

Interstate construction norms – buildings and premises

[Environment](#), [Water](#)



Source: IS PARAGRAPH-WWW <http://online.prg.kz> INTERSTATE CONSTRUCTION NORMS MSN 3. 02-03-2002 Buildings and Premises for Institutions and Organisations Contents Introduction 1 Scope 2 Codes and standards 3 Terms and definitions 4 General 5 Requirements to premises 6 Fire safety 7 Safety in use 8 Compliance with sanitary and epidemiological requirements 9 Energy conservation 10 Durability and maintainability Appendix ? (mandatory). References Appendix B (mandatory).

Terms and definitions Appendix C (mandatory). Rules for calculating the total area of buildings, area of premises, total structural volume, footprint area and number of building floors during design Appendix D (mandatory). List of premises in buildings of institutions that can be located on underground and semi-basement floors Introduction This document contains norms and regulations for a group of buildings and premises with common functional and space/layout features and designed ainly for intellectual labour and non-production activities that are different from buildings designed for production of tangible assets and provision of services to the public. The defining features of this group of buildings are: composition of the main functional groups of premises, space/layout structure, same functional fire class of buildings/structures taking into account methods of use (during day time only), fire risk degree and characteristics of main personnel as established by MSN 2. 2-01. In accordance with the principles defined in MSN 1. 01-01, this document sets out a number of mandatory normative requirements to operational characteristics of building used by organisations and institutions, including and first of all the requirements to their safety and compliance with

sanitary and epidemiological requirements. Participants in development of this document are: Viktorova L.

A, Cand. Arch (FTsS Stroy-sertifikatsiya of Russian Federation Gosstroy); Garnets A. M. , Cand. Arch (Public Buildings Institute), Glukharev V. A. , Sopotsko S. Yu. , Cand. Tech. Sci. (Russian Federation Gosstroy); Lerner I. I. , Cand. Arch (" TsNIIEP named after Mezentsev B. S. " CJSC); Skrob L. A. , Cand. Arch; Storozhenko T. E. , (" TsNIIpromzdaniy" CJSC). 1 Scope

This document shall be applied during design, construction and operation of new and refurbished buildings used by institutions and organisations, including: institutions of local government control bodies; administrative buildings of various enterprises, including industrial ones; offices and buildings of scientific research, design and development organisations; buildings of financial institutions and banks, buildings of legal institutions and public prosecution bodies; editing and publishing organisations (with the exception of printing houses), as well as buildings and premises of other non-production institutions using their premises during a part of the day time for accommodation of permanent personnel accustomed to the local conditions. This document sets out requirements to safety and other operational characteristics of buildings that are mandatory for all legal entities and private individuals carrying out design and construction of buildings for institutions and organisations (hereinafter " buildings of institutions").

In addition to this document, other, more general codes and standards shall be complied with during design and construction of buildings and premises for the above institutions if they do not conflict with the requirements of this

document. This document applies to all buildings regardless of the sources of financing (state or municipality budget or own funds of developers that carry out construction of buildings for own needs or for rental purposes). This document does not apply to design of buildings for the Government, police, security and defence bodies, customs services, embassies and other facilities of the Ministry of Foreign Affairs in other countries, state archives, buildings of laboratory and experimental facilities and special structures of scientific research institutes, as well as office premises placed inside mobile buildings.

2 Codes and standards

This document contains references to codes and standards listed in Appendix ?.

3 Terms and definitions

Definitions of terms used in this document are provided in Appendix B.

4 General

4. 1 Design, construction and refurbishment of buildings of institutions shall be in accordance with the requirements of this document and other codes and standards stipulating rules for design and construction and on the basis of Permit to Construct confirming the right of owner, user or lessee of the land plot (hereinafter "the Client/Developer") to carry out development as described in design documentation agreed and approved in accordance with the established procedures.

4. Arrangement of the proposed buildings and structures on the land plot allocated for construction shall be in accordance with restrictions established by the effective legislation, design and construction codes and standards, Architectural Planning Assignment and Permit to Construct.

4. 3 Design and construction of buildings of institutions shall include provisions, in accordance with current codes and standards, to ensure accessibility for people with limited mobility working in or visiting these buildings. This

requirement shall be described in detail in the Technical Design Assignment, stating, if necessary, the number of disabled persons and types of disability.

4. 4 Premises of institutions proposed to be located within residential buildings shall be designed in accordance with both this document and the requirements of other current codes and standards to public premises inside residential buildings. 4. Building load-bearing structures shall be designed to prevent the following effects during construction and in normal operating conditions: destruction of or damage to structures requiring discontinuation of building operation; unacceptable deterioration of operational characteristics of structures or buildings as a result of deformations or formation of fractures. 4. 6 Building bases and structures shall be designed to withstand the following loads and effects: permanent gravity loads from load-bearing and enclosing structures; temporary uniformly distributed and concentrated loads on floor slabs; snowloads typical for the construction region; wind loads typical for the construction region; hazardous geophysical effects typical for the construction region.

Normative values of the above loads, adverse combinations of loads or corresponding forces, structure deflection and movement limits and values of reliability factors in terms of load shall be assumed in accordance with the requirements of current codes and standards. Additional client requirements to loads from heavy elements of equipment stated in the Technical Design Assignment shall also be taken into account. 4. 7 Load bearing and deformation analysis methods used in design of structures shall comply with the requirements of current codes and standards on structures made of relevant materials. On undermined land, subsiding soils, in seismically active

areas and in other complex geology conditions buildings shall be sited taking into account additional requirements of the relevant regulations. 4. Building foundation design shall take into account physical and mechanical properties of soils indicated in the relevant regulations, hydrogeological conditions of the development site and aggressiveness of soils and groundwater to foundations and buried utilities and ensure the required uniformity and speed of soil base settlement under buildings. 4. 9 Buildings and premises of institutions shall be provided with cold and hot water supply systems, waste water systems, rainwater drainage facilities, as well as separate or combined fire water main in accordance with current codes and standards. Water supply systems inside buildings shall be separate or combined domestic/potable and fire water supply systems.

Hot water supply outlets shall be provided for process equipment of canteens and buffets, for taps of cleaning utensils rooms, for washbasins of medical rooms and lavatories, for female personal hygiene cabins and other devices in accordance with the Technical Design Assignment. 4. 10 HVAC systems of buildings shall be designed in accordance with the requirements of current codes and standards and requirements Sections 7-9 of this document. Inlets of heating networks into buildings shall be provided with heating stations (individual and central heating stations). 4. 11 Buildings of institutions shall be provided with electric equipment, electric lighting, city telephone lines, wired radio and television systems.

