Text consolidated by Valsts valodas centrs (State Language Centre) with amending regulations of:

11 April 2017 [shall come into force from 1 May 2017];

24 April 2018 [shall come into force from 27 April 2018];

11 September 2018 [shall come into force from 15 September 2018];

22 October 2019 [shall come into force from 1 November 2019].

If a whole or part of a paragraph has been amended, the date of the amending regulation appears in square brackets at the end of the paragraph. If a whole paragraph or sub-paragraph has been deleted, the date of the deletion appears in square brackets beside the deleted paragraph or sub-paragraph.

Republic of Latvia

Cabinet

Regulation No. 333

Adopted 30 June 2015

**Regulations Regarding Latvian Construction Standard LBN 201-15, Fire Safety of Structures**

*Issued pursuant to*

*Section 5, Paragraph one, Clause 3 of the Construction Law*

1. The Regulation approves the Latvian Construction Standard LBN 201-15, Fire Safety of Structures (hereinafter – the Latvian Construction Standard LBN 201-15).

2. The Ministry of Economics shall, in cooperation with the relevant technical committee for standardisation, recommend to the national standardisation body a list of standards that need to be developed, adapted and applied in connection with this Regulation.

3. The national standardisation body shall publish a list of Latvian national standards to be applied for the purpose of enforcement of the Latvian Construction Standard LBN 201-15 on the website www.lvs.lv.

4. The building designs which have been developed or submitted for coordination to the building authority in accordance with specific procedures prior to the date of coming into force of this Regulation in accordance with the requirements of the laws and regulations applied in the relevant time period need not be revised in accordance with the requirements laid down in the Latvian Construction Standard LBN 201-15.

5. The requirements of the Latvian Construction Standard LBN 201-15 at the places of imprisonment, short-term detention facilities, institutions of social services, medical treatment institutions and in other structures, where the competent authorities have restricted the freedom of movement of persons, shall be applied insofar as it is not in contradiction with the requirements of the laws and regulations regulating the operation of such institutions which are connected with the deprivation of liberty and with limited rights of a person to move freely.

6. Reaction to fire classes for construction products shall be determined in accordance with Table 4 of Annex to the Latvian Construction Standard LBN 201-15.

7. The wording of this Regulation that was in force until 30 April 2017 shall be applied to the building designs which have been coordinated (accepted) or submitted for coordination to the building authority in accordance with specific procedures until 30 April 2017. The wording of this Regulation that was in force until 30 April 2017 may be applied to the building designs which are developed on the basis of planning and architectural orders issued until 30 September 2014 or construction permits issued from 1 October 2014 to 30 April 2017.

[*11 April 2017*]

8. The wording of this Regulation that was in force from 1 May 2017 to 15 September 2018 shall be applied to the building designs which have been coordinated (accepted) or submitted for coordination to an authority which carries out the functions of the building authority in the period from 1 May 2017 to 15 September 2018. The wording of this Regulation that was in force until 15 September 2018 may be applied to the building designs which are developed on the basis of planning and architectural orders issued until 30 September 2014 or construction permits issued from 1 October 2014 to 15 September 2018.

[*11 September 2018*]

9. The wording of this Regulation that was in force from 16 September 2018 to 1 November 2019 shall be applied to the building designs which have been coordinated (accepted) or submitted for coordination to an authority which carries out the functions of the building authority from 16 September 2018 to 1 November 2019. The wording of this Regulation that was in force until 1 November 2019 may be applied to the building designs which are developed on the basis of planning and architectural orders issued until 30 September 2014 or construction permits issued from 1 October 2014 until 1 November 2019.

[*22 October 2019*]

Prime Minister Laimdota Straujuma

Acting for the Minister for Economics – Minister for Health Guntis Belēvičs

**In the wording provided by the Ministry of Economics**

Approved by

Cabinet Regulation No. 333

30 June 2015

**Latvian Construction Standard LBN 201-15, Fire Safety of Structures**

**1. General Provisions**

1. The Construction Standard determines the minimum fire safety requirements to be observed when designing and building new structures, when performing the rebuilding, renewal, restoration, placing, and changing of the type of use of existing structures. The requirements of the Construction Standard shall apply to the structures referred to in Paragraph 5 of this Construction Standard. The standards the list of which has been published by the national standardisation body on the website www.lvs.lv shall be applied in designing such structures.

2. The following terms are used in the Construction Standard:

2.1. protected escape route – a room, separated by a fire-resistant structure, intended for evacuation of people and without any variable fire load and the permanent fire load of which is below 25 MJ/m2;

2.2. open structure – a structure in the walls of each storey of which at least 30% of openings around the entire perimeter of the structure are opened and the area of aperture thereof is at least 10% of the area of the floor of the storey of the structure;

2.3. open stairs – internal stairs of a structure which are not separated from the construction volume of the structure with fire-proof boundary structures;

2.4. openable opening – window, door, gate, or manhole which can be opened in the external delimiting structure of the building which can be reached with technical means of the fire and rescue service and which may be used for rescue works;

2.5. automatic firefighting water curtain, automatic water cooling system for firefighting – a fixed engineering system which upon detecting fire or upon receipt of control signal from other automatic fire protection system, which has detected the fire, ensures limitation of the spread of the fire or fire protection of the building structures;

2.6. automatic fire detection and alarm system – a fixed engineering system which automatically detects fire and transmits a signal regarding the fire or system damages to the control and indicating equipment, in case of fire switches on an alarm signal alerting devices in the structure to be protected, as well as develops signals for control of other engineering systems;

2.7. automatic voice fire alerting system – a fixed engineering system which upon receipt of control signals from another automatic fire protection system, which has detected the fire, transmits automatically a voice notification regarding the fire in the structure to be protected and action in case of fire;

2.8. automatic smoke and heat exhaust system – a fixed engineering system which, in case of fire, upon receipt of control signal from another automatic fire protection system, which has detected the fire, ensures exhaust of smoke and heat from a room to be protected out of the structure, producing natural or mechanical traction of smoke in the premises to be protected;

2.9. automatic air overpressure system – a fixed engineering system which, in case of fire, upon receipt of control signal from another automatic fire protection system which has detected the fire, ensures protection of a room to be protected from filling with smoke, providing air pressure therein which exceeds air pressure in the adjacent premises;

2.10. automatic firefighting system – a fixed engineering system which upon detection of the fire or upon receipt of control signal from another automatic fire protection system, which has detected the fire, performs fire extinguishing or localisation of the fire automatically, as well as develops signals for control of other engineering systems;

2.11. autonomous fire detector – a local fire detector (device) which reacts to fire factors (concentration of smoke, high temperature, flame) and notifies the persons who are located in a room where it is installed by sound signal and visual signalling regarding the fire. Autonomous electric power source and fire detection, light indicator, sound announcement components shall be constructively combined in the case of autonomous fire detector;

2.12. external escape stairway – stairs outside a structure or in an open environment separated with fire-resistant building structures;

2.13. floor level of the highest storey of the structure – difference between the level of a road or similar surface on which the technical means of firefighting and rescue may drive and park and the floor level of the highest storey of the structure on which the users of the structure stay permanently;

2.14. fire stability level of a structure – an indicator of fire stability of a structure which depends on the type of use of the structure, the mark of floor level of the highest storey of the structure, the determined area of fire compartment, fire load of premises, fire resistance of building structures, and reaction to fire of built-in construction products;

2.15. smoke-protected stairway – fire protected stairway where the possibility of smoke is not allowed;

2.16. smoke exhaust openings – doors, gates, windows to be opened, blinds and manholes to be opened, open openings in external delimiting structures through which it is possible to discharge smoke in case of fire;

2.17. evacuation – arranged movement of persons to a safe place outside a structure on the level of ground surface or to a fire compartment in case of fire or other danger;

2.18. length of escape route – distance from a part of the structure or the most remote place of a fire compartment along the shortest possible escape route up to the nearest emergency exit. The length of escape route is not standardised in a protected escape route, external escape stairway, fire protected stairway and smoke-protected stairway, and also in a fire-proof lobby;

2.19. escape route – safe and easy to find path for movement which starts at any point of the structure where the users of the structure may stay permanently and leads to an emergency exit;

2.20. emergency exit – exit from a structure or parts of fire compartment through which it is possible to get outside the structure on the level of ground surface;

2.21. roof covering system – roof surface and insulating structure which includes all layers which form atmosphere resistant roof structure, except bearing structure – heat insulation, steam insulation, mechanically fixed or glued roof covering (water proof), as well as additional elements – roof windows;

2.22. roof covering – the upper hydroinsulating layer of roof which protects the structure from external impact of atmosphere;

2.23. non-automatic smoke and heat exhaust system – a fixed engineering system which, in case of manual initiation of operation, ensures exhaust of smoke from a room to be protected out of the structure, producing natural or mechanical traction of smoke in the premises to be protected;

2.24. non-ventilating facade – a multilayer structure of facade (external wall) between individual layers of which there is no air interlayer;

2.25. flat roof – delimiting structure of a structure which performs the functions of the covering of the upper storey and roof at the same time;

2.26. explosive room – a room where the industrial or storage technology used forms an explosive environment in more than 30% of the total area of the room;

2.27. fire protected stairway – a stairway which is separated from other premises with fire-resistant building structures, without any variable fire load and the permanent fire load of which is below 25 MJ/m2, and which has a direct exit to outside on the level of ground surface or through a fire-proof lobby;

2.28. fire-resistant building structure – a building structure with standardised fire resistance and reaction to fire class of construction products which is intended for the limitation of dangerous factors of fire;

2.29. a room, separated by a fire-resistant structure – a room which is separated from other premises with fire-resistant building structures;

2.30. area of fire compartment – area of the storey of a fire compartment between external walls or external and delimiting structures of the fire compartment;

2.31. fire compartment – a part of the structure which is separated from other parts of the structure with fire-resistant structures so that smoke and spread of smoke is delayed to and from that part of the structure and to retain loadbearing capacity for a certain period of time;

2.32. fire-proof lobby – a room which is separated from other premises with fire-resistant building structures, without any variable fire load and the permanent fire load of which is below 25 MJ/m2;

2.33. fire resistance – the ability of building structures or elements to retain loadbearing capacity, thermal insulation and integrity for a certain period of time;

2.34. fire separation elements – building structures for the prevention of flame spread which are made of construction products the reaction to fire class of which is not below A2-s1, d0;

2.35. reaction to fire – reaction of a construction product, exposing it to fire under certain circumstances, which characterises its ability to facilitate flame spread by degradation thereof;

2.36. fire load – the amount of thermal energy (MJ) to be released during the combustion process from the building structures of a room (permanent fire load) and from the combustible substances, materials and devices located in the room (variable fire load) per area unit of the floor of the room (m2);

2.37. ventilating (suspended) facade – facade structure which has an air interlayer between heat insulation and external finishing;

2.38. lightning protection system – a uniform system which is intended for the protection of structures, certain parts thereof, electric appliances and other objects against direct and indirect influence of lightning discharge;

2.39. room where persons may stay permanently – premises for all types of use, except attic, technical premises intended for the placement of technological equipment, engineering equipment, and engineering networks, sanitary premises, and also other premises where persons stay continuously for less than two hours or overall less than for six hours over a period of twenty-four hours in compliance with the solutions provided for in the construction documentation;

2.40. automatic fire protection system – a fixed engineering system which is switched on permanently in a stand-by service mode and, in case of fire, either independently or upon receipt of a control signal from another automatic fire protection system, which has detected the fire, automatically and manually ensures the performance of functions assigned thereto;

2.41. non-automatic fire protection system – a fixed engineering system which is switched on permanently in a stand-by service mode and upon receipt of a control signal, which is initiated by a person, independently ensures the performance of the functions assigned thereto.

[*11 April 2017; 11 September 2018*]

3. The renewal, rebuilding, placing, changing of the type of use, and restoration of a structure or part thereof may not reduce the fire safety of the structure.

4. If it is not possible to observe the minimum fire safety requirements specified in this Construction Standard in the cases specified in Section 9.1 of the Construction Law, the deviations from the technical requirements may be substantiated by calculations or the compliance of the structure with the minimum fire safety requirements specified in this Construction Standard may be proved in another way, taking into account the constructive and planning solution of the structure, functional significance, and possible variants for the course of fire.

