

HARLEQUIN
www.harlequinfloors.com

Specifying Dance Floors

A Guide for Architects



The World Performs on Harlequin Floors

Harlequin is the world's leading manufacturer, supplier and installer of fully floating sprung floors, vinyl dance surfaces, stage systems, ballet barres, mirrors and dance studio equipment for dance and the performing arts. Harlequin has led the way in developing and evolving the modern dance floor and has carried out extensive research with dance scientists and experts in biomechanics to reduce and prevent dancer injury.

The Harlequin brand is firmly established worldwide with branches in the UK, Europe, the US, Asia, and Australia, there is also a large network of distributors that cover India and EMEA.

The purpose of this guide is to highlight the fundamental differences between a dance floor and a sports floor, to examine specification issues versus performance considerations and to explain why the choice of floor is critical to protect the health and wellbeing of dancers. It will look at how Harlequin is embracing sustainability in all aspects of manufacturing and product development and will guide you through how to easily specify all Harlequin products using NBS Source.

ABT American Ballet Theatre

Princess Cruises

Royal Derngate & Northampton

P&O Cruise

Nationale Opera & Ballet

The Metropolitan Opera

National Theatre

The Kennedy Center

Teatros del Canal

Working with Harlequin

With over 45 years' experience, Harlequin is recognised as the leading authority in the design, construction and refurbishment of theatre stages and dance studios. The world's most prestigious dance companies, venues, universities, and schools trust and recognise the advantages that good quality products and service synonymous with the Harlequin brand can provide.

Harlequin offers a turn-key solution for all performance spaces, from initial design and product specification to expert installation, and the Harlequin technical team will offer advice and guidance every step of the way.

Harlequin has an extensive range of sprung and vinyl floors, mirrors, ballet barres and dance studio equipment and can provide everything that a good performance space requires.

Celebrity Cruises®

Guildhall School of Music & Drama

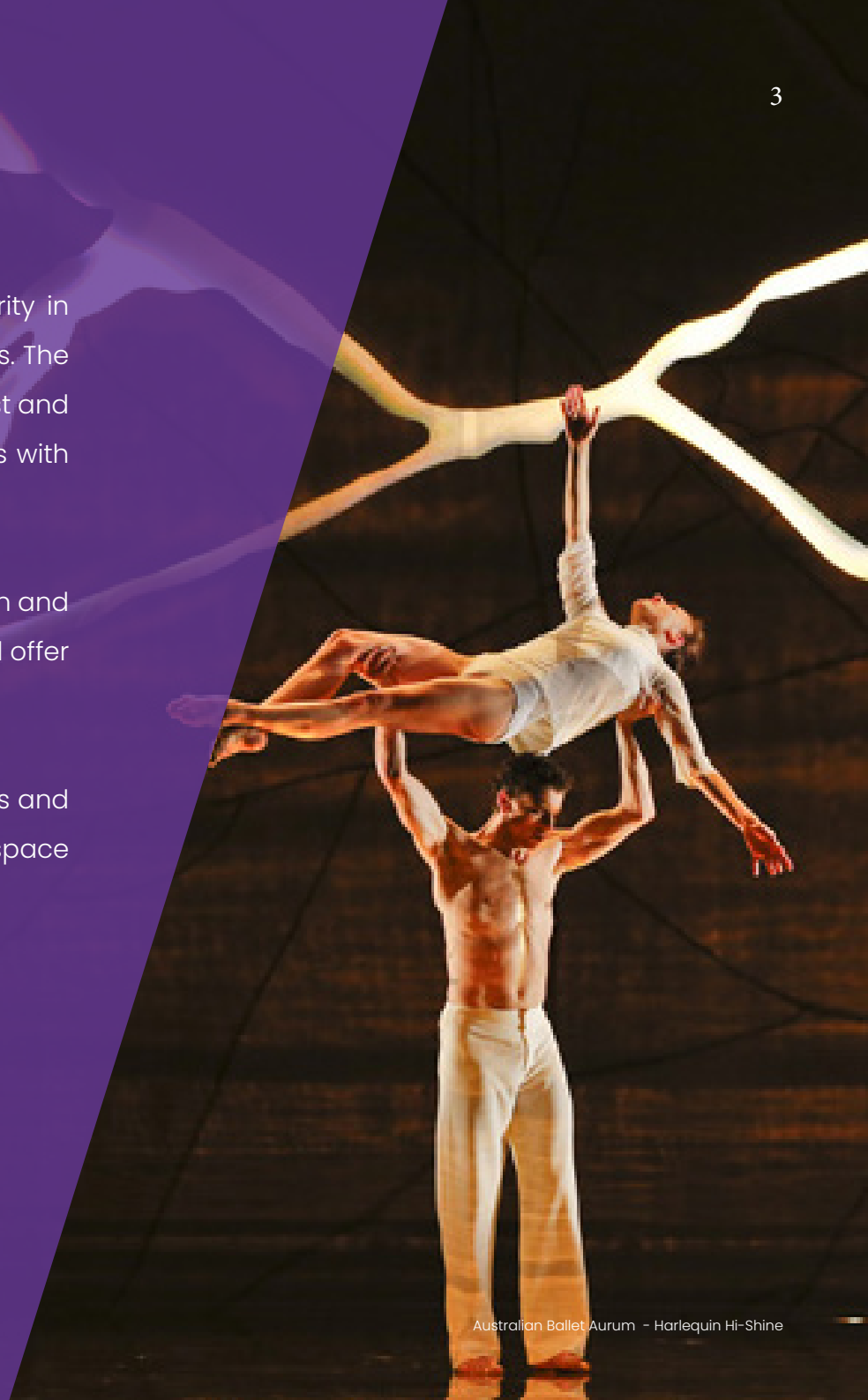
BdM | Ballet de Monterrey

English National Ballet

Birmingham Hippodrome

Théâtre National de Chaillot

Bird College dance music theatre performance



Australian Ballet Aurum - Harlequin Hi-Shine



Harlequin and Archify

Harlequin's sprung floors, stage systems, vinyl performance floors and dance studio equipment are all available on Archify, enabling you to add the specification information directly to your projects at the touch of a button.

Images, brochures, BIM objects, product specifications, and sustainability policies are also available on Archify providing valuable resources for every stage of your project.

- BIM Objects available
- Third party certificates
- Sustainability data
- Acoustic data
- Verified BIM objects to industry standard

Find Australian Harlequin on Archify here:

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The Australian Harlequin Online CPD

Did you know that a three hour dance performance is equivalent to two 90 minute football games, or running 19 miles? Or that eight out of ten dancers sustain an injury every year?

That's why the right floor is critical, and why architects and specifiers have a duty of care when specifying the correct floor for dance and the performing arts.
A fit-for-purpose floor protects performers' physical health, helps them achieve their best and can prolong their career. If the dancers are not confident and happy with the performance of the floor they spend hours using, it can often result in the flooring being uplifted and replaced with a more suitable alternative. Specifying the wrong floor can also have severe economic consequences.

The Harlequin CPD Seminar uses comprehensive data and case studies to outline:

- Important considerations when specifying a performance floor, and the economic consequences of getting it wrong
- The increasing importance of scientific research and dancer health and safety
- A look at the types of performance floors
- Recent Harlequin case studies
- Sustainability

For more information email us at auscontact@harlequinfloors.com or call +61 (2) 9620 7770

Find our CPD here:



English National Ballet - Harlequin Activity and Harlequin Cascade

Sustainability

Harlequin is committed to sustainable development and our corporate responsibility in this area forms a fundamental part of our business strategy. We believe that sustainability is a team effort across the entire company, driven and supported by our board of directors.

We continually monitor the environmental impact of our manufacturing processes and operations and ensure that every department works together to plan, measure and improve our social and environmental performance.

This plan is continually being reviewed to meet our ongoing commitment to improve our overall sustainability and to reduce carbon emissions, helping us to reach Net Zero emissions.

Harlequin Wood Flooring

- All timber used by Harlequin is responsibly sourced from sustainable well managed forests that are either FSC or PEFC certified.
- Harlequin has demonstrated their commitment to sustainability by gaining FSC 'Chain of Custody' Certification.
- Harlequin is the only performance floor manufacturer to use sustainable bio-based lignin glue in their birch plywood products, giving significant reduction in carbon footprint and VOC emissions.
- All Harlequin wood flooring is 100% recyclable and can be converted into sustainable biomass to generate energy.
- Our Harlequin Activity floor has exceptionally high thermal and sound insulation properties helping to reduce noise transmission and energy use.
- All Harlequin timber waste and installation offcuts are sent for recycling for conversion into sustainable biomass to generate energy.

Harlequin Vinyl Flooring

- Harlequin is committed to reuse and recycle all Harlequin products wherever possible.
- Harlequin runs a proactive 'Take Back' scheme under which post installation and post use products are recycled into second life products. All Harlequin vinyl flooring is 100% recyclable. Any Harlequin vinyl floor can be returned to our UK warehouse (or collected for a fee) for recycling. T&C's apply.
- Since Harlequin Floors introduced their 'committed to recycling' scheme, diverting material away from landfill, the programme has saved 282 tonnes of CO^2 emissions.
- All Harlequin vinyl flooring contains between 23%-30% post manufacture recycled content.
- Harlequin vinyl floors are extremely durable and are designed to be reused many times. Some prestigious dance companies have been using their Harlequin Cascade floors for over 20 years. Our Harlequin Hi-Shine the choice of touring bands who use it night after night on the road. Our Harlequin Fiesta is designed to be used without glue, making reuse and recycling much easier. And our Harlequin Reversible floor is 'two floors in one', if one side becomes worn it can be easily turned over to use the other side so doubling the life of the floor.
- Harlequin's own range of specialist cleaning products help to protect our vinyl floors so extending the life cycle of our products.
- Unlike other manufactures, we offer our vinyl floors in a wide range of roll length enabling our customers to by the amount of flooring that they actually need, so reducing waste.
- All Harlequin vinyl flooring products have been tested for VOCs, achieving Intertek's Clean Air Gold Certification for emissions and complying with both BREEAM (Building Research Establishment Environmental Assessment Method) and LEED (Leadership in Energy & Environmental Design) requirements for good indoor air quality.
- Harlequin uses only solvent free adhesives and print inks.
- Harlequin vinyl flooring is manufactured from 56% renewable ingredients.
- All raw materials used in the manufacture of Harlequin vinyl flooring are REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) compliant and do not contain any SVHC (Substances of Very High Concern) in concentrations greater than 0.1% (w/w).
- All Harlequin vinyl flooring products contain no CMR (Carcinogenic, Mutagenic, Reprotoxic) Category 1 or 2 substances.
- All Harlequin vinyl flooring products are free from formaldehyde and are classified as conforming to Class E1.
- Harlequin conforms to the recommendations of Vinyl Plus, the European PVC industry's commitment to sustainable development.

