URBAN DEVELOPMENT.
URBAN AND RURAL PLANNING AND DEVELOPMENT

SNiP 2.07.01-89*

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SNiP 2.07.01-89* is the reissue of SNiP 2.07.01-89, with amendments and addenda approved by the statement of the Gosstroy of the USSR dtd July 13, 1990 #61, the order of the Ministry of Architecture, Construction, Housing and Utility Services of the Russian Federation dtd December 23, 1992 #269, the statement of the Gosstroy of Russia dtd August 25, 1993 # 18-32.

State Construction Committee of the USSR (Gosstroy of the USSR)	Construction Code and Regulations	SNiP 2.07.01-89*
	Town-planning. Urban and rural settlements planning and development.	Instead of SNiP II-60-75

These standards and rules are applicable to designing new and reconstructing the existing urban and rural settlements and include the core requirements to their planning and development. These requirements should be specified in regional (territorial) statutory documents*.

Urban-type villages (urban, workers' settlements, resorts) should be designed according to the standards established for small towns with similar estimated population.

Settlements at enterprises and objects outside towns which have no status of urban-type villages should be designed according to the internal departmental statutory documents, and in the case of their absence – according to standards established for rural settlements with similar estimated population.

N o t e . While designing urban and rural settlements, civil defense measures should be included in compliance with the requirements of the special statutory documents.

Introduced by the State Architectural Committee	Approved with the statement of the State Construction Committee of the USSR dtd May 16, 1989 #78	Came to force from January 1, 1990

1. DEVELOPMENT CONCEPT AND OVERALL ORGANISATION OF THE TERRITORY OF URBAN AND RURAL SETTLEMENTS

1.1*. Urban and rural settlements should be designed on the basis of town-planning forecasts and programmes, general settlement, environmental management and territorial allocation of productive resources schemes of the Russian Federation; settlement, environmental management and territorial allocation of productive resources schemes of major geographic regions and national state entities; regional planning schemes and projects of administrative territorial entities; territorial comprehensive environmental protection and management schemes for zones of intensive economic development and unique natural importance that include measures of prevention and protection from hazardous natural and technical processes.

While planning and developing urban and rural settlements, it is necessary to be guided with the laws of the Russian Federation, decrees of the President of the Russian Federation, statements of the Government of the Russian Federation.

1.2*. Urban and rural settlements should be designed as elements of the settlement system of the Russian Federation and its republics, lands, regions, districts, administrative districts and rural administrative territorial entities, as well as inter-regional, inter-district and inter-farm settlement systems. While doing so, one should take into account the formation of social, production, engineering, transportation and other infrastructures common for the settlement system, as well as the prospective labour, cultural, utility and recreational links within the influence zone of the central settlement of the sub-centre of the settlement system.

The sizes of the influence zones should be adopted as follows: for towns being centres of administrative territorial entities – on the basis of data provided in the settlement schemes, regional planning schemes and projects, with regard to the existing administrative borders of republics, lands, regions, administrative districts; for rural settlements being centres of administrative districts and rural administrative territorial entities – within the borders of the administrative districts and administrative territorial entities.

1.3*. Urban and rural settlements planning and development projects should provide for the rational sequence of their development. It is necessary to define the development prospects of the settlement

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outside the rated period, including the principle decisions on territorial development, functional zoning, the planning structure, the engineering and transport infrastructure, the rational use of natural resources and environmental protection.

As a rule, the rated period should be up to 20 years, and the town-planning prognosis can cover the period of 30-40 years.

1.4. Urban and rural settlements, depending on their projected size of the population over the rated period, are divided into groups in accordance with Figure 1.

Figure 1

Groups of settlements	Population, '000 people	
	Urban	Rural
First-scale	Over 1000	-
Large-scale	« 500 до 1000	Over 5
	« 250 « 500	«3 до 5
Big	« 100 « 250	«1 « 3
Medium	« 50 « 100	« 0,2 « 1
Small[1]	« 20 « 50	« 0,05 « 0,2
	« 10 « 20	Up to.0,05
	Up to 10	

[1] Urban-type villages are included into the group of small towns.

1.5. The size of the population for the rated period should be defined on the basis of the data on the prospective development of the settlement with regard to the demographic forecast of the natural and mechanical growth of the population and commutation.

The prospects of development of a rural settlement must be defined on the basis of development plans for collective and Soviet farms and other enterprises with regard to their product specialization, draft land development schemes, draft regional planning schemes in linkage to the formation of the agricultural complex, and also with regard to the placement of auxiliary facilities of enterprises, organizations and institutions. The calculation of the size of the population should be performed for the group of rural settlements included into the farming unit.

1.6*. The territory to develop urban and rural settlements should be selected with regard to the possibility of its rational functional use on the basis of comparing the options of architectural анв planning solutions; technical, economic, sanitary and hygienic indicators; fuel, power, water, territorial resources; environmental status; with regard to the forecast of changes in natural and other conditions. While doing so, it is necessary to take into account the maximum permissible environmental load based on the definition of the potential of the environment, the regime of rational use of territorial and natural resources aimed at providing for the most favourable conditions for the life of the population, non-admission of destruction of natural ecological systems and irreversible environmental changes.

1.7. With regard to the primary functional use, the territory of a town is classified as territory intended for building, industrial territory and landscape and recreational territory.

Territory intended for building is assigned for the placement of housing resources, public buildings and facilities, including research institutes and complexes of them, as well as individual utility and industrial objects that do not require sanitary protective zones; for arrangement of internal urban traffic routes, streets, squares, parks, gardens, boulevards and other public spaces.

Industrial territory is intended for the placement of industrial operations and related objects, complexes of scientific institutions and their experimental manufacturing facilities, utility objects and warehouses, external transport facilities, external and suburban traffic routes.

Landscape and recreational territory includes municipal woods, parks, wood protective zones, water bodies, agricultural lands and other lands which form the system of open spaces together with parks, gardens, alleys and boulevards located within the territory intended for building.

The following varied functional zones are specified within the mentioned territories: residential area, public centres, industrial, scientific, research and manufactural, utility and warehouse, external

transport, mass recreational, resort (in towns and villages that have remedial resources available), protected landscape zones.

The organisation of the territory of a rural settlement should be designed in linkage with the overall functional organisation of the territory of the farming unit with, as a rule, the territory intended for building and the industrial territory dedicated.

In historic towns the zones (districts) of historic construction should be specified.

N o t e s : 1. In case sanitary, hygiene and other requirements to joint placement of objects with assorted functions are met, it is allowable to create multifunctional zones.

2. In regions subject to hazardous natural phenomena (earthquakes, tsunami, mudslides, floods, landslides, rockslides), the territory of settlements should be zoned so that to decrease the risk and to provide for stable functioning. Zones with the greatest degree of risk should contain parks, gardens, open-air sports grounds and other elements free of buildings.

Functional zoning in seismic regions should be done on the basis of micro-zoning in terms of seismic conditions. While doing so, construction should be performed on the land lots with lower seismic activity, in compliance with the requirements of SN 429-71.

3. In regions with complex engineering and geological conditions construction should be performed on land lots that require less expenses on land development, construction and exploitation of buildings and facilities.

1.8*. The planning structure of urban and rural settlements should be formed to provide for the compact placement and interaction between the functional zones; for the rational zoning of the territory in linkage with the system of public centres, utility and transport infrastructure; for the efficient use of the territory depending on its urban development value; for the comprehensive consideration of the architectural and town-planning traditions, natural, climatic, landscape, national and other local peculiarities; for the environmental protection, protection of the history and culture memorials.

N o t e s *: 1. In seismic regions it is necessary to provide for the split planning structure of towns and scattered placement of objects with the high concentration of the population, as well as of fire and explosion hazardous objects.

2. For historic towns, it is necessary to provide for the full-scale preservation of their historic planning structure and the architectural profile, to provide for the development and execution of programmes on comprehensive reconstruction of historic zones, restoration of history and culture memorials.

3. While planning and developing urban and rural settlements, it is necessary to provide for the conditions for full-value life of invalids and non-mobile groups of the population in compliance with the requirements of VSN 62-91, approved by the State Architectural Committee.

1.9. First-scale and large-scale cities should be provided with the complex usage of underground spaces to place urban transport facilities, retail, catering and utility facilities, individual show-business and sports structures, auxiliary rooms of administrative, public and residential buildings, engineering systems objects, production, utility and warehouse objects of various purpose in a coordinated manner.

1.10. On the territories adjacent to towns, provisions should be made for suburban zones to be used as reserves for further development of the towns and to place auxiliary objects, and within the suburban zones – green zones intended to arrange for recreation, to improve the microclimate, the state of the atmospheric air and the sanitary and hygiene conditions.

While defining the borders of a suburban zone, one should take into account the interrelated development of urban and rural settlements, the borders of administrative districts, agricultural and other entities. A common suburban zone should be provided for in case of towns included into a group-settlement system being formed.

1.11. The placement of auxiliary farming units of enterprises, organizations and institutions, as well as land lots for collective gardens and vegetable gardens, should be provided for within the territory of the suburban zone. Residential and civil construction objects of such rural entities should be, as a rule, placed on the territory of existing rural settlements.

Land lots of gardeners' partnerships should be placed with regard to the prospective development of urban and rural settlements outside the reserve territories assigned for individual residential construction, within the distance that could be covered with public transport from the place of residence within 1.5 hours, and in case of first-scale and large-scale cities – not more than 2 hours.

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2. TERRITORY INTENDED FOR BUILDING

2.1*. The planning structure of the territory intended for building within urban and rural settlements should be formed with regard to the mutually coordinated placement of the public centres zones, residential zones, street and road network, public green areas, as well as in linkage to the planning structure of the whole settlement, depending on its size and the natural peculiarities of the territory.

Preliminary estimation of the need for the territory intended for building should be based on the following grand indicators per 1,000 people: in towns with the average number of storeys up to 3 storeys – 10 ha for construction without adjacent land lots, and 20 ha for construction with land lots; with the average number of storeys from 4 to 8 – 8 ha; 9 storeys and more – 7 ha.

In regions located to the north of latitude 58° north and climatic sub-regions IA, IБ, IГ, IД и IIA it is allowable to reduce the mentioned parameters but by no more than 30%.

N o t e . The territory intended for building must be split into districts with the area of no more than 250 ha by means of roads or parkways at least 100 m wide.

2.2. The size of the territory intended for building should be defined proceeding from the need to provide each family with a separate flat or a house. Estimated housing provision is differentiated for towns on the whole and individual districts on the basis of the forecast data on the average size of a family, with regard to the types of residential buildings used, the planned volumes of residential construction, and the share of housing built at the expense of the population. The total area of flats should be calculated in compliance with the requirements of SNiP 2.08.01-89.

2.3*. Placement of individual houses should be provided for:

within the municipal boundaries – on free territories mostly, including the territories which had been considered as inadequate for construction, as well as on the territories under reconstruction (land lots with existing individually-built cottages with adjacent premises, in districts developed without adjacent premises provided in case the density of buildings is being increased, and with the purpose to preserve the character of the existing environment of the town);

within the suburban zones' territories – on the reserve territories included into the municipal boundaries; at new and developing settlements located within 30-40 minutes from the town by public transport.

Individual houses districts in towns should not be placed within the main directions of the prospective development of multi-storeyed construction.

Individual houses districts should be provided with landscaping, urban amenities and engineering equipping of the territory, as well as daily usage institutions and service operations.

PUBLIC CENTRES

2.4. A system of public centres should be formed in towns that includes a municipal centre, centres of planning districts (zones), residential and industrial districts, recreational zones, trading and utility centres of daily usage, as well as specialized centres (medical, educational, sports etc) which may be placed in the suburban zone.

N o t e . The number, structure and placement of public centres are decided upon with regard to the size of the town, its role in the settlement system and the functional organisation of the territory. In large-scale and first-scale cities, as well as in towns with the split structures, the municipal centre is, as a rule, supplemented with municipal sub-centres. In small towns and rural settlements, as a rule, a common public centre is formed supplemented with daily usage objects in residential areas.

2.5. In the municipal centre, depending on its size and the planning organisation, systems of interrelated public spaces (main streets, squares, pedestrian zones) making up the core of the municipal centre, should be formed.

In historic towns, it is allowable to fully or partially form the core of the municipal centre within the zone of historic construction, if the integrity of the historic environment is observed.

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RESIDENTIAL ZONE

2.6. As a rule, two core levels of structural organisation of the territory intended for building are identified:

neighbourhood unit (block) – a structural element of a residential zone whose area is, as a rule, from 10 to 60 ha, but no more than 80 ha, which is not split with any main streets and roads, within the limits of which daily usage institutions and operations with the service radius of no more than 500 m are located (except schools, pre-school establishments whose service radius is defined in compliance with Table 5 of this code; its borders, as a rule, are arterial and residential streets, drives, pedestrian ways and natural boundaries;

residential district – a structural element of the territory intended for building whose area is, as a rule, from 80 to 250 ha, within the limits of which institutions and operations with the service radius of no more than 1,500 m are located, as well as part of municipal objects; as a rule, its borders are formed with formidable natural or artificial boundaries, arterial streets and general municipal roads.

N o t e s : 1. A residential block is, as a rule, the object of a detailed planning project, whereas a neighbourhood unit (block) is the object of the development project. The design assignment should refer an object being designed to one of the levels of structural organisation of the territory intended for building.

2. In small towns and rural settlements with the compact planning structure, the whole territory intended for building can be developed as the residential district.

3. In the historic construction zone the elements of the structural organisation of the territory intended for building include blocks, groups of blocks, ensembles of streets and squares.

2.7. The number of stroreys in residential buildings is defined on the basis of the technical and economic calculations with regard to the architectural, compositional, social and utility, hygienic, demographic requirements, peculiarities of the engineering resources and the level of engineering equipment.

N o t e . Normally in towns with the seismic activity of 7-9 points, one or two-section residential buildings should be used with up to 4 storeys, and also single-floor buildings with adjacent land lots. Residential and public buildings should be placed in compliance with the requirements of SNiP II-7-81* and SN 429-71.

2.8. When reconstructing districts with the already formed capital residential zone prevailing, provisions should be made to normalize the planning structure and the streets network, to improve the public services system and provision of urban amenities, to as far as possible preserve the peculiar architectural profile of residential and public buildings, to modernize and repair them, to restore them and accommodate the history and culture memorials to modern usage.

The volumes of the housing resources to be preserved or pulled down should be defined within the established procedures with regard to their economic and historic value, the technical condition, the maximum preservation of the housing resources suitable to live in, and the existing historic environment.

In case of comprehensive reconstruction of fully developed districts, it is allowable to specify the standard requirements with a design assignment, if there is proper justification, upon agreement with the local architecture, state surveillance bodies and the sanitary inspection. While doing so it is necessary to provide for the reduction of fire risks of the developed district and for the improvement of the sanitary and hygienic conditions for the population.

2.9*. Drives to the territory of neighbourhood units and blocks, as well as passages in buildings, should be located with the distance of no more than 300 m from each other, and in districts under reconstruction with ribbon development – no more than 180 m. Adjunction of drives to primary streets with regulated traffic is allowable at the distance of at least 50 m from the stop-line at the junction. The distance to a public transport stop should be at least 20 m.

To provide for the opportunity of driving up to groups of residential buildings, big service enterprises, trading centres, it is necessary to plan for primary drives, and to individual buildings – secondary drives whose sizes should be in compliance with Table 8 of this code.

Neighbourhood units and blocks with 5-storeyed buildings and higher are normally served with two-lane drives, and those with buildings lower than 5 storeys – with one-lane drives.

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On one-lane drives, it is necessary to plan for passing pads 6 m wide and 15 m long with the maximum distance of 75 m between them. Within the dimensions of the facades of the buildings that have entrances, the width of the drives should be 5.5 m.

Dead-end drives should have the maximum length of 150 m and finish with turning pads providing for the opportunity for garbage trucks, public cleansing and fire fighting vehicles to turn.

Pavements and bicycle lanes should be raised 15 cm above the surface of the drives. The crossings of pavements and bicycle lanes with secondary drives, as well as the crossings of approaches to schools and kindergartens with primary drives, should be made on the same level, with a ramp arranged (1.5 m and 3 m long respectively).

N o t e *. In case of freestanding buildings with the maximum height of 9 storeys, as well as in case of objects visited by invalids, it is possible to arrange drives combined with pavements with the maximum length of 150 m and the total width of at least 4.2 m, and in case of areas with buildings having 2-3 storeys the width should be at least 3.5 m.

2.10*. The sizes of land lots adjacent to houses (flats) which are assigned to an individual house or an individual flat in towns should be defined within the procedures established by local authorities.

While defining the sizes of land lots adjacent to houses (flats), it is necessary to take into account the peculiarities of urban development situations in towns of different sizes, the types of residential buildings, the character of residential zone (environment) development, the conditions of its placement within the structure of the town, - in accordance with the recommendations of Annex 3.

2.11. The area of the green territory of a neighbourhood unit (block) should be at least 6 sq.m per capita (without taking the territories of schools and kindergartens into account).

In case of climatic sub-regions IA, IБ, IГ, IД and IIA, located to the north of latitude 58° north, the total area of the green territory of a neighbourhood unit (block) can be reduced, however it should not fall below 3 sq.m per capita, and in case of climatic sub-regions IA, IГ, IД, IIA to the south of latitude 58° north and sub-regions IB, IIБ and IIB to the north of latitude 58° north it should not fall below 5 sq.m per capita.

N o t e . The area of individual green territory lots of a neighbourhood unit includes recreational grounds, children's playgrounds, pedestrian lanes in case they do not occupy more than 30% of the total territory of the land lot.

2.12*. The distance between residential, residential and public, and residential and industrial buildings should be defined on the basis of solar exposure and illumination calculations in compliance with the solar exposure standards set out in Cl.9.19 of this code, with the illumination standards as set out in SNiP II-4-79, and also in compliance with the fire safety requirements set out in compulsory Annex 1.

The distance between the longer sides of residential buildings 2-3 storeys high should be at least 15 m, and that between residential buildings 4 storeys high – 20 m, the distance between the longer sides and the flankers of the buildings with windows of habitable rooms should be at least 10 m. The mentioned distances can be reduced with the solar exposure and illumination standards met, if the windows of habitable rooms (rooms and kitchens) are outside the visual range of other such windows.

N o t e s *: 1. In regions with individually-built cottages with adjacent land lots the distance from the windows of habitable rooms (rooms, kitchens and verandas) to the walls of a house or household outbuildings (shed, garage, sauna) located on the adjacent land lots should, as a rule, be at least 6 m according to sanitary norms, and the distance to a cattle or fowl shed – in accordance with Cl.2.19* of this code. Household outstandings should be located at least 1 m away from the border of the land lot.

2. It is allowable to have household outstandings on neighbouring land lots blocked upon mutual agreement of the proprietors and with regard to the requirements set out in compulsory Annex 1.

2.13. While designing residential zones, reservations should be made for a number of grounds, with the sizes and distance from them to residential or public buildings not falling below the figures given in Table 2:

T a b l e 2

Grounds	Size per capita, sq.m/person	Distance from grounds to windows of residential and public buildings, m

Grounds	Size per capita, sq.m/person	Distance from grounds to windows of residential and public buildings, m
Playgrounds for pre-school and elementary school-aged children	0,7	12
Recreational grounds for adult population	0,1	10
Physical training grounds	2,0	10-40
Household grounds and dog-walking grounds	0,3	20 (household) 40 (dog-walking)
Automobile parking lots	0,8	As in Table 10

N o t e s : 1. The distance to the PT grounds is set dependent on their noise characteristics; the distance to the laundry-drying grounds is not standardized; the distance from garbage-collection grounds to PT grounds, children's playgrounds and adult recreational grounds should be at least 20 m, and from household grounds to the most distant entrance into the residential building – not more than 100 m.

2. It is allowable to reduce, though no more than by 50%, the sizes (per person) of the following grounds: children's playgrounds, adult recreational grounds and PT grounds in the climatic sub-regions IA, IБ, IГ, IД, IIA and IVA, IVГ, in the regions with dust storms in case indoors facilities are arranged, household grounds in case the residential buildings have 9 and more storeys; PT grounds in case the common physical training and health improvement complex is created for schoolchildren and adult population of the whole neighbourhood unit.

2.14. Residential buildings with flats on the ground floors should be located, as a rule, with a setback from the frontage lines. It is allowable to locate residential buildings with public premises built into the ground floors or built on to the building along the frontage line; and in residential streets in the conditions of the already developed area reconstruction - it is possible to locate residential buildings with flats on the ground floor along the frontage line as well.

In the individual cottage districts, residential houses can be placed along the frontage lines of residential streets according to the local traditions.

2.15. While designing residential zones in towns, the estimated density of the population on the territory of the residential district of a neighbourhood unit (persons per ha) should be taken in compliance with the regional (republican) standards, with regard to the recommended Annex 4.
The estimated density of the population in a neighbourhood unit should not, as a rule, exceed 450 persons per ha.

