a good cure. If this is not possible, the final strength of the concrete may suffer and be 30% below expectations.

Stripping

Concrete is made when the level has reached sufficient strength to withstand the load triple that is to resist. In slabs will be advisable to keep it for at least 15 days, leaving the underpinnings necessary.

Resistance

Endurance tests are performed after a period of 28 days. This will check the quality of concrete.

GRC panels

Description

GRC stands for English "Glass Reinforced Concrete", ie Micro Fiber Reinforced Concrete Alkali-Resistant Glass. Is a composite with a matrix of micro Portland cement concrete (major component), glass fiber reinforced (minor component) dispersed throughout the mass, which gives the cement matrix greater bending resistance, reducing the fragility of conventional concrete.

GRC panel is the result of extensive research in the history of composite materials for construction, and has been widely used around the world since its invention in the early 70s. Its easy implementation, the design possibilities it offers, and especially their characteristics and mechanical properties make it an excellent solution and versatility.

Rationale and Benefits

Conventional concrete has very good characteristics before compression, as do natural stones but offers very low tensile strength, making it unsuitable for work pieces having a bending or traction. This feature has led to numerous research and development to improve the resistance to these submissions, trying to get into the world of composite materials the solution to this shortcoming.

In the search for a reinforcement to allow the achievement of a composite material with excellent performance, many experiments were carried out with other reinforcing fibers, either of organic origin (aramid, nylon, rayon, polypropylene, ...) and inorganic (glass, boron, carbon, iron, steel, aluminum, ...). Of these, the most cost-mechanical properties is held by Glass Fibres

as they are manageable, safe, secure, do not suffer corrosion, have no environmental impact and give Composite Materials generated with them, great mechanical strength.

Main applications GRC panel

Traditionally, the main applications of GRC panels have been conducting small parts, such as canals, ornamentation and furniture, but mostly it has reached its maximum development in facades and enclosures in general. GRC panel has become a key element for its enormous advantages over traditional methods. Currently, the uses of GRC precast panels are being extended to the construction of stairs, power lines or poles for streetlights, setting of parks and countless other applications that are emerging due to its versatility and a greater understanding of the material by Architects and Engineers.

Typically the manufacturing process is both pre-screening as premix or mixing, thus ensuring a homogeneous mixture. Is performed by spraying with a gun (which cuts the glass fiber and mixing with the mortar), on a mold of the dimensions of the element to be manufactured.

The system allows to incorporate joinery doors and windows directly in our factory, fixing the mold, before projecting. It also allows the realization of the front holes, so that once the panels mounted assembly carpentry work is conventionally.

PRECAST CONCRETE PILLARS

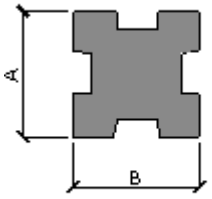
Introduction

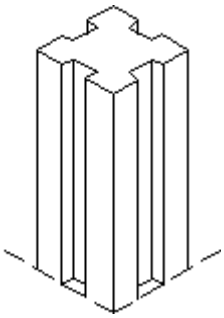
Definitely one of the most characteristic elements in these constructions are the pillars precast. These pillars are usually reinforced concrete and respond to different shapes and sections based on the constructive solution adopted.

One thing to keep in mind is that, despite being an element that usually works in compression, being usually very slender pillars, and the fact that it is prefabricated to be transported, are armed in order to bear bending stresses, especially at the time to be lifted and placed on site.

As to the shape presented by these prefabricated pillars, the characteristics of this type of structural elements which logically vary depending on the type of building.

Square or rectangular sections are the most used due to its high versatility for the rest of the structure, and is also the easiest to manufacture and therefore the cheapest. Depending on the length of the pillar and wrought plant stand, we study how to optimize column section, manufacturing it in one, two or more pieces, running the union between plants bolted systems, obtaining a technical result identical to a





All actions which support precast concrete structures by concrete pillars must transmit to the foundation by means of vertical elements of constant or variable section, rectangular or circular, considering that in the corners of the facade can manufacture semicircular in works singular, any section that the client requested.

True architects of the stability of the concrete structure, are connected to the foundation and are shipped with all necessary accessories to support any other precast concrete or "in situ" to support in him: floor joists and beams lane, through concrete corbels, views or no views, forged, panels, corbels, beams and purlins.

This office is designed in art according to the client, with all the trimmings and attachments, so that, in work, all precast concrete structure is a mechanism for behavior in line with the building, and aesthetically , meet all customer requirements.

In buildings of various heights typically complete rigid joints for stability of the building in all directions, for which they are left the necessary accessories for the structural model meets all the latest financial and operating limit required by the regulations force.

The precast concrete circular columns are commonly used in parking spaces for prey as avoiding spaces angles. Its manufacture requires a more elaborate process.

Depending on the length of precast concrete pillar and wrought plant stand, we study how to optimize column section, manufacturing it in one, two or more pieces, running the union between plants bolted systems, obtaining a result technical identical to a monolithically fabricated pillar.

Typologies head pillar

The different typologies of the heads of the pillars precast concrete girders enables support on concrete pillars. The support is always done with standard systems. You can design any type of abutment head, if the project requires.

Depending on the length of the pillar and wrought plant stand, we study how to optimize column section, manufacturing it in one, two or more pieces, running the union between plants bolted systems, obtaining a technical result identical to a pillar manufactured monolithically.

Foundation

It is performed under two basic procedures:

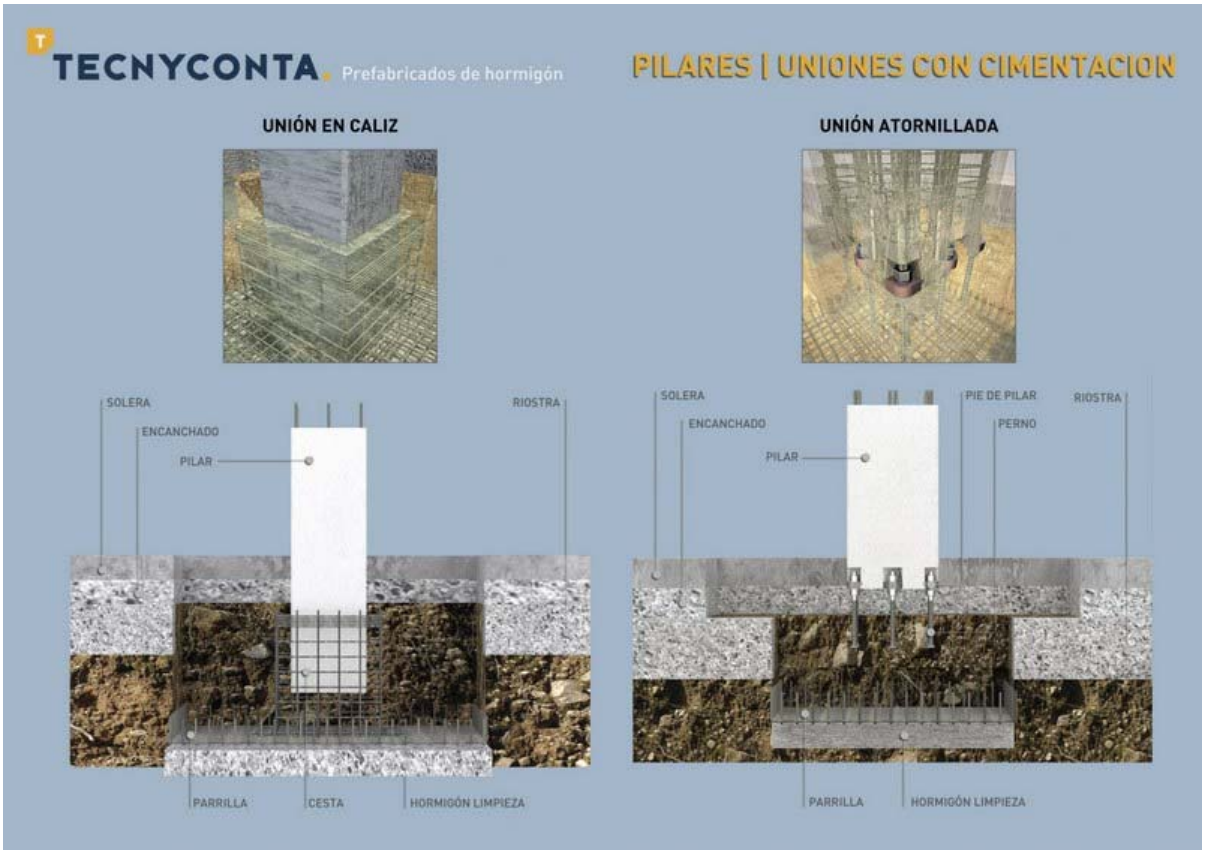
- Union chalice

- Screw connection

In the case of the union in chalice, chalice shaft is designed with the dimensions of the precast concrete piers over 15 cm. (7.5 cm clearance on each side), filling it once placed the pillar with low shrinkage mortar grout type.

The edge of the shoe varies depending on the shares transferred and the size of the pillar. With this cup, once filled with grout, we get a perfect embedding pillar in it.

The hollow of the cup is designed in the same manner as the calyx centered foundation, but this type of foundation is used in the plot limits, boundaries and gutters.



For foundations with screw connection, the embedding of the pillars in the shoe is done through the screw connection, runs with left anchor bolts for through the foundation, on which is placed the pillar, which already been placed at the base of column shoes, to place with nut and locknut and level perfectly. Once in place, this union is filled with grout to make it a fully rigid connection.

This binding allows reducing a foundation ridge between 40 and 80 cm from the foundations made with chalice.

PRECAST STRUCTURES FOR HORIZONTAL

Prefabricated Joists

In the horizontal structures should be observed at all, a type of element in the construction of the floors: the joists.

The joists are prefabricated elements for forming the floors of a building.

They come under different types, you will recognize by the shape of its section. On one hand, there are so-called self-supporting joists or self-resistant. These joists will be placed on work load and enter themselves without, usually prior shoring.

Precast concrete girders

Self-supporting or self-resistant joists may be placed on site and enter freight by themselves, without requiring prior shoring.

On the other hand, we have semi-resistant joists, very common today in the construction of one-way slabs, and whose section you can see in Figures 2, 3 and 4.

Basically have the same shape as the head self-supporting but superior, so that need other wrought elements such as concrete filling joists and the compression plate to acquire strength characteristics provided.

Precast concrete girders

They are prefabricated must meet high demands of resistance. Therefore, rich blends are made with cement, between 300 and 400 kg/m3. Which further allow a rapid demolding process, as required by current prefabrication.

Joists semi-resistant

Semi-resistant joists need other elements of the floor, such as concrete filling joists and the compression plate to acquire strength characteristics provided.

Prefabricated beams

The girders precast prestressed armed or respond to different types according to their function, but generally tend to be banked, if they are to provide support to a pitched roof, or section should hold constant when a slab, which is usually industrial buildings made with precast already studied.

The attachment struts in the prefabricated construction are horizontal elements that serve several functions:

- As its name suggests, serve as bracing.

- At the same time are often used to channel water collection because they deliver over the cover plates.

- In some industrial solutions, also hold prefabricated cladding panels.

Prestressed concrete girders with I-shaped geometry, fully optimizing the concrete section, used. When there is a floor height issues, is also used as support beams alveolar plate, and we can get them to overhead lights and superior to those obtained with inverted T-beams or L type

Prefabricated trusses

Finally, within the different types of prefabricated elements intended to horizontal structures, not to mention a very significant: prefabricated trusses.

These are pieces of reinforced or prestressed concrete have the function of supporting the joists and the cover plates forming the cover of an industrial building.

Can overcome large spans, especially when they bear loads are relatively small.

Forged Plates

This is a solution that disappears forged in differentiating between the carrier element and the element or beam or slab infill.

The slab is constructed with these elements made from a single piece prefabricated shaped plate, the thickness of the slab and a width that varies from one type to another plate, even when the dimension is usual 1.20 m.

It is, therefore, not have forged infill element.

Contiguous placement with various plates is constructed rapidly forged, the plates must be placed on a sheet of compression, which for certain types is not always necessary.

For floor plates are made in reinforced or prestressed concrete. Three types of plates are used:

- The plates whose thickness is on the edge of the slab, as with the case of prestressed hollow core slabs are the most used.

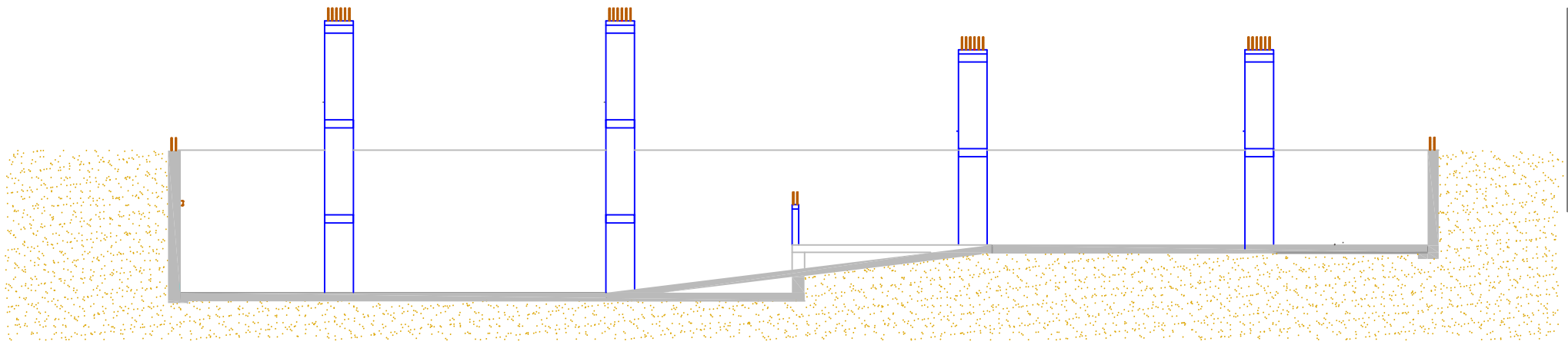
- Also are common flat armor plates, type "DC".

- Ribbed plates, also known as plaques "TT", very common in industrial buildings and have spread to other areas, in some cases used in the construction of houses.

The slabs made with precast element have no infill.

STEP 1

PLACEMENT OF THE COLUMNS

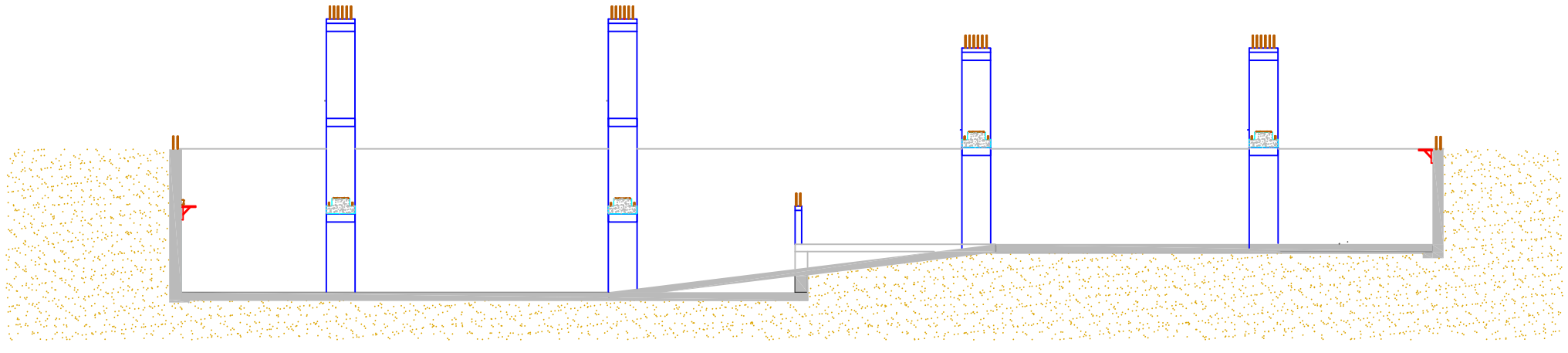


- Placement of the columns through the connectors placed on the foundation.
- In the level -1,5 the raised columns have 3 levels of high. In the level -1, 2 levels
-Schafoldings to secure the structure in all the prefabricated elements.

STEP 2

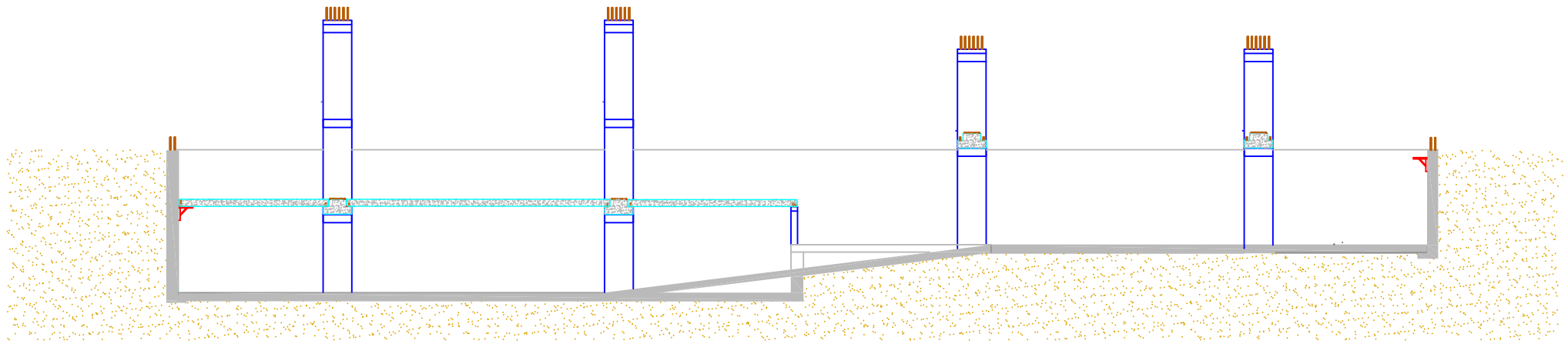
COLUMNS LEVELS -1.5/ -1

METAL BRACES



- Placement of the prefabricated beams on both levels.
- Metal braces are placed on the in situ walls. They will support the prefabricated wall plates

STEP 3



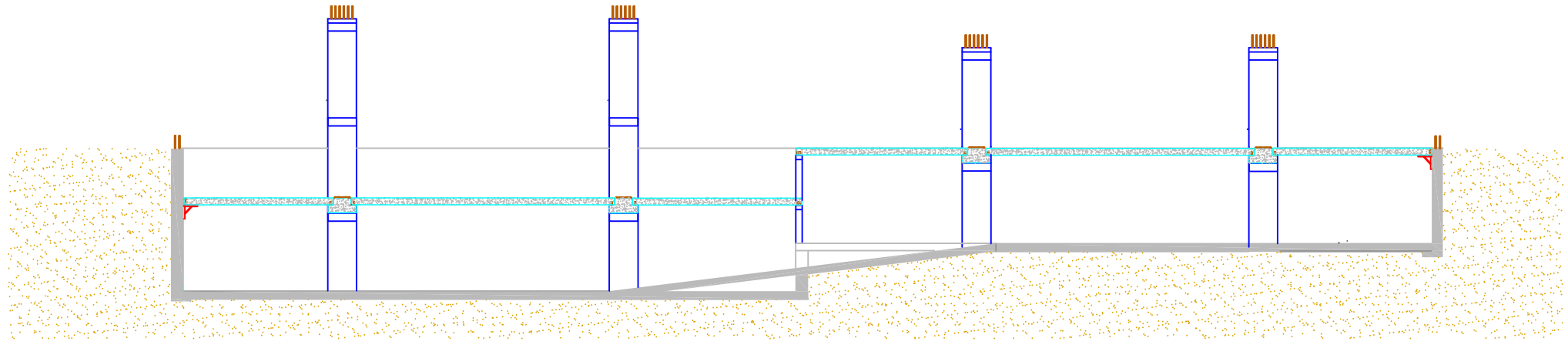
- Placement of the prefabricated floor plates level -0,5

PLACEMENT FLOOR PLATES

COLUMNS STEEL CONNECTORS

STEP 4

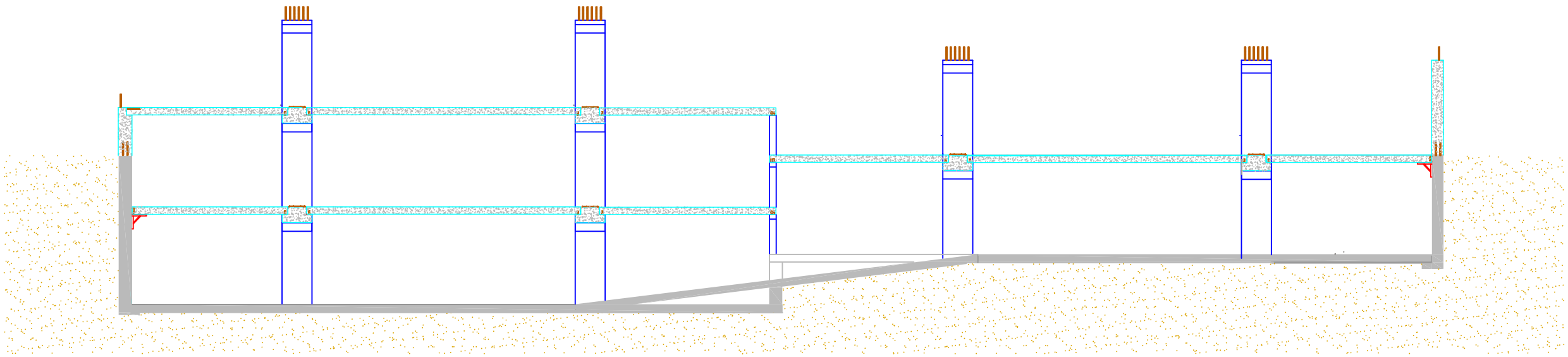
FLOOR PLATES



- Placement of the prefabricated floor plates level 0.

RAMP FLOOR PLATES

STEP 5

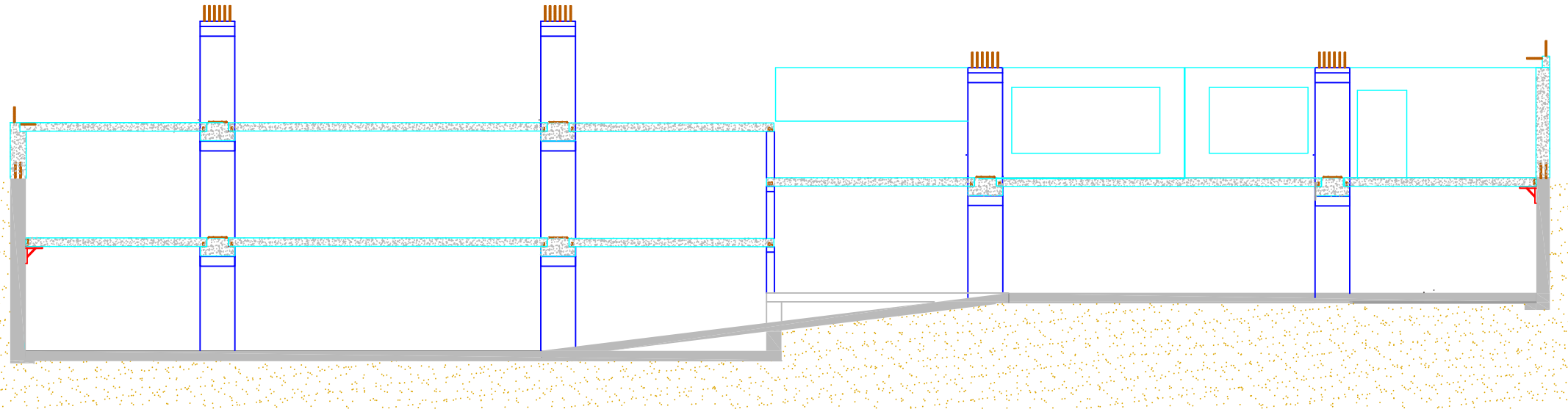


- Placement of the prefabricated wall plates in level -0,5.
- Placement prefabricated beams, level 0,5. Then placement of the prefabricated floor plates level 0,5.
-Placement of the prefabricated stairs.

SCHAFOLDINGS

PREFABRICATED STAIRS

STEP 6



- Placement of the prefabricated wall plates in levels 0.
- The placement consists in the insertion of the reinforcements of the existing walls in the hollows of the prefabricated walls.
-Allways schafoldings placement to secure the structure.