BREEAM®

INTERTEK SUSTAINABILITY

CERTIFIED CLEAN AIR GOLD



Considerations When Specifying Floors For Dance

Specifying the incorrect floor for dance can have huge and costly implications and can seriously affect the safety and professional longevity of dancers. There are a number of considerations when specifying floors for dance:

Basic requirements of a dance floor

- Not too hard with just the right amount of “give” to avoid repetitive strain injuries, and not too soft which can be tiring and cause muscle fatigue.
- Responsive, returning energy to ‘lift’ the feet, but not too springy like a trampoline.
- It should not be noisy in use, although percussive dance such as tap, Irish and flamenco use their shoes together with the floor to make certain sounds for the rhythm of their dance.
- There should be an appropriate level of “traction” or “slip-resistance”. Too much can block movement and cause the foot to twist. Too little and the floor can be dangerously slippery.
- The floor must absorb impact from falls and jumps. A thick performance surface alone does not provide sufficient protection from serious injury, a sprung floor is required.

Type of dance or usage?

The type of floor to specify will depend on the type of dance or usage. Most professional studios cover a range of different types of dance and it is worth remembering that different genres may require varying amounts of space. Although not often the commissioning client, it is imperative to consider the needs and requirements of the end user.



Is the space large enough for dance?

It is important to have sufficient headroom for the dancer, they should never feel inhibited when jumping. A ceiling height of at least 3.5 metres is ideal.

Will the floor need to be portable or permanent?

Whether a portable or permanent floor is required depends on the client's needs and whether the studio is owned or rented. A permanently installed floor will probably cost more but will last longer, making it a good long-term investment.

Depth of floor?

This will vary with floor type and is a major consideration when laying a sprung floor in a space not designed for it. A damp-proof membrane should be used to prevent moisture rising from the ground which can cause dimensional instability and vapour blisters in the performance surface.

What is the sub-floor?

Is the sub-floor solid or suspended? Is it level or does it need a screed? All aspects of sub-floor preparation and floor covering installation should be carried out in accordance with the appropriate standard. The sub-floor must be structurally sound, level, smooth, dry and clean.



Dance Floors vs. Sports Floors

Why sports floor aren't suitable for dance

It is a common assumption that a well-designed sports floor will meet the needs of dancers. This is not the case as there are significant differences in the construction of the sprung floor and the performance surface.

Dancers do not have the same requirements as athletes. Sprung floors for sport are tested for adequate ball bounce and athletes require a high degree of energy return or 'spring'. Dancers obviously have no interest in ball bounce but require a combination of shock absorption and energy return. A dancer's interest in the quality and consistency of both the sprung floor and dance surface is for both artistic performance and health reasons.

Sprung dance floors have unique benefits

A sprung floor is designed to provide cushioning and impact reduction when landing after jumps or similar movements. Lower limb problems such as tendinitis, 'shin splints', knee pain and ankle strain can all be attributed to incorrectly specified sprung floors and can take months of physiotherapy and recovery time to correct. Such injuries can also have a significant bearing on the longevity of a performer's career and quality of performance.

Floors developed for industrial, commercial or sports applications do not offer the benefits that dancers appreciate when they talk about the 'feel' of the floor. Only floors developed for dance do that.

A sprung floor provides cushioning and flexibility, dancers need a floor that absorbs the shock of jumps and reduces the risk of injury in the event of a fall.



Dance floor construction

The earliest recorded installation of a sprung floor is in the 1870s, but the history of sprung floors does not really begin until the 1920s, when dance venues across America began installing wooden floors supported by metal spring units.

The metal spring units were difficult to maintain and were prone to seizing, so modern sprung dance floors are now normally constructed in one of three ways:

- Traditional 'basket weave' substructure.
- 'Fully floating' with no fixings to the walls or sub-floor.
- Inter-locking sprung floor panels supported by foam backing or pads, with modular portable versions available for touring.

Harlequin manufactures sprung dance floors using all three of these construction methods, each type of floor is suitable for different applications.

What is area and point elasticity?

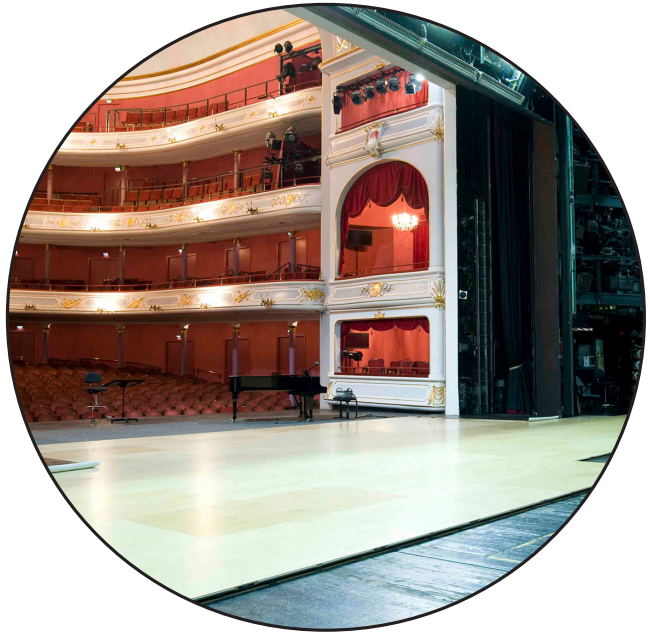
An area elastic floor flexes over a wide area to absorb the impact of dancers landing from jumps in a localised manner so that the landing does not affect other dancers nearby. A point elastic floor shows deflection or 'give' only at the point of contact. Conventional wooden floors and many sports floors have inconsistencies in area and point elasticity, which are unavoidable owing to their construction.

A vinyl performance surface is point elastic. No roll-out dance floor, no matter how thick or heavily cushioned can fully fit the description of a 'sprung floor'.



Harlequin’s Range of Sprung Floors

. The Harlequin range of sprung floors have been developed for use in combination with a vinyl or wood performance surface.



Harlequin's sprung floors are engineered to deliver optimum performance across the entire surface, ensuring consistent shock absorption and support. Unlike sprung sports floors, which rely on a joist system that can create hard spots, Harlequin sprung floors are designed with elastomer blocks or a closed-cell, sound-absorbing polyurethane layer. This approach guarantees a uniform response, making them ideal for dance and performance spaces.

Portable sprung performance floors

Harlequin offers a range of portable sprung dance floor systems designed for convenience and versatility. For example, the Harlequin Liberty panels feature Harlequin's proprietary 'one turn of the key' latch and lock mechanism, enabling quick and secure assembly and dismantling. Alternatively, the Harlequin Flexity panels utilise a unique tongue and groove system for seamless connection.

Both options are easy to store and transport, making them ideal for studios and touring companies requiring temporary sprung floor solutions.

Permanent sprung performance floors

Harlequin also provides permanently installed sprung dance floors that are fixed in place and cannot be dismantled or relocated. A prime example is Harlequin Activity, a permanent sprung performance floor that is constructed using Harlequin's proprietary 'triple sandwich' construction method.

These floors are designed to be paired with a vinyl or wood performance top surface, ensuring optimal performance and durability for a wide range of dance and performance needs.



Nashville Ballet - Harlequin Liberty and Harlequin Reversible Pro

Harlequin **Liberty**™

Harlequin Liberty is a lacquered birch plywood sprung floor panel system featuring shock dampening dual-density elastomer pads. The panels join using a rounded tongue and groove and are secured in place using our proprietary 'one turn of the key' latch and lock mechanism.

Harlequin Liberty provides consistent shock dampening across the floor and offers the same feel and energy return to one or several dancers.

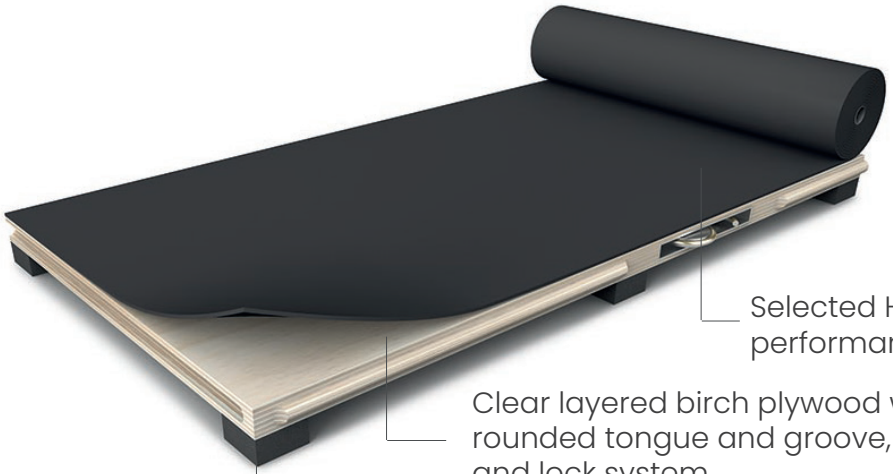
Performance surface: Harlequin Liberty can be used with a variety of performance surface options from the Harlequin range of performance vinyls and solid or engineered wood finishes.

Edge trims and ramps are available if required. For easy storage and transportation please see Harlequin's panel cart.

Installation: Harlequin Liberty is designed for both permanent or portable installation. The panels are laid in a 'brickwork fashion' onto the sub-floor so that cross joins do not coincide.

