



# BRNO UNIVERSITY OF TECHNOLOGY

VYSOKÉ UČENÍ TECHNICKÉ V BRNĚ

FACULTY OF CIVIL ENGINEERING  
FAKULTA STAVEBNÍ

INSTITUTE OF BUILDING STRUCTURES  
ÚSTAV POZEMNÍHO STAVITELSTVÍ

## HOTEL

D.1.3.1 - FIRE REPORT

DIPLOMA THESIS  
DIPLOMOVÁ PRÁCE

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# 1. Identification

Construction:	Hotel
Location:	Suvorovova 2888/9, 902 01 Pezinok [846163], Slovakia Cadastral area Pezinok [846163], Stará hora Plot number 840/3, 840/24
Builder:	Richard Sasko and collective
Address:	Suvorovova 2888/9, 902 01 Pezinok-Stará hora, Slovakia
Designer:	Richard Sasko
Address:	Suvorovova 2888/9, 902 01 Pezinok-Stará hora, Slovakia

The building is designed as a two floor hotel. Construction is based on Czech brickwork from company Heluz with one main entrance and four side entrances. The main entrance is located in a front /south-western/ side of the building that also faces public communication and the rest is facing surrounding wildlife area and wine yards.

## 2. General data

### 2.1 General data about the construction

The building is designed with a purpose of usage for temporary or seasonal accommodation with maximal capacities of 42 people. It is placed in a suburban area situated by recently built horse riding facilities without previously available accommodational facilities.

It is founded on a side wall made of concrete blocks standing on a foundation strip. Construction is made of clay bricks from company Heluz, more exactly the vertical load-bearing structure is based on Heluz 50 2in1 with already installed thermal insulation in brick cavities and Heluz AKU 30, while the non load-bearing vertical structure is based on Heluz 11.5. Horizontal load-bearing structure is also a product of company Heluz, more precisely ceramic ceiling Heluz MIAKO formed of ceiling joists and filling brick cartridges.

## **2.2 Description of a disposition**

It is a two floor building with a traditional disposition of room interior. Its 1<sup>st</sup> above ground floor consists of customer bedrooms, public restaurant, play room and most of a personnel facilities as office, meeting room, storage rooms and most importantly kitchen area. The 2<sup>nd</sup> above ground floor consists of additional customer bedrooms, customer meeting room, technical room and storage space.

The hotel is accessible either by main entrance which is reserved for incoming customers of the hotel or a restaurant and leads to a reception, or by two side entrances designated for employees and suppliers. Restaurant side entrance is not meant to be used as an entrance into the building but only as possible exit to a garden or a playground. Last side entrance located at the end of a corridor is only for emergency purposes used as an emergency exit in case of a necessity.

The building is generally divided into two areas – a public and one accessible for designated personnel only.

The 1<sup>st</sup> above ground floor quiet zone forms twelve rooms where each of them disposes of bedroom area and own private bathroom with shower and toilet and take in 22 people in total. Restaurant area has bar area, entrance to kitchen area and an exit to the back garden.

The 2<sup>nd</sup> above ground floor quiet zone forms ten rooms where each of them disposes of bedroom area and own private bathroom with shower and toilet and take in 20 people in total. The meeting room can accommodate up to 40 people. The technical room and storage room are only areas accessible for personnel only. All HVAC features can be found in the technical room. The 2<sup>nd</sup> above ground floor dispose of two customer available terrace spaces, one accessible from corridor and the other from the meeting room.

## **3. Fire technical report**

### **3.1 Background documentation**

Construction and technical data of the building:

Project documentation of the building component

Technical datasheets of manufacturers

#### Law and Regulations:

Act No. 320/2015 Coll., on the Fire Brigade of the Czech Republic and adaptation of certain laws

Act No. 133/1998 Coll., on fire protection

Decree No. 23/2008 Coll. as amended by Decree No. 268/2011 Coll., on technical regulations and conditions of fire protection of buildings

Decree. No. 246/2001 Coll., laying down the conditions of fire safety and the execution of state fire surveillance (fire prevention order)