[*24 April 2018*]

**2. Fire Safety Parameters of Structures**

**2.1. Types of use of structures and premises**

[*11 September 2018*]

5. Depending on the requirements set forth for fire safety there are the following types of use of structures and premises:

5.1. type of use I – residential buildings and premises, including few-storey one-apartment and multi-apartment residential buildings, multi-storey multi-apartment buildings, household buildings and structures, summer cottages, garden-houses, semi-detached houses, row houses;

5.2. type of use II – public structures and premises which are intended for accommodation of people, including hotels, official accommodation facilities, hostels, motels, guest houses, shelters, sanatoriums, camp sites, recreation bases, recreation camps, other recreation structures, barracks, other accommodation structures (also short-term accommodation structures);

5.3. type of use III – public structures and premises which are used all twenty-four hours and where users to be cared for and isolated are staying, including hospitals, homes for the elderly, care buildings, orphanages, birthing centres, social rehabilitation centres, structures where persons are accommodated for whom the competent authorities have limited freedom of movement;

5.4. type of use IV – public structures and premises which are used for commercial activity and public events including theatres, cinemas, concert halls, circuses, restaurants, cafés, bars and other public catering enterprises, stores, trade centres, market pavilions and other trade structures, conference and exhibition premises and structures, clubs, culture houses, museums, cult structures, dance halls, discotheques, libraries, court buildings, post and communication structures, railway stations, airports, bus terminals, sports structures, buildings where outpatient medical aid is provided;

5.5. type of use IVa – structures and premises which are intended for educational activity and childcare and the users of which cannot evacuate without additional help, including institutions which are intended for children of pre-school age, pre-schools, primary schools, and basic education institutions, special schools for persons (children and young persons) with special needs;

5.6. type of use V – structures and premises which usually are used during the day and where users familiar with the premises are staying permanently and can evacuate independently, including administrative buildings, archives, banks, office buildings, structures of rescue services, buildings of scientific and research institutions, and also educational institutions ensuring secondary, secondary vocational, higher, and interest-related education;

5.7. type of use VI – production structures and premises where production processes take place, warehouses, premises for delivery of goods and the fire load of which exceeds 1200 MJ/m2, repair garages (car repair shops);

5.8. type of use VIa – structures and premises intended for agriculture where persons are not staying permanently, including greenhouses, covered greenhouses for seasonal vegetables, young plants, and fruit, poultry, livestock, and animal sheds, covered fish farming sites, silos and bunkers intended for agricultural products;

5.9. type of use VII – garages and parking lots, including built-in underground and surface parking lots.

[*11 September 2018*]

**2.2. Fire Stability Levels of Structures**

6. Structures have the following fire stability levels:

6.1. U1, which has two fireproofness sublevels – U1a and U1b;

6.2. U2, which has two fireproofness sublevels – U2a and U2b;

6.3. U3 – the requirements have not been determined for bearing structures of a structure in the field of fire safety and the safety level of such structures is ensured by limiting the dimensions of structures in compliance with the type of use of the structure.

7. The minimum fire resistance of building structures determined for the structure of the relevant fire stability level and minimum reaction to fire class of construction products is specified in Tables 1 and 2 of Annex to this Construction Standard.

8. Different parts of one structure may have different fire stability levels and fireproofness sublevels. The possibility of flame spread between the parts of the structure of different fire stability levels shall be eliminated by fire-proof boundary structures.

**2.3. Fire Resistance of Building Structures**

9. Fire resistance of structures shall be determined in compliance with the stability of loadbearing capacity (symbol R), integrity (symbol E) and thermal insulation properties of building structures during fire. Fire resistance of building structures shall be determined by testing, calculations or combining testing with calculations.

10. In addition to the fire resistance indicators referred to in Paragraph 9 of this Construction Standard the following indicators of fire resistance and smoke non-permeability shall be applied:

10.1. heat radiation limitation (symbol W);

10.2. mechanical action (symbol M);

10.3. the self-closing ability for doors, gates, windows, manholes, blinds, valves and fire-proof curtains (symbol C);

10.4. smoke leakage limitation (symbol S);

10.5. soot fire resistance (symbol G);

10.6. fire protection ability – ability of construction products to be used for covering to protect the structure behind them from ignition and charring (symbol K);

10.7. stability in constant temperature (symbol D);

10.8. stability under standard temperature/time curve conditions (symbol DH);

10.9. functionality of electric ventilators for smoke and heat exhaust (symbol F);

10.10. functionality of the device for natural smoke and heat exhaust (symbol B).

11. The numerical indicator of the symbols referred to in Paragraphs 9 and 10 of this Construction Standard, which characterises fire resistance of bearing structures and structures forming fire compartment structure, shall be specified as minimum time in minutes of fire resistance of all parameters characterising fire resistance of the structure. If bearing structures of the structure have different times of fire resistance for integrity (symbol E), thermal insulation (symbol I) and loadbearing capacity (symbol R), the lower ensured time of fire resistance for integrity, thermal insulation and loadbearing capacity shall be specified in the numerical designation of fire safety of the structure.

12. Fire resistance shall be expressed in minutes. There are the following standard fire resistance times: 15, 30, 45, 60, 90, 120, 180 and 240 minutes.

13. Fire resistance necessary for bearing structures and building structures forming fire compartment structure shall be determined, taking into account the type of use of the structure, necessary fire stability level of the structure, floor level of the highest storey of the structure, permissible area of fire compartment and fire load of the structure or parts thereof.

14. Any building structure shall ensure the higher fire resistance time specified for the relevant building structure from the fire resistance indicators stipulated respectively. Fire resistance requirements for bearing structures and fire compartment structures are specified in Table 1 of Annex to this Construction Standard.

15. Fire resistance of fire doors shall be determined by testing them in compliance with the standard LVS EN 1634-1+A1:2018, Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware. Part 1: Fire resistance test for door and shutter assemblies and openable windows, and shall be classified in compliance with the standard LVS EN 13501-2:2016, Fire classification of construction products and building elements. Part 2: Classification using data from fire resistance tests, excluding ventilation services.

[*22 October 2019*]

15.1 Smoke control capacity of fire doors shall be determined by testing them in compliance with the standard LVS EN 1634-3:2005, Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware. Part 3: Smoke control test for door and shutter assemblies, and shall be classified in compliance with the standard LVS EN 13501-2:2016, Fire classification of construction products and building elements. Part 2: Classification using data from fire resistance tests, excluding ventilation services.

[*22 October 2019*]

16. Fire resistance of fire resistant glass shall be determined in compliance with the standard LVS EN 15998:2018, Glass in building. Safety in case of fire, fire resistance. Glass testing methodology for the purpose of classification, and shall be classified in compliance with the standard LVS EN 13501-2:2016, Fire classification of construction products and building elements. Part 2: Classification using data from fire resistance tests, excluding ventilation services.

[*22 October 2019*]

**2.4. Reaction to Fire**

17. Reaction to fire of construction products is characterised by the following properties which express themselves upon a construction product getting in contact with fire:

17.1. ignition;

17.2. heat release;

17.3. flame spread;

17.4. release of smoke;

17.5. release of burning (hot) droplets.

18. Construction products and structural elements (except floor and roof coverings, heat insulation products of pipelines) have the following reaction to fire classes:

18.1. A1 – a construction product does not react to the influence of fire, the construction products of this class do not promote development of fire in case of flash-over;

18.2. A2 – a construction product, which is exposed to the influence of fire, releases smoke in small amount, in case of flash-over it does not cause fire load and promote development of fire;

18.3. B – a construction product does not cause situations of flash-over, but it may maintain burning in case of developed fire;

18.4. C – a construction product may cause a situation of flash-over, but not at the beginning of the development of fire;

18.5. D – a construction product may cause a situation of flash-over due to influence of fire and it actively engages in the burning process when it is exposed to influence of fire;

18.6. E – a construction product may cause a situation of flash-over already in the first two minutes during burning;

18.7. F – fire resistance limit and reaction to fire class is not specified for a construction product and it may burn fast and cause flash-over quickly.

19. The intensity of release of smoke and burning droplets of construction products and structural elements shall be designated with the following symbols:

19.1. s1 – formation of smoke is very small during reaction to fire of a construction product;

19.2. s2 – release of smoke from a construction product is significant, the index of smoke growth complies with the values specified in the testing standard;

19.3. s3 – the parameters obtained during testing are greater than the parameters specified in the classification standard for s2 intensity (practically the amount of smoke release is not limited);

19.4. d0 – a construction product does not release particles of burning droplets during burning;

19.5. d1 – presence of burning droplets is observed during burning of a construction product, but duration of burning thereof is not greater than that specified in the testing standard and they burn out rapidly;

19.6. d2 – duration of burning of particles of burning droplets released by a construction product is greater than that specified for d1 intensity in the testing standard.

20. Reaction to fire classes of the floor covering shall be A1FL, A2FL, BFL, CFL, DFL, EFL and FFL. The intensity of smoke release from the floor covering shall be designated with the following symbols:

20.1. s1 – the total amount of smoke release is limited;

20.2. s2 – limitations for the amount of smoke release have not been specified.

21. Reaction to fire classes of the roof covering system as regards the influence of external fire shall be BROOF(t1), FROOF(t1), BROOF(t2), FROOF(t2), BROOF(t3), CROOF(t3), DROOF(t3), FROOF(t3), BROOF(t4), CROOF(t4), DROOF(t4), EROOF(t4) and F*ROOF*(t4).

22. Reaction to fire classes of heat insulation products of pipelines shall be A1L, A2L, BL, CL, DL and EL.

23. The intensity of smoke release from heat insulation products of pipelines shall be designated with the symbols s1, s2 and s3.

24. The intensity of release of burning droplets from heat insulation products of pipelines shall be designated with the symbols d0, d1 and d2.

**2.5. Fire Load**

25. There are following groups of fire load of premises:

25.1. premises of a particularly high fire hazard where the fire load exceeds 1200 MJ/m2 (for example, warehouses of combustible materials where the storage height is above six metres, painter workshops where solvent is used, factories of refrigerating systems, typographies, cable manufacturing plants the products of which have polypropylene, polyethylene, polystyrene, or similar combustion parameters, plastic materials obtained by applying the injection moulding method with polypropylene, polyethylene, polystyrene, or similar combustion parameters, rubber manufacturing plants, synthetic fibre manufacturing plants, wire cable/rope manufacturing plants, carpet and dense plastic material manufacturing plants, footwear manufacturing plants, timber industry (dry wood), bitumen manufacturing plants, mills, animal fodder warehouses, surface processing plants, paper and cardboard manufacturing plants, explosives manufacturing plants, sawing mills, peat power plants, peat treatment establishment, plastic foam manufacturing plants, veneer factories, cotton wool factory, premises for oil purification, premises for the production, processing, dispensing, or storage of fireworks, cellulose nitrates, rubber tyres of vehicles, lighters, floor coverings or linoleum, resin, turpentine, rubber substitutes, cotton, mineral fertilizers, matches, cutter chips, extremely flammable, highly flammable, and flammable liquids with a flash point under normal conditions not exceeding 55oC, soft roof coverings, particle boards, reinforced plastic structures, and premises for distillation of tar);

25.2. premises of a high fire hazard where the fire load varies from 600 MJ/m2 to 1200 MJ/m2 (inclusive) (for example, trade centres, their warehouses and premises for delivery of goods, market pavilions and other trade structures, theatre stages and decoration storage facilities, railway station, airport and bus station luggage facilities, concert halls, circuses, libraries, archive premises, bus, cargo vehicle and railway transport depots, paint, oils and grease warehouses of repair garages, textiles and carpet manufacturing plants, sewing workshops, sawmills, waste paper warehouses, leatherware warehouses, plywood manufacturing plants, photograph and film tape warehouses, agricultural and livestock (poultry) structures, grain dryers, heat plant fuel warehouses);

25.3. premises with a fire hazard where the fire load varies from 300 MJ/m2 to 600 MJ/m2 (inclusive) (for example, railway stations, airports, bus stations, waste paper processing plants, leatherware manufacturing plants and warehouses, glass manufacturing plants and warehouses, electrical equipment manufacturing plants and warehouses, textile industry, production units and warehouses of foodstuffs for human consumption and animal feed, production units and warehouses of alcoholic beverages, production units and warehouses of tobacco products, deep freezers (area does not exceed 20 m3), garages and parking lots, premises for vehicle repair and maintenance, cafés and restaurants, office premises, sports halls, theatres (except decoration warehouses), cinemas, schools and kindergartens, churches, small stores (total area does not exceed 300 m2) and their warehouses, dry-cleaners, processing of wet raw materials or a technological process where there is a small amount of raw materials or semi-finished products to be processed at the same time, a technological process which involves flammable liquids with a flash point under normal conditions above 55oC);

25.4. premises of a minor fire hazard where the fire load does not exceed 300 MJ/m2 (inclusive) (for example, manufacturing plants and warehouses of cement, clay (including bricks) and articles thereof, stone processing industry, metal (metal articles) and their processing plants, workshops and warehouses, laundries, technical premises – ventilation chambers and other premises for ventilation units, heating units, premises for pumping installations, premises for boiler installations, water based paints/solvent dye-houses, apartments, hotel rooms).