Specification Guide

Permanent or Portable	Both
Panel Size	2m x 1m & 1m x 1m
Minimum Floor Thickness (before inclusion of chosen surface)	37mm
Weight	12.5kg/m^2 (Without surface)
Testing Standard	BS EN 14904:2006
Shock Absorption	67%
Vertical Deformation	4.1mm
Area Deflection	12.8%
Rolling Load	>1500 N
Testing Standard	BS EN 1991-1-1:2002
Point Load	>3.60kN
Uniform Distributed Load	>10.00kN
Fire Rating	Bfls 1 to EN 13501
Impact Generated Sound Level within room (Lw)	104.20dB
Thermal Resistance - R Value	1.52 m^2K/W
Thermal Insulation - U Value	0.658 W/m^2K
Category of Use	A4
VOC Emissions	<0.10 mg/m^3
Warranty	10 years if installed by Harlequin 5 years if installed externally
Installation	Installed by Harlequin or the customer
Underfloor Heating	Suitable for use with underfloor heating

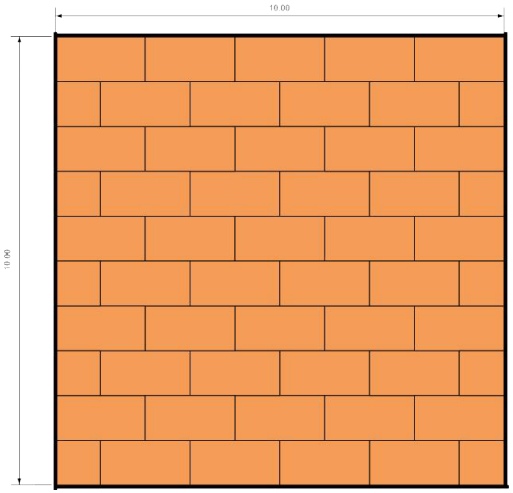


Selected Harlequin vinyl performance floor

Clear layered birch plywood with a rounded tongue and groove, plus a latch and lock system

Dual density shock damping elastomer blocks at predetermined intervals

Diagram of
'Brickwork Fashion'



Harlequin's Latch and Lock System





Luna Peigne and Guillaume Diop, Paris Opera Ballet at Ballet Under the Stars 2023.
Photo Alice Pennefather
Harlequin Liberty and Harlequin Cascade

Harlequin **Liberty HD™**

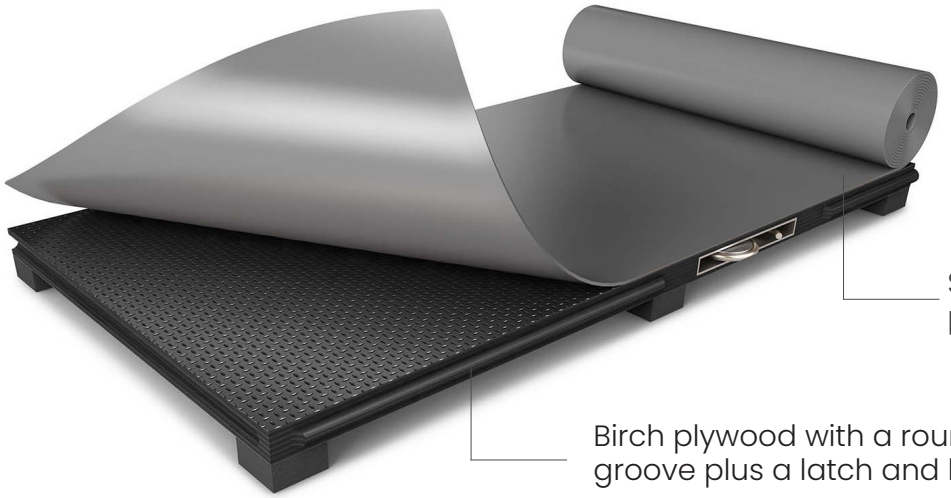
Harlequin Liberty HD is a development of our renowned Liberty sprung floor panel system, designed with enhanced durability in mind for more challenging environments. Harlequin Liberty HD is a birch plywood sprung floor panel system featuring shock dampening dual-density elastomer pads. The panels are coated with a black polymer resin, with a textured, high-grip pattern on the top surface which is high-wear, slip-resistant and weatherproof. The panels join using a rounded tongue and groove and are secured in place using our proprietary 'one turn of the key' latch and lock mechanism. Harlequin Liberty HD provides consistent shock dampening across the floor and offers the same feel and energy return to one or several dancers.

Performance surface: Harlequin Liberty HD can be used with a variety of Harlequin performance vinyl's. Edge trims and ramps are available if required. For easy storage and transportation please see Harlequin's panel cart.

Installation: Harlequin Liberty HD is designed for both permanent or portable installation. The panels are laid in a 'brickwork fashion' onto the sub-floor so that cross joins do not coincide.

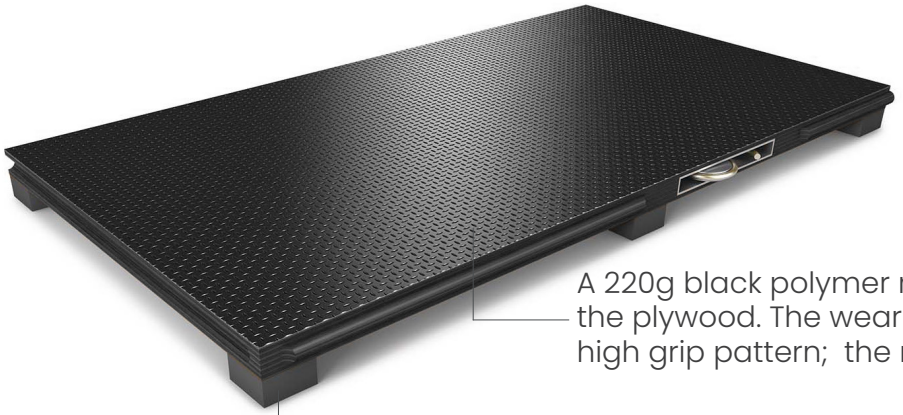
Specification Guide

Permanent or Portable	Both
Panel Size	2m x 1m & 1m x1m
Minimum Floor Thickness (before inclusion of chosen surface)	37mm
Weight	12.5kg/m^2 (Without surface)
Testing Standard	BS EN 14904:2006
Shock Absorption	67%
Vertical Deformation	4.1mm
Area Deflection	12.8%
Rolling Load	>1500 N
Testing Standard	BS EN 1991-1-1:2002
Point Load	>3.60kN
Uniform Distributed Load	>10.00kN
Fire Rating	Bfls 1 to EN 13501
Impact Generated Sound Level within room (Lw)	104.20dB
Thermal Resistance - R Value	1.52 m^2K/W
Thermal Insulation - U Value	0.658 W/m^2K
Category of Use	A4
VOC Emissions	<0.10 mg/m^3
Warranty	10 years if installed by Harlequin 5 years if installed externally
Installation	Installed by Harlequin or the customer
Underfloor Heating	Suitable for use with underfloor heating



Selected Harlequin performance vinyl

Birch plywood with a rounded tongue and groove plus a latch and lock system



A 220g black polymer resin on both sides of the plywood. The wear side has a textured, high grip pattern; the reverse side is smooth.

Dual density shock dampening elastomer pads at predetermined intervals. For portable panels, pads will have clear PVC protection.



Harlequin Flexity™

Harlequin Flexity is a self-install sprung floor system featuring stained birch plywood panels and shock-dampening single density elastomer pads.

The Harlequin Flexity panels are laid in such a way that cross joins do not coincide. This provides consistent shock dampening across the floor and offers the same feel and energy return to one or several dancers.

Performance surface: Harlequin Flexity can be used with a variety of performance surface options from the Harlequin range of performance vinyl's and solid or engineered wood finishes.

Ramps are available if required.

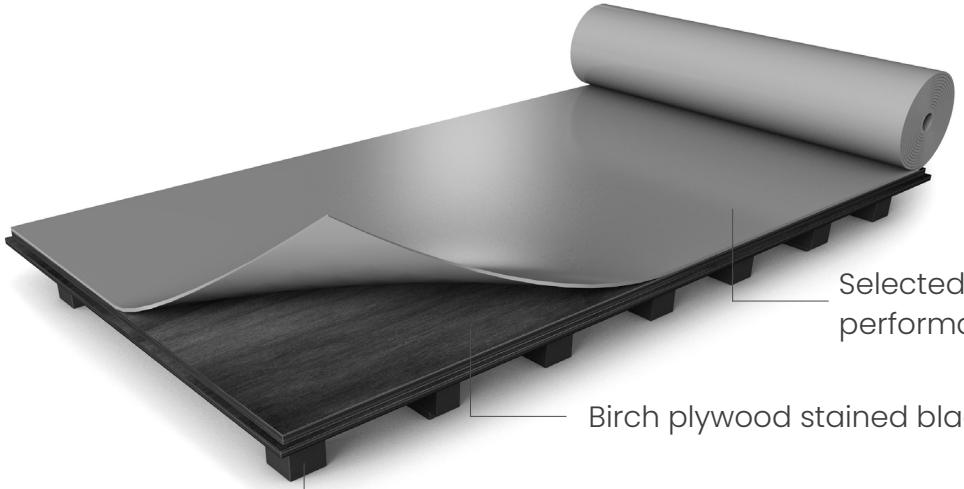
Installation: Harlequin Flexity is designed for permanent or semi-permanent installation.

The panels join using a tongue and groove system and can be glued together for permanent installation or fixed using wood screws for a semi-permanent solution.

archify®

Specification Guide

Permanent or Portable	Permanent or Semi-Permanent
Panel Size	1.125m x 2.250m
Dance Surface Area	1.089m x 2.214m
Minimum Floor Thickness (before inclusion of chosen surface)	37mm
Weight	11.85kg/m² (Without surface)
Testing Standard	BS EN 14904:2006
Shock Absorption	67%
Vertical Deformation	3.9mm
Area Deflection	12.8%
Rolling Load	>1500 N
Testing Standard	BS EN 1991-1-1:2002
Point Load	>3.60kN
Uniform Distributed Load	>10.00kN
Fire Rating	Bfls 1 to EN 13501
Impact Generated Sound Level within room (Lw)	104.20 dB
Thermal Resistance - R Value	1.52 m²K/W
Thermal Insulation - U Value	0.658 W/m²K
Category of Use	A4
VOC Emissions	<0.10 mg/m³
Warranty	10 years if installed by Harlequin 5 years if installed externally
Installation	Installed by Harlequin or for self-installation
Underfloor Heating	Suitable for use with underfloor heating

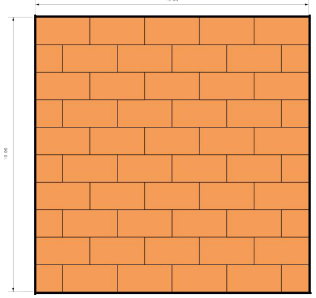






Tonge and groove

Diagram of 'Brickwork Fashion'



Harlequin Activity™

Harlequin Activity is a fully floating sprung floor system using Harlequin's proprietary 'triple sandwich' construction method.

