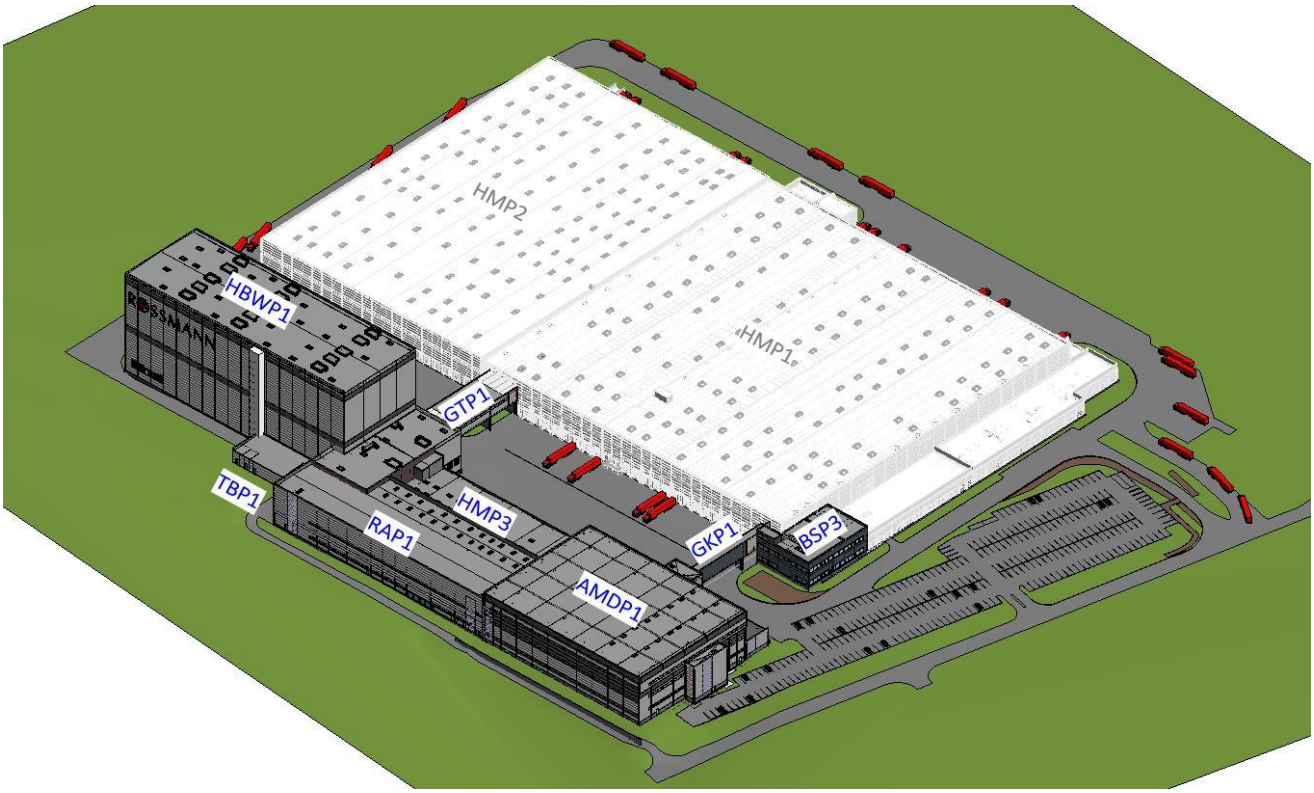
Architecture and buildings' installations requirements for the structure



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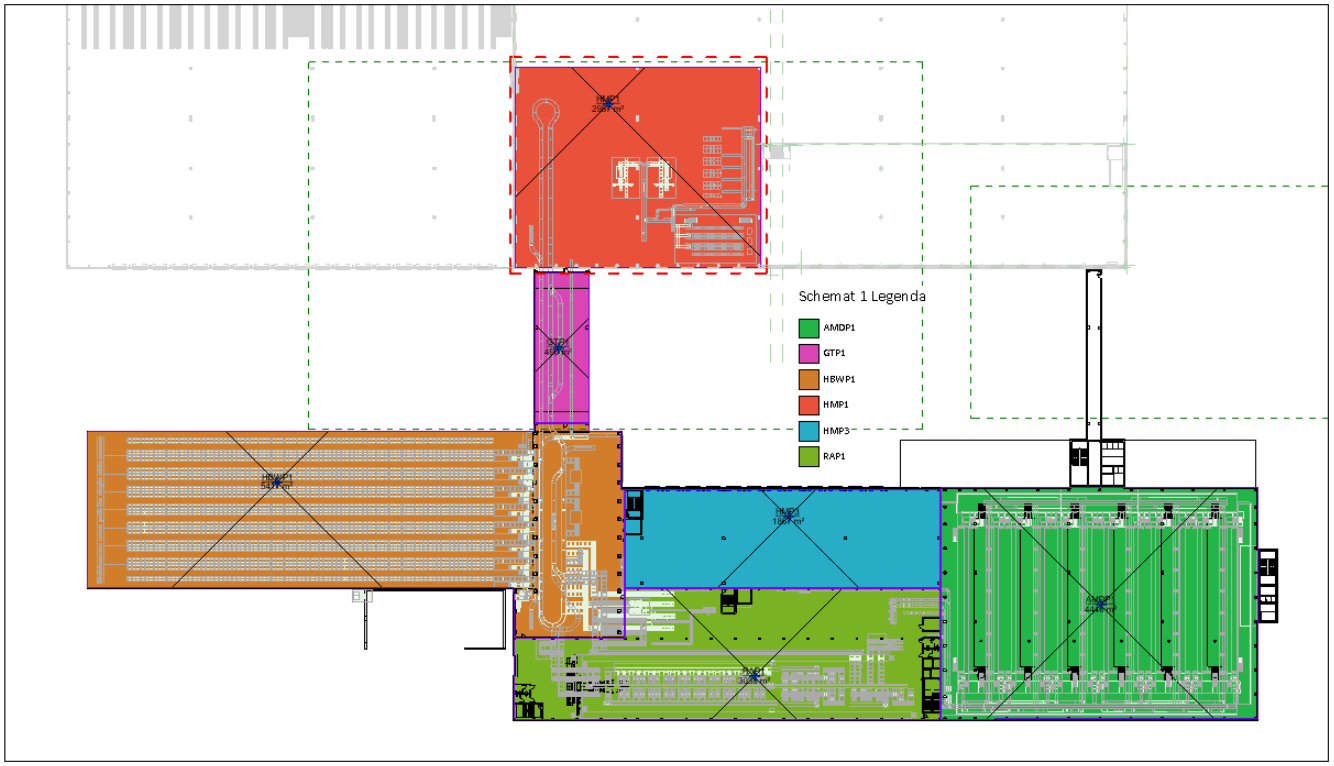
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TENDER DESIGN

I. GENERAL INFORMATION

1. NAMING OF THE PARTS OF NEW INVESTMENT THAT WILL BE CONNECTED WITH TECHNOLOGY SUPPLY

- HBWP1 – high bay warehouse
- RAP1 – Repacking area – 2 storey building
- AMDP1 – automatic completation
- GTP1 – transport gallery
- HMP1- existing building in where changes due to the new technology will be made; area of changes due to the technology shown in red rectangle



0.00 level for all buildings is 235,00 AMSL. Existing buildings are on the level +235,15 AMSL.

2. DRAWINGS LIST

NO	Drawing number	Drawing name	Date of realese	revision
GENERAL DRAWINGS - ARCHITECTURE				
1	4423_PP_00_AR00100	GROUNDFLOOR		00
2	4423_PP_00_AR00101	LEVEL +6.50m FLOOR PLAN		00
3	4423_PP_00_AR00102	ROOF PLAN		00
6	4423_PP_00_AR00103	SCHEME OF FIRE ZONES LEVEL ±0,00		00
7	4423_PP_00_AR00104	SCHEME OF FIRE ZONES LEVEL +6,50		00
8	4423_PP_00_AR00105	SCHEME OF FIRE PROTECTIONS IN SCOPE OF TECHNOLOGY AND SECTIONS		00
9	4423_PP_00_AR00106	SCHEME OF TEMPERATURES IN OBJECTS		00

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10	4423_PP_00_AR00107	SCHEME OF FLOORS WITH LEVELS		00
11	4423_PP_00_AR00200	ELEVATIONS		00
12	4423_PP_00_AR00300	SECTIONS		00
13	4423_PP_HMP1_AR00100_00	LAYOUTS AND SECTIONS		00
14	4423_00_HBW_ADM_RAP_00	3D MODEL OF BUILDINGS (NWD)		00
HBW 1				
13	4423_PP_HBW1_AR00100	LEVEL ±0,00 FLOOR PLAN		00
14	4423_PP_HBW1_AR00101	LEVEL +6.5m FLOOR PLAN		00
15	4423_PP_HBW1_AR00102	ROOF PLAN		00
16	4423_PP_HBW1_AR00200	ELEVATIONS		00
17	4423_PP_HBW1_AR00300	SECTIONS		00
RAP 1				
18	4423_PP_RAP1_AR00100	LEVEL ±0,00 FLOOR PLAN		00
19	4423_PP_RAP1_AR00101	LEVEL +6.50m FLOOR PLAN		00
20	4423_PP_RAP1_AR00200	ELEVATIONS		00
21	4423_PP_RAP1_AR00300	SECTIONS		00
AMDP1				
22	4423_PP_AMDP1_AR00100	LEVEL -1.50m FLOOR PLAN		00
23	4423_PP_AMDP1_AR00101	LEVEL +3,65m FLOOR PLAN		00
24	4423_PP_AMDP1_AR00102	LEVEL +8,80m FLOOR PLAN		00
25	4423_PP_AMDP1_AR00103	ROOF PLAN		00
26	4423_PP_AMDP1_AR00200	ELEVATIONS		00
27	4423_PP_AMD11_AR00300	SECTIONS		00
GTP1				
28	4423_PP_GTP1_AR00100_00	LEVEL +6.5m FLOOR PLAN		00
29	4423_PP_GTP1_AR00200_00	ELEVATIONS		00
30	4423_PP_GTP1_AR00300_00	SECTIONS		00
SPRINKLER INSTALLATION BRANCH				
31	W-PK-L-001-A-HBWP1-ADMP1-ROSP	CONCEPT OF SPRINKLERS SYSTEM EXTENSION		00
32	W-PK-L-001-A	SITE PLAN		00
33				
34				
35				
36				
37				

3. ATTACHMENT LIST

- Attachment no 1: Sprinkler requirements description: MINIMAX-HBWP1_and_ADMP1_reck_req.for.sprinkler_system__ROSP_EN

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II. HBWP1

1. DESCRIPTIONS OF THE BUILDING

In the northern part of the plot high bay warehouse will be located. It will be divided into two parts, connected technologically with each other. The higher part and the lower one will create separate fire zone with the fire loads more than 4000 MJ/m2.

According to Polish regulations such big fire loads provide specific qualification for the building- that means that building will be in “A” class but according to internal installations of sprinkler system and smoke exhaust installation class of the building may decrease to the class “E” excluding class of fire divisions between different zones. That provides that every fire wall, that will be surrounding HBWP1

HBWP1 must have resistance against fire for 240 minutes – REI 240, all openings in fire protection walls cannot pass the amount of 15% of the wall area.

Both part will be erected In steel structure. Lower part will have mezzanine on the level +6,50 m. That level refers to the level of transport bridge.

2. WORKING PLACES

Area of HBWP1 won’t be a permanent working place. Work inside the HBWP 1 will be only temporary and takes no longer than 2 hours at a time.

3. REQUIREMENTS FOR THE BUILDING HEIGHT

In creating building structure supplier of the racks must calculate appropriate height of the building including following requirements:

For higher part: height of the roof racks including slope of the roof not less than 3%; height of the storage assuming amount of pallets given in technological part of specification; include the required space for building installation and sprinkler installation:

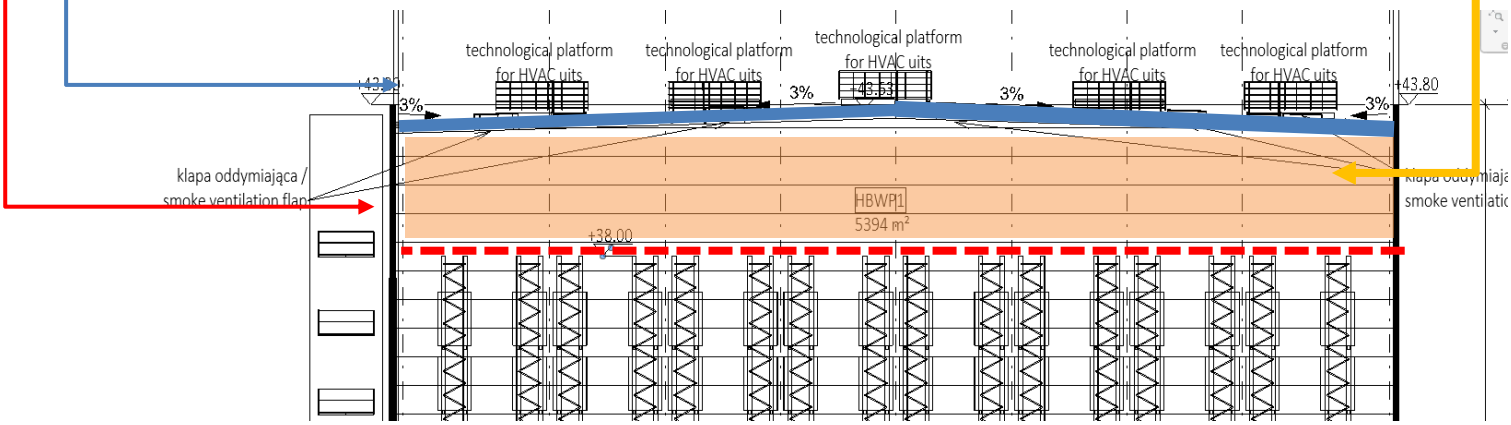
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TENDER DESIGN

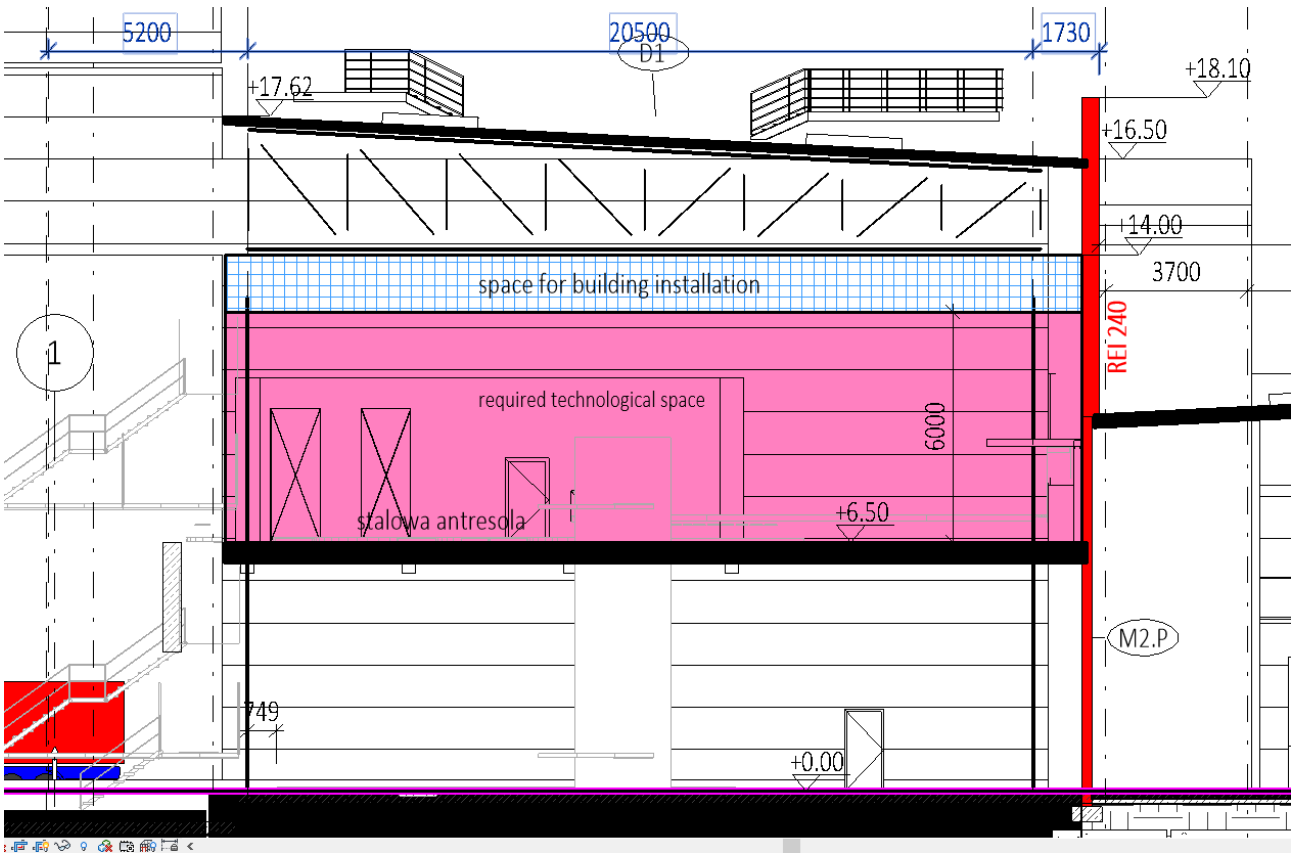
Roof finishing

The highest point of racks for storage

Space for building's installations like hvac ducts; drainage pipes, lightning etc.- size of the space to be confirmed with civil part contractor after calculation of the installations according enter data of technology supplier



For lower part of HBWP1 due to the technology's line and requirements for the connection bridge conveyors will be placed on +6,50 m level. That level creates mezzanine of the HBWP1. The clearance height of lower part (the height to the first obstacle made by building installation such as drainage pipes, electric trays, sprinkler etc. or to the structure beam) cannot be lower than 6 m. Structure of the lower part can be made of steel or concrete depends of supplier abilities- structure preferred is steel. Insurance company doesn't impose any requirements for the structure itself.



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HBWP1 height cannot overlap the height given in local law regulations – 45 m counted to the top, finished level of attic walls (including flashings). Height of inbound of the HBWP1 can be adjusted to the technology requirements. The only confirmed and not adjustable level is +6,50 m, level of mezzanine.

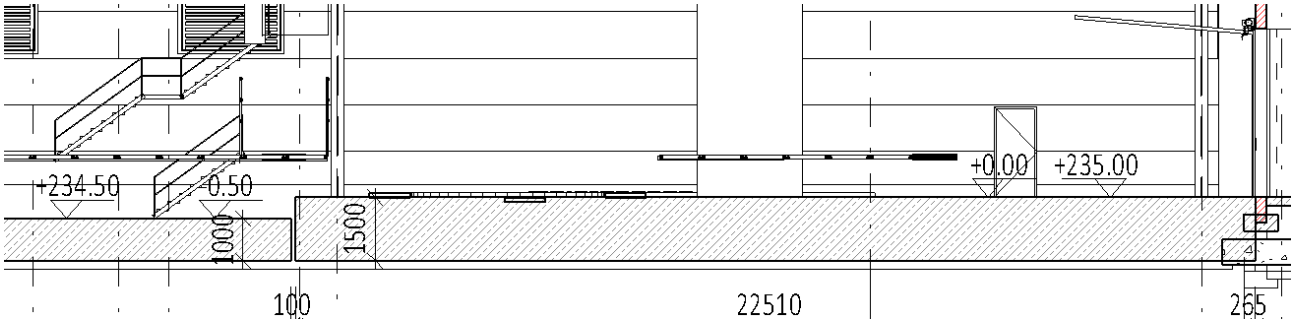
4. EARH WORKS

Building contractor will prepare foundations for whole HBWP1 . Building contractor considers concrete slab. Building contractor will require information before designing foundations. Important data: like loads, places of anchoring, requirements for displacement are to be handed over by the Logistic Contractor. Anchors bolts will be in Logistic Contractor scope of delivery.

Foundations will be created with expansion joints between lower and higher part of the HBWP1. Sketch below:

Thickness of the foundation plates will be created according to forces given from rack structure. For tender design not less than 1 m is assumed.

The top of the slab for lower part will be at 0.00 level, and the higher part 50 cm lower in relation to the lower part of the building.



