

MUNICIPAL CENTRE

D. CONSTRUCTION DOCUMENTATION

1.3 FIRE SAFETY SOLUTION

D.1.3 | TECHNICAL REPORT OF FIRE PROTECTION

Type of thesis:	Diploma thesis
Location:	Pořadí, Nivnice 687 51, Czech republic
Investor:	Municipality Nivnice, Sídliště 1000, 687 51 Nivnice
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Supervisor:	Ing. Jan Müller, Ph.D.
Project grade:	Project documentation for building permit
Date:	12/2024

1 General information about the construction

1.1 Building identification data

Construction name:	Municipal centre in Nivnice
Location:	Pořadí, Nivnice 687 51, Czech republic
Cadastral location:	Cadastral area Nivnice [704679] parcel numbers: 65, 64, 63, 61, 57
Purpose & character of construction:	Construction of civic amenities, new building, permanent construction
Grade of the project:	Project documentation for building permit

1.2 Architectural and urban solution of the building

The subject of the documentation is fire safety solution of newly built municipal centre in town Nivnice, in cadastral area Nivnice [704679], on parcels 65, 64, 63, 61, 57, in the built-up area of town.

Designed building is permanent, detached construction with 2 above ground floors and a partial basement. It is located on flat land, without underground water. The shape of the building is rectangular with total area of 330,72 m². The building is divided into two separate functional units, post office and administrative area with ceremony hall. Entrances to both parts are from the northeast side, through the first floor.

The roof construction is flat and green with simple intensive type of vegetation. On the roof are placed photovoltaic panels. Façade surface has silicon thin-layered plaster, and it is insulated by mineral wool. Fillings of windows and doors are wooden-aluminium with triple glazing. External shadings from aluminium will be connected to the load-bearing peripheral walls by Propasiv system blocks.

In the building there are not assembly areas according to ČSN 73 0831.

1.3 Layout solution of the building

The building is divided into 2 functionally separate units, post office and administrative area with ceremony hall.

The main entrance to the post office is from the northeast side, through the first floor. The entrance leads through automatic doors to the customer area with delivery window and post office counter. The service office is designed for 2 employees. There is also small kitchen with electrical stove, toilet, washroom and cleaning/changing room. The storage area for delivering and storing of packages has car entrance from northeast side and it has area of 29,73 m². The total area of post office is 70,41 m².

The main entrance to the administrative part with ceremony hall is from the northeast side, through the first floor. The entrance leads through automatic doors to the hallway with waiting room. On the first floor there is submission office for the first contact with public, hygienic area, small storage and ceremony hall. Hygienic area contains 2 separate toilets for disabled people, women toilet with 4 WC cabins and separate washroom and men toilet with 2 cabins and 1 pisoar and separate washroom. In front of ceremony hall in small foyer with places to sit.

Ceremony hall has capacity of total cca 50 people, from which 40 can be seated. Total area is 72,96 m². Ceiling is 6,35m high, going through 2 floors. Ceremony hall is connected with small storage area for chairs that serves also as a passage for a person leading the ceremony, or if needed as a cloak room.

In the underground floor is located cleaning room below the arm of staircase, technical room with geothermal heat pump and water heater, HVAC room, storage for office furniture, depository and archive. All rooms are considered without a permanent work position.

In the second floor are 3 offices for administrative work and public relations, hygienic area, printing/storage room for office supplies, kitchen, meeting room, mayor's office with secretary office and vice mayor's office. The meeting room is designed for 15 people. In hygienic area is washroom for women and toilet with 2 WC cabins and separated washroom for men with toilet with 1 WC cabin and pisoar.

All floors are connected by vertical communication in a form of staircase with electrical elevator.

1.4 Structural solution of the building

The building is standing on strip foundation and foundation slab from plain concrete. Load-bearing system is designed as mixed from masonry locks.

Peripheral walls in 1.P are made of hollow core concrete blocks, BTB 50/30/25 (P+D), LxWxH 500x300x250mm, filled with reinforced concrete. They are insulated by XPS 300 L, thick 80 and 160 mm. Peripheral walls in 1.NP and 2.NP are bricked, made of ceramic blocks POROTHERM 30 PROFI, th. 300mm. Thermal insulation is made of mineral wool thick 200 mm, covered by silicon thin-layered plaster - ETICS system. Interior loadbearing wall are also made of ceramic blocks POROTHERM 30 PROFI, th. 300mm. Non-loadbearing partitions are made of ceramic block POROTHERM 11,5 PROFI thick 115 mm and POROTHERM 8 PROFI thick 80mm.

Ceiling structures are made of prefabricated prestressed ceiling panels (SPIROLL) placed on loadbearing walls and connected by concrete. Below spiroll panels on load-bearing walls are made reinforced concrete rings. The U-shaped staircase is designed as a left-hand turn from prefabricated reinforced concrete parts. There is a personal elevator in the mirror area, that is placed into prefabricated elevator shaft from reinforced concrete.

The roof structure is designed as a flat, green, simple intensive roof made of prestressed SPIROLL ceiling panels. The insulation is EPS with lowest thickness of 250 mm. Waterproofing is made of SBS asphalt felts.

Fillings of exterior windows and doors are wooden aluminium with triple glazing. Interior doors are mostly wooden placed in wooden frames, except for automatic doors that are made of safety glass and aluminium. Almost in all rooms is constructed dropped ceiling from plasterboard cassettes on load-bearing grid.

2 Fire technical review

The documentation is processed in accordance with valid legal regulations, mainly decrees MVČR: No. 3/2008 Coll., on technical conditions for fire protection of buildings, as amended of regulations, No. 246/2001 Coll., on the establishment of fire safety conditions and state performance of fire supervision, as amended, by Act No. 133/1985 Coll., on fire protection as amended by later regulations and decrees of the MMRČR no. 268/2009 Coll., on general technical requirements for construction as amended and no. 499/2006 Coll., on documentation constructions as amended. Furthermore, it is processed in accordance with valid ČSN, see item 2.1 of this report.