The layers provide consistent shock dampening across the floor and offer the same feel and energy return to one or several dancers.

There are no fixings to the walls or subfloor and it is suitable for all genres of dance.

Performance surface: Harlequin Activity can be used with a variety of performance surface options from the Harlequin range of performance vinyl and solid or engineered wood finishes.

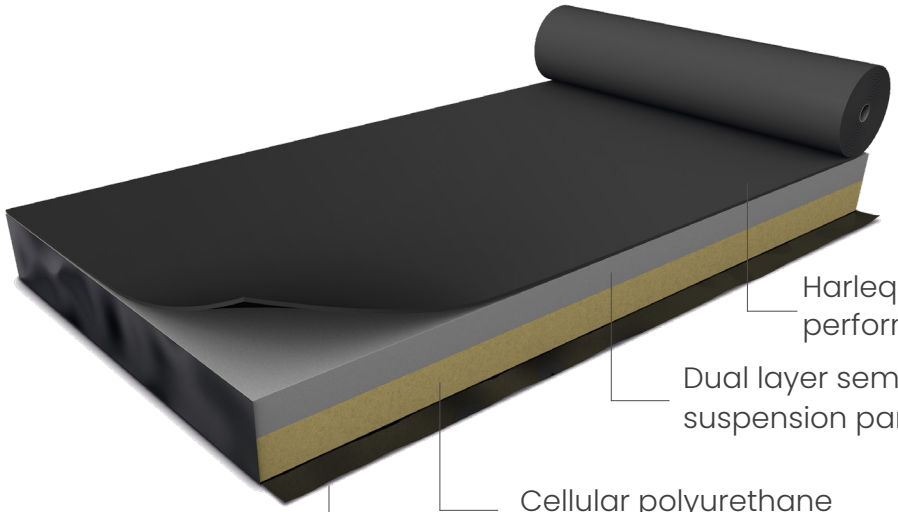
Installation: Harlequin Activity is designed for permanent installation and can be laid on any smooth flat surface without prior preparation.

The system can be adapted to withstand heavy loading including retractable seating.

Harlequin Activity must be installed by the Harlequin technical teams.

Specification Guide

Permanent or Portable	Permanent
Minimum Floor Thickness	
Activity	46mm without a chosen vinyl top surface
Activity and Engineered Wood	52mm including 15mm engineered top surface
Activity and Solid Wood	57mm including 20mm solid wood top surface
Weight	14.10kg/m² (Without surface)
Testing Standard	BS EN 14904:2006
Shock Absorption	64%
Vertical Deformation	4.9mm
Area Deflection	7.2%
Rolling Load	>1500 N
Testing Standard	BS EN 1991-1-1:2002
Point Load	>3.60kN
Uniform Distributed Load	>10.00kN
Fire Rating	Bfls 1 to EN 13501
Impact Sound Reduction (Δ Lw)	23dB
Thermal Resistance - R Value	7.66 m²K/W
Thermal Insulation - U Value	0.131 W/m²K
Category of Use	A4
Recycled Content	50%
VOC Emissions	<0.10 mg/m³
Warranty	10 years
Installation	Installed by Harlequin
Underfloor Heating	Not suitable for use with underfloor heating

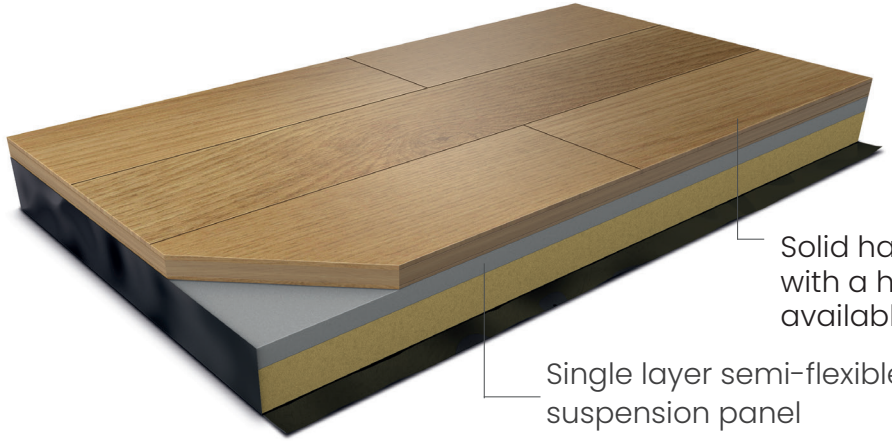


Harlequin vinyl performance floor

Dual layer semi-flexible suspension panel

Cellular polyurethane

Damp-proof membrane



Solid hardwood or engineeredboard with a hard wood wear layer. Both available in beech, oak or maple

Single layer semi-flexible suspension panel



Royal Academy of Dance, The Fonteyn 2023
Harlequin Activity and Harlequin Cascade

Harlequin **WoodSpring™**

Harlequin WoodSpring is a wooden sprung floor system that is a modern update of the traditional 'basket weave' construction.

It has a counter batten configuration, comprising a triple layer of custom machined southern yellow pine arranged at right angles.

Shock absorption and energy return are enhanced by dual-density elastomer blocks attached at predetermined intervals to the underside.

Layers of flexible MDF and plywood panels are installed on the battens which support the chosen Harlequin performance top surface.

Harlequin WoodSpring is suitable for all genres of dance.

Performance surface: Harlequin WoodSpring can be used with a variety of Harlequin performance surface options from the Harlequin range of performance vinyls and solid or engineered wood finishes.

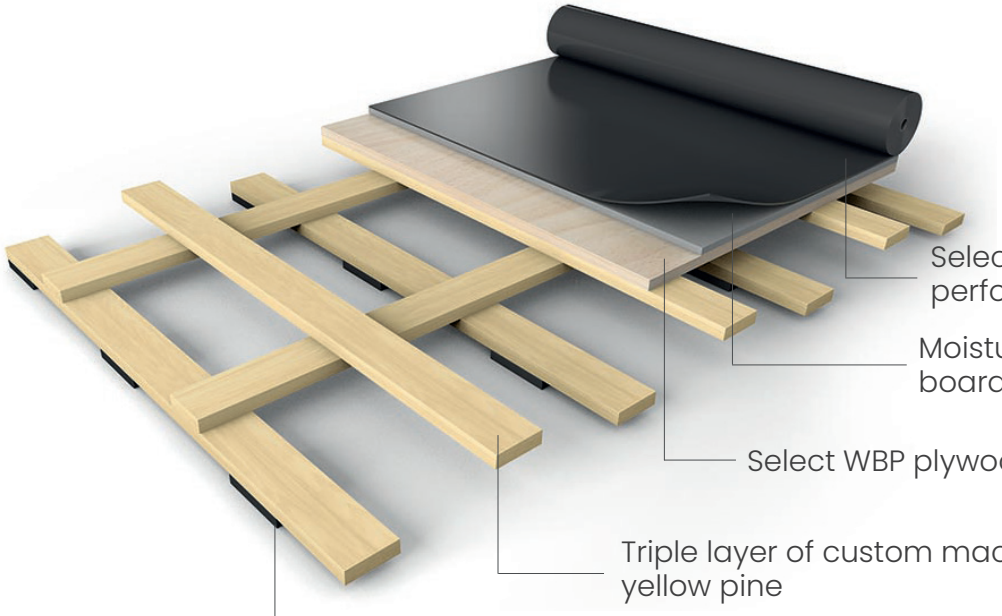
Installation: Harlequin WoodSpring can be laid on any smooth flat surface. If a Harlequin vinyl performance floor is chosen, a moisture-resistant suspension board will be included underneath, along with a colour-matched composite edging profile which will be installed around the finished edges.

If a solid hardwood or engineered wooden top surface is chosen, the skirting will be optional.

Harlequin WoodSpring must be installed by the Harlequin technical teams.

Specification Guide

Permanent or Portable	Permanent
Minimum Floor Thickness	
WoodSpring	91mm without a chosen vinyl top surface
WoodSpring and Engineered Wood	97mm including 15mm engineered top surface
WoodSpring and Solid Wood	102mm including 20mm solid wood top surface
Weight	24kg/m^2 (Without surface)
Testing Standard	BS EN 14904:2006
Shock Absorption	64%
Vertical Deformation	3.3mm
Area Deflection	14.9%
Rolling Load	>1500 N
Testing Standard	BS EN 1991-1-1:2002
Point Load	>3.60kN
Uniform Distributed Load	>10.00kN
Fire Rating	Bfls 1 to EN 13501
Impact Generated Sound Level within room (Lw)	95.1dB
Thermal Resistance - R Value	1.59 m^2K/W
Thermal Insulation - U Value	0.63 W/m^2K
Category of Use	A4
VOC Emissions	<0.10 mg/m^3
Warranty	10 years
Installation	Installed by Harlequin
Underfloor Heating	Suitable for use with underfloor heating