If necessary in accordance with special requirements of departmental construction codes and Technical Design Assignment, complexes of buildings

and individual buildings or premises shall be equipped with local (internal) telephone systems, local wired radio and television systems, public address/entertainment systems, amplification and interpreting systems, time signalling devices, fire and security alarm systems, fire public address systems (in accordance with the current codes and standards), gas, smoke and flooding alarms, utility systems automation and building management systems, as well as other devices and multi-purpose low-current power supply system.

4. 12 Electric equipment for installation in buildings of institutions shall be designed in accordance with current regulations approved in accordance with the established procedures.

4. 3 Lightning protection of buildings shall be designed taking into account presence of television antennae and telephone/wired radio masts in accordance with current codes and standards.

4. 14 Gas supply systems of buildings of institutions shall be designed in accordance with the requirements of current codes and standards.

4. 15 Buildings of institutions shall be provided with waste and dust removal systems. Waste removal systems shall be designed on the basis of regional daily waste accumulation standards (taking into account the level of amenities provided in the buildings). Waste removal facilities shall be aligned with waste removal system of the settlement in question. The requirement for provision of a refuse chute shall be stipulated in the Technical Design Assignment.

Buildings without refuse chutes shall be provided with refuse collection chamber or utility area.

4. 16 Buildings of institutions shall be provided with passenger lifts if the difference in height between entrance hall and the top floor is 12 m or greater; if such buildings are constantly visited by the public,

lifts shall be provided when the above difference is 9 m or greater; if on the second and higher floors there are premises for the disabled, in accordance with current codes and standards. The requirement for provision of other vertical transport facilities in buildings of institutions shall be stipulated by the Technical Design Assignment.

The required number of passenger lifts shall be determined on the basis of calculations, normally, this number shall be two; one lift in the building (passenger or freight/passenger lift) shall have the cabin at least 2100 mm deep to allow transportation of one person on a stretcher. In buildings of institutions having 10 or more floors, one of the passenger lifts shall be designed to carry fire brigades in accordance with requirements of current codes and standards. If an attic floor is being added to an existing building with 9 floors, installation of this type of lift is not mandatory. If atria is provided, this type of lift shall be installed in buildings having 7 or more floors. In buildings less than 28 m high (bottom of upper window opening - in accordance with MSN 2. 02-01) having not more than two lifts, they can be installed in a staircase. 4. 7 Subject to Client/Developer request, documentation on buildings of institutions shall additionally include heat-and-power engineering passport and operating instructions. The purpose of heat-and-power engineering passport is to establish heat-and-power engineering characteristics and power consumption of the building. It shall be drawn up in accordance with procedures and format established by current codes and standards taking into account provision of Section 9 of this document. Operation instructions shall contain requirements and provisions necessary to ensure safety of buildings and structures during operation,

including information on the main structures and utility systems, layouts of concealed framework elements, concealed electric wiring and utilities, as well as limit values of loads for structural elements and electric networks. This information can be presented as copies of as-built documentation.

5 Requirements to premises

5. 1 Normally, premises in buildings of institutions constitute the following main functional groups: a) management offices; b) work premises of structural subdivisions of institutions and organisations; c) premises for meetings and/or conference rooms; d) IT/ technical premises, including: technical libraries, design offices, archive rooms, premises housing IT equipment, etc. depending on the Technical Design Assignment; e) entrance premises, including: entrance hall, additional space between entrance lobby and entrance hall, cloakroom, access badge issue bureau, security guard room; f) customer service premises, including: premises of public catering and healthcare enterprises, lavatories, amenity premises for maintenance and operation personnel, sports/recreational premises, etc. ; g) building maintenance premises, including: repair workshops, stores of different intended use, etc. ; h) premises for utility equipment, including: ventilation chambers, premises with electric power distribution panels, etc.

5. 2 Composition and area of and functional interdependencies between premises in buildings of institutions shall be determined in the Technical Design Assignment in accordance with the requirements of current codes and standards.

Composition of premises in functional Groups a) - d) and g) shall be established in the Technical Design Assignment, their area is determined by state departmental or process standards, however, it shall be noted that at

least 6 m² shall be allowed for each employee in the premises of functional Group b) (excluding space for special furniture for office equipment). Composition, equipment (including sanitary devices) and area of premises in Groups e) and f) shall be determined in accordance with standards stipulated in the existing codes and standards.

5. 3 Composition and area of premises for IT and communications equipment, as well as requirements thereto shall be determined in special Technical Design Assignment attached to the main Technical Design Assignment.

5. Composition and area of special-purpose premises of financial, banking, legal and other institutions shall be determined in the Technical Design Assignment taking into account the current codes and standards.

5. 5 Height of premises measured from floor to ceiling shall be at least 3 m. In small offices located within residential buildings and industrial offices located in administrative/amenity buildings, height of premises can be the same as the height adopted for such buildings.

5. 6 Height of corridors and halls shall be at least 2. 4 m, in offices located within residential buildings and industrial offices located in administrative/amenity buildings, at least 2. 2 m. Width of corridors shall comply with the requirements of fire prevention norms, however, it shall be at least 1. 2 m if corridor length is 10 m, at least 1. 5 m if corridor length exceeds 10 m and at least 2. 4 m if corridors are used as lobbies or spaces for accommodation of waiting visitors.

5. 7 Height of mechanical floors shall be assumed taking into account equipment and utilities they will accommodate and operating conditions of such equipment and utilities, the clear height of such floors along passageways of maintenance personnel shall be at least 1. 8 m.

5. 8 The distance between the most distant premises

to the nearest passenger lift shall not be greater than 60 m. Exits from passenger lifts shall lead into a lift hall, including entrance or other hall is lift hall is a part thereof. Passenger lift hall shall be: at least 1. x the minimum lift cage depth if lifts are arranged in a single row; at least double the minimum cage depth if lifts are arranged in two rows. Width of lift hall in front of lifts with cage depth of 2100 mm and greater shall be at least 2.5 m or, if there are two rows of lifts, at least equal to the double the minimum cage depth. Store rooms and other premises designed for storage of combustible materials shall not have exits leading directly into the lift hall.

5.9 Requirement for provision of civil defence premises in buildings of institutions shall be determined in the Technical Design Assignment in accordance with agreement made with Civil Defence Headquarters as required by the current codes and standards.

6 Fire safety

6.1 General

6.1.1 Fire safety requirements stipulated by this document are based on provisions and classifications of MSN 2.02-01.

6.1.2 Except as otherwise specifically set forth in this document, terms and definitions used in this section are in accordance with ST SEV 383 and GOST 12.1.033.