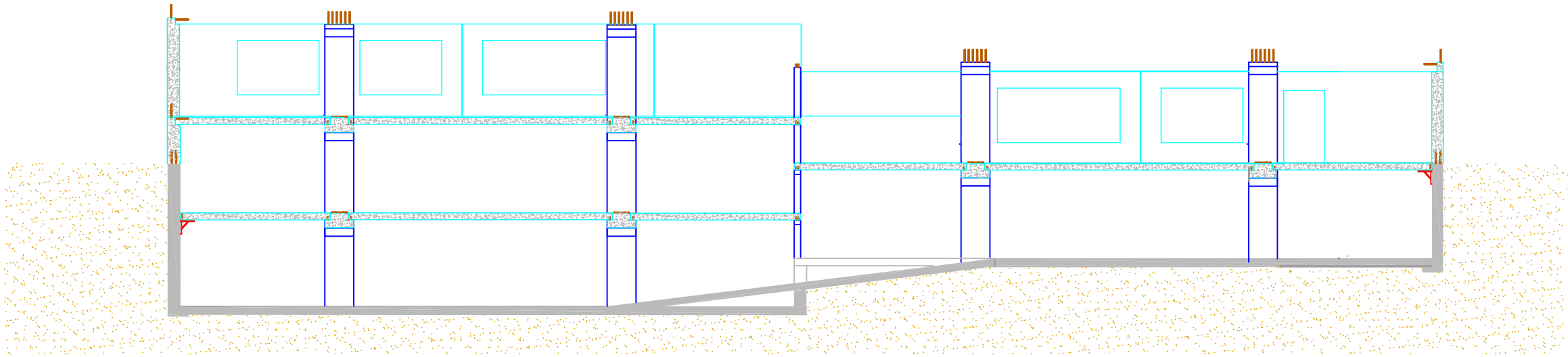
PREFABRICATED BEAMS

PREFABRICATED WALLS

S: 1/350

PREFABRICATED STRUCTURE

STEP 7

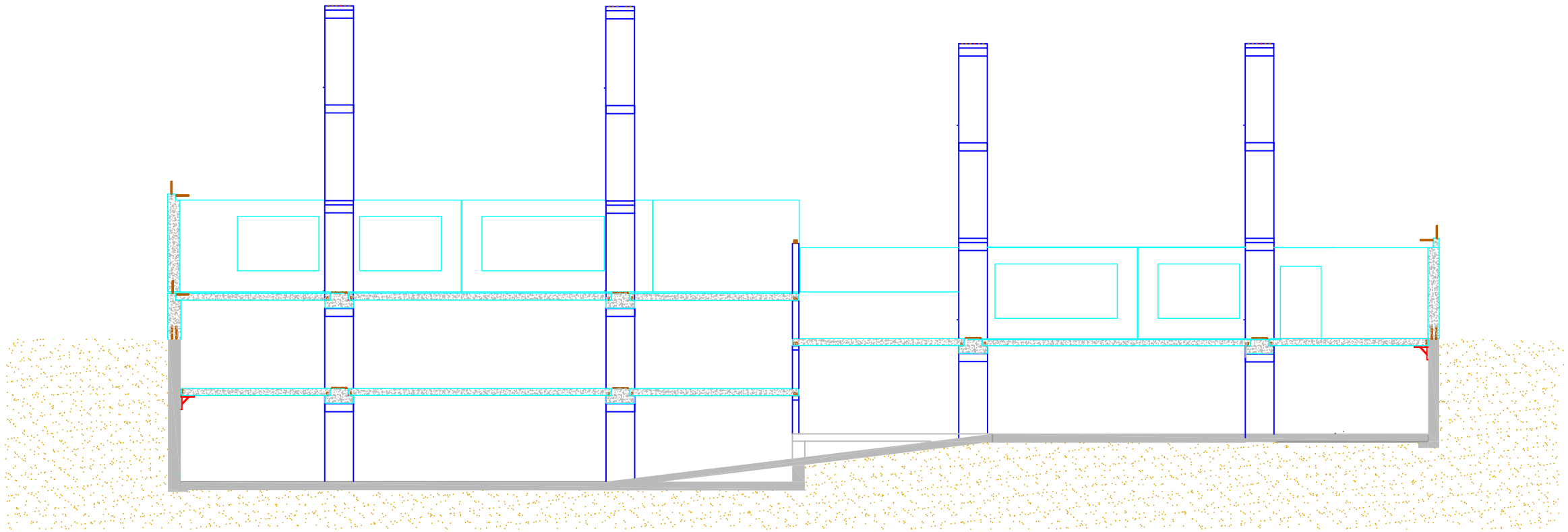


- Placement of the prefabricated wall plates in level 0,5.

PLACEMENT PREFABRICATED COLUMNS

PLACEMENT PREFABRICATED WALL PLATES

STEP 8

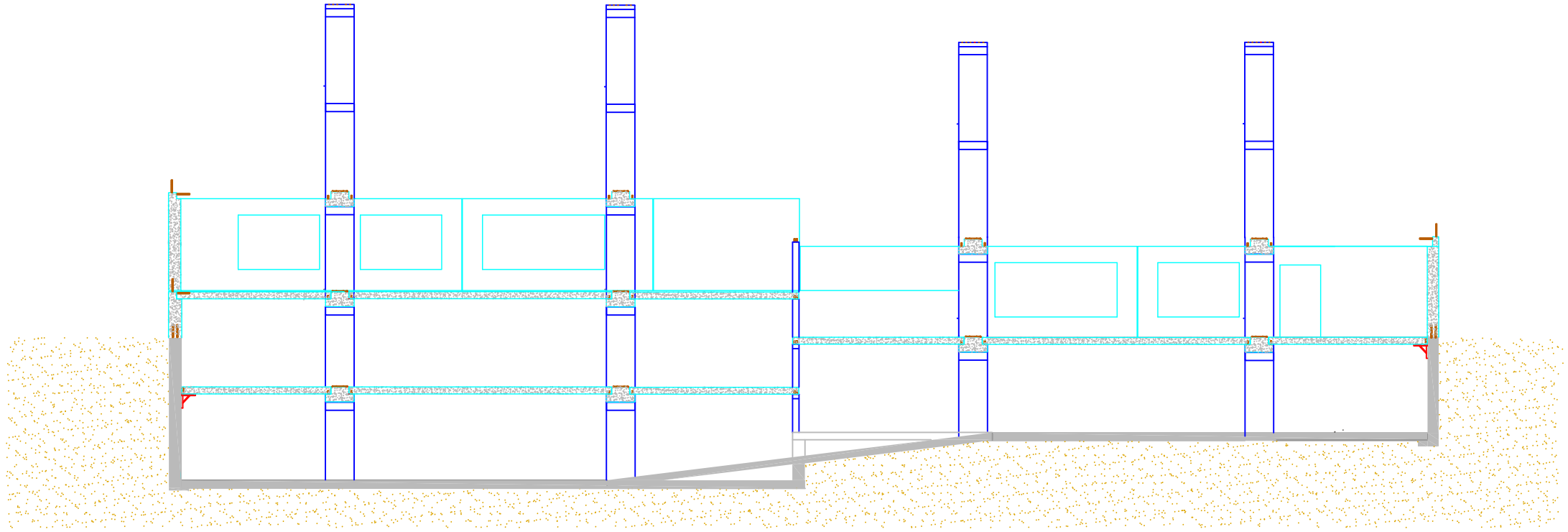


- Placement of the prefabricated columns on both levels.
- Raised columns of 2 levels of high.

COLUMNS CONNECTORS

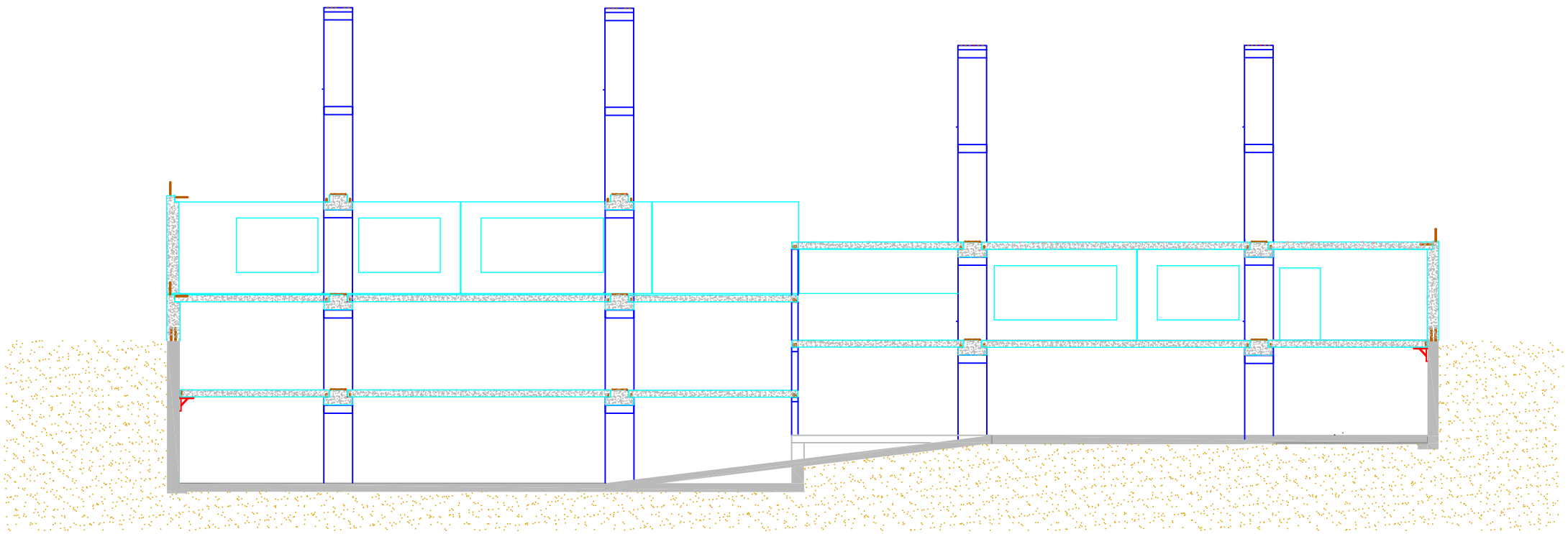
S: 1/150

STEP 9



- Placement of the prefabricated beams levels 1, 1,5

STEP 10



- Placement of the prefabricated floor plates on level 1.
- This plates are joined at the structure by the connectors reinforcements of the beams and the wall plates.
-Placement of the prefabricated stairs.

PREFABRICATED STRUCTURE

PREFABRICATED BEAMS

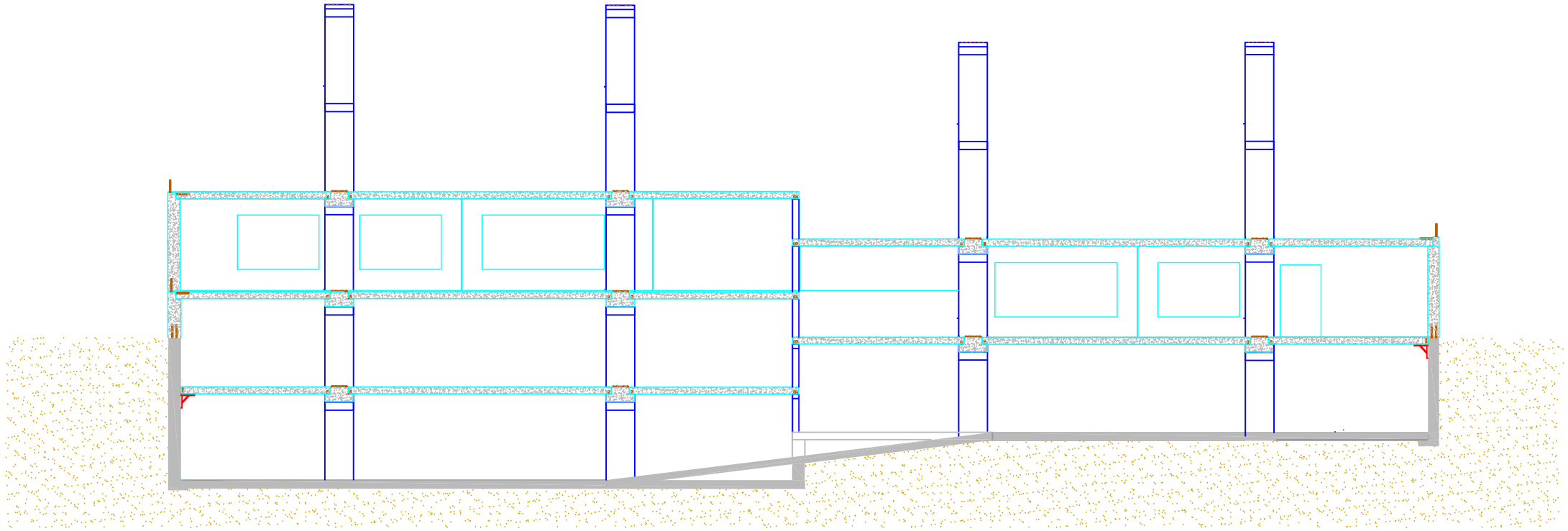
PLACEMENT BEAMS

JOINT COLUMN-BEAM

CONNECTORS

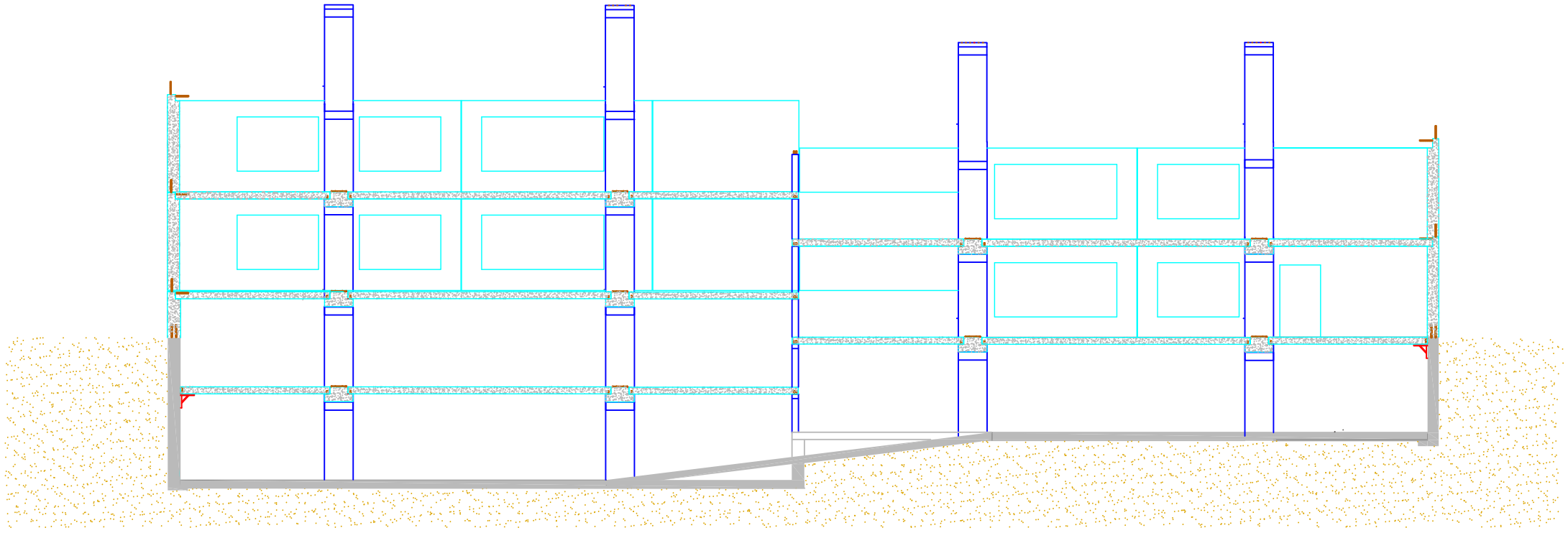
S: 1/160

STEP 11



- Placement of the prefabricated floor plates on level 1,5

STEP 12



- Placement of the prefabricated wall plates levels 1, 1,5.

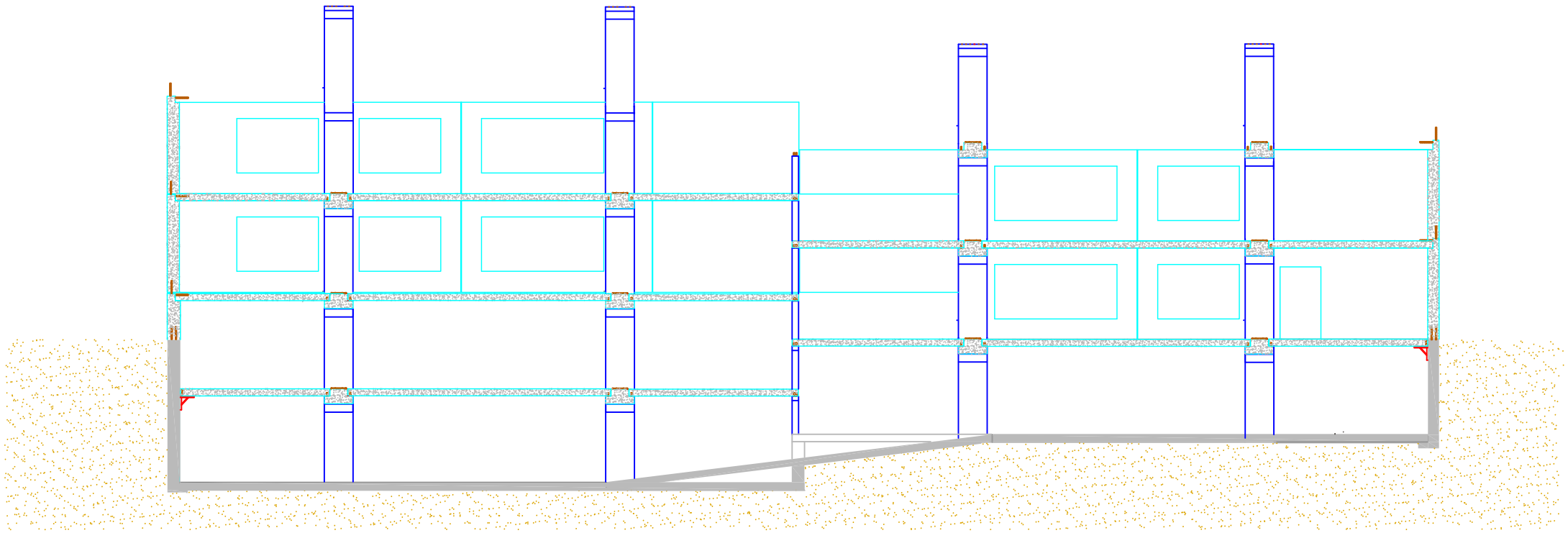
PREFABRICATED STRUCTURE

METALLIC SUPORTS FOR THE RAMP PLATES

PLACEMENT RAMP PLATES

S: 1/160

STEP 13



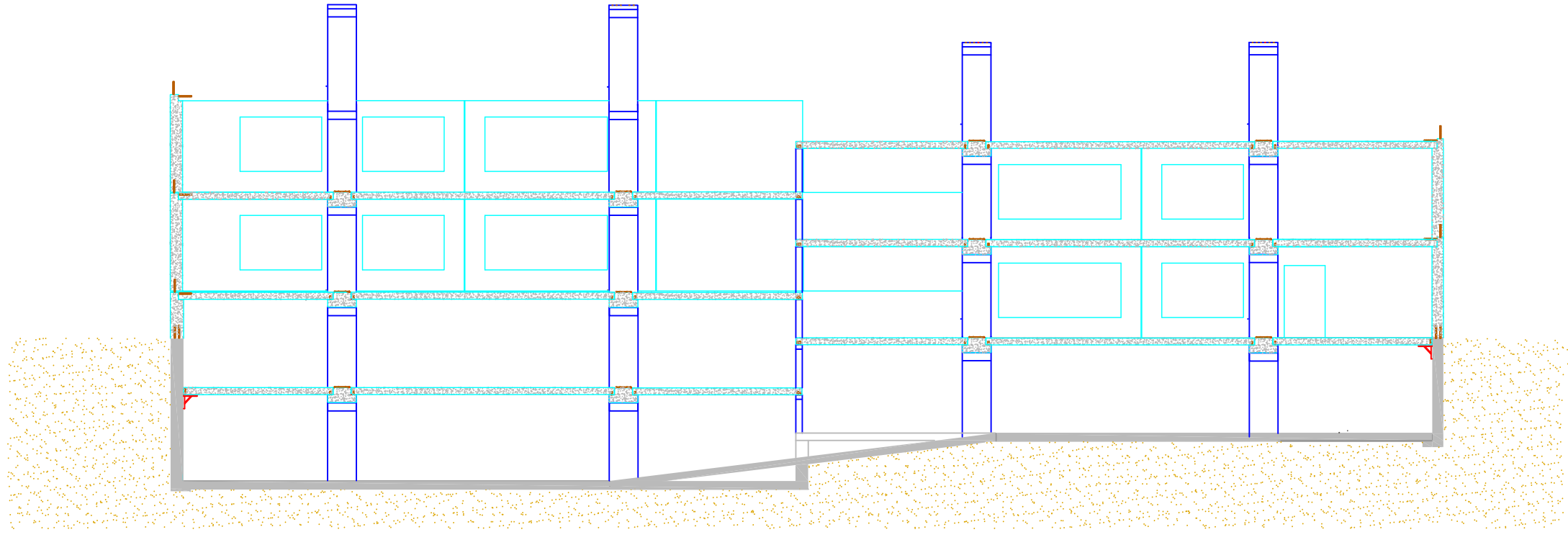
- Placement of the prefabricated beams level 2.

PREFABRICATED STRUCTURE

PLACEMENT PREFABRICATED BEAMS WITH SPECIAL CRANE HOLDER

PLACEMENT OF THE BEAMS. SUPPORTED BY COLUMNS AND WALL PLATES

STEP 14



- Placement of the prefabricated floor plates level 2.
-Placement of the prefabricated stairs.

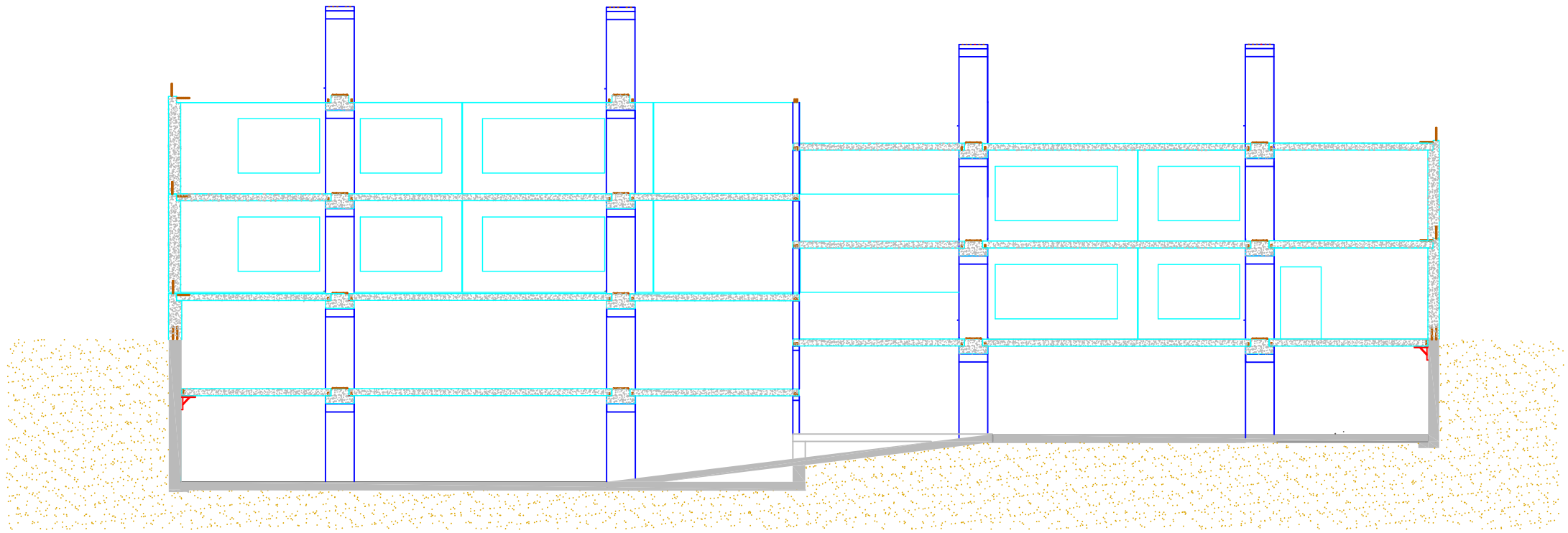
FLOOR PLATES. PLACEMENT WITH SPECIAL CRANE HOLDER

PREFABRICATED STAIRS

S: 1/160

PREFABRICATED STRUCTURE

STEP 15

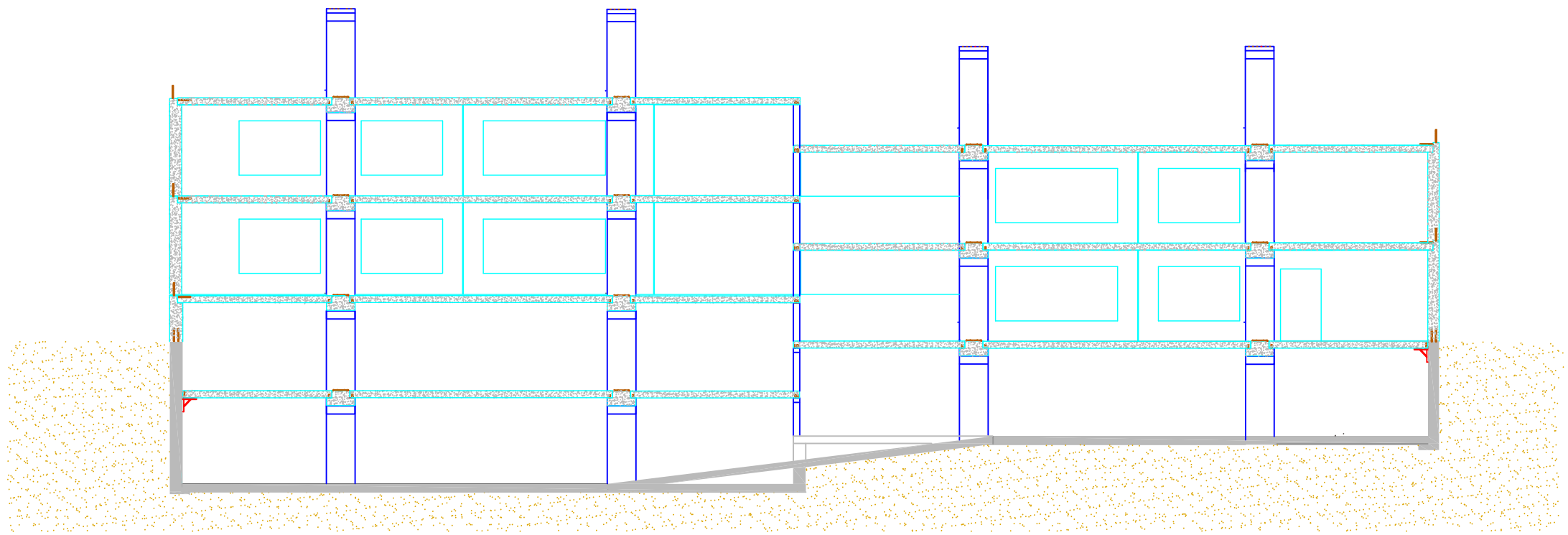


- Placement of the prefabricated beams level 2,5.

