

Soundforms

Large Shell: November 2014



Flanagan Lawrence ES Global Arup Acoustics Expedition Harrison Parrott



Soundforms

Soundforms Ltd is a young British company formed to produce a new and iconic staging concept that provides a high quality acoustic environment for the staging of outdoor music events.

Soundforms principal objective is to provide premium quality staging products for musicians and audiences who demand an exemplary acoustic standard.

The system is designed for rapid erection and dismantling, using minimal manpower and plant in order in order to keep deployment costs to the minimum.

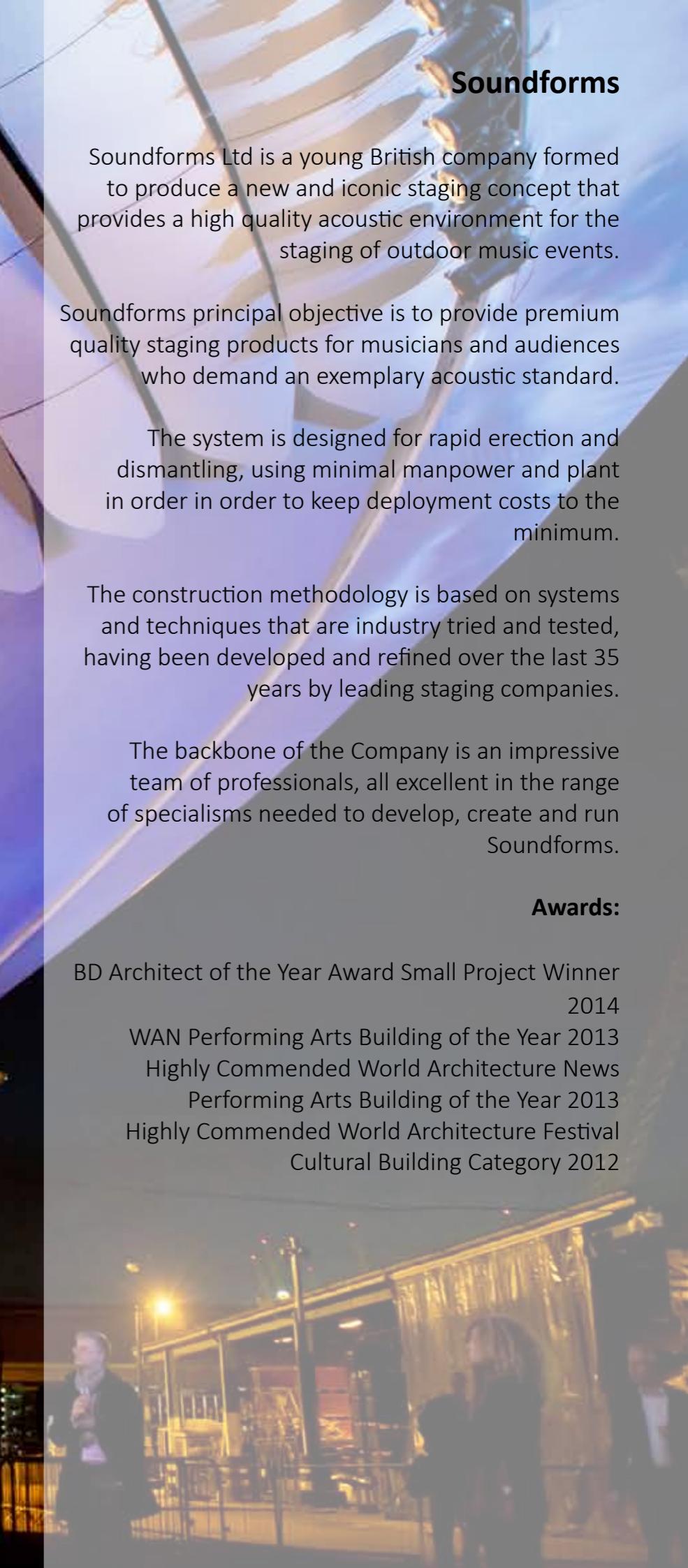
The construction methodology is based on systems and techniques that are industry tried and tested, having been developed and refined over the last 35 years by leading staging companies.

The backbone of the Company is an impressive team of professionals, all excellent in the range of specialisms needed to develop, create and run Soundforms.

Awards:

BD Architect of the Year Award Small Project Winner
2014

WAN Performing Arts Building of the Year 2013
Highly Commended World Architecture News
Performing Arts Building of the Year 2013
Highly Commended World Architecture Festival
Cultural Building Category 2012





Dora Stoutzker Hall, Royal Welsh College of Music and Drama; Cardiff UK

Flanagan Lawrence - Architects

Flanagan Lawrence is an award-winning, design-led practice of architects, masterplanners and interior designers based in London.

Whilst gaining a reputation for acoustic work, the practice has an impressive collective expertise across a broad range of public and private sectors and building typologies including large-scale commercial projects and high-end residential schemes, as well as cultural, hotel and leisure, education, infrastructure, logistics, business parks and major masterplanning projects both in the UK and internationally.

Flanagan Lawrence has worked with a diverse body of clients in both the private and public sectors.

Public sector work has included performance space as well as office space and regeneration schemes. Clients have included the Royal Welsh College of Music & Drama, the Royal College of Music, Sadler's Wells Theatre Trust, Soundforms plc, The Sage Gateshead, Live Theatre, Riverside Studios as well as tertiary education client bodies such as Magdalen College Oxford, Imperial College London, and Manchester City Council.

Awards:

Civic Trust Award Winner 2012

RIBA Award Winner 2012

RIBA Welsh Architecture Award Winner 2012

RIBA Welsh Building of the Year Award Winner 2012

RIBA Welsh Client of the Year Award Winner 2012

The International Architecture Award 2012 from The Chicago Athenaeum: Museum of Architecture and Design and the European Centre for Architecture Art Design and Urban Studies

Welsh Design Award 2012

Ceiling – Gold Medal, Association of Interior Specialists 2012

Acoustic Wall Panels – Silver Medal, Association of Interior Specialists 2012

RICS Wales Award Commercial Category ICE Services Award



Acoustic Shells

(With Arup Acoustics & Expedition)

Project won in open competition in 2012

Brief called for a bandstand and a shelter

Client could not afford an 'off the shelf' bandstand

£100k budget

Site was a sunken rose garden, the site of a historic local bandstand

Proposal must be vandal proof and resist the harsh marine environment

Awards:

BD Architect of the Year Award Small Project Winner 2014

ASA Outstanding International Project of the Year Winner 2014

WAF Culture Building of the Year Finalist 2014

WAF Small Project Building of the Year Finalist 2014

Shortlisted :

RIBA Awards 2014

AJ Small Projects Awards 2014

WAN Small Spaces Awards 2014

Acoustic Shells, Littlehampton, West Sussex UK



Richard Burton Theatre, Royal Welsh College of Music and Drama; Cardiff, UK

Arup Acoustics

From masterplanning through to completion, Arup's acoustics team provides a comprehensive design service for all aspects of performing arts developments.

Many of Arup's acoustics team are musicians themselves, and spend much of their time listening in halls, performing and meeting other performers.

The team has decades of experience, technical excellence and design talent in the service of music and theatre spaces and performances.

The group has been responsible for the acoustical design of many landmark music and theatre projects in a variety of sizes.

We maintain excellent working relationships with our clients and other members of the design teams, and the quality, flexibility and timeliness of our work product are highly valued by those with and for whom we work.



Velodrome, Olympic Park London, UK

Expedition

Expedition Engineering is a civil and structural engineering design consultancy based in central London.

Expedition's broad experience includes education, arts, cultural, residential and commercial projects in the UK and worldwide. Recent projects include the London 2012 Olympic Velodrome, the World Wildlife Fund UK's headquarters and the Stavros Niarchos Cultural Centre, Athens, which will be the new home of the Greek National Opera.

Founded in 1999, the practice was born out of a desire to raise the quality of engineering involvement in projects beyond that of traditional engineering organisations. Their design approach is via open-minded collaboration with users, architects, designers, clients and contractors in the search for simple and beautiful solutions.

Expedition was awarded the Engineering Consultant of the Year at the 2012 Building Awards. Our contribution to structural engineering has also been recognised by the Institution of Structural Engineers- in the past few years our projects have twice won their Supreme Award for Structural Engineering.

ES Global

ES Global provides innovative and creative solutions for music, sporting, corporate and hospitality events.

ES Global specialises in the delivery of dynamic stages, temporary structures, event overlay and expert project management.

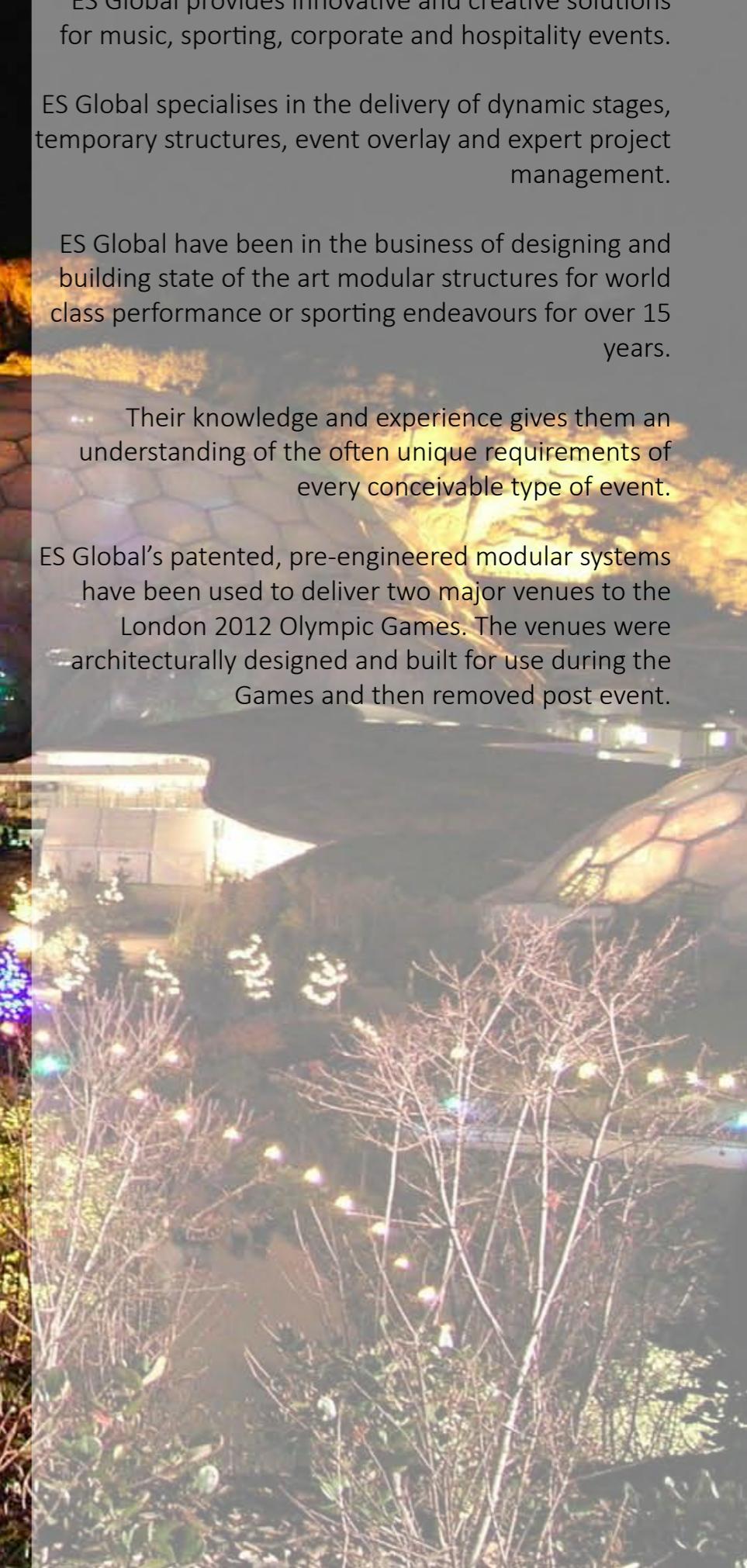
ES Global have been in the business of designing and building state of the art modular structures for world class performance or sporting endeavours for over 15 years.

Their knowledge and experience gives them an understanding of the often unique requirements of every conceivable type of event.

ES Global's patented, pre-engineered modular systems have been used to deliver two major venues to the London 2012 Olympic Games. The venues were architecturally designed and built for use during the Games and then removed post event.



Eden Centre, Cornwall, UK



Harrison Parrott

Innovation, expertise and responsiveness have been the hallmarks of HarrisonParrott ever since its foundation in 1969. Working collaboratively with our clients and partners, we continue to set the standard in every branch of our professional activities – including artist management, tours and projects, and consultancy work.

International artist management has always been the core of our business, and we are proud to represent an exceptional list of performers from emerging talent to the internationally renowned.

We also develop and deliver tours and residencies for a host of prestigious clients across classical and world music, dance and theatre. Our geographical reach spans every continent, and we have a particular expertise working in emerging markets.

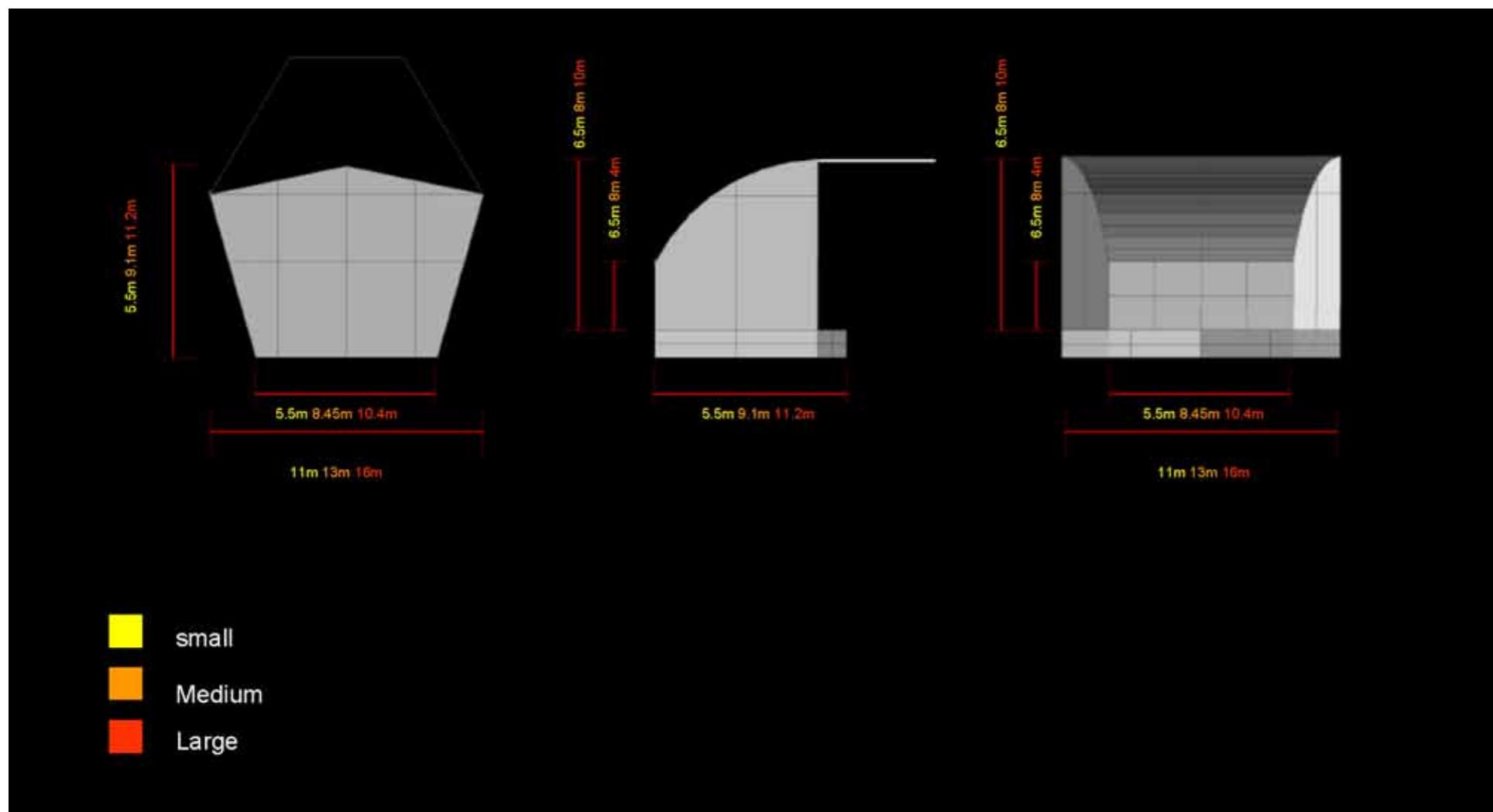
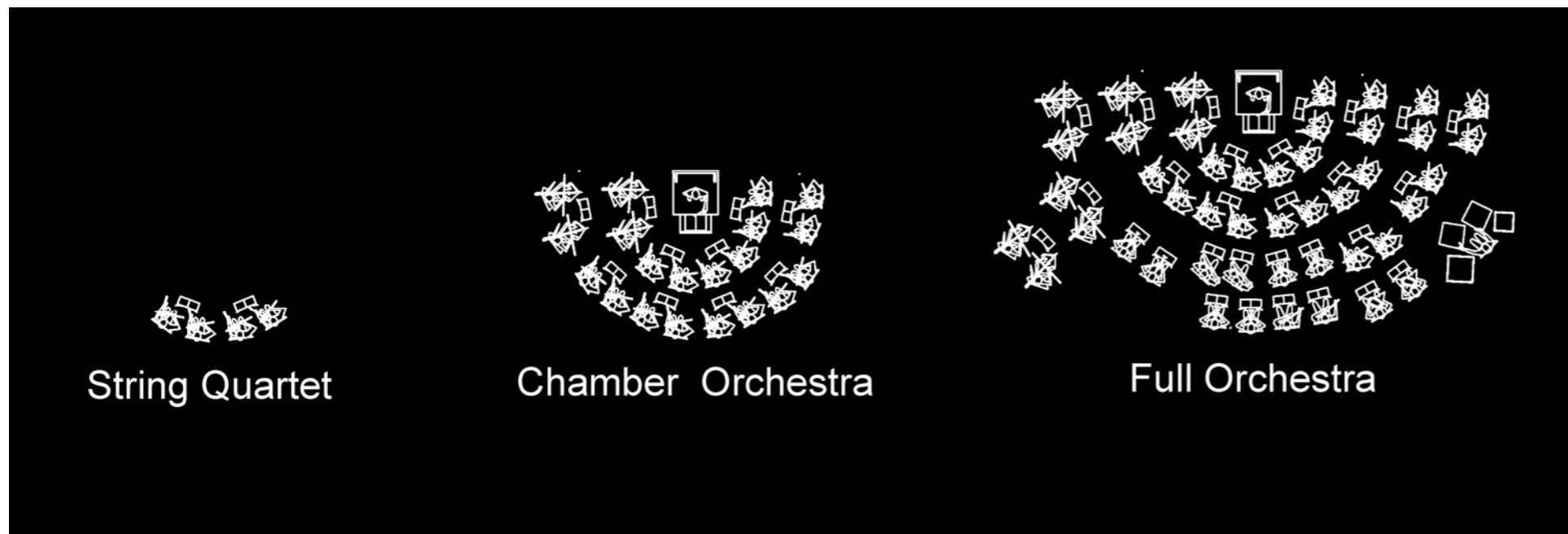
For venues and festivals, we help source exciting programming and content that complements their artistic vision and audience development. We also partner with a wide range of cultural institutions to help them realise innovative projects and formulate creative responses to the challenges they face.