5. EARHTING OF THE STRUCTURE

Main columns and connected trusses (including structure for hvac units) must be protected against thunderstorm, which is why main structure cannot have broken chains in electricity protection.

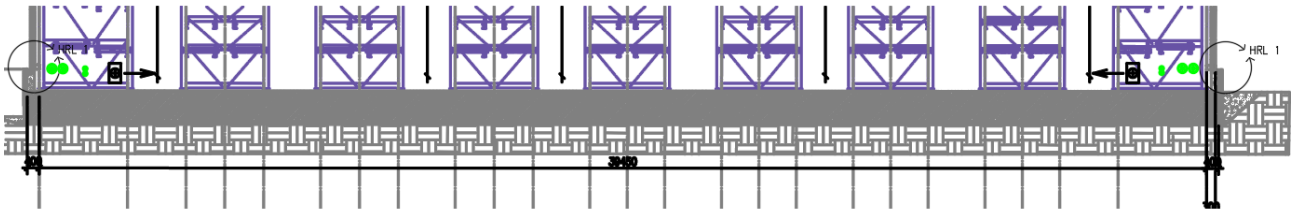
30 cm above ground slab or floor finishing level columns should have earthing tape FeZn30x 4 mm2.

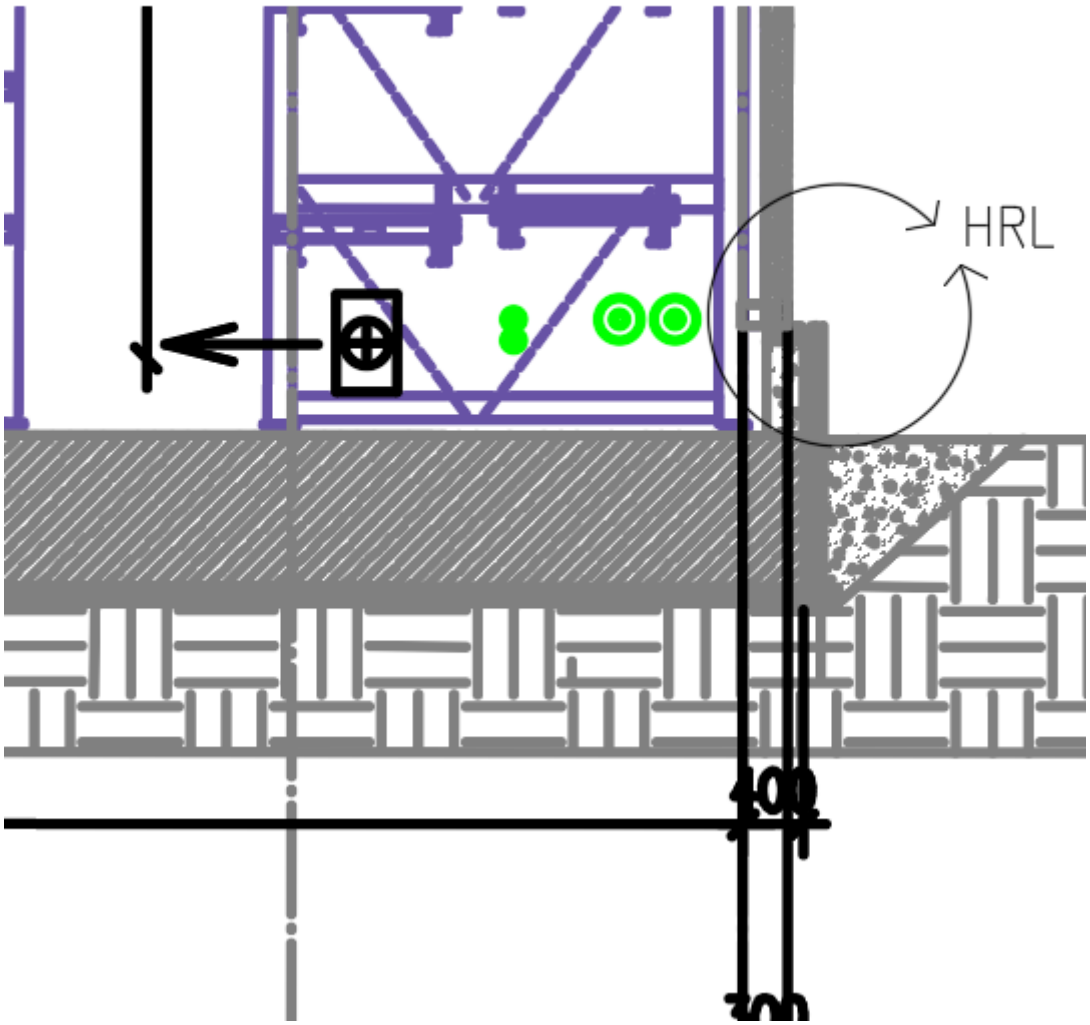
Earthing connectors fasteners should be placed at the beginning of the structure, in the end and for every 30 m in between- for tape FeZn30 x 4mm2. Rails of cranes (shuttle beams) should be equipped with earthing fasteners at the beginning and in the end.

6. HEATING, COOLING, AIR-CONDITIONNING INSTALLATIONS

Heating installation is going to be mounted under the racks close to the level of ground floor slab. Logistic contractor is going to calculate the loads from the piping in their design of racks. The proposal of routing of the pipes like in sketch below:

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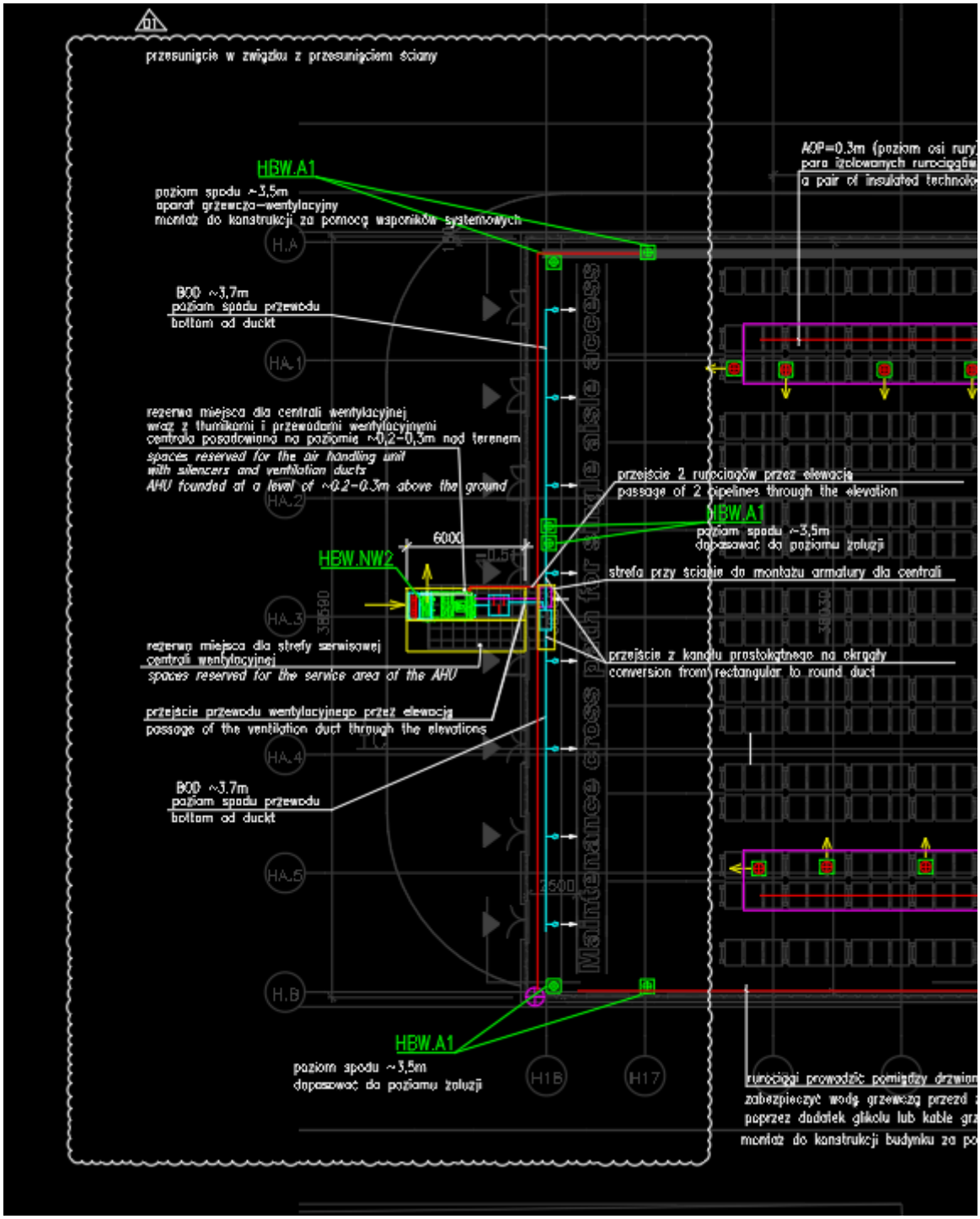
Loads from heating installation:50 kg/ mb

Logistic contractor should assume standard loads from heating installation – pipes DN 50 + 60 mm insulation

To ensure mounting of the ventilation ducts Logisitc contracotr must take into account additional beams, located 3,7 m above the 0.00 level among the north building elevation in higher part of HBWP1 as given in a sketch below:

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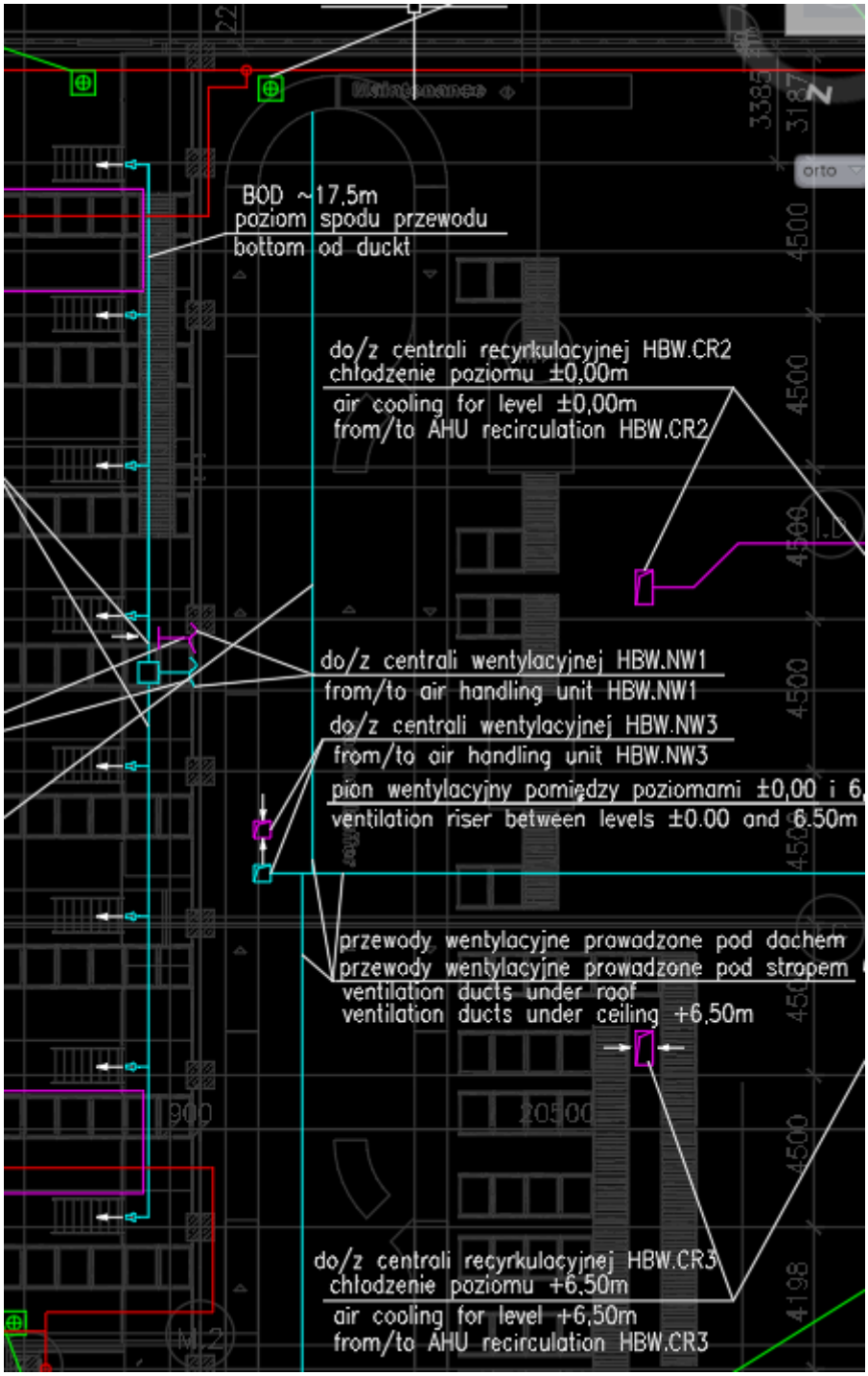
TENDER DESIGN



Loads from ventilation ducts ; 30kg/mb

Logistic contractor Should assumed also structure for ventilation ducts between lower part and higher part on level circa 17,5 m

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In lower part ducts will be provided under the mezzzanine level and under the roof as indicated in the drawings.

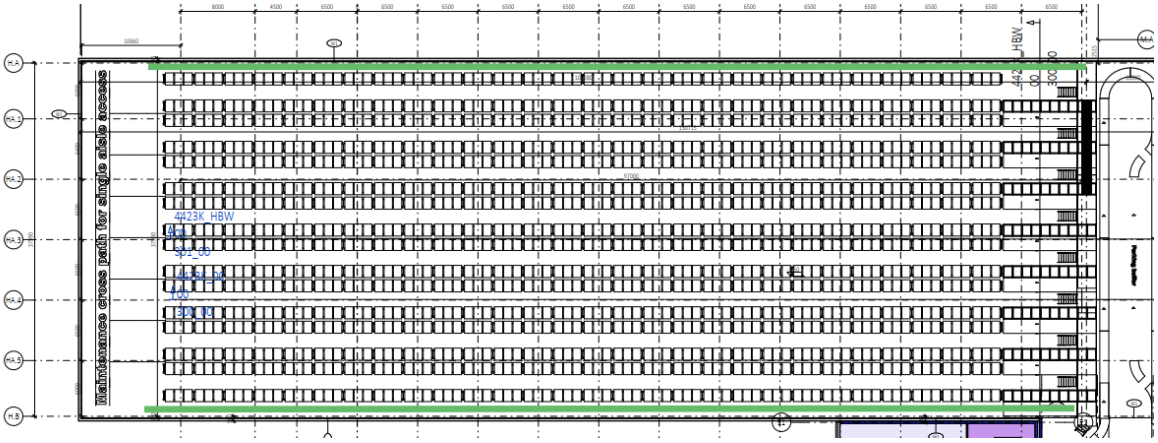
Loads for each device under the roof : 100-150 kg each element accoridng HVAC drawings.

7. SHARED INSTALLATION SPACE

Taking into account experiences from another erected HBWP1 buildings, Client would like to achieve additional separate space for building installations provided outside of the racks near the external walls ,which will ensure easy and comfortable access for maintenance without loss of pallet places.

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In green line space for installation is shown.



In proposal of the building from the external racks line to the internal surface of the wall 1,5 m is planned. In case of following that proposal Logistic contractor should assume structure for assembling sandwich panel in that distance.

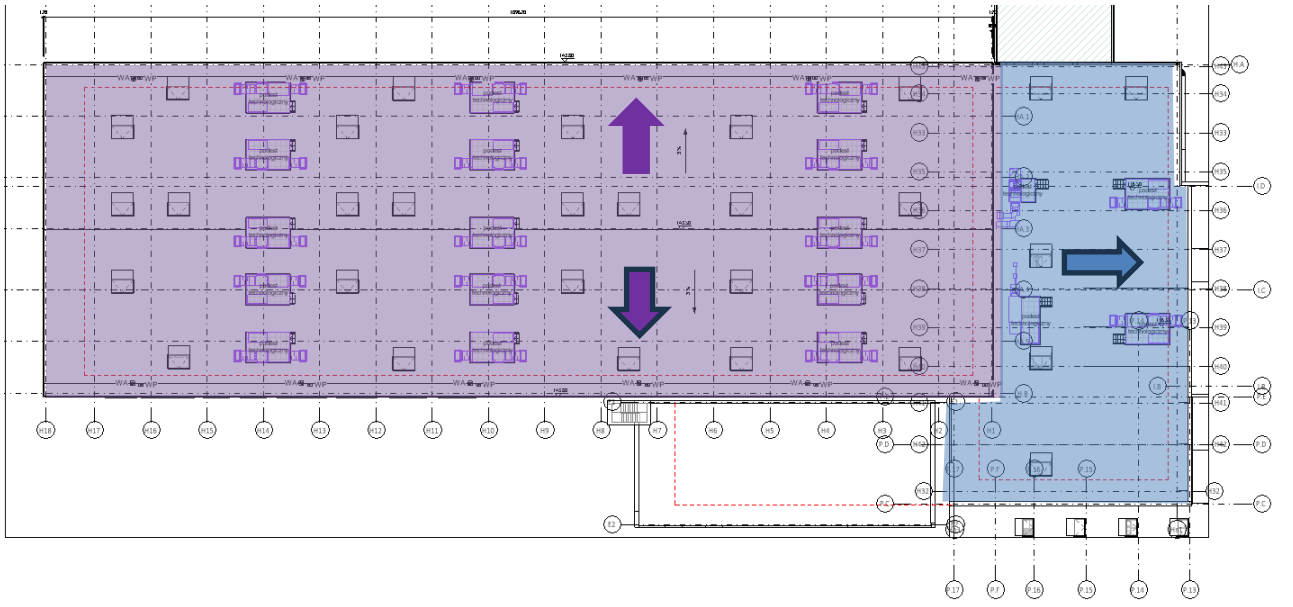
8. ROOF

Roofs are designed to follow polish regulation according to thermal insulation factor as per building with potential temperature higher than 16 Celsius degrees. Thermal insulation must fulfill requirement for the thermal factor U= 0,15W/m2K. To cover proper drainage of the roof in rack structure slope at least 3% must be consider.

Higher part of HRL – 2 sloped roof

Lower part- Inboud of the HBW

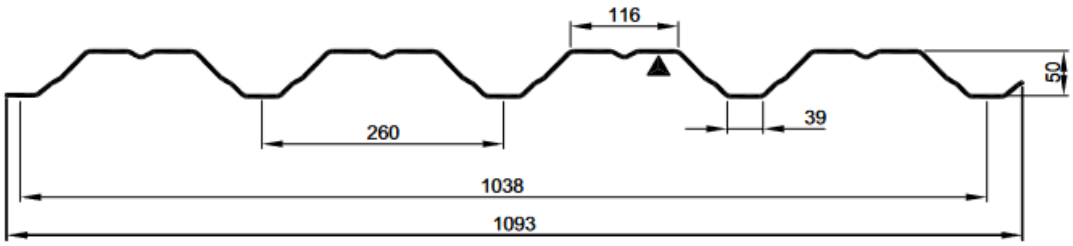
Steel structure, one direction slop of the roof



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- ROOF LOADS FROM FINISHING LAYERS

Blacha trapezowa BTR 50.260.1038 układana jako pozytyw



Box profile sheet as in positive layout

Summary of loads on the roof high (+~43,50m) **HBWP1 lover and higher part**			
Warstwy (Layers)	Service load g_k [kN/m^2]	γ	Factored load **g** [kN/m^2]
Roof membrane PCV 1,5mm	-		
Hard mineral wool gr. 230 mm	0,26*1,7=0,442		
Steam insulation PE 0,2mm	-		
Trapezoidal sheet TR 50 gr. 1,0mm positive- single span sheme	0,094		
SUM:	**0,536**	**1,35**	**0,7236**

- LIVE LOADS ON ROOF

Live loads on roof (+ ~ 43,50 m) HBWP1 come from installations and devices which are mounted to the roof. Includes load of: installation of roof heating, electrical, sprinkler and smoke vents installation, installation of HVAC platform and devices.