2.1. Sources used for creation of Fire safety Report

- **Technical sources of construction:**

- Project documentation for building permit

- **Laws and other regulations:**

- Law No. 133/1985 CL, fire protection law in amendments
- Law No. 320/2015 CL., about the FRC in the Czech Republic
- Regulation No. 23/2008 CL, technical requirements of fire safety of buildings in amendment No. 268/2011 CL., about technical conditions of fire safety of buildings – Regulation about fire prevention
- Regulation No. 246/2001 CL, determines requirements fire safety and performance of state fire supervision – regulation about fire prevention (about the determination of the conditions of fire safety and the performance of state fire supervision)
- Reg. No. 499/2006 CL about building documentation – fire safety solution of building
- Reg. No. 268/2009 CL., about technical requirements of constructions
- Regulation No. 247/2001 CL organization of Fire Rescue Service
- Regulation No. 35/2007 CL, technical requirements for fire machinery

- **Standards ČSN including current changes on the given processing date:**

- ČSN 73 0810/2016 + Opr. 1/03.2020 – FPB – General requirements
- ČSN 73 0802 ed. 2:2023 – FPB – Non-industrial buildings
- ČSN 73 0818/ 2002, Z1 K.č. 65763 – FPB – Person surface rate in building
- ČSN 73 0872/1996 – FPB – Protection of buildings to extension of fire by air distributing equipment (standard for ventilation)
- ČSN 73 0873/2003 – FPB – Equipment for fire-water supply
- ČSN 73 0821, ed. 2: 5.2007– FPB – Fire resistance of engineering structures
- ČSN 73 0831 ed.2:2020 – FPB – Assembly rooms
- ČSN 73 0843+Z1: 07/2001 – FPB – Buildings for telecommunication service and post service
- ČSN 73 4200 – Chimneys – General requirements
- ČSN 73 0834+Z1+Z2:07/2011 – FPB – Changes of building
- ČSN 73 4201/2010, ed. 2: 12.2016 – Chimneys and flues
- ČSN 73 0848 – Electrical equipment and installation
- ČSN 06 1008/ 1997 – Fire safety of thermal equipment
- ČSN 01 3495/1997 – Construction drawings in fire safety of buildings

- ČSN EN 1838 Emergency lighting
- ČSN EN 12845+A1 – Fixed fire extinguishing equipment – Sprinkler equipment – design, installation and maintenance
- **Other sources:**
 - Zoufal and coll.: Values of structure's fire resistance according to the EC
 - Beneš, Sedláková, Rusinová, Benešová, Švecová: Požární bezpečnost staveb – Czech textbook on intranet, also in printed form, 2021
 - technical data sheets

2.2. Fire technical characteristics

Building will be solved according to the Regulation No.23/2008 comply ČSN 73 0810 - General requirements and other related standards, such as ČSN 73 0802 – Non-industrial buildings.

Fire technical characteristics of the building

Building: 2NP, 1P two floors, with partial basement

Vertical fire barriers and load bearing structures:

DP1	Peripheral brick wall Porotherm 300mm, insulated
DP1	Peripheral formwork block wall 300mm, insulated
DP1	Interior load-bearing Brick wall Porotherm 300mm
DP1	Brick partition wall Porotherm 115mm
DP1	Brick partition wall Porotherm 115mm, AKU
DP1	Brick partition wall Porotherm 80mm
DP1	Reinforced concrete column 750x300mm
DP1	Reinforced concrete elevator shaft

Horizontal fire barriers and load bearing structures:

DP1	SPIROLL panel ceiling 200 mm
DP1	Reinforced concrete girder 200mm
DP1	Suspended plasterboard ceiling hr. 12.5 mm

Structural system of the building: **non-combustible str. System**

- čl. 7.2.8. a) „02“ vertical and horizontal fire barriers and load bearing structures are from the structures part of DP1- non-combustible str. system

Fire height of the building:

Headroom height basement:	h = 3,59m hs =2,64m
Headroom height office + corridor 1.NP:	hs =2,90m
Headroom height storages, hygiene 1.NP:	hs =2,70m
Headroom height storage Post office 1.NP:	hs= 3,29m
Headroom height ceremony hall:	hs =6,35m
Headroom height offices 2.NP:	hs =2,95m
Headroom height storages, hygiene 2.NP:	hs =2,75m

Note - insulation requirements:

The building is insulated with the ETICS system, the insulator is mineral wool th. 200 mm. The insulation system is located on the building with a fire height h=3,59 m, i.e. less than 12 m.

The insulation has a reaction to fire class A1-A2, as a whole the system can be judged by minimum fire reaction class B, we have class A1-A2, $i=0$ mm/min.

The underground floor is insulated using extruded polystyrene XPS 300L, thickness 80 and 160 mm, with a fire reaction class E.

When installing the ETICS external thermal insulation composite system above ground, an ETICS starter set will be used, containing an aluminium starter angle profile with reinforcing mesh and a finishing aluminium profile with reinforcing mesh and a drip edge to prevent any disruption of the integrity of the cover layer.

The XPS insulation does not have, in accordance with Art. 3.1.3, CSN 73 0810, influence on the type of structural part of the perimeter wall DP1, i.e. the structural system is possible classify as DP1.; for this reason, the structural system can be classified as **non-combustible**.

The products will have a certificate declaring the required properties.

2.3 Division of the object into fire compartments

The building will be divided into 5 fire compartments:

FC P0.01/N2 – Municipal centre

This fire compartment is composed of entrance and communication pathways that connect all floors (hallways, staircases and personal elevator – does not serve as evacuation elevator). It contains archive, depository, cleaning room and storages in underground areas. In 1.NP it contains submission office, hygienic areas and storage and in 2.NP it has meeting room, offices, kitchen, storage and hygienic areas. There are also 3 shafts, two are part of the FC since they are properly sealed in place of fire ceiling ale one goes just through 1 FC, so it is part of that FC.

Communication pathways create Non-protected escape way.

FC P0.02 – HVAC room

This fire compartment contains just HVAC room in 1.P and a shaft as part of the FC since it is properly sealed in place of fire ceiling.

FC P0.03 – Technical room

This fire compartment contains just Technical room in 1.P and a shaft as part of the FC since it is properly sealed in place of fire ceiling.

FC N01.01 – Post office

This fire compartment contains customer area, service area, storage, kitchen, cleaning room and hygienic area.

FC N01.02 – Ceremony Hall

This fire compartment contains just Ceremony hall in 1.NP. It is no an assembly area according to ČSN 73 0831. (E less than 200persons, S less than 200 m²)

2.4 Assessment of FC, setting of their fire risk, review of an area of the FC

Determination of Fire risk for fire Compartments and their fire safety measures

A detailed calculation of the fire risk for the fire compartments is provided in Appendix D.1.3.06 Calculations. The fire safety level of individual fire compartments is determined according to Table 8 of ČSN 73 0802 ed. 2:2020 Fire Safety of Buildings – Non-Industrial Structures.

