

# Soundforms

ACOUSTICALLY AND AESTHETICALLY UNIQUE CONCERT HALL STAGES





## Evolution of Soundforms

In 2010 conductor Mark Stephenson, architects Jason Flanagan & Paul Bavister, acoustician Ian Knowles and staging specialist Oliver Watts joined forces, their mission was to create a high quality open-air stage, a step-jump improvement acoustically and aesthetically on traditional tented stages, a gap in the open-air concert staging market,

A company was formed, SOUNDFORMS, and the investment was raised to design and build a prototype mobile acoustic performance shell (MAPS).

The prototype was successfully tested and demonstrated in March 2012 with the London Philharmonic and was immediately deployed in the Olympic Park, London 2012, where over 1000 musicians and bands performed in the performance shell over 5 weeks, sponsored by Universal Music

Following the deployment of the prototype shell in the Olympic Park, London 2012, the shell underwent further evolution, and the following elements were optimised:

- The sight-lines are wider without compromising the acoustics. The skin is tensile, not semi-inflatable.
- The structure is stronger steel, over aluminium.
- The structure is now formed of ladder trusses, rather than a three-chord truss system, so it packs away more efficiently.
- The stage space is bigger, but the overall footprint has been reduced.
- The acoustic panels are hidden, and easier to install

In 2015 the San Diego Symphony was introduced to Soundforms by the London artist and management agency Harrison Parrott.

The San Diego Symphony opted for an upsized, customised, permanent version of the Soundforms Olympic Park Shell for its spectacular new bayside performance park, named after its major donors, The Rady Shell at Jacobs Park, and which opened to a fanfare of international publicity in July 2021. A 24/7 showcase for Soundforms.



## Products

Permanent open-air acoustic stage in an acoustic shell, made to measure

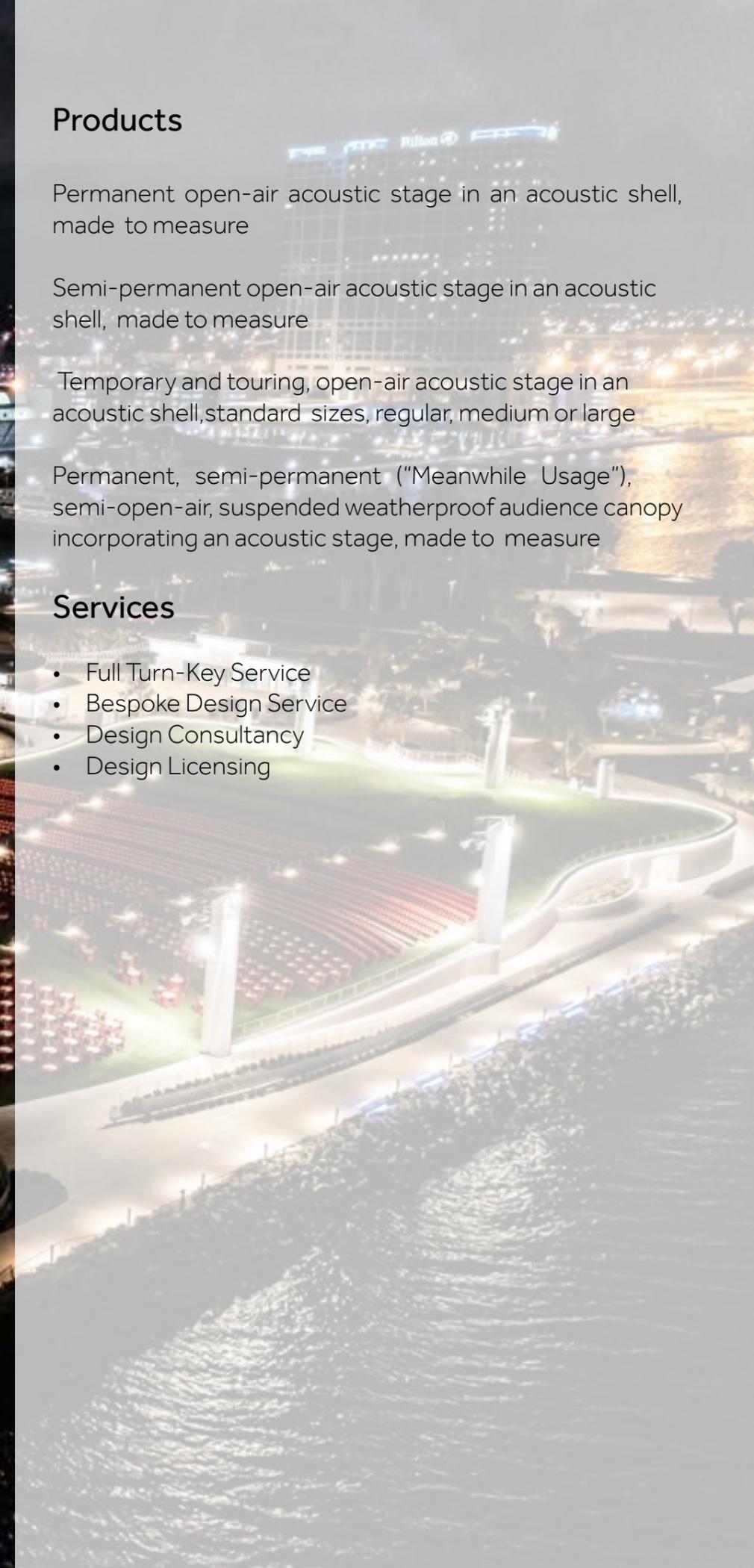
Semi-permanent open-air acoustic stage in an acoustic shell, made to measure

Temporary and touring, open-air acoustic stage in an acoustic shell, standard sizes, regular, medium or large