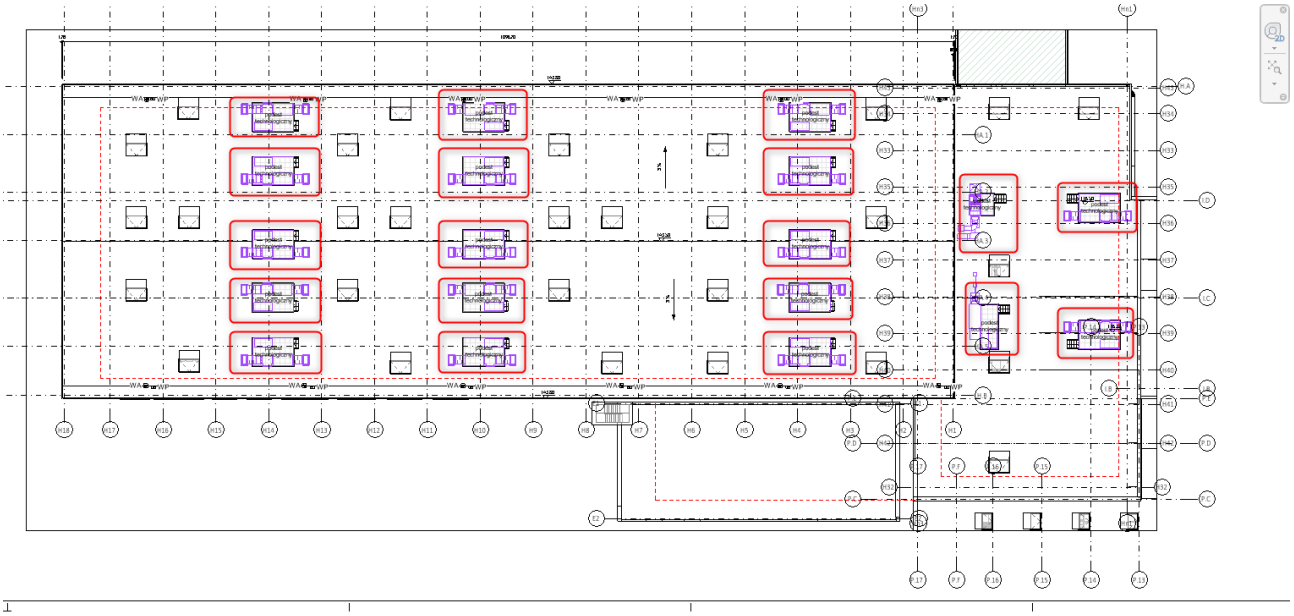
HVAC INSTALLATION – LOADS

HBWP1 building will be equipped with all installation given: heating, cooling and air-conditioning. Therefore on the roof devices are assumed.

Below location of steel platforms for HVAC units on the roofs:

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TENDER DESIGN



Steel platforms for HVAC devices must be placed at least 50 cm above the finished surface (last layer) of the roof. It should contain area for maintenance at least 90 cm wide. Access to the platform by steel stairs mounted to the roof.

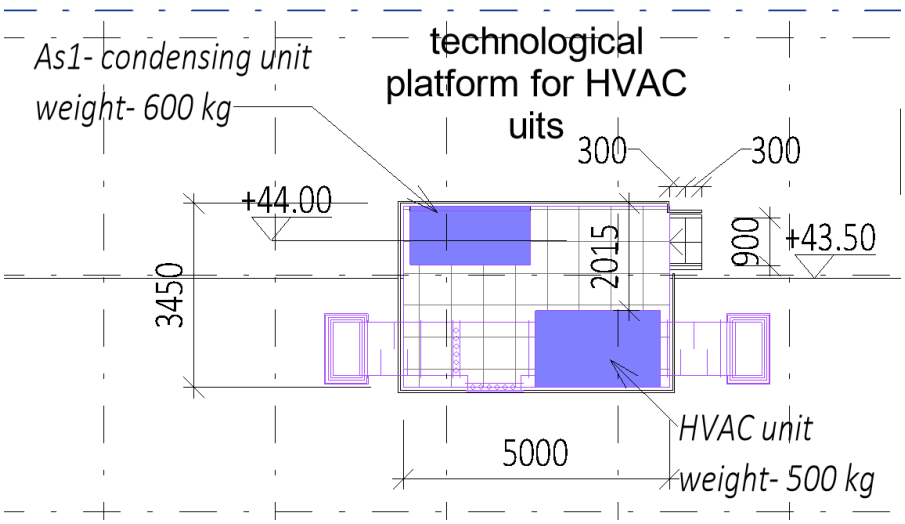
Requirements for the stairs: at least 80 cm clearance width (between rails),height of the steps not more than 20 cm and the width of step not less than 20 cm but stairs must follow regulation given according proportion: 2 x H (height of step) + s (depth of step) must stay between 60 -65 cm.

Stairs must fulfill requirements of polish regulations according to technical access. On both sides of stairs railing must be consider with the height of at least 1100 mm.

Assumptions for platforms:

- Size: 3,45 x 5,0 m
- Height – clearance height between finished surface of the roof and bottom edge of steel structure – min. 50 cm
- Long last Loads: on each platform loads from devices: 500 kg from As1 and 600 kg from Cr1;
- Live loads: from walking people 1,5 KN/m2
- Loads from snow and wind according to Eurocodes
- Surface of the platform made of steel grid, galvanized
- Around the platform bidder must count galvanized steel barriers. Height of barriers 110 cm counted from the surface of the platform. Barriers should contain also carb among the platform.
- Bidder should calculate weight of steel platform and its' supporting structure appropriate to the given loads ;
- Sealing of cut outs in place of supporting structure out of the Logistic Contractor scope

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On higer roof at this stage of design 15 platforms are predicted, on the lower 4. Amount of platfroms and divices is preliminary and can be changed during getting heat loses report from the Logistic Contractor.

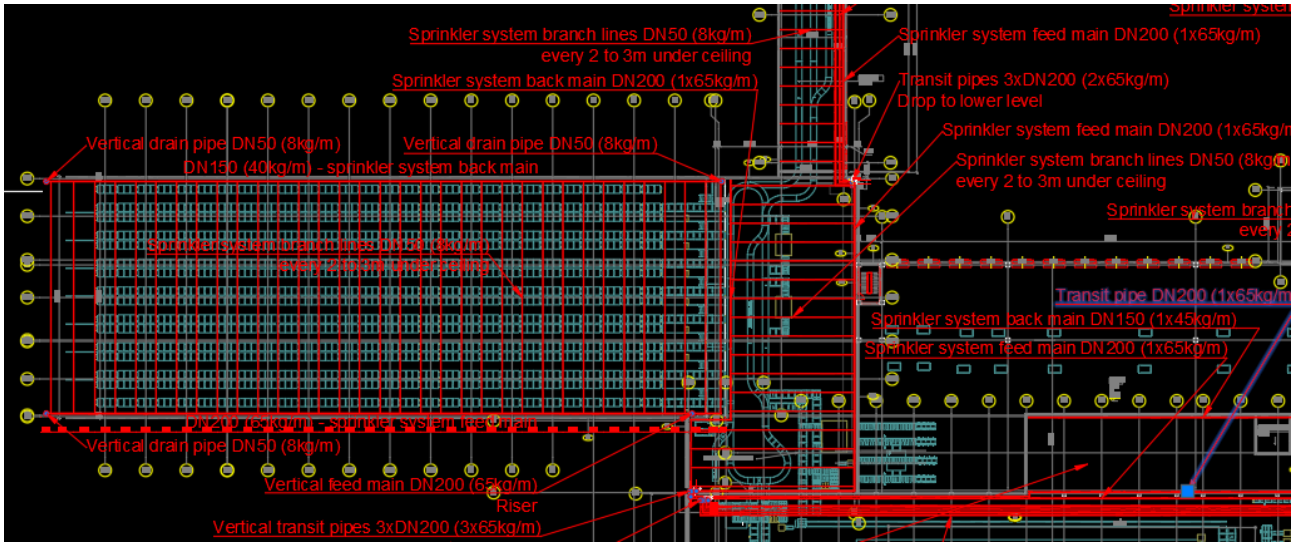
Location of the platfroms can change so per tender documentation-bidders should consider whole bays area indicated in the roof drawings as potential place of mounting platform.

LOADS FROM SPRINKLER INSTALLATION

Sprinkler installation will be provided in both parts of HBWP1 on every storage level; under the roofs, and under mezzanine of the lower part. Loads from sprinkler installation according to drawings of sprinkler distributions.

Main loads should be considered according to the diameter of the sprinkler pipes and heads:

- DN 200- main feed system 65 kg/m + transit 65kg/m
- DN 150 - main back system 40 kg/m
- DN 50- branch lines 8kg/m



Requirements for sprinkler installation according the attachment no 1.

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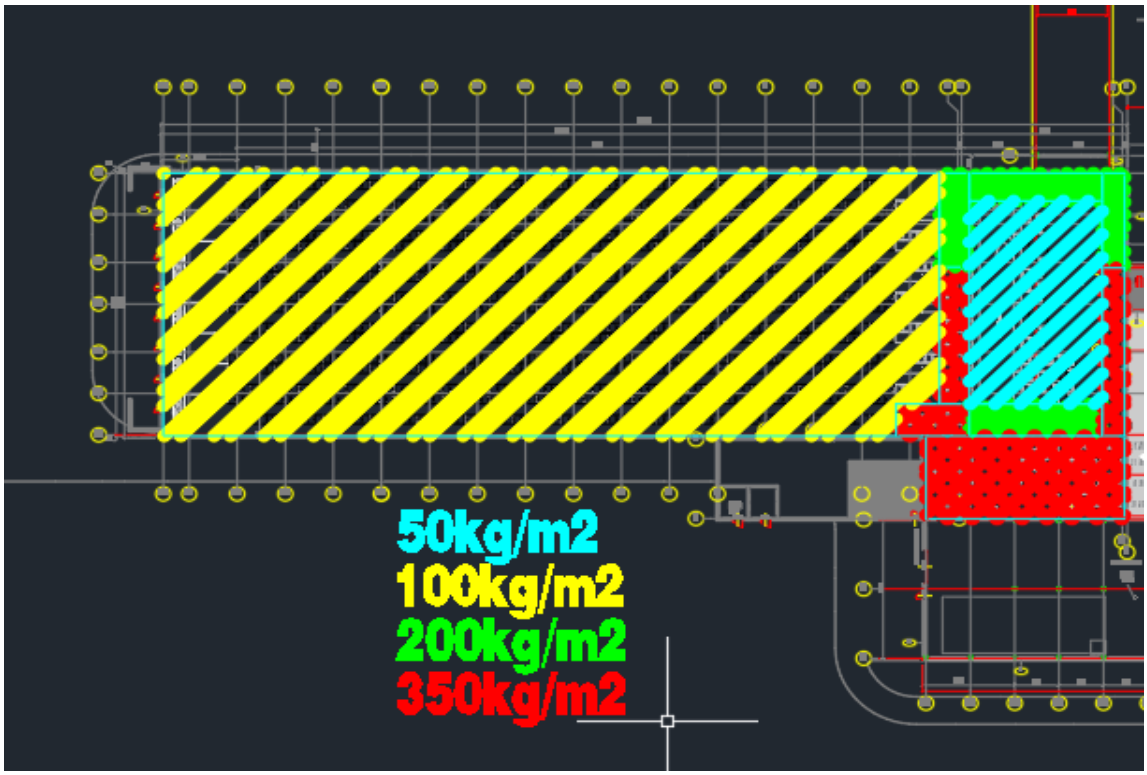
1.1..1 LOADS FROM ELECTRICAL CABLE TRAYS

- Higher part of HBWP1:

Q=200kg/m2

- Lower part:

Q= 50-400 kg/m2 according graphik below. That loads should be consider for the roof and under mezzanine under the roof;



1.1..2 LOADS FROM AUTOMATIC DRAINAGE SYSTEM WITH EMERGENCY SYSTEM INCLUDED

On the roof of HBWP1 drainage system like PLUVIA is predicted. Bidder, according to the area of the roof must calculate the changed loads from the drainage system.

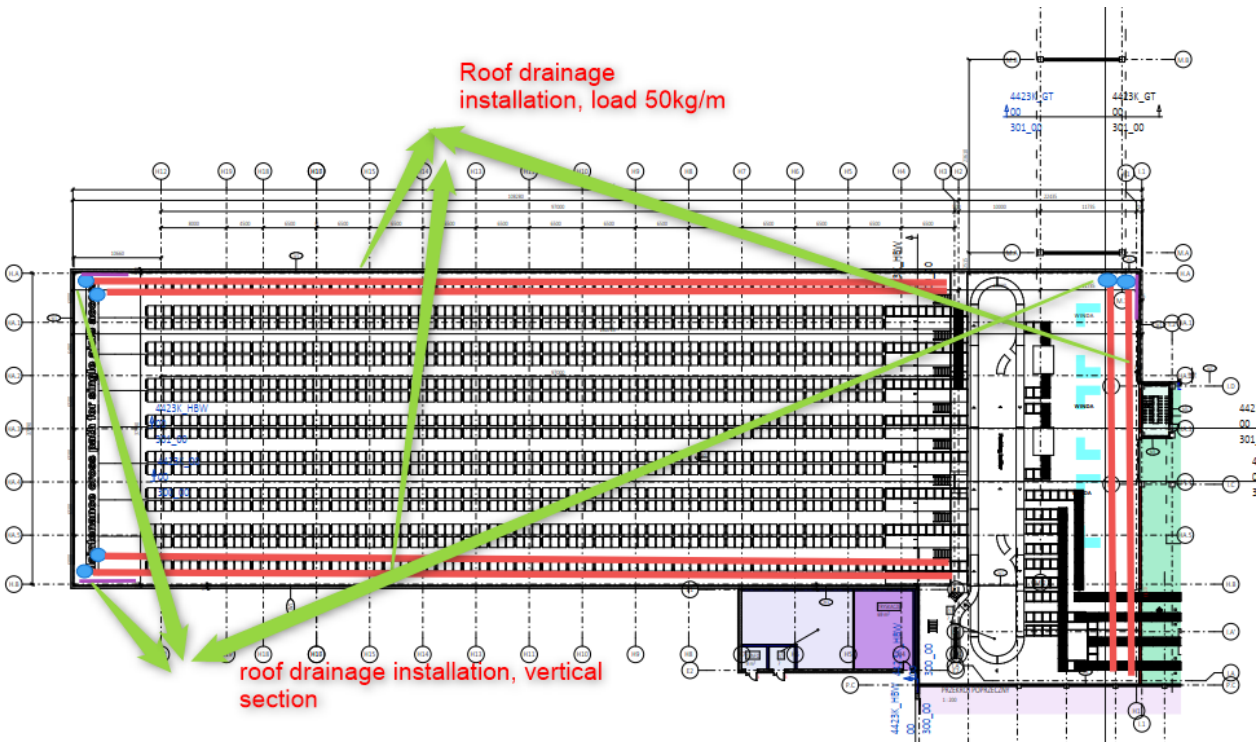
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2 installation of internal, pressured system will be divided for 2 systems : general – used all the time during rainy weather and the second one- in case of heavy rain emergency system. Every emergency roof drain will be situated 5 cm higher than general one. Installation is shown in the screens below: in red line routing of the pipes under the roof in blue color transit vertical pipes are shown.

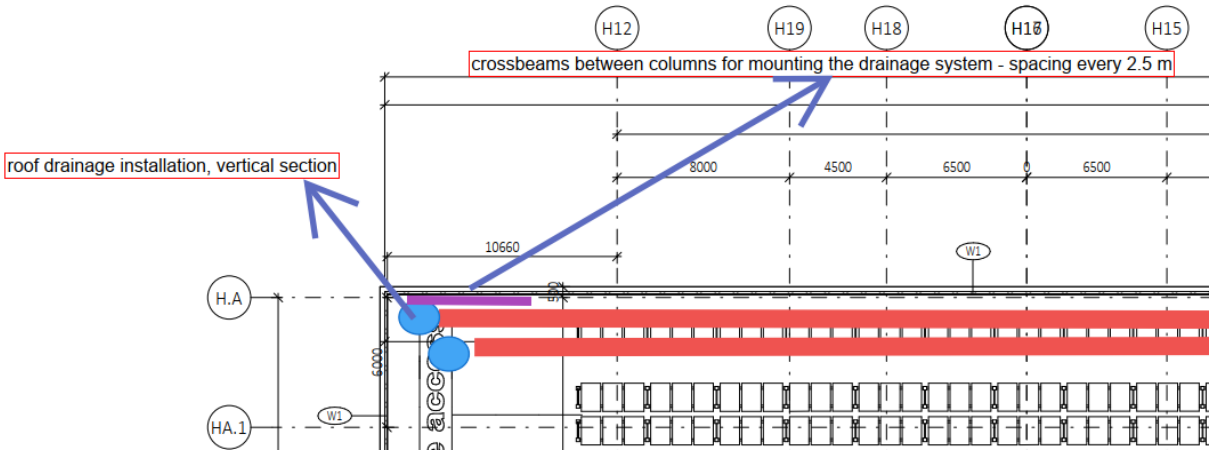
Logistic contractor should assume:

- Loads from the pipes on the roof (including emergency system)- 50 kg/m
- Additional supporting beams every 2,5 m on the whole height of the HBWP1 in places shown in second screen;



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Sketch 1. Drainage system plan view



Sketch 2. Drainage system plan view with indication of the additional beams location

1.1..3 ROOF HEATING INSTALLATION

In finishing layers of the roofs electric heating system will be mounted. In structure of the building supplier must assume loads from electric installation.

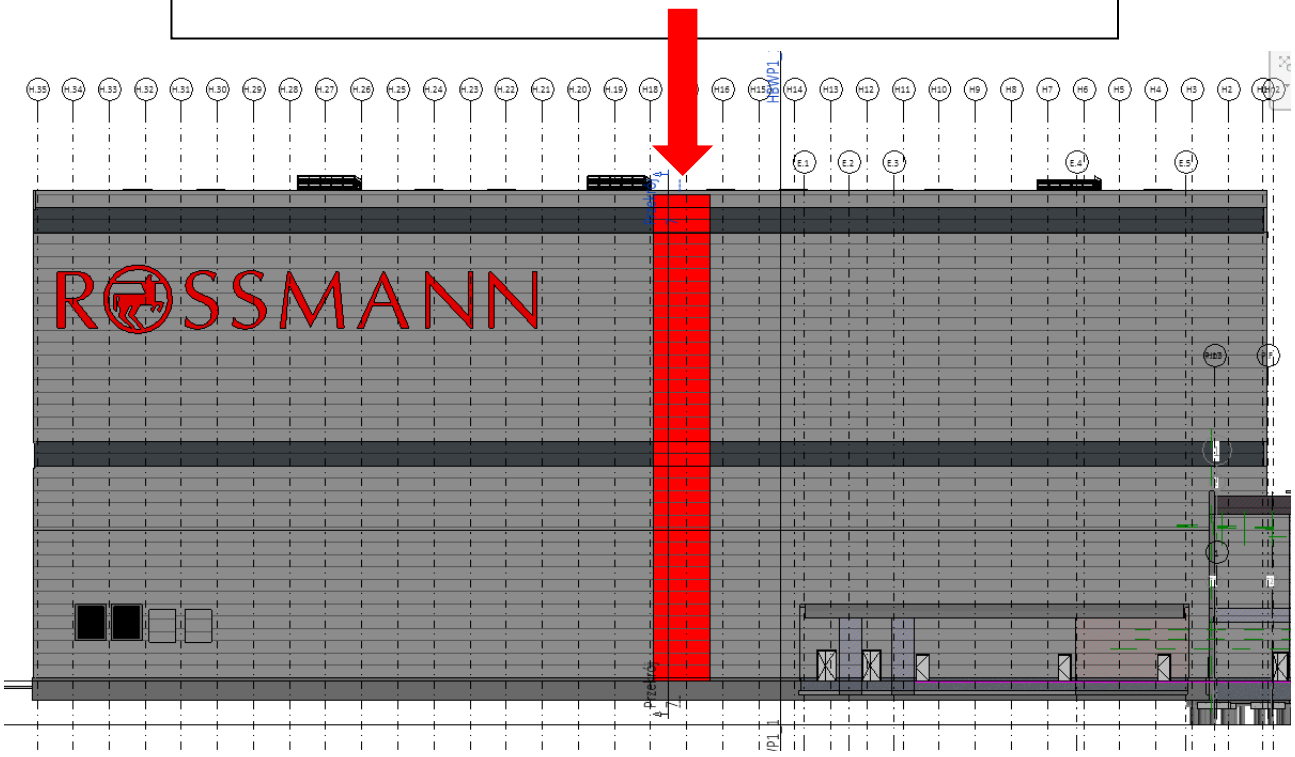
Loads from ALMG mats : 1,2 kg/m2

1.1..4 ACCESS TO THE ROOF

Bidder must assume and design external steel staircase from the level 0,00 up to the level of the roof according to Polish regulations. The place for external staircase is already chosen as the most optimal one and it is located between axes H18/H19 due to the neighborhood of technical building. During execution design staircase may be shifted what will be caused by other conditions, which are not know in that time of preparing specification.

