



**HARLEQUIN**  
[www.harlequinfloors.com](http://www.harlequinfloors.com)

# Stage Building and Refurbishment



# Harlequin is the world leader in advanced technology floors for dance, performing arts, entertainment and display

Harlequin's reputation is founded on the manufacture and supply of a range of hard-wearing and long-lasting portable and permanent sprung and vinyl floors preferred by dancers and performers at the world's leading venues, from the Royal Opera House, Paris Opera Ballet to the Sydney Opera House.

For over 45 years, Harlequin remains the global leader in its field with offices in Europe, The Americas and Asia Pacific.

## Theatre

Theatre professionals demand hard-wearing stages able to withstand the fit-ups, get-ups and rigging required for every performance. Harlequin works with architects and stage consultants to design, build and install bespoke stage systems.

The Met  
ropolitan  
Opera

THE  
KENNEDY  
CENTER



National  
Theatre

北京当代  
芭蕾舞团 **Boji**  
BEIJING DANCE THEATER

THÉÂTRE  
NATIONAL  
DE  
**chaillo**  
DANSE / THÉÂTRE

TEATRO ALLA SCALA

SADL  
ERSW  
ELLS

ROYAL  
BALLET &  
OPERA

TEATR WIELKI  
OPERA  
NARODOWA

**ADT**  
Australian  
Dance  
Theatre

**H**  
BIRMINGHAM  
HIPPODROME

The Old Vic





# Case Study Lancaster Grand Theatre

## Overview

“Harlequin has been extremely helpful in guiding our trustees and members, explaining the product, how it’s installed and the benefits it brings to our theatre.”

**Ryan Mason**  
Deputy Theatre Manager

Lancaster Grand Theatre has upgraded its auditorium with the installation of a Harlequin Rocksure stage surface, investing in stage quality, consistency and performer confidence.

As the third oldest working theatre in the UK outside of London, this Grade II listed venue continues to serve as a hub for the performing arts, offering a diverse programme of shows throughout the year.

## Project highlights

**Name:** Lancaster Grand Theatre

**Location:** Lancaster

**Project Type:** Theatre stage installation

**Building Type:** Theatre auditorium

**Product Type:** Harlequin Rocksure



# Lancaster Grand Theatre

## The requirement:

Stage renovation with a new stage surface to address increasing maintenance requirements.

## The solution

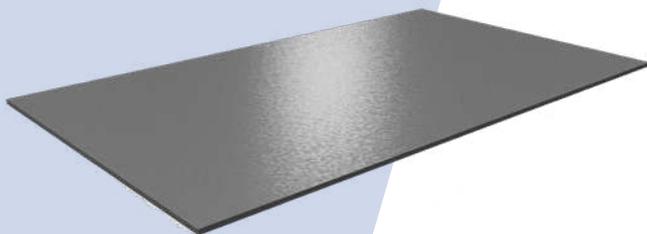
Harlequin Rocksore was fitted by a dedicated team of theatre staff and volunteers. It is designed to deliver a durable, stable and consistently even performance surface.

With the new Harlequin Rocksore stage surface in place, Lancaster Grand Theatre will continue hosting a busy schedule of professional touring companies, as well as amateur drama, music and dance groups.