CONNECTORS FOR THE BEAMS AND FLOOR PLATES IN THE WALL PLATES

PLACEMENT OF THE BEAMS

STEP 16

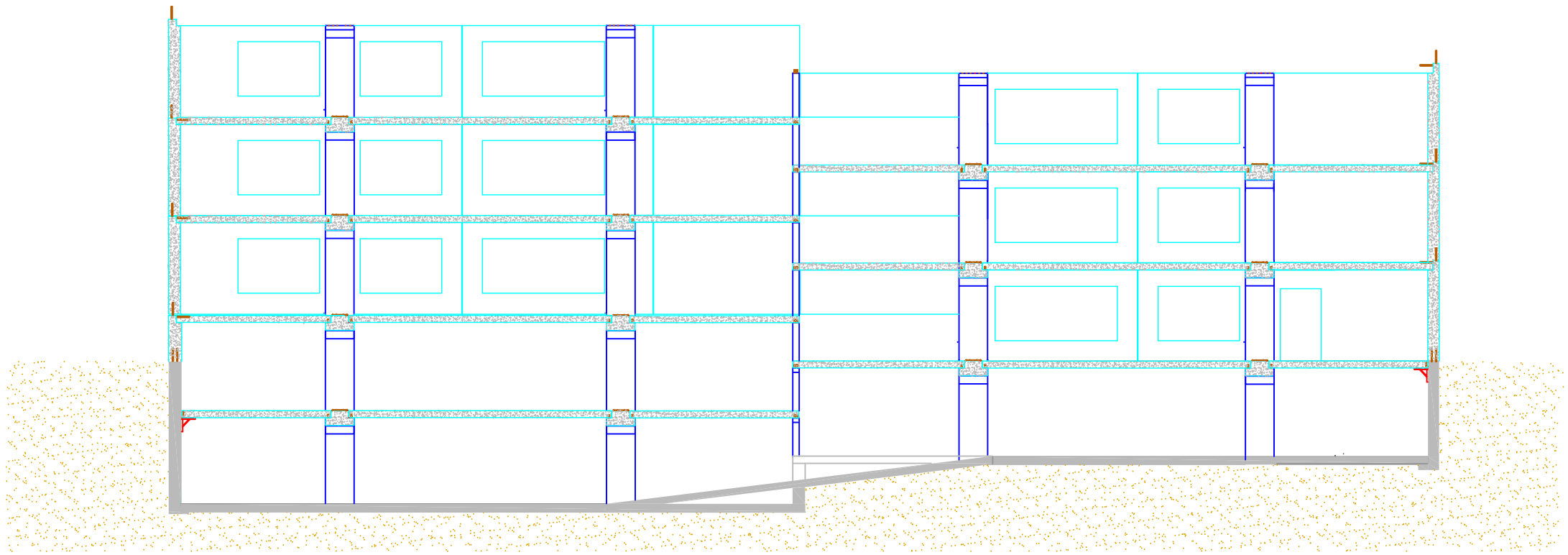


- Placement of the prefabricated floor plates level 2,5.

PLACEMENT OF THE PREFABRICATED FLOOR

S: 1/160

STEP 17

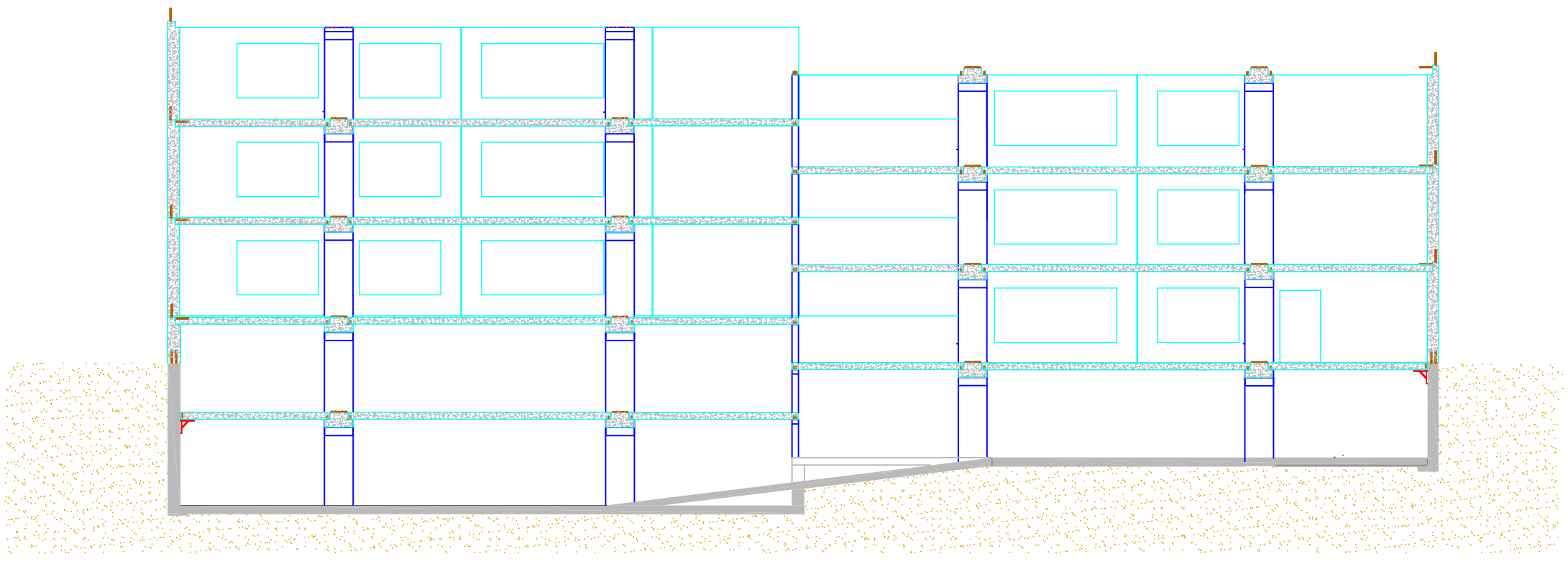


- Placement of the prefabricated wall plates levels 2, 2,5.

WALL PLATES SUPPORTED BY SCHAFOLDINGS

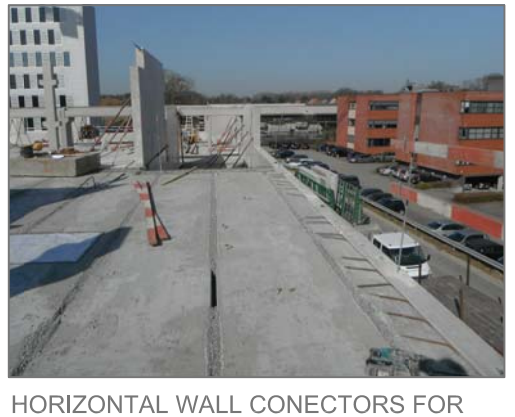
PLACEMENT OF THE WALL PLATES

STEP 18



- Placement of the prefabricated beams level 3.

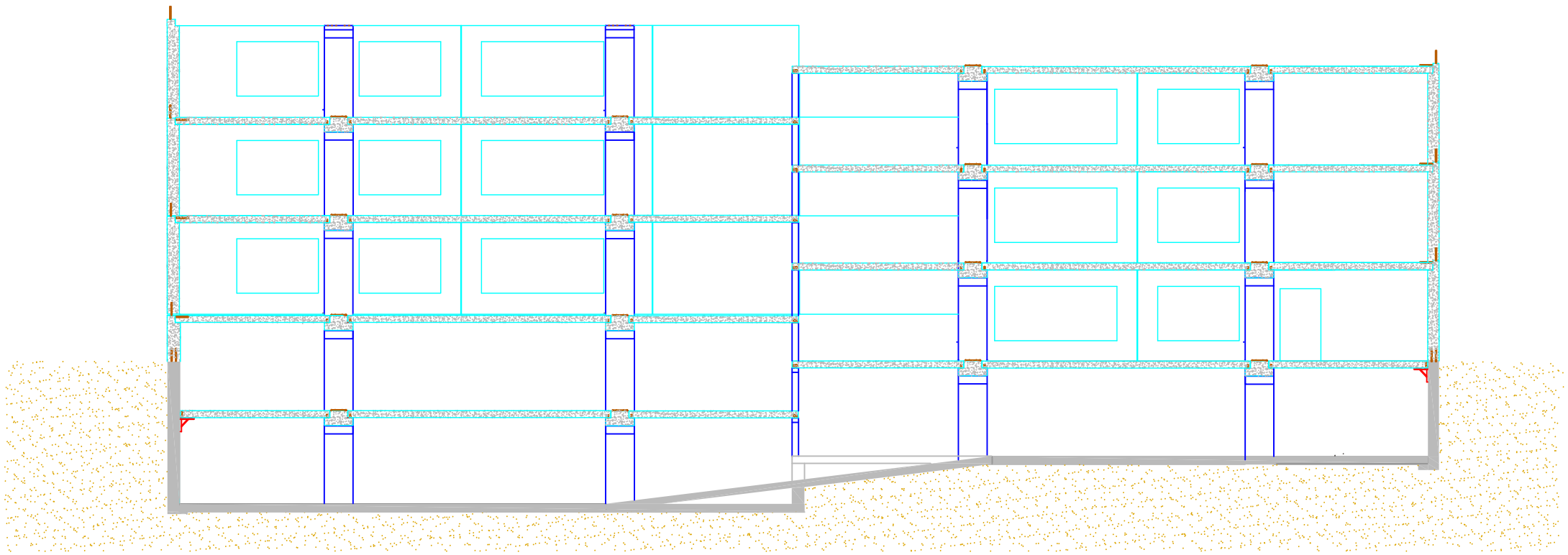
STAIRCASE



HORIZONTAL WALL CONECTORS FOR THE PLACEMENT OF THE FLOOR PLATES

S: 1/160

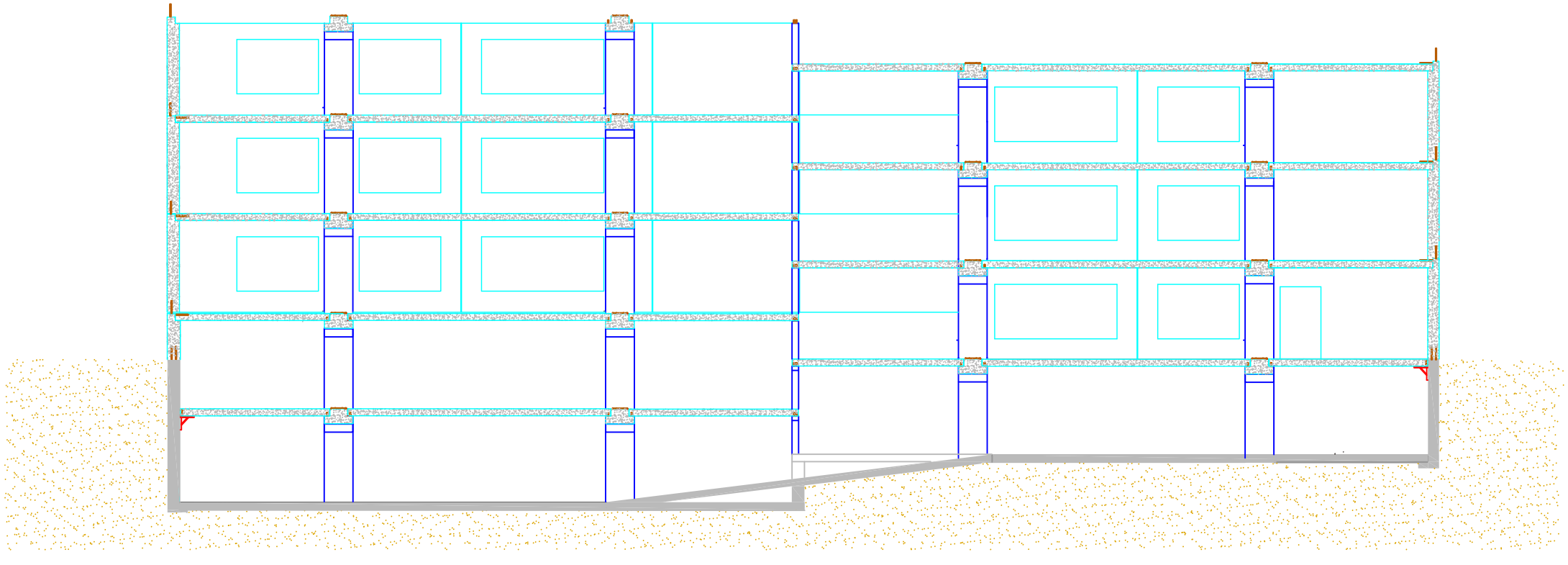
STEP 19



- Placement of the prefabricated floor plates level 3.
-Placement of the prefabricated stairs.

PLACEMENT OF THE STAIRS

STEP 20



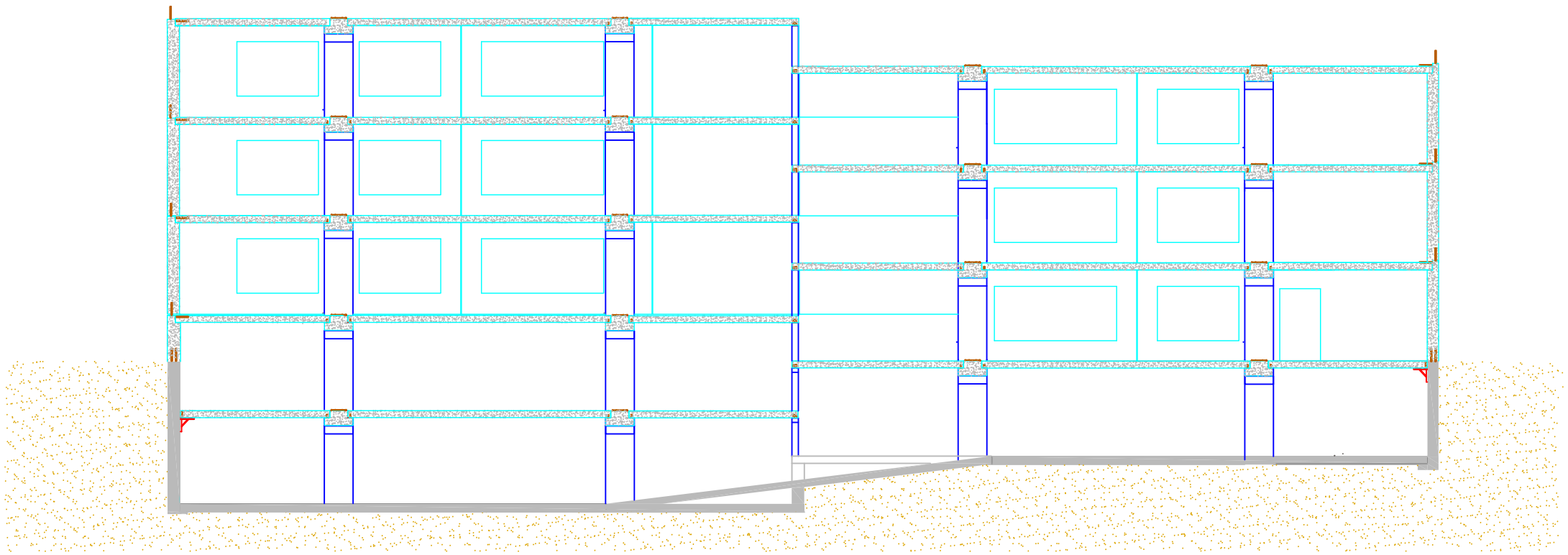
- Placement of the prefabricated beams level 3,5.

CONNECTORS REINFORCEMENTS WITH THE BEAMS

PREFABRICATED STAIR SLAB SUPPORTED BY SCHAFOLDINGS

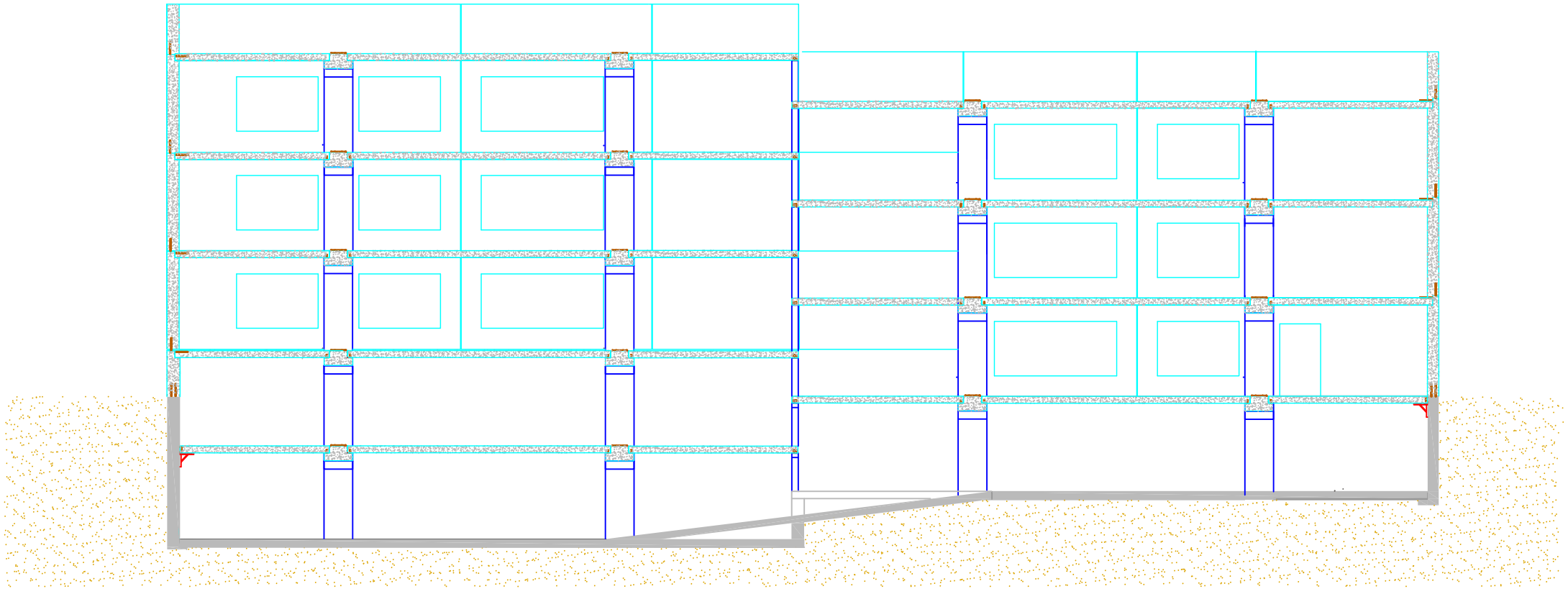
S: 1/160

STEP 21



- Placement of the prefabricated floor plates level 3,5.

STEP 22



- Placement of the prefabricated windowsil level 3, 3,5

PREFABRICATED STRUCTURE

CONNECTORS REINFORCEMENTS TO LINK THE STRUCTURE

PLACEMENT OF PREFABRICATED WINDOWSILL

WINDOWSILL SCHAFOLDINGS

S: 1/160

FINAL PROJECT. BACHELOR IN CONSTRUCTION

PLACEMENT OF THE STEEL MESH

CONCRETING

FINISHING WITH VIBRATOR RAKE

CONCRETING JOINT

FINAL FINISHING

COLUMN CONNECTORS REINFORCEMENTS

WALL REINFORCEMENTS. CONNECTORS WITH THE PREFABRICATED FLOORS

COLUMN REINFORCEMENTS, CONNECTORS WITH THE BEAMS

WALL CONNECTORS

CONCRETING JOINTS TO SECURE THE LINK

SPECIAL GRABS FOR THE PLACEMENT

CONSTRUCTIVE PROCESS

- LINK ELEMENT REINFORCEMENTS THROUGH OTHER ITEMS SUCH AS THE FORGED ON HOLDING OR OTHER ELEMENT OF FACADE

.

- USUALLY REQUIRED THE USE OF TOWER CRANE DUE TO THE LARGE SIZE AND WEIGHT OF THE ELEMENTS HIGH, SO IS OFTEN USED IN LARGE WORKS.

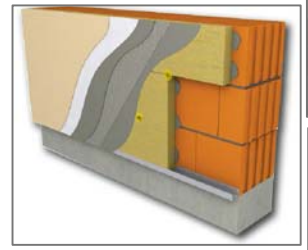
-THE REINFORCEMENT be introduced to the SPECIAL HOLLOW FOR IT. THEN WILL ENSURE THE UNION, NORMALLY APPLYING A LAYER OF MORTAR CEMENT OR CONCRETE IN BETWEEN THE PIECES TOGETHER

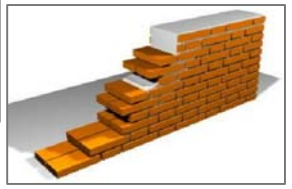


-AMPS SURFACE IS GOING TO FILL THE COURSE OF BRICKS.
-PLACEMENT OF A LAYER OF MORTAR BASE GRIP AS FIRST COURSE OF BRICKS.
THIS WILL BE AT LEAST TWO CENTIMETRES.

-LAYING OF THE COURSE OF BRICKS, AND SUCCESSIVE. THEY WILL STAND A MONG JOINT OF 1CM THICK CEMENT MORTAR

IN THE MEETING BETWEEN TOP AND FACADE FORGED, WILL STAND A LAYER OF PLASTER OF TWO CENTIMETERS THICK.





MATERIALS AND MACHINERY








EFFICIENCY

-MORE EFFICIENCY.

PLACEMENT NEEDED OR RECOMMENDED TWO PEOPLE
A PLATE CAN BE PLACED IN LESS THAN 15 MIN.
THE CONCRETE JOINTS FROM IS DONE BELOW
A PLATE OF TWO SQUARE FEET CAN BE PLACED ON 0.25 H.

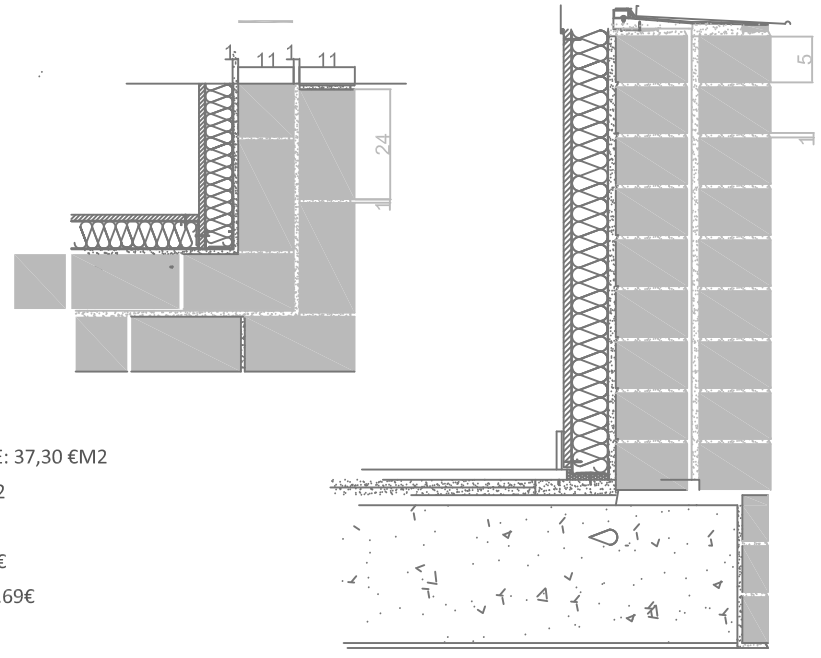
THE SIZE OF THE PIECE ALMOST NO INFLUENCE IN TIME OF PLACEMENT OF THE SAME


M2 PLATE 20CM THICKNESS: 1
UD SCHAFOLDING:0.010
H TOWER CRANE: 0.177
H OFFICIAL: 0.283
H WORKER: 0.283

-LESS EFFICIENCY.

REQUIRED MAJOR LABOR, AS THE ELEMET IS MORE PREPARED.
APPROXIMATE DURATION TO MAKE TWO BRICK 1M2 SHEET THICKNESS (FACADE ELEMENTS USUALLY LEAVES TWO TO INCREASE THE OUTER INSULATION)

IN m2:
EFFICIENCY BRICKS: 100,80
MORTAR:0.028
2 WORKERS:
H OFFICIAL:1,213
H WORKER: 0,607



COSTS

M2 PLATE 20CM THICKNESS: 1X 65,61= 65,61
UD SCHAFOLDING:0.010X 11.07€= 0,11€
H TOWER CRANE: 0.177X66,82=11,83€
H OFFICIAL: 0.283X 15,67€=4,43€
H WORKER: 0.283X 14,70€=4,16€

TOTAL COST 1 M2: 86,14 €. WITHOUT DIRECT AND INDIRECT COSTS


EFFICIENCY BRICKS: 100,80X0.37€ PIECE: 37,30 €M2
MORTAR: 0.028 X 122.30€M2: 3,42€ M2
2 WORKERS:
1,213H X 15,67€ HOUR OFFICIAL: 19,01€
0,607H M2 x 14,31 € HOUR WORKER: 8.69€

TOTAL COST: M2 68.42. WIYHOUT DIRECT AND INDIRECT COSTS.

CONCLUSION

THESE PRICES ARE SPANISH PRICES.

BELGIAN PRICES WOULD BE TO 15% MORE EXPENSIVE EXCEPT LABOUR COST, TO IMPROVE BY MORE THAN 40% THE COST.(THE SPANISH LABOUR COST PER HOUR ARE APROXIMATELY 15€/h, IN BELIGUM ARROUND 30€/h).
THIS IS THE MAIN REASON FOR IS DONE MORE IN SPAIN THIS TYPE OF FACADE. BECAUSE IT IS CHEAPER BY THE MATERIALS USED IN SPITE OF HAVING MAJOR LABOR. IN BELGIUM, THE OPTION OF BRICK FACADE WOULDN´T BE PROFITABLE BY THE MORE ELEVATED LABOUR COST.