RESIDENTIAL ZONE OF A RURAL SETTLEMENT

2.16. The residential zone of a rural settlement should not be crossed by Category 1, 2 and 3 automobile roads, as well as by roads intended for agricultural machinery traffic or cattle driving.

2.17. In rural settlements, the major type of residential buildings should be of cottage type with one or two flats, it is allowable to build blocks of flats with land lots adjacent to flats, and with appropriate justification it is also possible to build lamillar houses up to four storeys high.

2.18*. In rural settlements the size of a land lot adjacent to a house (a flat) is defined in the design assignment according to the local conditions and with regard to the demographic structure of the population, dependent on the type of the building. The limitations for the sizes of individual development land lots and private plots are established by local authorities.

2.19*. Sheds for cattle and fowl should be located at the following distances from the windows of habitable rooms of a building: single or double sheds – at least 15 m, up to 8 blocks – at least 25 m, over 8 and up to 30 blocks – at least 50 m, over 30 blocks – at least 100 m. Groups of sheds located within the residential zones should have no more than 30 blocks each.

Inhabitants of lamillar houses receive household cattle sheds outside the territory of the residential zone; for lamillar houses, it is allowable to have built-in or free-standing collective underground storage facilities for agricultural products, the sizes of which are determined in the regional (territorial) construction standards, and in case there are no such standards – in the design assignment.

The area of blocked cattle sheds must not exceed 800 sq.m. The distances between groups of sheds should be taken from Table 1* of the compulsory Annex 1*.

N o t e s : 1. The sizes of household facilities located in rural settlements on land lots adjacent to flats in case of state, individual and cooperated construction should meet the requirements of SNiP 2.08.01-89.

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2. It is permissible to build a household shed (including that for cattle or fowl) onto a cottage-type or a blocked house with the requirements of SNiP 2.08.01-89 observed.

2.20. For the purposes of preliminary identification of the required residential zone of a rural settlement it is allowable to assume the following parameters per house (flat), ha, for the specific construction types:

cottage-type houses with land lots adjacent to the house (flat) having the area of (sq.m):

2000	0.25 – 0.27
1500	0.21 – 0.23
1200	0.17 – 0.20
1000	0.15 – 0.17
800	0.13 – 0.15
600	0.11 – 0.13
400	0.08 – 0.11

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lamillar houses without flat land lots with the number of storeys:

2	0.04
3	0.03
4	0.02

N o t e s : 1. The minimal figures are assumed for large-scale and big settlements, the maximal figures – for medium and small ones.

2. In case separated household drives are arranged for cattle driving, the area of the residential zone is increased by 10%.

3. When calculating the area of the residential zone, the following territories which are not suitable for construction are excluded: ravines, steep slopes, rocks, primary irrigation canals, mudflow flumes, land lots of institutions and service enterprises of inter-settlement importance.

2.21*. The density of the population in the residential zone of a rural settlement, persons per ha, is determined in the regional (territorial) construction standards, and in the absence of such standards it is assumed in compliance with the recommended Annex 5.

3. INDUSTRIAL TERRITORY

INDUSTRIAL ZONE (DISTRICT)

3.1. Industrial enterprises should, as a rule, be placed on the territory of industrial zones (districts) within a group of enterprises (industrial hubs) with common auxiliary objects and objects of infrastructure, and in rural settlements they should be placed within production zones.

3.2. When placing industrial zones (districts) it is necessary to provide for their rational linkage to the residential districts with minimum time spent on commuting.

The sizes and the intensity of using the territory of industrial zones (districts) should be assumed dependent on the conditions of their placement within the structure of the town and dependent on the urban development value of various parts of its territory, with reservations made for multi-storeyed buildings construction and the use of underground space.

3.3. The functional and planning organisation of industrial zones should, as a rule, be formed as panels and blocks of core and auxiliary production sites with respect to the industrial characteristics of the enterprises, the sanitary and hygienic requirements to their placement, cargo circulation and types of traffic, as well as the sequence of construction.

It is also necessary to form an integrated service system for the employees of the enterprises and the population of the residential districts adjacent to the industrial zone.

3.4. The territory occupied by the sites of industrial enterprises and other industrial objects, service institutions and enterprises, must be, as a rule, equal to at least 60% of the whole territory on the industrial zone (district).

N o t e s : 1. Occupancy of an industrial zone (district) territory is defined as percentage showing the relation of the sum of industrial enterprises and related objects sites within the limits of the fence (or, in case there is no fence – within the appropriate borders), as well as service institutions including the area occupied by railway stations, to the total territory of the industrial zone (district) as set out on the general layout of the town. Occupied territories must include reserve land lots in compliance with the design assignment to place buildings and facilities.

2. The standardized size of the site of an industrial enterprise is assumed as equal to the relation of its developed area to the standard development density index for industrial enterprise sites in compliance with SNiP II-89-80.

3.5*. Within the territory of urban and rural settlements which is intended for building, it is allowable to place industrial enterprises that emit no harmful substances, have fire-safe and explosion-safe production processes, create no noise exceeding the established standards, and do not require construction of access railways. In this case the distance from the borders of the industrial enterprise site to residential buildings, the sites of kindergartens, secondary schools, healthcare institutions and recreational facilities should be at least 50 m.

In case it is impossible to eliminate the harmful environmental impact of an enterprise located within the residential zone, provisions should be made for reducing the capacity, conversion of the enterprise or a specific production facility or for the relocating the enterprise outside the residential zone.

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3.6*. Sanitary protective zones should be provided in case after all the technical and technological measures taken to decontaminate the harmful emissions and to reduce the level of noise, the established limitations for harmful substances concentration and noise level within a residential zone are still not met.

The size of such zones should be set in compliance with the current sanitary standards for placement of industrial enterprises and the Methodology of calculating the concentration of harmful substances, contained in the emissions of industrial operations, in the atmospheric air approved by Goskomgidromet of the USSR, as well as with regard to the requirements of noise protection and other requirements set out in Section 9 of this code.

N o t e s *: 1. Health improvement, sanitary and hygienic, construction and other measures related to protecting the environment within the contaminated territory adjacent to an enterprise, including the arrangement of sanitary protective zones, are performed at the expense of the enterprise having harmful emissions.

2. Objects producing and storing explosive substances, materials and products based on them should have restricted (dangerous) zones and areas. The sizes of such zones and areas and the possibility of building within them are determined in special statutory documents approved within the established procedures, and upon agreement with the state surveillance bodies, ministries and departments in charge of the objects. It is not allowed to develop restricted (dangerous) zones with residential, public and production buildings. In case of special necessity construction of buildings, facilities and other objects on the territory of a restricted area can be permitted for each specific case within the procedures described in the Regulations on establishing restricted zones and areas at the arsenals, bases and warehouses, approved within the established procedures.

3.7. Industrial districts separated from the territory intended for building with a sanitary protective zone over 1,000 m wide should not include enterprises with sanitary protective zones below 100 m, especially food and light industry enterprises.

3.8. Within the sanitary protective zone, it is not allowed to place residential buildings, kindergartens, secondary schools, healthcare and recreational institutions, sports facilities, gardens, parks, horticultural partnerships and vegetable gardens.

3.9. The minimum green area of sanitary protective zones should be assumed depending on the width of the zone, %:

up to 300 m	60
over 300 to 1,000 m	50
over 1,000 to 3,000 m	40

On the side looking towards the territory intended for building, it is necessary to provide for a tree and shrubbery belt at least 50 m wide, and in the case of a zone less than 100 m – at least 20 m wide.

3.10. Establishment of disposal areas, sludge collectors, tailing dumps, waste and refuse dumps of enterprises is allowed only with a proper justification of the impossibility to utilize the waste; as a rule, centralized (group) disposal areas should be provided for industrial districts and hubs. Their sites should be located outside the territory of the enterprises and the 2nd belt of the sanitary protective zone of underground water sources, in compliance with the sanitary standards, as well as safety standards or rules approved or agreed upon with the Gosstroy of Russian.

Disposal areas containing coal, slate, arsenic, lead, mercury and other inflammable and toxic substances must be located at a distance, determined through calculation but no closer than the rated dangerous drift of the disposal area, from residential and public buildings and facilities.

SCIENTIFIC, RESEARCH AND MANUFACTURAL ZONE (DISTRICT)

3.11. Within the territory of the scientific, research and manufactural zone, the following should be placed: scientific institutions and scientific services, experimental manufacturing facilities and related higher and secondary educational establishments, service institutions and enterprises, as well as engineering and transport communications and facilities.

N o t e . The actual composition of the scientific, research and manufactural zone and the conditions for placing specific research institutes and experimental manufacturing facilities should be determined with regard to environmental factors.

3.12. The staff of a research and manufacturing zone located within the territory intended for building must not exceed 15,000 people.

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3.13. The maximum size of land lots of scientific institutions (per 1,000 sq.m of the total area) should be, ha:

natural and technical sciences institutions:	0.14 – 0.2
social sciences institutions	0.1 – 0.12

N o t e : 1. The above standard does not include test fields, test sites, reserve territories, sanitary protective zones.

2. Lesser values of the indices should be assumed for the first-scale and large-scale cities and in the conditions of reconstruction.

UTILITY AND WAREHOUSE ZONE (DISTRICT)

3.14. The territory of utility and warehouse zones (districts) should be used to place food (flavouring, meat and dairy) industry enterprises, general goods (food and non-food) enterprises, specialized warehouse facilities (refrigerators, potatoes, fruit and vegetable storage facilities), utility, transport and other enterprises providing daily services to the population.

The system of warehouse complexes which is not linked to direct daily services rendered to the population should be formed outside the first-scale and large-scale cities, placing them closer to the external, especially railroad, transportation junctions.

Outside the territory of towns and their green zones, in detached suburban warehouse districts and with sanitary, fire safety and specialized standards met, provisions should be made for scattered placement of warehouses for state reserves, petroleum and Group 1 petroleum products, petroleum and petroleum products terminal stations, liquefied gas storehouses, explosives storehouses and base storehouses for drastic toxic agents, base food products, fodder and industrial raw materials storehouses, transfer sites of the base timber and construction materials storehouses.

N o t e s : 1. In small towns and rural settlements, centralized warehouses servicing a group of settlements should be provided, such warehouses being placed mostly in local centres and in settlements adjacent to a railway station.

2. In regions with limited territorial resources and with valuable agricultural lands, it is allowed, in case there are depleted mine workings and underground spaces available that are suitable to locate objects, to perform construction of food products and industrial goods warehouses, storage facilities for valuable documentation, distributing refrigerators and other objects that require resistance to external factors and sustainability of work, in such spaces.

3.15*. The size of land lots of warehouses intended to service the settlements is assumed as 2 sq.m per capita in first-scale and large-scale cities with multi-storeyed warehouses constructed, and 2.5 sq.m per capita in other settlements.

In resort towns the sizes of utility and warehouse zones to service those receiving treatment and being on vacation should be assumed as 6 sq.m per each person receiving treatment or being on vacation, and in case greenhouse facilities are located within this zone – 8 sq.m.

In towns the total area of collective storehouses for agricultural products is defined as 4-5 sq.m per family. The number of families using the storage facilities is determined in the design assignment.

The dimensions of land lots, the area, the capacity of general products and specialized warehouses (vegetable, potatoes and fruit, fuels and construction materials) are allowed to be adopted in accordance with the recommended Annex 6.

N o t e . The sanitary protective zones for potatoes, vegetable and fruit storage facilities should be 50 m.

PRODUCTION ZONE OF A RURAL SETTLEMENT

3.16. When placing agricultural enterprises, buildings and facilities, the distances between them should be set as the minimum allowable ones proceeding from sanitary, veterinary and fire safety requirements and technological design standards. Development density for the agricultural enterprises sites must not go below the parameters stated in SNiP II-97-76.

3.17. Electricity transmission, communication lines and other local line structures should be placed at the borders of crop rotation fields along roads, woodland belts, existing tracks so that to provide for free access to the communications from the territory free from agricultural lands.

3.18*. The production zone must not, as a rule, be crossed by railroads or automobile roads of the common network.

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When placing agricultural enterprises and other objects it is necessary to make provisions for measures to exclude contamination of soil, surface and underground waters, surface water catchment areas, water reservoirs and atmospheric air, with regard to the requirements of Cl.3.6* and Section 9 of this code.

4. LANDSCAPE AND RECREATIONAL TERRITORY

LANDSCAPE ARCHITECTURE, GARDEN AND PARK CONSTRUCTION

4.1. Urban and rural settlements should normally be provided with a continued system of green territories and other open spaces. The relative share of green territories of various purposes within the developed area of the town (developed territory green ratio) must be at least 40%, and within the borders of a residential district it must be at least 25% (including the aggregated area of green territory within the neighbourhood).

N B : 1. In tundra, forest-tundra, desert and semidesert zones the territory green ration within the developed area must be established according to the regional standards.

2. In towns with enterprises that require sanitary protective zones over 1 km wide the developed territory green ratio should be increased by at least 15%.

4.2. The area of public green territories – parks, gardens, alleys, boulevards, - placed within the urban and rural settlements' territory intended for building should be adopted according to Table 3.

In first-scale and large-scale cities and in big towns the existing solid municipal woods should be converted into municipal recreational forests and referred additionally to public green territories mentioned in Table 3 proceeding from the ratio of max. 5 sq.m per capita.

T a b l e 3

Public green territories	Green territories area, m^2/person			
	first-scale, large-scale cities, big towns	medium towns	small towns	rural settlements
Municipal	10	7	8 (10)*	12
Residential districts	6	6	-	-

* The figures in the parentheses show the parameter for small towns with the population less than 20,000 people.

N o t e s : 1. In resort towns the above standards for municipal public green territories should be expanded, but by no more than 50%.

2. The area of public green territories in settlements can be reduced for tundra and forest-tundra down to 2 sq.m per capita; for semi-desert and desert – by 20-30%; increased by 10-20% for steppe and forest-steppe.

3. In medium, small towns and rural settlements surrounded by woodland, located on the banks of major rivers and water reservoirs, it is possible to reduce the area of public green territories though by no more than 20%.

4.3. At least 10% in the structure of green territories must be occupied by large parks and recreational forests 0.5 km and more wide.

Municipal parks access time must not exceed 20 min., urban districts parks access time must not exceed 15 min.

N o t e . In seismic regions it is necessary to provide for free access to parks, gardens and other public green territories without fences made on the side of residential districts.

4.4. The estimated number of visitors simultaneously being on the territory of parks, recreational forests, woods, green zones should be no more than (persons per ha):

municipal parks	100
recreational zones parks	70
resort parks	50
recreational forests (meadows, hydro-parks)	10
forests	1-3

N o t e s : 1. The above standards should be reduced by 20% in the deserts and semi-deserts zones.

2. With the number of simultaneous visitors being 10-50 persons per ha, it is necessary to provide for a path network to organize their movement, and for soil-protective planting in the openings; with the number of simultaneous visitors 50 persons per ha and above, provisions should be made to convert the forest landscape into the park one.

4.5. In first-scale, large-scale cities and big towns, alongside the municipal and district parks, it is necessary to provide for specialized parks (children's, sports, exhibitional, zoological etc), botanic gardens, whose sizes should be determined in the design assignment.

It is allowable to assume the approximate sizes of children's parks proceeding from the ratio of 0.5 sq.m per capita, including the grounds and sports facilities, the standards for whose calculation are given in the recommended Annex 7*.

4.6. Territories with the high degree of natural landscape preservation having esthetic and cognitive value should become the basis to form national and natural parks. Architectural and spatial organisation of national and natural parks should provide for the opportunity to use their territory for scientific, cultural, educational and recreational purposes, with the preserved, recreational preserved, recreational and household zones specified.

4.7. When placing parks and gardens, the areas with existing plants and water bodies should be preserved as far as possible.

The following minimum figures are assumed for the area of park, garden and alley territories (ha): municipal parks – 15, urban district parks – 10, gardens of residential districts – 3, alleys – 0.5; in the conditions of reconstruction the area of alleys can be less.

The area of green territories should be at least 70% of the total territory of parks and gardens.

Towns in the tundra and forest-tundra zones should mostly be provided with gardens and squares with the area of up to 1 – 1.5 ha, and winter gardens inside buildings.

4.8. In case of constructing parks in flood-lands, it is necessary to observe the requirements of Section 8 of this code and SNiP 2.06.15-85.

4.9. Boulevards and pedestrian alleys should go in the direction of mass pedestrian traffic. The location of the boulevard, its length and width, as well as its position on the cross profile of the street should be determined with regard to the architectural and planning organization of the street and its development. Grounds for short-time rest should be provided on boulevards and pedestrian alleys.

The following minimum figures should be assumed for the width of boulevards with one longitudinal pedestrian alley, depending on their location, m:

along the street axis 18

on one side of the street between the traffic-way and the buildings 10

4.10. Public green territories should be equipped with modern amenities and smaller architectural forms: fountains and pools, steps, ramps, retaining walls, pavilions, lamps etc. The number of lamps should be determined with regard to the territorial illumination standards.

4.11. The road network of landscape and recreational territories (roads, alleys, paths) should be laid with the minimum gradient possible with regard to the directions of major traffic of pedestrians and with regard to the shortest distances to the transport stops, playgrounds and sports grounds. The width of a path must be divisible by 0.75 m (the width of a traffic lane for one person).

The paving of grounds, roads and paths within the borders of landscape and recreational territories should be made of tiles, road metal and other strong mineral materials, with asphalt coating used in exceptional cases.

4.12. The distances from buildings, facilities and engineering objects to trees and shrubbery should be taken from Table 4.

Table 4

Building, facility, engineering object	Distance, m, from building, facility, object, to the axis of	
	tree trunk	shrubbery
Periphery wall of a building or a facility	5.0	1.5
Edge of tramway roadbed	5.0	3.0
Edge of a pavement or a garden path	0.7	0.5
Edge of the street trafficway, edge of strengthened flank or edge of a ditch	2.0	1.0

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Building, facility, engineering object	Distance, m, from building, facility, object, to the axis of	
	tree trunk	shrubbery
Lighting network or tramway mast or support, bridge footing and overpass	4.0	-
Slope, terrace etc foot	1.0	0.5
Foot or inner edge of a retaining wall	3.0	1.0
Underground networks:		
gas pipeline, sewerage	1.5	-
heating network (wall of a canal, a tunnel or the casing in case of channel-free laying)	2.0	1.0
water pipeline, drainage	2.0	-
power and communication cable	2.0	0.7

Notes: 1. The above standards are related to trees with the diameter of the crown not exceeding 5 m, and must be increased for trees with bigger crowns.

2. The distance from overhead transmission lines to the trees should be assumed with regard to the rules for setting electric facilities.

3. Trees planted next to buildings must not become obstacles to insolation and illumination of residential and public premises within the limits of requirements presented in Section 9 of this code.

4.13. Within the green zones of towns, provisions should be made for tree and shrub farms and floral hothouses so that groups of urban and rural settlements be provided with planting stock. The area of a farm should be at least 80 ha.

The area of such farms should be determined proceeding from the ratio of 3-5 sq.m per capita depending on the level of provision of public green territories to the population, the size of the sanitary protective zones, development of horticultural partnerships, peculiarities of climatic and other local conditions. The total area of floral hothouses should be determined proceeding from the ratio of 0.4 sq.m per capita.

RECREATIONAL AND RESORT ZONES

4.14. Mass short-time recreation zones should be located with regard to the accessibility of such zones within, normally, 1.5 hrs' access by public transport.

The territory of such zones should be determined proceeding from the ratio of 500-1,000 m per visitor, which includes the intensively used part for active leisure of at least 100 m per visitor. The area of the mass short-time recreation zone should be at least 50 ha, and in the desert and semi-desert zones – at least 30 ha.

Recreational zones should be located at least 500 m away from medical health-improvement and resort centres, youth camps, pre-school health-improvement establishments, horticultural partnerships, automobile roads of the general network and railroads, and at least 300 m away from holiday hotels.

4.15. The size of automobile parking lots located at the borders of recreational forests, recreational zones and resort zones should be determined according to the design assignment, and in case there is no such data – according to the recommended Annex 9.

4.16. A resort zone should be located on territories with natural therapy factors and with the most favourable micro-climatic, landscape, sanitary and hygienic conditions. Its territory should house medical prevention and treatment resort and health improvement centres, leisure and tourism establishments, service institutions and enterprises rendering services to patients and vacationers and forming public centres, including the general resort centre, resort parks and other public green territories, beaches.

4.17. The following should be provided for when designing resort zones:

medical prevention and treatment resort facilities for long-term recreation should be placed on territories with admissible levels of noise; children's medical prevention and health improvement facilities should be placed isolated from adults' facilities and separated with a green belt at least 100 m wide;

production, utility and warehouse objects, residential and public buildings which are not related to rendering services to patients and vacationers should be taken off the site;

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transport traffic should be limited, and transit transport traffic fully excluded.