[*11 September 2018*]

26. The fire load of a room g (expressed as MJ/m2) is regarded by taking into account the division into the groups of fire load referred to in Paragraph 25 of this Construction Standard or is calculated by using the following formula:

|  |  |
| --- | --- |
|  | where: |

*S* – area of the room (m2);

*Q* – total amount of burning heat of the room (MJ). It shall be calculated by using the following formula:

|  |  |
| --- | --- |
|  | where: |

*Gi* – amount of i-material (kg);

 – amount of burning heat of a unit of i-material (MJ/kg).

[*11 September 2018*]

27. If there are fire compartments in a structure, the fire load of which differ, the fire load of each fire compartment shall be calculated separately. Structures and elements thereof shall be classified in compliance with the fire load of the fire compartment with greater fire load.

28. A structure, which has different types of use, may be divided in separate groups of fire load. The requirements for fire resistance of bearing structures and fire compartments of a structure shall be determined in compliance with the relevant group of fire load.

**3. Provisions for Planning of Structures**

**3.1. Fire Safety Intervals**

29. In order to limit the possible flame spread in case of fire from one structure referred to in Paragraph 5 of this Construction Standard to another, fire safety intervals shall be observed between the structures. The minimum fire safety intervals between structures are specified in Table 7 of Annex to this Construction Standard, moreover, the minimum fire safety distance up to the boundaries of adjacent land units for the structures with fire stability level U1 and U2 shall be four metres, for U3 structures – five metres. Fire safety intervals between structures shall also be observed if the structures are located on one land unit (except the case referred to in Paragraph 30 of the Construction Standard).

[*11 September 2018*]

30. Fire safety intervals between structures in one land parcel need be not observed, if the construction area of structures is not greater than the maximum permissible values of a fire compartment specified in Table 3 of Annex to this Construction Standard. If fire stability levels of structures are different, fire safety interval shall be taken according to the structure with the lowest fire stability level.

31. The determined fire safety intervals and the minimum fire safety distance up to the boundary of adjacent land units may be reduced, if fire-proof wall has been arranged between the structures in compliance with the requirements specified in Table 1 of Annex to this Construction Standard.

32. A structure may be located closer than the minimum distance up to the boundary of an adjacent land parcel referred to in Paragraph 29 of this Construction Standard, not providing for a fire-proof wall if:

32.1. the structure is located next to land parcels, for which the status of a street, road or square has been determined in the territorial planning of a local government;

32.2. the planned distance between adjacent structures in different land parcels complies with the distance specified in Table 7 of Annex to this Construction Standard.

33. The minimum fire safety intervals between few-storey residential houses and household buildings located on two adjacent land parcels may be reduced if the total area of the storeys of structures is not greater than the maximum permissible values of a fire compartment specified in Table 3 of Annex to this Construction Standard. If fire stability levels of structures are different, fire safety interval shall be taken according to the structure with the lowest fire stability level.

34. In the case of rebuilding and renewal of a structure it is allowed to retain the existing intervals between structures and the intervals up to the boundaries of the adjacent land units if the dimensions of structures are not increased in the direction of the fire safety interval.

[*11 September 2018*]

**3.2. Provision of Firefighting and Rescue**

35. At least two drives suitable for firefighting and rescue equipment shall be ensured for structures which are located in an enclosed territory, the area of which is larger than five hectares.

36. If a perimeter of the enclosed territory, in which structures are located, is longer than 1000 metres, at least one drive is necessary for firefighting and rescue equipment per each 500 metres of the perimeter and they shall be placed regularly along the entire perimeter. If the enclosed edge along roads or streets is longer than 500 metres, at least two drives are necessary for firefighting and rescue equipment on the relevant edge. The distance between drives in the part of the perimeter along streets and roads may not exceed 500 metres, but in the remaining part of the perimeter – 1000 metres.

37. The width of access roads, drives and thoroughfares intended for firefighting equipment shall be at least 3.5 metres, height – at least 4.25 metres. It is allowed to retain the existing dimensions of thoroughfares for structures to be rebuilt, renewed, and restored.

38. The gates of drives and thoroughfares shall be equipped with devices which ensure manual opening thereof.

39. Firefighting access road shall be ensured at least from one side of facade for structures, the mark of floor level of the highest storey of the which exceeds eight metres. If the structure is wider than:

39.1. 36 metres, firefighting access roads are necessary to both longitudinal facades at least in the length of 50% of each facade side;

39.2. 100 metres, firefighting access roads are necessary along the entire perimeter of a structure at least in the length of 50% of each facade side.

40. Access of firefighting and rescue equipment to a structure shall be ensured by 3.5 metres wide access road which is located in the distance of five to 20 metres from the facade of the structure to be designed. The turn of an access road may not limit the movement of firefighting and rescue equipment – the width of the access road at the point of the turn is at least five metres and there is at least 11 metres long transitional section of the extension before and after the turn.

[*11 April 2017; 11 September 2018*]

41. Parking lots and other obstacles may not be arranged on the access roads intended for firefighting and rescue equipment. Sufficient durability complying with the load of firefighting and rescue equipment shall be ensured for access roads. They shall be designated with signs used for fire safety. Lawn may be arranged on access roads with appropriately fixed base structure.

[*11 September 2018*]

42. In case of renewal and rebuilding of structures the requirements referred to in Paragraphs 39 and 40 of this Construction Standard may be derogated if the existing situation is not deteriorated for access of firefighting and rescue equipment.

[*11 September 2018*]

43. Hydrants intended for the firefighting needs must comply with the requirements of standards LVS EN 14339:2007 “Underground fire hydrants”, LVS EN 14384:2007 “Pillar fire hydrants” and LVS 187:2007 “National requirements for fire hydrants”.

**3.3. Openable Openings**

44. Openable openings shall be built so as to be easily opened from inside of a structure. Sum of the free height and width of an openable opening shall be at least 1.5 m and minimum length of the edge – 60 cm.

45. The distance from the lower edge of an openable opening to the floor level may not exceed 1.2 metres.

**3.4. Fire-resistant Building Structures**

46. Fire-resistant building structures shall retain loadbearing capacity, integrity, and thermal insulation for a specified period of time in case of fire so that the people present in the structure could leave the structure immediately or they could be evacuated or rescued otherwise. Building structures shall not cause unforeseeable threat to the operation of firefighting and rescue services.

[*11 September 2018*]

47. The minimum fire resistance of fire-resistant building structures is specified in Table 1 of Annex to this Construction Standard and the minimum reaction to fire class of construction products is specified in Table 2 of Annex to this Construction Standard.

[*11 September 2018*]

48. Construction products built in fire-resistant building structures shall not reduce the fire resistance of a fire-safe structure and the fire resistance of mounting components placed therein shall not be lower than the fire resistance of the building structure itself.

49. Fire resistance of building structures shall comply with the requirements specified in Table 1 of Annex to this Construction Standard. Boundary structures of a room, separated by a fire-resistant structures shall be allowed such as to comply with the requirements of integrity and heat radiation permeability (EW), if fire load does not exceed 300 MJ/m2 in the premises, and in addition they shall be equipped with water curtains (sprinklers), if the fire load exceeds 300 MJ/m2 in such premises.

**3.5. Protection of Openings and Engineering Systems in Fire-safe Structures**

50. The total area of the filling of openings may not exceed 50% of the area of fire-resistant building structures. If the total area of the filling of openings exceeds 25% of the area of the fire-resistant building structure, the fire resistance of the filling of openings in minutes (thermal insulation and integrity) shall be equal to the fire resistance of the respective fire-resistant building structure.

[*11 September 2018*]

51. The minimum fire resistance of fillings of openings (windows, doors or manholes) present in fire walls and fire-resistant structures is specified in Table 1 of Annex to this Construction Standard.

[*11 April 2017*]

52. If openings located in different fire compartments are at angle relative to one another and the distance between them is less than the minimum fire safety interval specified in Table 7 of Annex to this Construction Standard, then:

52.1. if angle is less than 60°, fire resistance of the filling of openings in the minimum fire safety interval shall comply with the requirements specified in Table 1 of Annex to this Construction Standard;

52.2. if angle is in the range between 60° and 135°, the filling of openings in the minimum fire safety interval shall comply with the requirements of integrity (E) and heat radiation limitation (W) which are specified in Table 1 of Annex to this Construction Standard;

52.3. if angle is larger than 135°, additional requirements shall not be specified for the fire resistance of the filling of openings.

[*11 April 2017; 11 September 2018*]

53. Engineering networks crossing fire-resistant structures shall be built in such a way as not to reduce the fire resistance of fire-resistant structures and not to allow the spread of smoke, gas and flame.

54. The gaps at the crossing places of fire-resistant building structures and engineering networks shall be filled up with fire-resistant sealing or systems the fire resistance of which may be lower by a level than the fire resistance determined for fire-resistant structures but not lower than EI 30.

[*11 April 2017*]

55. Openable fillings of openings built in fire-safe structures shall be equipped with self-closing mechanisms, which shall close the openings in case of fire in order not to allow the spread of fire and burning products.

**4. Requirements for Building Structures**

**4.1. Fire Compartments and Room Separated by Fire-resistant Structures**

56. Fire compartments and a room, separated by a fire-resistant structures shall be delimited from other compartments and premises with fire-resistant building structures. The minimum fire resistance and the minimum reaction to fire class of fire-resistant building structures is specified in Tables 1 and 2 of Annex to this Construction Standard.

57. The permissible area of a fire compartment and the area of storeys within the framework of a fire compartment shall depend on the height, type of use and fire stability level of the structure. The mark of floor level of the highest storey of the structure and the maximum area of a fire compartment are specified in Table 3 of Annex to this Construction Standard.

[*11 April 2017*]

58. Fire compartment may include one or several storeys of a structure. Each storey of a fire compartment shall be separated with fire-resistant building structures, the fire resistance and minimum reaction to fire class of construction products of which has been standardised and is specified in Tables 1 and 2 of Annex to this Construction Standard. If storeys are not separated with fire-resistant building structures, the total area of such storeys shall not exceed the maximum area of fire compartment, which is specified in Table 3 of Annex to this Construction Standard.

[*11 April 2017*]

59. Structures shall be divided in separate fire compartments, the area of which does not exceed permissible area of fire compartment, which is specified in Table 3 of Annex to this Construction Standard.

60. Parts of a structure with a different type of use shall be designed as separate fire compartments. This requirement shall not apply to built-in premises.

[*11 September 2018*]

61. In a structure of one type of use the groups of premises of other type of use shall be intended as a room, separated by a fire-resistant structures. It is allowed not to intend the following as a room, separated by a fire-resistant structures, i.e., not to separate in a fire-safe manner:

61.1. in structures of type of use VI – the groups of premises of type of use V;

61.2. in structures of types of use II, III, IV, IVa and V – premises of types of use II, III, IV, IVa and V.

62. The following shall be formed as separate a room, separated by a fire-resistant structures:

62.1. storeys of a structure within the framework of fire compartment;

62.2. apartments, hotel, official accommodation facility, hostel, and motel rooms;

62.3. premises of technical devices, the area of which is larger than 10 m2 or the fire load is larger than 600 MJ/m2;

62.4. elevator shafts, except elevator shafts located in stairways, atria and outside structures;

62.5. engine rooms of elevators and elevator lobbys;

62.6. fire protected and smoke-protected stairways;

62.7. protected escape routes;

62.8. groups of premises of a bathhouse;

62.9. shafts of engineering networks with non-compacted openings on the level of inter-storey coverings;

62.10. premises for pumps of fixed firefighting systems and control units thereof, and also inside buildings where the ventilator of a smoke and heat control system is located;

62.11. fire safety lobbies;

62.12. premises of social care centres and homes for the elderly intended for the accommodation of patients;

62.13. premises where a stationary diesel generator and a fuel tank are located, ensuring power supply of the engineering and technical system or emergency lighting critical for fire safety.

[*11 September 2018*]

63. In structures of fire stability level U3 the fire resistance and reaction to fire class of building structures of a room, separated by a fire-resistant structures shall not be standardised, except the cases specified in other regulatory enactments.

**4.2. Fire Walls**

64. The minimum fire resistance limit values of fire walls are specified in Table 1 of Annex to this Construction Standard.

65. In fire walls it is allowed to build in the construction products, the reaction to fire class of which is not lower than the class specified in Table 2 of Annex to this Construction Standard.

66. Fire walls shall be designed in the entire height and width of a structure and they shall cross all structures of the structure. Stability and loadbearing capacity shall be ensured for the wall so that a failure of the structures in one side of the wall would not deteriorate the strength, stability and other properties of the fire-proof wall. Engineering networks and structural elements mounted in the fire-proof wall or located on it or closely next to it shall not cause additional load or deformations reducing the strength or stability of the fire-proof wall.

67. Connection points of fire walls with other structural elements and also crossings of engineering networks through a fire-proof wall shall be formed of appropriate materials of reaction to fire in such a way as not to deteriorate the functions of the fire-proof wall.

