

Playground equipment

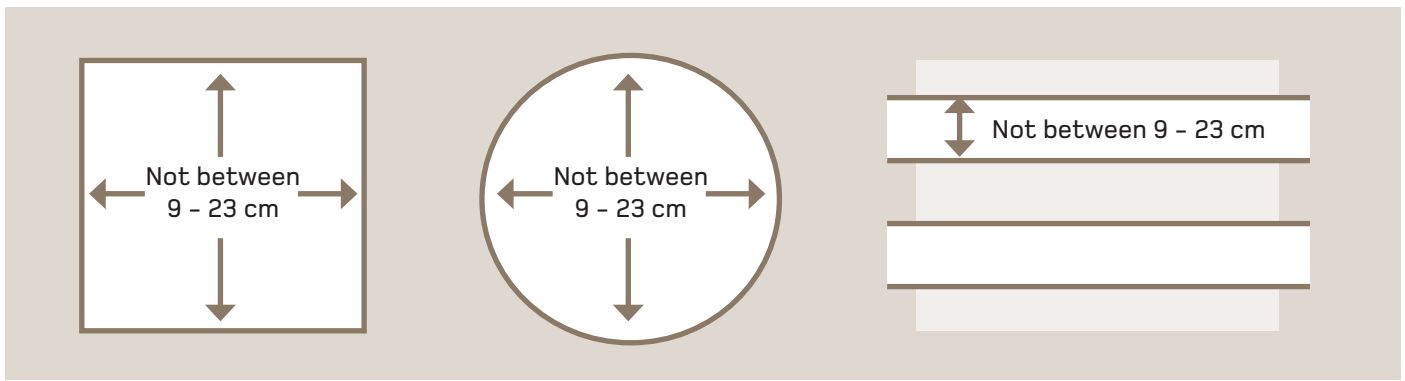
Owners of playground equipment must make sure it is safe to use. This means that anyone who acquires playground equipment and offers it for use must have systems and routines for inspection and maintenance of the equipment. This fact sheet can be a tool in the work of assessing what risks various types of playground equipment represent, and it also provides advice on how any risk can be reduced and safety ensured.

This fact sheet does not discuss the functional value of the playground equipment, whether the equipment is necessary, or what educational value it might have.

The Directorate for Civil Protection and Emergency Planning (DSB) aims to maintain a full overview of risk and vulnerability for society in general. We aim to promote measures which prevent accidents, crises and other undesirable incidents. We aim to ensure sufficient emergency planning and efficient management of accidents and crises.



Photo: Sverre Limtun, DSB



Think safety

Play is little children's main activity, associated with spontaneity, creativity, pleasure and fun. Movement and motor skills normally form an important part of playground play. As the child finds new ways of using the play equipment, his or her imagination and creativity develop. In order to create a play area that is challenging and stimulating, it is important to consider the children's total opportunities for play and activity.

Good play opportunities can be created even with limited efforts, based on the natural shape of the area. When choosing playground equipment, one must bear in mind the size of the area as well as the children's ages and needs. The playground equipment must be safe to use throughout the year.

Injuries

The intention of the (Norwegian) Regulations on safety concerning playground equipment (Forskrift om sikkerhet ved lekeplasseutstyr) is that children shall have safe play areas both indoors and outdoors. It is impossible to create a playground where children never get hurt, but many serious accidents can be avoided. The most numerous and most severe injuries are caused by falls against a hard surface. Accidents can also occur because a child gets trapped in an opening, or when the child's scarf, hood or a drawstring gets caught.

Internal Control Obligation

As the responsible party, all day care institutions, schools, jointly owned properties, residents' associations etc. must have internal control measures in place to ensure safety regarding their playground equipment. This follows from the Regulations relating to systematic health, environmental and safety activities in enterprises (The Internal Control Regulations) and applies to both public and private activities. The internal control must comprise goals for health, the environment and safety in the activity. The Internal control regulations demand that risk assessments are made and plans and measures drawn up to reduce the risks.

There is no public approval system for playground equipment.

RISK ASSESSMENTS

The manufacturer/importer must make sure the equipment has been subjected to a risk assessment before

it goes on the market. Any party that acquires, and offers use of, playground equipment is responsible for its inspection and necessary maintenance, so that the equipment's safety properties are maintained.

Risk assessments are based on several factors: What type of incident may occur, the probability of the incident occurring, and the consequences of such an incident. The assessments made form part of the activity's internal control and must be documented in writing. Necessary measures must then be prioritised and implemented on the basis of the risk assessments carried out. The most serious faults must be corrected first. The play equipment in question must be made inaccessible until any serious faults have been corrected.

Standards for playground equipment have been prepared to assist in the safety work. The standards provide specific requirements and test methods for products and their associated fall surfacing. They also provide useful information concerning inspection and maintenance of the playground equipment. Standards are not legally binding, but the manufacturer of playground equipment must in any case be able to document a corresponding safety level. If no standards exist, specific risk assessments of the equipment must be conducted to ensure its safety properties.

