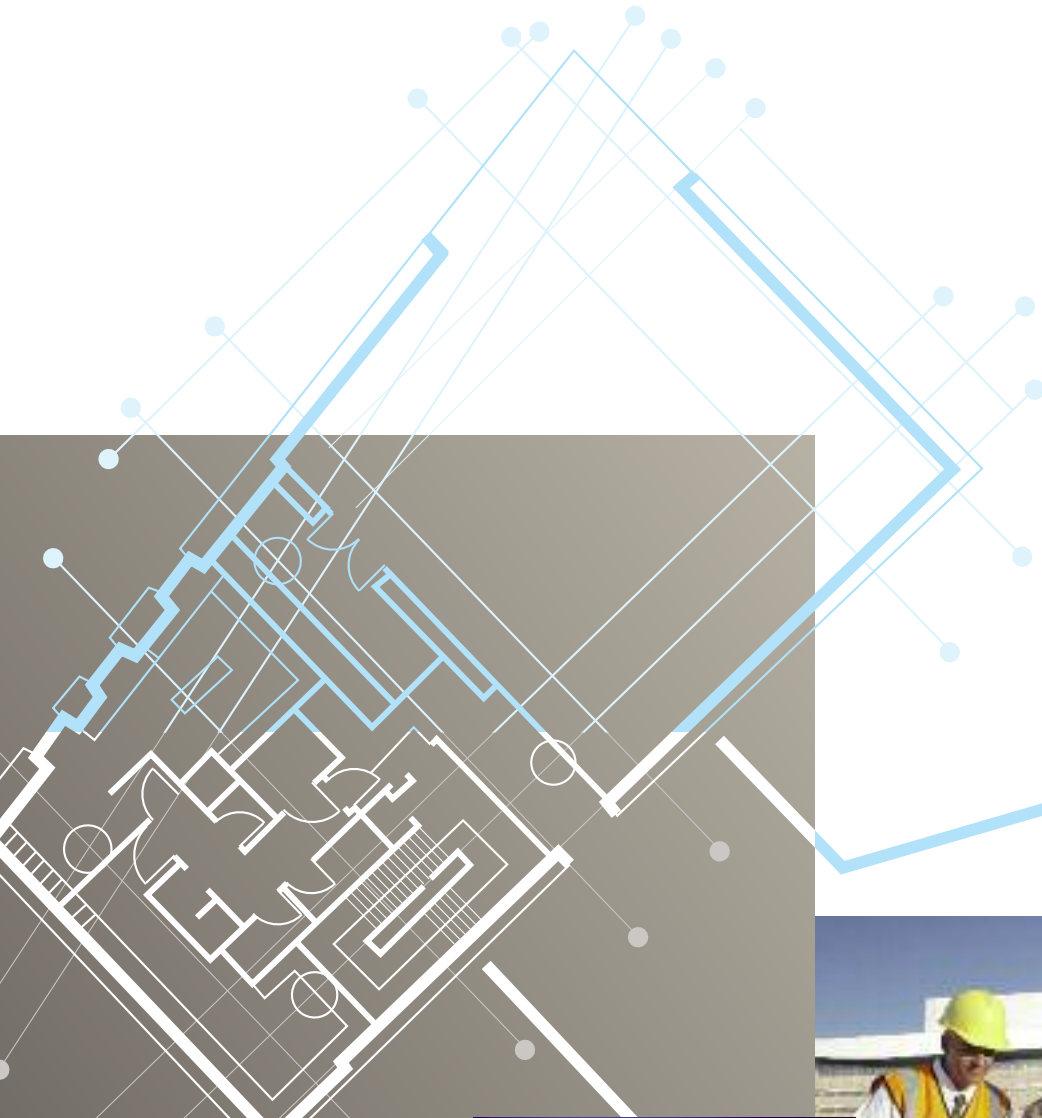




HARLEQUIN



SPECIFYING DANCE FLOORS

A GUIDE FOR ARCHITECTS

THE WORLD DANCES ON HARLEQUIN FLOORS®

INTRODUCTION

With a growing interest in the provision of spaces suitable for dance - for professional performance and rehearsal, private dance schools and throughout the education sector - there is increasing focus towards specifying dance floors that both meet performance aspirations and conform to health and safety requirements.

The purpose of this guide is to introduce architects to recent developments in dance floor technology and practice, specification issues – including aesthetic versus performance considerations – and why the choice of floor is also critical in minimizing injuries to dancers.

The acclaimed Laban in London, designed by Herzog & de Meuron, winner of the RIBA Stirling Prize and a building created specifically for the study and performance of dance, is not alone in being a dedicated facility.

WHAT THE EXPERTS SAY:

"American Ballet Theatre, America's National Ballet Company® is committed to bringing the best of classical ballet to audiences worldwide. It is no wonder, then, that ABT has chosen Harlequin's Cascade floor and Liberty stage panels for our World Premiere production of *The Sleeping Beauty* this Spring at the Metropolitan Opera House. *The Sleeping Beauty* is one of the most significant works in the ballet canon in terms of its scope and technical demands, and we knew Harlequin floors would offer our dancers uncompromising support during the challenging rehearsal and performance schedule required by staging a work of this magnitude."

Kevin McKenzie
Artistic Director
American Ballet Theatre

"It is as dangerous to dance on a hard floor as it is to constantly dance on different types of floor. As far as private dance schools are concerned, they should choose their dance floors more carefully. The best preventative method will always be the installation of a correct dance floor. In my opinion, a dance floor should be neither too supple nor too soft. A hard floor has the effect of causing serious return shock waves and can bring about injuries or premature wear in the cartilage. A soft floor causes the muscles, and therefore the tendons, to work harder. Additionally, a floor which is too soft can be dangerous for dancers because of the effect of surprise."

Surgeon Boni Rietveld, MD,
Head of the Dutch Medical Centre for
Dancers and Musicians, The Hague,
Co-Founder of the Dutch Performing Arts
Medicine Association

National Dance Institute's Dance Barns in Santa Fe, NM is another example of new build projects for dance. Elsewhere there are movements in colleges and secondary schools to converting existing facilities from less subscribed teaching subjects to the provision of spaces for dance, drama and live performance. With dance a subject in the British National Curriculum and offered at GCSE and 'A' Level, schools teaching dance also call for floors of the right quality from a manufacturing group with the correct pedigree. The construction of fine dedicated dance facilities is a global trend, well serviced by the Harlequin group, and some selected examples are shown in the case studies on pages 16-23 of this booklet.

"Harlequin floors have contributed to the success of our programs. From ballet to modern dance and hip hop, from pointe to contact improvisation, our floors need to serve every form of dance. Our Harlequin Studio dance floor gives us a consistent friction that provides a safe surface for all of our dancing needs. Our students love the floor's resilience and pliability; our faculty appreciate the floor's contributions to injury prevention. The floors have also been very durable and reliable. Our first Harlequin Studio floor was installed 13 years ago; it's still in great shape."

Kathryn (Kitty) Daniels
Chair, Dance Department
Cornish College of the Arts

"A suitable floor is a critical element in the Health and Safety of the dancers. Having a 'portable' sprung dance floor of such a high calibre that Harlequin produces, there really is no excuse for hard floors. It is not enough to provide a non-slip surface or a smooth surface: if the floor is not sprung, dancers will get injuries."

Rachel Rist MA
Past President of the International
Association for Dance Medicine and
Science (IADMS)
Director of Dance
Arts Educational School, Tring Park

In the 2004 report from the British House of Commons Culture, Media & Sport Committee entitled "Arts Development: Dance", reference is made to a submission by British Harlequin plc with respect to the role of floors in the dance industry. The "Working Conditions" section notes that "differences in a number of factors can be critical to the artist (keeping the body in dancing condition) and can affect the performance."

These include: heat, ventilation and flooring (sprung or not, as well as general quality and condition). It is also important that the building complies with health and safety regulations. We received very specific evidence from British Harlequin plc that described the lack of properly sprung floors within performance venues and why floor quality is important to the health of dancers."

Pictured on front cover :

Left: Hextable Dance, Kent, England | Upper center: Bard College, USA Photo courtesy of Peter Arrons
Lower center: Newport Theatre & Arts Centre, South Wales | Right: Copenhagen Opera House, Denmark

Contemporary Photography:

Courtesy of Richard Dunkley

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CONSIDERATIONS ON CHOOSING A DANCE FLOOR

The following is a short list of criteria to be examined when you design a dance floor. These considerations are generally covered in this guide. Some may require discussion with Harlequin and your client and, of course, your budget will dictate your final choice.

1. Type of dance?

Ballet
Modern/contemporary
Jazz (stage dance)
Tap/percussive
A combination of the above
Other: e.g. flamenco, ballroom ethnic/folk

2. Permanent or temporary?

Is your client likely to move elsewhere in the foreseeable future?

Is the floor to be loose-laid or permanent – e.g. in a theater or multi-purpose facility? If your client is a tenant, is he or she unable within the terms of the lease to install a floor permanently?

Will the floor be used for touring?

3. Should the floor be sprung?

With increasing awareness of health & safety legislation, it is always advisable to draw the attention of your client to the possibility of a sprung floor, even if building construction and budget eventually preclude it. Traditionally, however, sprung floors have focused on indoor sports and athletics and this document considers the differences between dance and sports floors and the need for architects to know how to differentiate.

4. New build or existing building?

Normal design criteria apply e.g.
Moisture barriers
Floor strength/construction
Dance floor thickness/weight
Ceiling height
Door swing. Ramps required?
Floor-mounted dance barres
Heating system (underfloor)

5. Are there standards relating to dance floors?

Please refer to "Standards & Tests" on page 5.

Key elements of a dance floor

They are, of course, building floor construction and the dance floor system to be laid on it. The subfloor may be solid or suspended – anything from a quarry-tiled screed to a suspended wood floor with carpet. It is beyond the scope here to offer design solutions to all combinations, but generally they can be found. Sprung floors exist in our range which may be laid directly over carpet or onto even smooth-tamped concrete and a phone call or email to our Technical Sales will help pinpoint the correct solution.

Whether or not you decide upon a sprung subfloor, you will need to specify the working surface of the dance floor: a most important component. While wood floors are still generally accepted for ballroom, folk and social dance, they have not been the preference of most artistic dancers for over a quarter of a century. Wood in its various forms and finishes (for instance waxed, urethane-lacquered or merely sanded) is normally found to be an unpredictable surface for professional artistic dancers. There are clients, however, who insist on a wood finish for mixed use and this finish is offered as an option with our sprung floors (see pp 6-11).

Dance floor surfaces are various constructions of vinyl sheet, differing critically from commercial vinyls in that they are formulated to give controlled slip resistance. They are, however, not virtually non-slip like some rubber floors, a property which blocks movement and is a hazard to dancers.

A note of caution: it is estimated that over a third of commercial vinyl floors are classified as safety floors i.e. slip-resistant, especially in wet conditions, and it would be tempting to think of them as "safe" for dance. But this slip-resistant property is variously achieved by the addition of coarse abrasive components and/or cork, frequently enhanced by a distinct surface emboss. All of these modifications are the abomination of dancers, who require a smooth and relatively soft surface to avoid abrasion and skin burns.

Over more than a quarter of a century Harlequin has meticulously developed seven vinyl dance floors, four of them compact (i.e. non-cushioned) and the other three having varying qualities of foam backing, both to give slip resistance and point elasticity (see page 4). The Application Guide for these floors is shown on page 13. The recommendations are indicative only, based on our long experience and dancers' preferences. There are exceptions to almost every recommendation. We strongly advise that you request samples and we invite detailed discussion if you have questions.

Tap is a particularly aggressive form of dance, and you should make your client aware that worn and loose screws and taps will damage any dance floor sooner or later and he or she should be vigilant with students' footwear. If tap cannot be separated from other dance activities, it is prudent to select one of our floors indicated with three 'dots' in the Application Guide.

DANCE FLOORS VS SPORTS FLOORS

It is a common assumption that a well-designed sports floor will suit the needs of dancers, but there are two intrinsic differences: the construction of the **sprung subfloor** and **the performance surface**.