6.1.3 This document shall be complied with in the design of buildings up to 50m high of functional fire risk class ?(F) 4.3 (as per MSN 2.02-01), as well as premises of these class built into buildings of other functional fire risk class. Class ?(F) 4.3 built-in or built-in/lean-to premises of residential buildings shall also conform to the requirements of current codes and standards.

For buildings higher than 50 m, technical specifications shall be developed containing additional measures taking into account specifics of fire protection in accordance with 1.5* MSN 2.02-01.

6.1.4 Automatic fire

detection, extinguishing and alarm installations shall be provided in accordance with the requirements of current codes and standards. 6. 2 Provision of public safety 6. 2. 1 Width of escape exits and stairways shall be determined depending on the number of escaping personnel via the exit per 1m of width in buildings: of fire-resistance rating I and II and fire risk class ?? (SO)..... not more than 165 people of fire-resistance rating III and IV and fire risk class ?(SO), ? 1(S1).....not more than 115 people of fire-resistance rating III and IV and fire risk class ? 2(S2), ??(S3) of fire-resistance rating V and all fire risk classes..... not more than 80 people Also, the width of escape exits shall be determined taking into account the requirements of Item 6. 16, that of stairways, taking into account the requirements of Item 6. 29 of MSN 2. 02-01. 6. 2. 2 Distances along escape routes from doors of the most distant premises (with the exception of lavatories, wash-rooms, smokingrooms and other amenity premises that are not permanently manned) to the exit leading outside or into a staircase shall not exceed distances indicated in Table 6. 1. Capacity of premises with exits leading into a dead-end corridor or hall shall not exceed 80 people. Table 6. 1

Fire-resistance rating of buildings	Structural fire risk class of buildings	Distance, in metres, when density of traffic in a corridor is*)	persons/m ²																																								
up to 2	from over 2 to 3	from over 3 to 4	from over 4 to 5	over 5	?. From premises located between staircases or exits leading outside	I and III	?(SO)	60	50	40	35	20	III	IV	?(SO), ? 1(S1)	?(SO), ? 1(S1)	40	35	30	25	15	III	? 2(S2),??(S3)	30	25	20	15	10	IV	? 2(S2),??(S3)						V	Not specified						B. From premises with exits leading into a dead-end

corridor or hall| I and II| ??(SO)| 30| 25| 20| 15| 10| III| ??(SO), ? 1(S1)| 20| 15| 15| 10| 7| IV| ??(SO), ? 1(S1) | | | | |

III| ? 2(S2),??(S3)| 15| 10| 10| 5 | 5| IV| ? 2(S2),??(S3) | | | | | V| Not specified | | | | | *) Ratio of the number of people evacuating from premises

to the area of escape route corridor. | 6. 2. 3 Large rooms (conference rooms, dining rooms of canteens, etc.) shall be placed on floors indicated in

Table 6. 2. In determination of the highest possible floor for large rooms with sloping floors, floor level shall be assumed to be equal to the level of the first

row of seats. Table 6. 2 Fire-resistance rating of buildings| Structural fire risk class| Number of seats| Floor| I, II| ??(SO)| Up to 300| From over 300 to 600| From over 300 to 600| 1-161-51-3| III| ? 1| Up to 300| 1-3|

IIIIII| CO? 1| From over 300 to 600| Up to 300| From over 300 to 600| 1-21-21| IV| ??,? 1| Up to 300| 1| IV| ? 2(S2),??(S3)| Up to 100| 1| V| Not specified| Up to 100| 1|

6. 2. 4 The maximum distance from any point of large rooms to the nearest escape exit shall no exceed the distance indicated in Table 6. 3.

Table 6. 3 Intended use| Fire-resistance rating of buildings| Structural fire risk class of buildings| Distance (m) in rooms with volume, thousand m³| | | | up to 5| from 5 to 10| Exhibition halls, conference rooms, gyms, etc. | I, II| ??

(SO)| 30| 45| | III| ??(SO)| ditto| ditto| | III| ? 1| 20| 30| | IV| ??(SO), ? 1(S1)| ditto| ditto| | IV| ? 2(S2)-??(S3)| 15| -| | V| Not specified| ditto| -|

Dining and reading halls, with area of the main passageway providing at least 0. 2m per each evacuating person| I, II| ??(SO)| 65| -| | III| ??(SO)| ditto| -| | III| ? 1| 45| -| | IV| ??(SO), ? 1(S1)| ditto| -| | IV| ? 2(S2)-??(S3)| 30| -| | V| Not specified| ditto| |

Note: Symbol "-" in the table indicates that premises of this

type can not have the indicated volume. | 6. 2. 5 The number of steps in one flight of stairs between landings (with the exception of curved stairs) shall not exceed 16. The number of steps in single-flight stairs or single flight of two- or three-flight stairs within the limits of ground floor shall not exceed 18. 6. 2. Type 3 stairs can be used as the second escape route from the first floor. Type 3 stairs shall be designed for the following maximum numbers of evacuating people: 70 - for buildings of fire-resistance ratings I and II and fire risk class ??(SO); 50 - for buildings of fire-resistance ratings III and IV and fire risk classes ??(SO) and C1(S1); 30 - for buildings of fire-resistance ratings III and IV and fire risk classes ? 2(S2) and C3(S3), for buildings of fire-resistance rating V. 6. 2. 7 If walkways leading to external stairs pass through flat roofs or external open galleries, load-bearing structures of roofs and galleries shall be designed to have fire-resistance limit REI 30 and fire risk class ??. 6. Prevention of fire propagation 6. 3. 1 Fire-resistance rating, structural fire risk class and permissible height of buildings (as per MSN 2. 02-01) and floor area within a fire compartment shall be assumed in accordance with Table 6. 4. Elements of load-bearing structures in two or more storey high buildings of fire-resistance rating IV shall have fire-resistance limit R45 or better. If premises are provided with automatic fire extinguishing installations, areas indicated in Table 6. 4 can be increased by 100 %, with the exception of buildings of fire-resistance rating IV with fire risk class ?? or ? 1, as well as buildings of fire-resistance rating V. Table 6. stipulates standards for buildings and fire compartments of different categories and pre-defined combinations of fire-resistance ratings and structural fire risk classes. For combinations not included in the table, floor area and building height shall

be assumed as for the lowest of the indicated values for the particular building category, or agreed in accordance with procedures defined in Item 1. 6 of MSN 2. 02-01. Table 6. 4 Fire-resistance rating of buildings | Structural fire risk class | Permissible height of buildings, m | Floor area within a fire compartment, in metres, when the number of floors is: | | | 1| 2| 3| 4-5| 6-9| 10-16| I| ??(SO)| 50| 6000| 5000| 5000| 5000| 5000| 2500| II| ??(SO)| 50| 6000| 4000| 4000| 4000| 4000| 2200| III| CI| 28| 5000| 3000| 3000| 2000| 1200| -|