### Harlequin Rocksore

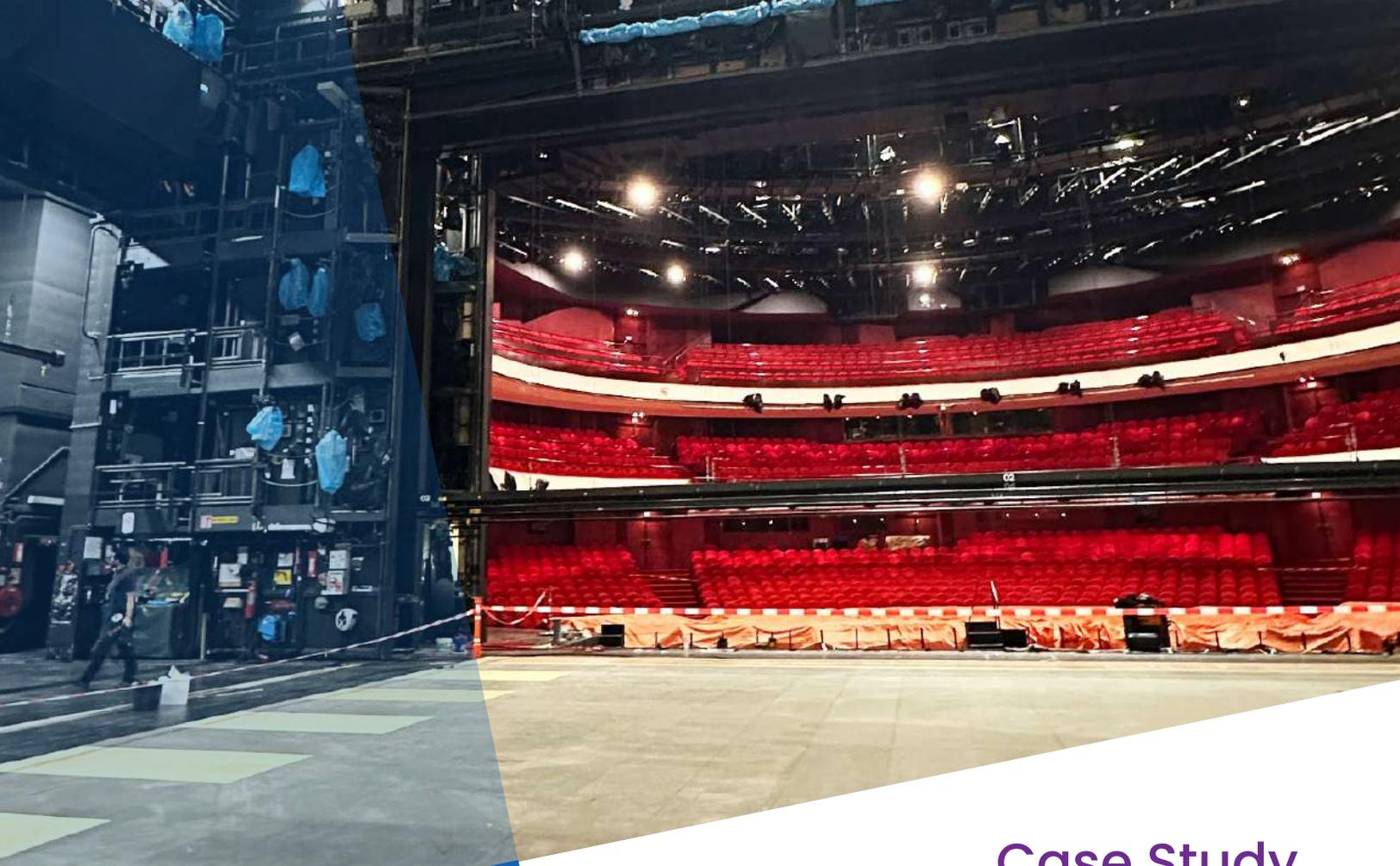
Not to scale



Predrilled - available upon request



As part of a typical stage system build up



# Case Study

# Dutch National Opera & Ballet

## Overview

“The dancers still have a sprung floor which they can continue working on in a safe way. For my technical team and crew, a big benefit is that it saves us a lot of physical work which reduces the chance of any back problems by putting all the panels in.”

**Joost Verlinden**  
Head of Stage

The Dutch National Opera & Ballet has been a client of Harlequin for many years, choosing Harlequin floors for its studios, auditorium and for touring. The Dutch National Opera & Ballet decided it was time to upgrade the main stage by installing Harlequin Liberty Switch.

With numerous productions taking place throughout the year, both the Dutch National Opera and the Dutch National Ballet perform and rehearse on the main stage.

### Project highlights

<b>Name:</b>	Dutch National Opera & Ballet
<b>Location:</b>	Amsterdam, Netherlands
<b>Project Type:</b>	Theatre stage upgrade
<b>Building Type:</b>	Theatre auditorium
<b>Product Type:</b>	Harlequin Liberty Switch®



# Dutch National Opera & Ballet

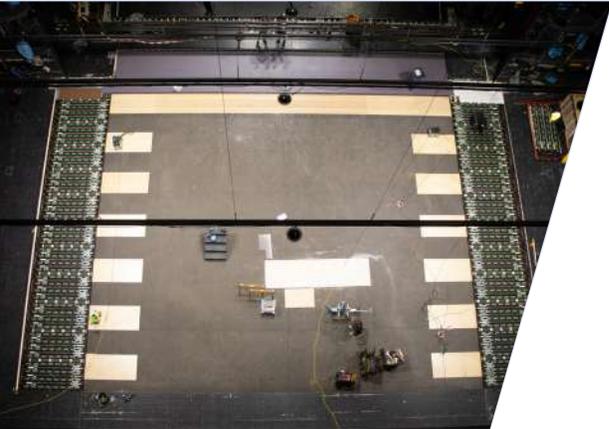
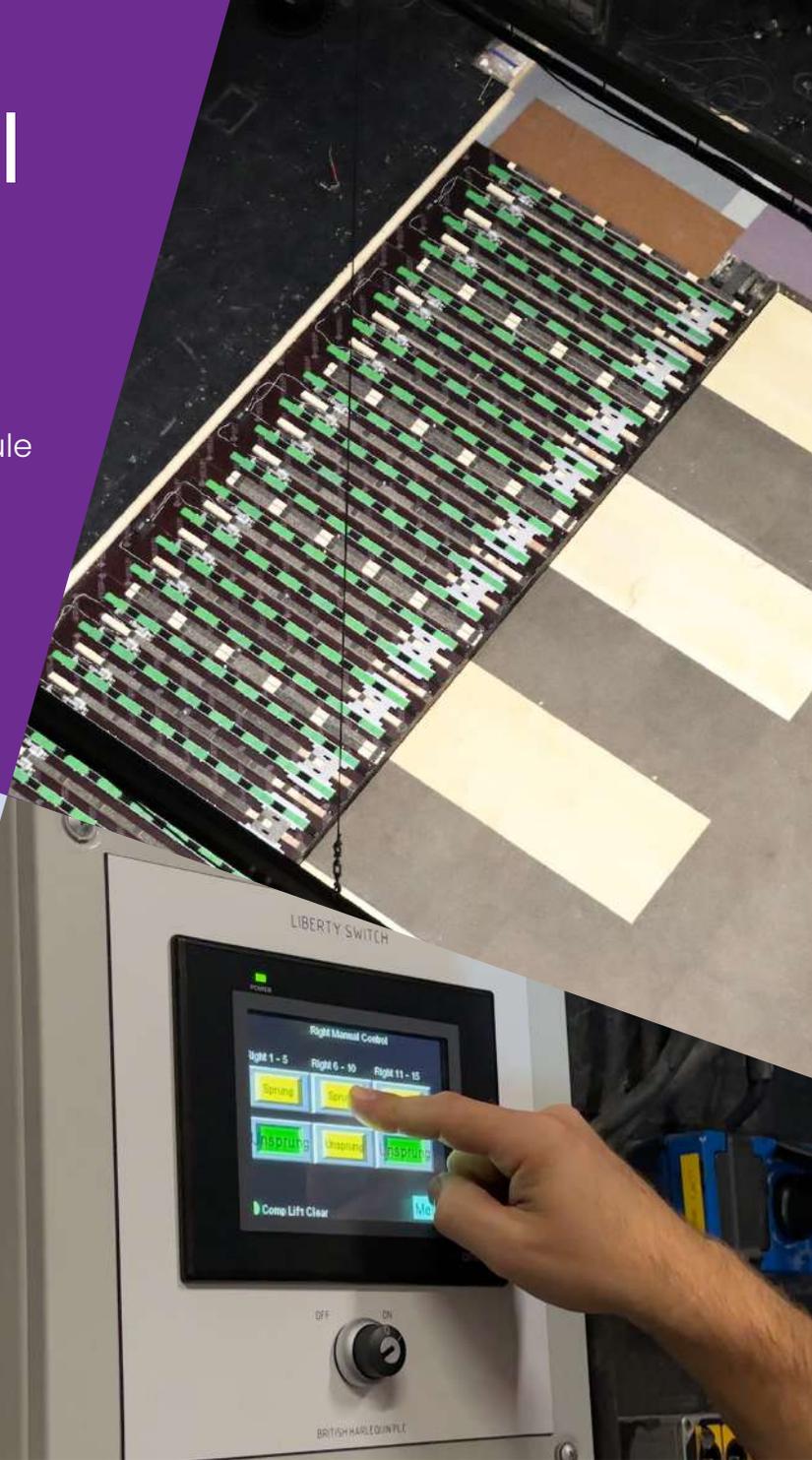
## The requirement:

Complete stage upgrade to support a demanding year-round production schedule for the Dutch National Opera and Dutch National Ballet.

