KOMMUNAL- OG REGIONALDEPARTEMENTET

Draft regulatory provisions

Technical Regulations to the Planning and Building Act

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KOMMUNAL- OG REGIONALDEPARTEMENTET

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Chap. I General provisions

Section 1-1 Purpose

These regulations are intended to ensure that all projects are planned, designed and constructed out of consideration for good visual aesthetics, universal design and in a manner whereby the project meets technical standards for safety, health, energy use and the environment.

Section 1-2 The Regulations' application to particular projects

1. For agricultural buildings and similar buildings for domestic animals outside of agriculture, the following apply:
   a) Chapter I to Chapter V inclusive
   b) Chapter VI Sections 6-2 no. 1, 6-4 nos. 2 - 3 and 6-5
   c) Chapter VII Sections 7-3 nos. 1 – 3, 7-4 no. 1, 7-10 nos. 1 – 3, 7-12 no. 1, 7-13 nos. 1 – 4, 7-14 nos. 1 – 3, 7-15 no. 1, 7-16 nos. 1 – 6, 7-17, 7-18 and 7-19
   d) Chapters VIII and IX
   e) Chapter X with the exception of Section 10-5
   f) Chapters XI to XIV inclusive
2. For a leisure home with a single dwelling unit, the following apply:
   a) Chapter I to Chapter V inclusive
   b) Chapter VII Sections 6-2 no. 1, 6-4 nos. 2 - 3
   c) Chapter VII Sections 7-3 nos. 1 – 3, 7-4 no. 1, 7-10 nos. 1 – 3, 7-12 no. 1, 7-14 nos. 1 – 3, 7-16 nos. 1 – 6, 7-17, 7-18 and 7-19
   d) Chapter VIII Sections 8-1, 8-2. 8-9, 8-10 and 8-11
   e) Chapter IX
   f) Chapter X with the exception of Section 10-4 for leisure homes under 150 m^2 BRA.
      Chapter X does not apply to leisure homes under 50 m^2 BRA.
   g) Chapters XI to XIV inclusive

   The same provisions apply to shelter for summer dairy farming, reindeer husbandry or forestry.
3. For structures and installations the provisions of Chapter I to Chapter V inclusive and Chapter VI to Chapter XIII inclusive apply insofar as they are appropriate. The same applies to temporary structures and installations.
4. These Regulations apply to temporary buildings, with the exception of Section 10-4. Chapter X does not apply to temporary buildings used as building site huts.

Chap. II Verification that requirements have been met

Section 2-1 Verification of functional requirements

1. For areas in which performance is not provided in the Regulations, compliance with the Regulations' requirements may be verified either
   a) by the construction works being designed in accordance with pre-accepted performance, or
   b) by an analysis that demonstrates that the Regulations' requirements have been complied with.
2. If compliance with the Regulations' requirements is verified by an analysis, it must be established that the method of analysis applied is suited to and valid for the purpose. The assumptions that apply shall be described and justification for them provided. The analysis shall state the necessary margins for adverse circumstances that may occur in connection with the use of the construction works.

Section 2-2 Verification of performance

Compliance with requirements for performance may be verified by using methods in accordance with Standards Norway or an equivalent standard.

Section 2-3 Documentation of solutions

Designers shall prepare adequate documentation confirming that solutions chosen meet the Regulations' requirements. Documentation shall be available to authorities and involved undertakings.

Chap. III Building density and rules for calculation

Section 3-1 Building density

1. *Purpose*

   Building density shall be stipulated for a limited area. The purpose is to regulate the volume of buildings above ground level and the total area of buildings.

2. *Methods of calculation*

   Building density may be stipulated in provisions of the land-use part of the municipal master plan or zoning plan.

   One or more of the following methods of calculation shall be stated:

   a) Built-up area (BYA)
   b) Percentage of built-up area (%-BYA)
   c) Usable area (BRA)
   d) Percentage of usable area (%-BRA).

3. *Built-up area (BYA)*

   Built-up area is calculated on the basis of NS 3940, though such that parking area is included in the basis for calculation in accordance with no. 9.

4. *Percentage of built-up area (%-BYA)*

   Percentage of built-up area indicates the ratio between built-up area in accordance with no. 3 and the building plot area. Percentage of built-up area is written %-BYA = 00%.

5. *Usable area (BRA)*

   Usable area for buildings on a building plot is stated in m^2 and written BRA = 00 m^2.

   Usable area is calculated on the basis of NS 3940, though such that parking area is included in the basis for calculation in accordance with no. 9. In addition the following applies:

   a) For buildings with a storey height over 3 m, usable area is calculated as if a horizontal plane had been laid every three metres. It may be stipulated in plans for land use that usable area shall be calculated without the addition of hypothetical planes.
   b) For usable space below ground level, see no. 7.

6. *Percentage of usable area (%-BRA).*

   Percentage of usable area indicates the ratio between usable area in accordance with no. 5 and the building plot area. Percentage of usable area is written %-BRA = 00%.

7. *Usable area below ground level*

   Plan provisions shall stipulate how usable area fully or partly under ground level is included in calculations of utilisation.

8. *Minimum outdoor area (MUA)*

   For dwellings, schools, day nurseries, etc. the minimum outdoor area including play area should be indicated in plan provisions. MUA is stated in m^2 per dwelling/school/day nursery etc. and is written MUA = 00 m^2. The same also applies to other buildings where in the municipal authority's judgement it is necessary to set aside minimum outdoor area. Outdoor

areas are those parts of the building plot that are not built on or set aside for driving or parking and are suited to this purpose. Parts of terraces not covered by roofs and roof terraces may be counted as outdoor areas.

9. *Parking*

   An application for a project shall show how parking is to be provided. The area for parking is included in the calculation basis for building density.

10. *Building plot*

    In this chapter a building plot means land in the land-use part of the municipal master plan set aside as a building area. Unless otherwise stipulated in provisions of the individual plan, the stipulated building density also applies to the individual property.

11. *The height of buildings*

    Cornice height and roof ridge are to be specified with contour numbers or in metres from graded ground. Heights are measured as in Section 3-2 no. 2. Deviations from the height provisions of Section 24-9 first paragraph of the Planning and Building Act must be stipulated in the individual plan. The municipal authority may in the provisions of the municipal plan stipulate heights for various parts of a building.

Section 3-2 Rules for calculation

1. *Number of storeys*

   The number of storeys in a building is the sum of measurable storeys and levels lying above one another and that constitute the main part and additional part of the building. However, the following storeys and levels are not included in the number of storeys:

   a) a basement containing only an additional part that has a ceiling less than 1.5 m above the average ground level around the building after grading

   b) a mezzanine having usable area less than 1/5 of the underlying full storey

   c) attic containing only an additional part and having a usable area less than 1/3 of that of the underlying storey

2. *Height*

   The cornice height is the height to the intersection between the outer surface of the external wall and the roof surface. Where the wall is provided with a turret or a parapet protruding more than 0.3 m above the roof surface at the parapet, the height is taken as the height to the top of the turret or parapet. The cornice height is measured relative to the mean height of the ground around the building after grading.

   The ridge height is the height from the upper edge of the ridge to the mean height of the ground around the building after grading.

   The height as described in Section 29-4 second paragraph of the Planning and Building Act is the average cornice height facing the boundary against the adjacent property in question.

   The municipal authority may stipulate in its planning provisions that heights shall be measured relative to graded ground, street level or a contour height to be specified further.

   For a building which extends across a block of houses, the municipal authority decides which heights are to be used for the various parts of the building. The same applies to corner buildings and to construction works covering a very large area or having an unusual shape.

3. *Distance*

   The distance is measured as the shortest horizontal distance between the façade line of the construction works and that of the adjacent construction works or adjacent boundary. For construction works with cornices or other projections, the distance is to be increased by as much as the projection exceeds 1 m.

4. *Area*

   Minor projects as described in Section 29-4 third paragraph litra b) of the Planning and Building Act are buildings in which neither the total usable area nor built-up area exceeds 50 m^2. This provision applies accordingly to other minor projects that cannot be measured in accordance with NS 3940.

Chap. IV Construction products

Section 4-1 General requirements for construction products

1. The provisions of this chapter apply to products manufactured and placed on the market for incorporation into construction works and implement Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (Construction Products Directive).
2. For construction products ordered or manufactured for particular construction works, and the method of manufacture is not a part of the manufacturer's ordinary activity, only Sections 4-2, 4-3, 4-13, 4-14, 4-15 and 4-16 apply.
3. For construction products that are not of material importance for the construction works to meet the requirements in these Regulations, only Sections 4-2, 4-3, 4-13, 4-14, 4-15 and 4-16 apply.
4. Products for construction works with documented characteristics pursuant to these Regulations may freely be placed on the market and incorporated in construction works when the product's characteristics meet the requirements deriving from these Regulations.

Section 4-2 Essential requirements for documentation of construction products

1. Any product covered by the Construction Products Directive shall have such characteristics that when they are properly used, help the construction works to meet essential requirements for:

   a) mechanical resistance and stability

   b) safety in case of fire

   c) hygiene, health and the environment

   d) safety in use

   e) protection against noise

   f) energy economy and heat retention

   as described in detail in these Regulations and in Annex I to the Construction Products Directive.
2. The product shall be subjected to systems of approval and control pursuant to the requirements that apply in connection with attestation of conformity, cf. Section 4-5.

Section 4-3 Placing on the market and use of construction products

1. Manufacturers and importers of construction products shall ensure that the product's characteristics are documented and that the product documentation is available before the product is placed on the market or used in construction works.

2. The documentation shall state the product's characteristics in accordance with relevant technical specifications and the product's origin. The documentation shall be in Norwegian or another Scandinavian language.
3. Before a distributor places a product on the market, he shall check to make sure that the product is accompanied by satisfactory product documentation pursuant to these Regulations. It is not permitted to use incorrect or incomplete information that is liable to be misleading regarding the product's lawful use in construction works or regarding the product's characteristics.
4. Before a product is incorporated in construction works, the product's characteristics shall be documented so that it can be verified that the construction works meet the requirements of these Regulations.

Section 4-4 Technical specifications

1. Product documentation for construction products shall be prepared on the basis of technical specifications. Technical specifications are:
   a) Harmonised European product standards published in the Official Journal of the European Community.
   b) European technical approvals published in the Official Journal of the European Community, or
   c) national technical specifications regarded as conforming to the essential requirements and published in the Official Journal of the European Community.
2. Other satisfactory technical specifications may be used, provided that they do not infringe the EEA Agreement.
3. For construction products for which a harmonised European product standard exists, product documentation shall be prepared on the basis of this standard.

Section 4-5 Assessment and declaration of conformity

1. Product documentation for construction products shall contain an assessment and declaration of conformity with the relevant technical specification.
2. The procedures for attestation of conformity, stated in resolutions of the European Commission or the technical specification for the product, shall be followed.
3. The manufacturer or his agent shall ensure that evaluations of conformity and declarations of conformity are in accordance with what is stated in the relevant technical specification.

Section 4-6 Reciprocal approval

1. If a construction product may lawfully be marketed in other EEA member state, the product shall be approved for marketing in Norway without new testing or verification.
2. Nevertheless, further documentation may be required in cases where it can be proved that the levels of protection in Norway and other EEA member states diverge.

Section 4-7 Lifting equipment

This provision applies to lifting equipment such as lifts, escalators, moving walkways, low-speed lifts, platform lifts, and stair lifts, with the exception of lifting equipment that is part of a manufacturing process.

1. Lifts and appurtenant safety components shall comply with European Parliament and Council Directive 95/16/EC (Lifts Directive).
2. Other lifting equipment shall comply with European Parliament and Council Directive 2006/42/EC (Machinery Directive).
3. As the basis of EC type-approval, the conformity assessment shall be performed by a technical inspection body. The product shall be assessed against technical specifications and against relevant safety requirements in the Directives.
4. For lifts and appurtenant safety components in accordance with the Lifts Directive and for other lifting equipment in accordance with the Machinery Directive, the installer of lifts or other lifting equipment shall perform a conformity assessment according to the procedure laid down in the respective Directives.

Section 4-8 Hot-water boilers fired with liquid or gaseous fuels

This provision applies to hot-water boilers fired with liquid or gaseous fuels and which have a rated output of between 4 kW and 400 kW. The provision does not apply to boilers which can use various types of fuel.