Residential buildings for the personnel of resort and health improvement facilities should be placed outside the resort zone provided that commuting time to work does not exceed 30 mins.

4.18. Homogeneous and related medical prevention and treatment resort facilities and health improvement facilities placed within the resort zone should normally be grouped in complexes providing for the centralized medical, cultural, utility and administrative services and for the common architectural and spatial solution.

4.19. The following distances from the borders of land lots of new medical prevention and treatment resort facilities and health improvement facilities should be observed, m, minimum:

to residential buildings, utility institutions and warehouses (in the conditions of reconstruction – at least 100 m)	500
to automobile roads depending on the category:	
I, II, III	500
IV	200
to horticultural partnerships	300

4.20*. The size of the public territories of resort zones should be established proceeding from the following ratios, sq.m., per bed at medical prevention and treatment facilities and health improvement facilities: general resort centres – 10, green territories – 100.

N o t e *. It is allowable to reduce the size of public green territories by no more than 50% at the resort zones of traditional seaside and mountain resorts.

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4.21. The size of beach territories located within resort zones and recreational zones should be as follows, sq.m. per visitor, minimum:

seaside	5
river and lake	8
seaside, river and lake (for children)	4

The sizes of river and lake beaches placed on lands suitable for agricultural use should be based on the ratio of 5 sq.m. per visitor.

The size of the territory of specialized healing beaches for patients with physical limitations should be established proceeding from the ratio of 8-12 sq.m. per visitor.

The minimal waterside spread per beach visitor should be as follows, m: seaside beaches – 0.2, river and lake beaches – 0.25.

The number of visitors simultaneously attending a beach should be calculated with regard to the coefficients for one-time beach capacity:

medical prevention and treatment centres	0.6 – 0.8
leisure and tourism facilities	0.7 – 0.9
youth camps	0.5 – 1.0
public	
for local population	0.2
non-official holiday-makers	0.5

5. SERVICE INSTITUTIONS AND ENTERPRISES

5.1. Service institutions and operations should be placed within the territory of urban and rural settlements thus bringing them closer to the places of residence and work, normally providing for the formation of public centres in linkage to the public transport network.

When doing calculations for service institutions and enterprises, social standards designed within established procedures should be adhered to. It is allowable to admit the number of service institutions and enterprises and the sizes of their land lots in accordance with the recommended Annex 7* for approximate calculations.

N o t e . Location, capacity and sizes of land lots for service institutions and enterprises that are not mentioned in this section and in the recommended Annex 7* should be taken from the design assignment.

5.2. When defining the number, the specific list and the capacity of service institutions and enterprises in the centres of settlement systems, additional provisions should be made for the population arriving from other urban and rural settlements located within the zone, limited with access time of no more than 2 hrs to a big central town or a first-scale or a large-scale central city, no more than 1 hr to medium and small towns; in historic towns it is also necessary to include tourists.

5.3. Service institutions and enterprises located in rural settlements should be placed so that to provide the inhabitants of each settlement with essential services within access range of no more than 30 mins on foot. Provision with higher service level objects should be planned for a group of rural settlements.

Besides fixed buildings, mobile means and facilities for seasonal usage should be provided for, with appropriate grounds allocated.

5.4*. As a rule, the service range of institutions and enterprises located in the residential zone should be no more than as described in Table 5*.

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Table 5*

Service institutions and enterprises	Service range, m
Preschool facilities[1*]:	
in towns	300
in rural settlements and in small towns with one- or two-storeyed buildings	500
Secondary schools[1]	750 (500 for elementary school)
Premises for physical and health improvement exercises	500
Sports centres of residential districts	1500
Out-patient clinics and their branches in towns [2]	1000
Baby dairy products distribution centres	500
As above, with one- or two-storeyed buildings	800
Chemist's stores in towns	500
As above, with one- or two-storeyed buildings	800
Local shops, catering and utility companies:	
in towns with the following types of buildings:	
multi-storeyed	500
one- or two-storeyed	800
in rural settlements	2000
Post offices and Sberbank offices	500

[1]* This service range is not applicable to specialized and health-improvement children's pre-school facilities, as well as to specialised kindergartens of common type and secondary schools (language, mathematical, sports etc). In rural areas it is allowable to admit service ranges for secondary schools as established in regional (territorial) construction standards, and in their absence – as set out in the design assignment.

[2] Accessibility of out-patient clinics, ambulance stations, medical attendant's and obstetrical stations and chemist's stores in rural areas is defined as 30 mins (with transport involved).

Notes: 1. In climatic sub-regions IA, IБ, IГ, IД and IIA, as well as in desert and semi-desert zones, in the conditions of complicated relief – the service ranges set out in the table should be reduced by 30%.

2. Routes for access of schoolchildren to secondary schools with elementary classes must not have one-level crossings with traffic-ways of main streets.

5.5*. The minimum distances from service institutions and enterprises buildings and their site borders should be established as set out in Table 6*.

Table 6*

Service institutions and enterprises' buildings (sites)	Distance from service institutions and enterprises' buildings (*site borders), m			
	to frontage line		to the walls of residential buildings	to buildings of secondary schools, preschool facilities and children's healthcare institutions
	in towns	in rural settlements		
Children's preschool facilities and secondary schools (walls of buildings)	25	10	По нормам инсоляции и освещенности	
Secondary materials collection stations	-	-	20*	50
Fire stations	10	10	-	-
Traditional cemeteries and crematoria	6	6	300	300
Cemeteries for burial after cremation	6	6	100	100

* With entrances and windows.

Notes*: 1. The sites of preschool facilities and new hospitals must not be directly adjacent to primary streets.

2. After a traditional cemetery is closed when 25 years have passed after the last burial, the distance to residential buildings can be reduced to 100 m.

In rural settlements and already formed districts of towns subject to reconstruction, the distance from a cemetery to the walls of residential buildings, the buildings of children's and healthcare institutions can be reduced, upon agreement with local sanitary surveillance authorities, but the minimum must not fall below 100m.

3. Secondary materials collection stations should be isolated with woodland belts, with automobile access ways provided for.

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4. On the site of a hospital, separate drives into the household zones, and into the zones of the following departments should be provided for: treatment department buildings for infectious and non-infectious patients (separately) and the pathologoanatomic department building.

6. TRANSPORT AND STREETS NETWORK

6.1. While designing urban and rural settlements, provisions should be made for a unified transport and streets network linked to the planning structure of the settlement and the adjacent territory that would provide for convenient, rapid and safe transport links to all the functional zones, other settlements of the system, objects located in the suburban zone, external transport objects and general network automobile roads.

6.2. The maximum time spent on the way from the place of residence to the place of work by 90% of the working population (one-way) must not exceed the following figures (minutes, *right-hand column*) depending on the population of the town (‘000 people, *left-hand column*):

2,000	45
1,000	40
500	37
250	35
100 and below	30

The above time expenditure standards can be extended but no more than twice for people commuting to the central town from other settlements on a daily basis.

For inhabitants of rural settlements, time spent on labour movement (on foot or by transport) within the limits of an agricultural enterprise, as a rule, must not exceed 30 minutes.

N o t e s : 1. The maximum time expenditure standards for towns with the population above 2 million people must be determined with proper justification with regard to the actual settlement structure, location of labour sites and the level of transport systems development.

2. The above time expenditure standards should be interpolated for intermediary values of estimated urban population.

6.3. The carrying capacity of streets, roads and transport junctions network, the number of automobile storage facilities should be determined proceeding from the automobilisation level over the rated period, automobiles per 1,000 people: 200-250 passenger cars, including 3-4 taxis and 2-3 office cars, 25-40 lorries depending on the composition of the fleet. The number of motorcycles and motor bikes per 1,000 people should be assumed as 50-100 units for towns with the population over 100,000 people and 100-150 units for other settlements.

The number of cars arriving at a center-town from other settlements of the settlement system and transit cars is determined by means of a special calculation.

It is allowable to reduce or increase the mentioned automobilisation level depending on the local conditions, but by no more than 20%.

EXTERNAL TRANSPORT

6.4. Passenger terminals (railroad, automobile, water and air transport) should be placed so that to provide for transport links to the centre of the town, between terminals, to residential and industrial districts. It is allowable to provide combined terminals for two and more types of transport.

Cities served with airports having passenger traffic of at least 2 mln people a year should be equipped with a municipal airline terminal, other settlements – with air communication agencies or air-passenger departure and arrival stations.

6.5. New sorting yards of the general railroad network should be placed outside the borders of towns; technical passenger stations, reserve rolling stock yards, cargo stations and container grounds for railroad and automobile transport should be placed outside the territory intended for building. Warehouses and long-term storage bulk cargo grounds located within the territory intended for building are subject to relocation to the utility and warehouse zones.

6.6. In the suburban zones of large-scale and first-scale cities provisions should be made for bypass lines equipped with cargo stations and sorting yards serving the whole junction to carry transit trains. The head sections of railroads with suburban and urban traffic intensity over 10 pairs of trains per hour

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should be equipped with alternate routes, and if necessary – deep railroad entries or diameters should be arranged, provided that they are in interaction with the municipal high-speed traffic.

6.7. Split-level crossings of railway lines should be provided outside the territory of settlements for Category 1 and 2 lines, and outside the territory intended for building for Category 3 and 4 lines.

Within the territory of a settlement, the requirements of SNiP II-39-76 should be observed for one-level crossings of railroads with streets and automobile roads, as well as with the lines of public passenger transport.

6.8. Residential buildings should be separated from railroads with a sanitary protective zone 100 m wide, as measured from the axis of the outermost railway track. In case the railroad is placed in a cutting or in case special noise-protection measures are taken to meet the requirements of SNiP II-12-77, the width of the sanitary protective zone can be reduced but by no more than 50 m. The distance from sorting yards to residential buildings is determined on the basis of a calculation with regard to the volume of goods turnover, the flammability and explosion risks of the cargo, and the allowable levels of noise and vibration.

Within the sanitary protective zone, outside the railroad precinct, it is allowable to place automobile roads, garages, automobile parking lots, warehouses, community and utility institutions. At least 50% of the area of the sanitary protective zone must be covered with greenery. The width of the sanitary protective zone to the borders of horticultural lots should be assumed as at least 50 m.

6.9. Category 1, 2 and 3 automobile roads of the general network should normally be routed round settlements according to SNiP 2.05.02-85. The distance from the edge of the road bed of the mentioned roads to buildings should meet the requirements of SNiP 2.05.02-85 and the requirements of Section 9 of this code, however not less than: 100 m to residential buildings, 50 m to horticultural partnerships; the figures for Category 4 roads should be 50 and 25 m respectively. To protect buildings from noise and automobile exhaust, green belts at least 10 m wide should be planted along the roads.

In case roads of the general network are routed through the territory of settlements, they should be designed with regard to the requirements of this code.

6.10. Suburban zone automobile roads being continuations of urban arterial roads and providing for the pass of heterogeneously directed transport streams from the center-town to the country mass recreational zones, airports and other settlements of the settlement system should be designed with regard to the reversible traffic, normally designing the width of the main carriageway in accordance with the maximum automobile traffic per hour.

Categories and parameters of automobile roads within the suburban zones of towns (settlement systems) should be assumed in accordance with the recommended Annex 8.

6.11. Airports and heliports should be placed in accordance with the requirements of SNiP 2.05.08-85, separated from the territory intended for building and mass recreational zones with a distance providing for the safety of flights and allowable levels of aviation noise in accordance with GOST 22283-88, and electromagnetic radiation levels established for territories intended for building by sanitary standards.

The mentioned requirements must also be observed while placing new territories intended for building and mass recreational zones in the area of active airports.

6.12. Placement of buildings, high-voltage electricity transmission lines, radio-technical and other structures that can be hazardous for the safety of flights or can interfere with the normal work of navigation devices of airports in the area of airports must be agreed upon with enterprises and organizations in charge of the airports. The requirements to getting agreement upon the placement of such objects are set out in the compulsory Annex 2.

6.13. Sea and river ports should be placed outside the territories intended for building, at the distance of at least 100 m to residential buildings.

The minimum distance from the borders of specialized districts of new sea and river ports to residential buildings should be assumed as follows, m:

from borders of reloading areas and areas of dust-forming cargo storage	300

from reservoirs and facilities for reloading flammable and combustible liquids at warehouses of the following categories:	
I	200
II and III	100
from borders of fishing district of the port (without on-site fish processing)	100

N o t e s : 1. The territories of river and sea ports should have descents to water and grounds for water collection by fire-engines.

2. At ports with low turnover of goods it is allowable to combine the passenger and cargo districts into a cargo-and-passenger one.

6.14. The maximum width of the coastal territory of cargo districts should be assumed as follows, m: a sea ports – 400, a river port – 300, a pier – 150, specialized river ports for reloading mass cargo with inter-navigation storage organized – 400. With proper justification, the mentioned width of the territory can be increased.

Along navigation canals, sluices and other hydro-technical navigation pass structures, a free-of-building belt at least 80 m wide should be left on each side of the structure for planting greenery and for local roads.

6.15*. River port districts destined for placement of flammable and combustible liquids storage facilities should be located downstream at least 500 m away from residential buildings, mass recreational sites, river stations, roadsteads, hydroelectric power plants, industrial enterprises and bridges. It is allowable to place them upstream from the listed objects at the following minimal distances depending on the category of the storage facility, m: Category 1 – 5,000; Category 2 and 3 – 3,000.

Placement of new buildings and structures and reconstruction of existing ones in the zone of shipping routes navigation devices coverage should be performed upon agreement with the Ministry of Defense of the Russian Federation and the Ministry of Navy of the Russian Federation.

6.16. Coastal bases and moorings for small-sized vessels belonging to sports clubs and individuals should be placed in the suburban zones, and within the limits of towns they should be placed outside the territory intended for building and outside mass recreational zones.

The size of a land lot for one-layered shelf storage of vessels should be assumed (per vessel) as 27 sq.m. for leisure fleet, and 75 sq.m. for sports fleet.

STREETS AND ROADS NETWORK

6.17. The streets and roads network of settlements should be designed as a continuous system with regard to the functional purposes of streets and roads, intensity of transport, bicycle and pedestrian traffic, architectural and planning organization of the territory and the character of urban development. Within the streets and roads network, arterial and local roads, as well as main streets should be identified. Urban streets and roads categories should be assigned according to the classification given in Table 7.

6.18*. Estimation parameters for urban streets and roads should be taken according to Table 8*, and those for streets and roads of rural settlements – according to Table 9.

6.19. The minimum distance from the edge of the main carriageway of arterial roads to the residential buildings restriction line should be 50 m, and if noise-protection devices meeting the requirements of SNiP II-12-77 are used – 25 m.

The maximum distance from the edge of the main carriageway of streets, local and side drives to the building line should be assumed as 25 m. In case the mentioned distance is exceeded, a fire engine lane 6 m wide should be provided at the minimum distance of 5 m from the building line.

6.20. At the end of dead-end streets and roads, turnaround areas with islands should be arranged for automobiles to turn, with the minimum diameter of 16 m, and with the minimum diameter of 30 m in

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case the terminal station for public passenger transport to turn is being organized. It is not allowed to use the turnaround areas to park automobiles.

6.21*. It is allowable to set up bicycle lanes separated with demarcation strips on arterial streets with regulable traffic. In mass recreational zones and other green territories, bicycle lanes should be isolated from streets, roads and pedestrian traffic. Bicycle lanes can be made for one-way or two-way traffic, with the following minimal safety distances from the edge of the bicycle lane observed, m:

to the carriageway, supports, trees	0.75
to pavements	0.5
to automobile parking lots and public transport stops	1.5

N o t e . It is allowable to set up bicycle lanes along the edge of the carriageway of streets and roads, separated with a double line. The width of the lane must be at least 1.2 m in case its direction coincides with the direction of traffic, and at least 1.5 m in case of opposing traffic. The width of a bicycle lane set up along the pavement must be at least 1m.

6.22*. The minimum bending radii of the carriageway of streets and roads at the edge of the pavements and demarcation strips should be as follows, m:

at arterial streets and roads with regulable traffic	8
local	5
at transport squares	12

In constrained conditions and in case of reconstruction, the bending radii can be reduced, however the minimal value at arterial streets and roads with regulable traffic should be 6 m, and at transport squares – 8 m.

In case there is no curbing, and also in case the minimal bending radii are applied, the width of the carriageway of streets and roads should be increased by 1 m per lane at the expense of the side demarcation strips or splays on the exterior side.

N o t e . Bending radii for public transport (tram, trolleybus, autobus) are determined in accordance with the technical requirements to exploitation of such kinds of transport.

6.23*. At unsupervised junctions and intersections of streets and roads, as well as at pedestrian crossings, it is necessary to arrange for visibility triangles. The leg dimensions of the isosceles triangle for the 'transport-transport' conditions with the speed of traffic being 40 and 60 km/h must be, respectively, at least, m: 25 and 40. For the 'pedestrian-transport' conditions, the dimensions of the right visibility triangle, with the traffic speed being 25 and 40 km/h, must be, respectively, 8×40 and 10×50 m.

Within the limits of the visibility triangle, it is not allowed to place buildings, structures, moveable structures (kiosks, vans, billboards, smaller architectural forms), trees and bushes over 0.5 m high.

N o t e . In the conditions of existing capital buildings that do not allow to organize the necessary visibility traingles, the safety of traffic for automobiles and pedestrians is provided by means of signaling facilities and special technical equipment.

6.24. In districts intended for building, at the sites of nursing homes for the elderly and invalids, healthcare institutions and other institutions of mass attendance, pedestrian routes with the possibility for mechanical wheelchairs to pass should be provided for. The height of vertical obstacles (curbs) must not exceed 5 cm; it is not allowed to use steep (over 100%) short ramps, as well as pavements and pedestrian roads with the longitudinal slope over 50%. Paths with the slope of 30-60% should be equipped with horizontal sections at least 5 m long at the maximum distance of 100 m between them.

T a b l e 7

Road and street category	Main purpose of roads and streets
Arterial roads: high-speed traffic	High-speed transport link to distant industrial and planning districts at first-scale and large-scale cities: exits to interurban automobile roads, to airports, major mass recreational zones and settlements of the settlement system. Split-level intersections

Road and street category	Main purpose of roads and streets
	with arterial streets and roads.
regulable traffic	Transport links between urban districts in specific directions and mostly lorry traffic sections outside residential districts, exits to interurban automobile roads, intersections with streets and roads normally on the same level.
Arterial streets:	
of municipal importance:	
uninterrupted traffic	Transport link between residential, industrial districts and public centers at first-scale and large-scale cities and big towns, as well as to other arterial streets, municipal and interurban automobile roads. Traffic in key directions provided on different levels.
regulable traffic	Transport links between residential, industrial districts and the centre of the town, centres of planning districts; exits to arterial streets and roads, to interurban automobile roads. Intersections with arterial streets and roads normally on the same level.
or district level:	
transport and pedestrian	Transport and pedestrian link between residential districts, as well as between residential and industrial districts, public centres, exits to other arterial streets.
pedestrian and transport	Pedestrian and transport links (mostly public passenger transport) within the planning district.
Local streets and roads:	
streets within residential districts	Transport (no cargo and public transport) and pedestrian links within the territory of residential districts (neighbourhood units), exits to arterial and regulable traffic roads.
streets within research and manufacural, industrial, communal and utility zones (districts)	Transport links for mostly passenger and cargo transport within the limits of zones (districts), exits to municipal arterial roads. Intersections with streets and roads are made on the same level.
pedestrian streets and roads	Pedestrian link to labour sites, service institutions and enterprises including those within public centres, recreational areas and public transport stops.
park roads	Transport links within the territory of parks and recreational forests, for passenger cars mostly.
drives	Vehicle access to residential and public buildings, institutions, enterprises and other urban objects within districts, neighbourhood units and blocks.
bicycle lanes	Bicycle passage with tracks free of other traffic - to recreational areas, public centres, and in large-scale and first-scale cities – links within planning districts

Notes: 1. Main streets are as a rule singled out from transport and pedestrian, pedestrian and transport or pedestrian streets and serve as the basis for the architectural and planning organization of the municipal centre.

2. Depending on the size and the planning structure of the town and the traffic volumes, the mentioned core streets and roads categories can be expanded, or the shortened version of the list applied. If the estimated time expenditure on labour resources movements exceeds that set out in this code, it is allowed to apply the categories of arterial streets and roads given in this table for groups of towns with larger population, with special justification provided.

3. In the conditions of reconstruction, as well as for district-level streets, it is allowable to set up arterial streets and roads or their sections destined for the passage of public transport only, with tram and pedestrian, trolleybus and pedestrian or autobus and pedestrian traffic organized.

4. In historic towns the volume of traffic going through the territory of the historic nucleus of the municipal centre should be reduced or expelled by means of: arrangement of roundabout arterial streets, streets with limited traffic of transport, pedestrian streets and zones; placement of automobile parking lots along the perimeter of the nucleus mostly.