## The solution

By installing Harlequin Liberty Switch, the Dutch National Opera and Ballet were able to continue using the sprung floors on their ballet wagon stored in the rigging, while eliminating the need to handle and store the additional panels that were previously kept on carts and moved in and out each day.

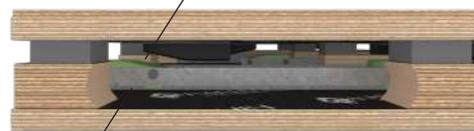
With the surface changing at the touch of a button, Harlequin Liberty Switch significantly reduces daily manual handling for the technical team, saves valuable time and frees up essential backstage storage space.



## Harlequin Liberty Switch®

Harlequin Liberty Switch is a modular multi-use floor that transforms from a rigid stage floor into a high-quality sprung floor designed for dance, protecting performers by reducing the risk of injury.

The upper panels are standard Harlequin Liberty with the addition of low-friction blocks on the underside.



The base units house a series of moving carriages connected by straps running on high-strength carrier rails powered by actuators. Each actuator and associated controller are linked to a master control unit located off-stage.



## Case Study

# Eventim Apollo

### Overview

“With such a busy and varied schedule, it was vital for us that we upgraded our stage to the best industry standard. It’s great to know that we now have a stage protected and prepared for the next generation of shows and events here at the Eventim Apollo.”

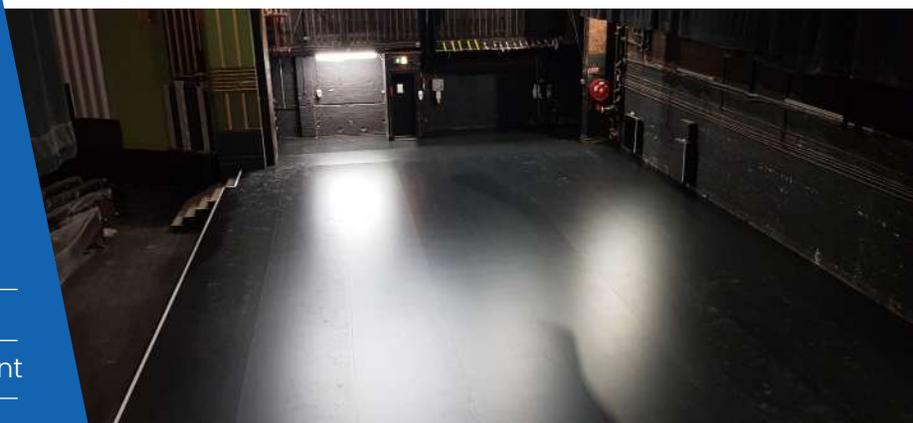
**Josh Clague**  
Production Manager

The Eventim Apollo, formerly the Hammersmith Apollo, is one of the UK’s largest original theatres. Designed by architect Robert Cromie, it first opened in 1932 and is one of London’s major live entertainment venues.

The Apollo has seen some of the finest live entertainers on stage including The Beatles, Sir Elton John and Kylie Minogue.

### Project highlights

<b>Name:</b>	Eventim Apollo
<b>Location:</b>	Hammersmith, London
<b>Project Type:</b>	Theatre stage refurbishment
<b>Building Type:</b>	Theatre auditorium
<b>Product Type:</b>	Harlequin Stage System / Harlequin Standfast vinyl



# Eventim Apollo

## The requirement:

The stage had not been refurbished since 1980 so a complete stage refurbishment was required with additional custom stage building.

## The solution

Harlequin supplied and installed the 277 m<sup>2</sup> bespoke Harlequin Stage System topped with Harlequin Standfast vinyl performance floor.

Harlequin removed the old vinyl, plywood and original hardwood stage surface. Then the old electrical wiring and water pipes that were no longer in use had to be taken out before the installation could commence.

A liquid damp proof membrane was applied and layers of fire-retardant ply were placed around the metal conduits that could not be removed. The battens were laid to a laser level to ensure a flat surface and had acoustic isolation pads attached at predetermined centres.

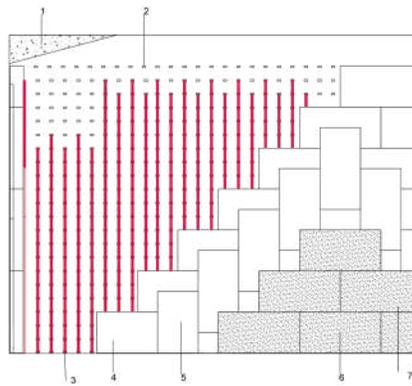
The stairs to both sides of the stage were custom-made to keep the tread distance the same and to make sure the height matched.

Harlequin also installed a 50 mm strip of white vinyl along the downstage edge of the stage to ensure the performers could see the end of the stage during shows.

The stage surface was finished with a permanently installed black Harlequin Standfast performance floor.



## Bespoke Harlequin Stage System



1. Concrete slab
2. Acoustic isolation pad
3. Timber batten
4. 1st layer plywood
5. 2nd layer plywood
6. Flooring grade plywood
7. Harlequin Standfast vinyl

### Harlequin Standfast™ (Black)



Homogeneous PVC  
with a slip-resistant  
performance surface



# Case Study Royal & Derngate Theatre

## Overview

The Royal & Derngate Theatre is a multi-purpose space which can be configured for a variety of performances. Harlequin's stage refurbishment project was the first restoration undertaken since 2005 when the theatre was first re-developed.

