Parkour Training Equipment Standards Policy 2026

The Purpose of this policy, based on principles of EN 16899:2016 is to establish minimum safety requirements for parkour training equipment within gym environments, while maintaining the integrity of parkour as a user-controlled sport. The objective is to reduce injury risk and ensure consistent standards across parkour facilities in the UK. This standard specifies requirements for the design, manufacture, installation, inspection, maintenance, and operation of parkour equipment intended primarily for users aged 8 years and above. When working with participants under the age of 8 years a risk assessment should be conducted, taking into account the age, stage and ability of those taking part.

The scope of these standards applies to all fixed and portable parkour-style equipment and functional structures.

The EN 16899:2016 standard specifies:

- **Design and construction requirements** (materials, structural integrity, dimensions)
- **Safety requirements** (e.g. fall heights, clearances, entrapment risks, impact surfaces)
- **Test methods** to verify safety and performance
- **Installation requirements** (layout, spacing, location, and interaction with surrounding facilities)
- **Inspection, maintenance, and operation** guidelines
- **Marking and information for users/manufacturers** en16899+1

It also considers how parkour involves:

- **User-controlled movement using physical exertion**, across equipment elements (walls, rails, platforms, etc.), which may be **fixed or portable**.

Facility layout and environment

The standard includes requirements for:

- **Area and spatial layout ("flow")**
- **Height and fall zones**
- **Separation distances** from other facilities, such as playgrounds or multi-use sports areas.

Risk-based approach

- It recognises that not all risks can be eliminated, so it promotes **risk–benefit assessment** and safe design.

What it does NOT cover

- It applies only to the **equipment and its installation/maintenance**
- It **does not regulate parkour activities themselves** (e.g. how the sport is performed or taught)

Definitions used in this document:

Free Height of Fall (FHoF): Maximum vertical distance a user could fall.

Landing: A rigid surface intended for landing.

Fall Zone: Clear area surrounding equipment.

Impact Attenuating Surface (Impact-absorbing surfaces (e.g. EN 1177): Flooring that absorbs impact forces.

Critical Fall Height: CFH Maximum fall height for which a surface provides adequate attenuation.

Falling Space: Space through which a user may fall.

Competent Person: Individual with appropriate training, knowledge, and experience.

The British & European standards for Parkour Equipment explicitly state that exceptions to the standards can be made for indoor, or coached Parkour sessions, Parkour UK have published this guidance to support that document and give appropriate guidance for indoor parkour gyms and coaching organisations.

Venues Utilised By Children

The information contained in the EN and BS safety standards applies to users aged approximately 8 years and above. It is your responsibility to appropriately risk assess your equipment and classes to ensure children below the age of 8 are only using equipment appropriate to their skill level and size and that are coached to use the equipment safely.

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The information below applies to venues utilised by both adults and children.

Indoor Equipment standards:

Specific details on clearances, distances, entrapment, and other physical requirements documented in BS:EN16899 should be adhered to with the following exceptions and additional considerations for indoor and coached Parkour sessions.

Parkour UK recommend that all permanent parkour training spaces, such as parkour parks and gyms, should carry out an expert health and safety check by an appropriately qualified professional to ensure that they are meeting the recommended safety standards. A gold standard health and safety check is standard as part of the Parkour UK Gold Membership.

Coached sessions should be carried out with participants who have given informed consent or have parental consent if under 18 years old to take part in parkour activities. Medical information should be gathered prior to the session by way of a pre-activity questionnaire or equivalent document.

Site-specific briefing should be given to all participants before a session begins. This should include any site-specific information, and ground rules for a safe session.

Installation

All parkour equipment and associated surfacing must be installed in accordance with the manufacturer's instructions and in compliance with all applicable local building, safety, and regulatory requirements. Following installation, and prior to use, the equipment should undergo an independent post-installation inspection carried out by a competent person who is not directly involved in the installation process. This inspection should confirm that the equipment has been installed correctly and meets all relevant safety requirements.