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Place for external steel staircase with railings, all protections and covers. Staircase according polish regulation- in external staircase only 10 steps in each run is available

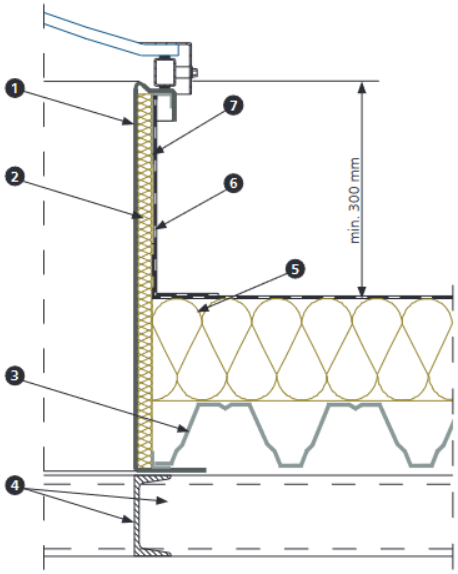


1.1..5 DETAILS FOR ROOF

- SUBSTRUCTURE FOR SMOKE FLAPS (AROUND THE OPENING FOR SMOKE HATCH)

Smoke vents on the roof will be placed. Each vent will be insulated and need supporting beams all around the opening. In structure of racks those openings must be consider.

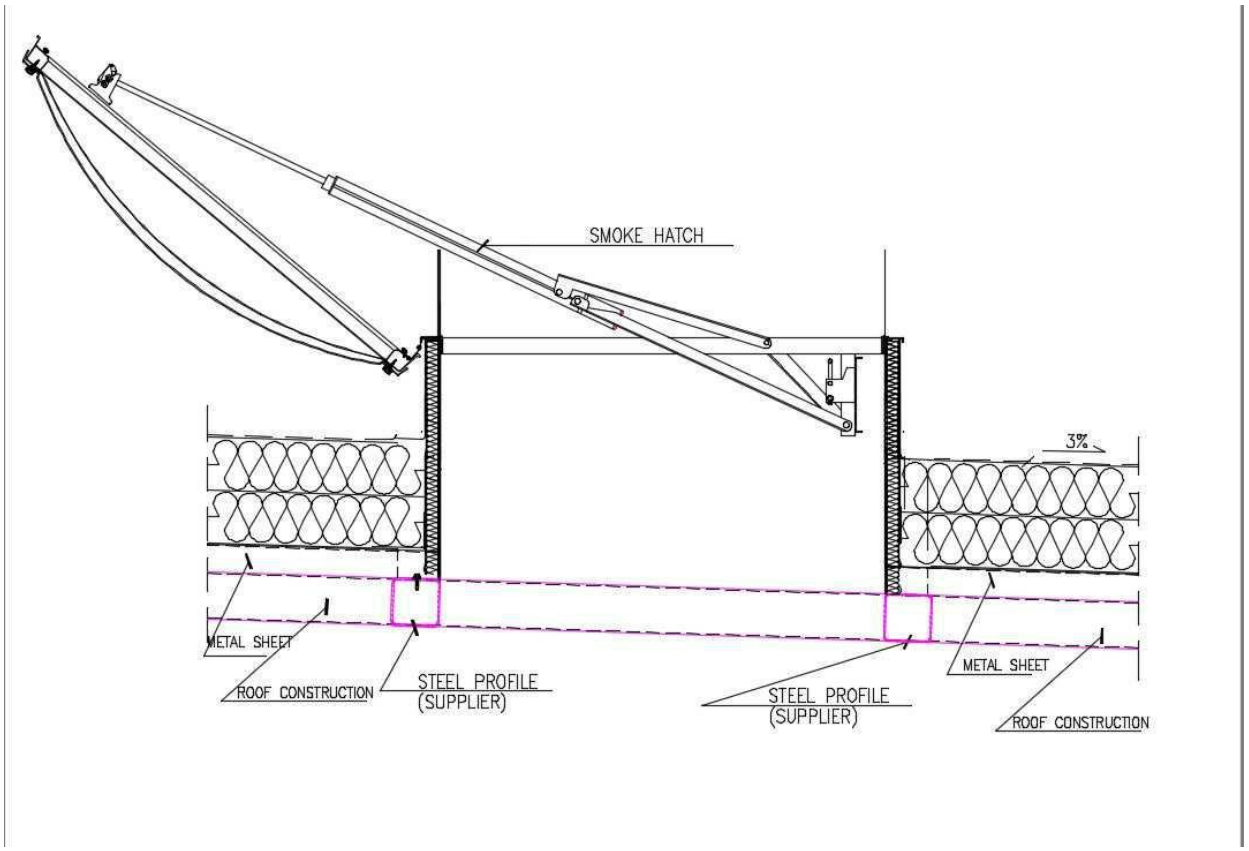
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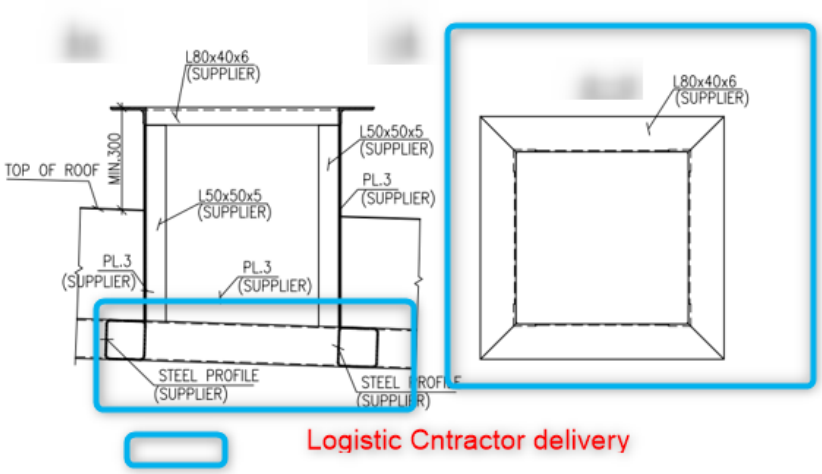
1 – podstawa stalowa klapy oddymiającej
2 – izolacja termiczna podstawy
3 – blacha trapezowa
4 – stalowa konstrukcja wsporcza np. płatew, wymian
5 – izolacja termiczna dachu
6 – folia PVC
7 – blacha powlekana folią PVC

In case of having higher base of the vent additional beams should be consider that would be a frame for the vent base.

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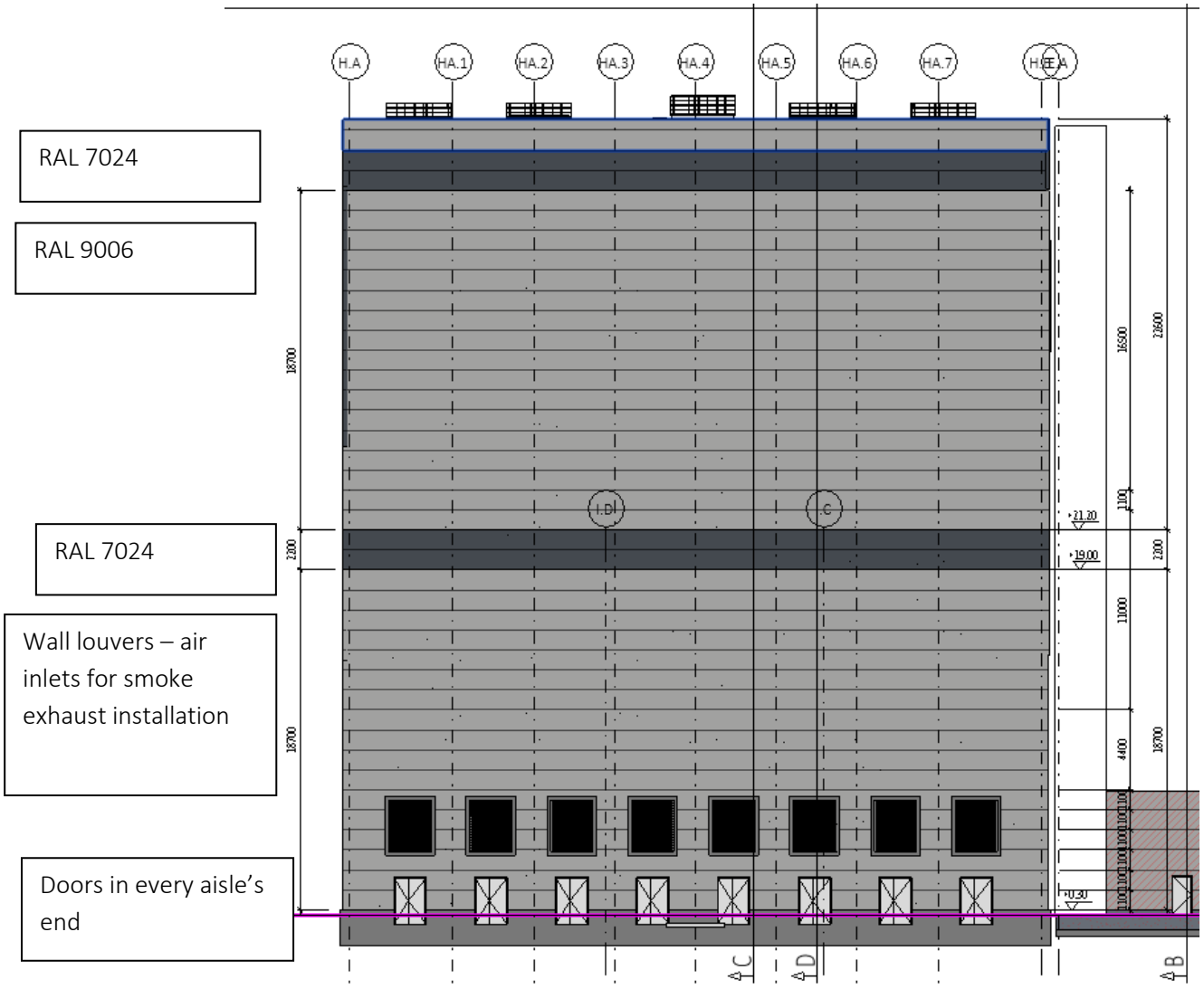
SUBSTRUCTURE FOR VENTILATION DUCT



WALLS

1.1..1 DESCRIPTIONS

Walls of the building will be made of sandwich panels with mineral wool core, thickness 200 mm, U<0,2 W/m2K. Color of the panels will correspond to the colors in existing buildings. It will be made of two colored elevations with divisions according to elevations drawings. Each panel shouldn't be shorter than 6,4 m (2x axis of the racks). Sandwich panels will be calculated as single span scheme. Contractor must assume during calculation different kinds of colors (light grey RAL 9006 and dark grey RAL 7024) what may cause different thickness of the steel plates covering the mineral wool core or distances. Panels will be mounted in horizontal arrangement. Width of the panels similar like in existing buildings – 1100 mm.



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1.1..2 PERMAMENT LOAD FOR WALLS

Non-structural components are elements associated with the construction.

Summary loads on sandwich walls			
Layers	Char. value g_k [kN/m^2]	Calculation factor. γ	Calculation value g [kN/m^2]
Sandwich panels gr. 200 mm with mineral wool core	0,280		
Sum:	**0,280**	**1,35**	**0,378**

1.1..3 LIVE LOADS FOR WALLS. - INSTALLATION

Load accruing from the installation on the wall.

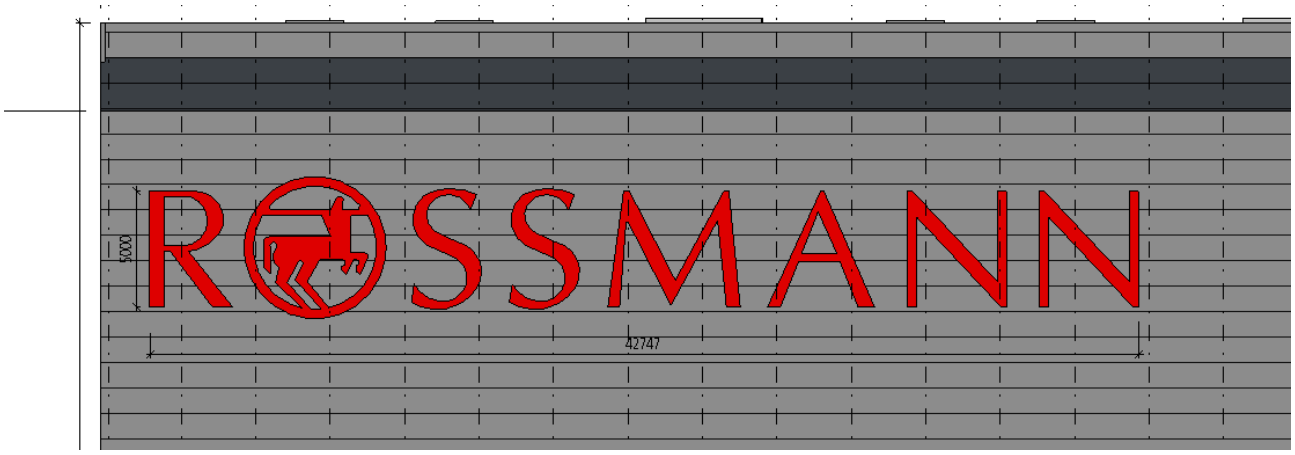
Vertical load q=0,5 kN/m^2

1.1..4 LIVE LOAD ON RACK WAREHOUSE – SPRINKLER

q=8kg/mb

1.1..5 LIVE LOADS ON WEST– LOAD OF „ROSSMANN" LOGO

Rossmann logo can be located west elevation on letf side the elevation . Size of letters circa 5 m high.



Q = 25 kg/m^2

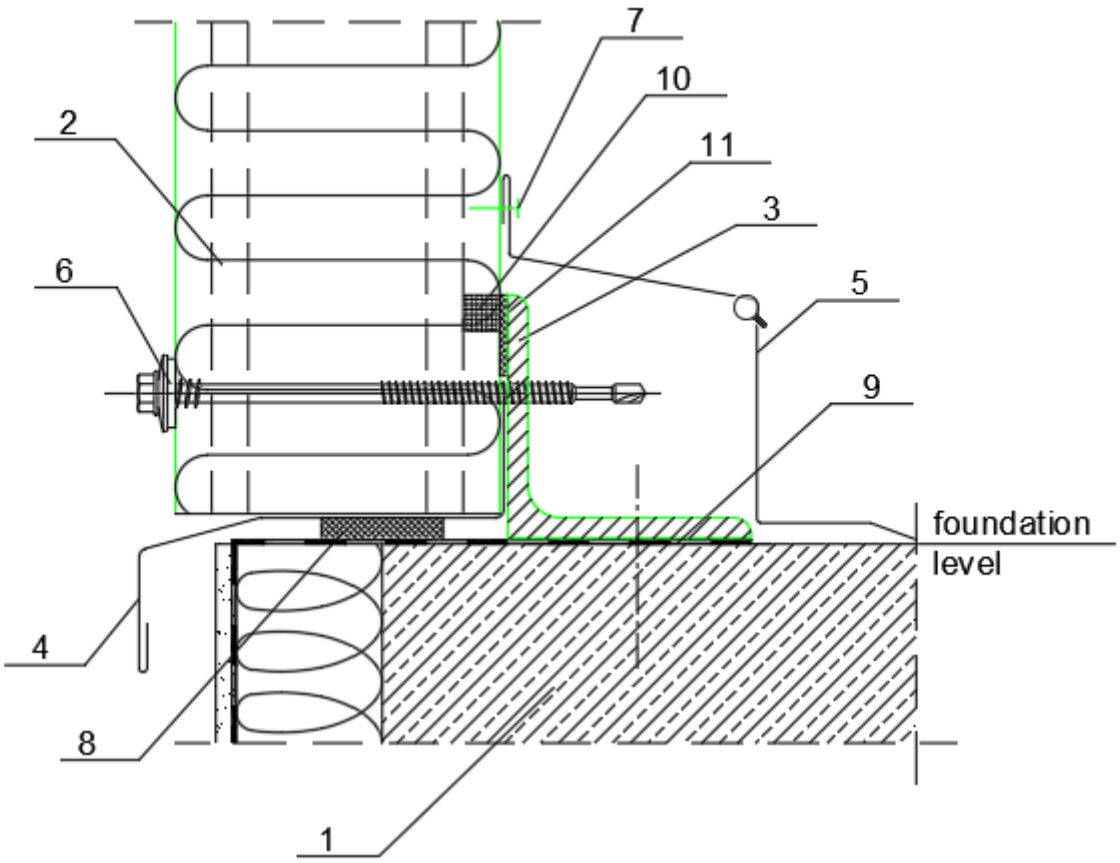
2.8..1 DETAILS FOR WALLS

- PLINTH DETAIL

around the building horizontal starting profile needs to be used for the sandwich panels .There will be two possible solutions of solving sandwich panel reference to the location of the plinth.

1. First one- more aesthetic and aimed to keep continuous vertical thermal insulation between concrete plinth and structure for sandwich panels as shown below:

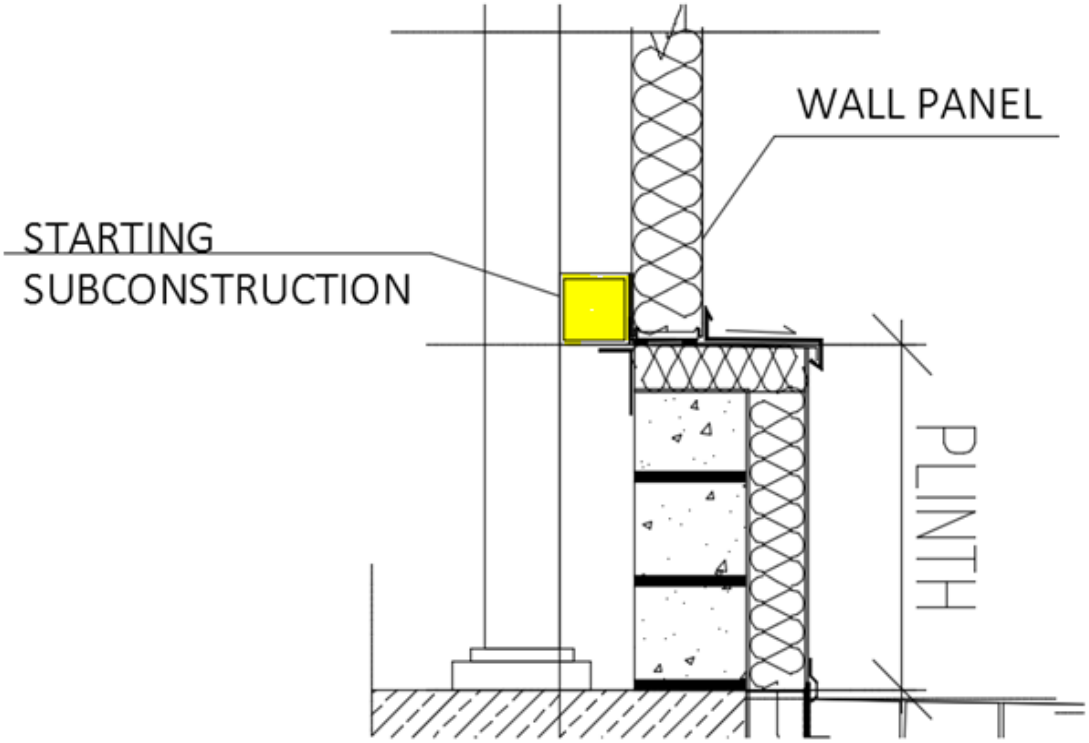
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1. Ground beam acc. to engineering design of the structure
2. Ruukki SPB100W, SPB120W, SPB140W
3. Socle sheeting rail acc. to engineering design of the structure
4. EA1B01 plinth flashing
5. EA1B02 plinth flashing
6. L01 fastener for hot-rolled sheeting rail or L02 for cold-bent sheeting rail
7. Steel rivet (every ~300 mm)
8. Impregnated polyurethane sealant
9. Horizontal insulation acc. to architectual design of the structure
10. Permamently elastic sealing compound in panel joint
11. 4x20 PU self-adhesive sealant