68. A fire-proof wall need not cross structures of the roof and external walls, if reaction to fire class of construction products built in the structures of roof and external walls is at least A2-s1, d0.

69. It is not allowed to install crossings of ventilation air ducts and channels in fire walls and also to install crossings of such engineering networks, along which combustible materials are conveyed.

70. If reaction to fire class of construction products built in building structures of the roof and external walls is lower than A2-s1, d0, fire walls shall be at least by 60 cm higher than the surface of the roof covering and protruded by at least 30 cm out of the plane of the external wall. This requirement is not mandatory, if at the connection point of a fire-proof wall with structural elements of the roof and external wall a fire separation element with width of two metres is intended in the roof and external wall (one meter to each side from the fire-proof wall), performing the functions of a fire-proof wall.

71. If the difference in height of roofs of different levels at the fire-proof wall is larger than 30 cm, the fire-proof wall shall be by at least 30 cm higher than the level of the highest roof.

**4.3. External Walls**

72. The minimum fire resistance of structures and the minimum reaction to fire classes of construction products to be used are specified in Tables 1, 2, and 5 of Annex to this Construction Standard. Fire resistance and reaction to fire of the fillings of openings of external walls (except the fillings of openings installed in fire walls and delimiting structures of the fire compartment) shall not be standardised.

[*11 April 2017*]

73. In each storey of a structure, if it forms a fire compartment, a vertical fire separation element with a width of 0.8 metres, the fire resistance of which is not lower than the fire resistance of the covering, shall be installed in the external wall on the level of the inter-storey covering. The fire resistance of external walls shall not be standardised and vertical fire separation elements are not necessary if the structure is equipped with an automatic firefighting system or if a water curtain of automatic firefighting system protection is arranged along the internal perimeter of the structure (if the total area of storeys does not exceed the permissible area of the fire compartment which is specified in Table 3 of Annex to this Construction Standard).

74. Reaction to fire class of a joint (membrane) of an external wall and covering shall not be lower than the reaction to fire class of the covering.

75. In a structure, the floor level of the highest storey of which exceeds 28 metres, an automatic firefighting system shall be intended with double external walls or an automatic firefighting water curtain, the water-spraying intensity of which is at least 0.5 l/s per one metre of the width of the external wall, shall be intended for the protection of the openings of external walls from the inside on each storey of the structure. A double external wall is an external wall without openable openings, the external delimiting structure of which is delimited from supporting wall structure with a gap exceeding 10 cm.

[*11 September 2018*]

76. Coverings shall fit tight to external walls without spaces.

**4.4. Attics and Cocklofts**

77. Attics shall be separated from other premises with structures, the minimum fire resistance and reaction to fire class of building products of which is specified in Tables 1 and 2 of Annex to this Construction Standard.

78. In structures, the height of which from the road (ground) level up to a cornice or upper edge of a parapet is larger than 10 metres, an exit from the attic to the roof through doors, manholes or windows, the minimum free size of which is 0.6 x 0.8 metres, shall be arranged in each fire compartment. If the height up to the lower edge of the exit is larger than 1.5 metres, fixed stairs with a minimum width of 0.6 metres shall be arranged.

[*11 April 2017*]

79. In structures, the height of which from the road (ground) level up to a cornice or upper edge of a parapet is larger than 10 metres, an exit shall be built from each stairway, which leads up to the last (upper) storey, to the attic through a fire-proof door or manhole with a minimum size of 0.6 x 0.8 metres and fixed stationary vertical or draw-out stairs made of construction products of reaction to fire class A1 with a minimum width of 0.6 metres.

**4.5. Roofs**

80. The requirements for bearing structures of roofs are specified in Tables 1 and 2 of Annex to this Construction Standard.

81. In structures, the height of which from the road (ground) level up to a cornice or upper edge of a parapet is larger than 10 metres:

81.1. an exit to the roof shall be intended from each stairway which leads up to the last (upper) storey (except for structures to be rebuilt, renewed, and restored if it is technically impossible to comply with this requirement):

81.1.1. along fixed stationary or draw-out stairs with the minimum width of 0.6 metres through a fire-proof manhole, the minimum size of which is 0.6 x 0.8 metres;

81.1.2. along stairs through a fire-proof door, the minimum size of which is 0.75 x 1.5 metres, and the attic in accordance with Paragraph 78 of this Construction Standard;

81.1.3. through the attic in accordance with Paragraph 79 of this Construction Standard;

81.2. a roof enclosing shall be built along the roof perimeter of the structure in the height of at least 300 mm or horizontal bars (wire ropes) shall be arranged in the cornice of the roof along its whole length for fixing of safety devices. A roof enclosing for flat roofs shall be arranged up to a height of at least 600 mm. If the slope of the roof is more than 40°, an enclosing shall not be arranged, but stairs shall be arranged from exit manholes up to the cornice of the roof or horizontal bars (wire ropes) shall be arranged in the cornice of the roof along its whole length for fixing of safety devices. A roof enclosing or bar (wire rope) must endure a static load of at least 12 kN and each fastening of the enclosing or bar (wire rope) must endure a static load of at least 5 kN.

[*11 April 2017; 11 September 2018*]

82. In a structure, the floor level of the highest storey of which exceeds 28 metres and reaction to fire class of construction products used in a roof covering system is lower than A2-s1, d0, a roof covering, the reaction to fire class of which to exposure of external fire is not lower than BROOF(t1), shall be intended.

83. If the roof of the structure is on different levels and the difference of heights is larger than one metre, the relevant parts of the roof shall be connected with external firefighting stairs manufactured from material of the reaction to fire class A1.

**4.6. Balconies, Loggias, Terraces, Passages and Galleries**

84. The minimum fire resistance of the building structures of balconies, terraces, passages and galleries and the minimum reaction to fire classes of construction products to be used are specified in Tables 1, 2 and 5 of Annex to this Construction Standard.

85. The fire resistance requirements to be set for structures of bays shall be identical to the fire resistance requirements specified for bearing structures of the structure.

**4.7. Atria**

86. Atria within the meaning of this Construction Standard shall be a covered internal room of the building, which consecutively connects three and more storeys. Stairways, elevator shafts and shafts of engineering networks are not atria.

87. An atrium shall be made in one of the following ways:

87.1. as a room, separated by a fire-resistant structure;

87.2. together with premises adjacent to atria as a fire compartment the area of which – the sum of areas of all premises therein – shall not exceed the maximum area of fire compartment specified in Table 3 of Annex to this Construction Standard.

88. If an atrium is made in compliance with Sub-paragraph 87.2 of this Construction Standard:

88.1. the atrium shall be delimited from the premises adjacent thereto by forming a smoke barrier and an automatic firefighting curtain;

88.2. an automatic firefighting system shall be arranged in the premises present in the fire compartment adjacent to the atrium.

89. A variable fire load exceeding 300 MJ/m2 shall not be permissible in the main composition of the atrium (within the range of the atrium). The fire load shall not be standardised in the premises adjacent to the atrium.

[*11 September 2018*]

90. The doors located in the boundary structures of the atria shall be equipped with self-closing mechanisms.

**4.8. Explosion Protection Measures**

91. Protection of structures or premises against explosions shall be determined, taking into account the possible concentration of combustible substances, gases, steam, drops, or dust mixture in the air (hereinafter – the explosive environment).

92. The explosive room shall be determined, taking into account the amount of substances and materials necessary for the technology and the fire hazard and explosion hazard indicators of substances and materials.

93. If the explosive environment exceeds 30% of the construction volume of the room, explosion protection measures shall be intended in order:

93.1. to prevent formation or ignition of explosive environment;

93.2. to reduce the influence caused by explosion.

[*11 April 2017*]

94. In order to limit the spread of an explosive environment:

94.1. the explosive room shall be formed as a room, separated by a fire-resistant structure;

94.2. exits and entrances of explosive rooms to other premises shall be arranged through a fire-proof lobby and measures limiting the spread of the explosive environment in a structure shall be intended;

94.3. sealing of the entries of engineering networks shall be performed;

94.4. a gas leakage detector shall be installed;

94.5. equipment located in an explosive room must have an explosion-proof design.

95. Explosive premises shall be located by the external delimiting structure of the structure. It is prohibited to locate the aforementioned premises in the basement, semi-basement floor, and also directly below premises where more than 50 people may stay at the same time. Easily separable structures shall be intended in explosive rooms in order to protect a structure from collapse as a result of an explosion. The easily separable structures shall be built in the external delimiting structures and the area thereof shall not be less than 0.05 m2 per 1 m3 of the room to be protected.

[*11 April 2017*]

96. The requirements of this Sub-chapter shall not apply to structures, in which operations with explosives, for which oxygen is not necessary, take place.

**5. Escape Routes and Exits**

97. Escape routes and emergency exits shall be arranged for evacuation of people from structures and premises in case of fire and other danger or threats.

98. The following requirements shall be set for an escape route:

98.1. it shall be easy to find;

98.2. the finishing of walls and ceiling and the covering of floor shall not endanger the safety of users during evacuation;

98.3. it shall not be obstructed by objects and devices which endanger the safety of users during evacuation;

98.4. in structures of type of use III it shall be made as a corridor, which complies with the environment accessibility requirements;

98.5. it shall not lead through explosive rooms;

98.6. it shall not lead through premises the variable fire load of which exceeds 1200 MJ/m2.

[*11 April 2017; 11 September 2018*]

99. If the difference between floor levels in escape routes exceeds 20 mm, but for doorsteps of fire doors – 25 mm, a slope (ramp), the obliquity of which is not larger than 1:12, or at least three steps, the geometry of which complies with the requirements of the construction standards regulating designing of the relevant structure, shall be built at the places of change in the floor level. If the difference between floor levels of premises in a vertical projection is more than 0.45 m, the stairs or ramp shall be fitted with handrails.

100. In structures of all fire stability levels (except structures of the fire stability level U3):

100.1. the reaction to fire class of construction products of the finishing of walls and ceilings in fire protected and smoke-protected stairways, protected escape routes and fire-proof lobbies shall be at least A2-s1, d0 and the reaction to fire class of construction products of floors shall be at least BFL;

100.2. in vestibules, atria, halls and lobbys the reaction to fire class of construction products of walls and ceilings shall be at least Bs1, d0 and the reaction to fire class of construction products of floors shall be at least DFL.

100.3. the reaction to fire class of construction products of walls and ceilings shall be at least D-s2, d0 in the premises which are intended for public events attended by more than 250 people.

[*11 September 2018*]

**5.1. Emergency exits**

101. Emergency exits shall be openable easily and without any effort from the interior, including for persons with special needs. Emergency exits shall ensure safe exit of persons to be evacuated from a structure and premises thereof directly outside on the level of ground surface or:

101.1. along stairway;

101.2. along open interior and exterior stairs;

101.3. along a protected escape route;

101.4. along a protected escape route and stairway;

101.5. along a protected escape route and open stairs;

101.6. through another fire compartment.

[*11 April 2017*]

102. The number and layout of emergency exits shall be determined in compliance with the type of use of a structure, the intended maximum number of users of the structure and the distance up to the emergency exit in compliance with Table 6 of Annex to this Construction Standard.

103. The summary width of emergency exits in structures shall not be less than the summary width of escape routes determined in Paragraphs 143 and 144 of this Construction Standard, taking the maximum number of users in the storey with the largest area or the largest number of users as the basis for the calculation.

[*11 September 2018*]

104. The possibility to evacuate through at least two separate emergency exits which are located in different places shall be ensured from a structure, fire compartments thereof, and storeys of a structure where users of the structure stay permanently, except the cases referred to in Paragraph 112 of this Construction Standard.

105. One emergency exit may be intended from a separate room if not more than 50 users may stay in the room and the length of escape route does not exceed 30 metres from the most distant point in the room. At least three emergency exits shall be built from premises or storeys, in which more than 500 users are staying, and at least four emergency exits – from premises or storeys, in which more than 1000 users are staying.

[*11 April 2017*]

106. The minimum distance between the nearest emergency exits in premises shall be determined, using the following formula:

|  |  |
| --- | --- |
|  | where: |

P – perimeter (m) of the room or fire compartment;

n – number of emergency exits.

107. In structures, the mark of floor level of the highest storey of which does not exceed 28 metres, one of emergency exits from the storeys of the structure may be intended along the external open oblique or winding stairs. Other emergency exits shall comply with the requirements referred to in Sub-paragraph 101.1, 101.3 or 101.4 of this Construction Standard.

108. One of emergency exits from storeys of a structure may be intended through another fire compartment. Other emergency exits shall comply with the requirements referred to in Sub-paragraph 101.1, 101.3 or 101.4 of this Construction Standard. It is allowed to intend evacuation only through one fire compartment.

