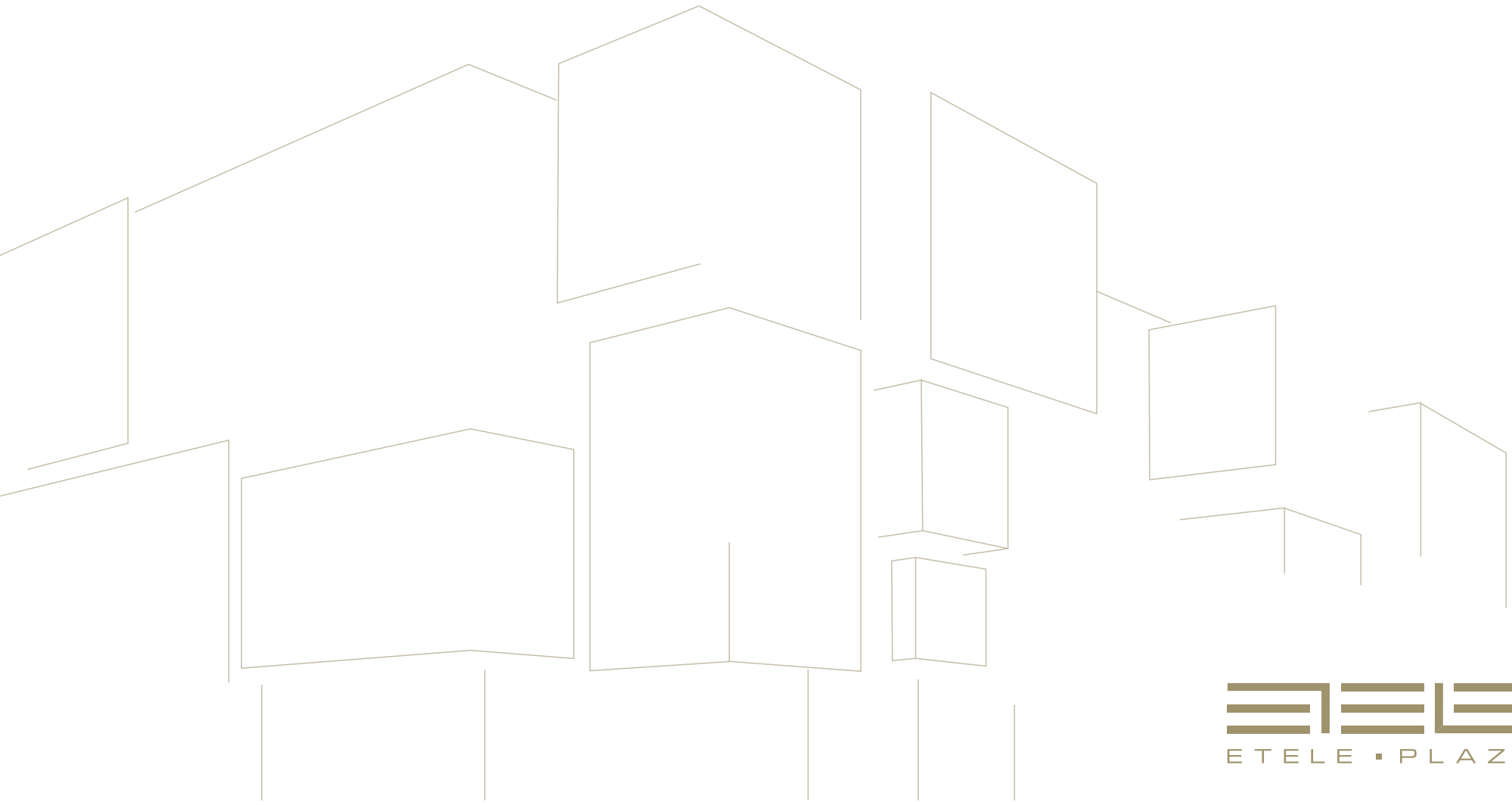


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# GENERAL TECHNICAL DESCRIPTION AND TENANT MANUAL

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# CONTENTS

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## **SECTION I.**

GENERAL TECHNICAL DESCRIPTION OF ETELE PLAZA .....	3
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## **SECTION II.**

TENANT MANUAL .....	36
---------------------	----

## **SECTION III.**

MANAGEMENT OF THE TENANT DEMANDS AS TO THE INTERIOR DESIGN AND CONSTRUCTION OF ETELE PLAZA .....	82
--	----

## **I. GENERAL TECHNICAL DESCRIPTION OF**

<b>ETELE PLAZA .....</b>	<b>3</b>
--------------------------	----------

1.1	Introduction, general information.....	4
1.2	Mall and Atrium areas.....	8
1.	Food Court, restaurants and coffee shops.....	8
2.	Sanitary blocks.....	8
3.	Parking places.....	9
4.	Loading places.....	10
5.	Staircases, escape corridors .....	10
6.	Waste collectors .....	10
7.	Lifts, escalators and moving walkways.....	11
8.	Protection against noise and vibration.....	11
9.	Sanitary engineering.....	11
10.	Electric networks .....	15
11.	Weak current systems .....	19
12.	Fire protection .....	21

## **II. TENANT MANUAL .....**

1.	General description.....	37
2.	Requirements for the shops.....	43
3.	Sanitary systems .....	47
4.	Lighting, electric networks.....	51
5.	Fire protection .....	53
6.	Principles of the construction of portals as per zones and types.....	62
7.	Individual stipulations for the food court units and restaurants.....	80

## **III. MANAGEMENT OF THE TENANT DEMANDS AS TO THE INTERIOR DESIGN AND CONSTRUCTION OF**

<b>ETELE PLAZA .....</b>	<b>82</b>
--------------------------	-----------

1.	General conditions.....	83
2.	Tenant contents to be submitted to the Lessor.....	83
3.	Course of licensing of the design documentation .....	84
4.	Construction .....	85
5.	Labour safety.....	85
6.	Technical handover .....	85
7.	Green lease guide and Green guide .....	85

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I.

GENERAL TECHNICAL  
DESCRIPTION OF ETELE PLAZA



## INTRODUCTION, GENERAL INFORMATION

The Etele Plaza (in a separate section) is situated in one of the most important public transport hubs of Budapest, at the end station of the underground line 4, directly next to the Railway Station Kelenföld. More than 180 shops will be available for renting in the Plaza at an area of over 55.000 square meters.

The intention of the real estate lessor is to establish a Commercial and Service Centre which will provide services of appropriate level both for the Tenants and the buyers visiting the Plaza, at a long term.

The shopping centre has been developed in view of the following fundamental principles:

- Installation endeavouring to the optimum,
- Adaptation to the planned vehicle, passenger and bicycle traffic systems,
- Maximum observation of the local construction regulations,
- Adaptation to the housing estate of Kelenföld and its wider environment, ensuring connection with the means of community transport,
- Level design matching the terrain conditions,
- The necessity of more rigid and looser limiting walls, breakdown of the town scales to the level of people
- Adaptation to the complex town situation,
- Establishment of a functionally versatile town centre (synergy of services, trade and other functions), (in a separate section)
- Green surfaces on the building,
- Dynamic reaction on the environment, showing of different night and day image.

These principles ensure the appearance of the building at the town scale and maximum

consideration of the customers' demands - providing of services in compliance with the local specificities and the expectations of our days.

The area of Etele Plaza is having excellent transport network, being suitable for functioning as a regional centre. It is situated in one of the most important public transport hubs of Budapest, and the territory of the development is - at the same time - one of the zones with the greatest real estate development potential of Budapest. The infrastructural development implemented so far - e.g. underground line 4, road node of Budaörsi street, more than 1500 P+R parking places and extension of the line of tram No.1. until Etele square together with the planned intermodal centre transforms the new South-Buda Town Centre into a determinant node at national scale, too.

The rental areas of the shopping centre can be categorized as per their size and functions as follows: Small rental: between 0 and 250 m<sup>2</sup>

- Medium-sized rental: between 250 m<sup>2</sup> and 1000 m<sup>2</sup>
- Large rental: between 1000 m<sup>2</sup> and 2000 m<sup>2</sup>
- Extra-large rental: over 2000 m<sup>2</sup>
- Supermarket
- Food Court rental areas (restaurants, kitchens)
- Cinema
- Fitness and Leisure rentals
- Temporary rentals, stands and kiosks
- Storages

Level distribution of the building is the following: 2 deep levels, ground floor, mezzanine (the level of loading yards is enclosed between the latter two ones with level offset, matching the terrain conditions), first floor - commercial level, second floor - restaurants, leisure and the related public roof garden and the four-level open parking places beginning from here, and the multiplex cinema with the entertainment centre on the 3rd floor.

## Functional design of the individual levels is the following:

**Deep levels:** the planned 2 underground levels accommodate the parking places, the mechanical and electric premises, the utility reception premises, the sprinkler house and tank, the operating and trade stores, the additional areas of commercial services and the vertical passenger upgoing systems.

**Ground floor:** the Northern passage of the building opens from Hadak road, and it is the main axis of public traffic of the level. The different commercial and servicing units open from this central passage, as well as the already mentioned lift cores, escalators and moving walkways providing for vertical traffic which ensure convenient connection with the deep level parking places. The ramp system servicing the deep garages can be accessed from Hadak road.

The cargo entrance opens next to the ramp, well distinguishable from it both visually and in its covering. The South-Eastern loading yards opens from here, including the selective waste collectors and their servicing technologies.

On the Southern side - at the corner of Gyergyótölgyes street and Hadak road opens the entrance of the ramp leading to the roof level, outdoor parking places. The mass of the underground pull-out object intersects a triangle from this level of the building at the South-Western corner. This triangle accommodates the engineering premises, the stores and the social block of the workers.

**Loading yard level:** this "semi-level" enclosed by the ground floor and the mezzanine is located at about the centre of the side from Gyergyótölgyesi street, it gives place for the largest loading yard of the building with the related stores, selective waste collectors and other technological premises. The two smaller goods

transport yards of the side on the Etele road are also at this level.

**Mezzanine:** the large-scale main entrance square and the Western big atrium of the building connect to the exit level of the underground on Etele square with entrance stair and a ramp for disabled. The two main commercial malls start from here to the atrium at the Eastern side, enclosing an intermediate commercial block including smaller shops as an island. The larger rental units open to North and South from the passage. The customers' social block is located at the Eastern side of the building, connected to the atrium. The two exists of the roof level parking area appear at this level. The traffic towards the downtown leaves the building to the Somogyi road, the traffic towards the agglomeration leads to the Gyergyótölgyes road.

**First floor level:** the first level is almost fully occupied by the commercial function. The floor play layout reflects the mezzanine level. The customers' social block is at the Eastern side, and the Eastern and Western atria are connected here with the two main (Northern and Southern) malls. For the purpose of more convenient servicing of the customers the Northern and the Southern malls have been connected with a cross-sectional passage at the middle axis of the building at both commercial levels, which includes the central, vertical traffic core for guest traffic in the building.

**Second floor level:** The gastronomic centre - so called Food Court - of the house is at this level, together with the directly related Northern roof garden and restaurant terrace. The area of gastronomy is added with independent restaurants. The blocks of kitchen technology are connected to the parking area beginning from the 2nd floor. The background function is made complete by the large-sized social block for the customers, including the appropriate waiting rooms, too. There is also a children's playroom and the lower level of the two-level fitness, which is

connected to the already mentioned roof gardens and green roof suitable for sports at the Eastern side. The function of outdoor car park appears first at this level, approximately south of the Eastern-Western longitudinal axle of the building.

**Third floor level:** it is a semi-level between the restaurant and the entertainment levels, occupying the Southern part of the building as mentioned above, and provides for outdoor parking throughout its territory.

**Fourth floor level:** the cinema accommodating about 1900 people and having 14 smaller and larger rooms is located here, which - thanks to its great inner height - occupies the important part of the fifth floor. North of the cinema - there is the operating office in the North-West corner of the house and the closely related functions (security service, medical room, dispatcher etc.) East to the cinema follow the central engineering premises of the building and then an open engineering yard and the glass roof covering the Eastern atrium of the building. In the North-Eastern corner there is the upper level of the two-level fitness. The Southern part of the house is occupied by the already mentioned outdoor parking area.

**Fifth floor level:** neither the fifth level is fully built-in. The Southern half of the house is open, it is an outdoor parking area. The cinema rooms and the VIP department of the cinema as well as the galleries reach also this level. Above the operating office there is the indoor engineering block. Above the central engineering core of the 4th floor we have developed an engineering yard, acoustically insulated, for the cooling machines and other outdoor engineering units.

**Roof level:** The upper roof level has been covered with extensive and intensive green roof for preventing the urban heat island.

## Description of the supporting structure

The building has an approximately rectangular floor plan, with dimensions of 193 m x 116 m. The distance of the rasters is characteristically 8.10 m x 8,10 m, but at the mall along the centre of the building the distance is increased to 9.80 m to match the function.

The vertical supporting structure of the building is made up of monolithic ferro-concrete pillars and monolithic ferro-concrete walls. The vertical loads are taken together by the pillars and the walls. The horizontal loads from wind and earthquake are borne by the ferro-concrete walls.

The horizontal load bearing structures are characteristically monolithic ferro-concrete ceilings - with load bearing capacity in two directions, with hidden mushroom-headed, beam-supported monolithic ferro-concrete ceilings with increased load bearing capacity.

## Dilatations

The maximum size of dilatations is 70 m x 70 m. The baseplate is made without dilatation, the vertical structures coming from it are dilated, characteristically with structure doubling.

## Construction of the supporting structure above the pull-out object

The pull-out object of the underground intersects the South-Western corner of the plot. The side wall of the object is made of 80 cm thick diaphragm walls, the baseplate of the object is connected in the diaphragm wall.

The ceiling of variable construction seats on the top of the diaphragm walls. The object was dimensioned according to the ground mass above it and to the public road vehicle load marked "A". Due to the dimensioning and the construction the object may only be loaded with the distributed loads considered in the calculation, so the load-bearing walls and pillars of the plaza must not be loaded on it.

Due to the dimensions of the object **24 m - 30 m trimmings** are needed in the wall structure of the plaza. We have used prefabricated ferro-concrete structures for trimming at the levels.

**The great span can be solved with 90 cm high prestressed bridge beam and 20 cm thick monolithic ferro-concrete plate put on it.**

## Construction of the supporting structure above the line tunnel

The raster of the object and of the pillar frame is not parallel, so the vertical structures are arranged above the line tunnel in different positions. We have solved their trimming with about 2 m thick of ribbed "baseplate" seated on the rows of piles drilled at the two sides of the object.

Useful loads considered during designing

- **shops, cinema** 5,0 kN/m<sup>2</sup>
- **supermarket:** 10,0 kN/m<sup>2</sup>
- **stores and engineering spaces:** 10,0 kN/m<sup>2</sup>
- **Ceilings of the car parking places:** 5 kN/m<sup>2</sup>
- **traffic and escape routes:** according to the related loading areas
- **non-walkable slabs:** 2 kN/m<sup>2</sup>
- **green roofs:** 5,0 kN/m<sup>2</sup>

## Characteristic level heights and internal heights within the building:

**2 cellar:** level height: 3,00 m, structural internal height: 2,70 m, clear internal height at the traffic areas: 2,20 m, characteristically 2,20 m at the parking and storing areas, where engineering and electric equipment, lines and their covers may hang in locally with separate marking.

**1 cellar:** level height: 3,60 m, structural internal height: 3,00 m, clear internal height at the commercial areas: 2,20 m, characteristically 2,40 m at the parking areas, where engineering and electric equipment, lines and their covers may hang in locally with separate marking.

**Ground floor:** 5,50 m, structural internal height: 5,10 m, clear internal height: 4,00 m, what reduces below this value only at the indicated areas, characteristically along the site boundaries and in compliance with the terrain specificities, separately indicated in the drawings.

**Mezzanine:** level height: 6,30 m, structural internal height: 5,90 m, clear internal height: 4,50 m

**1st floor:** level height: 6,50 m, structural internal height: 5,90 m, clear internal height: 4,50 m

**2nd floor:** level height: 7,20 m, structural internal height: 5,90 m, clear internal height: 4,50 m

At the commercial and entertainment levels, and, in particular, in the environment of the mechanical shafts and the crossings of the main mechanical trunks servicing the building local internal height reductions may occur at the indicated places and in max. 5% of the area.

In case of the ferro-concrete supporting structure differences as per the MSZ-EN standards referring to the individual support units may occur as compared to the planned values.

### Floor layer system:

Different thicknesses of the floor layer system will be constructed in the building above the ferro-concrete ceiling. In general cases this involves screed and the covering layer on it. The floor covers have been constructed in compliance with the purpose of the premises. In case of proper use, the floor covers are durable, they can bear normal loading.

The planned thickness of the floor layer system is characteristically 10 cm at the commercial levels, 2 cm being available for the floor cover to be implemented by the Tenant.

Thickness of the floor layer system is 30 cm at the Food Court level, with an upper 2 cm for covering by the Tenant. Due to the water, sewage and kitchen technologic installations depending on the Tenant, the Lessor prepares only salvage insulation, the layers above it must be implemented by the Tenant.

### Walls of the rental premises

The separation walls of the rental premises are usually 15 cm thick plaster drop ceiling, or separation walls of gypsum fibre, 20 cm thick YTONG separation walls besides the traffic corridors, and at certain places monolithic ferro-concrete load-bearing walls.

Generally, no breakthrough can be made on the walls of the rented premises, neither with drilling, nor cutting; they must not be weakened, neither mechanical and electric piping or fitting belonging to the rental, can be placed in. Transferring of load and using of fittings can be solved with the construction of a front wall.

### Tolerances:

In course of designing and constructing the Lessor endeavours to implement the technical specification, but the development experience cannot be completely realized because of the different local situations of the building as a whole. The rented premises concerned by the difference must not exceed per 5% parameters and referred to the gross ground floor of the building and it must not cause functional unsuitability of the given area and must allow proper use impossible.

## MALL AND ATRIUM AREAS

- The Mall areas connect the two Atria cutting through the building, thus ensuring access to the shops.
- The minimum internal height at P1 level (cellar) is 2,50 m, at the ground floor 4,00, at the mezzanine 4,50 and at the first floor it is 4,50 m.
- The Mall corridors, cut into pieces, belong to several fire sections, so the Lessor must ensure appropriate operation of the fire gates at the fire section border. The fire gates must not be covered with furniture or covers and no kiosks, or other decoration may be put in the line of the gates.
- Places in the determined positions must be ensured for the glass surfaces of the shop windows and signboards
- The lower 7 cm of the corridors must be made of easily cleanable and durable material because of machine cleaning.
- The material of the furniture of the Mall areas is of the quality meeting the requirements of fire-resistance, the construction meets the stipulations of the relevant fire and accident prevention regulations.
- The Mall floor is characteristically gres, with other additional inserts at the outlined place to match the function
- Usually the drop ceiling of Mall is monolithic plasterboard with painting, with detachable strips for the mechanical and electric fittings and added with inspection openings.

## FOOD COURT, RESTAURANTS AND COFFEE SHOPS

- One of the most visited places of the shopping centre, giving a pleasant atmosphere for the customers with its curtain walls and high internal height. Its direct connection with the terrace and with the multi-level roof garden in the background it shows a unit of quite different atmosphere, as the other parts of the building.
- The open Food Court to be built at the second floor of the building will be constructed so that the spaces of the Tenants will be separated from the main space only with the counter.
- The furniture has been prepared in the quality and finish meeting the fire-resistance requirements referring to the crowded spaces.
- The characteristic internal height is 4,50, that may be lower by 5 % locally, in maximum 5 % of the floor area (mainly due to the track of the mechanical and electric lines.)
- Free movement of the fire gates (sliding gates, fire protection curtain gates etc.) must be ensured, they must not be barricaded, covered or limited by furniture placed in front of them.

## SANITARY BLOCKS

- Two different groups of the sanitary blocks can be distinguished; one is for use by the personnel, the other is for the public.
- The larger sanitary blocks for public use are at the P1, the ground floor, the mezzanine, the 1st floor, the Food Court level and the Cinema level, including the toilets for the disabled, the baby-mom's room and the changing rooms.
- At the corner of Somogyi and Gyergyótölgyes road, besides the driving out ramp we have established a vandal-proof toilet block, which can be accessed from the public area. Each sanitary block was constructed in compliance with the valid legal rules, with due consideration to the disabled and family areas. The two larger social blocks are at the Cinema and Food Court levels for the personnel and the 3 smaller general service sanitary blocks are located at the commercial levels and the loading level.



## PARKING PLACES

- Accommodation of the required number of passenger cars within the site is solved. Altogether 1270 parking places will be established at the two cellar levels under the ground level and the four parking levels at the South-Western side of the building. (P2: 152 places; P1: 323 places; 2nd floor: 181 places; 3rd floor: 197 places; 4th floor: 196 places; 5th floor: 221 places)
- In the garages of the deep levels the baseplate and the structural ceiling will be covered with a cca 1,5 mm thick of artificial resin layer, which is qualified as protected against slipping, impact and the aggressive materials occurring in the parking area.
- At several places of the parking area garage master's rooms have been developed from where the incoming and outgoing traffic is well visible, and which provide for supervision of the goods loading area.
- Access to the deep level parking places is ensured through the gate from Hadak road, which can be used not only by those visiting the shopping centre, but also enables replenishment of the goods for the Tenants by means of small trucks through the loading areas of the cellar level.
- The entrances of the parking areas are operationally gates in open condition.

### Parking levels:

- **2nd deep level:** At level P2 the structural internal height is 2,70 m on the average. **Height limit** of the vehicles at this level is **2,20 m**. There are places and passenger routes where the mechanical zones and the additional heat insulation allow for locally lower internal height; these areas are separately marked with signboards. This level includes **altogether 152** parking places, including 20 places for electric cars, 2 for disabled and 130 general places.
- **1st deep level:** At P1 level the internal height is characteristically 3,00 m, under the beams it is 2,50 m. **Height limit** of the vehicles at this level is **2,40 m**, at the places marked with signboards it is 2,20 m. There are places and passenger routes where the mechanical zones and the additional heat insulation allow for locally lower internal height; these areas are separately marked with signboards. This level includes **altogether 323** parking places, including 20 places for electric cars, 16 for disabled and 287 general places. There are 31 parking places for motorcycles belonging to the parking place.
- From among the deep level garages only this level includes goods loading places in positions next to the staircases. On the Etele road side there are two loading spaces limited with a wall and separated from the parking places with gates. A garage master's room at the exit provides for controlling of the area and undisturbed leaving of the same.
- **2nd floor, 3rd floor, 4th floor:** Height of the general structure is 3,60 m. Due to the structures with great span the characteristic internal height is 2,50 m on the Eastern side and 3,30 at the sections with normal span. There are places and passenger routes where the mechanical zones and the additional heat insulation allow for locally lower internal height; these areas are separately marked with signboards. Consequently, the **height limit** at these levels is **2,20 m, except for the 2nd floor, where it is 2,40 m**. These parking places are controlled by a garage Master at the entrance.
- **2nd floor:** This level includes **altogether 181** parking places, including 23 places for electric cars, 8 for disabled and 150 general places. There are 19 parking places for motorcycles belonging to the parking place. At the Northern side of the parking area, near to the main staircase and the service corridors closed goods loading areas have been developed which ensure replenishment of the goods of the kitchen and removal of the wastes.
- **3rd floor:** This level includes **altogether 197** parking places, including 21 places for electric cars, 8 for disabled and 176 general places. There are 13 parking places for motorcycles belonging to the parking place.
- **4th floor:** This level includes **altogether 196** parking places, including 21 places for electric cars, 8 for disabled and 175 general places. There are 13 parking places for motorcycles belonging to the parking place.
- **5th floor:** This level is partly a fully open parking area and partly a covered parking area. The internal height in the covered areas is 3,30 m. This level includes **altogether 221** parking places, including 21 places for electric cars, and 200 general places.

## LOADING PLACES

- The building ensures two large areas for good transportation. These zones can be accessed through the gate with net height of 4,50 m, and exit is ensured through the drive out at the Gyergyótölgyes road, half level higher. The two loading levels relate to a 4,5 m gauge cargo ramp.
- 6 parking places are at the ground floor level and 7 parking places at the loading court level.
- In the ground floor loading court, the general internal height is 4,50 m, and in case of one parking place it is locally 4,30 m, due to the escalator sink belonging to the upper level. At the ground level only the first parking position is having place for a scissor lift. The required thickness is available for the optional scissor lift in the layer system, but a sunk will only be constructed at a special request.
- At the goods replenishment place of the Loading yard there are 6 positions with full + 1 general position with reduced capacity. One is dedicated for waste removal. Transportation and loading of foodstuff is not performed characteristically at this level.

## STAIRCASES AND ESCAPE CORRIDORS

- There are 6 overpressure, smokeless staircases with fire-resistant floor grounds in the building.
- The six escape stairs are around the building through which one can access the mezzanine, or the ground floor from the other levels and from there escaping outdoors is possible. Two of them are at the Northern side of the building and lead to the Etele road. One of them is found at the Eastern side, and from here Hadak road can be reached. One can be found at the South-Eastern corner at the crossing of Somogyi and Gyergyótölgyes roads. The remaining two are located at the Southern side of the building, at about the middle and both release the escaping people to Gyergyótölgyes street. In addition, an escape stair was installed which helps evacuation from the cinema on the fourth and the fifth floors in the North-Eastern quarter releasing the escaping people to the large terrace surface on the Northern side of the second floor. The escape stairs may be accessed through the corridors opening from the passages.
- Only the main staircase can be normal accessed by the public traffic, the others serve for loading and escape functions.
- Each of the staircases is considered as zone protected with fire resistant structures, so the fire protection requirement of the structure is EI120, which are suitable for installing minimum EI90 openings.
- The sizes of the escape corridors minimum 2,20 m net width, which must not be reduced by any furniture, possible covering or door wings opening to the corridor.

## WASTE COLLECTORS

- Several general waste collectors, selective waste collectors, waste separators and paper press are located there.
- The structures are subject to increased contamination, humidity and vapour content, so the covers have been designed accordingly.
- The waste storing place was supplied with doors that can prevent access of incompetent persons.
- The waste storing place must have at least EI30 fire resistance boundary structures, with minimum EI30 openings.
- Appropriate route for transporting of the waste must be ensured to the waste collectors, it is prohibited to limit them by any obstacle.
- The storing place of communal and dangerous wastes are cooled.

## LIFTS, ESCALATORS, MOVING WALKWAYS

- The building is having two central, vertical traffic cores. The most important public lift cores are in the middle part of the Northern and Southern mall. They connect the cellar levels with the floor levels. Further passenger lifts are found next to the Eastern escape staircase of the building, through which the parking places on the floors can be reached.
- Built in escalators and moving walkways help the traffic of the commercial areas. The moving walkway is located in the middle axis of the Northern mall and it connects the first floor level with the ground floor, mainly for moving the shopping carts.
- In the Eastern and Western ends of the ground floor passage there are pairs of escalators leading to the two atria of the mezzanine and back down here.
- The mezzanine is connected to the first floor also with a pair of escalators, starting from the two atria. These pairs of escalators are repeated then between the first and the second floors, too.
- The Western pair of escalator leads from the second floor to the cinema on the fourth floor.
- Replenishment of the goods is helped with cargo lifts, of course. These lifts are located near the loading yards and the escape staircases. Two of them were placed to the stairs of Etele road, opening to the goods replenishment yards of the Etele road. Another seven cargo lifts with loading yards on the side of the Gyergyótölgyes road and the stores on the cellar level ensure the connection between the commercial areas.

## PROTECTION AGAINST NOISE AND VIBRATION

Noise shielding wall will be erected around the outdoor mechanical units (compact liquid cooler, air treatment units, central ventilators) on the roof, at the height of the machines.

Sound insulated frontal structures serve for the protection against noise loading from the traffic; their limit value is 30 dB. Should the Tenant wish to establish office units in the frontal zone, then he must provide for higher degree of sound insulation (40 dB) as per the stipulations for offices.

Vibration loading from the public road and railway traffic means moderate risk in respect of the planned establishment. Other vibration sources are the mechanical equipment of the building. The vibration loading of the mechanical equipment would practically spread unimpeded, so we are taking great care on the appropriate vibration insulation of the building engineering system.

## SANITARY ENGINEERING

### The fundamental supplying mechanical systems of the building

External dimensioning climate:

- Summer: +35°C / 40 %,
- Winter: -13°C / 90 %

External dimensioning climate:  
(selection of the machine)

- Summer: +35°C / 40 %,
- Winter: -13°C / 90 %

The building structure must meet the values determined by decree 7/2006 TNM.

## WATER SUPPLY - SEWAGE SYSTEM

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### Water supply

The use water supply communal network will be constructed for supplying the sanitary blocks, the water equipment, the water equipment of the shops, fire water supply, cleaning, watering and for supplementary water supply of the heating and cooling systems.

### Hot water production

Hot water supply is performed with the local hot water production system.

### Firewater network

Certified, automatic extinguishing system and wet fire water network will be constructed in the building. The firewater network will be implemented, branched off the vertical upstream pipes, led in the suspended ceiling and made of galvanized steel.

### Supply of the fire-retardant curtain gates

Separation of the individual fire sections of the building is solved with drop-down curtain gates; their cooling will be implemented by connecting them to the sprinkler system.

### Sewage system

Waste water coming from the equipment is led by branch lines, through the odour seal, to the trunk line connecting the equipment groups. Each facility must be installed with water odour seal.

The pipe sizes are designed in compliance with the relevant Hungarian regulations.

Fatty sewage waters coming from the kitchen areas are lead through grease traps. The facilities of non-permanent use (toilets, other water-based equipment) are considered with simultaneity as per the standards.

### Rain water drainage

Rain water drainage of the building is designed with suction and gravity systems. Pipe gripping is performed with vibration and sound insulated rubber pipe clamps, similarly to the sewage system.

## ENERGY SUPPLY FOR HEATING AND COOLING

Heating of the building is ensured, as per the stipulations of the Lessor, from the district heating system with water-air or water-water heat pumps. The benefit of the district heating system is that there is no local emission of dangerous materials, there are no chimneys and there is no big gas pipeline within the building.

The heat centre supplies heat energy for the following circles: consumers with radiator heating, air treatment, heat-taking circle of water-air or water-water heat pumps.

The pumps designed in the heating system are with electric revolution regulation controlled from the pressure sensor.

Radiator heating was planned to the lowermost and uppermost as well as the water premises with cool down surfaces, to the lowermost level of the staircases, to the cleaning agent stores with cool down surfaces and everywhere, where additional convection heating is also needed beside the air heating, due to the aspects of heat feeling.

Supply of the shops and other areas of the shopping centre where both heating and cooling demands are present, the solution is characteristically ductable water/air heat pump.

In case of the power circle the lukewarm water circle is designed to 8 C degree of temperature step for the rental areas. Keeping of the temperature of the water circle is ensured in winter by the district heat system and in summer by the cooling towers.

In respect of the construction of heating and cooling systems the following areas can be distinguished. Only certain parts of the building are supplied with full heating and cooling:

**General:** the full ventilated space gets tempered fresh air blowing in, - heating in winter, cooling in summer.

**Shops and rental areas:** heating and cooling of the rental areas with heat pumps and fresh air supply with the air engineering system. The commercial areas can be divided into four separate sized shops on the basis of the data supply of the Clients:

- **small** (0-250m<sup>2</sup>),
- **medium sized** (250-1000m<sup>2</sup>),
- **large** (1000-2000m<sup>2</sup>)
- **and extra-large** (over 2000m<sup>2</sup>)

**Shopping street:** we are planning to solve preliminary heating with convection and air heating. We are planning cooling by the ventilation system for the shopping street, which would ventilate the passage with blown in air of 16 C degree in summer.

**Offices and dressing rooms:** heating with radiators, cooling with the fan-coil equipment in the suspended ceiling

**Social premises, engineering spaces:** heating is solved with radiators.

**Waste storage and electric premises:** cooling will be solved with inverter SPLIT conditioning.

## VENTILATION SYSTEMS

The building is mainly of artificial ventilation as per the instructions of the Lessor.

The function of the artificial ventilation equipment is to ensure fresh air volume needed for the different inside premises, as well as air heating and air cooling.

Air duct keels are led in the engineering shafts. Air meeting the volume required by the dimensioned air volume is sucked in above the roof ridge and the protected frontages, thus ensuring its relative purity.

Used air is generally led to outdoors above the roof ridge, thus preventing shortage by sucking in of fresh air.

A part of the sucked air is blown into the garages under the building, to supplement air removed by CO-suction and to ensure basic ventilation of the deep garage.

Fire protection dampers have been installed in the air ducts led through the fire section boundaries. The fire dampers must be constructed to be controllable by the fire alarm centre, as per the regulations.

### Toilets, cleaning agents stores, waster collector extraction

Central extraction ventilators have been designed to the social blocks and the other premises that require only extraction. Extracted air is replaced from the foregrounds and the corridors.

The other air engineering systems are dimensioned so that the replacement of the extracted air be at disposal.

### Heat and smoke discharge of the closed centre corridors

There are closed corridors in the buildings, where heat and smoke discharge is implemented by machine and gravity solutions.

### Heat and smoke discharge of the premises under the ground level

According to the relevant decrees heat and smoke discharge of the premises under the ground level must be solved.

Extraction of the premises under the ground level is mainly performed through the joint extraction network, with the help of a central ventilator. Air engineering adjustment of the fire protection system must be solved with the planned motorized smoke dampers.

### Fire protection ventilation of shops over 1200 m<sup>2</sup>

In case of shops with an area over 1200 m<sup>2</sup> we count with smoke discharge of 1 % of the ground floor, except for the extra-large rental premises on the mezzanine and the first floor, where + 10 % of extraction is ensured, in compliance with the OKF resolution. Heat and smoke extraction is planned to be solved with machines; smoke exhaust and make-up water of 2 m<sup>3</sup>/s is ensured for the required smoke discharge square meters.

### Heat and smoke discharge of the atrium

Heat and smoke discharge of the atrium must be solved. The measure of heat and smoke discharge is

solved as per the legal regulations, - being heat and smoke discharge cross section referring to 3 % of the ground floor of the relevant atrium level. Extraction is ensured by machines; air replacement is granted by the RWA openings made on the front.

### Fire protection shutdown

Commissioning and shutdown of the smoke extraction ventilators is performed as per the fire protection technical description. Smoke extraction ventilators of the premises under the ground level must be supplied with double feeding. The cables leading to these equipment items must be assembled in fire resistant finish.

In case of a fire the comfort air engineering systems will be shut down.

### Smoke discharge of the staircase

Smoke from the staircases and the foregrounds must be extracted by ensuring overpressure. The required ventilators are arranged so that they would blow always clean and smokeless air into the staircase. Regulation of the just required volume for the staircases and foregrounds will be solved with dimensioned, frequency inverter blow-in ventilators.

### Ventilation of the car parking places

Extraction of the harmful matters emerging from the operation of the cars was determined as per the standard, the required air volume is ensured by artificial ventilation. Ventilation of the car parking places above the ground level is solved in natural way.

The ventilators are controlled with timers and two-stage CO sensors.

## SPRINKLER SYSTEM

The main units of the system: firewater reservoir, sprinkler engine house, sprinkler network.

### Sprinkler network

In the closed (underground) car parking and at the commercial and entertainment areas the sprinkler system will be installed. The system is wet all over the establishment. In the areas subject to possible freezing hazard (e.g. near the vehicle ramps) the system will be filled with antifreeze liquid.