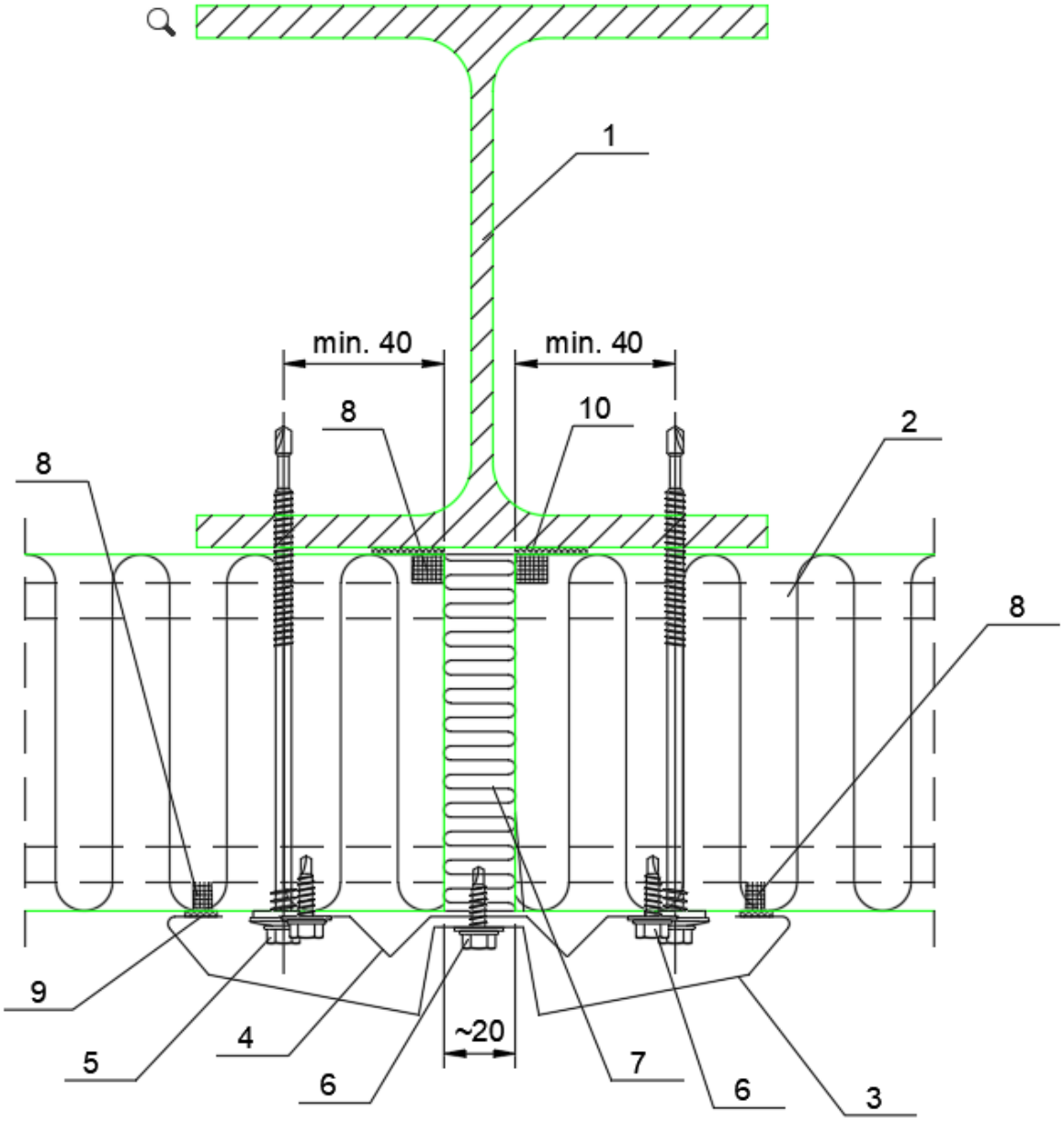
- Second possibility is to situate concrete plinth on the end of slab foundation and insulate it form the outside with mineral wool. In this solution it is important to add additional horizontal thermal insulation. Line of the plinth should be continuous around all connected buildings, and the height of the concrete part cannot be lower than 30 cm.

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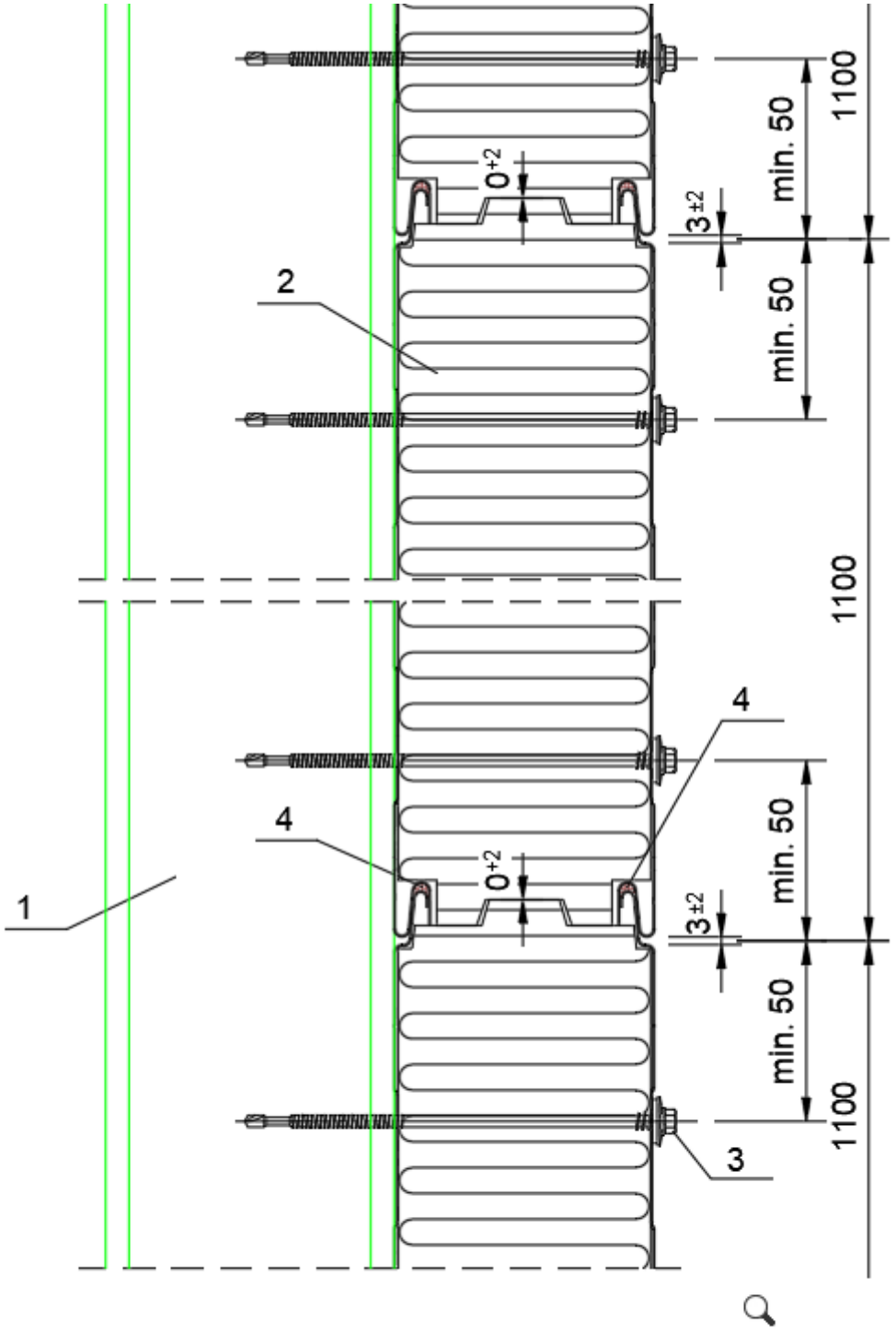
- REQUIREMENTS FOR HORIZONTAL PANELS MOUNTING TO STEEL COLUMN – PLAN VIEW



1. Steel column acc. to engineering design of the structure
2. Ruukki SPB100W, SPB120W, SPB140W
3. EA1B40 joint flashing (max. length of 3000 mm)
4. EA1B41 assembly flashing (L=100 mm, every ~300mm)
5. L01 fastener for hot-rolled sheeting rail or L02 for cold-bent sheeting rail
6. L03 fastener
7. Mineral wool in bulk
8. Permamently elastic sealing compound in panel joint
9. 4x10 self-adhesive sealant
10. 4x20 PU self-adhesive sealant

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MOUNTING OF HORIZONTAL SANDWICH PANELS IN SECTION VIEW



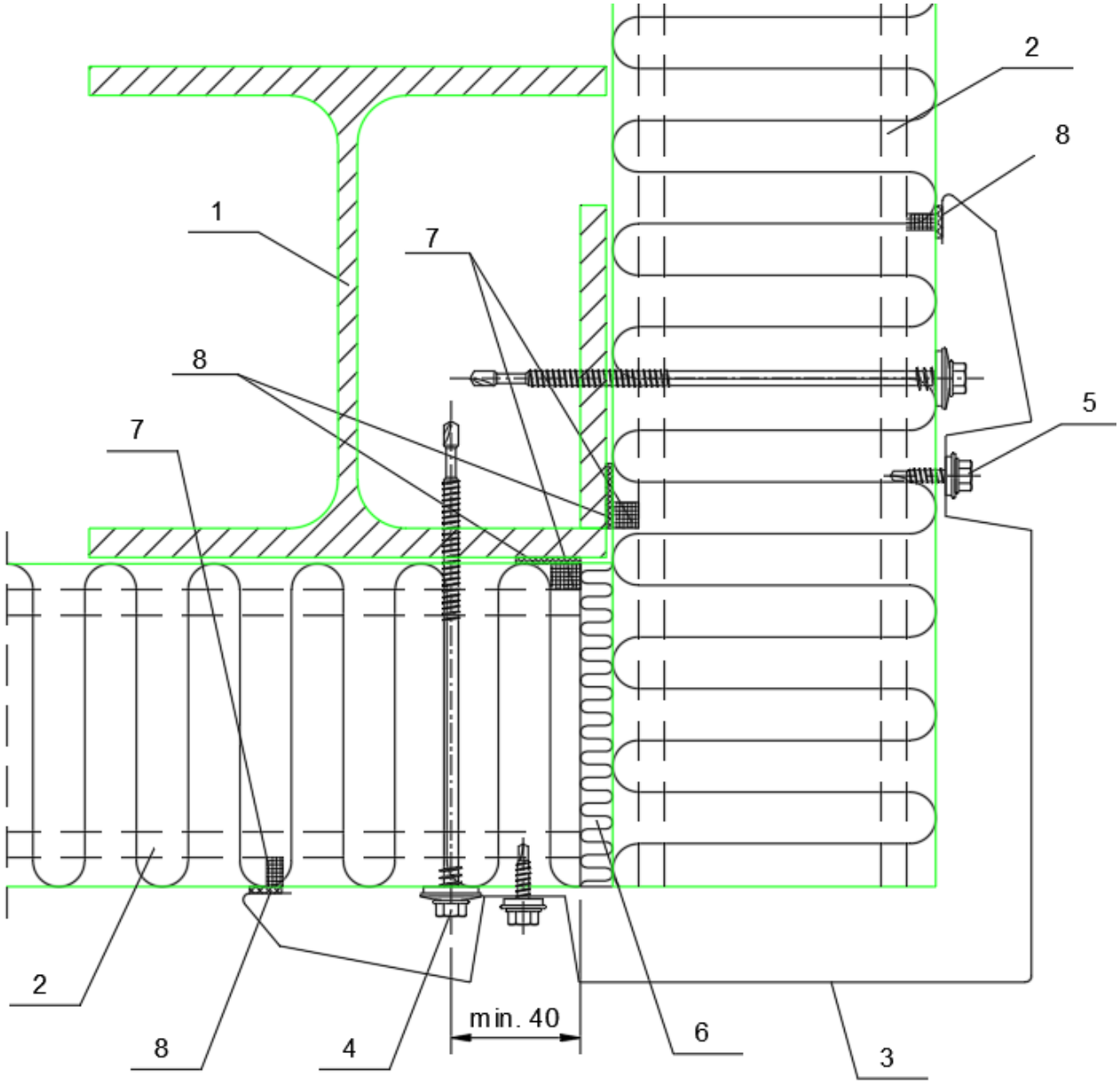
Ostatnie zapisanie

1. Steel column acc. to engineering design of the structure
2. Ruukki SPB100W, SPB120W, SPB140W
3. L01 fastener for hot-rolled column or L02 for cold-bent column
4. Butyl sealing compound

Niniejszy dokument jest własnością Gliwickiego Biura Projektów Budownictwa Przemysłowego PROJPRZEM S.A. Żaden fragment tego dokumentu nie może być zmieniany, reprodukowany lub przekazywany stronom trzecim w jakiejkolwiek formie bez pisemnej zgody GBPBP PROJPRZEM S.A.

ELEVATIONS CORNER

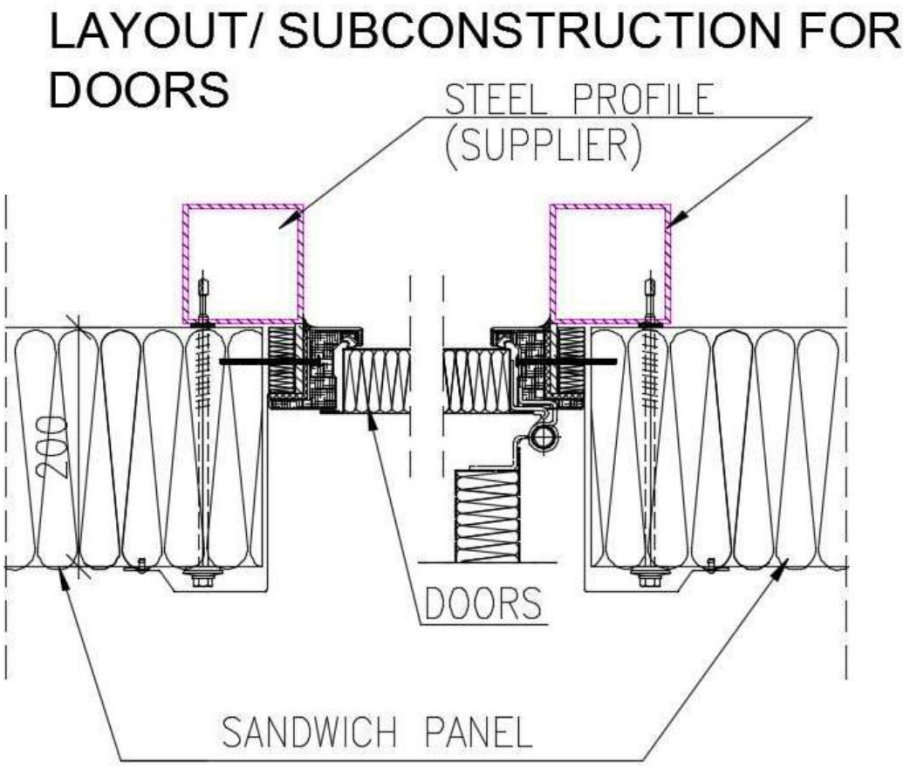
Bidder must take into consideration and assume in their quote additional profiles for corners to follow mounting detail like below:



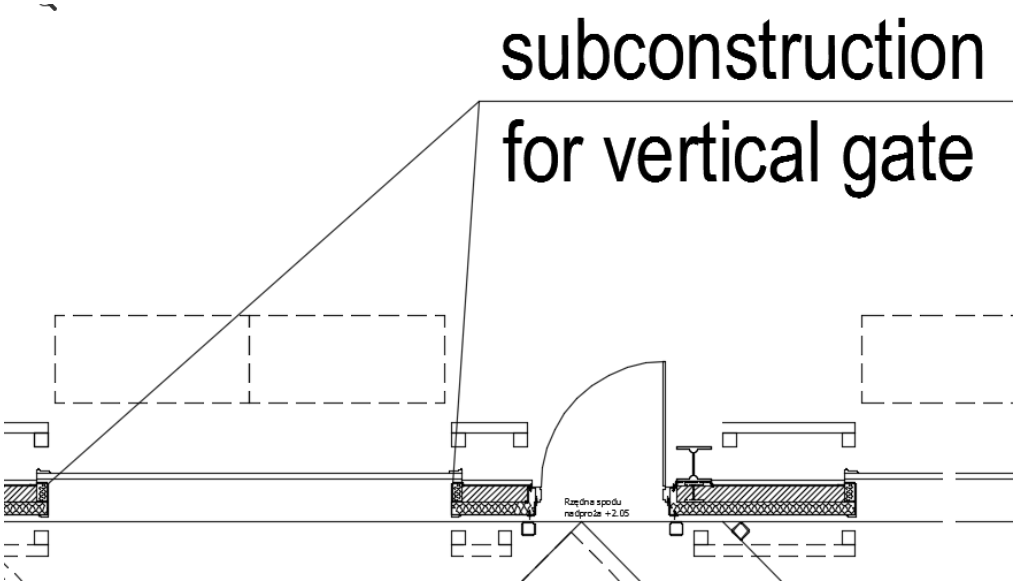
1. Steel column acc. to engineering design of the structure
2. Ruukki SPB100W, SPB120W, SPB140W
3. EA1B42 corner flashing (max. length of 3000 mm)
4. L01 fastener for hot-rolled column or L02 for cold-bent column
5. L03 fastener
6. Impregnated polyurethane sealant or expanding foam
7. Permamently elastic sealing compound in panel joint
8. 4x10 self-adhesive sealant
9. 4x20 PU self-adhesive sealant

Niniejszy dokument jest własnością Gliwickiego Biura Projektów Budownictwa Przemysłowego PROJPRZEM S.A. Żaden fragment tego dokumentu nie może być zmieniany, reprodukowany lub przekazywany stronom trzecim w jakiejkolwiek formie bez pisemnej zgody GBPBP PROJPRZEM S.A.