109. It is not allowed to use elevators and devices analogue thereto for evacuation.

110. It is not allowed to intend evacuation through technical premises separated by fire-resistant structures and premises with explosive environment.

111. It is not allowed to intend evacuation in the structures of the types of use I, II, III, IV, IVa and V through the structures and premises of the types of use VI, VIa and VII.

[*11 September 2018*]

112. One emergency exit from a storey is permissible in the following structures:

112.1. in structures of the type of use I where the floor level of the highest storey does not exceed eight metres;

112.2. in structures of the type of use I where the floor level of the highest storey does not exceed 28 metres, if evacuation is intended only from apartments through a fire protected stairway and there is openable opening in each apartment;

112.3. in structures of type of use I where the floor level of the highest storey does not exceed 75 metres, if evacuation is intended through a smoke-protected stairway of type 1, the total area of apartments in one storey is not more than 500 m2 and premises of other types of use which are not related to the provision of exploitation of the structure have not been built in the storeys;

112.4. in structures of the types of use V, VI and VII where the floor level of the highest storey does not exceed 28 metres, the length of escape route does not exceed 30 metres, it is intended that not more than 50 users will stay in the storey and there is an openable opening in each group of premises or storey;

112.5. in structures of the types of use II, III, IV and IVa where it is intended that not more than 50 users will stay and there is an openable opening in each storey;

112.6. in structures where the floor level of the highest storey does not exceed 28 metres, if evacuation is intended through a smoke-protected stairway and the length of escape route does not exceed 30 metres;

112.7. in open structures.

[*11 April 2017*]

**5.2. Stairs and Stairways in Escape Routes**

[*11 September 2018*]

113. Fire protected and smoke-protected stairways, as well as open stairs and external escape stairway shall be intended for evacuation of users of a structure and operation of the firefighting and rescue service.

114. The minimum fire resistance and the minimum reaction to fire class of building structures of stairways is specified in Tables 1 and 2 of Annex to this Construction Standard.

115. External escape stairway shall be built with oblique flights or in winding way from construction products of the reaction to fire class A1.

116. In structures where the mark of floor level of the highest storey exceeds 28 metres, smoke-protected stairways shall be constructed. In structures where the mark of floor level of the highest storey exceeds 50 metres, emergency power supply for the automatic fire protection systems and devices shall be intended from a generator with internal combustion engine. A generator with internal combustion engine need not be intended in structures where at least one of stairways is a smoke-protected stairway of type 1.

117. Depending on technical solutions by which the possibility of smoke formation is prevented, the following smoke-protected stairways shall be distinguished:

117.1. type 1 – connection of a stairway with other premises is arranged on the level of storeys through an open external zone (balconies, loggias, open passages and galleries) and a direct exit to the outside on the level of ground surface;

117.2. type 2 – air overpressure is ensured in a stairway in case of fire in the entire volume thereof;

117.3. type 3 – connection of a stairway with other premises is arranged through a fire-proof lobby where air overpressure is ensured in case of fire.

118. Exits from smoke-protected stairways on the level of ground surface shall be arranged directly to the outside or through a fire-proof lobby where the possibility of smoke formation is prevented. In such case the fire resistance of building structures and the reaction to fire class of construction products of a fire-proof lobby shall be not lower than the fire resistance of building structures and the reaction to fire class of construction products.

119. Fire protected and smoke-protected stairways (except smoke-protected stairways of type 1) may be connected with a plinth storey or basements through a fire-proof lobby.

120. The free width of flights of stairs and landings shall not be less than the minimum width of escape route, as well as than the width of exits (doors) and openings intended for evacuation. The free width of flights of stairs shall not be less than:

120.1. 1400 mm – for a fire compartment, from which evacuation of more than 250 users is intended;

120.2. 1200 mm – for a fire compartment from which evacuation of more than five users is intended;

120.3. 700 mm – for stairs along which evacuation of not more than five users is intended.

121. It is allowed to retain the existing dimensions of stairways in structures to be renewed and rebuilt.

122. Exits from fire protected stairways on the level of ground surface shall be arranged directly to the outside or through a room, separated by a fire-resistant structure, the fire resistance of building structures and the reaction to fire class of construction products of which complies with the fire resistance of building structures and the reaction to fire class of construction products of stairways.

123. It is allowed to round the corners of the landing of stairs and change the geometry thereof, if the width of an escape route specified in this Sub-chapter is retained along the radius.

124. The slope of stairs in escape routes shall not be more than 1:1, the width of a step shall be at least 250 mm, a step shall not be higher than 220 mm.

125. It is allowed to build the stairs, which are intended for not more than five users, with a slope of 2:1.

126. The narrowest edge of a step of curvilinear or winding stairs shall be at least 220 mm, but for stairs that are intended as the second emergency exit from premises which are intended for up to 25 users – up to 120 mm. The width of stairs shall be determined in compliance with Paragraph 120 of this Construction Standard.

127. It is not allowed to arrange such premises in stairways which are intended for other purpose of use, to place pipelines which are intended for liquefied gas or combustible solutions, ventilation ducts, built-in closets, openly placed power supply cables or wires for voltage above 230V, exits from cargo elevators or hoists, as well as locate devices and building structures which are protruded outside the planes of walls up to the height of 2.2 metres from steps or landings of stairs.

128. The distance between flights of stairs shall be at least 50 mm or other measures shall be intended which ensure the water supply necessary for firefighting in the upper storeys of a structure.

129. It is allowed to build in and place openly the cabinets for engineering networks and devices of fire hoses and heaters in stairways if they do not reduce the width of escape route and fire resistance of walls of stairways.

130. In structures where the mark of floor level of the highest storey does not exceed 28 metres it is allowed to arrange waste ducts in stairways, if the reaction to fire class thereof is not lower than A2-s1, d0 and if it is not in contradiction with the local government local construction regulations. If the reaction to fire class of construction products of waste duct is lower than A2-s1, d0, it shall be placed in a room, separated by a fire-resistant structure.

131. In structures of type of use III and in educational institutions escape stairway shall not be winding if the diameter of the middle aperture is less than 1000 mm. The narrowest edge of the step of stairs shall not be narrower than 220 mm. The width of stairs shall be determined in compliance with the width of the necessary escape route.

132. The stairs on escape routes shall be equipped with handrails not lower than 0.9 m.

133. A smoke exhaust opening shall be intended in an external delimiting structure on the level of each surface storey for smoke exhaust in a fire protected stairway.

[*11 September 2018*]

134. In structures where the mark of floor level of the highest storey does not exceed eight metres, and there are no openable smoke exhaust openings in external walls of the fire protected stairway on each storey, a smoke exhaust opening shall be intended in the upper zone of the stairway where the area of free opening is at least 5% of the area of stairway and is not less than 1 m2. In such case control (opening and closing) from manual remote actuation devices installed in the stairway on the level of each surface storey shall be intended for the fillings of smoke exhaust openings.

[*11 September 2018*]

135. If there is no smoke exhaust openings in a fire protected stairway in compliance with the requirements referred to in Paragraphs 133 and 134 of this Construction Standard, a smoke-protected stairway shall be intended.

136. [11 April 2017]

137. The width of external door of a stairway may not be lesser than the minimum width of emergency exits specified in Paragraph 120 of this Construction Standard.

138. The distance from the door of the stairway up to the windows in smoke-protected stairways of type 1 with exit from a storey through external separated zone shall be not lesser than two metres.

139. It is not allowed to intend elevator exits in smoke-protected stairways of type 1.

140. The fire resistance of fillings of openings (facing an external escape stairway that is intended as an emergency exit from storeys of a structure and also for the fire resistance of external delimiting structures) shall be at least EI-30 in the distance of two metres from the stairs (except the structures of fire stability level U3).

[*11 September 2018*]

**5.3. Length of an Escape Route**

141. The length of an escape route and the area of room to be calculated for one user shall be determined in compliance with Table 6 of Annex to this Construction Standard. The length of an escape route from a dead end zone shall be determined as 50% of the distance specified in Table 6 of Annex to this Construction Standard. If the length of an escape route exceeds the distance specified in Table 6 of Annex to this Construction Standard, a protected escape route shall be created.

142. The length of an escape route from premises, the area of which is not more than 50 m2, up to the emergency exit shall be determined from the exit door of a room if it opens in the evacuation direction.

**5.4. Dimensions of an Escape Route**

143. The minimum width of an escape route shall be at least 1.20 metres, but in medical treatment and care institutions – at least 1.80 metres. It is permitted to reduce the width of the escape route to one metre if it is intended for evacuation of up to 50 persons and up to 700 mm if it is intended for evacuation of up to five persons.

[*11 April 2017*]

144. If the number of persons to be evacuated from a room or from premises located in one storey exceeds 250 users, the summary width of an escape route for each next 100 users shall be increased by 50 cm.

145. When calculating the width of an escape route, the width of door leaves shall be taken into account, which open from premises in the direction of the escape route and may disturb the use of the escape route, reducing the standard width of the escape route. In such case the width of the corridor calculation in the calculation of the width of the escape route shall be reduced by:

145.1. a half of the width of the door leaf, if the doors are located in one side of the corridor;

145.2. the width of the door leaf, if the doors are located in both sides of the corridor in the stage which is shorter than doubled width of the corridor.

146. The free height of an escape route shall be at least two metres and in such height no obstacles shall be allowed. The height of an escape route in basements, where not more than five users are intended to stay, shall be at least 1.90 metres.

**5.5. Doors**

147. In emergency exits the doors shall:

147.1. open in the direction of evacuation, except the doors in structures, parts or premises thereof where the number of users is lesser than 25, or the doors which lead to another fire compartment;

147.2. not disturb users with movement disorders to use the relevant means of movement;

147.3. be easily opened from inside of a room without delay and obstacles (except apartment door). Any obstacle which prevents to open the door longer than for three seconds shall be regarded as delay;

147.4. be equipped with self-closing mechanism, except the doors of apartments.

[*11 September 2018*]

148. Fire-proof two-leaved doors shall be equipped with self-closing mechanisms which consecutively close the door leaves.

149. The free height of the doors in escape routes and exits shall be at least two metres. It is allowed to reduce the height of the doors and passages, which lead to the outside from a technical storey where not more than five users are intended to stay, up to 1.9 metres, but the doors to exits to the attic or roof – up to 1.5 metres. The free height of the doors shall be at least 0.9 metres. The free width of the doors of technical premises, utility premises and other premises of the structure, where up to five users of the structure may stay, may be reduced to 700 mm.

[*11 April 2017*]

150. The requirements referred to in Paragraph 147 of this Construction Standard shall not apply to the structures of type of use III with specific internal mode, as well as to the structures where such persons are accommodated for whom the competent authorities have limited freedom of movement. In such premises other measures shall be intended, which ensure evacuation of persons in case of fire.

151. If evacuation is intended from one fire compartment to another, the direction of door opening shall be from that fire compartment where a greater number of users may stay.

152. The minimum fire resistance of the doors of a stairway is specified in Table 1 of Annex to this Construction Standard. In structures where the mark of floor level of the highest storey exceeds 28 metres, the fire resistance of the door of a staircase shall be at least EI-60.

[*11 April 2017*]

153. If the doors, windows, manholes, gates, valves and other fillings of openings built in fire-resistant building structures of the structure should be in an opened position in compliance with the type of use or technology requirements, devices which ensure automatic closing of such fillings of openings in case of fire shall be intended.

[*11 September 2018*]

154. Turnstiles, sliding, folding, lift-off (turn-down) doors and revolving doors shall not be built in escape routes and emergency exits intended for evacuation of more than 10 users unless equipped with devices for manual opening or with devices which in case of evacuation ensure automatic opening and holding of the doors in an open position. When building a revolving door, the building of an openable door shall be intended additionally, ensuring the minimum dimensions of emergency exits.

[*11 September 2018*]

155. The fire-proof door which is built in fire-resistant building structures (except the doors of apartments) shall be equipped with a self-closing mechanism.

156. The fire resistance of external doors and the reaction to fire class of construction products shall not be standardised (except the doors which are located in fire walls and the doors which lead to external escape stairway).

**5.6. Fire Elevators**

157. In structures where the mark of floor level of the highest storey exceeds 50 metres, at least one fire elevator shall be intended. The requirement shall not apply to structures or parts of the structure where permanent users are not staying.

158. Fire elevators shall be designed and constructed, observing the following conditions:

158.1. fire elevator shafts shall be separated from other premises in a fire-safe manner, including from elevator shafts of other significance;

158.2. the size of the fire elevator cabin shall be at least 1.1 x 1.4 metres;

158.3. each stop of the fire elevator shall be equipped with a fire-proof lobby;

158.4. the cabin of the fire elevator shall be equipped with a two way communication system (between the cabin and the main storey of boarding);

158.5. power supply of the fire elevator shall be ensured by at least two independent sources of power supply;

158.6. the fire resistance of the cables of electric power supply shall comply with that determined in the applicable standard but shall not be less than 30 minutes.