THE SPRUNG SUBFLOOR

Along with some shock absorption, most indoor sports require a high degree of energy return and a requirement for adequate ball bounce. Evidently, dancers have scant interest in ball bounce, but they are vitally focused in a different way on a combination of shock absorption and energy return. There are no hard and fast rules, but it is clear that female dancers tend towards shock absorption – without any ‘sponginess’ – whereas the men appreciate a dance floor with more “spring” for their often more energetic choreography. Indoor sports people can tolerate a stiffer floor as they usually have cushioned footwear – a luxury barred to dancers.



THE PERFORMANCE SURFACE

Here the main criterion for dancers is slip-resistance, disconcertingly dubbed “traction” by many in the dance community. Although sports people share the abhorrence of the risk of slipping and falling, they again are generally protected by their footwear from floors that might be considered a slip hazard for dancers, for example some hard-lacquered wood floors. 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 several weeks of physical therapy and recovery time to correct.

A WORD ABOUT WOOD FINISHES

Historically the choice was between a wooden floor and linoleum, until the advent of purpose developed vinyl floors during the 1970s. Although it may be tempting to opt for a wood floor for purely aesthetic reasons, or a commercial grade vinyl for reasons of cost, today there are many options specifically designed for dance. A well-installed hardwood sprung floor, properly finished and maintained, does look attractive, and specifically for ballroom dance is a desirable option.

Softwood floors are rarely an option because even with a lacquered surface they are too readily susceptible to damage, gouging and splintering.

With correct preparation and sealing, softwood floors can indeed provide a very acceptable subfloor on which to install a Harlequin dance surface. As a practical and commercial measure, Harlequin sprung floors are normally finished with FG plywood or MDF prior to the application of a Harlequin dance floor surface.

Unfinished pine floors are still in use in some traditional Russian dance schools, notably the famous Vaganova Academy in St. Petersburg, but as finances allow, Harlequin dance floors are progressively being installed to cover them.

SEMI-SPRUNG OR SPRUNG?

The desire for a floor with “give” was accelerated by the fashion in ballroom dancing before and after the Second World War. These floors often used coil or leaf springs and, as genuinely sprung floors were far too bouncy for ballet or contemporary artistic dance, the need to provide semi-sprung floors – particularly for ballet – led to considerable modifications.

In the last fifty years metal springs have largely given way to resilient blocks or pads made of rubbers or polymers. With modern floor construction methods the “trampoline” effect of the early sprung floors has been suppressed and these modern floors for both sports and dance are generally referred to as semi-sprung. Nevertheless, the distinction has been forgotten and for convenience we loosely refer to both types of floor as sprung floors.

POINT & AREA ELASTICITY

These terms are defined in the German standard DIN 18032 Part II, relating to sports surfaces. A point-elastic floor shows deflection or “give” only at the point of contact and an area-elastic floor flexes over a wider area. The specification limits the spread of this deflection to avoid disturbance to neighboring sports performers. It has been noted by dancers that some of the criteria of DIN 18032 are somewhat irrelevant to them.

STANDARDS & TESTS

STANDARDS

Previously no standards existed which relate specifically to dance floors. This was noted by the US-based organization Entertainment Services Technical Association (ESTA) (www.esta.org) and a Working Group was set up to establish an international standard to be adopted by the American National Standards Institute (ANSI). The Working Group consists of manufacturers, end-users, and specifiers. The Harlequin group is represented by American Harlequin Corporation.

The recently approved standard is broadly based on DIN 18032, but modified to reflect the interests of dancers and related stage performers. It is entitled American National Standard E1.26-2006.

The section BSR E1.26 – 2006, "Recommended Testing Methods and Values for Shock Absorption of Floors Used in Live Performance Venues", relates to shock absorption and has now been adopted as an ANSI standard. A further section, BSR E1.34 "Measuring and Specifying the Slipperiness of Floors Used in Live Performance Venues", was submitted for public review in January 2008.

When the standard is complete there will be incentive for manufacturers to submit products for testing and the Harlequin group is confident of its products meeting the test criteria, which are unattainable by a number of stiffer sports floors. Further details can be found at www.esta.org.

Note: It cannot be assumed that if a product conforms to this standard it will automatically be approved by dancers, whose predilections vary. The proposed standard will, however, provide protection to specifiers and manufacturers in the form of consensual test data. Please consult Harlequin for guidance before specifying.



The photos show tests to DIN 18032 in progress on Harlequin's WoodSpring basketweave floor with Harlequin Cascade surface and dancers from the Royal Ballet, London, approving the test floor.

DIN STANDARD TEST 18032 Part II

Summary: tests of shock absorption, vertical deformation, area deflection and behavior under rolling load, described under DIN 18032, were carried out on Harlequin sprung floors by the Centre for Sports Technology Ltd., in London. DIN 18032 part II is the German Standard for floor requirements for sports halls. Outline descriptions of the methods are given below:

3.1 Force Reduction (shock absorption)

The 'Force Reduction' test measures the degree by which the floor reduces the impact force which occurs when an athlete, or dancer, lands on it.

The test was devised to simulate the forces observed when a runner's heel strikes the ground.

The apparatus consists of a 20kg mass which is allowed to fall onto a stiff spring resting on the floor.

The force which results from the impact depends on the relative stiffness of the floor to that of the spring.

The test is carried out on a concrete floor as well as on the floor under test and the result quoted is the amount by which the force measured on the test floor is lower than the force measured on concrete.

3.2 Vertical Deflection

In the 'Vertical Deflection' test, the amount by which the floor deflects under impact load is measured directly.

The test is similar in principle to the force reduction test, however, a softer spring is used and the drop height is adjusted so that the peak force produced falls within a certain range.

3.3 Area Deflection

Area Deflection is measured using a modification of the vertical deflection apparatus. Instead of measuring the deflection at the point at which the test force is applied, it is measured 500mm away. The purpose of the test is to ensure that one athlete or dancer standing on the floor will not be excessively disturbed by the movements of another nearby.

3.4 Resistance to a Rolling Load

The 'Rolling Load Resistance' test is carried out on two structurally critical areas of the floor. A steel wheel whose width, diameter and corner radii are defined, is loaded to 1500 N and is rolled repeatedly over the surface of each area. After 300 passes, the floor is examined for damage.

Pioneering scientific research is currently being conducted to investigate the mechanical properties of dance floors and, in particular, how these properties relate to dancer performance and injury. The research is being conducted in three parts. First, injuries occurring in dancers employed by a professional touring dance company will be compared to the mechanical properties of the stage floors at different venues where the company performs. Second, dancer preference and their ability to accurately rate different types of dance floors will be analyzed. Third, a 3D motion analysis system will be used to analyze dancers' movements and impact forces while performing dance techniques on a range of dance floors. This research will hopefully provide valuable knowledge as to the particular dance floor properties appropriate for dance and if criteria can be developed regarding dancer requirements for dance floors, this knowledge can be applied to create safer working environments for dancers. The Harlequin Group is assisting with this research.

HARLEQUIN ACTIVITY® WITH VINYL & HARDWOOD SURFACES

Harlequin Activity is a permanently installed sprung floor system based on the now well-established triple sandwich construction originated by Harlequin over 20 years ago. It is a fully-floating system with no fixings to the sub-floor and can be laid on almost any reasonably smooth and flat surface without preparation. The construction of Harlequin Activity is shock-damped to avoid a 'trampoline' effect and provides area elasticity to offer identical characteristics across the whole floor. Correctly reinforced, Harlequin Activity can withstand heavy loading including retractable seating. Harlequin Activity has been tested for impact sound reduction with a variety of different Harlequin surfaces, according to BS EN ISO 140-8; 1998. The excellent results achieved ranged from 22 to 24dB.

Harlequin Activity can be installed with a choice of surfaces:

- Harlequin vinyl surface: for all types of dance, but particularly ballet.
- Hardwood surface: for specifiers who need a hardwood surface for multi-purpose use, including traffic by the general public, full stage entertainment, ballroom dance or even for designers obliged to match existing decor.

Harlequin Activity floor is only available for installation by Harlequin's Contracts Division.

HARLEQUIN ACTIVITY® WITH VINYL SURFACE

A polymer damp-proof membrane is laid across the subfloor onto which is placed a layer of cellular polyurethane of proprietary density. Two layers of moisture-resistant semi-flexible panels are then installed and staggered, so that the joints do not coincide. The top layer of panels is bonded to the one below with a non-setting adhesive and fastened mechanically.

The damp-proof membrane is folded onto the surface and secured to form a damp-proof seal. Then the selected Harlequin vinyl performance surface is installed and adhered. The seams are welded to form an unbroken surface and, finally, the gap between the flooring and the wall is filled with a composite skirting profile, screwed to the edge of the floor structure to form a flexible seal to the wall.

Depending on individual performance requirements, the following are suitable as the top performance surface of a Activity Floor:

- | | | |
|-------------------|------------------|---------------------|
| Harlequin Cascade | Harlequin Tempo | Harlequin Standfast |
| Harlequin Studio | Harlequin Fiesta | Harlequin Allegro |

See pages 12-14 for full details.

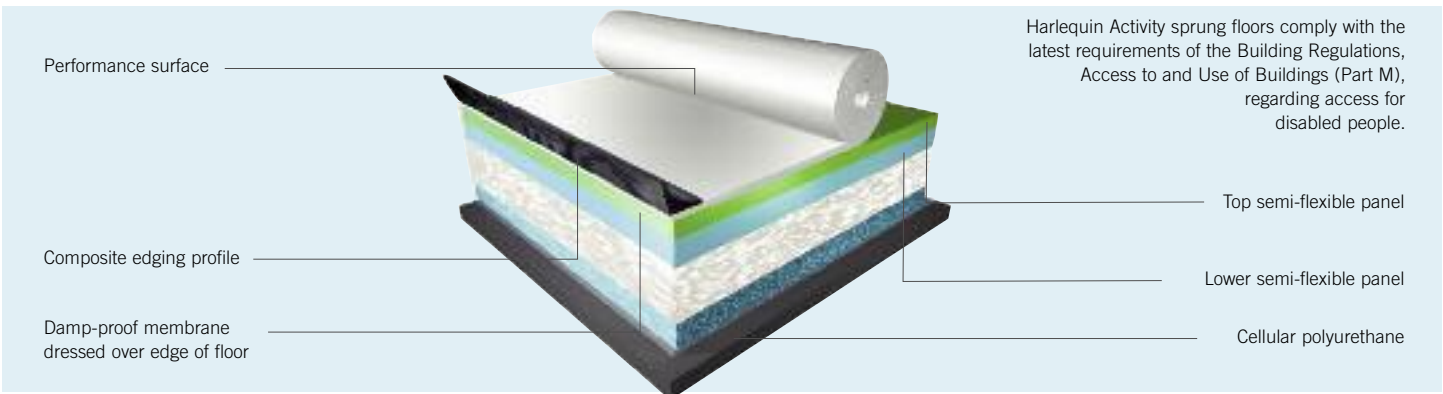
“Professional dancers need bounce, constancy, and a floor they can trust—a Harlequin.”

VICTORIA MORGAN
Artistic Director, Cincinnati Ballet

DIN STANDARD 18032 PART II TEST RESULTS

	Shock Absorption	Vertical Deformation	Area Deflection	Rolling Load
Requirement	Min 53%	Min. 2.3mm	Max 15%	Min 1500 N
Harlequin Activity	59.4%	3.8mm	7.2%	>1500 N

HARLEQUIN ACTIVITY® WITH VINYL SURFACE



A SELECTION OF WORLDWIDE CUSTOMERS WITH HARLEQUIN ACTIVITY FLOORS

- Ball State University, Muncie, IN (Cascade & Standfast)
- Ballet Austin, Austin, Texas (Cascade)
- Ballet und Yoga am See, Stamberg, Germany (Studio)
- Beaver Country Day School, Chestnut Hill, MA (Cascade)

- Brigham Young University, Provo UT (Hardwood)
- Cincinnati Ballet, Blue Ash, OH (Studio)
- Colorado State University, Fort Collins, CO (Cascade)
- Conservatoire National de Region de Nice, France (Hardwood Oak)
- Cornish College of the Arts, Seattle, WA (Cascade)
- Dimensione Danza, Rome, Italy (Cascade)
- Emory University, Atlanta, GA (Cascade)
- Escuela de Danza Aueles, Barcelona, Spain (Cascade)
- Gunston Middle School, Rockville, MD (Cascade)

- Hubbard Street Dance Company, Chicago, IL (Standfast)
- Institut del Teatre, Barcelona, Spain (Cascade)
- Institute of Dance Arts, St. Augustine Beach, FL (Cascade & Studio B)
- International School of Brussels, Belgium (Fiesta)
- Jewish Community Center of Omaha, Omaha, NE (Cascade)
- Just for Kix, Baxter, MN (Standfast)
- Le Centre des Arts Vivants, Paris, France (Cascade)

HARLEQUIN ACTIVITY® WITH HARDWOOD SURFACE

The construction is identical to Activity with a Harlequin vinyl surface, but the second layer of semi-flexible panels is replaced by a selected hardwood surface layer, normally an engineered board with a choice of hardwood wear layer. (However, if desired, this can be substituted with a solid hardwood layer.) This is installed with the use of a modified PVA adhesive and secretly secured through the tongues using lost-head nails. The hardwood surface may optionally be protected by impregnation with a multi-coat hardwearing polymer lacquer. The expansion gap around the perimeter of the room can be concealed by a scotia profile of matching hardwood to form a neat edging.