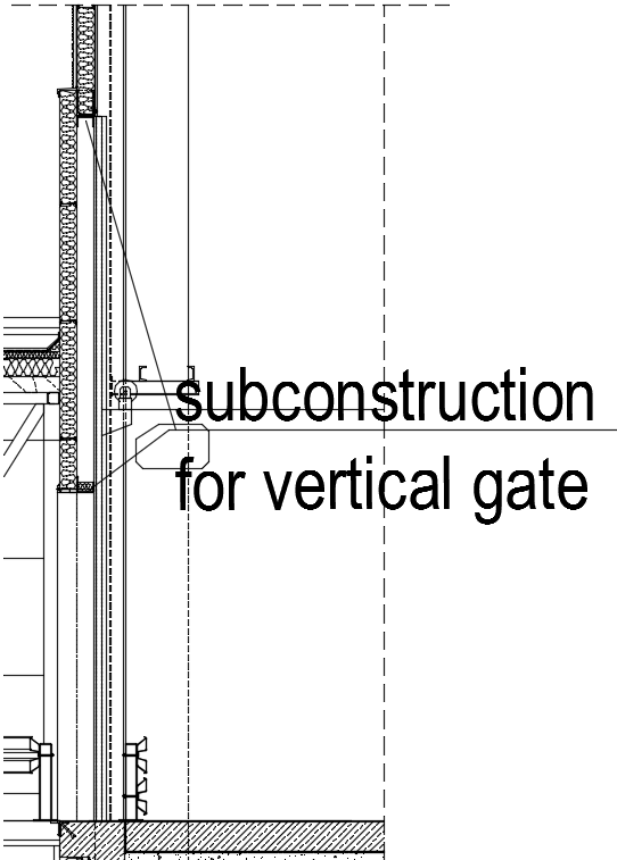
SUBSTRUCTURE FOR DOORS



SUBSTRUCTURE FOR GATES



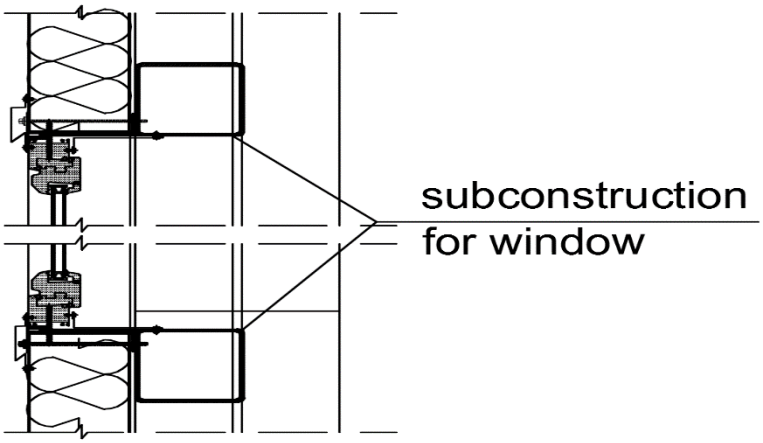
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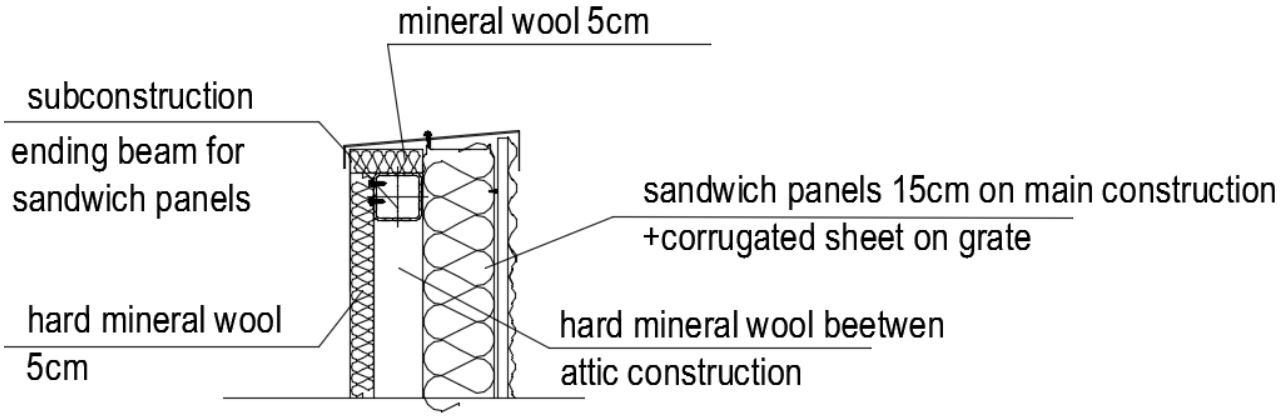
SUBSTRUCTURE FOR WALL LOUVERS

Niniejszy dokument jest własnością Gliwickiego Biura Projektów Budownictwa Przemysłowego PROJPRZEM S.A. Żaden fragment tego dokumentu nie może być zmieniany, reprodukowany lub przekazywany stronom trzecim w jakiejkolwiek formie bez pisemnej zgody GBPBP PROJPRZEM S.A.

SUBSTRUCTURE FOR WINDOWS AND VENTILATION LOUVER (IF DESIGNED)



SUBSTRUCTURE FOR ATTIC WALLS (VERTICAL AND ENDING HORIZONTAL ELEMENTS)

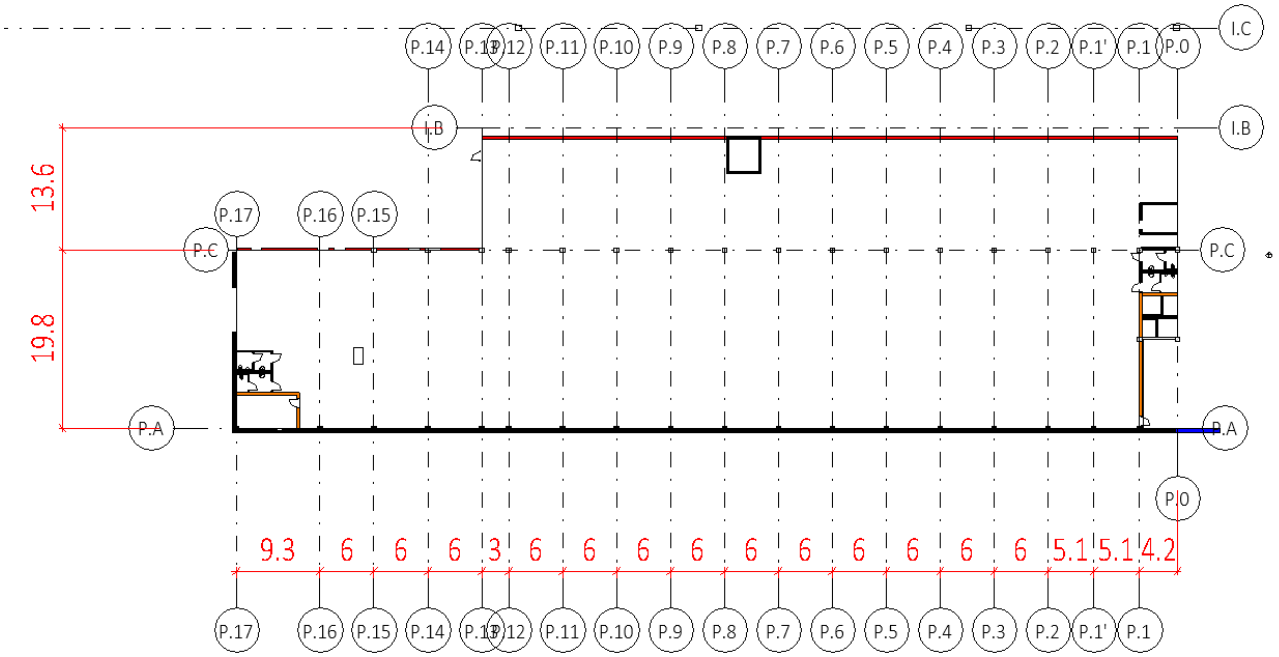


9. BUILDING RAP1 – REPACK

- STRUCTURE OF THE BUILDING

Building will be made of concrete columns and trusses. In the level +6,50 m columns are located according sketch below:

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Bidders preparing the solution for technology should take into account location of the columns.

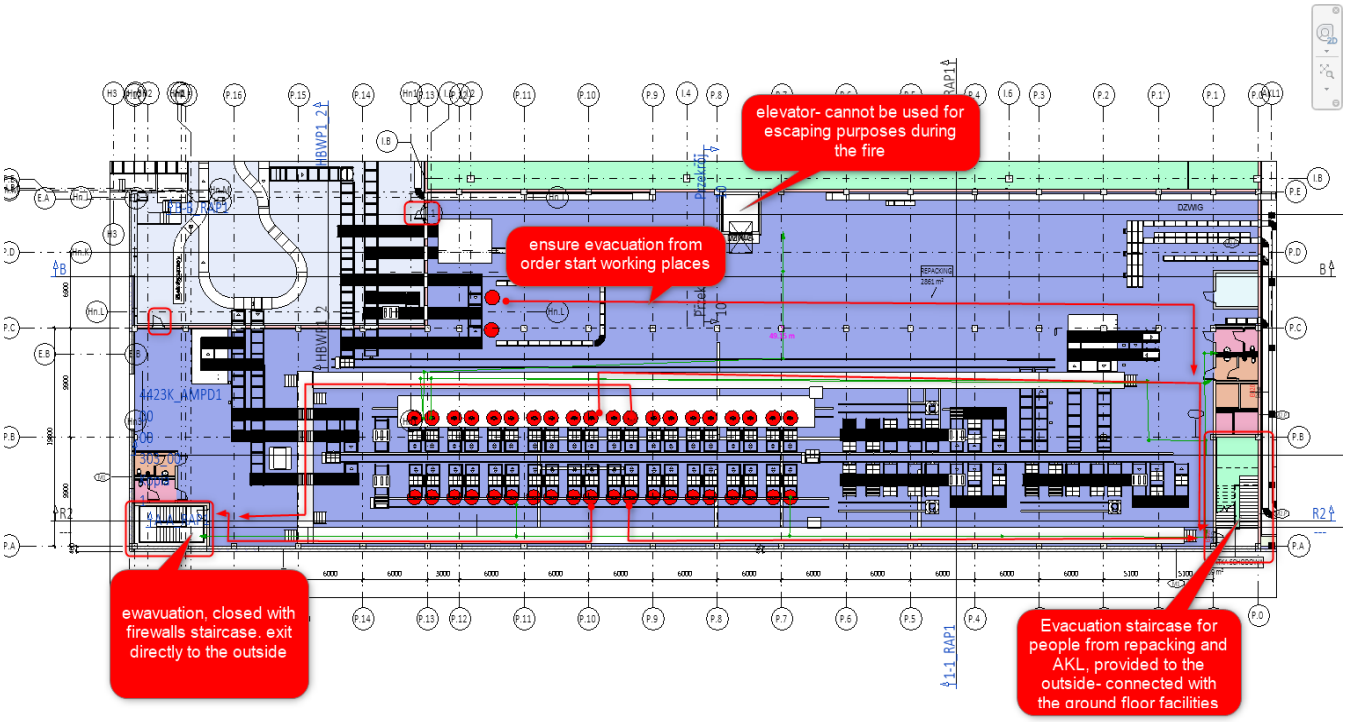
- DESCRIPTION OF THE BUILDING

Repacking building will be a 2-storey building located in west side of the plot. It will be technologically connected with lower part of and ADMP1 building. On the ground floor social rooms and boards press will be located. On the first floor on HBWP1level +6,50 m repacking installation will be provided. Structure of the building will be made of concrete with concrete trusses. Roof sloped 3% according drawings of the roofs.

Civil General Contractor will prepare the structure slab on the level +6,50 m. Slab is going to be made of precast hollow core slab panels with 10 cm thick layer of upper concrete. In top concrete layer anchoring will be possible but not further than 7 cm deep. In that solution mounting to the panels from the bottom is impossible.

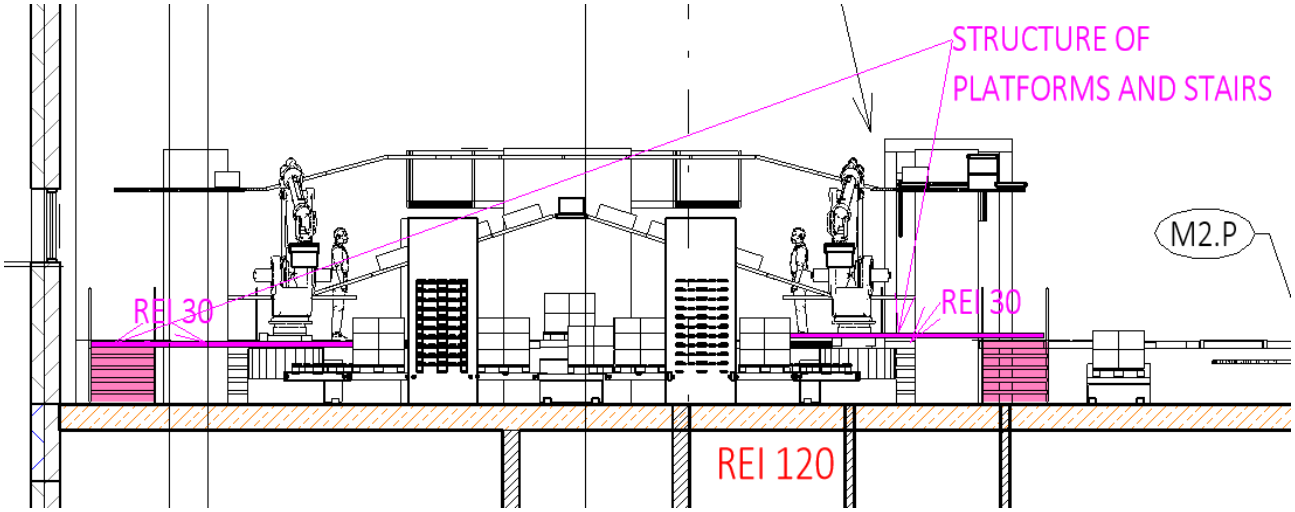
Due to the polish technical regulations according to new buildings, every platform located more than 20 cm above the main slab should be protected for at least 30 minutes (Rei 30). Finishing of each platform in that case should be made of non-combustible materials in class A1. That protection is necessary in every working place area and on the evacuation routes. Plan of evacuation of the people is shown in architectural drawings. Bidder must ensure evacuation routes in dimensions at least 1,4 m x 2,2 m according to Polish regulations. Every walk through the technology must ensure stopping of machinery to provide possibility of escaping people.

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WORKING PLACES

RAP 1 will be an area with permanent working places. Employees will be working on the platforms located circa 1,2 m above the concrete floor. Platforms are assumed to be fire protected for 30 minutes with finishing plates/ boards in class A1. To achieve appropriate length of evacuation (not longer than 107 m) and fulfill the requirement of having 2 separate evacuation ways from the room – 2 staircases are predicted. Staircases will be out of scope of the Logistic bidder, but the platform and stairs from platform to the floor are be a part of bidder's offer.



NATURAL LIGHTING

Logistic Contractor should be aware of the natural lightning in the room due to the polish regulation: every room dedicated for usage of people should have ensured natural lightning in amount 1/8 area of the floor.

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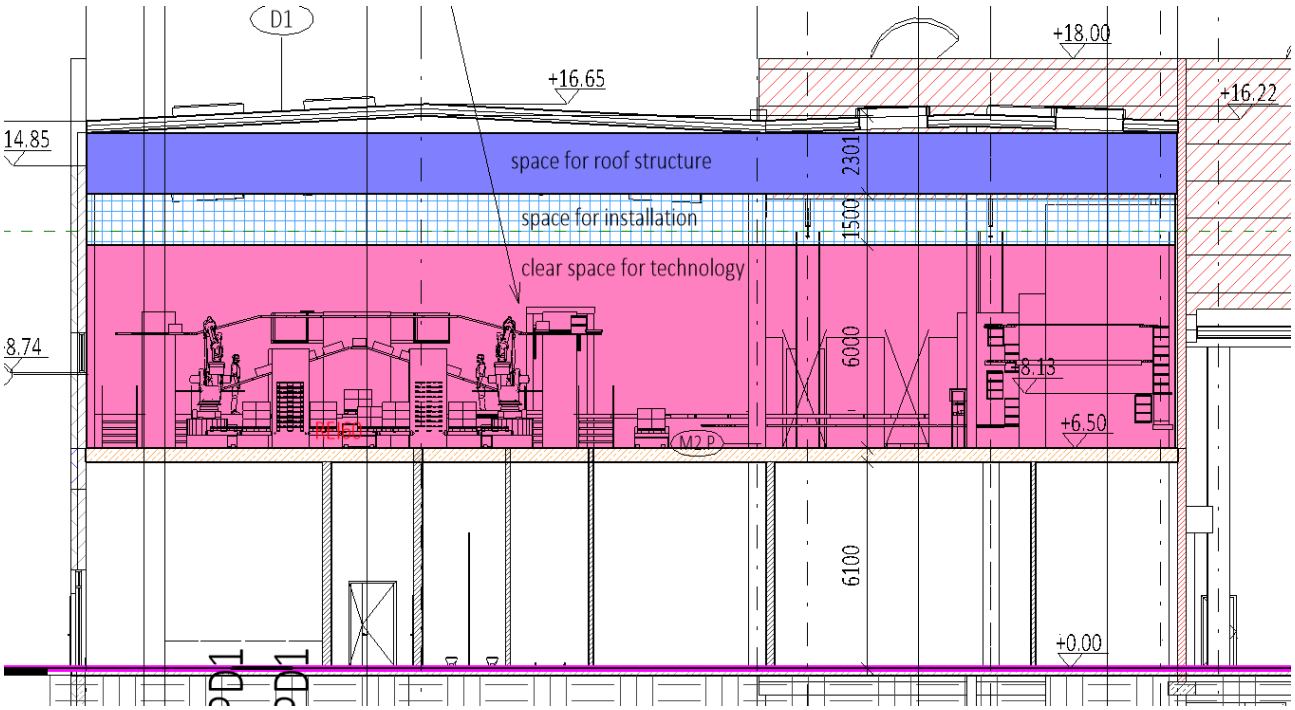
Based on that Building Contractor will mount in the roof skylights and glazing in the external walls, to fulfil that requirement.

avaiablilty of the social rooms incluDing toilets

As a permanent working place RAP 1 should have ensured access to the rest rooms according to Polish regulations that means no further than 75 m from the working place.

REQUIRED CLEARANCE HEIGHT

The clearance height of the second floor for technological needs is calculated as 6 m. Additional 1,5 m is predicted for providing building installations. The height of the repack building and lower part of HBWP1 will have similar height.



OBSTACLES ON THE TECHNOLOGY LINE

In case of providing technology similar to the solution given, it is necessary to provide the access to the elevator located near to the internal wall of the repacking building. Technology must ensure easy access to the elevator on the whole height of the lifts' door.

Logistic supplier must also ensure stopping the automation and creating possible walkway for evacuation purposes. Manual stopper should be predicted. Every stop of technology must be highlighted by voice or light alarm.

MOUNTING OF THE TECHNOLOGY AND PLATFORMS

In scope of Logistic Contractor is the anchoring of the technology and service platforms.

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PROTECTION OF THE TECHNOLOGY

All protection barriers should be made according to Polish and European standards and regulation. Robots should be equipped with net above the walking passages to protect against the falling elements and injury of the people.

10. AMDP1 BUILDING – PICKING GALLERY

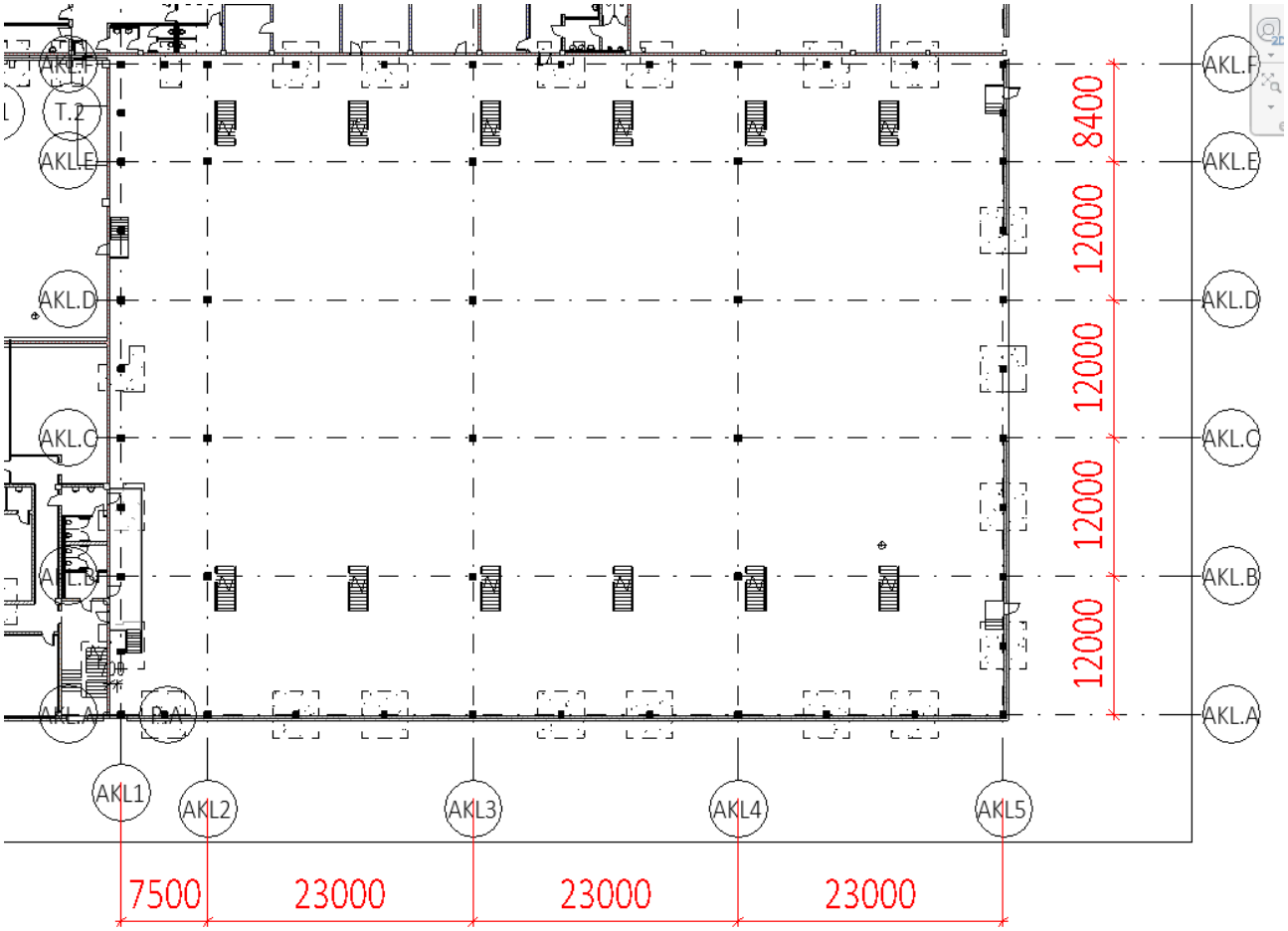
DESCRIPTION OF THE BUILDING

AMDP1 will be located in southern part of the plot near the border with the local road. AMDP building will be straight, rectangular shaped solid with attic walls height less than 20 m, according to the local regulations. The ground floor level for that building is assumed on level -1,50 m according to the 0 level. Nevertheless due to the terrain shape the natural slope of the plot will be used to create access to the building without additional external stairs.AMDP1 is, according regulations, one storey building with technology inside. Due to the fact of multilevel mezzanine ministry derogation is needed. To name building as 1 floor building the mezzanines cannot have footprint in the same shape as ground level. Consequently Bidder must assume opening in the structure to create smaller space than the basic level.