1. Hot-water boilers shall have a conformity declaration, or EC type approval, which includes the boiler's energy efficiency. The type approval shall be performed by a technical inspection body and assessed directly against the safety requirements described in the Directive that apply to the product in question.
2. Type testing and assessment shall be performed in accordance with rules given in or in pursuance of, respectively:
   a) Council Directive 1992/42/EEC on hot-water boilers
   b) Council Directive 90/396/EEC relating to appliances burning gaseous fuels
   c) The Directive on coordinating rules on CE marking, Council Directive 93/68/EEC

Section 4-9 Heat generators for space heating and hot water production

This provision applies to requirements for minimum performance of heat generators for space heating and the production of hot water in new or existing non-industrial buildings. Heat generators include hot water containers, steam boilers, hot air heating plants with components, and especially associated burner equipment adapted to the type of fossil fuel used.

1. Such appliances shall be inspected at the production site or at installation by a technical inspection body and shall be labelled with the essential technical data related to energy.
2. The inspection and labelling shall be performed in accordance with the rules in Council Directive 82/885/EEC, amending Council Directive 78/170/EEC on the performance of heat generators etc.
3. The following heat generators are exempted from the Directive.

a) Heat generating appliances that make use exclusively of electrical resistance heating.

b) Heat pumps

c) Connections to district heating systems

d) Heat generators fired by solid fuels.

e) Boilers with flue gas condensation

Section 4-10 Insulation of distribution and storage systems

The distribution and storage system for the heat-carrying medium and hot tap water in new non-industrial buildings shall be insulated in an economically proper manner.

This provision also applies to systems connected to district heating systems and to new heat generators, including systems for electric heating of water in new and existing non-industrial buildings.

Section 4-11 Technical inspection body

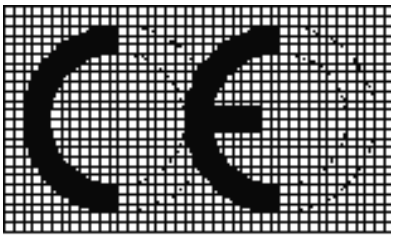
1. A technical inspection body has been designated pursuant to the rules in Act No. 20 of 16 June 1994 relating to technical inspection bodies to perform conformity assessments of construction products to determine whether they conform to the given technical specification.
2. A technical inspection body shall be accredited by a national accreditation body to perform conformity assessments of construction products to determine whether they conform to the given technical specification.
3. A technical inspection body that has not been accredited may be nevertheless designated, provided that the designating authority can document before the European Commission and the EFTA Surveillance Authority that the body possesses the necessary expertise to perform certain conformity assessments.

Section 4-12 CE marking

1. A construction product bearing the CE mark shall be freely be able to be placed on the market without further assessments of requirements pursuant to these Regulations.
2. A construction product may be marked with the CE mark when the product when properly used will contribute to the construction works meeting the essential requirements in Section 4-2 no. 1 of these Regulations. The manufacturer or his agent affixes the mark to the product.

   The CE mark shows that the product complies with a harmonised European product standard published in the Official Journal of the European Communities or a European technical approval published in the Official Journal of the European Communities, cf. Section 4-4 no.1 of these Regulations.
3. Lifts and appurtenant safety components that comply with essential requirements stated in the Lifts Directive shall be CE marked.
4. Lifting equipment that complies with essential requirements stated in the Machinery Directive shall be CE marked.
5. Hot-water boilers that comply with requirements stated in the directive concerning hot-water boilers shall be CE marked.

6. The CE mark shall consist of the letters "CE" in the following graphic form:



7. If the CE mark is reduced or enlarged, the proportions appearing in the model above shall be retained.
8. The CE marking shall include:
   a) the identity number of the body participating in the production control phase
   b) the manufacturer's name or identifying mark
   c) the last two digits of the year the marking was affixed and, if necessary, the product certificate number
   d) declared product characteristics, classification and similar as stated in directives applying to the product.

   The various parts of which the CE mark consists shall insofar as possible be of the same height and not under 5 mm.
9. Information that is necessary from the standpoint of safety shall be in Norwegian.

Section 4-13 Products with defects

1. Construction products with a defect with regard to these Regulations, including incomplete or incorrect documentation, shall not be placed on the market or used in construction works.
2. The provision also applies to construction products that may involve a hazard to safety, health or the environment, even though they have been attested as being in conformity with the requirements.

Section 4-14 Market surveillance authority

1. The National Office of Building Technology and Administration is the surveillance authority in Chapter IV of these Regulations regarding product documentation for construction products.
2. The Ministry of Local Government and Regional Development is the appeals body for decisions issued by the surveillance authority.

Section 4-15 Market surveillance actions

1. The surveillance authority may require submission of product documentation and other information that is available in connection with placing on the market and use of construction projects, including conformity declarations and testing and calculation data used in preparation of product documentation.
2. The surveillance authority shall be granted access to products, rooms, spaces or other areas deemed necessary for performing an assessment of the product.

3. In the event there are grounds for suspicion that construction products have been placed on the market or are being used without satisfactory product documentation pursuant to these Regulations, the construction authority and other public authority that considers projects for approval under sectoral legislation covered by Section 29-7 of the Planning and Building Act shall report the matter to the surveillance authority.

Section 4-16 Reactions from the surveillance authority

1. If the surveillance authority finds that construction products do not have satisfactory product documentation pursuant to these Regulations, including incomplete or incorrect documentation, it may issue an administrative order to cease and desist marketing, sale and use of the product until satisfactory product documentation exists. The surveillance authority may impose coercive fines pursuant to Section 35-5 of the Planning and Building Act if the order is not complied with.
2. The surveillance authority may issue orders to recall products as described in the first paragraph or require other actions to ensure that the product is brought into compliance with the rules in these Regulations.
3. The surveillance authority can impose violation fines pursuant to Section 32-8 of the Planning and Building Act in the event construction products are placed on the market or used without satisfactory product documentation pursuant to these Regulations.
4. If the manufacturer or his agent decides of his own accord to recall a product from the market on account of incomplete or incorrect product documentation, notification of this shall be sent to the surveillance authority.
5. In cases where normal or reasonably expected use of construction products may pose a serious risk to safety, human health or the environment, the surveillance authority may temporarily suspend marketing, sale and use of the product in order to perform necessary examinations and safety assessments.

Section 4-17 Fees

1. The surveillance authority may charge a fee for duties connected with performing a market surveillance.
2. If a construction product is nevertheless in compliance with the requirements of the Regulations, no fee shall be charged.

Chap. V Safety and load-bearing capacity

Section 5-1 Personal and material safety

Construction works shall be sited, designed and constructed in such a way that they do not represent any danger to persons and domestic animals such that any collapse or accident does not result in an unacceptably great material damage or loss to society.

Section 5-2 General requirements for safety in case of acts of nature

1. Construction works shall be sited, designed and constructed in such a way that achieves satisfactory safety against damage from acts of nature.
2. Projects shall be designed and constructed so that construction works, building land and adjacent ground are not exposed to danger or material nuisance as a consequence of the project.
3. The layout and siting of construction works that may pose a hazard on account of the intended use of the construction works shall be assessed in particular.

Section 5-3 Safety against floods

Construction works in the safety classes for floods, F1, F2 and F3, shall be sized or secured against floods so that the standard figures in the table below are not exceeded. In cases where there is a risk to human life, the same safety levels as for avalanches apply, cf. Section 5-4.

Table: Safety classes for siting construction works in flood-prone areas

Safety class for floods	***Impact***	***Greatest nominal annual probability***
F1	*slight*	1/20
F2	*moderate*	1/200
F3	*severe*	1/1000

Section 5-4 Safety against slides and avalanches

1. Construction works where the impact of a slide or avalanche, including secondary effects of a slide or avalanche is particularly severe shall not be sited in a slide- or avalanche-prone area.
2. Construction works in the safety classes for slides and avalanches, S1, S2 and S3, shall be sized or secured against slides and avalanches so that the standard figures in the table below are not exceeded. For safety class S3 the greatest nominal annual probability shall be determined on the basis of the impact of a slide or avalanche.

Table: Safety classes for siting construction works in slid- and avalanche-prone areas

Safety class for slides and avalanches	***Impact***	***Greatest nominal annual probability***
S1	*slight*	1/100
S2	*moderate*	1/1000
S3	*severe*	<1/1000

Section 5-5 Safety against secondary effects of rock falls

This provision has been circulated for comment separately.

Section 5-6 Structural safety

1. Materials and products in construction works shall have such properties that essential requirements for the construction works' mechanical resistance and stability are complied with.
2. Construction works shall be designed and constructed in such a way that they are adequately safe against failure and have sufficient rigidity and stability for loads that may occur during use as intended. This requirement applies to construction works in their final condition and during construction. If the assumptions for use are changed, the construction works' safety shall be reassessed.
3. Essential requirements for the construction works' resistance and stability, including soil conditions, may be met when structures are designed according to Standards Norway NS-EN 1990 and underlying standards in the series NS-EN 1991 to NS-EN 1999, with appurtenant national supplements. NS 3490 with underlying standards for various structural materials may be used in a transitional period until the standards are withdrawn.

Section 5-7 Objects falling from construction works and collisions with construction works

1. Construction works shall be secured so that ice and snow cannot fall onto spaces where people and domestic animals may be.
2. Areas near construction works where people may be shall have free clearance from eaves and overlying fixed or movable parts of the construction works so as to prevent collisions.

Chap. VI Placement and developed outdoor areas

Section 6-1 Developed outdoor areas with a requirement for universal design

Developed outdoor areas intended for use by the public and large groups of people, as well as developed outdoor area for a work building, shall be designed according to universal design principles as they follow from the provisions of this chapter. Developed outdoor areas mean access, parking and outdoor space.

Section 6-2 Placement of construction works

1. Construction works shall be well-adapted to the terrain on the basis of considerations of visual aesthetics, natural conditions, safety, accessibility, usability, acoustic conditions and energy needs.
2. Construction works shall be sited so as to ensure sufficient outdoor space suitable for recreation and play.

Section 6-3 Outdoor space

1. Outdoor space shall be of sufficient size and usability such that it is fit for its purpose without posing a danger to persons.
2. Outdoor space shall be sited and designed in a manner that achieves good quality.
3. Play areas shall be shielded from traffic so as to avoid hazards.
4. Height differences within areas set aside for play and recreation shall be secured so as to prevent fall injuries.
5. Common outdoor spaces for a residential building requiring a lift shall be accessible and usable.
6. Outdoor spaces requiring universal design shall, in addition to nos. 1 – 4, be designed in accordance with the following:
   a) Developed area set aside for play and recreation shall also have a horizontal field with a solid surface of a minimum 1.5 m x 1.5 m, which enables participation and equitable use.
   b) Developed outdoor height differences shall be marked and secured.
   c) There shall be room for a wheelchair where seating is constructed.
   d) Developed swimming areas shall be equipped or designed so that it is easy to get in an out of the water.

Section 6-4 Access

1. In this chapter access means access on foot from a trafficable road and parking to and between the construction works and outdoor spaces.

   Construction works and outdoor spaces shall have satisfactory and safe access, adapted to expected traffic and transport.

   Access shall have a visual and tactile boundary.

2. Stairs shall be secure and easy to walk on. Stairs shall have an even pitch, and the tread and riser height shall be the constant for the entire length of the stair. For spiral or turning staircases, there should be sufficient tread for people to be able to negotiate the stairs comfortably on the inside diameter. Stairs shall have railings.

3. A ramp connected with the entrance to construction works shall be safe and easy to use.

4. A residential building shall have step-free access.
   Step-free access shall not have a gradient greater than 1:20. For short segments the maximum gradient may be 1:12. For each 0.6 m of height difference there shall be a resting landing of a minimum of 1.5 m x 1.5 m.

5. Access to a residential building requiring a lift shall in addition to requirements in nos. 1 – 4 have necessary lighting. Access shall have minimum clear width of 1.4 m with a solid surface of a minimum of 0.9 m.

6. For primary accesses to construction works and outdoor space requiring universal design, the following apply in addition to nos. 1 - 4:

   a) Access shall nave necessary lighting.

   b) In front of the entry there shall be an attention field with visual and tactile markings.

   c) Larger spaces and squares where the main walklines cross open spaces shall have the necessary guidance routes marked. Patterns in the roadways that provide misleading directional information shall be avoided.

   d) Access shall have minimum clear width of 1.8 m with a solid, non-slip surface of a minimum of 0.9 m. For shorter distances clear width can be a minimum of 1.4 m. Planting, posts, seating and other structures and equipment shall not reduce clear width. Cross-fall shall be satisfactory so as to achieve an even horizontal undersurface.

   e) Where in addition to step-free access there is a stair, it should have a tactile and visual warning field in front of the top step and an attention field in front of and up to the bottom step. Stairs shall have a non-slip surface and a visible contrast-marked stair front edge. Stairs shall have railings on both sides that follow the entire course of the stair and that end after the first and last step with a rounded edge.

   f) Ramps shall have a width adapted to expected transport. The minimum width shall be 0.9 m. Ramps shall have an even, non-slip surface and handrails on both sides. Ramps shall not have a pitch higher than 1:20. For segments under 3 m the pitch may be a maximum of 1:12. For each 0.6 m height difference there shall be a horizontal rest level with a minimum length of 1.5 m. The beginning and end of the ramp shall be marked for the entire width of the ramp.