Regulations on safety concerning playground equipment

Regulations on safety concerning playground equipment entered into force in July 1996 and cover both new and existing equipment.

The requirements concerning safety around playground equipment apply whether the equipment has been produced by professional manufacturers, by the activity itself or has been made by volunteers.

Physical and mechanical properties

The playground equipment must be so designed that adults can get to all the necessary places to assist children or to carry out maintenance work.

OPENINGS AND ANGLES

Particular attention must be given to openings where children might get trapped and suffocate. The equipment must have openings that are either so large that the whole body can go through or so small that the child is stopped at chest height if he/she slides through with

feet first and loses his/her footing. If the opening is so large that the child's head will go through, there must also be room for the head to be pulled back out. There must be no fixed openings of a dimension between 9 cm and 23 cm.

Openings that vary in size when a movement occurs, must have a sufficient size or gap to avoid any risk of pinching, crushing or pressure injuries.

V-shaped openings or other hazardous openings/angles where a child might get trapped, or where drawstrings, scarves etc. might get caught, must be avoided.

RAILINGS

To prevent falls from ramps, platforms and suchlike in connection with climbing frames, slides, etc., these must be equipped with side panels. The railing or any other types of side panel must be so designed that they do not encourage climbing. If the side panel encourages climbing, the total fall height will increase. This must be borne in mind when selecting impact-absorbing surfacing.

The standard indicates when railing is required and provides a norm for height.

FROST INJURIES

Where there is a risk of frost injuries because bare skin easily gets into contact with metal (e.g. railings and swing chains), the metal must be covered up or treated so that the risk of injuries is eliminated or reduced. This means that the party must conduct a risk assessment to determine the scope of the problem and consider what parts of the equipment might cause frost injuries.

Safety zones

There must be an appropriate distance between the various pieces of play equipment. This distance reduces the risk that children running from one activity to another collide with each other or with the play equipment. For this reason there should be a safety zone around each piece of play equipment. The safety zones of the equipment may overlap if this does not increase the risk of injuries. When new equipment is purchased, the size of the safety zone should be indicated in the associated product information.

As a minimum, the safety zones indicated in NS-EN 1176 should be applied.

Fall surfacing

To prevent serious injuries due to falls from climbing frames, slides, etc., the fall surfacing in the equipment must be impact-absorbing for fall heights above 60 cm. Requirements concerning the fall surfacing's impact-absorbing qualities will depend on the fall height from each piece of equipment.

The manufacturer's instructions, as given in the product information, must be followed.

There are several types of impact-absorbing material. The impact-absorbing qualities in various types of surfaces will also be affected by the use and weather conditions the surface is exposed to. Regular inspection and maintenance is therefore needed to ensure that its



Photo: Sverre Limtun, DSB

impact-absorbing qualities are maintained. The ground underneath the impact-absorbing material should be properly drained. If there is snow and ice, the surfacing will lose some of its impact-absorbing quality. One should consider whether the equipment should be made inaccessible, for instance by taking down any swings.

- Sand or pea gravel makes a good fall surface. The impact-absorbing quality depends, among other factors, on the drainage, grain size, how much binding agent there is in the mixture and the thickness of the layer. The sand should be natural sand (not crushed mass) without any humus, clay or other pollution.
Abrasive sand and ordinary sandpit sand are not recommended for fall surfacing as they can become compact.
- Bark has good impact-absorbing qualities, provided it is without wood chippings and sticks, and what the ground is well drained. The properties of bark vary depending on what species of wood it comes from.
- Grass may be used as surfacing for fall height of up to 1-1.5 metres, provided it is a "soft" lawn and very well maintained.
- There are several types of synthetic mats and rubber slabs, but their impact-absorbing qualities vary. For heights above one metre, synthetic mats should only be used if the manufacturer/supplier can document their impact-absorbing qualities.

Rock, concrete and asphalt must not be used as fall surfacing for playground equipment!

Marking and product information

Regulations on safety concerning playground equipment stipulate specific requirements on marking and product information.

The equipment must be marked with the name and address of the Norwegian importer or manufacturer.

The product information must be in Norwegian or another Nordic language and must be unambiguous. The product information must contain details of:

- the equipment's location and any foundation work



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- safety zones and fall surfacing
- maintenance
- what age group the equipment is intended for.

Inspection and maintenance

Inspection and maintenance shall ensure that the playground equipment functions well and remains safe throughout its lifetime.

The owner of the playground equipment must:

- check that the equipment delivered is correct and is assembled correctly, thus making sure there are no serious safety problems (e.g. that parts of the equipment is missing or that it is assembled incorrectly). The vendor will often offer to provide such inspection
- establish regular inspection routines to check the equipment and particularly the parts exposed to wear and tear.
- conduct regular maintenance in line with the manufacturer's recommendations
- provide regular care and maintenance of the impact-absorbing surface, e.g. by raking through the sand/bark basin
- ensure that the equipment is made temporarily inaccessible if there are serious deficiencies that need to be dealt with
- ensure that broken/worn equipment is removed or repaired
- ensure that the inspection and maintenance routines are an integral part of the internal control.