Foundations

All equipment foundations must be designed and constructed to ensure stability during use and prevent any movement, sinking, or instability that could compromise safety. Appropriate methods of installation shall be used to maintain structural integrity over time. Where loose fill surfacing is

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present, any sharp or non-vertical edges of foundations shall be installed at a depth of at least 400 mm below the surface to reduce the risk of injury from contact during a fall.

Materials Requirements

Materials shall be selected to ensure structural integrity throughout the inspection lifecycle and comply with relevant European chemical safety regulations.

Specific Materials

- Concrete: Minimum class C25/30 (EN 206)
- Wood: Must comply with EN 335 and EN 350 durability classes
- Metals: Corrosion resistant or protected
- Plastics/Rubber: UV and oxidation resistant

Structural connections shall include anti-loosening mechanisms (e.g. locking nuts).

Structural Integrity and Loading

Structural elements should be designed using Annex A and B load calculations. The number of users (n) shall be determined based on element type (point, line, or area), and the total user load (M) calculated accordingly. A safety factor of 1.35 shall be applied to determine the design load (Q)."

Load Calculation – Annex A Calculations – User Load

Structural elements shall be designed using user load calculations:

$$M = (n \times 78 + 1.64 \times \sigma \times \sqrt{n}) \times (1 + 1.3 / n)$$

- **M** = total user load (kg)
- **n** = number of users on the element
- **78 kg** = average body mass
- **σ = 12.6 kg** (standard deviation)
- **1.64** = statistical factor (covers ~95% population)
- **(1 + 1.3/n)** = dynamic movement factor

Once M is calculated, apply the safety factor (1.35):

$Q = M \times \gamma Q + m$

Where:

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- Q = total design load (kg)
- γQ = 1.35 (safety factor)
- m = self-weight of the structure (kg)

Note:

- If doing **physical testing**, the structure's self-weight is already present ➳ no need to add **m**

Annex B – Number of Users

- Number of users per element (Annex B)

  Point Load (e.g. single standing point) - n = 1
  Line Elements **Bars / Rails:**
  Horizontal or ≤60°: n = Lpr / 0.7
  Steep (>60°): n = L / 1.4
  Where:
  L = actual length (m)
  Lpr = projected horizontal length (m)

  Surface Areas **Platforms / Landings:**
  ≤60° slope: n = Apr / 0.49
  >60° slope: n = A / 0.98

  Where:
  A = actual surface area (m^2)
  Apr = projected horizontal area (m^2)

  n must always be rounded UP to the next whole number, e.g. 3.13 → 4 users

  Horizontal Load (Stability Requirement)
  Horizontal load = 30% of total vertical load
  Example: 2 m long rail: n = 2 / 0.7 = 2.86 → 3 users

  Calculate M
  M = (3 × 78 + 1.64 × 12.6 × √3) × (1 + 1.3 / 3)

  M = (234 + 35.8) × (1.433)

  M ≈ 269.8 × 1.433 ≈ 387 kg

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Apply Safety Factor: $Q = 387 \times 1.35 \approx 522$ kg

Load Verification

Equipment shall be verified by:

- Calculation; or
- Physical testing

Impact Resistance

Parkour equipment and structural components designed to receive user impact (such as landings, panels, and platforms) must be capable of withstanding repeated dynamic loads. This should be verified by an impact test in which a mass of approximately 94 kg is dropped from a height of 500 mm onto the test surface. Following the test, the equipment must not show any signs of structural failure, including cracking, permanent deformation, or loosening of fixings. The equipment must remain stable and safe for continued use. This test ensures that the structure can withstand realistic parkour landings and dynamic forces encountered during normal use.

Horizontal Stability

The structure must also be able to handle lateral/sideways forces equal to 30% of the vertical load, which is approximately one-third of the normal weight load.