Section 6-5 Vehicular access

Construction works shall have satisfactory vehicular access adapted to the construction works' function.

Section 6-6 Parking

1. Construction works shall have parking adapted to the construction works' function.
2. Construction works shall have sufficient parking space for expected goods deliveries.
3. Construction works and outdoor spaces requiring universal design, as well as buildings requiring a lift, shall have a sufficient number of parking spaces for persons with impaired mobility. The parking spaces shall be near the main entrance or near the lift in construction works with an underground car park. The same applies to outdoor spaces and guest parting in large residential areas. Parking shall be clearly marked and signposted.

Chap. VII Layout, communication routes etc.

Section 7-1 Construction works with requirements for universal design and accessibility

1. *Construction works with requirements for universal design*

   Construction works intended for use by the public and work buildings shall be universally designed in a manner pursuant to the provisions of this chapter.

2. *Building requiring accessible and usable dwelling unit(s)*

   Dwelling units with all main functions on the building's entry level and dwelling units in a building requiring a lift shall be accessible and usable by persons with impaired functionality in accordance with the provisions of this chapter. Main functions mean living room, kitchen, bedroom and toilet.

Section 7-2 Construction works requiring a lift

1. Construction works intended for use by the public and work buildings with two or more storeys shall have a lift. Smaller work buildings with two storeys and not much person traffic may have a low-speed lift.
2. Buildings with three or more storeys and a common entrance to at least three dwelling units located above one another shall have a lift. Residential buildings with three storeys and not much person traffic may have a low-speed lift. A low-speed lift shall serve a maximum of six dwelling units.
3. For construction works with three or more storeys, the lift shall be sized to accommodate a stretcher. This requirement does not apply to low-speed lifts.

Section 7-3 Layout

1. Construction works shall have a layout adapted to the construction works' function.
2. Construction works shall have a layout that minimises the risk of harm to persons and domestic animals.
3. Construction works shall have a layout that makes it easy for users to orient themselves.
4. *Residential building requiring accessible and usable dwelling unit(s)*

   The dwelling unit's main functions, including entrance hall, shall have a layout that makes possible flexible use. The dwelling unit shall be sized to accommodate a wheelchair. Turning spaces for wheelchairs shall be placed to enable wheelchair users to perform necessary functions in a satisfactory manner.

5. *Construction works with requirements for universal design*

   a) Construction works intended for use by the public shall have a layout and distribution of rooms that enables the most people possible to enter and use in an equal manner those parts of the construction works accessible to the public.

   b) Work buildings shall have a layout and distribution of rooms adapted to the needs of the workplace. Work buildings shall be designed to enable persons with impaired functionality to work in the businesses in the building, unless the building only can provide work places that are completely unsuited to persons with impaired functionality.

Section 7-4 Requirements for rooms

1. Each room shall have a layout, size and room height adapted to the function of the room. Rooms shall be designed to address the needs for safety, health, accessibility and usability. Room shall have sufficient space for fixed and loose interior fittings. Rooms for constant occupancy shall have minimum floor space of 7 m^2 BRA.

2. *Residential building requiring accessibility and usability*

   The dwelling unit's main functions shall be accessible and usable. It is sufficient that at least one bath/toilet is designed in accordance with the provisions of this chapter.

3. *Construction works with requirements for universal design*

   In addition to no. 1 the following applies:

   a) In construction works with a large number of rooms with the same function, it is sufficient for 1/10 of them to be universally designed in accordance with the provisions of this chapter. This does not apply to access to rooms or to construction works where all rooms shall be universally designed.

   b) There shall be lighting necessary to attain a minimum visible luminance contrast of 0.2 between floor and walls and ceiling and walls. The light source shall be low-glare.

   c) Floors, walls and ceilings shall not have reflective surfaces that may cause glare.

Section 7-5 Entrance

1. Entrances shall be clearly visible, central and easily comprehended from the access way.

2. *Residential building requiring accessible and usable dwelling unit(s)*

   a) The main entrance shall be clearly visible relative to surrounding surfaces. Entrances shall nave necessary lighting.

   b) The entrance shall be step-free. Outside of the entrance door there shall be a horizontal surface of a minimum of 1.5 m x 1.5 m to enable a wheelchair user to open and close the door.

   c) Entrance halls/entrances shall have free clearance outside of the furnishings zone and room for a turning circle 1.5 m in diameter for a wheelchair beyond the door's swing radius.

3. *Construction works with requirements for universal design*

   In addition to no. 1 and no. 2, a minimum of 1/10 of the wardrobe functions shall have an operating height of between 1.1 m and 1.4 m above the floor.

Section 7-6 Receiving dock

Receiving docks shall have a placement, access, size and design adapted to the function of the construction works.

Section 7-7 Areas intended for occupancy

1. Construction works shall have a areas intended for occupancy adapted to the construction works' function.

2. *Residential building requiring accessible and usable dwelling unit(s)*

The dwelling unit's areas intended for occupancy, such as the living room, kitchen and bedroom shall be sized to accommodate a wheelchair. Outside of the furnishings zone there shall be free clearance of 0.9 m to doors and windows.

3. *Construction works with requirements for universal design*

   In addition to nos. 1 – 2, the following applies:

   a) Room functions and audience seating shall have a size, design and lighting to enable equal participation.

   b) Podiums shall have marked step-free access.

   c) Reception shall be centrally located relative to the main access.

Section 7-8 Bath and toilet

1. Dwelling units shall have at least one bath with a toilet adapted to wheelchair use.

   a) The size and layout must be such that there is a minimum 1.5 m free floor space in front of the toilet, a minimum of 0.9 m free floor space on one side of the toilet and a minimum of 0.6 m on the other side. There shall be free passage width of 0.9 m up to the free clearance to the toilet.

   b) Walls in the shower and toilet zone shall provide mountings for subsequent installation of necessary equipment.

2. *Construction works with requirements for universal design*

   On each storey with a bath and toilet, a minimum of 1/10 shall meet the following requirements in addition to requirements in no. 1:

   a) Walls shall be in a contrasting colour with equipment.

   b) Toilets shall have a minimum of 0.9 m free floor space on both sides and shall have hand supports on both sides.

   c) There shall be free clearance under the sink.

   d) Shower spaces shall be a minimum of 1.8 m x 1.3 m, shower heads shall be height-adjustable and shower spaces shall have a wall-mounted support handle.

Section 7-9 Sheds/storage rooms and storage spaces

1. Dwelling units shall have sufficient space for storing clothing, food, bicycles, prams, sports equipment, outdoor furniture, etc.
2. Dwelling units shall have an interior storage room with a minimum 3 m^2 BRA. For one-room flats the interior storage room may be 1.5 m^2 BRA or a minimum of 2 metres in length of cupboards.
3. *Residential building requiring accessible and usable dwelling unit(s)*

   A storage space shall have step-free access.

4. *Residential building with more than one dwelling unit*

   Each dwelling unit shall have a minimum of 5 m^2 BRA storage space for bicycles, sports equipment, prams, etc.

Section 7-10 Balconies, terraces, etc.

1. Balconies, terraces, etc. shall be safe to use and have satisfactory quality of use.
2. Height differences and openings shall not pose a danger to persons.
3. Railings shall have a height and design that prevents persons from falling out. The height of the railing shall be a minimum of 1 m. Where the height difference to the underlying ground is more than 10 m, the railing height shall be a minimum of 1.2 m. Openings between uprights in the railing shall be a maximum of 0.1 m. Horizontal openings between the floor and railing shall be a maximum of 0.05 m to prevent children from injuring themselves.
4. *Residential building requiring accessible and usable dwelling unit(s) and construction works that shall have universal design.*

   In addition to nos. 1 – 3, the following applies:

   a) Balconies, terraces and outdoor spaces shall have free floor space for a wheelchair that provides room for a turning circle 1-5 m in diameter beyond the door's swing radius.

   b) There shall be step-free access to balconies, terraces and outdoor areas.

Section 7-11 Waste storage and source separation

1. There shall be facilities for source separation of waste. Waste storage or waste systems shall be designed and constructed so as to shield users of the building from annoying noise, odours or other nuisances.
2. *Residential building requiring accessible and usable dwelling unit(s) and construction works that shall have universal design.*

   In addition to no. 1 the following applies:

   A common waste system shall be in the proximity of dwelling units or workplaces, have step-free access and have an opening height between 0.6 m and 1.4 m.

Section 7-12 Sauna and freezer compartments

1. Doors in saunas and freezer compartments shall open outward and be able to be opened from the inside without the use of a key.
2. *Construction works with requirements for universal design*

   Saunas shall have clearance of 1.5 m in front of the bench.

Section 7-13 Communication routes

1. Communication routes shall be safe, appropriate and usable for the traffic and transport that can be expected.
2. Communication routes shall be easy to find and easy to orient oneself in.
3. Height differences and openings in the floor shall be secured so as not to pose a danger to persons or domestic animals. Height differences shall be clearly marked and have the necessary lighting.
4. Railings shall have a height and design that prevents persons and domestic animals from falling out. The height of railings shall be a minimum of 1 m. On stairs railings shall be a minimum of 0.9 m. Where the height difference is more than 10 m, the height of railings shall be a minimum of 1.2 m. Openings between uprights in railings shall be a maximum of 0.1 m. Horizontal openings between floor and railing shall be a minimum of 0.05 to prevent children from injuring themselves.

5. *Residential building requiring accessibility and usability*

   In addition to nos. 1 – 4, the following applies:

   Communication route to a dwelling unit shall be step-free.

6. *Construction works with requirements for universal design*

   In addition to nos. 1 – 4, the following applies:

   a) Communication routes shall be step-free.

   b) There shall be signage and marking providing the public with necessary information.

   c) Signage and marking shall be easy to read and easy to understand. There shall be lighting necessary to attain a minimum visual luminance contrast of 0.8 between text and ground colour. Signage and marking shall be placed accessible and easily visible to seated persons as well as those on foot.

   d) The number of storeys shall be visually and tactilely visible on all storeys.

   e) Blinding light shall be avoided.

Section 7-14 Doors

1. Doors shall be easy to see and easy to use. Doors shall have sufficient height and width adapted to expected transport and traffic.
2. Glass doors and glass areas shall be marked to prevent collisions. Large areas of glass in doors and side panels next to doors shall have panes of safety glass if they are not otherwise shielded.
3. Doors, gates, hatches, etc. shall be constructed so that they do not injure persons or domestic animals or damage equipment.
4. *Residential building requiring accessible and usable dwelling unit(s)*

   In addition to nos. 1 – 3, the following applies:

   a) Entry doors shall have a door cutout of a minimum of 0.9 m.

   b) Doors to the main functions in the dwelling unit shall have a door cutout of a minimum of 0.8 m.

   c) Doors from the bath and toilet shall open outward.

   d) For side-hinged doors, there should be a minimum of 0.5 free side clearance on the door-handle side and a minimum of 0.3 m on the door's swing side.

   e) Manual doors shall be designed to that they require maximum opening force of 20 N.

   f) Door openers/access controls for automatic doors shall be installed outside of the door's swing radius. They shall be easily visible and placed between 0.8 m and 1.2 m above the floor. Distances from inside corners shall be a minimum of 0.5 m.

5. *Buildings that shall have universal design*

   In addition to nos. 1 – 4, the following applies:

   a) Construction works intended for a large number of people shall have doors with a door cutout of a minimum of 1.2 m in communication routes. Other doors shall have a door cutout of a minimum of 0.9 m.

   b) Doors in other construction works shall have a door cutout of a minimum of 0.9 m.

c) Doors shall have lighting necessary to attain a minimum luminance contrast of 0.4 with surrounding walls.