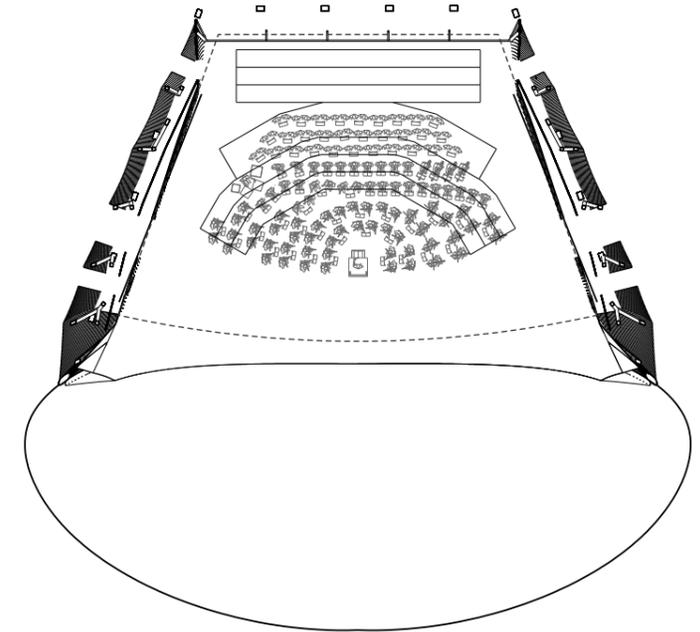
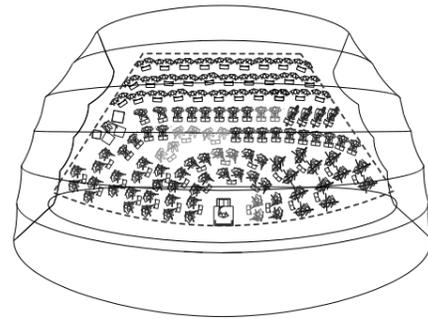
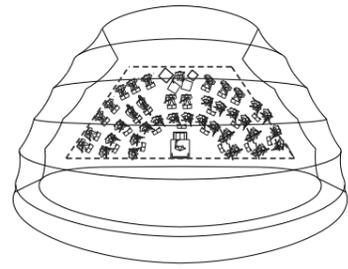
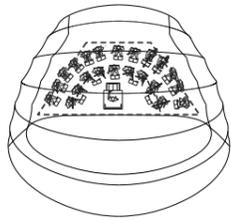
Permanent, semi-permanent ("Meanwhile Usage"), semi-open-air, suspended weatherproof audience canopy incorporating an acoustic stage, made to measure

## Services

- Full Turn-Key Service
- Bespoke Design Service
- Design Consultancy
- Design Licensing



# Stage Sizes and Capacity



Regular

Medium

Large

San Diego Performance Shell

Scale comparisons of available sizes ...

## Stage Sizes and Capacity

### Regular

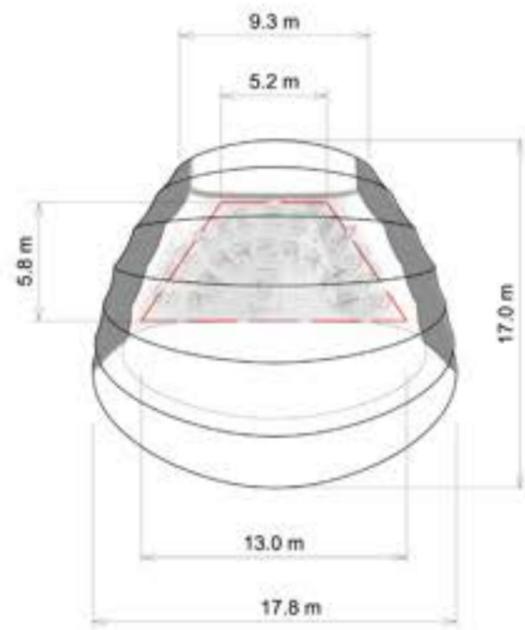
Platform size: 53 m<sup>2</sup>

Max platform capacity: 24 Musicians

Natural Acoustic throw: 1000 persons

Payload: 10 tonnes.

Skin surface area: 300m<sup>2</sup>



01 PLAN - REGULAR  
1:200

### Medium

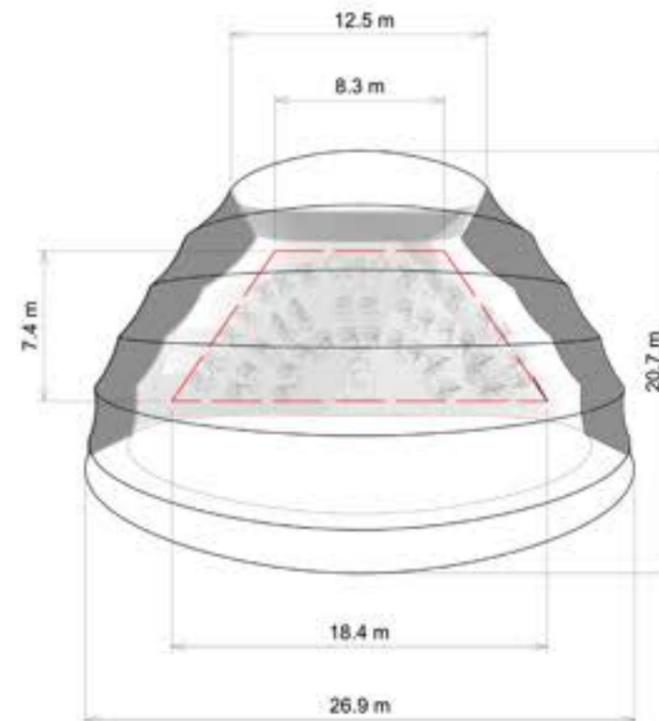
Platform size: 98 m<sup>2</sup>

Max platform capacity: 48 Musicians

Natural Acoustic throw: 1500 persons

Payload: 20 tonnes.