Vladimir Jurowski: London Philharmonic Orchestra

Brief ...

Brief Development



The team was instructed to develop and optimise a 'shape' and 'materials' for a fully outdoor portable orchestra shell that will be used for the performance of outdoor classic music.

The core brief was;

That the orchestra shell be designed to help the projection of sound towards the audience.

In addition, it was to provide good performance conditions for the musicians on stage in the context of an outdoor venue.

The overall dimensions of the orchestra shell are directly proportional to the size of the orchestra.

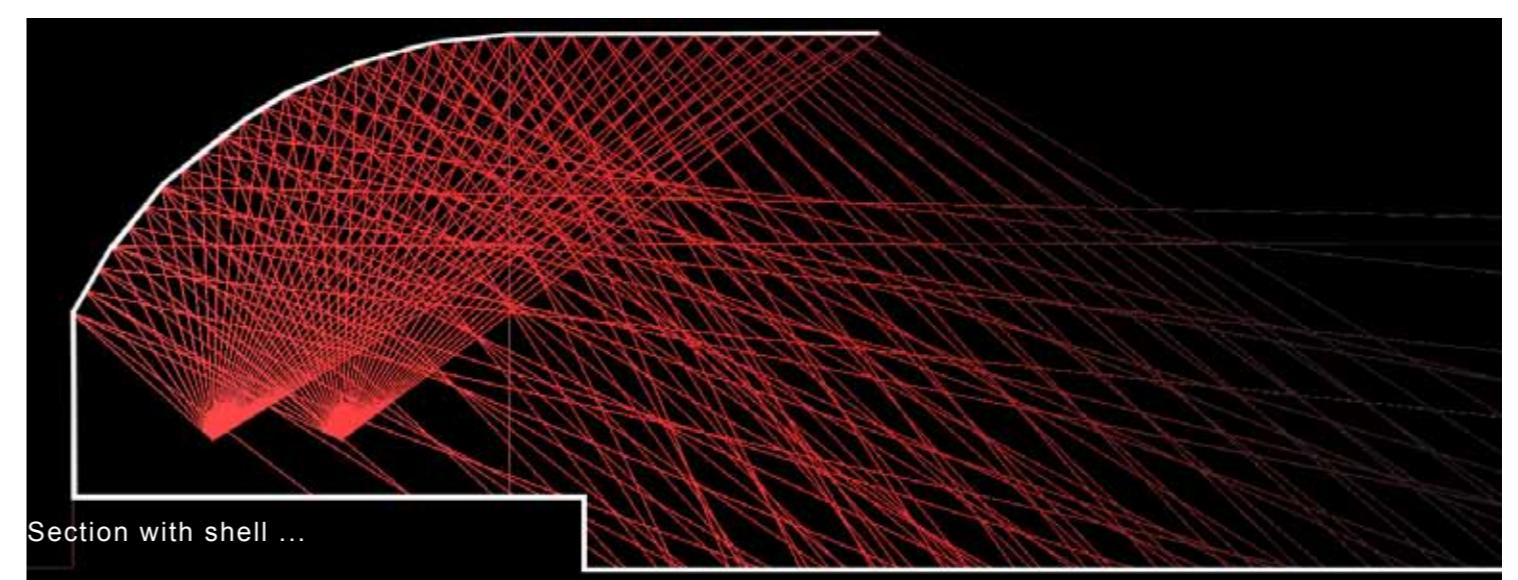
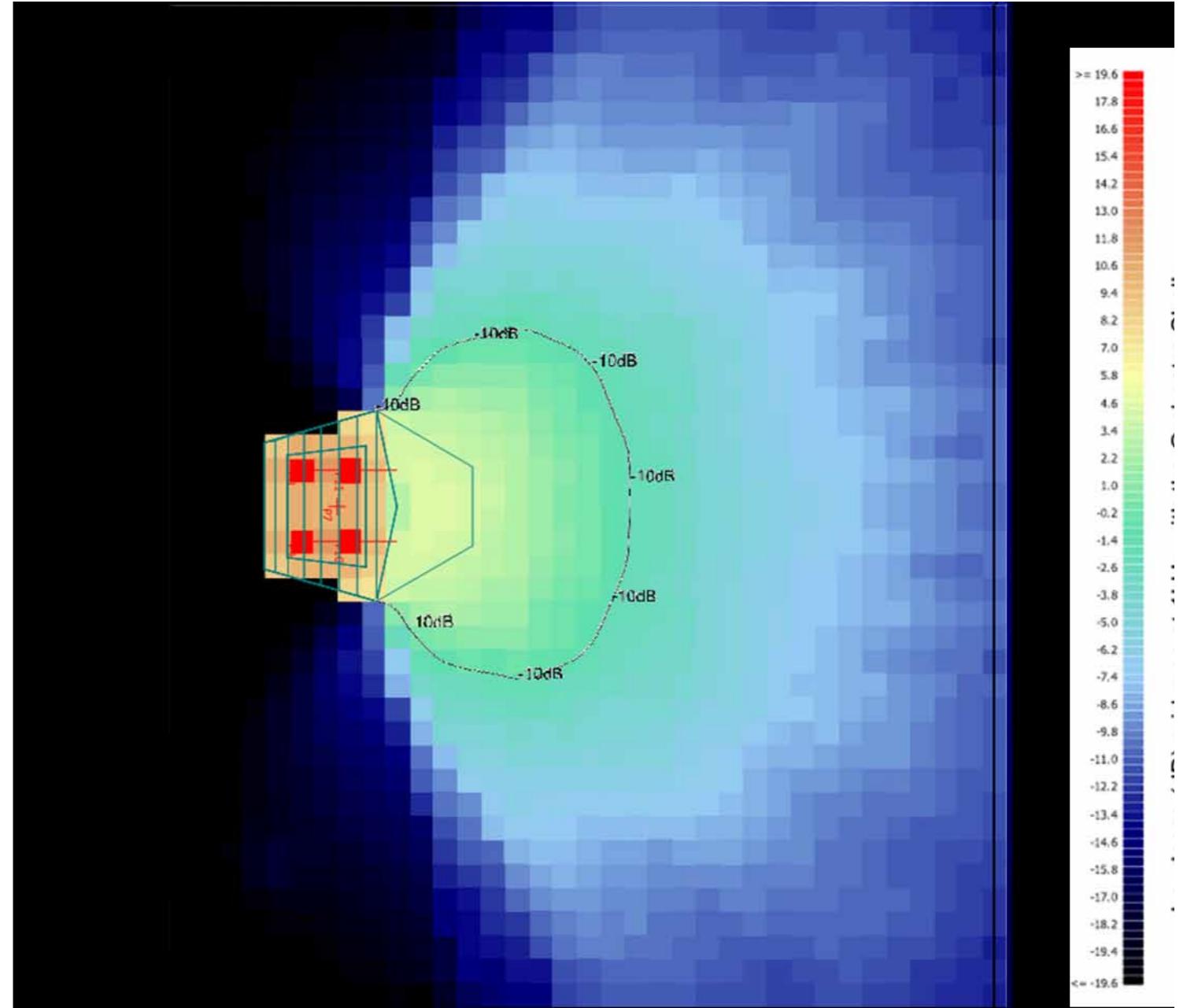
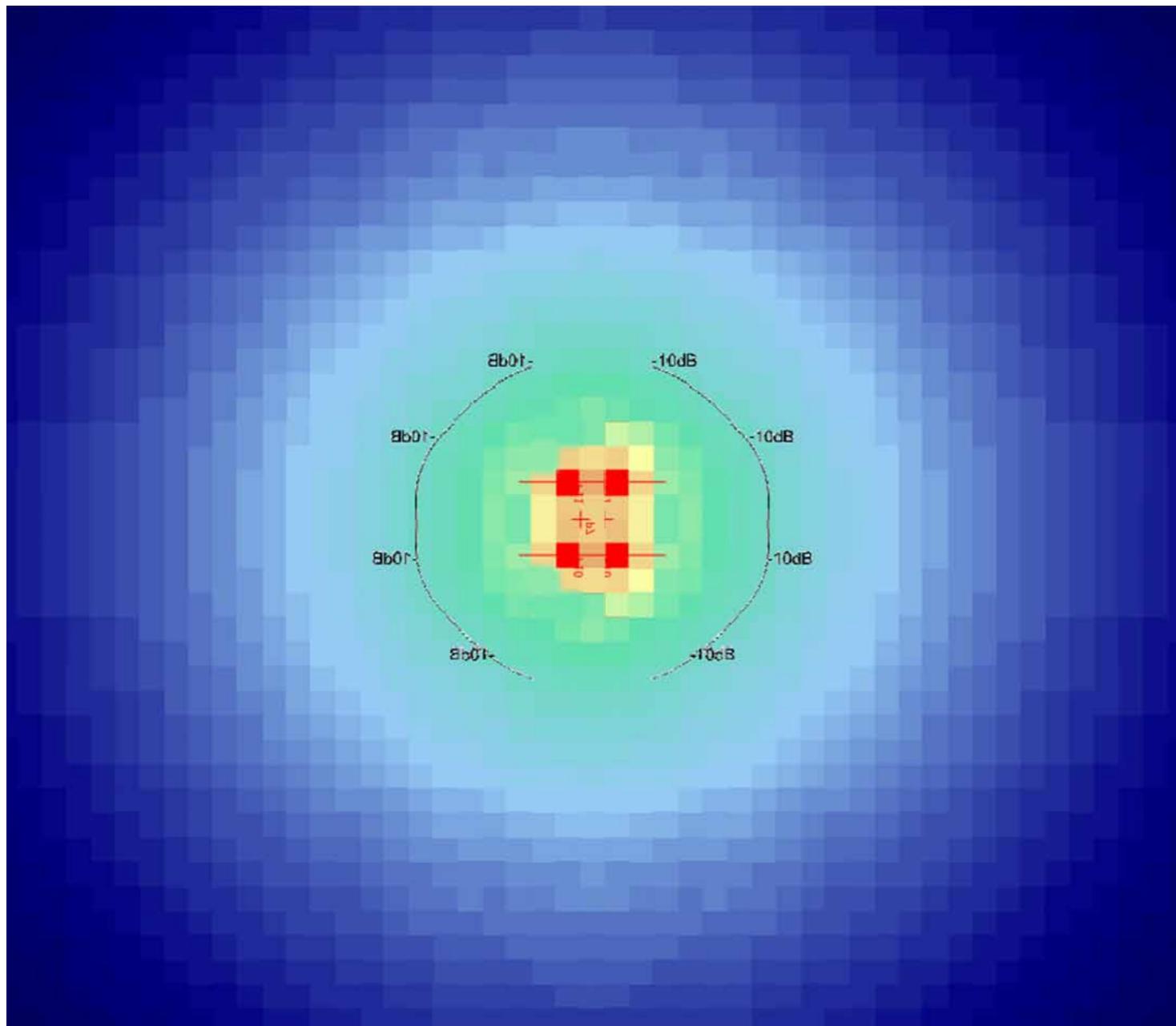
Three standard orchestra sizes have been considered to cover the most likely platform sizes to accommodate the following types of performance / repertoires;

Large Shell: Romantic era orchestra, based on up to 100+ musicians.

Medium Shell: Chamber music orchestra, based on a small group of up to 50 musicians.

Small Shell: Small ensemble, such as a quartet or quintet, and can go up to 15 musicians.

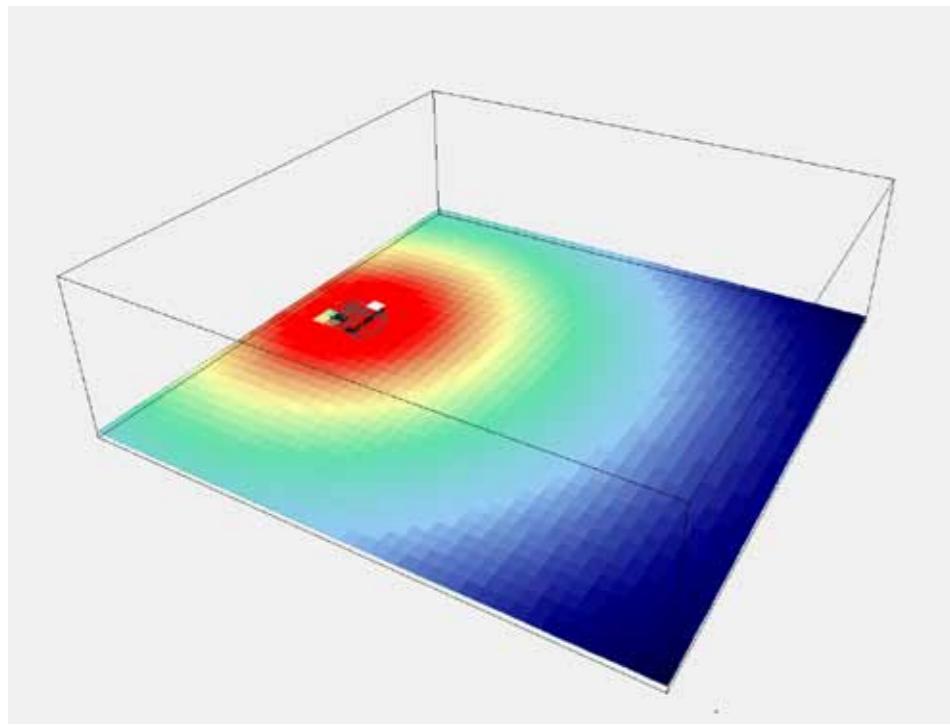
Acoustics ...