Table 8*

Road and street category	Estimated speed of traffic, km/h	Lane width, m	Number of lanes	Minimum horizontal curve radii, m	Maximum longitudinal slope, $^{0}/_{00}$	Width of the pedestrian part of the pavement, m
Arterial roads:						
high-speed	120	3,75	4-8	600	30	-
regulable	80	3,50	2-6	400	50	-
Arterial streets:						
municipal:						
uninterrupted traffic	100	3,75	4-8	500	40	4,5
regulable traffic	80	3,50	4-8	400	50	3,0
of district importance:						
transport and pedestrian	70	3,50	2-4	250	60	2,25
pedestrian and transport	50	4,00	2	125	40	3,0

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Road and street category	Estimated speed of traffic, km/h	Lane width, m	Number of lanes	Minimum horizontal curve radii, m	Maximum longitudinal slope, $^0/_{00}$	Width of the pedestrian part of the pavement, m
Local streets and roads:						
streets within residential	40	3,00	2-3*	90	70	1,5
districts	30	3,00	2	50	80	1,5
streets within research and	50	3,50	2-4	90	60	1,5
manufacural, industrial,	40	3,50	2	50	70	1,5
communal and utility districts						
park roads	40	3,00	2	75	80	-
Drives:						
primary	40	2,75	2	50	70	1,0
secondary	30	3,50	1	25	80	0,75
Pedestrian streets:						
main	-	1,00	As estimated	-	40	As in project
secondary	-	0,75	As above	-	60	As above
Bicycle lanes:						
detached	20	1,50	1-2	30	40	-
isolated	30	1,50	2-4	50	30	-

* With regard to the use of one lane to park passenger cars.

N o t e s *: 1. The width of streets and roads is defined by calculation depending on the intensity of transport and pedestrian traffic, the elements placed within the limits of the cross profile (carriageways, technical lanes for underground communications, pavements, greenery etc), with regard to the sanitary and hygienic requirements and civil defense requirements. Normally the width of streets and roads within the frontage lines is taken as follows, m: arterial roads – 50-75; arterial streets – 40-80; local streets and roads – 15-25.

2*. In the conditions of complicated relief or reconstruction, as well as in the zones with high urban development value, it is allowable to reduce the estimated traffic speed for high-speed roads or uninterrupted traffic streets by 10 km/h, with horizontal curve radii reduced and longitudinal slopes increased.

3. To provide for autobus and trolleybus traffic in arterial streets and roads of big towns, large-scale and first-scale cities, an outer lane 4 m wide should be arranged; for autobuses to pass in rush hours with the intensity over 40 units per hour, and in the conditions of reconstruction – over 20 units per hour, it is allowable to set up a detached carriageway 8-12 m wide.

It is allowable to increase the width of a traffic lane up to 4 m at arterial roads with prevailing cargo traffic.

4. In the climatic sub-regions 1А, 1Б and 1Г the maximum longitudinal slopes of the arterial streets carriageway should be reduced by 10%. In areas with the winter snowfall volume over 600m^3/m within the limits of the carriageway of streets and roads, 3 m wide snow storage lanes should be provided.

5. The width of the pedestrian part of pavements and paths does not include areas intended for placement of kiosks, benches etc.

6. In the climatic sub-regions 1А, 1Б and 1Г, in areas with the snowfall volume over 200 m^3/m the width of pavements at arterial streets should be at least 3 m.

7. In the conditions of reconstruction of local streets, as well as in case the estimated pedestrian traffic is less than 50 persons an hour in both directions, it is allowable to set up pavements and paths 1 m wide.

8. In case pavements are immediately adjacent to walls of buildings, retaining walls or fences, their width should be increased by at least 0.5 m.

9. It is allowable to make provisions for staged achievement of the rated parameters of arterial streets and roads and transport intersections with regard to the specific transport and pedestrian traffic figures, and with compulsory reservation of the territory and the underground space for prospective construction.

10. In small, medium and big towns, as well as in the conditions of reconstruction and when organizing one-way transport traffic, it is allowable to use the parameters of district-level arterial streets to design municipal arterial streets.

T a b l e 9

Rural streets and roads category	Main purpose	Estimated speed of traffic, km/h	Lane width, m	Number of lanes	Width of the pedestrian part of the pavement, m
Village road	Link from the rural settlement to interurban roads of the general	60	3,5	2	-

Rural streets and roads category	Main purpose	Estimated speed of traffic, km/h	Lane width, m	Number of lanes	Width of the pedestrian part of the pavement, m
	network				
Main street	Link from residential territories to the public centre	40	3,5	2-3	1,5-2,25
Residential area street:					
primary	Links within the residential territories and to the main street following the directions with intensive traffic	40	3,0	2	1,0-1,5
secondary (side street)	Links between primary residential streets	30	2,75	2	1,0
drive	Links from residential houses located in the depth of blocks to the street	20	2,75-3,0	1	0-1,0
Household drive, cattle drive	Private cattle driving and cargo transport passage towards cottage land lots	30	4,5	1	-

6.25. Within the limits of developed territory in arterial streets and roads with regulable traffic at-grade pedestrian crossings should be provided with the interval of 200-300 m.

Grade pedestrian crossings equipped with stairs and ramps should be provided with the following intervals:

400-800 m at high-speed roads, high-speed tramway lines and railroads;

300-400 m at uninterrupted traffic arterial streets.

N o t e s : 1. It is allowable to arrange grade pedestrian crossings at arterial streets with regulable traffic in case the pedestrian traffic across the carriageway is over 3,000 persons per hour.

2. Pedestrian tracks (pavements, grounds, stairs) by administrative and trading centres, hotels, theatres, exhibitions and markets should be designed proceeding from the condition to provide for the maximum density of pedestrian traffic not exceeding 0.3 persons per sq.m. in rush hours; pedestrian tracks by squares adjacent to plant checkpoints, by sports and show industry facilities, cinema-houses and railway stations – 0.8 persons per sq.m.

PUBLIC PASSENGER TARNSPORT AND PEDESTRIAN TRAFFIC NETWORK

6.26. The type of public transport should be selected proceeding from the estimated passenger traffic and trip distances. The carrying capacity of different types of transport, parameters of constructions and facilities (platforms, boarding grounds) over the rated period are estimated with regard to the standard rolling-stock filling of 4 persons per sq.m. of the free area of the floor of a passenger cabin for regular land passenger transport and 3 persons per sq.m. for high-speed transport.

6.27. Land public passenger transport lines should be provided for at arterial streets and roads with transport traffic organized within the general traffic stream, on a special lane or a detached road bed.

N o t e s : 1. In central districts of large-scale and first-scale cities in case the carrying capacity of the streets and roads network is limited, it is allowable to set up offstreet sections of tramway lines in shallow tunnels or on overpasses.

2. In the historic nucleus of the municipal centre, in case it is impossible to provide for the normal pedestrian accessibility of public transport stops, it is allowable to arrange for local specialized types of transport.

3. On territories between arterial streets and roads occupying over 100 ha, and in the conditions of reconstruction – over 50 ha, it is allowable to set up public passenger transport lines on pedestrian and transport streets or on a detached road bed. The intensity of public transport traffic must not exceed 30 units per hour in both directions, and the estimated traffic speed must not exceed 40 km/h.

6.28. The density of land public passenger transport lines in developed territories should be defined depending on the functional use and the intensity of passenger traffic, normally within the limits of 1.5-2.5 km/sq.km.

In central districts of large-scale and first-scale cities the density of the network can be increased to 4.5 km/sq.km.

6.29. The remoteness of passenger access to public passenger transport stops should not exceed 500 m; the mentioned distance should be reduced in the climatic sub-regions IA, I1Б, IГ and IIA to 300 m, and in the climatic sub-region IД and in the climatic region IV – to 400 m.

In the municipal centre, the remoteness of passenger access to the nearest public transport stop from mass attendance objects should not exceed 250 m; in industrial, utility and warehouse zones – 400 m from the checkpoints of enterprises; in mass recreational and sports zones – 800 m from the main entrance.

In the conditions of complicated relief in the absence of special lifting passenger transport the above distances should be reduced by 50 m per each 10 m of the relief level difference.

N o t e . In individual cottage development districts the remoteness of pedestrian access to the nearest public transport stop can be increased in big towns, large-scale and first-scale cities - to 600 m, in small and medium ones – to 800 m.

6.30. The distance between stops at public passenger transport lines within the limits of the territory of settlements should be as follows: for buses, trolleybuses and trams – 400-600 m, for express buses and high-speed trams - 800-1,200 m, for the underground (metro) – 1,000-2,000 m, for electrified railways – 1,500-2,000 m.

6.31. At interchange junctions, independent of the estimated passenger traffic figures, the passenger change time must not exceed 3 minutes exclusive of the time spent on waiting for the transport. Communication elements of the interchange junctions, unboarding grounds in front of the underground stations and other mass attendance objects should be designed proceeding from the condition of providing for the following maximum rated density of passenger traffic, persons per sq.m.: 1.0 – with one-way traffic, 0.8 – with two-way traffic: 0.5 at distribution grounds at intersections and 0.3 – at central and terminal interchange junctions at high-speed offstreet transport lines.

6.32. Along shallow underground (metro) lines, a technical zone should be provided, normally 40 m wide, within which it is not allowed to plant trees until the construction of the underground is finished, and construction of capital buildings and structures, as well as arrangement of underground utility networks can only be performed upon agreement with the organization designing the underground (metro).

FACILITIES AND DEVICES FOR STORING AND SERVICING MEANS OF TRANSPORT

6.33. Within territories intended for building and industrial territories adjacent to them, garages and open-air parking lots for continual storage of at least 90% of the estimated number of individual passenger cars should be set up, with the pedestrian access distance of no more than 800 m, and in the areas under reconstruction or those with unfavourable hydro-geological situation – no more than 1,500 m.

Open-air parking lots for temporary storage of passenger cars should be provided to cover at least 70% of the estimated individual passenger cars fleet, including, %:

residential districts	25
industrial and utility and warehouse zones (districts)	25
municipal and specialized centres	5
mass short-time recreation zones	15

N o t e s : 1. It is allowable to provide for the seasonal storage of 10-15% of the passenger cars fleet in garages and at open-air parking lots located outside the territory of the settlement intended for building.

2. When identifying the overall need for storage places, other individual vehicles (motorcycles, scooters, cycle-cars, motorbikes) should also be considered, being reduced to one type for calculation purposes (to a passenger car), with the following coefficients applied:

motorcycles and scooters with a side-car, cycle-cars	0.5
motorcycles and scooters with no side-car	0.25
motorbikes and bicycles	0.1

3. It is allowable to provide open-air parking lots for temporary and continual storage of cars within the limits of streets and roads bordering on residential districts and neighbourhood units.

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6.34. Within the territory of residential districts and neighbourhood units in big towns, large-scale and first-scale cities, car storage places should be provided in underground garages proceeding from the ratio of 25 parking spaces per 1,000 persons.

Passenger cars garages built into or onto residential and public buildings (except schools, pre-school institutions and healthcare institutions with in-patient departments) should meet the requirements of SNiP 2.08.01-89 and SNiP 2.08.02-89*.

Box-type garages for continual storage of cars and other motor transport means belonging to invalids should be provided within the access distance of no more than 200 m from entrances into residential buildings. The number of boxes is established by standards or is adopted as in the design assignment.

N o t e . In regions with unfavourable hydro-geological situation limiting or excluding the possibility of setting up underground garages, the requirement of the first paragraph of this clause should be met by means of constructing surface or surface-underground facilities that are further strewed with soil so that the soil roof be used for sports and household grounds.

6.35. The maximum pedestrian access distances to passenger cars temporary storage lots should be as follows, m:

to entrances to residential buildings	100
to passenger halls of railway stations, entrances to major trading and catering facilities	150
to other service institutions and enterprises and administrative buildings	250
to park, exhibition and stadium entrances	400

The standards for calculating the passenger cars parking lots can be assumed in accordance with the recommended Annex 9.

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6.36. The size of land lots occupied by passenger car garages and parking lots should be as follows, depending on the number of storeys, sq.m. per car parking space:

for the following types of garages:

one-storeyed	30
two-storeyed	20
three-storeyed	14
four-storeyed	12
five-storeyed	10
surface parking lots	25

6.37. The minimal distances to entries into garages and exits out of them should be as follows: from arterial streets junctions – 50 m, from local streets – 20 m, from public passenger transport stops – 30 m.

Entries into underground passenger cars garages and exits out of them must be placed at least 15 m away from the windows of residential buildings, working premises of public buildings and grounds of comprehensive schools, kindergartens and healthcare facilities.

Ventilating shafts of underground garages must meet the requirements of VSN 01-89.

6.38. In-house automobile garages and garages for specialized passenger cars, lorries, taxis and rented cars, autobus and trolleybus depots, tramway depots, as well as cenralised technical maintenance and seasonal automobile storage stations and automobile rental agencies should be placed within the industrial zones of towns, with the sizes of land lots in compliance with the recommended Annex 10.

6.39*. The minimal distances from surface and surface-underground garages, open-air parking lots for continual and temporary storage of passenger cars, as well as from technical maintenance stations, to residential and public buildings, as well as to the grounds of schools, kindergartens and in-patient healthcare establishments located within the territories intended for building, should be as set out in Table 10*.

T a b l e 10*

Buildings the distance to which is described	Distance, m					
	from garages and open-air parking lots with the following number of passenger cars				from technical maintenance stations with the following number of service posts	
	10 and less	11-50	51-100	101-300	10 and less	11-30
Residential buildings	10**	15	25	35	15	25
including flanker ends of residential buildings without windows	10**	10**	15	25	15	25
Public buildings	10**	10**	15	25	15	20
Comprehensive schools and pre-school institutions	15	25	25	50	50	*
Healthcare facilities with in-patient department	25	50	*	*	50	*

* Is defined upon agreement with the State Sanitary and Epidemiological Surveillance bodies.

** The minimal distances for Category 3-5 fireproof garage buildings should be 12 m.

N o t e s *: 1. The distances should be measured from the windows of residential and public buildings and from the borders of land lots of comprehensive schools, pre-school children's establishments and healthcare facilities with in-patient departments to the walls of the garage of the borders of the open-air parking lot.

2. The distances from lamillar houses to open lots with the capacity of 101-300 cars placed along the longitudinal facades should be at least 50 m.

3. It is allowable to reduce the distances set out in Table 10* by 25% for Category 1-2 fireproof garages in case the garages have no opening windows, as well as entries oriented towards the residential and public buildings.

4. Garages and open-air parking lots with the capacity over 300 cars and technical maintenance stations with over 30 service posts should be placed outside the residential districts within the industrial territory at the minimal distance of 50 m

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from residential houses. The distances are defined upon agreement with the State Sanitary and Epidemiological Surveillance bodies.

5. The distances set out in Table 10* can be interpolated for garages with the capacity of over 10 cars.

6. It is allowable to make cellars in one-storey garages of the box type belonging to individuals.

6.40. Technical maintenance stations should be designed proceeding from the ratio of one service post per 200 passenger cars, with the following sizes of land lots destined for the stations, ha:

with 10 posts	1.0
« 15 «	1.5
« 25 «	2.0
« 40 «	3.5

6.41. Petrol stations should be designed proceeding from the ratio of one petrol pump per 1,200 passenger cars, with the sizes of land lots for the stations being as follows, ha:

with 2 pumps	0.1
« 5 «	0.2
« 7 «	0.3
« 9 «	0.35
« 11 «	0.4

6.42. The distance from a petrol station with underground reservoirs for storage of liquid fuels to the borders of land lots of pre-school children's establishments, comprehensive schools, boarding schools, healthcare facilities with in-patient departments or to the walls of residential and other public buildings should be at least 50 m. This distance should be measured from the fuel pumps and from the underground reservoirs for liquid fuel storage.

It is possible to reduce the distance from a petrol station specialized in fuelling passenger cars only, with the maximum number of cars being 500 a day, to the mentioned objects, however the minimal distance should be no less than 25 m.

7. UTILITY EQUIPMENT

WATER SUPPLY AND SEWERAGE

7.1. The sizes of land lots of water treatment stations, depending on their capacity ('000 cubic meters a day), should meet the project parameters, however not exceeding the following (ha):

up to 0.8	1
over 0.8 and up to 12	2
« 12 « 32	3
« 32 « 80	4
« 80 « 125	6
« 125 « 250	12
« 250 « 400	18
« 400 « 800	24

7.2*. The sizes of land lots of sewage treatment facilities should not exceed the parameters set out in Table 11*.

Table 11*

Sewerage treatment facilities capacity, '000 m a day	Land lots size, ha		
	Treatment facilities	Sludge beds	Biological pond for deep sewage treatment
Up to 0.7	0.5	0,2	-
Over 0.7 and up to 17	4	3	3
« 17 « 40	6	9	6
« 40 « 130	12	25	20
« 130 « 175	14	30	30
« 175 « 280	18	55	-

N o t e *. The sizes of land lots of treatment facilities with the capacity exceeding 280,000 m^3/day should be adopted as per projects developed within the established procedures, projects of similar structures or following the data supplied by specialized organizations, with approval from the sanitary and epidemiologic surveillance bodies.

7.3. The sizes of land lots of local sewerage systems treatment facilities and the sizes of their sanitary protective zones should be adopted depending on the soil conditions and the quantity of sewage, though they should not exceed 0.25 ha, according to the requirements of SNiP 2.04.03-85.

7.4. In the absence of a centralized sewerage system and upon agreement with the local sanitary and epidemiological service bodies, drain stations should be provided. The sizes of land lots allocated for drain stations and their sanitary protective zones should be adopted as set out in Table 12 and in compliance with SNiP 2.04.03-85.

SANITARY PURIFICATION

7.5*. Towns with the population above 250,000 people and federal-level resorts should be provided with domestic waste handling plants.

Waste accumulation standards can be adopted as set out in the recommended Annex 11.

7.6. The sizes of land lots and sanitary protective zones of enterprises and facilities involved in the transportation, decontamination and processing of domestic waste should be adopted as set out in Table 12.

T a b l e 12

Enterprises and facilities	Sizes of land lots per 1,000 tons of solid domestic waste a year, ha	Size of sanitary protective zones, m
Domestic waste handling plants with the capacity, '000 tons a year:		
up to 100	0,05	300
over 100	0,05	500
Raw compost storage facilities	0,04	500
Polygons[1]	0,02 - 0,05	500
Composting fields	0,5 - 1,0	500
Clearing fields	2 - 4	1000
Drain stations	0,2	300
Waste reloading stations	0,04	100
Decontaminated residue storage and disposal fields (on dry basis)	0,3	1000

[1] Except polygons for decontamination and disposal of toxic waste which should be placed as set out in SNiP 2.01.28-85.

N o t e . The minimum sizes of land lots for clearing fields, composting fields and polygons should be defined with regards to the hydro-geological, climatic and soil conditions.

ELECTRICITY, HEAT, COLD AND GAS SUPPLYING, COMMUNICATIONS, RADIO AND TELEVISION BROADCASTING

7.7. Electricity consumption, heat, gas and electricity supply sources capacity demand should be defined as follows:

for industrial and agricultural operations – according to the applications from active enterprises, projects from new enterprises, enterprises under reconstruction or similar enterprises, and also on the basis of aggregated parameters with regard to local peculiarities;

for household and utility needs – in accordance with VSN 97-83, SNiP 2.04.07-86 and SNiP 2.04.08-87.

It is allowable to use the aggregated electricity capacity indices in accordance with the recommended Annex 12.

7.8. Aerial power lines with the voltage of 110kV and above should be located outside the territory intended for building.

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Electricity networks with the voltage of 110kV and above within the territory of first-rate and large-rate cities intended for building should be laid towards step-down substations by means of cable lines.

Power lines included into the general energy systems cannot be located within the territory of industrial zones (districts), as well as industrial zones of agricultural enterprises.

7.9. In case of urban reconstruction existing aerial power lines with the voltage of 35-110 kV and more should be moved outside the territory intended for building or aerial lines should be replaced with cable ones, and in first-rate cities and in case it is feasible to use the cleared territory for development with residential or public buildings - the existing open step-down substations should be replaced with closed ones.

7.10. Electricity networks with the voltage up to 20 kV within the territory of towns and settlements intended for building and having buildings with 4 and more storeys, as well as networks with any voltage within the territory of resort complexes, should be set up by means of cable lines.

7.11. Step-down substations with transformers with the capacity of 16,000 kV*A and above, and the points where aerial lines transform into the cable ones, if located within the territory intended for building, and all transformer substations and distributor switches within the territory of resort complexes - should be of closed type. At approaches to the substations and to the conversion points of aerial lines into cable ones, technical lanes should be provided for cable and aerial lines entry and outlet.