Skin surface area: 600m<sup>2</sup>



02 PLAN - MEDIUM  
1:200

### Large

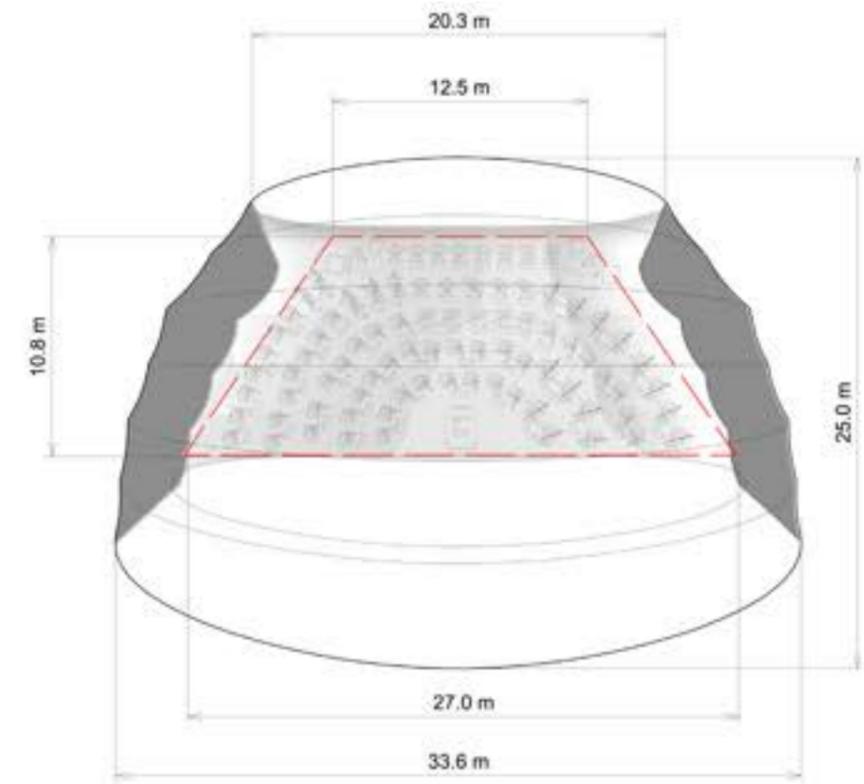
Platform size: 211 m<sup>2</sup>

Max capacity: 75 Musicians

Natural Acoustic throw: 2000 persons

Payload: 30 tonnes.

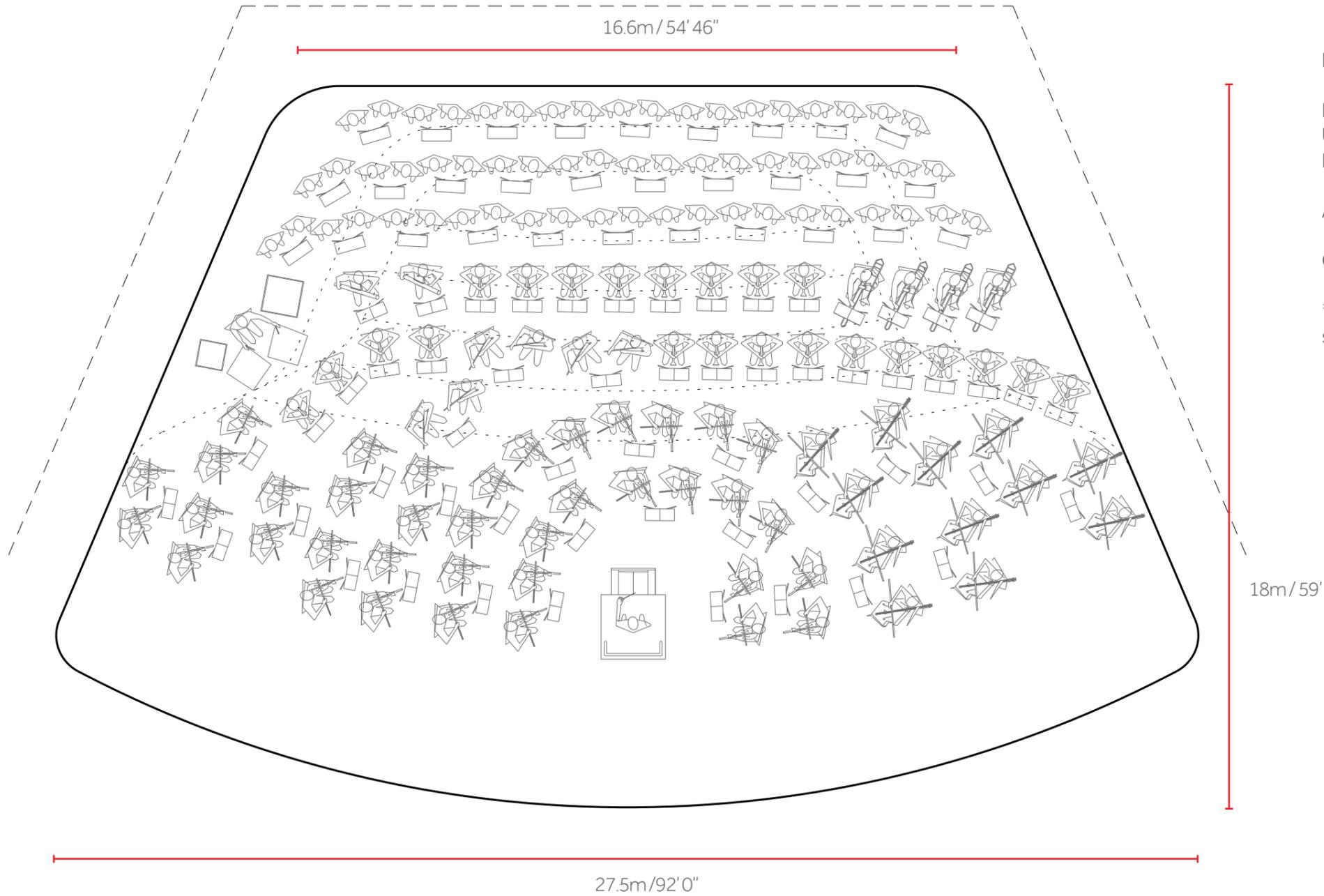
Skin surface area: 1000m<sup>2</sup>



03 PLAN - LARGE  
1:200

# Stage Sizes and Capacity

Key Dimensions of the San Diego Performance Shell ...