No sprinkler protection will be installed in the open parking area.

The individual fire section boundaries in the building are not secured with built structures, so water-cooled fire-retardant curtains are designed for the building, whole water supply will be solved from the sprinkler system.

## ESCAPE ROUTES

In compliance with the resolution of OKF the glass structures limiting the escape routes of the building should be constructed in fire retardant finish. Except for the open parking places, the escape routes are protected with sprinkler, everywhere.

## ELECTRIC NETWORKS

Electric power supply systems of the basic building

### Power supply, main distribution units

Electric power supply of the establishment is performed by two, medium voltage, independent power supply feeding at the 10 kV network.

- **1. connection point:** 3400 kVA
- **2. connection point:** 3400 kVA

Measuring of the electric power is made at medium voltage.

The transformer stations in the building are owned by the Lessor.

The variable electric power demand of the building can be ensured with cladded 0,4 kV uptake system.

Heavy current connection of the shops is performed at 400V voltage level of 3 phase, characteristically from the cladded busbar system. The submeters of the electric consumption will be built in the cladded busbar branch.

Electric connection from the cladded busbar components to the rental area is with cable. The cladded, busbar branch is characteristically constructed in the suspended ceiling space above the rental area. The consumption meter will also be located in the connecting component.

The larger shops are electrically fed directly from one of the main distribution equipment of the building, depending on the performance. In this case the consumer meter is located in the main distribution equipment.

The Lessor must ensure access to the consumption meter, as required.

Double electric power supply for the rental areas may be ensured for the rentals only in very exceptional case and with limited performance, due to the energy supply of the basic building. This can be used only after preliminary agreement with the Lessor, against a special charge.

In case of a fire the engineering equipment providing comfort ventilation, so the equipment of the Tenant, as well, must be automatically blocked. The fire alarm system gives voltageless contact for the Tenant for the blocking.

The central fire case consumers of the establishment with high risk (MK) are provided with 0,4 kV double power supply through the function keeping fire resistance cabling from two, independent power supply networks of 10 kV.

Fire case consumers are the following:

- sprinkler
- safety lifts (L01 and L02 staircases)
- heat and smoke discharge
- backup lighting networks (safety and beacon lights)
- fire water pressure boosters
- fire alarm centre
- EDR system (supply for the uniform digital radio communications system of the law enforcement bodies)

No central UPS network will be installed within the establishment.

The designated sub-distributors (mechanical distributors, space lighting distributors, advertisement and decorative lighting distributors, distributors of the areas for public use, lifts, escalators, individual commercial distributors) will have sub-distributors and reading of the measurements will be performed through the building supervision system.

Each submeter of the shops and mall point sellers' submeter will be read through the BMS system.

The main switches to be installed in the main distributions of the building serve for deenergizing of the establishment, they can be remotely operated from the deenergizing table to be erected in the fire alarm intervention room.

## Lighting

When designing lighting technology, the proposals and standards of MSZ EN 12464 and MSZ EN 1838 as well as the architectural and internal design demands must be taken into consideration. Energy-saving light sources will be used everywhere.

Centrally controlled lighting will be implemented at the public areas, with variable performance between 10-100 % on the Mall area. In the subordinated premises local switching or motion-sensing switching will be realized.

Switching of lighting of the public spaces, staircases, sanitary blocks, drive throughs and garages will be realized from the central building supervision and the presence sensor in multiple stages.

The advertisement lighting of the building will also be switched through the building supervision system - controlled with a program switch - and the frontal and decorative lighting will be directed with twilight switch and program switches.

The frontal advertisements of the Tenants on the shopping street will be connected to the central control of the building supervision in order to make a uniform picture of the shopping street, but their supply will be connected to the Tenant's system.

The lighting facilities to be used must ensure the following levels of illumination:

- **spaces for public use:** 350 lux - BMS switch + brightness control
- **offices:** 500 lux - local switching
- **machine rooms:** 200 lux - local switching
- **staircases:** 150 lux - BMS switching
- **sanitary block:** 200 lux - BMS switching
- **stores:** 100 lux - local switching
- **parking places, ramps:** 100 lux - BMS switching - in multiplex stages

## Reserve lighting

Reserve lighting is realized based on standards MSZ EN 1838, MSZ EN 50172, TVMI and the stipulations of BM decree 54/2014. Cabling of beacon and safety lighting is E90.

Reserve lighting must be designed and realized based on standards MSZ EN 1838, MSZ EN 50172, TVMI and the stipulations of BM decree 54/2014. Bridging time of the reserve lighting is 90 minutes.

## Power transmission

The power transmission network will be made electrically separately from the other systems, so the possible starting current would be harmful to the other electric equipment.

Electric car chargers will be installed in the parking area.

The HVAC electric consumers of the establishment will connect to the distribution equipment of the building supervision from the independent distributors installed in the machine rooms.

**Regulation and control of the individual HVAC system will be performed by the computer-based building management BMS system** - with the help of the central work station to be erected in the dispatcher centre. Error signals of the so called autonomous consumers - independent of the computer-based control - will be displayed at the central work station with supervisory nature (e.g. pressure booster of the fire water, waste water lifting pump etc.)

Commissioning of the fire protection ventilation and shutdown of the fresh air systems are performed by the relay contacts given by the fire alarm centre with building management control.

In case of a fire the engineering equipment providing comfort ventilation, so including also the equipment of the Tenant, as well, must be automatically blocked. The Lessor gives voltageless contact for the Tenant for blocking.

You can find detailed description related to the mechanical equipment in the mechanical section



## The BMS system performs the following functions in the electric system:

Main distributor: voltage measurement, current measurement, power measurement, condition monitoring of the main circuit breakers, electric energy optimization (permitting shutdown of the cooling machines and greater electric consumers)

Lighting: switching and feedback of the lighting of public places, switching and feedback of the decorative lighting, switching and feedback of the lighting of parking places, switching and feedback of the lighting of advertisements.

Collection, recording and invoicing of the submeters and monitoring of the Overvoltage surge arrestors.

## Mechanical building supervision

The building supervision system is built up of independently operable DDC substations and a central computer unit ensuring supervision of the subsystems and fulfilling data collection and logging tasks.

In case of a failure the system gives error signal in the centre and logs the failure. In case of emergency alarming is also possible through the IT networks.

The subcentres of the DDC system are freely programmable digital controlling and regulating devices, located in the mechanical heavy current and control boxes. The subcentres save the stored program, the measuring data and the event logs in case of an electric blackout for at least 30 days.

The DDC subcentres ensure the following functions:

- fulfilment of the controlling tasks
- adjustment of the switching and specified values as per the time schedule
- storing of alarm signals and their immediate furthering to the centre (with the date and time)
- energy optimization
- automatic monitoring of the operating hours
- making of automatic measurement protocols

Terrain modules: Position signalling of the fire/ smoke dampers and of the electric data points are ensured by I/O modules. The I/O modules connect to the supervisory system with bus connections. The I/O modules ensuring position and control of the electric data points are located in the electric power distribution units.

The executing devices are designed so that no dangerous operation may occur even in case of a failure in the substation, blackout or other reason. The executing devices are having the possibility of manual setting, and where it is necessary they close the intervening device with spring return.

The centre is a computer-based workstation with graphic surface, and it provides for the relation between the system and the user.

## Supervisory software

The supervisory software ensures accounting of the measurements (electric) for the individual consumers, by using a standard data base.

The complete Office software package will be installed on the supervisory computers.

## System descriptions

### Central air engineering systems

Regulation and control of the air engineering systems are performed by the DDC subcentres as follows:

- external temperature following or constant blow-in temperature regulation
- reduced operating mode at night
- regulation of the fresh air rate based on the CO<sub>2</sub> content of the extracted air
- anti-freeze protection and regulation of the heating calorifier, pump control
- regulation of the cooling calorifier
- frost-free commissioning
- fire protection lock
- monitoring of V-belt rupture of the ventilators
- filter condition signalling
- commissioning according to the time program
- heat recovery equipment

After the heat receiver the heating circles are controlled by the building management substations as follows:

- weather following regulation or constant forward temperature control
- operating hour compensated twin pump control
- protection against overheating (in case of floor heating)
- energy measurement through the M-BUS connection

## Central cooling systems.

The own automatics of the cooling machines serving the air engineering system is connected to the management system via a serial line. The performance of the cooling machines can be reduced in the peak periods, depending on the electric consumption of the building (in order to prevent exceeding of the fixed power) (E<sub>max</sub>)

Regulation and control of the system is performed by the DDC subcentre as follows:

- water shortage lock
- controlling of the pumps in the cooling circle, commissioning according to the time program
- commissioning of the cooling machines, receiving of the error signal and limitation of the performance
- energy measurement through the M-BUS connection

The energy and water consumption data of the main distributor, of the mechanical units, mechanical major equipment and of the rental areas will be connected into the building management system via M-BUS communication.

The electric supervisory system receives the condition signals of the diesels, lifts, escalators, gates, air curtains, sumps and liftovers etc. E<sub>max</sub>: continuous supervision of the electric consumption makes it possible to avoid consumption above the fixed energy volume (overconsumption), by temporary shutting down of the major consumers of non-critical operation in the given period.

## Other managed systems

From the water system the error signals of the pressure booster, the fire water pressure booster and of the liftover pumps must be connected to the management system.

The signals from the sprinkler system will be connected to the fire alarm system.

## PROTECTION AGAINST ELECTRIC SHOCK

Contact protection network of the establishment is implemented as per the stipulations of standards MSZ 2364, MSZ HD 60364-4-41,

- At medium voltage IT
- at 0,4 kV: TN-C-S system (reset) added with current switch at the individual circuits,
- At the UPS sources: IT system in case of bypass TN system
- For socket of general use TN + current protection switch with 30mA sensitivity

Joined with the central earthing clamp planned into the main distribution premises EPH nodes must be created, by connecting the trunk cable of the protective conduction, the lightning protection system, the overvoltage protection devices, the water and gas pipes, the engineering pipes and the guiderails of the elevators. Standard EPH network must be developed and each larger metal object and metal pipe must be connected in.

After completion of the weak-current cable networks the appropriate measurements are to be made (usually measurement of the insulation and loop resistance, and the measurements as per the stipulations of system technology for structured networks, with the network analysing special devices) and the results of the measurements will be recorded in the protocol.

The insulation resistance and loop resistance measurements must be made before putting into operation of the establishment.

The results received will be recorded in the protocol, too, and they make a part of the handover documentation.

## LIGHTNING PROTECTION AND EARTHING NETWORK

Based on the stipulations of the relevant 54/2014 BM decree lightning protection equipment will be made as per MSZ EN 62305:2014. Construction design of the lightning protection system will be prepared by risk analysis. Appropriateness of the lightning protection must be certified by the supervisory protocol.

Internal lightning protection (overvoltage protection) system will be constructed in the building with consideration to the relevant standards and legal rules.

1st class overvoltage protection is planned for the main distribution equipment and 2nd class for the sub-distributors.

Within the rented areas the Tenant has to manage the question of overvoltage protection at his own costs.

## SUPPLY FOR THE TRAFFIC EQUIPMENT

For controlling and supervising the traffic of the parking area established in the building a traffic management system must be established with green and red signal lamps, with a system counting driving in and out, with a central computer station and graphic operating surface.

## WEAK CURRENT SYSTEMS

- Weak current fire alarm
- Access control system
- Intrusion prevention system
- IP CCTV system
- CO+NOx signalling system in the garage
- Audio-visual systems
- Informatic network
- Entryphone

The possibilities of “SMART” construction of the shopping centre and the related weak current aspects had to be considered during elaboration of the construction design and it must have been involved in the construction design as per the demands of the Lessor. In the present phase we provide the possibility for the development of the “SMART” system

### Fire alarm system

Weak current fire alarm system will be established in the building.

Within the rental area preliminary designing, licencing, construction and authority takeover of the fire alarm system is the task and at costs of the Tenant.

Its top-level implementation and for the minimalization of the fire damages the fire alarm system will be realized in compliance with the series of standards MSZ EN 54, the BM decree 54/2014 (5th Dec) and the relevant Fire Protection Technical Directive (TvMI 5.1: 5th March, 2015). The fire alarm system will be established from the network of the intelligent centres of weak current, analogue signal processing, return loop, having individual address, digital signalling.

The rental area must not be operated or opened without legally binding fire alarm usage licence!

The Tenant prepares a takeover documentation of the finished fire alarm system and hands it over for the Lessor (also in digital form).

### Intrusion prevention system

The areas within the building that are endangered in respect of external intrusion or sabotage will be supplied with intrusion prevention.

The Tenants shall design and construct the intrusion prevention system for themselves.

Any security system (alarm, video monitoring, goods protection etc.) will be constructed within the building by the Tenant at his own costs. Re-signalling to the security centre of the building may be possible based on a separate agreement.

### Access control system

It is the task of the system to separate the access of the user's group within the building according to their authorities:

- Operator
- Tenant

The areas that can be freely accessed by the guests must be separated from the operator's, Lessor's areas.

Within the areas whose use is only limited, the operator's areas must be clearly separated at the required points, where the Tenant must not enter, e.g.

the dispatcher centre, the engineering spaces and the outlined areas e.g. dispatcher, dressing rooms etc.

For car drive in licence plate recognition and card issuance will be organized. Payment machines will be installed at the parking levels.

### CCTV system

The function of the video supervisory system is video based protection of the building by monitoring of the external surfaces, entrances and main traffic nodes of the building. The system is an alarm-controlled supervisory system with a digital centre, exempting the operator from continuous monitoring of the displays, because the video motion sensors give alarm signal for the service in case of motion in the prohibited area.

Due to the size and complicatedness of the project the CCTV system may only be IP-based. Manageable closed LAN network shall be built for the safety system (because of security and loading reasons). The centre of the CCTV system (recording and treatment) is in the DISPATCHER Centre, only the active devices of the network may be installed in the building.

The system must be suited and must have appropriate reserves for observation of other areas in the given case at request or appointment.

The camera system must be installed and operated in accordance with the GDPR standards.

When selecting the cameras, the function and the task, as well as the treatment determine the type:

CCTV system belonging to the building; it monitors:

- the environment and frontages of the building
- the entrances for persons, entries in and out (the face must be recognizable)
- car entrances and exits of the building
- the traffic lanes of the garage areas
- the car traffic of the building, based on the Licence plate recognition (in case of a SMART system) Until the parking area will be payable, then this function is a part of the parking system)
- goods replenishment area of the building
- the goods transport routes
- the internal traffic nodes
- the internal public traffic roads and lobbies
- the moving walkways
- the foregrounds of the lifts
- the staircases
- the cash in transit routes

The digital video centre can display the picture of any camera in matrix systems at any monitor of the operators. The integrated remote controllers can manage recording and retrieval without collision, they can switch on the picture of the chambers, and control the functions of the inclinable cameras. The complete video centre must be capable of distinguishing (and displaying in its programmability) the operating condition and the shutdown condition, reacting on the alarms in case of own event sensing or signals coming from other systems and reacting by recording with different programmability per cameras.

## Garage co-nox signalling system

It will be constructed in the car parking area as per the standard.

## IT network

Outdoor cables of the service provider are received at the cellar level in the receiving IT premise, with reception cabinets. We account for the establishment of cable management premises at the levels, where the service providers may locate their own rack boards only to a limited measure. The track of cabling between the reception cabinet at the cellar level and the IT premises of the levels will be built by the service provider and the supporting system will be rendered by the Lessor. The cabling from the IT premise of the level towards the rental areas will also be constructed by the service provider, the Lessor only ensures the cable holding supporting structure.

The Lessor will construct the appropriate track for the connecting cables, the cable tray, the protective pipe tracks from the IT reception premise of the building to the territory of the building. The Tenant is responsible for arranging his own IT connection contract with the service provider, as well as for the complete IT assembling and cabling in the rented territory.

In case the Tenants demand connection to the telecommunication services of an external service provider then the track must be claimed preliminary from the Lessor. After approval of the preliminary design by the Lessor the telecommunication company will cable and install the network as per the Tenant's demands. Cable management is performed with consideration to the weak current tracks within the building. The cables out of use, must be disassembled by the Tenant or the service provider authorized by him.

## Audio-visual systems

The audio system of the business building must be constructed with a uniform sound system working with supplied sound material, controllable from the central dispatcher, having microprocessor controlled digital sound matrix centre, modular construction as per series of standards MSZ EN60849.

Its construction must be logic and separately manageable e.g. in respect of the sound circles, the program source, the sound volumes and the centres. with 110 V system, supervised sound circles

The sound system is suitable for

- providing background music
- information
- emergency information, in all premises except for the rental areas
- mall areas
- corridors
- lift foregrounds
- public lifts
- public sanitary blocks
- garage areas

Prohibition of internal sound system implemented by the Tenant himself must be made possible for the case, if central fire alarm happens in the building. The controllability means prohibition or compulsive silencing to be controlled by the central weak current fire alarm.

## FIRE PROTECTION

The building of the Etele Shopping centre, being architecturally uniform and the single independent building in respect of fire protection designs, has been implemented - approved and licenced by the competent authorities. The main fire protection parameters of the building have also been agreed, so there is no possibility of any difference from them, e.g. fire section order, concept of evacuation, modification of the fire protection equipment of the central areas, of the conditions of rescue intervention or requirements for the building structures - without documented consent from the authority. In case of the construction and implementation of the rental areas - in addition to the general fire protection procedures - also the contents of the special authority stipulations issued in the licence documentations and during the licencing procedure, and those included in the authority coordination protocols taken in certain section of the procedures, together with the stipulations of decrees made by OKF must be observed.

The implementation of the rental areas must be performed in compliance with the stipulations of the actual construction licence and the following OKF exemption resolution(s) as well as the valid OTSZ (BM decree 54/2014 (5th Dec) and the actual TVMI-s.

The shopping centre to be implemented as a completely new establishment has been located with due consideration to the required distances from the planned and existing buildings and the needed staging area. The staging areas, the external traffic routes of the building and the possibilities of rescue intervention have been coordinated with the authority. The internal rental implementations must not infer with the rescue windows, their access routes must be maintained, possible blocking or closing

of them is prohibited. Similarly, the fire protection equipment (wall hydrants, smoke discharge, direction lights etc) must not be altered, their operation must not be hindered by the internal design of the shops and the construction of these facilities must not be modified without authority approval.

Each fire section, building part of the house - except for the open parking places - are having mandatory distinguishing and fire alarm equipment and at the same time they meet the criteria of having no staging area. The open parking places do not have extinguishing equipment, so their staging and rescue area and those of the areas of the frontages below them - are inevitable - at least to a limited extent. With due consideration to the above Gyergyótölgyesi road, as the appointed official staging area, is ensured. The traffic core (LO1 and LO2 staircases) including two fire protection lifts from the Etele street, and the staircase exit next to the intervention centre (LO3) from the Hadak road are both ensured as staging and access points for the fire brigade, without implementation of concrete rescue openings. It does not concern the rental areas, but the Tenants must take it into consideration during their operation.

In terms of fire protection designs, the building adapting the sloping terrains is having uniform ground floor, irrespective of the fact that terrain connection is different between the certain parts of the building. The side from Hadak road with lower public area connection will be the general ground floor and the other levels were adjusted under or above the soil level accordingly. The levels under the soil level were treated as the car parking levels, and the commercial and service units were arranged to the normal levels. Under the shopping centre surrounded with public areas from the four sides

there is the underground, but it does not have any relation with the planned building by keeping the required protective distances.

Each parking area has been distributed to several interconnecting fire sections, each of them is having an overpressure, smokeless staircase connection. Rescuing from the parking places (partly by leaving to the neighbouring fire section) may be provided towards the staircases, without internal rescue routes. The other storage and mechanical areas planned to the cellar levels were separated as independent fire sections.

Starting from the ground floor of the building the commercial areas of the shopping centre are found through three levels. The shopping centre was designed in compliance with the layout standards as per the general practice, the individual rental areas (shops) connect to the central traffic core and open to the Mall area with portal structures. According to the valid requirements it is not permitted that the shops connect to the central Mall with normal sprinkler line separation, the separation of the central passage must be solved with the traditional fire-retardant structures. Due to the function, it is inevitable to build glass portals, open connections towards the mall, so the commercial areas have been divided vertically into four fire sections, so that the rental boundaries would not be qualified as a fire section boundary at the portal structures. According to the relevant OKF decree the portal structures may be made of glass structures without protection, but the skirting above them must have the same fire resistance limit as the ceiling. Pass through on the skirting may only be made with the knowledge and consent of the Lessor. Any breakthrough must be closed with sealing material of the same limit value.

## Fire sections

The maximum fire section sizes of the building are determined by enclosure 5 of OTSZ. The commercial fire sections may have the maximum size of 14.000 m<sup>2</sup> in case of KK class (with sprinkler)

The independent, protected fire sections within the building are the smokeless staircases of the building (6 pcs). Their protected traffic routes connect to the fire sections of the staircases, they mainly lead from the direction of the mall or they are the connecting fire-retardant foregrounds. The units with different risks were put into separate fire sections in the building, and no units with different purposes or risks can be established later within them. Because of the size of the building several fire sections must be established even within the units with the same risk. The different risks are treated per units, so the areas with different risk classes have independent access and own connection to the staircase.

The commercial areas may include also service and other providing areas (based on the consolidated risk unit), but the spaces with different purposes and working clearly as independent units must be separated into different fire sections. The larger independent fire sections are the garages, the cinema, the other office and fitness functions and the areas that must be mandatory separated from them (the premises that must be mandatory separated are those mentioned below; they must be considered when developing the rental areas.)

The demarcations approved during the licencing procedure must be observed by the fire section order of the building. The changes concerning the fire section limits must be coordinated with the authority. Special attention must be paid when determining the fire section limits to the already mentioned fire retardant sealing, pass through and structural breakthroughs.

The individual fire section boundaries in the building are not secured with built structures, so water-cooled fire-retardant curtains are designed for the building, whole water supply will be solved from the sprinkler system.

## Escape routes

The four large-sized fire sections per level are closed by fire retardant gates with delayed closing. In compliance with the authority coordination and the relevant resolutions of OKF the fire-retardant gates at the borders of the concerned fire sections close with 2,5 minutes of delay as compared to the evacuation time of the premise. Rescuing in the middle two fire sections within the given levels can be performed during the time specified for the first section and in the direction of the delayed gates. These parts of the fire section not necessarily have their own staircase connection, so the full evacuation - not regarding the possible internal rescue exits within the shops - towards the delayed gates, to the neighbouring fire sections treated as protected places. After closing of the gates, passages that can be open into both directions will be ensured, in order to rescuing those who arrived late, or perhaps are disabled. Passing through the closing gates is available for disabled, too, their opening and threshold solution will make it possible.

The two extreme fire sections together with the three-four level (one part of the food court and the foreground of the cinema will belong into these fire sections) will be of atrium design, and the appropriate 3 % of smoke discharge will be applied. In the middle fire sections Malls will not be in connection with ceiling breakthroughs between the levels, for closing of the fire-retardant gates; they will be implemented

as traditional corridors and passages. These internal passages are with 1 % of smoke discharge, but irrespective of the fact that - as per the evacuation requirements of the groups of premises they can be left, - their treatment as escape routes and smoke discharge concept may only be changed as agreed upon with the authority.

Connecting to the atria, protected escape routes are developed in the independent fire section, partly for direct leaving from the larger shops and partly for final leaving of the atria and the mall area. Irrespective of the development of 6 pcs of smokeless staircases planned for the building, all they must be qualified as being without foreground, and they open to the traffic areas. (Risk units of the building area of class KK, as per the requirements of the interconnecting fire sections and staging areas.) The overpressure staircases are always escape routes leading to safe spaces, limited with fire retardant structures, they can be interpreted as protected spaces.

The area of the food court and the related kitchens will be developed as independent fire sections on the 2nd floor and the individual catering units will be separated, too. Majority of the food court areas will be separated from the atrium spaces at the two ends of the building with fire retardant structures, so two independent fire sections will be established at the two ends of the building which belong to the commercial central atrium. The foreground of the cinema at the Western side connects to the atrium, together with the public parts of the cinema above. In respect of use, this area is rather for commercial and catering purposes, and the actual cinema areas were separated as different fire sections. The counter line of the kitchen units is not in the fire section border, so they can be closed with normal doors, but they are mandatory separated premises and areas from the public consumer area.

Evacuation of the upper building levels is mainly performed towards the open parking places. The parking places themselves can be divided into two fire sections, and they are independent fire sections per levels. The store, cinema and food court exits leading to the open parking area will be made in fire retardant finish, if there is no 5 m of distance from the parking position or no protective distance from other, combustible material is ensured (the Tenants must consider these protective distances, too). Final evacuation is ensured from the parking areas by rescue routes and smokeless staircases separated with closed fire-retardant solution.

### Classification as per the risk class, and the requirements as per the purpose

The areas belonging to the shopping centre purpose belong in most cases to units with the same purpose and with uniform and interconnected function; no premise justifying the establishment of a unit with independent risk may be implemented within them. Inside the commercial sections there may be service functions merged in the same purpose and risk unit. The commercial areas are independent fire sections.

#### Risk classes of the risk units of the commercial-service rental areas:

- based on the level height of the building level: below 30,0 m KK
- based on the escape capacity within the risk unit: normal NAK
- risk class in case of the storing units: (it is not characteristic, but in case the rental area serves for this purpose, too) storing of flammable, non-explosive materials AK
- classification as per the activity: (commercial, public) NAK,
- as per the capacity: in a unit, a premise below 1500 persons KK

#### Risk class of the commercial risk unit is KK.

Relevant risk class of the building, as per the basic aspects of classification would be KK, until the number of people in one shop does not exceed 1500. In view of the fact that the establishment has a capacity over 3000 persons, **the relevant risk is MK.**

Within the building units the material use may be fundamentally of non-combustible and flammable materials, using of explosive materials at a higher level than the communal is not permitted. Should the Tenant plans distribution and use of such materials, he must inform the Lessor about the same.

No explosive premises may be established in the building, and clearing up of possible questions in this respect, getting of the licences and the required professional materials is always the obligation of the given Tenant. Neither the smaller, separable and fully separated shops may be units specialized in the distribution or use of definitely explosive materials. Shops selling smaller quantities - stored solely in closed packing - explosive products, different chemical goods - must coordinate the ways of storing and distribution with the authority and the Lessor. In case of stored and sold quantities § 234 and table 1 of enclosure 17 must be taken into account.

In case stores over 100 m<sup>2</sup> are established in the building for storing flammable materials, then their wall structure and that of the waste collectors must be constructed from ceiling to ceiling. In case of these premises the wall structure must be at least of fire protection class A2 and fire resistance performance of EI30, its door of at least D fire protection class and EI230 C of fire resistance. Possible developing storing premises and groups of premises with ground floor over 500 m<sup>2</sup> in the large air-space commercial rental areas must be separated from the public traffic areas with fire retardant building structures (including the closing units, too).

Premises mandatory separated with fire retardant building structures are the separate electric premises or boiler house over 140 kW of total capacity, the mechanical premises over 200 m<sup>2</sup>, the ventilation machine room, and the premises responsible for working of the special fire protection equipment (e.g. safety power supply, smoke discharge machine room etc.)

The commercial and service premises for staying of crowds must be covered with minimum Cfl-s1 floor cover and B 1 d0 other covers. The internal construction of these rental areas must be coordinated with the authority later. In addition to the rescue routes indicated on the fire protection drawing attachment and besides the already mentioned larger storing areas - new premises requiring independent fire-retardant separation, or rescue route are not planned as per the basic concept. Should the Tenants differ from the above by their internal construction then it must be coordinated with the authority. The atrium, together with the mall passages were treated as common structures and rescue routes in each case, so the groups of the rescue routes and the requirements of the structural table must be applied.

Wall cover, ceiling cover, inside heat and sound insulation of the premises not explicitly for commercial and service use and staying of crowds must be at least of class B-s1, d0 and the floor cover at least Bfl-s1.

Wall and ceiling cover of the baby-sitting premise serving for placing and longer stay of children must be in addition to class KK minimum B-s1, d0, the floor cover is of fire protection class Bfl-s1, and the heat and sound insulations on the inner side of fire protection class A1 or A2. In the playhouse of more than 200 m<sup>2</sup> floor ground the premise for children playing must be protected against heat and smoke.

At least A2-s1-d0 heat and sound insulation will be built in the car parking area and only non-combustible materials will be used.

There are no individual requirements for the industrial structures and covers for the other premises, where not crowds will stay, except for the combustibility class of minimum E.

## Building structures

In view of the previously determined MK relevant risk class, the construction of buildings "over six levels" must meet the following combustibility and fire resistance limit values. In course of the construction solely materials and structures with appropriate certification may be used, with observation of the requirements of the below table.

**The components non-outlined in bold from the enlisted structures characteristically do not concern the finish of the rental areas. Any modification of these structures (or transformation of them e.g. sealing, closing) is not permitted without preliminary announcement coordination with the Lessor.**

**The structures in bold may concern the construction of the rental areas.**

Structural group	Name of the structure	risk class MK "other" construction
	Load bearing walls and their reinforcements except for the cellar level	A1 REI 120
	Load bearing pillars and their reinforcements except for the cellar level	A1 R 120
	Load bearing walls and their reinforcements of the cellar level	A1 REI 120
	Load bearing pillars and their reinforcements of the cellar level	A1 R 120
	Ceiling above the cellar level	A1 REI 90
<b>Supporting structure</b>	Interfloor and attic ceiling	A1 REI 90
	Supporting structure and enforcements of the roof ceiling and the roof ceiling over the mass of 60 kg/m <sup>2</sup>	A2 REI 60
	Space limiting structure of the room ceiling (up to 60 kg/m <sup>2</sup> )	A2 REI 60
	Roof structure:	C
	Supporting structures and supports of the walking surface of the stairs and landings qualified as escape routes inside the building	A1 R 90
	Supporting structure of the free stairs being escape routes	A1



Structural group	Name of the structure	risk class MK "other" construction
	Firewall	A1 REI 240
	Fire protection separation wall	A2 EI 90
	Fire protection wall	A1 (R)EI 120
	Fire protection ceiling	A1 REI 120
	Fire barrier	A2 (requirement for the connecting ceiling and wall) max. 90
<b>Fire protection base structure</b>	Fire protection opening in the fire wall	A2 EI <sub>2</sub> 90-C
	Fire protection opening in the wall	A2 EI <sub>2</sub> 90-C
	Fire protection opening lift	as per the relevant requirements
	Fire protection gap-filling, gap-closing systems (also in case of fire retardant separation wall EI90)	equal to the concerned structure but maximum EI 90
	Fire protection linear gap fillings (also in case of fire retardant separation wall EI90)	equal to the requirement specified for the connecting structures EI 90
	Fire protection closing unit	EI 90

Structural group	Name of the structure	risk class MK "other" construction
	Wall cover	A2
	Floor cover	A2
<b>Escape* routes structure</b>	Suspended ceilings, ceiling cover	A2
	Raised floor	A2 EI 90
	Heat and sound insulation without cover or behind the cover	A1

\*In case of building the industrial structures of the rescue routes - if they are needed - only the application within the given rental areas would not involve preliminary coordination obligation for the Tenant.

The certificate proving the requirements as per the table - in the form of performance declaration by the manufacturer - must be obtained after building in at the latest. In case of using construction products only performance declaration based on national or EU evaluation or still valid ÉME document is appropriate.

Performance declaration issued on the basis of governmental decree 275/2013 (16th July) - about the detailed rules of planning and building in of construction products in the building and about the performance declaration.

The requirements of the fire-retardant structures of the building are mainly ensured by ferro-concrete or masonry structures, it is prohibited for the Tenant to make breakthrough, pass through and other modification affecting the fire resistance limit values of the given structure or causing violation of the structural continuity- without preliminary coordination. In certain cases, appropriate fire resistance of the given structure can be achieved by special protection (painting, covering and spraying). In course of the development of internal spaces these fire protection covers, systems must not be demolished or injured.

For the protection of the evacuation routes the premises over 20 people of capacity, the units of independent purposes and the premises obliged to heat, and smoke discharge must be limited from the other premises of the building with fire retardant separation walls (structural protection EI90) and wall structure from the ceiling to the floor. It is not justified to build in fire retardant closing units into the fire prevention structures, except for the case when they are at the same time fire section boundaries. In case of premises with a capacity over 20 persons, if they are not rescue routes, walls without fire resistance limit value may only be used within premises with 1200 m<sup>2</sup> total floor area and with a capacity of 300 persons

(should other e.g. fire protection stipulations referring to the purpose do not regulate otherwise).

Full value fire retardant wall separation must be built in on the fire section limits beside the fire retardant sealings, by means of using fire retardant closing elements (e.g. dampers). Only appropriate fire retardant sealings must be built in at the fire-retardant separation walls, closing units, certified opening is not necessary by all means (lacking other stipulations). At the other places no certified fire-retardant separation is needed within the units separated with fire retardant walls. (the premises surrounded with fire retardant structures have been enlisted at risk classes)

The size of the individual fire sections makes it possible to construct smoke sections with smoke discharge. In case of the functions with low internal height (e.g. shops) smoke sections must be made by small skirting walls (not exceeding the specified height of use) or by means of machine smoke discharge per smoke sections. Skirting walls may also be applied at the borders of the mall and the larger rental areas. According to the coordination with the authority the connection of the passage and the commercial units, in case both areas are supplied with smoke discharge (e.g. larger than 1200 m<sup>2</sup> and for public use) can be realized with a skirting wall with non-airtight opening.

Special fire protection structures are the skirting walls of application as above. According to the relevant stipulation of OTSZ the time/temperature requirement of the smoke skirting (MSZ EN 12101) is Dx, where x is equal to the fire-retardant requirement specified for the fixing, supporting structure of the smoke skirting. Because the smoke skirting can be fixed on the ceiling or to the fire-retardant separation wall as a supporting structure, minimum EI 90 minutes of fire resistance is specified, so in case of the new skirting wall - together with its fixing elements - this value must be ensured as per the relevant standard.

The protected staircases and their access routes and routes leading to outdoors are separated with fire retardant structures (openings) because of the aspects of evacuation. The other corridors that are treated as "official" rescue corridors (in the storing fire section, the rear corridors not connected to the passages of the shops, the corridors of the kitchens, the passages and the atria) can be constructed with fire retarding separation walls.

The vertical fire section boundaries make it possible to make non-fire-retardant walls.

Application of the separation structure - do not having the stated fire resistance performance between the shops permitted in the establishment and the traffic area (mall) - will be glass portal structure coming from the purpose. Because this wall is not fire retardant, openings may be used without protection, as per the fire protection design. Smoke skirting wall must be established between the shops and the mall.

In case the given commercial unit does not have established smoke discharge, then its separation from the traffic area may be performed with openings. The construction of the portals - in case of closing with open safety grid (with meeting of the above criteria, that is between two smoke discharge spaces) - will be ensured by certified glass or other mounted structure with 0,6 m of sagging in the full length of the opening. Before the non-combustible skirting wall only the illumination body may be planned as a combustible matter. (the illumination bodies containing also combustible materials should not replace the given part of the skirting wall, they must be implemented from certified structure at the full surface.)