Maximum Heights

The maximum equipment height for indoor parkour equipment **without** the use of impact attenuating surfacing is **1.6 metres**. This is in line with British Standards for play equipment.

The recommended maximum height with the use of impact attenuation surfacing is 3 metres.

Free Height of Fall (FHOF)

Absolute maximum free fall height must be no greater than 3.0 metres. This applies to any accessible part of the equipment and area, such as landings, rails and platforms.

Surface performance requirement:

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- Every impact-absorbing surface has a CFH rating that must exceed the free height of fall from adjacent equipment. Example: If your climbing equipment has a platform at 2.4m, your safety surface must have a CFH rating of at least 2.4m.
- Equipment surface should not mislead users to think it has better friction than it really has, e.g. a brick pattern on flooring may mislead users to think that the friction is much better than it is, whereas concrete stone performs similarly to real stones.
- There must not be any protruding nails or pointed or sharp-edged components.
- Overly rough surfaces shall not present unnecessary risk, e.g. cuts in skin or tripping over.
- Protruding bolt threads within any accessible part of the equipment shall be permanently covered, e.g. by dome-headed nuts.
- Surfaces must be finished so that no sharp bits or rough metal edges remain, including those caused by galvanising.

Obstacle Edges

Edges must be smoothed to prevent injury by either:

- Rounding to a minimum radius of 3 mm, or
- Applying a 3 mm × 3 mm chamfer (bevel)
- Edges can be rounded more, but if the radius exceeds 10 mm, users may lose the ability to feel the edge properly
- Any corners or parts that stick out more than 8 mm must be rounded (minimum 3 mm radius)
- This rounding is not required if the protruding part is protected by another surface within 25 mm
- These requirements are intended to reduce injury risk from accidental contact with the equipment
- Fixings such as base plates and flanges (protrusions or lumps) must be designed and positioned to avoid creating hard impact points
- They must not sit within a 230 mm diameter impact zone, to reduce injury risk if a user falls onto them
- All obstacles over the height of 1.2m should have their edges clearly marked by either a contrasting colour to the surrounding floor, which will make the edge clearly visible, or by using a coloured marking tape, such as hazard tape.

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Vertical Drop Limits

A **vertical drop limit** is the height people can drop between elements (or to the ground) while still keeping the risk acceptable.

The maximum allowable vertical drop between elements shall be:

Situation	Maximum Vertical Drop
Large landing to landing	**1.6 m**
Rail to rail or large landing	**1.6 m**
Landing to small target (rail/narrow)	**1.2 m**

Impact Surfacing

It is recommended that you should use rubber flooring throughout the parkour training area. However, when a fall height exceeds 1.6 metres impact attenuating surfacing must be in place. Where reasonably practicable CFH should match full fall height.

Extent of Impact Attenuating Surface (Falling Heights less than 1500m_

Where the free height of fall is 1500 mm or less, the minimum extent of the impact attenuating surface surrounding the equipment shall be 1500 mm in all directions from the edge of the structure. This area defines the falling space and shall be kept clear of obstructions to ensure that users who fall or dismount from the equipment have sufficient protected surface to reduce the risk of injury.

Extent of Impact Attenuating Surface (Falling Heights Above 1500 mm):

Where the free height of fall exceeds 1500 mm, the extent of the impact attenuating surface shall be determined using the formula x = (2/3 × free height of fall) + 500 mm. This calculated distance shall be measured horizontally from the edge of the equipment in all directions to define the falling

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space. The resulting area shall be fully covered with compliant impact attenuating surfacing and kept clear of obstacles to ensure adequate protection for users during falls.

It is recommended that you carry out a risk assessment when using higher risk equipment to evaluate whether crash mats should additionally be used during the activity.