Key dims:

Downstage width: 27.5m / 92' 0"

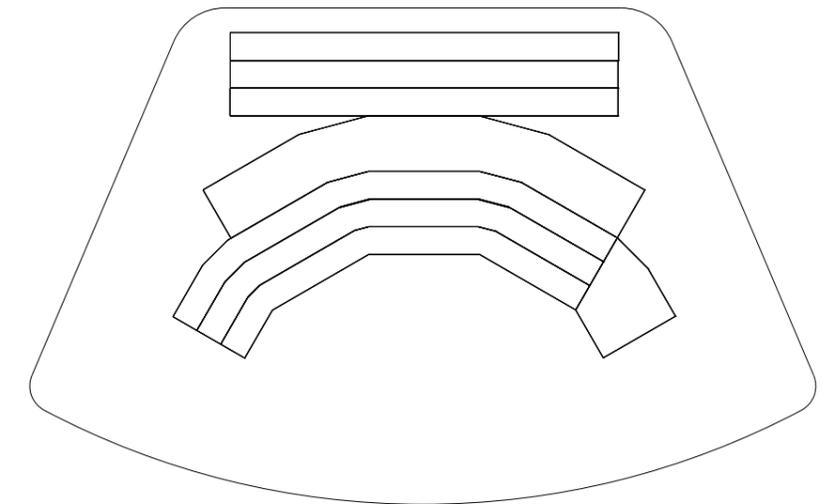
Upstage width: 16.6m / 54' 46"

Depth: 18m / 59'

Area: 397m<sup>2</sup> / 4273' 27" (Approx.)

Capacity: 145 musicians (Indicative layout shown)

\*This shows the usable space available to the operator. It does not show wing space, access, circulation and other 'on stage' requirements.