“ I would like to pass on our gratitude for the work that Harlequin have done on the project. The team's tireless commitment, sheer graft and willingness to work with us is greatly appreciated. ”

David Reeve  
Technical Manager

## Project highlights

<b>Name:</b>	Royal & Derngate Theatre
<b>Location:</b>	Northampton
<b>Project Type:</b>	Theatre stage refurbishment
<b>Building Type:</b>	Theatre auditorium
<b>Product Type:</b>	Harlequin Stage System / Harlequin Standfast
<b>Product Timescale:</b>	3 weeks



# Royal & Derngate Theatre

## The requirement:

Complete stage refurbishment, including installation of a new stage surface.

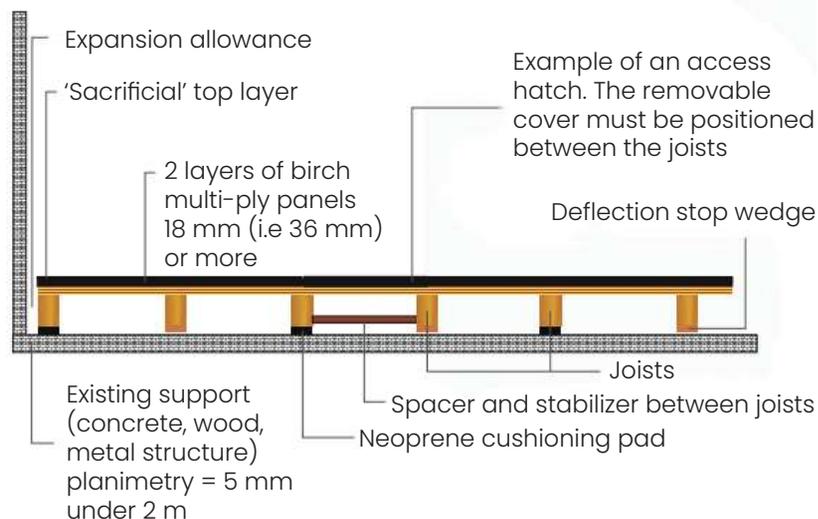
## The solution

A comprehensive multi-layered Harlequin Stage System. Harlequin fitted new battens to strengthen the stage over which a further double-layer of wood ply was installed. The stage surface was finished with a black Harlequin Standfast vinyl performance floor.

The complete refurbishment project covered the entire stage area incorporating wings, lifts, orchestra pit and retractable removable seating.

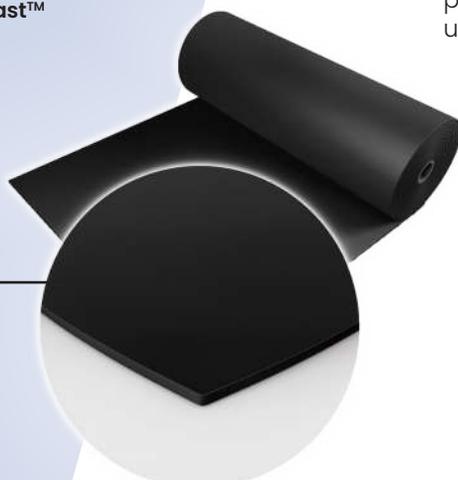


## Cross section of the Harlequin Stage System



## Harlequin Standfast™ (Black)

Homogeneous PVC with a slip-resistant performance surface





# Case Study

# Guildhall School of

# Music & Drama

## Overview

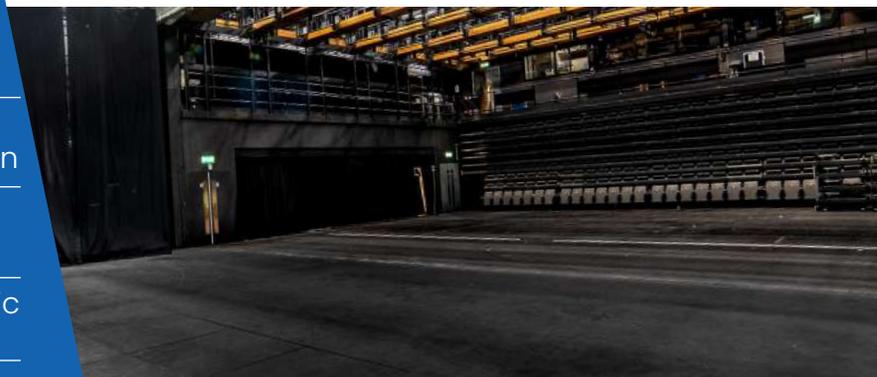
“ There was a very tight timescale on the project and considerable challenges to achieve a level finish suitable for the various stage configurations. Harlequin was proactive in identifying solutions and the project was completed on time and achieved the stage strengthening objective with considerable improvement to the aesthetic appearance. ”

**Hannah Bibbins**  
Senior Project Manager Barbican

The stage for the Silk Street Theatre in the Barbican Centre, London was first installed in 1986. Harlequin's refurbishment project included a demountable centre section; an orchestra lift which drops 30 feet and balustrade; new auditorium flooring and wings; a row of 28 original cloth traps to the back of the stage and dip traps to the sides.