[*11 April 2017*]

159. The main storey of boarding in fire elevators shall be the storey of the main entrance of the structure which ensures direct fire-safe entry from outside or through a vestibule with the fire load not exceeding 300 MJ/m2.

**5.7. Emergency Lighting and Designations of Evacuation**

160. Emergency lighting of evacuation shall be the part of emergency lighting, which ensures lighting during evacuation of persons, if basic lighting is out of order.

161. Emergency lighting of evacuation shall be arranged:

161.1. in structures where the mark of floor level of the highest storey exceeds 28 metres, – in protected escape routes;

161.2. in escape routes, including in protected escape routes, if the number of persons to be evacuated is 50 and more;

161.3. in structures or premises of types of use II, III, IV, IVa and V, if there are more than 100 persons at the same time.

161.4. in the premises of the control and monitoring equipment of fire protection systems, in the premises of the pumps of firefighting systems and their control units.

[*11 September 2018*]

162. Emergency exits intended for evacuation of at least 50 persons shall be equipped with lighted-up emergency exit indicators. Lighted-up indicators of emergency exits and escape routes are switched on permanently in the operating mode or their automatic switching on is intended through the automatic fire detection and alarm system or through the automatic sprinkler firefighting system.

[*11 April 2017*]

163. Evacuation lighting networks and lighted-up emergency exit indicators shall be connected to two independent sources of power supply. An emergency source of power supply shall ensure the operation of the lighted-up indicators of emergency exits and escape routes for at least 30 minutes.

[*11 September 2018*]

**6. Smoke Protection of Structures**

164. In order to limit the spread of smoke in case of fire or to ensure the smoke exhaust from premises, the following shall be intended in the structure:

164.1. automatic air overpressure systems;

164.2. smoke exhaust openings;

164.3. automatic smoke and heat exhaust systems;

164.4. non-automatic smoke and heat exhaust systems.

165. Automatic air overpressure systems shall be intended:

165.1. in smoke-protected stairways of type 2;

165.2. in fire safety lobbies of smoke-protected stairways of type 3;

165.3. in elevator shafts in the structures with smoke-protected stairways;

165.4. in elevator lobbies, which are located in the structures with smoke-protected stairways, if automatic overpressure smoke protection system of elevator shafts is not intended;

165.5. in protected escape routes where there are no smoke exhaust openings;

165.6. in the structures of types of use I, II, III, IV, IVa, V, VI and VII where the mark of floor level of the highest storey exceeds 28 metres and where there are smoke-protected stairways in the protected escape routes.

166. The operation of an automatic air overpressure system shall be ensured in the storey, in which the fire has derived in the premises referred to in Sub-paragraphs 165.2, 165.4, 165.5 and 165.6 of this Construction Standard.

167. Smoke exhaust openings shall be intended in each storey of the fire compartment. The minimum area of the smoke exhaust opening shall be at least 0.5 m2.

[*11 September 2018*]

168. The distance from the fire compartment or any point in the storey up to the smoke exhaust opening shall not exceed 15 metres.

[*11 September 2018*]

169. The distance from any point up to the smoke exhaust openings in a separate room may be increased up to 30 metres if the smoke exhaust openings are located higher than two metres from the floor level of the room and the total area of the smoke exhaust openings is the following:

169.1. in premises where the variable fire load exceeds 1200 MJ/m2 – at least 3% of the area of the room to be protected;

169.2. in premises where the variable fire load varies from 600 MJ/m2 to 1200 MJ/m2 (inclusive) – at least 1% of the area of the room to be protected;

169.3. in premises where the variable fire load varies from 300 MJ/m2 to 600 MJ/m2 (inclusive) – at least 0.5% of the area of the room to be protected;

169.4. in premises where the variable fire load does not exceed 300 MJ/m2 (inclusive) – at least 0.2% of the area of the room to be protected.

[*11 September 2018*]

170. A non-automatic smoke and heat exhaust system shall be intended:

170.1. in a fire compartment, storey and room where there are no smoke exhaust openings, which comply with the requirements referred to in Paragraph 168 or 169 of this Construction Standard;

170.2. in stages with the flies;

170.3. in the underground storeys, the floor of the lowest storey of which is located lower than four metres from the average level of the ground mark.

171. The smoke and heat exhaust system with mechanical traction or mechanical compensation air supply shall be intended in the premises where it is not possible to arrange a non-automatic smoke and heat exhaust system with natural exhaust.

172. An automatic smoke and heat exhaust system shall be intended in atria.

173. Smoke exhaust need not be intended from:

173.1. the premises of type of use VI where the fire load does not exceed 300 MJ/m2;

173.2. other premises with area up to 50 m2 where the fire load does not exceed 300 MJ/m2;

173.3. the premises through which evacuation of persons does not take place, if the fire load does not exceed 300 MJ/m2 therein;

173.4. the structures of open type;

173.5. the premises of type of use VI of the structures of fire stability level U3.

[*11 September 2018*]

**7. Automatic Fire Protection Systems and Devices**

**7.1. General Requirements**

174. In compliance with the type of use of a structure or room and the layout of premises the following automatic fire protection systems and devices shall be intended:

174.1. autonomous fire detectors;

174.2. automatic fire detection and alarm systems;

174.3. automatic voice fire alerting system;

174.4. automatic firefighting systems, automatic cooling systems and automatic firefighting water curtains;

174.5. automatic air overpressure systems;

174.6. automatic smoke and heat exhaust systems.

175. An automatic fire protection system shall be designed and built in compliance with the requirements laid down in the laws and regulations governing the field of construction and service, guidelines of the applicable standards, requirements of the manufacturers of fire protection systems, architectural and planning solutions of a structure, and also the special features of the service and technological process of a structure. Automatic fire protection systems shall ensure, independently and in interaction with other engineering systems, the performance of the functions intended in regulatory enactments in the automatic and manual control mode.

[*11 September 2018*]

176. An automatic fire protection system shall automatically transmit signals of alarm, damages, blocking devices and systems to the control and indicating device (panel), which is permanently monitored by the personnel. If the control and indicating device (panel), which is permanently monitored by the personnel, is not located with this system in one object to be protected, the alert shall also be transmitted to the light and sound alert device located in a visible place on the facade of the structure to be protected, which is placed at least 2.5 metres higher than the level of the ground surface (floor).

177. Automatic fire protection systems shall ensure:

177.1. uninterrupted day and night operation on duty (stand-by) mode;

177.2. uninterrupted power supply from at least two sources of electricity supply, and fire protection, which ensures the operation of the system for at least 30 minutes in case of fire, shall be intended for the installation of electric power supply;

177.3. on duty mode and operating modes – automatic control with acoustic and visual signalling of control (launching) circuits, electricity supply sources (basic and emergency) and capacity of communication lines.

178. The devices and installations intended for the installation and operation in explosive and chemically aggressive environment shall be used in automatic fire protection systems in the relevant environment.

179. The control and indicating device (panel) shall be placed in easily accessible places (premises), preferably – on the first storey or plinth storey of the structure.

180. The type of the automatic fire protection system shall be determined by the initiator of the construction in the designing order in compliance with laws and regulations and technical regulations of the manufacturers of the devices.

[*24 April 2018*]

181. Voice, sound or visual signalling devices of the automatic fire protection system need be not intended in the structures and premises where the persons for whom competent authorities have limited freedom of movement are staying, as well as in the premises of medical treatment and care institutions where the persons not able to evacuate independently are staying. Fire alerting in such structures and premises shall be intended in accordance with the designing order.

**7.2. Requirements for Autonomous Fire Detectors**

182. Autonomous fire detectors shall be intended:

182.1. in the structures of type of use I, except household buildings and structures. At least one autonomous fire detector which reacts to smoke shall be intended in each apartment;

182.2. in the structures of types of use II and III where there are no more than 10 places of accommodation. Detectors shall be placed in the premises intended for sleeping.

183. Autonomous detectors shall be installed in compliance with technical regulations of the manufacturer and designing order.

184. Autonomous fire detectors may be replaced by an autonomous fire detection and alarm system or by fire detectors which are connected to another system control and indicating device (panel).

**7.3. Requirements for Automatic Fire Detection and Alarm Systems**

185. Automatic fire detection and alarm systems shall be intended:

185.1. in the structures and premises of types of use II and III where there are more than 10 places of accommodation;

185.2. in the structures and premises of types of use II, III, IV, IVa and V, the total area of storeys of which is more than 200 m2;

185.3. in the structures and premises of type of use VI (except reservoirs), the total area of which exceeds 50 m2 and where pumping, pouring, release, prepacking or storage of oil, oil products and other inflammable substances is intended;

185.4. in the structures and premises of types of use VI and VII, the total area of which exceeds 1000 m2 and the fire load of which exceeds 25 MJ/m2;

185.5. for control of other automatic fire protection systems for which, in compliance with regulatory enactments and designing order, automatic control mode is necessary;

185.6. in the premises of types of use IV, IVa, V, VI, VII which are located in the structure of type of use I;

185.7. in the underground storeys, the floor of the lowest storey of which is located lower than four metres from the average level of the ground mark.

[*11 September 2018*]

186. An automatic fire detection and alarm system need not be intended in the structures of open type and auxiliary buildings of few-storey residential houses.

187. An automatic fire detection and alarm system shall be designed, ensuring automatic detection of fire and transmission of alarm signals in each room in the structures referred to in Paragraph 185 of this Construction Standard, except:

187.1. sanitary and technical premises, the fire load of which is less than 25 MJ/m2;

187.2. shafts of engineering networks;

187.3. refrigerators, the capacity of which is less than 20 m3.

188. In the structures where arrangement of an automatic fire detection and alarm system is intended, fire detectors which react to smoke shall be installed in the protected escape routes and stairways.

189. In case of fire detection the automatic fire detection and alarm system shall send a signal to the control of other firefighting engineering systems in compliance with regulatory enactments and designing order.

190. An automatic fire detection and alarm system need not be intended in the premises where the functions thereof are performed by another automatic fire protection system, observing the requirements referred to in Paragraph 188 of this Construction Standard.

**7.4. Requirements for Automatic Voice Fire Alerting Systems**

191. Automatic voice fire alerting systems shall be intended:

191.1. in the structures of types of use II, IV, IVa and V where the mark of floor level of the highest storey exceeds 28 metres or where more than 500 users may stay at the same time;

191.2. in the structures of type of use III where the mark of floor level of the highest storey exceeds eight metres and where there are at least 50 places of accommodation;

191.3. in the buildings and premises of museums and exhibitions the total area of which exceeds 1000 m2.

192. An automatic voice fire alerting system shall be designed in the structures referred to in Paragraph 191 of this Construction Standard, ensuring the comprehensibility of alarm voice announcement in each room where persons may be present.

193. In the structures where the mark of floor level of the highest storey does not exceed 28 metres, alerting zones may be intended in the automatic voice fire alerting system which alert the information in several storeys at the same time. In the structures where the mark of floor level of the highest storey exceeds 28 metres, one alerting zone shall not be larger than one storey of the structure.

194. In the structures where the mark of floor level of the highest storey exceeds 28 metres, the automatic voice fire alerting system shall be designed so as fire can be alerted in the automatic and manual control mode in the storeys in the following order:

194.1. in alerting zones in the storey where the fire has derived;

194.2. in alerting zones above the storey where the fire has derived;

194.3. in other alerting zones.

**7.5. Requirements for Automatic Firefighting Systems, Automatic Water Cooling Systems and Automatic Firefighting Water Curtains**

195. Automatic firefighting systems shall be intended:

195.1. in fire compartments the area of which exceeds the maximum permissible area specified in Table 3 of Annex to this Construction Standard;

195.2. in the structures of type of use I where the mark of floor level of the highest storey exceeds 75 metres;

195.3. in the structures (except the structures of type of use I) where the mark of floor level of the highest storey exceeds 50 metres;

195.4. in the underground storeys of the structure, the area of which is more than 1000 m2 and where the floor of the lowest storey is located lower than four metres from the average level of the ground mark;

195.5. in the structures, premises or parts of the room (in compliance with designing order) where unique exhibits, materials, publications, handwritings, catalogues, descriptions, reviews and devices, as well as other especially valuable documents and information are located;

195.6. in fire compartments of the structure of type of use IV where there are spectator tribunes with at least 5000 seats, if there are premises under the tribune where the fire load is more than 300 MJ/m2;

195.7. in the structures of type of use IV where there is a stage with the flies, if in one fire compartment there are at least 800 seats or the area of the stage exceeds 120 m2, intending automatic firefighting sprinkler and drencher system in the premises of the stage compartment, stage and trap room;

195.8. in the premises of the structure of type of use VI intended for pumping, pouring and release of oil, oil products and other inflammable substances the area of which exceeds 300 m2 and the fire load of which exceeds 1200 MJ/m2 or the total pumping speed exceeds 1200 m3/h, and also in the premises of the structure of type of use VI intended for prepacking or storage of oil, oil products and other inflammable substances the area of which exceeds 300 m2 and the fire load of which exceeds 1200 MJ/m2;

195.9. in the structures of type of use IV where the mark of floor level of the highest storey exceeds eight metres, in fire compartments the area of which is more than 5000 m2;

195.10. in fire compartments of the structures of type of use VII where placement of at least 25 vehicles with elevators and other vehicle conveyance devices is intended;

195.11. in surface reservoirs of oil, oil products and other inflammable substances the capacity of which is more than 5000 m3.