FC	S (m ²)	P _n (kg/m ²)	P _s (kg/m ²)	P (kg/m ²)	a	b	c	P _v (kg/m ²)	FSD
P0.01/N2	409,11	31,69	4,52	36,21	0,91	0,5	1	16,48	II
P0.02	20,38	15	2	17	0,9	1,11	1	16,98	II
P0.03	24,74	15	2	17	0,9	1,23	1	18,82	II
N01.01	70,41	69,69	2,80	72,5	1,09	0,17	1	13,43	I
N01.02	72,96	20	8,5	28,5	0,9	1,11	1	28,47	II

Review of the area of FC

FC	I (m)	I max (m)		Š (m)	Š max (m)		Z	Z max		S (m ²)	S max (m ²)	
P0.01/N2	22,3	62,5	Ok	9,6	40	Ok	3	11	Ok	409,11	2500	Ok
P0.02	5,23	70	Ok	3,9	44	Ok	1	11	Ok	20,38	3080	Ok
P0.03	6,34 5	70	Ok	3,9	44	Ok	1	10	Ok	24,74	3080	Ok
N01.01	9,6	55	Ok	7,6	36	Ok	1	14	Ok	70,41	1980	Ok
N01.02	9,6	70	Ok	7,6	44	Ok	1	7	Ok	72,96	3080	Ok

2.5 Assessment of fire resistance of building structures

According to ČSN 73 0802, table 12, required values of fire resistance of individual structures are determined. Actual values of fire resistance of structures are determined according to the technical sheets of manufacturers and according to Zoufal et al.: Determination of fire resistance of building structures according to Eurocodes.

Fire compartments are divided according to fire safety degree I-II FSD.

FC P0.01/N2-II – Municipal centre

Item	Structure	Material	Fire resistance		Notes
			Required	Real	
1	Fire walls				
	Underground	Porotherm 30 profi	REI 45 DP1	REI 180 DP1	OK
		Porotherm 11,5 profi	EI 45 DP1	EI 120 DP1	OK
	1.NP	Porotherm 30 profi	REI 30	REI 180 DP1	OK
	Fire ceiling				
	2.NP	Spiroll 200mm	REI 15	REI 120 DP1	OK
2	Fire closures				

	Underground	Door btw 2 FCs	EW 30 DP1-C	Installed acc. To requirements	
	1.NP	Door btw 2 FCs	EW 15 DP3 -C		
	2.NP	Door to Roof	EW 15 DP3		
3	Peripheral walls				
	Underground	Prefa BTB 50/30/25	R 45 DP1	REI 180 DP1	OK
	1.NP-inside	Porotherm 30 profi	REW 30	REI 180 DP1	OK
	1.NP-outside	Porotherm 30 profi	REI 30	REI 180 DP1	OK
	2.NP-inside	Porotherm 30 profi	REW 15	REI 180 DP1	OK
	2.NP-outside	Porotherm 30 profi	REI 15	REI 180 DP1	OK
5	Load-bearing structures inside FC, for stability of building				
	Underground	RFC girder 300mm	R 45 DP1	Satisfies min. cover 10 mm	
		Spiroll 200mm	RE 45 DP1	REI 120 DP1	OK
		Porotherm 30 profi	R 45 DP1	REI 180 DP1	OK
	1.NP	RFC girders 200mm	R 30	Satisfies min. cover 10 mm	
		Spiroll 200mm	RE 30	REI 120 DP1	OK
		Porotherm 30 profi	R 30	REI 180 DP1	OK
	2.NP	RFC girders 200mm	R 15	Satisfies min. cover 10 mm	
		Porotherm 30 profi	R 15	REI 180 DP1	OK
7	Load-bearing structures inside FC, not for stability of building				
	Underground	RFC elevator shaft 120mm	R 15	REI 120 DP1	OK
	1.NP	RFC elevator shaft 120mm	R 15	REI 120 DP1	OK
	2.NP	RFC elevator shaft 120mm	R 15	REI 120 DP1	OK
8	Non-loadbearing structure inside FC				
	Underground	Porotherm 11,5 profi	-	EI 120 DP1	OK
	1.NP	Porotherm 11,5 profi	-	EI 120 DP1	OK
		Porotherm 8 profi	-	EI 90 DP1	OK
	2.NP	Porotherm 11,5 profi	-	EI 120 DP1	OK
		Porotherm 11,5 profi AKU	-	REI 120 DP1	OK
	Porotherm 8 profi	-	EI 90 DP1	OK	
9	Staircases				
	Underground	RFC panels	RE 15 DP3	REI 60 DP1	OK
	1.NP	RFC panels	RE 15 DP3	REI 60 DP1	OK
	2.NP	RFC panels	RE 15 DP3	REI 60 DP1	OK

FC P0.02-II – HVAC room

Item	Structure	Material	Fire resistance		Notes
			Required	Real	
1	Fire walls				
	Underground	Porotherm 30 profi	REI 45 DP1	REI 180 DP1	OK
		Porotherm 11,5 profi	EI 45 DP1	EI 120 DP1	OK
	Fire ceiling				
	Underground	Spiroll 200mm	REI 45 DP1	REI 120 DP1	OK
2	Fire closures				

	Underground	Door btw 2 FCs	EW 30 DP1-C	Installed acc. To requirements	
3	Peripheral walls				
	Underground	Prefa BTB 50/30/25	R 45 DP1	REI 180 DP1	OK

FC P0.03-II – Technical room

Item	Structure	Material	Fire resistance		Notes
			Required	Real	
1	Fire walls				
	Underground	Porotherm 30 profi	REI 45 DP1	REI 180 DP1	OK
		Porotherm 11,5 profi	EI 45 DP1	EI 120 DP1	OK
	Fire ceiling				
	Underground	Spiroll 200mm	REI 45 DP1	REI 120 DP1	OK
2	Fire closures				
	Underground	Door btw 2 FCs	EW 30 DP1-C	Installed acc. To requirements	
3	Peripheral walls				
	Underground	Prefa BTB 50/30/25	R 45 DP1	REI 180 DP1	OK

FC N01.01-I – Post office

Item	Structure	Material	Fire resistance		Notes
			Required	Real	
1	Fire walls				
	1.NP	Porotherm 30 profi	REI 30	REI 180 DP1	OK
	Fire ceiling				
	1.NP	Spiroll 200mm	REI 15	REI 120 DP1	OK
3	Peripheral walls				
	1.NP - inside	Porotherm 30 profi	REW 15	REI 180 DP1	OK
	1.NP - outside	Porotherm 30 profi	REI 15	REI 180 DP1	OK
8	Non-loadbearing structure inside FC				
	1.NP	Porotherm 11,5 profi	-	EI 120 DP1	OK
		Porotherm 8 profi	-	EI 90 DP1	OK

FC N01.02-II – Ceremony Hall

Item	Structure	Material	Fire resistance		Notes
			Required	Real	
1	Fire walls				
	1.NP	Porotherm 30 profi	REI 30	REI 180 DP1	OK
	2.NP	Porotherm 30 profi	REI 15	REI 180 DP1	OK
	Fire ceiling				
	2.NP	Spiroll 200mm	REI 15	REI 120 DP1	OK
2	Fire closures in fire walls				
	1.NP	Door btw 2 FCs	EW 15 DP3 -C	Installed acc. To requirements	

3	Peripheral walls				
	1.NP - inside	Porotherm 30 profi	REW 30	REI 180 DP1	OK
	1.NP - outside	Porotherm 30 profi	REI 30	REI 180 DP1	OK
	2.NP - inside	Porotherm 30 profi	REW 15	REI 180 DP1	OK
	2.NP - outside	Porotherm 30 profi	REI 15	REI 180 DP1	OK

Fire Strips

In accordance with Article 8.4.10 of ČSN 730802 and Article 9.6.6 of ČSN 730804, fire strips can be omitted for fire compartments located in a building where $h < 12$ m (here, $h = 3,59$ m). According to Article 5.4.2 of ČSN 730835, fire strips do not have to be installed in AZ1 buildings.