Fixing of the structures with fire retardant requirement to be applied in the building, as well as their structure, must meet the fire retardancy and combustibility requirements of the given structure. E.g. a door with

certificate as to its fire protection aspects cannot be built in a normal plasterboard structure without the value. The Fire resistance limit values of the certified openings and wall structures closing the mechanical and electric equipment must be equal to their operating time as to the requirements

Non-combustible insulation or cover, or other covering hindering the appropriate operation of the fire-retardant material e.g. foaming fire-retardant materials - may be applied before the fire-retardant sealing materials. The fire protection features and the identification number of the compliance certificate of the sealing material, the contractor, the date of implementation and the warning referring to the necessity of restoration of the sealing must be permanently indicated on the fire-retardant sealing, beside the passthrough, in case of a wall on its both sides.

Ceiling support of the structural wall within the building, or static structure ensuring its stability may only be applied subsequently or occasionally if its fire resistance limit value equals to the 120 minutes value requirement (in case of normal ceiling 90 minutes)

The HVAC and building electricity fittings located in groups in the building are led vertically in separate inspection pits. The different engineering shafts will be implemented in the buildings with closures at the levels or in case of leaving them with limitations equal to the ceilings. The wall serving for fixing of the pipeline systems of the electric and mechanical shafts have been designed of masonry element or at least 12 cm thick ferro-concrete. Fire prevention of the mechanical transfers through the fire prevention structures must be solved with building in of the appropriate fire protection devices and fittings (fire prevention dampers, fire protection grips, compression fittings). in case of mixed electric and

mechanical shafts the fire protection requirements of both types must be ensured.

The individual mechanical shafts must be separated with full fire prevention limitations in order to omit closures at each level. Fire prevention of the mechanical transfers through any shaft and other fire prevention structures must be solved with building in of the appropriate fire protection devices and fittings (fire prevention dampers, fire protection grips, compression fittings).

In cases when no fire prevention separation can be built in because of the mechanical technology - such like smoke discharge, which cannot include closing structure during operation - continuity of the fire prevention separation can be ensured by appropriate separation and covering of the mechanical line, so that the fire section limit and the line of fire prevention protection would not be interrupted not even in the minimum extent.

Each door with fire protection consequences must be supplied with automatic closing mechanism and the receiving wall structure must not have lower fire resistance limit value. The smallest free height of the doors in the escape route and of the premises with a capacity of over 50 persons must be 1,9 m. As concerns openings considered for the purpose of evacuation no pushing, tilting and shutter system or exclusively photo cell-based doors can be applied. These door mechanisms must open only in the direction of escape (except for the premises with a capacity of less than 50 persons) the openings registered for rescuing as per their purpose may be equipped with roll-down gates, grids which must mandatory be kept in open position during the opening hours.

No threshold, or step higher than 15 mm can be built into the openings of the routes taken into account

for the purpose of evacuation. OTSZ specifications do not regulate the use of emergency opening mechanisms or panic locks in the opening structures within the building parts and accounted for public traffic and evacuation, but they should be openable with one motion, manual force and be suitable for rescuing. The rescue routes of the building and at the exits of the larger public spaces the stipulations for emergency opening mechanisms and panic locks are applied (relevant standards MSZ EN 179 or MSZ EN 1125). In case the number accounted for rescuing is over 300 people openings as per the stipulations of MSZ EN 1125 must be built in (for the public premises for crowd or in the direction of traffic areas with more than 200 persons as per the proposals of TVMI. In case of the gates closing with delay it is not obligatory to use the standards, but the exits within the gates built-in for safety reasons, must be openable easily with the door handle.

The doors of the electric-engineering premises responsible for the operation of the fire protection equipment at the fire prevention function openings and at the fire section limits must have a2 EI 90-C certification. Fire protection doors are used for closing the smokeless staircases running through the fire sections, depending on the construction, and at the corridors protected with fire protection mechanisms fire prevention openings are used connected to the rental areas. Changes of these openings are not permitted, or in individual cases they can be modified only after coordination with the Lessor and the authority.

The premises mandatory closed with door structures qualified in respect of the purpose were listed in point 2.

When selecting the mandatory closing mechanism of the doors qualified in respect of fire protection the determination of the fire protection expert or designer is decisive. Generally using of (C4) or (C5) is recommended in the public traffic areas, or if the door does not serve the general, public traffic (e.g. electric premise) then the minimal (C1) and in areas more frequently used because of the operation (C2) are proposed.

Classification of the doors as per the test cycle related to their automatic closing is (MSZ EN 14600:2006) C0: 0 (NPD), C1:500, C2:10.000, C3:50.000, C4:100.000, C5:200.000

The qualified door must be supplied with the marking of "Fire(Smoke) section border! Automatic closing of the door must be ensured" In permanent, well noticeable and readable finish and size.

With due respect to the functional interests also doors being normally open and closing automatically by the fire alarm and qualified in respect of fire protection may also be used. Such e.g. doors propped with electromagnetic support, the fire prevention opening controlled with the fire alarm of both connected building parts and the special fire prevention mechanism. The design of the fire alarm operated doors must be coordinated with the authority during the licencing process. In case of using (in the building) an escape preventing entry system, the escaping person must be allowed to pass the entry point without delay, the necessary controlling means, and their operability must be ensured. The route of the entry point becoming free must not reduce the necessary width of the evacuation routes confirmed with calculations and the mechanism inhibiting passing through must be automatically or manually adjustable to the non-inhibiting position (with maximum force of 220 N).

## Electric assembling

The electric network of the rental areas must be implemented in compliance with the relevant technical guidelines. A separate shutdown will be built for separating the safety equipment being important in respect of fire protection. This must be considered when designing the rental areas (fire alarm equipment, sprinkler, fire water supply system, smoke discharge, engineering of the smokeless staircases, safety and beacon lighting, information sound system, building monitoring). The central priority consumers of the shopping centre in respect of fire protection will be ensured with double supply, with automatic switch over. Separate switching possibility must be ensured for the general consumers, the priority consumer not serving fire protection, for the security lighting and power cut of the priority consumers, as well as for full power cut. It must be examined with the professional designers that the given consumers groups would match the electric system of the building developed in respect of fire protection. Each rental area must have its own power cut possibility for the purpose of fire protection, next to the entrance, if possible

In case, due to the different functions in the building the installation of reserve power sources, solar cells, e.g. UPS or aggregates are planned to be erected, then special attention must be paid to the development of power cut function in respect of fire protection.

The central voltage relief system of the building must be capable of cutting off the reserve power sources of the Tenants, too. Connection to this function must be ensured by the Tenant at his own costs.

(With consideration to the security power supply). Pipeline system passing through many fire sections must be established so that the fireman intervening in the fire section concerned by the cut off in the

concerned fire section would not be endangered by electric shock.

Installation of beacon lighting is planned in the concerned corridors and public function units of the building as per the stipulations of MSZ EN 1838. Evacuation routes of the building (except for the smaller premises - groups of premises below 60 m<sup>2</sup>) security lighting must be implemented. Anti-panic lighting shall be realized in premises for public use.

Illumination of the escape signs must continuously operate during the use, - in the part of the building, where the escaping people do not have knowledge of the area. Escape signs must be installed at the exit routes, the exit and emergency doors, and the doors opening to the evacuation route, that would give along the whole escape route continuous and consequent visual information for the escaping people about the direction of evacuation, with consideration to the possible alternative routes, too. Depending on the fire alarm intelligent beacon lighting system is used at the central commercial passages closed with fire prevention gates, that would show the possible evacuation routes depending on the point of the fire and closing of the gates.

At any point of the above described area of the building at least one security sign showing the escape route must be always visible.

In case the fire protection (emergency) supply of security lighting is from the central (security) power supply, then the conductor system feeding the illuminators, meets the relevant stipulations, if any of the illuminators or the related conductor system in the unit with MK risk fails to operate because of a fire exposure, then inoperability may concern only maximum one level and 500 m<sup>2</sup> area. In units with different risk class failure of an area of 1600 m<sup>2</sup> is allowed.

The fire protection equipment must be marked in the building (wall hydrant, the possibility of starting smoke discharge release), as well as the point of the fire extinguishing and rescue facilities along and near the escape routes with the security signs as given in SIO 3864-1 and ISO 7010. (The signs used must meet the stipulations of MSZ ISO 16069:2009 - for Graphic symbols and Technical stipulations for the security signs.)

The operation of the electric consumers important in respect of fire protection must be ensured in case of fire at least as per table 1. of enclosure 11 of OTSZ. Security power supply will be installed for the MK building, for feeding the fire protection consumers. Transfer from the normal to the security supply will be performed within 1 second in case of security lighting and escape signals and within 90 seconds in case of other fire event consumers.

In risk units of MK class (fire section) the operational requirement is 90 minutes, for units with AK risk 60 minutes and for KK it is 60 minutes. The exception is the operation of the air replacement openings, where it is uniformly 30 minutes.

Fixing of the fire-resistant cable systems must be made on at least 10 cm thick ferro-concrete walls or ceilings, ferro concrete pillars and room beams, lintels or 10 cm thick walls made of gas concrete of lime sand masonry elements, or at least 12 cm thick brick walls.

Appropriateness of the passthrough of the electric wires between the levels must be ensured as follows:

- the shaft must make it possible by its internal size to regularly place the electric cable system, and regular development of the wiring from the shaft,
- non-mounted wall of the shaft must allow regular fixing of the cable systems, with consideration

to the loading coming from the mass of the cable system

- the condition of regular operation and maintenance of the cable system shall be ensured by constructing appropriate size and number of service holes (fire prevention inspection opening) in the wall of the shaft.

Metal clamps and cable ladders are suitable for fixing of the cables which - considering the function of the cable system (normal or fire-resistant cable system) - are implemented in compliance with the relevant rules and are suitable for drag-free placing of the cables.

In case of mixed electric and mechanical shafts the fire protection requirements of both types must be ensured. Breakthrough of the electric cables led through the surrounding walls and ceiling structure, as well as at the other fire sections must be supplied with fire preventing sealing equal to the given structure (max E 90).

Evacuation routes of the building must be equipped with escape signs. Security signs meeting the relevant technical requirements (at present MSZ EN 3864-1, MSZ EN ISO 7010 and MSZ ISO 16069 standards) are suitable for the purpose of escape signs. The textual signs e.g. escape plan, different instructions will be placed at medium height or between 120 and 160 cm with consideration to the barrier free design. The height of the sign will be at least 200 mm.

Escape signs illuminated from outside or from inside must be installed high or medium high, if it is not possible, in each escape route of the building and premises of it with the capacity of more than 100 people. Low fixed escape signs must be used, as

supplements to the high placed security signs, along the escape route of the premises with a capacity of more than 1000 people.

## Fire sections

The maximum fire section sizes of the building are determined by enclosure 5 of OTSZ. The commercial fire sections may have the maximum size of 14.000 m<sup>2</sup> in case of KK class (with sprinkler)

The independent, protected fire sections within the building are the smokeless staircases of the building (6 pcs). Their protected traffic routes connect to the fire sections of the staircases, they mainly lead from the direction of the mall or they are the connecting fire-retardant foregrounds. The units with different risks were put into separate fire sections in the building, and no units with different purposes or risks can be established later within them. As a consequence of the size of the building several fire sections must be established even within the units with the same risk. The different risks are treated per units, so the areas with different risk classes have independent access and own connection to the staircase.

The commercial areas may include also service and other providing areas (based on the consolidated risk unit), but the spaces with different purposes and working clearly as independent units must be separated into different fire sections.

The larger independent fire sections are the garages, the cinema, the other office and fitness functions and the areas that must be compulsorily separated from them (the premises that must be compulsorily separated are those listed in point 2; they must be considered when developing the rental areas.)

The demarcations approved during the licencing procedure must be observed by the fire section order of the building. The changes concerning the fire section limits must be coordinated with the authority. Special attention must be paid when determining the fire section limits to the already mentioned fire retardant sealing, pass through and structural breakthroughs.

## Mechanical building supervision

The building engineering and electric inspection pits are interrupted per levels, in line with the ceiling and according to the relevant fire protection requirements with a mechanism and the building engineering and electric cables led through are supplied with fire retardant sealing.

The shafts surrounded with fire prevention mechanisms equalling to the fire protection characteristics of the given ceilings are exception, in this case the interruptions in the ceiling plane may be omitted. In case of these shafts spreading of the fire through the breakthroughs of building engineering and electric cables passing through certified shaft walls will be implemented by certified technical solution. In case of shafts concerning several fire sections the air ducts were supplied with fire dampers. (In these cases, fire alarm-controlled fire prevention closing units have also been applied in addition to the fire prevention sealings).

The wall structures and openings of the fitting shafts have been and shall be developed with respect to the A1 EI 90 fire resistance limit value (or protection against spreading of the fire is ensured in the line of the ceilings). In the electric or mechanical inspection pits, in case of air ducts, using of the controlled fire prevention closing elements at the fire section borders is always needed, but within the fire section

they are not required, if any of the fire prevention solutions equivalent to the ceiling is built in for exclusion of the possibility of fire spreading in the ventilation systems.

The ventilation duct in the inspection pit and passing through other premises within the fire section must be made of a material of at least C fire protection class. Ducts and insulation of the ventilation equipment located outside the engineering shaft and led through several fire sections must be made of A1 or A2-s1 materials. Within the shafts protected also with closing elements, ducts designed of materials C fire protection class may be applied, even if they reach several fire sections until leaving the shaft. Leading through the shaft walls may only be solved with non-combustible materials besides the certified louvers.

The central ventilation and air conditioning equipment automatically shut down at the signal of the fire alarm, and they will be developed so that the ventilation system would not make it possible that fire and smoke gas pass between the individual levels and the fire sections. The grid structure of the ventilation holes must be made of A1 and A2 material.

The ducts of the mechanical ventilation equipment must be made closable at the passing through the fire prevention structures (except for the fire prevention separation walls), which closing structures must automatically close by heat or flue gas. According to the structural requirements, the fire prevention dampers used at the fire section borders, must be controllable also by the planned fire alarm equipment. (except for the pipe for ventilation of the watery blocks and with maximum 0,1 m of pipe diameters) the mechanical pass through involving the fire section border must not be constructed by the Tenants without preliminary coordination with the Lessor.

Areas of the building where smoke discharge is planned:

- Parking places at - a -2 and -1 levels,
- staircases with overpressure (smoke discharge) and the related fire prevention foregrounds
- corridors of the fire sections for storing at P1 and ground levels, dividing the corridor from the distance where discharge as per the first section cannot be ensured
- at the cellar storages where storing place over 100 m<sup>2</sup> will be established.
- in the whole building and mainly at the commercial levels the escape routes leading to the staircases (marked with yellow colour)
- the protected route of staircase outlet of L05 and L04 at the loading level
- each commercial and rental premise over 1200 m<sup>2</sup>,
- the central passage at the commercial levels closed from the atrium with fire protection gates
- the atria at the two sides of the building,
- the consumers' area of the with large airspace
- the escape corridors of the kitchen behind the Food court from where the route of the first section finishes. Here belongs also the upper rescue and the kitchen corridor accessible from the Northern terrace.
- the baby-sitting room and the engagement room of the playhouse (over 200 m<sup>2</sup>)
- the corridors of the cinema
- the large hall of the cinema
- a mozi tömegtartózkodású nagyterme

Certain corridors of the levels - either within the rental areas will not be treated as rescue routes - they will not have smoke discharge, in case the 1st evacuation section of the given area leads to outdoors, to protected space, or to the actual evacuation routes (e.g. staircases or rescue corridors).

In the large premises over 1200 m<sup>2</sup> and the babysitting room and engagement room over 200 m<sup>2</sup>, - in case of gravity smoke discharge - efficient heat and smoke discharge surface and air replacement surface must be established reaching 1 % of the ground floor of the premise. In case of machine heat and smoke discharge the required extraction and air replacement performance should be 2m<sup>3</sup>/sec for gravity smoke discharge and air replacement, calculated for each m<sup>2</sup> of the efficient opening surface. The construction of the smoke discharge system within the rental premises is the task of the Tenant, but the external technical conditions are ensured by the Lessor.

Machine smoke discharge of 1% of the air space of the food court will be established with the dimensioning conditions as above, and the connecting kitchen parts do not have smoke discharge because they can be closed with appropriate openings.

In the cellars, on the areas under the solid level smoke discharge equalling to 1 % is required in the storages over 100 m<sup>2</sup>.

The upper part of the openings introducing machine air replacement must be placed in the lower third of the internal height, - from the floor level except for the corridors where maximum up to 2 m and the atrium, where the opening within the level, - will be below the half of the internal height. At the blow-in points of air replacement the rate of air flow should not exceed 5 m/sec.

The machine and gravity smoke discharges must be developed so that they would not make possible fire spreading due to the combustion products and would not endanger the fresh air replacement, the other fire section and the escape routes as well as the air replacement needed for heat and smoke discharge, or air supply of smoke discharge and intervention of the fire brigade.

When designing smoke discharge of the areas under the soil level and of the other premises obliged to smoke discharge the relevant TVMI dimensioning and construction aspects must be observed. In rental areas where smoke discharge is needed, its exact implementation must be coordinated with the authority and the Lessor in course of elaborating the construction designs. The shops and the storages must not be considered as premises with large internal height or as corridors, so division of the smoke discharge surfaces must be carried out in accordance with the 1 % of the ground floor, as per § 96 of OTSZ (or other certified methods of calculation). In case of shops and larger rental areas the internal height may be over 4 m, but the final distribution, the suspended ceilings and other suspended structures, as well as the internal design do not assume the conditions characteristic of a classic hall.

The corridors of the rental areas as rescue routes must have smoke discharge surface of 1 % of the ground floor or equivalent machine solution. When dimensioning of the smoke discharge system of the corridors divided with air ducts the relevant TVMI dimensioning and construction aspects must be considered. (e.g. in the straight-line corridors, the distance between the outlet and inlet openings must not exceed 15 m, and it should not be more than 10 m in the curves; and from the direction of escape maximum 5 m of sticking out, differing from the line between the inlet and outlet may be permitted.) Distribution of the upper air extraction and of air replacement up to 2 m must consider the maximum of 40 m long smoke sections measured at the route of moving.

The air ducts used for smoke discharge must have at least E300 90 (ho) S 500 one (or single) qualification within the fire section, while in case of ducts reaching several fire sections products with EI 90 (ve - ho) S 500 - more- (or multi) qualification may be used.

The smoke discharge and air replacement ducts that cross several fire sections must be constructed of several sections. The air duct used for smoke discharge is four-sided, so it cannot be used as one side of the neighbouring building structures, channel or cover. The size of the non-combustible smoke discharge ducts - except for those which were individually, differently qualified - must not be larger than 1250 mm x 1000 mm. Appropriate integrity of the air ducts, fire prevention structures led through the normal fire section must be also ensured, that may be a controlled fire retarding element, or an air duct of qualified finish and a cover used.

The building structure used of fixing of the duct section applied for smoke discharge must have at least the same fire protection performance as the requirement specified for the given duct.

The steel threaded stems used for suspension must be distributed as per the stipulations of the qualified systems, but they should not be less often than each 1,5 m. The distance between the external plane of the duct wall and the axle of the suspensions must not be more than 50 mm. Nothing can be placed above the duct that would probably fall and damage it in case of a fire effect. It is practical to make these ducts first during the construction and to assemble the other fittings under the ready duct (but not suspended on it!)

The ducts with fire protection performance and their suspensions must not be loaded by any other fitting (wire, illuminator, built-in extinguishing pipe etc.), those must be constructed independently. Breakthrough of the duct's wall (e.g. steel pipe, cable, inspection door) is not permitted. acélcső, kábel, revíziós ajtó) nem megengedett.

The ventilators of the heat and smoke discharge equipment must be resistant against fire, for 60 minutes at 300 C degree (due to fire sections protected with distinguishing equipment  $F_{300} 60$ ). The smoke discharge shafts are surrounded from each other and the other parts of the building by fire prevention structures, ferro-concrete walls. For each square meter of the efficient opening surface of heat- and smoke discharge 2 m<sup>3</sup>/sec air flow must be ensured. (The calculated volume flow must be considered at 20 C degree of ambient temperature. Air density is  $\rho = 1,2 \text{ kg/m}^3$ ).

Smoke discharge capacity of the cellar levels and commercial areas belonging to different fire sections is ensured by a common system and their air replacement is solved also with common shafts. The openings of the discharge shafts dimensioned for one level are closed with motorized smoke dampers, controlled by the fire alarm equipment. Every mechanical extraction within one fire section was dimensioned on the principle of simultaneity of max. one level (fire section). Operability of the air replacement structures is ensured during the operating hours of the heat and smoke discharge equipment. Requirement for the multi-stage smoke dampers needed for the establishment of the communed system is EI 30-S (i->o) C, while the air ducts must be products qualified as described above.

The possibility of manual commissioning of the smoke discharge systems must be ensured for the systems within the rental area. It is practical to put manual starters in case of the larger smoke-discharged premises at the exits, in case of the spaces with busier traffic at the access of the central rescue routes. Smoke discharge starts automatically at the fire alarm (not for the manual signal transmitter) to the full fire section of the given level. At the gates with delayed closing also the smoke discharge of the neighbouring mall or atrium is commissioned,

and the smokeless staircases are commissioned, too. The protected corridors leading to the staircases get started at any smoke alarm coming from the given level, irrespective of the fire sections and also the smoke discharge of the atria begins operation at the fire alarm of any concerned level.

### Fire water supply fire extinguishers.

The required water volume of the shopping centre is ensured from the existing fire hydrant network within 100 m of the building, considering only the above ground hydrants. According to the function of the establishment, installation of an internal extinguishing water network is needed, so rigid fire hydrants were constructed at each level. At least two fire hydrants will be built in from the used rigid hydrants at each level and fire section, accounting of three simultaneity and maximum hose length of 30 m. In order to promote intervention of the fire brigade and provision of the required water yields a traditional "C" marked hose connection must be implemented at each hydrant, in addition to the hose with shape retention.

No wall hydrants have to be constructed in units with basic purpose, classified into AK, if their size does not exceed 1000 m<sup>2</sup>, or in case of KK class - 500 m<sup>2</sup> (e.g. no protection of smaller cellar storages, electric premises, mechanical premises and staircases has to be solved), but characteristically this would not concern the rental areas. Coverage of the rental areas with fire hydrant, or their possible omission must be coordinated with the Lessor.

The exact places of the internal fire hydrants have been stated during preparation of the construction designs, they were submitted to the authority and the displacement is not possible without coordination with the authority. Arrangement of the wall hydrants within the shops is not clear yet, it depends on the

designer's responsibility. When allocating the internal fire hydrants (with consideration to the hose length) full coverage must be ensured, use of the fire hydrants must not be limited by built-in structures, furniture, covers etc. Full coverage of the rental areas must be solved so (illustrated on the required design enclosure) that the given hydrant would reach the whole territory of each premise along the hose laying line and the hose must not be led through fire section limits and smokeless staircases (and its direct evacuation route). It must be taken into account that by arranging the separation walls and facilities of the rental areas coverage of the fire hydrant could importantly change. Standard construction of the wall-mounted hydrant cabinets must not be changed without approval of the authority.

The internal fire hydrants, the wall-mounted hydrants and the hydrant cabinets as well as their environment must be marked with security signs. The security signs marking the place of the fire protection facilities must be placed above the equipment or facility at 1,8-2,5 m height, so that it would be clearly recognizable from the greatest distance of the premise. Should the recognition distance exceed 25 metres, then pre-signalling and guidance security sign must be applied suitable for the device.

The specified extinguishing material, but minimum 1 piece must be at disposal in the rental area as per enclosure 16 OTSZ. The fire extinguisher must be indicated with a photoluminescent sign at least, placed at 1,8-2,5 m height above the device, so that the security sign would be visible even if it is temporary covered. Well visible pictogram must be fitted to the wall cabinets serving for placing of the fire extinguishers and the wall fire hydrant cabinets (in addition to the mandatory security signs). The external material of the fire hydrant cabinets and their cover may fit to the interior design, but their marking must be standard and clear and the certified and



above described finish of the licenced fire protection equipment must not be modified.

## Fire alarm, extinguisher

Automatic fire alarm must be installed in each fire section of the shopping centre, so the full building will be provided with a fire alarm facility meeting the appropriate technical level. The centre of the equipment is located at the place with permanent supervision, and the shopping centre is having an intervention centre. In addition to providing permanent supervision, fire alarm is furthered by automatic transfer, to the point supervised by the disaster management organ and determined by the first instance fire safety authority.

Before the licencing procedure of putting into use of the fire extinguishing equipment - the licence from the competent first instance fire safety authority must be obtained; its detailed implementation and technical solutions must be coordinated. During construction of the fire alarm equipment the stipulations of sections 14-15th of the new OTSZ and the relevant TVMI recommendations must be considered. In course of transformation of the internal space of the building the fire alarm equipment must be modified, re-designed and transformed as per the changes of the site. The individual transformations must have been approved by the fire protection authority both at the design and construction levels and after putting into use.

The fire alarm equipment must be supplied with sounders, in addition to the automatic fire sensor and the manual signalling. The fire signalling equipment controls several building engineering systems and fire protection devices; it must be cleared up - at the level of the rental areas - in course of the licencing procedure. (Generally controlled equipment are the security and beacon lighting, the smoke discharge equipment, the security and normal elevators,

shutdown of ventilation, remote control of the fire prevention doors - rescue doors depending on the entry system - pressure boosting, muting of the speakerphone - information).

The building - based on its commercial and shopping centre purposes, and cellar car parking - is obliged to the establishment of built-in automatic extinguishing equipment.

No extinguishing equipment will be installed in the open garages at the upper level and the closed stairs connecting the parking areas (belonging to it).

Automatic extinguishing equipment was installed in the whole other territory of the building, by implementing full protection (with consideration to the spaces that can be left from the protection). In addition, each fire section of the building will be equipped with sprinkler protection as an automatic extinguishing facility. The sprinkler equipment was designed with observation of the relevant technical requirements and it has been coordinated with the authority in the framework of an independent licencing procedure.

When changing the internal spaces of the shopping centre, the sprinkler extinguishing systems must be changed, too in compliance with the changed conditions; and licences must be obtained for the design and the contraction as well. During the design phase the possible applied individual fire prevention solutions must be considered, as well as their aspects related to the sprinkler or affecting the construction.

The sprinkler extinguisher may be replaced with another type of automatic extinguisher - after coordination with the authority (e.g. gas extinguisher), or they can be used as a supplementary system even if they are not obligatory. Different types of extinguishers (even if not obligatory) may only be installed with the approval of the Lessor, and their

construction may only be performed in compliance with the relevant technical requirements and other fire protection stipulations (e.g. special attention must be paid to the implementation of solutions that would not violate fire preventing functions of the ventilators of possibly protected premises or fire protection ways of pressure relief openings.

## Evacuation

It was taken into account when designing the building that it must be evacuated at the standard value as determined in the new OTSZ or within the time certified by the calculation. Evacuation of the smaller fire sections of the building is granted, based on the requirements stipulated in tables 1 and 3 of enclosure 7. of OTSZ. The risk unit to be evacuated - depending on the height - is characteristically of AK or KK class, so the maximum length of moving on one level to the staircase as a protected space is 45 m. These fire sections characteristically have low number of people staying there, so the number is appropriate as per the geometric method.

In larger spaces with more public attendance (characteristically also in the commercial areas) 1,5 minute is the specified demand for the first section as per the calculations, that is 60 m of route can be certified for a low attendance space 6 minutes for the second section, but due to rescuing to the protected spaces it was not applied, except for certain places. After reaching of the protected spaces the further time of evacuation must not be examined or certified by the Tenants but leaving of the given rental areas and reaching of the protected neighbouring fire sections from the passages as per the OTSZ and the relevant TVMI should be verified. (When the building was licenced, then the conditions of September 2017 were considered by the stipulations for evacuation.) It is obliged to keep the evacuation requirements for the construction of the rental areas.

All the three commercial levels have been implemented with the same construction, fire protection design and evacuation concept. The commercial areas of the ground floor, the mezzanine and of the first floor have been separated as independent fire sections. Within the commercial areas there are smaller and larger rental units and even areas with high attendance, whose evacuation will be granted to the rescue routes and towards the fire-retardant gates with delayed closing at the border of the fire section within 1,5 minutes. The independent mall areas, which do not have their own staircase exit can be evacuated to the neighbouring fire section, to the protected rescue routes within the specified time. Rescuing from the given fire section is not possible within 1, 5 minutes only in cases when the mall is having its own staircase connections and exits. (Characteristically at the two extreme atrium fire sections, which have red rescue routes on the drawing enclosure of fire protection.) Full evacuation of these fire sections is ensured as per the second section, without considering the mall gates.

People are present in the building, who are characteristically not limited in rescuing, and the investor does not plan explicitly the functions used by the disabled, however the presence of disabled must not be excluded. The public areas can be left to smokeless staircases, neighbouring fire sections or outdoors, too. Neighbouring fire sections provide protected spaces for the disabled at each level, so due to the passage options, the space of use can be left for the possible disabled at the same level.

Any calculation method as per the valid legal rules of the given period may be applied for certifying of the evacuation provided, that it is not against the basic concept of evaluation.

Formulas that can be used for verification of evacuation:

### Calculation of the first phase of evacuation

Evacuation of the premises

#### Duration of the evacuation of the premise, based on the lengths of routes

$$t_{1a} = \sum_{i=1}^n \frac{s_{1i}}{v_i}$$

where

- $t_{1a}$  is the duration of evacuation of the premise on the route from the furthest place to the nearest exit
- $s_{1i}$  is the length of the individual route sections on the above route, measured along the route axis,
- $v_i$  are the progress velocities belonging to the individual route sections,

#### Duration of the evacuation based on the passing capacity of the door

$$t_{1b} = \frac{N_1}{k * \sum_{i=1}^n l_{1szi}}$$

where:

- $t_{1b}$  is evacuation duration of the premise based on the free width of the evacuation routes and the passing capacity in minutes,
- $N_1$  is the number of people to be removed from the premise,
- $k$  is the average passing capacity of the free width of the evacuation route

#### Duration of the evacuation of the group of premises, based on the lengths of routes

$$t_{2a} = t_{1ma} + \sum_{i=1}^n \frac{s_{2i}}{v_i}$$

where:

- $t_{2a}$  is the evacuation time of the examined group of premises to the rescue route, based on the length of route measured from the furthest premise from the exit, in minutes,
- $t_{1ma}$  is the largest from the evacuation durations calculated for leaving of the premise, in minutes,
- $s_{2i}$  is the length of the route from the furthest exit of the premise to the escape route or the exit leading to safe space,
- $v_i$  is progress speeds determined depending on the numbers belonging to the covered route

#### Evacuation duration of the group of premises based on the free width and passing capacity of the evacuation routes

$$t_{2b} = t_{y1} + \frac{N_2}{k * \sum_{i=1}^n l_{2szi}} + \sum_{i=1}^n \frac{s_{2i}}{v_i}$$

where:

- $t_{2b}$  is the evacuation duration of the examined premise based on the free width and passing capacity of the evacuation route.
- $t_{2b}$  is the time needed for reaching narrowest cross section, considered for the evacuation and measured from the nearest door of the nearest premise, and based on the road sections,
- $N_2$  the number of people escaping through the narrowed escape route
- $s_{2i}$  is the total length of the routes from the narrowest cross section to the escape route or the routes leading to the exit route
- $k$  is the average passing ability of the free width of the evacuation route
- $s_{2i}$  is free width giving the narrowest cross section considered for the evacuation route of the group of premises
- $v_i$  is progress speeds determined depending on the numbers belonging to the considered route

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II.

## TENANT MANUAL



# 1. GENERAL DESCRIPTION

## Introduction

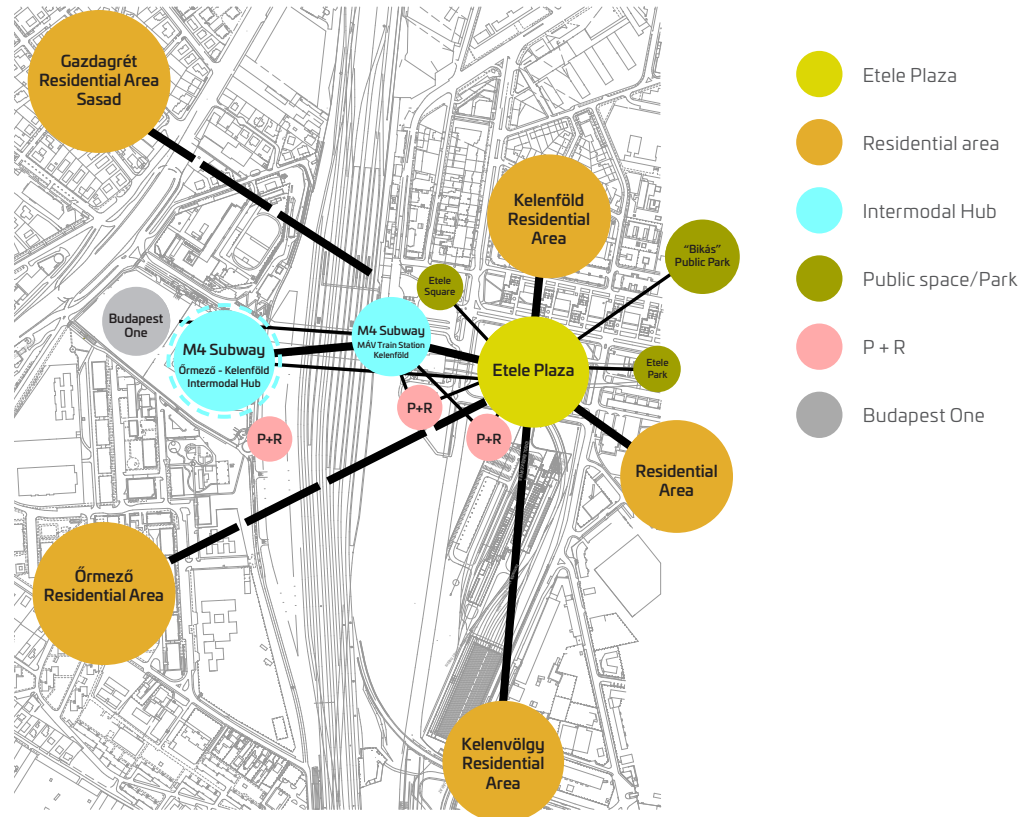
The Etele Plaza is located in one of the most important public transport hubs of Budapest, at the last stop of the Metro Line M4 near the Kelenföldi Railway Station. In the Centre, you can rent nearly 180 stores on more than 55,000 m<sup>2</sup>. The intention of the Landlord is to create a Commercial and Service Centre that can provide an appropriate and long-term quality service for both Tenants and visiting Customers.

The guidelines, that were followed in planning, determined the building's performance on the urban scale as well as the maximum consideration of customer needs – in accordance with the site conditions and service requirements of today.

The surroundings of the Etele Plaza have an excellent transport network that is suitable to function as a centre of city district as it is located in one of the zones in Budapest with the biggest potential. The last stop of the Metro Line M4, the extension of the tram line 1 and the planned intermodal centre will transform the immediate environment into a decisive scale urban node. In addition to its unique infrastructure, the development area of almost 700.000 m<sup>2</sup> is the main attraction of the city district (office, service, commercial, traffic, culture etc.)