Selected Harlequin vinyl performance floors

Moisture-resistant suspension board

Select WBP plywood

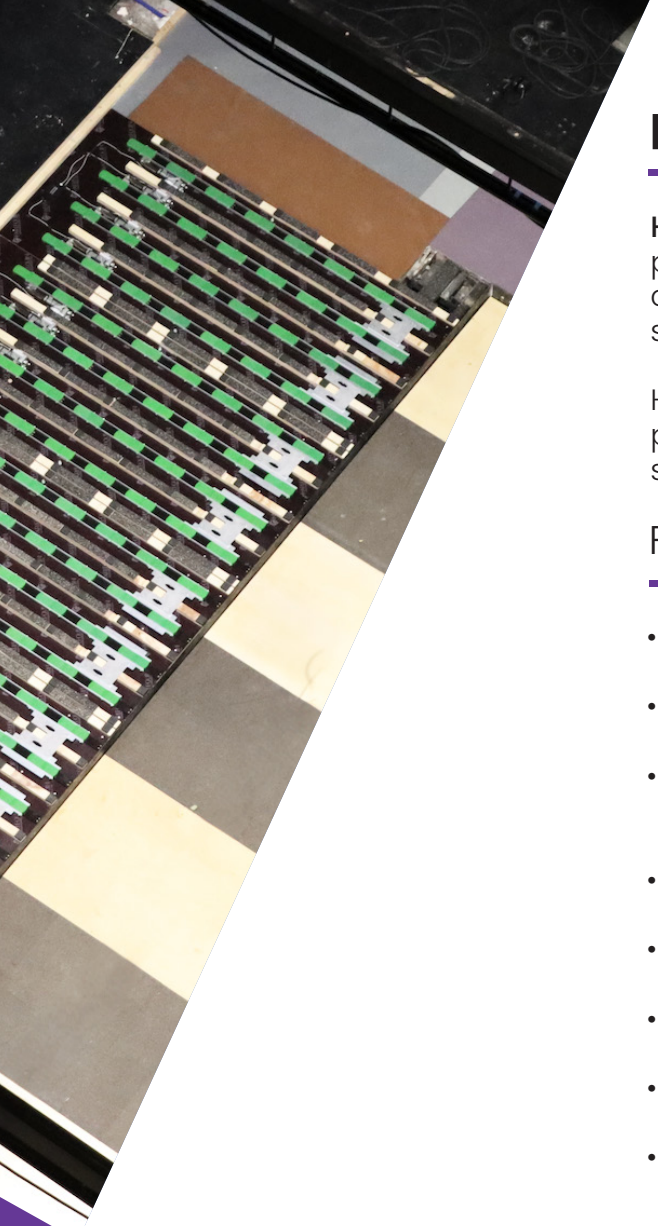
Triple layer of custom machined southern yellow pine

Dual density shock damping elastomer blocks at predetermined intervals



Solid hardwood or engineered board with hardwood wear layer - both are available in beech, oak or maple





Harlequin **Liberty Switch®**

Harlequin Liberty Switch is a revolutionary new multi-use floor which transforms between a sprung performance floor and a rigid theatrical floor at the touch of a button. It is a modular floor system consisting of a base unit housing the control and drive mechanisms topped with a Harlequin Liberty sprung floor.

Harlequin Liberty Switch is designed for venues who regularly put on both dance and theatrical performances and so require both a high-quality sprung dance floor and a rigid theatre floor in the same performance or rehearsal space.

Features and Benefits

- Transforms from sprung to rigid mode in less than 30 seconds (subject to size of installation).
- Simple one-touch operation using a hard-wired master control unit.
- Can be integrated with most existing stage control or building management systems.
- Allows for maximum use of space.
- No storage costs.
- Can be 'zoned' to create sprung or rigid areas within the floor if required.
- Requires no power to stay in selected mode.
- Modular system can be modified to meet any structural design requirements, ideal for studios, rehearsal rooms and stages.
- Comes as a 3-track system as standard. Custom systems available for various load and space requirements.
- May be configured to incorporate features such as traps, lifts and revolves as required.

Dutch National Opera -
Harlequin Liberty Switch Installation

Specification Guide

Testing Standards	BS EN 1990:2002 BS EN 1991-1-1:2002 BS EN 1995-1-1:2004
Load Rating (Standard 3 track system)	Rigid Theatre Mode
Point Load	>3.6kN
Distributed Load	>30kN/m²
Performance (Testing standard BS EN 14904:2006)	Sprung Dance Mode
Point Load	>3.6kN
Distributed Load	>10kN/m²
Shock Absorption	67%
Vertical Deformation	4.1mm
Area Deflection	12.8%
Weight	
Total Panel weight (Standard 3 track system)	82kg/28.5kg m²
Size	
Panel Length	2400mm
Panel Width	1200mm
Minimum Floor Height	91mm (excluding performance surface)
Fire Rating	Bfls 1 to EN 13501
Impact Generated sound Level within Room (Δ Lw)	104.20DB
Thermal Resistance - R Value	1.52 m²K/W
Thermal Insulation - U Value	0.658W/m²K
Category of Use	A4
VOC Emissions	<0.10 mg/m³
Warranty	System 10 years, electrical components 1 year
Installation	Installed by Harlequin's technical team
Patents	UK: GB2592382 USA: US 11,649,646 B2 Australia: 2021227418 International: WO2021/170970
Awards	ABTT - Engineering Product of the Year 2023 JTSE - Innovation Award 2023 SHOWTECH - DTHG Technology Product Award 2023 LDI - Best Debuting Product, Staging and Rigging Award 2022


Yuen Long - TAIT







West London School of Dance - Harlequin Activity and Harlequin Standfast

Harlequin's Range of Vinyl Performance Floors

Harlequin's range of vinyl performance floors can be used alone or as a dance surface on a sprung floor. They offer better protection from injuries for dancers, providing them with a feeling of optimum safety.



Which vinyl performance floor is right for you?

Harlequin's range of surfaces have been developed to meet the needs of the dance community. The range includes vinyl floors with varying degree of cushioning, durability and grip or 'traction'.

- Classical ballet requires a soft surface with some degree of traction.
- Street and hip-hop dancers usually wear trainers so require less traction. Too much can block movement and cause injury.
- Contemporary dance includes a lot of barefoot work and other parts of the body are in contact with the floor, so a slightly cushioned surface may be preferable.

We also offer other specialist products:

- Harlequin Hi-Shine, a high gloss reflective performance vinyl for production, events and display.
- Harlequin Marine, a vinyl performance surface for cruise ships and other leisure applications.
- Bespoke printed vinyl flooring.

Visit our website or call our customer services team for more information.

Application Guide **Specification Guide**

	Aerobics/Zumba	Ballet	Ballroom/Salsa	Contemporary	Hip-Hop/Jazz/Street	Modern	Percussive (Flamenco, Irish, Tap)	Theatre/Opera	Permanent or Portable	Roll width (m)	Roll length (m)	Thickness (mm)	Weight (kg/m²)	Standard colours	Fire rating
Allegro	3			3	3	3			Permanent	1.5	10, 15, 18, 20	8.5	6	Black (180), Grey (880)	Cfl-s1 (EN 13501-1)
Cascade	3	3		3	3	3	3	3	Both	2	10, 15, 18, 20, 25	2	2.6	Black (501), Light Grey (582), Dark Grey (406), Hazelnut (470), White (100)	Bfl-s1 (EN 13501-1)
Fiesta	3		3		3	3	3	3	Both	2	15, 20, 25	2.45	3.4	Oak Effect (010), Grey Oak Effect (546)	Bfl-s1 (EN 13501-1)
Freestyle	3			3	3				Both	1.5	15, 20, 25, 30	4.5	2.67	Black (180), Grey (880)	Cfl-s1 (EN 13501-1)
Reversible	3	3		3	3	3	3	3	Portable	2	10, 15, 18, 20, 25, 30	1.3	1.6	Dark Grey/Light Grey (003), Black/White (001), Black/Grey (004), Chroma Key Green/Yellow (115), Chroma Key Blue/Red (059), Blue/Green (119), Fog/Tan (890), Hazelnut/Beige (310), Projection Grey/Black (005)	Bfl-s1 (EN 13501-1)
Reversible Pro	3	3		3	3	3	3	3	Both	2	10, 15, 18, 20, 25, 30	1.5	1.88	Black/Grey (004), Black/White (001)	Bfl-s1 (EN 13501-1)
Standfast	3	3		3	3	3	3	3	Permanent	1.5	10, 15, 20	2.6	3.4	Black (501), Grey (004), Dark Grey (406)	Cfl-s1 (EN 13501-1)
Studio	3	3		3	3	3			Both	1.5	10, 15, 18, 20, 25, 30	3	2.3	Black (180), Grey (880), Dark Grey (890), White (100), Light Grey (156)	Bfl-s1 (EN 13501-1)
Marine							3	3	Permanent	2	20	2	3.35	Black	IMO FTP Code part 2 & 5

Harlequin Cascade™

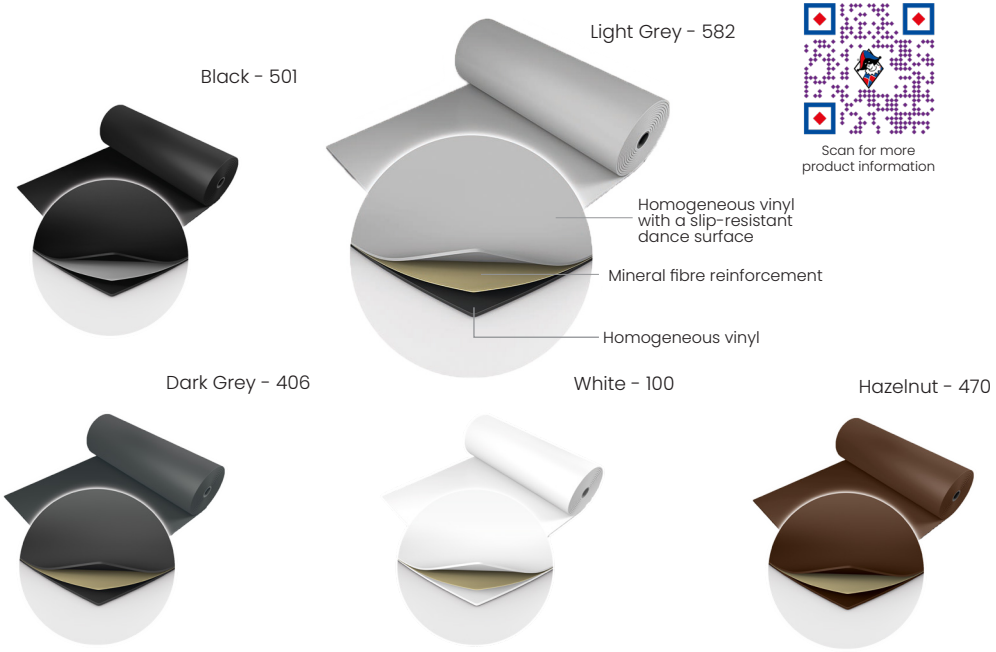
Harlequin Cascade is Harlequin's flagship professional vinyl performance floor, used by the world's leading dance companies and dance venues. As a hard-wearing homogeneous vinyl, it has a slip resistant smooth dance surface and is ideal for use in dance studios, theatres, concerts and as a high-quality base for lighting designers and photographers.