### Project highlights

<b>Name:</b>	Guildhall School of Music & Drama
<b>Location:</b>	Silk Street Theatre, Barbican Centre, London
<b>Project Type:</b>	Black Box theatre stage refurbishment
<b>Building Type:</b>	Higher education / Music College
<b>Product Type:</b>	Harlequin Stage System
<b>Product Timescale:</b>	3 weeks



# Case Study

# Guildhall School of Music & Drama

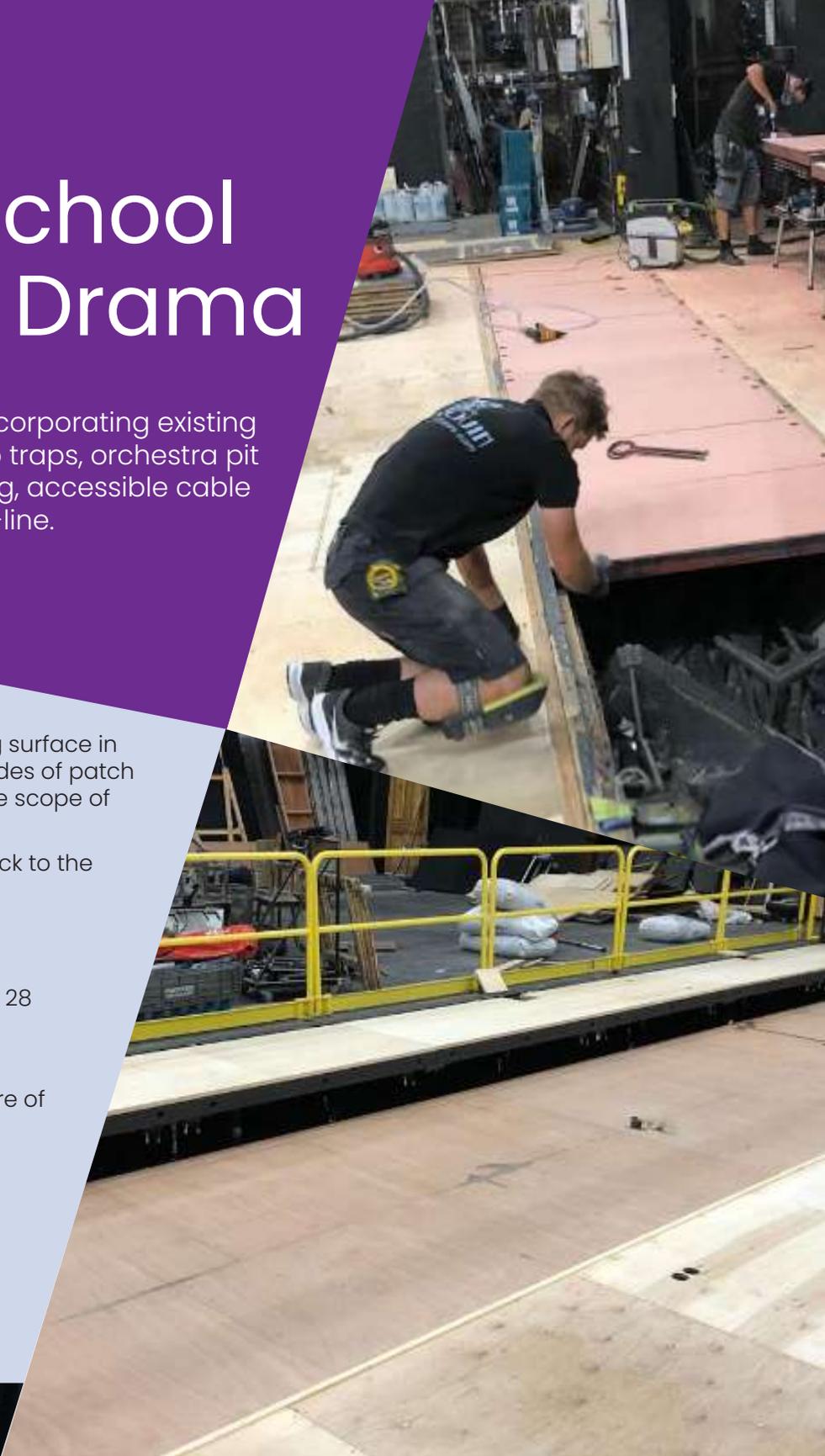
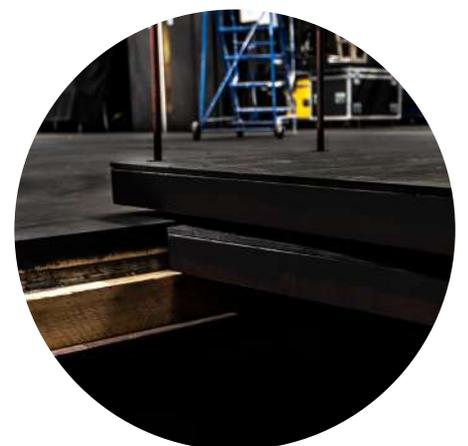
## The requirement:

A new Harlequin Stage System incorporating existing features including cloth traps, dip traps, orchestra pit and balustrade, hardwood edging, accessible cable run with lids and bespoke centre-line.

## The solution

Harlequin carefully removed the existing surface in sections to assess the build-up of decades of patch repairs and paint layers, determining the scope of work required.

- Removal of the existing top surface back to the joists
- Replacement of damaged joists
- Installation of new fire retardant ply
- Bespoke made-to-measure covers for 28 cloth traps
- Hardwood edge trims for dip traps
- New demountable top surface to centre of stage
- New centre-line stage demarcation installed
- New front hardwood safety edge installed
- Sacrificial layer painted with black stage paint





# Case Study

# Théâtre National de Marseille

# La Criée

## Overview

Site of the historic fish market in the old Port - Théâtre National de Marseille La Criée was founded in 1981. Behind the preserved facade, the theatre hosts contemporary theatre and dance performances across two auditoriums.

“ We were looking for a performance floor that has shock-dampening qualities and is the right flexibility for dance but also robust enough. The Harlequin Stage System perfectly meets all these criteria. With impeccable service from Harlequin teams who were very attentive to our needs and respected the commitments made during site meetings and in record time! ”

**Yves Giacalone**  
Technical Director

### Project highlights

<b>Name:</b>	Théâtre National de Marseille La Criée
<b>Location:</b>	Marseille, France
<b>Project Type:</b>	Theatre stage
<b>Building Type:</b>	Public commercial
<b>Product Type:</b>	Harlequin Stage System 380 m <sup>2</sup>



# Case Study

# Théâtre National de Marseille La Criée

## The requirement:

Installation of a 380 m<sup>2</sup> beech wood theatre stage system with a removable performance surface. Designed to provide sound dampening, long-term durability and a replaceable top layer to protect against scenery damage.