THE PREFABRICATED OPTION HAS ALSO ONE ADVANTAGE FOR THE CONSTRUCTION IN BELGIUM. ITS AVAILABLE IN ADVERSE WEATHER



TEREX®

CTT 331-16 H20

FLAT TOP TOWER CRANE

Specifications:

- Max jib length: 75,00 m
- Capacity at max length: 2,90 t
- Max capacity: 16,00 t

KEY

Zeichenerklärung · Légende · Leyenda · Legenda

	Hoisting · Heben · Levage · Elevación · Sollevamento
	Trolleying · Katzfahren · Distribution · Distribución · Traslazione carrello
	Slewing · Schwenken ·Orientation · Orientació · Rotazione
	Travelling · Schienenfahren · Translation · Traslación · Traslazione
	Directive on noise level · Richtlinie für den Schall-Leistungspegel · Directive sur le niveau acoustique · Directiva sobre el nivel acustico · Direttiva sul livello acustico
	Consult us · Auf Anfrage · Nous consulter · Consultarnos · Consultateci
	Power requirements · Geforderte Stromstärke · Puissance totale nécessaire · Potencia necesaria · Potenza totale richiesta
	Power supply · Stromversorgung · Alimentation · Alimentación · Alimentazione
	In service · In Betrieb · En service · En servicio · In servizio
	Out of service · Außer Betrieb · Hors service · Fuera de servicio · Fuori servizio
H	Max. under hook height · Höchste Hakenhöhe · Hauteur maxi. sous crochet · Maxima altura bajo gancho · Altezza max. sotto gancio
	Without load, without ballast, max. jib and max. height · Ohne Last und Ballast, mit Maximalausleger und Maximalhöhe · A vide, sans lest, avec flèche et hauteur maximum · Sin carga, sin lastre, con pluma y altura máxima · A vuoto, senza zavorra, braccio max., altezza max.
	Counterweight · Gegengewicht · Lest de contre-flèche · Lastre de contra flecha · Zavorra controbraccio
C25	FEM 1004 Out of service wind condition · FEM 1004 Windverhältnisse im Außerbetriebszustand · FEM 1004 Conditions de vent hors service · FEM 1004 Condiciones de viento fuera de servicio · FEM 1004 Condizioni del vento in fuori servizio

CE FEM

SYSTEM CERTIFICATION ISO 9001 SGS

TEREX®

CONTENTS

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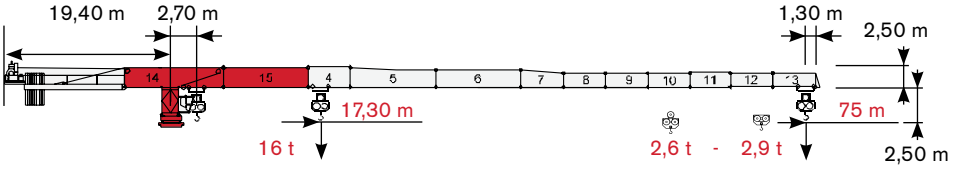
WORKS FOR YOU.™

LOAD DIAGRAM

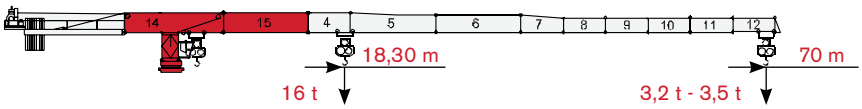
Lastkurven · Courbes de charges · Curvas de cargas · Diagramma di portata

	A1 (3,57 t)	D2 (5,3 t)
45 AFC 80	6	2
67 AFC 80	7	1



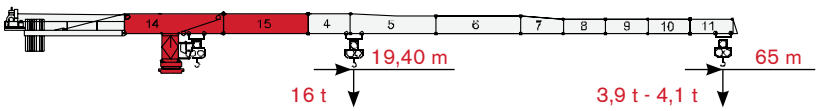
			10 m	15 m	20 m	25 m	30 m	35 m	40 m	45 m	50 m	52 m	55 m	57 m	60 m	62 m	65 m	67 m	70 m	72 m	75 m
8 t →	31,10 m	t	8,00	8,00	8,00	8,00	8,00	7,24	6,21	5,42	4,78	4,57	4,27	4,09	3,84	3,69	3,48	3,35	3,17	3,06	2,90
8 t →	31,50 m	t	8,00	8,00	8,00	8,00	8,00	7,06	6,00	5,19	4,53	4,31	4,00	3,82	3,56	3,41	3,19	3,06	2,87	2,76	2,60
16 t →	17,30 m	t	16,00	16,00	13,54	10,48	8,48	7,06	6,00	5,19	4,53	4,31	4,00	3,82	3,56	3,41	3,19	3,06	2,87	2,76	2,60

	A1 (3,57 t)	D2 (5,3 t)
45 AFC 80	6	2
67 AFC 80	7	1



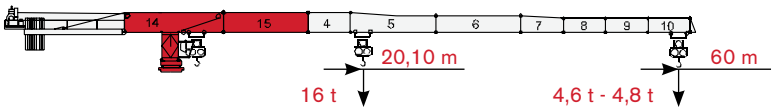
			10 m	15 m	20 m	25 m	30 m	35 m	40 m	45 m	50 m	52 m	55 m	57 m	60 m	62 m	65 m	67 m	70 m
8 t →	34,50 m	t	8,00	8,00	8,00	8,00	8,00	7,86	6,76	5,91	5,23	5,00	4,68	4,48	4,22	4,06	3,83	3,69	3,50
8 t →	33,60 m	t	8,00	8,00	8,00	8,00	8,00	7,61	6,50	5,64	4,95	4,71	4,39	4,20	3,93	3,76	3,54	3,40	3,20
16 t →	18,30 m	t	16,00	16,00	14,46	11,23	9,11	7,61	6,50	5,64	4,95	4,71	4,39	4,20	3,93	3,76	3,54	3,40	3,20

	A1 (3,57 t)	D2 (5,3 t)
45 AFC 80	7	1
67 AFC 80	8	0



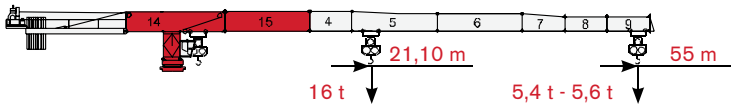
			10 m	15 m	20 m	25 m	30 m	35 m	40 m	45 m	50 m	52 m	55 m	57 m	60 m	62 m	65 m
8 t →	36,30 m	t	8,00	8,00	8,00	8,00	8,00	8,00	7,17	6,28	5,57	5,32	4,99	4,78	4,51	4,34	4,10
8 t →	35,80 m	t	8,00	8,00	8,00	8,00	8,00	8,00	7,03	6,12	5,40	5,15	4,81	4,60	4,31	4,14	3,90
16 t →	19,40 m	t	16,00	16,00	15,44	12,03	9,79	8,21	7,03	6,12	5,40	5,15	4,81	4,60	4,31	4,14	3,90

	A1 (3,57 t)	D2 (5,3 t)
45 AFC 80	7	1
67 AFC 80	8	0



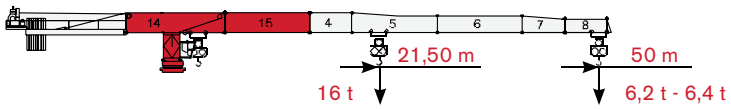
			10 m	15 m	20 m	25 m	30 m	35 m	40 m	45 m	50 m	52 m	55 m	57 m	60 m
8 t →	38,10 m	t	8,00	8,00	8,00	8,00	8,00	8,00	7,59	6,65	5,91	5,65	5,30	5,09	4,80
8 t →	37,40 m	t	8,00	8,00	8,00	8,00	8,00	8,00	7,41	6,47	5,72	5,46	5,11	4,89	4,60
16 t →	20,10 m	t	16,00	16,00	16,00	12,59	10,27	8,63	7,41	6,47	5,72	5,46	5,11	4,89	4,60

	A1 (3,57 t)	D2 (5,3 t)
45 AFC 80	8	0
67 AFC 80	6	1



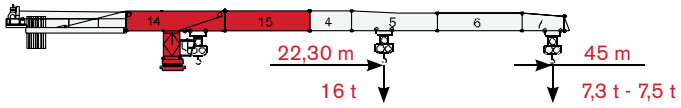
			10 m	15 m	20 m	25 m	30 m	35 m	40 m	45 m	50 m	52 m	55 m
8 t →	40,00 m	t	8,00	8,00	8,00	8,00	8,00	8,00	8,00	7,02	6,24	5,97	5,60
8 t →	39,20 m	t	8,00	8,00	8,00	8,00	8,00	8,00	7,82	6,83	6,04	5,77	5,40
16 t →	21,10 m	t	16,00	16,00	16,00	13,24	10,81	9,10	7,82	6,83	6,04	5,77	5,40

	A1 (3,57 t)	D2 (5,3 t)
45 AFC 80	5	1
67 AFC 80	7	0



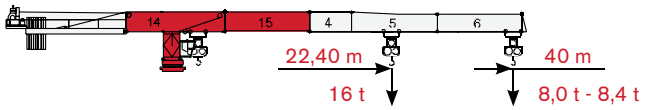
			10 m	15 m	20 m	25 m	30 m	35 m	40 m	45 m	50 m
8 t →	40,90 m	t	8,00	8,00	8,00	8,00	8,00	8,00	8,00	7,20	6,40
8 t →	40,10 m	t	8,00	8,00	8,00	8,00	8,00	8,00	8,00	7,00	6,20
16 t →	21,50 m	t	16,00	16,00	16,00	13,57	11,08	9,32	8,02	7,00	6,20

	A1 (3,57 t)	D2 (5,3 t)
45 AFC 80	6	0
67 AFC 80	5	1



			10 m	15 m	20 m	25 m	30 m	35 m	40 m	45 m
8 t →	42,50 m	t	8,00	8,00	8,00	8,00	8,00	8,00	8,00	7,50
8 t →	41,50 m	t	8,00	8,00	8,00	8,00	8,00	8,00	8,00	7,30
16 t →	22,30 m	t	16,00	16,00	16,00	14,10	11,53	9,70	8,35	7,30

	A1 (3,57 t)	D2 (5,3 t)
45 AFC 80	4	1
67 AFC 80	4	1



			10 m	15 m	20 m	25 m	30 m	35 m	40 m
8 t →	40,00 m	t	8,00	8,00	8,00	8,00	8,00	8,00	8,00
8 t →	40,00 m	t	8,00	8,00	8,00	8,00	8,00	8,00	8,00
16 t →	22,40 m	t	16,00	16,00	16,00	14,19	11,60	9,76	8,40

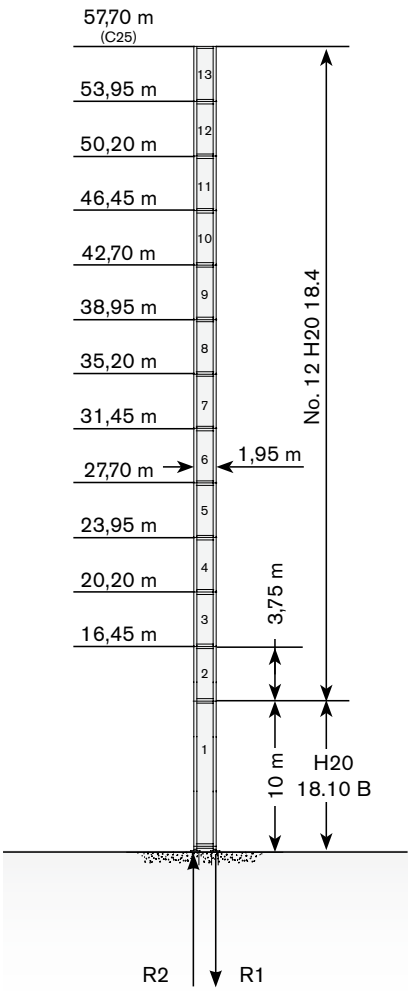
TOWER

Turm · Tour · Torre · Torre

Standard Configurations · Standardkonfiguration · Standard Implantations · Implantaciones Standard · Installazioni Standard

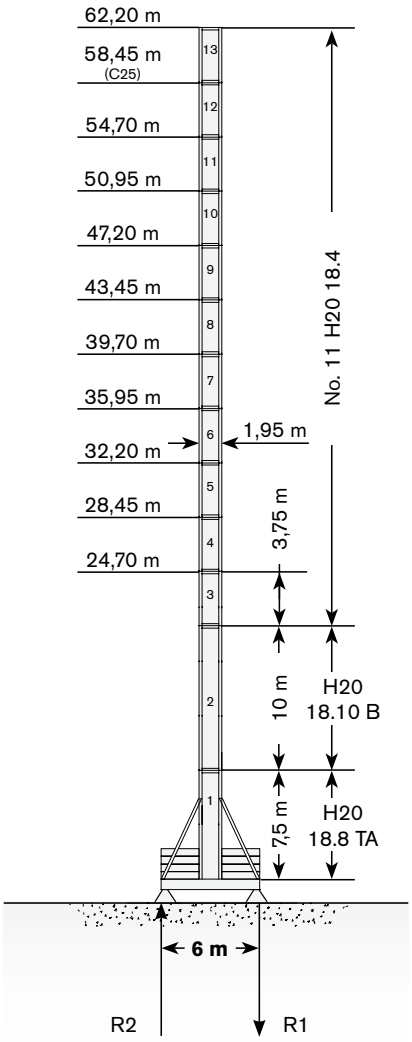
Tower: H20 & Basement: RTL

	●	▲▼
R1	-2640 kN	-2835 kN
R2	1990 kN	2255 kN
	870 kN	



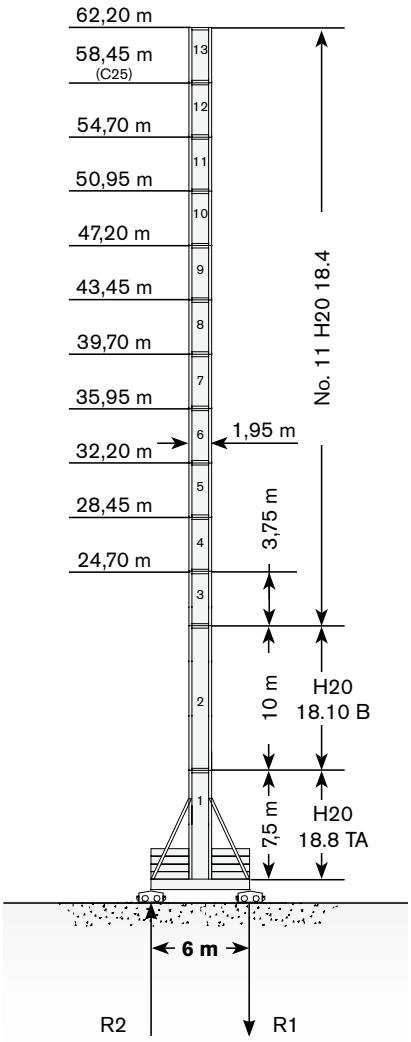
Tower: H20 & Basement: FTR

	●	▲▼
R1	-1435 kN	-1554 kN
R2	0 kN	-150 kN
	1070 kN	



Tower: H20 & Basement: TTR

	●	▲▼
R1	-1435 kN	-1554 kN
R2	0 kN	-150 kN
	1070 kN	

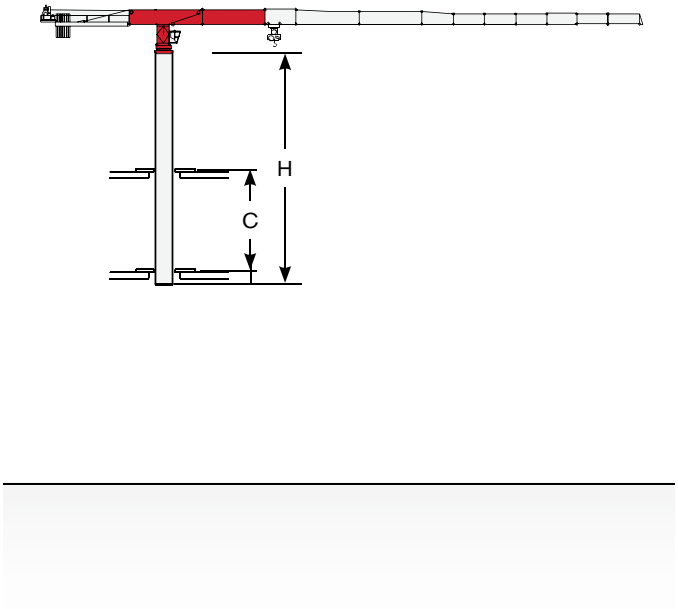


Max. under hook height • Höchste Hakenhöhe • Hauteur maxi. sous crochet • Maxima altura bajo gancho • Altezza max. sotto gancio

Different heights and tower combinations are available; please consult us • Andere Höhen und Turmkombinationen auf Anfrage • Différentes hauteurs et combinaisons de tour sont disponibles; nous consulter • Hay diferentes alturas y combinaciones de torre disponibles. Consúltenos • Altezze diverse e combinazioni di torre sono disponibili; consultateci

Other configurations · Aufstellmöglichkeiten · Autres Implantations · Otras Implantaciones · Altre Installazioni

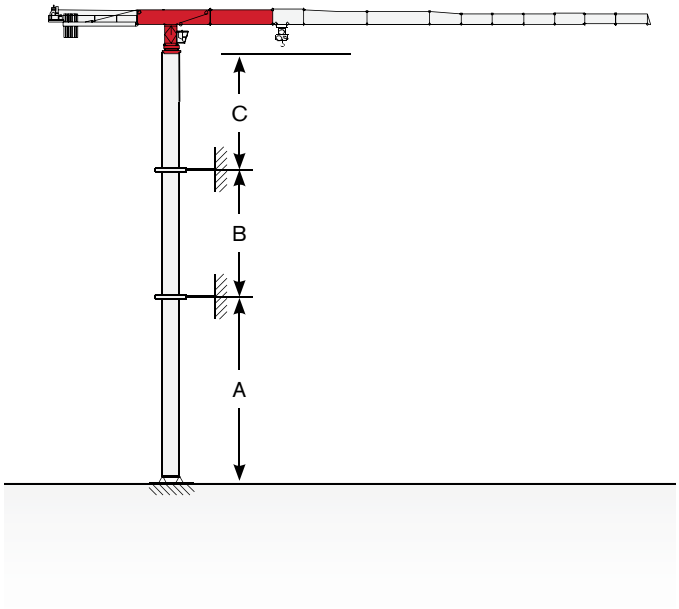
Bottom climbing crane · Kletterkran im Gebäude · Télescopage sur dalles · Telescopage grúa trepadora · Gru climbing



Tower: H20

	min	max
C	10 m	16 m
H	22,5 m	30 m

Crane tied to the structure · Geankerter Kran · Grue ancrée · Grúa anclada · Gru ancorata



Tower: H20 & Basement: RTL

	min	max
A	25 m	44 m
B	15 m	22,5 m
C	27 m	

MECHANISMS

Antriebe · Mécanismes · Mecanismos · Meccanismi

Power supply · Stromversorgung · Alimentation · Suministro eléctrico · Alimentazione

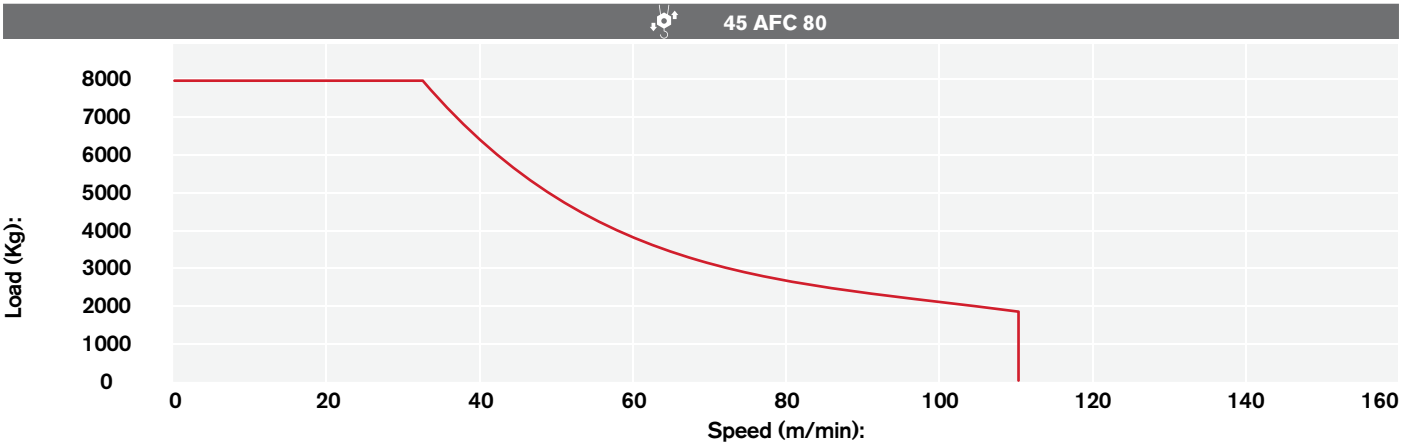
	45 AFC 80	114 kVA*	400V - 50Hz / 460V - 60Hz	2000/14/CE modificata
	67 AFC 80	138 kVA*	400V - 50Hz / 460V - 60Hz	2000/14/CE modificata

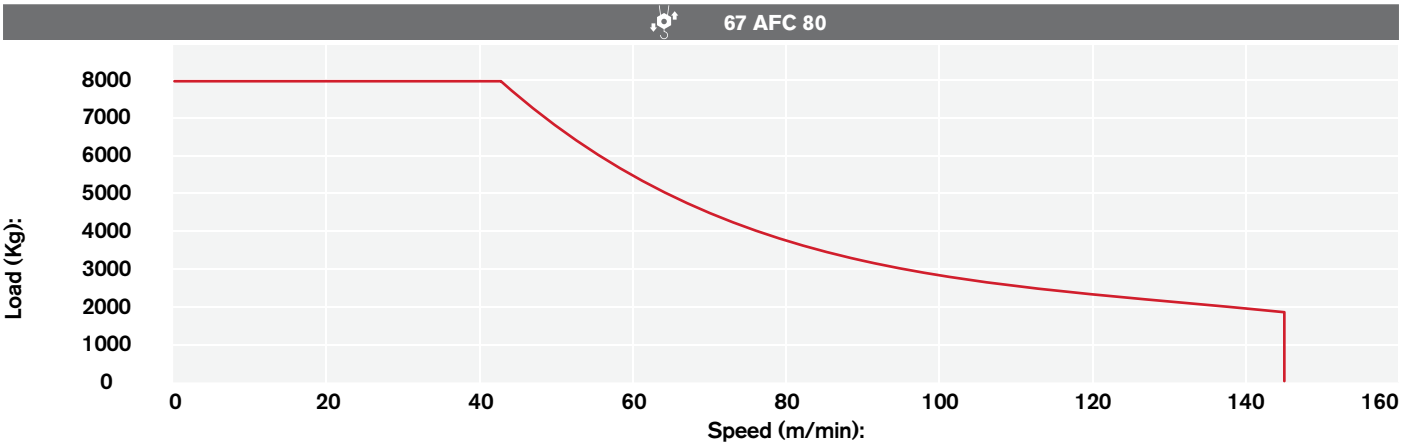
* Crane without travelling equipment – Three movements simultaneous at 90% · Krane ohne Schienenfahren – Drei gleichzeitige Bewegungen mit 90% · Grue sans translation – Trois mouvements simultanés à 90% · Grúa sin traslación – Tres movimientos contemporáneos hechos al 90% · Gru senza traslazione – Tre movimenti contemporanei al 90%

Hoisting · Heben · Levage · Elevación · Sollevamento

			t	m/min	kW	
	45 AFC 80 45 AFC 80 D2 (Vector)		8	0 ➔ 30	45	560 m 850 m (D2)
			6	0 ➔ 39		
			4	0 ➔ 56		
			2	0 ➔ 97		
			1,7	0 ➔ 110		
			16	0 ➔ 15		
			12	0 ➔ 19,5		
			8	0 ➔ 28		
			4	0 ➔ 48,5		
			3,4	0 ➔ 55		
	67 AFC 80 67 AFC 80 D1 (Vector)		8	0 ➔ 41	67	560 m 850 m (D1)
			6	0 ➔ 53		
			4	0 ➔ 76		
			2	0 ➔ 135		
			1,85	0 ➔ 145		
			16	0 ➔ 20,5		
			12	0 ➔ 26,5		
			8	0 ➔ 38		
			4	0 ➔ 67,5		
			3,7	0 ➔ 72,5		

Hoisting Speed · Heben Geschwindigkeit · Vitesse de Levage · Velocidad de Elevación · Velocità' di Sollevamento





Additional Specifications · Weitere Leistungsdaten · Spécifications additionnelles · Otras prestaciones · Altre movimentazioni

	DSR 3 70 D2	12 ➔ 36 ➔ 72 m/min	70/50 Nm
	DCC 5 112 D2	0 ➔ 95 m/min	11 kW
	SSR 4 4 65	0,73 r.p.m.	4 x 65 Nm
	TSR 2RG 4M8	12 ➔ 24 m/min (50 Hz) 14 ➔ 28 m/min (60 Hz)	4 x 80 Nm

TRANSPORTATION

Transport · Transport · Conducción · Trasporto

Packing list

CTT 231-12 H20	DESCRIPTION · BESCHREIBUNG · DESCRIPTION · DESCRIPCIÓN · DESCRIZIONE	LENGTH · LÄNGE · LONGUEUR · LONGITUD · LUNGHEZZA	WIDTH · BREITE · LARGEUR · ANCHURA · LARGHEZZA	HEIGHT · HÖHE · HAUTEUR · ALTURA · ALTEZZA	QUANTITY · MENGE · QUANTITÉ · CANTIDAD · QUANTITÀ	WEIGHT · GEWICHT · POIDS · PESO · PESO
	6×6 m UNDERCARRIAGE LONG BEAM	8,95 m	0,50 m	1,05 m	1	2088 kg
	6×6 m UNDERCARRIAGE SHORT BEAM	4,4 m	0,5 m	1,05 m	2	1010 kg
	6×6 m UNDERCARRIAGE JOINING SLEEPER	5,5 m	0,15 m	0,48 m	2	280 kg
	6×6 m UNDERCARRIAGE JOINING SLEEPER	5,5 m	0,15 m	0,48 m	2	220 kg
	6×6 m UNDERCARRIAGE STRUT	5,10 m	0,24 m	0,30 m	4	500 kg
	STRUT MOUNTING TOWER ELEMENT HA20 18.8TA FOR 6×6 m UNDERCARRIAGE	7,50 m	2,3 m	0,30 m	1	6660 kg*
	STRUT MOUNTING TOWER ELEMENT HA20 18.8TA FOR 6×6 m UNDERCARRIAGE	7,50 m	1,95 m	1,95 m	1	6308 kg*
	HA20 18.10 B TOWER ELEMENT	10 m	2 m	1,95 m	1	7000 kg*
	HA20 18.4 S TOWER ELEMENT	3,75 m	2 m	1,95 m	1	2955 kg*
	COMPLETE H20 SLEWING UNIT	2,30 m	2,96 m	2,40 m	1	8000 kg
	CAB TOWER SECTION	2 m	2,30 m	3,61 m	1	2100 kg
	CAB	1,63 m	1,10 m	2,10 m	1	640 kg
	COUNTERJIB “C5”	12,00 m	2,10 m	0,70 m	1	3100 kg**
	JIB SECTION-14 TT1923.12	11,97 m	1,92 m	2,50 m	1	6700 kg 7700 kg***