Fall Zones (Clear Space Requirements)

A fall zone is the area in, on, or around parkour equipment where a user could land if they fall, and which must be kept clear and safe to ensure user safety during falls or dismounts. Only essential parkour elements, such as landings, bars, and rails, may be located within this space. It includes both:

- The space a person falls through
- The ground area where they could impact

It is a requirement that a fall zone is maintained around equipment of **2/3 of the height of the structure or obstacle + 0.5m**

For example:

Fall Height	Minimum Fall Zone
≤ 1.5 m	**1.5 m**
> 1.5 m	**(2/3 × height) + 0.5 m**

Equipment Spacing

Where solid structures exceed a height of 1200 mm, a minimum horizontal separation distance of 550 mm must be maintained between them to prevent collision risks and ensure adequate clearance for safe movement and landing.

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Access Design

In EN 16899 access design refers to how users are able to get onto, into, and move around parkour equipment in a way that is safe and suitable for their level of skill, and how that access is controlled to manage risk. Access to parkour equipment should require effort and skill, and should not resemble easy playground-style access.

Where steps are used to reach higher platforms, they should be appropriately sized using the following dimensions:

Platform height	Minimum step size
≤ 1.5 m	0.7 m
1.5 – 3.0 m	1.0 m

Surfaces

All surfaces must be reasonably slip-resistant without being overly rough, and all edges should be rounded with a minimum radius of 3 mm. Equipment must be free from sharp or protruding parts.

Bars and Rails

- Parkour bars and rails shall comply with the general surface and edge requirements to ensure safe use, including appropriate finish and absence of sharp or hazardous features.
- The spacing between adjacent bars shall meet minimum clearance requirements to prevent entrapment risks.
- Bars must have a minimum diameter of 16 mm, and any bar or rail with a diameter of 100 mm or greater shall be treated as a landing surface.
- Where bars or rails are installed on a landing surface wider than 200 mm and set at an incline of less than 30°, the design shall prevent a user's foot from passing through the gap between the bar (or rail) and the landing, either by eliminating or filling the gap, unless the opening is large enough to meet full body clearance dimensions.
- The positioning and height of bars on elevated landings shall also comply with specified limits to ensure safe use and movement between elements.

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- Access to rails and bars in higher position than 1 000 mm from the impact area shall require at least one step, that is minimum of 700 mm.

Clearance and Entrapment

Gaps and spaces between elements must be designed to prevent entrapment hazards involving the head, neck, body, fingers, hair, or clothing or be large enough to allow the body to pass through safely. All openings and gaps should be assessed using probes to represent a child's head, a body and a finger to ensure that they do not allow partial entry of a body part without permitting safe passage of the whole body.

No "trap" gaps ➳ A hole must either be:

- **Small enough** that nothing can get in
- OR **big enough** for the whole body to pass through safely

No head traps ➳ A person's head must not fit in if their body can't follow

No finger traps ➳ Fingers must not get caught in small gaps

No clothing snags ➳ Things like hoodie cords shouldn't get caught and pull someone tight

Clearance Requirements

- Body clearance: ≥350 mm × 550 mm
- Finger clearance: ≥45 mm or ≤8 mm

Openings

Openings must:

- Be ≥45 mm and safe; OR
- Smaller than 8 mm; OR
- Large enough for full body passage

Entrapment Prevention

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Equipment must prevent:

- Head and neck entrapment
- Clothing entrapment (V-shaped openings >60°)

Layout and Flow

The layout of your facility should avoid crossing or conflicting movement paths and promote continuous movement.

Risk Management

All activities should be risk assessed with an additional dynamic risk assessment carried out prior to all sessions.

Facilities should provide:

- Beginner, intermediate, and advanced activities
- Clear guidance on safe use of the equipment
- Supervision

Inspection and Maintenance

Your facility and the equipment should be checked comprehensively at regular intervals (weekly, monthly and annually) for wear and damage and a record kept of this inspection. A daily visual inspection and dynamic risk assessment is also recommended and a written record kept of this. Remove unsafe equipment immediately. If any equipment is involved in an accident, inspect it for faults and do not use it again until you are entirely happy that it is safe to do so.