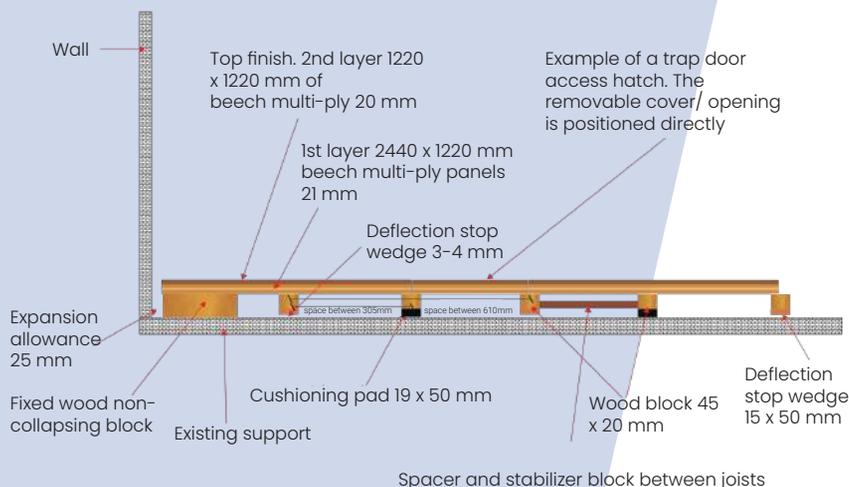
## The solution

Harlequin Stage System bespoke stage sprung floor system and performance top surface was installed in the 380 m<sup>2</sup> stage customised to accommodate specialist technical requirements.

## About Harlequin Stage System

Theatre professionals recognise the need for a stage robust enough to endure repeated fit-ups, get-outs and rigging for every production, while safely supporting trucks, flats and scissor lifts.

Harlequin work alongside architects and stage consultants to design, build and install stages which will satisfy this need for strength, as well as being easy to maintain and flexible, with the optional inclusion of dip traps, orchestra pit fillers and provision for trap doors and ballet wagons.



## Stage construction

Whilst each stage is different and may require its own solution, Harlequin use established methods of construction and specially selected materials.

The stage construction itself may be assembled onto an existing concrete base, timber or steel beams, onto which joists are positioned with their centres matched to the requirements for loading and durability.

Onto this is laid a durable exterior grade birch plywood topped with the surface selected to fit the needs of the venue.

For customers requiring the most traditional craftsmanship, Harlequin also construct floors made from prime quality, specially selected and long lasting Oregon Pine.

## Stage refurbishment

When an existing stage floor finds itself in need of refurbishment, Harlequin offer a range of services including:

- Sanding and repainting existing wooden floors
- Replacement of a 'sacrificial' hardwood top layer
- Rebuilding, repair or reconfiguration of stage





## Case Study

# Shaw Theatre

### Overview

Originally built in 1971 and known as the Library Theatre, the Shaw Theatre was fully refurbished in 1998 and renamed after George Bernard Shaw (1865 - 1950) who lived in the Kings Cross area in his later life.

Now owned and operated within the Pullman St Pancras Hotel, the 446-seat theatre underwent an extensive refurbishment following its closure in 2018 due to a fire.

The theatre hosts a wide variety of productions and performances and has a long-standing partnership with the Urdang Academy.

“You are the best in the business and that’s why everyone recommended you to me.”

**Ellen Frost**  
Theatre Manager

### Project highlights

<b>Name:</b>	Shaw Theatre
<b>Location:</b>	Pullman London St Pancras Hotel / Part of ACCOR Group
<b>Project Type:</b>	Theatre stage refurbishment
<b>Building Type:</b>	Commercial / Hotel
<b>Product Type:</b>	Harlequin Stage System / dip traps / Harlequin Standfast vinyl surface



# Case Study Shaw Theatre

## The requirement:

Fire damage meant the entire stage needed to be re-built.

## The solution

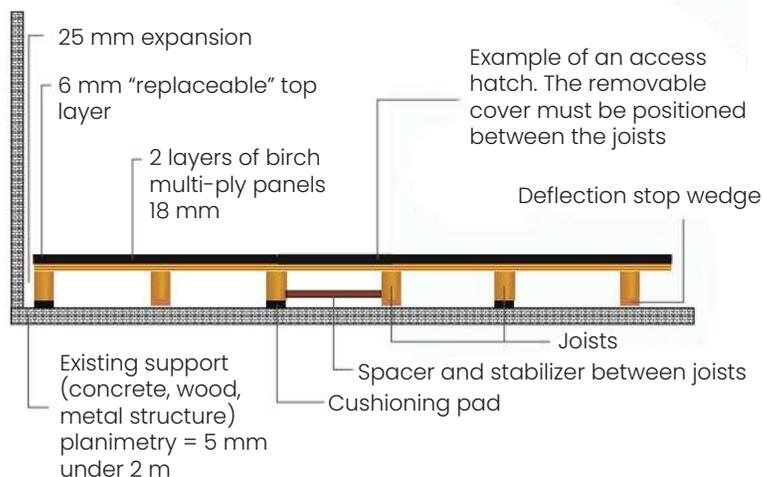
A bespoke Harlequin Stage System was supplied and installed by removing the top two surfaces down to the stripwood layer, and cut into the under-structure to build two rows of dip traps, before laying Harlequin Standfast vinyl performance floor.

Whilst each stage is different and may require its own solution, Harlequin use established methods of construction and specially selected materials.

The stage construction may be assembled onto an existing concrete base, timber or steel beams, onto which joists are positioned with their centres matched to the requirements for loading and durability. Onto this is laid a durable exterior grade birch plywood topped with the surface selected to fit the needs of the venue.

Harlequin work alongside architects and stage consultants to design, build and install stages including dip traps, orchestra pit fillers and provision for trap doors and ballet wagons as required.

