# A Simple Guide To Playground BSEN Safety Standards

For Operators Concerned With Safety & Liability

creative play

# A SIMPLE GUIDE TO PLAYGROUND BSEN SAFETY STANDARDS

The following is a summary of the safety standards (mainly **BSEN 1176** and **BSEN 1177**) applicable to play areas for comprehension by the layperson. It is in no way a replacement for reading the full version of the standards as they are presented by the ***BSI*** (***British Standards Institution***) – particularly in the event of a legal dispute.

**Introduction To Playground BSEN Standards**

Read on to discover answers to the following…

- What are BSEN Safety Standards?
- Are BSEN standards legal requirements?
- Will older play equipment have to be replaced?
- How often are playground inspections necessary?
- Which documents are required for BSEN compliance?

**BSEN Standards: What Do They Mean?**

The 'EN' part of the standards are 'European Standards', sometimes called 'European Norm' - criteria for ensuring best practices in playground equipment use across the European Union, plus some non-EU countries, such as the United Kingdom.

In the UK they are referred to as 'BSEN' to emphasise that despite being partly of European origin, they are controlled by the British Standards Institution (BSI).

The BSEN standards for playgrounds were formed, and are maintained, by ***CEN*** (***European Committee For Standardisation***), of which the BSI is a member, to **improve and deliver consistency** in international play area safety. All permanently installed outdoor play equipment that complies with the standards are marked as such.

**Not laws themselves, or even legal requirements, these technical standards are a guide for ensuring that play equipment is installed within all reasonable expectations of law - so potential situations of litigation can be met with the certainty that all probable risks were mitigated.**

Implementation of the standards is done as part of a larger risk assessment and **DOES NOT GUARANTEE** that a playground is completely safe or immune from legal scrutiny.

**What Are The Playground BSEN Standards?**

**BSEN 1176**

Established in 1999, the BSEN 1176 standard concerns **playground equipment and surfacing**. The standard is supported by two others, BSEN 1177 and **BS 7188**, which address playground surfacing even further.

**BS 7188**

A regulation which was established in 1989, this one predates the European Normal standards (hence no 'EN') but still plays a vital part in the safety assessment of surfacing.

**BS 7188 concerns impact absorption testing and performance obligations of synthetic surfacing available in the UK. By adhering to this standard, playground surfaces are more likely to be resistant to slipping, indentation, ignition, and abrasive wear.**

**BSEN 1177**

While BSEN 1176 and BS 7188 cater to all other facets of surfacing, BSEN 1177 focuses on a single aspect of ground safety - the reduction of serious harm from falls of differing heights.

**This standard determines how deep safety surfacing needs to be by testing its impact absorption abilities in relation to the distance of a potential fall.**

**Older Standards**

Although all new outdoor play equipment should meet the BSEN standards, it doesn't automatically mean that any existing installations predating them are unsafe. While older items were likely designed to meet former regulations **BS 5696** or **DIN 7926**, to ensure a firmer legal standing it is best to **carry out a fresh risk assessment**.

**Even BSEN 1176 has been updated over the years (the most recent change being in 2017), so re-evaluation of a play area does not necessarily mean equipment erected before an existing standard was established will have to be torn down for safety compliance.**

"*Playground equipment not complying with EN 1176*" explains the foreword of the document *EN 1176: 2017 Part 1*, "*should not automatically be considered as being unsafe or requiring replacement. A risk assessment by competent persons should be used to determine what action, if any, is necessary*".

"*Manufacturers and inspectors of the **Register of Play Inspectors International (RPII)***" the paper reassures us, "*are amongst those that will be able to assist in this*".

Creative Play employ **RPII accredited inspectors** who can provide operational inspections to assess the current safety state of play areas.

**Beneficial Risk**

It is not the intent, nor the practical possibility, of the BSEN standards to make playgrounds 100% safe. Exposure to an acceptable level of risk is even desirable – as part of their development, **children need the opportunity to learn about danger** and the consequences of play experimentation **in a controlled setting**.