Decree No. 268/2009 Coll., on technical requirements for constructions,

Decree No. 499/2006 Coll., on the documentation of constructions

#### CSN standards including current changes to the given processing date:

ČSN 73 0810 - FSB - Common Provisions

ČSN 73 0802 - FSB - Non-production objects

ČSN 73 0818 - FSB - Object occupation by persons

ČSN73 0872 - FSB - Protection against fire spreading via air-conditioning equipment

ČSN 73 0873 - FSB - Fire water supply

ČSN 73 0821, ed. 2 - FSB - Fire resistance of building structures

ČSN 73 4200 - Chimneys - General requirements

ČSN 73 4201 - Chimneys and flues

ČSN 06 1008 - Fire Safety of Thermal Equipment

ČSN 01 3495 - Drawings in construction - Drawings of PBS

#### Other Background:

Zoufal a kol.: Hodnoty požární odolnosti stavebních konstrukcí podle Eurokódů

### 3.2 Fire technical characteristics

Designed object is considered according to ČSN 730802 as object of group **OB3**: houses for accommodation with projected accommodation capacity of a maximum of 75 persons placed highest in the 3<sup>rd</sup> floor or a maximum of 55 persons placed between 1 to 8<sup>th</sup> above ground floor.

Vertical load-bearing constructions and fire barrier constructions: **DP1**

Horizontal load-bearing constructions and fire barrier constructions: **DP1**

Construction system: **Non-combustible**

Fire height:  **$h_1=3.92$  m**

**$h_2=3.13$  m**

Total height of the building:  **$h=7.85$  m**

The building is included in the **OB3** group according to ČSN 730833 - FSB - Buildings for housing and accommodation.

### 3.3 Division of the object into fire compartments

Object is divided into fire compartments in this order:

Fire compartment	Zone Number	Zone Description	Area (m2)
N1.01/N2	101, 102, 114, 126, 149, 201, 202, 203, 215, 227, 231	non-protected fire escape way	274,21
N1.02	136, 137, 138, 139, 142, 143	Staff meeting room, corridor, office, changing room	82,02
N1.03	127, 128, 129, 131, 132, 133, 134, 135, 141	Restaurant, WC, corridor, kitchen, dishes, storage, cold storage	232,11
N1.04	148	Play room	49,48
N1.05	146, 147	Hotel room	16,46
N1.06	144, 145	Hotel room	21,61
N1.07	103, 104	Hotel room	19,89
N1.08	105, 106	Hotel room	19,49
N1.09	107, 108	Hotel room	19,49
N1.10	109, 111	Hotel room	19,45
N1.11	112, 113	Hotel room	19,48
N1.12	115, 116	Hotel room	19,48
N1.13	117, 118	Hotel room	19,53
N1.14	119, 121	Hotel room	19,49
N1.15	122, 123	Hotel room	19,49
N1.16	124, 125	Hotel room	19,88
N2.01	233	Meeting room	81,28
N2.02	229	Technical room	11,04

N2.03	232	Storage room	17,54
N2.04	225, 226	Hotel room	19,95
N2.05	223, 224	Hotel room	19,54
N2.06	221, 222	Hotel room	19,54
N2.07	218, 219	Hotel room	19,48
N2.08	216, 217	Hotel room	19,48
N2.09	213, 214	Hotel room	19,48
N2.10	211, 212	Hotel room	19,49
N2.11	208, 209	Hotel room	19,49
N2.12	206, 207	Hotel room	19,46
N2.13	204, 205	Hotel room	19,88
N2.14	228	Ventilation Room	10,97
S-N1.01	-	-	-
S-N1.02	-	-	-
S-N1.03	-	-	-
S-N1.04	-	-	-
S-N1.05	-	-	-
S-N1.01/N2	-	-	-
S-N1.02/N2	-	-	-
S-N1.03/N2	-	-	-
S-N1.04/N2	-	-	-
S-N1.05/N2	-	-	-
S-N1.06/N2	-	-	-
S-N1.07/N2	-	-	-
S-N1.08/N2	-	-	-
S-N1.09/N2	-	-	-
S-N1.10/N2	-	-	-
S-N1.11/N2	-	-	-
S-N2.01	-	-	-
S-N2.02	-	-	-

### 3.4 Assessment of fire risk, grade of fire safety and assessment of size of fire compartments

Determined according to ČSN 73 0833 and ČSN 73 0802. The calculation of fire risk, determination of the grade of fire safety and the assessment of the size of the fire compartments is set out in the Annex Calculations.