Section 7-15 Corridors

1. Corridors and galleries shall have a width adapted to the traffic and transport that can be expected.
2. *Residential building requiring accessible and usable dwelling unit(s)*

   In addition to no. 1 the following applies:

   a) Corridors and galleries shall be step-free.

   b) Corridors and galleries shall have minimum clear width of 1.5 m. In long corridors sufficient floor space shall be set aside for two wheelchairs to pass. For shorter distances where doors do not open out into a corridor or gallery, the minimum width may be 1.2 m.
3. *Construction works with requirements for universal design*

   In addition to no. 1 and no. 2 the following applies:

   a) Columns shall be placed so as not to be an obstruction. To prevent a collision hazard, columns etc. shall have lighting necessary to attain either a minimum luminance contrast of 0.4 with their surroundings or marking with a minimum luminance contrast of 0.8 with the background colour.

   b) Auditory information shall be supplemented with visual information.

   c) Where the direction of path of travel is changed, directional information shall be provided if necessary. Repeating information shall be as identical as possible throughout the building.

   d) Large rooms, where the main walk lines cross open spaces, shall have the necessary guidance routes marked. Patterns in the floor that provide misleading directional information shall be avoided.

   e) The slope shall not be higher than 1:20.

Section 7-16 Stairs

1. Stairs shall be easy to walk on, have secure demarcations and have a handrail on both sides.
2. The width and heights of stairs shall be adapted to expected traffic and transport.
3. Stairs with straight flights shall have an even pitch with the same tread and riser height for the full length of the stair. The treads along the walkline shall be at least 0.25 m deep. Stairs that do not have straight flights shall have an effective width equivalent to stairs with straight flights. For curved stairs, the tread of the inside diameter shall be at least 0.15 m.
4. Landings shall have a sufficient size for stopping falls. There shall be a landing when the height difference is more than 3 m.
5. Stairwells shall be well lighted so that the steps are visible. Treads shall have a non-slip surface.
6. Internal stairs in a functional unit shall have minimum clear width of 0.8 m and minimum clear height of 2 m.
7. For main stairways, in addition to nos. 1 – 6, the following applies:

a) Stairs shall have a width of a minimum of 1.1 m and clear height of a minimum of 2.1.m.

b) There shall be handrails at two levels on both sides, with the upper edges 0.9 m and 0.7 m, respectively, above the front edge of the tread. Handrails shall continue 0.3 metres beyond the top and bottom steps with rounded ends. Handrails shall follow the flight of stairs continuously, also around the landing.

c) Marking of steps should be done in a manner to attain a luminance contrast of 0.8 with the colour of the steps. Marking of stair nosings on risers and treads shall be for the entire width of the stair for a maximum depth of 40 mm.

8. In construction works that shall have universal design, in addition to nos. 1 – 7, the following applies:

   a) The main stairway in construction works intended for use by the public shall have clear width of a minimum of 1.2 m.

   b) There shall be a warning area in front of the top step and an attention area in front of the bottom step for the entire width of the stair. The areas shall be tactilely and visually marked with a luminance contrast of 0.8 with the background colour. The same also applies to escalators.

   c) Handrails shall have a virtually round cross-section with a luminance contrast of 0.8 with the background colour. At the beginning of each storey the storey indication shall be marked tactilely on the underside of the handrail.

   d) On landings the distance from the front edge of the step or from the railing to the opposite wall shall be a minimum of 1.5 m.

Section 7-17 Ramps

1. Ramps shall have a width adapted to expected transport. Minimum widths shall be 0.9 m.
2. Ramps shall have an even and non-slip surface and handrails on both sides. Ramps shall not have a gradient greater than 1:20. For segments under 3 m, the gradient may be a maximum of 1:12. For each 0.6 m height difference there must be a horizontal resting level with a minimum length of 1.5 m.
3. The beginning and end of the ramp shall be marked on the entire width of the ramp. There shall be lighting necessary to attain a minimum visual luminance contrast of 0.8 between marking and ground colour. The same applies to passenger conveyors and moving walkways.

Section 7-18 Ladders

Ladders used in connection with the operation of the construction works shall be designed to prevent falls and be secured against use by unauthorised persons.

Section 7-19 Windows and glass areas etc.

1. Windows and glass areas etc. that when broken may cause harm to persons or domestic animals shall not be used unless they are secured against the risk of collision or falls. Securing may take the form of a parapet or screening with minimum height of 0.8 m up to the glass area or the use of safety glass.

2. Glass walls and large glass areas in communication routes shall have safety glass if they are not shielded in another manner.

   In communication routes where there may be a risk of collision, glass areas shall be contrast-marked with glass markings on both sides at two levels, with centre 0.9 and 1.5 metres above the finished floor. Patterns in glass markings on doors shall be different from those in glass markings on glass areas.

3. Windows in construction works where children may be present shall have a child-safety catch from the second story upward. Windows and other daylight openings shall be installed in a manner enabling them to be cleaned and maintained without this posing a danger.

Section 7-20 Operating buttons, handles, fixtures

1. *Residential building requiring accessible and usable dwelling unit(s) and work buildings requiring universal design.*

   Windows that can open shall have a single grip handle that requires little in the way of force to operate it and placed so that it can be reached from a seated position.

2. *Residential building requiring accessible and usable dwelling unit(s) and construction works that shall have universal design.*

   a) Operating panels for lighting, heat, ventilation and similar shall be designed so that they are easy to use and shall be placed at a height of 0.80 m to 1.20 m above the finished floor. Power sockets shall be installed a minimum of 0.5 m from a corner.

   b) Handles shall be placed at an operating height of between 0.8 m and 1.1 m, be designed with a functional grip and have an operating force that makes them easy to use.

   c) Sink and shower fixtures shall have a single grip handle. Shower fixtures shall also have a thermostat.

Chap. VIII Environment and health

Section 8-1 General requirements for the indoor environment

Buildings and installations shall be planned, designed, constructed, maintained and operated in a manner that ensures that the indoor environment is perceived as satisfactory. No health risks or unsatisfactory hygienic conditions shall arise, either for the building's users or its neighbours, when the building and the building's installations are used as intended.

Section 8-2 Air quality

1. Air quality in a building shall be satisfactory with regard to odours and pollution. Indoor air shall not contain pollutants in harmful concentrations that pose health hazards or cause irritation.
2. The building and the building's ventilation system shall be designed and placed with regard to the quality of the outdoor air. If the outdoor air is unsatisfactorily pure so as to pose a health risk or risk of fouling the ventilation equipment, it shall be purified before being piped into the building.
3. Account shall be taken of the design pollution load from humans.
4. Building and surface materials shall be chosen that emit low or no pollution to the indoor air.
5. Polluting activities and processes shall as far as possible be encapsulated, equipped with multi-point extraction and/or take place in spaces with suitable separate ventilation.

Section 8-3 General requirements for ventilation

1. Buildings shall have ventilation adapted to the pollution and humidity load of the rooms. Account shall be taken of room type, furnishings and equipment, as well as the pollution load from materials, processes, humans and domestic animals.
2. Ambient air shall not be used if this will result in the spread of pollution.
3. Air flow shall be from rooms with higher standards for air quality to rooms with lower standards for air quality.
4. In occupied rooms a minimum of one window or one door shall be able to be opened to the outside.
5. Air intake and exhaust shall be designed and placed so that it does not contribute to a higher pollution load under normally occurring climatic conditions.

Section 8-4 Ventilation in residential buildings

1. To ensure satisfactory quality of indoor air, rooms for constant occupancy shall have ventilation that ensures a minimum air supply of 1.2 m^3 per hour per m^2 floor space when the rooms or the dwelling are in use and a minimum of 0.7 m^3 per hour per m^2 floor space when the rooms or dwelling are not in use.
2. Bedrooms shall be supplied with a minimum of 26 m^3 of fresh air per hour per number of beds.
3. Rooms not intended for constant occupancy shall have ventilation that ensures 0.7 m^3 fresh air per hour per m^2 floor space.
4. Kitchens, showers/toilets and wetrooms shall have vents with satisfactory effectiveness.

Section 8-5 Ventilation in work buildings and buildings intended for use by the public

1. Necessary fresh air supply is determined on the basis of the pollution load from humans, building materials, processes and activities.
   a) Fresh air supply on account of pollution from persons shall be, for persons with light activity, a minimum of 26 m^3 per hour per person.
   b) For higher activity, fresh air supply shall be increased so that the air quality is satisfactory.
2. Outdoor air quantities that need to be supplied on account of odours or the irritation effects of substances emitted from building materials and fixtures shall be a minimum of 2.5 m^3 per hour per m^2 floor space.

Section 8-6 Cleaning before the building is occupied

To limit the amount of pollution to the indoor air and ensure good indoor air quality, surfaces in rooms, ducts etc. shall be cleaned and free of visible dust and grease before the building is occupied.

Section 8-7 Light and open view

1. Rooms shall have sufficient lighting without an annoying heat burden.
2. Rooms for constant occupation shall have a window that provides a satisfactory outward view and satisfactory access to daylight, unless the activity indicates otherwise.

Section 8-8 Indoor thermal climate

The indoor thermal climate in rooms for constant occupancy shall be regulated in a manner promoting health and satisfactory comfort when the rooms are used as intended.

Section 8-9 Moisture

1. *General requirements*

   Construction works and installations shall be designed and constructed in a manner that does not permit groundwater, precipitation, humidity in the air and supply water to cause moisture damage or health-related problems.

2. *Moisture from the ground*

   Necessary measures shall be put in place around building parts below ground level and under floor structures on the ground to divert seeping water and prevent moisture from penetrating into the structures.

3. *Surface water*

   The ground surface around construction works shall have a sufficient slope away from the construction works, unless other measures have been taken for surface water drainage.

4. *Precipitation*

   a) Façade cladding, windows, doors, and installations passing through walls shall be so designed as to allow precipitation that penetrates them to be drained away and moisture to dry out without damage occurring.

   b) Roofs shall be designed and constructed with a sufficient pitch and drainage so that rain and melted now drain away and so that snow melting does not result in harmful icing.

   c) In ventilated roof structures where condensation can occur on the underside of the roofing material or the roofing material is not sufficiently impermeable to prevent the penetration of water, the underlying structure shall be protected by a watertight sheathing

5. *Moisture from indoor air*

   Parts of buildings and structures shall be designed and constructed so that they do not suffer moisture damage from water vapour from the indoor air.

6. *Moisture in building*

   Materials and structures shall be so dry at the time of placing/sealing that problems of growth of micro-organisms, decay of organic materials and increased gas emission do not arise.

Section 8-10 Wetrooms and rooms with water installations

1. Wetrooms shall have a drain and floor with a sufficient slope towards the drain for the parts of the floor assumed to be exposed to water in a use situation. Rooms with drains shall have a watertight floor.
2. In wetrooms, underlying structures that may be adversely impacted by moisture shall be protected by a watertight surface material or a suitable watertight layer. Ducts etc. shall not compromise the seal. Materials are to be chosen to minimise the risk of mould and mildew formation.
3. In rooms that do not have a drain and watertight floor, water installations shall have an overflow device or equivalent safeguard against moisture damage. Floors and walls and roofs that may be subjected to water spills, leaking water or condensation shall be made with moisture-resistant surfacing materials.
4. Rooms with drains shall be designed so that any leak water is conducted to the drain. Rooms without drains shall be designed so that any leaks are made visible.

5. Walls with built-in cisterns or similar installations shall be protected against moisture penetration from leaks from the installation. Any leaks shall be made visible and in rooms other than wetrooms, the leak shall result in an automatic shut-off of the water.

Section 8-11 Radon

Buildings shall be designed and constructed with radon-prevention measures to limit the inflow of radon from the ground. Radon concentrations in indoor air shall not exceed 200 Bq/m^3.

Buildings intended for constant occupancy of people shall have a radon barrier between the building and the ground and suitable measures shall be put in place in the building ground that can be activated in the event of elevated concentrations of radon in the indoor air. The requirement for a radon barrier may be waived if it can be documented that this is unnecessary for meeting the Regulations' requirements for radon concentrations in indoor air.

Section 8-12 General requirements for acoustics and vibrations

1. Construction works and user areas that are part of construction works shall be planned, designed and constructed in a manner than ensures satisfactory conditions regarding acoustics and vibrations in the building works and in outdoor areas set aside for recreation. Satisfactory acoustic conditions shall be ensured for work, rest, recreation, sleep, concentration, communication, adequate comprehension of speech, hearing warning signals and the ability to orient oneself.
2. Acoustic and vibration conditions shall be planned, designed and constructed on the basis of intended use.
3. Where particularly high sound levels are assumed, special soundproofing measures shall be given importance in design and construction.
4. Construction works intended for use by the public and work buildings with appurtenant outdoor space, as well as common outdoor spaces for larger residential areas, shall have acoustic conditions in accordance with universal design.