Indicative riser layout

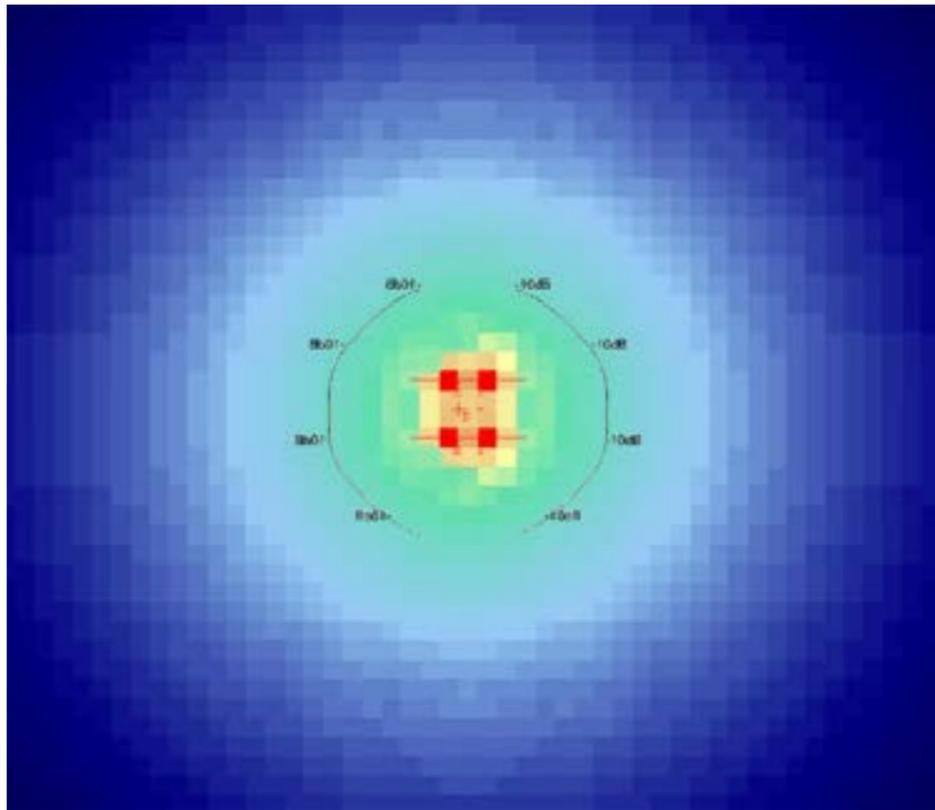


## Weather Proof Canopy

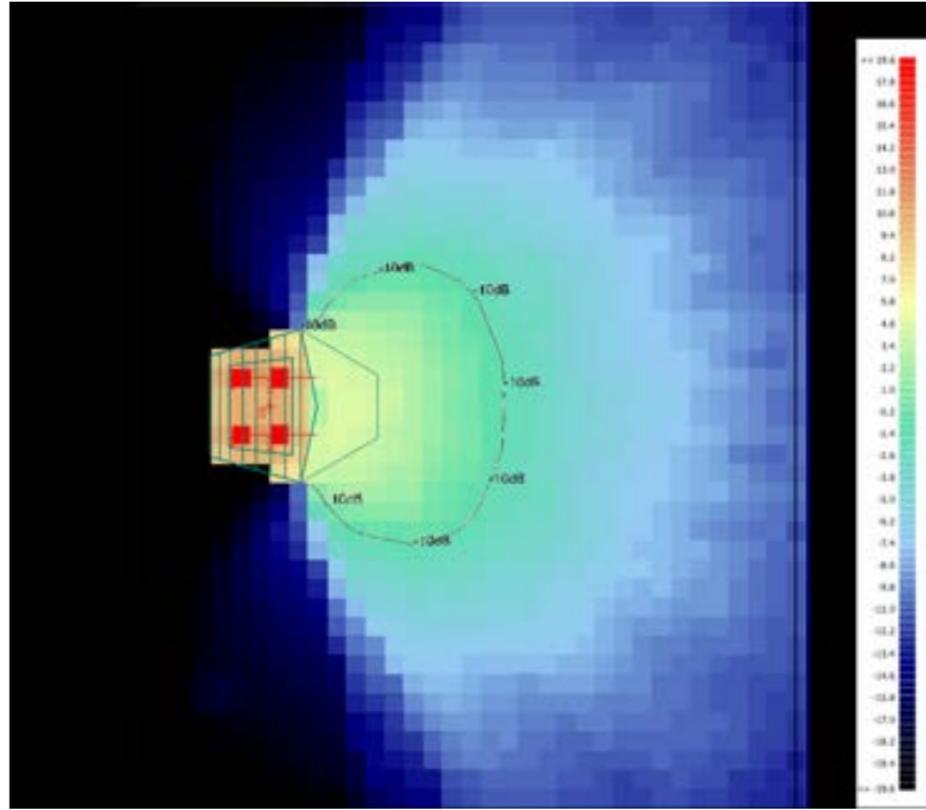
A new Soundforms development for temperate and variable climates. An audience of up to 5,000 is covered, opening out onto an open-air audience of up to 10,000.

The Summer Theatre in Szczecin, Poland (photo), by the architectural practice Flanagan Lawrence (Partner) has a suspended roof which acts as a canopy for an audience of up to 3000.

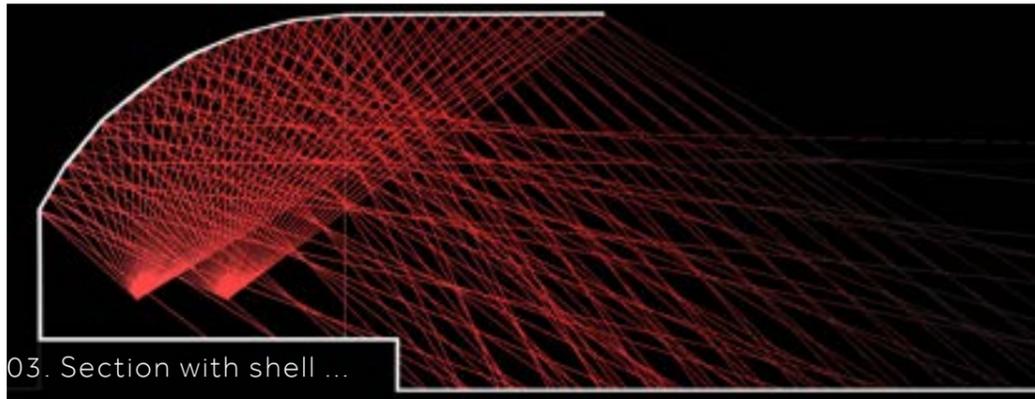
A Soundforms audience canopy opens out onto an open-air audience of up to 10,000 and incorporates a Soundforms acoustic stage.



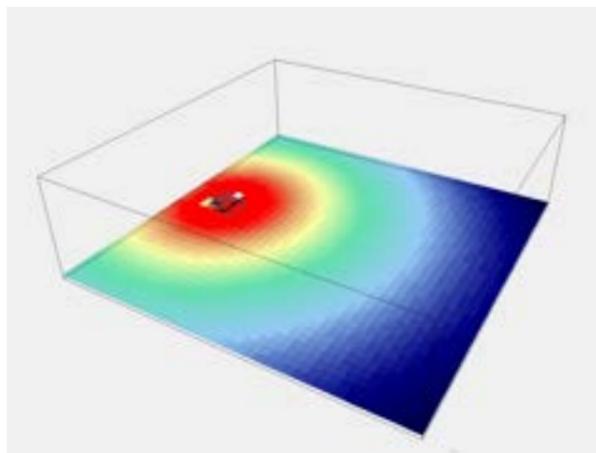
01. Without shell ...



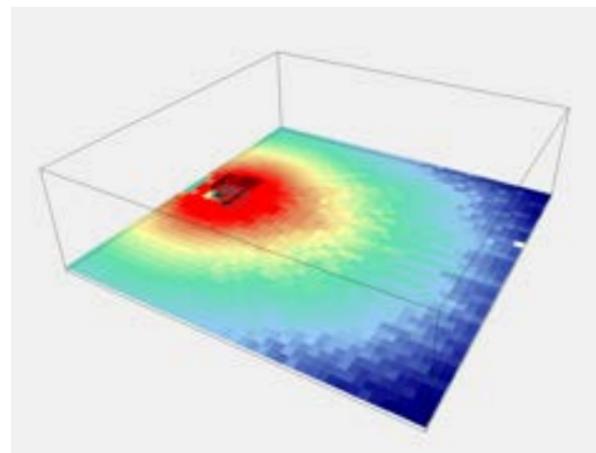
02. With shell ...



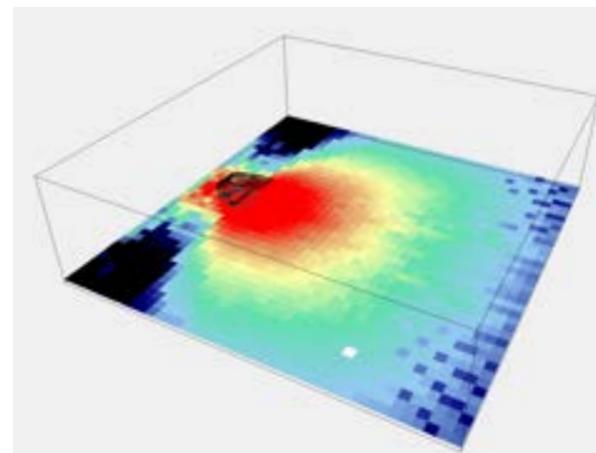
03. Section with shell ...