III| ??(SO)| 15| 3000| 2000| 2000| 1200| -| -| III| CI| 12| 2000| 1400| 1200| 800| -| -| IV| CO| 9| 2000| 1400| 1200| -| -| -| IV| CI| 6| 2000| 1400| -| -| -| -| IV| ? 2(S2),??(S3)| 6| 1200| 800| | -| -| -| V| CI-C3| 6| 1200| 800| -| -| -| -|

Notes: 1. Here and further in Section 6 height of buildings is determined in accordance with MSN 2. 02-01 (see note to Item 1. 5*) and measured from the surface that fire engines are driving on to the lower boundary of opening on the top floor (not top mechanical floor). 2. Symbol "-" in the table means that a building of the particular fire-resistance rating can not have the indicated number of storeys. | | | | | | | | | | | | Floor area between fire walls of single-storey buildings having a two-storey part occupying less than 15% of building area shall be assumed as for a single-storey building. Fire-resistance rating of building lean-to canopies, terraces and galleries, as well as other buildings and structures separated by fire-rated walls can be assumed to be by one level lower than fire-resistance rating of the building. 6. 3. 2 To ensure the required fire-resistance limit of load-bearing elements in buildings of fire-resistance rating I, II and ?, use of structural fire protection only is permitted (siding, concrete coating, plastering, etc.). 6. 3. Attic floor

in buildings of fire-resistance rating I, II and III can be assumed to have load-bearing structures with fire-resistance limit R45, provided that such structures will have fire risk class ?? and will be separated from lower storeys by Type 2 fire-rated floor structure. In this case, attic floor shall be separated by Type 1 fire-rated partitions into compartments having an area: not greater than 2000 m² for buildings of fire-resistance ratings I and II or not greater than 1400 m² for buildings of fire-resistance rating III. Fire-rated partitions shall protrude above the roof as a fire-rated wall in accordance with Item 6. 3. 5 of this document.

In attics of buildings up to 28 m high inclusive, use of wooden structures with fire protection providing fire risk class ?? is allowed. 6. 3. 4 Roofing, roof timbers and lathing can be made of combustible materials. In lofts of buildings (with the exception of buildings of fire-resistance rating V) with roof timbers and lathing made of combustible materials, roofing shall not be made of combustible materials, roof timbers and lathing shall be subjected to fire-proofing treatment ensuring loss of wood mass during tests described in GOST 4686 not greater than 13 %. 6. 3. 5 Fire-rated wall shall protrude above the roof: by at least 60 cm if any of the elements of loft or loft-free roof (with the exception of roofing) are made of Group ??(G3) or ? 4(G4) aterials; by at least 30 cm if elements of loft or loft-free roof (with the exception of roofing) are made of Group ? 1(G1) or ? 2(G2) materials. Protrusion of fire-rated walls above the roofing is not mandatory if all elements of loft or loft-free roof (with the exception of roofing) are made of Group ??(NG) materials. 6. 3. 6 Fire-rated walls of buildings with external walls constructed using Group ? 1(G1), ? 2(G2), ??(G3) or ? 4(G4) materials

shall cross such walls and extend beyond the wall external surface by at least 30 cm. If external walls made of Group ??(NG) materials have continuous band windows, fire-rated walls shall separate windows. In this case, extension of fire-rated wall beyond the wall external surface is not mandatory.

Fire-rated walls can have ventilation and chimney channels, however, in their locations, fire-rated wall fire-resistance limit on both sides of a channel shall be at least REI 150 in the case of Type I fire-rated walls and at least REI 45 in the case of Type II fire-rated walls. Fire-rated floors shall adjoin external walls made of Group ??(NG) materials without gaps. Fire-rated floors in buildings with Class ?. 1, ? 2 and ?? external walls or with glazing at the floor structure level shall cross such walls and glazing. 6. 3. 7 If a building is divided into fire compartments, the wall of the higher and wider compartment shall serve as fire-rated wall.

External part of fire-rated wall can be used for placement of windows, doors and gates with non-specified fire-resistance limits, at a vertical distance above the roofing of adjoining compartment of at least 8 m and horizontal distance from walls of at least 4 m. 6. 3. 8 Placement of fire-rated walls or fire-rated partitions in locations where one part of a building adjoins another at an angle shall be such as to ensure that the horizontal distance between the nearest edges of opening in external walls is at least equal to 4 m, whereas at least 4m parts of walls and roof eaves/cave adjoining to fire-rated wall or partition at an angle shall be made of Group ??(NG) materials. If the distance between the indicated opening is less than 4 m, they shall be filled

with Type 2 fire-rated doors or windows. 6. 3. Walls, partitions, floor structures, roofs and other enclosing structures of buildings shall not have voids restricted by Group ??(G3) or ? 4(G4) materials, with the exception of voids: in wooden structures of floors and roofs divided by blind walls into spaces with area not exceeding 54 m², and also along contours of internal walls; between steel or aluminium corrugated sheets and vapour insulation, provided that behind the vapour insulation there is a heat insulation layer made of Group ??(NG), ? 1(G1) or ? 2(G2) material. If heat insulation is made of Group ??(G3) or ? 4(G4) materials (including heat insulation without vapour insulation), such voids at sheet edges shall be filled with Group ??(NG), ? 1(G1) or ? 2(G2) materials to a depth of at least 25 cm; between Group ?? structures and their facings made of Group ??(G3) or ? 4(G4) materials from the side of premises, provided that voids are divided by blind walls into spaces with area not exceeding 3 m²; between facing made of Group ??(G3) or ? 4(G4) materials and external surfaces of walls of single-storey buildings having a height from the reference ground level to the eaves of 6 m maximum and footprint area not exceeding 300 m², provided that voids are divided by blind walls into spaces with area not exceeding 7. 2 m². Blind walls can be made of Group ??(G3) or ? 4(G4) materials, with the exception of thermoplastic cellular plastics. 6. 3. 10 Voids in building roofs with corrugated metal sheeting and heat insulation layer made of Group ? 1(G1)-? 4(G4) materials shall be filled with Group ??(NG) materials to 250 mm depth in locations of sheeting junctions with walls, movement joints and skylight frames, as well as from each side of roof ridges and valley. 6. 3. 1 Enclosing structures of passages between buildings shall have fire-resistance