Section 8-13 Sound insulation

1. *Airborne sound insulation*

   Partitions between user areas shall have sound insulation characteristics that ensure satisfactory acoustic conditions with regard to airborne sound in user areas or in surrounding spaces.

2. *Sound insulation of floors*

   Construction works shall be designed and constructed so that sound levels from impacts and structure-borne noise from a user area are so reduced that other user areas are ensured satisfactory acoustic conditions.

Section 8-14 Room acoustics

1. Rooms shall be designed and constructed so as to achieve satisfactory room acoustics.

2. Rooms in construction works intended for use by the public and work buildings shall have a room geometry and sound absorption characteristics that provide room acoustics that ensure equitable use.

Section 8-15 Noise from technical installations and outdoor noise

1. The technical installations of a building shall be located, designed, constructed, and if necessary, shielded so as to ensure satisfactory acoustic conditions in construction works/user areas, in outdoor space set aside for recreation and in rooms for constant occupancy in another building.
2. Construction works shall be sited, designed, constructed and, if necessary, shielded from outdoor noise so as to ensure satisfactory acoustic conditions in the construction works and in outdoor spaces set aside for recreation. This also applies to sources of structure-borne noise.

Section 8-16 Sound transmission systems

In construction works intended for use by the public and in relevant rooms in work buildings, adequate comprehension of speech at long distances shall be ensured, if necessary with the aid of a sound balancing system or central speakers with directional effect. Such systems shall be supplemented by an induction loop or other wireless sound transmission equipment. Entrances to rooms with amplified sound transmission shall be clearly marked.

Section 8-17 Vibration conditions

Construction works shall be sited, designed, constructed and, if necessary, shielded against vibrations from outdoor sources of vibrations and vibrations from activities and technical installations in construction works so as to ensure satisfactory acoustic and vibration conditions in the building and in outdoor spaces set aside for recreation.

Chap. IX Safety in case of fire

Section 9-1 General requirements

1. Construction works shall have a layout and be constructed in a way that ensures sufficient safety in case of fire for persons present in or on the works, for material assets, and for environmental and social aspects. This includes making it possible in a satisfactory way to rescue people and domestic animals and perform extinguishing work. Construction works shall be so sited and constructed as to ensure that the risk of fire spreading to other construction works becomes acceptably low.
2. Construction works where a fire may pose a serious environmental hazard or be of concern to essential community interests, shall be designed and constructed so that the risk of harm to the environment or other essential community interests is acceptably low.
3. In the event of a change in use, the entire construction works' fire safety must be re-evaluated by the designers.
4. In the case of alterations to existing construction works, the municipal authority may issue the building permit conditional on the implementation of fire precautions also in those parts of the building not included in the project being applied for.

Section 9-2 Hazard classes and fire classes

1. Hazard classes

a) Based on the risk of damage to life and health a fire can pose, construction works are divided into hazard classes, on which the design and construction of safe escape routes in case of fire are based. The hazard class of a building is determined on the basis of whether:

- the construction works are intended for occupancy of persons
- the persons in the construction works are familiar with its fire-escape routes and capable of getting to a place of safety unassisted in case of fire
- the construction works are intended for overnight stays
- the intended use of the construction works does not represent a serious fire hazard. Consideration is given to the probability of a fire arising, to whether a fire can develop rapidly, and to fire load.

b) Construction works are divided into hazard classes according to the table Hazard Classes, on which the design of escape routes etc. is based.

c) Fire sections containing activities in different hazard classes shall be constructed in accordance with the requirements of the hazard class providing the strictest requirements.

Table: Hazard classes

Hazard classes	Building works intended only for sporadic occupancy of persons	Everyone is familiar with possibilities for escape, including escape routes, and can get to safety unassisted	Construction works are intended for overnight stays	Intended use of the construction works does not represent a serious fire hazard.
1	yes	yes	no	yes
2	yes/no	yes	no	no
3	no	yes	no	yes
4	no	yes	yes	yes
5	no	no	no	yes
6	no	no	yes	yes

2. *Fire classes*

   Based on the impact a fire may have on life, health, community interests and environment, construction works are divided into fire classes according to the table Fire classes, on which determination of the construction works' load-bearing capacity etc. in case of fire are to be based.

Table: Fire classes

Fire class	Impact
1	Slight
2	Moderate
3	Serious
4	Very serious

Section 9-3 Measures to prevent ignition and the development and spread of fire and smoke

1. Construction works shall be designed and constructed such that the probability of a fire arising is reduced to an acceptable level and such the risk that fire and smoke will spread is reduced accordingly. The use of the construction works and time necessary for escape and rescue shall be taken into account.
2. Materials and surfaces that do not contribute to an unacceptable degree to the development of fire shall be chosen. Emphasis should be given to the time required for flash over, heat release, smoke production, and development of toxic gases.
3. Building works shall be divided into fire sections and fire compartments to reduce, delay or prevent the spread of fire and smoke, unless other measures prevent such spread.
4. *Fire compartments*

   a) Buildings are to be divided, in a feasible way, into fire compartments. The division shall be such that areas of different threats to the life and health of persons and/or different potentials for fire developing, are separated into different fire compartments, unless same level of safety is obtained by other means.

b) Fire compartments shall be of such layout and interior design that sounding the alarm, escape, rescue and extinguishing the fire may be accomplished in an expeditious and efficient manner.

c) Fire compartments shall be constructed in a manner the prevents the spread of fire and combustion gases to other parts of the fire section in the time necessary for escape and rescue.

5. *Fire sections*

a) Construction works shall be divided into fire sections so that a fire within a fire section does not result in an unreasonably great economic or material loss.

b) On the basis of intended fire-fighting efforts, a fire shall be able to be limited to the fire section in which it started.

6. *Technical installations*

a) Technical installations shall be designed and installed so that the installations do not substantially increase the risk that a fire will develop or spread.

b) Installations required to have a function during a fire shall be designed and built to maintain their function for the necessary time.

Section 9-4 Load-bearing capacity and stability in case of fire

1. Construction works shall be designed and constructed so that the construction works as a whole, as well as its individual parts, have satisfactory safety with regard to load-bearing capacity and stability.

2. *Designing for load-bearing capacity and stability in case of fire*

a) In designing for satisfactory load-bearing capacity and stability in case of fire, thermal load from the fire load and the progress of a fire that can be expected in the building works.

b) Load-bearing systems in building works in fire classes 1 and 2 shall be designed to maintain satisfactory load-bearing capacity and stability for a minimum of the time necessary to escape and rescue persons and domestic animals in or on the building works.

c) Main load-bearing systems in construction works in fire classes 3 and 4 shall be designed to maintain satisfactory load-bearing capacity and stability through a complete course of a fire as it can be modelled.

d) Secondary structures and structures that are load-bearing only for one storey or for the roof shall be designed to maintain satisfactory load-bearing capacity and stability during the time necessary to escape and rescue persons in or on the construction works.

3. *Safety in case of explosion*

Construction works whose intended use may pose an explosion hazard shall be designed and constructed to maintain personal safety and load-bearing capacity at a satisfactory level.

Section 9-5 Facilities for manual extinguishing of fire

1. Construction works shall have facilities for the effective manual extinguishing of fire.
2. In or on all construction works where a fire may occur there shall be fire extinguishing equipment for an effective fire-fighting effort in the initial phase of a fire. This is in addition to any automatic fire extinguishing system.
3. Fire extinguishing equipment shall be so located that an effective extinguishing effort can be made. For smaller construction works for activities in hazard class 1, the equipment may be located in neighbouring construction works.
4. Technical fire installations and equipment of importance for escape, rescue, or fire fighting, shall be clearly identified by signs, unless the equipment is intended for persons in a single "functional unit" and all of them are to be expected to be well acquainted with the location of the equipment.

Section 9-6 Facilitating escape and rescue

1. *General requirements*

   a) Construction works shall be designed and constructed to allow speedy and safe escape and rescue. Consideration shall be taken of persons with impaired functionality.

   b) The time that is available for escape shall be greater than the time that is necessary for escaping from the construction works. A satisfactory margin of safety shall be included.

   c) During the time a fire compartment or escape route is to be used by persons escaping, no temperatures, concentration of smoke gases or other circumstances may occur that prevent escape.

   d) The time estimated as necessary for escape includes the alarm time, which is the sum of detection time and verification time, and evacuation time, which is the sum the reaction time and the time to act.

   e) Escape routes and access to them shall be easy to use and facilitate safe escape.

   f) For construction works in hazard classes 5 and 6, other building works intended for use by the public, as well as work buildings, evacuation plans shall exist before the building works are occupied.

2. *Measures to influence evacuation times*

   a) If safe evacuation is not addressed in the physical design of escape routes, the construction works shall have sufficient fire safety equipment to reduce necessary evacuation time.

   b) Construction works intended for activities in hazard classes 2-6 shall have an automatic fire alarm system. Exceptions may be made for construction works intended for a small number of persons and construction works of smaller size, if the evacuation procedure and route are particularly simple and easy to follow. In such construction works, smoke detectors may be used. Smoke detectors shall be connected to the mains and have a battery backup. In fire compartments needing more than one smoke detector, the detectors shall be connected in series.

      In construction works without power supplied by the mains, battery-operated smoke detectors may be used.

   c) Where such measures are not sufficient, the time available for escape shall be increased by the use of active measures, such as automatic sprinkler systems, smoke control, etc.

d) Construction works in hazard class 4 that require a lift shall have an automatic sprinkler system.
e) Construction works in hazard class 6 shall have an automatic sprinkler system.
f) Exemptions from requirements for an automatic sprinkler system may be made for temporary construction works and for construction works that are not to connected to public or equivalent private water supply.

g) Instead of an automatic sprinkler system other measures may be used that can hinder, limit or control a fire locally where it arises.

h) Large construction works and construction works with a large number of persons, as well as construction works intended for activity in hazard classes 5 and 6, shall have a satisfactory guide system.

3. Exits from fire compartments

a) From a fire compartment there shall be a minimum of one exit to:

- a place of safety, or
- two independent escape routes, or
- an escape route that has two alternative directions for escape that lead to independent escape routes or places of safety.

b) Owing to the danger of smoke and fire spreading within fire compartments, fire compartments that consist of more than one storey, or have a mezzanine, shall in addition have a minimum of one exit from each storey. In construction works in hazard classes 1, 2, 3 and 4, the exits from these levels, besides the entrance level, may be windows that facilitate safe escape.

c) In low-rise buildings intended for activity in risk classes 1, 2, 3 and 4, the exit from a fire compartment may either lead to a place of safety or to an escape route that only has one direction of escape, provided that each fire compartment has windows that are designed for and facilitate safe escape.

d) Fire compartments for a large number of persons shall have a sufficient number, and a minimum of two, exits to an escape route.

e) Doors to escape routes shall be designed and constructed so as to ensure speedy escape and avoid a risk of congestion. They shall be easy to open without the use of a key and open outward into the direction of escape. Doors to escape routes may nevertheless open inward away from the direction of escape if there is no risk of congestion in connection with an evacuation.

4. Escape routes

a) An escape route shall in a clear and easily understandable way lead to a place of safety. It shall have sufficient width and be constructed as a separate fire compartment designed for speedy and efficient escape.

b) Where an escape route goes over more than one storey, stairs shall be separated from the rest of the escape route and other fire compartments, so that the stairs' function as a safe escape route is safeguarded during the stipulated available evacuation time.

c) An escape route that contains two directions of escape shall be divided into appropriate units so that smoke and combustion gases do not block both directions of escape.

d) The main access to construction works, or a part of construction works, for a large number of persons shall be adapted for safe escape.

e) Doors in escape routes shall be designed and constructed so as to ensure speedy escape and avoid a risk of congestion. They shall be easy to open without the use of a key and open outward into the direction of escape.

f) A roof-covered yard or street may be used as an escape route if it is adapted for safe escape. In addition there shall be an alternative escape route besides the roof-covered space. Smaller fire compartments located at yard-level may use the roof-covered area as an escape route from both exits, provide that the space is adapted for safe escape.

g) Lifts, escalators and passenger conveyors do not count as escape routes. Such devices shall come to a stop in a safe manner in the event of a fire alarm. Passenger conveyors especially adapted for safe use as an escape route may be a part of an escape route.

5. Buildings intended for keeping domestic animals shall be designed and constructed for the speedy and safe rescue of domestic animals.