## Cross section of the Harlequin Stage System Sprung Floor



Harlequin Standfast™  
(Black)



Homogeneous PVC  
with a slip-resistant  
performance surface





## Case Study

# Chaillot National Dance Theatre

### Overview

“ The right floor is something absolutely essential for theatre and even more so for dance as it ensures the quality of the performance. ”

**Didier Deschamps**  
Director

#### Project highlights

**Name:** Chaillot National Dance Theatre - Firmin Gémier Dance Studio

**Location:** Paris, France

**Project Type:** Theatre studio refurbishment

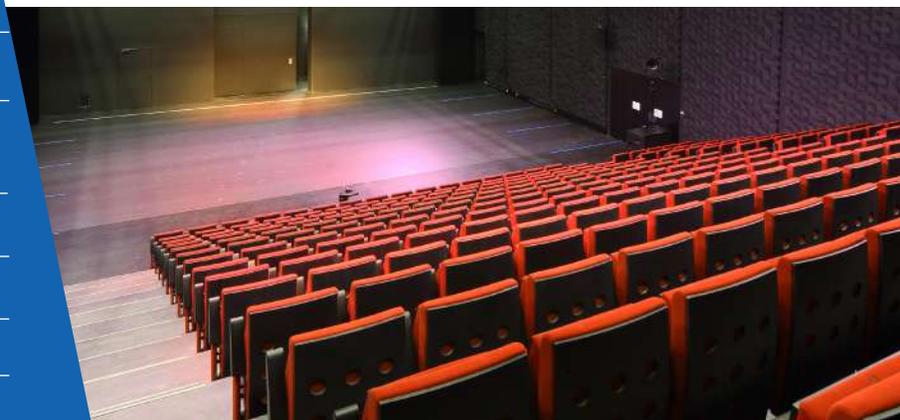
**Building Type:** Commercial

**Product Type:** Harlequin Stage System

**Architect:** Brossy & Associés (Paris)

The Chaillot National Dance Theatre is one of the largest theatres for contemporary dance in Paris. A major renovation of the building led by France's Ministry of Culture and Paris architect Vincent Brossy has transformed the Firmin Gémier Studio.

Benot André, secretary general, said to *Télérama*, of the state of the art modification: "It is ultra modular. The stands are retractable, 390 people can be seated. In addition, we have the Rolls Royce floors, with a double cushioning system. Depending on the impact of the dancer on the ground, a first cushioning softens the shock and if necessary a second takes over."



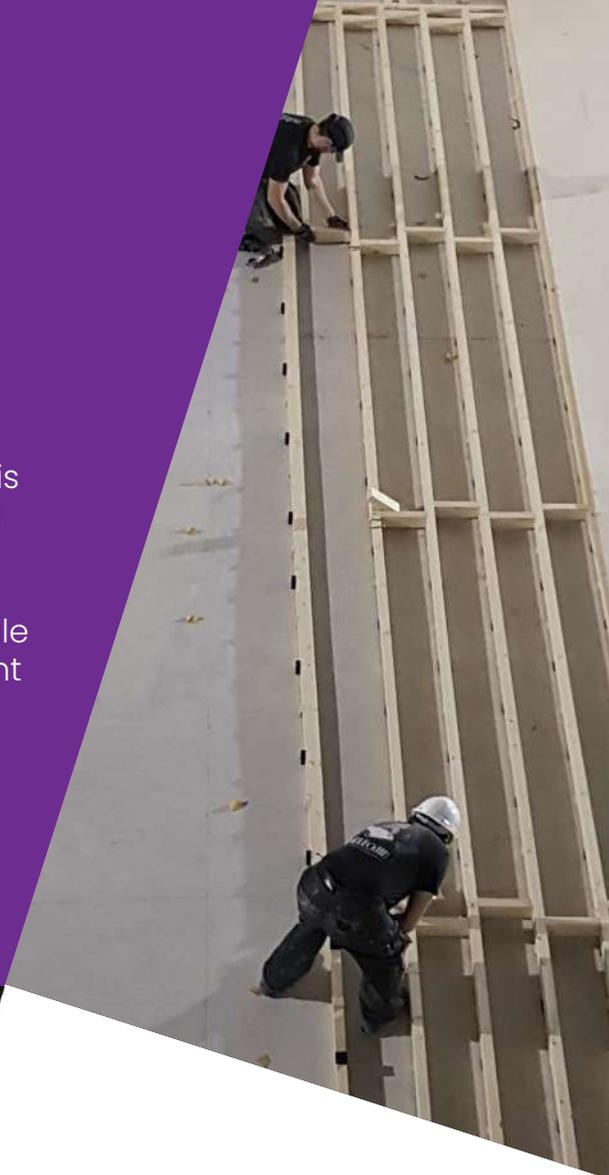
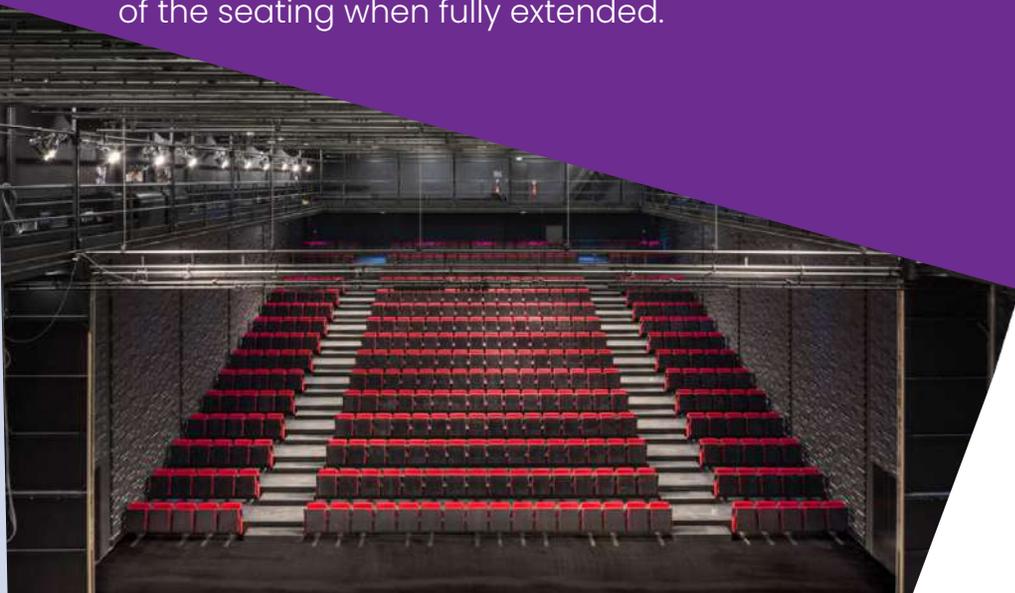
## Case Study

# Chaillot National Dance Theatre

### The requirement:

The theatre required a flexible, multi-purpose solution. This included retractable seating that could be rolled out and folded away to reveal the stage floor.