The grade of fire safety of fire compartments of individual rooms (residential cells) is determined according to ČSN 73 0833, where for each residential cell the  $p_v = 30 \text{ kg} / \text{m}^2$  and coefficient  $c = 1.0$ . All rooms are set **II. grade of fire safety**.

Limit dimensions of fire compartments of residential cells are not set according to ČSN 73 0833.

The grade of fire safety of the storage space is determined according to ČSN 73 0833, where  $p_v = 45 \text{ kg} / \text{m}^2$  and coefficient  $c = 1.0$ .

The N1.01/N2 fire compartment is forms an unprotected escape way and therefore is free of fire risk.

In case of fire compartments of installation shafts, grade of fire safety is set as II.

Fire compartment	Area (m2)	Fire Load $P_v$	Grade of fire safety	Assessment of size
N1.01/N2	274,21	7,5	II	Verified
N1.02	82,02	18,75	II	Verified
N1.03	232,11	16,72	III	Verified
N1.04	49,48	45	II	Verified
N1.05	16,46	30	II	Verified
N1.06	21,61	30	II	Verified
N1.07	19,89	30	II	Verified
N1.08	19,49	30	II	Verified
N1.09	19,49	30	II	Verified
N1.10	19,45	30	II	Verified
N1.11	19,48	30	II	Verified
N1.12	19,48	30	II	Verified
N1.13	19,53	30	II	Verified
N1.14	19,49	30	II	Verified
N1.15	19,49	30	II	Verified
N1.16	19,88	30	II	Verified
N2.01	81,28	56,78	II	Verified
N2.02	11,04	28,56	II	Verified
N2.03	17,54	45	III	Verified
N2.04	19,95	30	II	Verified
N2.05	19,54	30	II	Verified
N2.06	19,54	30	II	Verified
N2.07	19,48	30	II	Verified
N2.08	19,48	30	II	Verified
N2.09	19,48	30	II	Verified
N2.10	19,49	30	II	Verified
N2.11	19,49	30	II	Verified
N2.12	19,46	30	II	Verified
N2.13	19,88	30	II	Verified
N2.14	10,97	54,06	II	Verified
S-N1.01	-	-	II	-
S-N1.02	-	-	II	-
S-N1.03	-	-	II	-
S-N1.04	-	-	II	-



S-N1.05	-	-	II	-
S-N1.01/N2	-	-	II	-
S-N1.02/N2	-	-	II	-
S-N1.03/N2	-	-	II	-
S-N1.04/N2	-	-	II	-
S-N1.05/N2	-	-	II	-
S-N1.06/N2	-	-	II	-
S-N1.07/N2	-	-	II	-
S-N1.08/N2	-	-	II	-
S-N1.09/N2	-	-	II	-
S-N1.10/N2	-	-	II	-
S-N1.11/N2	-	-	II	-
S-N2.01	-	-	II	-
S-N2.02	-	-	II	-

### 3.5 Requirements on fire resistance of building construction

In accordance with paragraph 1 §5 Decree n.23/2008 Coll. are requirements on fire resistance of building constructions stated according to table 12, ČSN 730802. All real values of fire resistance of building constructions are given according to technical lists of manufacturers and according to Zoufal a kol.: Hodnoty požární odolnosti stavebních konstrukcí podle Eurokódů.

Fire diving construction of protected escape ways, including structures providing the stability of these fire diving constructions or constructions bordering shafts of fire or evacuation lifts must be made of DP1 construction.

Fire diving and load-bearing structures ensuring the stability of the building must in accordance with ČSN 73 0833 in the accommodation area have a fire resistance of at least 30 minutes and fire closures in these fire diving structures, at least **EI 15 DP3**.