Installation: Harlequin Cascade is specified for permanent or temporary installation and is recommended for use in conjunction with a suitable Harlequin sprung floor. The Joins are welded or taped to create a continuous performance space.

Usage: Harlequin Cascade is a multi-purpose dance or stage floor, ideal for ballet, contemporary, modern and theatrical use. It is also the preferred vinyl dance floor for percussive dance (flamenco, Irish and tap).

PERMANENT PORTABLE 2m

Scan for more product information



Harlequin Standfast™

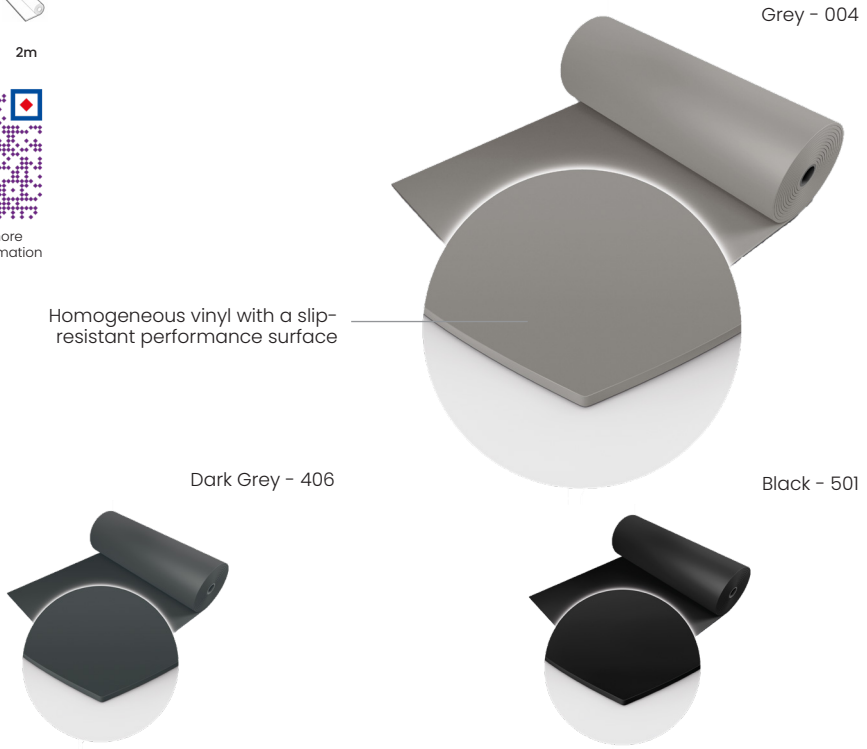
Harlequin Standfast is a durable multi-purpose homogeneous vinyl performance floor with a slip-resistant surface. It is an ideal heavy-duty floor for studios as well as stage flooring for dance studios and theatres.

Installation: Harlequin Standfast is specified for permanent installation, the joins are heat welded to form a continuous performance surface. It can be laid on any hard, smooth sub-floor and is an excellent choice as a vinyl performance surface in conjunction with a Harlequin sprung floor.

Usage: Harlequin Standfast is suitable for theatre, drama and many genres of dance including percussive dance (flamenco, Irish and tap), hip-hop, jazz, street and Zumba. It is also ideal as a multi-use stage floor.

PERMANENT 2m

Scan for more product information



Harlequin Studio™

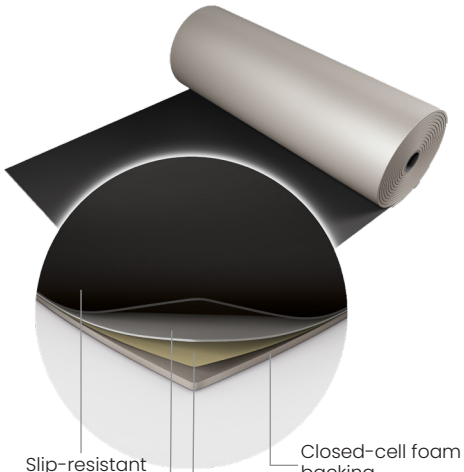
Harlequin Studio is a hard-wearing, slip-resistant, vinyl performance floor that features a lightweight closed-cell foam backing to provide protection against hard sub-floors, it is ideal as a multi-purpose dance or stage floor.

Installation: Harlequin Studio is specified for permanent or temporary installation, the joins are welded to form a continuous performance surface and is recommended for use in conjunction with a suitable Harlequin sprung floor.

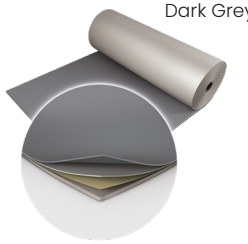
Usage: Harlequin Studio is suitable for ballet, contemporary and modern dance. It is also used for aerobics, Zumba, hip-hop, jazz, street and ballet.

PERMANENT PORTABLE 1.5m

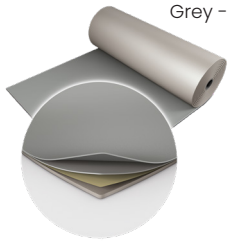
Black - 180



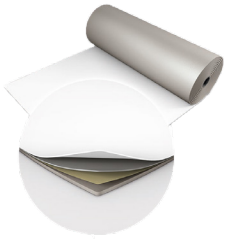
Dark Grey - 890



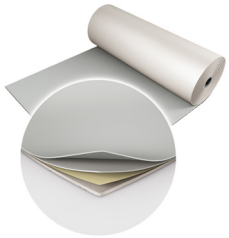
Grey - 880



White - 100



Light Grey - 156



Scan for more product information

Harlequin Fiesta™

Harlequin Fiesta is a vinyl performance floor with a clear surface wear layer on top of an oak effect printed film. It looks exactly like a wood dance floor but avoids the cleaning and maintenance problems associated with traditional wooden floors.

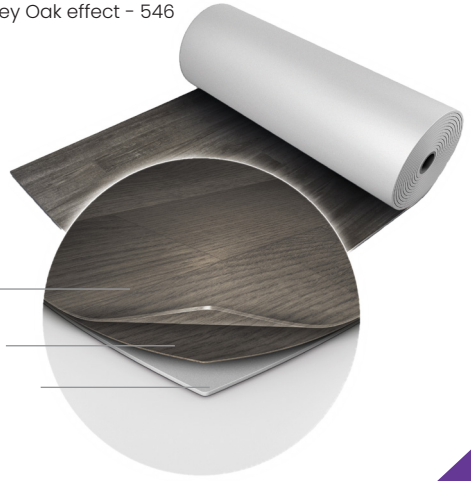
Installation: Harlequin Fiesta is specified for permanent or temporary installation. It can be used as a vinyl performance surface in conjunction with a Harlequin sprung floor. The joins are welded or taped to create a continuous performance surface.

Usage: Harlequin Fiesta is ideal for contemporary dance, ballroom, salsa, hip-hop, jazz, street and percussive dance styles (flamenco, Irish and tap). It is also widely used for aerobics and as a theatre floor.

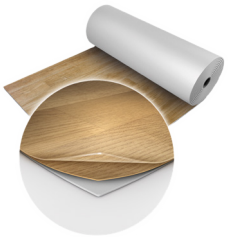
PERMANENT 2m

Scan for more product information

Grey Oak effect - 546



Oak effect - 010



Harlequin Marine™

Harlequin Marine is a hard-wearing, homogeneous vinyl dance floor which conforms to International Marine Organization (IMO) standards and fire ratings.

It is widely installed on cruise liners and is fire resistant, with a slightly marbled surface.

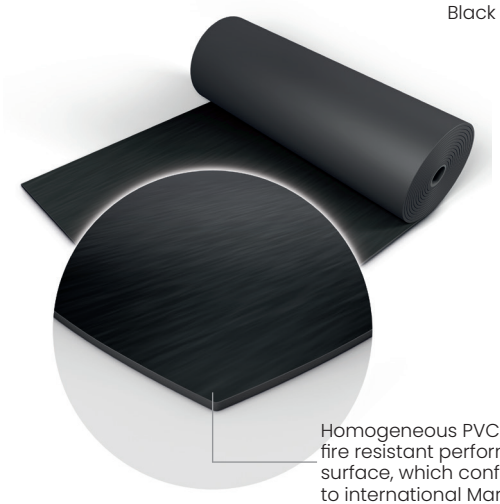
Installation: Harlequin Marine is specified for permanent installation and is suitable for use on marine vessels including scene docks on cruise ships.

It can be laid on any hard, smooth subfloor and is an excellent choice as a vinyl performance surface in conjunction with a Harlequin sprung floor.

Usage: Harlequin Marine is widely used as a stage surface on ships but is also suitable for multi-purpose use including concerts, television, theatre, operatic performances and various dance types including percussive (flamenco, Irish and tap).

PORTABLE 2m

Black - 501



Scan for more product information

Harlequin FreeStyle™

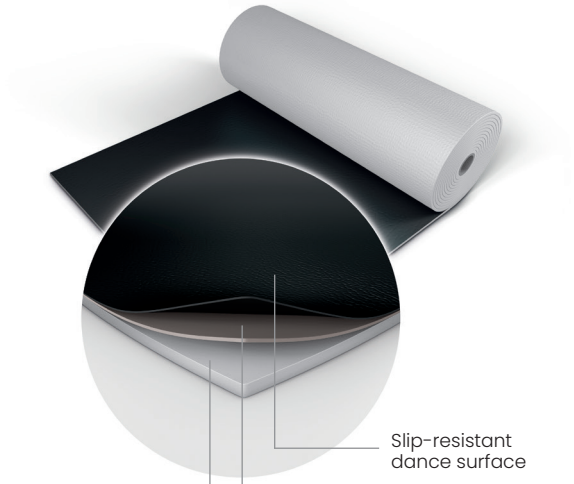
Harlequin FreeStyle is a cushioned vinyl performance floor with a slip-resistant surface, a vinyl support layer and closed-cell foam backing, this provides added protection against hard subfloors.

Installation: Harlequin FreeStyle is specified for permanent or temporary installation, the joins are welded or taped to form a continuous performance surface that can be laid onto any hard or smooth subfloor and is recommended for use in conjunction with a suitable Harlequin sprung floor.