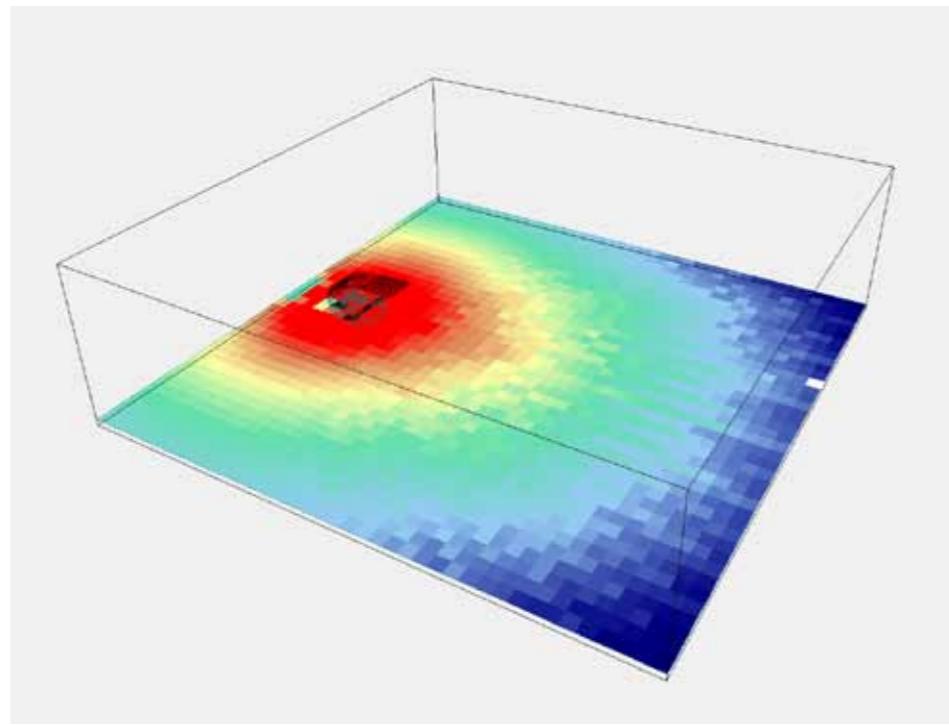
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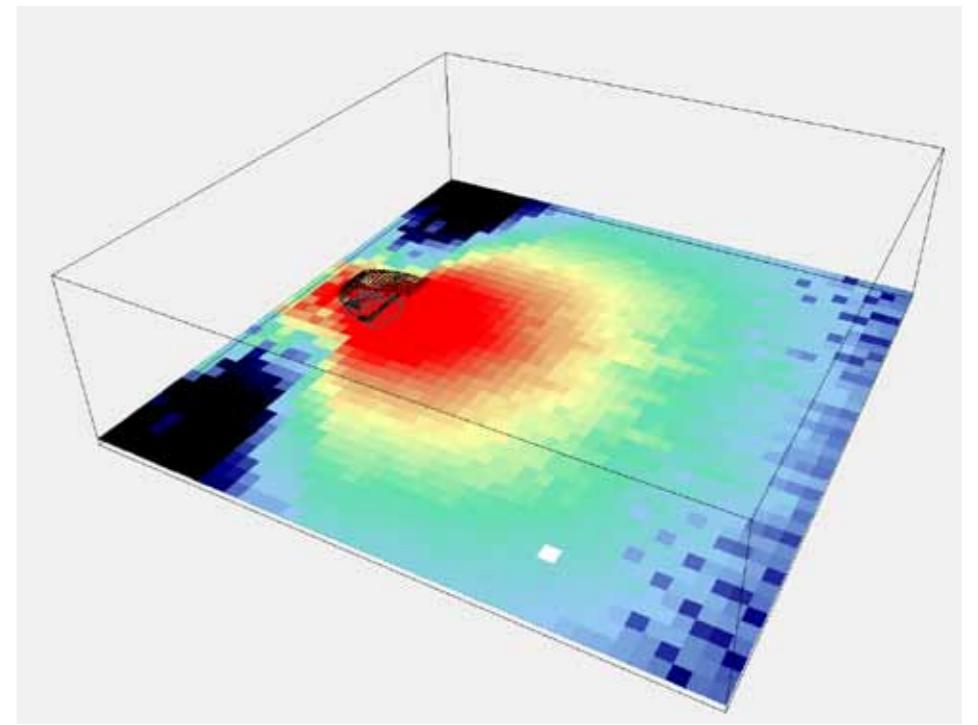
Acoustics ...



Without shell ...



With top ...

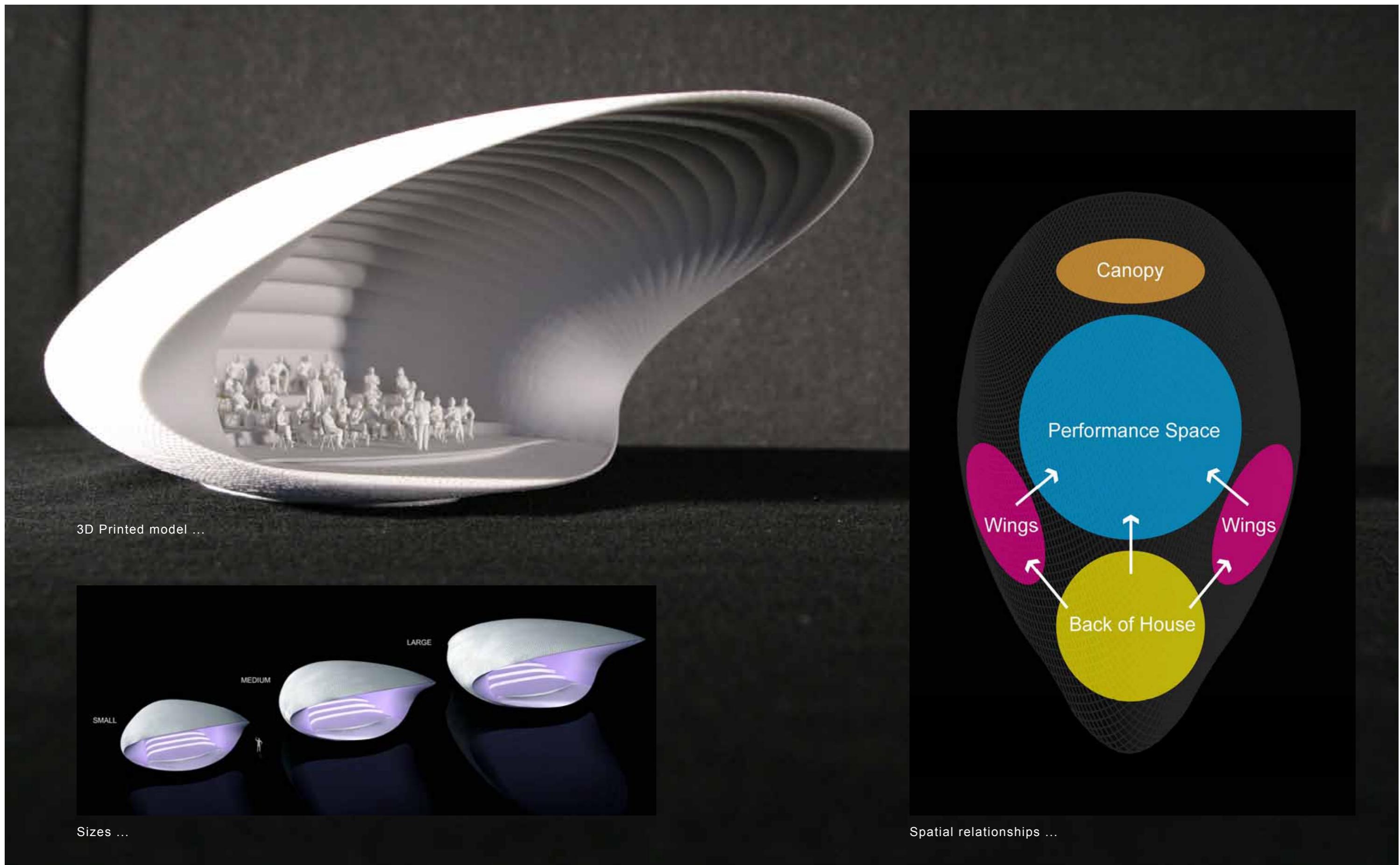


With top and sides.

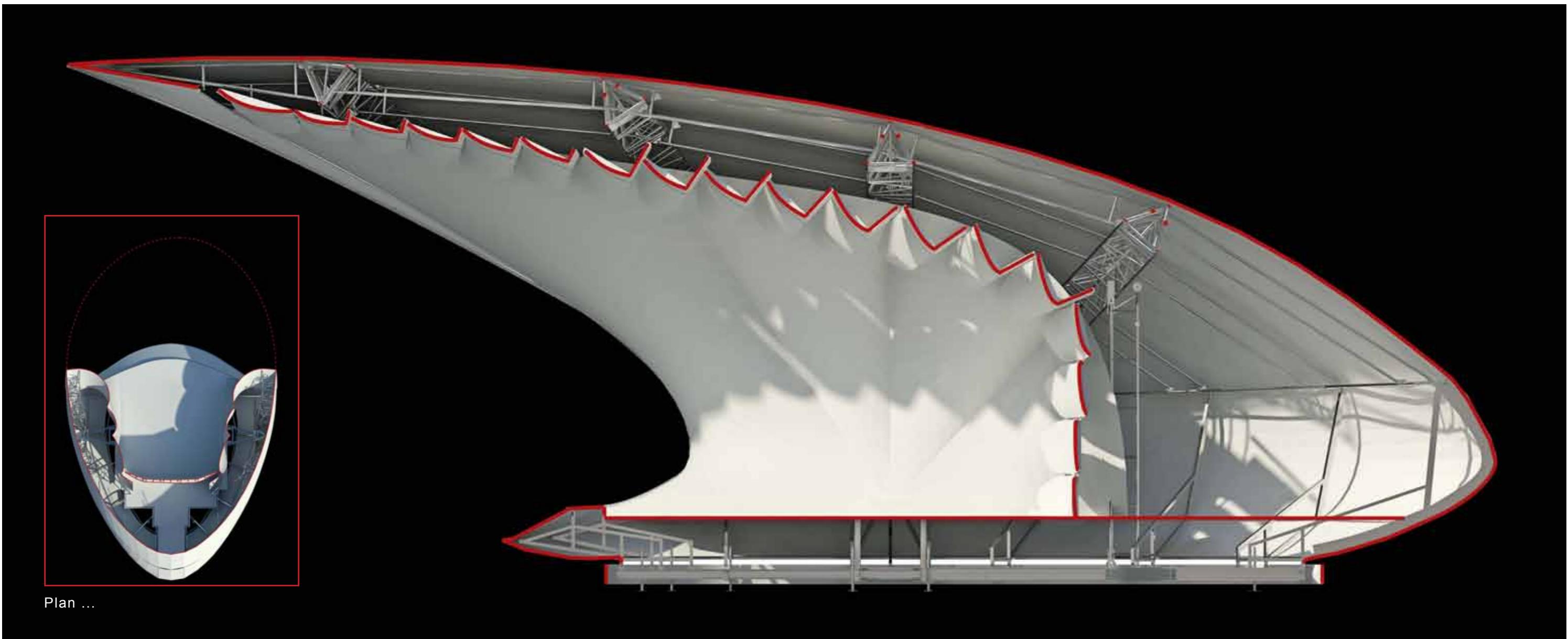


Anticipated installation ...

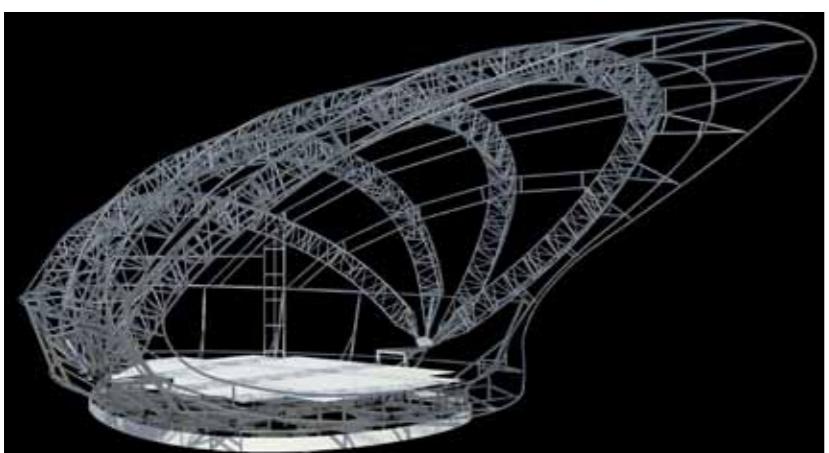
First Steps ...



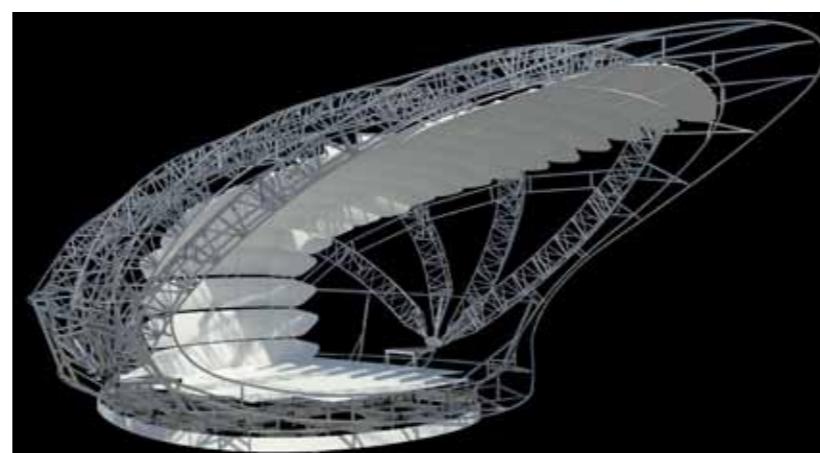
Scheme Development ...



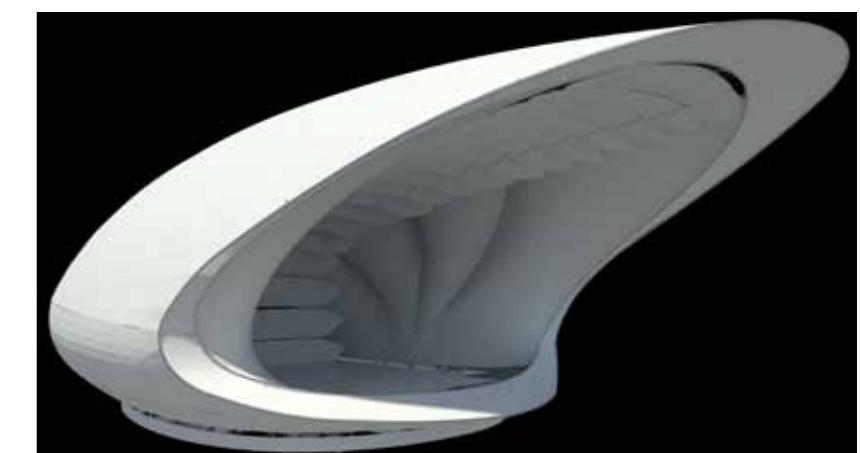
Section (w/plan) ...



Structure ...



Acoustic panels ...



Skin ...

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Acoustic test...

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Acoustic test...

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Olympic Park 2012 ...

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Olympic Park 2012 ...

Soundforms: November 2014

Flanagan Lawrence

Since the deployment in the Olympic Park in 2012, the shell has undergone further evolution, and the following elements have been optimised:



The sight lines are wider, without compromising the acoustics.

The skin is now tensile, and not semi inflatable.

The structure is stronger steel, over aluminium.