Construction	Floor	Fire resistance of construction		Assessment
		Required	Real Field/Girder	
Fire wall	1AGF	REI 30	REI 180 DP1	Comply
	2AGF	REI 30	REI 180 DP1	Comply
Fire ceiling	1AGF	REI 30	REI 180 DP1	Comply
	2AGF	REI 30	REI 180 DP1	Comply

Peripheral walls	1AGF	REW 30	REI 180 DP1	Comply
	2AGF	REW 30	REI 180 DP1	Comply
Load-bearing wall inside of FC	1AGF	R 30	R 90 DP1	Comply
Chimney		EW 15	R 120 DP1	Comply
Installation shaft		EI 30 DP2	EI 90 DP2	Comply

Requirements on fire resistance are compiled in all cases. Fire belts are not required for buildings with height less than 12 m (**7.85 m**) as in accordance with Article 8.4.10. ČSN 730802.

### 3.6 Escape ways

According to ČSN 73 0833 paragraph 6.3 and ČSN 73 0802, unprotected fire escape way in fire compartment N1.01/N2 is for evacuation of people satisfactory.

Object occupancy by persons according to ČSN 73 0818 :

Fire compartment	Zone Description	Area per person	Number of person acc. to design	Multiplication factor	N .of person
N1.01/N2	non-protected fire escape way		0	1,5	0
N1.02	Staff meeting room, corridor, office, changing room		6	1,5	9
N1.03	Restaurant, WC, corridor, kitchen, dishes, storage, cold storage	10	48	1,5	72
N1.04	Play room		4	1,5	6
N1.05	Hotel room		2	1,5	3
N1.06	Hotel room		2	1,5	3
N1.07	Hotel room		2	1,5	3
N1.08	Hotel room		2	1,5	3
N1.09	Hotel room		2	1,5	3
N1.10	Hotel room		2	1,5	3
N1.11	Hotel room		2	1,5	3
N1.12	Hotel room		2	1,5	3
N1.13	Hotel room		2	1,5	3

N1.14	Hotel room		2	1,5	3
N1.15	Hotel room		2	1,5	3
N1.16	Hotel room		2	1,5	3
N2.01	Meeting room		40	1,5	60
N2.02	Technical room		1	1,3	1,3
N2.03	Storage room		2	1,3	2,6
N2.04	Hotel room		2	1,5	3
N2.05	Hotel room		2	1,5	3
N2.06	Hotel room		2	1,5	3
N2.07	Hotel room		2	1,5	3
N2.08	Hotel room		2	1,5	3
N2.09	Hotel room		2	1,5	3
N2.10	Hotel room		2	1,5	3
N2.11	Hotel room		2	1,5	3
N2.12	Hotel room		2	1,5	3
N2.13	Hotel room		2	1,5	3
				SUM	<b>218</b>

**218** people is escaping from the object, in accordance with table 17 of ČSN 73 0802 it is possible to use a single protected fire escape way.

Nevertheless, unprotected fire escape is satisfactory and therefor only unprotected fire escape is to be used.

The assessment of an unprotected fire escape way

An unprotected escape way can be used as an escape way leading a) to open area from buildings according to article 3.5) if the length of the route is up to 45 m and the building has a maximum of three above ground floors.

Length of the escape way according to ČSN 73 0833 article 6.3.2.  $L = 43,4 \text{ m} < 45 \text{ m}$  is suitable.

Width of the escape way suffices if minimal width equals to 900 mm with door of clear span of 800 mm.

1AGF corridor = 2000 mm door width > **900 mm** / COMPLY

2AGF corridor = 2000 mm door width > **900 mm** / COMPLY

## Doors

The door on the escaping route must allow easy and fast passage according to paragraph 9.13.ČSN 73 0802. If the exit doors are equipped with special safety lock devices (e.g. code cards) must be self-unlocking in case of emergency evacuation. The

shape of the fittings should prevent the garment from being caught (for example, the shape of the handle). If they will be secured against unauthorized entry during a normal operation, they must be openable in case of emergency evacuation. Doors controlled by engine must also allow hand-operated opening. If one or both of the wings are secured during normal operation, they must have on its side in the direction of evacuation fittings to allow safe and easy opening. This fitting (e.g. lever lock) must be placed at a maximum of 1200 mm above the floor.

On escape routes, doors other than horizontally sliding opening with hinges on side must not be used, what is maintained.

### 3.7 Standoff distances

Standoff distances are set according to ČSN 730802, annex F. The roof is not considered as fire-opened area and doesn't require determination of standoff distance.