limit equal to that of the main building. Pedestrian and utility tunnels shall be made of non-combustible materials. In location of junctions with passages and tunnels, walls shall have fire risk class ?? and fire-resistance limit REI 45. Doors installed in openings of such walls and leading into passages and tunnels shall be Type 2 fire-rated doors. 6. 3. 12 Staircase doors leading into common corridors, lift hall doors and lockable lobby doors shall be provided with door closers and rabbit seals and shall not have locks that prevent door opening without a key. 6. 3. 3 In buildings over 4 storeys high, toughened or reinforced glass or glass blocks shall be used as light-transmitting filling material for doors, transoms (in doors, partitions and walls, including internal walls of staircases) and partitions. In buildings with 4 storeys or less, all types of light-transmitting filling materials can be used. In buildings over 4 storeys high, staircase doors leading into common corridors, lift hall doors and lockable lobby doors shall be blind or reinforced glass doors. 6. 3. 14 Sliding partitions made of Group ? 1(G1)-? 4(G4) materials shall be protected from both sides by Group ??(NG) materials to provide fire-resistance limit EI 30. 6. 3. 15 Water consumption for internal fire fighting in buildings shall be sufficient for two jets 2. L/sec each, but not less than water consumption rates indicated in the current codes and standards. 6. 4 Requirements to design of atria 6. 4. 1 Part of a building that includes atrium and associated premises shall be separated as a fire compartment and equipped with fire protection system. 6. 4. 2 Fire protection system includes: ?) smoke protection system; b) internal fire water main and automatic fire-fighting equipment; c) lifts for fire brigades (provision of lifts for fire brigades in buildings with 6 storeys or less equipped with complete fire protection

system package is not compulsory); d) public address and evacuation management system;) personal and collective protection equipment and rescue means; f) space and layout design and technical solutions ensuring timely evacuation of people and protection of people from hazardous fire impacts; g) controlled fire endurance ratings and fire risk of structures and finishing materials; h) structural elements that limit fire and smoke propagation (fire barriers, fire compartments, etc.).

6. 4. 3 Elements of fire protection system (FPS) shall be controlled from the central control console that shall allow: to control fire protection systems; to control systems that are not part of the FPS and not associated with ensuring safety in the building in case of fire; coordination of actions of all services responsible for ensuring public safety and fire extinguishing. FPS central control console shall be located in the building close to the main entrance or in the room on the ground or basement floor that has exit directly outside. FPS central control console shall not be located in the engineering services control room. Enclosing structures of the room accommodating the FPS central control console shall have fire-resistance limit EI60 or better. Mini-schematics of the FPS shall be placed on the building front at the main entrance to the FPS control console room. Reliability of power supply to the FPS control console room shall be of Category 1.

FPS central control console shall be provided with a telephone hotline connecting it with the nearest fire station.

6. 4. 4 Atrium and all building premises forming a single fire compartment shall be provided with automatic fire fighting and smoke alarm system. In atria more than 17 m high (floor to ceiling inside dimension), sprinklers shall be installed under structures

protruding into atrium space (balconies, galleries, etc.), installation of sprinklers in atrium ceiling is not required. If water curtains are used, instead of fire-rated wall, fire compartment separated by a water curtain from the fire compartment with atrium shall be equipped with FPS. 6. 4. For smoke removal from atrium during a fire, exhaust ventilation system shall be provided in accordance with the requirements of current codes and standards. Both natural and forced exhaust ventilation systems can be provided. 6. 4. 6 Rooms and corridors in the underground part of the building can be connected with the atrium only via lockable lobbies pressurised in the case of fire. 6. 4. 7 All premises leading to atrium shall have exits to at least two emergency escape stairs. Distance from doors of the most distant room to entry into a staircase shall be assumed in accordance with Table 6. 1. 6. 4. 8 Enclosing structures of premises and corridors adjoining the atrium shall have fire-resistance limit EI 45 or better, exit doors of these premises leading into atrium, fire-resistance limit EI 30.

Glazed partitions and doors with fire-resistance limit EI15 can be used if they are protected by water curtains. 6. 4. 9 Atrium roof structures shall be of fire risk class ?? and have fire-resistance limit REI 30 or better. 6. 4. 10 Atrium internal surfaces shall have finishes made of non-combustible materials. 6. 4. 11 Wood structures which have been treated with flame retardants can be used as roof (including light-transmitting) materials for halls and atria of buildings with height of 28 m or less. Quality of fire-proofing treatment shall ensure that loss of wood mass during tests described in GOST 4686 will not exceed 13 %. Combustible roofing materials shall not be used closer than 4m away from the edge of light-transmitting roof parts. 6. 4. 2 Skylights, when

used in smoke removal systems, shall have automatic, remote and manual actuators to open them in case of fire, and shall also have protective mesh underneath if silicate glass is used. Skylights can be made of organic light-transmitting materials that do not form combustible melts when exposed to fire.

6. 4. 13 Windows of premises provided with air conditioning systems can be facing courtyards covered by a light-transmitting roof. Said windows shall have minimum fire-resistance limit E30 or shall be protected by automatic fire extinguishing system arranged over them inside premises. Provision of automatic fire extinguishing systems in double aspect premises (to atrium courtyard and to a street) with access for firemen from fire motor ladders and tower ladders is not mandatory.

7 Safety in use

7. Buildings shall be designed, built and equipped in such a way as to prevent injuries to personnel and visitors moving inside and near the building, entering and exiting the building or using building mobile parts and building services.

7. 2 Pitch and width of stairs and ramps, step height, tread width, landing widths, height of passages via stairs, basement, mechanical floor and operated loft, floor level changes and dimensions of door openings shall ensure safe movement of people and convenient transportation of equipment for building premises. Guardrails shall be provided where necessary. Use of stairs with different height and depth of steps is not allowed.

7. Guardrails of stairways, balconies, terraces, roofs and in other locations with hazardous level changes shall be sufficient for prevention of falls and have a height of 0. 9 m minimum. Metal guardrail design shall be in accordance with GOST 25772. Guardrails shall be continuous, provided with handrails and designed for loads of 0. 3 kN/m minimum.

7. 4 Special

measures shall be taken to prevent risks of criminal practices and their consequences and to minimise possible damage in case of illegal actions. These measures shall be stated in the Technical Design Assignment in accordance with state departmental documents and regulatory legal acts of local authorities.