New Activity Floor with maple surface installed at New Cut Arts Centre, Halesworth, Suffolk.



Cellular polyurethane layer



First layer of semi-flexible panels

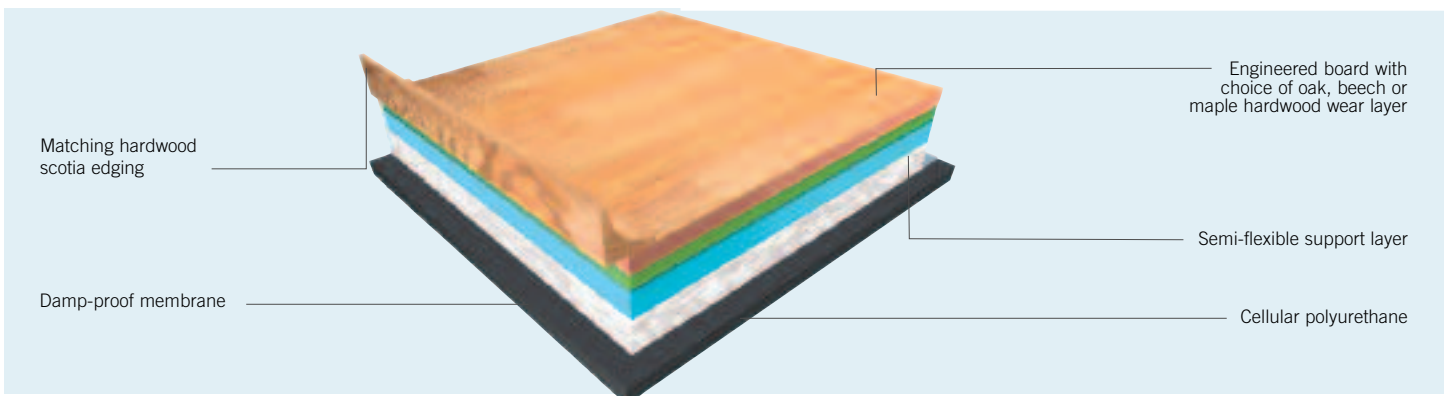


Top semi-flexible panel layer with joints staggered



Harlequin vinyl performance surface

HARLEQUIN ACTIVITY® WITH HARDWOOD SURFACE



SPECIFICATION

HARLEQUIN ACTIVITY® WITH VINYL SURFACE

Overall thickness: 2" (57 mm) depending on vinyl surface specified

Weight: (37-46 lbs/yd²) 20-25 kg/m² depending on surface specification

HARLEQUIN ACTIVITY® WITH HARDWOOD SURFACE

(Typical construction using engineered board)

Overall thickness: 2 1/4" (57 mm)

Description of board: 1/2" (13 mm) - 3/4" (19 mm) hardwood

Weight: 17-22 kg/m² (38-40 lbs/yd²) depending on hardwood surface chosen

Laying time: A floor of (120-180 yd²) (100-150 m²) can generally be installed in 5 days

“We invested in a Harlequin Activity sprung floor 10 years ago. Now we have 4 of them.”

CINDY CLOUGH
Executive Director, Just for Kix, Baxter, MN

National Dance Institute, Santa Fe, NM (Standfast & Cascade)
Orlando Ballet, Orlando, FL (Studio)
Pacific Northwest Ballet, Seattle, WA (Studio)
Patricia Sitar Center, Washington, DC (Cascade & Fiesta)
Perimeter Academy of the Arts, Duluth, GA (Studio)
Point Park University, Pittsburgh, PA (Studio B)
Red Shield Youth Center, Los Angeles, CA (Studio)
Sandburg High School, Des Plaines, IL (Cascade)

School District of Manatee County, Bradenton, FL (Cascade)
Scottsdale Community College, Scottsdale, AZ (Cascade)
Stagg High School, Des Plaines, IL (Cascade)
Stjoerdal Musikskolen, Norway (Cascade)
University of Alabama, Birmingham, AL (Cascade)
University of Arizona, Tucson, AZ (Cascade)
University of California, Santa Barbara, CA (Cascade & Studio)

University of Florida, Gainesville, FL (Allegro & Cascade)
University of Georgia, Garland, TX (Cascade)
University of Michigan, Ann Arbor, MI (Studio)
University of Oklahoma, Norman, OK (Cascade)
University of West Indies, St. Michael, WI (Studio)
Vassar College, Poughkeepsie, NY (Cascade)
Vic Ballet, Verona, Italy (Cascade)

HARLEQUIN LIBERTY™ PERMANENT & PORTABLE PANELS

HARLEQUIN LIBERTY™ PERMANENT SPRUNG FLOOR PANELS

Harlequin Liberty is a modular floor manufactured from engineered superior quality marine birch ply with closed cell elastomer blocks on the underside to give uniform and consistent shock damping. The panels are laid brickwork fashion on the sub-floor so that cross-joins do not coincide. They are linked to each other by a radiussed dowel pivot joint.

The pivot joint extends along the panel edges to within 20mm of the corners ensuring the corners are protected from flexion under load. The edges are also carefully supported by elastomer blocks.

The unique feature of the blocks is their "dual density" (a sandwich of two different hardnesses tested by the Shore Durometer Test). This provides progressive compression under light and heavy loads providing the same "feel" and energy return to one or several dancers on the same panel.

The blend of the pivot joint and the special blocks make the transition from one panel to another imperceptible, which is of paramount importance to performers.

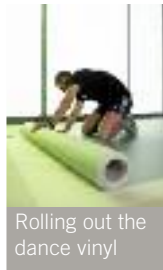
Photo, Peter Arrons



Bard College
Annandale-on-Hudson



Fitting panels at
perimeter



Rolling out the
dance vinyl

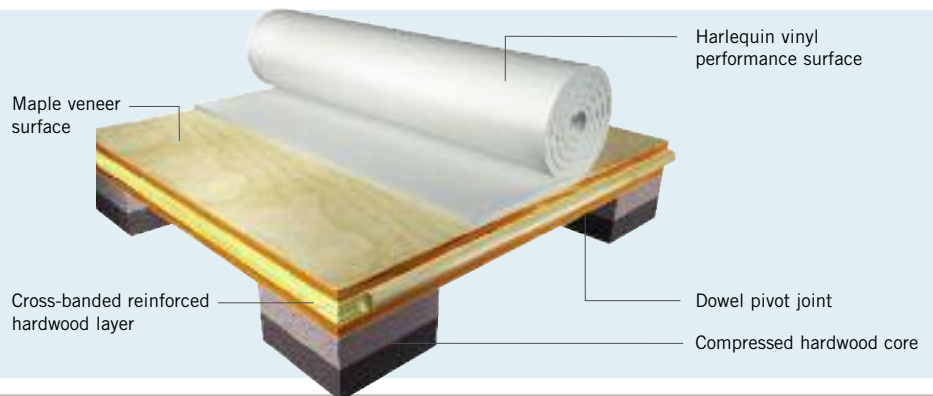
SPECIFICATION

Dimensions:	Full size panel 96" x 48" (2.42m x 1.21m) Half size panel 48" x 48" (1.21m x 1.21m)
Weight:	Permanent panels 83 lbs (37 kg); portable panels 114 lbs (52 kg)
Installed thickness:	Permanent panels 1 1/2" (38mm); portable panels 1 5/8" (42mm) plus the Harlequin floor
Installation time:	Permanent panels approx. 120 sq.yd. (100 sq.m.) per day with 2 persons Portable panels approx. 60 sq.yd.. (50 sq.m) per hour with 2 persons

"Harlequin's Liberty™ panels were a perfect fit. In floors, as in dancers, we were only interested in working with the best."

SUE LOBRANO Executive Director,
USA International Ballet Competition, Jackson, Mississippi

HARLEQUIN LIBERTY™ PERMANENT SPRUNG FLOOR PANELS



LIBERTY PERMANENT PANEL

Alabama Ballet, Birmingham, AL (Studio)
American University, Washington, DC (Cascade)
Ballet Hispanico, New York, NY (Studio)
Busch Entertainment Corporation, Tampa, FL (Cascade)
California State University-Northridge, Northridge, CA (Reversible)
California State University-San Marcos, San Marcos, CA (Cascade)
Chautauqua Institution, Chautauqua, NY (Cascade)
Cirque du Soleil, Las Vegas, NV (Reversible)
City of Coronado, Coronado, CA (Studio)
Columbia Performing Arts Center, Columbia, MO (Studio B)

Hacienda La Puente Unified School District, City of Industry, CA (Cascade)
Harvard University, Cambridge, MA (Cascade)
Joffrey Ballet, Chicago, IL (Studio)
Juilliard School, Physical Therapy Department, New York City, NY (Cascade)
Mercyhurst College, North East, PA (Reversible)
Mount Holyoke College, South Hadley, MA (Studio)
New England Ballet Conservatory, South Burlington, VT (Cascade & Studio)
North Carolina Dance Theater, Charlotte, NC (Studio)
Oklahoma Arts Institute, Lone Wolf, OK (Studio)
Pacific Dance Arts, Shingle Springs, CA (Studio)
Pennsylvania Ballet Association, Philadelphia, PA (Studio)
Royal Winnipeg Ballet, Winnipeg MB, Canada (Studio & Reversible)

Simon Fraser University, Surrey BC, Canada (Allegro & Reversible)
Sitka Friends of Dance, Anchorage, AK (Cascade)
Slippery Rock University, Slippery Rock, PA (Studio B)
St. Augustine High School, St. Augustine, FL (Reversible)
University of California/Irvine, Irvine, CA (Studio)
University of Florida, Gainesville, FL (Studio & Allegro)
University of Mississippi, University, MS (Cascade)
University of Missouri/Kansas City, Kansas City, MO (Cascade)
Wesleyan University, Middletown, CT (Cascade)

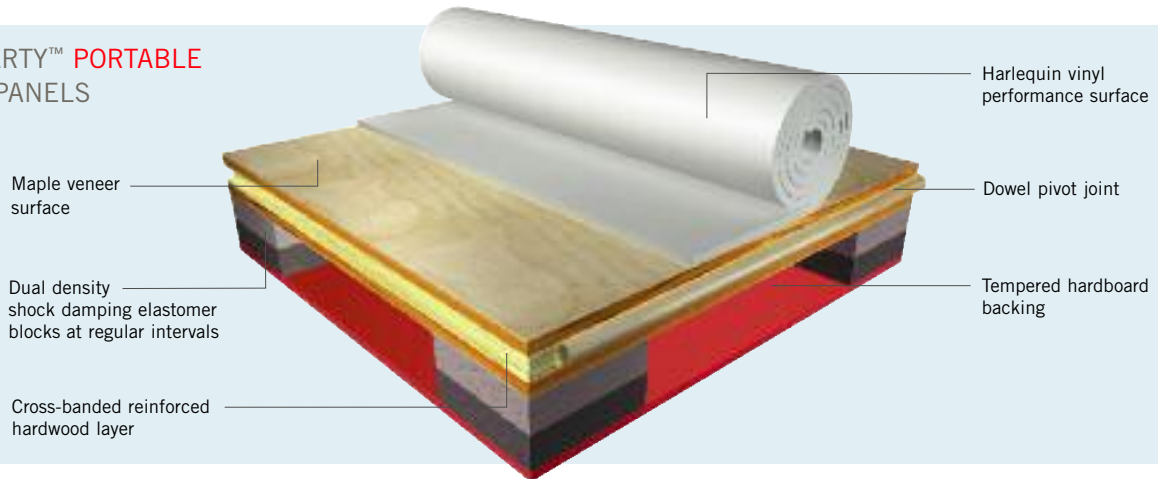
HARLEQUIN LIBERTY™ PORTABLE SPRUNG FLOOR PANELS

Harlequin Liberty sprung floor panels are available in both portable and permanent versions. Oil-tempered hardboard (Masonite) is attached to the underside of the portable panels to

- Ease sliding of the panels into position
- Protect the elastomer blocks
- Allow the panels to be stacked more readily.