The rental properties of the Commercial Centre can be classified in the following categories according to their size and function:

- Rental properties between 0-250 m<sup>2</sup> (small)
- Rental properties between 250-1000 m<sup>2</sup> (medium)
- Rental properties between 1000-2000 m<sup>2</sup> (large)
- Rental properties of over 2000 m<sup>2</sup> (extra-large)
- Rental properties of Food Court (restaurants, kitchens)
- Warehouses
- Cinema



## 1.2 Basic construction

The storey division of the building is the following: 2 underground levels, ground floor, mezzanine level (between the two last ones is a little built-in middle floor, the loading bay level), 5 floor level, of which the third floor is a half-floor and 1 roof level which includes a large area with green areas).

**The functional design of each level is the following:**

### Underground levels:

at the planned 2 basement levels, the following functions have been added:

- parking spaces for the building services
- a significant part of the mechanical and electrical facilities
- the public utilities
- the sprinkler machine engine room and container
- operational and commercial warehouses

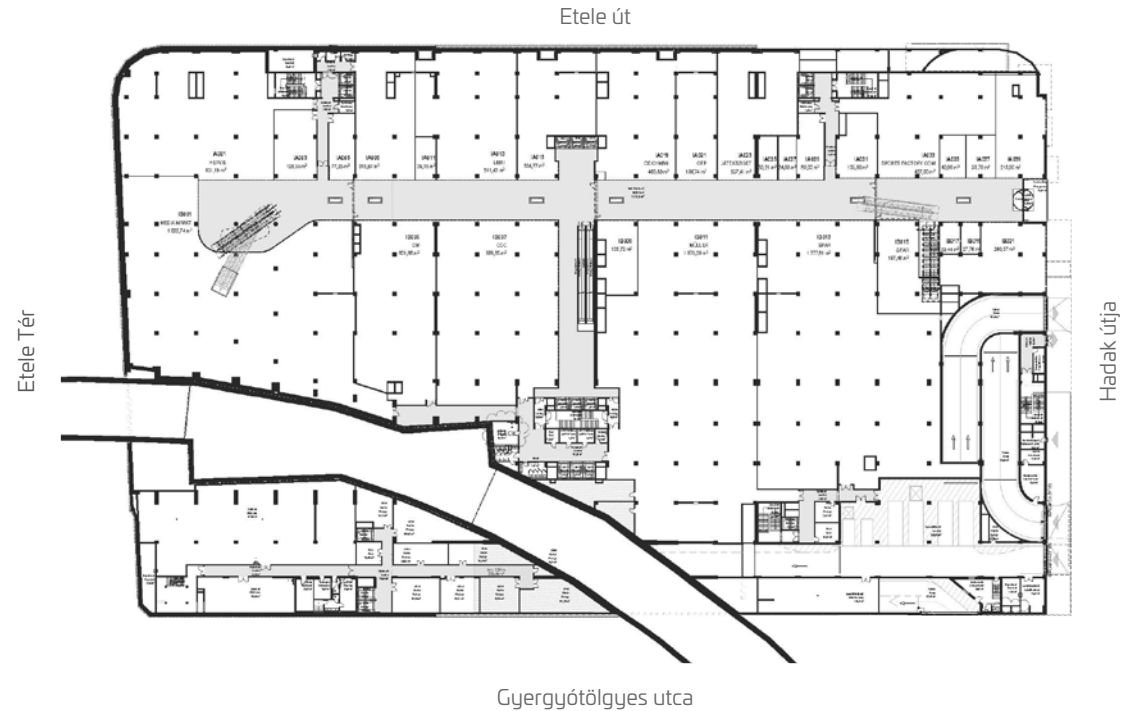


## Ground floor

The northern passage of the building opens from Hadak Road, which is the only public transport crankshaft on the floor. From this central traffic door, the various commercial and service units and the vertical corridors and escalators that are mentioned above are opened. Also on the Hadak Road is to be found the ramp system serving the basement garages.

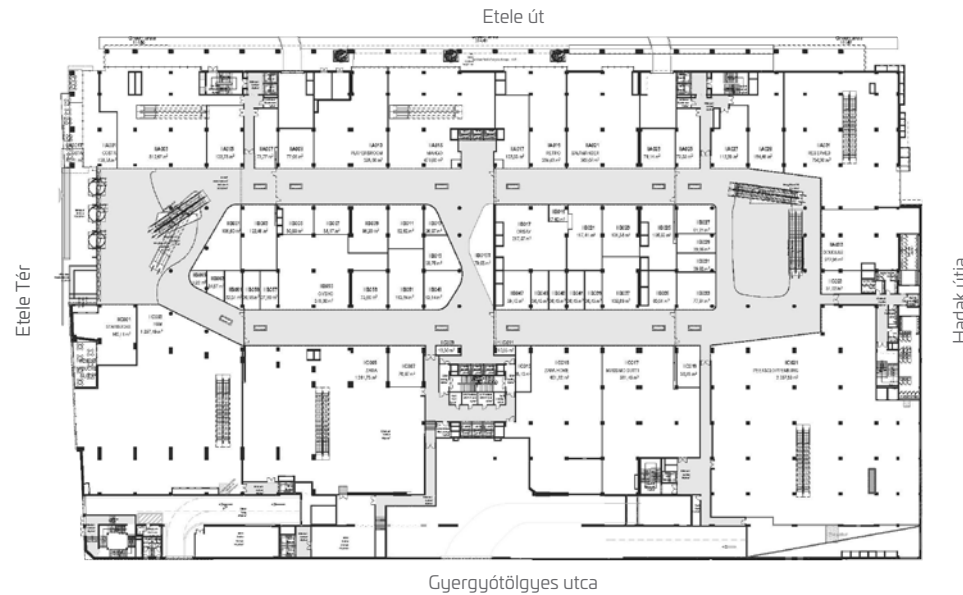
In addition to the incoming ramp, the load ramp to the loading bays can be easily and visibly distinguished from the cargo area. The eastern loading bay is also located on this level, which is expanded with selective waste collectors and technology serving them.

On the South side, at the corner of Gyergyótölgyes Street and Hadak Road, opens the ramp leading to the roof-top outdoor car park. At the southwest corner, the exhaust mass of underground objects cuts off a triangular shape from this level of the building. Mechanical rooms, warehouses and a social block for the workers are to be found in this triangle.



## Loading bay level

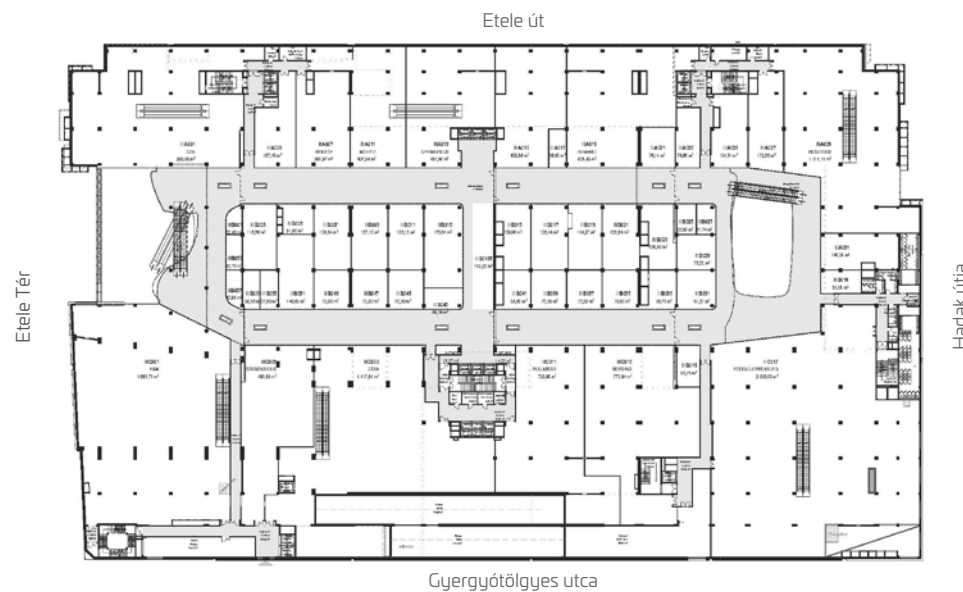
this level is a “half level” between the ground floor and the mezzanine floor, where the largest loading bay of the house, its warehouses, selective waste collectors and other technology rooms are located in the middle of the Gyergyótölgyes Street. At this level, we have also illustrated the two smaller freight yards of Etele Street.



## Mezzanine level

The western high passage of the level is connected to the Somogyi Street with a stair and a barrier-free ramp. From here, there are two main commercial malls to the eastern side of the atrium, interlocking an intermediate block like islands.

Commercial areas open north and south of the passage. The customer social block was placed on the eastern side of the building, connected to the atrium. At this level, there are two exits of the ramp from the roof car storage. One onto the Somogyi Street, one onto the Gyergyótölgyes Street let the cars out, both are in the near of the south-western corner.



## First floor

The first floor is filled out almost entirely with commercial function. The floor plan reflects the mezzanine level. On the east side, there is the social centre for the customers, and the eastern and western atriums are connected through two main (north and south) malls.



## Second floor

At this floor, the outdoor car storage function appears first. The roughly central longitudinal axis of the building extends eastward to the west and divides this and further upper levels. There is parking provided on the south side, while on the North side, there is a commercial and service function. The height levels of the two parties are also different as the parking levels can perform their function perfectly even with lower headroom.

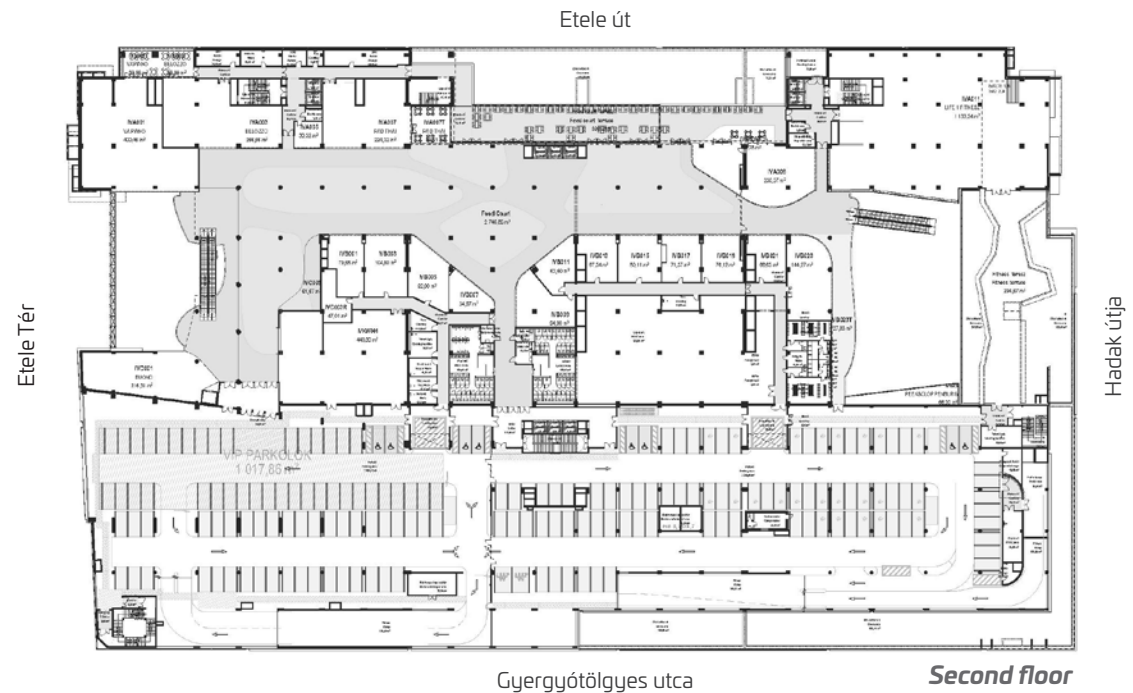
At this level, you can find the culinary centre of the house, the so-called Food Court, or a food court. The northern green terrace is linked to the food yard function and provides a consumer terrace. The gastronomic area is supplemented with restaurants, which have a kitchen technology block and are also connected to the parking lot.

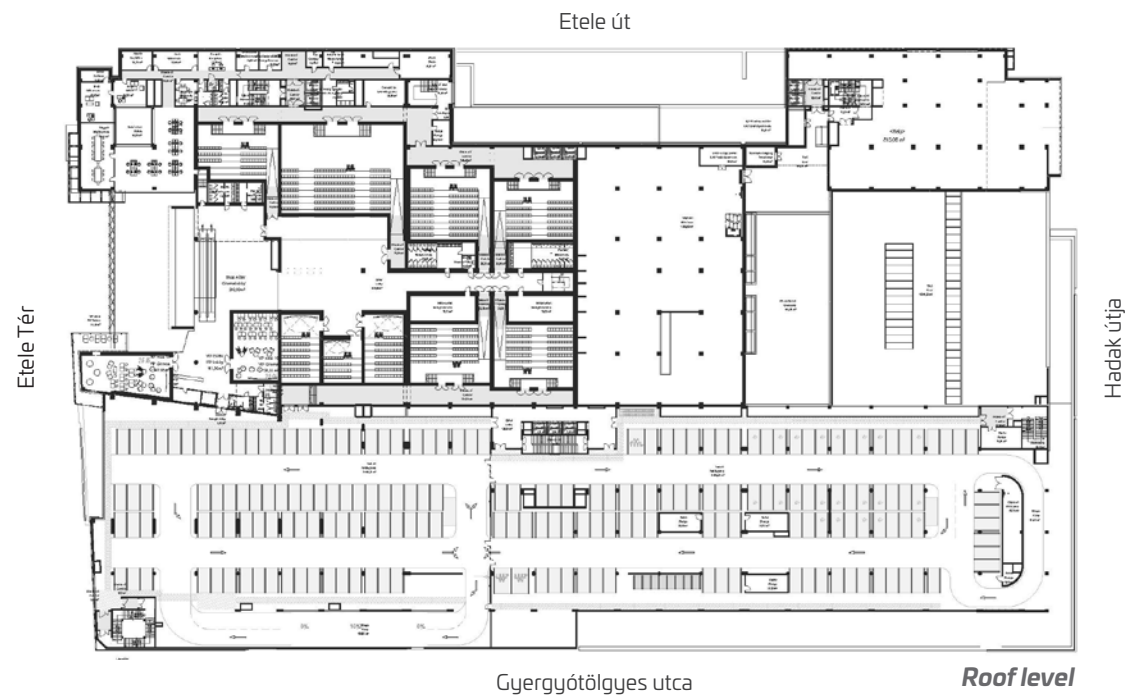
The function is complete with a large consumer social block.

On the floor, there are also a cinema front, cashier and buffets, as well as a 600 m<sup>2</sup> children's playroom, and the lower level of a two-level fitness. The already mentioned eastern side green rooftop is connected to this level.

## Third floor

Ez tulajdonképpen egy félszint, mely a már fentebb említett módon a ház déli felét foglalja el, a területen teljes egészében kültéri parkoló funkciót biztosítva.





## Fourth floor

this is the entertainment centre of the building, namely a cinema with a capacity of approximately 1900 people, with 11 smaller and bigger rooms, which occupies a significant proportion of the fifth floor due to its high ceiling height.

To the north of the cinema, we placed the operating offices in the north corner of the house and the closely related functions (security service, medical room, dispatcher etc.)

East of the cinema is its mechanical space and then an open green roof. The North East corner is the top level of two-level fitness. Underneath, a lightweight roof covering an eastern atrium is located, some of which are glazed.

The south side of the house occupies the already mentioned outdoor parking area.

## Fifth floor

the top floor level is not fully integrated. The southern part of the house is still an open-air outdoor car storage. The cinema rooms go largely beyond this level too. There is an indoor machine room above the operating office. Above the machine room of the cinema, we built an acoustically demarcated, but above-open, mechanical court for the cooling equipment at this level.

## Roof level

part of the roof level was covered with an extensive and intensive green roof to ensure the required green space and avoid the urban-heat-islands.

## 2. REQUIREMENTS FOR THE SHOPS

### General Requirements

The building of the shopping centre and the space of rentals are connected to each other on the passage areas (and on the Food-Court). The atrium spaces near the passage areas and the entrances have a rather distinctive interior design appearance. Typically, the colour is white and gold, in which some black and the beige and grey colour effects of the floor coverings are mixed.

The design of the rental properties, in particular the shop window, suspended ceilings and ceilings, must fit the building's interior design concept! Basically, the well thought out, high quality design is recommended. The proposed plan of the stores shall take particular account of the requirements set out in the following points:

- Floor plan and internal transport
- Shop portals, entrances, signs
- Ceiling
- Flooring
- Equipment, furniture
- Partition walls
- Material use
- Accessibility
- Sustainability, BREEAM (in a separate section)
- Technical building systems (in a separate section)
- Lighting, electrical networks (in a separate section)
- Fire protection (in a separate section)

The Landlord expects plans, drawings and specifications that meet the requirements from the Tenant.

If Tenant decides to make any of the fit out works in leasehold area by Landlord, the cost of this based on open book policy: subcontractor price+12%.

### Basic Development and Internal Transport

The business premises shall be designed in a such way that the background areas (warehouse, social block, office) are to be located in the rear tract of the premises.

The higher furniture (above 1500 mm) shall be located close to the boundary walls, and basically in the interests of transparency, the lower elements are preferred.

The optimal design of the internal transport is the task of the Tenant. In the width of the entrances, furniture at the first three meters measured from their thresholds can not be installed (except the guard rail gates). The entrances can not be narrowed in any way.

### Shop portals, Entrances, Signs

The portal structure is from the upper plane of the reinforced concrete slab to the steel port reception structure pre-positioned by the Landlord.

The portals are to be built by the Tenant, together with their associated any auxiliary structures, the Landlord provides the connecting structures required at the connection points.

For the creation of the portals, we give suggestions for each regional zone in Chapter 6. of the Tenants Guide.

FOR STRUCTURES OF PORTALS, ONLY FRAMELESS GLASS STRUCTURES AND GLASS-GLASS STRUCTURAL CONNECTIONS MAY BE ACCEPTED. Where use of fasteners is necessary, efforts must be made to minimize the use of materials using structural glass or silk-screen stainless steel.

The frame structures can be concealed in the floor / ceiling in a covert manner or behind the pillars. Any material of the foot or box along the edge of the portals shall be selected from the proposed materials and clearly marked on the Tenant's Concept Plan.

The structural support can be made using glass and silk-gloss stainless steel point gripping elements for glass-glass bolted connections (steel or other fabricated rib/profile system is not permitted)

- Class 1 (B) 1 laminated safety glasses according to EN 12 600.
- The applied glass structures must always be dimensioned! You must strive for the use of larger, interlocking glass panels!
- The glass material is watertight in any case, coloured and reflective surfaces can not be used.
- Use of see-through inhibiting shading, glass foils or framing are not accepted.
- Applying adhesive foils, light mosaic tiles, elemental cover, plastic panels or texture paints in this area are not accepted.
- Brand names, credit card signs, paper, cardboard etc. can not be placed directly on the portal.
- Using temporary tables are not allowed.

The portal shall be made of laminated or tempered glass with a glass door. The material of door hardware and visible structures shall be selected from the recommended materials!

The entrance doors to the portals can only be constructed as frameless glass doors.

- In the case of a sales area size below 250 m<sup>2</sup>, the door can be opened inwards.
- In the case of a sales area of over 250 m<sup>2</sup>, the doors must open outwards, but they can not enter into the space of the passages, they can not reduce their width, they can be from the rental property line (approx. 1,00 m). The material of the fittings can only be brushed stainless steel.
- The height of the entrance doors is 2,70 m for the mezzanine and the first floor, 2,4 m for the ground floor and the P-1-level portals.
- Stores larger than 6,00 m wide can be made with double glass doors with a full glass surface, with an aperture size of 2,70 m in width.
- Stores less than 6,00 m wide can be made with a single-leafed glass with a full glass surface instead of a double-door. The minimum interoperability width of the aperture must comply with the relevant legal requirements, fire protection requirements.

Developments and calculations of nodes are to be submitted as part of the Schedule of the Tenant's terms of reference.



## Ceiling

The suspended ceilings to be built in the business premises are built by the Tenant.

In general, in the shop space, up to a one and a half-meter depth from the plane of the portal structure, the lower plane of the suspended ceiling must fit the connection plane of the Mall's ceiling (4,0m and 4,5 m).

In this section, a flat, suspended ceiling must be provided with a solid surface.

Ceiling constructions connected to the portal are included in the drawings of the portal types (Tenants Guide Chapter 6).

Different solutions must be individually licensed to the Landlord!

When designing suspended ceilings, you must consider the reinforced concrete structures and the mechanical and electrical trails built by the Tenant!

The typically "clean interior height" for business premises is 2,50 m on the -1 basement level, 4,00 m on the ground floor and 4,50 m on the other floors. In areas marked on separate planes, along the boundaries of the plot, due to external field connections, there can be areas with different heights. Locally, on 5% of the floor space, a slight decrease headroom may occur, especially at the joints of the mechanical shafts and at crossings of the ridges.

Underneath these heights, only Tenant Structures will be placed.

The material of suspended ceilings can not be combustible!

## Flooring

In the building, above the reinforced concrete slab, floor layers of different thickness are formed. In commercial areas, this is usually a screed and covered with glued floor coverings.

Carving, cutting or damaging the reinforced concrete structures are not allowed!

The screed is to be constructed by the Landlord at the Tenant's expense in general cases. In the screed layer, the placement of cables, lines required to be used in the building, "groove milling" and its improvement are the task of the Tenant.

The Landlord performs the screed layer according to the standards in force, the tolerance, the deviation from the plane is  $\pm 4$  mm measured at 1 m. The task of the Tenant is to correct the cracks that may be caused by drying, shrinkage and the necessary levelling of the substrate.

The designed thickness of the floor layer is typically 10 cm in commercial levels, of which 2 cm is available for the floor covering to be made by the Tenant.

The thickness of floor layer on Food-Court level is 30 cm, of which upper 2 cm is also a floor covering. In the case of rentals with kitchen facilities, due to the Tenant-related water-drainage and kitchen technology installations, the Landlord prepares only the salvage insulation, and the layer above is to be done by the Tenant.

The upper level of the floor covering of the shop floor shall not deviate from the floor level of the connecting passage areas. To ensure the accessibility, it is necessary to solve the connection without a threshold!

If the entrance is made out of the lease of the shop, the Mall floor covering shall be extended to the door.

There is no possibility to level change in the floor level of the shops.

Installation combustible coverings is not permitted!

## Equipment, Furniture

Any built-in or mobile furniture must be in new condition. Use of used or partially used equipment is not permitted.

Additional conditions:

- The use of a rail wall shelf system is not allowed within 2,0 meters from the border of the rented property of the business premises.
- The height of the units placed inside the shopping area is limited to 1,50 m in order not to hinder the room's transparency.
- The rental property walls are not suitable for picking eccentric loads, so you can not hang furniture!

## Partitions

The rental property boundary walls are built by the Landlord. In these cases, no breakthroughs can be made, neither can they be weakened by drilling or cutting. When transferring the rental property to the Tenant, these walls are formed with Q1 – with basic grouting – quality without any optical requirement. The transfer of loads, the use of fittings, the installation of mechanical and electrical fittings can be solved by using a facing wall, which must be constructed by the Tenant.

The partitions inside the rental are usually 15 cm thick fitted plasterboard or Ytong partitions. When designing the walls, fire regulations must be observed!

If there is an escape door to the boundary wall of the business premises, the Tenant must not restrict the free use of it in any way!

## Use of Materials

### Proposed Materials:

- Natural, non-porous stone – limestone, slate, granite, artificial stone, terrazzo
- Hardwood (from sustainable sources) with surface treatment with pickling, painting or lacquering
- Clear or acidic, sandblasted, painted, patterned glass
- High quality glass fiber reinforced plastic (with special painting in plant)
- Metals – brushed, anodized or polished stainless steel, aluminium, copper or brass, powder-coated aluminium or steel
- Hard plastic

### Materials to be avoided:

- Plastics – acryl sheet, patterned or coloured (painted glass imitation)
- Perspex sheet or other plastic (except parts of company and navigation items)
- Aluminium rail wall shelf system within 2m behind the shop window
- Hand-painted softwood, plywood or any other material
- Phosphorescent or fluorescent painting
- Poor quality imitations (e.g. wood grains or bricks)
- Glued plywood
- Wallpaper or wall cover
- Fragile materials that can easily be damaged or crushed
- PVC and rubber floors, coir mats
- Materials found by the Landlord to be of poor quality
- Materials classified as fire protection and / or safety hazards
- Metals without surface treatment

When choosing materials, the environmental, sustainability and fire protection aspects must be taken into account too!

## Accessibility

When designing and implementing the Shopping Centre, accessibility considerations have been taken into full account. These aspects shall bear in mind by the Tenants during the construction of the rental properties, with special regard to the accessibility of the premises for people with disabilities (entrances with adequate width, internal transport roads, avoiding level differences... etc.)

## Sustainability, Bream

The building aims to achieve the class Very Good according to the BREEAM environmental and energy-conscious building qualification system. Therefore, environmental awareness has been given a special emphasis on building and land development.

When selecting the materials to be built into the rental properties, the following points and the Green Guide shall be taken into account by the Tenant:

- woods must come from the certified forestry
- were harvested and processed within 800km
- use of recycled materials
- avoid use of toxic materials (asbestos, lead, toxic waste paint, adhesives etc.)

In the building, there is a separate waste collection room for paper, cardboard, glass plastics and metals.

### 3. SANITARY SYSTEMS

The Landlord provides the following mechanical connections at the rental property boundary:

- Treated fresh air supply
- Toilet extractor ventilation system
- Connection to the central hot water circuit of the heating and cooling system
- Cold water connection
- Sewage connection
- Greasy sewage connection (for kitchens only)
- Heat and smoke control system (for shops over 1200 m<sup>2</sup>)
- Sprinkler system (basic upper line protection)
- Fire water supply

#### Treated Fresh Air Supply

The Landlord provides fresh air connection to the shops on the rental property boundary.

The ventilation and exhaust air duct is placed in the suspended ceiling and in a mechanical shaft. At the border of the shops or in some cases in the area of the rental property, the Landlord provides a fresh air connection with a static balancing damper and closure element.

**Building a fresh air network within a rental property is the task of the Tenant.**

The technical parameters of the connections to the rental properties are shown in the table below.

Ventilation air connections for rental properties	Fresh air m <sup>3</sup> /h/m <sup>2</sup>	Tbe (winter) degrees C	Tbe (summer) degrees C
Shop - small (0-250m <sup>2</sup> )	5	18	26
Shop - medium (250-1000m <sup>2</sup> )	5	18	26
Shop - large (1000-2000m <sup>2</sup> )	5	18	26
Shop - extra-large (above 2000m <sup>2</sup> )	5	18	26
Hypermarket	5	18	26
Foodcourt - kitchen	30	18	18

#### Extraction Ventilation System (Toilette, Fat Extraction)

In the shops area, the Landlord will provide connection to the extraction of the social blocks that were later built by the Tenant.

The exhaust air duct is placed in the suspended ceiling and in a mechanical shaft, in the area of the shops, the Landlord provides a branch line with a static balancing damper and an end closure element.

**Developing an exhaust network within a rental property is the task of the Tenant.**

The amount of air supplied by the Landlord to extract the water block:

- **small** (0-250m<sup>2</sup>), Vel=100m<sup>3</sup>/h
- **medium** (250-1000m<sup>2</sup>), Vel=200m<sup>3</sup>/h
- **large** (1000-2000m<sup>2</sup>), Vel=400m<sup>3</sup>/h
- **extra-large** (2000m<sup>2</sup> fölött), Vel=500m<sup>3</sup>/h

The Landlord provides a separate greasy air extraction in the kitchen areas on the Food-Court level, for each kitchen rental property.

A greasy air extraction connection point of 3000 m<sup>3</sup>/h per kitchen units is built. By greasy air extraction of the kitchen, the use of auxiliary (supporting) air jet induction hoods is mandatory. In the first stage by swirl chamber mechanical grease isolating filtration, in the second stage with ozone oxidation chemical (UV) filtration. For adsorbing the odor materials, if required by the use of activated carbon odor filtration.

**The kitchen extraction shield is to be provided by the Tenant, and can not be deviated from the technical construction and type specified by the Landlord.**

In case of leased areas with kitchens, where Tenant wish to install a kitchen extinguisher authorized by an official obligation \*, or for any other reason, only that equipment may be provided, where the manufacturer's instructions clearly specify, that the use of ventilation unit is not necessary during the time of extinguishing. Exceptions can be made to those vents, which can be directly driven outdoors without touching other fire section or level, but in this case the planned implementation must be agreed in advance with the lessor prior to the authorization.

\* (Oils, fat handling, processing kitchen appliances, where the total installed capacity of the unit or, the total output of the combined extractor units exceeds 50 kW)

## Heating – Cooling System

For the store, the Landlord will build a heating-cooling connection point inside the room for each rental unit, under ceiling, with shut-off and a measurable balancing valve.

The size of the connection is determined by the amount of water corresponding to the type and size of the business. The connection cable is made of steel with closed cell insulation.

At the connection point, the pump pressure differential available to the shop is 0 kPa, connection must be made by the Tenant to integrate the building's central remote reader network installing heating-cooling submeter, which brand is specified by Landlord, based on the sample wiring plan attached to the rental property package.

The secondary heating and cooling system (heat pump system within the rental property) planned by the Tenant, in cooling mode, taking into account the water temperature of 30/38°C,

Cooling performance for rental properties at the connection point	Q total W/m <sup>2</sup>	Q kond W/m <sup>2</sup>	V kond l/h/m <sup>2</sup>
Shop - small (0-250m <sup>2</sup> )	125	160	17,6
Shop - medium (250-1000m <sup>2</sup> )	110	141	15,5
Shop - large (1000-2000m <sup>2</sup> )	100	129	14,1
Shop – extra-large (2000m <sup>2</sup> fölött)	100	129	14,1
Hypermarket	80	103	11,3
Foodcourt - kitchen	220	282	30,9

in heating mode, taking into account the water temperature of 28/20°C.

Internal temperatures for shops:

- **in winter: 20°C ±2°C**  
(in case of -13°C outdoor temperature)
- **in summer: 26°C ±2°C**  
(in case of +32°C outdoor temperature), with -6°C (±2°C) outdoor temperature monitoring

The Tenant shall use heat pumps for refrigeration and heating equipment in accordance with the technical parameters specified below by the Landlord:

EER = 3,5 (energy efficiency ratio)  
COP = 4,0 (performance factor)

The shut-off and control valves are installed for each connection. The points of connection of the pipeline network are locked up for the prospective Tenants.

The sound pressure level within a shop must not exceed Lp=50 dB(A).

The measurement and testing of the above must be done at the cost of the Tenant and the Tenant shall be responsible to do so.



## Cold Water Connection (Hot Water Supply) divided into Shop Types

### **small (0-250m<sup>2</sup>):**

For the shop, the Landlord will build a cold water connection point at each property unit at the rental property boundary or maybe inside the room, under ceiling, with a shut-off valve.

Pipes are equipped with DN20-sized plastic or galvanized steel with closed cell insulation.

The available pressure is 1-5 bar, depending on the level of building complex at which the shop unit is located.

The connection is to be built by the Tenant by installing a sub-meter – its make is to be determined by the Landlord in order to be able to integrate it to the remote reader network of the central building.

**Hot water supply is provided by local electric hot water producers, its construction is a task of the Tenant.**

Workers can use the central dressing room and toilet-shower block designated for them.

### **medium (250-1000m<sup>2</sup>):**

For the shop, the Landlord will build a cold water connection point at each property unit at the rental property boundary or maybe inside the room, under ceiling, with closed cell insulation.

Pipes are DN20-sized plastic or galvanised steel with closed cell insulation.

The available pressure is 1-5 bar, depending on the level of building complex at which the shop unit is located.

The connection is to be built by the Tenant by installing a sub-meter – its make is to be determined by the Landlord in order to be able to integrate it to the remote reader network of the central building.

**Hot water supply is provided by local electric hot water producers; its construction is a task of the Tenant.**

Workers use a shop with their own toilet and hand-washing and dressing facilities, its construction is a task of the Tenant.

### **large (1000-2000m<sup>2</sup>): and extra-large (above 2000m<sup>2</sup>):**

In the area of large rental properties, a separate dressing room is required to be built as a part of the Tenant's building, with separate women's and men's changing rooms, a laundry room and a storage for cleaning articles, its building is the task of the Tenant.

The Landlord will build a cold water connection point at each property unit at the rental property boundary or maybe inside the room, under ceiling, with closed cell insulation.

Pipes are DN20-sized plastic or galvanised steel with closed cell insulation.

The available pressure is 1-5 bar, depending on the level of building complex at which the shop unit is located.

The connection is to be built by the Tenant by installing a sub-meter – its make is to be determined by the Landlord in order to be able to integrate it to the remote reader network of the central building.

**Hot water supply is provided by local electric hot water producers, its construction is a task of the Tenant.**

### **Supermarket**

In the area of the supermarket, as a part of the Tenant's construction, it is necessary to have its own dressing room, with separate women's and men's changing rooms, a laundry room and a storage for the cleaning articles, its building is the task of the Tenant.

The Landlord will build a cold water connection point at each property unit at the rental property boundary or maybe inside the room, under ceiling, with closed cell insulation.

Pipes are DN32-sized plastic or galvanised steel with closed cell insulation.

The available pressure is 1-5 bar, depending on the level of building complex at which the shop unit is located.

The connection is to be built by the Tenant by installing a sub-meter – its make is to be determined by the Landlord in order to be able to integrate it to the remote reader network of the central building.

**Hot water supply is located by local electric hot water procedures, or by the condenser heat of cooling equipment (display refrigerator, cold storage etc.) to be installed in shops, they produce domestic hot water by means of heat exchangers, its building is the task of the Tenant.**

Dust collectors have a floor drain, a cold and hot water supply points. At the supermarket, rubbish collector will be built with selective waste collection.

**Food-court - Kitchen**

The kitchen units must have their own dressing block. In their own dressing block, they must provide a laundry room with storage for the cleaning articles.

The Landlord will build a cold water connection point at each property unit at the rental property boundary or maybe inside the room, under ceiling, with closed cell insulation.

Pipes are DN20-sized plastic or galvanised steel with closed cell insulation.

The available pressure is 1-5 bar, depending on the level of building complex at which the shop unit is located.

The connection is to be built by the Tenant by installing a sub-meter – its make is to be determined by the Landlord in order to be able to integrate it to the remote reader network of the central building.

**Hot water supply is provided by local electric hot water producers, its construction is a task of the Tenant.**

Central dust collectors have a floor drain, a cold and hot water supply points.

**Sewage Connection**

Each flat unit is equipped with a conventional sewage system designed to form a toilet. For drainage at the back of the shop – in the presumed design area of the toilet and wet block - a D100-sized connecting sleeve is provided by the Landlord.

**The drip water of the heat pumps or other equipment with drip water must be drained by the Tenant to the respective connection points.**

**Greasy Sewage Connection (for kitchens only)**

The Landlord provides a greasy sewage drainage for the kitchens of the food-court via a D100-sized wire connection.

**Heat and Smoke Control System**

The building has a mechanical and gravitational heat and smoke control system as well as a ventilation system.

For shop larger than 1200 m<sup>2</sup>, smoke extraction in accordance with the 1 % of the floor space shall be installed with the corresponding fire regulations. The heat and smoke extraction can be carried out by machine, whereby smoke extraction and extra air is provided for each required smoke extractor per 2 m<sup>3</sup>/s.