They can include: use of explosion-proof structures, installation of video surveillance cameras and security alarm systems, special layout solutions for crowd control, various barriers, access control stations, strengthening of entry door structures, window protection, protective devices for windows, appropriate equipment of lofts, basements and other premises. 7. 5 Sites of high-security institution buildings shall have fencing with height from the ground level of at least 2. 5 m and foundations buried to a depth of 0. 5 m minimum. At least 3m wide land strip, free from structures, trees and bushes, shall be provided from the inside and outside of the fencing. 7. 6 Vehicle entries to the security protected site shall be provided with automatic rolling gates controlled from duty security guard station and provided with appropriate engineering protection.

Premises of security guard station shall allow visual control of the main entrance into the building and, if possible, vehicle access to the site and entrance into the basement floor. 7. 7 Windows of premises on basement, semi-basement and ground floors, as well as windows of other premises that can be accessed from lean-to buildings shall be provided with window grilles of design that both prevents access and conforms to fire prevention requirements. Windows of other premises shall be provided with grilles if

required by the Technical Design Assignment. They shall be openable in accordance with the requirements of current codes and standards. 7. To prevent break-ins and theft of valuables and information stored in special premises and for other purposes stated in the Technical Design Assignment, such premises shall be provided with strengthened enclosing structures and special doors and openings. If required by the Technical Design Assignment, access control systems shall be installed in IT, communications and other premises. 7. 9 To ensure confidentiality of negotiations, walls and doors of rooms and premises indicated in the Technical Design Assignment shall be soundproofed, double doors shall be provided. 7. 10 Structural design of building elements (including arrangement of hollow spaces, methods of sealing pipeline penetrations through structures, provision of ventilation openings and placement of heat insulation) shall ensure protection from rodent invasion. 7. 1 Buildings services shall be designed and installed taking into account safety requirements contained in relative regulations of state supervision authorities and instructions of equipment manufacturers. In addition to the above: - surface temperature of exposed parts of heating appliances and heating supply pipelines shall not exceed 70°? if no measures to prevent accidental burns have been taken or 90°? in other cases; surface temperature of other pipelines shall not exceed 40°?; - hot air temperature at the distance of 10cm from outlets of air heating appliances shall not exceed 70°?; - temperature of hot water in hot water supply system shall not exceed 60°?. 7. 2 In buildings being constructed in seismic activity regions, apparatus and devices that, if moved, can cause fires or explosions shall be securely fixed. 7. 13 Buildings with 9 or more storeys shall be

provided with facilities for fixing electrically driven travelling cradles for safe repairs and facade cleaning. 7. 14 Buildings with 9 or more storeys and flat roofs shall be provided with internal water drains with discharge into external rainwater drainage system or, if the latter is not available, onto ground surface. In this case measures shall be taken to prevent freezing of risers in winter. 7. 15 Premises of built-in saunas shall not be placed on basement floors or adjacent to premises where more than 100 persons can be present.

Built-in saunas shall be designed taking into account the following requirements: 1. Volume of steam rooms shall be between 8 m³ and 24 m³, capacity shall not exceed 10 persons. 2. In buildings with fire-resistance ratings I, II, III, sauna premises shall be separated by Type 1 partitions and Type 2 floor structures, in buildings with fire-resistance rating IV, by fire-rated partitions and floor structures fire-resistance limit REI 60 or better. 3. Sauna block shall be provided with isolated escape exit leading outside; exits shall not lead directly into entrance halls, other halls or staircases designed for evacuation of people from the building. 4.

Power rating of electric sauna heater shall be suitable for the steam room volume (as per instructions of heater manufacturer) and therefore shall not exceed 15kW. Electric heater shall switch off automatically after 8 hours of continuous operation. 5. Height of steam room shall not be greater than 1.9m. 6. Distance between electric heater and wall boarding of steam room shall be at least 20cm. 7. Non-combustible heat insulation panel shall be provided directly above the electric heater. Distance between the heat

insulation panel and ceiling boarding shall be at least 5cm. 8. Temperature inside the steam room shall be automatically maintained at a level not greater than 110°. 9.

The steam room shall be provided with natural supply and exhaust ventilation. 10. Steam room boarding shall not be made of resinous wood. 11. Around steam room perimeter, drencher devices shall be installed with controls located next to the steam room entrance. 12. Power supply cables shall have heat resistance protective cover designed for the maximum permissible temperature in the steam room. 13. Electric heater control panel shall be installed in a dry room in front of the steam room. 14. A gap between steam room door and floor shall be at least 30 mm. 15. Sauna changing rooms shall be provided with smoke alarms. 8 Compliance with sanitary and epidemiological requirements 8. Building design and construction shall include measures established by this document and ensuring compliance with sanitary and epidemiological requirements to public health and environmental protection. 8. 2 Levels of natural and artificial illumination in building premises shall be in accordance with the requirements of MSN 2. 04-05. Provision of natural lighting is not mandatory for: premises of basement floors (see Appendix D), conference rooms and lobbies, sports and recreational premises, massage cabinets, dry and steam sauna rooms, car park premises and buffets. Clerestory lighting only can be provided in premises that are allowed to be designed without natural lighting and changing rooms of health centres.

In permanently manned premises or premises that shall be protected from sun rays or overheating for process of hygiene reasons, light-transmitting openings with orientation within the range of 130-315° shall be provided with sun protection if buildings are to be constructed in areas with average monthly temperature in July of 21° and greater.

8. 3 Design of HVAC systems shall be in accordance with the current codes and standards.

8. 4 Microclimate parameters inside premises shall be assumed in accordance with GOST 30494. For winter, optimum parameters shall be assumed as design parameters, for summer, permissible parameters can be assumed as design parameters.

8. 5 For some production and technical premises (workshops, laboratories, stores, printing rooms, etc.) permissible parameters shall be assumed as design microclimate parameters taking into account the requirements of current codes and standards.

8. 6 Volumes of outside air supply shall be in accordance with Table 8. .