Edge trim and ramps are available for stage use or where the sprung floor does not extend to the walls of the studio.

HARLEQUIN LIBERTY™ PORTABLE SPRUNG FLOOR PANELS



DIN STANDARD 18032 PART II TEST RESULTS

	Shock Absorption	Vertical Deformation	Area Deflection	Rolling Load
Requirement	Min 53%	Min. 2.3mm	Max 15%	Min 1500 N
Harlequin Liberty	67%	4.1mm	12.8%	>1500 N

STORAGE CART FOR HARLEQUIN LIBERTY™ PORTABLE PANELS

Harlequin panel storage carts are designed to protect the Harlequin Liberty panels and provide an easy and safe way of moving them from place to place, whether from stage to scenery dock or on and off vehicles when touring.

Sturdily made of black scratch-resistant powder-coated steel, each cart is mounted on four swivel wheels with non-marking rims and brakes.

Each cart has a capacity of 20 full size Harlequin Liberty portable panels, with half size panels being loaded side by side. In addition, there are two fork pockets under the cart to enable a fully-loaded cart to be handled by fork lift truck and the frame of the cart can readily be secured by straps when loading in a vehicle for road transport.

SPECIFICATION

- Unladen weight:** 814 lbs (370 kg)
- Capacity:** 20 full size panels or equivalent full and half size panels
- Wheels:** 4 swivel braked wheels. Wheel diameter 6" (152mm)
Non-marking rims



The Harlequin storage cart loaded with Liberty panels



Installing the panels



Fitting the edge trim

LIBERTY STAGE PANEL

Alvin Ailey American Dance Center, New York, NY (Studio B)
 American Ballet Theatre, New York City, NY (Cascade)
 Bard College, Annandale-on-Hudson, NY (Cascade)
 Boston Ballet, Boston, MA (Cascade)
 Busch Entertainment Corporation, Tampa, FL (Cascade)
 Cirque du Soleil, Montreal PQ, Canada (Cascade)
 Florida State University, Tallahassee, FL (Studio)
 Jazz at Lincoln Center, Inc., New York, NY (Cascade)
 John F. Kennedy Center for the Performing Arts, Washington, DC (Standfast)
 Les Grands Ballet Canadiens, Montreal, Canada (Studio)

Merce Cunningham Dance Foundation, New York, NY (Cascade)
 Orlando Ballet, Orlando, FL (Cascade)
 Princeton University, Princeton, NJ (Reversible)
 Radio City Entertainment, New York, NY (Cascade)
 Riverdance, New York, NY (Cascade)
 Roy Edna Disney Cal Arts Theatre, Los Angeles, CA (Reversible)
 Royal Caribbean Cruises LTD, Miami, FL (Cascade)
 Syracuse University, Syracuse, NY (Reversible)
 USA International Ballet Competition, Jackson, MS (Reversible)
 Washington Ballet, Washington, DC (Studio)

LIBERTY PANEL CUSTOMERS WORLDWIDE

Association pour la Danse Contemporaine, Geneva, Switzerland (Reversible)
 Athens Concert Hall, Greece (Studio)
 Ballet van Vlaanderen, Antwerp, Belgium (Studio)
 Ballettschule der Wiener Staatsoper, Vienna, Austria (Cascade)
 Bayerische Staatsoper, Munich, Germany (Studio)
 Bolshoi Ballet, Moscow, Russia (Cascade)
 Conservatorio de Cadiz, Spain (Standfast)
 Finnish National Opera, Helsinki, Finland (Cascade)
 Haelogaland Theater, Tromso, Norway

HARLEQUIN WOODSPRING™ BASKETWEAVE

The construction of this is known familiarly as "basketweave". In reality, it is a counterbatten configuration comprising at least three layers of highly flexible softwood battens, arranged at right angles. The intermediate layer acts as a spring to the top layer, which is laid at the center of the span formed by the intermediate layer over the bottom layer (see diagram). Theoretically the more intermediate layers incorporated in a basketweave floor the more flexible it becomes, but the principle of diminishing returns applies and in reality the extra expense and thickness outweigh the practicality. In the Harlequin WoodSpring system shock absorption and energy return are enhanced by elastomer pads attached to the underside of the bottom layer.

Onto this structure are installed two layers of flexible panels (typically plywood and MDF), which support the Harlequin dance floor.

Harlequin has designed and installed a number of variations of WoodSpring. For example, a modification was designed with sliding captive brackets and was installed on rail-guided stage wagons at the Bolshoi Ballet for vertical hanging and storage backstage (see case study on page 22).

SPECIFICATION

Finish	Harlequin Vinyl Performance Surface or Approved Hardwood
Top Panel	Sub-surface: semi-flexible, 3/8", moisture-resistant load distribution panels.
Lower Panel	Sub-surface: semi-flexible, 1/2", flooring grade underlayment panels.
Top Panel (Hardwood Requirement Only)	Sub-surface: semi-flexible, 3/4", flooring grade plywood.
Basketweave	3 layer counterbattens nominal 1 by 3
Resilient Pads	3/8" Elastomer, proprietary density
Fastenings and Adhesives	Panels are bonded with a non-setting adhesive and mechanically attached.

DIN STANDARD 18032 PART II TEST RESULTS

	Shock Absorption	Vertical Deformation	Area Deflection	Rolling Load
Requirement	Min 53%	Min. 2.3mm	Max 15%	Min 1500 N
Harlequin WoodSpring	64%	3.3mm	14.9%	>1500 N

Harlequin WoodSpring basketweave floors comply with the latest requirements of the Building Regulations, Access to and Use of Buildings (Part M), regarding access for disabled people.



Completion of first and second layers of basketweave structure



Installation of third layer in progress



Installation of Harlequin WoodSpring at the Boston Ballet School



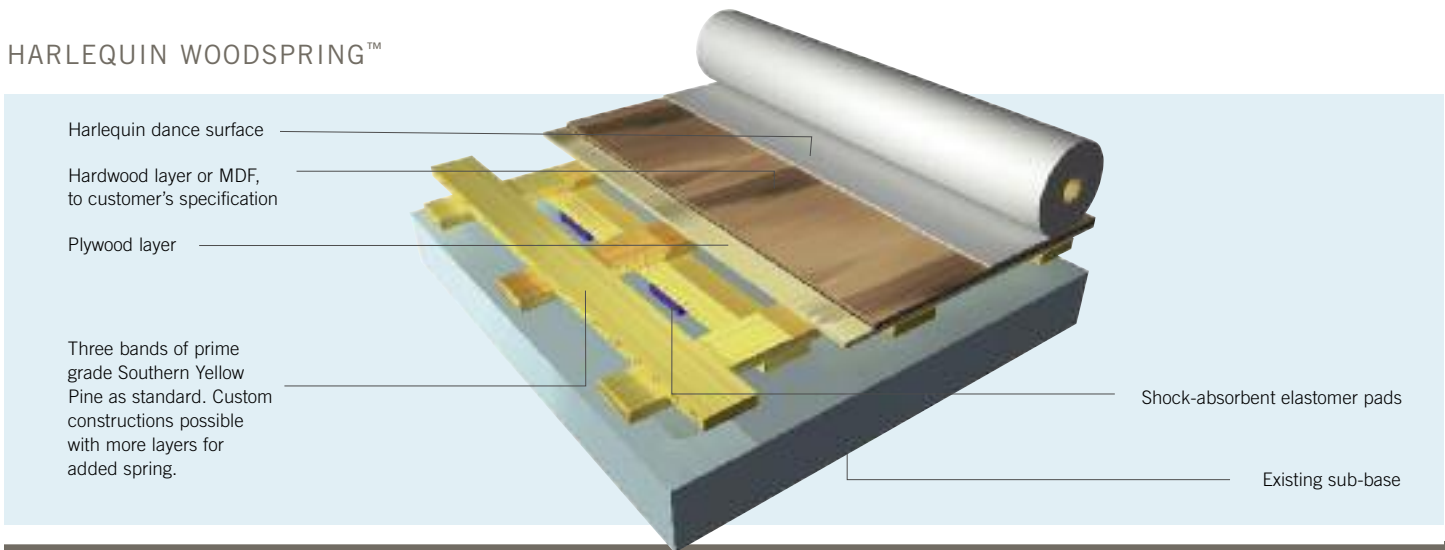
A SELECTION OF WORLDWIDE CUSTOMERS WITH HARLEQUIN WOODSPRING FLOORS

Baltimore School of the Arts, Baltimore, MD (Studio)
 Broadway Dance Center, New York, NY (Cascade)
 Bolshoi Ballet, Moscow, Russia (Cascade)
 Booker T. Washington Performing Arts, Dallas, TX (Cascade & Standfast)
 Boston Ballet School, Newtonville, MA (Cascade)
 California State University, Long Beach, CA (Cascade)

Chapman University, Orange, CA (Cascade)
 Columbia College, Chicago, IL (Cascade)
 Columbia University, New York, NY (Hardwood)
 Dance Theatre of Harlem, New York, NY (Cascade)
 Hofstra University, Hempstead, NY (Cascade)
 Joffrey Ballet, Chicago, IL (Studio)
 Manhattan Youth Ballet, New York, NY (Cascade)
 Mark Morris Dance Group, Brooklyn, NY (Studio)
 Princeton University, Princeton, NJ (Standfast)

Royal Ballet Studios, Royal Opera House, Covent Garden, London (Cascade)
 Scene Nationale de Calais, France (Reversible)
 Southwest Missouri University, Springfield, MO (Studio)
 Steps on Broadway, New York, NY (Maple & Hardwood)
 Tulsa Community College, Tulsa, OK (Studio)
 Twyla Tharp Productions, New York, NY (Hardwood)
 University of Wisconsin, Green Bay, WI (Cascade)
 Wesleyan University, Middletown, CT (Cascade)

HARLEQUIN WOODSPRING™



“Steps is a training ground and home to an internationally-recognized faculty and some of the best dancers in the world. Likewise, these dedicated artists deserve the highest quality floors; it affects their training, their longevity and ultimately, the joy of their dancing. When addressing the need for new tap floors, I deferred to the teachers for input, and called upon our good friends at Harlequin, who are masters in their field. Our new state-of-the-art sprung floors with maple performance surfaces now lend a new clarity to the multiple nuances and sounds of our dancers’ tapping—a thrilling new dimension. Thank you faculty and Harlequin for what have been heralded as the best tap floors in New York City.”