Smoke extraction and additional air connections are provided by the Landlord at the boundary of or within the rental property.

**The Tenant is responsible for the building of a smoke extractor and additional air network within the rental property in compliance with the law.**

**Sprinkler System**

Each unit has a damp sprinkler network, directly under the ceiling, with general grid layout, according to the relevant provisions.

If the Tenant design has a territorial segments or covered areas, the installation of an additional sprinkler head is required. If a hanging suspended ceiling is built up in the rental property, the basic sprinkler system must be expanded with a lower sprinkler line to protect the spaces under the ceiling. Any modification or maybe extension of the sprinkler network is possible to the expense of the Tenant. Design and construction can only be carried out by the basic sprinkler system building company building at the cost of the Tenant.

**Fire Water Supply**

The construction of the standard internal fire hydrant network is provided by the Landlord, but if the moving of hydrants is required due to the shop premises planned and rebuilt by the Tenant, or the installation of a **new hydrant, it is the task of the Tenant.**

## 4. LIGHTING, ELECTRIC NETWORKS

### Power Systems

The electrical connection of the shop to the rear wall of the rental premises is built by the Landlord.

The capacity of these connections is in accordance with the terms of the Lease Agreement.

#### Electricity provided in basic construction:

- **80W/m<sup>2</sup> for small shops** (below 250m<sup>2</sup>),
- **85W/m<sup>2</sup> for medium sized shops** (250-1000m<sup>2</sup>)
- **90W/m<sup>2</sup> for large shops** (over 1000m<sup>2</sup>)

The envisaged amount of energy (W/m<sup>2</sup>) includes the value of the heat pumps to be built in the shop by the Tenant, which is 35W/m<sup>2</sup>.

The power supply of the shops is done on a 3-phase 400V voltage level, supplying the stores with a built-in enclosed rail system. The consumption sub-meter will be installed in the enclosed rail branch line. From the enclosed rail connector to the Tenant area, the electrical connection is to be done with a cable. The Landlord shall provide access to the enclosed rail connection point in the ceiling space.

In the large stores, the electrical power is supplied directly from one of the main distribution unit of the building. In this case, the meter is located in the main distribution unit.

Due to the energy supply of the base building, double electricity supply with limited power can only be provided for rental properties in exceptional cases. This can only be done after a preliminary Landlord consultation, based on a separate agreement.

In case the Tenant requires more performance than the above electricity power, the Landlord will provide this under a separate agreement. This additional claim shall be requested by the Tenant in writing. The Landlord examines the claim whether the building system can provide it. The planning of the modifications and the building of a connection with the energy surplus shall be planned and implemented by the Landlord to the rented area, at the costs of the Tenant.

**The design and building work of the rental property's entire electrical network element (such as rental property distribution, lighting system, safety and exit lighting, plug-in network, electrical supply of each electrical installations) is the responsibility and cost of the Tenant.**

The Tenant shall make a design plan for the rental property, the design plans shall be submitted preliminary to the Landlord for approval, together with a design statement. Only after the approval of the Landlord can the construction work begin.

The facade advertisements and shop window lighting of Tenants from the shopping street side shall be provided by the Tenant's electrical system in such a way that they can be controlled by the central building supervision in order to keep the image of the shopping street unified.

In the event of a fire, the mechanical equipment for comfort ventilation shall be automatically disabled. For the blocking, the Landlord provides a voltage-free contact to the Tenant. The Tenant is obligated to build the blockings.

### Fire Protection Tenant Main Switch

Electrical design plans shall be made by the Tenant in such a way that the fire protection main switch of the shop is next to the entrance.

The Tenant shall be permitted to prohibit their own internal sounding in case there is a central alarm in the building. Controllability means blocking or forced silence.

### Emergency Lighting

The emergency lighting must be designed and constructed within the scope of the rental property in accordance with the requirements of the MSZ EN 1838, MSZ EN 50172, TVMI and the 54/2014 BM. The back-up time of the emergency lighting is 90 minutes.

### Protection Against Electric Shock:

The contact protection network of the facility is set up in accordance with MSZ 2364, MSZ HD 60364-4-41, and MSZ 2040 standards.

- 0,4 kV: TN-C-S system (reset), for some circuits with power protection switch
- For UPS (uninterruptible power supply): IT system, TN system by by-pass
- For commonly used plug sockets TN + current protective switch with 30mA sensitivity

The zero-conductors of the splice junctions on the N rail, its protective conductors must be disconnected from the PE rail.

The protective conductor (PE) to be installed separately from the zero conductor, shall be connected to the normally non-powered metal body of the consumers, devices, or, if any, to the factory-made ground connection.

Distribution equipment shall be provided with a warning sticker with a durable label.

#### **Overvoltage Protection:**

In the building an internal lighting (overvoltage-protecting) system will be built in consideration of the relevant standards and regulations.

In the main distributor, we are designing a 1st class, in the sub-distributors a 2nd class overvoltage protection.

The Tenant shall build himself the necessary overvoltage and interference protecting devices in his own electrical system.

The energy deployment needed to build the rental property area is provided by the Landlord at the expense of the Tenant. When transferring the rental property workspace, the enclosed rail system running the rental (by the large rental property with cable) is already in operation, so the rental property can already carry out the construction work using the final – measured – connection. Accounting according to the energy consumed, i.e. by meter.

Within the rented property, the Tenant shall arrange for overvoltage protection at his own expense, which must be harmonized with the overvoltage protection of the basic building. Execution in the rental property may be made with the prior written approval of the Landlord, according to the design plans approved by the Landlord.

## **Low-Voltage Systems**

### **Telecommunication Network**

The Landlord will build a route corresponding to the connecting cables to the area of the Tenant from the reception area of the building. The Tenant is responsible for managing his own IT connection contract to the service provider and for complete installation and wiring in the rental property area.

If Tenants require the connection of the telecommunication services of an external service provider, the need for their route must be reported preliminary to the Landlord. Upon approval of the preliminary plan of the Landlord, the local telecommunications company installs the network in accordance with the needs of the Tenant. The cable routing is made with taking into account the low-voltage routes inside the building.

### **Low-current Fire Alarm**

A single low-current fire alarm is installed in the building.

In the common areas, the Landlord shall build up the fire alarm system.

Prior to planning, licensing, construction and official transfer of the fire alarm system in the rental property area is a task and cost of the Tenant.

The fire alarm system within the rental property will be an integral part of the entire alarm system of the building, so the fire alarm of Tenant can only be carried out by a professional firm designated by the Landlord – and carrying out a system of common parts of the house!

The Tenant shall have preliminary his own rental system plan with the designated company, and after the approval of the Landlord, a “Building permit” shall be obtained by the competent authority.

The execution works can only be started with the possession of the „Building permit” submitted by a competent authority.

After the completion of work, a “Use license” for the fire alarm system of the Tenant must be obtained by the competent authority.

### **Sound System**

The blocking of the own, internal sounding of the Tenant must be permitted in case of a central alarm in the building. The control means blocking and forced silence that is to be monitored by the central low-current fire alarm. The Tenant is obligated to build the blocking, forced silence.

### **Security Technology**

Any security system (alarm, video surveillance, product protection etc.) shall be built by the Tenant within the rental property. By special agreement, the security centre of the building can be transmitted.

## 5. FIRE PROTECTION

The main fire protection parameters of the building were also consulted, so to deviate from them, e.g. the fire section order, the evacuation concept, the fire protection equipment of the central areas, the rescue intervention conditions, and the modification of the requirements of the building structures in connection with the design of the Tenant – without the documented consent of the authority – is not possible.

In addition to the general fire protection requirements, the construction and the Tenant design must comply with the operative parts of the official approval regulations issued in the licensing plans, the licensing procedures, the official conciliation protocols included in each procedural phase and the provisions of the OKF decisions.

The Tenant design are to be carried out on the basis of the current building permit clause, the subsequent OKF exemption decision(s) and the OTSZ (the 54/2014. (XII. 5.) BM Decree) currently in force and the actual TVMI.

In addition to the present design, the internal Tenant designs may not affect the emergency windows, their paths must be maintained, their blockages, closure is prohibited.

Similarly, the fire protection equipment (fire extinguishers, smoke extraction, beacon lights etc.) of the building's central areas may not be changed, their operation may not be adversely affected by the internal design of shops or, without official approval, the design of such equipment can not be modified.

In the facility it is allowed to use a limiter with no fire performance between the shops and the traffic area (the mall), glass portal structures resulting from the

function. Since the wall is not fireproof, according to the fire protection design, doors, and windows may be used without protection. There shall be a smoke wall between the shops and the mall.

Rental shop areas are rooms in terms of fire protection planning, while the central shopping mall can be interpreted as an escape route. **Unique but qualified fire protection solutions and locks at the portal –and possibly inside the part of the rental property – shall always be agreed preliminary with the Landlord.**

**Depending on the evacuation calculation within the larger shops, roads protected with fire-protected structures shall be constructed.** While the building was licensed, the design of the portals was not yet known, so the rental property shall also take into account the location of the exits corresponding to the evacuation concept, besides leaving their own stores.

**The fire protection documentation of the Tenant shall also make clear that the evacuation time with respect to the evacuation periods can be guaranteed to the line of the locking gates.** (the evacuation section in the middle fire sections is 1,5 minutes to the gates, at the atriums on the sides, according to the second stage to the escape corridors.) Proof of the evacuation shall always be agreed with the Landlord taking into account the exceptions provided in the evacuation section. **Changing the planned evacuation paths is not possible as if may endanger the evacuation time of the building proof by calculation.**

In the case of shops with a normal number of employees less than 250 m<sup>2</sup>, the shop entrance doors can be opened inward. In this case, the warehouse, social block does not count in this surface area. The unhindered availability and usability of the doors built into the evacuation path shall not be affected by the

furniture design. The width of the exits of the shops and the routes leading to them shall be verified in the design documentation, but the width of the smallest exit shall be at least 0,9 m.

Shop areas larger than 1200m<sup>2</sup> shall have smoke extraction systems, which will be completely independent smoke extraction systems, equipment of the central roads. In the case of small shops, it is not necessary to have smoke extraction system, unless they are not separated from the escape routes by a door-window structure or they can not be emptied within the prescribed 1,5 minutes, so it would be necessary to have internal escape routes.

If the commercial unit does not have built-in smoke extraction system, its demarcation from the traffic area shall be carried out with a door-window structure with a performance statement. The design of the portals in case of closing with an open safety grid (besides the above criterion, i.e. between two smoke-extracted spaces), a certified glass or other assembled structure will be secured with a 0,6 m length sag along the entire opening. In front of the non-combustive smoke wall, only a lighting fixture can be designed as a combustive material. (The lighting fixtures containing flammable material shall not be capable to replacing the part of the smoke wall, it must be constructed from a qualified structure on the full surface.)

In the event of a road crossing more than a passing path treated as an escape route (smoke-extracted) in the rental property, which is more than 40 m in length, a smoke-extracting Sa-rated doors for smoke extraction shall be installed. The smoke extraction system shall be installed in this case according to the closed position of the doors. The routes with possibilities of departure of the large open air passages shall not exceed the 40 m.

For doors and windows to be cleared for evacuation, no threshold higher than 15 mm shall be installed. For doors and windows for evacuation within the building blocks not included for public transport, the use of emergency openers and panic locks is not governed by the OTSZ regulations, but they shall be opened with one hand, able to escape by hand. In the main escape routes of the building and at the exits of the larger community spaces, the emergency opener, panic locking requirements (applicable standards MSZ EN 179, or MSZ EN 1125) are applied. If the number of people involved in escaping exceeds the 300 persons (in case of crowded premises or in the direction of the recommendation of TVMI for a traffic area of more than 200 persons), doors and windows shall be installed according to the provisions of MSZ EN 1125.

## Risk Classification, Requirements Concerning Function

Areas associated with the shopping centre are in a uniform, interrelated function, and in most cases belong to the same designation units within which a room justifying the establishment of a separate risk unit can not be built. There may be service-related features within the commercial partition, merging into the same risk unit. The commercial areas are separate fire sections.

**For the risk class of the units of the commercial-service rental properties, the requirements of the rental property function, purpose, size and capacity, as well as the purpose of the operation of certain premises are summarized in the Chapter 15 "Fire Protection" of the General Technical Description.**

## Building Structures

Considering the previously defined standard risk class MK, the building's „over six levels“ design, the building structures shall meet the following fire and fire resistance requirements. Only suitable building materials and structures with suitable qualification can be used during construction in compliance with the requirements of the following table. **In the table below, we only listed those structures that could affect the design of the rental properties.**

**Any modification (or conversion, e.g. sealing, closing) of any building structure that does not appear here is not permitted without prior agreement with the Landlord. (For a complete list of these elements, see the subsection of Building Structures in the section “Fire Protection” in the General Technical Description, in a table similar to the one below)**

Structure Group	Name of Structure	Risk Class MK “other” Building
An element of building construction that typically involves rental property design	Fire resisting division	<b>A1, A2</b> (in the place of derogation) <b>EI 90</b>
	Fire-resistant gap filling-gap locking systems (EI 90 also on fire resisting division)	the same as the structure concerned, but at most <b>EI 90</b>
	Fireproof linear joint seals (EI 90 also on fire resisting division)	the same as the requirement for connecting structures, but at most <b>EI 90</b>
	Fire-resistant closure	<b>EI 90</b>
	Grid structures of ventilation openings	<b>A1, A2</b>
Escape * routes structure	<b>Wall cladding</b>	<b>A2</b>
	<b>Floor covering</b>	<b>A2</b>
	<b>Ceiling, ceiling covering</b>	<b>A2</b>
	<b>False floor</b>	<b>A2 EI 90</b>
	<b>Heat and sound insulation, without covering or behind covering</b>	<b>A1</b>

\*In the case of the installation of the professional structures of the escape routes, where necessary, only the application within the given rental property does not imply a prior agreement requirement on the Tenant.

The certificate confirming the requirements of the table – in form of a manufacturer's performance declaration\* - shall be obtained from the manufacturer at the latest after installation. If a construction product is used, only a performance declaration based on a national or EU evaluation or a valid ÉME document is appropriate.

\*the Declaration of Performance issued on the basis of the 275/2013. (VII.16.) Gov. Decree - on the detailed rules for the design and construction of the construction product including a declaration of performance based on the detailed rules for performance certification

The requirements of the fire protection structures of the building are in the vast majority of vb. or masonry structures, any breakthroughs, passages. modifications to the fire resistance limit of a given structure or the violation of the continuation of the structure will not be permitted to the Tenants without prior consultation. In some cases, special protection (paint, coating, spray) can be provided for the appropriate fire resistance of the particular structure. When designing the interior spaces, these fire protection coating, system breaks and violations are prohibited.

In order to protect the emptying routes, rooms with a number of more than 20 people, single building units, and heat and smoke extraction rooms are to be separated from the other premises of the building with fire-resistant partitions (EI 90 structural protection) with a wall structure from the ceiling to the floor. Installation of fire-resistant closures in these fire structures is not warranted, unless the fire section a fire limit is at the same time. For rooms with a number of more than 20 persons, if they are not escape routes, walls without a fire resistance limit can be used within the room groups with the total area of 1200 m<sup>2</sup> floor area or a number of 300 persons. (unless otherwise specified by other e.g. the destination fire regulations).

The fire size sections require the formation of smoke sections in addition to smoke extraction. For low-ceiling functions (e.g. shops), smoke section can be performed with small smoke walls with little sag defined by designers (not exceeding the specified height), or by division of the mechanical smoke extraction with smoke sections. You can also use smoke walls at the boundary of the mall and the larger rental properties. According to the official consultation, the relationship between the routes and the commercial units, if both areas have smoke extraction system, (e.g. larger than 1200 m<sup>2</sup>, mass

gravity), can be made with a smoke wall, using no airtight doors and windows.

In the building, by the BM National Disaster Management Directorate issued by the decision of 01.06.2018 is authorized:

- design of the shop space larger than 1.600 m<sup>2</sup> but not exceed 2.300 m<sup>2</sup> surface area as a single smoke section
- building fire protection partitions with a fire protection class A2 with the expected fire resistance performance structure
- delay of up to 2,5 minutes of controlled fire closure of fire-proof sliding doors between the fire sections No. 10., 11., 12., 13. and 21. (except in cases where the fire is detected by an automatic fire detector installed near the slide)
- the use of a boundary structure with no fire resistance performance between stores and the transport route (the mall), i.e. construction of a glass portal structure according to the Tenant Guide

To counterbalance the design other than the general specifications, the following technical solutions for safety-enhancing fire protection shall be applied:

- heat and smoke extraction of shop areas with a surface area of more than 1.600 m<sup>2</sup> but not exceeding the 2.300 m<sup>2</sup> shall be provided mechanically, with a measure equivalent to 1,1 % of the floor area.
- in the fire sections 11 and 12, heat and smoke extraction system shall be provided in the escape route of the mall.

- evacuation of the fire sections 11 and 12 shall be ensured during the first evacuation period, up to 1,5 minutes.
- the evacuation of the fire sections No. 10., 11., 12., 13. and 21. shall be ensured with intelligent escape direction signals indicating the direction of escape depending on the location of the fire signal.
- in the near of the fire-proof sliding gates between the fire sections No. 10., 11., 12., 13. and 21, the installation of smoke detectors shall ensure the early warning of the fire and proper control of the sliding gates.
- a smoke wall is to be installed between the shops and the mall

In the rental property area transferred to the Tenant, the smoke wall can not be modified, any subsequent transformation or transfer can only be made in consultation and with the permission of the Landlord.

In the event of a road crossing more than a passing path treated as an escape route (smoke-extracted) in the rental property, which is more than 40 m in length, a smoke-extracting Sa-rated doors for smoke extraction shall be installed. The smoke extraction system shall be installed in this case according to the closed position of the doors.

A qualified door on the fire section borders, smoke section borders shall be labelled with „Fire (Smoke) Section Border! The automatic closing of the door must be ensured.“ in a durable, well-observable and legibly design.

Changes to the fire door openings associated with the rental property are not permitted or can be modified in individual cases only after consultation with the Landlord and the authority.



## Electrical Installations

**The electrical network of the rental properties is to be built according to the relevant technical guidelines.**

A separate isolation switch will be installed for the connection of safety devices important to the fire protection, which shall also be considered when designing the rental property. (Fire detection equipment, sprinkler, fire extinguishing system, smoke extraction, smoke-free stairway engineering, safety and emergency lightings, information sound, building control) For priority consumers, dual inputs will be provided with automatic switchover. Separate switching options shall be installed for the general consumers, priority consumers without fire protection, power cut and full power disconnection of the safety lighting and the priority consumers. Industry-specific designers shall consider how the consumer groups fit the building electrical system for the fire protection purposes. The rental property must have its own fire protection power cut, preferably near the entrance.

Illumination of escape signals must be in continuous operation during the period of use in the part of the building where the persons fleeing do not have local knowledge. On the escape routes, exits, emergency doors and escape doors from the individual rooms to the doors opening to the evacuation path, escape signs shall be created, which is designed to provide persons fleeing along the entire escape route with continuous and consistent visual information about the direction of evacuation, taking into account any alternative routes as well. Depending on the fire alarm, an intelligent emergency lighting system shall be used by the central commercial passages closed with fire-proof gates, which will show possible evacuation routes depending on the location of the fire and the closure of gates.

Fixing fire-proof cable systems shall be to at least a 10 cm thick reinforced concrete walls or slabs, reinforced concrete pillars and joist hangers, bridges, or 10 cm thick gas concrete or limestone walls, as well as at least 12 cm thick brick wall.

Externally or internally illuminated high or, if not possible, medium high located escape signs shall be installed on all escape routes of the building or in rooms with a capacity of more than 100 people. Low-installed escape signals shall be used, in addition to the highly installed safety signs, on the escape route of rooms with a capacity of more than 1000.

If additional backup power supplies, solar cells, UPS, aggregate installation are planned due to the different functions found in the building, special attention shall be taken to the design of fire-safety power cut. (Taking into account the safety power supply) The wiring system through multiple fire sections shall be installed so that firefighters intervening in the fire section affected by fire breaks are not endangered by an electric shock.

## Fire Sections

At the fire sectioning order of the building, the demarcations approved during authorizations plans shall be respected. Changes to fire section borders may only be carried out as agreed with the authority. At fire section borders, particular attention shall be paid to the fire-resistant seals, transfers, structural breakthroughs as already mentioned.

## Mechanical Engineering

**When designing a mechanical connection of the rental properties, account must be taken of the fire protection solutions of general mechanical systems.**

**Ventilation ducts that pass through the maintenance hatch and other areas within a fire section shall be made of at least C fire class material.**

Central ventilation and air conditioners automatically stop at the fire signal and are designed so that the ventilation system does not allow the proliferation of fire and flue gases between the individual levels and the fire sections. The grid structure of the ventilation openings shall be made from A1, A2 material. The ventilation ducts of the mechanical ventilation systems shall be lockable by the transfer through fireproof structures, (excluding fire resisting divisions), which closing devices shall automatically close to heat or flue gas. It shall be possible to control the fire damper at the fire sections according to the structural requirements by the intended fire detection device. (Except the wire for the water room ventilation and with a diameter of up to 0,1 m) Tenants can not install mechanical transfers affecting a fire section border without consultation with the Landlord.

Rental property areas planned in the building with smoke extraction (with fumigation):

- all commercial, rental premises above 1200 m<sup>2</sup>,
- room of the children's playground, playhouse (above 200 m<sup>2</sup>),
- cinema routes
- massive scale cinema hall

In rooms with the height of more than 1200 m<sup>2</sup> or for massive scale and in the day nursery, in occupational premises above 200 m<sup>2</sup>, in case of gravity smoke extraction, an effective opening surface that reaches 1% of the floor area of the room shall be provided with heat and smoke extraction and a ventilation surface. In case of mechanical heat and smoke extraction, the required extraction and air supply capacity of 2 m<sup>3</sup>/s can be calculated for every m<sup>2</sup> of the effective opening area for gravity smoke extraction and air supply.

**The task of the Tenant is to create a smoke extraction system within the rental property, to which the Landlord will provide the external technical conditions.**

In addition to the possibility of smoke extraction, the Landlord will build a fresh air supply connection at the boundary of the rental property of every shops larger than 1200 m<sup>2</sup>. The Tenant is responsible for carrying out the smoke extraction of the shop space adjusted the duct junctions from the connection point the construction of the rental property and according to the official regulations. Heat and smoke extraction points and fresh air supply openings shall be designed to prevent the spread of fire. At the exit points of the smoke extraction system (and in the immediate vicinity of the exhaust points), combustible material is not allowed to be installed or placed in the smoke extraction channels.

In the rental properties where smoke extraction is required, the exact design thereof shall be reconciled with the authority and the Landlord during the execution of the design plans. Stores and storage areas can not be considered as rooms with large inner height or for transfer, and smoke extraction areas shall be allocated in accordance with the Section 96. § of the OTSZ (or other verified method of calculation). For shops and larger rental properties, the inner height may be above 4 m, but the final allocation, suspended ceilings and other hanging structures, or interior design do not assume the conditions typical for the classical hall.

From the central smoke extraction standards specified in the licensing and implementation plans and their technical implementation can not be deviated. Do not install, place building structures, suspended ceilings, furniture coverings or structures that hinder the operation of heat and smoke. It is also not permissible to restrict, remove or relocate gravity

or mechanical smoke extraction openings or move them in comparison with the design plans.

Smoke extraction shall be designed so that the purge of the entire room can occur, without any unventilated areas. (Recommended design allocation for mechanical smoke extraction at least one drainage point per 200 m<sup>2</sup>.)

The 1% adequate mechanical smoke extraction of the large-scale food court consumer space will be constructed with the same design criteria as above, with the kitchen parts associated with it without smoke extraction due to the closeness of the relevant doors and windows.

The upper part of the inlet openings providing mechanical air supply shall be located from the floor to the lower third of the ceiling height, except for those on routes where max. up to 2 m, as well as at the atrium where the opening in the floor falls below the half of the inner height. At air supply points, air flow rates shall not exceed 5 m/sec.

Mechanical and gravity smoke extractions shall be designed so that they do not allow any fire spreading through the combustion of products and do not endanger fresh air replacements, other fire sections escape routes, air supply for heat and smoke extraction, air resistance of smoke extraction and fire extinguishing measures.

The corridors of the rental properties manage as escape routes have a calculated smoke extraction area adequate to 1 % of the floor area or an equivalent mechanical solution. When dimensioning, designing a smoke extraction system with air ducts, it is necessary to take into account the design considerations of the relevant TVMI. (e.g. on straight line routes, the distance between the inlet and outlet openings does not exceed the 15 m, in the bend max.

10 m, as well as from the direction of the escape up to 5 m away from the line between the inlets and outlets is allowed) By allocation of top air extraction and air supply up to 2 m the maximum 40m long smoke sections measured in the transfer path shall be taken into account.

The air ducts used for smoke extraction shall be at least E300 90 (ho) S 500 one (or single) qualified within the fire section, while by channels affecting multiple fire sections, a EI 90 (ve - ho) S 500 more (or multi) qualified product may be used. The design of smoke extraction, air duct channels crossing more fire sections shall be multi-sectional. The air duct used for smoke extraction is four-sided, i.e. it can not be used as a side of the surrounding building structures, channel or closure.

Non-combustive smoke extraction ducts may not be larger than 1250 mm x 1000 mm, except in the case of products which are qualified individually different. The integrity of the air ducts crossed though the normal fire section borders shall be ensured in accordance with the fire protective structures, which may be by a controlled fireproof sealing element or by a qualified air duct, covering.

The building structure used to fix the channel section used for smoke extraction shall have at least the same fire performance as the requirement for the given channel. Suspension steel threaded rods shall be allocated according to the requirements of the qualified systems, but they shall be not less than 1,5 m. The distance between the outer plane of the duct wall and the axis of the suspension shall not be larger than 50 mm. There is nothing to allocate above the channel that can hit or damage it during the fire. During construction, it is advisable to install such channels first and to install all other fittings under the completed channel (but not suspended!).

Fire extinguishers and their suspensions with fire performance are not subject to any other special equipment (wire, lighting, built-in fire extinguisher pipeline, etc.) and they will be built independently. Break through the channel wall (e.g. steel pipe, wire, revision door) is not allowed.

Ventilators for heat and smoke extraction with mechanical equipment are resistant to fire at 300 °C-on for 60 minutes (due to the fire sections protected by fire extinguishers F30060) The smoke extracting shafts are separated from each other and from the rest of the building bordered by fireproof structures, vb. walls. Instead of every square meter of the effective opening area of the heat and smoke extractor, the heat and smoke extraction equipment shall provide an air flow rate of 2 m<sup>3</sup>/s. (The calculated flow rate shall be taken into account at an ambient temperature of 20 °C. Air density  $\rho = 1,2 \text{ kg/m}^3$ .)

The smoke extraction capacity of the cellars and commercial areas belonging to the separate fire sections is provided on a common system, and their air supply is also provided with common shafts. The openings for one-level drainage shafts are closed with qualified, motorized smoke dampers controlled by a fire alarm system. All mechanical extraction has been dimensioned based on the principle of the simultaneity of the max. one level within the fire section (fire section). The factuality of the devices for air supply is ensured during the operation of the heat and smoke extraction equipment. The requirement of the multi-sectional smoke dampers for designing the common system is EI 30-S (i<->o) C, while ducts are the multi-qualified products described above.

When starting the smoke extraction system, possibility for manual start-ups shall be provided in systems within the rental properties. For larger smoke-free rooms, at the exits, for larger transport spaces at the central escape routes is the best to

place the manual start-ups. The smoke extractor systems start automatically for the fire alarm (not for manual signalling), at the given level across the entire fire section. By delayed closing gates, the smoke extraction system of the neighbouring mall or atrium will also start, as well as the smoke-free stairwells are started in all cases. Protected walkways leading to stairs start at any smoke alarms from a given level regardless of the fire section, and the smoke extraction of the atriums will also start in case of fire alarm at any level concerned.

Can not be deviated from the central smoke extraction standards specified in the licensing and design plans and their technical implementation. Do not install, place building structures, suspended ceilings, furniture, coverings or structures that adversely affect the operation of heat and smoke extraction system. It is also not permissible to restrict, remove, or relocate the gravity or mechanical smoke extraction openings or move them compared to the design plans.

Smoke extraction shall be designed so that purging of the entire room may take place without any unventilated areas. (Recommended design allocation for mechanical smoke extraction at least one outlet point per 200 m<sup>2</sup>.)

## Fire Water Supply, Fire Extinguishers

There is no need for wall hydrants to be built into the AK-class risk units with basic purpose, if their size does not exceed 1000m<sup>2</sup>, in the case of KK class 500 m<sup>2</sup>, (e.g. smaller size cellar storages, electrical rooms, machinery, stairways protection need not to be solved), but typically this does not affect the rented property design. The coverage of the rented properties with fire hydrant, the possible leaving of it shall be consulted with the Landlord.

The exact location of the internal fire hydrants is presumed to be presented to the authority during the preparation of the design plans, and their relocation without official agreement is not possible. Location of the wall fire hydrants within the shops are still unclear, it depends on the responsibility of the designer. In the allocation of the internal fire hydrants (taking into account the length of the hose) full coverage shall be ensured, the use of fire hydrants can not be limited by built-in structures, furniture, coverings etc. The full coverage of the rental properties shall be resolved (as depicted in the relevant plan descriptions) so that the fire hydrant reach all of the entire area along the hose line, and the hose can not be crossed through fire sections, smoke-free stairwell (and its direct evacuation paths). It must be borne in mind that by designing the partitions and the equipment of the rental property, the coverage of the hydrants can vary considerably. The standard design of wall fire hydrant cabinets may not be changed without the approval of the authority.

Internal fire hydrants, wall fire hydrants, fire hydrant cabinets and their environments shall be marked with illuminated safety signs. The safety signs indicating the location of the fire protection devices shall be placed above the device and the equipment at an altitude of 1.8-2.5 meters so that it is easily recognizable from the maximum distance in the room. If the recognition distance exceeds 25 meter, a warning sign and guidance safety sign corresponding to the device shall be used for the fire alarm signal.

According to Annex 16 of the OTSZ 16, the rental property shall be equipped with a fire extinguisher complying with the size of the extinguishing medium unit required by the size, but minimum 1 piece. The fire extinguisher shall be marked with at least an afterglowing safety signal the height of 1.8-2.5 above the unit so that the safety signal can be visible even if it is temporary covered. Wall-mounted

cabinets and wall fire hydrant cabinets for placing fire extinguishers (with compulsory safety signs) a clearly visible pictogram shall be fitted. The external material and cover of the fire hydrant cabinets may be adapted to the interior architectural environment, but their marking must be standard and unambiguous, and the design of fire protection equipment as defined above may not be modified.

## Fire Alarm, Fire Extinguishers

An appropriate fire detection equipment of sufficient technical quality has been established in the entire area of the mall.

The fire alarm equipment shall be approved under a special procedure for the competent first-degree fire protection authority until the use authorization procedure, of which detailed design and technical solutions are to be reconciled. When designing the fire alarm system, account shall be taken of the sections XIV and XV of the new OTSZ and the recommendations of the relevant TVMI. During the transformation of the interior of the building, the fire alarm equipment has to be modified, redesigned, transformed according to the change in the area. Each conversion, including the rented property areas, shall be approved by the fire safety authority at design and construction level even after use.

Fire protection equipment shall be equipped with audible alarm in addition to automatic fire detection and manual signalling. The fire alarm system controls a number of technical building systems, fire protection devices, which needs to be refined – at rental level – during the licensing process of the equipment. (Generally controlled equipment for safety and directional lighting, smoke extraction systems, safety and normal elevators, ventilation stop, fire protection, remote control of escape doors depending on entry, pressure boost, mute speakerphone- information)

The automatic extinguishing system will be installed in the entire area of the building.

In the transformation of the interior of the shopping centre such as the interior of the premises, the sprinkler extinguishing system needs to be transformed under the changed circumstances, which shall be authorized by the authority during design and execution. During the design of the equipment, all requirements for the installation and all technical requirements for the respective interior shall be taken into account.

The sprinkler extinguisher, in consultation with the Landlord and the authority, may be replaced by other approved extinguishing systems (e.g. gas extinguisher), or they may also be used as an additional system under no obligation. Different types of fire extinguishing equipment (even without obligation) can only be installed with the permission of the Landlord or may only be constructed according to the relevant technical requirements, in compliance the other fire protecting requirements. (e.g. special attention shall be paid to the ventilation, pressure drainage openings of possible protected areas, in a way that does not infringe fire protection.)

## Evacuation

The risk unit to the evacuated – depending on the height – is typically AK or KK class, so the maximum length of the stage in the stairway treated as protected space is 45 m. Typically, these fire sections have low number of residents, so the number of people is also appropriate according to the geometric method.

After accessing the protected spaces from the rental property, no further time for evacuation is required for the Tenant to examine and justify, but the leaving

of the given rental property, accessing the protected neighbouring fire sections from the passages is required according to the OTSZ and the related TVMI. (Calculation of the evacuating facility during the building permit, the condition of September 2017 was taken into account.)

The design of the shopping areas of the shopping centre was completely a conceptual level in the state of design, so in the layout of the shops a supposed condition was considered from the point of evacuation. Taking this into consideration, the Tenant shall demonstrate that the requirements from evacuation have been respected when designing the rental property. When designing shops to be built as rental properties, it is necessary to keep the evacuation requirements in place, to observe the evacuation time limits. The 5m<sup>2</sup>/person number of people available for commercial areas to be employed may be used, taking into account the areas to be used by the public, where appropriate, without consideration the fixed furniture and other demarcated areas.

Within the commercial areas there are smaller and larger or massive scale rental units that will be evacuated within 1,5 minutes to the escape routes and towards the delayed closing fireproof doors at the fire section border.

Based on the above, three forms of evacuation shall be applied depending on the design and location of the rental property.

1. According to sufficient geometric method, it is possible to justify the rental of passageways with a minimum of 1,0 m wide exit, for a maximum 20 persons. (Even in the worst location, the passageway with the slowest 29 m/minute walk, these rental properties could be solved by calculating.)

2. For rental properties over 20 people, which can be found in the fire section atriums at Hadak útja and Somogyi út, it is enough to justify with calculating the evacuation of the first section to the passage and to other exits, from rental properties to direct access to protected walkways. (In these fire sections, the mall areas occupied as escape routes have stairway connections and the total number of fire sections to the protected spaces, free zones can be justified according to the second section without taking into account the delayed gates.)

3. In the case of middle (non-atrium) fire sections over 20 persons, the evacuation of the room shall be verified by calculating so that it can be verified to the delayed closing gates on the passageways in addition to the other exits designated for evacuation. When the building is generally licensed, the base build-up shows that a 1.5-minute evacuation time was also verified on the passageway with delayed progress (37 m/minute or 29 m/minute by the larger fire sections). If the conditions of straight-line progression are not deteriorated in the rental properties, the route length can be compared. The given fire section is also verified by calculation as leaving the total number of room group, so if a specially different, large number of function is not planned, only the rental property is to be considered for the purpose of exits. The

size and location of the exits of the rental property are in a special position. Exits shall be so located and dimensioned that they will result in a period of 1.5 minutes to the closing gates (or to any other exit designated for evacuation).