CTT 331-16 H20

CTT 231-12 H20	DESCRIPTION · BESCHREIBUNG · DESCRIPTION · DESCRIPCIÓN · DESCRIZIONE	LENGTH · LÄNGE · LONGUEUR · LONGITUD · LUNGHEZZA	WIDTH · BREITE · LARGEUR · ANCHURA · LARGHEZZA	HEIGHT · HÖHE · HAUTEUR · ALTURA · ALTEZZA	QUANTITY · MENGE · QUANTITÉ · CANTIDAD · QUANTITÀ	WEIGHT · GEWICHT · POIDS · PESO · PESO
	JIB SECTION-15 TT1923.10	10,20 m	1,87 m	2,52 m	1	3900 kg
	JIB SECTION-04 TT1923.05	5,38 m	1,87 m	2,55 m	1	1800 kg
	JIB SECTION-05 TT1923.10	10,29 m	1,87 m	2,55 m	1	2700 kg
	JIB SECTION-06 TT1920.10	10,29 m	1,87 m	2,18 m	1	1950 kg
	JIB SECTION-07 TT1920.05	5,28 m	1,87 m	2,18 m	1	900 kg
	JIB SECTION-08 TT1917.05	2,25 m	1,87 m	1,86 m	1	800 kg
	JIB SECTION-09 TT1917.05	5,22 m	1,87 m	1,86 m	1	950 kg
	JIB SECTION-10 TT1917.05	5,19 m	1,87 m	1,86 m	1	520 kg
	JIB SECTION-11 TT1917.05	5,16 m	1,87 m	1,86 m	1	460 kg
	JIB SECTION-12 TT1917.05	5,14 m	1,87 m	1,68 m	1	380 kg
	JIB SECTION-13 TT1917.05	5,10 m	1,87 m	1,86 m	1	330 kg
	JIB POINT	2,27 m	2,18 m	1,47 m	1	220 kg
	12-16 t JIB TROLLEY	2,45 m	2,15 m	1,17 m	1	830 kg
	16 t DOUBLE HOIST BLOCK	0,60 m	1,20 m	2,00 m	1	803 kg
	HOIST WINCH 45 AFC R00-R01 (VECTOR) (without rope)	2,30 m	2,15 m	1,80 m	1	2330 kg
	HOIST WINCH 67 AFC R00-R01 (VECTOR) (without rope)	2,47 m	2,23 m	1,95 m	1	2500 kg

* including, ladders, platforms, assembly, equipment and strut mounting brackets
** complete of platforms and protections
*** complete of trolley winch and various accessories

www.terexcranes.com

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Tel. +49 (0) 6332 830, Email: info.cranes@terex.com, www.terexcranes.com

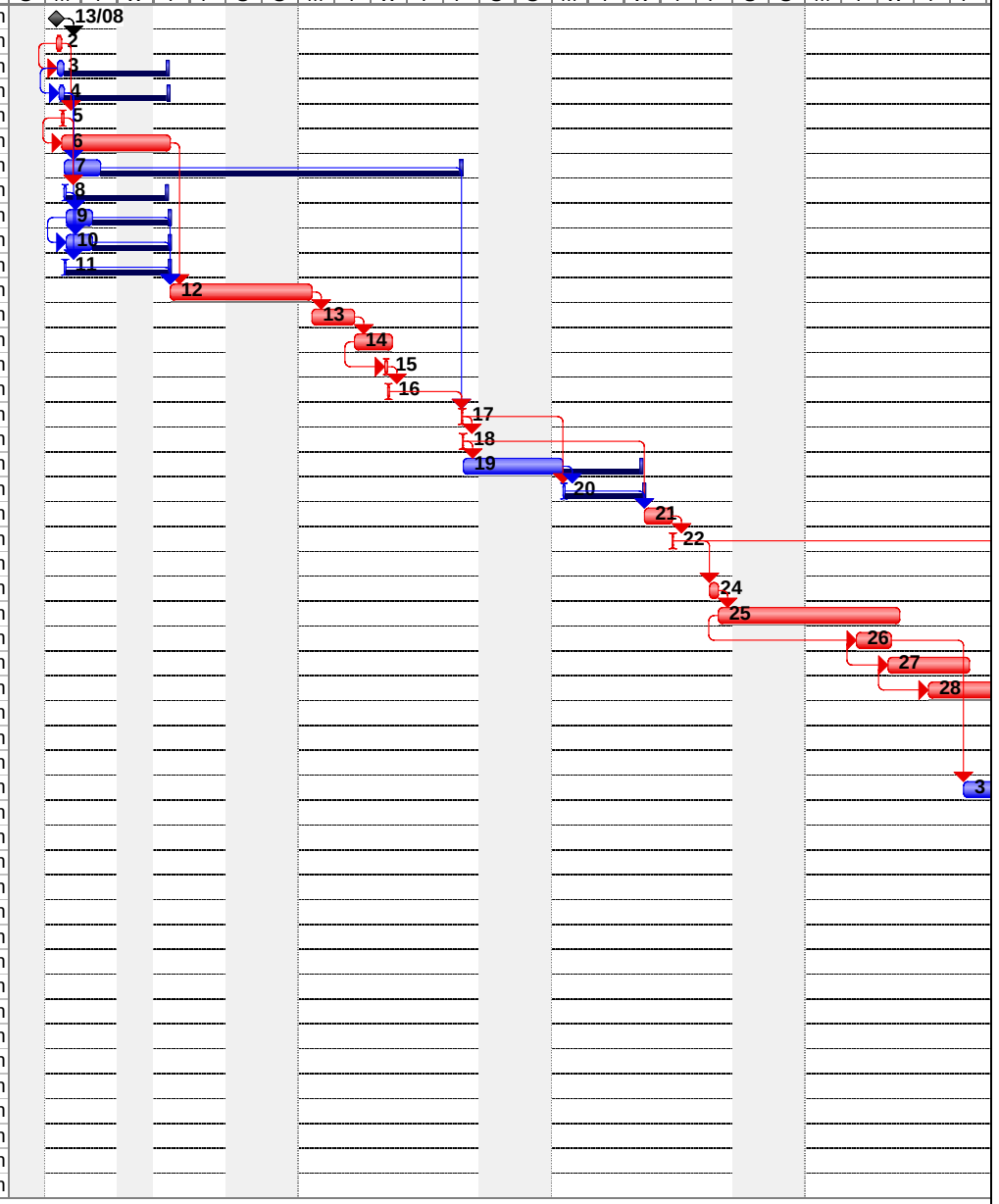
Brochure Reference: TC-DS-M-E/F/G/I/S-CTT331-16 H20-01/11

TEREX®

WORKS FOR YOU.™

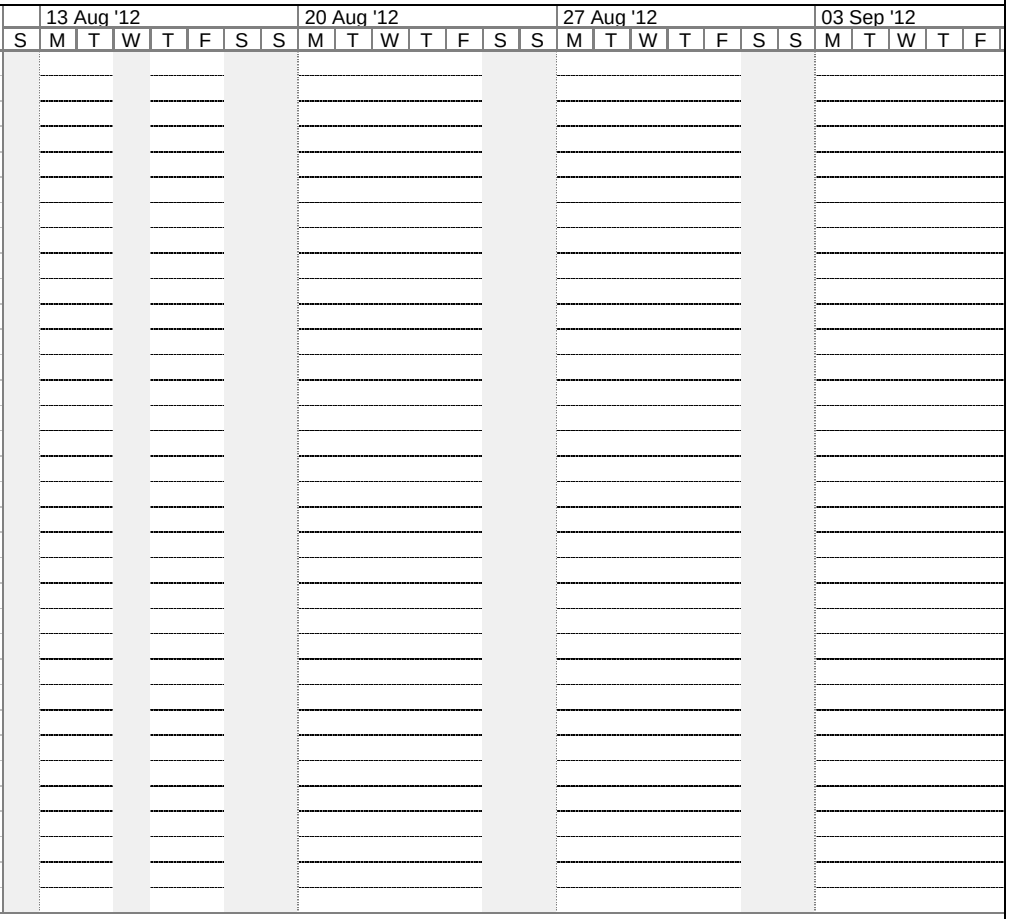
Keppekouter

ID	Task Name	Duration	Resource Initials	Work
1	Initial	0 d		0 h
2	Fenced and signaling	0.44 d	G,T	7 h
3	Clearing and cleaning surface,20cm depth	0.46 d	D,G,I	11 h
4	Topography	0.38 d	R	3 h
5	Electricity generator	0.13 d	T,D	2 h
6	Drainage (temporary)	2 d	R,P,b	48 h
7	Placement of the Crane, crane ballasted	1 d	P,I	16 h
8	Electrical installation, plumbing and sanitation.of temporary facilities	0.19 d	G,T	3 h
9	Placement of temporary facilities, site huts	0.25 d	P,R	4 h
10	Electrical,plumbing and sanitation installation of the site huts	0.25 d	R,P	4 h
11	Topography Excavation	0.13 d	D,G	2 h
12	Excavation level -0,5 sides C-B towards A-D	1.75 d	R,P,b,I	70 h
13	Excavation level -1, -2.80m, sides C-B towards A-D	1.46 d	R,P,R,b,I	70 h
14	Excavation level -1,5, -4,20m sides C-B towards D-A	1.13 d	R,P,b,I	36 h
15	Lift Pit Excavation. Level -4,5m	0.25 d	P,b	4 h
16	Lift foundation cleaning concrete bottom 10cm shock resistant layer	0.06 d	D,R	1 h
17	Armed bottom foundation	0.08 d	R,G,I,s	2 h
18	Concreting pit lift	0.06 d	D,P,C	1 h
19	formwork one side wall lift	0.31 d	G,T,f	5 h
20	Armed wall lift foundation	0.17 d	D,R,R,s	4 h
21	Formwork wall lift foundation two sides	0.38 d?	G,R,f	6 h
22	Concreting wall lift	0.08 d	R,R,v,C	2 h
23	Formwork stripping wall lift	0.25 d?	G,P	4 h
24	Foundation level -1.5/-1, cleaning concrete bottom/shock layer	0.67 d	D,I,T	16 h
25	Armed, placement of the columns and walls reinforcement	3.03 d	R,R,G,T	97 h
26	Concreting foundation	0.88 d	D,P,v	21 h
27	Formwork Walls levels -1.5/-1/-0,5 one side	2.69 d	P,G	43 h
28	Armed walls foundation	3.09 d	R,R,T,P,s	99 h
29	Formwork Walls levels -1.5/-1/-0,5 two sides	2.5 d	D,G,R,f	60 h
30	Concreting walls foundation	1 d	R,T,v,C	24 h
31	Formwork stripping wall levels -1.5/-1/-0,5	1.88 d?	I,P	30 h
32	Raised of the columns level -1,5/-0,5/+0,5// -1/0	0.88 d	R,R	14 h
33	Concreting joints between walls and colmns	0.13 d	T	1 h
34	Placing prefabricated beams Floor level -0,5/ 0	1.75 d	D,G	28 h
35	Placing prefabricated plates Floor level -0.5/0	2.31 d	R,R,pf	37 h
36	Placement steel floor level -0.5/0	0.31 d?	I,P,T,P	10 h
37	Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0	0.08 d	D,R	1 h
38	Joints between stairs-floor	0.13 d	T	1 h
39	Placing prefabricated wall plates level 0- Schafoldings	1.06 d	G,D,pw	17 h
40	joints between floor-wall	0.25 d	R	2 h
41	Columns - Placement of the prefabricated columns level 1/2	0.58 d	P,P	14 h
42	joints column-floor scaffoldings	0.25 d	T	2 h
43	Placement of the prefabricated beams 0.5/1	1.08 d	R,G	26 h
44	Placement of the prefabricated plates floor level +0'5/1 .	2.56 d	P,P,pf	41 h
45	Placement steel floor level 0.5/1	0.31 d?	R,G,I,R	10 h
46	joints between beams-columns/ beams-perimeter wall.scaffold	0.25 d	T	2 h
47	Placement of prefabricated stairs level -0,5/+0,5 0/+1	0.06 d	D,R	1 h
48	Placement and support of prefabricated slab	0.13 d	R	1 h



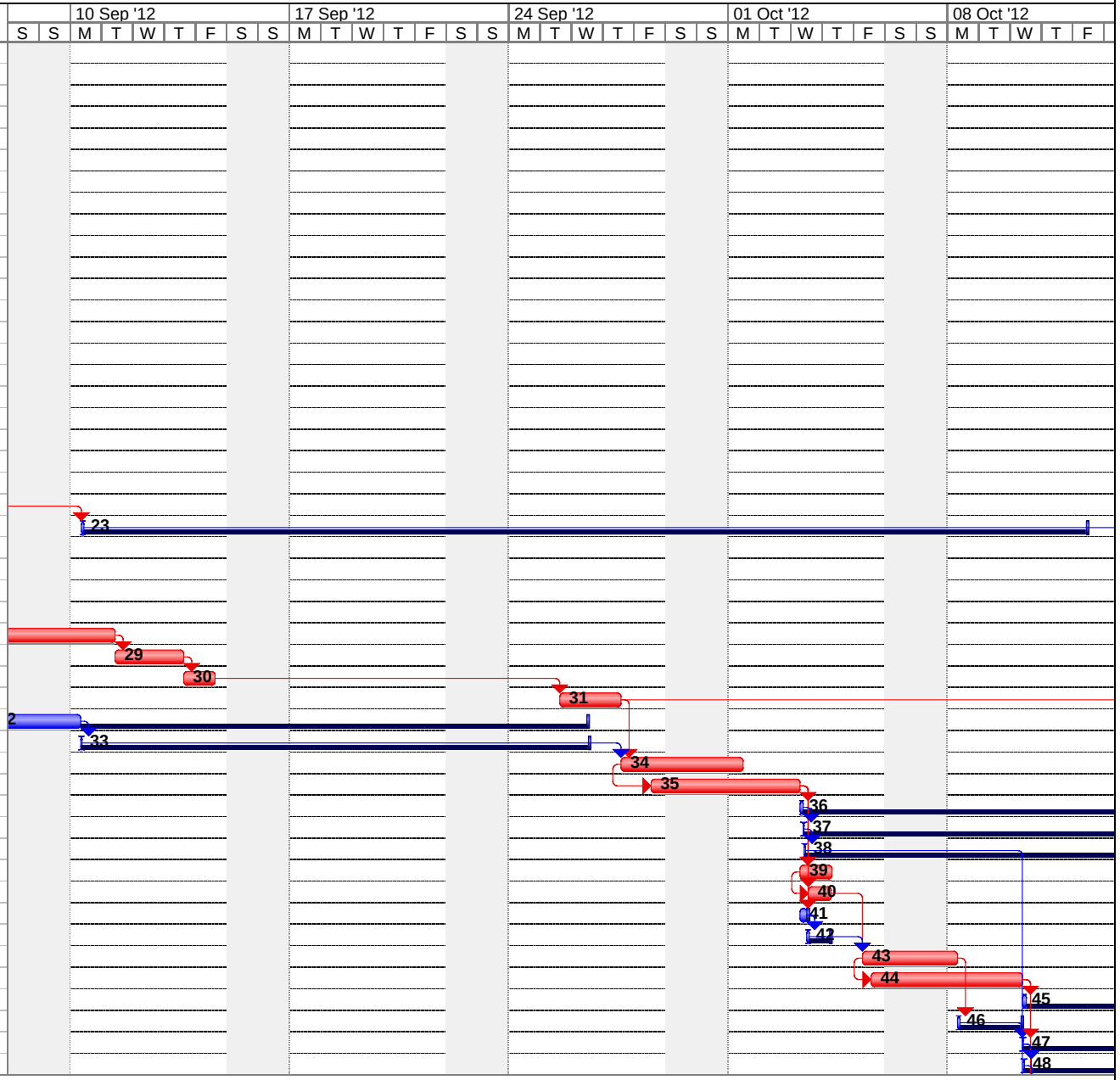
Keppekouter

ID	Task Name	Duration	Resource Initials	Work
49	joints between stairs and floor	0.13 d	T	1 h
50	Placement Prefabricated Wall plates level +0,5/+1	0.71 d	R,G,pw	17 h
51	joints between floor-wall. Scaffoldungs	0.25 d	T	2 h
52	Placement of the prefabricated beams 1.5/2	1.63 d	D,I	26 h
53	Placement Prefabricated floor level plates +1,5/2 .	1.71 d	R,P,pf	41 h
54	Placement steel floor level 1.5/2	0.31 d?	P,P,G,R	10 h
55	joints between beams-columns/ beams-perimeter wall.scaffold	0.38 d	T	3 h
56	Placement of prefabricated stairs level +0,5/+1,5 +1/+2	0.06 d	R,G	1 h
57	joints stairs/floor	0.13 d	T	1 h
58	Placing prefabricated wall plates level 1.5/2- Schafoldings	1.06 d	P,I,pw	17 h
59	joints between floor-wall	0.38 d	T	3 h
60	placement prefabricated columns level 1.5/2.5	0.88 d	R,D	14 h
61	joints column-floor scaffoldings	0.25 d	I	2 h
62	Placement of the prefabricated beams level 2.5/3	1.63 d	G,D	26 h
63	Placement Prefabricated plates floor level 2.5/3	1.71 d	R,R,pf	41 h
64	Placement steel floor level 2.5/3	0.31 d?	I,P,P,R	10 h
65	joints between beams-columns/ beams-perimeter wall.scaffold	0.38 d	T	3 h
66	Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3	0.06 d	G,P	1 h
67	Placement and support of prefabricated slab	0.13 d	R	1 h
68	joints between stairs and floor	0.13 d	I	1 h
69	Placing Prefabricated Wall plates level 2.5/3, Schafoldings	1.06 d	P,P,pw	17 h
70	joints between floor-wall	0.25 d	R	2 h
71	Placement of the prefabricated beams level 3.5	0.71 d	D,R	17 h
72	joints between beams-columns/ beams-perimeter wall.	0.25 d	T	2 h
73	Placement Prefabricated plates floor level +3,5 .	1.25 d	I,P	20 h
74	Placement steel floor level 3.5	0.19 d?	P,R,T,G	6 h
75	Placement of prefabricated stairs level +2,5/+3,5	0.06 d	R,T	1 h
76	Placement and support of prefabricated slab	0.13 d	G	1 h
77	Placement of the windowsill level +3/+3,5	1.06 d	R,I	17 h
78	joints between windowsill- floor	0.13 d	P	1 h
79	take away the crane	1 d	P,R	16 h
80	Take away the drainage	2.25 d	G,T,b	54 h
81	Concreting floor levels	1.41 d?	I,D,R,m	45 h
82	final	0 d		0 h



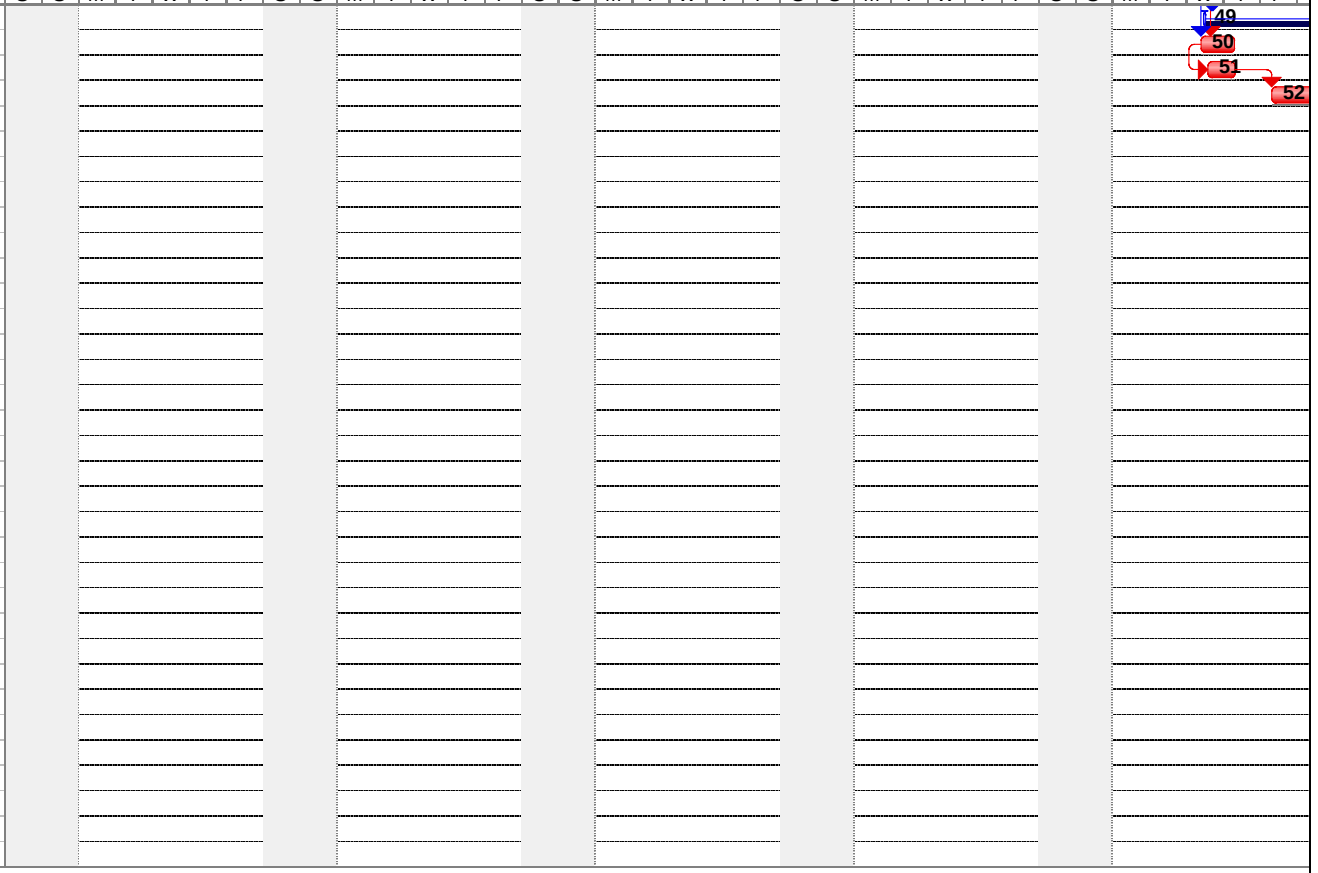
Keppekouter

ID	Task Name
1	Initial
2	Fenced and signaling
3	Clearing and cleaning surface,20cm depth
4	Topography
5	Electricity generator
6	Drainage (temporary)
7	Placement of the Crane, crane ballasted
8	Electrical installation, plumbing and sanitation.of temporary facilities
9	Placement of temporary facilities, site huts
10	Electrical,plumbing and sanitation installation of the site huts
11	Topography Excavation
12	Excavation level -0,5 sides C-B towards A-D
13	Excavation level -1, -2.80m, sides C-B towards A-D
14	Excavation level -1,5, -4,20m sides C-B towards D-A
15	Lift Pit Excavation. Level -4,5m
16	Lift foundation cleaning concrete bottom 10cm shock resistant layer
17	Armed bottom foundation
18	Concreting pit lift
19	formwork one side wall lift
20	Armed wall lift foundation
21	Formwork wall lift foundation two sides
22	Concreting wall lift
23	Formwork stripping wall lift
24	Foundation level -1.5/-1, cleaning concrete bottom/shock layer
25	Armed, placement of the columns and walls reinforcement
26	Concreting foundation
27	Formwork Walls levels -1.5/-1/-0,5 one side
28	Armed walls foundation
29	Formwork Walls levels -1.5/-1/-0,5 two sides
30	Concreting walls foundation
31	Formwork stripping wall levels -1.5/-1/-0,5
32	Raised of the columns level -1,5/-0,5/+0,5// -1/0
33	Concreting joints between walls and colmns
34	Placing prefabricated beams Floor level -0,5/ 0
35	Placing prefabricated plates Floor level -0.5/0
36	Placement steel floor level -0.5/0
37	Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0
38	Joints between stairs-floor
39	Placing prefabricated wall plates level 0- Schafoldings
40	joints between floor-wall
41	Columns - Placement of the prefabricated columns level 1/2
42	joints column-floor scaffoldings
43	Placement of the prefabricated beams 0.5/1
44	Placement of the prefabricated plates floor level +0'5/1 .
45	Placement steel floor level 0.5/1
46	joints between beams-columns/ beams-perimeter wall.scaffold
47	Placement of prefabricated stairs level -0,5/+0,5 0/+1
48	Placement and support of prefabricated slab