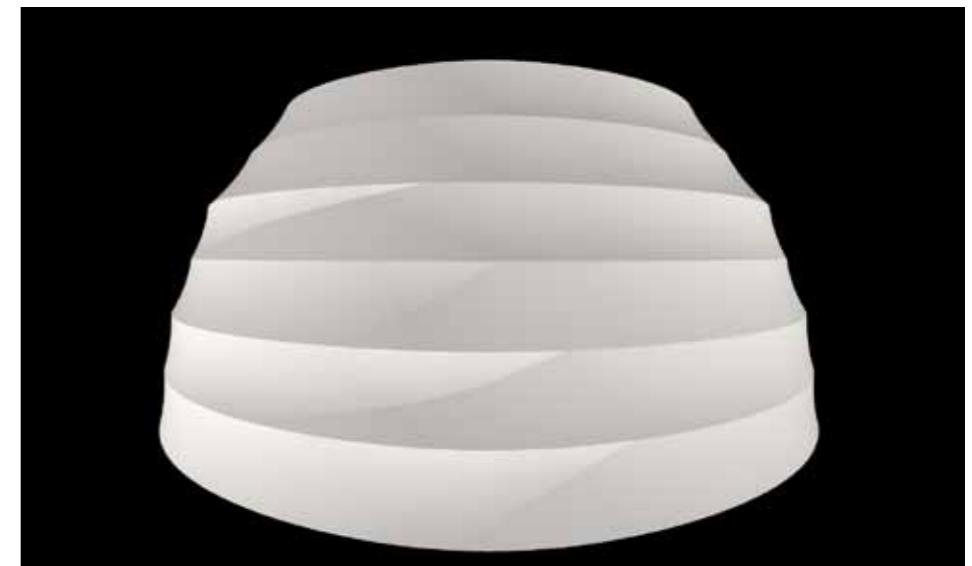
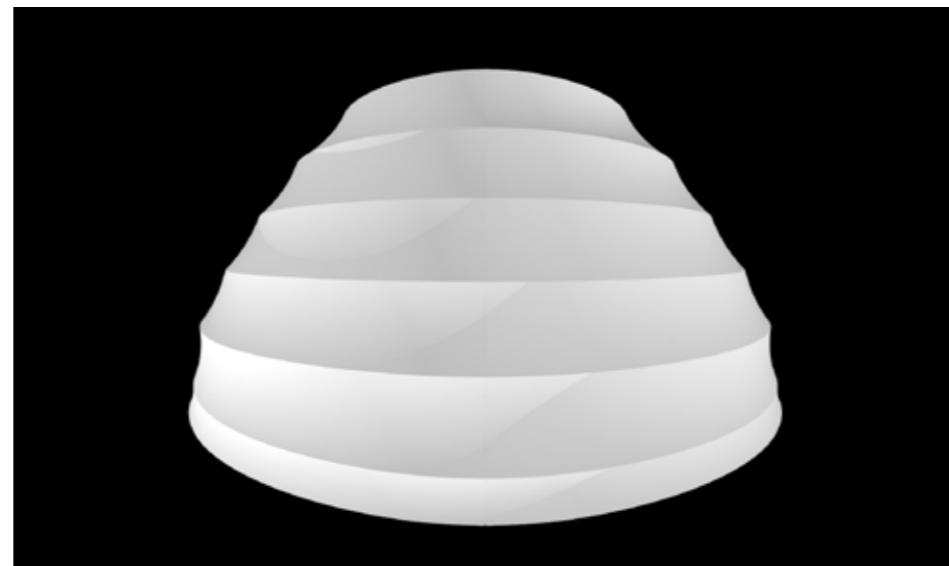
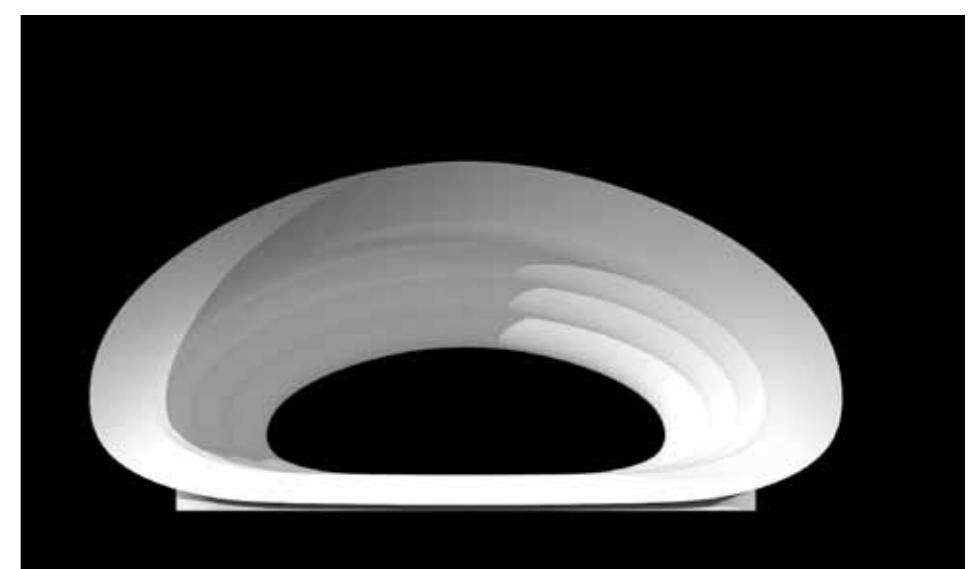
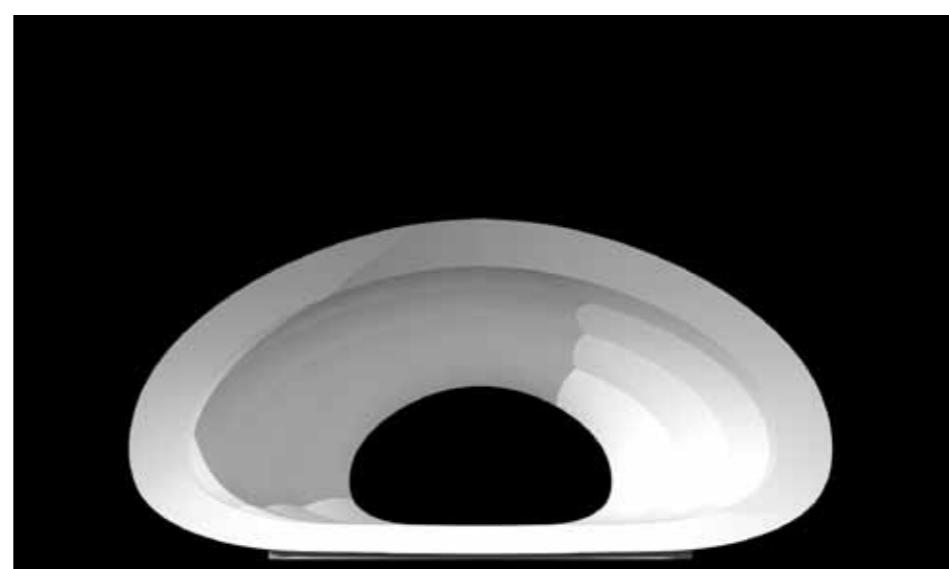
The structure is now formed of ladder trusses rather than a three cord truss system , so it packs away more efficiently.

The stage space is bigger, but overall foot print has been reduced.

The acoustic panels are hidden, and easier to install.

Range ...

Soundforms
Full range



Regular

Medium

Large

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Regular

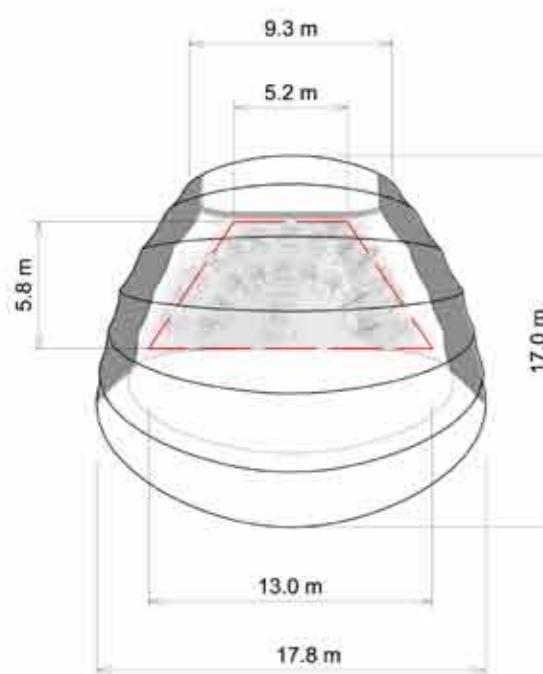
Platform size: **53 m²**

Max platform capacity: **31** Musicians

Natural Acoustic throw: **1000** persons

Payload: **10** tonnes.

Skin surface area: **300m²**



01 PLAN - REGULAR
1:200

Medium

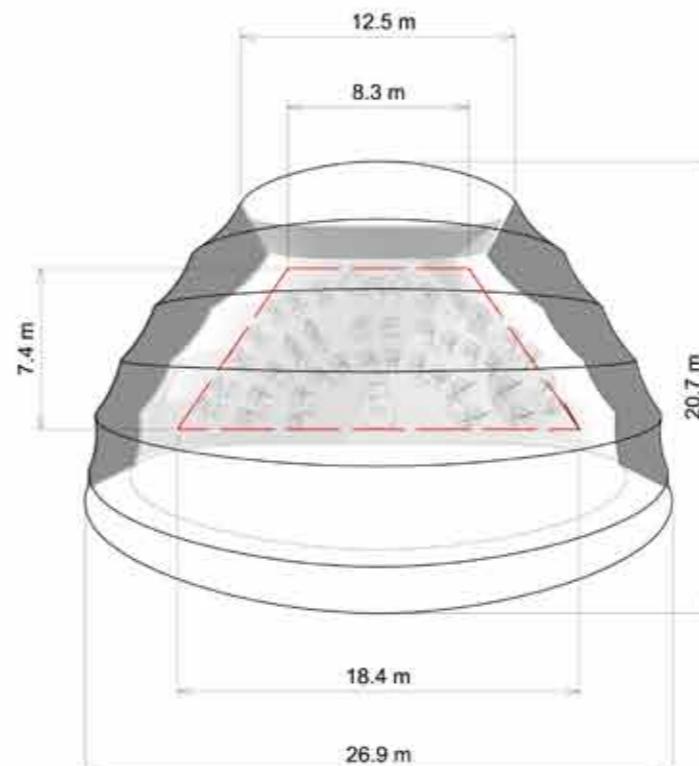
Platform size: **98 m²**

Max platform capacity: **58** Musicians

Natural Acoustic throw: **1500** persons

Payload: **20** tonnes.