CAROL PAUMGARTEN

Owner, Artistic Director Steps on Broadway New York, NY



Photos courtesy of Steps on Broadway

APPLICATION GUIDE

HARLEQUIN SPRUNG FLOORS

(subfloor or “undercarriage”)

HARLEQUIN PRODUCT	TYPE OF DANCE	PERMANENT	TEMPORARY
Activity	These floors are suitable for all types of dance. All have DIN 18032 Part II certification. Choice depends on factors such as studio shape and size;	✓	
Liberty Panels	load-bearing requirements; customer preference (dancers tend to prefer different types of floor based on professional experience); and budget.	✓	✓
WoodSpring Basketweave		✓	

HARLEQUIN'S PORTABLE & PERMANENT VINYL FLOORS

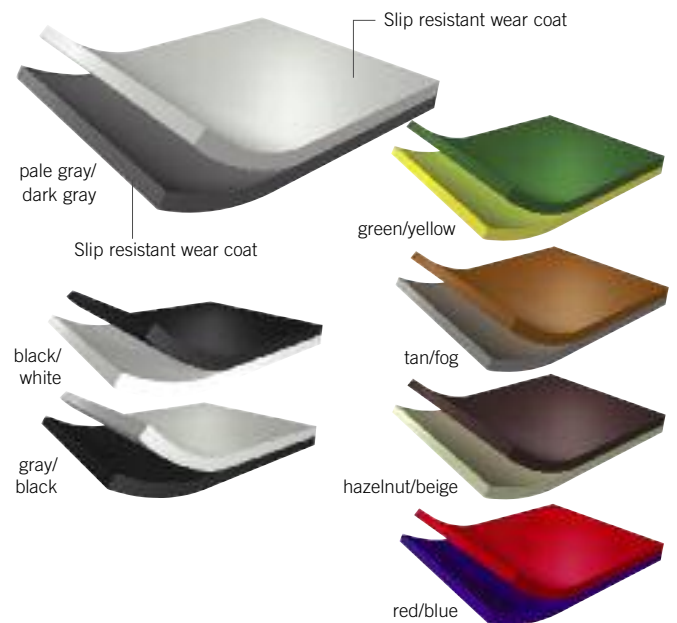
HARLEQUIN REVERSIBLE™

Harlequin Reversible™ securely established itself years back as the classic double-sided stage floor. It is a calendered vinyl consisting of a complex "sandwich", providing a slip resistant surface on both sides. These special wear-coats are easy to maintain and they are approved by dancers as a loose-lay floor on stage and in the studio.

Harlequin Reversible™ is simple to unroll across your stage or dance studio. You just tape the seams and edges - and your floor's ready! When the show's over, quickly roll up your Harlequin and store it or move it to another venue.

Harlequin Reversible™ is a different color on each side, so you can use it either side up. Two floors in one! And because Harlequin Reversible is a full two meters wide, you have fewer joins.

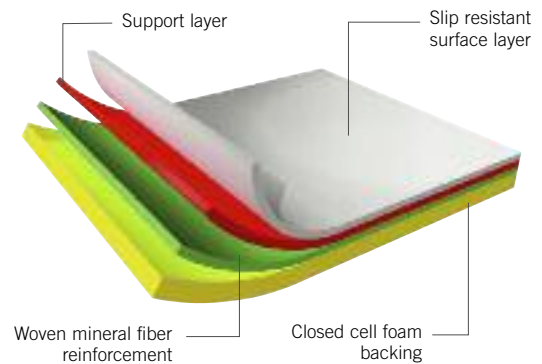
Harlequin Reversible™ is ideally laid on any hard smooth surface, such as a wooden stage, and is intended to be loose-laid.



HARLEQUIN STUDIO™

Harlequin Studio™ is one of our special hardwearing floorcoverings designed for dance, studio and stage use. It is a complex vinyl construction incorporating a strong mineral fiber interply and a firm foam backing. The surface is produced from a hard-wearing vinyl and its formulation focuses on the demands of dancers. The result is a slip-resistant floor to reassure performers and a predictable surface to give confidence to dancers for demanding choreography and movement. The firm but lightweight foam backing helps to protect against hard subfloors.

Harlequin Studio™ stays firmly in place on the floor and is excellent for touring. It can be laid on any hard, smooth surface, e.g. particle board, hardwood, terrazzo, concrete, vinyl tile etc. It is an excellent surface for a sprung subfloor. For modest minimum quantities we can produce colors of your choice.



SPECIFICATIONS GUIDE

HARLEQUIN PRODUCT	ROLL WIDTH	ROLL LENGTH	THICKNESS	WEIGHT	COLORS	FIRE RATING
Reversible	2m	10m, 15m, 18m, 20m, 25m, 30m	1.3mm	1.6kg/m ²	Pale gray/TV white; black/white; mid gray/black; tan/fog; hazelnut/beige; red/blue; green/yellow	NF P 92-507 class M3
Studio	1.5m	10m, 15m, 18m, 20m, 25m, 30m	3mm	2.3kg/m ²	Fog white, beige, black, gray	NF P 92-507 class M3
Cascade	2m	10m, 15m, 18m, 20m, 25m, 30m	2mm	2.6kg/m ²	Black, gray, NYCB gray, beige, hazelnut, white.	NF P 92-507 class M3
Allegro	1.5m	10m, 15m, 18m, 20m, 25m	8.5mm	6kg/m ²	Black, gray	NF P 92-507 class M3
Fiesta	2m	20m, 25m	2mm	3kg/m ²	Oak strip effect	NF P 92-507 class M3
Standfast	1.5m	20m,	2.6mm	3.4kg/m ²	Black, gray, royal gray	NF P 92-507 class M3

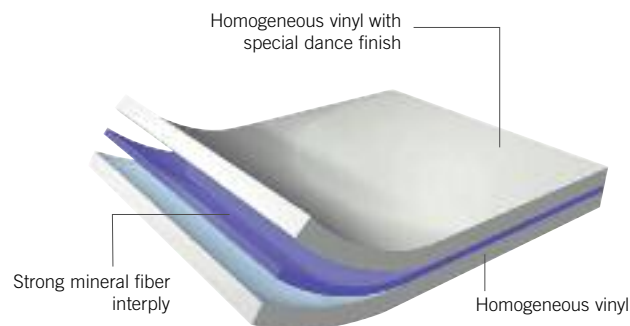
HARLEQUIN'S PORTABLE & PERMANENT VINYL FLOORS

HARLEQUIN CASCADE™

Harlequin Cascade™ is a reinforced sheet vinyl, painstakingly manufactured to high standards and is specified worldwide for loose-lay and permanent installation in dance studios. For modest minimum quantities we can produce colors of your choice.

Harlequin Cascade™ has delighted a generation of stage managers and professional dancers as the ultimate heavy-duty stage floor, which is ideal for dance.

The surface has a silky smooth emboss which gives deceptively good grip and provides a good base for lighting designers. Cascade™ conveys a soft feel, which is described as "warmth", and this gives dancers an unmatched confidence for demanding choreography. It also withstands general stage use, heavy props and sets etc.

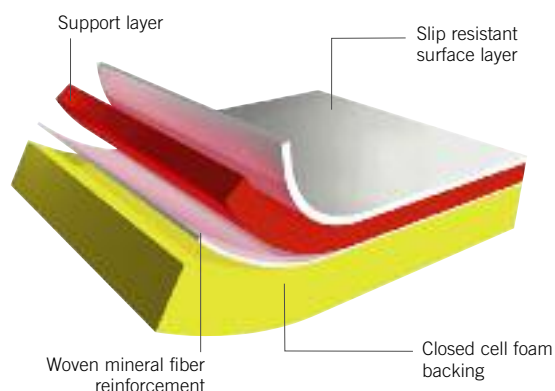


HARLEQUIN ALLEGRO™

Harlequin Allegro™ was developed as a loose-lay dance and aerobics floor to protect against hard subfloors.

Harlequin Allegro™ is the thickest roll-out dance floor available in the world. In beautiful plain colors, it is made by reinforcing a vinyl dance floor with a tough fiber interply, then backing this with a firm foam cushioning for resilience. The result is a "point-elastic" floor almost 3/8" (9m) thick!

Harlequin Allegro™ is the quick and simple answer wherever you need a point-elastic floor to give a measure of instant protection against rock-hard subfloors. Simply choose whether you want it permanently installed, or loose-laid.



APPLICATION GUIDE

HARLEQUIN VINYL FLOORS (dance surface)

HARLEQUIN PRODUCT	BALLET	CONTEMPORARY	JAZZ/THEATRE	TAP/ PERCUSSIVE ■	OTHER e.g. FLAMENCO, ETHNIC, FOLK	PERMANENT	TEMPORARY
Reversible	●●●	●●●	●●●	●●	Refer to Harlequin		✓
Studio*	●●●	●●●	●●	—		✓	✓
Studio B*	●	●●●	●●●	—		✓	✓
Cascade*	●●●	●●●	●●●	●●		✓	✓
Allegro*	●●	●●●	●●	—		✓	✓
Tempo*	●●	●●●	●●	—		✓	✓
Fiesta*	●●	●●	●●●	●●		✓	
Standfast	●●	●●	●●●	●●●		✓	

● The more dots, the more suitable the floor for the particular type of dance

* These floors are mineral fiber-reinforced and may be laid semi-permanently into double-sided tape and with welded seams.

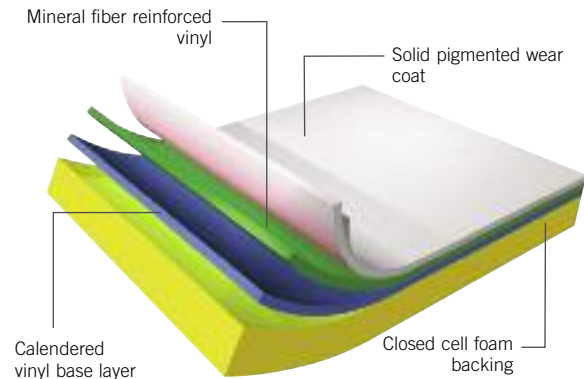
■ See note about tap dance at the foot of page 3

HARLEQUIN'S PORTABLE & PERMANENT VINYL FLOORS

HARLEQUIN TEMPO™

Harlequin Tempo™ is a floor particularly suited to the requirements of contemporary or barefoot dance, but also works as a multi-purpose performance surface. Thicker than Harlequin Studio, Tempo provides added protection against hard sub-floors.

Harlequin Tempo™ can be loose-laid, but is also perfect as a permanent surface on our sprung floor systems. With its tough wear coat, it resists scuffing and cleans easily.

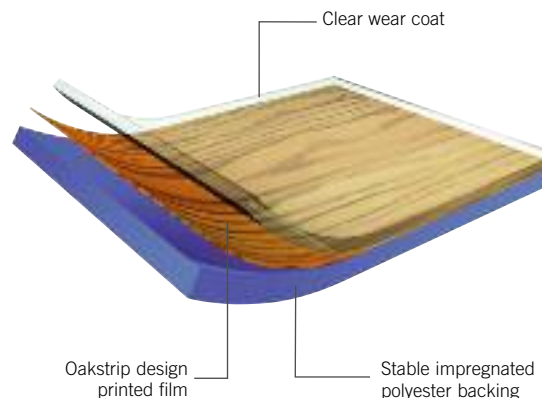


HARLEQUIN FIESTA™

Harlequin Fiesta™ was developed because we saw a clear need for a floor for dance and drama studios which looked exactly like wood, but without all the associated problems of cleaning and maintenance.

Harlequin Fiesta™ is for permanent installation, when the joints are welded to provide a continuous performance surface. It can be laid on any hard smooth sub-floor and is an excellent multi-purpose surface for our sprung floor systems.

Harlequin Fiesta™ stands up to the rigors of percussive dance, such as tap and Irish dance, but is great for social dancing and for all kinds of general activities. It is not recommended for ballet at intermediate or professional level (See also paragraph about tap dance at the foot of page 3).



HARLEQUIN STANDFAST™

Harlequin Standfast™ is an extremely hardwearing and contract-quality flooring. It is intended for permanent installation into adhesive, when the joints are heat welded to form a continuous performance surface.

Harlequin Standfast™ has a slip-resistant surface and is ideal as a permanent multi-purpose dance and stage flooring for heavy-duty use.



OUR INSTALLATION SERVICE

Harlequin Activity, Liberty and WoodSpring Basketweave permanent sprung floors are fitted by Harlequin's own Contracts Division as part of our total package to ensure your new floor is correctly installed and is fully compliant with current regulations and standards.

Our Contracts Division is also expert in the installation of other permanent vinyls, conventional wood floors and even floors to appropriate custom design.