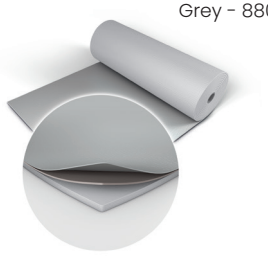
Usage: Harlequin FreeStyle was developed for dance styles such as hip-hop, jazz and street dance. It is widely used for all contemporary and modern dance, aerobics, Zumba and is often installed for use within dance institutions, dance studios, halls, schools, colleges and gymnasiums.

PERMANENT PORTABLE 1.5m

Black - 180



Grey - 880



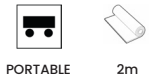
Scan for more product information

Harlequin **Reversible Pro™**

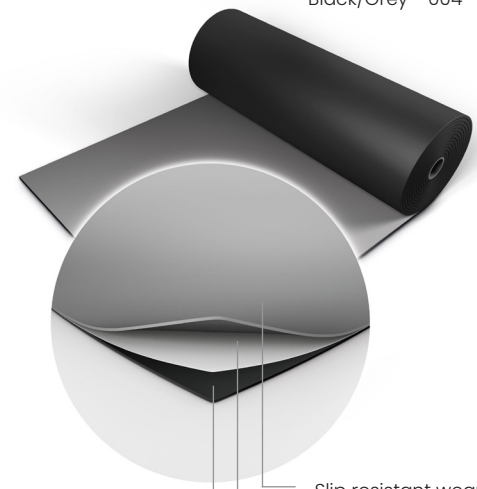
Harlequin Reversible Pro is a double-sided vinyl performance floor featuring a mineral fibre interply layer making it dimensionally stable and an ideal surface for printing. It is a lightweight hard-wearing calendared vinyl with a slip-resistant performance surface on both sides.

Installation: Harlequin Reversible Pro is specified for temporary 'loose-lay' installation. It can be rolled out on any flat, smooth surface. It rolls out quickly, lays flat and stays flat.

Usage: Harlequin Reversible Pro is suitable for use in theatres, concerts, display, exhibitions, television, for aerobics and for many genres of dance including ballet, contemporary, percussive dance (flamenco, Irish and tap) hip-hop, jazz, street and Zumba.



Black/Grey - 004



Black/White - 001



Scan for more product information

Harlequin **Allegro™**

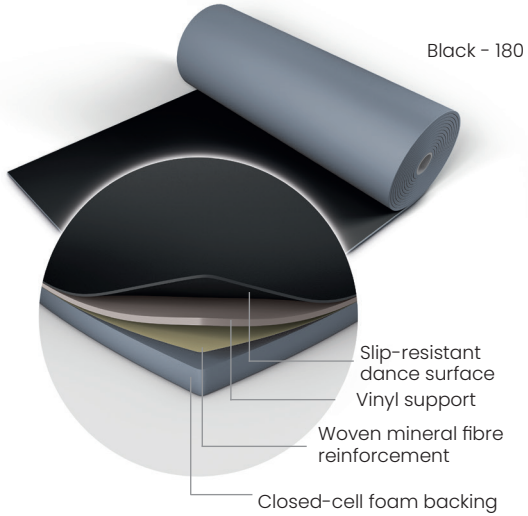
Harlequin Allegro is a substantial heavy-duty dance floor, it is the thickest roll-out vinyl dance floor available.It's high point elasticity, closed-cell foam backing and slip-resistant dance surface provides excellent protection for dancers.

Installation: Harlequin Allegro is specified for permanent installation. It can be used as a vinyl performance surface laid directly onto any hard, smooth sub-floor.

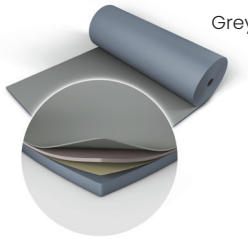
Usage: Harlequin Allegro is suitable for contemporary and modern dance, aerobics and Zumba. It is also widely used as a multi-use floor in performing arts schools and gymnasiums.



Black - 180



Grey - 880



Scan for more product



Harlequin's Range of Ballet Barres

Single and double wall-mounted brackets & barres

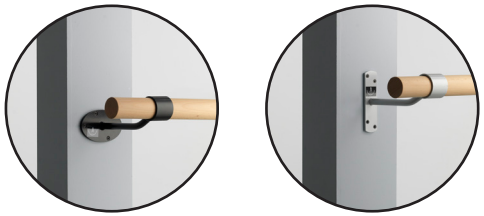
Harlequin's wall-mounted ballet barres feature various shaped mounting brackets to suit the design of your studio.

- Brackets are supplied complete with screws and plugs and can be mounted at any height: four fixings for the single bracket and six fixings for the double bracket.
- Recommended height from the floor to the centre of the top of the barre 1052mm (ISTD /RAD recommend between 1020 - 1150 mm).
- Barres are set at 210mm from the wall to the centre of the barre. On the double bracket the two wooden barres are spaced 200mm apart.
- Lengths of barre can be joined inside the bracket heads to hide the joins and give the impression of a continuous length of barre. For example, along the entire length of a studio wall.
- Choice of bracket colour: black, white and grey available as standard, additional colours including, metallic to order.
- Wooden barre comes in 50mm diameter and 1500mm or 2300mm long. Other lengths available and manufactured in beech .

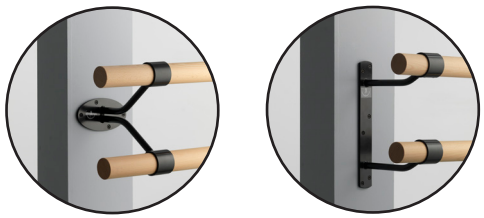
Wooden barres come in an uncoated, natural sanded finish.

Wall-mounted brackets

Single brackets



Double brackets



Floor-mounted brackets

There are many occasions when it is not possible to fix ballet barre brackets onto a wall - perhaps in front of mirrors or where a wall is not suitable to accept fixings.

Harlequin offers two types of floor-mounted ballet barres. The standard floor-mounted bracket is designed to be fitted at the same time as the installation of a Harlequin sprung floor, the vertical leg of the barre support is mounted onto the substrate and the sprung floor built around it.

The retro-fit floor-mounted bracket is mounted onto an existing floor, providing it is not sprung, and has a cover plate on the base to hide the floor fittings.

Retro-fit floor-mounted ballet barre



Under window wall-mounted brackets

Custom designed brackets to allow wall barres to be fitted across most windows or obstructions. Available to order.

Under window wall-mounted brackets



Ballet barre corner angle sleeve

Harlequin's ballet barre corner angle sleeve is specifically used to join the ends of two Harlequin pine or beech barres within a corner.

Ballet barre corner angle sleeve



End brackets

Bracket specifically for fixing the end of a Harlequin wooden ballet barre to an adjacent wall.

End brackets





Available colours

Scan for more product information

PLEASE NOTE: The wooden barres shown in the images are sold separately.



Glorya Kaufman

Harlequin's Bespoke Installation Service

Harlequin has over 45 years' experience building stages and installing dance floors for the world's most prestigious dance and performing arts companies, theatres, venues and schools.



The installation of dance floors must be done perfectly to ensure that they are safe for use and meet the most demanding specifications.

Harlequin sprung floors, vinyl dance floors and ballet barres can be fitted by our expert technical teams to ensure your new floor and barres are correctly installed and fully compliant with current regulations and standards.

Our bespoke installation service includes:

- Initial guidance in selecting the most appropriate floors for your requirements.
- Design of floors to suit existing spaces and conversions.
- Design of floors for new build to architect's plans
- Supply and installation of floors and accessories
- Project management for the duration of the project
- Unconditional guarantees against defects in workmanship

When specifying sprung and vinyl floors for dance, it is worth considering additional products that may be required such as barres and mirrors.

With over 45 years' experience in building stages and installing dance floors for the performing arts, Harlequin offer advanced construction skills that meet the most demanding specifications. Harlequin's expert technical teams provide a bespoke installation service that is focused on quality.

For more information contact our team on +44 (0) 1892 514 888 or enquiries@harlequinfloors.com.

Scan here for further information

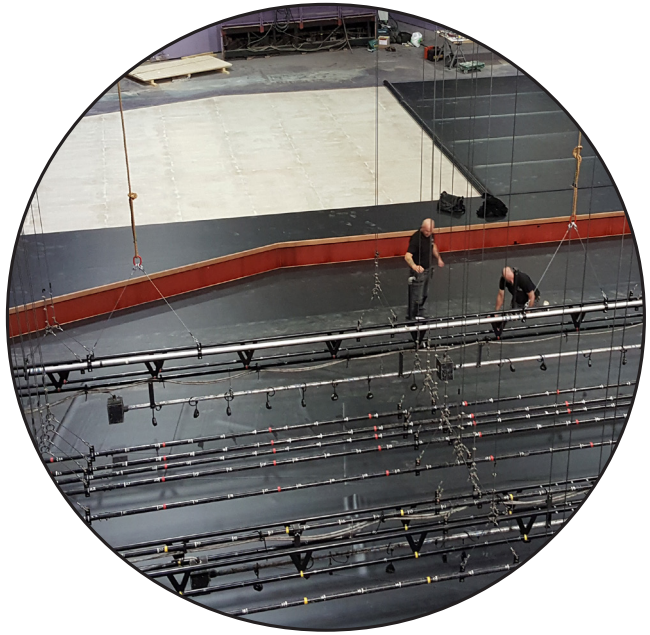


Princess Grace Academy Installation



Stage Building & Refurbishment

Harlequin works collaboratively with principal contractors and architects in the government, commercial and education sectors to design and specify the optimum performance environment.



Stage building & theatre flooring

Harlequin's stage building teams work alongside architects and stage consultants to design, build and install stages which are durable, easy to maintain and flexible enough to accommodate dip traps, orchestra pit fillers and ballet wagons.

Backed by an engineering team and independent research, Harlequin brings over 45 years' experience in building stages and floors for the performing arts, combining traditional stage floor construction skills using natural materials with advances in engineered flooring products and components to meet the most demanding stage specifications.

Whether working to designs by architects or a venue's in-house technical crew, Harlequin's skilled teams, vastly experienced in stage and floor construction, will deliver the finished stage efficiently, on time and on budget.

As providers of stage construction services worldwide, Harlequin understands that many customers require specialist help and advice in stage building or conservation. From a standard stage build to bespoke stage sets for plays, events or performances the Harlequin team can be on hand to assist with every step of the construction process.