Skin surface area: **600m²**



02 PLAN - MEDIUM
1:200

Large

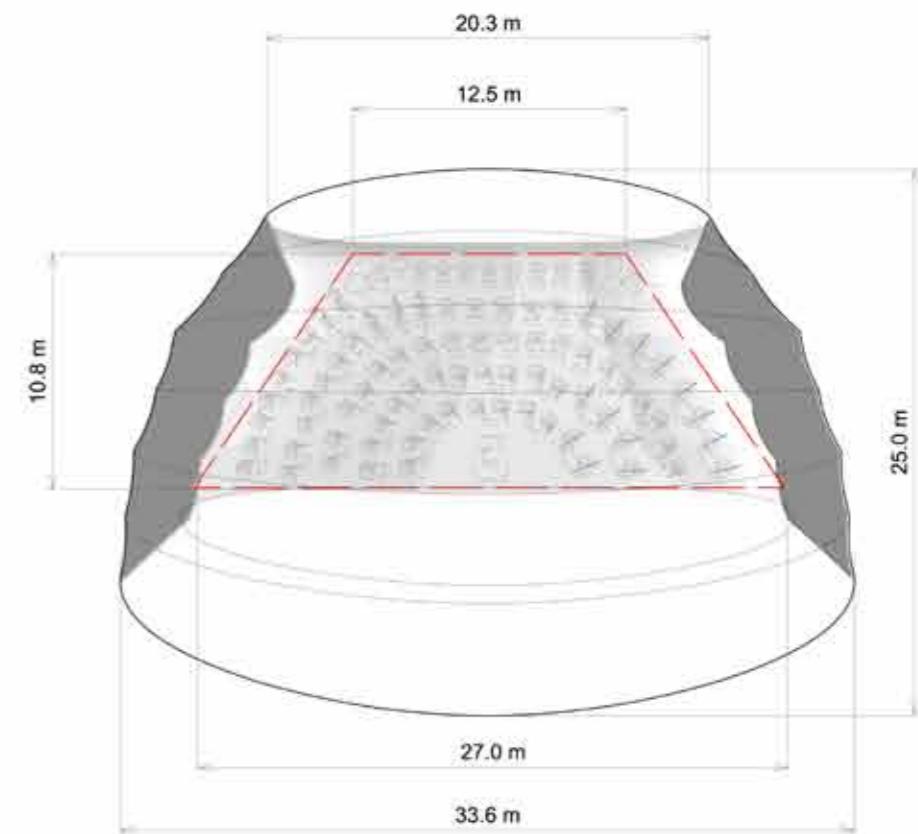
Platform size: **211 m²**

Max capacity: **124** Musicians

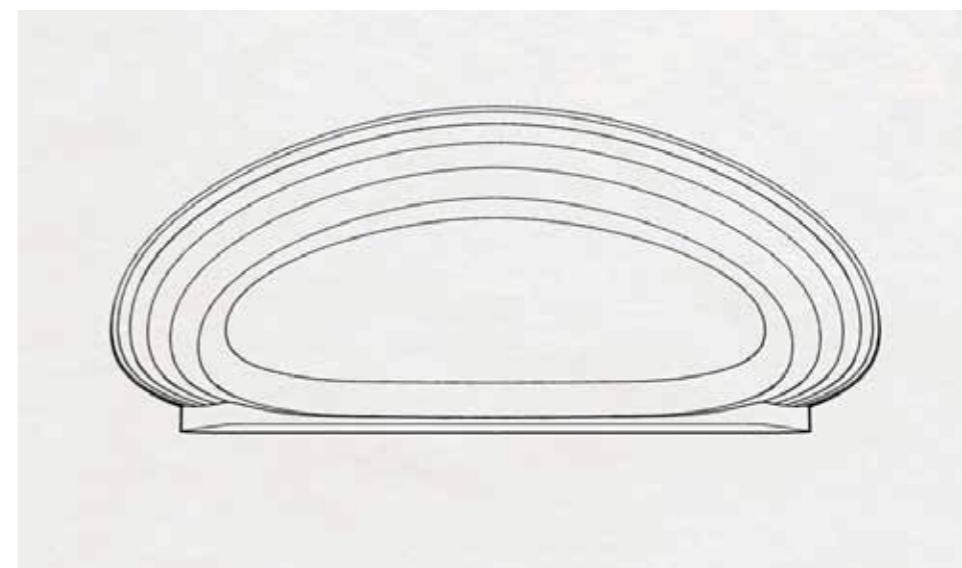
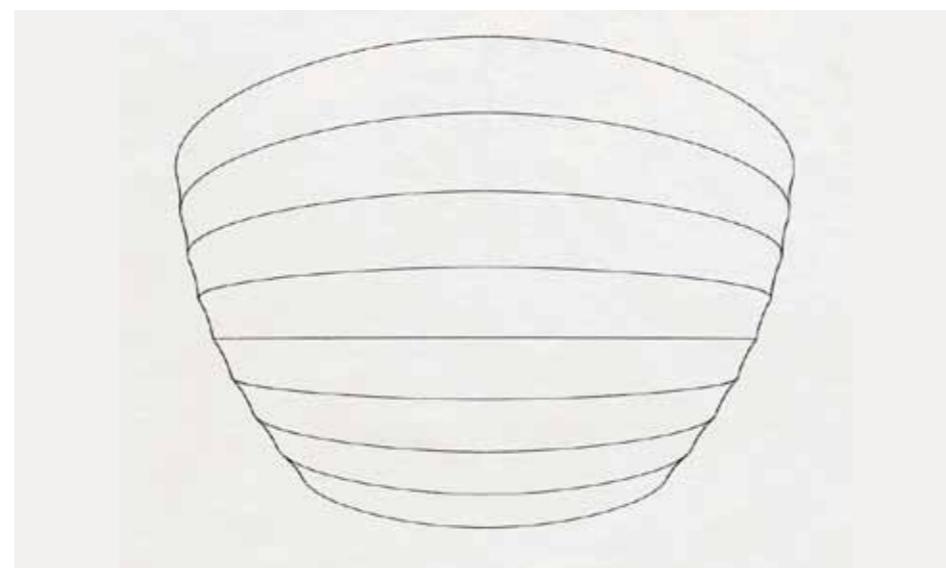
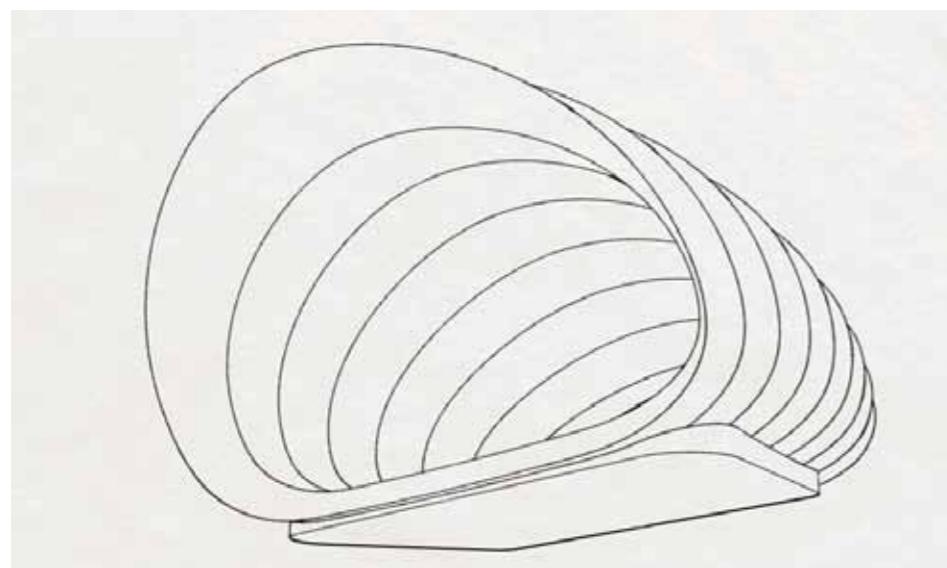
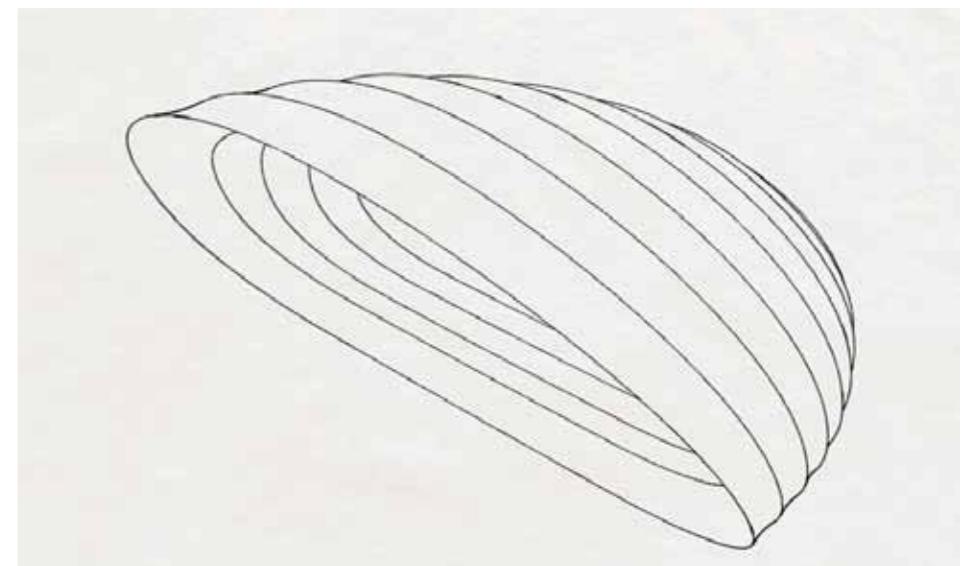
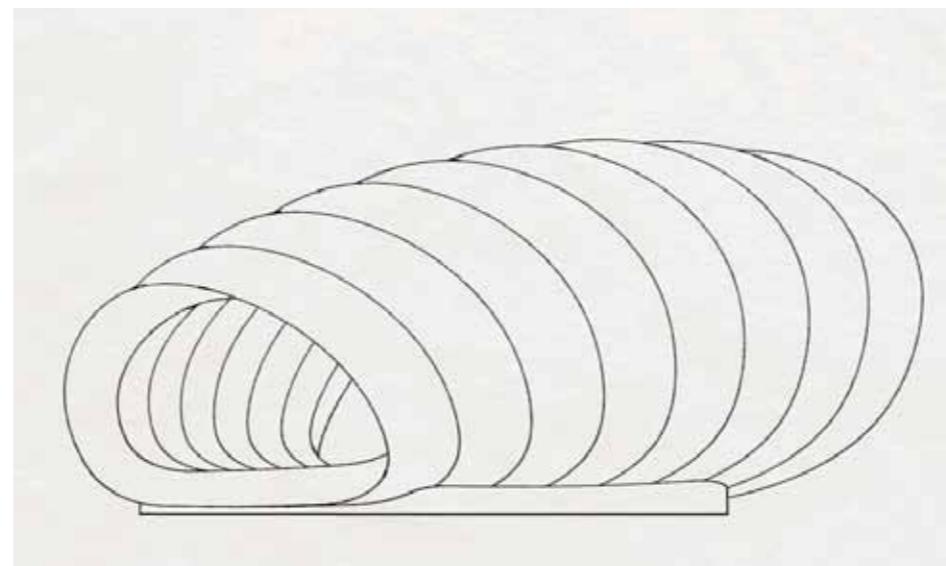
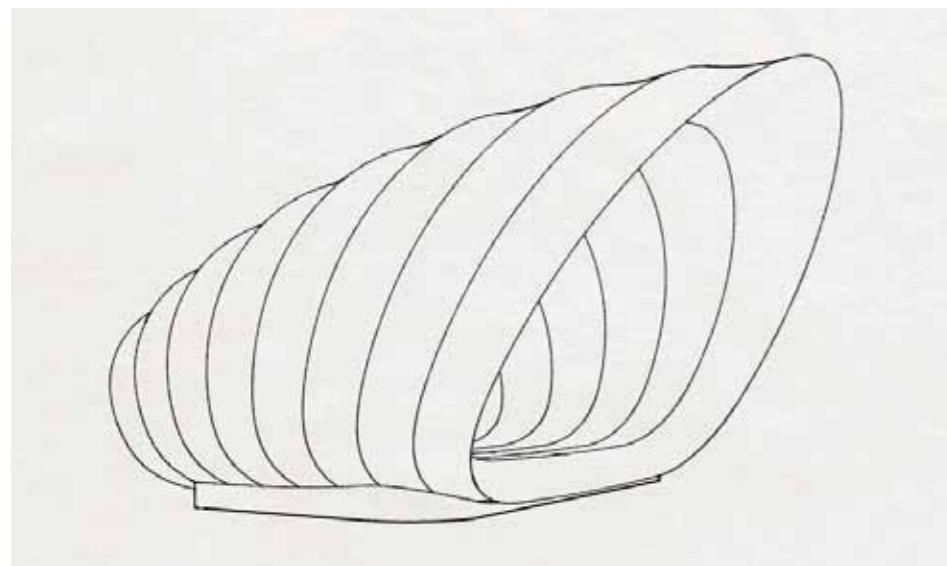
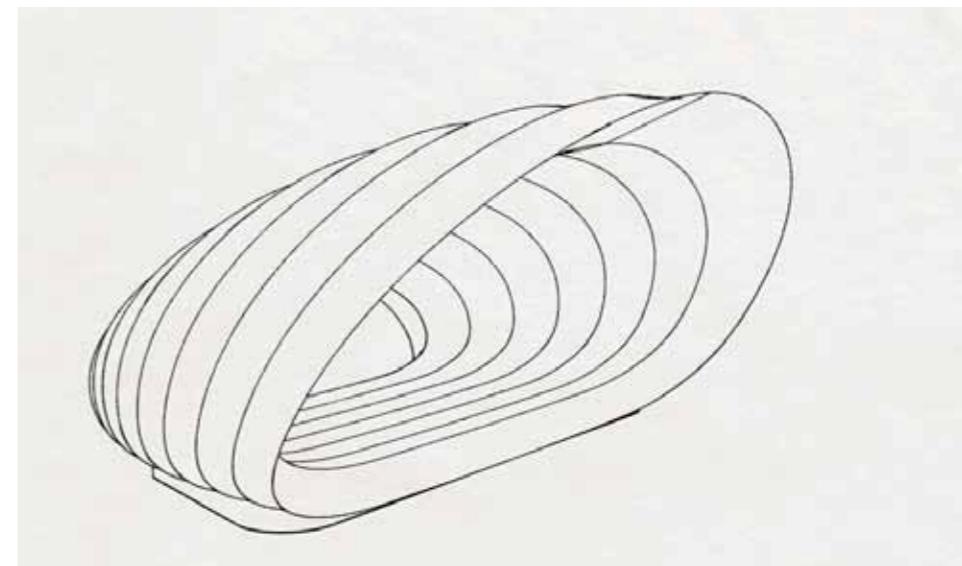
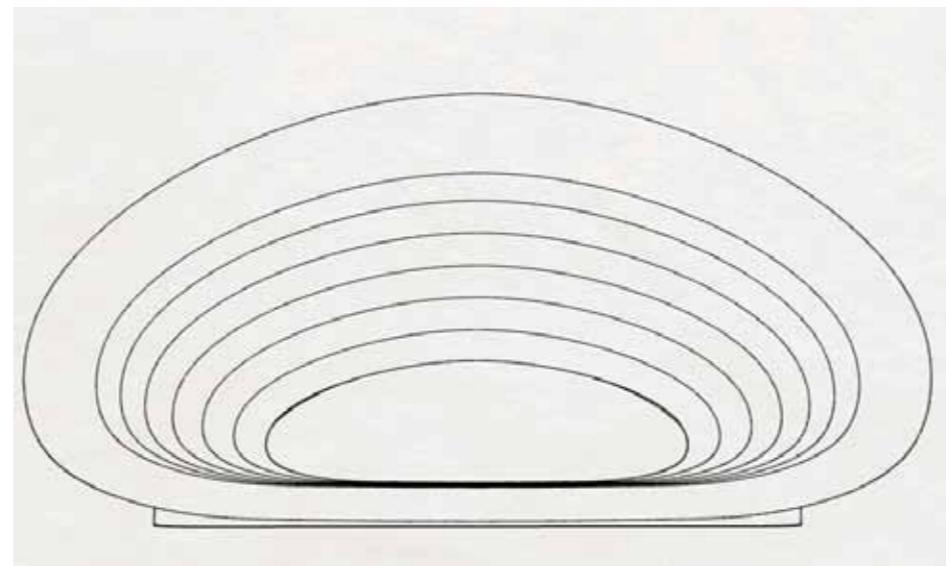
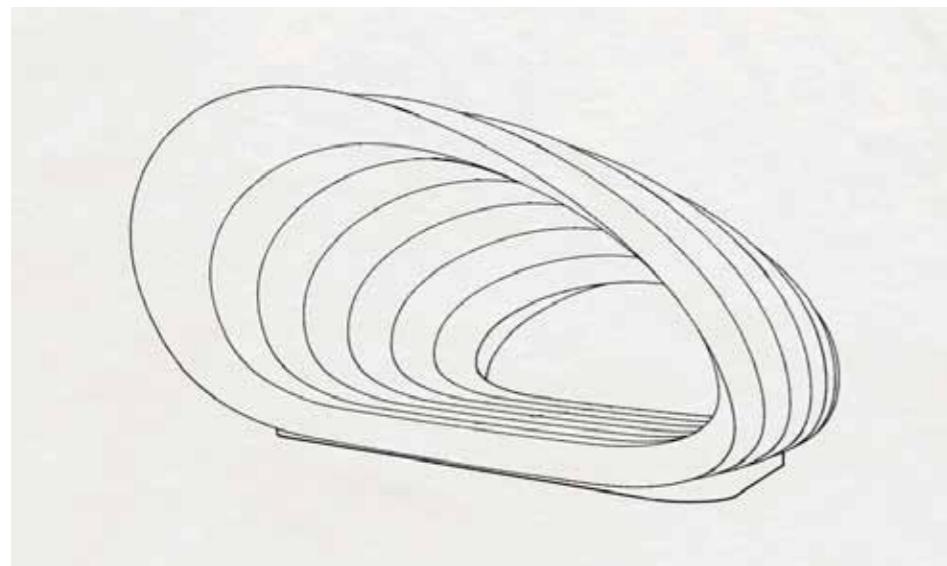
Natural Acoustic throw: **2000** persons

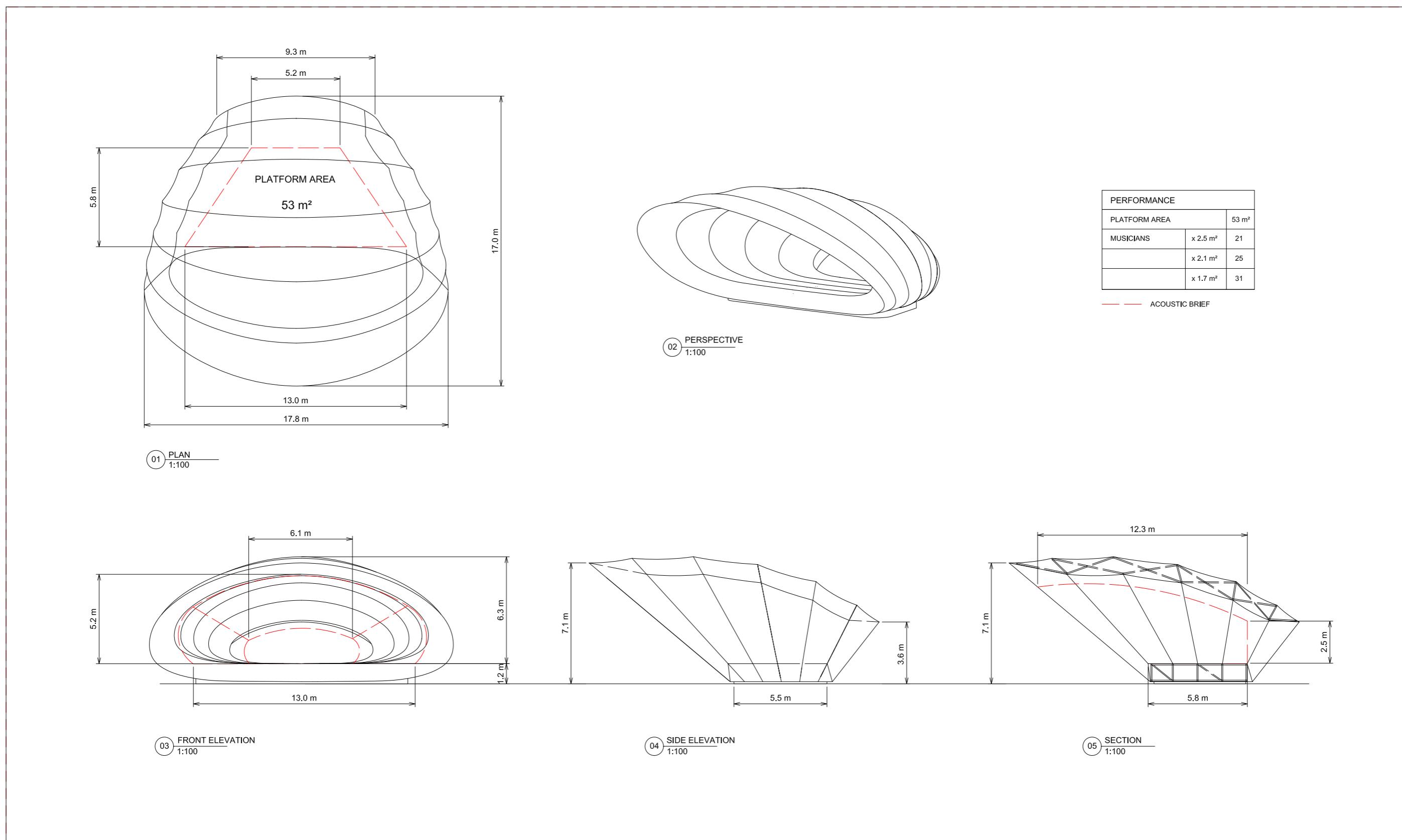
Payload: **30** tonnes.

Skin surface area: **1000m²**



03 PLAN - LARGE
1:200





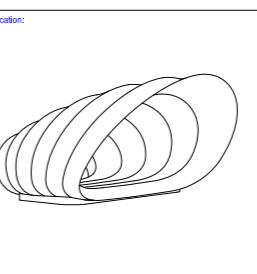
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Notes:

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Consultants:
EXPEDITION
ESG
ARUP ACOUSTICS

Key / Location:



SOUNDFORMS

Soundforms Ltd,
Unit 54,
235 East Court Road,
London,
SW16 5PE
Registered Company: Soundforms Ltd
(Company No: 06904326)
www.soundforms.co.uk

Client:

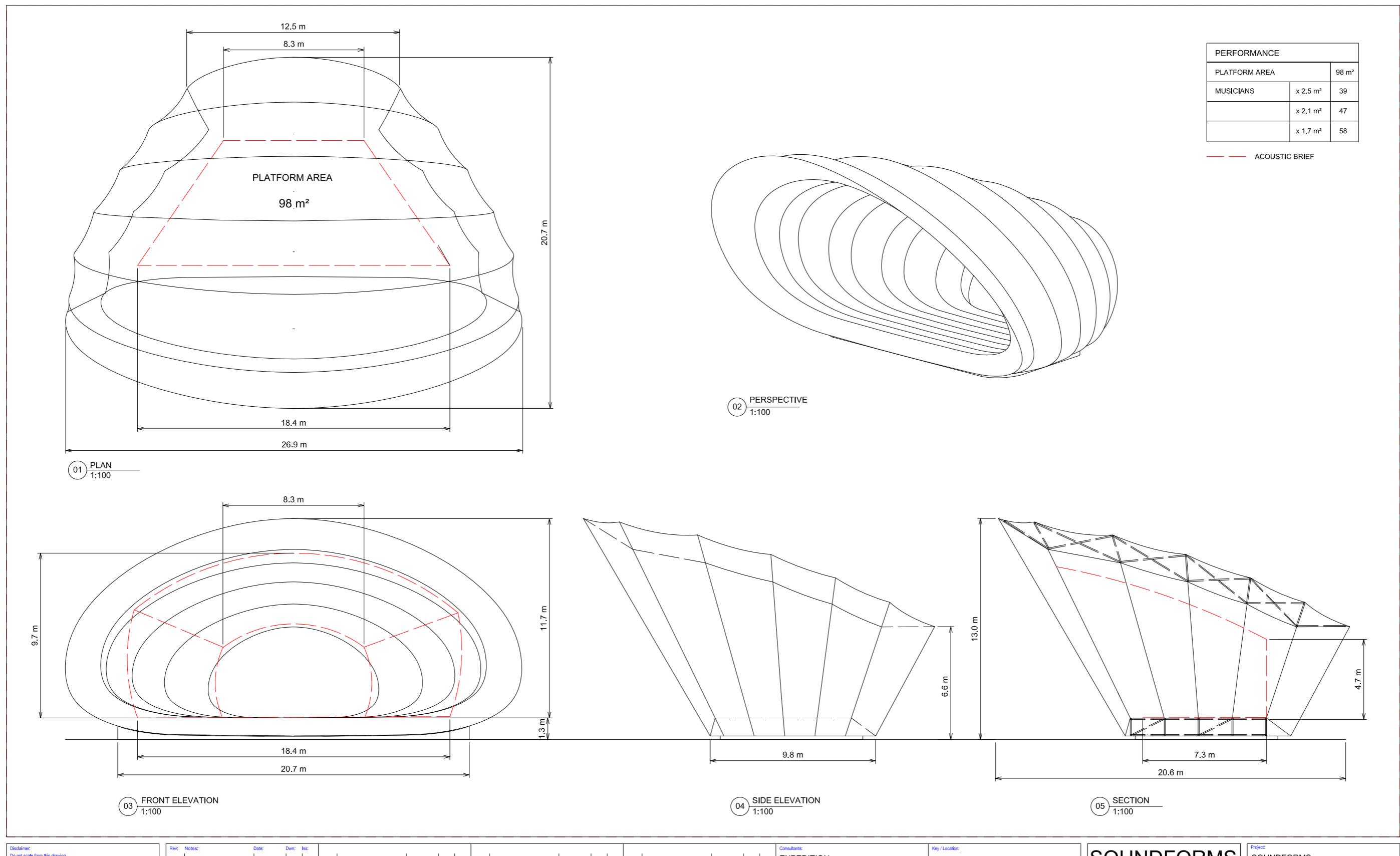
Project:
SOUNDFORMS
REGULAR SHELL

Drawing TN:
Drawing No: 27178 | Issued By: PB | Date of First Issue: 21.10.2014

Drawn By:
NK | **Issued By:** PB | **Date of First Issue:** 21.10.2014

Project No:
27178 | **Scale @ A1:** 100

Drawing No:
A003 | **Revision:** 00



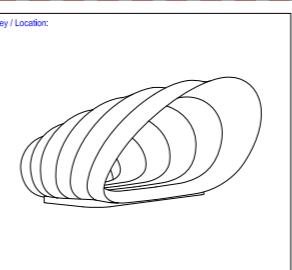
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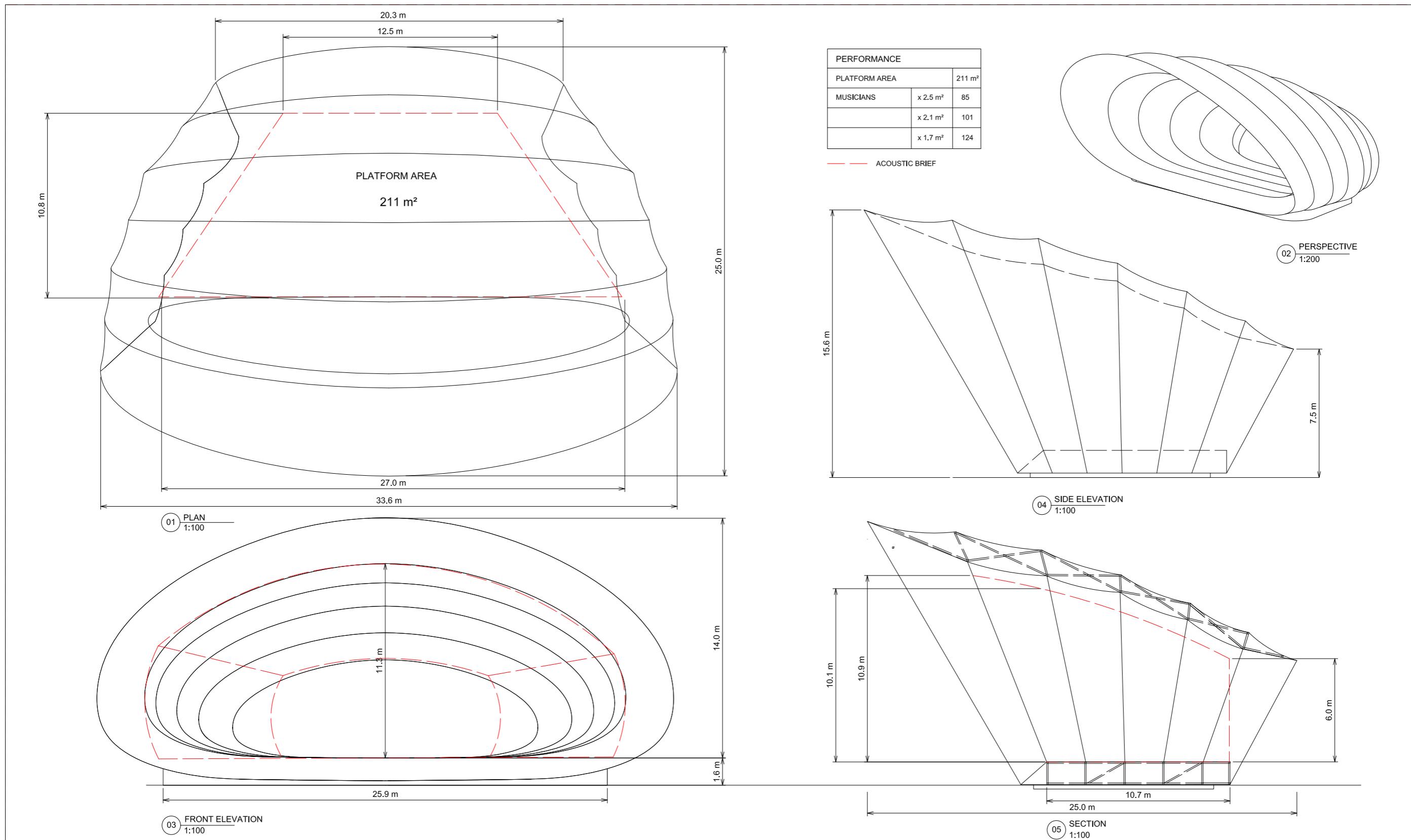
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Consultants:
EXPEDITION
ESG
ARUP ACOUSTICS



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Project:
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MEDIUM SHELL
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United Kingdom
Drawn By: NK | Issued By: PB | Date of First Issue: 21.10.2014
Project No: 27178 | Scale @ A: 100
Drawing No: A002 | Revision: 00



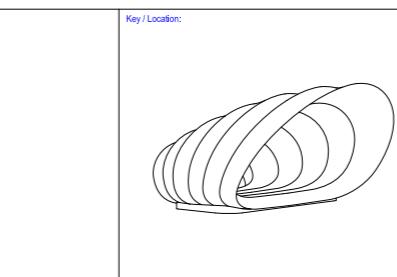
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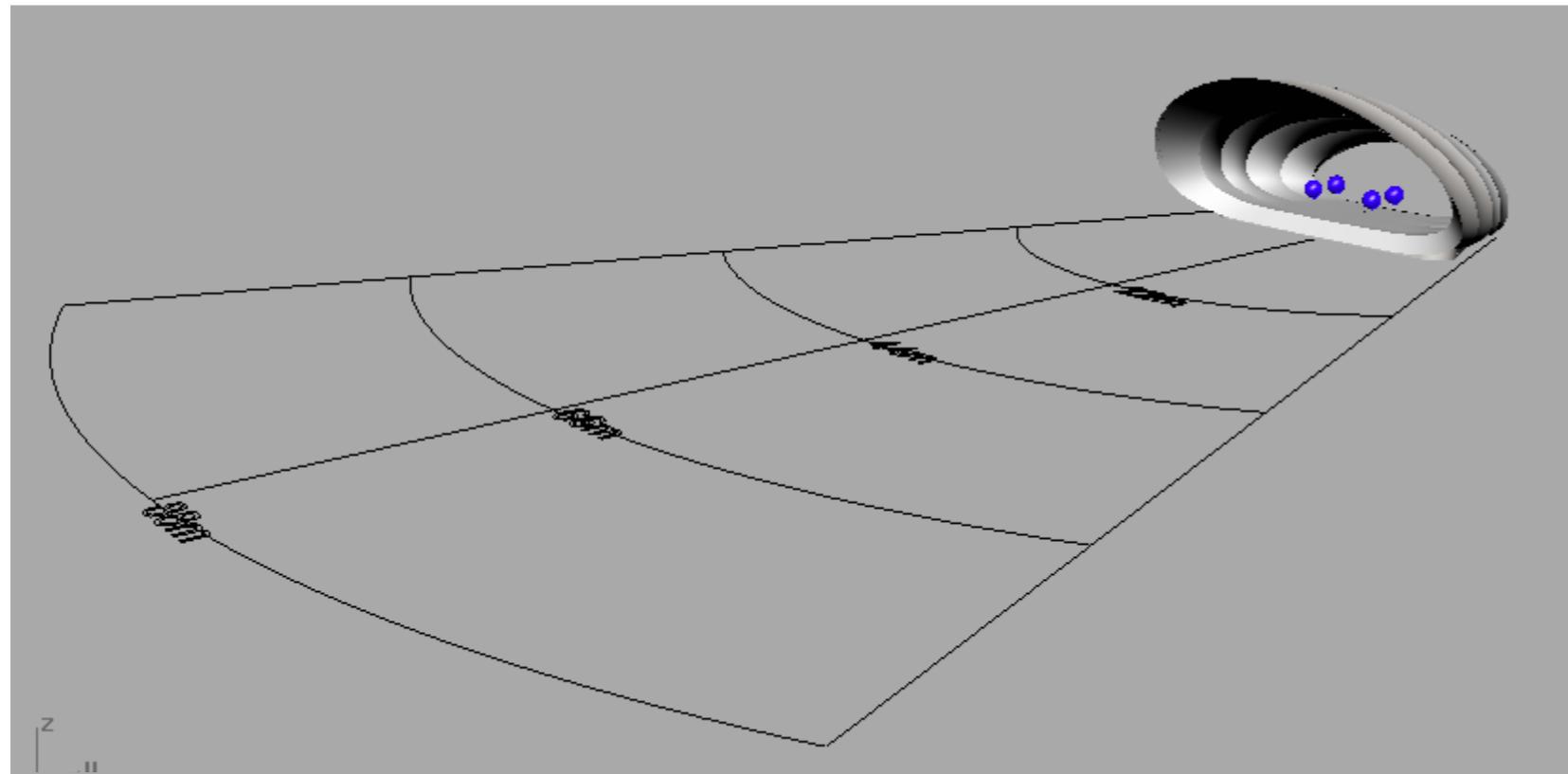
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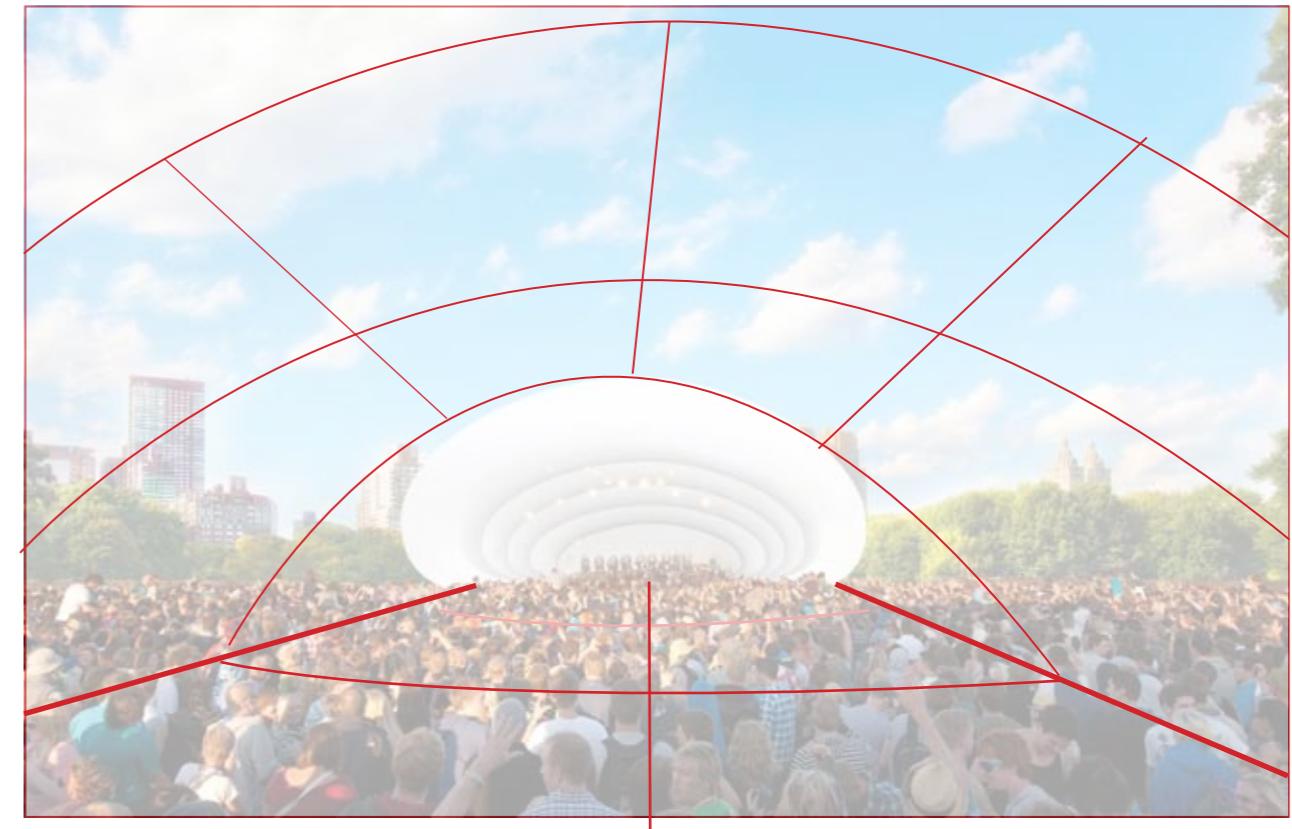
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Project:
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Drawing Title:
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Drawing No: A001
Revision: 00

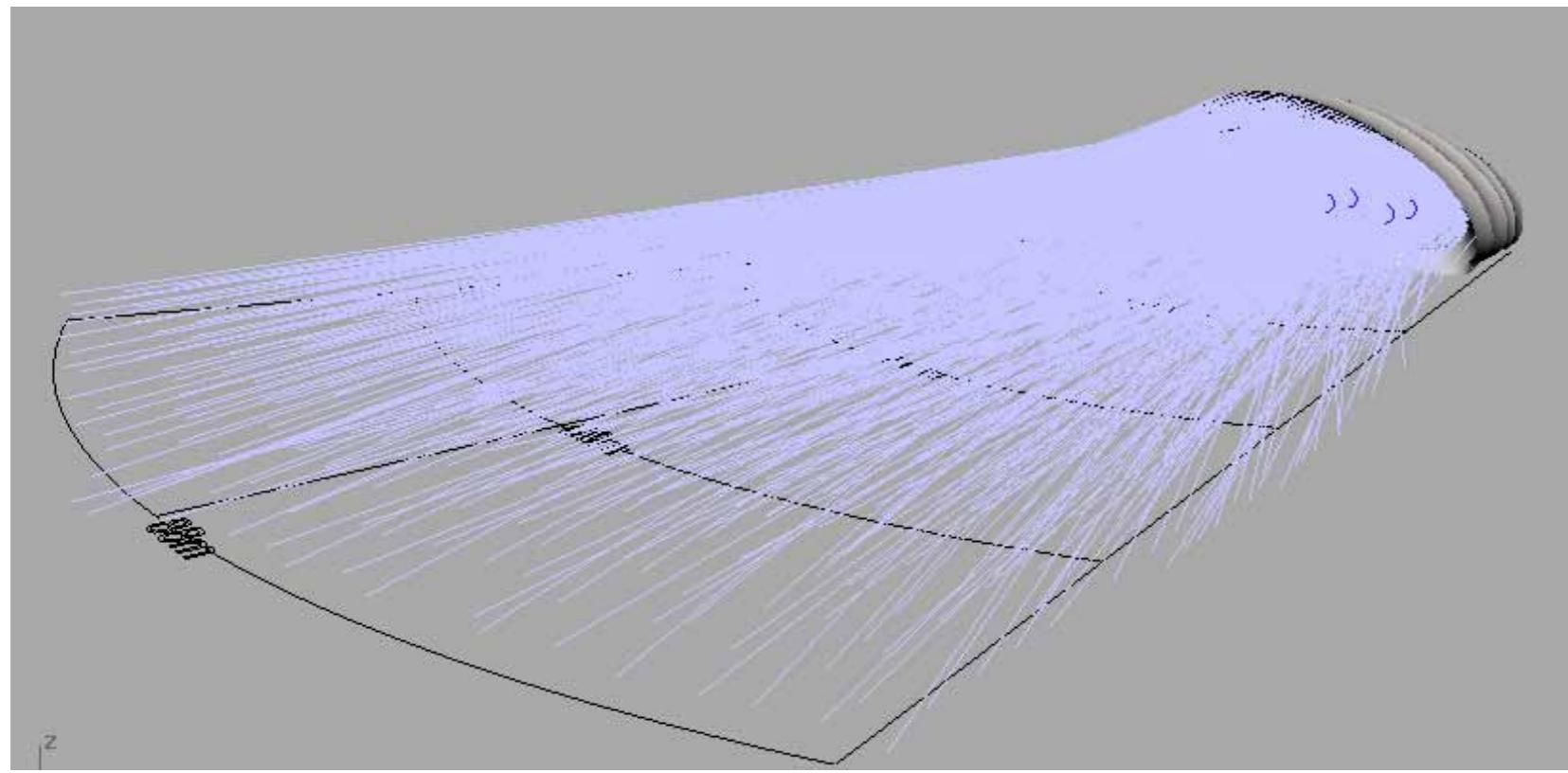
Site acoustic brief ...



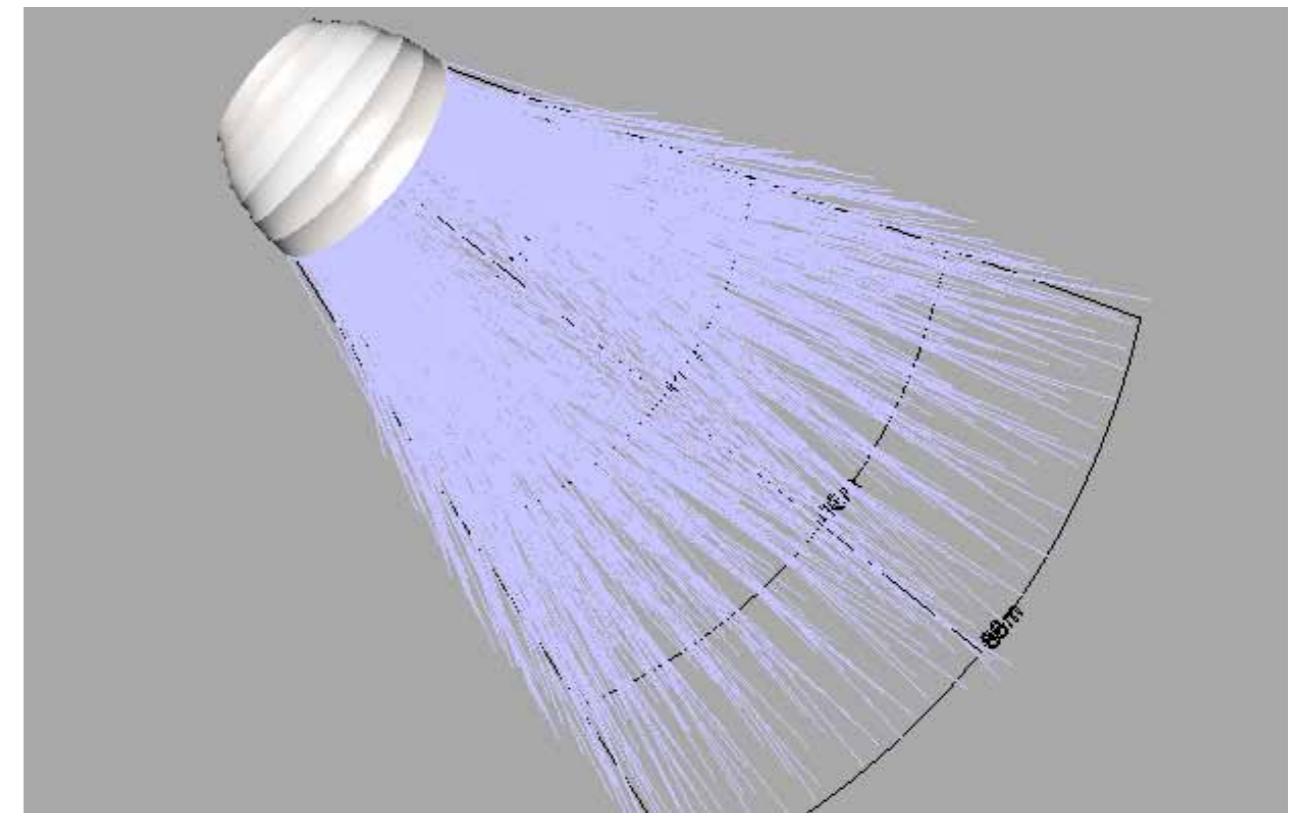
Sound sources and anticipated range ...