04. Without shell ...



05. With top ...



06. With top and sides.

## Acoustics & Sound

Traditional orchestra shells used in internal situations such as theatres or churches, rely on the sound reflection caused by the internal surfaces of the building. This assists the sound level on the audience plane. In outdoor situations there is a lack of reflection from the environment.

To increase the sound level to the audience a 'peak' has been designed to project beyond the conductor, reflecting as much sound as possible towards the audience.

The images below show the sound reflections (in red) from a sound source on the platform with and without the orchestra shell peak (images 01, 02). The "peak effect", shows the additional benefit of sound reflections that the peak and shell are able to direct towards the audience (image 03).

The images above these represent the distribution of sound, with and without the enclosure and peak. Traditionally, canvas performance canopies disperse the sound evenly around the stage, A. With the orchestra shell in place, the sound is focused towards the audience, B.

Loudness contours relative to the conductor position are presented above, and images A & B represent the final analysis showing the overall improvement obtained using the orchestra shell without peak, image A, and with peak, image B.

There are a different acoustic configurations available to develop a bespoke shell to suit any requirements:

**01.** A 'natural' acoustic developed by ARUP comprising natural materials arrayed in such a way as to generate an appropriate level of on stage support for a performer or performers.

**02.** For larger scale installations 'Constellation' by Meyer Sound (Partner) can be installed. Constellation is a flexible and highly refined system of active acoustics. By applying digital signal processing coupled to multiple ambient sensing microphones and an array of evenly distributed lateral and overhead loudspeakers, Constellation extends the reverberant characteristics in the space to create the optimum acoustical environment for playing orchestral music. Constellation is not a "PA system" or a "surround sound system".

**03.** For open-air audiences of over 2000 the L-Acoustics K2 PA can be installed which projects orchestral performances across a wide open-air venue with the impact and grandeur of a majestic concert hall space thanks to a 7.1 immersive surround design. The L-Acoustics system flexibly suits different types of performances and musical content. The careful deployment of subwoofers provides full bandwidth directivity control, achieving strict compliance with local noise management regulations without compromising audience enjoyment. The white loudspeaker arrays blend with the stunning Soundforms shell design to ensure that the ensemble remains aesthetically pleasing and well-suited to projection mapping uses.

(Images by ARUP 2010)



## Benefits

Soundforms and its world-class consortia of partners offer a flexible one-stop shop which provides clients with all the expertise and specialisms they require.

Customised open-air concert stages of the highest quality

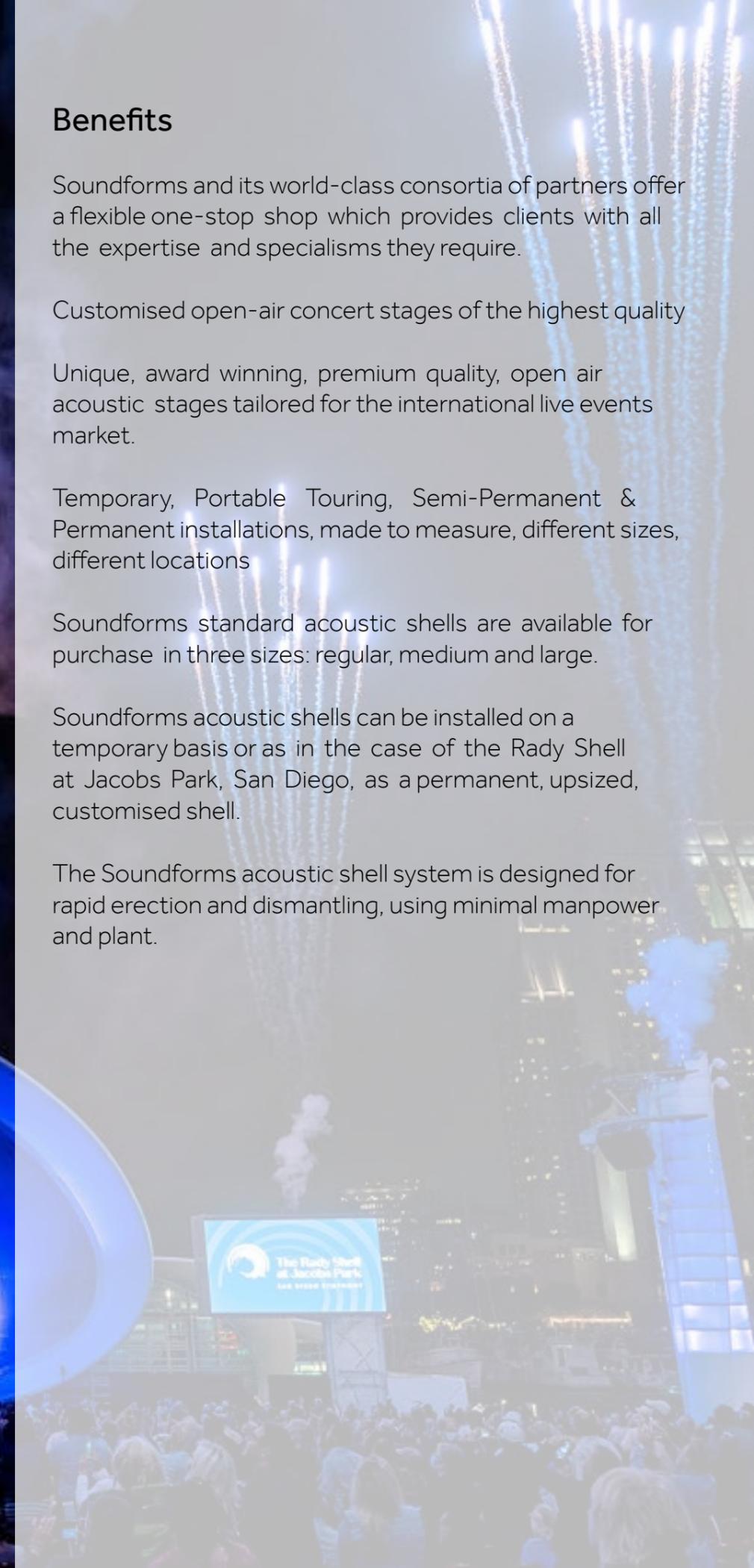
Unique, award winning, premium quality, open air acoustic stages tailored for the international live events market.