OUR INSTALLATION SERVICE:

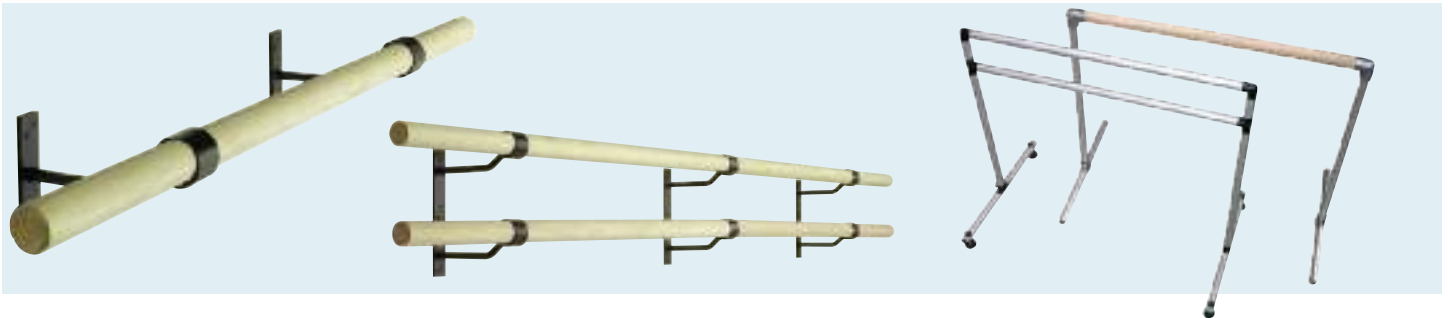
- Initial guidance in selecting the most appropriate floor for your requirements
- Design of floors to suit existing spaces and conversions
- Design of floors for new build to architect's plans
- Advice on subfloor preparation
- Supply and installation of floors and accessories
- Harlequin on-site installation team to meet your building deadlines
- Unconditional guarantee against defects in workmanship
- Long-term performance warranties

ACCESSORIES

In addition to our wide range of floors, Harlequin also produces accessories, some of which are featured below:

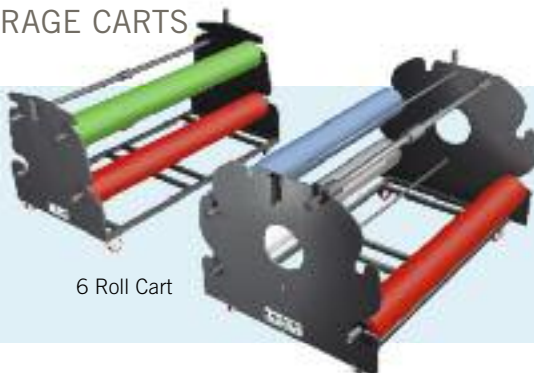
BALLET BARRES

Single and double bars. Wall-mounted and freestanding.



ROLL STORAGE CARTS

4 Roll Cart



6 Roll Cart

TAPES



CLEANING & MAINTENANCE

BAGS & STRAPS FOR STORING THE PORTABLE VINYL



Ask for our Accessories brochure about these products.

CASE STUDY 1

ROYAL OPERA HOUSE

PROJECT: Royal Ballet studios, Royal Opera House, Covent Garden, London

DESCRIPTION OF INSTALLATION: Harlequin WoodSpring™ with Cascade™ surface

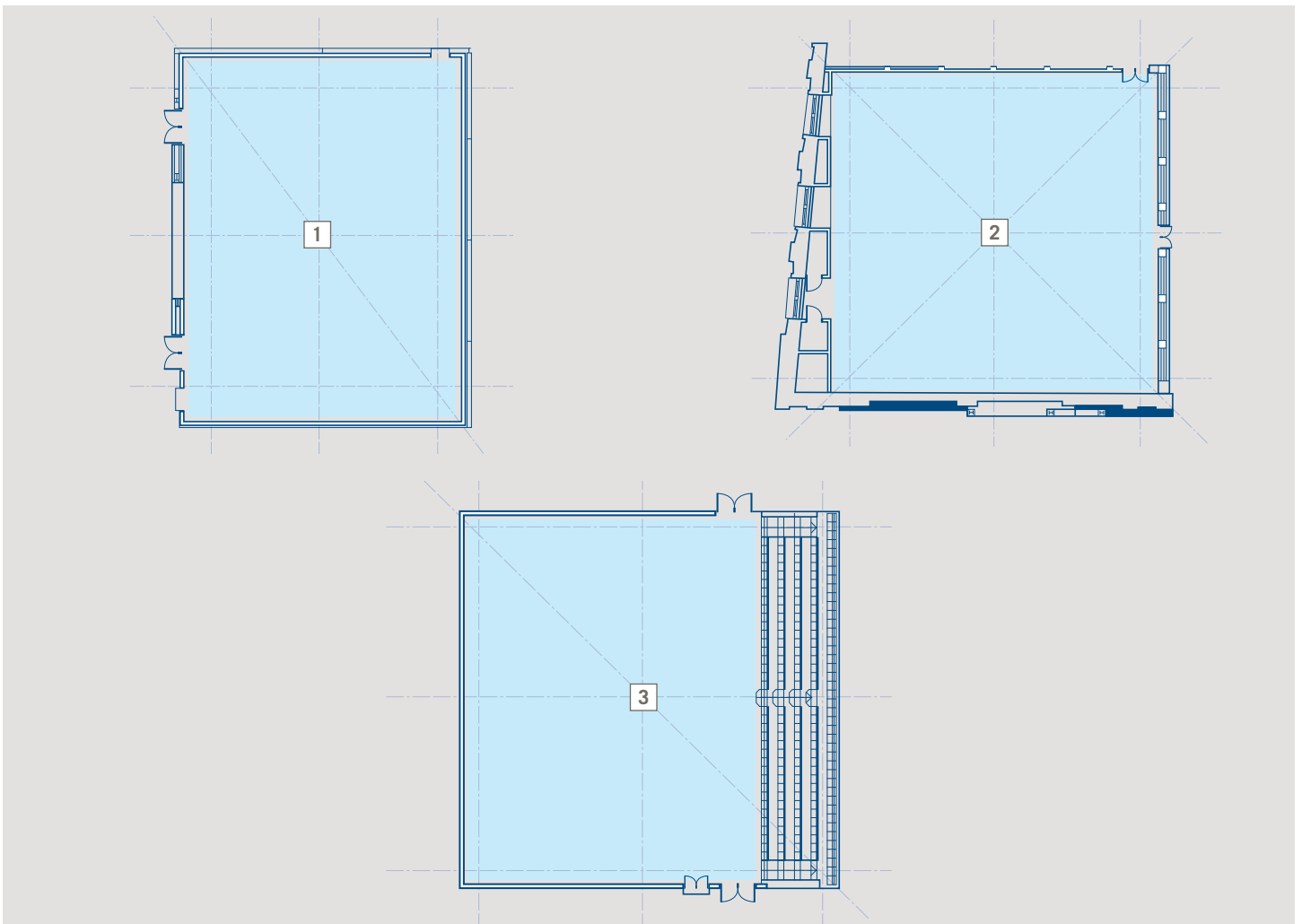
FLOOR PLAN

■ Harlequin WoodSpring™ Floor

FLOOR DIMENSIONS

- 1 Ashton Studio - 288m²
- 2 De Valois Studio - 339m²
- 3 Clore Studio - 285m²

Total Area 912m²



CASE STUDY 2

STEPS ON BROADWAY

PROJECT: Steps on Broadway, New York, NY

ARCHITECTS: Not used for this project

MAIN CONTRACTOR: Harlequin's Contracts Division

DESCRIPTION OF INSTALLATION: Harlequin WoodSpring™ floors with tongue and groove maple surface and Cascade™.

NOTES: Steps on Broadway is a pre-eminent dance and rehearsal studio used by principals of major dance companies and students alike. The tap program at “Steps” needed a hardwood sprung floor to fulfill the needs of their professional tap faculty and students. They chose WoodSpring™ with a maple hard wood performing surface. Two of the multipurpose rooms have WoodSpring with Cascade™ vinyl surface.

FLOOR PLAN

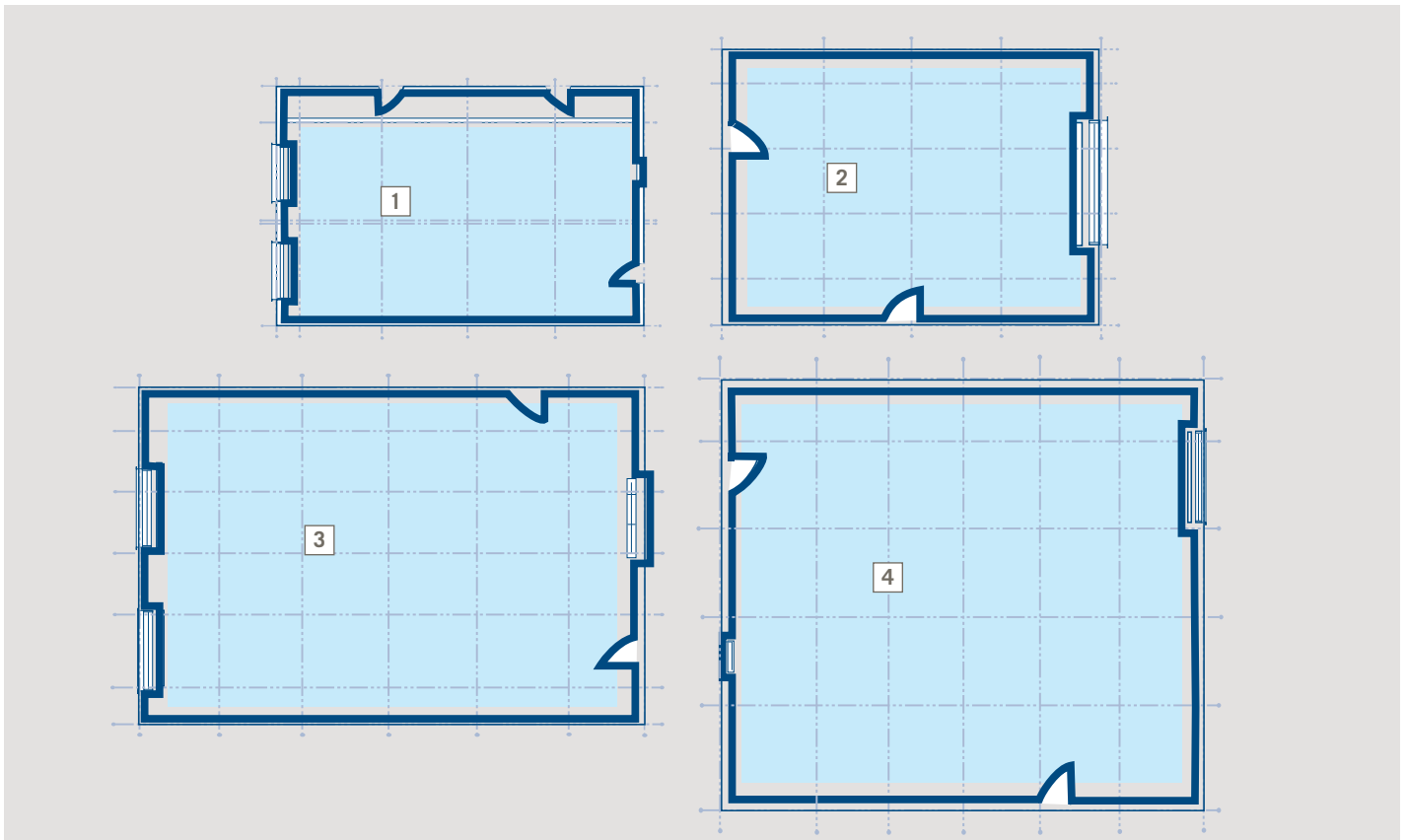
□ Harlequin WoodSpring floor

FLOOR DIMENSIONS

- 1 17' x 35' (maple)
- 2 27' x 35' (maple)
- 3 31' x 47' (Cascade)
- 4 41' x 46' (Cascade)

Total area: 543yd²

Photos courtesy of Steps on Broadway



CASE STUDY 3

THE DANCE BARNS

NATIONAL DANCE INSTITUTE

PROJECT: The Dance Barns, National Dance Institute, Sante Fe, New Mexico

ARCHITECTS: Duty & Germanas

MAIN CONTRACTOR: Harlequin's Contract Division

DESCRIPTION OF INSTALLATION: Harlequin Activity® sprung floor with Harlequin Cascade™ surface installed in two separate studios.