Thermal Insulation

The entire building is insulated with a contact ETICS system using facade mineral wool with a thickness of 200 mm. The insulation system is designed in accordance with Article 3.1.3.2 of ČSN 73 0810. The system is installed on a building with a fire height of 3,59 m, i.e., less than 12 m. The insulant has a fire reaction class A1-A2, and the system is classified as fire reaction class A1-A2, $is = 0 \text{ mm} \cdot \text{min}^{-1}$.

When installing the ETICS system above ground, an ETICS starter set will be used, including a aluminium starter angle profile with reinforcing mesh and a finishing aluminium profile with reinforcing mesh and a drip edge to ensure the integrity of the cover layer.

In accordance with Article 3.1.3 "10", the product does not affect the type of structural part of the external wall DP1, and for this reason, the structural system can be classified as non-combustible.

The external insulation carried out in accordance with ČSN 73 0810 is considered a surface finish and may be used in fire strips and fire hazardous areas of fire compartments within the same building. It does not affect the type of construction DP1 or the building's structural system. These principles apply to the external insulation of above-ground parts of buildings.

For insulation of parts below ground, the thermal insulation material must meet at least fire reaction class E. This part may extend above ground up to a height of 1.0 m.

The underground floor is insulated with extruded polystyrene XPS 300L, thickness 80 and 160 mm, fire reaction class E.

Specific Requirements for Structures

According to Article 5.4.3 of ČSN 73 0835, surface finishes of building structures in AZ1 buildings must not use construction materials with a flame spread index (is) exceeding:

- 100 mm/min for walls,
- 75 mm/min for ceilings.

For floor coverings, materials classified according to ČSN EN 13501-1 in classes A1fl to Cfl may be used.

The products will have certificates declaring the required properties.

Building structures meeting the above requirements will comply.

2.6 Escape ways

2.6.1 Basic description of the escape ways Design

FC P0.01/N2-II – Municipal centre

In the building of Municipal centre and ceremony hall, there is only one available escape route from all areas. **Non-protected** escape route is designed, that is part of the fire compartment P0.01/N2, consisting of a communication corridor—staircase and hallways—that leads to an open area. The elevator is not designated for evacuation purposes.

FC N01.01 – Post office

In the Post office section, **non-protected** escape route is considered. It consists of a customer area that leads to an open area. The unprotected escape route is part of the fire compartment N01.01.

2.6.2 Number of escape persons according to ČSN 73 0818

ESCAPE PERSON No.						
P0.01/N2						
Room No.	Name of the room	Si = Area of room (m2)	m2/person	coefficient	E=No of escape persons	E rounded
0.01	DEPOSITORY	10,14	0	-	0	
0.04	FURNITURE STORAGE	23,92	0	-	0	
0.05	ARCHIVE	16,19	0	-	0	
0.06	HALLWAY	16,9	0	-	0	
0.07	STAIRCASE	13,95	0	-	0	
0.08	ELEVATOR SHAFT	3,47	0	-	0	
0.09	CLEANING ROOM	5,38	0	-	0	
1.08	WC WOMEN	9,29	0	-	0	
1.09	BATHROOM WOMEN	3,27	0	-	0	
1.10	WC DISABLED WOMAN	3,87	0	-	0	
1.11	WC DISABLED MEN	3,87	0	-	0	
1.12	BATHROOM MEN	3,18	0	-	0	

1.13	WC MEN	6,66	0	-	0	
1.14	STORAGE/CHANGING ROOM	15,79	0	-	0	
1.16	HALLWAY WITH WAITING ROOM	52,33	0	-	0	
1.17	SUBMISSION OFFICE	9,72	5	-	1,944	2
1.18	ELEVATOR	3,47	0	-	0	
1.19	STAIRCASE	13,94	0	-	0	
2.01	MAYORS OFFICE	23,22	5	-	4,644	5
2.02	MEETING ROOM	31,05	1,5	-	20,7	21
2.03	SECRETARY	12,06	5	-	2,412	3
2.04	KITCHEN	10,14	0	-	0	
2.05	STAIRCASE	13,95	0	-	0	
2.06	ELEVATOR	3,47	0	-	0	
2.07	WC MEN	4,76	0	-	0	
2.08	WC WOMEN	4,32	0	-	0	
2.09	BATHROOM MEN	1,99	0	-	0	
2.10	BATHROOM WOMEN	3,6	0	-	0	
2.11	HALLWAY	22,77	0	-	0	
2.12	OFFICE	9,9	5	-	1,98	2
2.13	OFFICE	10,79	5	-	2,158	3
2.14	PRINTING ROOM/STORAGE	10,46	0	-	0	
2.15	VICE MAYORS OFFICE	13,12	5	-	2,624	3
2.16	OFFICE	18,17	5	-	3,634	4
TOTAL		409,11				43
FC P0.02						
0.02	HVAC ROOM	20,38	0	-	0	0
TOTAL		20,38				0
FC P0.03						
0.03	TECHNICAL ROOM	24,74	0	-	0	0
TOTAL		24,74				0
FC N01.01						
1.01	CUSTOMER AREA	18,8	3	-	6,27	7
1.02	SERVICE AREA	12,12	5	-	2,42	3
1.03	KITCHEN	5,4	0	-	0	
1.04	STORAGE	29,73	0	-	0	
1.05	CLEANING ROOM	1,44	0	-	0	
1.06	TOILET	1,26	0	-	0	
1.07	BATHROOM	1,66	0	-	0	
TOTAL		70,41				10

FC N01.02						
1.15	CEREMONY HALL	72,96	1,5	-	48,64	49
TOTAL		72,96				49
Total No E from municipla hall = 92 persons						
Total No E from post office = 10 persons						

2.6.3 Non-protected Escape Route – Assessment

Non-protected escape ways are designed for all areas of the new Municipal centre in Nivnice. These routes do not need to be separated from other areas in the building by fire-resistant constructions and are therefore part of the individual fire compartments.

FC P0.01/N2-II – Municipal centre

A. Type of escape way

Since the fire height of the building is less than 9m, in this case 3,59m, we can use 1 non-protected escape way. It can be used between separate fire compartments, or for connection between above-ground floors or above ground floors with free area.

We talk about safe evacuation of a non-protected escape route if it occurs within the time limit during which combustion products and smoke do not fill the area (FC) to a height of 2.5 m above the floor.