The floor needed to meet performance requirements while withstanding heavy loads, including supporting the weight of the seating when fully extended.



### The solution

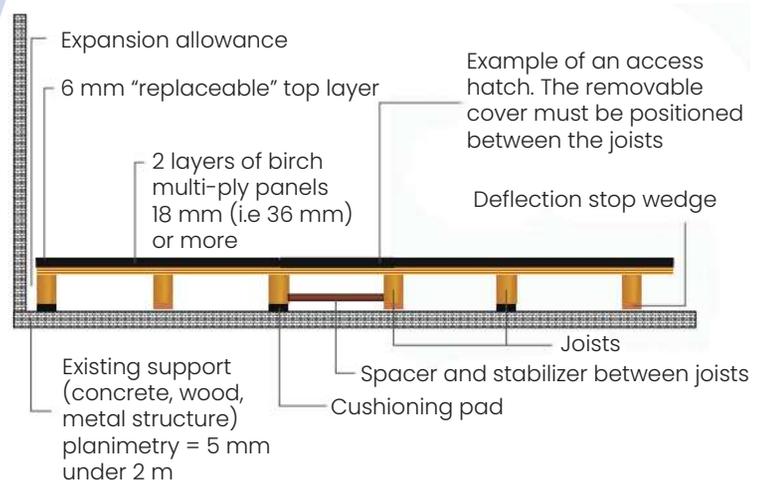
To meet all criteria, Harlequin supplied and installed a 475 m<sup>2</sup> bespoke Harlequin Stage System, comprising sprung floor panels with a vinyl dance surface finish.

Whilst each stage is different and may require its own solution, Harlequin use established methods of construction and specially selected materials.

The stage construction itself may be assembled onto an existing concrete base, timber or steel beams, onto which joists are positioned with their centres matched to the requirements for loading and durability. Onto this is laid a durable exterior grade birch plywood topped with the surface selected to fit the needs of the venue.

Harlequin work alongside architects and stage consultants to design, build and install stages which will satisfy this need for strength, as well as being easy to maintain and flexible with the optional inclusion of dip traps, orchestra pit fillers and provision for trap doors and ballet wagons.

### Cross section of the Harlequin Stage System sprung floor



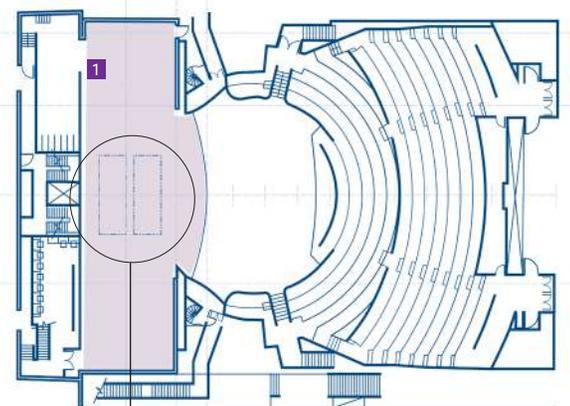
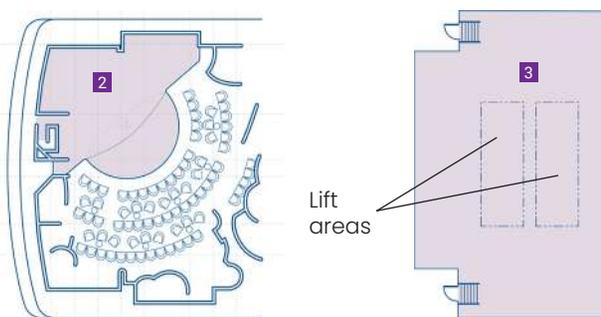


Harlequin Cascade vinyl floor was installed to the plywood sub-floor of the main stage and cut to fit around Serapid tracks, traps and stage lifts.

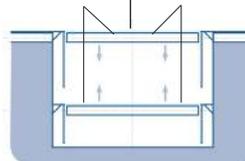
A special screed was laid directly onto the metal deck immediately below the main stage and Harlequin Marine was installed onto the screeded area, including the surface of the stage lifts.

Harlequin Cascade was installed onto the plywood surface of the fixed stage area and revolve stage extension of the Explorer Lounge.

Initial fit-out/re-fits of Main Stage; Explorers Lounge & Deck 5 Scenery Store. Work is usually carried out whilst in dry dock but sometimes whilst ship is in service.



Harlequin Marine™ Stage lifts

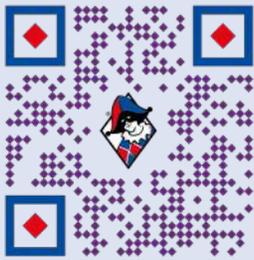


Cross section of below stage storage area with stage lifts

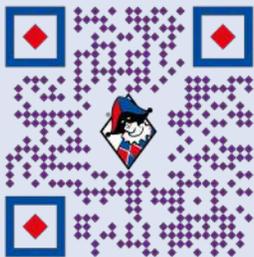
Harlequin Cascade and Harlequin Marine vinyl floor

Floor dimensions:

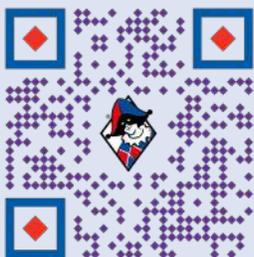
- 1 Main stage - 30.10 m x 10.85 m max at curved end - Total area: 256 m<sup>2</sup>
- 2 Scenery Store - 13.5 m x 8.5 m - Total area: 109m<sup>2</sup>
- 3 Explorer Lounge - Total area: 168 m<sup>2</sup>



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About Us



Who we work with