FLOOR PLAN

■ Harlequin Activity floor

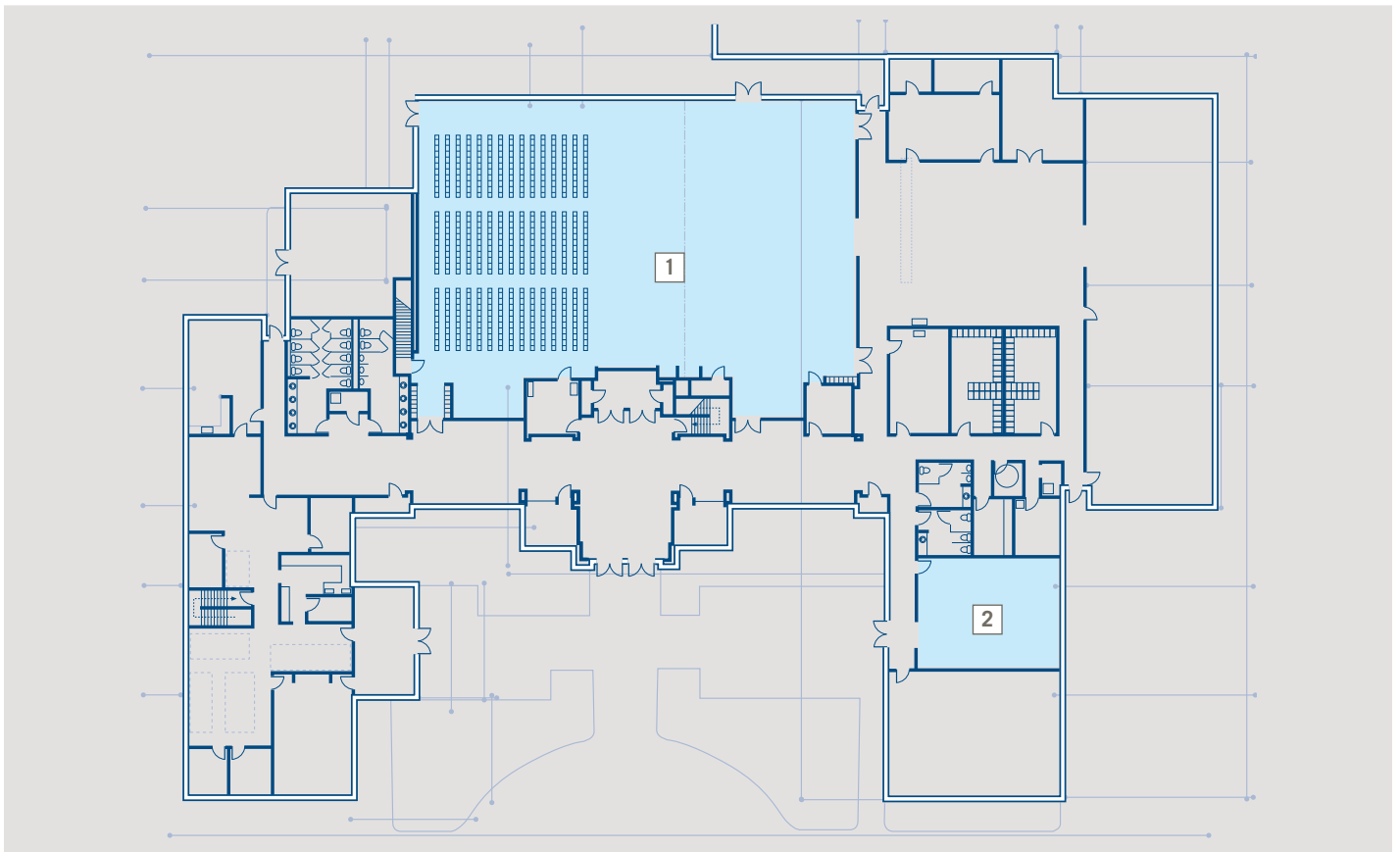
FLOOR DIMENSIONS

1 96'9" x 107'

2 27' x 34'1"

Total area: 934 yd²

Photography: InSight Foto, Santa Fe, NM



CASE STUDY 4 ESPLANADE

PROJECT: Esplanade Theatre, Singapore

ARCHITECTS: DP Architects

DESIGN: British Harlequin plc

DESCRIPTION OF INSTALLATION: Harlequin Liberty™ portable sprung panels, custom-sized to fit into the existing ballet wagon, which is stored horizontally below the stage and moved into place on a motorized track and elevator. Six custom traps were manufactured on site and installed within the Liberty™ panels on the wagon. Extra Liberty™ panels were supplied for an infill area to extend the performance area downstage. Harlequin Cascade™ was supplied for use as a roll-out surface.

NOTES: Additional reinforced Liberty™ panels were supplied to be used as replacements in the ballet wagon, when required to withstand heavy scenery loadings.

FLOOR PLAN

 Harlequin Liberty™ Floor

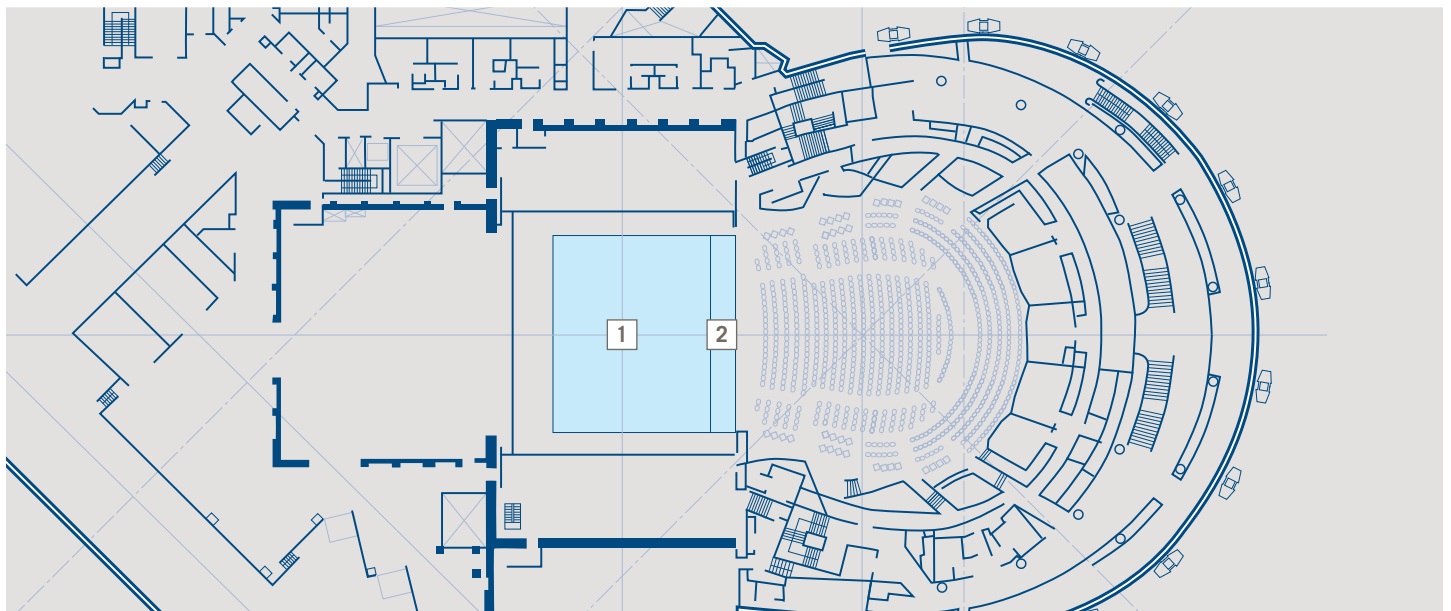
FLOOR DIMENSIONS

1 Main wagon
18.98m x 17.48m

2 Infill panels
18.98m x 2.49m

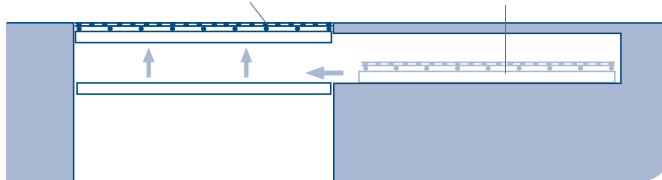
Total area: 332m²

Total area: 47m²



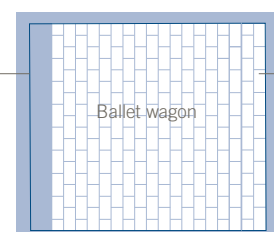
Cross section of ballet wagon

Finished position of Liberty floor Storage position



Plan view of Liberty panels

Edge trim Ballet wagon Liberty infill panels



CASE STUDY 5

LABAN

PROJECT: Laban, London

ARCHITECTS: Herzog & de Meuron, London

MAIN CONTRACTOR: Ballast Construction

DESCRIPTION OF INSTALLATION: Harlequin Liberty™ sprung panels with Harlequin Studio™ vinyl surface. 13 dance studios and 1 clinic, Total of 1,943 m²

NOTES: Purpose-built Dance and Performing Arts College.

FIRST FLOOR PLAN

□ Harlequin Liberty floor

FLOOR DIMENSIONS

Ground Floor

- 1 12.7m x 9.3m
- 2 17.4m x 9.8m
- 3 8.1m x 6.35m

Total area: 340m²

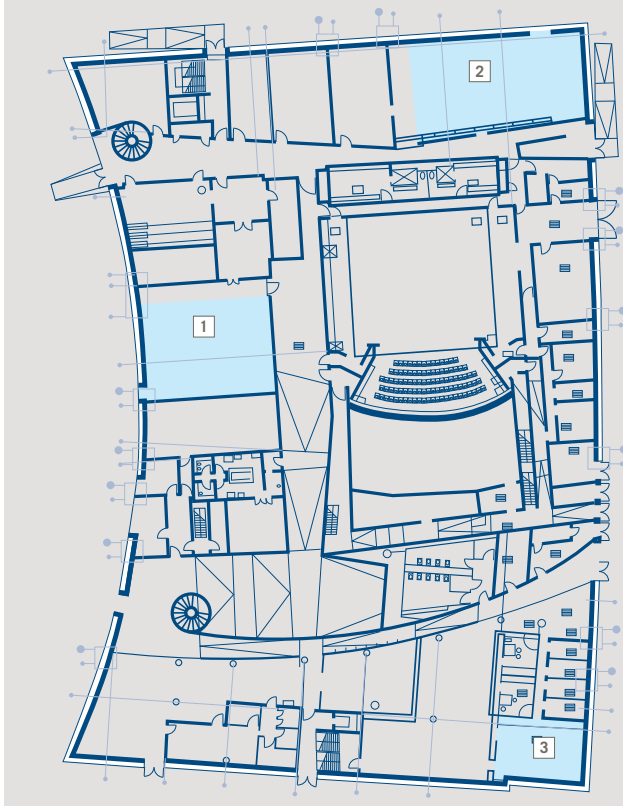
First Floor

- 4 14m x 9.85m
- 5 17.4m x 9.8m
- 6 13.8m x 7.2m
- 7 10.4m x 6.25m
- 8 11.9m x 8.2m
- 9 17.2m x 8.5m
- 10 14.3m x 11.7m
- 11 19.5m x 12m
- 12 14.1m x 12.2m
- 13 8.3m x 13.1m
- 14 15.6m x 13.1m

Total area: 1,603m²



Ground Floor



First Floor



CASE STUDY 6

BARD COLLEGE

PROJECT: Richard B. Fisher Center for the Performing Arts at Bard College, Annadale-on-Hudson, New York

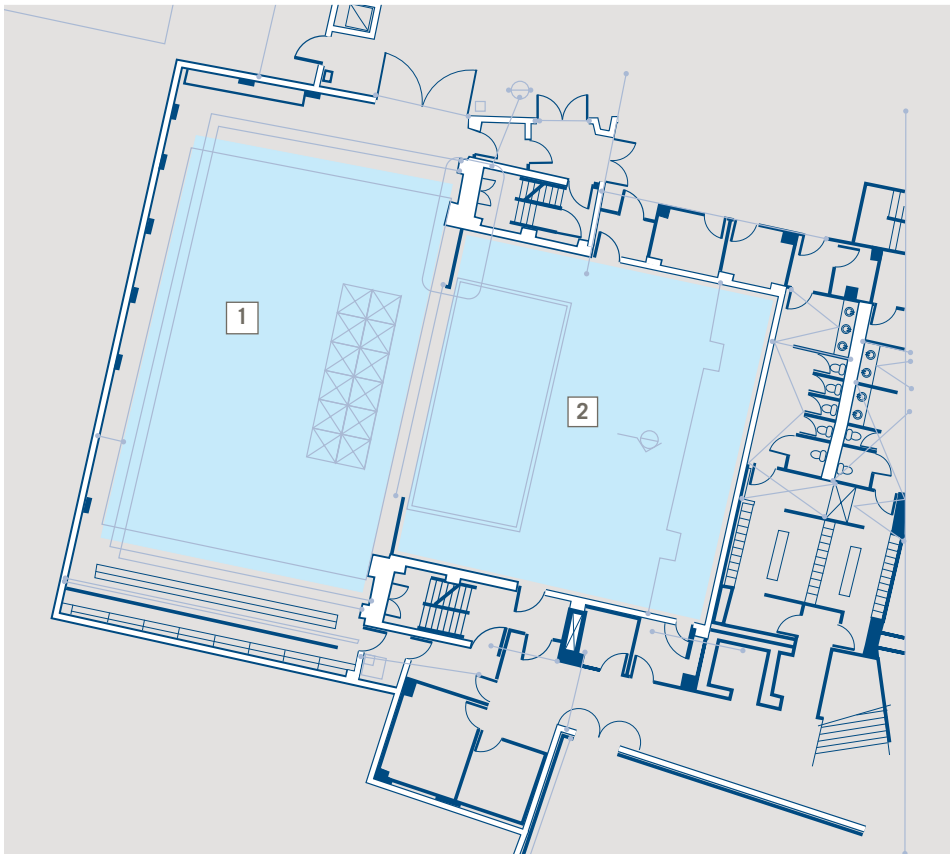
ARCHITECTS: Frank O. Gehry & Associates, Inc.