In the event of a road crossing more than a passing path treated as an escape route (smoke-extracted) in the rental property, which is more than 40 m in length, a smoke-extracting Sa-rated doors for smoke extraction shall be installed. The smoke extraction system shall be installed in this case according to the closed position of the doors. (The routes with possibilities of departure of the large open air passages shall not exceed the 40 m).

In the building are typically persons not hindered in the evacuation, and the investor does not plan a special function used for disabled persons, but the presence of disabled persons can not be excluded. Audience areas can be left in the smoke-free staircases, neighbouring fire sections and open spaces. For disabled persons, the neighbouring fire sections at all levels provide protected spaces, so they can be left by the possible disabled persons by their pathway options.

The Tenant may apply the calculation methods applicable by law in the given period, if it does not conflict with the basic concept of evacuation.

The formulas that can be used for verify evacuation can be found in the Section 15.8. Evacuation of the Chapter 15. Fire Protection in the General Technical Description.

## 6. PRINCIPLES OF THE CONSTRUCTION OF PORTALS AS PER ZONES AND TYPES

- in the P1 level portals either by perforating the suspended ceiling or by installing a fire wall
- for large-scale portals where the portal is also a fire limit, a roll-down fire protecting structure is required
- for large-scale portals, an internal firebreak is required between the levels
- between the food-court and the kitchens, the building of fire wall can be left out, if the airspace of the kitchens is equivalent to the food-court air space for smoke extraction (For which a separate permission of the Landlord is required. The conformity can be verified by calculations)
- Shopfront separator structure: The Landlord will execute it according to the general guidelines defined by him. The separation structures (portal list) and the fire hydrant cabinets have a glass-glass connection prescribed for portal is valid. Creation of the non-transparent glass constructions designed by the Landlord and their sample material can be viewed at the mock up design of the Mall

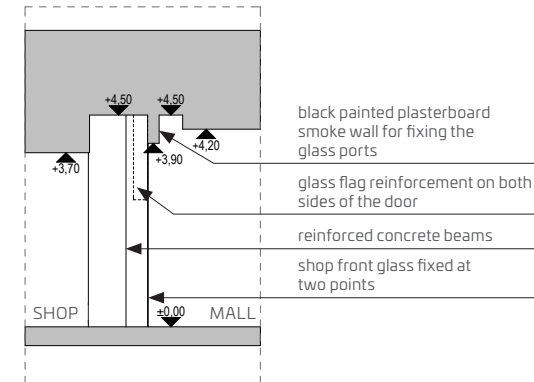
Multi-level portals at the atriums are built by the Landlord for the uniform appearance of the atriums. This documentation does not include plans for these areas, they are negotiated by the Landlord separately with the affected Tenants, both in terms of applicable regulations and costs.

### Possibilities for Creating Portal, Logo Placement and Suspended Ceiling Connection:

General shop/Mall section

#### 1th floor, upper groundfloor

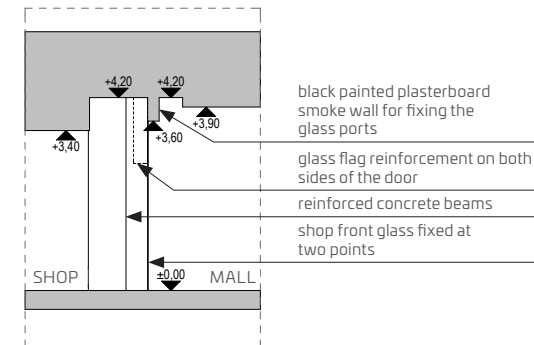
The bottom plane of the black painted plasterboard smoke wall for fixing the glass ports is **3,90 m** and the lower plane of the suspended ceiling is **4,20 m** at the mall way. The degree of retraction of the suspended ceiling depends on the door configuration.



General shop/Mall section

#### Groundfloor

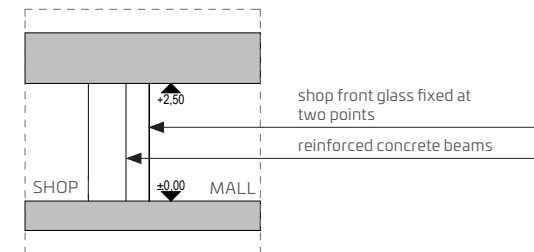
The bottom plane of the black painted plasterboard smoke wall for fixing the glass ports is **3,60 m** and the lower plane of the suspended ceiling is **3,90 m** at the mall way. The degree of retraction of the suspended ceiling depends on the door configuration.



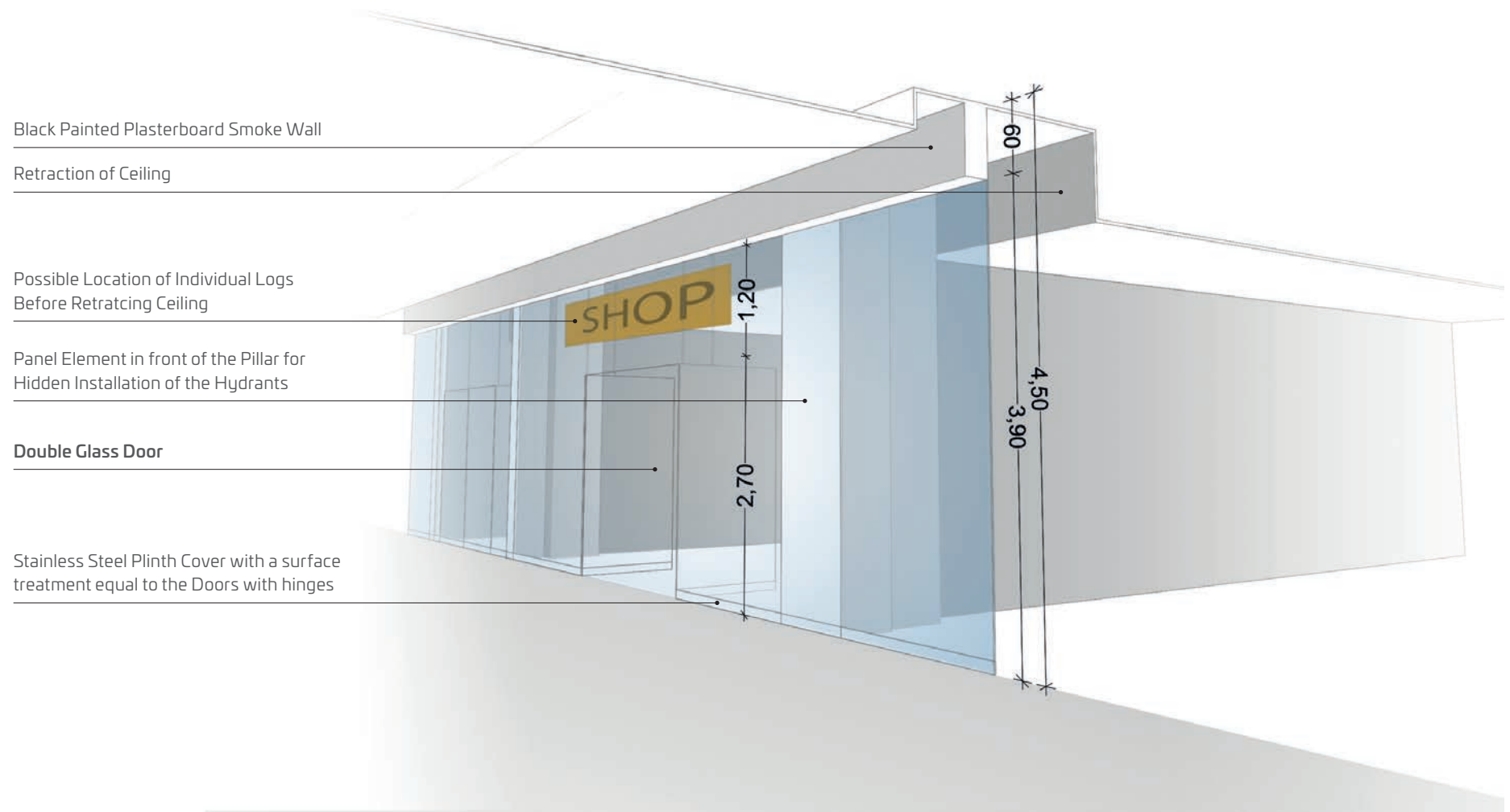
General shop/Mall section

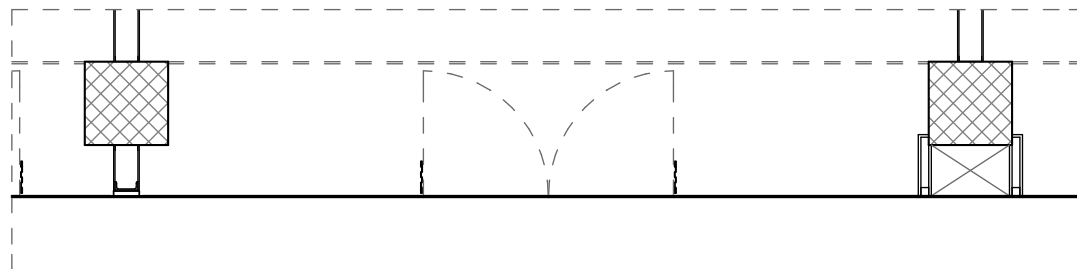
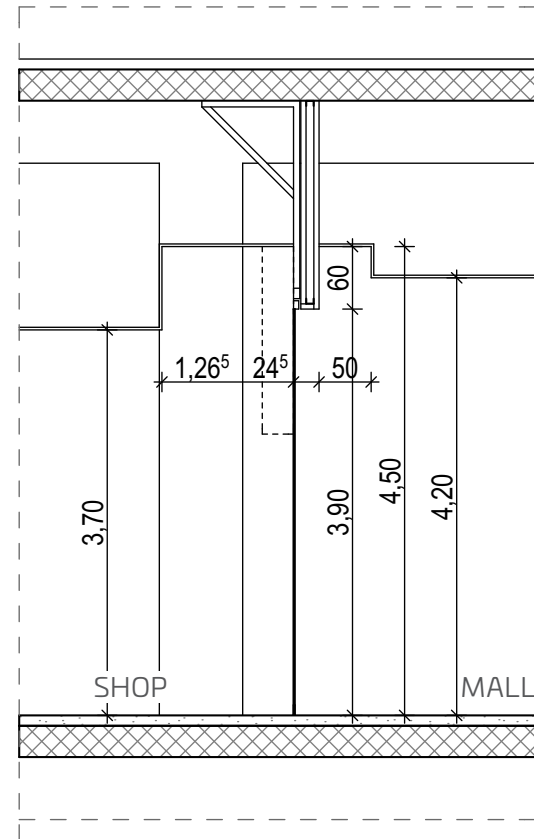
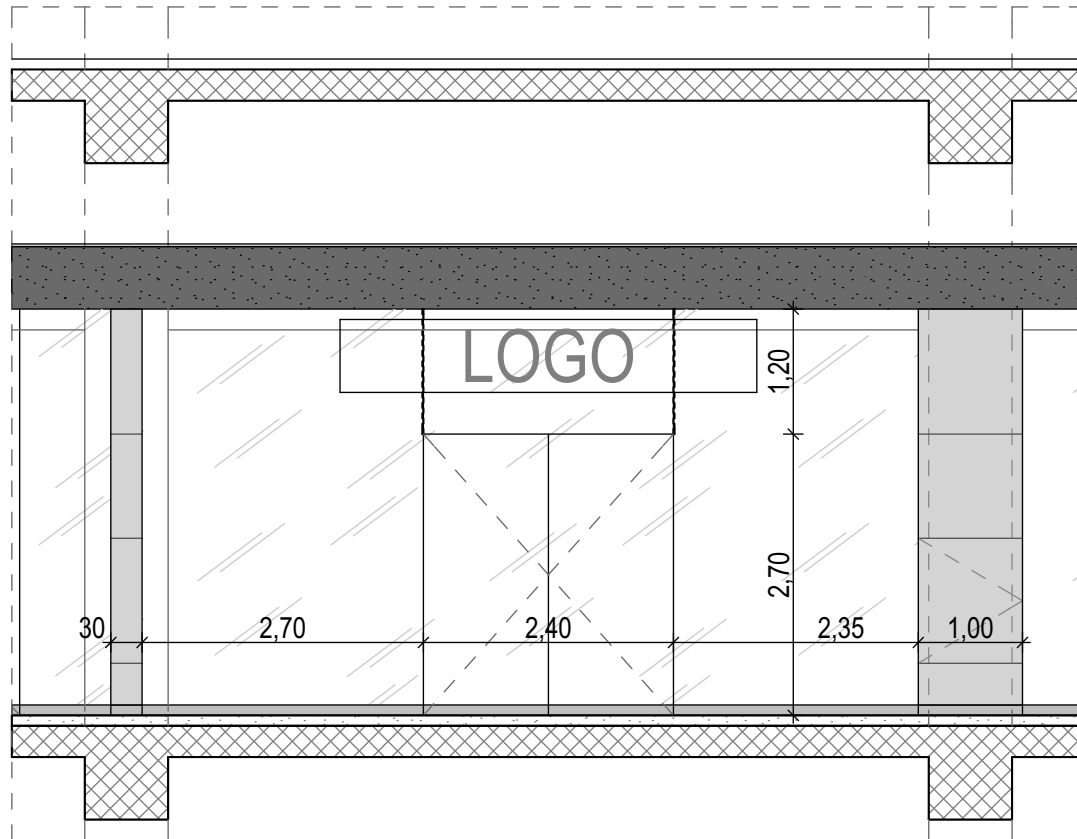
#### P-1 floor

The lower plane of the suspended ceiling is **2.50 m**, there are no vertical jumps.



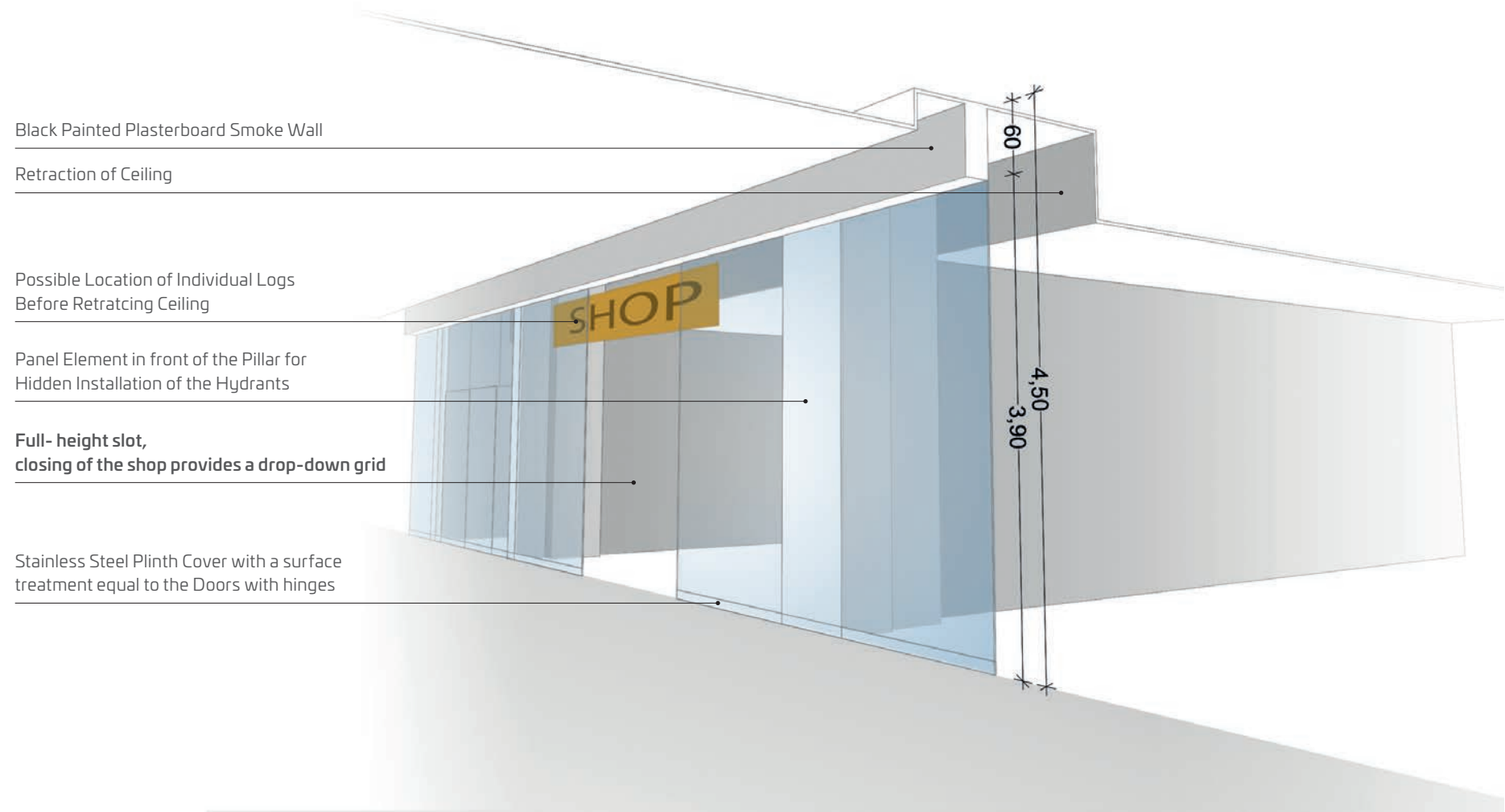
### 1. Floor and Mezzanine Portal Design/ Double Glass Door

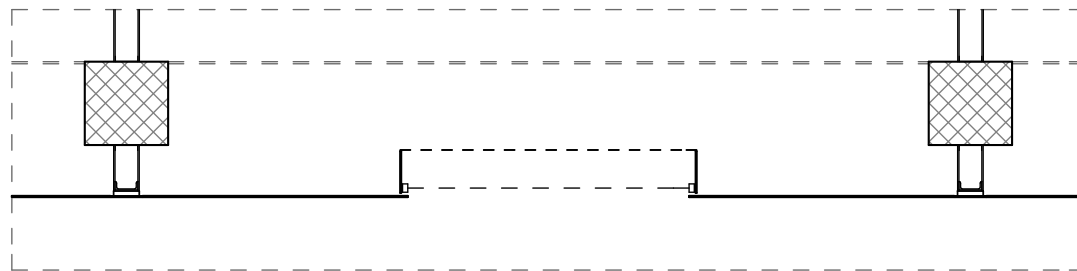
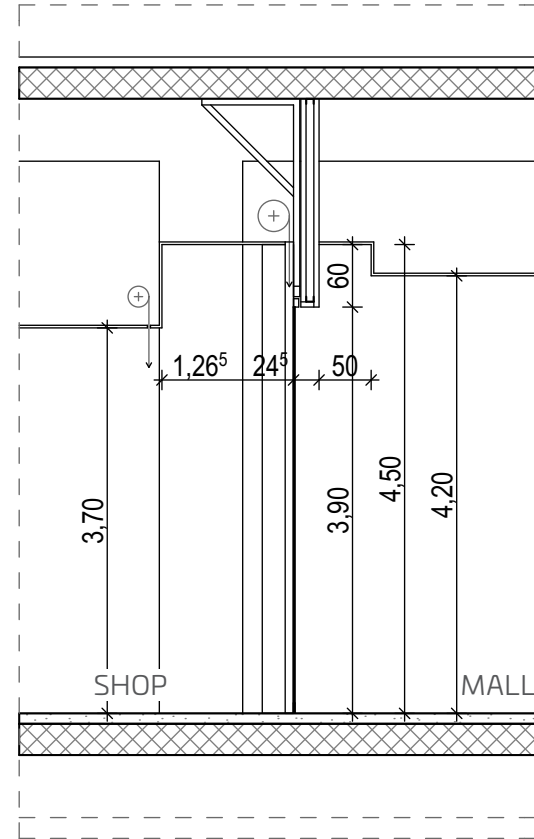
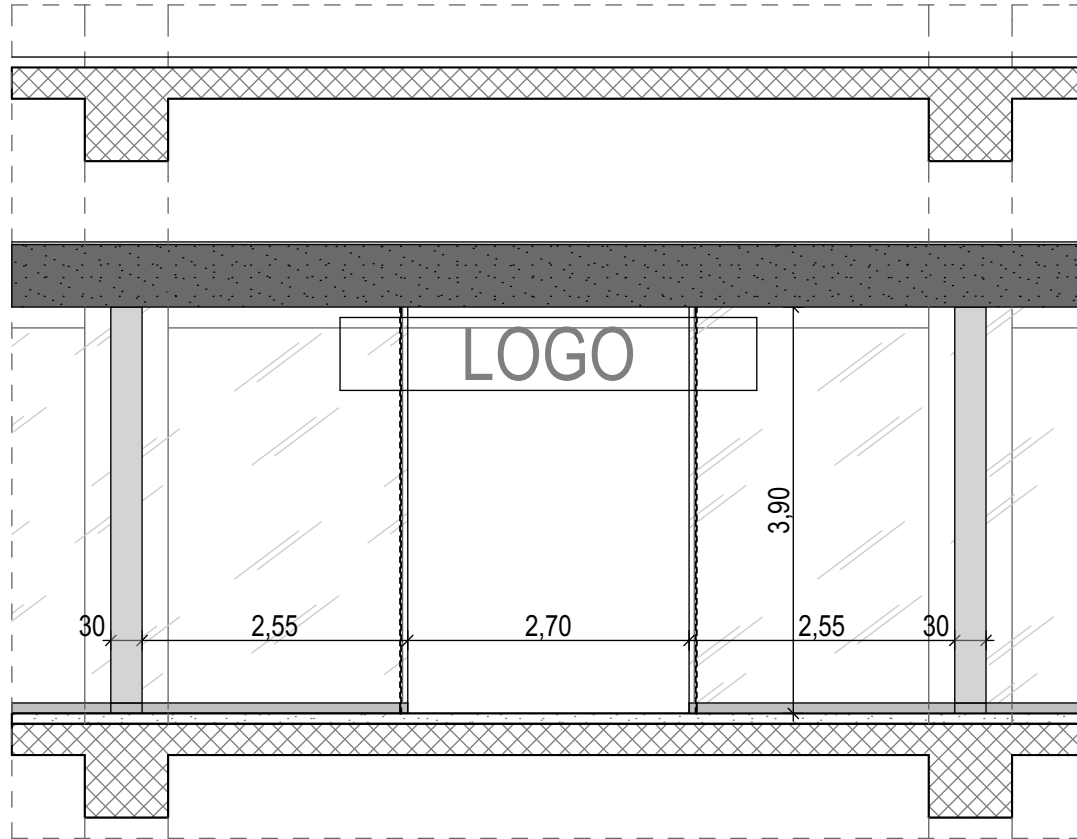




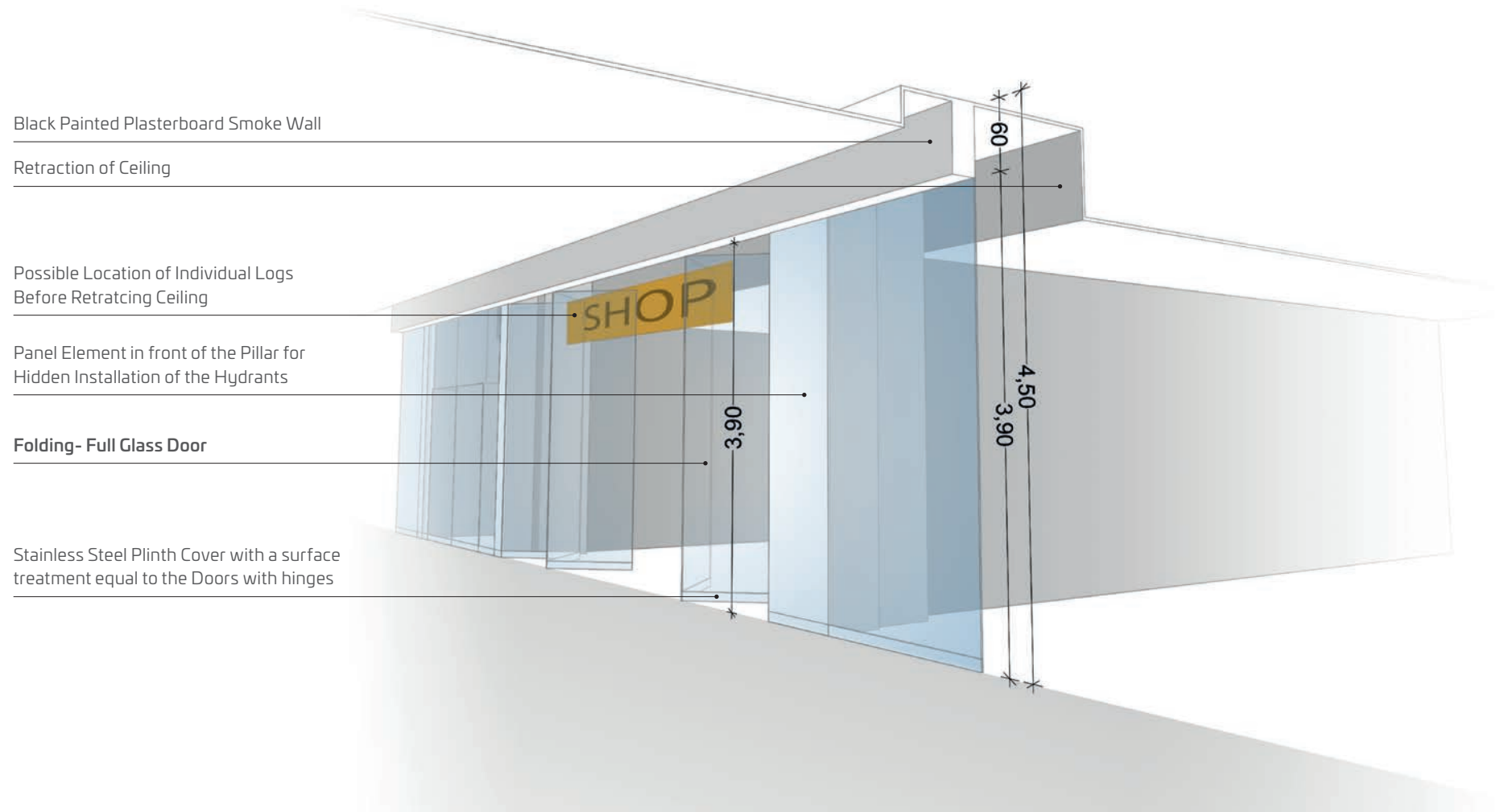


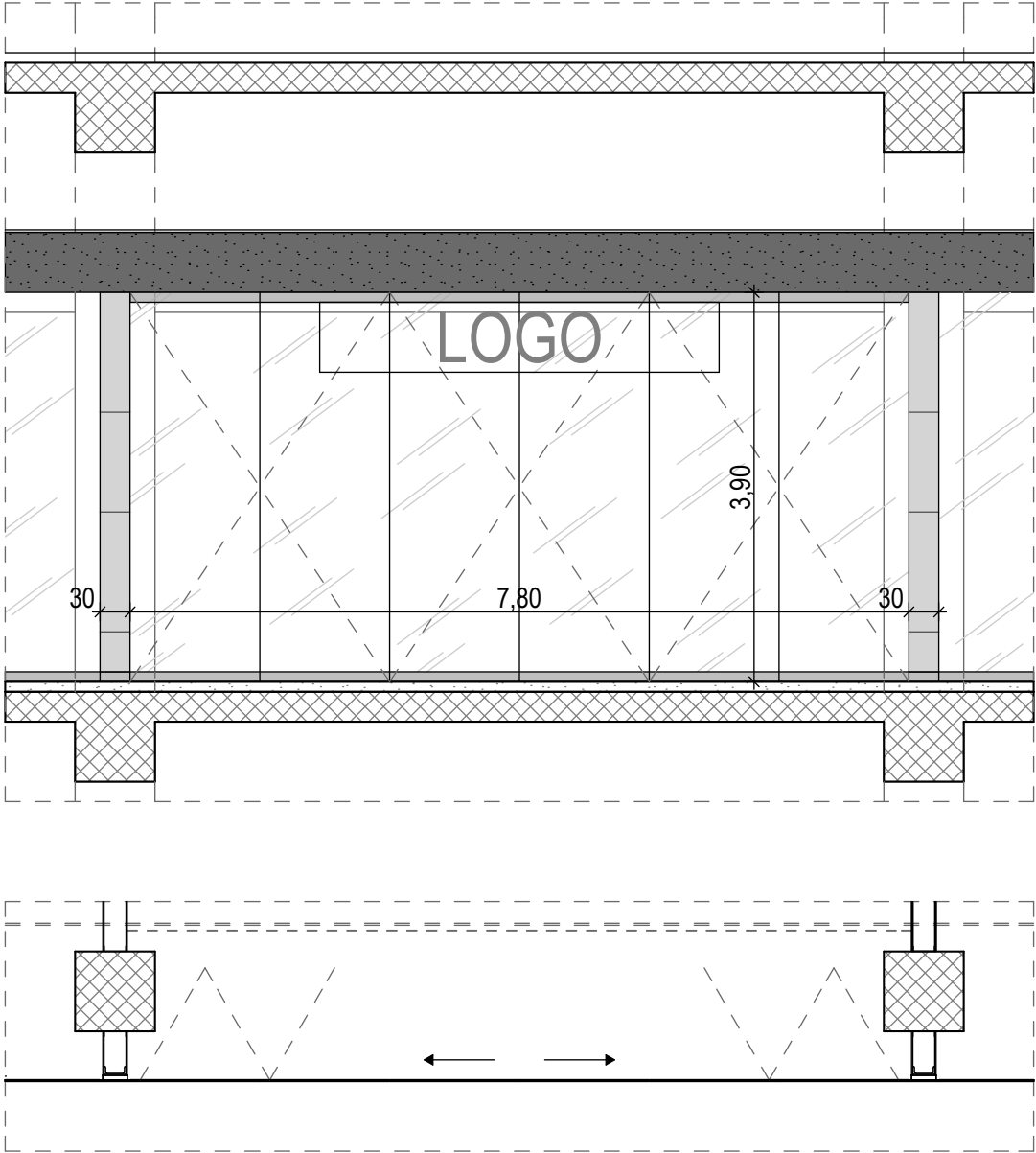
## 1. Floor and Mezzanine Portal Design / Full-height slot



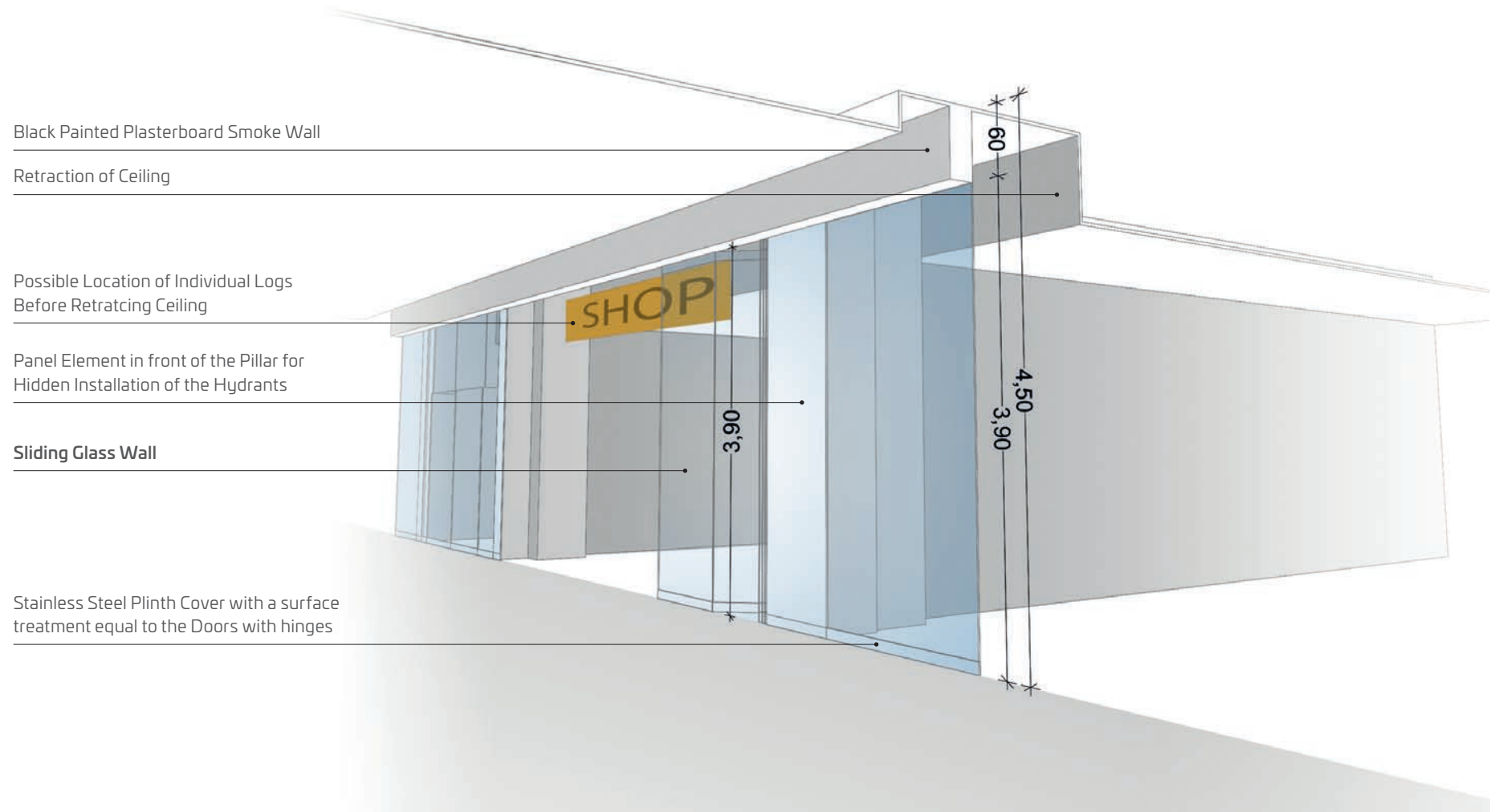


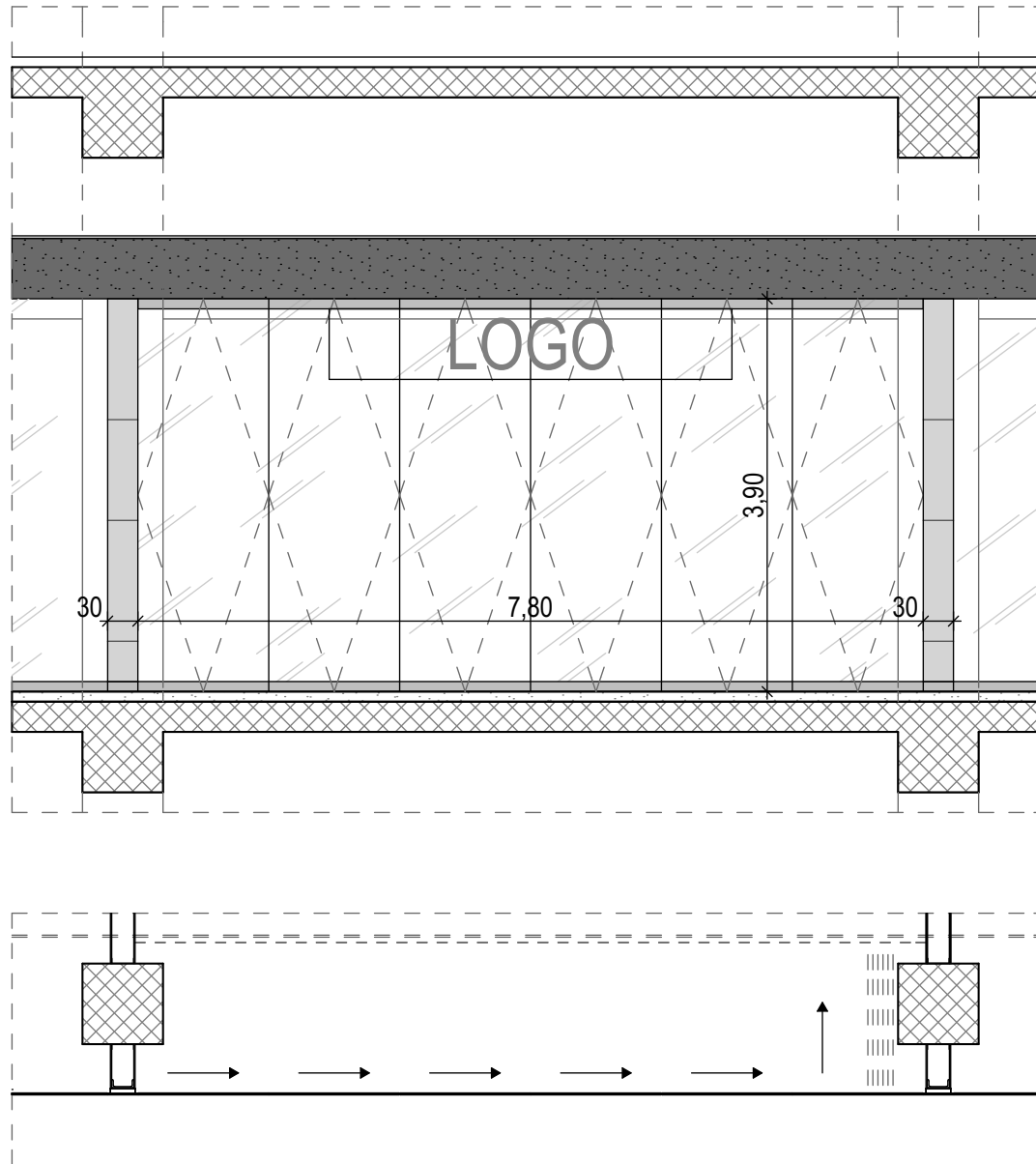
### 1. Floor and Mezzanine Portal Design / **Folding- Full Glass Door**