Section 9-7 Measures against the spread of fire between construction works

1. The danger of a fire spreading between construction works shall be prevented, in order to maintain personal safety and in a way such that fire does not lead to unreasonably large economic or community loss or damage.
2. The distance between low-rise construction works shall be at least 8 m, unless measures are taken to prevent spread of fire between the construction works during the time required for escape and rescue in the adjacent construction works.

   The provision does not apply to low-rise construction works comprising only one "functional unit".
3. When low-rise construction works are erected at a distance of less than 8 m from one another, the construction works' total gross area shall be limited so that a fire does not result in an unreasonably great economic loss, unless the risk of such loss is prevented in another manner.
4. High-rise construction works shall have a minimum distance of 8 m from other construction works, unless the construction works are constructed in such a manner that the spread of fire is prevented for a minimum of 120 minutes.
5. Construction works that, either by their very nature or by the activity taking place in them, pose a particularly high risk for the spread of fire, shall be designed, constructed and secured or sited so that the particularly high risk of fire spreading to other construction works is reduced to an acceptable level.

Section 9-8 Arrangements for rescue and fire-fighting personnel

1. Construction works shall be so sited and designed that rescue and fire-fighting personnel, with the appropriate equipment, have usable access to and inside the construction works for rescue and fire fighting operations.
2. Construction works shall be so arranged that a fire can easily be located and fought.

Chap. X Energy

Section 10-1 General requirements

1. Buildings shall be designed and constructed in a manner that promotes low energy needs and environment-friendly heating solutions. The energy requirements apply to the building's heated spaces.
2. Calculations of buildings' energy needs, heating needs and heat loss figures shall be done in accordance with NS 3031. U-values shall be calculated as mean values for the various parts of the building.

Section 10-2 Requirements for special buildings

1. For projects where the compliance with requirements in Chapter X are incompatible with the preservation of cultural monuments and buildings of antiquarian value or an otherwise appropriate upgrade of existing building stock, the requirements apply insofar as they are appropriate. In such cases carrying out other compensatory environmental improvements of the building shall be considered.
2. Buildings that are to have an interior temperature of under 15°C may be designed and constructed in view of the actual conditions.

Section 10-3 Energy efficiency

1. Requirements for the building's energy efficiency
   a) A building shall be energy-efficient such that it meets either the requirements for energy-saving measures stated in no. 2 or the requirements for total net energy needs stated in no. 3. The minimum requirements in no. 4 shall be met.
   b) For the following buildings, only no. 4 applies:
      - leisure homes under 150 m^2 BRA
      - residential building or leisure home with notched log outer walls
      - temporary buildings

      A leisure home is understood to be a freestanding building with a single dwelling unit.

      Moving existing temporary buildings to a new location will not trigger a requirement for an upgrade to meet requirements in no. 4.

2. Energy-saving measures in building shall satisfy the following levels.
   a) Transmission heat loss:
      - Proportion of glass, window and door area ≤ 20% of the building's heated usable area (BRA).
      - U-value outer walls ≤ 0.18 W/(m^2K)
      - U-value ceiling ≤ 0.13 W/(m^2K)
      - U-value floors on ground and above open air ≤ 0.15 W/(m^2K)
      - U-value glass/windows/doors including frame ≤ 1,2 W/(m^2K).
      - Normalised heat bridge value, where m^2 is stated in heated BRA.
        - small houses ≤ 0.03 W/(m^2K)
        - other buildings ≤ 0.06 W/(m^2K)

   b) Infiltration and ventilation heat loss:
      - Leakage figures at 50 Pa pressure differential:
        - small houses ≤ 2.5 air changes per hour
        - other buildings ≤ 1.5 air changes per hour
      - Annual mean temperature efficiency ratio for heat recovery systems in ventilation systems:
        - residential buildings, as well as spaces where the use of a highly efficient heat recovery system will result in contamination/contagion problems ≥ 70 %
        - other buildings and spaces ≥ 80%

   c) Equipment:
      - Specific fan power in ventilation systems (SFP):
        - residential building, day/night ≤ 2.5 kW/(m^3s)
        - other buildings, day: ≤ 2.0 kW/(m^3s), night: ≤ 1.0 kW/(m^3s)
      - Possibility for lowering indoor temperatures at night and weekends

d) Redistribution

For residential buildings it is permitted to depart from the energy-saving measures in litra a) and b), provided that the residential building's heat loss figures do not increase.

For other buildings it is permitted to depart from the energy-saving measures in litra a), provided that the building's heat loss figures do not increase.

3. Energy budgets

Total energy needs for a building shall not exceed:

Building category	Net energy needs (kWh/m^2 heated BRA per year)
Small houses *	125 + 1600/heated BRA
Block of flats	120
Day nursery	140
Office building	150
School building	120
University/college	160
Hospital	300 (335)
Nursing home	215 (250)
Hotel	220
Sports facility	170
Commercial building	210
Cultural building	165
Light industry / mechanical	175 (190)

* Small houses include detached houses, two- to four-unit houses and row houses.

The requirements stated in parentheses apply to spaces where the use of highly efficient heat recovery systems will result in problems related to the spread of contamination/contagion.

In multi-function buildings the requirements for the building categories apply correspondingly to the respective spaces.

4. Minimum requirements

a) Building

The following minimum requirements shall be met:

U-value outer walls W/(m^2K):	U-value ceiling W/(m^2K):	U-value floors on ground and above open air W/(m^2K):	U-value glass/windows /doors including frame (m^2K):	Leakage figures at 50 Pa pressure differential (air changes per hour):
≤ 0.22	≤ 0.18	≤ 0.18	≤ 1.6	≤ 3.0

For buildings, except for residential buildings, holiday homes and temporary buildings, the following minimum requirements shall be met in addition:

- The U-value of glass/windows/doors multiplied by the proportion of glass, window and door area in the building's heated usable area (BRA): ≤ 0.24
- Total sun factor (g_t) ≤ 0,1, unless:
  - calculations show that the building does not have energy needs for cooling

  or
  - measures to avoid energy needs for cooling have been carried out.

b) Residential building or leisure home with notched log outer walls

The following minimum requirements shall be met

	Dimension outer wall:	U-value ceiling W/(m^2K):	U-value floors on ground and above open air W/(m^2K):	U-value glass/windows /doors including frame (m^2K):
Residential building as well as leisure home over 150 m^2 BRA	≥ 8″ logs	≤ 0.13	≤ 0.15	≤ 1.4
Leisure homes under 150 m^2 BRA	≥ 6″ logs	≤ 0.18	≤ 0.18	≤ 1.6

Section 10-4 Energy supply

1. Buildings with a usable area(BRA) 500 m^2 or larger shall be designed and constructed so that at least 80% of net heating needs shall be met by an energy supply other than direct acting electricity or fossil fuels at the point of the end user.

2. Buildings with BRA of less than 500 m^2 shall be designed and constructed so that at least 40% of net heating needs shall be met by an energy supply other than direct acting electricity or fossil fuels at the point of the end user.

3. The requirement in accordance with no 1 shall not apply in locations where nature resources or conditions does not make it practically feasible. Buildings, which according to this are exempt, shall be designed and constructed so that as large a proportion as feasible of net heating needs shall be subject to energy supply other than direct acting electric supply or fossil fuels at the point of the end user.

4. The municipal authority may permit an alternative energy supply provided the net heating needs for a residential building is calculated to be less than 17000 kWh/year or if the requirement will result in extra cost over the lifetime of the building.

5. Residential buildings that in accordance with no. 4 are exempted from the energy supply requirement under no. 1 and 2 shall have a chimney and closed fireplace for the use of biofuels. Nevertheless, this does not apply to dwelling units under 50 m^2 BRA.

6. The municipal authority may grant full or partial exemptions from no 1 and 2 in locations where coherent permanent infrastructure for the distribution of gas is established or being established.

7. The installation of oil-fired boilers is not permitted in new buildings.

Section 10-5 District heating

1. *Adaptations for district heating in license areas*

   Wherever the provisions of the municipal master plan stipulate an obligation to connect to a district heating system pursuant to Section 27-5 of the Planning and Building Act, buildings shall be equipped with a heating system allowing for the use of district heat for space heating and hot water.

2. *Municipal authority's power to grant exemptions from the connection obligation*

   The municipal authority may grant full or partial exemptions from the connection obligation in cases where it can be documented that making arrangements for alternative solutions will be better from an environmental standpoint than connection to a district heating system.

   The municipal authority may attach importance to the economic importance of the energy solution over the building's lifetime.

Section 10-6 Insulation of ductwork, piping and equipment

Piping, equipment and ducting connected with the building's heating and distribution system shall be insulated to prevent unnecessary heat loss.

Chap. XI Outdoor environment

Section 11-1 General requirements

Construction works shall be designed, constructed and disposed of in a manner that results in the least possible strain on natural resources and the outdoor environment.

Section 11-2 Waste

1. Construction works shall be designed with a view to a sufficient and intended useful life such that unnecessary quantities of waste do not arise over the lifetime of the construction works.
2. Products shall be chosen for construction works and structures that have the greatest possible potential for reuse and material recovery.

Section 11-3 Waste management plans and environmental restoration

1. *Construction waste*

   Construction waste means materials and objects from construction, rehabilitation or demolition of buildings, structures and civil engineering works. Waste consisting of excavated earth from construction activity is not covered by these Regulations.

2. *Waste management plan*

   An overview shall be prepared of construction waste expected to arise in connection with the following projects:

   a) erection, addition, extension and underpinning of a building if the project exceeds 300 m^2 BRA

   b) substantial modification, including façade alteration, or substantial repair of the building if the project affects parts of the building that exceed 100 m^2 BRA

   c) demolition of a building or part of a building that exceeds 100 m^2 BRA

   d) erection, addition, extension, underpinning, modification or demolition of structures and civil engineering works if the project generates over 10 tonnes of construction and demolition waste

   Projects affecting more than one building, structure or other civil engineering works shall be considered as a whole.

   There shall be an account of planned handling and actual disposal of the construction waste broken down by waste type.

3. *Survey of hazardous waste and description of environmental restoration*

   For substantial modification or demolition of existing construction works, a survey shall be performed of building elements, installations and similar that will represent hazardous waste as mentioned in Section 11-4 of Regulations No. 931 of 1 June 2004 concerning recovery and treatment of waste.

   For projects covering over 100 m^2 BRA a separate description of environmental restoration

shall be prepared.

The description of environmental restoration shall as a minimum contain information on:

a) By whom the survey was performed
b) Date of the survey
c) Results of representative material tests and analyses
d) Occurrence and quantity of hazardous waste broken down by type
e) The location of hazardous waste in the building, indicated with a photograph and drawing in cases of doubt
f) How hazardous waste is identified by marking, signposting or other measures
g) How it is planned to remove the hazardous waste
h) Where it is planned to deliver the hazardous waste
i) All discoveries of hazardous waste compiled in a table
j) Year of construction and previous use if known

4. *Waste separation*

a) A minimum of 60 per cent by weight of the waste that arises shall be sorted at the construction site
b) All hazardous waste shall be delivered to an approved treatment facility pursuant to Chapter 11 of Regulations No. 931 of 1 June 2004 concerning recovery and treatment of waste.

Section 11-4 Substances posing a health or environmental risk

Construction products shall be chosen that have no or low content of substances posing a health or environmental risk.

Section 11-5 Emissions requirements for wood stoves

1. Enclosed wood-burning heating units shall be designed so as to attain satisfactory assurance against pollution. Emissions of particulates from such units shall not exceed the values specified in NS 3059.
2. Where older heating units of historical value are necessary with regard to the interior of buildings of cultural-historical, antiquarian or preservation value, the heating units of historical value may nevertheless be used.

Section 11-6 Soil contamination

In connection with the siting, design and execution of construction works, any soil contamination in the area shall be investigated and taken into account.

Section 11-7 Selected habitats

The following provisions apply when laid down in regulations in pursuant of Sections 52 and 53 fifth paragraph of the Natural Diversity Act concerning certain habitats, which occur in the municipality and the conditions of the habitat have not been clarified in a legally binding plan.

1. Erecting, siting and designing a project shall take special consideration of occurrences of a selected habitat to avoid deterioration of the range of the habitat and the ecological condition of the occurrence.
2. Where the impact for the selected habitat has not been clarified pursuant to the rules concerning impact assessments in Chapter 4 of the Planning and Building Act, the developer shall prepare an assessment of the project's impact on the habitat.