Standoff distances of unprotected escape ways are equal to zero.

The peripheral walls are considered as fire-closed areas according to article 8. 4. 5. ČSN 73 0802 and therefore, they do not require calculation of standoff distances.

Window and door openings in the envelope walls are glazed and without fire resistance.

It is therefore a fire-opened area, with requirement of the standoff distance

determination which is performed according to article 10.4.8. of ČSN 73 0802.

#### SOUTH-WEST

FC	Fire load pv [kg/m <sup>2</sup> ]	Length ln [m]	Height hu [m]	Area Sp [m <sup>2</sup> ]	Area of openings Spo [m <sup>2</sup> ]	Open areas po [%]	Standoff distance d1 [m]
N1.01/N2	17,5	4,8	1,26	6,05	4,54	75,07	3,10
N1.02	28,75	8,75	1,34	11,73	6,75	57,57	3,40
N1.07	40	1,5	1,5	2,25	2,25	100,00	4,40
N1.08	40	1,5	1,5	2,25	2,25	100,00	4,40
N1.09	40	1,5	1,5	2,25	2,25	100,00	4,40
N1.10	40	1,5	1,5	2,25	2,25	100,00	4,40
N1.11	40	1,5	1,5	2,25	2,25	100,00	4,40
N2.01	66,78	1	2,02	2,02	2,02	100,00	5,10
N2.09	40	1,5	1,5	2,25	2,25	100,00	4,40
N2.10	40	1,5	1,5	2,25	2,25	100,00	4,40
N2.11	40	1,5	1,5	2,25	2,25	100,00	4,40
N2.12	40	1,5	1,5	2,25	2,25	100,00	4,40
N2.13	40	1,5	1,5	2,25	2,25	100,00	4,40

**SOUTH-EAST**

FC	Fire load pv [kg/m2]	Length ln [m]	Height hu [m]	Area Sp [m2]	Area of openings Spo [m2]	Open areas po [%]	Standoff distance d1 [m]
N1.01/N2	17,5	2,07	6,32	13,08	6,29	48,08	5,20
N1.01/N2	17,5	1,5	1,5	2,25	2,25	100,00	3,30
N1.03	26,72	8,63	1,5	12,95	6,75	52,14	2,90
N1.04	59,48	4,5	1,5	6,75	4,5	66,67	4,00
N2.01	66,78	1,5	1,5	2,25	2,25	100,00	5,17

**NORTH-EAST**

FC	Fire load pv [kg/m2]	Length ln [m]	Height hu [m]	Area Sp [m2]	Area of	Open	Standoff
					openings Spo [m2]	areas po [%]	distance d1 [m]
N1.01/N2	17,5	1	2,02	2,02	2,02	100,00	3,2
N1.02	28,75	1	2,02	2,02	2,02	100,00	3,95
N1.03	26,72	15,73	1,42	22,34	13,54	60,62	3,5
N1.12	40	1,5	1,5	2,25	2,25	100,00	4,4
N1.13	40	1,5	1,5	2,25	2,25	100,00	4,4
N1.14	40	1,5	1,5	2,25	2,25	100,00	4,4
N1.15	40	1,5	1,5	2,25	2,25	100,00	4,4
N1.16	40	1,5	1,5	2,25	2,25	100,00	4,4
N2.04	40	1,5	1,5	2,25	2,25	100,00	4,4
N2.05	40	1,5	1,5	2,25	2,25	100,00	4,4
N2.06	40	1,5	1,5	2,25	2,25	100,00	4,4
N2.07	40	1,5	1,5	2,25	2,25	100,00	4,4
N2.08	40	1,5	1,5	2,25	2,25	100,00	4,4

**NORTH-EAST**

FC	Fire load pv [kg/m2]	Length ln [m]	Height hu [m]	Area Sp [m2]	Area of	Open	Standoff
					openings Spo [m2]	areas po [%]	distance d1 [m]
N1.02	28,75	1,5	1,5	2,25	2,25	100,00	3,9
N1.02	28,75	4,5	1,5	6,75	4,5	66,67	4,00
N1.05	40	1,5	1,5	2,25	2,25	100,00	4,4
N1.06	40	1,5	1,5	2,25	2,25	100,00	4,4
N2.01	66,78	8	1,5	12,00	6,75	56,25	4,9
N2.02	38,56	1	0,5	0,50	0,5	100,00	4,37
N2.14	64,06	1	0,5	0,50	0,5	100,00	5,04

A fire-danger area of assessed fire-opened areas is at the investor's plot or the public space where no other building is located. Besides of the public space, fire-danger area from the radiation effect does not exceed the boundaries of the other owners' plots. The

building under consideration is not in the fire-danger area of other objects. Condition is satisfactory.