**One of the functions of the BSEN standards is to ensure that the only risks to children are clear and foreseeable - challenging situations which they can assess and decide if they want to engage with**. The standards consider environments which children find difficult to evaluate, and offer no benefits for overcoming, unacceptable hazards.

**Labelling**

Play equipment **needs to be permanently marked with information** regarding the year to which BSEN 1176 standard it is conforming to, the manufacturer or authorised agent (which in this case would be Creative Play), and equipment reference number.

**Primary Focus Points Of Playground BSEN Standards**

**The Basics**

***Playground Equipment***: BSEN 1176 is concerned with **the safety of permanently installed outdoor play equipment** which doesn't require staffing. Ancillary pieces such as benches, litterbins, and fences are not included. Items made for the domestic market are not covered either (they fall under **EN 71** and ***The Toy Directive***).

***Playing Surface***: The material and depth of playground surfacing required to meet BSEN safety standards is closely linked to the height of play equipment.

While hard surfaces such as tarmac may be acceptable for shorter static play equipment (less than 600mm tall), most need surfacing which features **a suitably incremental level of impact attenuation** (a material and depth which has been tested for reducing the impact of a fall).

**Several types of materials are suitable as surfacing, including grass reinforcement mats, wet pour, loose-fill options, and others. The required depth of these materials is determined by their density in relation to the height of the equipment they are supporting (a calculation needs to be made).** For instance, loose-fill materials, such as bark chippings, need to be deeper than other types to accommodate for displacement and compaction.

Often a popular option for hosting swings, grass is a suitable surface for a fall height of up to 1500mm, as long it is lying on 150mm of topsoil. Creative Play however, urge operators to consider an alternative, as after a short time the dragging of children's feet tends to erode the area, reducing its depth, and rapidly making it **less safe than originally intended**.

Whichever materials are laid down in a play area, it is vital the surfacing is **free of projections or sharp edges**.

***Climbing Equipment***: These are defined as any equipment which require children to hold on (following the three points of contact rule) because standing unaided is not possible.

***Grip And Grasp***: The ***Grip*** is a part of the equipment which a child needs to hold to support their weight. The ***Grasp*** is a part they need to hold on to for balance. All grips must be 16 – 45mm in diameter, while grasps are permitted up to a maximum of 60mm.

***Steep Play Element***: A steep entry or exit point on equipment, such as a ladder or a slide, which exceeds 45 degrees.

***Sliding Section***: Commonly referred to as slides. Creative Play use Type One slides, which require 1 metre of space either side and 2 metres at the run-off (the end of the slide, where the user slows down and gets off).

**Access**

***Cluster***: This is a collection of separate items of equipment designed to be grouped together. The space between them must be age appropriate (500mm or less to allow for continuous movement), and free of any falls exceeding 600mm.

***Collective Use***: Equipment being used by more than one person at a time.

***Easily Accessible***: A piece of equipment which a child can access with only basic skills. So easy are these areas to use that a child can move faster than an adult would have time to intervene – and as a result must feature adequate protection.

***Accessibility***: Equipment needs to be accessible for adults, in case they need to help a child.

***Design***: The intended user of equipment must be catered to in its design. This means that all possible risks it presents are clear and foreseeable, so a child can decide to pursue them or not.

**Movement And Space**

***Space Requirements:*** BSEN has a minimum space requirement, which consists of 3 parts:

1. The space taken up by the equipment.
2. The ***free space***, which is applied wherever there is ***forced movement*** (such as the area covered by the pendulum movement of a swing). They cannot overlap with other spaces.
3. The ***falling space***, an area where a child could potentially fall from (a section of equipment designed for them to occupy, not necessarily the highest part) and the ground.

***Forced Movement****:* A motion such as rotating, swinging or sliding in which, by design, the user is committed to continuing once they start moving.