On site ...



80m range ...

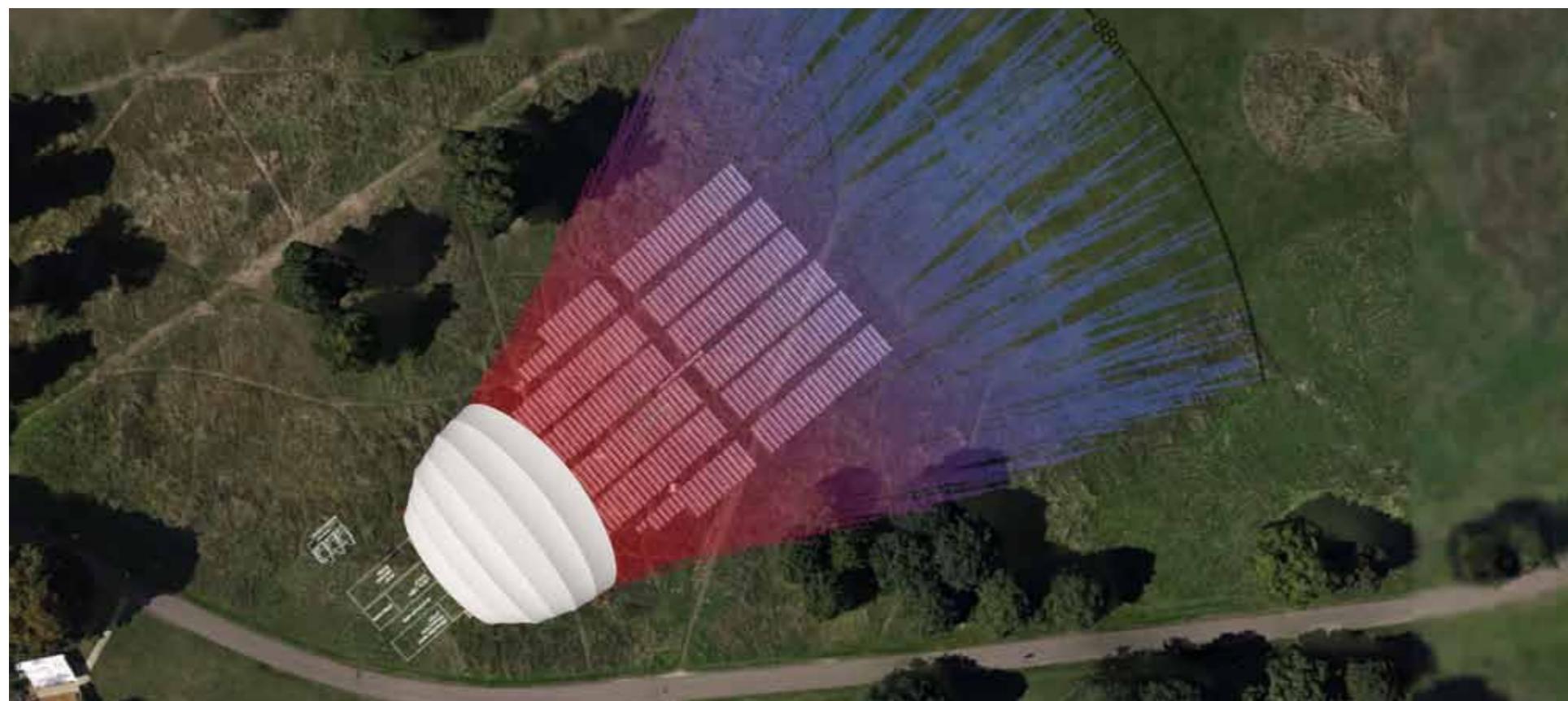


Plan ...

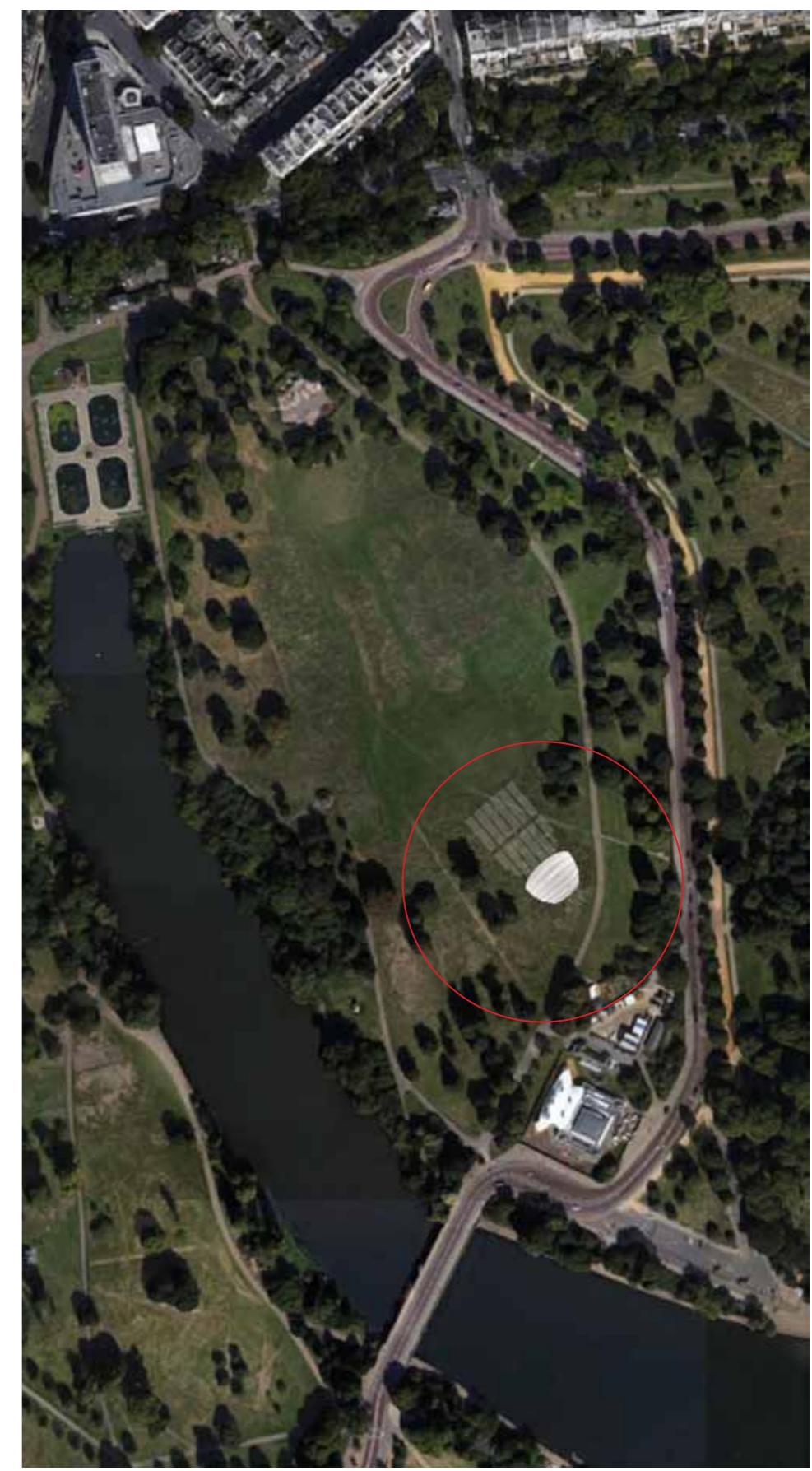
Typical installation ...



Typical layout ...



Typical acoustic throw ...



Integration into landscape ...

Typical installation ...









Appendix.

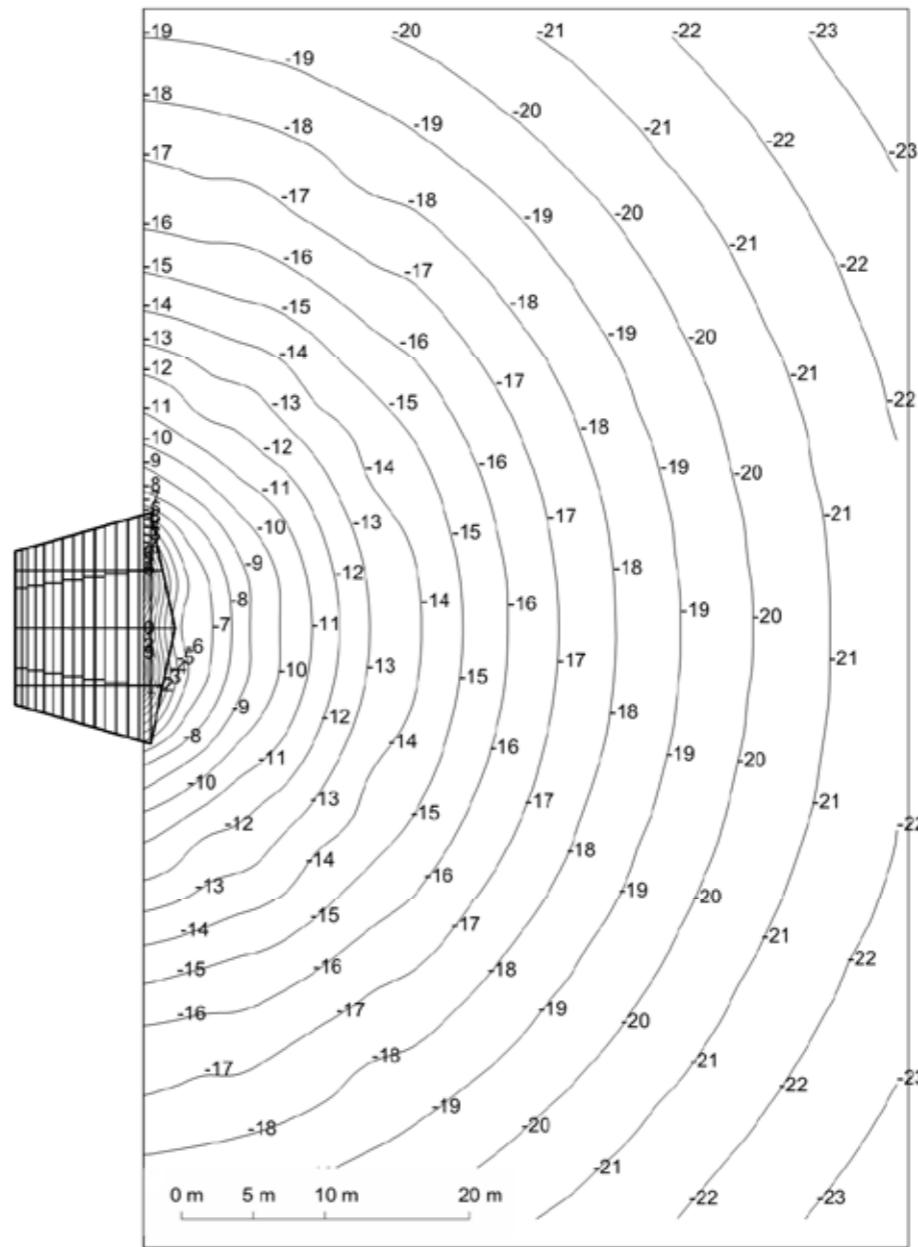
01. Arup large shell contour Diagrams

02. ES Global technical information

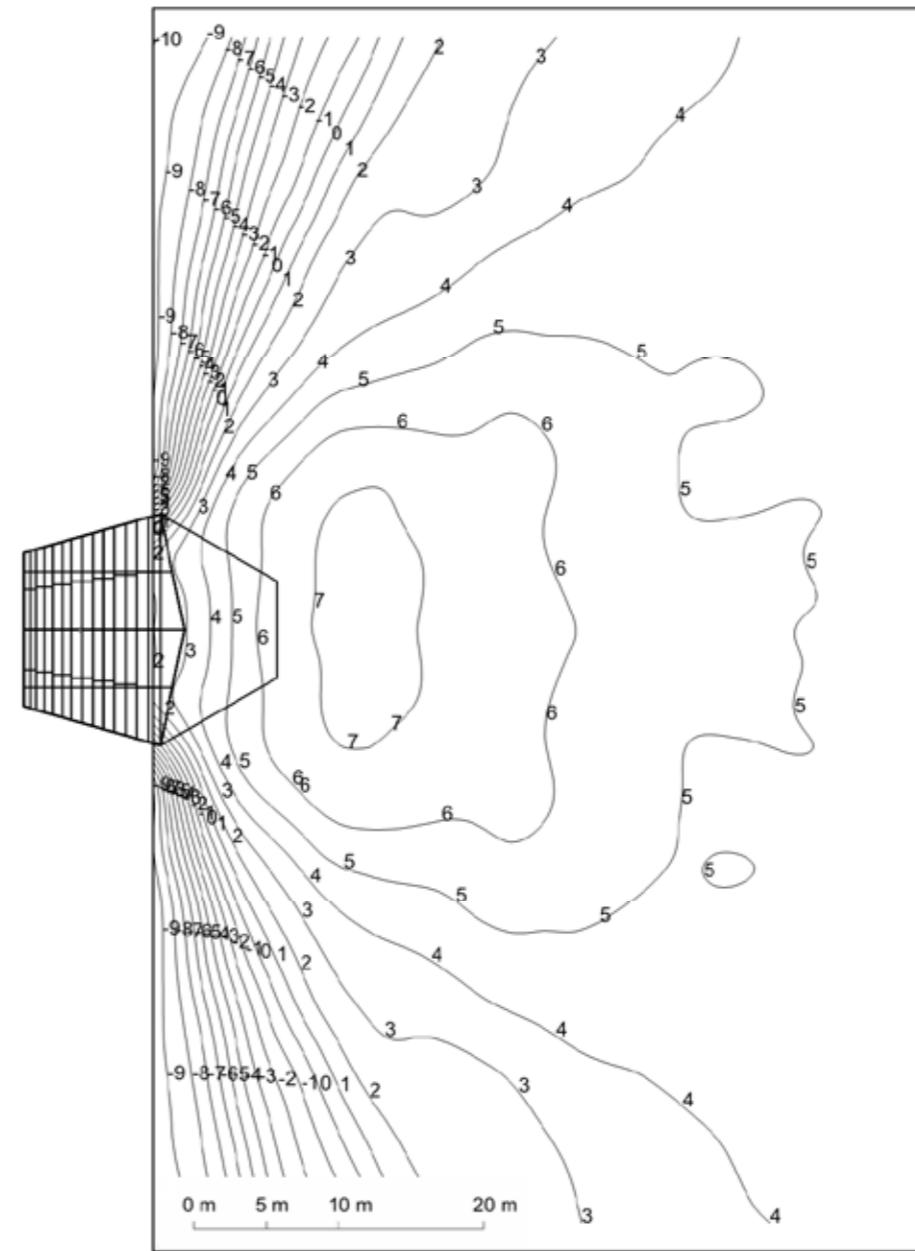
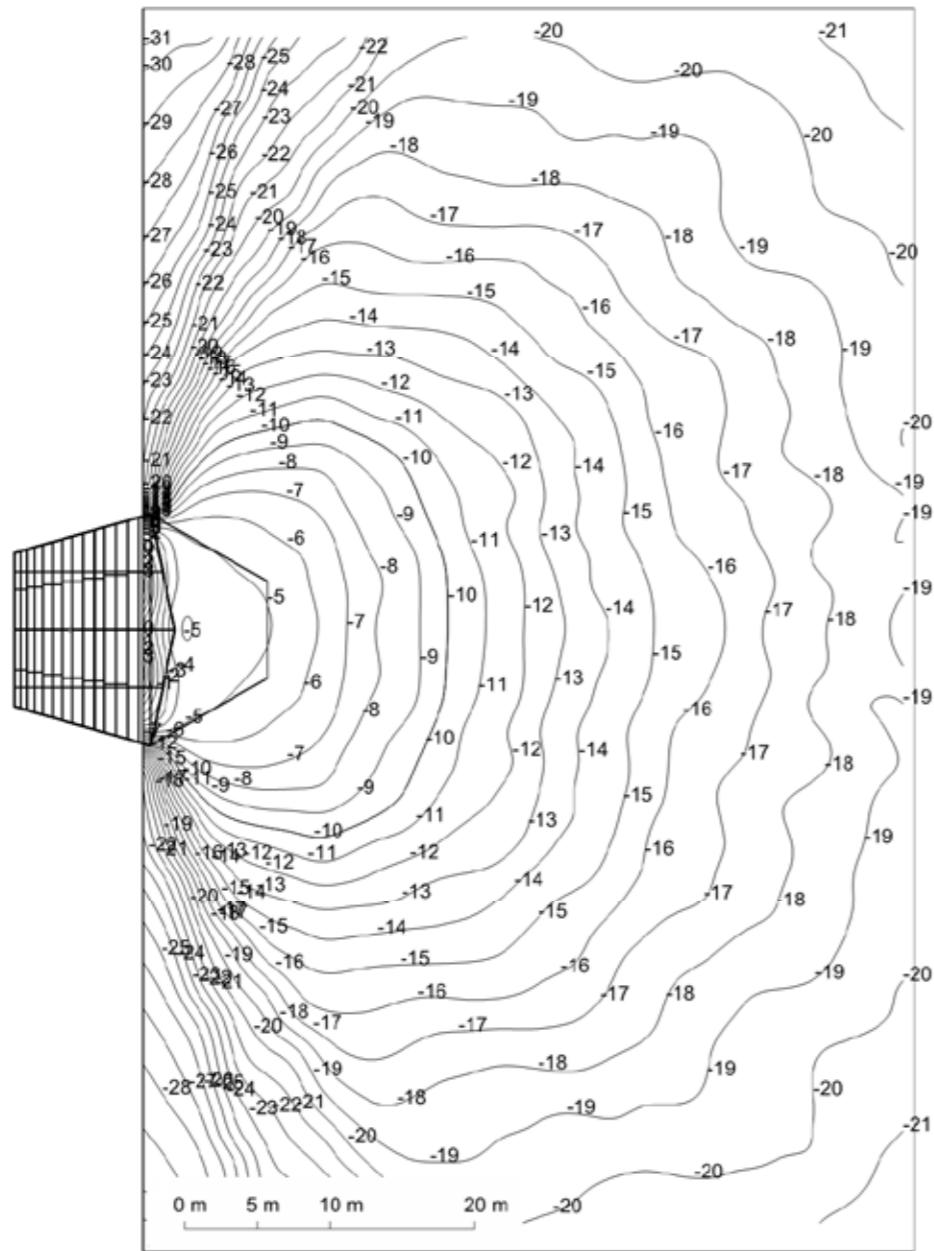
B1 Large Orchestra Shell – Acoustic Diagrams