This smoke time limit (t_e) is determined by the equation:

$$t_e = 1,25 \cdot h_s^{1/2} / a \text{ (min)}$$

where:

h_s - headroom height (m)

a – coeff. Of speed of burning (min)

B. Possibility of using just 1 escape way

From rooms:

1.17 – submission office, $a=1,06$

a coefficient: $1,06 \leq 1,1$ OK

Escape persons: $2 \leq 100$ OK

2.01 – mayor's office + 2.03 secretary, $a=0,98$

a coefficient: $0,98 \leq 1,1$ OK

Escape persons: $8 \leq 100$ OK

2.03 – meeting room, $a=0,90$

a coefficient: $0,90 \leq 1,1$ OK

Escape persons: $21 \leq 100$ OK

2.12 – office, $a=0,98$

a coefficient: $0,98 \leq 1,1$ OK

Escape persons: $2 \leq 100$ OK

2.13 – office, $a=0,98$

a coefficient:	$0,98 \leq 1,1$	OK
Escape persons:	$3 \leq 100$	OK

2.15 – office + 2.16 vice mayors office, $a=0,98$

a coefficient:	$0,98 \leq 1,1$	OK
Escape persons:	$7 \leq 100$	OK

FC N01.02 - Ceremony hall, $a=0,9$ – FC with just 1 room

a coefficient:	$0,9 \leq 1,1$	OK
Escape persons:	$49 \leq 100$	OK

From fire compartments:

FC P0.01/N2-II : $a = 0,91$

a coefficient:	$0,91 \leq 1,1$	OK
Escape persons:	$43 \leq 100$	OK

From building:

Escape persons:	$92 \leq 120$	OK
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- There are no escape persons from the underground areas

C. Limiting properties - length

For non-PEW we determine limited length according to coefficient „a“ of FC.

Start of non-PEW

1.17 – submission office

E= 2 persons	E _{max} = 40 persons	OK
S= 9,72 m ²	S _{max} = 100 m ²	OK
l= 4 m	l _{max} = 15m	OK

- Start of PWE is moved to the door

2.01 – mayor's office + 2.03 secretary = group of rooms with similar function

E= 8 persons	E _{max} = 40 persons	OK
S= 35,28 m ²	S _{max} = 100 m ²	OK
l= 6,78 m	l _{max} = 15m	OK

- Start of PWE is moved to the door

2.03 – meeting room

E= 21 persons	E _{max} = 40 persons	OK
S= 31,05 m ²	S _{max} = 100 m ²	OK
l= 8,12 m	l _{max} = 15m	OK

- Start of PWE is moved to the door

2.12 – office

E= 2 persons	E _{max} = 40 persons	OK
S= 9,9 m ²	S _{max} = 100 m ²	OK
l= 4,4 m	l _{max} = 15m	OK

- Start of PWE is moved to the door

2.13 – office

E= 3 persons	E _{max} = 40 persons	OK
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S= 10,79 m ²	S _{max} = 100 m ²	OK
l= 4,38 m	l _{max} = 15m	OK
- Start of PWE is moved to the door		

2.15 – office + 2.16 vice mayors office = group of rooms with similar function

E= 7 persons	E _{max} = 40 persons	OK
S= 31,29 m ²	S _{max} = 100 m ²	OK
l= 7,05 m	l _{max} = 15m	OK
- Start of PWE is moved to the door		

FC N01.02 - Ceremony hall

E= 49 persons	E _{max} = 40 persons	NO
S= 72,96 m ²	S _{max} = 100 m ²	OK
l= 9,48 m	l _{max} = 15m	OK
- Start of PWE is NOT moved to the door		

Length of non-PEW

The length of the Non- protected escape route was measured from the axis of the door in room no. 2.16 - Office

l= 28,71 m

The maximum length of the unprotected escape route according to Table 18 of ČSN 73 0820 (FC P0.01/N2-II, a=0,91)

l_{max}=30 m

L = 28,71 m < l_{max} = 30m OK

D. Limiting properties – width

The minimum width of the unprotected escape route, according to Article 9.11.1 of ČSN 73 0802, is 1 escape lane, i.e., 550 mm.

(FC P0.01/N2-II, a=0,91) (FC N01.02, a=0,9)

2.NP

Hallway left side

$u = (E/K) \cdot s_1 = (12/55) \cdot 1 = 0,218 \rightarrow 1 \text{ escape lane} \rightarrow 550\text{mm}$
width of hallway = 1500 mm \geq 550 mm OK

Hallway right side

$u = (E/K) \cdot s_1 = (29/55) \cdot 1 = 0,527 \rightarrow 1 \text{ escape lane} \rightarrow 550\text{mm}$
width of hallway = 1500 mm \geq 550 mm OK

Staircase arm

$u = (E/K) \cdot s_1 = (41/55) \cdot 1 = 0,745 \rightarrow 1 \text{ escape lane} \rightarrow 550\text{mm}$
width of staircase = 1500 mm \geq 550 mm OK

1.NP

Automatic door

$u = (E/K) \cdot s_2 = (41/70) \cdot 1,5 = 0,879 \rightarrow 1 \text{ escape lane} \rightarrow 550\text{mm}$
width of door = 1100 mm \geq 550 mm OK

Door from ceremony hall

$$u = (E/K) \cdot s^2 = (49/70) \cdot 1,5 = 1,05 \rightarrow 1 \text{ escape lane} \rightarrow 825\text{mm}$$

width of door = 1600 mm \geq 825 mm OK

Hallway left side

$$u = (E/K) \cdot s^2 = (51/70) \cdot 1,5 = 0,729 \rightarrow 1,09 \text{ escape lane} \rightarrow 825\text{mm}$$

width of hallway = 1500 mm \geq 825 mm OK

Hallway right side

$$u = (E/K) \cdot s^2 = (41/70) \cdot 1,5 = 0,879 \rightarrow 1 \text{ escape lane} \rightarrow 550\text{mm}$$

width of hallway = 1500 mm \geq 550 mm OK

Hallway entrance

$$u = (E/K) \cdot s^2 = (92/70) \cdot 1,5 = 1,968 \rightarrow 2 \text{ escape lanes} \rightarrow 1100\text{mm}$$

width of hallway = 2315 mm \geq 1100 mm OK

Entrance door

$$u = (E/K) \cdot s^2 = (92/70) \cdot 1,5 = 1,968 \rightarrow 2 \text{ escape lane} \rightarrow 1100\text{mm}$$

width of door = 1800 mm \geq 1100 mm OK

FC N01.01 – Post office

A. Type of escape way

Since the fire height of the building is less than 9m, in this case 3,59m, we can use 1 non-protected escape way. It can be used between separate fire compartments, or for connection between above-ground floors or above ground floors with free area.