7.12. The sizes of land lots of closed step-down substations, including complete devices and distributor switches with the voltage of 110-220 kV should not exceed 0.6 ha, and those of conversion points of aerial lines into cable ones should not exceed 0.1 ha.

7.13. When placing detached distributor switches and transformer substations with the voltage of 6-20 kV with the maximum number of transformers being two and each having the capacity up to 1,000 kV*A, and with the noise protection measures in place, the minimum distance from the facilities to the windows of residential and public buildings should be 10 m, and to the windows of medical prevention and treatment establishments – 15 m.

7.14*. Settlement heat supply should be provided in accordance with the approved heat supply schemes.

7.15. In the absence of a heat supply scheme in districts with one- or two-storeyed residential buildings and the density of population being 40 persons per ha and more, and in rural settlements, it is allowable to provide centralized heat supply from boiler houses to groups of public and residential buildings.

Towns located within climatic region IV should be provided with centralized cold supply systems, with proper technical and economic justification, in accordance with the requirements of SNiP 2.04.05-91.

7.16*. The sizes of land lots of detached heating boiler houses placed in residential districts should be adopted as set out in Table 13*.

Table 13*

Heat capacity of boiler houses, Gkal/h (MWatt)	Sizes of land lots of boiler houses depending on fuel type, ha	
	solid fuel	gas-and-oil fuel
Under 5	0.7	0.7
From 5 « 10 (from 6 to 12)	1.0	1.0
Over 10 « 50 (over 12 « 58)	2.0	1.5
« 50 « 100 (« 58 « 116)	3.0	2.5
« 100 « 200 (« 116 « 233)	3.7	3.0
« 200 « 400 (« 233 « 466)	4.3	3.5

Notes: 1. The sizes of land lots of direct water supply heating boiler houses, supplying hot water to consumers, as well as boiler houses which are supplied with fuel by means of railroad, should be increased by 20%.

2. Ash dumps should be placed outside the territory intended for building. The conditions of placing ash dumps and the site sizes should meet the requirements of SNiP 2.04.07-86.

3. The sizes of boiler houses sanitary protective zones are defined in accordance with the active sanitary standards.

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7.17. The sizes of land lots of gas-filling stations, depending on their capacity, should meet the project requirements, however no more than the following parameters, ha, depending on the capacity:

10	thousand	tons	pa 6
20	«	«	7
40	«	«	8

7.18. The sizes of land lots of gas-filling posts and intermediary flask storage facilities should not exceed 0.6 ha. The distance from them to buildings and structures should meet the requirements of SNiP 2.04.08-87.

7.19. Communications, radio and TV broadcasting, fire and safety alarm, utility systems dispatcher operations, buildings and structures should be placed in accordance with the requirements of statutory documents approved within the established procedures.

UTILITY NETWORKS PLACEMENT

7.20*. Utility networks should be placed mostly within the limits of the road cross profile: utility networks in collectors, canals or tunnels - under pavements or demarcation strips; heat networks, water supply lines, gas lines, household and storm sewers – in demarcation strips.

The strip between the frontage line and the building restriction line should be used to place low-pressure gas and cable networks (power, communications, alarm and dispatcher lines).

In case the width of the carriageway exceeds 22 m, water supply lines should be placed on both sides of the street.

7.21. In the course of reconstruction of carriageway of streets and roads with capital paving installed, under which underground utilities are located, provisions should be made to move the utilities to demarcation strips and under pavements. With proper justification, it is allowable to preserve the existing networks and to lay new ones in canals and tunnels under the carriageways of streets. In existing streets without demarcation strips, it is allowable to place new utility networks under the carriageway with the condition that they are laid in tunnels or canals; in case there is the technical necessity, it is allowable to lay gas pipelines under the carriageway of streets.

7.22*. Underground utility networks should normally be laid as follows: combined in common trenches: in tunnels – if it is necessary to simultaneously place heat networks with the diameter from 500 to 900 mm, water lines up to 500 mm, over ten communications cables and ten power cables with the voltage up to 10 kV, in case of reconstructing arterial streets and historic buildings districts, in case of shortage of space in the streets cross profile to lay the networks in trenches, at intersections with arterial streets and railways. It is also allowable to lay airways, pressure sewerage and other utilities in tunnels. It is not allowable to lay gas and pipelines transporting flammable and combustible liquids jointly with cable lines.

In regions with ever-frozen soils, when utility networks are constructed with the soils preserved in the frozen state, provisions should be made to place heat lines in canals or tunnels independent of their diameter.

N o t e s *: 1. At development sites with complicated soil conditions (loessial, collapsible) it is necessary to provide, as a rule, for water carrying utility networks to be laid in utility galleries. The type of soil collapsibility should be defined in accordance with SNiP 2.01.01-82; SNiP 2.04-02-84; SNiP 2.04.03-85 and SNiP 2.04.07-86.

2. At territories intended for building, in difficult planning conditions it is allowable to construct land heat networks, with the permission of local administration.

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Table 14*

Utility networks	Horizontal clear distance, m, from underground networks to								
	foundations of buildings and structures	foundations of fences, enterprises, overpasses, contact systems and communications supports, railroads	outermost track axis of		border stone of a street, road (edge of carriageway, curbed flank lane)	exterior ditch edge or road embankment foot	basements of aerial electricity lines supports with the voltage of		
			railroads with 1,520 mm track but not less than the trench depth to the embankment foot and the excavation edge	railroads with 750 mm track and tramway			up to 1 kV outdoor lighting, tramways and trolleybuses contact systems	over 1 up to 35 kV	over 35 up to 110 kV and above
Water supply lines and pressure sewerage	5	3	4	2,8	2	1	1	2	3
Gravity sewerage (household and storm)	3	1,5	4	2,8	1,5	1	1	2	3
Drainage	3	1	4	2,8	1,5	1	1	2	3
Accessory drainage	0,4	0,4	0,4	0	0,4	-	-	-	-
Combustible gas pressure pipelines, MPa (kgs/sm^2):									
low up to 0,005 (0,05)	2	1	3,8	2,8	1,5	1	1	5	10
medium over 0,005 (0,05) up to 0,3 (3)	4	1	4,8	2,8	1,5	1	1	5	10
high:									
over 0,3 (3) up to 0,6 (6)	7	1	7,8	3,8	2,5	1	1	5	10
over 0,6 (6) up to 1,2 (12)	10	1	10,8	3,8	2,5	2	1	5	10
Heat networks:									
from exterior wall of canal, tunnel	2 (see Note 3)	1,5	4	2,8	1,5	1	1	2	3
from canal-free laying shell	5	1,5	4	2,8	1,5	1	1	2	3
Power lines of any voltage and communications cables	0,6	0,5	3,2	2,8	1,5	1	0,5*	5*	10*
Canals, service tunnels	2	1,5	4	2,8	1,5	1	1	2	3*
Exterior pneumatic garbage chutes	2	1	3,8	2,8	1,5	1	1	2	5

* Related to distances from power cables only.

N o t e s *: 1. In climatic sub-regions IA, IБ, IГ and IД the distance from underground utilities (water supply lines, household an storm sewerage, drainages, heat networks) should be adopted according to technical calculations in case construction is performed with the ever-frozen state of soils preserved.

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2. It is allowable to make provisions to lay underground utility networks within the basements of pipeline, contact systems supports and overpasses provided that measures are taken to exclude the possibility of damaging the networks in case of basement collapse, as well as to exclude basement damage in case of a breakdown of the networks. When placing utility networks with dewatering applied in construction, the distance from them to buildings and structures should be set with regard to the zone of the strength failure of the foundation soil.

3. Distances from heat networks in case of canal-free laying to buildings and structures should be the same as for water supply lines.

4. The distance from power cables with the voltage of 110-220 kV to the basements of fences of enterprises, overpasses, contact systems and communication lines supports should be 1.5 m.

5*. The horizontal distance to the lining of underground structures of the underground (metro) made of cast-iron tubing, as well as of reinforced concrete or concrete with membrane waterproofing located at the depth of less than 20 m (from the top of the lining to the surface) should be as follows: to the sewerage, water supply and heat lines - 5 m; from linings without membrane waterproofing to sewerage lines – 6 m, for other water-carrying lines – 8 m; the distance from linings to cables should be as follows: cables with the voltage up to 10 kV – 1 m, up to 35 kV – 3 m.

6. In irrigated regions with non-collapsible soils, the distance from underground utilities to irrigation canals (to the canal edge) should be as follows, m: 1 – from low- and medium-pressure gas pipeline, as well as from water supply lines, sewerage lines, drainages and flammable liquids pipelines; 2 – from high-pressure (up to 0.6 MPa (6 kgs/sm^2)) gas pipelines, heat lines, household and storm sewerage; 1.5 – from power cables and communications cables; the distance from the irrigation canals of the street network to the basements of buildings and structures – 5 m.

Table 15

Utility lines	Distance, m, horizontal (clear) to												
	water supply	household sewerage	drainage and storm sewerage	gas pipelines, pressure, MPa (kgs/sm^2)				power cables of any voltage	communi-cations cables	heat networks		canals, tunnels	exterior pneumatic garbage chutes
				low up to 0,005 (0,05)	medium over 0,005 (0,05) up to 0,3 (3)	high				exterior wall of canal, tunnel	shell of canal-free laying		
						over 0,3 (3) up to 0,6 (6)	over 0,6 (6) up to 1,2 (12)						
Water supply	See Note 1	See Note 2	1,5	1	1	1,5	2	0,5*	0,5	1,5	1,5	1,5	1
Household sewerage	See Note 2	0,4	0,4	1	1,5	2	5	0,5*	0,5	1	1	1	1
Storm sewerage	1,5	0,4	0,4	1	1,5	2	5	0,5*	0,5	1	1	1	1
Gas pipelines, pressure, MPa (kgs/sm^2):													
low up to 0,005 (0,05)	1	1	1	0,5	0,5	0,5	0,5	1	1	2	1	2	1
medium over 0,005 (0,05) up to 0,3 (3)	1	1,5	1,5	0,5	0,5	0,5	0,5	1	1	2	1	2	1,5
high:													
over 0,3 (3) up to 0,6 (6)	1,5	2	2	0,5	0,5	0,5	0,5	1	1	2	1,5	2	2
over 0,6 (6) up to 1,2 (12)	2	5	5	0,5	0,5	0,5	0,5	2	1	4	2	4	2
Power cables of any voltage	0,5*	0,5*	0,5*	1	1	1	2	0,1-0,5*	0,5	2	2	2	1,5

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Utility lines	Distance, m, horizontal (clear) to												
	water supply	household sewerage	drainage and storm sewerage	gas pipelines, pressure, MPa (kgs/sm^2)				power cables of any voltage	communi-cations cables	heat networks		canals, tunnels	exterior pneumatic garbage chutes
				low up to 0,005 (0,05)	medium over 0,005 (0,05) up to 0,3 (3)	high				exterior wall of canal, tunnel	shell of canal-free laying		
						over 0,3 (3) up to 0,6 (6)	over 0,6 (6) up to 1,2 (12)						
Communications cables	0,5	0,5	0,5	1	1	1	1	0,5	-	1	1	1	1
Heat networks:													
from exterior wall of canal, tunnel	1,5	1	1	2	2	2	4	2	1	-	-	2	1
from shell of canal-free laying	1,5	1	1	1	1	1,5	2	2	1	-	-	2	1
Canals, tunnels	1,5	1	1	2	2	2	4	2	1	2	2	-	1
Exterior pneumatic garbage chutes	1	1	1	1	1,5	2	2	1,5	1	1	1	1	-

* In accordance with the requirements of Section 2 of the Rules for Electrical Installations Arrangement approved by the Minenergo of the USSR upon agreement with the Gosstroy of the USSR.

N o t e s : 1. In case of parallel laying of several water supply lines, the distance between them should be adopted depending on the technical and the engineering and geological conditions in accordance with SNiP 2.04.02-84.

2. The distance from household sewerage to the household and drinking water supply line should be adopted as follows, m: to a water supply line made of reinforced concrete and asbestos-cement pipes – 5; to a water supply line made of cast-iron pipes with the diameter of up to 200 mm – 1.5; diameter over 200 mm – 3; to a water supply line made of plastic pipes – 1.5.

The distance between sewerage networks and industrial water supply networks, depending on the material and the diameter of pipes, as well as on soils nomenclature and characteristics must be 1.5 m.

3. In case of parallel laying of gas pipelines for pipes with the diameter of up to 300 mm, the distance (clear) between them is allowed as 0.4 m, and over 300 mm – 0.5 m in case two and more gas pipelines are placed within one trench.

4. Table 15 sets out distances to steel gas pipelines. Gas pipelines made of non-metal pipes should be placed in accordance with SNiP 2.04:08-87.

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7.23*. The horizontal (clear) distance from the closest utility networks to buildings and structures should be adopted in accordance with Table 14*.

The horizontal (clear) distance between neighbouring underground utility networks in case of parallel laying should be adopted in accordance with Table 15, and at entry points into buildings in rural settlements – at least 0.5 m. In case the difference in depth of laying of adjacent pipelines is over 0.4 m, the distances set out in Table 15 should be increased with regard to the trench slope grades, however by not less than the trench depth to the embankment foot and the excavation edge.

In case of utility networks intersection, the vertical (clear) distances should be adopted in accordance with the requirements of SNiP II-89-80.

The distances set out in Table 14 and 15 can be reduced with proper technical measures taken to provide for the safety and reliability requirements.

7.24. The intersection of utility networks and the underground (the metro) should be provided at the angle of 90°, in the conditions of reconstruction it is possible to reduce the intersection angle to 60°. It is not allowed to have utility networks cross station facilities of the underground.

At intersection sections, pipelines must slope in the same direction and be enclosed into protective structures (steel cases, solid concrete or reinforces concrete canals, collectors, tunnels). The distance from the exterior surface of the underground facilities linings to the end of protective structures must be at least 10 m each way, and the vertical (clear) distance between the lining and the rail foot (at surface lines) and the protective structure – at least 1 m.

It is not allowed to lay gas pipelines under the tunnels.

Utility networks crossings under the surface lines of the underground should be provided with regard to the requirements of GOST 23961-80. At that, the networks must be lead out at least 3 m outside the fences of surface sections of the underground.

N o t e s : 1. In case the facilities of the underground are located at the depth of 20 m and more (from the top of the structure to the surface), and in case there are at least 6 m of clay, solid top of the lining of the facilities of the underground and the bottom of utility networks protective structures, the above requirements to utility networks crossing the structures of the underground are not applicable, and no protective structures are required.

2. At the points of crossing the facilities of the underground, pressure pipelines should be made of steel pipes, with water outlet wells equipped with stop valves installed at both sides of the intersection.

7.25*. In case of intersection of underground utilities with pedestrian crossings, provisions should be made to lay pipelines under the tunnels, and power and communication cables – over the tunnels.

7.26*. It is not allowed to lay pipelines with flammable and combustible liquids, as well as those with liquefied gases supplied to industrial operations and warehouses, through the territory intended for building.

Arterial pipelines should be laid outside the territory of settlements in accordance with SNiP 2.05.06-85. The guidelines for laying oil-products pipelines within the territory of settlements are contained in SNiP 2.05.13-90.

8. LAND DEVELOPMENT AND PROTECTION

8.1. Land development measures should be planned with regard to the forecast changes in the engineering and geological conditions, the character of usage and the planning organization of the territory.

When designing planning and development projects for urban and rural settlements, in case of necessity, provisions should be made for engineering protective structures against flood, impoundment, torrents, avalanches, landslides and landslips.

8.2. When conducting oversite excavation, the territory design reference marks should be set proceeding from the maximum preservation of the natural relief, soils and the existing planted land, surface water drainage at a speed excluding the possibility of soils erosion, as well as the minimum volumes of excavation works with regard to the usage of replaced soil at the construction site.

8.3*. Surface water drainage should be provided from the whole basin (drains into water bodies, drainpipes, ravines etc) in accordance with SNiP 2.04.03-85, in towns normally providing for closed-type storm drainage with drain waters pretreated.

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Open water drainage structures – ditches, gutters – is allowable in districts with one- or two-storeyed buildings and in rural settlements, as well as within the territory of parks, with bridges and pipes constructed at intersections with streets, roads, drives and pavements.

8.4. Within the territory of settlements with the high groundwater level, at swamp areas, provisions should be made to lower the groundwater level within the capital construction zone by means of installing closed drainages. Within the individual cottage development territories of towns and within the territory of stadiums, parks and other public green territories it is allowable to have an open drainage network.

The measures mentioned should provide, in accordance with SNiP 2.06.15-85, for the following lowering of the groundwater level: within the capital construction territory – at least 2 m from the project surface level; within the territory of stadiums, parks, alleys and other green areas – at least 1 m.

8.5*. Within turf deposit land lots that are intended for building, alongside the lowering of the groundwater level, provisions should be made to surcharge their surface with mineral soils, and with proper justification it is allowable to de-turf them. The thickness of the mineral soils surcharge layer is set with regard to the subsequent turf settlement and provision for the necessary slope of the territory so that the surface drainage be obtained.

Within the territory of a neighbourhood unit, the thickness of the mineral soils layer should be established as 1 m; at carriageways of streets the thickness of the mineral soils layer must be defined depending on the traffic intensity.

8.6. The territories of settlements located at the waterside must be protected from flooding with flood waters, wind-caused water setup and impoundment with groundwater – with a bedding course (alluvion) or by means of diking. The edge mark of the added territory should be set at least 0.5 m higher that the estimated high water level with regard to the wave height in case of wind-caused water setup. The value of the height difference between the ridge of the flood dike and the estimated level should be set depending on the class of the structures in accordance with SNiP 2.06.15-85 and SNiP 2.06.01-86.

The estimated high water level should correspond to the highest water-level mark repeating with the following frequency: once every 100 years – for territories developed or due to be developed with residential and public buildings; once every 10 years – for the territories of parks and plane sports facilities.

8.7. To protect the existing buildings in a torrent-hazardous zone, provisions should be made to preserve woodland as far as possible, to plant trees and shrubbery, to terrace the slopes, to reinforce the banks of torrent-hazardous rivers, to construct dams and ponds in the zone of torrent formation, to construct torrent-directing dams and off-take canals within the alluvial cone.

8.8. At land lots with active erosion processes involving ravine-formation, provisions should be made to regulate the surface flow, to reinforce the ravine bed, to terrace and to afforest the slopes. In individual cases it is allowable to fully or partially liquidate the ravine by means of filling them up and laying water flow and drainage collectors.

The territories of ravines can be used to place transport facilities, garages, warehouses and utility objects, as well as to set up parks.

8.9. In urban and rural settlements threatened with landslide processes, provisions should be made to regulate the surface flow, to catch the groundwater flows, to prevent the natural counterfort of the landslide body from destruction, to improve the resistance of the slope to mechanical and physiochemical factors, to terrace the slopes, to plant the greenery. Anti-landslide measures should be taken on the basis of a comprehensive study of the geological and hydro-geological conditions of the areas.

9. PROTECTION OF THE ENVIRONMENT, HISTORY AND CULTURE MEMORIALS

PROTECTION AND RATIONAL USE OF NATURAL RESOURCES

9.1*. The territory for constructing new and developing the existing urban and rural settlements, in accordance with the land legislation of the Russian Federation, should be provided on lands which are unsuitable for agricultural use.

Withdrawal of agricultural lands with the purpose to render them for non-agricultural purposes is allowable in exceptional cases only, within the procedures established in the legislation.

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Placing buildings on: irrigated or drained lands, fields, lands occupied by perennial fruit plants or vineyards, as well as on lands occupied by water-protective and other forests of Group 1 – is only allowable in exceptional cases in accordance with the land legislation; and on lands with high value parameters placing buildings is forbidden. The list of lands with construction forbidden is set by local authorities.

9.2*. It is forbidden to design and construct settlements, industrial complexes and other economic assets before obtaining data on the absence of mineral resources deposits under the projected construction site from an appropriate territorial geological organisation.

Mineral resources deposit sites development, as well as placing underground facilities in the deposit areas, is allowed by authority of the bodies for the management of state subsurface funds and mining inspectorate, only under the condition of providing for the possibility to extract mineral resources or in case of proven economic feasibility of the development.

The suitability of disturbed lands for various types of use after the recultivation should be evaluated in accordance with GOST 17.5.3.04-83 and GOST 17.5.1.02-85.

9.3*.** Placement of buildings, structure and communications is not allowed:

on lands of natural reserves, preserves, natural national parks, botanic gardens, dendrologic parks and water protective belts (zones);

on lands of urban green zones, including lands of urban woods, if the designed objects are not intended for recreation, sport or servicing the suburban forestry;

in protective zones of hydrometeorological stations;

in the first sanitary protection zone of water supply sources and water supply facilities sites, if the designed objects are not related to the exploitation of the sources;

in the first zone of resort sanitary protection district, if the designed objects are not related to the exploitation of the natural remedial agents of the resorts.