Premises	Volume of supplied outside air (at least)	during working hours(in operating mode)	outside working hours(in standby mode)
Work offices of employees	20 m ³ /hr-person (4 m ³ /hr-m ²)	0. 2 air changes per hour	Offices 3 m ³ /hr-m ² 0. 2 air changes per hour Conference rooms
Meeting rooms	20 m ³ /hr per person	0. 2 air changes per hour	Smoking rooms 10 air changes per hour 0. 5 air changes per hour Toilets 25 and 1hr per one cabin (10 air changes per hour) 0. 5 hr Shower rooms 20 m ³ /hr per shower head 0. 2 air changes per hour Washing rooms 20 m ³ /hr 0. 2 air changes per hour Store rooms, archives 0. air changes per hour 0. 5 air changes per hour Building maintenance premises: without emissions of noxious substances; containing noxious substances 3 air changes/hrin

accordance with noxious substance assimilation calculations| 0. 2 air changes per hour| 0. 5 air changes per hour| Notes: 1. Permissible values are given in brackets. 2. In work premises and offices without natural ventilation, air supply rate shall be 60 m³/hr per person. | 8. 7 Individual exhaust ventilation systems shall be provided for: - lavatories and smoking rooms; - work premises, offices, etc. ; - premises of public catering enterprises; - protection, technical and storage premises. 8. Air removal from work premises with area less than 35 m² can be by air flow into a corridor. 8. 9 If requested by the client, Class 3 air conditioning systems can be provided in archives with valuable documents and depositories. 8. 10 Air recirculation inside permanently manned premises is allowed outside working hours only. 8. 11 Premises of 1-3 storey high buildings with design number of employees less than 300 persons can be provided with natural exhaust ventilation systems. 8. 12 Premises that are not equipped with forced supply ventilation systems shall be provided with openable air vents or outside air supply valves placed at a height above the floor level of 2m minimum. 8. 3 Common ventilation systems can be provided for all premises, with the exception of conference rooms, premises of public catering enterprises, projection rooms and battery rooms which shall be provided with individual supply ventilation systems. 8. 14 In mockup construction workshops and other premises with possible dust and aerosol emissions, volume of air to be removed via an exhaust cabinet shall be determined depending on air flow speed in the cabinet design opening in accordance with Table 8. 2. Table 8. 2 Maximum permitted concentrations of noxious substances in the work zone, mg/m³|

Air flow speed in cabinet design opening, m/s| Greater than 10| 0. 5| From 10 to 0. 1| 0. 7| Less than 0. 1| 1|

Note: If work is associated with emissions of dust and aerosols containing Hazard Class 1, 2 and 3 substances, air flow speed in the cabinet design opening shall be assumed as equal to 1. 2-1. 5 m/s, that for explosive substances, as equal to 1 m/s. | 8. 15 Supply air shall be fed directly into the premises with emissions of noxious substances in a volume equal to 90% of air removed by exhaust systems, the remaining amount of air (10%) shall be fed into a corridor or hall. 8. 16 If a refuse chute is provided, it shall be equipped with devices for periodical washing, cleaning, disinfection and sprinkling. Refuse chute shall be airtight and soundproofed and shall not be located adjacent to permanently manned service premises. Refuse collection chamber shall not be located under or adjacent to permanently manned premises.

In management institutions, scientific research institutes and research and development organisations with staff amounting to 800 persons or more, as well as in buildings of institutions with high level sanitary and hygiene requirements, a centralised or combined vacuum dust removal system shall be provided. Requirement for centralised or combined vacuum dust removal systems in other buildings shall be established in the Technical Design Assignment. In design of a combined vacuum dust removal system, service area for one receiving valve shall be assumed as equal to 50m maximum. If centralised or combined vacuum dust removal is not provided, a chamber for cleaning vacuum cleaner filters shall be designed in accordance with the

Technical Design Assignment. 8. 17 Lift shafts and machine rooms and other premises containing noisy equipment shall not be placed adjacent to permanently manned work premises and offices. 8. 18 If personal computers are used in work premises, the requirements of current codes and standards shall be taken into account. 8. 19 Materials and finished products used in construction and subject to hygiene assessment in accordance with approved lists of products and goods, shall have hygiene assessment conclusions issued by bodies and institutions of the State Sanitary and Epidemiological Service. 9 Energy conservation 9. Buildings shall be designed and built in such a way as to ensure efficient use of non-renewable energy resources during operation while meeting the established requirements to microclimate in premises. 9. 2 Heat insulation properties of building structures shall be determined in accordance with current codes and standards on the basis of standard factored heat transfer resistance of enclosing structures (it is also allowed to use standard specific heat consumption for building heating and ventilation for the whole heating period). This document stipulates mandatory minimum requirements to heat insulation of buildings. More stringent requirements established by the client can be applied in the design of buildings to ensure more economical use of energy resources. . 3 Ambient air design parameters shall be assumed in accordance with MSN 2. 04-01 and other current codes and standards. Design temperature of indoor air for calculation of heat engineering characteristics and design of enclosing structures shall be assumed as equal to 18 °?. 9. 4 Area of light-transmitting surfaces of enclosing structures shall not exceed 20 % of the total wall area. Area of light-transmitting enclosing

structures can be increased up to 30 % if factored heat transfer resistance of such structures exceeds $0.56 \text{ m}^2 \cdot \text{°C}/\text{W}$. 9. 5 Building services shall be provided with means for automatic and manual control of air temperature.

In case of centralised supply of cold and hot water, electric power, gas and heat when a building houses several groups of premises belonging to different organisations or owners, each group of premises shall be provided with individual electricity and water meters. 9. 6 Each building shall be provided with heat engineering passport containing heat insulation characteristics of structures and power consumption data of the building and its' equipment. 9. 7 Heat insulation performance and energy efficiency of structures and elements of building services shall be preliminary confirmed by tests. 9. 8 Normally, heat shall be supplied to buildings from a central heat supply station with mandatory installation of a heat meter. 9. 9 Normally, heat for heating, ventilation and hot water supply purposes shall be supplied from the heat supply station via separate pipelines. 9. 0 Heat supply for buildings or individual groups of premises can be provided from centralised, stand-alone or individual heat sources in accordance with the current codes and standards. In case of multi-storey buildings, gas fired heat generators shall have enclosed burners and adjustable gas burner devices. 9. 11 Building heating systems shall be fitted with devices that allow to reduce heat flow outside working hours. 9. 12 Hot air and air curtains for the main building entrances shall be provided if design ambient air temperature of the coldest five day period is minus 15 °C (design parameters B) or lower and the number of personnel working in the building exceeds 200. 10 Durability and maintainability 10. Buildings that have been designed and

built in accordance with current construction norms shall retain their strength and stability of load-bearing structures for the period stated in the Technical Design Assignment, subject to systematic maintenance and compliance with operation procedures and repair schedule established by operation instructions indicated in Item 4. 17 of this document. 10. 2 In design of building refurbishment, factors that reduce durability shall be taken into account, these are: unexpected impacts associated with changes in operating and environmental conditions and, as a result, changes in physical and mechanical (or chemical) properties of materials of load-bearing and enclosing structures. 10. 3 Main non-repairable building elements that determine strength, stability and service life of the building shall retain their properties within allowable limits taking into account the requirements of GOST 27751 and construction norms for structures made of respective materials. 10. Elements, parts and equipment with service life shorter than service life of the building shall be replaceable in accordance with intervals between repairs indicated in operation instructions taking into account the requirements of the Technical Design Assignment. Decision regarding use of more or less durable elements, materials or equipment due to respective extension or reduction of intervals between repairs shall be based on technical and economic calculations. 10. 5 Structures and elements shall be made of materials that are resistant to moisture, very high and low temperatures, corrosive environments and other adverse impacts and protected in accordance with the current codes and standards.