[*11 September 2018*]

196. Automatic firefighting systems need not be intended in open structures.

197. In the structures and premises where arrangement of another automatic fire protection system is intended, turning on of such systems in the automatic control mode shall be intended in compliance with regulatory enactments and designing order.

198. Automatic water cooling systems and automatic water curtain shall be intended for the protection of fire safety boundary structures and openings in compliance with regulatory enactments and designing order.

199. If water supply sources for firefighting needs cannot ensure the water pressure necessary for the operation of automatic firefighting systems, automatic firefighting water curtains and automatic cooling systems, at least two (working and emergency) independent firefighting pumps or pump groups shall be intended. Each pump or one pump group shall ensure the water pressure and flow necessary for firefighting needs. At least one pump or pump group in automatic firefighting systems must have an internal combustion engine or an electric generator with internal combustion engine shall be intended for power supply of firefighting pumps. Electric generator shall ensure power supply of firefighting pumps automatically, if the operation of power supply network is disturbed during the operation of pumps.

200. The structures and premises referred to in Sub-paragraphs 195.1, 195.2, 195.3, 195.4, 195.5, 195.7, 195.8 and 195.10 of this Construction Standard shall be equipped with automatic firefighting systems of water sprinkler or water drencher type (except the structures and premises where fire distinguishing with water will not be possible or inefficient and where an automatic firefighting system of another type, which will not reduce evacuation safety of persons, must be intended).

**7.6. Requirements for Automatic Smoke and Heat Exhaust Systems and Automatic Air Overpressure Systems**

**7.6.1. General Requirements**

201. At least 30 minutes of uninterrupted operation in case of fire shall be ensured for an automatic smoke and heat exhaust system and an automatic air overpressure system, ensuring appropriate fire protection for power supply, control and monitor circuits of the systems.

202. Air suction devices of automatic air overpressure systems, smoke and heat exhaust and compensating air suction devices of automatic smoke exhaust systems shall be designed in such a way that the smoke to be discharged from the structure is not conveyed (recirculated) back into the burning structure and to adjacent structures.

**7.6.2. Requirements for Automatic Air Overpressure Systems and Automatic Smoke and Heat Exhaust Systems**

203. Automatic control from a signal generated by the following systems shall be intended for automatic air overpressure systems:

203.1. automatic fire detection and alarm systems;

203.2. automatic sprinkler firefighting systems;

203.3. manual remote control and distance control devices, which are arranged in the escape routes at the exits from premises, which are protected with this system, and in the premises where control and monitor panels of such systems are located.

204. Automatic control from a signal generated by the following systems shall be intended for automatic smoke and heat exhaust systems:

204.1. automatic fire detection and alarm systems;

204.2. automatic sprinkler firefighting systems;

204.3. with manual remote control from distance control devices, which are arranged in the escape routes at the exits from premises, which are protected with this system, and in the premises where control and monitor panels of such systems are located.

205. Smoke dampers and smoke manholes of an automatic smoke and heat exhaust system shall be intended in the upper part of the premises not lower than 80% of the height of the room.

206. Automatic apertures or openings for compensation air supply shall be intended in the lower part of the premises.

207. In atria which are higher than 24 metres an automatic smoke and heat exhaust system with mechanical traction or mechanical compensation air supply shall be intended.

**8. Non-automatic Firefighting Systems**

**8.1. General Requirements**

208. In compliance with the type of use of a structure or room and the layout of premises the following non-automatic fire protection systems shall be intended:

208.1. non-automatic firefighting systems;

208.2. non-automatic water cooling systems;

208.3. non-automatic firefighting water curtains;

208.4. non-automatic smoke and heat exhaust systems.

209. Non-automatic firefighting systems may be replaced with an automatic firefighting system.

**8.2. Requirements for Non-automatic Firefighting Systems, Non-automatic Water Cooling Systems and Non-automatic Water Firefighting Curtains**

210. Non-automatic firefighting systems shall be intended:

210.1. in surface reservoirs of oil, oil products and other inflammable substances, the capacity of which is 3000-5000 m3;

210.2. in railway engineering structures (scaffold bridges) for pouring, filling and pumping of oil products and other inflammable substances, the length of which is more than 100 metres;

210.3. in technological yards of wharfs for tankers.

211. Non-automatic water cooling systems shall be intended in surface reservoirs for oil, oil products, gas and other inflammable substances, the walls of which is higher than 12 metres.

212. Non-automatic firefighting water curtain shall be intended in wharfs for tankers in order to prevent the flame spread between tankers and wharf.

213. Non-automatic firefighting systems, non-automatic water cooling systems and non-automatic firefighting water curtain shall be designed in compliance with regulatory enactments and designing order, intending manual control devices for turning on the operation of such system, which are located at the engineering structure to be protected or in the room where control and monitor panels of such system are located.

**8.3. Requirements for Non-automatic Smoke and Heat Exhaust Systems**

214. Manual remote control with distance control devices shall be intended for non-automatic smoke and heat exhaust systems, which are arranged in the escape routes in each storey at the exits from premises, which are protected with this system, and in the premises where control and monitor panels of such systems are located.

215. It shall be intended that the duration of operation of non-automatic smoke and heat exhaust systems in case of fire is at least 30 minutes, ensuring appropriate fire protection for power supply, control and monitor circuits of the system.

216. Smoke dampers, smoke manholes and other smoke exhaust apertures to be controlled, of a non-automatic smoke and heat exhaust system, shall be intended in the upper part of the premises not lower than 80% of the height of the room. This requirement shall not apply to stairways.

217. Apertures or openings for compensation air supply of a non-automatic smoke and heat exhaust system shall be intended in the lower part of the premises.

218. In premises which are higher than 24 metres, a smoke and heat exhaust system with mechanical traction or mechanical compensation air supply shall be intended.

**9. Lightning Protection**

219. Lightning protection systems shall be installed in order to prevent ignition of buildings and structures thereof in case of lightning discharge.

220. Level of lightning protection and necessity for the installation thereof shall be determined, taking into account the characteristics of the structure and the risk criteria.

221. Lightning protection shall be designed in compliance with the requirements laid down in the law or regulation regarding the construction of internal wiring of buildings.

222. Installation of the lightning protection shall be mandatory for the structures with explosive environment.

Acting for the Minister for Economics – Minister for Health Guntis Belēvičs

**In the wording provided by the Ministry of Economics**

**Annex**

Latvian Construction Standard LBN 201-15, Fire Safety of Structures

Cabinet Regulation No. 333

30 June 2015

**Indicators of Fire Safety of Structures**

[*11 April 2017; 11 September 2018*]

Table 1

**Fire Resistance of Building Structures of Structures**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Building structure | Minimum fire resistance of building structures of structures depending on fire stability level of structures | | | | |
| U1 | | U2 | | U3 |
| U1a | U1b | U2a | U2b |
| 1. | Supporting walls and walls of the stairway | REI 120\* | REI 60 | REI 60 | REI 30 | not standardised |
| 2. | Delimiting structure of another a room, separated by a fire-resistant structure\*\*\*\*\* | EI 60 | EI 30 | EI 60 | EI 30 | not standardised |
| 3. | Columns | REI 120\* | R60\*\* | R 60\*\*\*\*\*\* | R 30\*\* | not standardised |
| 4. | Landings, beams, flights and steps along the escape route | R 60 | R 30 | R 60 | R 30 | not standardised |
| 5. | Horizontal delimiting structure of the stairway | R 60 | R 30 | R 60 | R 30 | not standardised |
| 6. | Coverings including bays | REI 60 | REI 30 | REI 60\*\*\*\*\*\* | REI 30 | not standardised |
| 7. | Flat roof\*\*\* | R 60 | R 30 | R 60 | R 30 | not standardised |
| 8. | Supporting building structures of the roof\*\*\* | R 30 | R 15 | R 15 | R 15 | not standardised |
| 9. | Fire-proof wall | REI 180-M | REI 120-M | REI 60-M | REI 60-M | REI 60-M |
| 10. | Delimiting structure of the fire compartment | REI 180 | REI 120 | REI 60 | REI 60 | REI 60-M |
| 11. | Doors, windows, gates, manholes and valves in fire walls and boundary structures of the fire compartment\*\*\*\* | EI 60 | EI 60 | EI 30 | EI 30 | EI 30 |
| 12. | Filling of openings in boundary structures of the a room, separated by a fire-resistant structure\*\*\*\*\* | EI 30 | EI 30 | EI 30 | EI 30 | not standardised |
| 13. | Doors of stairways\*\*\*\*\* | EI 30 | EI 30 | EI 30 | EI 30 | not standardised |
| 14. | Bearing structures of balcony, terrace, gallery | R 30 | R 15 | R 30 | R 15 | not standardised |

Notes.

1. \* In the structures of type of use I of fire stability level U1a where the mark of floor level of the highest storey exceeds 50 metres, the fire resistance of supporting walls and walls and columns of stairways shall be at least REI 180.

2. \*\*In the structures of fireproofness one-storey U1b and U2b the minimum fire resistance of columns is not regulated, if the reaction to fire class of construction products is at least A2-s1, d0.

3. \*\*\*In the structures of fire stability level U1b and U2b where the mark of floor level of the highest storey is up to 8 metres, the minimum fire resistance of building structures of the flat roof is not regulated, if the reaction to fire class of construction products of the flat roof is at least A2-s1, d0.

4. \*\*\*\*In applying Sub-paragraph 52.2 of the Latvian Construction Standard LBN 201-15 “Fire Safety of Structures” (hereinafter – Construction Standard), the thermal insulation indicator I may be replaced with the heat radiation limitation indicator W.

5. The bearing structures of the roof are columns, frameworks, rafters and purlins; lathing is not bearing structure of the roof.

6. The fire resistance of non-protected steel structures, the thickness of wall of which is at least 8 mm, shall be R 15.

7. \*\*\*\*\*In applying Paragraph 49 of the Construction Standard, the thermal insulation indicator I may be replaced with the heat radiation limitation indicator W.

8. \*\*\*\*\*\* In free-standing structures, which are of open type and of type of use VII of fire stability level U2a, it is allowed to reduce the fire resistance of supporting columns and coverings by half if:

1) the mark of floor level of the highest storey of the structure is up to 10 metres;

2) access of firefighting and rescue equipment is ensured around the entire perimeter of the structure;

3) the total area of the storeys of the structure does not exceed 10 000 m2;

4) the possibility to evacuate is ensured for users of the structure through at least two separate emergency exits which are located in different places;

5) the structure is equipped with an internal firefighting water main system and a dry riser of at least DN 80 mm with coupling heads of D 51 mm in each storey and with the connection to firefighting equipment at the level of the first floor on the external wall of the building. A non-return valve shall be intended in the water pipe inlet. The system shall be equipped with devices for emptying thereof. The coupling heads must comply with LVS 187:2007, National requirements for fire hydrants;

6) the minimum reaction to fire class of construction products of the building structures of the structure shall be at least D-s2, d0;

7) there are no premises in the structure where persons may stay permanently;

8) the structure is equipped with manual fire alarm detectors and alert devices of the automatic fire detection and alarm system.

Table 2

**Minimum Reaction to Fire Classes of Construction Products\***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Building structures | Minimum reaction to fire classes of building products of building structures of structures depending on fire stability level of structures | | | | |
| U1 | | U2 | | U3 |
| U1a | U1b | U2a | U2b |
| 1. | Walls of the stairway | A1 | A1 | A1 | A1 | not standardised\*\*\*\* |
| 2. | Supporting walls and columns of frame | A1 | A1 | A2-s1,d0\*\* | B-s2,d0 | not standardised\*\*\*\* |
| 3. | Landings, beams, flights and steps along the escape route | A1 | A1 | A2-s1,d0 | A2-s1,d0 | not standardised\*\*\*\* |
| 4. | External walls | A2-s1,d0 | A2-s1,d0 | B-s1,d0 | not standardised | not standardised\*\*\*\* |
| 5. | Horizontal delimiting structure of the stairway | A1 | A1 | A2-s1,d0 | A2-s1,d0 | not standardised\*\*\*\* |
| 6. | Inter-storey coverings and flat roof | A1 | A2-s1,d0 | B-s1,d0\*\*\* | B-s2,d0\*\*\* | not standardised\*\*\*\* |
| 7. | Supporting building structure of the roof | A2-s1,d0 | A2-s1,d0 | not standardised | not standardised | not standardised\*\*\*\* |
| 8. | Fire-proof wall and delimiting structure of the fire compartment | A1 | A1\*\*\*\*\* | A1\*\*\*\*\* | A2-s1,d0 | A2-s1,d0 |
| 9. | Delimiting structure of the a room, separated by a fire-resistant structure | A2-s1,d0 | A2-s1,d0 | B-s1,d0 | B-s1,d0 | not intended\*\*\*\* |
| 10. | Bearing structures of balcony and loggia, terrace and gallery | A2-s1,d0 | A2-s1,d0 | B-s1,d0\*\*\* | B-s1,d0\*\*\* | not standardised\*\*\*\* |

Notes.