In the second zone of the sanitary protection district of resorts, it is allowable to place objects related to the exploitation, development and improvement of the resorts, as well as objects servicing the population of the resorts, if they do not cause atmospheric, soil and water pollution, or excess of the standard noise levels and the electromagnetic field potential. In the third zone of the sanitary protection district of resorts, it is allowable to place objects that cause no negative impact on the natural remedial agents and the sanitary state of the resort.

N o t e s *: 1. It is not allowed to place buildings and structures:

on lands contaminated with organic and radioactive waste (for the period established by the bodies of the Russian Federation State Committee on sanitary and epidemiological surveillance);

in the hazardous refuse dump zones of coal and slate shafts and concentrating mills, on hazardous landslide, torrent and avalanche terraces;

in the zones of possible catastrophic flooding resulting from the destruction of dams or dikes (a catastrophic flooding zone is the territory, on which the flooding depth is 1.5 m and above and can result in the destruction of buildings and structures, loss of life, industrial equipment knock-out);

in seismic districts and zones immediately adjacent to the active faults;

in the protective zones of main pipelines.

2. Placement of agricultural operations, buildings and structures in the protective zones of natural reserves is allowed, if the construction of the objects or their exploitation do not affect the natural conditions of the reserves and will not damage them. The conditions for placing such objects must be agreed upon with the departments in charge of the reserves.

3*. So that normal exploitation of transport structures, facilities and other objects be ensured, protective zones can be established in accordance with the active legislation and the Regulations on transport lands.

4* When placing objects directly or indirectly influencing the state of the natural environment, the ecological safety and health protection requirements must be met, and measures to protect the nature, to rationally use and reproduce natural resources and improve the natural environment must be taken.

9.4. The woods of urban green zones, urban and resort woods related to Group 1 forests must be used for recreational, sanitary, hygienic and health improvement purposes. In paludal forests within the territory of settlements and suburban zones, woodland hydromeliorative measures should be provided in accordance with the requirements of GOST 17.5.3.03-80.

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Withdrawal of the Goslesfond lands for building purposes (conversion of forest sites into non-forest sites) is allowed in exceptional cases within the legally established procedures only.

Placement of buildings on the Goslesfond lands must occur on sites not covered with woodland or occupied with shrubbery and low-value plantings.

9.5*. Within the suburban zones on forest resources lands, green zones formation should be provided for, in accordance with VSN 3-84, approved by the USSR Gosleskhoz.

The territorial organization of urban green zones should provide for the division into the recreational woodland and forestry parts, for the allocation of recreational sites and protected territories, so that the health improvement and environment protection functions of a forest be performed in accordance with GOST 17.6.3.01-78.

In green zones, it is forbidden to perform any economic activities negatively affecting the ecological, sanitary and hygienic, and recreational functions of such zones.

9.6. Wind-protective and waterside reinforcement woodland belts, greenery planting on hill and ravine slopes should be provided around urban and rural settlements located in treeless or forest-poor regions.

The minimal width of protective woodland belts should be as follows, m: for first-scale and large-scale cities - 500, big and medium towns - 100, small towns and rural settlements - 50.

9.7. Urban and suburban zones planning and development projects should provide for the rational use of valuable natural landscapes and their protection, for the allocation of recreational landscape territories, for imposing limitations on landscape burden in accordance with its stability, for the observation of regime requirements of the especially protected territories – state natural reserves and preserves, natural national parks, botanic gardens and dendrological parks, as well as natural monuments – forest, water and geological ones.

CONTAMINATION PROTECTION OF ATMOSPHERE, WATER OBJECTS AND SOILS

9.8. Territories intended for building should be placed on the windward side (for prevailing winds) of industrial enterprises being the sources of atmospheric air contamination and posing enhanced fire hazard. Enterprises requiring special purity of the atmospheric air should not be placed on the leeward side of the prevailing winds as related to neighbouring enterprises with atmospheric air contamination sources.

Cattle-breeding, poultry farming and animal breeding enterprises, poisonous chemicals, biological preparation, fertilisers storage facilities and other fire and explosion hazardous warehouses and productions, veterinary institutions, waste utilization objects and operations, boiler houses, sewage disposal plants, dung-yards of the open type should be located on the leeward side (for prevailing winds) off the territory intended for building and other objects and enterprises of the industrial area in accordance with the active statutory documents.

N o t e s : 1. Enterprises with sources of atmospheric air pollution that have the sanitary gap over 500 m should not be placed in districts with prevailing winds having the speed below 1 m/s, with extended or frequent calms, inversions, fogs (over 30-40% over a year, 50-60% of winter days).

2. Atmospheric air pollution should be estimated in accordance with the requirements of Section 3 of this code.

9.9. Measures to protect water bodies, waterways and seas should be provided in accordance with the requirements of water legislation and sanitary standards approved within the established procedures, thus preventing pollution of surface and underground waters with the maximum allowable concentrations of contaminating substances observed for water objects used for household and drinking water supply, recreation and fishing.

9.10*. Territories of urban and rural settlements intended for building, resort zones and mass recreation sites should be placed upstream from emission of industrial and household sewage. Their placement downstream from the mentioned emissions is allowable with the following observed: SNiP 2.04.03-85 , Rules for surface water protection, as well as Rules for sanitary protection of nearshore waters of seas approved and agreed within the established procedures.

Enterprises that require freight docks, piers and other port structures should be placed downstream from the territory intended for building at the minimal distance of 200 m.

9.11*. Placement of industrial enterprises at the waterside strips (zones) is allowed only in case it is necessary for the site of the enterprise to be immediately adjacent to water bodies, upon agreement with bodies for regulating the usage and protection of waters in accordance with the legislation. The number and the extension of points where the enterprise sites are adjacent to the water bodies must be minimal.

When placing agricultural operations at the waterside, in case there is no direct connection of the operations to the water bodies, an undeveloped waterside strip at least 40 m wide should be provided.

When placing mineral fertilizers and chemical crop protection agents storehouses, cattle-breeding and poultry farming operations, the necessary measures should be taken to exclude the mentioned substances, dung drainage and droppings getting into the water bodies.

Mineral fertilizers and chemical crop protection agents storehouses should be placed at least 2 km away from fishery water bodies. In case of special necessity, it is allowable to reduce the distance from the mentioned storehouses to the fishery waters with the condition of reconciliation with bodies performing protection of fish resources.

9.12*. In designing settlements, the minimal width of water protection zones is established as follows:

for rivers - from the average (over extended period) summer shoreline, dependent on the length of the river from its source:

up to 10 km 15 m
from 11 « 51 « 100 m
« 51 « 100 « 200 m
« 101 « 200 « 300 m
« 201 « 500 « 400 m
over 500 500 m

for lakes – from the average (over extended period) summer shoreline, and for water reservoirs – from the summer shoreline with the normal headwater level, with the water area up to 2 km – 300 m, over 2 km – 500 m.

Within the limits of water protective zones along the banks of rivers and the shores of lakes and reservoirs, waterside belts are distinguished, being territories with strict limitations laid on economic activities.

Within water protective zones of rivers, lakes and reservoirs, it is forbidden:

to place solid household waste and non-utilised industrial waste grounds, poisonous chemicals, mineral fertilizers, fuels and lubricants storehouses, grounds for loading equipment with poisonous chemicals, cattle-breeding complexes and farms, graveyards;

to construct new and to expand the existing industrial and social sphere objects without agreement from environmental protection bodies and state sanitary and epidemiological surveillance bodies.

Within the limits of waterside belts, in addition to the above limitations, it is forbidden to set up tent camps and to organize summer cattle camps.

Exploitation of reservoirs and their downstream waters, used or nominated to be used as sources of household and utility, and cultural and utility water supply, should be carried out in compliance with the Sanitary rules for designing, construction and exploitation of water reservoirs, approved and agreed upon within the established procedures.

In the already formed and in the designed recreational zones located at the waterside, water protection measures should meet the requirements of GOST 17.5.02-90.

9.13*. Surface waters (atmospheric precipitation), before being emitted into open water bodies, are subject to purification with regard to the requirements of the Rules for surface waters protection.

Export of surface flow off the territory of industrial operations into water objects is allowed in case it is technically impossible or economically unfeasible to use it in industrial water supply.

9.14. In decorative pools and water bodies used for bathing, located within the territory of settlements, provisions should be made for the periodical water replacement over the autumn-summer period depending on the water-surface area: in decorative pools with the water surface area up to 3 ha – twice, with the area over 3 ha – once; in bathing water bodies – four and three times correspondingly, and in those with the area exceeding 6 ha – twice.

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Water depth in water bodies located within the territories intended for building should be at least 1.5 m in the spring-summer period, and at least 1 m in the coastal zone with the condition of periodical removal of water plants.

The water surface area and the area of beaches should be assumed in accordance with GOST 17.1.5.02-0 and Cl.4.21 of this code. Waterside belts of ponds and other water bodies must be improved or equipped with modern amenities. Measures should be taken to exclude pollution of water bodies with surface waters.

9.15. Soil protection measures should be provided for in compliance with the requirements of the soil protection legislation and sanitary standards approved within the established procedures.

NOISE, VIBRATION, ELECTRIC AND MAGNETIC FIELDS, RADIATION AND EMANATIONS PROTECTION

9.16. Allowable noise levels for residential and public buildings and adjacent territories, noise characteristics of the main sources of external noise, procedures to define the expected noise levels and the required reduction of them at design points, methods to calculate the acoustic efficiency of architectural, planning and construction means to reduce noise, and the main requirements to designing them - should be adopted in accordance with SNiP II-12-77.

9.17. Allowable vibration levels at residential buildings must meet the requirement of SNiP II-40-80 and the Sanitary standards for allowable vibrations in residential buildings, approved within the established procedures. So that these requirements could be met, provisions should be made for the appropriate distances between residential buildings and sources of vibration, for the application of effective vibration-absorbing materials and structures at such sources.

9.18. When placing radio-technical objects (radio stations, radio-television broadcasting and radio-location stations), industrial generators, high-voltage aerial electricity transmission lines and other objects radiating electromagnetic energy, one should be guided by the Sanitary standards and rules for protecting the population from the impact of electromagnetic fields created by radio-technical objects, the Sanitary standards and rules for protecting the population from the impact of electric fields created by the aerial transmission lines of alternating current electricity of commercial frequency, and the Rules for Electrical Installations Arrangement (see above) approved by the USSR Minenergo and agreed upon within the established procedures.

Provisions for radiation safety in producing, processing, applying, storing, transporting, decontaminating and disposing of radioactive substances are performed in compliance with the radiation safety standards (Radiation safety standard NRB 76/87) and the Core sanitary rules for working with radioactive substances and other sources of ionizing radiation (OSP - 72/87), approved by the Minzdrav and agreed upon within the established procedures.

Placement of atomic stations and protection of people from the external radiation are performed in compliance with the Requirements to placing atomic stations, approved by the Bureau of the Council of Ministers of the USSR on the fuels and energy complex.

Placement, design and exploitation of centralized systems for heat supply from atomic stations are performed in compliance with the Sanitary requirements to design and exploitation of systems of centralized heat supply from atomic stations, approved by the USSR Minzdrav and agreed upon with the USSR Minenergo, the USSR Goskomatomenergo.

MICROCLIMATE REGULATION

9.19. Placement and orientation of residential and public buildings (except children's pre-school establishments, comprehensive schools, boarding schools) must provide for the following uninterrupted duration of habitable rooms and territories solar exposure depending on the zone:

to the north of latitude 58° north – at least 3 hours a day over the period from April 22 to August 22;

to the south of latitude 58° north – at least 2.5 hours a day over the period from March 22 to September 22.

Placement and orientation of buildings of children's pre-school establishments, comprehensive schools, boarding schools, healthcare and recreational establishments must provide for the uninterrupted 3-hours' solar exposure in rooms, as specified in the Sanitary standards and rules for providing solar exposure of residential and public buildings and residential zone territories, approved within the established procedures.

N o t e s : 1. In case the area is developed with buildings having 9 and more storeys, it is allowable to have one break in solar exposure of habitable rooms, in case the aggregated duration of solar exposure over a day is increased by 0.5 hours correspondingly for each zone.

2. In residential buildings of the meridional type, where all apartments get solar exposure, as well as in the course of reconstructing developed residential areas or when placing a new construction site in especially complicated urban development conditions (historically valuable urban environment, expensive land development, the zone of a municipal or a district centre), it is allowable to reduce the duration of rooms solar exposure by 0.5 hours correspondingly for each zone.

3. As an exception, in case the project contains proper justification, in regions to the north of latitude 62,5° north it is allowable to reduce the solar exposure period for rooms of residential and public buildings, including comprehensive schools, boarding schools by 0.5 hours, with the condition that this is compensated with ultra-violet treatment of people and rooms with technical equipment.

HISTORY AND CULTURE MEMORIAL PROTECTION

9.20*. In urban and rural settlements planning and development projects, the requirements of the legislation on protecting and using history and culture memorials of the Russian Federation should be observed.

At that, zones of history and culture memorials protection, zones of regulated construction and zones of protected natural landscapes should be established. History and culture memorials protective zones are provided for individual buildings and structures, their ensembles and complexes, and for other valuable history and culture urban development elements.

N o t e *. The requirements of special protection and usage regimes, established in the regulations on the specific reserve (reserve territory) must be applied to the ensembles and complexes of history and culture memorials, historic centres, blocks, squares, streets, memorable places, occupation layers of ancient towns, natural and artificial landscapes, garden and park monuments having especial historical, archeological or architectural value and declared, within the established procedures, state history and architectural reserves or history and culture reserved territories (sites).

9.21*. Urban and rural settlements planning and development projects must not contain provisions for pulling down, moving or otherwise changing the state of history and culture memorials. In exceptional cases, proposals on changing the state of the memorials should be submitted in accordance with the active legislation.

Protection of the valuable historic environment of the already formed and developed districts should be provided with the methods of comprehensive reconstruction, making provisions for and simultaneously conducting: restoration of buildings having architectural and cultural value, reconstruction, modernization and capital construction of existing buildings, selective construction that does not interfere with the character of the environment, development of utility equipment and installation of modern amenities within the territory.

9.22. The minimal distance from history and culture memorials to transport and utility lines should be as follows, m:

to carriageways of arterial high-speed and uninterrupted traffic roads, underground (metro) lines, shallow underground (metro) lines:

in complex relief conditions	100
on flat relief	50
to water supply, sewerage and heat supply lines (except distributing ones)	15
to other underground utilities	5

In the conditions of reconstruction, the mentioned distances to the utility lines can be reduced, however the minimal values should be as follows, m: to water-carrying lines - 5; non-water lines - 2. At that, it is necessary to provide for special technical measures in the course of construction works.

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ANNEX 1*
Compulsory

FIRE SAFETY REQUIREMENTS

1*. Fire safety distances between residential, public and auxiliary buildings of industrial enterprises should be adopted in accordance with Table 1*, and between production buildings of industrial and agricultural enterprises – in accordance with SNiP II-89-80 and SNiP II-97-76.

The minimal distances from residential, public and auxiliary buildings of fire resistance Grades I and II to production buildings and garages of fire resistance Grades I and II should be at least 9 m, and to production buildings having coating with polymeric or flammable lagging used - 15 m.

Table 1*

Building fire resistance grade	Distance, m, for buildings of fire resistance grade		
	I, II	III	IIIa, IIIb, IV, IVa, V
I, II	6	8	10
III	8	8	10
IIIa, IIIb, IV, IVa, V	10	10	15

N o t e s *: 1. Fire resistance grading of buildings should comply with the requirements of SNiP 2.01.02-85.

2. The distance between buildings and constructions is the clear distance between the exterior walls and other structures. In case a building has structures projecting by over 1 m, or structures made of flammable materials, the distance considered is the distance between such structures.

3. The distance between windowless walls of buildings can be reduced by 20%, except buildings of fire resistance grades IIIa, IIIb, IV, IVa and V.

4. In regions with the seismicity over 9 points, the distance between residential buildings, as well as between residential and public buildings of fire resistance grades IVa and V should be increased by 20%.

5. The distance from buildings of any fire resistance grade to buildings of fire resistance grade IIIa, IIIb, IV, IVa, V within the coastal belt 100 km wide, but not farther than the nearest mountain ridge, in climatic subregions IБ, IГ, IIA and IIБ should be increased by 25%.

6*. The distance between residential buildings of fire resistance grades IV and V in the climatic subregions IA, IБ, IГ, IД and IIA should be increased by 50 %.

7. For two-storeyed buildings of framed and paneled structure with the fire resistance grade V, fire safety distances should be increased by 20%.

8. The distances between fire safety grade I and II buildings are allowed to be less than 6 m with the condition that the wall of a higher building located opposite the other building is fire-preventative.

9. The distances from one- or two-apartment residential buildings and household outstandings (shed, garage, sauna) on an individual land lot to residential buildings and household outstandings at neighbouring land lots are adopted in accordance with Table 1 with regard to Note 10.

The distances between a residential building and household outstandings, as well as between household outstandings within the limits of one land lot (independent of the developed area) are not standardized.

10. The distances between residential buildings, as well as residential buildings and household outstandings (sheds, garages, saunas) are not standardized in case the total developed area, including areas between buildings, is equal to the maximum allowable area for one building (storey) of the same fire resistance grade without fire-preventative walls in compliance with the requirements of SNiP 2.08.01-89.

11. The distances between household outstandings (sheds, garages, saunas) located outside the territories of cottage land lots are not standardized in case the developed area occupied by blocked household outstandings does not exceed 800 m^2. The distances between groups of blocked household outstandings are adopted as in Table 1*.

2*. In the course of designing drives and pedestrian crossings, it is necessary to provide for the possibility for fire engines to drive up to residential and public buildings, including those with built-on and built-in rooms, and for access of firemen from car ladders or lifts to any flat or room.

The distance from the edge of the drive to the walls of a building should normally be 5-8 m for buildings with up to 10 storeys, and 8-10 m for buildings with more than 10 storeys. Within this zone, it is not allowed to place fences, aerial electricity transmission lines and line planting of trees.

Along the facades of buildings having no entrances, it is allowable to provide lanes 6 m wide, suitable for passage of fire engines with regard to the maximum allowable load onto the paving and the soil.

3*. The distances from residential and public buildings to Group I storehouses for oil and oil products should be adopted in accordance with the requirements of SNiP II-106-79, and to Group II storehouses

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for flammable liquids being parts of boiler-houses, diesel power stations and other power objects servicing residential and public buildings – not less that set out in Table 2.

Table 2

Storehouse capacity, m^3	Fire resistance grade of residential and public buildings		
	I, II	III	IIIa, IIIb, IV, IVa, V
Over 800 up to 10000	40	45	50
« 100 « 800	30	35	40
up to 100	20	25	30

N o t e . The distances from the walls of children's pre-school establishments, comprehensive schools, boarding schools, healthcare and recreational establishments, show-industry and sports facilities to storehouses with the capacity of up to 100 m^3 should be increased twice, and to storehouses with the capacity over 100 m^3 – as set out in SNiP II-106-79.

4. Access to rives and water reservoirs should be provided for fire engines to pump up water.

5*. The distances from the borders of developed areas of urban settlements to forestland must be at least 50 m, and from developed areas of rural settlements and horticultural partnership land lots – at least 15 m.

In urban settlements for districts with one- or two-storeyed individual cottages with adjacent land lots, the distance from the borders of such lots to forestland can be reduced, though must be at least 15 m.

6*. The service radius of a fire station must not exceed 3 km. The number of fire stations in a settlement, the size of their developed area, as well as the number of fire engines - are adopted in accordance with the standards for designing fire safety objects (VSN-1-91 SPASR), approved by the Ministry of Internal Affairs of the Russian Federation.

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ANNEX 2
Compulsory

REQUIREMENTS TO RECEIVING AGREEMENT ON PLACING OBJECTS IN THE AREA OF AIRPORTS AND OTHER TERRITORIES, WITH REGARD TO SAFETY OF AIRCRAFT FLIGHTS

Operations and organizations that have to provide their agreement are defined by the area headquarters of the Air Force unit, in whose responsibility zone the construction is intended. The address of the headquarters is provided by regional authorities to the organization that ordered the design documentation or designer organizations.

Placement of the following objects is subject to the agreement process:

1) all objects within the limits of clearways, as well as outside the clearways within the radius of 10 km from the aerodrome reference point (ARP);

2) objects within the radius of 30 km from the ARP, the height of which relative to the aerodrome is 50 m or more,

independent of location:

3) objects with the height from the ground surface equal to 50 m or more;

4) communication lines, electricity transmission lines, as well as other radio and electro-magnetic radiation objects which can create disturbance in the normal work of radio-technical devices;

5) explosion hazardous objects;

6) torches for emergency burning of released gas[1];

[1] When defining the height of torches, the maximum height of the flameout is taken into consideration.

7) industrial and other operations and structures whose work can result in deterioration of visibility conditions in the area of aerodromes.