If necessary, measures shall be taken to prevent ingress of rain, melt and ground water inside load-bearing and enclosing structures and moisture

condensation in external enclosing structures by proper water-proofing of structures or provision of ventilation in closed and air spaces. The required protective formulations and coatings shall be applied in accordance with the requirements of current codes and standards. 10. 6 Joints of pre-assembled elements and multi-layer structures shall be designed to withstand temperature deformations and forces generated by uneven settlement of soil bases and under other impacts during operation. Sealing and weatherproofing materials used in joints shall retain their elastic and adhesive properties when exposed to sub-zero temperatures, wetting and ultraviolet rays.

Weatherproofing materials shall be compatible with materials of protective and decorative facings of structures in joint locations. 10. 7 Equipment, valves and devices of building services, as well as their connections shall be provided with access for inspection, maintenance, repairs and replacement as necessary. Equipment and pipelines sensitive to low temperatures shall be provided with appropriated protection. 10. 8 In case of construction of buildings in areas with complex geology conditions, in seismically active areas, in areas with soil undermining, subsidence and other soil deformations, including frost heaving, entries of utility lines into buildings shall be made taking into account the necessary compensation of possible soil base movements.

Equipment and pipelines shall be fixed to building structures in such a way as to ensure that their operability is not impaired in case of possible movements of structures. Appendix ? (Mandatory) References MSN 1. 01-01-

96| System of interstate codes and standards on construction. | MSN 2. 02-01-97| Fire safety of buildings and structures. | MSN 2. 02-05-2000| Car parks. | MSN 2. 04-01-98| Construction climatology. | MSN 2. 04-05-95| Natural and artificial lighting. | GOST 12. 1. 033-81| Occupational Safety Standards System. Fire safety. Terms and definitions| GOST 16363-98| Wood-protecting preparations. Method for determination of fire-proofing properties. GOST 25772-83| Steel guardrails of stairways, balconies, and roofs. | GOST 30494-96| Reliability of construction structures and bases. Basic provisions on calculations. | GOST 27751-88| Residential and public buildings. Indoor environmental conditions. | Note: In the case of abolition of codes and standards referenced herein, the documents effected to replace the abolished documents shall be used. | Appendix B (Mandatory) Terms and definitions Atrium is a large several stories high space located within a building, with galleries on each floor where door and light openings of different purpose premises adjoining the galleries are leading into. Lift hall is a hall in front of a lift entry.

Loggia is a feature that, horizontally, has enclosing structures on three sides and is open to the air on one side, with depth restricted by natural illumination requirements of the adjoining internal premises of the building. Attic window is a window that protrudes from a sloping roof surface. Lobby is space between doors providing protection from ingress of cold air, smoke and smells at entrances to buildings, staircases or premises. Loft is a space between roof (external wall) structures and the ceiling structure of the top storey. Attic floor (attic) is a floor of loft space with facade fully or partially

formed by slanted or gambrel roof surface(s), with with line of crossing of roof and facade plane not higher than 1.5 m from the attic floor level.

Above-ground floor is a storey with a floor level not lower than the ground reference level. Basement floor a storey with a floor level lower than the ground reference level by more than half the height of the premises.

Mechanical floor is a storey that is dedicated to service equipment and utilities. Can be located in the lower part (basement mechanical floor), upper part (loft mechanical floor) or middle part of a building. Semi-basement floor

is a storey with a floor level lower than the ground reference level by half the height of the room maximum. Appendix C (Mandatory) Rules for calculating

the total area of buildings, area of premises, total structural volume, footprint area and number of building floors during design Total area of the

building shall be determined as a sum of floor areas measured within the limits of internal finished surfaces of external walls at the floor level (not

taking into account skirting boards) plus area of mezzanines, passages leading to other buildings, loggias, terraces, galleries and balconies. Area of

spaces that are several stories high (atria), internal staircases, lift and other shafts shall be included in the total area within the limits of one floor only.

Area of attic floor shall be measured within the boundaries of external wall internal surfaces and attic walls adjacent to loft spaces. Areas of

underground spaces (including basement mechanical floor) having a height to bottom of structures less than 1.8 m and underground spaces designed

for building ventilation, unused lofts, loft mechanical floor with height from floor level to bottom of protruding structures less than 1. m, lockable lobbies

of staircases, porticoes, porches, external open ramps and stairs and

intermediate landings of internal stairs shall not be included in the total area.

2 Areas of building premises shall be determined on the basis of their dimensions measured between finished wall and partition surfaces at the floor level (skirting boards shall not be taken into account). Area of attic floor premises shall be calculated with application of reduction factor of 0.7 within the sloping ceiling (wall) area up to 1.5m when the slope is 30°, up to 1.1m when the slope is 45° and up to 0.5m when the slope is 60° or greater. 3 The total structural volume of buildings shall be determined as a sum of structural volume above the level of ± 0.00 (above-ground part) and below this level (underground part).

The total structural volume of building above-ground and underground part shall be determined within bounding surfaces, enclosing structures, skylights, domes, etc. starting from the clear floor level of each part of the building, whereas protruding architectural and structural elements, basement channels, porticoes, terraces, balconies, driveways and spaces under buildings installed on supports (clear spaces) and basements under buildings shall not be taken into account. 4 Building footprint area shall be determined as area of horizontal section along building external contour at plinth wall level, including protruding elements. Footprint area of buildings installed on posts and driveways under buildings shall be included. During determination of a number of building storeys, all above-ground storeys shall be counted, including mechanical and attic floors, as well as semi-basement floor with top of ceiling structure higher than the grade level by at least 2m. Basement under the building, regardless of its' height, shall not be included in the number of above-ground storeys. If the number of storeys in different

part of the building is not equal or if the building is built on a site with a slope that results in increase of the number of storeys, the number of storeys shall be determined for each part of the building separately. If the number of storeys is being determined to calculate the required number of lifts or floor area within a fire compartment in accordance with Table 6. 4, mechanical floor located above the top floor shall not be taken into account. Appendix D (Mandatory)