Permanent Parkour training spaces such as Parkour parks and Parkour gyms should be inspected by an appropriately competent person annually. An annual gold standard health and safety inspection is available to all Parkour UK Gold member gyms.

PAT Testing

All portable electrical devices on site should be PAT tested in line with government and your insurance guidelines on either an annual or bi-annual basis dependent on the type of equipment. More information can be found Health and Safety Executive website.

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Fire Exits and Fire Safety Equipment

Fire exits should be clearly marked and be accessible at all times. This means not blocking the fire exit from the inside but also ensuring that there is a safe exit route on the other side, not blocked by rubbish or overgrown shrubbery for example. All staff and volunteers should be aware of emergency incidents and fire procedures, including exits, assembly points and where to find registration and emergency contact information.

Refer to your individual site Fire inspection for additional guidance for your facility. An annual fire inspection is mandatory for all public facilities.

The British Standard BS 5839-1:2025 is intended to guide best practice in fire detection and alarm systems for leisure facilities such as gyms and sports centres.

A compliant system must include:

Control and indicating equipment (fire alarm panel) showing:

- Alarm location (zones)
- Faults
- Must be **visible and accessible**

Automatic fire detectors

- Smoke detectors, heat detectors, etc.
- Selected based on **risk and environment**
- Updated guidance:
    - Smoke detection preferred in higher-risk areas (e.g. kitchen)

Manual call points (break-glass units)

- Must be provided so occupants can raise the alarm
- Positioned so no one travels more than:
    - **45 m (or 30 m in higher risk layouts)**

Alarm devices (audible + visual)

- Sounders must:

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    - Reach ≥65 dB(A) or 5 dB above background noise
- Visual alarm devices required where needed (e.g. for deaf users)

Cabling and power supply

- **Fire-resistant cabling is mandatory** (including mains supply)
- Backup batteries required to:
    - Maintain system during power failure

System zoning

- Building must be divided into **fire detection zones:**
    - Each zone ≤ ~2000 m²
    - Normally one zone per floor
- Zone plan must be displayed near the panel (mandatory in many cases)

Interfaces with other systems

Fire alarm may automatically:

- Release fire doors
- Shut down HVAC (heating, ventilation and air conditioning)
- Signal lifts
- Notify monitoring centres

System categories (what level of protection you need)

Your sports facility must select a **system category based on risk:**

- **L systems (life protection)**
    - L1–L5 (from full building coverage to targeted areas)
- **M system (manual only)**
- **P systems (property protection)**

Most public sports facilities require **L2–L4 life protection systems** depending on layout.

Installation, testing and maintenance

BS 5839-1 requires full lifecycle compliance:

Design

- Must be completed by a **competent person**
- Based on a **fire risk assessment**

Testing & maintenance

- Weekly:

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    - Test manual call points
- Monthly:
    - Check batteries and power supply
- Annually:
    - Full system service

Documentation

- Must include:
    - Design certificate
    - Test records
    - Logbook of faults and maintenance

Fire extinguishers (NOT covered by BS 5839—but required)

Important:

BS 5839-1 does NOT specify extinguishers

However, under **fire safety law (FSO 2005)**, a sports facility must provide:

Portable fire extinguishers

Typical requirements:

- Correct types based on risk:
    - Water (general)
    - CO_2 (electrical)
    - Foam / powder (flammable liquids)
- Positioned along escape routes and near hazards
- Regular maintenance (annually)

These are determined by the **fire risk assessment**, not BS 5839 itself.

Other required fire safety provisions (linked but separate)

A compliant sports facility will also need:

- **Emergency lighting (BS 5266)**
    - Ensures safe evacuation if lighting fails
- **Fire signage**
    - Exit signs
    - Fire action notices

Means of escape

- Clearly defined escape routes

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- Adequate exit widths and numbers

Fire doors & compartmentation

- Help contain fire and smoke

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