Temporary, Portable Touring, Semi-Permanent & Permanent installations, made to measure, different sizes, different locations

Soundforms standard acoustic shells are available for purchase in three sizes: regular, medium and large.

Soundforms acoustic shells can be installed on a temporary basis or as in the case of the Rady Shell at Jacobs Park, San Diego, as a permanent, upsized, customised shell.

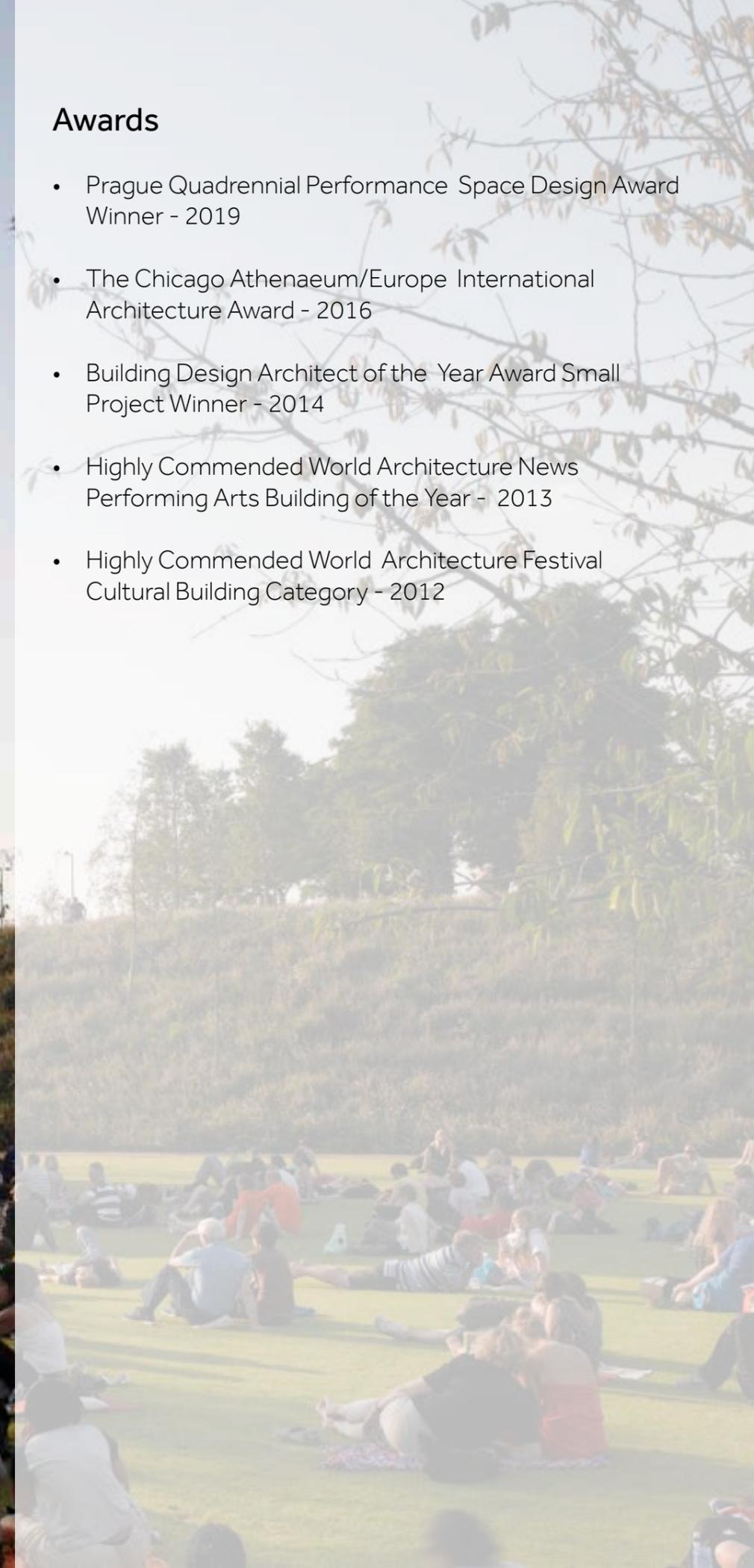
The Soundforms acoustic shell system is designed for rapid erection and dismantling, using minimal manpower and plant.





## Awards

- Prague Quadrennial Performance Space Design Award Winner - 2019
- The Chicago Athenaeum/Europe International Architecture Award - 2016
- Building Design Architect of the Year Award Small Project Winner - 2014
- Highly Commended World Architecture News Performing Arts Building of the Year - 2013
- Highly Commended World Architecture Festival Cultural Building Category - 2012





## Reviews

**Maestro Rafael Payare**  
CONDUCTOR OF THE SAN DIEGO SYMPHONY

"We can hear each other wonderfully and you feel like you are in one of the top-notch concert halls in the world."

### London Philharmonic Orchestra

"Very enthusiastic about the whole thing, really enjoyed the experience of playing in it. The sound was great and it looks fantastic. Everything inside the structure was good - lighting, space to move, acoustics etc."