#### Impact of burning parts

There are no building parts made of DP3 construction and therefor in accordance with Article 10.4.7. ČSN 730802 the standoff distances due to the impact of the burning parts are not necessary to be resolved.

### **3.8 Technical equipment**

#### **3.8.1 Ventilation**

The ventilation used is the pipe of section 40,000 mm<sup>2</sup> or less which can pass through fire-dividing structures without any further action if their distance is greater than 500 mm, the passage between the pipe and the wall will be fireproofed according to 3.8.3. of this report.

#### **3.8.2 Heating**

Heating is supported by heat pump unit located in every room as well as public areas. Technical room forms a separate fire compartment. The chimney in the building is not necessary. In case of later installation it would have to comply with ČSN 734200: 2004 and ČSN 734201: 2010. Fire safety during the operation of the chimney will be ensured as appropriate decree. The cleaning and inspection of the flue route will be carried out in accordance with §43-47 of Act No. 133/1985 Coll. as amended by Act No. 320/2015 Coll.

#### **3.8.3 Installation passages**

According to ČSN 73 0833 the cable and pipe passages through different constructions do not have to be sealed according to the same standard. Passages of installation, technical equipment, electrical wiring etc. must be designed to be passing through fire-resisting structures as little as possible.

#### HVAC equipment

Air-handling equipment must be designed so no fire or fumes are able to spread to other fire compartments. Requirements for execution, location and equipment of air-handling devices from the point of view of fire protection is determined by ČSN 73 0872. For testing of the fire resistance of the HVAC pipeline, EN 1366-1 applies.

#### **3.8.4 Electronical equipment and electrical installation**

The hotel must be equipped by an autonomous detection and alarm system. This device must be located in each residential unit, in common and gathering areas, in the

escape route, leading to the exit from the object, storage and technical rooms. An autonomous detector and signalling device means an autonomous smoke detector according to ČSN EN 14604.

### **3.8.5 Lighting rod**

Building has to be equipped by lighting rod according to ČSN EN 62305- 1-4.

### **3.8.6 Technical requirements for technical equipment**

All technical installations will be installed and operated according to the regulations of manufacturer and the instructions for use of individual products. The safe distance of the heat appliances from combustible materials will be maintained according to Annex No. 8 of Decree No. 23/2008 Coll.

### **3.9 Access road**

According to ČSN 73 0833, the access road with the lane width must be maintained 3,0 m and ending not more than 50 m from the object under consideration. The access point is communication with a width of 3 m. The access road is connected to the existing public communication width of 7 m what meets the requirements of the standard. The building has a fire height of 7,85 m, up to 12 m of fire height there is no need to set up boarding areas as mentioned in article 12.4.4. ČSN 730802. Both internal and external intervention paths are not required in accordance with Article 12.5.1. ČSN 730802 and Article 12.6.2. ČSN 730802.

### **3.10 Fire Intervention equipment**

#### **3.10.1 Fire water**

External supply point:

The area of the largest FC = 274,21 m<sup>2</sup>

Underground hydrants must be installed on the local waterline DN 200mm, the distance from the object shall not exceed 150 m and shall not exceed 300 m between each other.

Water supply from the hydrant at the recommended speed  $v = 0.8 \text{ m / s}$  must have a minimum flow  $Q = 6 \text{ l / s}$ . The take-off at the recommended speed  $v = 1.5 \text{ m / s}$  must have a minimum flow rate of  $Q = 12 \text{ l / s}$ . The static overpressure at the hydrant must be at least min. 0.2 MPa. If supply of fire water is not possible from external fire hydrants, another variant must be designed according to ČSN 73 0873 and ČSN 73 2411.