The routines for ensuring safe playground equipment must be described in writing in the internal control system, which must also state who is responsible for faults/deficiencies being corrected.



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Different kinds of playground equipment

It is important that the owner of playground equipment understands the elements of risk associated with each kind of play equipment.

SWINGS

Accidents with swings occur when a child falls off the swing and hits a hard surface or some part of the playground foundation, and when another child is hit by the child on the swing.

It is therefore important to check that:

- the foundation, if any, is of good quality and properly covered up
- the surfacing is impact-absorbing, and that rocks, toys, etc. have not been placed underneath it
- there are at most two swings on the same frame and sufficient space between the swing seats
- there is sufficient distance to the next piece of play equipment (correct safety zones)
- the fastenings at both ends of the chains are in good order
- the swing seats are made from an impact-absorbing material, e.g. rubber
- the construction is not affected by rot.

PLAYHOUSES AND CLIMBING FRAMES

Accidents associated with playhouses and climbing frames most commonly occur as falls against other parts of the equipment or the surfacing, and when the child gets trapped in openings. This may in a worst case scenario lead to strangulation.

It is therefore important to check that:

- there are no hazardous openings or places where drawstrings may get caught
- the surfacing is sufficiently impact-absorbing in relation to the fall height
- there are no parts protruding into the fall zone (where a child might fall from a higher level)
- climbing nets and climbing ropes have been secured both at the top and at the bottom
- railings, hand rails, banisters, stairs, ramps and ledges are in good order.

SLIDES

Accidents associated with slides occur when a child falls out of the actual slide at speed or gets hurt in connection with great speed at the end of the slide. There is also a risk of falls from the top of the slide and from ladders/stairs to and from the slide. Most commonly this is due to queuing and the children pushing each other.

It is therefore important to check that:

- there are no hazardous openings at the start of the slide where drawstrings, scarves, hoods, etc. might get caught and lead to strangulation
- there is railing at the platform at the top of the slide
- the slide and side panels do not have joints or cracks across the sliding direction
- the surface is impact-absorbent
- there is an area that slows the child down towards the end of the slide
- the end of the slide is rounded and not too high above ground.



Photo: Sverre Limtun, DSB

Useful information

The Directorate for Civil Protection and Emergency Planning (Direktoratet for samfunnssikkerhet og beredskap - DSB) is the central authority in charge of safety in products and consumer services. The Norwegian Pollution Control Authority (SFT), or whoever the SFT authorises, follows up that part of the regulations that deals with hygienic and chemical properties and chemical marking.

DSB and SFT control that manufacturers, importers and owners of /those responsible for playground equipment have an internal control system and comply with the Regulations on safety concerning playground equipment. All enquiries regarding safety concerning playground equipment should therefore be directed to the DSB or SFT.

The Regulations on safety concerning playground equipment are based on the Product Control Act of 1976. The Product Control Act is a framework law that regulates products not covered under more specific laws.

The Regulations on safety concerning playground equipment interrelate with other laws and regulations, such as the Regulations on environmentally oriented health protection in day care institutions, schools, etc.; the Day Care Institution Act; The Education Act; and the Planning and Building Act.

STANDARDS – RECOGNISED NORMS

The following standards have been established by the European Committee for Standardization CEN:

- NS-EN 1176-1 Playground equipment – Part 1: General safety requirements and test methods
- NS-EN 1176-2 Playground equipment – Part 2: Additional specific safety requirements and test methods for swings
- NS-EN 1176-3 Playground equipment – Part 3: Additional specific safety requirements and test methods for slides
- NS-EN 1176-4 Playground equipment – Part 4: Additional specific safety requirements and test methods for cableways

- NS-EN 1176-5 Playground equipment – Part 5: Additional specific safety requirements and test methods for carousels
- NS-EN 1176-6 Playground equipment – Part 6: Additional specific safety requirements and test methods for rocking equipment
- NS-EN 1176-7 Playground equipment – Part 7: Guidance for installation, inspection, maintenance and operation
- NS-EN 1177 Impact absorbing playground surfacing: Safety requirements and test methods.

EN 1176 Part 1-7 Playground equipment and EN 1177 Impact absorbing playground surfacing – Safety requirements and test methods have the status of recognised norms pursuant to the Playground Regulations §5, because the contents of these standards are the same throughout Europe.

For information on the Standards:
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DEFICIENCIES IN THE PLAYGROUND EQUIPMENT

If purchased playground equipment turns out to have significant deficiencies, the purchaser may within a certain deadline demand that the purchase should be cancelled or the deficient parts replaced, pursuant to the Sale of Goods Act. Further information is available from the Consumer Council (Forbrukerrådet) in your county (www.forbrukerportalen.no).