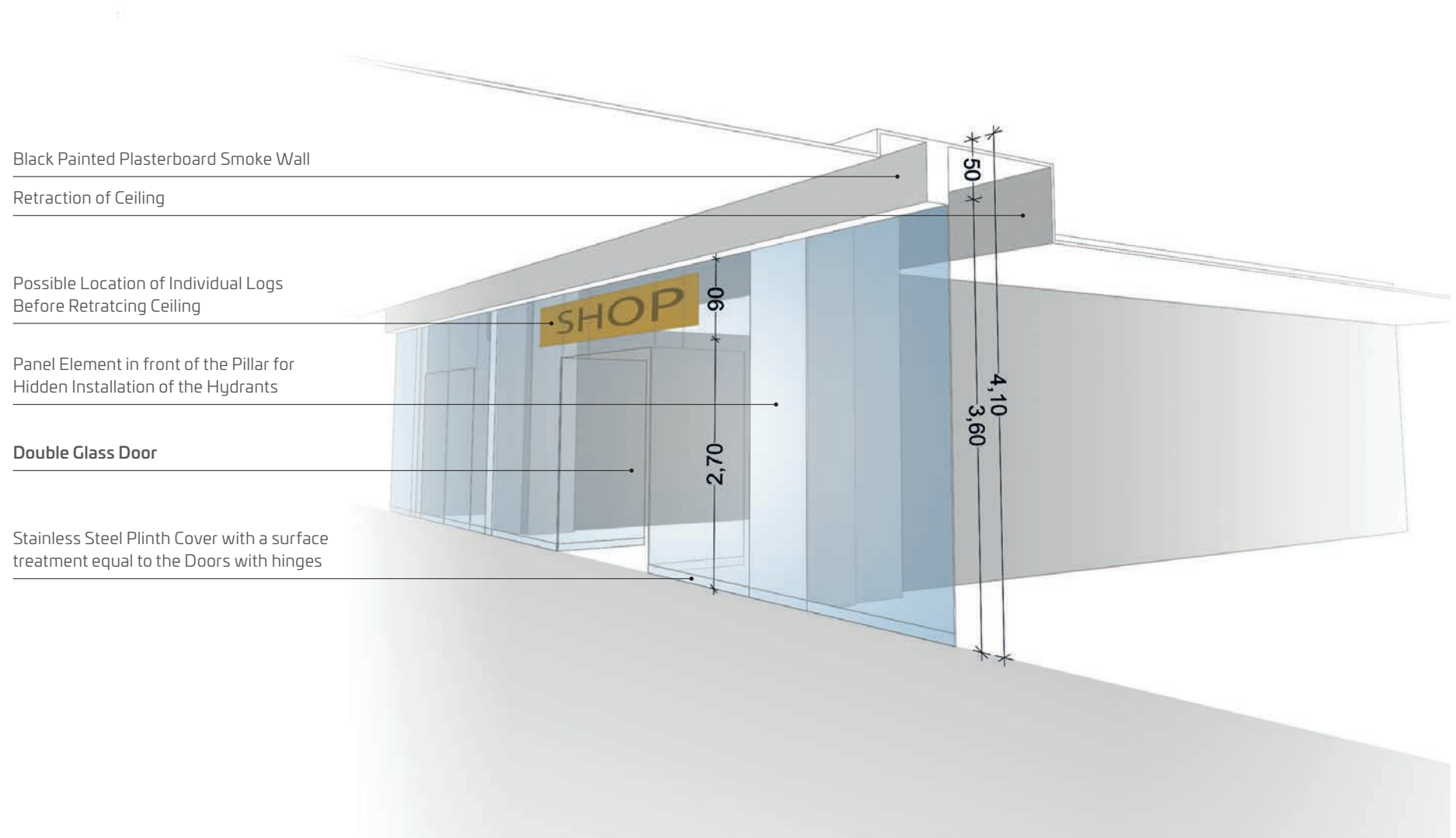


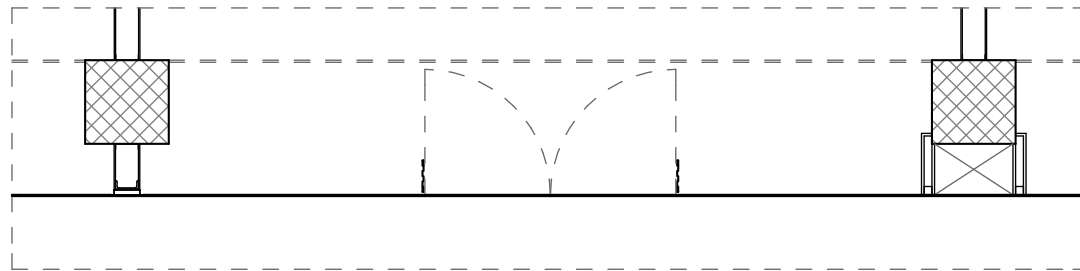
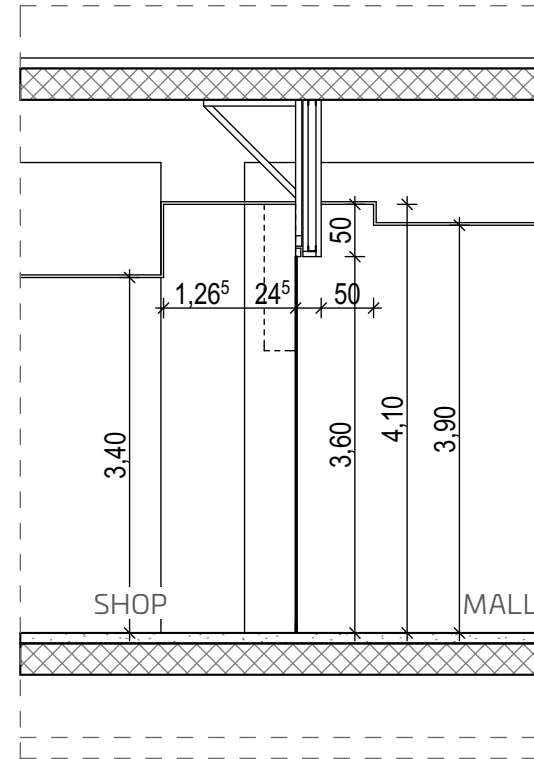
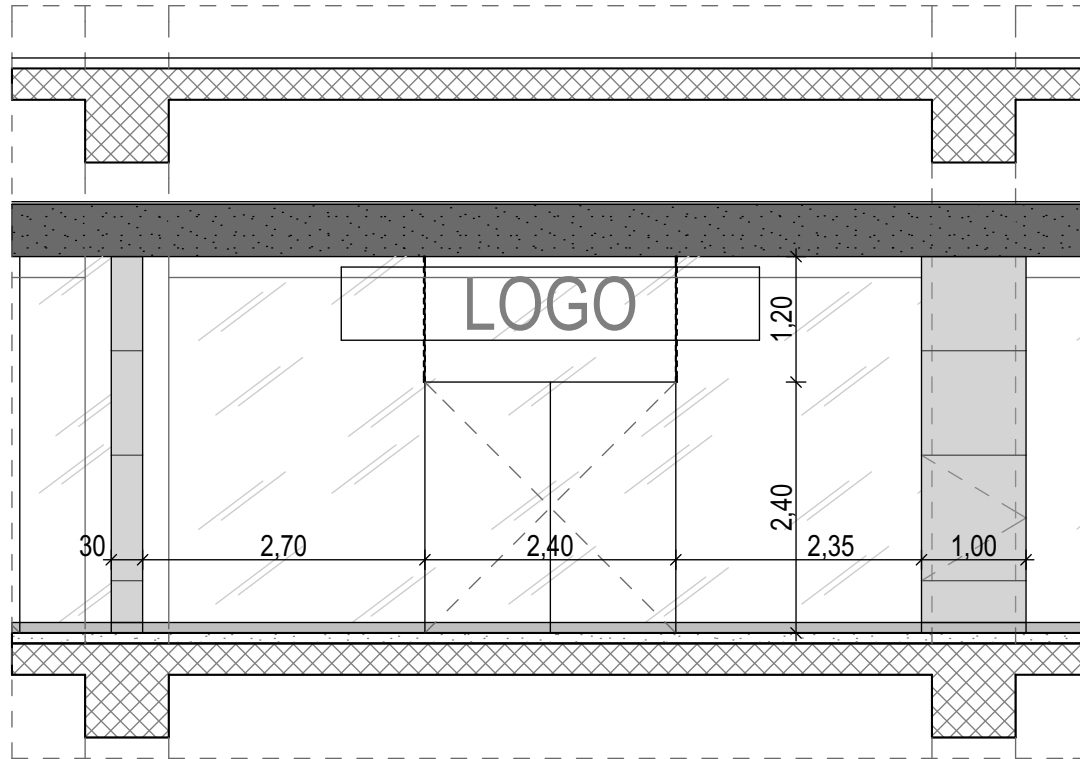
### 1. Floor and Mezzanine Portal Design / Sliding Glass Wall





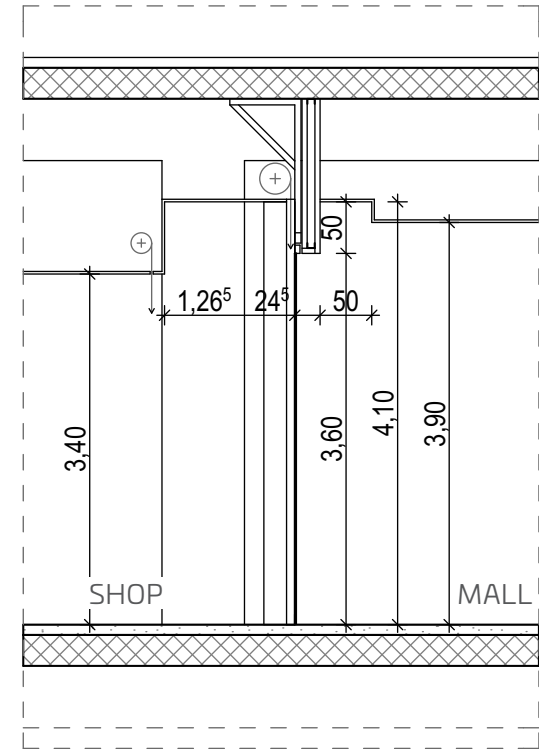
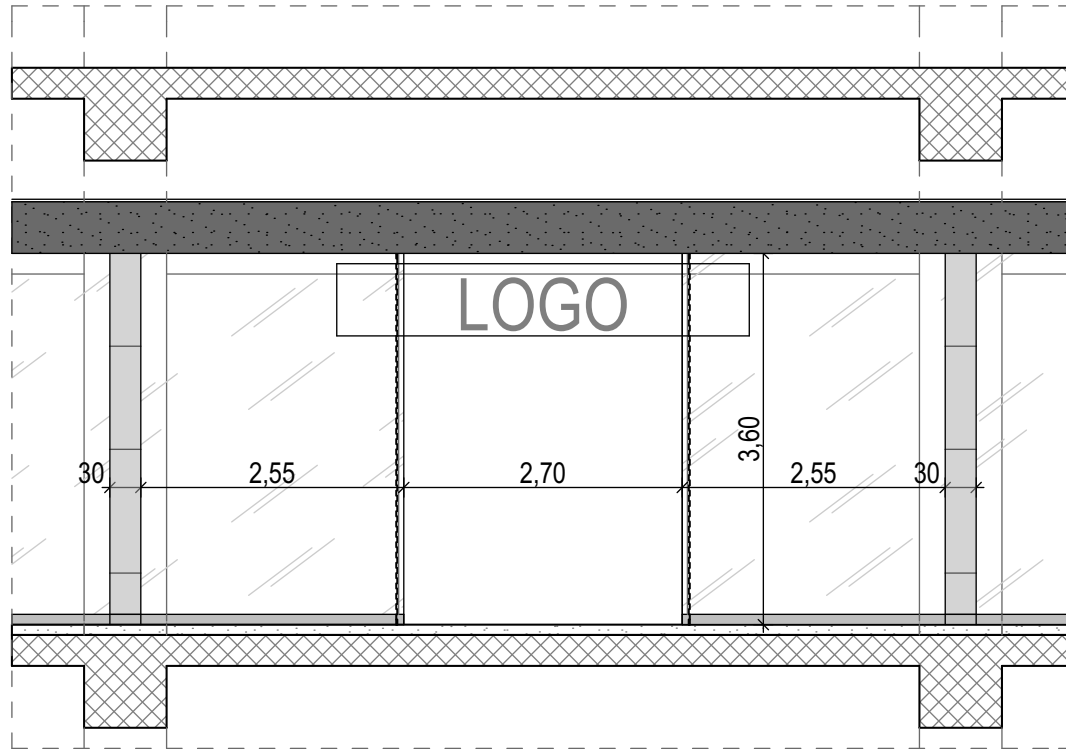
## Ground Floor Portal Design / Double Glass Doors

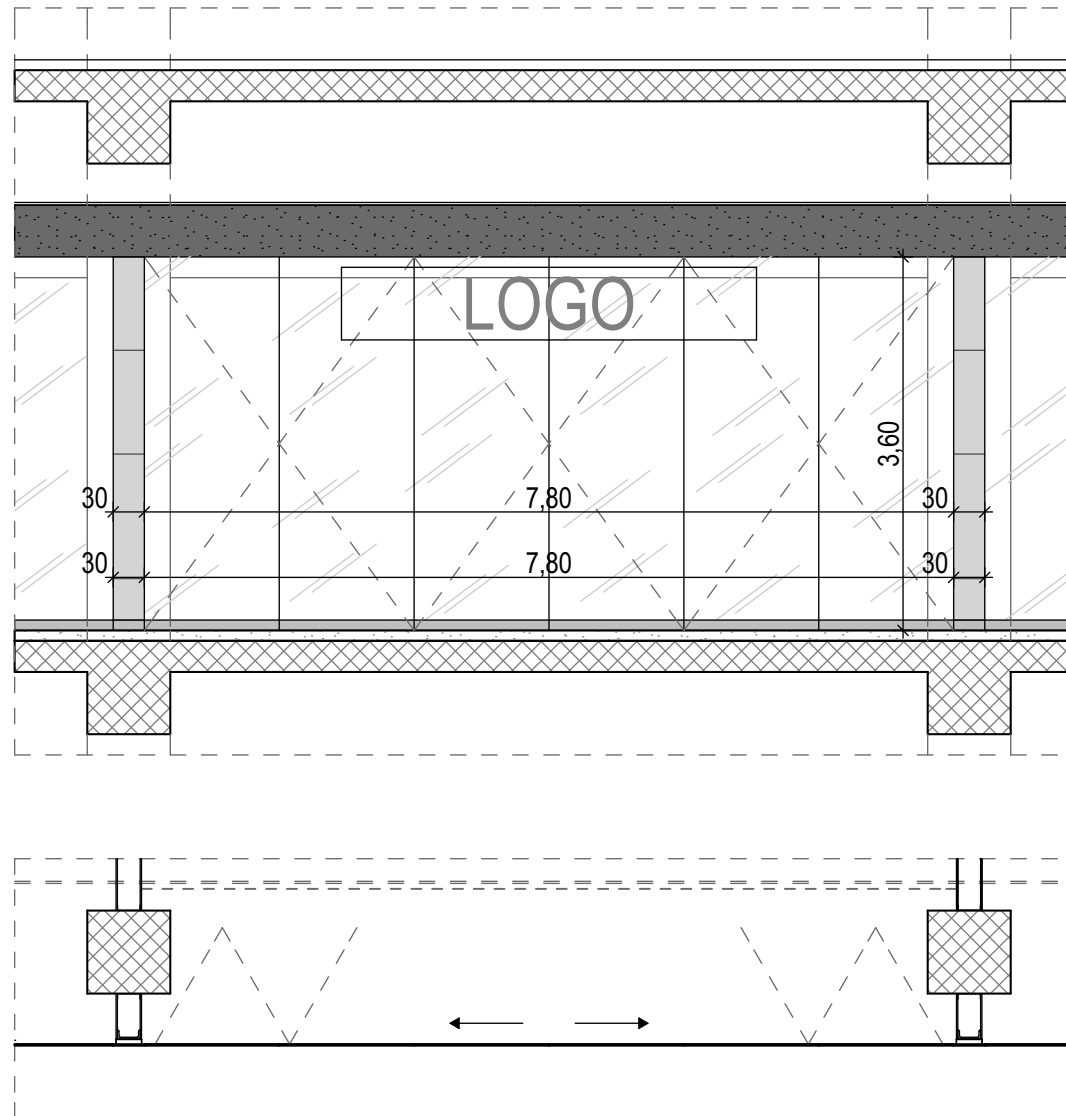


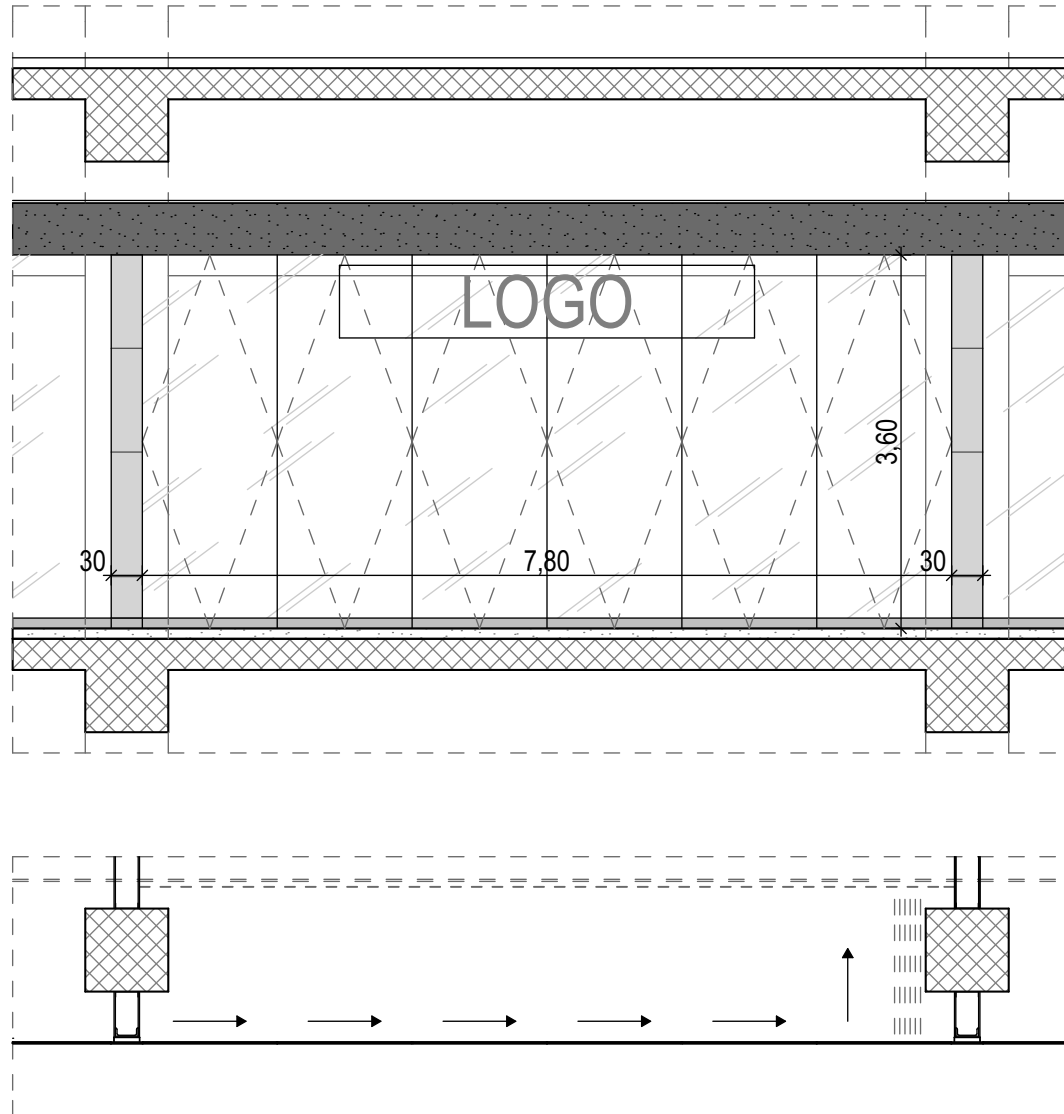




Ground Floor Portal Design / Empty Slots



Ground Floor Portal Design / **Folding Door**

Ground Floor Portal Design / **Sliding Glass Wall**

P-1-Level Portal Design / **Double Glass Door**

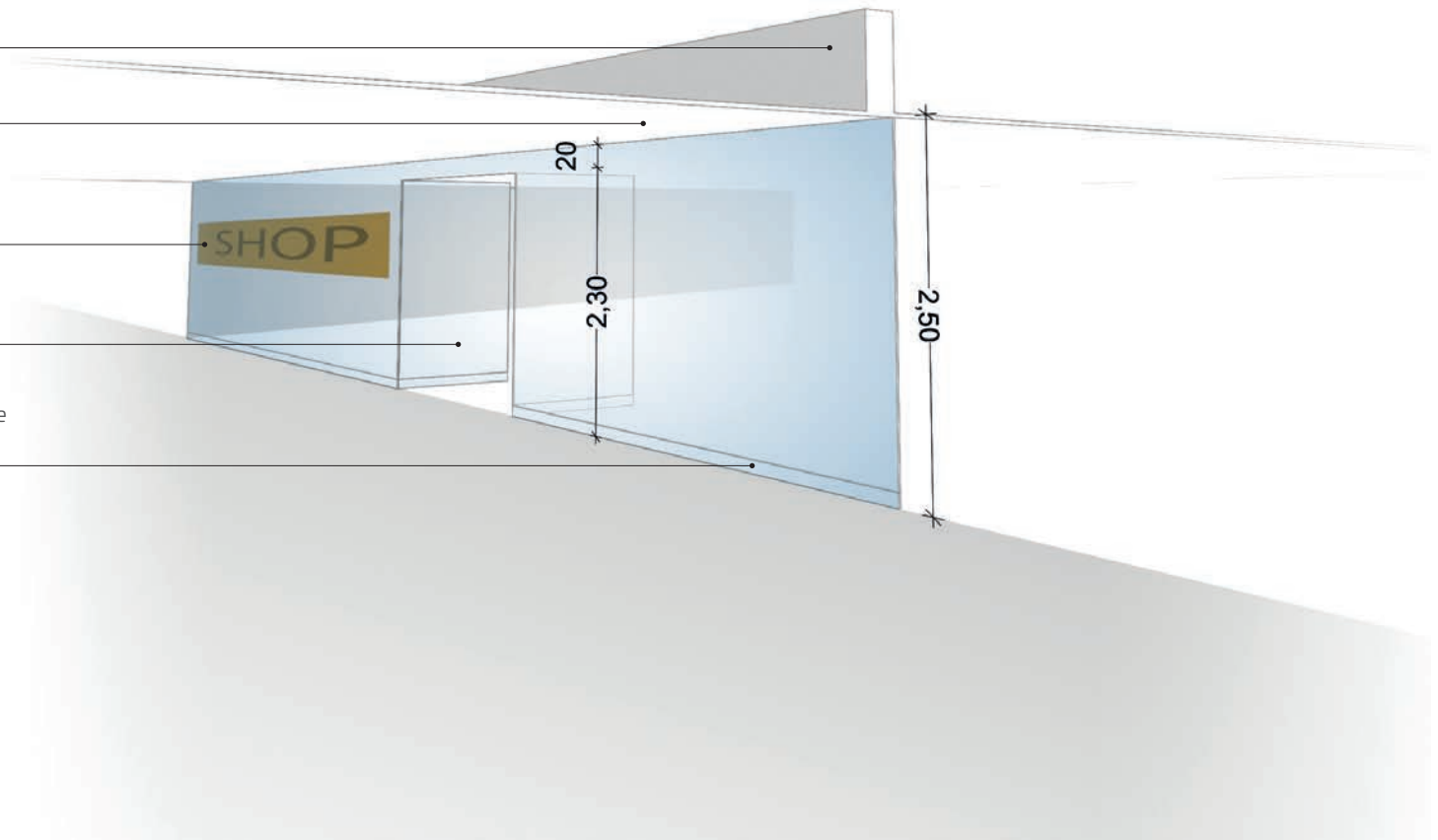
Drywall Smoke Wall

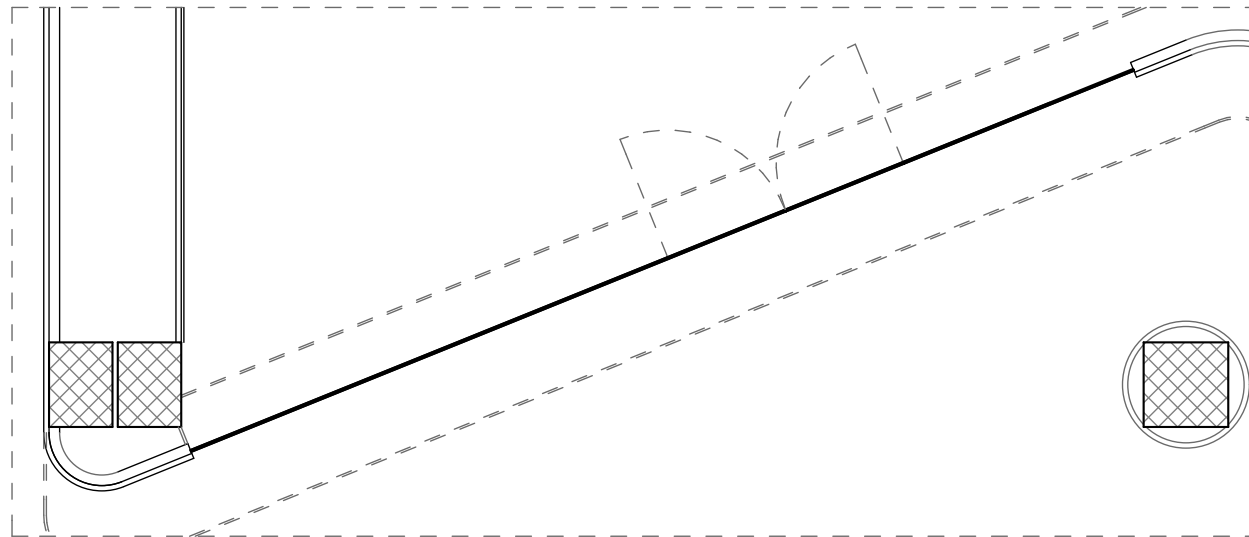
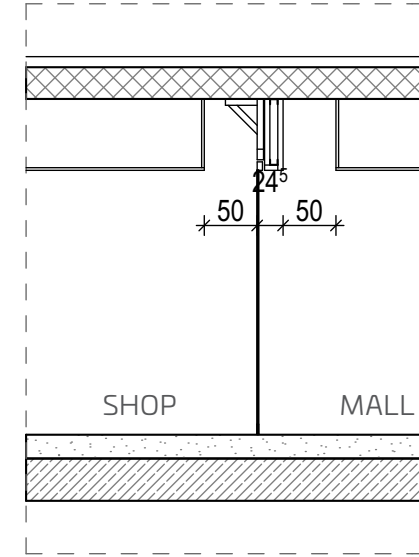
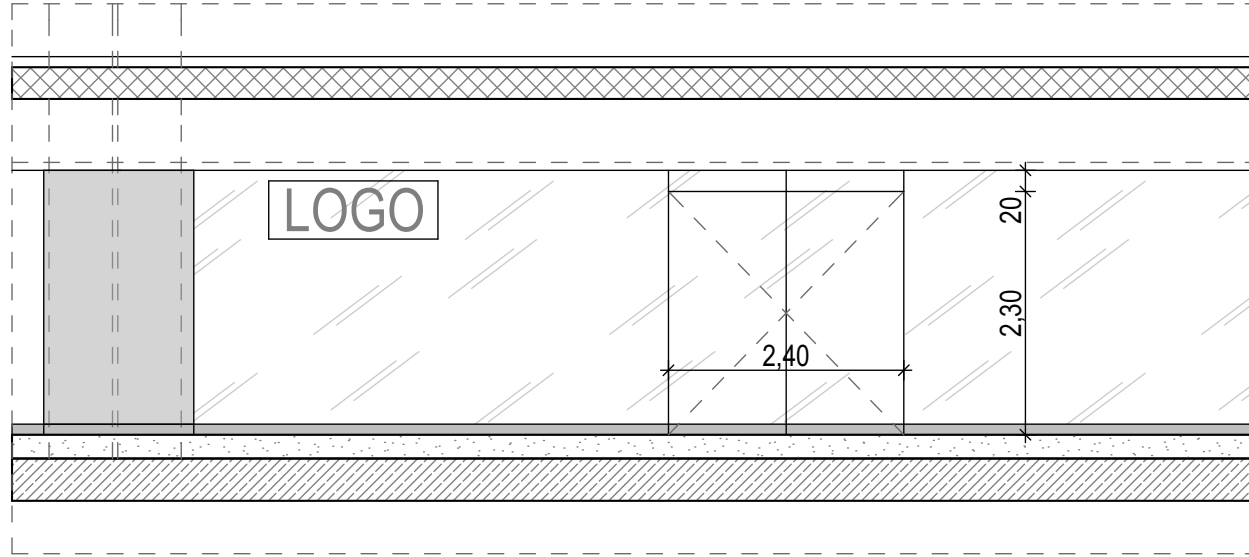
Ceiling Without Plane Jumps

Possible Location of Individual Logs

**Double Glass Door**

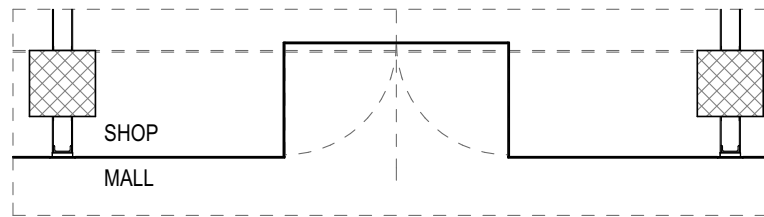
Stainless Steel Plinth Cover with a surface treatment equal to the Doors with hinges



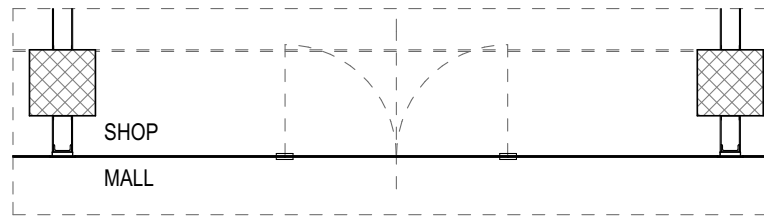


Design Possibilities  
of Shop Entrances:

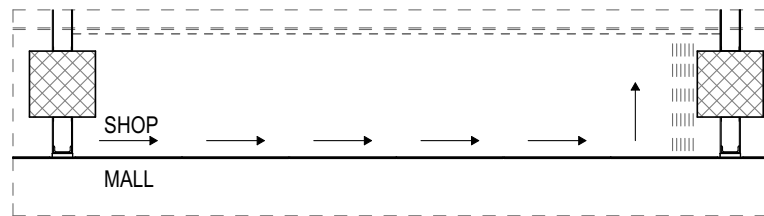
ENTRANCE PULLED BACK FROM THE LINE OF THE SHOPFRONT



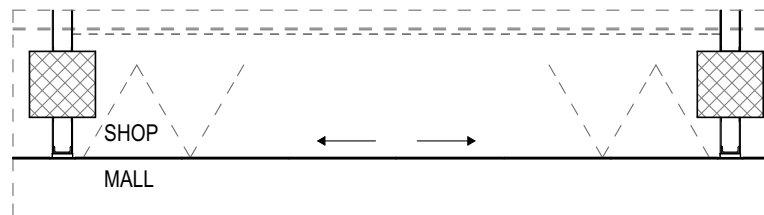
ENTRANCE PULLED BACK FROM THE LINE OF THE SHOPFRONT



ACCORDION DOOR TO ONE SIDE

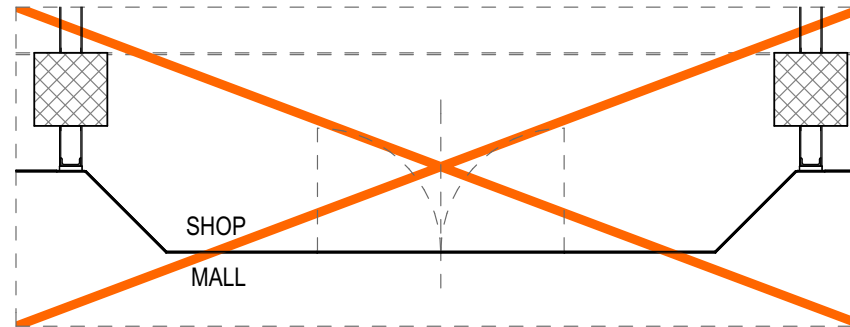


ACCORDION FOOR TO TWO SIDES

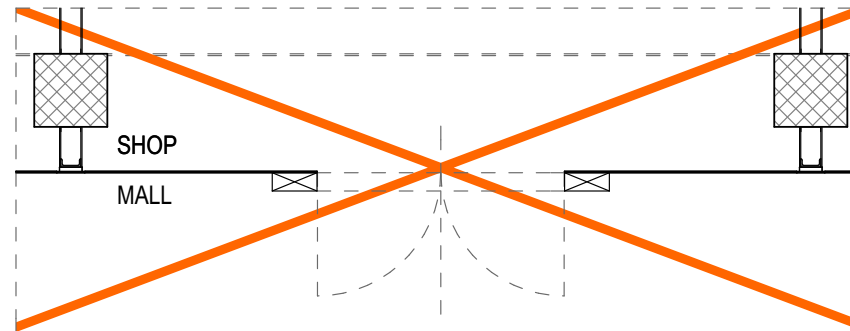


The doors of the shops can not open to the area of the mall, and the shopfronts can not be extended in the direction of the mall.