B. Possibility of using just 1 escape way

From rooms:

1.01 – Customer area, $a=1,08$

a coefficient: $1,08 \leq 1,1$ OK

Escape persons: $7 \leq 100$ OK

1.02 – Service area

a coefficient: $1,08 \leq 1,1$ OK

Escape persons: $3 \leq 100$ OK

From fire compartments:

FC N01.01 : $a = 1,09$

a coefficient: $1,09 \leq 1,1$ OK

Escape persons: $10 \leq 100$ OK

From building:

Escape persons: $10 \leq 120$ OK

C. Limiting properties - length

For non-PEW we determine limited length according to coefficient „a“ of FC.

Start of non-PEW

1.02 – Service area

E= 3 persons E_{max}= 40 persons OK

S= 12,12 m² S_{max}= 100 m² OK

l= 4,714 m l_{max}= 15m OK

Start of PWE is moved to the door

Length of non-PEW

The length of the Non- protected escape route was measured from the axis of the door in room no. 1.02 – Service area

l= 8,44 m

The maximum length of the unprotected escape route according to Table 18 of ČSN 73 0820 (FC N01.01, a=1,09)

l_{max}=20m

L = 8,44 m < l_{max} = 20m OK

D. Limiting properties – width

The minimum width of the unprotected escape route, according to Article 9.11.1 of ČSN 73 0802, is 1 escape lane, i.e., 550 mm.

(FC N01.01, a=1,09)

Entrance door

u= (E/K)*s₂ = (10/45)*1,5 = 0,33 → 1 escape lane → 550 mm

width of door = 1800 mm ≥ 550 mm OK

Door 800mm

u= (E/K)*s₁ = (10/45)*1 = 0,22 → 1 escape lane → 550 mm

width of door = 800 mm ≥ 550 mm OK

2.6.4 Requirements for the design and equipment of escape routes

Doors

Doors on escape routes must open in the direction of escape and be installed without thresholds. Except of doors to free area, when there is less than 200 escape persons.

The requirements of Article 13.1.1, ČSN 73 0810, will be met: all lockable doors on escape routes must have fittings that allow the closure to be opened manually or automatically in the event of an alarm (or other emergencies) without using any tools, even if the closure is locked. This means escape route doors will be equipped with a mechanical panic lock and a handle compliant with ČSN EN 179, which releases the latch when pressed, even if the door is locked. Suitable fittings include, for example, a handle/knob type.

If the number of people on the escape route according to ČSN 73 0818 (E) is a maximum of 100 and the escape does not involve assembly areas (according to ČSN 73 0831), it is allowed to block doors on escape routes of all types. Such doors can be blocked in normal operation (e.g., with special security locks or by coded cards) but must be unblocked and openable without additional measures during an evacuation. The unblocking must be:

- a) Automatic, using the fire alarm system (EPS). A push-button fire alarm must be located near the door in the escape direction (which also unblocks the door without delay). This push-button alarm must be marked not only as a fire alarm but also with its secondary function (door unblocking – pictogram for door unblocking), or
- b) Manual (if the building lacks an EPS system), with buttons on both sides (requirements per Article 13.1.1, ČSN 73 0810). An EPS system is proposed for the assessed building.

If doors on an escape route are used for evacuation in both directions, it is recommended that they open in the direction of the larger number of escaping people.

If doors on an escape route are used for evacuation in both directions, the closure must be openable manually or automatically in both directions in the event of an alarm or other emergencies.

Lockable doors in rooms designated for sleeping are recommended to be equipped so they can be opened from the outside in case of emergency.

For double-leaf doors where both leaves need to be opened to meet the required escape route width, a door leaf closing coordinator must be installed.

The floor on both sides of the door will be at the same level as the width of the door leaf.

Doors in the sidewalls of the escape route that open onto the escape route must open in the direction of escape. The open leaf of these doors must not obstruct movement along the escape route or reduce its usable passage width (it is recommended to open such doors to 180°).

Doors opening onto staircases will only open onto landings. The landing must be wide enough so that opening the door does not reduce the usable width of the escape route.

The height of the staircase steps will be between 150 mm and 180 mm.

Escape routes throughout the building will be marked with signs according to ČSN ISO 3864, ensuring clear directional guidance at all points. Routes unsuitable for escape will also be marked. The signs must remain visible even in case of a power outage (e.g., photoluminescent signs).

Staircase

Designed according to the design standard for stairs—ČSN 734130

- to 35°, step high 150 - 180 mm

Above 2,5 EL another banister has to be added.

Lighting

non-PEW: artificial lighting in common level

Marking in EW

According to ČSN ISO 3864

In each place, in which people cannot see exit to free area

Escape routes meet the requirements for the assessed building

2.7 Stand-off distances

External insulation system of the building up to 12 m complies with Article 3.1.3.2 of ČSN 73 0810.

If the complete external insulation assemblies do not meet the fire reaction class A1 or A2 (e.g., mineral wool), it is necessary to evaluate the amount of heat released per 1 m² of

insulation area in cases where the thickness of the thermal insulation material exceeds 200 mm. This object uses mineral wool with thickness on 200mm, so it is not necessary to calculate the amount of released heat.

There are not structural parts of DP3 on the building envelope. There is no danger of falling parts from object - no assessment is necessary in accordance with the provisions of Article 10.4.7. note), because the slope of the roof coverings does not exceed 45° and ledges coverings do not exceed 1m. Individual distances were assessed and determined according to ČSN 73 0802, table F1 and F2, no adjacent objects are at risk and all stand-off distances except for one lie in the parcel.

STAND-OFF DISTANCES											
Floor	No of room	Name of the room	Area of the room(m2)	Area of windows	Spo= area of openings	hu (m)	l (m)	Sp (m2)	po (%)	po taken	d1 (m)
FC	P0.01/N2	pv=16,476kg/m2									
North-east facade					40,58	6,24	21	130,42	31,12	40	4,35
1.P		WITHOUT OPENINGS									
1.NP	1.17	SUBMISSION OFFICE	9,72	1,6							
	1.16	HALLWAY WITH WAITING ROOM	52,33	9,68							
2.NP	2.01	MAYORS OFFICCE	23,22	3,5							
	2.03	SECRETARY	12,06	3,5							
	2.12	OFFICE	9,9	3,5							
	2.13	OFFICE	10,79	3,5							
	2.16	OFFICE	18,17	3,5							
		STIARCASE		11,8							
TOTAL				40,58							
North-west facade											
		WITHOUT OPENINGS									
South-east facade											
		WITHOUT OPENINGS									
South-west facade					23	4,65	21	96,488	23,84	40	2,35
1.P		WITHOUT OPENINGS									
1.NP	1.08	WC WOMEN	9,29	1							
	1.10	WC DISABLED WOMAN	3,87	1							
	1.11	WC DISABLED MEN	3,87	1							
	1.13	WC MEN	6,66	1							
	1.14	STORAGE/CHANGING ROOM	15,79	2							
2.NP	2.02	MEETING ROOM	31,05	7							
	2.04	KITCHEN	10,14	1							
	2.08	WC WOMEN	4,32	1							