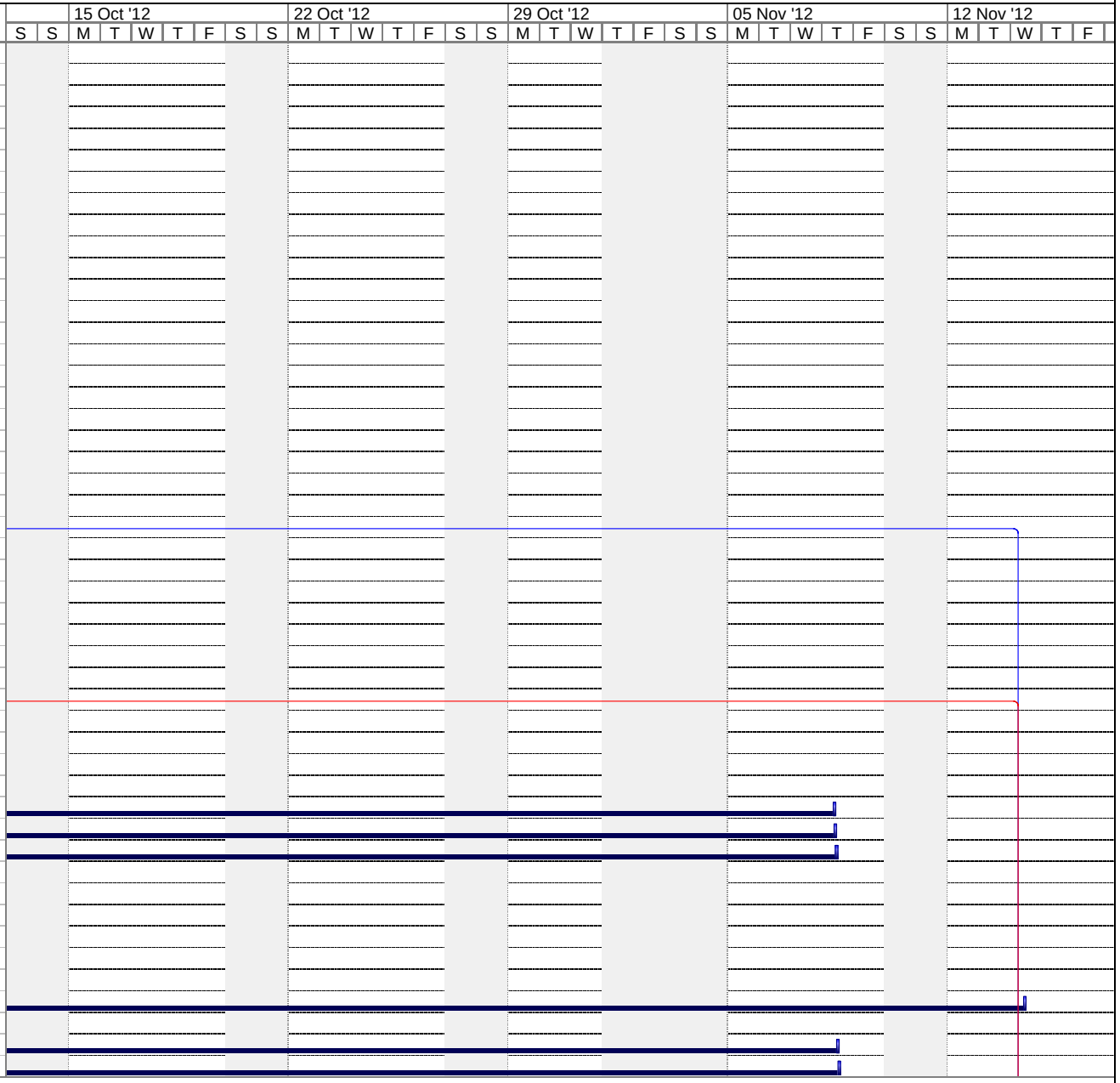
Keppekouter

ID	Task Name
49	joints between stairs and floor
50	Placement Prefabricated Wall plates level +0,5/+1
51	joints between floor-wall. Scaffoldungs
52	Placement of the prefabricated beams 1.5/2
53	Placement Prefabricated floor level plates +1,5/2 .
54	Placement steel floor level 1.5/2
55	joints between beams-columns/ beams-perimeter wall.scaffold
56	Placement of prefabricated stairs level +0,5/+1,5 +1/+2
57	joints stairs/floor
58	Placing prefabricated wall plates level 1.5/2- Schafoldings
59	joints between floor-wall
60	placement prefabricated columns level 1.5/2.5
61	joints column-floor scaffoldings
62	Placement of the prefabricated beams level 2.5/3
63	Placement Prefabricated plates floor level 2.5/3
64	Placement steel floor level 2.5/3
65	joints between beams-columns/ beams-perimeter wall.scaffold
66	Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3
67	Placement and support of prefabricated slab
68	joints between stairs and floor
69	Placing Prefabricated Wall plates level 2.5/3, Schafoldings
70	joints between floor-wall
71	Placement of the prefabricated beams level 3.5
72	joints between beams-columns/ beams-perimeter wall.
73	Placement Prefabricated plates floor level +3,5 .
74	Placement steel floor level 3.5
75	Placement of prefabricated stairs level +2,5/+3,5
76	Placement and support of prefabricated slab
77	Placement of the windowsill level +3/+3,5
78	joints between windowsill- floor
79	take away the crane
80	Take away the drainage
81	Concreting floor levels
82	final



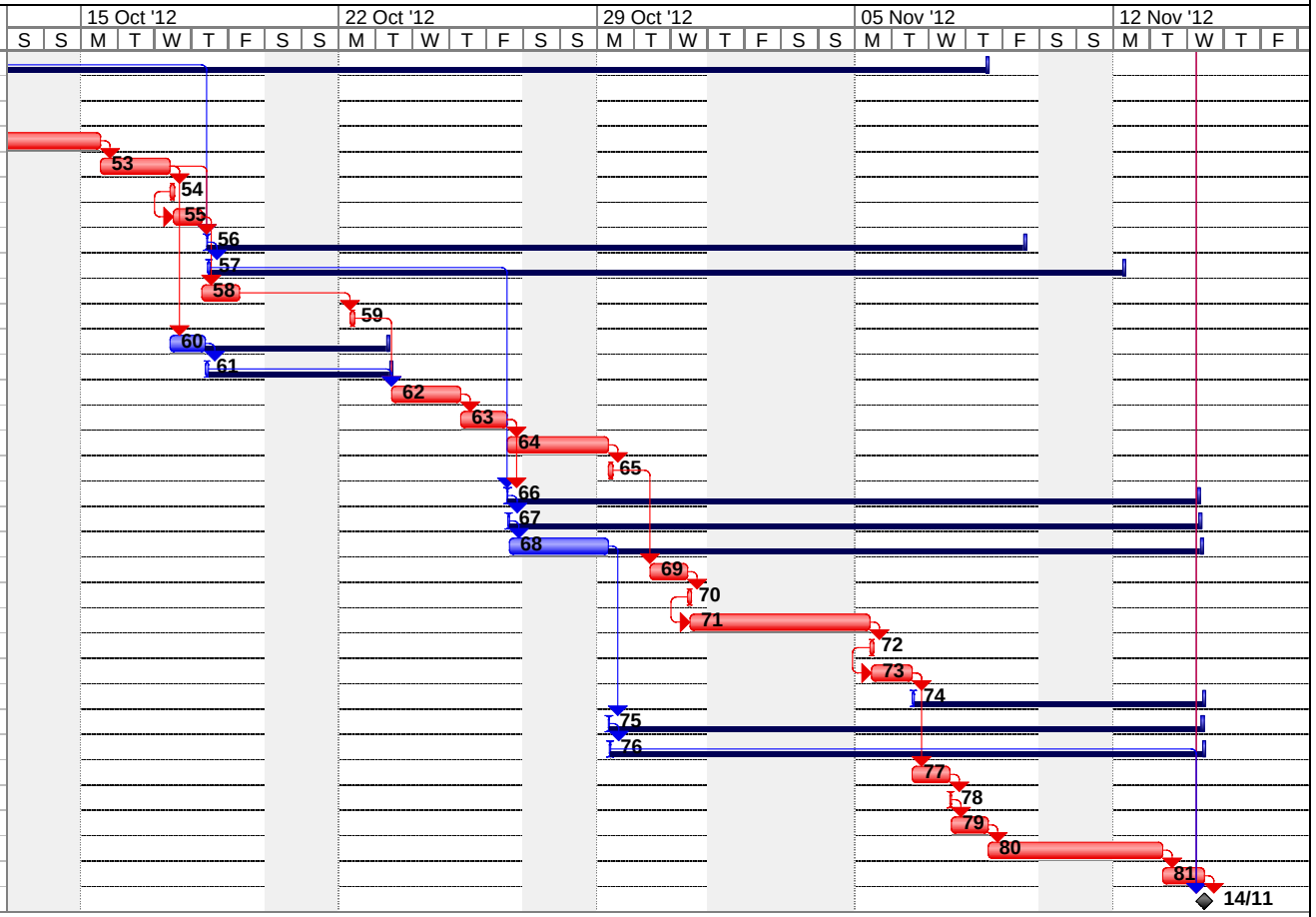
Keppekouter

ID	Task Name
1	Initial
2	Fenced and signaling
3	Clearing and cleaning surface,20cm depth
4	Topography
5	Electricity generator
6	Drainage (temporary)
7	Placement of the Crane, crane ballasted
8	Electrical installation, plumbing and sanitation.of temporary facilities
9	Placement of temporary facilities, site huts
10	Electrical,plumbing and sanitation installation of the site huts
11	Topography Excavation
12	Excavation level -0,5 sides C-B towards A-D
13	Excavation level -1, -2.80m, sides C-B towards A-D
14	Excavation level -1,5, -4,20m sides C-B towards D-A
15	Lift Pit Excavation. Level -4,5m
16	Lift foundation cleaning concrete bottom 10cm shock resistant layer
17	Armed bottom foundation
18	Concreting pit lift
19	formwork one side wall lift
20	Armed wall lift foundation
21	Formwork wall lift foundation two sides
22	Concreting wall lift
23	Formwork stripping wall lift
24	Foundation level -1.5/-1, cleaning concrete bottom/shock layer
25	Armed, placement of the columns and walls reinforcement
26	Concreting foundation
27	Formwork Walls levels -1.5/-1/-0,5 one side
28	Armed walls foundation
29	Formwork Walls levels -1.5/-1/-0,5 two sides
30	Concreting walls foundation
31	Formwork stripping wall levels -1.5/-1/-0,5
32	Raised of the columns level -1,5/-0,5/+0,5// -1/0
33	Concreting joints between walls and colmns
34	Placing prefabricated beams Floor level -0,5/ 0
35	Placing prefabricated plates Floor level -0.5/0
36	Placement steel floor level -0.5/0
37	Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0
38	Joints between stairs-floor
39	Placing prefabricated wall plates level 0- Schafoldings
40	joints between floor-wall
41	Columns - Placement of the prefabricated columns level 1/2
42	joints column-floor scaffoldings
43	Placement of the prefabricated beams 0.5/1
44	Placement of the prefabricated plates floor level +0'5/1 .
45	Placement steel floor level 0.5/1
46	joints between beams-columns/ beams-perimeter wall.scaffold
47	Placement of prefabricated stairs level -0,5/+0,5 0/+1
48	Placement and support of prefabricated slab

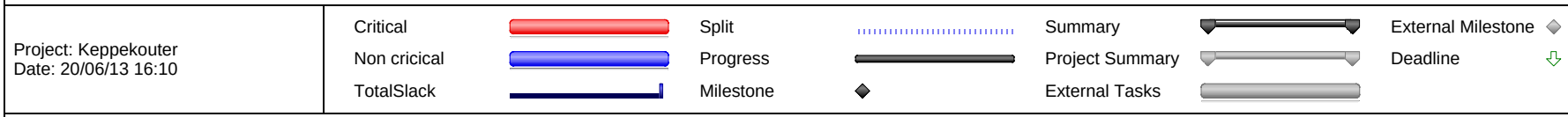


Keppekouter

ID	Task Name
49	joints between stairs and floor
50	Placement Prefabricated Wall plates level +0,5/+1
51	joints between floor-wall. Scaffoldungs
52	Placement of the prefabricated beams 1.5/2
53	Placement Prefabricated floor level plates +1,5/2 .
54	Placement steel floor level 1.5/2
55	joints between beams-columns/ beams-perimeter wall.scaffold
56	Placement of prefabricated stairs level +0,5/+1,5 +1/+2
57	joints stairs/floor
58	Placing prefabricated wall plates level 1.5/2- Schafoldings
59	joints between floor-wall
60	placement prefabricated columns level 1.5/2.5
61	joints column-floor scaffoldings
62	Placement of the prefabricated beams level 2.5/3
63	Placement Prefabricated plates floor level 2.5/3
64	Placement steel floor level 2.5/3
65	joints between beams-columns/ beams-perimeter wall.scaffold
66	Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3
67	Placement and support of prefabricated slab
68	joints between stairs and floor
69	Placing Prefabricated Wall plates level 2.5/3, Schafoldings
70	joints between floor-wall
71	Placement of the prefabricated beams level 3.5
72	joints between beams-columns/ beams-perimeter wall.
73	Placement Prefabricated plates floor level +3,5 .
74	Placement steel floor level 3.5
75	Placement of prefabricated stairs level +2,5/+3,5
76	Placement and support of prefabricated slab
77	Placement of the windowsill level +3/+3,5
78	joints between windowsill- floor
79	take away the crane
80	Take away the drainage
81	Concreting floor levels
82	final



Keppekouter



Project: Keppekouter
Date: 20/06/13 16:10

Resource Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10/12	22/10/12
Geert	9.67 h	2.33 h	4.5 h	45.08 h	22 h		9.15 h	28.75 h	15.78 h	3 h	
Fenced and signaling	3.5 h										
Clearing and cleaning surface,20cm depth	3.67 h										
Electrical installation, plumbing and sanitation.of temporary facilities	1.5 h										
Topography Excavation	1 h										
Armed bottom foundation		0.67 h									
formwork one side wall lift		1.67 h	0.83 h								
Formwork wall lift foundation two sides			3 h								
Formwork stripping wall lift					2 h						
Armed, placement of the columns and walls reinforcement			0.67 h	23.58 h							
Formwork Walls levels -1.5/-1/-0,5 one side				21.5 h							
Formwork Walls levels -1.5/-1/-0,5 two sides					20 h						
Placing prefabricated beams Floor level -0,5/ 0							9.15 h	4.87 h			
Placing prefabricated wall plates level 0- Schafoldings								8.5 h			
Placement of the prefabricated beams 0.5/1								15.38 h	1.95 h		
Placement steel floor level 0.5/1									2.5 h		
Placement Prefabricated Wall plates level +0,5/+1									11.33 h		
Placement steel floor level 1.5/2										2.5 h	
Placement of prefabricated stairs level +0,5/+1,5 +1/+2										0.5 h	
Placement of the prefabricated beams level 2.5/3											
Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3											
Placement steel floor level 3.5											
Placement and support of prefabricated slab											
Take away the drainage											
Tom	6 h	1.67 h	6.83 h	36.48 h	20.87 h			5.5 h	5 h	4 h	
Fenced and signaling	3.5 h										
Electricity generator	1 h										
Electrical installation, plumbing and sanitation.of temporary facilities	1.5 h										
formwork one side wall lift		1.67 h	0.83 h								
Foundation level -1.5/-1, cleaning concrete bottom/shock layer			5.33 h								
Armed, placement of the columns and walls reinforcement			0.67 h	23.58 h							
Armed walls foundation				12.9 h	11.87 h						
Concreting walls foundation					8 h						
Concreting joints between walls and colmns					1 h						
Placement steel floor level -0.5/0								2.5 h			
Joints between stairs-floor								1 h			
joints column-floor scaffoldings								2 h			
joints between beams-columns/ beams-perimeter wall.scaffold									2 h		
joints between stairs and floor									1 h		
joints between floor-wall. Scaffoldungs									2 h		
joints between beams-columns/ beams-perimeter wall.scaffold										3 h	
joints stairs/floor										1 h	

Resource Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10/12	22/10/12
joints between floor-wall											
joints between beams-columns/ beams-perimeter wall.scaffold											
joints between beams-columns/ beams-perimeter wall.											
Placement steel floor level 3.5											
Placement of prefabricated stairs level +2,5/+3,5											
Take away the drainage											
backhoe	27.5 h	25.17 h									
Drainage (temporary)	16 h										
Excavation level -0,5 sides C-B towards A-D	11.5 h	2.5 h									
Excavation level -1, -2.80m, sides C-B towards A-D		11.67 h									
Excavation level -1,5, -4,20m sides C-B towards D-A		9 h									
Lift Pit Excavation. Level -4,5m		2 h									
Take away the drainage											
David	5.67 h	1 h	6.67 h	7 h	20 h		9.15 h	13.7 h	7.67 h	12.83 h	
Clearing and cleaning surface,20cm depth	3.67 h										
Electricity generator	1 h										
Topography Excavation	1 h										
Lift foundation cleaning concrete bottom 10cm shock resistant layer		0.5 h									
Concreting pit lift		0.5 h									
Armed wall lift foundation			1.33 h								
Foundation level -1.5/-1, cleaning concrete bottom/shock layer			5.33 h								
Concreting foundation				7 h							
Formwork Walls levels -1.5/-1/-0,5 two sides					20 h						
Placing prefabricated beams Floor level -0,5/ 0							9.15 h	4.87 h			
Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0								0.33 h			
Placing prefabricated wall plates level 0- Schafoldings								8.5 h			
Placement of prefabricated stairs level -0,5/+0,5 0/+1									0.5 h		
Placement of the prefabricated beams 1.5/2									7.17 h	5.83 h	
placement prefabricated columns level 1.5/2.5										7 h	
Placement of the prefabricated beams level 2.5/3											
Placement of the prefabricated beams level 3.5											
Concreting floor levels											
Roel	27.5 h	23.83 h	2.67 h	42.02 h	13.32 h		2.15 h	24.05 h	9.15 h	9.5 h	
Drainage (temporary)	16 h										
Excavation level -0,5 sides C-B towards A-D	11.5 h	2.5 h									
Excavation level -1, -2.80m, sides C-B towards A-D		11.67 h									
Excavation level -1,5, -4,20m sides C-B towards D-A		9 h									
Armed bottom foundation		0.67 h									
Armed wall lift foundation			1.33 h								
Concreting wall lift			0.67 h								
Armed, placement of the columns and walls reinforcement			0.67 h	23.58 h							
Armed walls foundation				12.9 h	11.87 h						

Resource Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10/12	22/10/12
Raised of the columns level -1,5/-0,5/+0,5// -1/0				5.55 h	1.47 h						
Placing prefabricated plates Floor level -0.5/0							2.15 h	16.37 h			
Placement of the prefabricated beams 0.5/1								7.7 h	0.98 h		
Placement steel floor level 0.5/1									2.5 h		
Placement Prefabricated Wall plates level +0,5/+1									5.67 h		
Placement steel floor level 1.5/2										2.5 h	
placement prefabricated columns level 1.5/2.5										7 h	
Placement Prefabricated plates floor level 2.5/3											
Placement of the windowsill level +3/+3,5											
Concreting floor levels											
Robin	7 h	23.83 h	5.67 h	42.02 h	41.32 h		4.28 h	16.88 h	4 h	27.83 h	
Topography	3 h										
Placement of temporary facilities, site huts	2 h										
Electrical,plumbing and sanitation installation of the site huts	2 h										
Excavation level -1, -2.80m, sides C-B towards A-D		23.33 h									
Lift foundation cleaning concrete bottom 10cm shock resistant layer		0.5 h									
Armed wall lift foundation			1.33 h								
Formwork wall lift foundation two sides			3 h								
Concreting wall lift			0.67 h								
Armed, placement of the columns and walls reinforcement			0.67 h	23.58 h							
Armed walls foundation				12.9 h	11.87 h						
Formwork Walls levels -1.5/-1/-0,5 two sides					20 h						
Concreting walls foundation					8 h						
Raised of the columns level -1,5/-0,5/+0,5// -1/0				5.55 h	1.47 h						
Placing prefabricated plates Floor level -0.5/0							4.28 h	14.22 h			
Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0								0.67 h			
joints between floor-wall								2 h			
Placement steel floor level 0.5/1									2.5 h		
Placement of prefabricated stairs level -0,5/+0,5 0/+1									0.5 h		
Placement and support of prefabricated slab									1 h		
Placement Prefabricated floor level plates +1,5/2 .										27.33 h	
Placement of prefabricated stairs level +0,5/+1,5 +1/+2										0.5 h	
Placement Prefabricated plates floor level 2.5/3											
Placement steel floor level 2.5/3											
Placement and support of prefabricated slab											
joints between floor-wall											
Placement of the prefabricated beams level 3.5											
Placement steel floor level 3.5											
Placement of prefabricated stairs level +2,5/+3,5											
take away the crane											
loading shovel	15.17 h	23.17 h									
Clearing and cleaning surface,20cm depth	3.67 h										

Resource Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10/12	22/10/12
Excavation level -0,5 sides C-B towards A-D	11.5 h	2.5 h									
Excavation level -1, -2.80m, sides C-B towards A-D		11.67 h									
Excavation level -1,5, -4,20m sides C-B towards D-A		9 h									
motor grader											
Concreting floor levels											
Crane											
Peter	20 h			21.5 h			15 h	8.8 h	18.87 h	2.5 h	
Drainage (temporary)	16 h										
Placement of temporary facilities, site huts	2 h										
Electrical,plumbing and sanitation installation of the site huts	2 h										
Formwork Walls levels -1.5/-1/-0,5 one side				21.5 h							
Formwork stripping wall levels -1.5/-1/-0,5							15 h				
Placement steel floor level -0.5/0								2.5 h			
Columns - Placement of the prefabricated columns level 1/2								4.67 h			
Placement of the prefabricated plates floor level +0'5/1 .								1.63 h	18.87 h		
Placement steel floor level 1.5/2										2.5 h	
Placement steel floor level 2.5/3											
Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3											
Placing Prefabricated Wall plates level 2.5/3, Schafoldings											
Placement steel floor level 3.5											
take away the crane											
Isaac	8 h	0.67 h	5.33 h				15 h	2.5 h	9.67 h	16.33 h	
Placement of the Crane, crane ballasted	8 h										
Armed bottom foundation		0.67 h									
Foundation level -1.5/-1, cleaning concrete bottom/shock layer			5.33 h								
Formwork stripping wall levels -1.5/-1/-0,5							15 h				
Placement steel floor level -0.5/0								2.5 h			
Placement steel floor level 0.5/1									2.5 h		
Placement of the prefabricated beams 1.5/2									7.17 h	5.83 h	
Placing prefabricated wall plates level 1.5/2- Schafoldings										8.5 h	
joints column-floor scaffoldings										2 h	
Placement steel floor level 2.5/3											
joints between stairs and floor											
Placement Prefabricated plates floor level +3,5 .											
Placement of the windowsill level +3/+3,5											
Concreting floor levels											
vibrator			0.67 h	7 h	8 h						
Concreting wall lift			0.67 h								
Concreting foundation				7 h							
Concreting walls foundation					8 h						
vibrator2											
Paul	31 h	28.17 h		19.9 h	13.87 h			13.47 h	18.87 h	24.67 h	

Resource Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10/12	22/10/12
Placement of the Crane, crane ballasted	8 h										
Excavation level -0,5 sides C-B towards A-D	23 h	5 h									
Excavation level -1, -2.80m, sides C-B towards A-D		11.67 h									
Excavation level -1,5, -4,20m sides C-B towards D-A		9 h									
Lift Pit Excavation. Level -4,5m		2 h									
Concreting pit lift		0.5 h									
Formwork stripping wall lift					2 h						
Concreting foundation				7 h							
Armed walls foundation				12.9 h	11.87 h						
Placement steel floor level -0.5/0								2.5 h			
Columns - Placement of the prefabricated columns level 1/2								9.33 h			
Placement of the prefabricated plates floor level +0'5/1 .								1.63 h	18.87 h		
Placement Prefabricated floor level plates +1,5/2 .										13.67 h	
Placement steel floor level 1.5/2										2.5 h	
Placing prefabricated wall plates level 1.5/2- Schafoldings										8.5 h	
Placement steel floor level 2.5/3											
Placing Prefabricated Wall plates level 2.5/3, Schafoldings											
Placement Prefabricated plates floor level +3,5 .											
joints between windowsill- floor											
Concrete (m3)		1.41	1.99		94.86						
Concreting pit lift		1.41									
Concreting wall lift			1.99								
Concreting walls foundation					94.86						
steel (kg)		98.7	140	#######	#######						
Armed bottom foundation		98.7									
Armed wall lift foundation			140								
Armed walls foundation				#######	#######						
formwork (m2)		4	8.3		474						
formwork one side wall lift		4	2								
Formwork wall lift foundation two sides			6.3								
Formwork Walls levels -1.5/-1/-0,5 two sides					474						
prefabricated wall (u)								24	24	24	
Placing prefabricated wall plates level 0- Schafoldings								24			
Placement Prefabricated Wall plates level +0,5/+1									24		
Placing prefabricated wall plates level 1.5/2- Schafoldings										24	
Placing Prefabricated Wall plates level 2.5/3, Schafoldings											
prefabricated floor plate (u)							8.45	70.34	67.21	73	
Placing prefabricated plates Floor level -0.5/0							8.45	64.55			
Placement of the prefabricated plates floor level +0'5/1 .								5.79	67.21		
Placement Prefabricated floor level plates +1,5/2 .										73	
Placement Prefabricated plates floor level 2.5/3											
Total	157.5 h	#######	32.33 h	221 h	#######		54.73 h	#######	89 h	#######	