STRUCTURE

Structure of the building will be made of concrete columns and trusses. The axes of the building are already placed and Logistic Contractor should match to the space given. In vertical distance between axes is 23 m, in opposite site 12 m as shown below:

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GROUND FLOOR SLAB

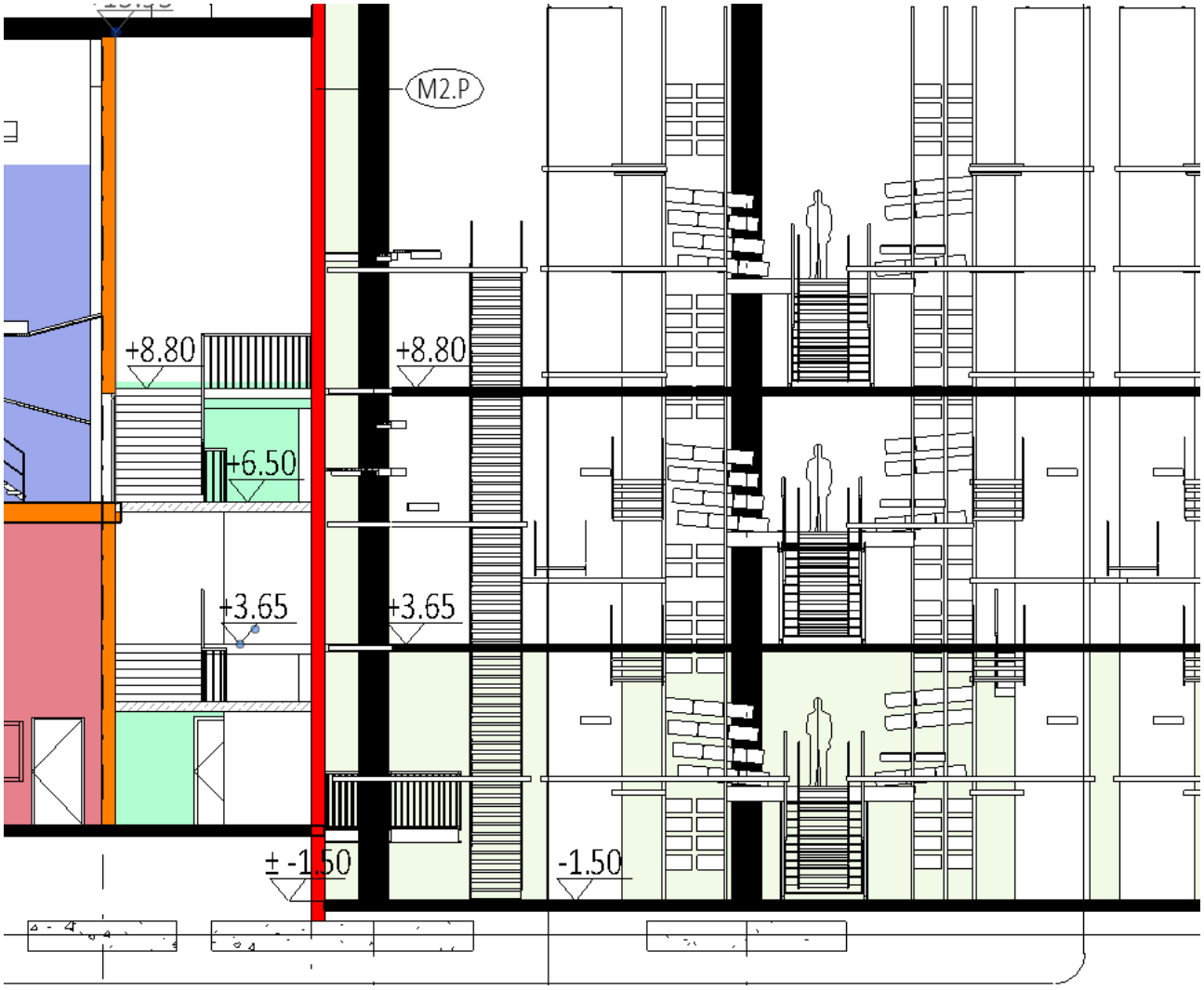
In scope of civil general contractor reinforced slab will be prepared. Due to the architectural design finished ground floor slab will be on level -1,50 m I accordance to the 0.00 of the new buildings. The thickness of the slab will be circa 26 cm. In ground floor slab floor heating will be placed. All structure in Logistic Bidder scope will be anchored not deeper than 14 cm.

WORKING PLATFORMS

AMDP1 will be a working place for over 70 employees during every shift. Now it is assumed 3 levels of picking, which are connected with external, fire protected staircases. Change of the leveling is possible but it must be coordinated with Building Contractor while changes in technology platform should correspond to the level of staircases landing to ensure evacuation from the building and access to the canteen.

Levels assumed for communication with other parts of building including connection to the staircases: -1,50 m, +3,65 m; +8,80 m.

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Finishing of the platforms, where people will be working should be made of material in class A1 (non-combustible) .

Access to the working platforms should be foreseen by the steel stairs, which fulfill requirements of Polish regulations: width between railing min. 1200 mm (clear width), Hight steps: max. 175 mm, cover formula 2H+s= 60:65 cm; s= depth of step, H=Hight of step.

NATURAL LIGHTNING

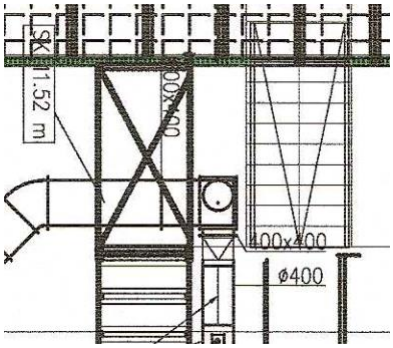
Logistic Contractor should be aware of the natural lightning in the room due to the Polish regulation: every room dedicated for usage of people should have ensured natural lightning in amount 1/8 area of the floor. Based on that Building Contractor will mount in the roof smoke vents or skylights and glazing in the external walls, to fulfil that requirement.

BUILDING INSTALATIONS

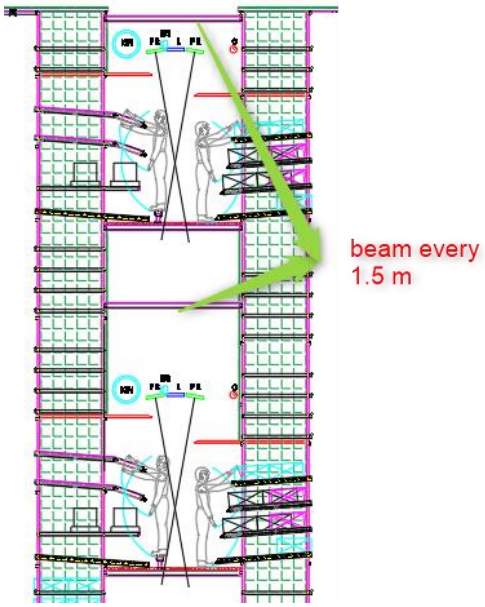
AMDP1 building will be equipped in installations: sprinkler, smoke exhaust, building ventilation, heating and air conditioning. Ventilation installation must be delivered to the bracing towers in every aisle. Logistic contractor should ensure possibility of delivering installation, that means the place and additional beams for hanging installation in every 1,5 m of the duct's length in vertical direction needs to be assumed.

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Below reference solution:

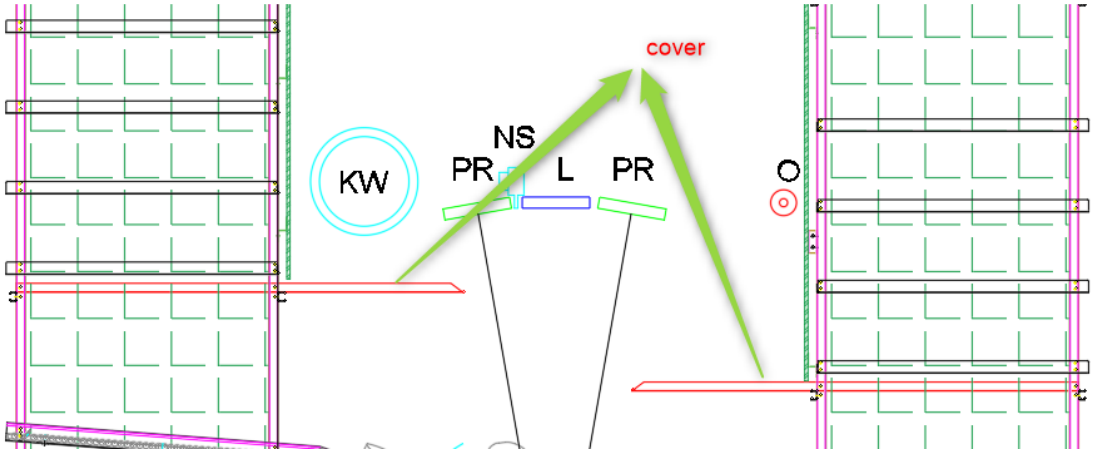


In every aisle installation will be provided. Every 1,5 m of the aisle Logistic Contractor must predict additional beams for mounting the pipes, ducts, lightning and cables trays. Detailed design during execution phase. Below reference solution is shown.



Every aisle must be equipped with covers, which is the demand of fire protection authority and insurance company to avoid spreading of the fire. Cover must be located on the whole length of the rack .

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GENERAL STRUCTURE REQUIREMENTS

Structure of the ADMP1 racks which will built evacuation paths especially supporting elements, which takes all the loads given, should be designed to achieve mass factor like : mk<2[m-1]

Mass factor is calculated according to formula:

$$m_k = \frac{S}{V}$$

where:
V – volume of the structure element;
S – profile area of the structure element

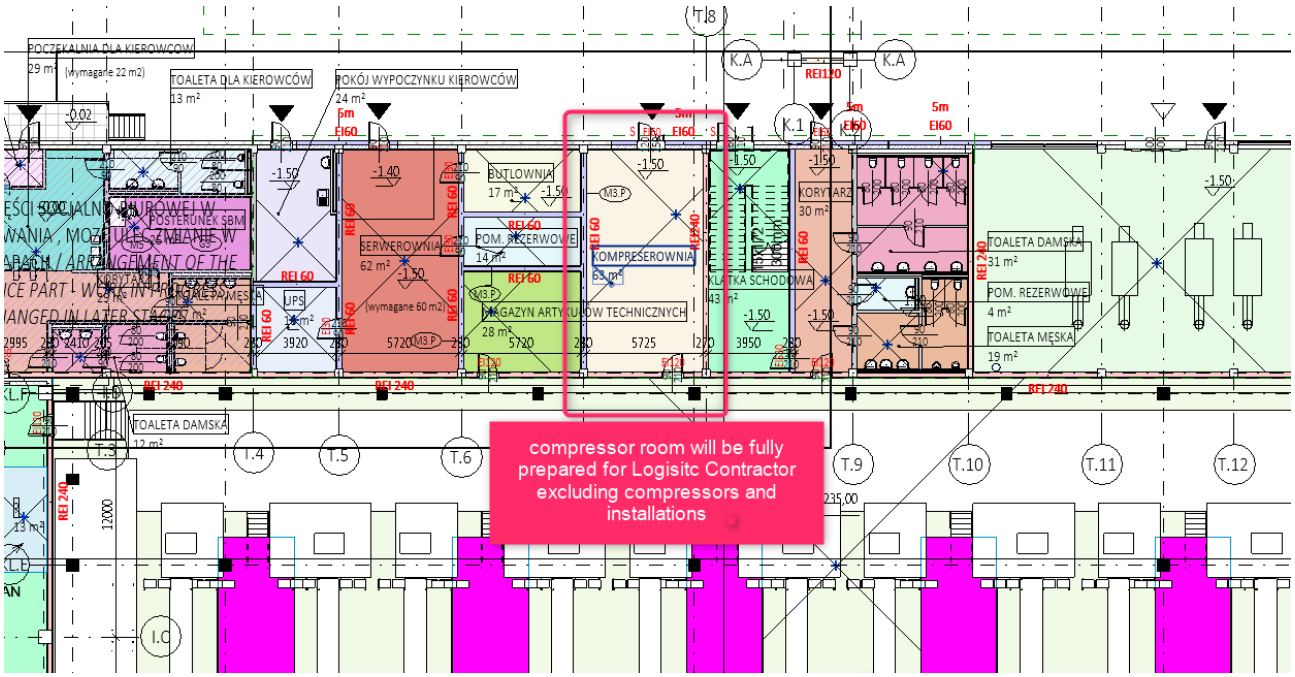
ADDITIONAL REQUIREMENTS FOR THE RACK STRUCTURE

Logistic Contractor should prepare calculation of the structure damage and provide it to the Building Contractor. Calculation will be used for derogation purposes for checking time of evacuation needed. Anchoring of the structure is in scope of Logistic Contractor. All open platforms should be protected with the barriers of height of at least 1,1 m and the toeboard near the floor. All structure – stairs must follow Polish regulations fg. Hight of the steps, width, reference width to the height of the steps.

COMPRESSORS ROOM

Building Contractor will prepare a dedicated room if Logistic Contractor's installation required compressors. It will be located close to the AMDP1 room in lower, made of masonry part of the building:

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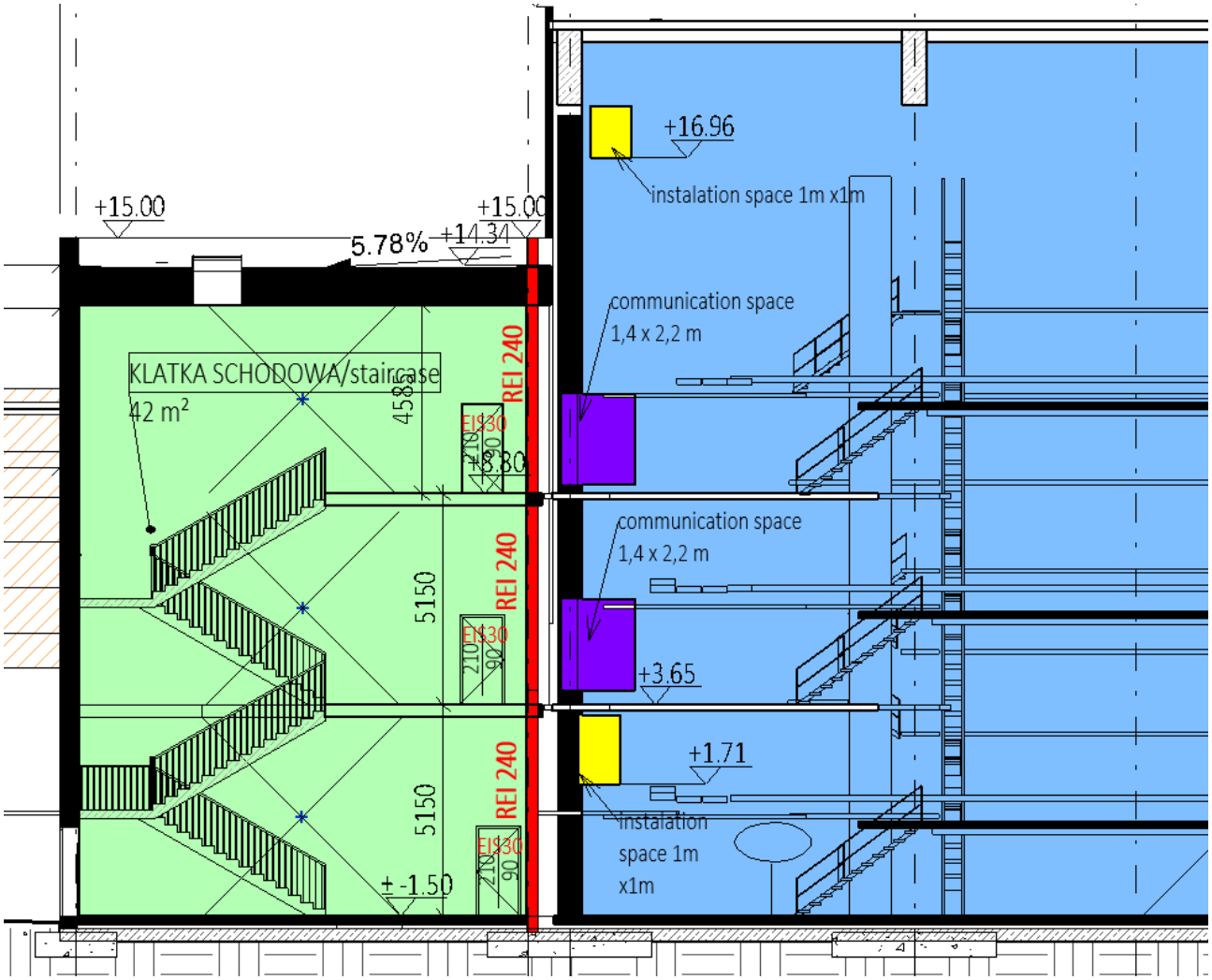


Room will be finished in with wall finishing, floor, doors but the equipment and installations connected to the pressured air installation will be in scope of Logistic Contractor.

SPACE FOR BUILDING INSTALLATIONS

Logistic Contractor should follow indication about space needed near the technical building for providing building installation under the roof and under the level 0.00 – place for heating installations routed from boiler room. Place for installations indicated in yellow rectangles below.