	2.10	BATHROOM WOMEN	3,6	1							
	2.14	PRINTING ROOM/STORAGE	10,46	3,5							
	2.15	VICE MAYORS OFFICE	13,12	3,5							
TOTAL				23							
FC P0.02		WITHOUT OPENINGS									
FC P0.03		WITHOUT OPENINGS									
FC N01.01	pv=13,434kg/m2										
North -east facade					12,691	2,59	7,2	18,648	68,06	68	2,25
1.NP	1.01	CUSTOMER AREA	18,8	7,511							
	1.04	STORAGE	29,73	5,18							
TOTAL				12,691							
South-east facade					13,475	2,45	5,5	13,475	100	100	2,99
1.NP	1.01	CUSTOMER AREA	18,8	13,475							
TOTAL				13,475							
FC N01.02	pv=28,472kg/m2										
North-west facade					16,6	7	4,2	29,05	57,14	57	7,34
1-2.NP	1.15	CEREMONY HALL	72,96	16,6							
TOTAL				16,6							

The fire hazardous area of the assessed fire-exposed surfaces extends to the investor's own land or public space, where no other buildings are present. Apart from public spaces, the fire hazardous area, affected by radiative heat, does not extend beyond the boundaries of other owners' properties. The assessed building is not located within the fire hazardous area of another structure.

The fire hazardous area of the fire sections overlaps with the fire hazardous area of another fire section or threatens another fire section. According to Article 10.2.2 of ČSN 73 0802, other structures may be located within the fire hazardous area only if their external walls are without fire resistance openings (FRO) and of type DP1, or have surface finishes made of materials classified as fire reaction class A1 or A2. For insulated external walls, the surface finishes must exhibit a flame spread index $is=0 \text{ mm.min-1}$.

3 Technical and technological equipment

3.1.1 Heating

Building is heated using earth-to-water heat pumps (geothermal). The outdoor units of the heat pumps are underground in drilled holes. The indoor unit of the heat pump, including the thermal water storage tank, will be placed in the technical room.

3.1.2 Ventilation

Ventilation for the whole building will be provided by forced ventilation using an HVAC unit with heat recovery, which will be located in the air-handling equipment room. All HVAC ducts will be routed through the suspended ceilings of individual rooms. When HVAC ducts pass through fire-separating structures, all requirements outlined in section 3.1.5 of this report will be adhered to.

3.1.3 Pipeline pervade

House Pipeline is connected to the access road, which fulfils needed requirements. Access road water main dimension is PE90. Water main, sewage and rain water sewage are brought along this pipeline.

3.1.4 Electrical equipment

According to §9 of Decree 23/2008, electrical equipment for protection of people and properties must be designed in such a way, that the electric power supply is assured in case of fire, meeting conditions set by ČSN 730802 and ČSN 730810.

Emergency lighting

Designed and implemented in accordance with ČSN EN 1838 and ČSN EN 50172, Emergency Escape Lighting Systems.

Emergency lighting must clearly indicate the escape route, and it is recommended to install emergency lighting at all locations where there is a change in elevation.

Emergency lighting will be provided along escape routes to ensure illumination for at least 1 hour in the event of a power outage. The requirements of Article 5.3 of ČSN EN 50172 will be met—lighting for individual sections of the escape route will be implemented using two or more luminaires.

Signs located at all exits and along escape routes, intended for use in emergency situations, must be illuminated to clearly indicate the escape path to a safe area. Where there is no direct line of sight to the escape exit, illuminated directional signs will be installed to facilitate movement toward the emergency exit. The required illumination level for the escape route is 1 lx.

3.1.5 Installation passages

In accordance with art. 8.6 and 11.1 of ČSN 730802 passage of installations through the fire barrier construction must be sealed.

Distribution pipes and their accessories used for non-combustible substances in technical equipment of non-production buildings or for technological purposes may pass through fire-separating structures in accordance with ČSN 73 0802, provided the conditions of ČSN 73 0810 are met:

- a. Pipes with a clear cross-sectional area of up to 40,000 mm² (regardless of the combustibility of the material used) without additional measures.
- b. Pipes with a clear cross-sectional area above 40,000 mm² must be made of construction products classified as fire reaction class A1 or A2 (non-combustible construction products). Their insulation, if any, must be non-combustible and extend at least 1,000 mm on both sides of the fire-separating structure.

For pipes with a clear cross-sectional area above 40,000 mm² made of combustible construction products, free routing through the fire section is not allowed and must either:

1. Be embedded in a construction type DP1 or otherwise protected, e.g., with a covering layer of at least 30 minutes fire resistance, or
2. Be placed in an installation shaft or channel.

Note: Pipes made of non-combustible construction products may be routed freely within the fire section.

HVAC system

HVAC systems must be designed to prevent the spread of fire or combustion products to other fire sections. Fire resistance testing for HVAC ducts is governed by ČSN EN 1366-1. Unsealed HVAC system openings with an individual area of up to 40,000 mm² must not exceed a combined area greater than 1/100 of the fire-separating structure they penetrate, with a minimum distance of 500 mm between openings. HVAC systems must comply with ČSN 73 0872.

According to ČSN 73 0810:2016, penetrations for distribution systems, installations, technical and technological equipment, and electrical systems should be minimized through fire-separating structures. These structures must be extended to the external surfaces of the penetrating equipment with the same composition and fire resistance as the fire-separating structure itself. If the structure around the penetration is modified, it must maintain the fire resistance of the original structure.

Sealing of Penetrations

Penetrations must be sealed using:

- a) Fire protection devices – fire barriers or fire stops (in accordance with ČSN EN 13501-2+A1:2010), or
- b) Sealing materials classified as fire reaction class A1 or A2 throughout the thickness of the structure (e.g., masonry or concrete infill), provided the penetration is not near protected escape routes or fire/elevator shafts.

According to option (a), penetrations are evaluated based on:

- EI in fire-separating structures EI and REI, or
- E in fire-separating structures EW or REW.

Option (b) applies in the following cases:

1. For masonry or concrete structures with a maximum of three pipes containing non-combustible liquids such as water. Pipes must be classified as fire reaction class A1 or A2 or have an external diameter of up to 30 mm. Insulation at the penetration must be non-combustible (A1 or A2) and extend at least 500 mm on both sides of the structure.
2. For a single penetration of one electrical cable without a conduit, with an outer diameter up to 20 mm. The penetration must match the cable diameter and can also be implemented in drywall or sandwich panel structures. If a larger diameter opening is created in sandwich structures, option (a) must be followed.

Penetrations must be spaced at least 500 mm apart and evaluated independently.