Chap. XII Installations

Section 12-1 General requirements for heating and cooling installations

1. Heating and cooling installations shall be designed and constructed so as to yield the performance required and shall tolerate internal and external loads that normally occur. The installation shall be properly secured against fire, explosion and health hazards and be leak-tight at the operating pressure occurring.
2. Heating installations shall be designed and installed so that the heat load on surrounding and adjacent building elements does not result in a risk of fire or weakening of the building element's properties.
3. Heating installations shall be able to be regulated and be adjusted to energy-efficient operation.
4. There shall be safe access for cleaning and maintenance of the heating installation, including safe sweeping.
5. Heating installations shall be designed and constructed so that with suitable fuel and under normal operating conditions proper combustion and adequate assurance against pollution are achieved. Installations shall have the necessary supply of air for combustion. They shall be connected to a flue, unless they are approved without such a connection. Installations shall have an acceptable flue-gas temperature.
6. A fireplace shall not be installed in a room where combustible gas or dust particles may occur that may result in dust explosion, unless the fireplace is designed for this. Heating installations based on combustion shall be installed in a furnace room, unless it is designed for installation in another room.
7. Heating installations shall be installed on a surface that tolerates the expected load.
8. Heating installations shall be designed and constructed such that the heat released is used as much as possible in the spaces to be heated.

Section 12-2 Central heating installations

1. Central heating installations shall be leak-tight at the maximum pressure occurring and shall have necessary safeguards against excessively high pressure and temperature. It shall have satisfactory sectioning and capabilities for shut-off and shall be made in a manner that ensures safety from personal injury on account of excessively high surface temperature.
2. Connection to the water supply system shall be effected in a manner that prevents backflow from the central heating installation.
3. Hydronic heating installations connected to district heating systems shall be designed and built in a way that achieves a satisfactory reduction of water temperature.
4. For a hot air unit located in a furnace room the supply air shall be taken through an air-tight duct from the outside.

Section 12-3 Flues and chimneys

1. Flues shall be so designed and constructed that the heating installation can function satisfactorily.
2. Flue gases shall be conducted out from the construction works in a manner that does not pose a risk of igniting the construction works or neighbouring construction works.
3. Flues shall be satisfactorily leak-tight.
4. Flues shall have an acceptable surface temperature and the outer side shall be available for inspection to the extent possible.
5. Flues shall enable free movement in the longitudinal direction relative to surrounding building elements.
6. Chimney flues shall have a constant cross-section from bottom to top.
7. Chimneys of concrete or masonry shall be erected on structures of non-combustible material that resists fire for a minimum of 60 minutes.

Section 12-4 Refrigeration plants and heat pump installations

1. Refrigeration plants and heat pump installations shall be leak-tight and made with the necessary safeguards against abnormal operating conditions so as to prevent injury to persons and damage to the installation or building works.
2. Installations shall be able to be regulated and be adjusted to energy-efficient operation.
3. Installations shall have a sectioning system with a shut-off valve for gas and fluid. Work on the installation shall be able to take place without the loss of refrigerant.
4. Machinery, refrigeration and freezer rooms with large quantities of refrigerant and other rooms that may be at risk of refrigerant leaks shall have gas alarms. The room shall have satisfactory ventilation.

Section 12-5 General requirements for indoor water and wastewater installations

1. Indoor water and wastewater installations shall provide an adequate and safe water supply that does not degrade water quality and shall ensure an adequate and safe removal of wastewater so as to safeguard proper hygiene and human health.
2. Installations shall be designed and constructed to prevent leakage. They shall be leak-tight at the occurring operating pressure.
3. Installations shall be secured against external stresses that normally occur. Mountings shall tolerate required loads.

Section 12-6 Water supply

1. Installations shall be designed and constructed such that water quality is not degraded. Construction products in contact with water intended for human consumption shall not release substances that can degrade the quality of such water or pose a risk to human health.
2. Installations shall be designed and constructed such that equipment and pipes yield the required performance under normal operating pressure.
3. The water installation shall be easy to replace. Leakages shall be able to be discovered easily and not result in damage to other installations and building elements.
4. Installations shall be designed and constructed to avoid wasting water and ensure good energy economising. There shall be a satisfactory means of shutting the installation off. The stop cock shall be readily accessible and marked.
5. Tapping points for water for consumption shall not have a water temperature that can cause a burn injury.
6. Installations shall be secured against backflow or infiltration of impure liquids, solids or gases. This applies also to back-suction and infiltration of water from another water source.
7. Each tapping point shall have a drain for removal of supplied water. This does not apply to outside tapping points with natural drainage.

Section 12-7 Wastewater

1. Wastewater installations shall be designed and constructed such that wastewater is removed at the same rate as the supplied water.
2. All equipment connected to wastewater installations shall be provided with water traps or a similar function.
3. Installations shall have the necessary outlets for cleaning. Wastewater pipes shall be self-cleaning.
4. Wastewater installations shall have a minimum of one vent pipe leading out to the open air without a water trap, unless it can be documented that the wastewater installation can function with the use of another solution.
5. To prevent backflow, the water level in the lowermost water trap shall be at a necessary height above the inside top of the common main at the branching point.

Section 12-8 General requirements for outside water supply and wastewater systems

1. Water supply and wastewater systems shall be designed and constructed in a manner that safeguards human health, the environment and safety.
2. Water supply and wastewater systems shall be designed and constructed so as to yield the performance required and shall tolerate internal and external loads that normally occur.
3. Water supply and wastewater systems shall be designed and constructed to be sufficiently leak-tight. Materials shall have sufficient durability against thermal, mechanical and chemical actions and shall be evaluated with regard to their impacts on the surroundings.
4. Water supply and wastewater systems shall be arranged to allow operation and maintenance. Leakages shall be easy to discover.
5. Water supply and wastewater systems shall be protected against freezing.

Section 12-9 Water supply systems with pipeline network

1. Systems shall be designed and constructed such that water quality is not degraded. Materials shall not emit unpleasant substances or substances harmful to human health.
2. Systems shall be designed so that there are sufficient volumes and sufficient pressure to meet water needs, including for fire-fighting.
3. Water pipes shall be sufficiently leak-tight at the maximum occurring operating pressure.
4. Pipe networks shall be secured against backflow or infiltration of impure liquids, solids or gases. This also applies also to back-suction and infiltration of water from another water source or installation.

Section 12-10 Wastewater system with pipe network

1. Wastewater systems shall be designed and constructed such that wastewater is removed at the same rate as water is supplied and in a manner safeguarding good hygiene and human health.
2. Wastewater systems shall be designed and constructed so that flooding or nuisance in the form of odours does not occur.
3. Surface water shall be percolated, subjected to prolonged discharge or drained away to prevent damage or inconvenience at the designed water volume. Large volumes of water shall be drained away in a manner causing the least possible damage or inconvenience to the environment and surroundings.
4. Wastewater pipes shall be sufficiently leak-tight under normal use. The pipeline network shall operate without blockage. Wastewater pipes shall normally be self-cleaning and have the necessary outlets for inspection and cleaning.
5. Construction works shall be secured against flooding on account of high water levels or overpressure in the wastewater pipe normally by having the lowermost water trap at a necessary height above the inside top of the common main at the branching point.

Section 12-11 General requirements for lifting equipment

1. These provisions apply to lifting equipment as described in Section 4-7 of these Regulations.
2. Lifting equipment shall be designed and constructed to as not to pose a hazard.
3. Acceleration and braking of the lifting equipment shall not cause personal injury.
4. Load-carriers shall have space and load-bearing capacity corresponding to the maximum number of persons and maximum load assumed. The highest permissible payload or/and number of persons shall be indicated in easily legible writing and Braille. Lifting equipment shall have safeguards against overloads and issue an alarm in the event of overload.
5. The moving parts and safety installations of lifting equipment shall not be able to be activated or touched in a manner other than the one intended.
6. Load-carriers for lifts, low-speed lifts, and platform lifts shall have an alarm connected to a 24-hour emergency service. In the event of an alarm, the emergency service shall issue an acknowledgement message in the form of voice function and light signal. There shall be information regarding the alarm function in easily legible writing and Braille.

7. Persons shall be able to be evacuated from a load-carrier in a safe manner.
8. Rooms and shafts for lifting equipment shall not be subjected to temperatures and environments that may create operating problems or make maintenance difficult.
9. Rooms and shafts shall have light-coloured surfaces that are easy to keep clean and free of dust.
10. Areas for service, repair and safety inspections shall be secured.

Section 12-12 Rooms and shafts for lifts

1. Rooms and shafts for lifts shall only be used for the lift installation and shall be kept closed off.
2. Rooms and shafts shall be easily accessible for operation, maintenance and safety inspections.
3. The walls, top and well of the shaft shall be designed for the load that the installation will result in.
4. Rooms under lift shafts shall be secured.
5. There shall be clear safety space above and below the lift's upper and lower positions. In existing buildings where it is not possible to attain a satisfactory safety space, the installation shall be equipped with a mechanical and/or electronic blocking mechanism that reduces the risk of persons being crushed.
6. Access to the shaft shall be secured to prevent persons being crushed by the lift installation.
7. Doors and hatches in the shaft shall have satisfactorily designed safety mechanisms.
8. Access, doors and hatches to lift rooms shall be clearly marked.
9. The power supply for lighting and power sockets shall be independent of the power supply to lift machinery.
10. Machinery and counterweight rooms shall enable replacement of the lift's equipment. The room height shall be satisfactory, doors to the rooms shall open outwards, and hatches on the floor shall be secure.
11. When the control panel for a lift is placed outside the shaft, the space in front of it shall be secured for maintenance and operation of controls.
12. The shaft shall have satisfactory ventilation. The ventilation system shall not be used for smoke ventilation of rooms not included in the lift installation.
13. The machinery room for hydraulic lifts shall be ventilated to the outdoors through separate ducts and shall be constructed so that any oil leak is discovered and collected.
14. Where there is more than one lift in the same shaft, they must be kept separated in a safe manner. A lift car with counterweight shall be in the same shaft.

Section 12-13 Lift cars

1. The dimensions of a lift car shall be in accordance with intended use.
2. Where there is a requirement for a lift, the following applies:
   a) Lift cars shall have minimum interior dimensions of 1.1 m x 1.4 m. The minimum depth from the door shall be 1.4 m. In lift cars in which a wheelchair cannot turn around, there shall be a mirror on the wall opposite the lift door.

b) A lift car for a stretcher shall have minimum interior dimensions of 1.1 m x 2.1. m.

c) In lift cars in which a wheelchair cannot turn around, there shall be a mirror on the wall opposite the lift door.

d) Door cutouts for lift doors shall be a minimum of 0.9 m.

e) Lift cars shall have a hand rail on at least one wall at a height of 0.9 m above the floor. The control panel shall be mounted between 0.8 m and 1.2. m above the floor. Other information shall be placed a maximum of 1.5 m above the floor.

f) Lighting in lift cars shall have approximately the same lighting level as the space immediately outside the lift. Lift cars shall have permanent lighting and emergency lighting, as well as satisfactory ventilation, also when the lift is not in normal operation.

g) Control panels shall have the necessary lighting, Braille and tactile lettering. The lettering shall have a minimum luminance contrast of 0.8 with the background colour.

h) The lift's direction of travel and storey number shall be indicated visually and acoustically.

i) Alarm signals shall be visual and acoustic with a sound amplifying system.

j) Call buttons for lift cars shall be placed between 0.8 m and 1.2 m above the floor, be easily visible and marked with Braille and tactile lettering.

Section 12-14 Escalators and moving walkways

1. Escalators and moving walkways with appurtenant spaces for stepping on and off shall not pose a hazard when used as intended. There shall be clear signposting that indicates the dangers connected with unintended use of the device.
2. There shall be an emergency stop mechanism at each end of an escalator or moving walkway.
3. If an escalator is placed in an open space such that the fall height from the escalator's balustrade may exceed 3 m, suitable safeguards against falls shall be installed.
4. The transition zone from the fixed floor and escalator/moving walkway shall be non-slip. The degree of ascent and speed shall be adapted to the height different between the entry and exit points.
5. There shall be a balustrade with handrails on both sides of an escalator or moving walkway.
6. Machinery and parts shall be easily accessible to operating, maintenance and inspection personnel and covered and adequately protected against unauthorised persons.

Section 12-15 Platform lifts, low-speed lifts and stair lifts

1. Platform lifts, low-speed lifts and stair lifts shall have limited speed and lifting height.
2. Platform lifts, low-speed lifts and stair lifts shall be controlled by a hold-to-run button and a control button for emergency stop. For low-speed lifts built with closed lift cars, other control mechanisms may be used, cf. Annex I, section 6.2, of Council Directive 2006/42/EC concerning control devices.
3. Platform lifts and low-speed lifts shall be equipped with lighting and emergency lighting when the installation so requires.