### Architecture World News

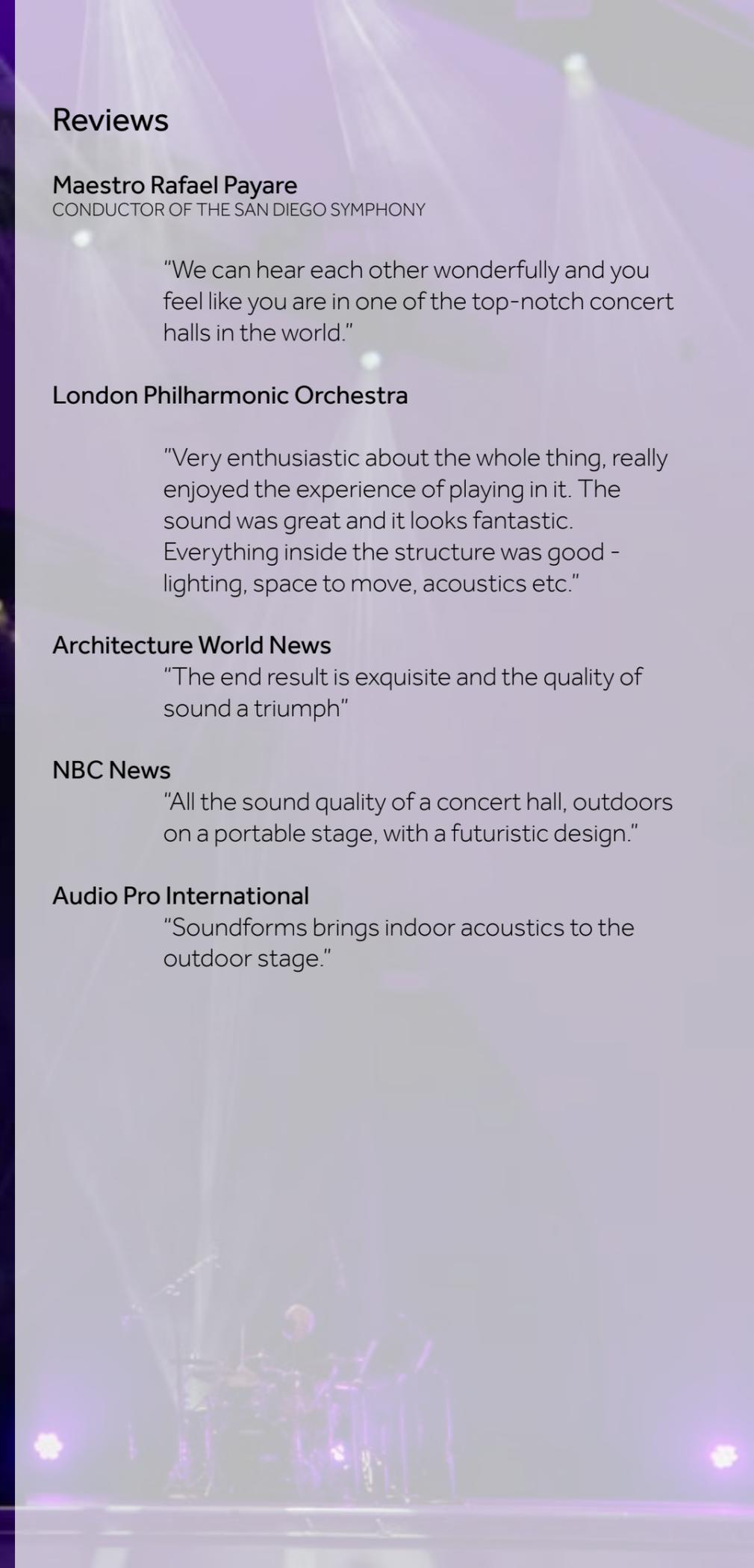
"The end result is exquisite and the quality of sound a triumph"

### NBC News

"All the sound quality of a concert hall, outdoors on a portable stage, with a futuristic design."

### Audio Pro International

"Soundforms brings indoor acoustics to the outdoor stage."



## Partners



[www.soundforms.co.uk](http://www.soundforms.co.uk)

Soundforms is the brand product, premium outdoor stages, at the centre of the partnerships. Sound Forms Ltd is the company with shareholders, which owns the patents and design registrations.



[www.rpo.co.uk](http://www.rpo.co.uk)

The world renowned Royal Philharmonic Orchestra is a partner, a consultant on orchestral matters relating to the staging of fine orchestral music performances, and is an introducer promoting Soundforms around the world.



[www.l-acoustics.com](http://www.l-acoustics.com)

L-Acoustics is highly recognized in the audio industry for its engineering contributions to further the state of the art. In recognition of creating innovative professional sound technology, L-Acoustics was named one of Fast Company's Most Innovative Companies of 2020.



[www.meyersound.com](http://www.meyersound.com)

Meyer Sound was founded in 1979 to create the best sonic experiences possible, built on scientific innovation and quality engineering. The company is at the origin of numerous major audio innovations leading to more than 100 patents and a staggering list of industry and engineering awards, including the prestigious R&D 100 Award.

FLANAGAN LAWRENCE

[www.flanaganlawrence.com](http://www.flanaganlawrence.com)

The award-winning architectural practice Flanagan Lawrence has designed Soundforms. FL are Partners & Shareholders in Sound Forms Ltd.



[www.arup.com](http://www.arup.com)

ARUP Acoustics has designed the Soundforms unique acoustic interior, the basis of its first step invention patent claim. ARUP Acoustics is an Associate of Sound Forms Ltd.



[www.esglobalsolutions.com](http://www.esglobalsolutions.com)

ES Global is a global leader in the field of spectacular temporary and semi-permanent structures for the Sporting, Entertainment & Business sectors internationally. ES Global is the Soundforms assembly and delivery partner and is a shareholder in Sound Forms Ltd.



expedition

[www.expedition.uk.com](http://www.expedition.uk.com)

The award-winning engineering practice Expedition has designed the structural elements on Soundforms.



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