1. \*The requirements included in the Table shall apply to building structures, but shall not apply to the finishing.

2. \*\*In the structures of type of use V where the mark of floor level of the highest storey is from 8 to 14 metres, it is allowed to reduce the reaction to fire class of supporting walls and columns of frame up to B-s1, d0, if:

1) the possibility to evacuate is ensured for users of the structure through at least two separate emergency exits which are located in different places;

2) an openable opening is intended in each room where persons may stay permanently (Sub-chapter 3.3 of the Construction Standard), which is accessible by firefighting rescue equipment (vehicle with ladders);

3) all premises must be equipped with automatic firefighting systems (sprinklers).

3. \*\*\*It is allowed to use construction products, the reaction to fire class of which is lower than B-s1, d0, if the structure of the covering (flat roof) is protected with a construction product from the upper side, the reaction to fire class of which is at least A2-s1, d0.

4. \*\*\*\* If the structure of types of use I, II and V of fire stability level U3 complies with Note 2 of Table 3 of Annex to this Construction Standard:

1) the reaction to fire class of construction products shall be at least D-s2, d0;

2) the reaction to fire class of construction products of the heat insulation of external walls shall be at least A2-s1, d0;

3) the reaction to fire class of external wall finishing around the perimeter of the structure at the height of four metres from the level of ground surface shall be at least A2-s1, d0. At a higher level, in the external wall finishing it is allowed to use construction products of the reaction to fire class B-s1, d0 which are horizontally crossed by fire-proof delimiting zones/barriers made from construction products of the reaction to fire class of at least A2-s1, d0 on the level of inter-storey coverings for prevention of the spread of fire;

4) the reaction to fire class of the fire-proof protective cover K 260 shall be at least A2-s1, d0.

5. \*\*\*\*\* In the structures of fire stability levels U1b and U2a where the mark of floor level of the highest storey is up to eight metres, it is allowed to use construction products of the reaction to fire class of at least A2-s1, d0 in the delimiting structures of the fire compartment.

Table 3

**Mark of Floor Level of the Highest Storey of the Structure and Maximum Area of Fire Compartment**

|  |  |  |  |
| --- | --- | --- | --- |
| Type of use of the structure | Fire stability level | Mark of floor level of the highest storey of the structure (m) | Maximum area of fire compartment (m2) |
| I | U1a | above 28 | 2500 |
| U1a | up to 28 | 5000 |
| U1a | up to 8 | not limited |
| U1b | up to 8 | 5000 |
| U2a | up to 28 | 2500 |
| U2b | up to 8 | 2500 |
| U3 | up to 8\* | 1600 |
| II, V | U1a | Above 28 | 5000 |
| U1a | up to 28 | 10000 |
| U1a | up to 8 | 15000 |
| U1b | up to 8 | 5000 |
| U2a | up to 28 | 5000 |
| U2b | up to 8 | 2500 |
| U3 | up to 8\* | 1600 |
| III, IVa | U1a | Above 28 | 5000 |
| U1a | up to 28 | 10000 |
| U1a | up to 8 | 15000 |
| U1b | up to 8 | 5000 |
| U2a | up to 28 | 2500 |
| U2b | up to 8 | 1200 |
| U3 | up to 8 | 800 |
| IV | U1a | not limited | 10000 |
| U1b | up to 8 | 20000 |
| U2a | up to 28 | 5000 |
| U2b | up to 8 | 2500 |
| U3 | up to 8 | 1600 |
| VI, VII | U1a | not limited | not limited if the fire load is less than 600 MJ/m2 |
| 10000, if the fire load is from 600 to 1200 MJ/m2 (including) |
| 5000, if the fire load is over 1200 MJ/m2 |
| U1b | up to 8 | not limited if the fire load is less than 600 MJ/m2 |
| 10000, if the fire load is from 600 to 1200 MJ/m2 (including) |
| 5000, if the fire load is over 1200 MJ/m2 |
| U2a | up to 28 | 10000, if the fire load is less than 600 MJ/m2 |
| 5000, if the fire load is from 600 to 1200 MJ/m2 (including) |
| 2500, if the fire load is over 1200 MJ/m2 |
| U2b | up to 8 | 5000, if the fire load is less than 600 MJ/m2 |
| 2500, if the fire load is from 600 to 1200 MJ/m2 (including) |
| 1600, if the fire load is over 1200 MJ/m2 |
| U3 | up to 8 | 2000 |
| VIa | U1a | up to 8 | not limited |
| U1b | 10000 |
| U2a | 5000 |
| U2b | 2500 |
| U3 | 1600 |

Notes.

1. If an automatic firefighting system is arranged, the maximum area of the fire compartment specified in this Table may be doubled.

2. \* In the structures of types of use I, II and V of fire stability level U3 where the minimum fire resistance of building structures (including fire-resistant building structures) complies with fire stability level U2a, it is allowed to increase the mark of floor level of the highest storey of the structure up to 18 m and the number of storeys to six if the following additional requirements (conditions) are complied with:

1) the possibility for users of the structure to evacuate along smoke-protected stairway without any fire load is ensured and the reaction to fire class of the construction products and structural elements of which is A1, the reaction to fire class of the construction products intended for walls and ceilings is A1, the reaction to fire class of the floor covering is A1 FL, or the possibility to evacuate through two separate emergency exits which are located in different places;

2) an openable opening is intended in each room where persons may stay permanently (Sub-chapter 3.3 of this Construction Standard) which is accessible by firefighting and rescue equipment (vehicle with ladders, high rise aerial appliance);

3) the structures are equipped with an automatic fire detection and alarm system (except the apartments within the range of premises separated by fire-resistant structures);

4) supporting and fire-resistant building structures and also connection points thereof (except the smoke-protected stairway referred to in Paragraph 1 of this Note) are protected by a fire-proof protective cover K 260 (a tested building structure in compliance with the applicable standard regarding the fire classification of construction products and building elements) or the premises of the building are equipped with an automatic firefighting (sprinkler) system.

Table 4

**Comparison of Reaction to Fire Classes and Combustibility Groups**

|  |  |  |
| --- | --- | --- |
| No. | Reaction to fire class | Combustibility group in compliance with regulatory enactments |
| 1. | A1, A1FL | non-combustible |
| 2. | A2-s1,d0  A2 FL-s1 | hardly combustible |
| 3. | B-s1,d0  Bs2,d0; Bs2,d1; Bs2,d2  Bs3,d0; Bs3,d1; Bs3,d2  BFL-s1; BROOF(t1) | hardly combustible |
| 4. | C-s2, d1; CFL-s1  D-s2, d2; DFL-s1  D-s1; E; E-d2; F  EFL; FFL; FROOF(t1) | combustible |

Table 5

**Requirements for Heat Insulation Systems and Materials of External Walls**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Fire stability level of the structure | Mark of floor level of the highest storey of the structure (m) | | Minimum reaction to fire class of construction products | | | | |
| non-ventilating facades | | | ventilating facades | |
| heat insulation | external finishing | heat insulation system with external finishing\* | heat insulation | external finishing |
| U1 |  | | A2-s1,d0 | A2-s1,d0 | A2-s1,d0 | A2-s1,d0 | A2-s1,d0 |
| U1b to 8 (including) | | B-s1,d0 | A2-s1,d0 | B-s1,d0 | A2-s1,d0 | B-s1,d0\*\* |
| U2 | to 28 (including) | variant A | B-s1,d0 or E-d2 with delimiting zones\*\*\* | A2-s1,d0 | B-s1,d0 or C-s2,d2 with delimiting zones\*\*\* | A2-s1,d0 or B-s1,d0 with delimiting zones\*\*\* | B-s1,d0\*\* |
| variant B | A2-s1,d0 | B-s1,d0 |
| to 8 (including) | variant A | C-s2,d1 or E-d2 with delimiting zones\*\*\* | A2-s1,d0 | D-s2,d2 | B-s1,d0 | D-s2,d0 |
| variant B | B-s1,d0 | C-s2,d2 |
| U3 | to 8 (including) | | not standardised | not standardised | not standardised | not standardised | not standardised |

Notes.

1. \*Heat insulation system is a multi-layer external heat insulation which is confirmed in accordance with the procedures specified in the Law On Conformity Assessment.

2. \*\* It is allowed to use construction products of the reaction to fire class Bs1, d0, the maximum area of which in one plane does not exceed 200 m2 of the total surface and which is horizontally delimited with zones of construction products of the reaction to fire class at least A2-s1, d0 on the level of inter-storey coverings.

3. \*\*\*Fire-proof delimiting zones/barriers shall be placed on the level inter-storey covering forming fire compartment, but not less than every two storeys. The minimum height of the fire-proof zone shall be 200 mm on the facade, thickness shall be the thickness of the heat insulation layer, it shall be made of construction products of the reaction to fire class A2-s1, d0 (including finishing).

4. Requirements for the reaction to fire class for heat insulation and external finishing of non-ventilating facades of the structures of fire stability levels U2 are possible in two variants – depending on structure of multi-layer heat insulation.

5. Reaction to fire class for the bearing structure (frame) of the structures of fire stability level U2, to which external heat insulation structures are attached, shall be at least C-s2, d1.

6. In the structures of fire stability level U2 where the mark of floor level of the highest storey is up to 14 metres, it is allowed to make the bearing structure (frame) of the external finishing from the construction products the reaction to fire class of which is at least D-s2, d2 if the construction products the reaction to fire class of which is at least A2-s1, d0 have been used for heat insulation.

7. In the structures of fire stability level U2a, it is allowed to use the construction products of external heat insulation the reaction to fire class of which is below B-s1, d0 on the base plate (external wall) the reaction to fire class of which is at least A2-s1, d0.

Table 6.

**Maximum Length of Escape Route and Area of Room per One User**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Type of use of the structure | Maximum distance to the nearest emergency exit (m) | Maximum distance between emergency exits | Area of room (m2) to be calculated per one user |
| 1. | type of use I: |  |  |  |
| 1.1. | one emergency exit | 30 | - | 10 |
| 1.2. | two or several emergency exits | 45 | 90 | 10 |
| 2. | type of use II | 30 | 60 | 10 |
| 3. | type of use III | 30 | 60 | 10 |
| 4. | type of use IV: |  |  |  |
| 4.1. | trade premises\*\*\* | 45 | 90 | 3\* |
| 4.2. | premises for recreation and public events\*\*\* | 45 | 90 | 1.0 – in halls without seats or in compliance with the number of seats intended in the designing order |
| 4.3. | in other structures of the type of use IV\*\*\* | 45 | 90 | in compliance with the number of seats intended in the designing order |
| 4.4. | type of use IVa | 30 | 60 | in compliance with the number of seats intended in the designing order |
| 5. | type of use V\*\*\* | 45 | 90 | 10 |
| 6. | types of use VI\*\*\*, VIa and VII\*\* | 90 | 180 | in compliance with conditions of the technological process |

Notes.

1. \*The area which is not occupied by trade and technological equipment shall be taken into account for the calculation.

2. \*\*In structures of types of use VI and VII with explosion hazard or fire load over 1200 MJ/m2 the maximum distance to the emergency exit shall be reduced for a half.

3.\*\*\* In separate premises, the maximum distance to the nearest emergency exit may be extended by 50% if the room is equipped with an automatic firefighting system, automatic fire detection and alarm system, and exhaust of smoke and heat is ensured in the premises.

Table 7.

**Minimum Fire Safety Intervals between Structures**

|  |  |  |  |
| --- | --- | --- | --- |
| Fire stability level of structures | Fire stability level of structures | | |
| U1 | U2 | U3 |
| U1 | 6 m | 7 m | 8 m |
| U2 | 7 m | 8 m | 9 m |
| U3 | 8 m | 9 m | 10 m |

Note.

Distance between external walls or other boundary structures shall be regarded as the distance between buildings. If the structures of external walls of buildings have protrusions which are larger than 1 m, the distance from these structures shall be regarded as the fire safety distance.

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