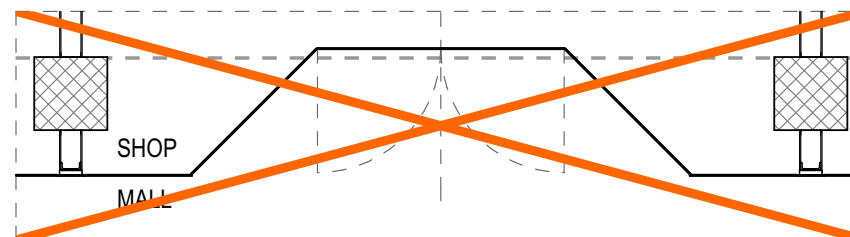
THE SHOPFRONTS CAN NOT BE EXTENDED IN THE DIRECTION OF THE MALL



THE DOORS OF THE SHOPS CAN NOT OPEN TO THE AREA OF THE MALL



ENTRANCE CAN NOT PULL BACK FROM THE LINE OF THE SHOPFRONT



## 7. INDIVIDUAL STIPULATIONS FOR THE FOOD COURT UNITS AND RESTAURANTS

Food Court units and restaurants are subject to the following requirements in addition to the general technical and rental requirements:

### Menu Boards

- The basic requirement for the menu boards is the professional design and execution, fitting the general requirements of the shopping mall's shop windows and in durable quality.
- Menu boards/information panels shall be built into the prepared backing structure with a sink or a plane.
- In all cases, the menu boards shall be illuminated (with backlight or direct lighting) fitting the interior design style of the shop, with the approval of the Landlord. Placing the "daily offer" boards and other advertisements designed for not the designated zone is only possible with the consent of the Landlord.

### Suspended Ceiling

- The Tenant is obligated to build non-porous, washable suspended ceiling. Fire protection requirement: non-combustive (A1, A2 fire class).
- The planned ceiling heights shall always be approved by the Landlord.
- In the server zone, the drop-down elements of the suspended ceilings shall be avoided.

### Lighting

- The service desk shall be provided with separate illumination using sunk or suspended lighting fixtures.
- Sunk lighting fixtures and sprinkler heads are to be used in the service zones.

### Floor Covering

- Stone porcelain (sandstone) or artificial stone floor covering in accordance with the mall areas shall be used. Appropriate waterproofing (kent or plate) in the kitchens and other washrooms is applicable in the floor layer.

### Wall Coverings

- For all wall coverings it is required to be washable and non-porous (e.g. epoxy paint, ceramic tiles, stainless steel). Fire protection requirement: non-combustive (A1, A2, fire class).
- In all cases, the Tenant is obliged to construct a wall with a service door separating the preparation zone from the serving space.
- The service door shall be self-locking to prevent insight into the service areas.
- Application of mirrored walls inside the room is not permitted.

### Service Counters

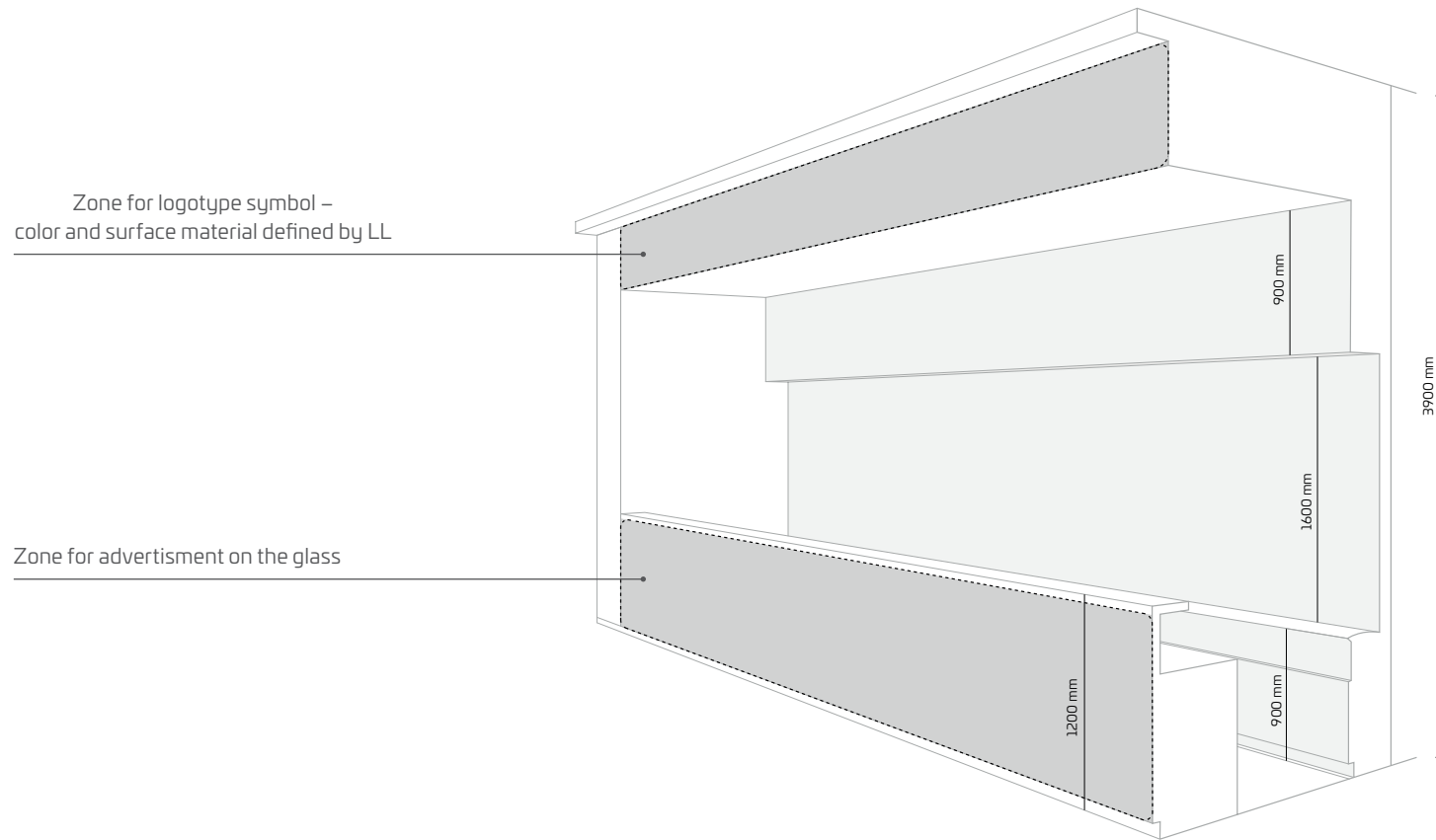
- The minimum width of the service counters is 50 cm, their material shall be a solid, high quality work sheet, thin veneer and laminated sheet can not be used!

- In front of the sunk units of the counters (cash registers, trays, self-service bar equipment), a normal height counter section of the least 20cm shall be formed.
- Soft-drink machines and any other built-in devices on the counter may be placed after approval, and their height shall not exceed the height of 150cm calculated from the paved floor of the public spaces.
- Glass-mounted food warmers and showcases shall be designed in accordance with the service desk.
- In specific situations, hidden counter lighting may be recommended.
- In the case of floor coverings below the cupboards, directly connected floor coverings, the use of floor coverings similar to the mall areas is mandatory.

### Material Use of Service Counters

- Brushed stainless steel
- Natural stone (non-porous)
- Hard plastic – corian or equivalent quality
- Laminated sheet and thin veneered countertops are not applicable





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III.

MANAGEMENT OF THE TENANT  
DEMANDS AS TO THE INTERIOR  
DESIGN AND CONSTRUCTION OF  
ETELE PLAZA



## 1. GENERAL CONDITIONS

The primary condition of rental property design is as follows:

- Act 253/1997. (XII. 20.) Gov. Decree (OTÉK) on the Requirements of the National Settlement and Building Development [Act LXXVIII of 1997 Section 62. § (1)]
- Act 191/2009. (IX. 15.) Gov. Decree on Building Contractor Activities
- the design requirements of electrical and mechanical systems for architects and specialist, professional standards, current and local regulations
- the General Technical Description
- the Tenant Guide
- lease contract concluded between the Landlord/ and Tenant (in accordance with detailed terms, together with all the conditions described so far)
- the written consent and approval of the designer of the building

## 2. TENANT CONTENTS TO BE SUBMITTED TO THE LESSOR

For the transfer and construction of the rental property, the Tenant is obligated to provide a design planning document at his own expense.

Before the construction work begins, the Tenant is obligated to make have the design planning documentation for the rental property with the Landlord approve (if necessary with administrative department).

The content of the design planning documentation are architectural and special plans – as required.

Designing processes can be performed by a qualified professional, a designer with professional permission.

The work is carried out by construction and technical experts, technical inspectors.

The plans are to be submitted to the Landlord in standard format (A/4, A/3, A/2) colour and printed form in 4 copies. The language of the design planning documentation is Hungarian.

The tenant is also required to submit the plans in electronic format in .DWG or .DXF format, and the descriptions also in .DOC or .DOCX format. In addition, .PDF and .JPG formats can also be used to transfer pictures and colour content.

The contents of the Design Planning Document to be submitted, but not limited to, are as follows:

### Architect Design Planning Documentation

- Floor plan(s) (M=1:50),
- Longitudinal and transverse sections (M=1:50),
- Ceiling plan (M=1:50), levels, level switches, electrical (lighting, sound system etc.) and mechanical fittings (anemometers), with a clear representation of the fitting openings
- Floor Covering Plan (detailed plan in the rental property boundary line)
- Portal plans: views, sections, detailed drawings with clear colour (RAL) and material usage definitions
- Detailed plans of the sign board including solution for fixing and illuminating with clear colour (RAL) and material usage definitions
- Interior wall views and detailed plans required for execution,
- Colour and material usage specifications, with samples of materials

- Technical description
- Designer statement
- Indication of the nature of the design planning documentation (type design, individual plan, reuse of the individual plan, etc.)

### Engineering Design Planning Documentation

- Water channel (Cold water network, with consumer sub-meter, hot water supply, sewage)
- Heating-cooling (Heat pump with hydraulic system, heating-cooling with heat output sub-meter)
- Ventilation (treated fresh air supply)
- Heat and smoke extraction (Smoke extraction system and air supply system)
- (The task of the Tenant is to develop the smoke extraction of the shop area adjusting the duct junctions from the connection point to the design of the rental property area and in accordance with the official regulations).
- technical specifications and design declarations including the necessary calculations required by the Landlord and the relevant authorities.
- Design of non-standard sprinkler building is carried out by the Landlord at the expense of the Tenant, for which the required information shall be provided by the Tenant.

### Electronic Planning documentation

Power, low-current, telecommunications, sound reinforcement, safety, low voltage, design planning documentation with technical specifications and designer statements within the rental property including the necessary calculations required by the Landlord and the relevant authorities.

in the rental area, the Landlord also plans and executes the low-current fire alarm. Derogations from the base system will be made by the Landlord at the expense of the Tenant.

Design within the rental property may be made with the prior approval of the Landlord, according to the design plans approved by the Landlord.

Complete technical delivery documentation (FMV and contractor statement, first commissioning reports, measurements, quality certifications of materials incorporated etc.) are required for completion.

A digital (DWG and PDF format) implementation plan is also required for completed electrical systems.

### Fire Protection Documentation

Fire safety technical description, design statement, with fire safety layouts, evacuation calculation, including the required calculations required by the Landlord and the relevant authorities.

For fire protection equipment, rescue intervention conditions, and the modifications of the requirements of building structures in connection with the Tenant design – without the documented consent of the authority – is not possible.

### Statements

- Name, address/registered office, license, industry-specific qualification of builder (contractor)
- Responsible technical manager of builder (contractor), address/registered office, qualification
- Technical inspector of builder (contractor), qualification (each discipline)

- The nature of the construction activity (new building, extension, attachment, additions, transformation, renovation, maintenance, etc.)
- Time, method of notification of completion of the contractor (letter, fax, phone, e-mail):
- Statements of administrative departments and other stakeholders
- Contractor's notice, statement (optional)

When planning the rental property, in addition to the requirements set out in the official permits, the requirements and tolerances set out in the standards and specifications shall be taken into account.

### 3. COURSE OF LICENSING OF THE DESIGN DOCUMENTATION

- The performance requirements for rental property described in the Tenant Manual higher than the basic service, if it is accepted by the Tenant, shall be obligated to indicate by the current Landlord and Tenant in the contract concluded with each other.
- After signing the lease agreement, the Landlord is obliged to provide all information and technical data to the Tenant that are absolutely necessary for the (and only for) execution of the design planning document for the rented area. The Landlord is obligated to provide the information required by the Tenant with written notice within the deadline specified in the Lease Contract. (Written information transfer is the information provided to the e-mail address provided by the Tenant in the Lease Contract.)
- The Tenant is obligated to submit the Design Planning Documentation to the Landlord (with the contents specified in Section 2, in 4 copies and in electronic form) within the deadline specified in the Lease Contract.
- The tenant is required to prepare a line design schedule plan in addition to the design planning documentation with the presentation of major workflows and works carried out by the Landlord (e.g.: sprinkler, fire alarm). The schedule may be accepted after the review by the Landlord.
- The Landlord is obliged to verify the completeness of the submitted design planning documentation and the correctness of the compliance with the rules and respond in writing to the claim submitted by the Tenant.
- The Landlord shall give written notice to the Tenant within 8 working days of the decision of the design planning documentation.
- If the judgement is positive, the Tenant will receive a written approval from the Landlord. Based on this, the Tenant is entitled to commence the work within the framework of the house and operating rules of the facility.
- If the design documentation requires replacement or correction, the Landlord will give written notice to the Tenant of the conditions of the deficiency and correction and return the printed material on request. The Tenant is obligated to complete the replacements / corrections / measures specified by the Landlord and to submit the revised design planning documentation. The Landlord's inspection and approval obligation will restart at the re-submission under the original terms.
- If the Tenant submits a defective or incorrect documentation the second time, the Tenant shall pay a fee of 1-1 engineer daily allowance (100.000 HUF+VAT) for the Landlord in respect of the defective disciplines.

- Execution can only be based on approved design plans
- All delays and damages resulting from approvals that are not granted due to defective or incorrect plans shall be borne by the Tenant

## 4. CONSTRUCTION

The terms and timing of the construction process based on the approved design planning documentation are contained in the Lease Contract.

However, implementation within the rental property may be made with the prior written consent of the Landlord, according to the design plans approved by the Tenant. Approval of designs shall not prevent the Tenant or the Contractor of Tenant from compliance with the relevant authority and administrative departments regulations, work and accident protection regulations, even if the plan specifically addresses this. The relevant regulations must always be observed!

The public utility connections of the rental property shall be provided by the Landlord.

Gov. Decree 191/2009. (IX. 15.) on Building Contractor Activities is binding on the laws of the interior design of each shops (Gov. Decree 266/2013. (VII. 11.) on the professional activities related to building and construction matters- the Trademark Regulation).

\*The demarcation list for the fit-out works is a part as an annex of the tenant handbook.

## 5. LABOUR SAFETY

During work safety installation and operation, account shall be taken of accident and property protection regulations, as well as the technical regulations related to the installation, the industry standards, the performance, operation in use of the occupational health and safety, safety, fire safety and environmental regulations.

## 6. TECHNICAL HANDOVER

The proper use of the rental property is legal only with the Handover Protocol approved by the Landlord and the competent authority approval.

After the technical handover by the contractor and the notification of completion by the Tenant; it shall be at the time appointed with the Landlord and the necessary administrative departments.

Within the technical handover procedure(s), in the protocol shall be recorded:

- the date and place of the handover
- the name, function, qualification, signature of the participants
- the method of inspection of the implementation according to the planning document (visual inspection, measurements, etc.)
- comments from the administrative departments as well as any comments or declarations made by the Contractor

Complete technical delivery documentation (FMV and Contractor's Statement, First Commissioning Protocols, measurements, quality documents of incorporated materials etc.) are required for the completed electrical execution.

Digital (DWG and PDF format) plans are required for completed electrical systems.

## 7. GREEN LEASE GUIDE AND GREEN GUIDE

### **BREEAM Europe Commercial 2009**

Reference number: BREEAM-0044-6302  
Green Lease Agreement Clauses and  
Green Building Guide Recommendations  
Apr 2019

The following documentation was prepared by Abud Engineering Kft. for Futureal Prime Properties One Ingatlanfejlesztő Részalap (FUTUREAL)

The document was prepared to the best of our knowledge to meet the requirements of BREEAM Europe Commercial 2009.

### Introduction

The following document shows the BREEAM Europe Commercial 2009 credits of which the credit compliance is influenced by the Etele Plaza specification.

Etele Plaza is targeting a BREEAM Very Good rating for the development; Mérték Építészeti Stúdió Kft. have carried out a BREEAM Europe Commercial 2009 pre-assessment (BREEAM Manual) to demonstrate how this requirement may be met.

Some of the BREEAM New Construction Shell and Core issues and their criteria relate to the Etele Plaza fit out specification, defined by the potential future tenant. The use of a tenancy lease agreement (also

referred to as a Green Lease) and a supplementary Green Building Guide is being drafted between FUTUREAL (DEVELOPER) for discussions with potential future tenants. The BREEAM issues within the Green Lease section of this document are to form part of the mandatory Green Lease Agreement and will be used to secure BREEAM credits to ensure that the fully fitted operational building at a future date demonstrates compliance with BREEAM requirements. Additional credit criteria are advised and listed as part of the Green Building Guide section of this document, however the TENANT will decide with regards to which to comply with. In any case, Green Building Guide will be distributed to all future tenant/s of the building.

### BRE Definition of Green Lease

A 'Green Lease' is a lease for a building which incorporates an agreement between the landlord and tenant as to how the building is to be fitted out, managed and occupied in a sustainable way. The provisions represent an agreement between the landlord and the tenant to adopt procedures to ensure that a building operates at an agreed level through regular monitoring and addressing issues as they arise.

### BRE Definition of Green Building Guide

A 'Green Building Guide' is a formal document that provides detailed advice to the proposed/actual tenant/s of the building on how to minimise the environmental impacts of the building. The Guide have a particular focus on those impacts that can be influenced by the tenant(s) as a result of their building fit out.

### Hea 4 – High frequency lighting

**Credit Owner: Developer and Tenant**

**1 of 1 credit targeted**

**1 of 1 targeted credit falls under the Green Lease Agreement, Prerequisite to Very Good certification**

Developer built the building with LED lighting and with fluorescent and compact fluorescent lamps fitted with high frequency ballasts. In case Tenant makes fit-out works and install fluorescent and compact fluorescent lamps, the products will be fitted with high frequency ballasts.

### Hea 5 – Internal and External Lighting Levels

**Credit Owner: Developer and Tenant**

**1 of 1 credit targeted**

**1 of 1 targeted credit falls under the Green Lease Agreement**

The Developer is responsible for ensuring lighting levels specified in the BREEAM Manual Hea 5 issue OR in case Tenant is responsible for Fit-Out works, Tenant is required to assure the required lighting levels.

Lighting levels requirements are specified in Appendix 1, Section Internal and External Lighting Levels.

### Hea 12 – Microbial contamination

**Credit Owner: Developer and Tenant**

**1 of 1 credit targeted**

**1 of 1 targeted credit falls under the Green Lease Agreement**

Developer constructed the building so that all water systems (including failsafe humidification system) in the building are in compliance with the measures outlined in the relevant international standards and according to Hungarian regulations to prevent water contamination in building services.

The Developer is responsible for carrying out the following OR in case Tenant is responsible for Fit-Out works, Tenant commits to assure compliance with requirements.

Microbial safety requirements are specified in Appendix 1, Section Microbial contamination.

### Ene 2 – Sub-metering of substantial energy uses

**Credit Owner: Developer**

**1 of 1 credit targeted**

**1 of 1 targeted credit falls under the Green Lease Agreement**

The Developer is responsible for providing accessible energy sub-metering of substantial energy uses according to BREEAM Manual Ene 2 Issue, and the Tenant accepts the energy monitoring conditions.

Data monitoring requirements and the systems to be provided with sub-metering are listed in Appendix 1, Section Sub-metering of substantial energy uses.

### Ene 3 - Sub-metering of high energy load and tenancy areas

**Credit Owner: Developer**  
**1 of 1 credit targeted**  
**1 of 1 targeted credit falls under the Green Lease Agreement**

The Developer is responsible for providing accessible energy sub-metering of substantial energy uses according to BREEAM Manual Ene 3 Issue, and the Tenant accepts the energy monitoring conditions.

Data monitoring requirements and the systems to be provided with sub-metering are listed in Appendix 1, Section Sub-metering of substantial energy uses.

### Ene 4 – External lighting

**Credit Owner: Developer**  
**1 of 1 credit targeted**  
**1 of 1 targeted credit falls under the Green Lease Agreement**

Developer installed the external lighting and lighting control systems with best practice energy efficiency measures and according to Hungarian standards: MSZ EN12464 Light and lighting – Lighting of work places – Part 2: Outdoor work places.

The Developer is responsible for carrying out the following OR in case Tenant is responsible for Fit-Out works, Tenant is required to assure the measurements below to prove compliance:

### Wat 1 – Water Consumption

**Credit Owner: Developer**  
**2 of 3 credit targeted**

### 2 of 2 targeted credit fall under the Green Lease Agreement

Developer built the building at a high water efficiency level, installing water efficient appliances. The results translate into 2 BREEAM credits.

Therefore, Tenant commits to implement domestic water consuming components which comply with BREEAM issue criteria; resulting in 2 credits to be achieved under WAT 01:

- 4.5/3 l/min WCs
- 2.1 l/min urinals
- 5 l/min taps (wash hand basins and, where specified, kitchen taps and waste disposal unit)
- 12 l/min showers

Tenant commits to consult and get agreement from the Developer if alterations from the above requirements are needed to ensure that these do not result in a decrease of water efficiency performance.

### Wat 2 – Water Meter

**Credit Owner: Developer and Tenant**  
**2 of 2 credits targeted**  
**2 of 2 targeted credit falls under the Green Lease Agreement**

The Developer makes a commitment to carry out and the Tenant accepts the water monitoring conditions of Wat 2 issue of the BREEAM Manual.

Data monitoring requirements and the systems to be provided with sub-metering are listed in Appendix 1, Section Water Meter.

### Pol 7 – Reduction of night time light pollution

**Credit Owner: Developer / Tenant**  
**1 of 1 credit targeted**  
**1 of 1 targeted credit falls under the Green Lease Agreement**

External lighting is specified and installed by the Developer to ensure that external lighting is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties. As a result, the building earned 1 BREEAM credit.

If external lighting and/or illuminated advertisements will be specified and installed by the Tenant, it must first be consulted with the Developer to ensure that changes do not result in a worsening of night time performance.

### Pol 8 – Noise attenuation

**Credit Owner: Developer / Tenant**  
**1 of 1 credit targeted**  
**1 of 1 targeted credit falls under the Green Lease Agreement**

Developer built the building with a suitable noise attenuation in order to reduce the likelihood of noise from the new development affecting nearby noise-sensitive buildings.

If noise generating technical installations or functions will be required by the Tenant, Tenant accepts Developer's installation according to the requirements of BREEAM Manual Pol 8 Issue.

Noise attenuation requirements are listed in Appendix 1, Section Noise attenuation.

## APPENDIX 1 DETAILED REQUIREMENTS OF THE GREEN LEASE CRITERIA

Texts in the following sections relate to specific criteria in the BREEAM Europe Commercial 2009 Assessor Manual.

### Hea 5 – Internal and External Lighting Levels

Internal and External lighting level requirements:

1. Internal and external lighting illuminance (lux) levels are specified in accordance with national best practice lighting guides (MSZ EN12464 Light and lighting – Lighting of work places – Part 1: Indoor work places 2011 and MSZ EN12464 Light and lighting – Lighting of work places – Part 2: Outdoor work places 2007). Where the lighting strategy of the building design is based on a localised or local lighting system, the task illuminance should be compliant with those levels and the average ‘ambient’ level at least one-third of this value or at the requirement of the non-task areas (whichever is greater).

2. For areas where computer screens are regularly used, confirmation is required that the lighting has been designed to limit the potential for glare in accordance with national best practice lighting guides, in particular the UGR limits are met.

3. The uniformity of illuminance over any task area is equal to or greater than 0.7 and the uniformity of the surrounding area should be at least 0.5.

### Hea 12 – Microbial contamination

**Credit Owner: Developer and Tenant**

**1 of 1 credit targeted**

**1 of 1 targeted credit falls under the Green Lease Agreement**

1. All water systems in the building are designed in compliance with the measures outlined in the relevant national health and safety best practice guides.

- “Legionnaires’ disease - The control of legionella bacteria in water systems”. Approved Code of Practice and guidance, 3rd ed. HSE, 2000. Alternative standard: CIBSE TM13 “Minimising the risk of Legionnaires disease”, 2002 in demonstrating that the design meets the requirements of ACoP.
- AG 10/94.1 “Efficient humidification in buildings”, KM Bennett, BSRIA. 1995.
- 49/2015. (XI. 6.) EMMI rendelet a Legionella által okozott fertőzőési kockázatot jelentő közegekre, illetve létesítményekre vonatkozó közegészségügyi előírásokról

2. Where humidification is specified, the above requirements are assured, OR only steam humidification is provided.

### Ene 2 – Sub-metering of substantial energy uses

Separate energy sub-meters are provided for the following systems (where present), and they are connected to a BMS (Building Management System), with individual monitoring and outputs for the sub-systems listed below:

- a. Space Heating
- b. Domestic Hot Water
- c. Humidification
- d. Cooling
- e. Fans (major)
- f. Lighting
- g. Small Power (it can be sub-metered with lighting where supplies are taken at each floor/ department).
- h. Other major energy-consuming items where appropriate.

### Ene 3 - Sub-metering of high energy load and tenancy areas

Separate energy sub-meters are provided for each tenanted, function areas or departments within the building, and they are connected to a BMS (Building Management System), with individual monitoring and outputs.

### Ene 4 – External lighting

1. All external light fittings for the building, access ways and pathways have a luminous efficacy of at least 50 lamp lumens/circuit Watt when the lamp has a colour rendering index (Ra) greater than or equal to 60. OR 60 lamp Lumens / circuit Watt when the lamp has a colour rendering index (Ra) less than 60.

2. All external light fittings to car parking areas, associated roads and floodlighting has a luminous efficacy of at least 70 lamp lumens/circuitWatt when the lamp has a colour rendering index (Ra) greater than or equal to 60. OR 80 lamp Lumens / circuit Watts when the lamp has a colour rendering index (Ra) less than 60.



3. All external light fittings for signs and uplighting have a luminous efficacy of at least 60 lamp lumens/circuit Watt when the lamp wattage is greater than or equal to 25W. OR 50 lamp lumens/circuit Watt when the lamp wattage is less than 25W.

4. External light fittings are controlled through a time switch, or daylight sensor, to prevent operation during daylight hours. Daylight sensor override on a manually switched lighting circuit is acceptable.

## Wat 2 – Water Meter

### Basic level criteria

1. The specification of a water meter on the mains water supply to each building; this includes instances where water is supplied via a borehole or other private source.
2. The water meter has a pulsed output to enable connection to a Building Management System (BMS) for the monitoring of water consumption.
3. For retail developments with multiple units, separate pulsed meters are required to cover the water supply to the following areas where present:

a. Letting area; on the water supply to each tenant unit

b. Common areas; e.g. covering the supply to toilet blocks

c. Service areas; covering the supply to outlets within storage, delivery, waste disposal areas etc.

4. For industrial developments with multiple units, a pulsed water meter is specified on the supply to each separate unit.

5. In addition, ancillary buildings separate from the main development, for example petrol stations on sites such as supermarkets, are metered separately with a pulsed meter.

### Exemplary level criteria

1. Where sub meters are fitted to allow the metering of individual water-consuming plant or building areas, where demand in such areas will be equal to or greater than of 10% of the total water demand of the building.

2. Each sub meter has a pulsed output to enable connection to a Building Management System (BMS) for the monitoring of water consumption.

## Pol 8 – Noise attenuation

2. A noise impact assessment in compliance with ISO 1996 has been carried out and the following noise levels measured/determined:

a. Existing background noise levels at the nearest or most exposed noise-sensitive development to the proposed development; or at a location where background conditions can be argued to be similar.

b. The rating noise level resulting from the proposed noise-source. This can be based upon reference to similar installations or sites, or determined by calculation.

c. The noise impact assessment must be carried out by a suitably qualified acoustic consultant holding a recognised acoustic qualification and membership of an appropriate professional body (see relevant definitions in the additional guidance section).

3. Where the specific noise level of the noise source(s) from the site/building is +5dB during the day (0700hrs to 2200hrs) and +3dB at night (2200hrs to 0700hrs) compared to the background noise level, the credit can be awarded.

4. Where the rating level of the noise source(s) from the site/building is greater than the background noise level, measures have been installed to attenuate the noise at its source to a level where it will comply with requirement 3.

## GREEN BUILDING GUIDE CRITERIA

Texts in italics in the following sections relate to specific criteria in the BREEAM Europe Commercial 2009 Assessor Manual.

### Hea 9 – Volatile Organic Compounds

**Credit Owner: Tenant and Developer**  
**1 of 2 credit targeted**  
**1 of 1 targeted credit falls under the Green Building Guide**

The scope of the VOC credits does not extend to furnishings, e.g. desks/shelving, it focuses on the key internal finishes and fittings integral to the building. However, the recommendations should be considered for furnishing as well.

In case, Developer carries out fit-out works, the Developer makes a commitment to make those according the following requirements. In case Tenant carries out fit-out works, the following BREEAM issues are highly recommended to be followed:

1. All decorative paints and varnishes have been tested against EN ISO 11890-2:2006 Paints and varnishes. Determination of volatile organic compound (VOC) content. Gas-chromatographic method and meet the phase II maximum VOC content limit values set in Annex II of Decorative Paint Directive 2004/42/CE. All decorative paints and varnishes must also be fungal and algal resistant.

2. At least five out of the seven product categories listed in table 11 below (where specified) have been tested against and meet the relevant standards outlined in the table below for Volatile Organic Compound (VOC) emissions.

VOC criteria by product type

Product	European Standard	Emission level required
<b>Wood Panels</b> <ul style="list-style-type: none"> <li>Particleboard</li> <li>Fireboard includingMDF</li> <li>OSB</li> <li>Cement-bonded particleboard</li> <li>Plywood</li> <li>Solid wood panel and acoustic board</li> </ul>	EN 13986:2002	Formaldehyde E1 (Testing req 1 - see below) Verify that regulated wood preservatives are absent and of the minimum content.
<b>Timber Structures</b> <ul style="list-style-type: none"> <li>Glued laminated timber</li> </ul>	EN 14080:2005	Formaldehyde E1 (Testing req 1)
<b>Wood flooring</b> <ul style="list-style-type: none"> <li>e.g. parquet flooring</li> </ul>	EN 14342:2005	Formaldehyde E1 (Testing req 1) Verify that regulated wood preservatives are absent and of the minimum content.
<b>Resilient, textile and laminated Floor coverings</b> <ul style="list-style-type: none"> <li>Vinyl/linoleum</li> <li>Cork and rubber</li> <li>Carpet</li> <li>Laminated wood flooring</li> </ul>	EN 14041:2004	Formaldehyde E1 (Testing req 1) Verify that regulated wood preservatives are absent and of the minimum content.
<b>Suspended ceiling tiles</b>	EN 13964:2004	Formaldehyde E1 (Testing req 1) No asbestos.
<b>Flooring adhesives</b>	EN 13999-1:2007	Verify that carcinogenic or sensitising volatile substances are absent (Testing req 2-4)
<b>Wall-coverings</b> <ul style="list-style-type: none"> <li>Finished wallpapers</li> <li>Wall vinyl's and plastic wall-coverings</li> <li>Wallpapers for subsequent decoration</li> <li>Heavy duty wall-coverings</li> <li>Textile wall-coverings</li> </ul>	EN 233:1999 EN 234:1989 EN 259:2001 EN 266:1992	Formaldehyde (testing req 5) and Vinyl chloride monomer (VCM) (testing req 5) release should be low and within the EN standard for the material. Verify that the migration of heavy metals(5) and other toxic substances are within the EN standard for the material.
<b>Testing requirement:</b> <ol style="list-style-type: none"> <li>EN 717-1:2004</li> <li>EN 13999-2:2007 - Volatile Organic Compounds (VOCs)</li> <li>EN 13999-3:2007 - Volatile aldehydes</li> <li>EN 13999-4:2007 - Volatile diisocyanates</li> <li>EN 12149:1997</li> </ol>		

## Wat 7 - Vehicle Wash

**Credit Owner: Tenant**  
**1 of 1 credit targeted**  
**1 of 1 targeted credit falls under the Green Building Guide**

In case Tenant carries out fit-out works, the following BREEAM issues are highly recommended to be followed:

1. The vehicle washing system reclaims and recycles water that falls on, and drains off from, the vehicle pad. The reclaim system must be fully automatic.

The installed system is advised to be designed to minimise any legionella risk as defined in Hea 12 – Microbial Contamination, as follows:

1. All water systems in the building are designed in compliance with the measures outlined in the

relevant national health and safety best practice guides.\*

2. Where no humidification is specified or only steam humidification is provided.

\* “Legionnaires’ disease - The control of legionella bacteria in water systems”: Approved Code of Practice and guidance, 3rd ed. HSE, 2000. Alternative standard: Design team may refer to CIBSE TM13 “Minimising the risk of Legionnaires disease”, 2002 in demonstrating that the design meets the requirements of ACoP.

AG 10/94.1 “Efficient humidification in buildings”, KM Bennett, BSRIA. 1995.

## Wst 5 – Composting

**Credit Owner: Tenant and Developer**  
**1 of 1 credit targeted**  
**1 of 1 targeted credit falls under the Green Building Guide**

Developer provides a dedicated segregated space for storing compostable food waste prior to collection and delivery to a composting facility. There is a water outlet nearby for cleaning purposes.

In case, Tenant carries out fit-out works and has food preparation and/or servery/dining area within the tenanted area, the following BREEAM issues are recommended to be followed:

1. Food waste must be collected and stored separately.

2. Compostable food waste is collected and delivered to a composting facility by a licenced contractor.



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