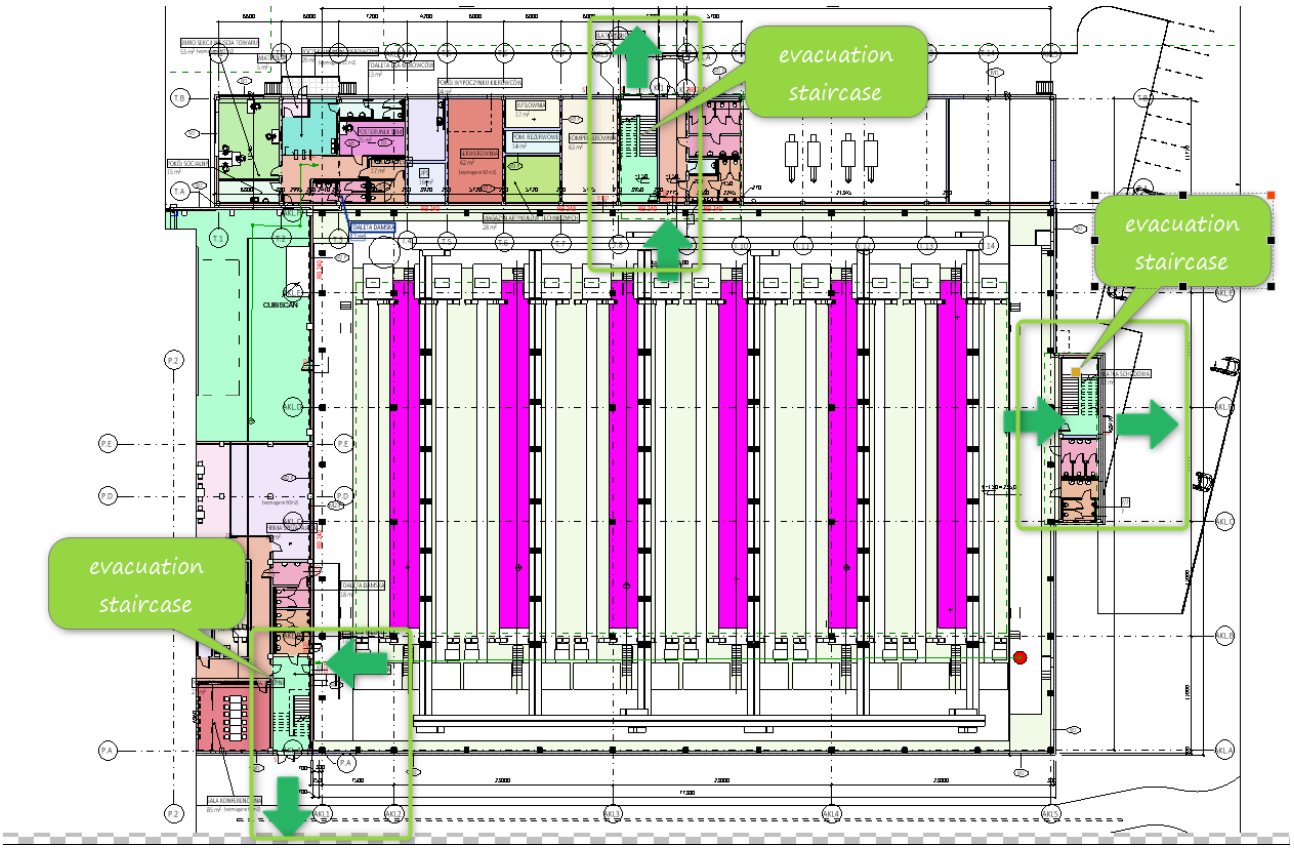
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EVACUATION OF PEOPLE

Employees will use 3 staircases located around the AMDP1 building. All staircases will be separated with fire protection walls. Possible length of evacuation route inside the building to the staircase cannot be longer than 150 m. Logistic Contractor should ensure the safety passage for people to the external staircases and facility rooms at least in size; 1,4 m width and 2,2 m height.

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11. GTP BUILDING – TRANSPORT GALLERY

2.11..1 DESCRIPTION OF THE BUILDING

Transport gallery will be a rectangular, linear building, which will be a connection between existing building and new one. The floor of the building will be located of the finishing level +6,50 m. The thickness of the concrete structure be according to civil part. The clearance height under the bridge cannot be lower than 4,5 m according to Polish regulations. Gallery creates separate fire zone, which will be equipped with sprinkler and smoke exhaust installation. In external walls of the bridge glazing will be mounted as shown in elevations' views. All firewalls will be created for 240 minutes resistance.

Civil general Contractor will prepare the slab for transport gallery. It is assumed to be 18 cm thickness floor slab with heating installation mounted inside. From the outside slab will be insulated with the sandwich panels. The top level of the slab will be located on the level +6,50 m.

Technology should be mounted directly to the prepared slab with the anchors not deeper than 12 cm.

It is impossible to assembly the technology to the different structure elements beyond floors and slabs.

REQUIREMENTS FOR CELARANCE HEIGHT

The clearance height of the transport gallery cannot be less than 4 m. The width of the gallery is assumed as 12 m between internal edges of supporting columns.

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EVACUATION REQUIREMENTS

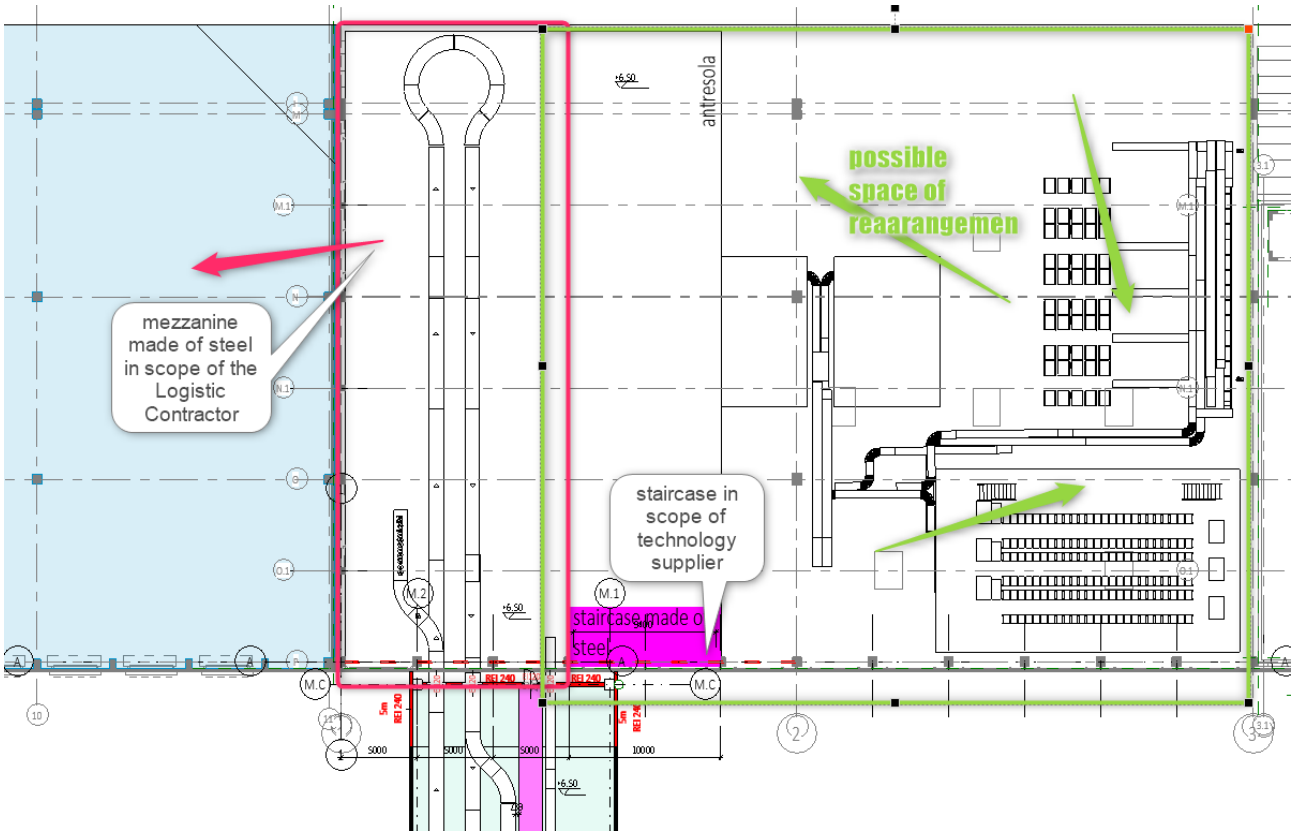
As described in technological part of specification inside the bridge different sorts of conveyors will be assembled. In case of maintenance, it is obligatory to save the space of 1,4m x 2,2 m all along the gallery for service issue. Service personnel would get to the bridge using the steel staircase in existing building (steel staircase in scope of Logistic Contractor) and get to the inbound area in new complex using protected with firewalls staircase. The second staircase, located in HMP3 building is out of scope of the technology supplier.

12. HMP1- EXISITNG BUILDING

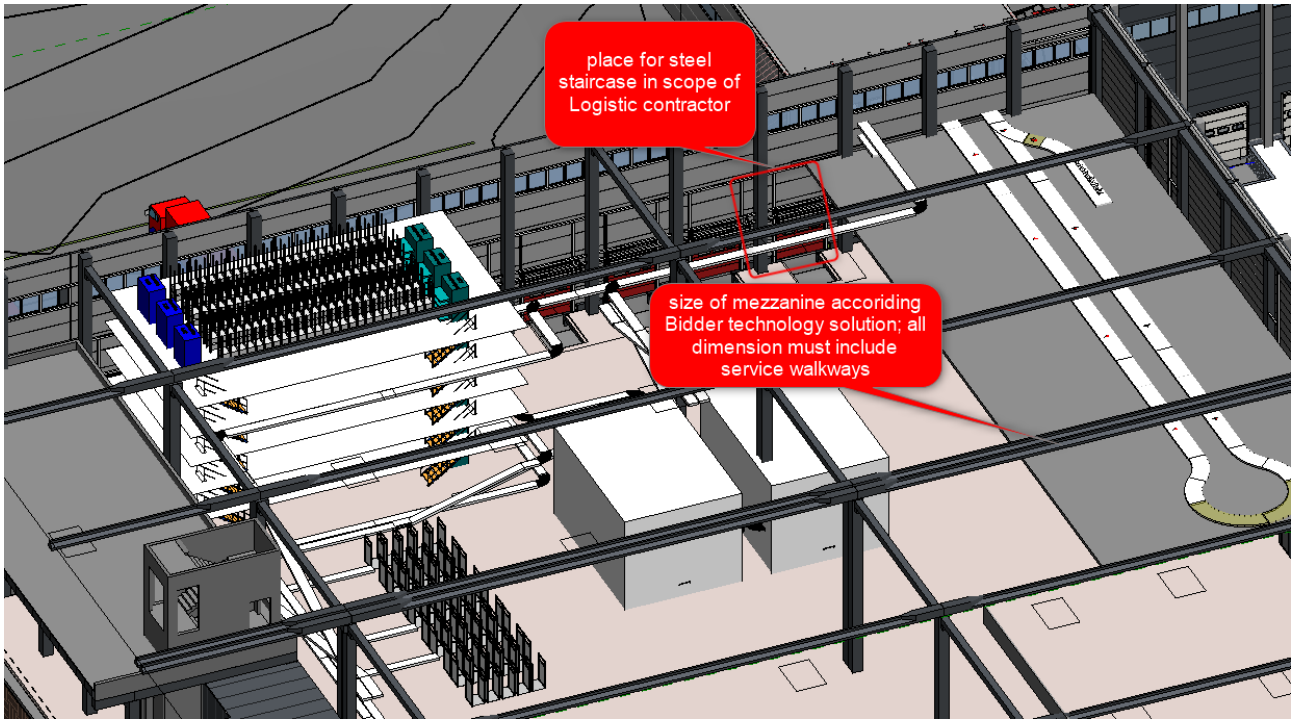
DESCRIPTION OF THE SCOPE

In existing building Logistic Contractor should provide part of technology and the mezzanine which will be located on level +6,50 m as indicated in the transport bridge and lower part of HBWP1. To ensure the access to the mezzanine and bridge logistic bidder must calculate and find a place for steel staircase according to Polish regulations. Mezzanine should be made of steel. Additional required activities to prepare the space for the mezzanine are also in scope of Logistic Contractor, excluding building works and necessary adjustments.

There is no requirements for fire resistance for new building elements like slabs and columns due to the existing sprinkler and smoke exhaust installation inside the building.



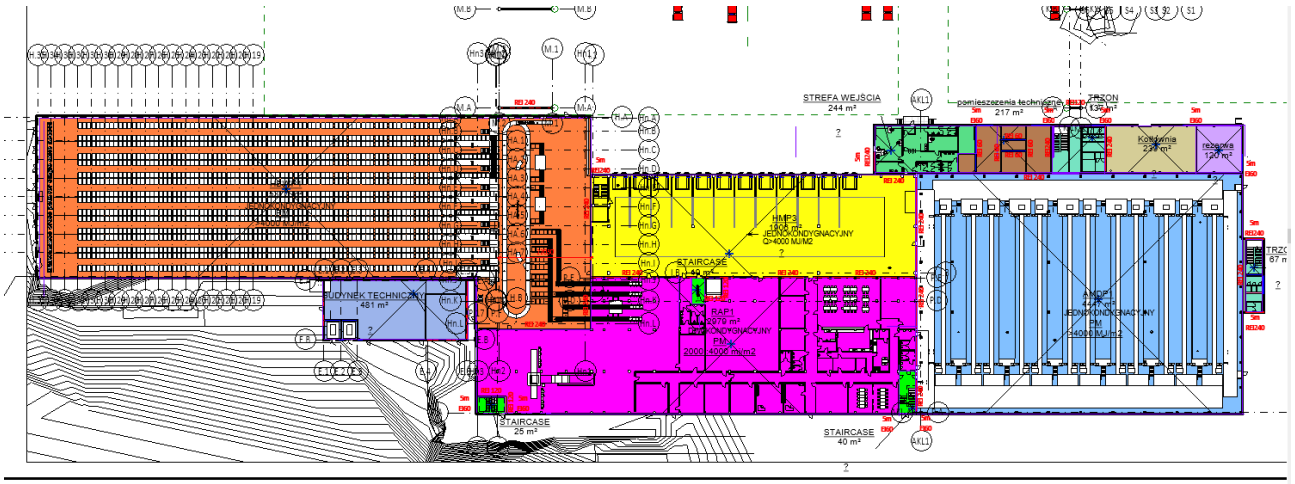
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13. FIREPROTECTION OF THE BUILDINGS

FIREZONES

According the area and the fire loads of the parts of the complex fire zones are indicated like shown below:



Ground floor:

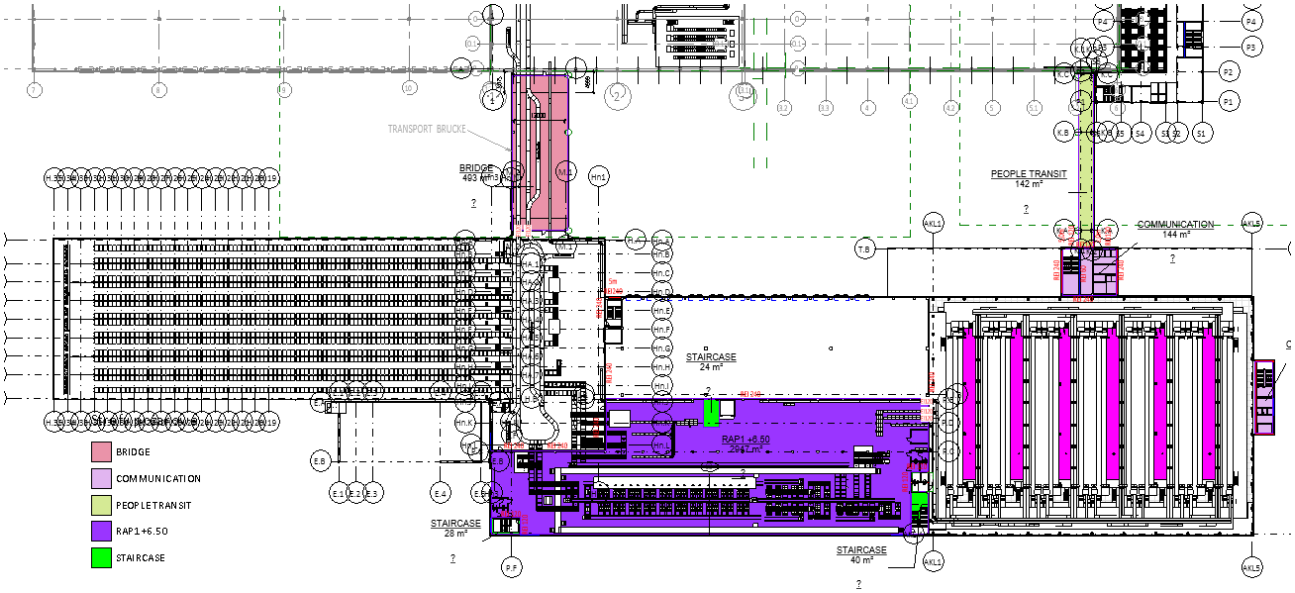
1. Fire zone: HBWP1 building (higher and lower part)- structure made of steel; fire load more than 4000 MJ/m2. Class of the building A decrease to the “E” class due to providing sprinkler and smoke exhaust installations; Smoke extrusion will consist of smoke vents in the roof, wall louvers for air inlets. It will be checked during execution design if mechanical smoke exhaust installation is needed; in case of mechanical installation Logistic bidder must calculate structure for smoke fans etc. as obligation;
2. Fire zone: RAP 1 – divided for 2 zones (1. In the ground floor, second in the first floor);each zone fire load will be calculated 2000-4000 MJ/m2 sprinkler installation is provided; possible size of each zone

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4000 m2; in those zones any smoke extraction installation is assumed; every fire protection wall will have fire resistance for 120 minutes;

3. Fire zone: AMDP1 – firezone with fire load over 4000 MJ/m2;zone will be equipped with sprinkler installation and smoke extraction installation; choosing the best way of smoke installation will take place during execution design; in case of gravity smoke vents on the roof will be located; in case of mechanical exhaust system Logistic Contractor should assume additional structure for smoke fans;
4. Fire zone: HMP3 INBOUND area; separate one storey building with the fire loads more than 4000 MJ/m2; equipped with sprinkler installation and smoke extraction installation;

First floor (level +6,50 m), division for fire zones:



1. Second floor of repack RAP1- fire loads up to the 4000MJ/m2; sprinkler installation; lack of smoke extraction installation; fire partition in REI 120; partition in borders of building with the fire loads above the 4000MJ/m2 – REI 240.
2. Fire zone: GTP1 – transport gallery; fire partition in the end and on the beginning of the bridge; Sprinkler installation and gravity smoke exhaust installation are assumed;

SMOKE ZONES

Smoke exhaust calculations are based on NFPA norm. According to that norm only HBWP1 zone will be naturally divided for two smoke zones on the border of the lower and higher part. Additional division for smoke zones will be provided for the inbound area, which is out of scope of Logistic Contractor. Rest of the building wouldn't be divided for smoke zones.

OPENNINGS IN FIREWALLS

Required class and scope of delivery is shown in architectural drawings. All required protection of the opening in fire walls that are dedicated for technology are in scope of Logistic Contractor. Logistic Contractor should take into account all regulations according polish law – 15% of the firewall can be perforated with protected openings. All covers in firewalls should be at least in 1 stage lower class than the wall f.g: in wall REI 240 Logistic Contractor must predict opening protection for EI120. All fire resistance protections, sealings should be used based on Hilti products as Investor indication.

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2.13..1 FIRE GATES AND OTHERS PARTITIONS

Logistic Contractor will deliver every gate, door or other protection that will be placed in fire walls and will be also for technology needs fg. Openings for conveyors in fire wall should be covered in case of fire with fire protection gate etc. Location of the fire partition is shown in architectural scope. Size of opening according requirements of technology. Type of gates, material, producer should be confirmed by an Architect and fire Authority before purchasing and fulfil all certification required (Material Acceptance Form needs to be submitted). The task of such protection is to be closed during fire, after impulse of alarm. In case of alarm, automation must stop and technology devices should get to the safety position to confirm possibility of closing the opening. All closures in firewalls must be added to the building fire alarm installation (SAP).

Openings in fire protection slab:

In RAP 1 slab opening for carton press is assumed. Slab is designed as fire partition for 120 minutes (REI 120). Opening must be covered for 60 minutes. Logistic Contractor will prepare solution for protection of opening and will wait for acceptance from the Architect and Fire Authority.

EVACUATION OF THE PEOPLE

Schame of the evacuation of employees is shown in architectural drawings. It is obligatory to ensure the evacuation in the routes given without any technological obstacles. In case of placing technology on the people passage Logistic Contractor should prepare solution that will fulfill requirement to be removed from the way during evacuation. All needed devices to plan such automation is in Logistic Contractor delivery. Solution found must be confirmed by an Architect and Fire Authority.

FIRE SCENARIO REQUIREMENTS

Fire scenario will have been started during execution design. Basic requirements for technology is to:

- Stop all devices including conveyors and shuttle cranes during II. Stage fire alarm;
- Close all gates and enclosures delivered by technology

14. GENERAL INDICATIONS

- We reserve the right to change the guidelines during the execution design and building permit design
- All electric cabinets that are provided to feed technology must be prepared for mounting smoke aspirating sensors by the sprinkler supplier;
- Logistic contractor will design technology in such way that all loads will be added to the slabs and floors. To fulfill that requirement all supporting structures for technology are in scope of Logistic Contractor (Logistic Contractor). It is not allowed to hang any supporting structure to the structure of the buildings HMP3, RAP1, ADMP1, GT including roofs, building columns or walls. Dynamic loads cannot be attached to any building structure such as walls and columns. Occasionally in detailed places few loads can be attached to the walls but it is necessary to confirm it with Building Contractor in phase of building design.
- Structure of the HBWP1 (both lower and higher part) should be in a distance from the rest of the buildings- expansion joints should be predicted. Structure of the HBWP1 cannot put any impact on the other building's structures.

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