Resource Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
Geert	13.5 h	1 h	9.92 h	9.58 h		174.27 h
Fenced and signaling						3.5 h
Clearing and cleaning surface,20cm depth						3.67 h
Electrical installation, plumbing and sanitation.of temporary facilities						1.5 h
Topography Excavation						1 h
Armed bottom foundation						0.67 h
formwork one side wall lift						2.5 h
Formwork wall lift foundation two sides						3 h
Formwork stripping wall lift						2 h
Armed, placement of the columns and walls reinforcement						24.25 h
Formwork Walls levels -1.5/-1/-0,5 one side						21.5 h
Formwork Walls levels -1.5/-1/-0,5 two sides						20 h
Placing prefabricated beams Floor level -0,5/ 0						14.02 h
Placing prefabricated wall plates level 0- Schafoldings						8.5 h
Placement of the prefabricated beams 0.5/1						17.33 h
Placement steel floor level 0.5/1						2.5 h
Placement Prefabricated Wall plates level +0,5/+1						11.33 h
Placement steel floor level 1.5/2						2.5 h
Placement of prefabricated stairs level +0,5/+1,5 +1/+2						0.5 h
Placement of the prefabricated beams level 2.5/3	13 h					13 h
Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3	0.5 h					0.5 h
Placement steel floor level 3.5			1.5 h			1.5 h
Placement and support of prefabricated slab		1 h				1 h
Take away the drainage			8.42 h	9.58 h		18 h
Tom	3 h	3.5 h	11.92 h	9.58 h		114.35 h
Fenced and signaling						3.5 h
Electricity generator						1 h
Electrical installation, plumbing and sanitation.of temporary facilities						1.5 h
formwork one side wall lift						2.5 h
Foundation level -1.5/-1, cleaning concrete bottom/shock layer						5.33 h
Armed, placement of the columns and walls reinforcement						24.25 h
Armed walls foundation						24.77 h
Concreting walls foundation						8 h
Concreting joints between walls and colmns						1 h
Placement steel floor level -0.5/0						2.5 h
Joints between stairs-floor						1 h
joints column-floor scaffoldings						2 h
joints between beams-columns/ beams-perimeter wall.scaffold						2 h
joints between stairs and floor						1 h
joints between floor-wall. Scaffoldungs						2 h
joints between beams-columns/ beams-perimeter wall.scaffold						3 h
joints stairs/floor						1 h

Resource Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
joints between floor-wall	3 h					3 h
joints between beams-columns/ beams-perimeter wall.scaffold		3 h				3 h
joints between beams-columns/ beams-perimeter wall.			2 h			2 h
Placement steel floor level 3.5			1.5 h			1.5 h
Placement of prefabricated stairs level +2,5/+3,5		0.5 h				0.5 h
Take away the drainage			8.42 h	9.58 h		18 h
backhoe			8.42 h	9.58 h		70.67 h
Drainage (temporary)						16 h
Excavation level -0,5 sides C-B towards A-D						14 h
Excavation level -1, -2.80m, sides C-B towards A-D						11.67 h
Excavation level -1,5, -4,20m sides C-B towards D-A						9 h
Lift Pit Excavation. Level -4,5m						2 h
Take away the drainage			8.42 h	9.58 h		18 h
David	13 h	2.58 h	3.08 h	11.25 h		113.6 h
Clearing and cleaning surface,20cm depth						3.67 h
Electricity generator						1 h
Topography Excavation						1 h
Lift foundation cleaning concrete bottom 10cm shock resistant layer						0.5 h
Concreting pit lift						0.5 h
Armed wall lift foundation						1.33 h
Foundation level -1.5/-1, cleaning concrete bottom/shock layer						5.33 h
Concreting foundation						7 h
Formwork Walls levels -1.5/-1/-0,5 two sides						20 h
Placing prefabricated beams Floor level -0,5/ 0						14.02 h
Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0						0.33 h
Placing prefabricated wall plates level 0- Schafoldings						8.5 h
Placement of prefabricated stairs level -0,5/+0,5 0/+1						0.5 h
Placement of the prefabricated beams 1.5/2						13 h
placement prefabricated columns level 1.5/2.5						7 h
Placement of the prefabricated beams level 2.5/3	13 h					13 h
Placement of the prefabricated beams level 3.5		2.58 h	3.08 h			5.67 h
Concreting floor levels				11.25 h		11.25 h
Roel	13.67 h		8.5 h	11.25 h		187.6 h
Drainage (temporary)						16 h
Excavation level -0,5 sides C-B towards A-D						14 h
Excavation level -1, -2.80m, sides C-B towards A-D						11.67 h
Excavation level -1,5, -4,20m sides C-B towards D-A						9 h
Armed bottom foundation						0.67 h
Armed wall lift foundation						1.33 h
Concreting wall lift						0.67 h
Armed, placement of the columns and walls reinforcement						24.25 h
Armed walls foundation						24.77 h

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Keppekouter
Roel Bonte/ Filip Van Langenhove

	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
Raised of the columns level -1,5/-0,5/+0,5// -1/0						7.02 h
Placing prefabricated plates Floor level -0.5/0						18.52 h
Placement of the prefabricated beams 0.5/1						8.68 h
Placement steel floor level 0.5/1						2.5 h
Placement Prefabricated Wall plates level +0,5/+1						5.67 h
Placement steel floor level 1.5/2						2.5 h
placement prefabricated columns level 1.5/2.5						7 h
Placement Prefabricated plates floor level 2.5/3	13.67 h					13.67 h
Placement of the windowsill level +3/+3,5			8.5 h			8.5 h
Concreting floor levels				11.25 h		11.25 h
Robin	29.92 h	8.58 h	15.68 h			227.02 h
Topography						3 h
Placement of temporary facilities, site huts						2 h
Electrical,plumbing and sanitation installation of the site huts						2 h
Excavation level -1, -2.80m, sides C-B towards A-D						23.33 h
Lift foundation cleaning concrete bottom 10cm shock resistant layer						0.5 h
Armed wall lift foundation						1.33 h
Formwork wall lift foundation two sides						3 h
Concreting wall lift						0.67 h
Armed, placement of the columns and walls reinforcement						24.25 h
Armed walls foundation						24.77 h
Formwork Walls levels -1.5/-1/-0,5 two sides						20 h
Concreting walls foundation						8 h
Raised of the columns level -1,5/-0,5/+0,5// -1/0						7.02 h
Placing prefabricated plates Floor level -0.5/0						18.5 h
Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0						0.67 h
joints between floor-wall						2 h
Placement steel floor level 0.5/1						2.5 h
Placement of prefabricated stairs level -0,5/+0,5 0/+1						0.5 h
Placement and support of prefabricated slab						1 h
Placement Prefabricated floor level plates +1,5/2 .						27.33 h
Placement of prefabricated stairs level +0,5/+1,5 +1/+2						0.5 h
Placement Prefabricated plates floor level 2.5/3	27.33 h					27.33 h
Placement steel floor level 2.5/3	1.58 h	0.92 h				2.5 h
Placement and support of prefabricated slab	1 h					1 h
joints between floor-wall		2 h				2 h
Placement of the prefabricated beams level 3.5		5.15 h	6.18 h			11.33 h
Placement steel floor level 3.5			1.5 h			1.5 h
Placement of prefabricated stairs level +2,5/+3,5		0.5 h				0.5 h
take away the crane			8 h			8 h
loading shovel						38.33 h
Clearing and cleaning surface,20cm depth						3.67 h

Resource Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
Excavation level -0,5 sides C-B towards A-D						14 h
Excavation level -1, -2.80m, sides C-B towards A-D						11.67 h
Excavation level -1,5, -4,20m sides C-B towards D-A						9 h
motor grader				11.25 h		11.25 h
Concreting floor levels				11.25 h		11.25 h
Crane						
Peter	2.08 h	9.42 h	9.5 h			107.67 h
Drainage (temporary)						16 h
Placement of temporary facilities, site huts						2 h
Electrical,plumbing and sanitation installation of the site huts						2 h
Formwork Walls levels -1.5/-1/-0,5 one side						21.5 h
Formwork stripping wall levels -1.5/-1/-0,5						15 h
Placement steel floor level -0.5/0						2.5 h
Columns - Placement of the prefabricated columns level 1/2						4.67 h
Placement of the prefabricated plates floor level +0'5/1 .						20.5 h
Placement steel floor level 1.5/2						2.5 h
Placement steel floor level 2.5/3	1.58 h	0.92 h				2.5 h
Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3	0.5 h					0.5 h
Placing Prefabricated Wall plates level 2.5/3, Schafoldings		8.5 h				8.5 h
Placement steel floor level 3.5			1.5 h			1.5 h
take away the crane			8 h			8 h
Isaac	1.65 h	1.85 h	18.5 h	11.25 h		90.75 h
Placement of the Crane, crane ballasted						8 h
Armed bottom foundation						0.67 h
Foundation level -1.5/-1, cleaning concrete bottom/shock layer						5.33 h
Formwork stripping wall levels -1.5/-1/-0,5						15 h
Placement steel floor level -0.5/0						2.5 h
Placement steel floor level 0.5/1						2.5 h
Placement of the prefabricated beams 1.5/2						13 h
Placing prefabricated wall plates level 1.5/2- Schafoldings						8.5 h
joints column-floor scaffoldings						2 h
Placement steel floor level 2.5/3	1.58 h	0.92 h				2.5 h
joints between stairs and floor	0.08 h	0.92 h				1 h
Placement Prefabricated plates floor level +3,5 .			10 h			10 h
Placement of the windowsill level +3/+3,5			8.5 h			8.5 h
Concreting floor levels				11.25 h		11.25 h
vibrator						15.67 h
Concreting wall lift						0.67 h
Concreting foundation						7 h
Concreting walls foundation						8 h
vibrator2						
Paul	1.58 h	9.42 h	11 h			171.93 h

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Roel Bonte/ Filip Van Langenhove

	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
Placement of the Crane, crane ballasted						8 h
Excavation level -0,5 sides C-B towards A-D						28 h
Excavation level -1, -2.80m, sides C-B towards A-D						11.67 h
Excavation level -1,5, -4,20m sides C-B towards D-A						9 h
Lift Pit Excavation. Level -4,5m						2 h
Concreting pit lift						0.5 h
Formwork stripping wall lift						2 h
Concreting foundation						7 h
Armed walls foundation						24.77 h
Placement steel floor level -0.5/0						2.5 h
Columns - Placement of the prefabricated columns level 1/2						9.33 h
Placement of the prefabricated plates floor level +0'5/1 .						20.5 h
Placement Prefabricated floor level plates +1,5/2 .						13.67 h
Placement steel floor level 1.5/2						2.5 h
Placing prefabricated wall plates level 1.5/2- Schafoldings						8.5 h
Placement steel floor level 2.5/3	1.58 h	0.92 h				2.5 h
Placing Prefabricated Wall plates level 2.5/3, Schafoldings		8.5 h				8.5 h
Placement Prefabricated plates floor level +3,5 .			10 h			10 h
joints between windowsill- floor			1 h			1 h
Concrete (m3)						
Concreting pit lift						
Concreting wall lift						
Concreting walls foundation						
steel (kg)						
Armed bottom foundation						
Armed wall lift foundation						
Armed walls foundation						
formwork (m2)						
formwork one side wall lift						
Formwork wall lift foundation two sides						
Formwork Walls levels -1.5/-1/-0,5 two sides						
prefabricated wall (u)		24				
Placing prefabricated wall plates level 0- Schafoldings						
Placement Prefabricated Wall plates level +0,5/+1						
Placing prefabricated wall plates level 1.5/2- Schafoldings						
Placing Prefabricated Wall plates level 2.5/3, Schafoldings		24				
prefabricated floor plate (u)	73					
Placing prefabricated plates Floor level -0.5/0						
Placement of the prefabricated plates floor level +0'5/1 .						
Placement Prefabricated floor level plates +1,5/2 .						
Placement Prefabricated plates floor level 2.5/3	73					
Total	78.4 h	36.35 h	96.52 h	73.75 h		1,323.1 h

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Keppekouter
Roel Bonte/ Filip Van Langenhove

	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10
Initial										
Fenced and signaling	7 h									
Geert	3.5 h									
Tom	3.5 h									
Clearing and cleaning surface,20cm depth	11 h									
Geert	3.67 h									
David	3.67 h									
loading shovel	3.67 h									
Topography	3 h									
Robin	3 h									
Electricity generator	2 h									
Tom	1 h									
David	1 h									
Drainage (temporary)	48 h									
backhoe	16 h									
Roel	16 h									
Peter	16 h									
Placement of the Crane, crane ballasted	16 h									
Isaac	8 h									
Paul	8 h									
Electrical installation, plumbing and sanitation.of temporary facilities	3 h									
Geert	1.5 h									
Tom	1.5 h									
Placement of temporary facilities, site huts	4 h									
Robin	2 h									
Peter	2 h									
Electrical,plumbing and sanitation installation of the site huts	4 h									
Robin	2 h									
Peter	2 h									
Topography Excavation	2 h									
Geert	1 h									
David	1 h									
Excavation level -0,5 sides C-B towards A-D	57.5 h	12.5 h								
backhoe	11.5 h	2.5 h								
Roel	11.5 h	2.5 h								
loading shovel	11.5 h	2.5 h								
Paul	23 h	5 h								
Excavation level -1, -2.80m, sides C-B towards A-D		70 h								
backhoe		11.67 h								
Roel		11.67 h								
Robin		23.33 h								

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	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10
loading shovel		11.67 h								
Paul		11.67 h								
Excavation level -1,5, -4,20m sides C-B towards D-A		36 h								
backhoe		9 h								
Roel		9 h								
loading shovel		9 h								
Paul		9 h								
Lift Pit Excavation. Level -4,5m		4 h								
backhoe		2 h								
Paul		2 h								
Lift foundation cleaning concrete bottom 10cm shock resistant layer		1 h								
David		0.5 h								
Robin		0.5 h								
Armed bottom foundation		2 h								
Geert		0.67 h								
Roel		0.67 h								
Isaac		0.67 h								
steel (kg)		98.7								
Concreting pit lift		1 h								
David		0.5 h								
Paul		0.5 h								
Concrete (m3)		1.41								
formwork one side wall lift		3.33 h	1.67 h							
Geert		1.67 h	0.83 h							
Tom		1.67 h	0.83 h							
formwork (m2)		4	2							
Armed wall lift foundation			4 h							
David			1.33 h							
Roel			1.33 h							
Robin			1.33 h							
steel (kg)			140							
Formwork wall lift foundation two sides			6 h							
Geert			3 h							
Robin			3 h							
formwork (m2)			6.3							
Concreting wall lift			2 h							
Roel			0.67 h							
Robin			0.67 h							
vibrator			0.67 h							
Concrete (m3)			1.99							
Formwork stripping wall lift					4 h					
Geert					2 h					

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	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10
Paul					2 h					
Foundation level -1.5/-1, cleaning concrete bottom/shock layer			16 h							
Tom			5.33 h							
David			5.33 h							
Isaac			5.33 h							
Armed, placement of the columns and walls reinforcement			2.67 h	94.33 h						
Geert			0.67 h	23.58 h						
Tom			0.67 h	23.58 h						
Roel			0.67 h	23.58 h						
Robin			0.67 h	23.58 h						
Concreting foundation				21 h						
David				7 h						
vibrator				7 h						
Paul				7 h						
Formwork Walls levels -1.5/-1/-0,5 one side				43 h						
Geert				21.5 h						
Peter				21.5 h						
Armed walls foundation				51.57 h	47.43 h					
Tom				12.9 h	11.87 h					
Roel				12.9 h	11.87 h					
Robin				12.9 h	11.87 h					
Paul				12.9 h	11.87 h					
steel (kg)				3,427.36	3,152.64					
Formwork Walls levels -1.5/-1/-0,5 two sides					60 h					
Geert					20 h					
David					20 h					
Robin					20 h					
formwork (m2)					474					
Concreting walls foundation					24 h					
Tom					8 h					
Robin					8 h					
vibrator					8 h					
Concrete (m3)					94.86					
Formwork stripping wall levels -1.5/-1/-0,5							30 h			
Peter							15 h			
Isaac							15 h			
Raised of the columns level -1,5/-0,5/+0,5// -1/0				11.08 h	2.92 h					
Roel				5.55 h	1.47 h					
Robin				5.55 h	1.47 h					
Concreting joints between walls and colmns					1 h					
Tom					1 h					
Placing prefabricated beams Floor level -0,5/ 0							18.28 h	9.72 h		

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	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10
Geert							9.15 h	4.87 h		
David							9.15 h	4.87 h		
Placing prefabricated plates Floor level -0.5/0							6.43 h	30.58 h		
Roel							2.15 h	16.37 h		
Robin							4.28 h	14.22 h		
prefabricated floor plate (u)							8.45	64.55		
Placement steel floor level -0.5/0								10 h		
Tom								2.5 h		
Peter								2.5 h		
Isaac								2.5 h		
Paul								2.5 h		
Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0								1 h		
David								0.33 h		
Robin								0.67 h		
Joints between stairs-floor								1 h		
Tom								1 h		
Placing prefabricated wall plates level 0- Schafoldings								17 h		
Geert								8.5 h		
David								8.5 h		
prefabricated wall (u)								24		
joints between floor-wall								2 h		
Robin								2 h		
Columns - Placement of the prefabricated columns level 1/2								14 h		
Peter								4.67 h		
Paul								9.33 h		
joints column-floor scaffoldings								2 h		
Tom								2 h		
Placement of the prefabricated beams 0.5/1								23.08 h	2.93 h	
Geert								15.38 h	1.95 h	
Roel								7.7 h	0.98 h	
Placement of the prefabricated plates floor level +0'5/1 .								3.25 h	37.75 h	
Peter								1.63 h	18.87 h	
Paul								1.63 h	18.87 h	
prefabricated floor plate (u)								5.79	67.21	
Placement steel floor level 0.5/1									10 h	
Geert									2.5 h	
Roel									2.5 h	
Robin									2.5 h	
Isaac									2.5 h	
joints between beams-columns/ beams-perimeter wall.scaffold									2 h	
Tom									2 h	

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	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10
Placement of prefabricated stairs level -0,5/+0,5 0/+1									1 h	
David									0.5 h	
Robin									0.5 h	
Placement and support of prefabricated slab									1 h	
Robin									1 h	
joints between stairs and floor									1 h	
Tom									1 h	
Placement Prefabricated Wall plates level +0,5/+1									17 h	
Geert									11.33 h	
Roel									5.67 h	
prefabricated wall (u)									24	
joints between floor-wall. Scaffoldungs									2 h	
Tom									2 h	
Placement of the prefabricated beams 1.5/2									14.32 h	
David									7.17 h	
Isaac									7.17 h	
Placement Prefabricated floor level plates +1,5/2 .										
Robin										
Paul										
prefabricated floor plate (u)										
Placement steel floor level 1.5/2										
Geert										
Roel										
Peter										
Paul										
joints between beams-columns/ beams-perimeter wall.scaffold										
Tom										
Placement of prefabricated stairs level +0,5/+1,5 +1/+2										
Geert										
Robin										
joints stairs/floor										
Tom										
Placing prefabricated wall plates level 1.5/2- Schafoldings										
Isaac										
Paul										
prefabricated wall (u)										
joints between floor-wall										
Tom										
placement prefabricated columns level 1.5/2.5										
David										
Roel										

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	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10
joints column-floor scaffoldings Isaac										
Placement of the prefabricated beams level 2.5/3 Geert David										
Placement Prefabricated plates floor level 2.5/3 Roel Robin prefabricated floor plate (u)										
Placement steel floor level 2.5/3 Robin Peter Isaac Paul										
joints between beams-columns/ beams-perimeter wall.scaffold Tom										
Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3 Geert Peter										
Placement and support of prefabricated slab Robin										
joints between stairs and floor Isaac										
Placing Prefabricated Wall plates level 2.5/3, Schafoldings Peter Paul prefabricated wall (u)										
joints between floor-wall Robin										
Placement of the prefabricated beams level 3.5 David Robin										
joints between beams-columns/ beams-perimeter wall. Tom										
Placement Prefabricated plates floor level +3,5 . Isaac Paul										
Placement steel floor level 3.5 Geert Tom Robin										

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	13/08/12	20/08/12	27/08/12	03/09/12	10/09/12	17/09/12	24/09/12	01/10/12	08/10/12	15/10
Peter										
Placement of prefabricated stairs level +2,5/+3,5										
Tom										
Robin										
Placement and support of prefabricated slab										
Geert										
Placement of the windowsill level +3/+3,5										
Roel										
Isaac										
joints between windowsill- floor										
Paul										
take away the crane										
Robin										
Peter										
Take away the drainage										
Geert										
Tom										
backhoe										
Concreting floor levels										
David										
Roel										
motor grader										
Isaac										
final										
Total	157.5 h	129.83 h	32.33 h	220.98 h	139.35 h		54.72 h	113.63 h	89 h	

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Roel Bonte/ Filip Van Langenhove

	15/10/12	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
Initial							
Fenced and signaling							7 h
Geert							3.5 h
Tom							3.5 h
Clearing and cleaning surface,20cm depth							11 h
Geert							3.67 h
David							3.67 h
loading shovel							3.67 h
Topography							3 h
Robin							3 h
Electricity generator							2 h
Tom							1 h
David							1 h
Drainage (temporary)							48 h
backhoe							16 h
Roel							16 h
Peter							16 h
Placement of the Crane, crane ballasted							16 h
Isaac							8 h
Paul							8 h
Electrical installation, plumbing and sanitation.of temporary facilities							3 h
Geert							1.5 h
Tom							1.5 h
Placement of temporary facilities, site huts							4 h
Robin							2 h
Peter							2 h
Electrical,plumbing and sanitation installation of the site huts							4 h
Robin							2 h
Peter							2 h
Topography Excavation							2 h
Geert							1 h
David							1 h
Excavation level -0,5 sides C-B towards A-D							70 h
backhoe							14 h
Roel							14 h
loading shovel							14 h
Paul							28 h
Excavation level -1, -2.80m, sides C-B towards A-D							70 h
backhoe							11.67 h
Roel							11.67 h
Robin							23.33 h

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Roel Bonte/ Filip Van Langenhove

	15/10/12	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
loading shovel							11.67 h
Paul							11.67 h
Excavation level -1,5, -4,20m sides C-B towards D-A							36 h
backhoe							9 h
Roel							9 h
loading shovel							9 h
Paul							9 h
Lift Pit Excavation. Level -4,5m							4 h
backhoe							2 h
Paul							2 h
Lift foundation cleaning concrete bottom 10cm shock resistant layer							1 h
David							0.5 h
Robin							0.5 h
Armed bottom foundation							2 h
Geert							0.67 h
Roel							0.67 h
Isaac							0.67 h
steel (kg)							98.7
Concreting pit lift							1 h
David							0.5 h
Paul							0.5 h
Concrete (m3)							1.41
formwork one side wall lift							5 h
Geert							2.5 h
Tom							2.5 h
formwork (m2)							6
Armed wall lift foundation							4 h
David							1.33 h
Roel							1.33 h
Robin							1.33 h
steel (kg)							140
Formwork wall lift foundation two sides							6 h
Geert							3 h
Robin							3 h
formwork (m2)							6.3
Concreting wall lift							2 h
Roel							0.67 h
Robin							0.67 h
vibrator							0.67 h
Concrete (m3)							1.99
Formwork stripping wall lift							4 h
Geert							2 h

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Keppekouter
Roel Bonte/ Filip Van Langenhove

	15/10/12	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
Paul							2 h
Foundation level -1.5/-1, cleaning concrete bottom/shock layer							16 h
Tom							5.33 h
David							5.33 h
Isaac							5.33 h
Armed, placement of the columns and walls reinforcement							97 h
Geert							24.25 h
Tom							24.25 h
Roel							24.25 h
Robin							24.25 h
Concreting foundation							21 h
David							7 h
vibrator							7 h
Paul							7 h
Formwork Walls levels -1.5/-1/-0,5 one side							43 h
Geert							21.5 h
Peter							21.5 h
Armed walls foundation							99 h
Tom							24.77 h
Roel							24.77 h
Robin							24.77 h
Paul							24.77 h
steel (kg)							6,580
Formwork Walls levels -1.5/-1/-0,5 two sides							60 h
Geert							20 h
David							20 h
Robin							20 h
formwork (m2)							474
Concreting walls foundation							24 h
Tom							8 h
Robin							8 h
vibrator							8 h
Concrete (m3)							94.86
Formwork stripping wall levels -1.5/-1/-0,5							30 h
Peter							15 h
Isaac							15 h
Raised of the columns level -1,5/-0,5/+0,5// -1/0							14 h
Roel							7.02 h
Robin							7.02 h
Concreting joints between walls and colmns							1 h
Tom							1 h
Placing prefabricated beams Floor level -0,5/ 0							28 h

Task Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	15/10/12	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
Geert							14.02 h
David							14.02 h
Placing prefabricated plates Floor level -0.5/0							37.02 h
Roel							18.52 h
Robin							18.5 h
prefabricated floor plate (u)							73
Placement steel floor level -0.5/0							10 h
Tom							2.5 h
Peter							2.5 h
Isaac							2.5 h
Paul							2.5 h
Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0							1 h
David							0.33 h
Robin							0.67 h
Joints between stairs-floor							1 h
Tom							1 h
Placing prefabricated wall plates level 0- Schafoldings							17 h
Geert							8.5 h
David							8.5 h
prefabricated wall (u)							24
joints between floor-wall							2 h
Robin							2 h
Columns - Placement of the prefabricated columns level 1/2							14 h
Peter							4.67 h
Paul							9.33 h
joints column-floor scaffoldings							2 h
Tom							2 h
Placement of the prefabricated beams 0.5/1							26.02 h
Geert							17.33 h
Roel							8.68 h
Placement of the prefabricated plates floor level +0'5/1 .							41 h
Peter							20.5 h
Paul							20.5 h
prefabricated floor plate (u)							73
Placement steel floor level 0.5/1							10 h
Geert							2.5 h
Roel							2.5 h
Robin							2.5 h
Isaac							2.5 h
joints between beams-columns/ beams-perimeter wall.scaffold							2 h
Tom							2 h

Task Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	15/10/12	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
Placement of prefabricated stairs level -0,5/+0,5 0/+1							1 h
David							0.5 h
Robin							0.5 h
Placement and support of prefabricated slab							1 h
Robin							1 h
joints between stairs and floor							1 h
Tom							1 h
Placement Prefabricated Wall plates level +0,5/+1							17 h
Geert							11.33 h
Roel							5.67 h
prefabricated wall (u)							24
joints between floor-wall. Scaffoldungs							2 h
Tom							2 h
Placement of the prefabricated beams 1.5/2	11.68 h						26 h
David	5.83 h						13 h
Isaac	5.83 h						13 h
Placement Prefabricated floor level plates +1,5/2 .	41 h						41 h
Robin	27.33 h						27.33 h
Paul	13.67 h						13.67 h
prefabricated floor plate (u)	73						73
Placement steel floor level 1.5/2	10 h						10 h
Geert	2.5 h						2.5 h
Roel	2.5 h						2.5 h
Peter	2.5 h						2.5 h
Paul	2.5 h						2.5 h
joints between beams-columns/ beams-perimeter wall.scaffold	3 h						3 h
Tom	3 h						3 h
Placement of prefabricated stairs level +0,5/+1,5 +1/+2	1 h						1 h
Geert	0.5 h						0.5 h
Robin	0.5 h						0.5 h
joints stairs/floor	1 h						1 h
Tom	1 h						1 h
Placing prefabricated wall plates level 1.5/2- Schafoldings	17 h						17 h
Isaac	8.5 h						8.5 h
Paul	8.5 h						8.5 h
prefabricated wall (u)	24						24
joints between floor-wall		3 h					3 h
Tom		3 h					3 h
placement prefabricated columns level 1.5/2.5	14 h						14 h
David	7 h						7 h
Roel	7 h						7 h