Section 12-16 Lifting equipment. Administrative provisions.

1. For lifts, escalators, moving walkways, low-speed lifts, platform lifts and stair lifts, in addition to the requirements deriving from Section 29-9 of the Planning and Building Act, the following applies:
   a) The municipal authority shall issue an operating permit before lifting equipment goes into service.
   b) Lifting equipment shall not be used after an accident or being rebuilt or moved until a safety inspection body has performed a safety inspection.
   c) When faults in an installation may pose an immediate danger to personal safety, the lifting equipment shall be taken out of service and the matter reported to the municipal authority and owner.
   d) The owner shall immediately report accidents to the municipal authority and safety inspection body. The safety inspection body shall report accidents to a national register.
   e) Repair work performed shall be entered in a logbook for each item of lifting equipment and shall be available for safety inspections.
   f) Owners shall have a safety inspection performed at least every other year when the lifting equipment is in operation. In addition, safety inspections may be performed as spot checks of lifting equipment in operation.
   g) In the event of a change of owner and when an installation is taken permanently out of service, the owner shall report this to the municipal authority, which reports this on to the safety inspection body.
2. For platform lifts and stair lifts inside a dwelling unit the following applies:
   a) The owner himself may undertake installation of a platform lift or stair lift inside a dwelling units, cf. Section 20-2 second paragraph of the Planning and Building Act.
   b) The owner of lifting equipment is responsible for lifting equipment in use being in safe working order and that maintenance and inspection routines are performed on it.
   c) The owner shall immediately report accidents/incidents to the body that maintains a register of accidents.
   d) When a fault in the installation may pose a danger to personal safety, the lifting equipment shall be taken out of service.

Section 12-17 Requirements for periodic safety inspectors for lifts

1. Periodic safety inspections may be performed by:
   a) A municipal lift inspection scheme.
   b) A national lift inspection scheme with authorisation from the Ministry.
   c) The National Office of Building Technology and Administration
2. Safety inspectors for lifts shall be approved by the National Office of Building Technology and Administration
3. Safety inspectors for lifts shall as a minimum have training and professional experience in accordance with the following table:

Alternative	Training	Professional experience
1	Diploma from a three-year college of engineering, machinist or electrician programme	A minimum of five years' relevant experience in installing, maintaining and repairing lift installations.
2	Diploma from a two-year technical vocational school, relevant programme	A minimum of five years' experience in installing, maintaining and repairing lift installations.
3	Craft certificate as lift installer	A minimum of five years' all-round and relevant professional experience after passing examination

4. Approvals of safety inspectors for lifts are given for two years, and in connection with renewals the following is considered:
   a) Whether the applicant has worked as a safety inspector for lifts.
   b) Whether the applicant can document up-to-date knowledge of lifting equipment and appurtenant regulations.

Section 12-18 Terms for obtaining recognition as a periodic safety inspector for lifts for persons with professional qualifications from another EEA Member State.

1. *Purpose and scope*

   The purpose of this provision is to implement the rights and duties pursuant to Directive 2005/36/EC on the recognition of professional qualifications.

   This provision applies to approval for performing periodic inspections of lifts for applicants who have acquired professional qualifications in another EEA Member State and who intend to engage in their profession as mentioned in Section 12-17 no. 1. This provision also pertains to the right to temporary provision of services in Norway.

2. *Definitions*

   In this provision, the following definitions apply:

a) Regulated profession: A professional activity, access to which or the pursuit of which is subject, directly or indirectly, by virtue of legislative, regulatory or administrative provisions to the possession of specific professional qualifications.
b) Professional qualifications: Qualifications attested by evidence of formal qualifications, an attestation of competence referred to in Article 11, point (a) (i) of the Directive and/or professional experience.
c) Evidence of formal qualifications: Diplomas, certificates and other evidence issued by an authority in a Member State designated pursuant to legislative, regulatory or administrative provisions of that Member State and certifying successful completion of professional training obtained mainly in the EEA. Evidence of formal qualifications issued by a third country shall also be regarded as evidence of formal qualifications if the holder has three years' professional experience in the profession concerned on the territory of the Member State which recognised that evidence.
d) Professional experience: The actual and lawful pursuit of the profession concerned in a Member State.
e) Adaptation period: The pursuit of a regulated profession in the host Member State under the responsibility of a qualified member of that profession.
f) Aptitude test: A test limited to the professional knowledge of the applicant, made by the competent authorities of the host Member State with the aim of assessing the ability of the applicant to pursue a regulated profession in that Member State.

3. *Automatic recognition as a periodic safety inspector for lifts*

Nationals of an EEA Member State have the right to recognition as a periodic safety inspector for lifts if this derives from the rules of Directive 2005/36/EC, even if they do not have qualifications equivalent to the requirements in Section 12-17 no. 3. Recognition as a safety inspector for lifts shall be given if the activity concerned has previously pursued:

a) for six consecutive years on a self-employed basis or as a manager of an undertaking, or

b) for three consecutive years on a self-employed basis or as a manager of an undertaking, where the beneficiary proves that he has received previous training of at least three years for the activity in question, evidenced by a certificate recognised by the Member State or judged by a competent professional body to be fully valid, or

c) for four consecutive years on a self-employed basis or as manager of an undertaking, where the beneficiary can prove that he has received, for the activity in question, previous training of at least at two years' duration, attested by a certificate recognised by the Member State judged by a competent professional body to be fully valid, or

d) for three consecutive years on a self-employed basis, if the beneficiary can prove that he has pursued the activity in question on an employed basis for at least five years, or

e) for five consecutive years in an executive position, of which three years involved technical duties and responsibility for at least one department in the company, of the beneficiary can prove that he has received, for the activity in question, previous training of at least three years' duration, as attested by a certificate recognised by the Member State or judged by a competent professional body to be fully valid.

In cases a) through d) above, the activity must not have finished more than 10 years before the date on which the complete application was submitted.

4. *Alternative recognition as a periodic safety inspector for lifts*

When the applicant does not meet the requirements pursuant to Section 12-17 no. 3 of these Regulations, a condition for recognition is that the applicant submit evidence of formal qualifications that at a minimum are equivalent to the level of qualification immediately

below the qualification requirements under Section 12-17 no. 3 of these Regulations. In addition, in such cases compensation measures as described in no. 5 may be required.

In comparisons of levels of training, the following five levels of qualification apply:

A- evidence of formal qualifications

B- certificate of completion of upper secondary education

C- examination certificate from education of at least one year after upper secondary education

D- examination certificate from education of at least three years and at most four years at university or other institution of higher education

E- examination certificate from education of at least four years at university or other institution of higher education

The qualification requirements pursuant to Section 12-17 no. 3 alternative 1 of these Regulations corresponds to level D, alternative 2 corresponds to level C and alternative 3 corresponds to level B.

An applicant who has worked as a safety inspector for lifts in an EEA Member State where this profession is not regulated has a right to recognition if the applicant has pursued the profession on a full-time basis for at least two years, or an equivalent period on a part-time basis, during the past ten years. The applicant must submit evidence of professional qualifications that document that the applicant can work as a periodic safety inspector for lifts.

5. *Compensation measures*

   For approval pursuant to no. 4 the applicant may be required to complete an adaptation period of at most three years or pass an aptitude test, if:

   a) the duration of the training of which he provides evidence under the terms of Section 12-17 no. 3 of these Regulations at least one year shorter than that required by the host Member State, or

   b) the training that he has received covers substantially different matters that those covered by the evidence of formal qualifications required in the host Member State, or

   c) the regulated profession in the host Member State comprises one or more regulated professional activities which do not exist in the corresponding profession in the applicant's home Member State within the meaning of Article 4(2),and that difference consists in specific training which is required in the host Member State and which covers substantially different matters from those covered by the applicant's attestation of competence or evidence of formal qualifications.

      If the host Member State makes use of the option for compensatory measures, it must offer the applicant the choice between an adaptation period and an aptitude test.

6. *Content of the application*

   For recognition of professional qualifications, the competent authorities shall require that the applicant submit

   a) Proof of the nationality of the person concerned
   b) Copies of certificates of qualifications or of the evidence of formal qualifications that entitle the person concerned to pursue the regulated profession as well as certification of his professional experience.

7. *Temporary practice of the profession of periodic safety inspector for lifts*

Periodic safety inspections of lifts may be performed on a temporary or occasional basis by persons legally established in another EEA Member State for the purpose of pursuing the same profession there, cf. Article 5. The temporary and occasional nature of the provision of services shall be assessed case by case, in particular in relation to its duration, its frequency, its regularity and its continuity.

For the first provision of services or if there is a material change in the situation substantiated by the documents, the service provide shall inform the National Office of Building Technology and Administration by submitting a written declaration in advance accompanied by the following documents:

a) Proof of the nationality of the service provider
b) An attestation certifying that the holder is legally established in an EEA Member State for the purpose of pursuing the activities concerned and that he is not prohibited from practising, even temporarily, at the moment of delivering the attestation
c) Evidence of professional qualifications:
d) If the profession is not regulated in the state in which the service provider has established his activities, any means of proof that the service provider has pursued the activity concerned for at least two years during the previous ten years

Notification pursuant to the second paragraph shall be renewed for each year the service provider wishes to pursue the profession.

8. *Administrative procedure and verification of professional qualifications for temporary pursuit of professional activities*

The National Office of Building Technology and Administration may verify the service provider's professional qualifications before the service is provided for the first time to prevent serious harm to the health or safety of the service recipient on account of deficient professional qualifications. This verification shall not exceed what is necessary for the purpose.

The National Office of Building Technology and Administration shall inform the service provider of whether or not his professional qualifications will be verified within one month after receiving the necessary documentation or of the results of such verification. Wherever difficulties exist that will result in a delay, the service provider shall be informed of the reason for this and of the timetable for a decision, which must be reached by no later than two months after receipt of complete documentation.

A service provider who has not received a decision regarding verification of professional qualifications by the deadlines mentioned in the second paragraph has the right to pursue the profession.

9. *Notification of the authorities in other states*

The National Office of Building Technology and Administration shall insofar as possible notify the competent authority in another EEA Member State where the applicant pursues the activity covered by the Regulations, if the service provider here in this country is subject to administrative reactions or criminal sanctions or other serious circumstances arise that may have consequences for the pursuit of the activity.

If the competent authority in another EEA Member State has requested information as mentioned in the first paragraph, the information shall be provided as quickly as possible and by no later than two months after the request was received.

10. *Administrative collaboration*

The competent authorities in the host Member State and the home Member State shall work in close collaboration and shall provide mutual assistance in order to facilitate the

application of Directive 2005/36/EC. They shall ensure the confidentiality of the information which they exchange.

Section 12-19 Installation register

A national register of installed lifting equipment shall be maintained. The owner of lifting equipment shall report the installation to the municipal authority and to the body that maintains the register of lifting equipment.

Chap. XIII Documentation as the basis for the management, operation, maintenance and use of the construction works.

Section 13-1 Documentation of the operation phase

1. Designers shall ensure that written documentation exists as the basis for the satisfactory performance of the commissioning, management, operation and maintenance of construction works and technical installations. In cases where such documentation is obviously superfluous, this requirement is waived.
2. Documentation for the operating phases shall contain information from the project that is necessary for using, operating and maintaining the construction works in a manner that satisfies these Regulations.

Section 13-2 Storage of documentation for the operating phase

Documentation for the operating phases shall be handed over to and be stored by the owner of the building works.

Chap. IV Transitional provisions

Section 14-1 Entry into force and transitional provisions

1. These Regulations enter into force on 1 January 2010, cf. Section 34-3 and 34-4 of the Planning and Building Act.
2. From 1 January 2001 Regulations No, 33 of 22 January 1997 concerning requirements for construction works and products for construction works are repealed.
3. The provisions of Sections 11-3 (Waste management plans and environmental restoration), 11-7 (Selected habitats) and Chapter XIII (Documentation as the basis for management, operation, maintenance and use of the construction works) apply for all projects from 1 January 2010. In other respects, until 1 January 2001, developers may choose whether the entire project shall be according to these Regulations or the rules in Regulations No. 33 of 22 January 1997 concerning requirements for construction works and products for construction works.
4. For the implementation of projects that have required extensive design, and where the application of the new rules in these Regulations would result in extensive and costly reworking in the design done prior to 1 January 2010, the municipal authority may permit the application of the previous provisions of Regulations No. 33 of 22 January 1997 concerning requirements for construction works and products for construction works also for applications received after 1 January 2011.