Placement of objects listed in pp. 3 - 7 above, independent of their location, is also subject to reconciliation with the area military headquarters and the headquarters of the Air Force unit on whose territory and in whose responsibility zone the construction is intended.

It is forbidden to place food waste disposal points and build fur farms, slaughterhouses and other objects characterized by attraction and mass concentration of birds closer than 15 km to the aerodrome reference point.

N o t e s : 1. The above agreements lose validity in case the construction does not start within three years.

2. The aerodrome reference point is located close to the geometric centre of the aerodrome:
with one runway – in its centre;
with two parallel runways – in the middle of the line connecting their centres;
with two non-parallel runways – at the junction of perpendiculars erected from the centres of the runways.

3. Documents submitted to receiving agreement on placing high-rise structures must in all cases contain coordinates for the location of the structures being designed.

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ANNEX 3*
Recommended

SIZES OF LAND LOTS ADJACENT TO INDIVIDUAL COTTAGES AND FLATS

The sizes of land lots assigned to individual houses or flats by residential buildings, dependent on the types of residential buildings used, the character of the area under development (the environment), its placement within the structure of towns of various sizes, are as follows:

400 - 600 m^2 and more (including the developed area) – in case of one- or two-apartments one- or two-storeyed houses in cottage-type development areas in the new peripheral territories or in case of reconstructing the existing cottage-type development areas of small towns, in the reserve territories of small and medium towns in agricultural regions, in new or developing settlements in the suburban zones of towns of any size;

200 - 400 m^2 (including the developed area) – in case of one-, two- or four-apartments one- or two-storeyed houses in cottage-type development areas in the new peripheral territories of small, medium and big towns, in the reserve territories of big towns, in case of reconstructing the existing individual cottage areas and in the new and developing settlements in the suburban zone of towns of any size;

60 - 100 m^2 (without the developed area) – in case of apartment one-, two- or three-storeyed buildings in blocked-type development areas in the new peripheral territories of small, medium and big towns, in new and developing settlements in the suburban zone of large-scale and first-scale cities and in the conditions of reconstructing the existing individual cottage-type development areas in towns of any size;

30 - 60 m^2 (without the developed area) – in case of apartment one-, two- or three-storeyed blocked buildings or 2-, 3-, 4(5)-storeyed buildings with the complex three-dimensional structure (including cases applicable to apartments on the ground floor only) in towns of any size in case high-density low-rise development type is applied, and in the conditions of reconstruction.

N o t e *. In compliance with the Land Code of the Russian Federation, when performing high-density-type development of settlements, land lots for personal auxiliary needs adjacent to the house (apartment) are provided with smaller dimensions, with the remaining area allotted outside the residential area of the settlements.

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ANNEX 4

Recommended

ESTIMATED DENSITY OF THE POPULATION OF THE TERRITORY OF A RESIDENTIAL DISTRICT AND A RESIDENTIAL NEIGHBOURHOOD UNIT

It is recommended to assume the estimated density of the population, persons per ha, for the territory of a residential district at least as set out in Table 1, and for the territory of a residential neighbourhood unit – at least as set out in Table 2. The number of zones with different urban development values of their territory, and their borders are defined upon agreement with the Chief Architect of the town (the region) with regard to the estimated cost of land, the density of utility and transport arterial networks, public objects density, capital investments into land development, the presence of historical, cultural, architectural and landscape value objects.

Table 1*

Zones with different urban development values of the territory	Density of population of residential district, persons per ha, for groups of towns with the number of inhabitants, '000 persons						
	up to 20	20-50	50-100	100-250	250-500	500-1000	over 1,000
High	130	165	185	200	210	215	220
Medium	-	-	-	180	185	200	210
Low	70	115	160	165	170	180	190

Notes: 1. In case of construction to the north of 58° of latitude north, as well as on sites requiring complex land development measures, the density of the population should be increased, but by no more than 20%.

2. In the conditions of reconstructing the existing developed area in the central parts of historic towns, as well as in the presence of historical, cultural, architectural and landscape value objects in other parts of towns, the density of the populations is determined in the design assignment.

3. In the individual cottage-type development districts and in settlements where no construction of centralized utility systems is planned, it is allowable to reduce the density of the populations, however it should be assumed as at least 40 persons per ha.

4*. In seismic regions the estimated density of the population should be assumed in accordance with the regional (territorial) construction standards.

Table 2

Zones with different urban development values of the territory	Density of population in a neighbourhood unit, persons per ha, for climatic sub-regions		
	IБ an part of sub-regions IA, IГ, IД and IIA to the north of 58° latitude north	IB, IIБ and IIB to the north of 58° latitude north and part of sub-regions IA, IГ, IД and IIA to the south of 58° latitude north	To the south of 58° latitude north, except part of sub-regions IA, IГ, IД and IIA, included into the zone
High	440	420	400
Medium	370	350	330
Low	220	200	180

Notes: 1. The borders of the estimated territory of a neighbourhood unit should be set along the frontage line of arterial and residential streets, along the axes of drives or pedestrian routes, along natural borders, and in the absence of such – at the distance of 3 m from the buildings. The estimated territory must not include the areas of sites of regional and municipal objects, of objects having historical, cultural, architectural and landscape value, as well as of objects of daily usage intended for the population of adjacent neighbourhood units within the standardized access radii (proportional to the population serviced). The estimated territory should include all the areas of sites of daily usage objects serving the estimated population, including those located on adjacent territories, as well as underground and above the land surface. In the conditions of reconstructing already developed areas, the estimated territory of a neighbourhood unit should include the territory of streets separating the blocks and preserved for pedestrian traffic inside the neighbourhood unit or used to drive up to buildings.

2. In the conditions of reconstructing an already developed area, the estimated density of the population can be increased or decreased, though by no more than 10%.

3. In large-scale and first-scale cities, in case of high-density construction with 2-, 3-, 4(5)-storeyed residential buildings used, the estimated density of the population should be assumed as no less than that for a zone with medium urban

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development value; in case of developing sites requiring complex land development measures – no less than that for a zone with high urban development value of the territory.

4. In seismic regions the estimated density of the population should be assumed as set out in the regional (republican) standards, as a rule, no more than 300 persons per ha.

5. In case of forming a common physical culture and health improvement centre for school children and the general population of a neighbourhood unit, and reducing the proportional sizes of sports grounds set out in Cl.2.13 of this Code, appropriate increase of the density of the populations should be applied.

6. In case of developing territories adjacent to forests and recreational forests or surrounded by them, the total area of green territories can be reduced, but by no more than 30%, with the density of the population increased appropriately.

7. The density parameters are given for the estimated housing provision of 18 sq.m per person. In case of other housing provision parameters, the estimated standardized density P, persons per ha, should be calculated according to the formula below:

$$P = \frac{P_{18} \cdot 18}{H},$$

where P_{18} – the density parameter with 18 m^2/person.;

H – estimated housing provision, m^2.

ANNEX 5
Recommended

ESTIMATED DENSITY OF POPULATION ON THE TERRITORY INTENDED FOR BUILDING OF A RURAL SETTLEMENT

Type of building	Density of population, persons per ha, with the average number of family members, persons							
	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0
Cottage-type with adjacent land lots, m, м^2:								
2000	10	12	14	16	18	20	22	24
1500	13	15	17	20	22	25	27	30
1200	17	21	23	25	28	32	33	37
1000	20	24	28	30	32	35	38	44
800	25	30	33	35	38	42	45	50
600	30	33	40	41	44	48	50	60
400	35	40	44	45	50	54	56	65
Lamillar, with the number of storeys:								
2	-	130	-	-	-	-	-	-
3	-	150	-	-	-	-	-	-
4	-	170	-	-	-	-	-	-

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ANNEX 6
Recommended

WAREHOUSE LAND LOTS AREAS AND SIZES

Table 1

Area and sizes of land lots of general goods warehouses, per 1,000 people.

General goods warehouses	Area of warehouses, m^2		Land lots area, m^2	
	for towns	for rural settlements	for towns	for rural settlements
Food products	77	19	310* 210	60
Non-food products	217	193	740* 490	580

* The numerator shows standards for one-storeyed warehouses, the denominator – for multi-storeyed ones (with the average height of a storey being 6 m).

Notes: 1. When placing general goods warehouses within specialized groups, it is recommended to reduce the sizes of land lots by up to 30%.
2. In the zones where goods are delivered for the long term, the areas of land lots should be increased by 40%.
3. Inventory levels for general goods warehouses in terms of the number of retail trading days (turnover) are set by the trade governance bodies of republics, regions and federal towns.
4. In case goods are mostly stored in rural settlements, the area of warehouses and the sizes of land lots in such settlements can be increased, with simultaneous reduction of such parameters in towns.

Table 2

Capacity and sizes of land lots of specialized warehouses per 1,000 people

Specialised warehouses	Capacity of warehouses, tons		Land lots area, m^2	
	for towns	for rural settlements	for towns	for rural settlements
Distributor refrigerators (for storage of meat and meat products, fish and fish products, butter, adipose, dairy products and eggs)	27	10	190* 70	25
Fruit storage facilities	17			
Vegetable storage facilities	54	90	1300* 610	380
Potato storage facilities	57			

* The numerator shows standards for one-storeyed warehouses, the denominator – for multi-storeyed ones.

Notes: 1. In regions of potatoes, fruit and vegetables cultivating and purchasing, the capacity of warehouses and, correspondingly, the land lots areas, are taken with the coefficient 0.6.
2. The capacity of potato and fruit storage facilities and the sizes of land lots for such facilities in towns should be reduced through organizing storage outside the towns, the share of which is established by trade governance bodies of republics, regions and federal towns.

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Table 3

Capacity of warehouses for rotational and expeditionary settlements, per capita

Warehouses, measurement units	Capacity of warehouses for settlements	
	rotational	expeditionary
Dry provisions, m^3	0.3	3.5
Refrigerators, tons	0.01	0.1
Vegetable, potatoes, fruit storage facilities, tons	0.5	0.5

Note. The warehouse standard for dry provisions and refrigerators is set proceeding from a monthly stock for rotational, and annual stock – for expeditionary settlements. The standards for vegetables, potatoes and fruit storage facilities are set proceeding from the annual stock.

Table 4

Sizes of land lots for construction materials and solid fuels warehouses, per 1,000 people

Warehouses	Sizes of land lots, m^2
Construction materials warehouses (consumer)	300
Solid fuels warehouses, mostly used for:	
coal	300
firewood	300

Note. The sizes of land lots for solid fuels warehouses for the climatic sub-regions IA, IБ and IГ should be taken with the coefficient 1.5, and for the climatic region IV – with the coefficient 0.6.

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ANNEX 7*
Recommended

SERVICE INSTITUTIONS AND ENTERPRISES CALCULATION STANDARDS AND LAND LOTS SIZES

Institutions, enterprises, structures, unit of measurement	Amount[1]	Land lots sizes	Comments
	Popular schooling establishments		
Children's preschool institutions, child vacancy	Set dependent on the demographic structure of the settlement, with regard to the rated level of providing children with preschool institutions being within 85%, including 70% of general type, 3% - of specialised type and 12% of sanative type. For new settlements[2] with no demographic data available, the rate of up to 180 child vacancies per 1,000 persons should be assumed; however, within the residential areas no more than 100 child vacancies per 1,000 persons should be placed.	Dependent on the capacity of kindergartens, m per child: up to 100 children – 40, over 100 - 35; for a complex of kindergartens for over 500 children – 30. The sizes of land lots can be reduced: by 30-40% in the climatic sub-regions IA, IБ, IГ, IД and IIA; by 25% —in the conditions of reconstruction; by 15% - in case of placement on a relief with the gradient over 20%; by 10% - in new settlements (at the expense of green areas).	The area of a group site for junior kindergarten children should be assumed as 7.5 m^2 per child vacancy. Playgrounds for preschool children can be placed off the sites of general-type children's pre-school institutions.
Roofed swimming pools for pre-school children, object	As set out in design assignment		
Comprehensive schools, pupils	Should be assumed with regard to 100% coverage of children with incomplete secondary education (1^{st}-9^{th} classes), and up to 75% coverage of children – with full secondary education (10^{th}-11^{th} classes) with one shift of lessons. In new settlements the rate assumed should be at least 180 pupils per 1,000 persons.	Dependent on the capacity of school, pupils[3]: Over 40 up to 400 .... 50 m^2 per 1 pupil " 400 " 500 ..... 60 " " 500 " 600 ..... 50 " " 600 " 800 ..... 40 " " 800 " 1100 ..... 33 " "1100 " 1500 ..... 21 " "1500 " 2000 ..... 17 " "2000 .....16 "	The sizes of school land lots can be: reduced by 40% in the climatic sub-regions IA, IБ, IГ, IД and IIA, by 20%— in the conditions of reconstruction; increased: by 30% — at rural settlements, if no special lots are assigned on the soviet farms and collective farms lands for school training and experimental works. The sports zone of a school can be combined with the sports and health improvement complex of the neighbourhood unit.
Boarding schools, pupils	According to the design assignment	Dependent on the capacity of the comprehensive boarding school, pupils: Over 200 up to 300 70 m^2 per 1 pupil	In case the dormitory building is located on the school site, the land lot should be increased by 0.2 ha

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		" 300 " 500..... 65 " " 500 and more..... 45 "	
Inter-school training and production complex, student vacancy[4]	8% of the total number of schoolchildren	The recommended size of land lots of inter-school training and production complexes is at least 2 ha, and in case an automobile or tractor training ground is set up – 3 ha.	The auto-tractor training ground should be placed outside the territory intended for building
Nonschool institutions, child vacancy[4]	10% of the total number of schoolchildren, including the following dependent on the types of buildings: a Pioneers and Schoolchildren's Palace (House) – 3.3%; a Young Technicians' Station – 0.9%; a Young Naturalists' Station – 0.4%; a Young Tourists' Station – 0.4%; a Children's and Youth Sports School – 2.3%; a Children's School of Arts, or a musical, arts or choreography school – 2.7%	According to the design assignment	
Secondary specialized and professional technical educational establishments, students	According to the design assignment with regard to the population of the central town and other settlements in the zone of its influence	Dependent o the capacity of the professional technical colleges and secondary special educational establishments, students: up to 300.....75 m^2 per student over 300 up to 900..... 50-65 " " 900 " 1600..... 30-40 "	The sizes of land lots can be reduced: by 50% in the climatic sub-regions IA, IБ, IГ, IД and IIA and in the conditions of reconstruction, by 30% - for institutions specializing in the humanities; increased by 50% - for agricultural educational establishments located in rural settlements. In case the educational establishments are cooperated and educational centres are set up, it is recommended that the sizes of the land lots be reduced dependent on the capacity of the educational centres, students: from 1500 to 2000 ..... by 10% over 2000 " 3000 ....." 20 " " 3000 ...." 30 " The sizes of the residential zone, the training and auxiliary farming units, training grounds and auto-tractor grounds are not included into the above sizes.
Higher educational establishments, students	According to the design assignment	Higher educational establishments zones (educational zone), ha per 1,000 students: universities,	The size of the land lot of a higher educational establishment can be reduced

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		technical higher educational establishments — 4—7; agricultural — 5—7; medical, pharmaceutical — 3—5; economic, pedagogical, cultural, artistic, architectural— 2—4; qualification improvement institutes and distance-training establishments – according to the profile with the coefficient of 0,5; specialized zone – according to the design assignment; sports zone - 1—2; students' dormitory zone - 1,5—3. Physical education higher educational establishments are designed in accordance with the design assignment	by 40% in the climatic sub-regions IA, IБ, IГ, IД and IIA and in the conditions of reconstruction. In case of cooperated placement of several higher educational establishments on one site, it is recommended to reduce the total territory of the land lots of the educational establishments by 20%.
Healthcare, Social, Sports, Physical Culture and Health Improvement Facilities			
Boarding facilities			
Homes for the elderly, war and labour veterans organized by production alliances (enterprises), paid rest homes, places per 1,000 people (aged from 60 and above)	28	According to the design assignment	Design standards for social establishments should be specified dependent on the social and demographic peculiarities of the region
Homes for adult invalids with physical disabilities, places per 1,000 people (aged from 18 and above)		As above	
Children's homes, places per 1,000 people (aged from 4 to 17)	3	"	
Psychoneurological home, places per 1,000 people (aged from 18 and above)	3	Dependent on the capacity of the facilities, places: Up to 200 ..... 125 m per 1 place over 200 up to 400 ..100 " " 400 " 600 ..80 "	
Specialised residential buildings and groups of flats for veterans of war and labour and for unattached elderly persons, persons per 1,000 people (aged from 60 and	60	-	

above)			
Specialised residential buildings and groups of flats for invalids using wheel-chairs, and their families, persons per 1,000 people of the total population	0,5	-	
Healthcare facilities			
Hospitals of all types for adults with auxiliary buildings and structures, beds	The required capacity and the structure of medical treatment and prevention establishments are defined by the healthcare bodies and stated in the design assignment	Dependent on the capacity of a hospital, beds: Up to 50 ....300 m per 1 bed over 50 up to 100 ..300-200 " " 100 " 200 .. 200-140 " " 200 " 400 .. 140-100 " " 400 " 800 ..100- 80 " " 800 " 1000 ... 80-60 " " 1000 60	In case of a bed for children, the rate for the whole of the hospital with the coefficient 1.5 is applicable. In case two or more hospitals are located on one site, the total area occupied should be calculated proceeding from the rate applicable to the total capacity of the hospitals. In the climatic subregions IA, IБ, IГ, IД and IIA, as well as in the conditions of reconstruction and in large-scale and first-scale cities, hospital land lots can be reduced by 25%. The sizes of land lots of hospitals located in the suburban zone should be increased dependent on the type: infectious and oncology – by 15%, tuberculosis and psychiatric – by 25%, rehabilitation treatment for adults – by 20%, for children – by 40%. The area of land lots of maternity hospitals should be assumed according to the standards for hospitals with the 0.7 coefficient applied.
Polyclinics, ambulance stations, dispensaries without hospitals, visits per shift		0.1 ha per 1,000 visits per shift, but not less than 0.3 ha	The sizes of land lots of a hospital and a polyclinic (dispensary) united into one medical treatment and prevention facility, are defined separately according to the appropriate standards, and then added up
Emergency ambulance stations (substations), ambulance car	1 per 10,000 people within the 15-minutes' zone of access with the specialized car	0.05 ha per car, but no less than 0.1 ha	

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Mobile emergency ambulance stations, ambulance car	1 per 5,000 persons of rural inhabitants, within the 30 minutes' zone of access with the specialized car	As above	
Medical attendant's or medical attendant's and obstetrical centres, objects	According to the design assignment	0.2 ha	
Chemist's stores, categories:	According to the design assignment		
I - II		0.3 ha or built-in	
III - V		0.25 " "	
VI - VIII		0.2 " "	
Baby dairy products 'kitchens', portion per day per 1 child (aged under 1 year)	4	0.015 ha per 1,000 portions a day, but no less than 0.15 ha	
Baby dairy products distribution centres, m^2 of overall area per 1 child (aged under 1 year)	0.3	Built-in	
Sanatorium - resort and sanative establishments, recreational and tourism establishments			Specific standards for land lots within the ranges set out are defined dependent on the local conditions. The sizes of land lots are given without the areas of household zones, which are set in accordance with Cl. 3.15 of this Code, included
Sanatoriums (tuberculosis ones excluded), bed	According to the design assignment	125—150 m^2 per 1 bed	At the already existing seaside and mountain resorts and in the conditions of their reconstruction, as well as for the recreational centres in the suburban zones of large-scale and first-scale cities, the sizes of land lots can be reduced, but by no more than 25%
Sanatoriums for parents with children and children's sanatoriums (tuberculosis ones excluded), bed	As above	145-170 "	
Sanatoriums – medical prevention centres, bed	"	70—100 "	In case a sanatorium – medical prevention centre is placed within the limits of a town, the sizes of land lots can be reduced but by no more than 10%

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Sanative pioneer camps, place	"	200 "	
Recreational homes (holiday hotels), place	"	120-130 "	
Recreational homes (holiday hotels) for families with children, place	"	140-150 "	
Recreational centres of enterprises and organisations, youth camps, place	"	140-160 "	
Resort hotels, place	According to the design assignment	65-75 "	
Pioneer camps, place	As above	150-200 "	
Sanative camps for senior schoolchildren, place	"	175-200 "	
Summer cottages of pre-school establishments, place	"	120-140 "	
Tourist hotels, place	"	50-75 "	For tourist hotels placed in first-scale and large-scale cities, public centres, the sizes of land lots can be assumed as per standards established for public hotels
Tourist centres, place	"	65-80 "	
Tourist centres for families with children, place	"	95-120 "	
Motels, place	"	75-100 "	
Camping, place	"	135-150 "	
Asylums, place	"	35-50 "	
Physical culture and sports facilities			
Territory		0.7— 0.9 ha per 1,000 people	Physical culure and sports facilities of the common use network should normally be united with sports objects of comprehensive schools and other educational establishments, recreational and cultural establishments, with the territory reduced as possible. In the climatic sub-regions IA, IБ, IД and IIA the stated sizes of land lots of physical
Premises for physical training and health improvement activities in a neighbourhood unit, m^2 of total area per 1,000 people			
Public gymnasiums, m^2 of the floor space per 1,000 people			