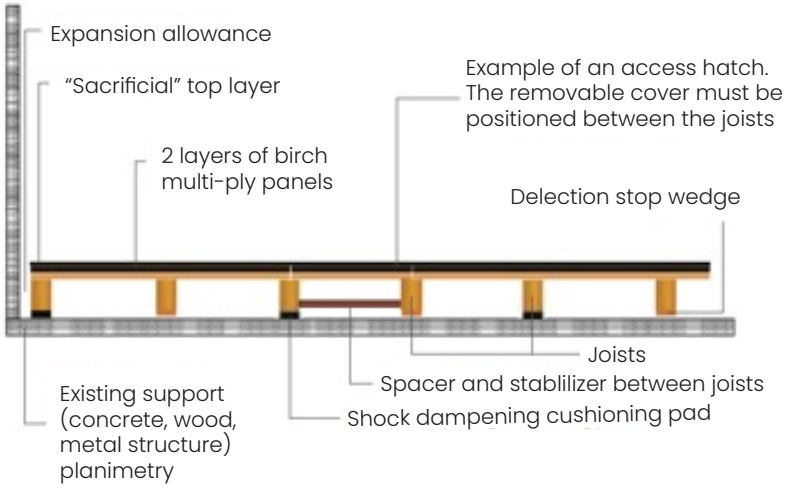
Stage refurbishment

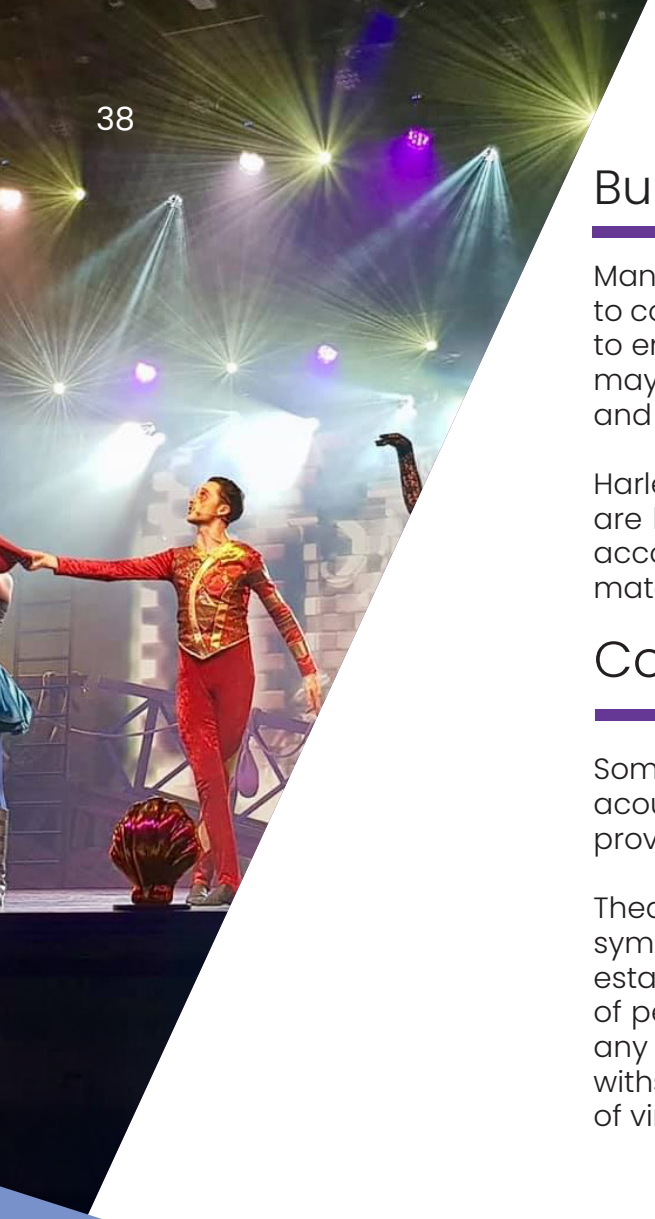
The Harlequin team work on a wide range of stage builds and refurbishments, from installing a new top surface to a new stage construction. When an existing stage floor requires refurbishment, Harlequin offer a selection of services including sanding and repainting, replacement of a 'sacrificial' stage surface and stage rebuilding, repair or reconfiguration.

In some cases, an initial site visit by one of our Harlequin Technical Teams is required. They will work with the venue's technical staff, building contractor or architect to jointly establish which structural elements can be retained and which must be replaced.

Each stage is different – Harlequin's bespoke stage building and refurbishment service will provide a solution tailored to your needs.

Cross section of Harlequin Stage System





Building concert & theatre stages in historic building environments

Many concert halls, theatres and opera houses are historic buildings which are subject to preservation orders to conserve the integrity of the structure. Materials and working practices are tightly regulated and inspected to ensure the building remains true to the original design. In other cases, the original purpose of the building may have become obsolete and conversion into a performing arts space allows the structure to be retained and given a new lease of life.

Harlequin has years of experience working sensitively to restore, refurbish or build new stages in buildings that are listed, preserved or subject to conservation orders. This may mean working around structural features, accommodating awkward spaces, complying with fire risk requirements and the selection of suitable materials.

Constructing stage floors that are integral to acoustic design

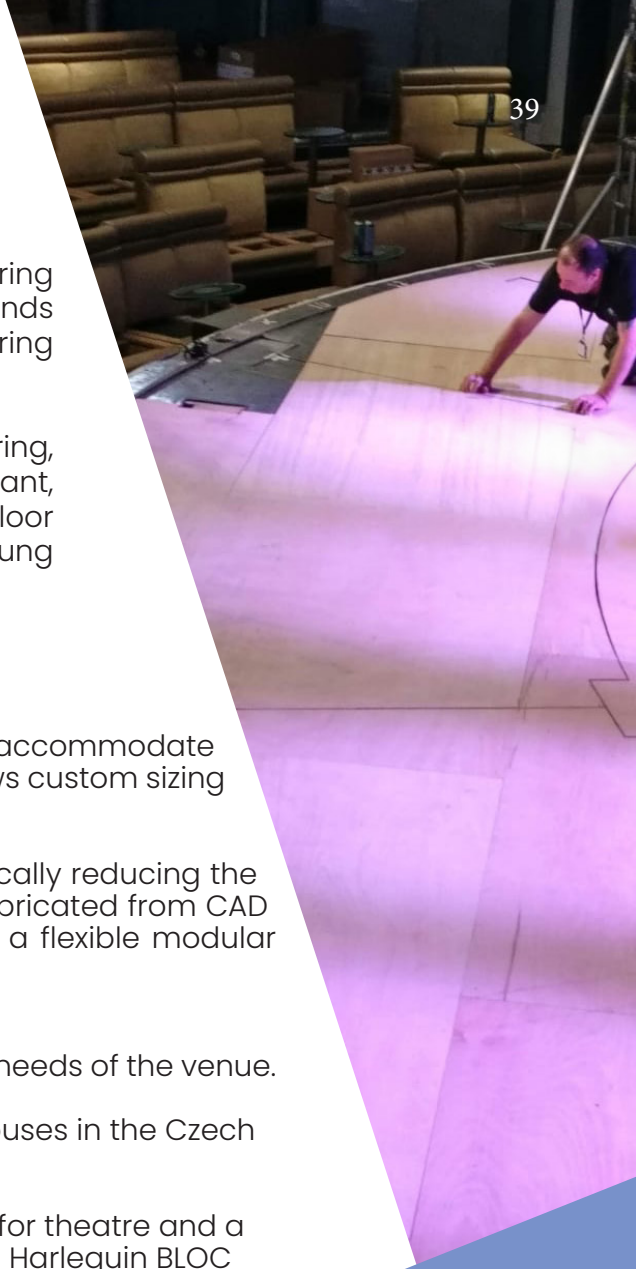
Sometimes the choice of the appropriate stage floor construction can also contribute beneficially to the acoustic characteristics of the space. Sprung floor systems utilising a multi-layer sandwich construction provide suitable noise damping and acoustic separation from other areas of the building.

Theatre and acoustic consultants have the option of evaluating stage and studio flooring as an acoustic sympathetic component, whether the surface is finished in hardwood or vinyl. Harlequin Activity has a well-established ‘triple sandwich’ permanent sprung floor construction which is designed to provide absorption of performer loads and sound. These fully floating floors have no fixings to the sub-floor and can be laid on any reasonably smooth and flat surface without prior preparation. Correctly reinforced, Harlequin Activity can withstand heavy loading including retractable seating and the top surface can be chosen from a wide range of vinyl or wood options.

Marine environments, stages for cruise ships

The popularity of cruise vacations has led to the commissioning of larger and more lavish ships featuring extensive entertainment facilities and well equipped theatres. The marine environment and demands particular to ocean-going stage builds are challenges often met by Harlequin's experienced engineering and installation teams.

The range of specialist permanent flooring used on cruise ships includes Harlequin Marine, a hard-wearing, homogeneous vinyl which conforms to International Maritime Organisation (IMO) standards. It is fire-resistant, with a slightly marbled surface to resist scuffing. Harlequin Marine can be laid on any hard, smooth sub-floor and is an excellent choice as a vinyl performance surface when used in conjunction with a Harlequin sprung floor.



Harlequin BLOC Stage System

A new concept in stage construction designed to enable contemporary performance spaces to easily accommodate multiple artistic disciplines, Harlequin BLOC is a high-quality flexible modular stage floor system that allows custom sizing and shaping for all technical requirements.

Premium grade composite panels are manufactured off-site and then fixed to the stage structure, radically reducing the time required on-site compared to traditional stage building. The bespoke stage deck panels are prefabricated from CAD plans using the latest CNC technology which enables highly accurate machining of panels to create a flexible modular system with
custom features such as traps and technical access points.

The stage construction process can then be finished with any Harlequin performance surface to suit the needs of the venue.

Harlequin BLOC has recently been installed in The State Opera of Prague, one of the three main opera houses in the Czech capital.

In the operational building, two large rooms were equipped as rehearsal spaces: a hall in the basement for theatre and a light, airy room on the first floor for the choir. Having a need for heavy equipment such as large podiums, Harlequin BLOC was the heavy-duty solution to accommodate all uses.

Contact us

Online shop

About us

HARLEQUIN

www.harlequinfloors.com