Task Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	15/10/12	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
joints column-floor scaffoldings	2 h						2 h
Isaac	2 h						2 h
Placement of the prefabricated beams level 2.5/3		26 h					26 h
Geert		13 h					13 h
David		13 h					13 h
Placement Prefabricated plates floor level 2.5/3		41 h					41 h
Roel		13.67 h					13.67 h
Robin		27.33 h					27.33 h
prefabricated floor plate (u)		73					73
Placement steel floor level 2.5/3		6.3 h	3.7 h				10 h
Robin		1.58 h	0.92 h				2.5 h
Peter		1.58 h	0.92 h				2.5 h
Isaac		1.58 h	0.92 h				2.5 h
Paul		1.58 h	0.92 h				2.5 h
joints between beams-columns/ beams-perimeter wall.scaffold			3 h				3 h
Tom			3 h				3 h
Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3		1 h					1 h
Geert		0.5 h					0.5 h
Peter		0.5 h					0.5 h
Placement and support of prefabricated slab		1 h					1 h
Robin		1 h					1 h
joints between stairs and floor		0.08 h	0.92 h				1 h
Isaac		0.08 h	0.92 h				1 h
Placing Prefabricated Wall plates level 2.5/3, Schafoldings			17 h				17 h
Peter			8.5 h				8.5 h
Paul			8.5 h				8.5 h
prefabricated wall (u)			24				24
joints between floor-wall			2 h				2 h
Robin			2 h				2 h
Placement of the prefabricated beams level 3.5			7.73 h	9.27 h			17 h
David			2.58 h	3.08 h			5.67 h
Robin			5.15 h	6.18 h			11.33 h
joints between beams-columns/ beams-perimeter wall.				2 h			2 h
Tom				2 h			2 h
Placement Prefabricated plates floor level +3,5 .				20 h			20 h
Isaac				10 h			10 h
Paul				10 h			10 h
Placement steel floor level 3.5				6 h			6 h
Geert				1.5 h			1.5 h
Tom				1.5 h			1.5 h
Robin				1.5 h			1.5 h

Task Usage as of 20/06/13 16:20
Keppekouter
Roel Bonte/ Filip Van Langenhove

	15/10/12	22/10/12	29/10/12	05/11/12	12/11/12	19/11/12	**Total**
Peter				1.5 h			1.5 h
Placement of prefabricated stairs level +2,5/+3,5			1 h				1 h
Tom			0.5 h				0.5 h
Robin			0.5 h				0.5 h
Placement and support of prefabricated slab			1 h				1 h
Geert			1 h				1 h
Placement of the windowsill level +3/+3,5				17 h			17 h
Roel				8.5 h			8.5 h
Isaac				8.5 h			8.5 h
joints between windowsill- floor				1 h			1 h
Paul				1 h			1 h
take away the crane				16 h			16 h
Robin				8 h			8 h
Peter				8 h			8 h
Take away the drainage				25.23 h	28.77 h		54 h
Geert				8.42 h	9.58 h		18 h
Tom				8.42 h	9.58 h		18 h
backhoe				8.42 h	9.58 h		18 h
Concreting floor levels					45 h		45 h
David					11.25 h		11.25 h
Roel					11.25 h		11.25 h
motor grader					11.25 h		11.25 h
Isaac					11.25 h		11.25 h
final							
Total	100.68 h	78.38 h	36.35 h	96.5 h	73.77 h		1,323.03 h

Who Does What as of 20/06/13 15:45
Keppekouter
Roel Bonte/ Filip Van Langenhove

ID	Resource Name	Work

1 Geert 174.25 h

ID	Task Name	Units	Work	Delay	Start	Finish
8	Electrical installation, plumbing and sanitation.of temporary facilities	1	1.5 h	0 d	13/08/12 13:00	13/08/12 14:30
2	Fenced and signaling	1	3.5 h	0 d	13/08/12 08:00	13/08/12 11:30
3	Clearing and cleaning surface,20cm depth	1	3.67 h	0 d	13/08/12 08:42	13/08/12 12:52
11	Topography Excavation	1	1 h	0 d	13/08/12 13:18	13/08/12 14:18
17	Armed bottom foundation	1	0.67 h	0 d	24/08/12 12:40	24/08/12 13:20
19	formwork one side wall lift	1	2.5 h	0 d	24/08/12 13:50	27/08/12 07:50
21	Formwork wall lift foundation two sides	1	3 h	0 d	29/08/12 13:50	30/08/12 08:20
23	Formwork stripping wall lift	1	2 h	0 d	10/09/12 09:00	10/09/12 11:00
25	Armed, placement of the columns and walls reinforcement	1	24.25 h	0 d	31/08/12 14:50	05/09/12 15:05
29	Formwork Walls levels -1.5/-1/-0,5 two sides	1	20 h	0 d	11/09/12 10:52	13/09/12 15:22
34	Placing prefabricated beams Floor level -0,5/ 0	1	14 h	0 d	27/09/12 14:22	01/10/12 11:52
39	Placing prefabricated wall plates level 0- Schafoldings	1	8.5 h	0 d	03/10/12 07:22	04/10/12 07:52
43	Placement of the prefabricated beams 0.5/1	2	17.33 h	0 d	05/10/12 07:19	08/10/12 07:59
50	Placement Prefabricated Wall plates level +0,5/+1	2	11.33 h	0 d	10/10/12 09:52	11/10/12 07:32
56	Placement of prefabricated stairs level +0,5/+1,5 +1/+2	1	0.5 h	0 d	18/10/12 10:30	18/10/12 11:00
27	Formwork Walls levels -1.5/-1/-0,5 one side	1	21.5 h	0 d	05/09/12 07:22	07/09/12 13:22
62	Placement of the prefabricated beams level 2.5/3	1	13 h	0 d	23/10/12 10:45	25/10/12 07:45
66	Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3	1	0.5 h	0 d	26/10/12 13:55	26/10/12 14:25
76	Placement and support of prefabricated slab	1	1 h	0 d	29/10/12 08:25	29/10/12 09:25
45	Placement steel floor level 0.5/1	1	2.5 h	0 d	10/10/12 09:52	10/10/12 12:52
54	Placement steel floor level 1.5/2	1	2.5 h	0 d	17/10/12 10:30	17/10/12 13:30
74	Placement steel floor level 3.5	1	1.5 h	0 d	06/11/12 13:35	06/11/12 15:05
80	Take away the drainage	1	18 h	0 d	08/11/12 15:05	13/11/12 08:35

2 Tom 114.33 h

ID	Task Name	Units	Work	Delay	Start	Finish
8	Electrical installation, plumbing and sanitation.of temporary facilities	1	1.5 h	0 d	13/08/12 13:00	13/08/12 14:30
2	Fenced and signaling	1	3.5 h	0 d	13/08/12 08:00	13/08/12 11:30
5	Electricity generator	1	1 h	0 d	13/08/12 11:30	13/08/12 13:00
19	formwork one side wall lift	1	2.5 h	0 d	24/08/12 13:50	27/08/12 07:50
25	Armed, placement of the columns and walls reinforcement	1	24.25 h	0 d	31/08/12 14:50	05/09/12 15:05
28	Armed walls foundation	1	24.75 h	0 d	06/09/12 10:07	11/09/12 10:52
30	Concreting walls foundation	1	8 h	0 d	13/09/12 15:22	14/09/12 15:22
33	Concreting joints between walls and colmns	1	1 h	0 d	10/09/12 08:28	10/09/12 09:28
38	Joints between stairs-floor	1	1 h	0 d	03/10/12 10:32	03/10/12 11:32
42	joints column-floor scaffoldings	1	2 h	0 d	03/10/12 12:32	03/10/12 14:32
46	joints between beams-columns/ beams-perimeter wall.scaffold	1	2 h	0 d	08/10/12 07:59	08/10/12 09:59
49	joints between stairs and floor	1	1 h	0 d	10/10/12 11:22	10/10/12 12:52
51	joints between floor-wall. Scaffoldungs	1	2 h	0 d	10/10/12 14:20	11/10/12 07:50
55	joints between beams-columns/ beams-perimeter wall.scaffold	1	3 h	0 d	17/10/12 12:45	18/10/12 07:15
57	joints stairs/floor	1	1 h	0 d	18/10/12 11:00	18/10/12 12:30
59	joints between floor-wall	1	3 h	0 d	22/10/12 07:45	22/10/12 10:45
65	joints between beams-columns/ beams-perimeter wall.scaffold	1	3 h	0 d	29/10/12 07:55	29/10/12 10:55
72	joints between beams-columns/ beams-perimeter wall.	1	2 h	0 d	05/11/12 10:05	05/11/12 12:35
75	Placement of prefabricated stairs level +2,5/+3,5	1	0.5 h	0 d	29/10/12 07:55	29/10/12 08:25
24	Foundation level -1.5/-1, cleaning concrete bottom/shock layer	1	5.33 h	0 d	31/08/12 09:00	31/08/12 14:50
36	Placement steel floor level -0.5/0	1	2.5 h	0 d	03/10/12 07:22	03/10/12 09:52
74	Placement steel floor level 3.5	1	1.5 h	0 d	06/11/12 13:35	06/11/12 15:05
80	Take away the drainage	1	18 h	0 d	08/11/12 15:05	13/11/12 08:35

ID	Resource Name	Work

3 backhoe 70.67 h

ID	Task Name	Units	Work	Delay	Start	Finish
6	Drainage (temporary)	1	16 h	0 d	13/08/12 11:30	16/08/12 11:30
12	Excavation level -0,5 sides C-B towards A-D	1	14 h	0 d	16/08/12 11:30	20/08/12 09:30
13	Excavation level -1, -2.80m, sides C-B towards A-D	1	11.67 h	0 d	20/08/12 09:30	21/08/12 13:40
14	Excavation level -1,5, -4,20m sides C-B towards D-A	1	9 h	0 d	21/08/12 13:40	22/08/12 14:40
15	Lift Pit Excavation. Level -4,5m	1	2 h	0 d	22/08/12 09:40	22/08/12 11:40
80	Take away the drainage	1	18 h	0 d	08/11/12 15:05	13/11/12 08:35

4 David 113.58 h

ID	Task Name	Units	Work	Delay	Start	Finish
3	Clearing and cleaning surface,20cm depth	1	3.67 h	0 d	13/08/12 08:42	13/08/12 12:52
5	Electricity generator	1	1 h	0 d	13/08/12 11:30	13/08/12 13:00
11	Topography Excavation	1	1 h	0 d	13/08/12 13:18	13/08/12 14:18
16	Lift foundation cleaning concrete bottom 10cm shock resistant layer	1	0.5 h	0 d	22/08/12 11:40	22/08/12 12:40
18	Concreting pit lift	1	0.5 h	0 d	24/08/12 13:20	24/08/12 13:50
20	Armed wall lift foundation	1	1.33 h	0 d	27/08/12 07:50	27/08/12 09:10
24	Foundation level -1.5/-1, cleaning concrete bottom/shock layer	1	5.33 h	0 d	31/08/12 09:00	31/08/12 14:50
26	Concreting foundation	1	7 h	0 d	04/09/12 10:28	05/09/12 09:28
29	Formwork Walls levels -1.5/-1/-0,5 two sides	1	20 h	0 d	11/09/12 10:52	13/09/12 15:22
34	Placing prefabricated beams Floor level -0,5/ 0	1	14 h	0 d	27/09/12 14:22	01/10/12 11:52
37	Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0	1	0.33 h	0 d	03/10/12 09:52	03/10/12 10:12
39	Placing prefabricated wall plates level 0- Schafoldings	1	8.5 h	0 d	03/10/12 07:22	04/10/12 07:52
47	Placement of prefabricated stairs level -0,5/+0,5 0/+1	1	0.5 h	0 d	10/10/12 09:52	10/10/12 10:22
52	Placement of the prefabricated beams 1.5/2	1	13 h	0 d	12/10/12 07:50	15/10/12 13:20
60	placement prefabricated columns level 1.5/2.5	1	7 h	0 d	17/10/12 10:30	18/10/12 09:30
62	Placement of the prefabricated beams level 2.5/3	1	13 h	0 d	23/10/12 10:45	25/10/12 07:45
71	Placement of the prefabricated beams level 3.5	1	5.67 h	0 d	31/10/12 12:55	05/11/12 10:05
81	Concreting floor levels	1	11.25 h	0 d	13/11/12 08:35	14/11/12 11:50

5 Roel 187.58 h

ID	Task Name	Units	Work	Delay	Start	Finish
6	Drainage (temporary)	1	16 h	0 d	13/08/12 11:30	16/08/12 11:30
12	Excavation level -0,5 sides C-B towards A-D	1	14 h	0 d	16/08/12 11:30	20/08/12 09:30
13	Excavation level -1, -2.80m, sides C-B towards A-D	1	11.67 h	0 d	20/08/12 09:30	21/08/12 13:40
14	Excavation level -1,5, -4,20m sides C-B towards D-A	1	9 h	0 d	21/08/12 13:40	22/08/12 14:40
17	Armed bottom foundation	1	0.67 h	0 d	24/08/12 12:40	24/08/12 13:20
20	Armed wall lift foundation	1	1.33 h	0 d	27/08/12 07:50	27/08/12 09:10
22	Concreting wall lift	1	0.67 h	0 d	30/08/12 08:20	30/08/12 09:00
25	Armed, placement of the columns and walls reinforcement	1	24.25 h	0 d	31/08/12 14:50	05/09/12 15:05
28	Armed walls foundation	1	24.75 h	0 d	06/09/12 10:07	11/09/12 10:52
32	Raised of the columns level -1,5/-0,5/+0,5// -1/0	1	7 h	0 d	07/09/12 09:28	10/09/12 08:28
35	Placing prefabricated plates Floor level -0.5/0	1	18.5 h	0 d	28/09/12 13:22	03/10/12 07:22
43	Placement of the prefabricated beams 0.5/1	1	8.67 h	0 d	05/10/12 07:19	08/10/12 07:59
50	Placement Prefabricated Wall plates level +0,5/+1	1	5.67 h	0 d	10/10/12 09:52	11/10/12 07:32
60	placement prefabricated columns level 1.5/2.5	1	7 h	0 d	17/10/12 10:30	18/10/12 09:30
63	Placement Prefabricated plates floor level 2.5/3	1	13.67 h	0 d	25/10/12 07:45	26/10/12 13:55
77	Placement of the windowsill level +3/+3,5	1	8.5 h	0 d	06/11/12 13:35	07/11/12 14:05
45	Placement steel floor level 0.5/1	1	2.5 h	0 d	10/10/12 09:52	10/10/12 12:52
54	Placement steel floor level 1.5/2	1	2.5 h	0 d	17/10/12 10:30	17/10/12 13:30
81	Concreting floor levels	1	11.25 h	0 d	13/11/12 08:35	14/11/12 11:50

ID		Resource Name	Work

6 Robin 227 h

ID	Task Name	Units	Work	Delay	Start	Finish
9	Placement of temporary facilities, site huts	1	2 h	0 d	13/08/12 14:30	14/08/12 08:00
10	Electrical,plumbing and sanitation installation of the site huts	1	2 h	0 d	13/08/12 14:30	14/08/12 08:00
4	Topography	1	3 h	0 d	13/08/12 09:48	13/08/12 13:18
13	Excavation level -1, -2.80m, sides C-B towards A-D	2	23.33 h	0 d	20/08/12 09:30	21/08/12 13:40
16	Lift foundation cleaning concrete bottom 10cm shock resistant layer	1	0.5 h	0 d	22/08/12 11:40	22/08/12 12:40
20	Armed wall lift foundation	1	1.33 h	0 d	27/08/12 07:50	27/08/12 09:10
21	Formwork wall lift foundation two sides	1	3 h	0 d	29/08/12 13:50	30/08/12 08:20
22	Concreting wall lift	1	0.67 h	0 d	30/08/12 08:20	30/08/12 09:00
25	Armed, placement of the columns and walls reinforcement	1	24.25 h	0 d	31/08/12 14:50	05/09/12 15:05
28	Armed walls foundation	1	24.75 h	0 d	06/09/12 10:07	11/09/12 10:52
29	Formwork Walls levels -1.5/-1/-0,5 two sides	1	20 h	0 d	11/09/12 10:52	13/09/12 15:22
30	Concreting walls foundation	1	8 h	0 d	13/09/12 15:22	14/09/12 15:22
32	Raised of the columns level -1,5/-0,5/+0,5// -1/0	1	7 h	0 d	07/09/12 09:28	10/09/12 08:28
35	Placing prefabricated plates Floor level -0.5/0	2	18.5 h	0 d	28/09/12 13:22	01/10/12 14:37
37	Placement prefabricated stairs. Level -1,5<->0,5 / -1<->0	1	0.67 h	0 d	03/10/12 09:52	03/10/12 10:32
40	joints between floor-wall	1	2 h	0 d	03/10/12 13:49	04/10/12 07:19
47	Placement of prefabricated stairs level -0,5/+0,5 0/+1	1	0.5 h	0 d	10/10/12 09:52	10/10/12 10:22
48	Placement and support of prefabricated slab	1	1 h	0 d	10/10/12 10:22	10/10/12 11:22
53	Placement Prefabricated floor level plates +1,5/2 .	2	27.33 h	0 d	15/10/12 13:20	17/10/12 10:30
56	Placement of prefabricated stairs level +0,5/+1,5 +1/+2	1	0.5 h	0 d	18/10/12 10:30	18/10/12 11:00
63	Placement Prefabricated plates floor level 2.5/3	2	27.33 h	0 d	25/10/12 07:45	26/10/12 13:55
67	Placement and support of prefabricated slab	1	1 h	0 d	26/10/12 14:25	26/10/12 15:25
70	joints between floor-wall	1	2 h	0 d	31/10/12 11:25	31/10/12 13:55
71	Placement of the prefabricated beams level 3.5	2	11.33 h	0 d	31/10/12 12:55	05/11/12 10:05
75	Placement of prefabricated stairs level +2,5/+3,5	1	0.5 h	0 d	29/10/12 07:55	29/10/12 08:25
45	Placement steel floor level 0.5/1	1	2.5 h	0 d	10/10/12 09:52	10/10/12 12:52
64	Placement steel floor level 2.5/3	1	2.5 h	0 d	26/10/12 13:55	29/10/12 07:55
74	Placement steel floor level 3.5	1	1.5 h	0 d	06/11/12 13:35	06/11/12 15:05
79	take away the crane	1	8 h	0 d	07/11/12 15:05	08/11/12 15:05

7 loading shovel 38.33 h

ID	Task Name	Units	Work	Delay	Start	Finish
3	Clearing and cleaning surface,20cm depth	1	3.67 h	0 d	13/08/12 08:42	13/08/12 12:52
12	Excavation level -0,5 sides C-B towards A-D	1	14 h	0 d	16/08/12 11:30	20/08/12 09:30
13	Excavation level -1, -2.80m, sides C-B towards A-D	1	11.67 h	0 d	20/08/12 09:30	21/08/12 13:40
14	Excavation level -1,5, -4,20m sides C-B towards D-A	1	9 h	0 d	21/08/12 13:40	22/08/12 14:40

8 motor grader 11.25 h

ID	Task Name	Units	Work	Delay	Start	Finish
81	Concreting floor levels	1	11.25 h	0 d	13/11/12 08:35	14/11/12 11:50

9 Crane 0 h

10 Peter 107.67 h

ID	Task Name	Units	Work	Delay	Start	Finish
9	Placement of temporary facilities, site huts	1	2 h	0 d	13/08/12 14:30	14/08/12 08:00
10	Electrical,plumbing and sanitation installation of the site huts	1	2 h	0 d	13/08/12 14:30	14/08/12 08:00
6	Drainage (temporary)	1	16 h	0 d	13/08/12 11:30	16/08/12 11:30
31	Formwork stripping wall levels -1.5/-1/-0,5	1	15 h	0 d	25/09/12 15:22	27/09/12 14:22
41	Columns - Placement of the prefabricated columns level 1/2	1	4.67 h	0 d	03/10/12 07:22	03/10/12 12:32
44	Placement of the prefabricated plates floor level +0'5/1 .	1	20.5 h	0 d	05/10/12 13:52	10/10/12 09:52

ID		Resource Name	Work

"Peter" continued

ID	Task Name	Units	Work	Delay	Start	Finish
27	Formwork Walls levels -1.5/-1/-0,5 one side	1	21.5 h	0 d	05/09/12 07:22	07/09/12 13:22
66	Placement of prefabricated stairs level +1,5/+2,5<-> +2/+3	1	0.5 h	0 d	26/10/12 13:55	26/10/12 14:25
69	Placing Prefabricated Wall plates level 2.5/3, Schafoldings	1	8.5 h	0 d	30/10/12 10:55	31/10/12 11:25
36	Placement steel floor level -0.5/0	1	2.5 h	0 d	03/10/12 07:22	03/10/12 09:52
54	Placement steel floor level 1.5/2	1	2.5 h	0 d	17/10/12 10:30	17/10/12 13:30
64	Placement steel floor level 2.5/3	1	2.5 h	0 d	26/10/12 13:55	29/10/12 07:55
74	Placement steel floor level 3.5	1	1.5 h	0 d	06/11/12 13:35	06/11/12 15:05
79	take away the crane	1	8 h	0 d	07/11/12 15:05	08/11/12 15:05

11 Isaac 90.75 h

ID	Task Name	Units	Work	Delay	Start	Finish
7	Placement of the Crane, crane ballasted	1	8 h	0 d	13/08/12 13:18	14/08/12 13:18
17	Armed bottom foundation	1	0.67 h	0 d	24/08/12 12:40	24/08/12 13:20
24	Foundation level -1.5/-1, cleaning concrete bottom/shock layer	1	5.33 h	0 d	31/08/12 09:00	31/08/12 14:50
31	Formwork stripping wall levels -1.5/-1/-0,5	1	15 h	0 d	25/09/12 15:22	27/09/12 14:22
52	Placement of the prefabricated beams 1.5/2	1	13 h	0 d	12/10/12 07:50	15/10/12 13:20
61	joints column-floor scaffoldings	1	2 h	0 d	18/10/12 09:30	18/10/12 11:30
68	joints between stairs and floor	1	1 h	0 d	26/10/12 15:25	29/10/12 07:55
73	Placement Prefabricated plates floor level +3,5 .	1	10 h	0 d	05/11/12 11:05	06/11/12 13:35
77	Placement of the windowsill level +3/+3,5	1	8.5 h	0 d	06/11/12 13:35	07/11/12 14:05
36	Placement steel floor level -0.5/0	1	2.5 h	0 d	03/10/12 07:22	03/10/12 09:52
45	Placement steel floor level 0.5/1	1	2.5 h	0 d	10/10/12 09:52	10/10/12 12:52
58	Placing prefabricated wall plates level 1.5/2- Schafoldings	1	8.5 h	0 d	18/10/12 07:15	19/10/12 07:45
64	Placement steel floor level 2.5/3	1	2.5 h	0 d	26/10/12 13:55	29/10/12 07:55
81	Concreting floor levels	1	11.25 h	0 d	13/11/12 08:35	14/11/12 11:50

12 vibrator 15.67 h

ID	Task Name	Units	Work	Delay	Start	Finish
30	Concreting walls foundation	1	8 h	0 d	13/09/12 15:22	14/09/12 15:22
26	Concreting foundation	1	7 h	0 d	04/09/12 10:28	05/09/12 09:28
22	Concreting wall lift	1	0.67 h	0 d	30/08/12 08:20	30/08/12 09:00

13 vibrator2 0 h

14 Paul 171.92 h

ID	Task Name	Units	Work	Delay	Start	Finish
7	Placement of the Crane, crane ballasted	1	8 h	0 d	13/08/12 13:18	14/08/12 13:18
12	Excavation level -0,5 sides C-B towards A-D	2	28 h	0 d	16/08/12 11:30	20/08/12 09:30
13	Excavation level -1, -2.80m, sides C-B towards A-D	1	11.67 h	0 d	20/08/12 09:30	21/08/12 13:40
15	Lift Pit Excavation. Level -4,5m	1	2 h	0 d	22/08/12 09:40	22/08/12 11:40
14	Excavation level -1,5, -4,20m sides C-B towards D-A	1	9 h	0 d	21/08/12 13:40	22/08/12 14:40
18	Concreting pit lift	1	0.5 h	0 d	24/08/12 13:20	24/08/12 13:50
23	Formwork stripping wall lift	1	2 h	0 d	10/09/12 09:00	10/09/12 11:00
26	Concreting foundation	1	7 h	0 d	04/09/12 10:28	05/09/12 09:28
41	Columns - Placement of the prefabricated columns level 1/2	2	9.33 h	0 d	03/10/12 07:22	03/10/12 12:32
44	Placement of the prefabricated plates floor level +0'5/1 .	1	20.5 h	0 d	05/10/12 13:52	10/10/12 09:52
53	Placement Prefabricated floor level plates +1,5/2 .	1	13.67 h	0 d	15/10/12 13:20	17/10/12 10:30
69	Placing Prefabricated Wall plates level 2.5/3, Schafoldings	1	8.5 h	0 d	30/10/12 10:55	31/10/12 11:25
78	joints between windowsill- floor	1	1 h	0 d	07/11/12 14:05	07/11/12 15:05
28	Armed walls foundation	1	24.75 h	0 d	06/09/12 10:07	11/09/12 10:52
36	Placement steel floor level -0.5/0	1	2.5 h	0 d	03/10/12 07:22	03/10/12 09:52

ID **Resource Name** **Work**

"Paul" continued

ID	Task Name	Units	Work	Delay	Start	Finish
54	Placement steel floor level 1.5/2	1	2.5 h	0 d	17/10/12 10:30	17/10/12 13:30
58	Placing prefabricated wall plates level 1.5/2- Schafoldings	1	8.5 h	0 d	18/10/12 07:15	19/10/12 07:45
64	Placement steel floor level 2.5/3	1	2.5 h	0 d	26/10/12 13:55	29/10/12 07:55
73	Placement Prefabricated plates floor level +3,5 .	1	10 h	0 d	05/11/12 11:05	06/11/12 13:35