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Public roofed and open swimming-pools, m^2 of the water surface per 1,000 people				culture and sports facilities can be reduced down to 50%. For small settlements, the gymnasium and swimming pools standards should be taken with regard to the minimal capacity of the objects according to the technological requirements. Physical culture and health improvement grounds are provided for each settlement. Municipal physical culture and sports facilities should be placed within 30 minutes of access. The share of physical culture and sports facilities placed in a residential area should meet the following percentage of the general standard, %: territories — 35, gymnasiums — 50, swimming pools —45
Gymnasiums and roofed swimming pools for climatic sub-regions IA, IБ, IГ, IД and IIA, m^2 of the floor space, water surface per 1,000 people			According to the design assignment	Settlements with 2,000-5,000 inhabitants, one gymnasium should be provided with the area 540 m^2
For settlements, ‘000 people	Gymnasium	Swimming pool		
over 100	120	50		
" 50 up to 100	130	55		
" 25 " 50	150	65		
" 12 " 25	175	80		
" 5 " 12	200	100		
	Culture and Arts Establishments			
Premises for mass cultural, political and educational work with the population, for leisure and hobby activities, m^2 of floor space per 1,000 people	50 — 60		According to the design assignment	It is recommended to form common complexes to organize mass cultural, physical training and health improvement, political and educational work to be used by students and the population (with the appropriate standards added up) within the pedestrian access range of no more than 500 m. The weight of dance halls, cinema-houses and clubs of district use is recommended
Dance halls, place per 1,000 people	6		As above	
Clubs, guests per 1,000 people	80		"	
Cinema-houses, seats per 1,000 people	25-35		"	

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Theatres, seats per 1,000 people	5-8	"	as 40—50%. The minimal values for the number of places/seats at culture and arts establishments should be assumed for first-scale and large-scale cities. Placement, capacity and the area of land lots of planetariums, exhibition halls and museums are determined in the design assignment. Circuses, concert halls, theatres and planetariums are normally provided for towns with the population of 250,000 people and more, and cinema-houses – for settlements with the population of at least 10,000 people. Universal sports and show-halls with artificial ice should normally be provided in central towns of settlement systems with the number of inhabitants exceeding 100,000 people.
Concert halls, places per 1,000 people	3,5-5	"	
Circuses, seats per 1,000 people	3,5-5	"	
Lecture-halls, seats per 1,000 people	2	"	
Attraction and game-machines halls, m^2 of floor space per 1,000 people	3	"	
Universal sports and show-halls, including the ones with artificial ice, places per 1,000 people	6-9	"	
Municipal mass libraries per 1,000 of people of the service zone dependent on the population of the town, '000 people[5]:		"	
over 50	4 thousand storage items 2 reader's seats	"	
" 10 up to 50	4-4,5 2-3 "	"	
Additionally at the central municipal library per 1,000 people dependent on the population of the town, '000 people:			
500 and more	0.1 thousand storage items 0.1 reader's seat		
250	0.2 0.2 "		
100	0.3 0.3 "		
50 and less	0.5 0.3 "		

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Clubs and libraries of rural settlements			
Clubs, visitor place per 1,000 people for rural settlements or their groups, ‘000 people:			The smaller capacity figures are for bigger settlements
over 0.2 up to 1	500-300		
" 1 " 2	300-230		
" 2 " 5	230-190		
" 5 " 10	190-140		
Village mass libraries per 1,000 people of the service zone (based on 30-min.’s accessibility) for rural settlements or their groups, ‘000 people:			
over 1 up to 2	6-7.5 thousand storage items 5-6 reader seats		
" 2 " 5	5-6 4-5 "		
" 5 " 10	4,5-5 3-4 "		
Additionally at the central library of the local settlement system (administrative district) per 1,000 people of the system	4,5-5 3-4 "		
Trade, Catering and Consumer Services Enterprises			
			Calculation standards include the whole network of enterprises providing trading and consumer services independent of their departmental accountability, and are subject to specifying within the established procedures with regard to the peculiarities of the republics and the regions. In case of utility systems and communications are supplied autonomously and in case auxiliary buildings and structures are placed within the site, the area of the land lot can be increased by up to

				50%.
	Urban settlements[6]	Rural settlements		
Shops, m^2 of sales floorspace per 1,000 people	280 (100)	300	Local trading centres with the population served, '000 people:	The calculation standard for non-food products shops in towns includes commission shops proceeding from the ratio of 10m^2 of the sales floorspace per 1,000 people. Catering service shops and cooperative shops shall be taken as set out in the design assignment additionally to the established calculation standard for food products shops, approximately 5-10m^2 of the sales floorspace per 1,000 people. Horticultural partnerships settlements should be provided with shops at the rate of 80m^2 of sales floorspace per 1,000 people
Including			from 4 to 6.....0,4-0,6	
Food products shops, object	100 (70)	100	ha per object over 6 " 10 .....0.6-0.8 "	
Non-food product shops, object	180 (30)	200	" 10 " 15 .....0,8-1,1 " " 15 " 20 .....1,1-1.3 "	
			Trading centres of small towns and rural settlements with the number of inhabitants, '000 people: up to 1.... 0.1-0.2 ha over 1 up to 3..0.6-0.8 " " 3 " 4...0.4-0.6 " " 5 " 6...0.6-1.0 " " 7 " 10. 1.0-1.2 "	
			Trading enterprises, m^2 of sales floorspace: up to 250 .....0.08 ha per 100m^2 of sales floorspace over 250 up to 650 ..... 0.08-0.06 " " 650 " 1500 ..... 0.06-0.04 " " 1500 " 3500 ..... 0.04-0.02 " " 3500.....0.02 "	At industrial operations and other workplaces, catering service stations should be provided for, proceeding from the following ratio, m^2 , of area per 1,000 employees: 60 — in case the industrial operations are placed far away from the territory intended for building; 36 – in case industrial operatiosn are placed by the borders of the territory intended for building; 24 — in case workplaces are placed within the territory intended for building (at the sites of shops or at separate objects)
Market complexes, m^2 of sales floorspace per 1,000 people	24-40*	-	From 7 to 14m^2 per 1m^2 of sales floorspace of the market complex, dependent on the capacity: 14m^2 — if the sales floorspace is up	For a market complex, the rate of 6m^2 of sales floorspace per trading unit should be taken

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			to 600 m^2, 7 m^2 — over 3000 m^2	
Public catering operations, seat per 1,000 people	40(8)	40	Dependent on the number of seats, ha per 100 seats: up to 50 .....0.2—0.25 over 50 up to150 ....0.2—0.15 " 150 .....0.1	In resort towns and towns being centres of tourism, the calculation of the public catering network should be done with regard to the temporary population: at balneotherapeutic resorts – up to 90 seats, at climatic resorts – up to 120 seats per 1,000 people Demand for public catering operations at industrial enterprises, offices, organizations and educational establishments should be calculated according to the departmental standards per 1,000 of employees (students) on the maximal shift. In the production zones of agricultural settlements and other workplaces, as well as at field stations, so that the employees be served, provisions should be made for catering facilities proceeding from the ratio of 220 seats per 1,000 employees on the maximum shift.
				Purchasing operations of public catering are calculated proceeding from the standard of 300 kg a day per 1,000 people. For municipal mass recreational zones in large-scale and first-scale cities, the standards for public catering operations should be taken into consideration: 1.1 – 1.8 seats per 1,000 people.
Delicatessen shops, m^2 of sales floor space per 1,000 people	6(3)	-		
Consumer services enterprises, workplace per 1,000 people	9(2,0)	7		For production enterprises and other workplaces, the consumer services enterprises calculation parameter should be assumed as 5-10% against the overall standard.
Including:				
Direct services t the population	5(2)	4	Per 10 workplaces for operations with the capacity, workplaces:	

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			0.1 — 0.2 ha .... 10-50 0.05—0.08 " .... 50-150 0.03—0.04 " ....over 150	
Industrial operations for centralised catering service provision, object	4	3	0.5-1.2 ha	
Utility services enterprises				
Laundry, kg of wash per shift per 1,000 people Including:	120(10)	60		
launderettes, object	10(10)	20	0.1-0.2 ha per object	
commercial laundries, object	110	40	0.5-1.0 ha per object	The parameters for commercial laundries calculation is given with regard to servicing the public sector at up to 40 kg of wash per shift
Dry-cleaner's, kg per shift per 1,000 people Including:	11.4(4.0)	3.5		
Self-service dry-cleaner's, object	4.0(4.0)	1.2	0.1-0.2 "	
Commercial dry-cleaner's, object	7.4	2.3	0.5-1.0 "	
Saunas, places per 1,000 people	5	7	0.2—0.4 ha per object	In settlements provided with residential facilities with modern amenities, the standards for calculating the capacity of saunas ans sauna and sanative centres per 1,000 people can be reduced to 3 places; for towns placed in the climatic sub-regions IA, IБ, IГ, IД and IIA, — increased to 8, and in new settlements – to 10 places.
Governance Organizations and Establishments, Design Organisations, Credit and Finance Establishments and Communications Enterprises				
Post offices, object	Placement of post offices, consolidating delivery post offices, communication centres, Sojuzpechat agencies, telegraphs, international, long-distance, municipal and rural telephone stations, wire broadcasting stations of radio and TV objects, their groups, the capacity and the sizes of the land lots required for them should be taken from standards	Post offices of a neighbourhood unit, residential districts, for the population served, groups: IV—V(up to 9,000 people) .....0.07—0.08 III—IV(9—18 " ") ..... 0.09—0.1		

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	and rules of the ministries of communication of the RF and the Union republics.	II—III (20—25 " ") .....0.11—0.12 Post offices of a village, rural settlement for the population served, groups: V—VI(0.5—2 thousand people) ..... 0.3—0.35 III—IV (2 —6 " ") .... 0.4—0.45	
Bank branches, operating cash desk	An operating office per 10—30 thousand people	ha per object: 0.2 — with 2 operating cash desks 0.5 — with 7 "	
Braches and subsidiaries of the USSR Savings Bank (Sberbank), operating desk:			
in towns	1 operating desk per 2—3 thousand people	0.05 — with 3 operating desks	
in rural settlements	1 operating desk per 1—2 thousand people	0.4 — with 20 "	
Governance establishments and institutions, object	According to the design assignment	Dependent on the number of storeys, m^2 per employee: 44—18.5 in case of 3—5 storeys 13.5—11 in case of 9—12 storeys 10.5 in case of 16 and more storeys	
		Regional and municipal governance bodies, m^2 per 1 employee: 54-30 in case of 3-5 storeys 13-12 in case of 9-12 storeys 11 in case of 16 and more storeys	
		Village and rural governance bodies, m^2 per 1 employee: 60-40 in case of 2-3 storeys	
Design organizations and bureaus, object	According to the design assignment	Dependent on the number of storeys, m^2 per employee: 30-15 in case of 2-5 storeys 9.5-8.5 in case of 9-12 storeys 7 in case of 16 and more storeys	
District (municipal people's courts), workplace	1 judge per 30 thousand people	0.15ha per object – with 1 judge	

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		0.4 ha per object – with 5 judges 0.3 ha per object – with 10 ordinaries 0.5 ha per object – with 10 ordinaries available	
Regional courts of justice, workplace	1 member of court per 60 thousand people of a region		
Legal consultancy, workplace	1 lawyer per 10 thousand people		
Notary office, workplace	1 notary per 30 thousand people		
Housing and Communal Establishments			
Housing exploitation organisations, object:			
of a neighbourhood unit	1 object per neighbourhood unit with the population of up to 20,000 people	0.3 ha per object	
of a residential district	1 object per residential district with the population of up to 80,000 people	1 ha per object	
Secondary materials collection station, object	1 object per neighbourhood unit with the population of up to 20,000 people	0.01 ha per object	
Hotels, bed per 1 thousand people	6	Dependent on the capacity of the hotel (number of beds), m^2 per 1 bed: from 25 to 100-55 over 100 " 500-30 " 500 " 1000-20 " 1000 " 2000-15	
Public toilets	1 device per 1 thousand people		
Undertaker's office	1 object per 0.5— 1 mln people		
Funeral rites place	1 object per 0.5— 1 mln people		
Traditional cemetery	-	0.24 ha per 1 thousand people	The sizes of land lots allotted for
Urn cemetery for burial after cremation	-	0.02 per 1 thousand people	burial can be specified depending on the correlation between traditional cemeteries and cemeteries for burial after cremation defined according to the local conditions

[1] Service establishments and enterprises calculation standards are not applicable to designing service establishments and enterprises located within the territory of industrial operations, higher educational establishments and other labour sites. The standards set out are the target ones for the rated period for preliminary calculation and must be specified according to the social norms and standards, designed and approved within the established procedures. The structure and the capacity of the

service establishments and enterprises of inter-settlement application are determined in the design assignment with regard to the role of the settlement designed within the settlement system.

[2] New settlements include existing and newly created municipal and urban settlements, the population of which, with the construction workers involved into construction of objects of production and non-production purposes included, increases two and more times during the period of launching the first installation.

[3] With 40 pupils per class, with the area of the sports zone and the school building included.

[4] In towns, inter-school training and production complexes and non-school institutions are placed within the territory intended for building with regard to accessibility by transport of no more than 30 min. In rural settlements, premises for non-school facilities should be provided in the buildings of comprehensive schools.

[5] The standards given are not applicable to scientific, universal and specialized libraries, whose capacity is set in the design assignment.

[6] The figures in parenthesis are the calculation standards for local enterprises which relate to the arrangement of service systems in a neighbourhood unit or a residential district.

* Shall be adopted dependent on the climatic conditions and regional peculiarities. The maximum values are intended for the climatic region IV. The ratio between the areas assigned for the year-round and the seasonal trading is set in the design assignment.

ANNEX 8
Recommended

CATEGORIES AND PARAMETERS FOR AUTOMOBILE ROADS OF THE SUBURBAN ZONES OF TOWNS AND SETTLEMENT SYSTEMS

Road category	Estimated speed of traffic, km/h	Lane width, m	Number of lanes	Minimum horizontal curve radii, m	Maximum longitudinal slope, $^{0}/_{00}$	Maximum width of roadbed, m
Arterial:						
high speed traffic	150	3,75	4—8	1000	30	65
core sectoral with uninterrupted and regulable traffic	120	3,75	4—8	600	50	50
core zonal with uninterrupted and regulable traffic	100	3,75	2-4	400	60	40
Local:						
cargo traffic	70	4,0	2	250	70	20
park	50	3,0	2	175	80	15

Notes: 1. In complicated topographic and natural conditions, it is allowable to reduce the estimated speed of traffic down to the value for the next road category below, with appropriate adjustment of the parameters for the horizontal curves and the longitudinal slope.
2. In case automobile traffic is highly uneven by directions in ‘rush hours’, it is allowable to set up a detached central lane for reversing passenger cars and autobuses traffic.
3. In arterial roads with prevailing cargo traffic, the width of a lane should be increased to 4 m, and in case the share of heavy-hauler traffic is over 20% of the general traffic – up to 4.5 m.

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ANNEX 9
Recommended

AUTOMOBILE PARKING LOTS CALCULATION STANDARDS

Recreational territories, recreational objects, buildings and structures	Units	Number of car parking spaces per unit
Recreational territories and objects		
Beaches and parks in recreational zones	100 simultaneous visitors	15-20
Recreational forests and natural reserves	As above	7-10
Short-term recreational centres (sports, skiing, fishing, hunting etc)	As above	10-15
Coastal base for small vessel fleet	As above	10-15
Holiday hotels and sanatoria, medical prevention and treatment centres, recreational centres of enterprises and tourist centres	100 vacationers and employees	3-5
Hotels (tourist and resort)	As above	5-7
Motels and campings	As above	По расчетной вместимости
Public catering, trading and utility service enterprises in recreational zones	100 seats in halls or simultaneous visitors and employees	7-10
Horticultural partnerships	10 land lots	7-10
Buildings and structures		
Governance institutions, credit and finance, law institutions of the following levels:		
republican	100 employees	10-20
local	As above	5-7
Scientific and design organizations, higher and secondary educational establishments	As above	10-15
Industrial operations	100 employees working on two adjacent shifts	7-10
Hospitals	100 beds	3-5
Policlinics	100 visits	2-3
Sports buildings and facilities with tribunes with the capacity above 500 spectators	100 seats	3-5
Theatres, circuses, concert halls, museums, exhibitions	100 seats or simultaneous visitors	10-15
Recreational parks	100 simultaneous visitors	5-7

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Trading centres, department stores, shops with the sales floor-space above 200 m^2	100 m of sales space	5-7
Markets	50 trading places	20-25
Municipal importance restaurant and cafes	100 places	10-15
Top-class hotels	As above	10-15
Other hotels	As above	6-8
Stations of all types of transport	100 long-distance and local passengers arriving at the 'rush hour'	10-15
Final (peripheral) and zonal stations for high-speed passenger transport	100 passengers at the 'rush hour'	5-10

Notes: 1. The length of pedestrian access ways from temporary automobile storage parking lots to objects in mass recreational zones must not exceed 1,000 m.
2. In the capitals of the republics, in resort towns and towns being tourism centres, provisions should be made for parking lots for tourist autobuses and passenger cars, the number of which is defined by means of calculation. The mentioned parking lots must be placed with regard to the convenient access to sightseeing objects, but not more than 500 m away from them, and not interfere with the integrity of the historic environment.
3. The number of car spaces should be assumed with regard to the automobilisation levels determined for the rated period.

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ANNEX 10
Recommended

STANDARDS FOR LAND LOTS ASSIGNED TO GARAGES AND TRANSPORT FLEETS

Objects	Units	Capacity of object	Land lot per object, ha
Multi-level garages for passenger taxis and automobile rental centres	Taxi, rentable car	100 300 500 800 1000	0.5 1.2 1.6 2.1 2.3
Cargo cars garages	Automobile	100 200 300 500	2 3.5 4.5 6
Tramway depot:			
without repairs workshops	Wagon	100 150 200	6 7.5 8
with repairs workshops	Wagon	100	6.5
Trolleybus depots without repairs workshops	Car	100 200	3.5 6.0
Same, with repairs workshops	Car	100	5.0
Autobus depots (garages)	Car	100 200 300 500	2.3 3.5 4.5 6.5

Note. For the conditions of reconstruction, the sizes of land lots, provided there is proper justification, can be reduced but by no more than 20%.

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ANNEX 11
Recommended

DOMESTIC WASTE ACCUMULATION STANDARDS

Domestic waste	Amount of domestic waste per capita per annum	
	kg	litres
Solid:		
from residential buildings provided with running water, sewerage, central heating and gas	190-225	900—1000
from other residential buildings	300-450	1100-1500
Total amount across the town with public buildings included	280-300	1400-1500
Liquid from cesspools (in the absence of sewerage)	-	2000-3500
Amount swept from $1m^2$ of paving of streets, squares and parks	5-15	8-20

Notes: 1. The high parameters for waste accumulation standards should be taken for large-scale and first-scale cities.
2. For towns of the climatic regions III and IV, the annual domestic waste accumulation standard should be increased by 10%.
3. Solid waste accumulation standards for the climatic sub-regions IA, IБ, IГ with local heating provided should be increased by 10%, and in case brown coal is used – by 50%.
4. The accumulations standards for large-size domestic waste should be assumed as 5% of the set parameters for solid domestic waste.

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ANNEX 12
Recommended

AGGREGATIVE ELECTRICITY CONSUMPTION PARAMETERS

Degree of settlement development	Electricity consumption, kWt · h per annum per capita	Maximal load usage, hours per annum
Towns, not equipped with fixed electric cookers:		
without air conditioning	1700	5200
with air conditioning	2000	5700
Towns equipped with fixed electric cookers (100% coverage):		
without air conditioning	2100	5300
with air conditioning	2400	5800
Villages and rural settlements (without air conditioning):		
not equipped with fixed electric cookers	950	4100
equipped with fixed electric cookers (100% coverage)	1350	4400

Notes: 1. The aggregative electricity consumption parameters are given for large towns. The following coefficients should be applicable to other groups of cities and towns:
first-scale 1.2
large-scale 1.1
medium 0.9
small 0.8
The above aggregative parameters include electricity consumption at residential and public buildings, communal and utility services enterprises, exterior lighting, municipal electric transport (no metro included), water supply systems, water disposal systems and heal supply systems.
2. The conditions for using fixed electric cookers in residential areas, as well as the regions with domestic air conditioners used by the population, should be assumed in accordance with SNiP 2.08.01-89.

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