***Free Space***: The area in which *forced movement* occurs.

Measurements for an area of free space are made as though the child were occupying the middle of a barrel which moves everywhere they do. From the centre of the circle to its circumference, the lengths are as follows for the various stances a user may be in:

Standing Up:

- Horizontal Radius - 1 metre (longer than the length of an average child's arm)
- Vertical Height - 1.8 metres (taller than the average child)

Sitting Down:

- Horizontal Radius - 1 metre
- Vertical Height - 1.5 metres

Hanging (from an overhead ladder, for example):

- Horizontal Radius – ½ a metre Vertical Height
- Upwards from the hanging grip - 0.3 metres Below the grip - 1.8 metres

To avoid injuries, there **must not be any obstacles in the free space**, other than those designed to be there for support or safeguarding reasons. For instance:

-The platform for accessing a fireman's pole must be a minimum of 350mm from it, as opposed to the usually required 1 metre (otherwise children would not be able to use it).

-Support legs on either side of a swing frame are allowed within the free space parameters (but not in the way of forced movement), as they are an essential part of the structure - however no other, unnecessary, objects can be within the space.

-Free space areas should discourage traffic, so there should not be any obvious, clear path through it for children to go through to get somewhere else / access another piece of play equipment.

***Falling Space***: The space between the part of the equipment a child can fall from and the ground.

To prevent injury, **no obstacles are allowed in the falling space**, however some structural sections of equipment can be an exception. This includes parts supporting the user, pieces angled at over 60 degrees, and adjacent portions with less than half a metre (600mm) difference in height (platforms of more than 1 metre must be tested for fall impact absorbency).

***Free Height Of Fall***: Also sometimes referred to as *Critical Fall Height*. This is the distance between an easily accessible, intended-for-use point of height on equipment, and the potential area of impact resulting from a fall. Although calculated with various body positions in mind, (standing, sitting, hanging, climbing), the maximum free height of fall must never exceed 3 metres.

***Impact Area***: This is where a child will hit if falling from equipment.

***Adequate Level Of Impact Attenuation:*** A surface which features the correct level of impact attenuation (reduction in impact force) for the relevant free height of fall. This is achieved by laying the correct depth for the fall distance and surface material.

***Obstacle***: This can be anything, even a piece of equipment, which gets in the way of movement.

In *free space* it is something in the way of *forced movement*.

In *falling space* it refers to something hard or sharp which could hurt a child who falls.

**Materials**

***Timber***: Wood must be from a species of tree which is resistant to ground decay, either completely naturally, or with a little help from an aspect of construction, such as a preservative, or metal post shoes. It is also important that the type of timber, paint, or preservative used is not corrosive to metal fastenings.

Although **splits in wood are acceptable**, they must not be of a size that could trap a finger.

***Metal***: All metal parts of equipment need to be safeguarded against corrosion, and any metals capable of producing oxides or flaking must be coated with non-toxic protection.

Environmental factors, **such as nearby areas of salt water**, should also be taken into consideration.

***Synthetics***: The wear in synthetics should be visible (the gel coating of GRP has a layer of colour indicating wear, for example) so operators know if any action is required. Additionally, synthetics should not be susceptible to UV degradation, and the use of any which are at risk of becoming brittle must come with a clear timeframe for replacement from the manufacturer.

***Flammability***: Materials should not immediately go up in flames if ignited, so all equipment needs to be flash resistant.

***Toxic Materials***: It is unacceptable to use toxic materials anywhere that can be accessed by children.

***Coatings***: Materials and surfacing must conform to the complex and frequently amended **REACH** regulations (***EC 1907 / 2006***) which list details about substances in consumer products that must be controlled.