MAIN CONTRACTOR: Daniel O'Connell's Sons, Inc.

DESCRIPTION OF INSTALLATION: Harlequin Liberty™ portable sprung panels for use on the two theater stages. Total of 111 large panels, 22 small panels, complete with ramps and edge trim and six wheeled storage carts. Harlequin Cascade™ vinyl for use as a roll-out performance surface.



Photography: Peter Arrons



FLOOR PLAN

□ Harlequin Liberty™ floor

FLOOR DIMENSIONS

1 35'10" x 67'

2 46'11" x 56'

Total area: 553.7yd²

CASE STUDY 7

BOLSHOI BALLET

PROJECT: Bolshoi Ballet, Moscow

DESIGN: British Harlequin plc

MAIN CONTRACTOR: N/A

DESCRIPTION OF INSTALLATION: Harlequin WoodSpring™ basketweave floor

NOTES: Custom-designed to be installed on a pair of steel-framed ballet wagons, each 15m x 6m, and stored vertically when not in use. Harlequin Cascade™ used as a roll-out surface.

FLOOR PLAN

□ Harlequin WoodSpring floor

FLOOR DIMENSIONS

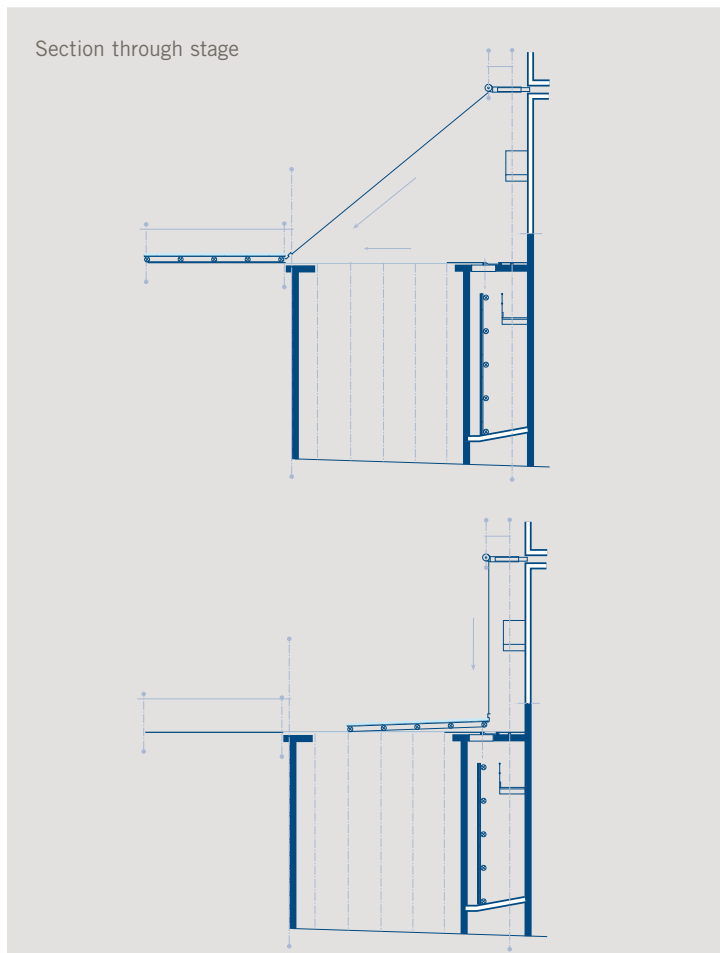
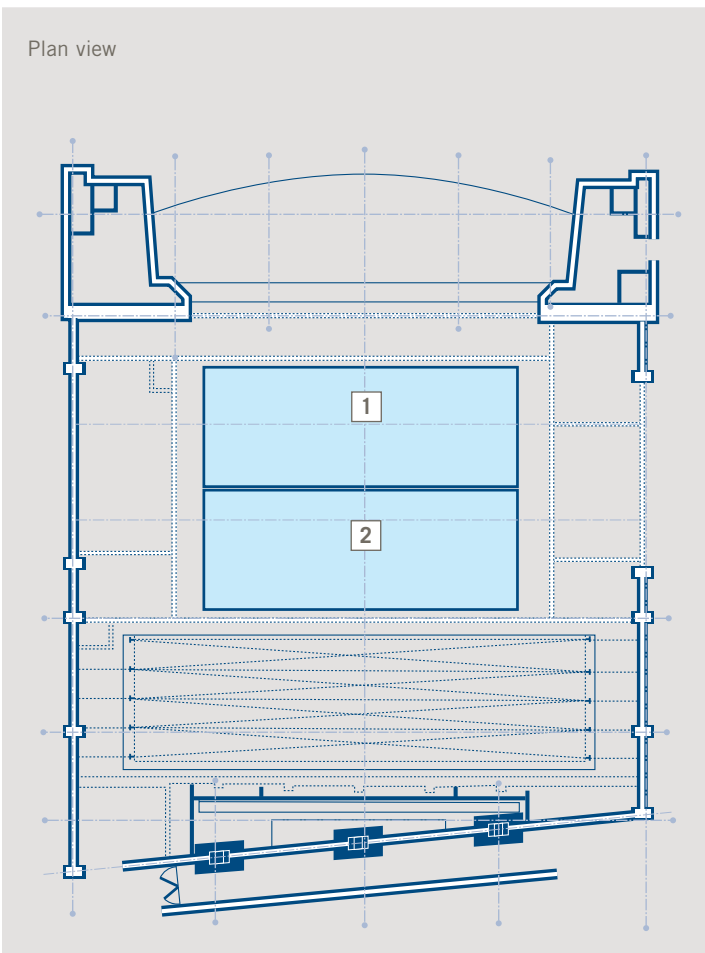
1 15m x 6m

2 15m x 6m

Total area: 180m²



Sequence shows the Harlequin floor being winched backstage & located into the vertical storage slot.



CASE STUDY 8

TULSA COMMUNITY COLLEGE

PROJECT: Tulsa Community College, Tulsa, Oklahoma

ARCHITECTS: Dewberry Design Group, Inc.

MAIN CONTRACTOR: Lowry & Hemphill Construction Co., Inc.

DESCRIPTION OF INSTALLATION: Harlequin WoodSpring™ basketweave floor with Harlequin Studio™.

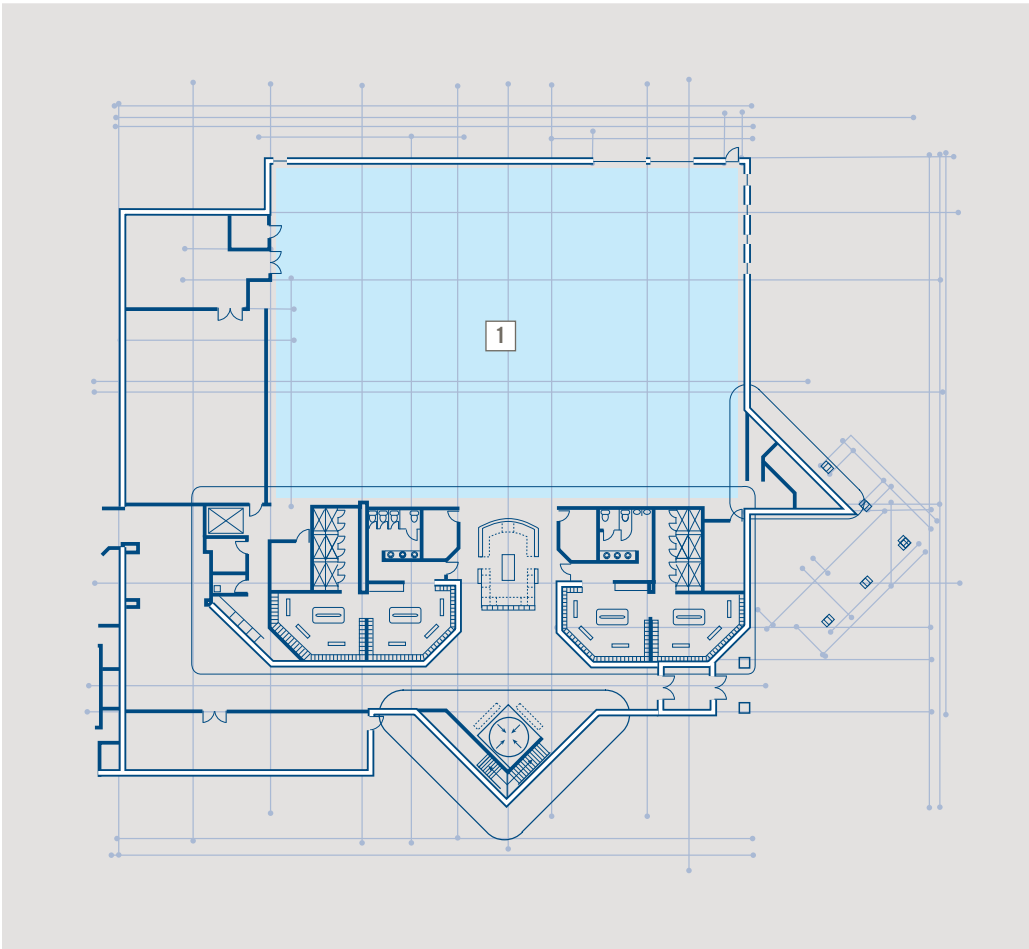
FLOOR PLAN

 Harlequin WoodSpring floor

FLOOR DIMENSIONS

1 35'10" x 49'9"

Total area: 195yd²





HARLEQUIN

American Harlequin Corporation

1531 Glen Avenue, Moorestown, NJ 08057

Tel: +1 (1) 856 234 5505 Fax: +1 (1) 856 231 4403 Email: dance@harlequinfloors.com

British Harlequin PLC

Festival House, Chapman Way, Tunbridge Wells, Kent, England TN2 3EF

Tel: +44 (0) 1892 514888 Fax: +44 (0) 1892 514222 Email: enquiries@harlequinfloors.com

Harlequin Europe SA

29 rue Notre-Dame, L-2240 Luxembourg

Tel: +352 46 44 22 Fax: +352 46 44 40 Email: info@harlequinfloors.com

Harlequin Australasia Pty Ltd

P.O.Box 1028, 36A Langston Place, Epping, NSW 1710, Australia

Tel: +61 (02) 9869 4566 Fax: +61 (02) 9869 4547 Email: contact@harlequinfloors.com



THE WORLD DANCES ON HARLEQUIN FLOORS®

PHILADELPHIA LONDON PARIS LOS ANGELES SYDNEY LUXEMBOURG FORT WORTH