Internal supply points:

In a building with more than three above-ground floors, where accommodation is planned for more than 20 people, hose systems must be located on each floor by the staircase and places with increased fire risk at a distance of up to 25 m.

Internal supply is not necessary.

### 3.10.2 Fire extinguishers

Determined according to ČSN 73 0833 paragraph 6.4. fire class is considered as A - solid.

Fire extinguishers are located in the building as follows:

Fire compartment	Area (m2)	a	c	nr	Quantity	Capacity
N1.01/N2	274,21	0,89	1,00	2,34	3,00	21A
N1.02	82,02	0,98	1,00	1,34	2,00	21A/34A
N1.03	232,11	0,94	1,00	2,22	3,00	21A
N1.04	49,48	0,90	1,00	1,00	1,00	21A
N2.01	81,28	0,99	1,00	1,35	2,00	21A
N2.02	11,04	0,99	1,00	0,50	1,00	34A
N2.03	17,54	0,90	1,00	0,60	1,00	34A
N2.14	10,97	0,99	1,00	0,49	1,00	34A

$$nr = 0,15 \cdot (S \cdot a \cdot c_3)^{1/2} \geq 1,0$$

$n_r$  is number of fire extinguishers, S is area of fire compartment, a is coefficient according to 6.4 of ČSN 73 0802,  $c_3$  is coefficient according to 6.6.6 of ČSN 73 0802

Location of fire extinguishers and their inspection according to §3 and §9 of Decree No. 246/2001 Sb.:

Fire extinguishers location must allow easy and fast use, extinguishers must be easily visible and freely accessible. They shall be placed on a vertical structure not more than 1.5 m above the ground floor. If extinguisher is placed on the floor, it must be secured against falling.

Extinguisher inspections are performed after each use, for mechanical damage and at least 1 x per year. Part of maintenance is their periodic testing and performance. Owner of the object must have a proof of the extinguisher inspection being performed.

### 3.10.3 Intervention equipment

No fire safety devices are installed in the facility, they are not required in accordance to article 6.6.9, 6.6.10. and 6.6.11. ČSN 730802 and article 4.2.2. ČSN 730875.



### **3.10.4 Electric energy supply**

There is no electrical wiring in the designed object to control fire intervention equipment according to Article 12.9.1. ČSN 730802.

Electrical equipment that does not serve fire protection of an object may have, according to article 12.9.3. ČSN 730802 any wires and cables, but which correspond to the operational conditions.

Electrical appliances will comply with applicable legislation and will be installed and operated in accordance with the relevant standards and regulations, or instructions for use. The distance of any thermal appliances from combustible materials must be kept according to the requirements no. 23/2008 Coll. in the act No. 268/2011 Coll.

### **3.11 Safety signs and tables**

The relevant safety tables according to the requirements of ČSN ISO 3864-1 – Graphic signs - Safety paints and safety signs - Part 1: Design principles of safety signs and safety marking, ČSN 01 8013 - Fire tables and safety signs in accordance with government Order No. 11/2002 Coll. will be marking:

- direction of exit
- portable fire extinguishers
- internal supply point
- external supply point
- main power switch
- main water closure
- possible sealing of passages, cuffs

## **4. Conclusion**

The fire safety report deals with a project of newly build hotel for maximal capacities of 42 people. Construction is made of clay bricks from company Heluz and whole object is considered to be of group OB3.

The object is designed according to ČSN 730802 in accordance with its following project standards, in particular ČSN 730835. The building is divided into 30 fire compartments. Fire resistance of the building structure meets the requirements for each individual fire compartment. In the building there is an non-protected escape route of

satisfactory parameters. Standoff distances reach only the investor's land, the condition is satisfactory.

Escape ways comply requirements (2000 > 900 mm).

Access road comply requirements (7.0m > 3.0m).

**Building meets required conditions given by ČSN**

Attachments:

Drawing documentation FSR:

D.1.3.01 Situation and Standoff Distances, SC 1: 200

D.1.3.02 Fire Floorplan of 1st Above Ground Floor, SC 1: 100

D.1.3.03 Fire Floorplan of 2nd Above Ground Floor, SC 1: 100

Annexes:

D.1.3.2 - Calculations

In Brno 01/2019

Bc. Richard Sasko