Installation Shafts

All installation shafts within the building will be part of individual fire sections. Therefore, installations passing through fire-separating structures will be sealed in accordance with the principles outlined above.

3.1.6 Lighting rod

According to ČSN EN 62305-1-4 the object will be provided with a lightning rod.

3.2 Equipment for fire fighting

3.2.1 Access roads and boarding area

According to Article 12.2 ČSN 73 08 02, an access road with at least 1 traffic lane and with a width of at least 3 m must lead to the building at maximum distance of 20 m from the building. In reality the building is on the 2-lane road with the width 6 m > 3 m, main entrance to the building is from the road in distance 7,5m < 20 m. It will comply with FSB point of View. Fire high of building is less than 12 m, so the boarding area isn't required.

3.2.2 Outdoor offtake place

Requirement according to ČSN 730873, tab. 1 a 2. Hydrants must be installed on the local water mains with min. DN 100 mm and the distance to the object cannot exceed 150 m. The withdrawal of water from the hydrant must be at least 6 l/s with recommended speed of 0,8m/s. Static pressure of the hydrant must be at least 0,2 MPa.

Type of offtake place	Distance[m] from the building	DN mm	v m.s-1	Q l.s-1
outdoor hydrant	150/300	100	0,8	6

In the distance cca 15 m from the assessed building is a hydrant on the pipeline DN 100, it will comply with FSB point of View.

3.2.3 Indoor offtake place

For the group AZ 1 according to the art. 4.4. b6) ČSN 730873, is necessary the indoor offtake place, if there is a number of escape people above 15. Hose systems must be designed to be effectively operated by a single person and should be installed at a height of 1.1–1.3 meters above the floor. Hydrant system is permanently connected to a water supply. It must be permanently useable. The place is designated by fire sign.

Placing of hydrants in FC: every site in FC has to be served by one stream of water at least Only two hydrants can be designed on one standpipe. The furthest place in FC can have a distance 30 m from hydrant with shape resistant fire hosepipe –20 m is the length of the fire hosepipe and throw of water stream makes 10 m. In water pipeline must be overpressure 0,4 Mpa.

Assessment of the establishment of an internal water offtake place ($p \cdot S > 9000$) according to article 4.4b) of ČSN 730873

FC	S (m2)	p (kg/m2)	$p \cdot S < 9000$	Assesment
FC P0.01/N2	409,11	36,21	14814	Even though $p \cdot S$ is bigger than 9000kg, DN 19 installed
FC P0.02	20,38	17	347	No need
FC P0.03	24,74	17	421	No need
FC N01.01	70,41	72,5	5086	No need
FC N01.02	72,96	28,5	2080	No need

There will not be designed any indoor offtake place in FCs, since the $p \cdot S$ is less than 9000 kg, in FC P0.01/N2, where $p \cdot S$ is bigger than 9000 kg, there will be installed DN 19 hydrant systems.

3.2.4 Proposal of the number of fire-extinguishers

The number of portable fire extinguishers (PHP) is determined in Article 12.8 of ČSN 73 0802 according to the following equation:

$$nr = 0.15 \cdot (S \cdot a \cdot c3)^{1/2} \geq 1,0$$

Subsequently, according to Annex 4 of Decree No. 23/2008 Coll., the required number of fire extinguishing units for the given area is calculated using the formula:

$$nHJ = 6 \cdot nr$$

FC	S (m2)	a	c3	nr	nHJ	PHP number
P0.01/N2	409,11	0,91	1	2,89	17,34	3 x PH 21A powder
P0.02	20,38	0,9	1	0,64	3,84	1 x PH 21A powder
P0.03	24,74	0,9	1	0,71	4,26	1 x PH 21A powder
N01.01	70,41	1,09	1	1,31	7,86	2 x PH 21A powder
N01.02	72,96	0,9	1	1,22	7,32	1 x PH 27A powder

Portable powder fire extinguishers with extinguishing capacities of 21A and 27A for solid material fires will be installed in both building sections. The locations of all fire extinguishers are shown in the fire safety design drawings, which are part of the appendix to this report. Placement and inspection of fire extinguishers according to §§3 and 9 of Decree No. 246/2001 Coll.:

- Placement:

The placement of fire extinguishers (PHP) must allow for their easy and quick use. PHPs must be easily visible and freely accessible. They should be mounted on vertical building structures at a maximum height of 1.5 m above the floor. If a PHP is placed on the floor, it must be secured against falling.

- Inspection:

Fire extinguishers must be inspected after every use, in the event of mechanical damage, and at least once a year. Maintenance of PHPs includes periodic testing and refilling. The property owner must have documentation confirming the completed inspections of the PHPs.

3.2.5 Supply of electricity

There are no electrical distribution systems ensuring function or control of the equipment used for fire fighting according to Article 12.9.1. ČSN 73 0802. Electrical devices, which do not serve the fire protection of the building, may have according to Article 12.9.3. ČSN 73 0802 any wires and cables, which correspond to the operating conditions. Electric devices will comply with applicable legislation and will be installed and operated according to the relevant standards and regulations, or instructions for use. The distance of any heat appliances from combustible materials will be done according to No. 23/2008 Coll. as amended No. 268/2011 Coll.

3.2.6 Fire safety equipment

Active fire safety equipment is not installed in the building, as it is not required in accordance with Articles 6.6.9, 6.6.10, and 6.6.11 of ČSN 73 0802 and Article 4.2.2 of ČSN 73 0875.

4. Safety labels

The building will be marked according to the ČSN ISO 3864-1, ČSN 01 8013, NV 11/2002 Sb.:

- direction of escape
- fire-extinguishers
- indoor offtake places
- outdoor offtake places
- switchboard of electricity
- main water shut
- main gas shut
- pipeline pervade seals
- prohibitions and command for technological equipment in building:
 - no smoking
 - ban on operating with open fire

5. Conclusion

The project for the construction documentation of the "New Municipal centre in Nivnice" addresses a two-story building with partial basement. The object is separated into 2 functionally separate units- Post office and Civic amenities area.

The building is designed according to ČSN 73 0802 in compliance with related project standards, particularly ČSN 73 0835. The building is divided into 5 fire compartments.

The fire resistance of building structures meets the fire safety requirements (FSB) of the respective fire compartments. The buildings feature unprotected escape routes, which are part of individual fire compartments and comply with the required parameters. The stand-off distances reach only the investor's property and public areas, which is acceptable. The building complies with fire safety requirements provided that the principles outlined above are adhered to.

6. Attachements

- D.1.3.2 – SITE PLAN
- D.1.3.3 – UNDERGROUND FLOOR PLAN
- D.1.3.4 – FIRST GROUND FLOOR PLAN
- D.1.3.5 – SECOND GROUND FLOOR PLAN

Done by: Barbora Husárová
Date, place: 2024, Brno