***The Play Area Finish***:

- Materials (both timber and synthetic) should be of a high quality to diminish the likelihood of splitting.
- Play areas should not feature any sharp-edged components or protrusions (such as nails).
- Jutting bolt threads should not present any risks – tamper-proof plastic caps, such as those employed by Creative Play, should be used to safeguard them.
- If they are ground smooth, then it is acceptable for welds to be present on equipment.
- The play area should not have any exposed hard or sharp-edged parts, such as the razor-blade effect sometimes created by sheet steel. Corners and rims projecting over 8mm need to have a radius of 3mm – edges must be bevelled to prevent parts of equipment causing cutting injuries.
- There should be no danger of crushing or shearing from any parts of the equipment.
- Dampeners need to be employed wherever moving equipment comes to a stop, to cushion the halting of motion.
- Connections such as nuts and bolts must be resistant to unauthorised removal or coming loose of their own accord. All equipment parts should only be replaceable by authorised operators.
- Any lubricants which leak should not pose a safety threat or a risk of staining.

**Installation, Inspections, Maintenance, And Operations For BSEN Compliance**

All playgrounds require a risk assessment conducted by someone accredited by the RPII (***The Management Of Health And Safety At Work Regulations 1999***).

***Installation Inspection***

The installation of equipment must be done to the standards of national building regulations and manufacturer's guidelines. **An inspection needs to be conducted immediately following installation on a new or refurbished site by a trained inspector, preferably before granting access to the public**.

- Foundations must not pose a hazard.
- Entrances to the area for emergency services need to be easily accessible.
- Information on the owner of the play area and emergency service contact points need to be made available on signs.

**The 3 Inspections Recommended For BSEN Safety Standards Compliance**

Beyond the post-installation check, there are three types of inspections which need to be carried out:

***1. Routine Visual Inspections***

Daily or weekly recorded inspections by an operator are advised to ensure the play area is constantly up to standard. **Playgrounds which see a high volume of use, or are prone to a lot of vandalism, should be done as often as possible**.

- Assess risks, noting any hazards present likely caused by vandalism or weather conditions.
- Any areas or equipment deemed unsafe must be made inaccessible to the public, with relevant signage. Playground operators must keep records of safety management and any accidents.

***2. Operational Inspections***

These are normally conducted once every 3 months, although many are also done monthly, or however often is recommended by the manufacturer.

- Make sure the equipment is operating as intended.
- Inspect the stability and wear and tear of the equipment.

***3. Annual Inspections***

Just like the operational examination, the annual inspection must make sure that the functionality and stability, plus the wear and tear of the equipment, is compliant with current BSEN standards, as well as the safety of the area in general.

**Maintenance**

Be sure to never put people at risk during maintenance operations.

- ***Routine Maintenance*** should cover details such as security fixings, paint, staining, surfacing, lubrication, and cleansing.
- ***Corrective Maintenance*** covers repairs and remedial work. Any required changes should only be performed after discussing the issues with the supplier, or qualified individual.

**Essential Documentation For Playground BSEN Standards Compliance**

Playground records should include the following:

1. Certificate of tests or compliance with standards
2. Instructions for inspections and maintenance
3. Operating instructions provided by the equipment supplier
4. Operator's own inspection and maintenance recommendations
5. The design and tender paperwork

**What Playground Operators Need To Do**

Personnel need to be appropriately competent for the task of looking after a playground:

- Staff must be trained to run a playground.
- Responsibilities of personnel need to be made clear.
- Personnel should be provided with adequate information about equipment.
- Only qualified people should carry out specialised tasks (such as welding).

**Safety Standards Giving You A Headache?**

Learning and implementing all these safety standards yourself isn't practical – and fortunately, **you don't need to!** By partnering with a long-established and trusted **playground designer / manufacturer / installer** such as **Creative Play**, you can rest assured that all aspects of **BSEN 1176** and **BSEN 1177** are taken care of – we can even assist with **inspection and maintenance**, so your play area **will always be up to code**.

**Let Creative Play take care of the hassle:Book a Free Consultation**

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