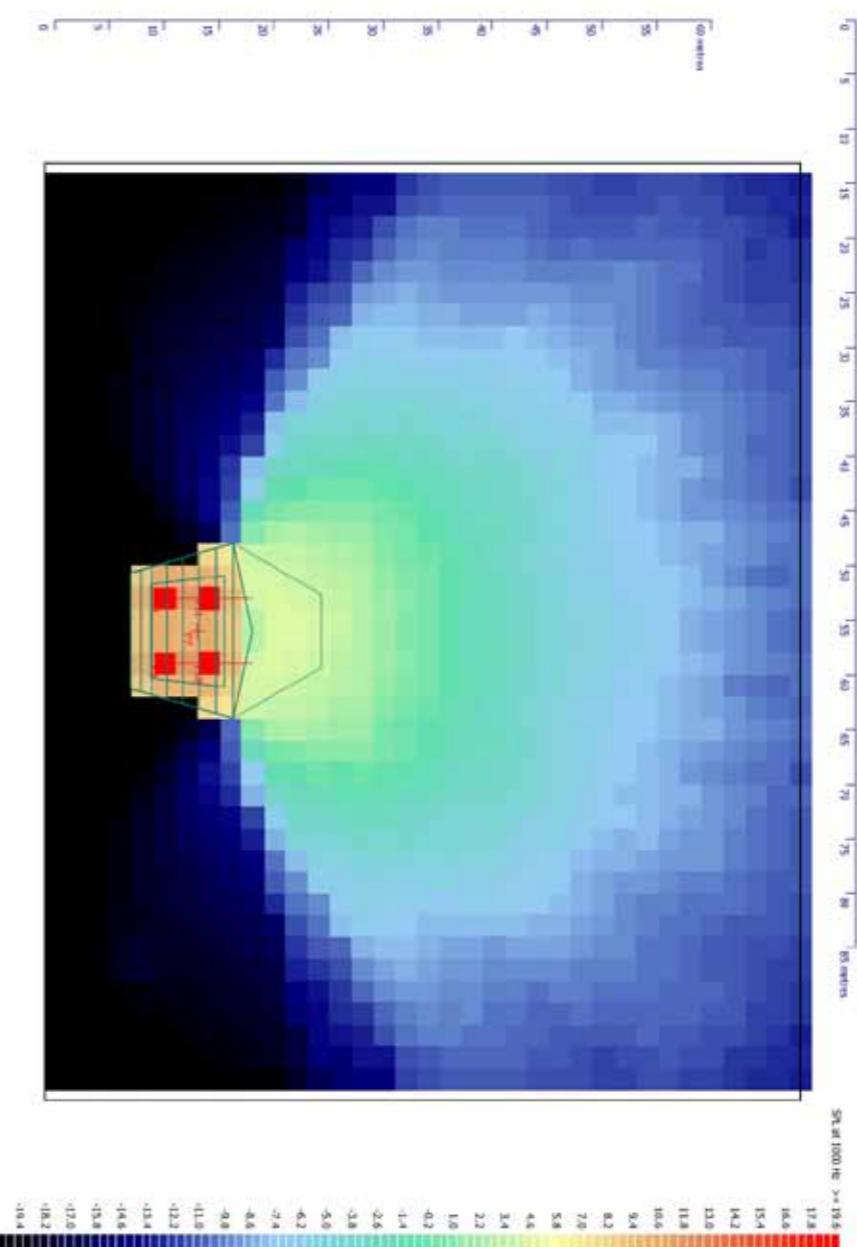
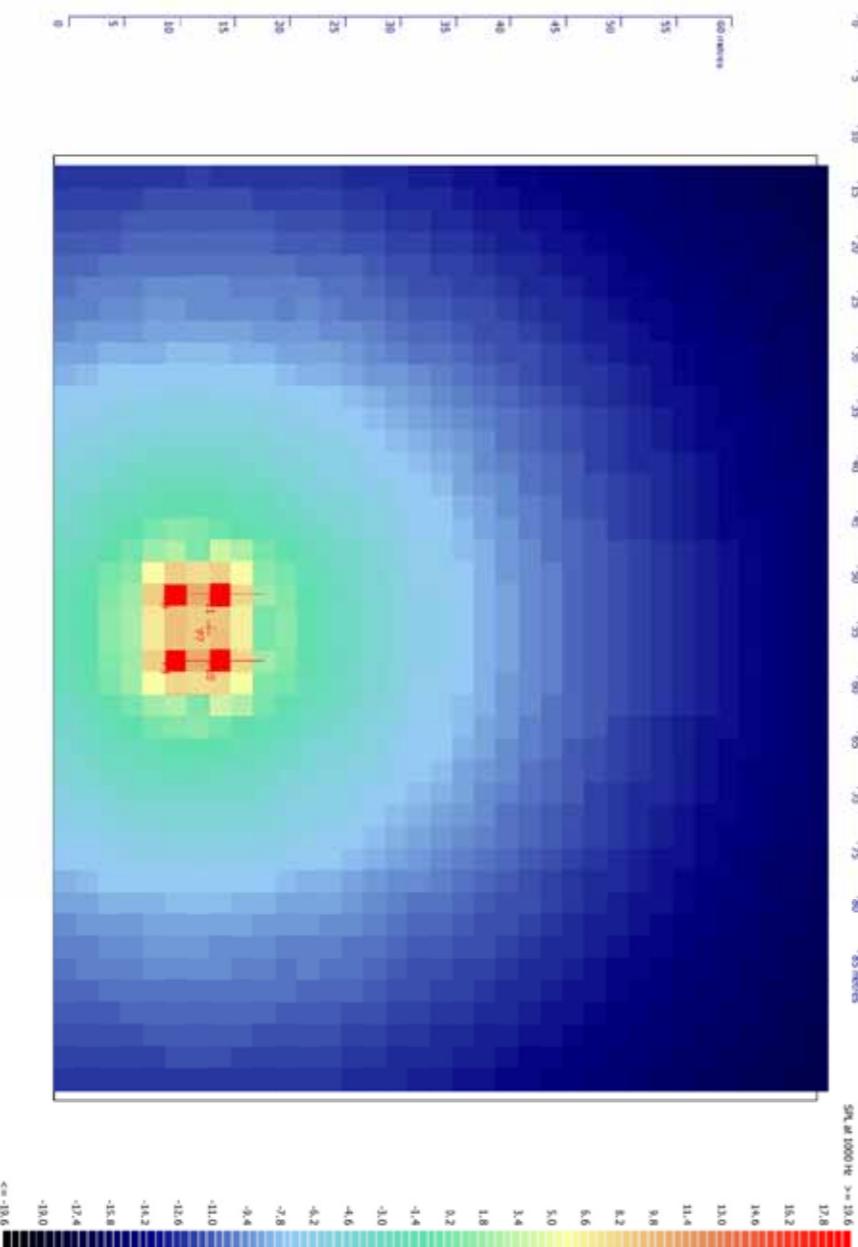
ArupAcoustics

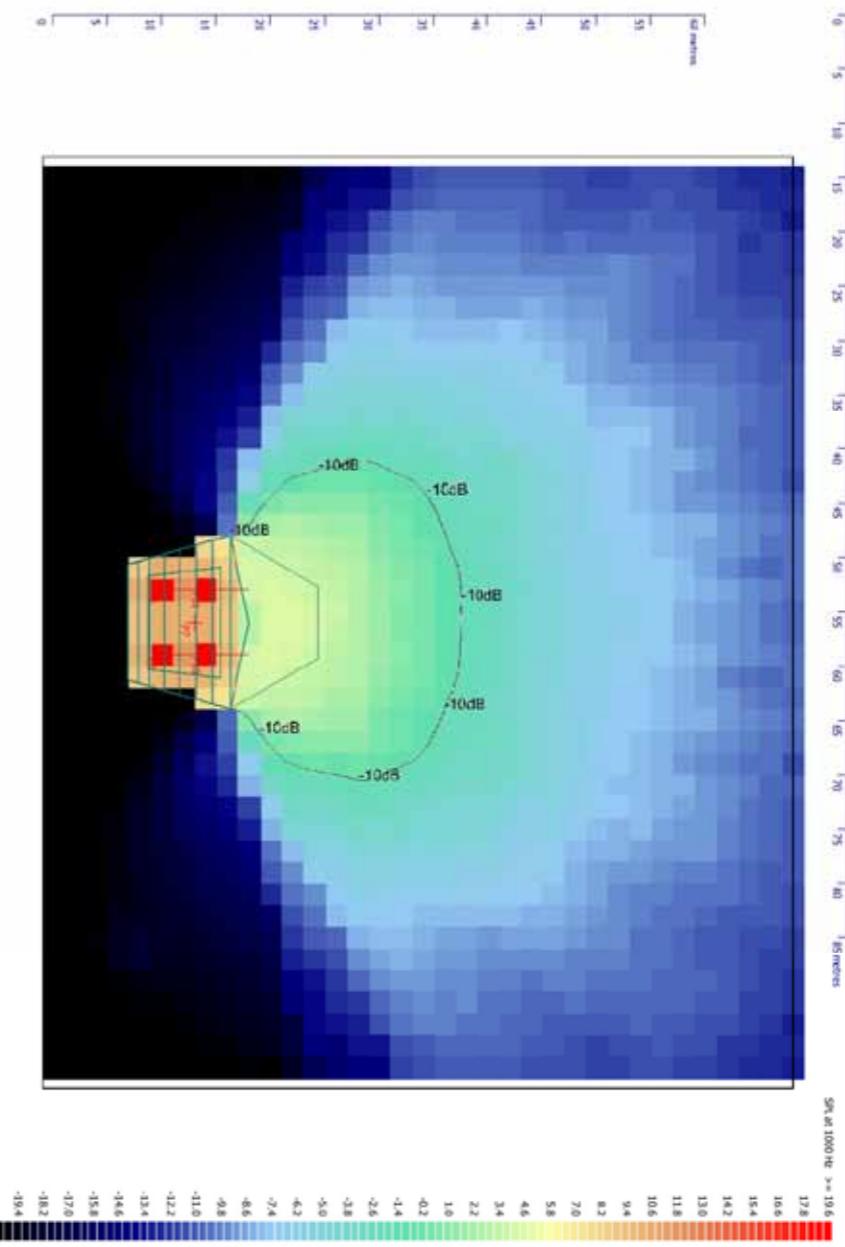
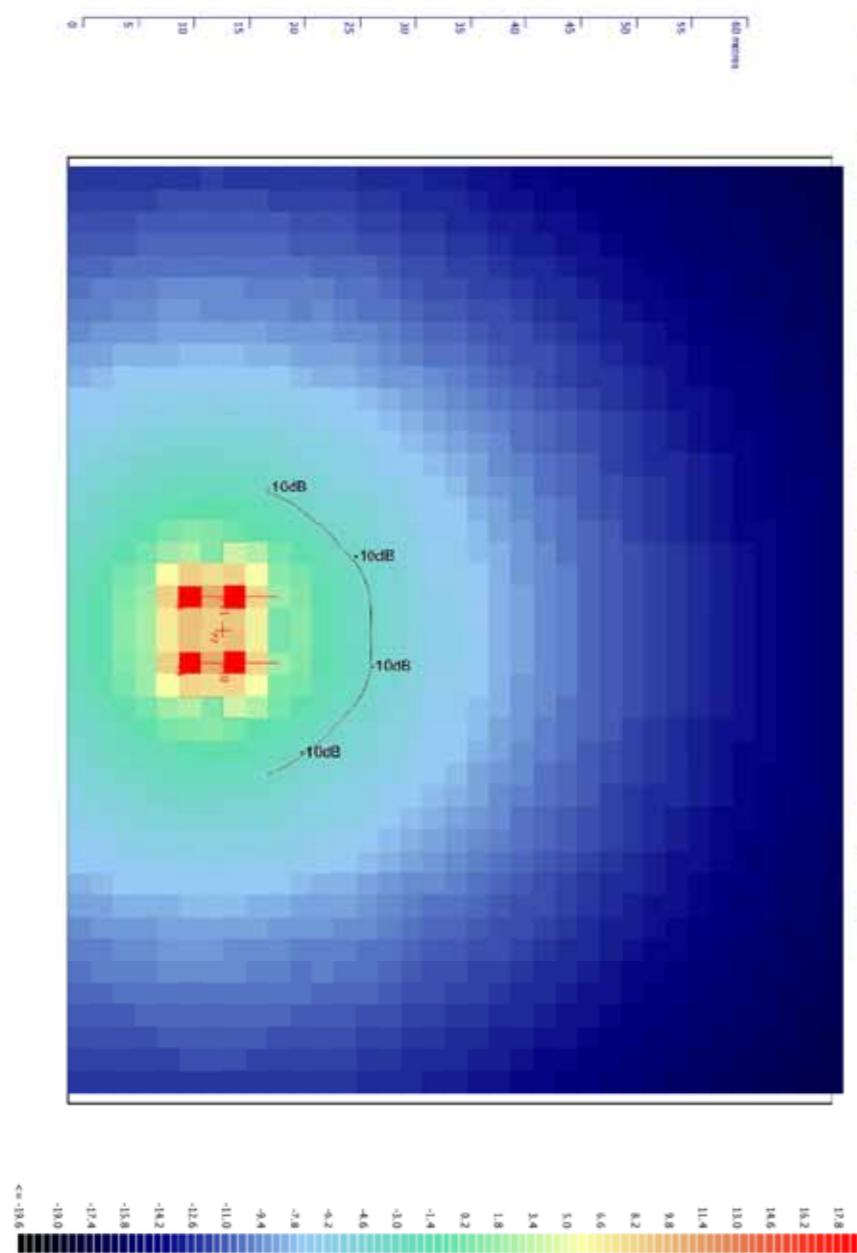
Appendix B Large Orchestra Shell

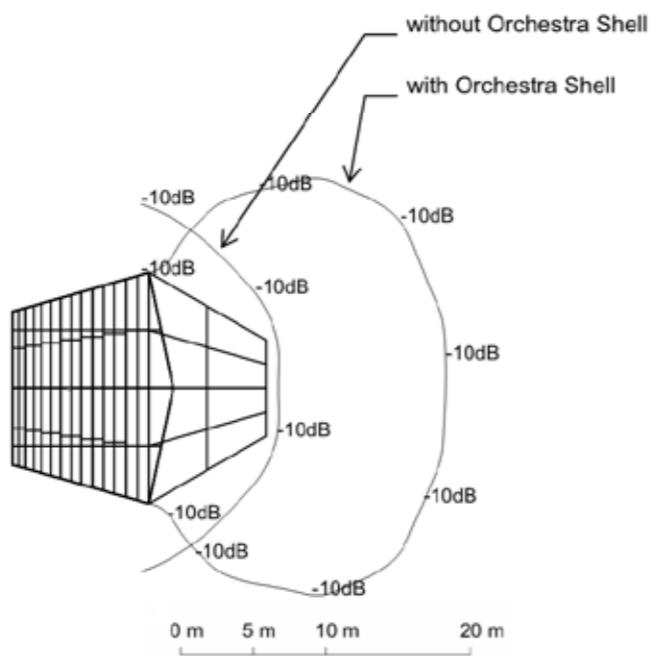


Relative Sound Levels (dB) in audience area to Conductor's position on platform without Orchestra Shell









Comparison of -10dB Sound Level contour lines with and without
Orchestra Shell
(-10dB reduction is subjective halving of sound Level)

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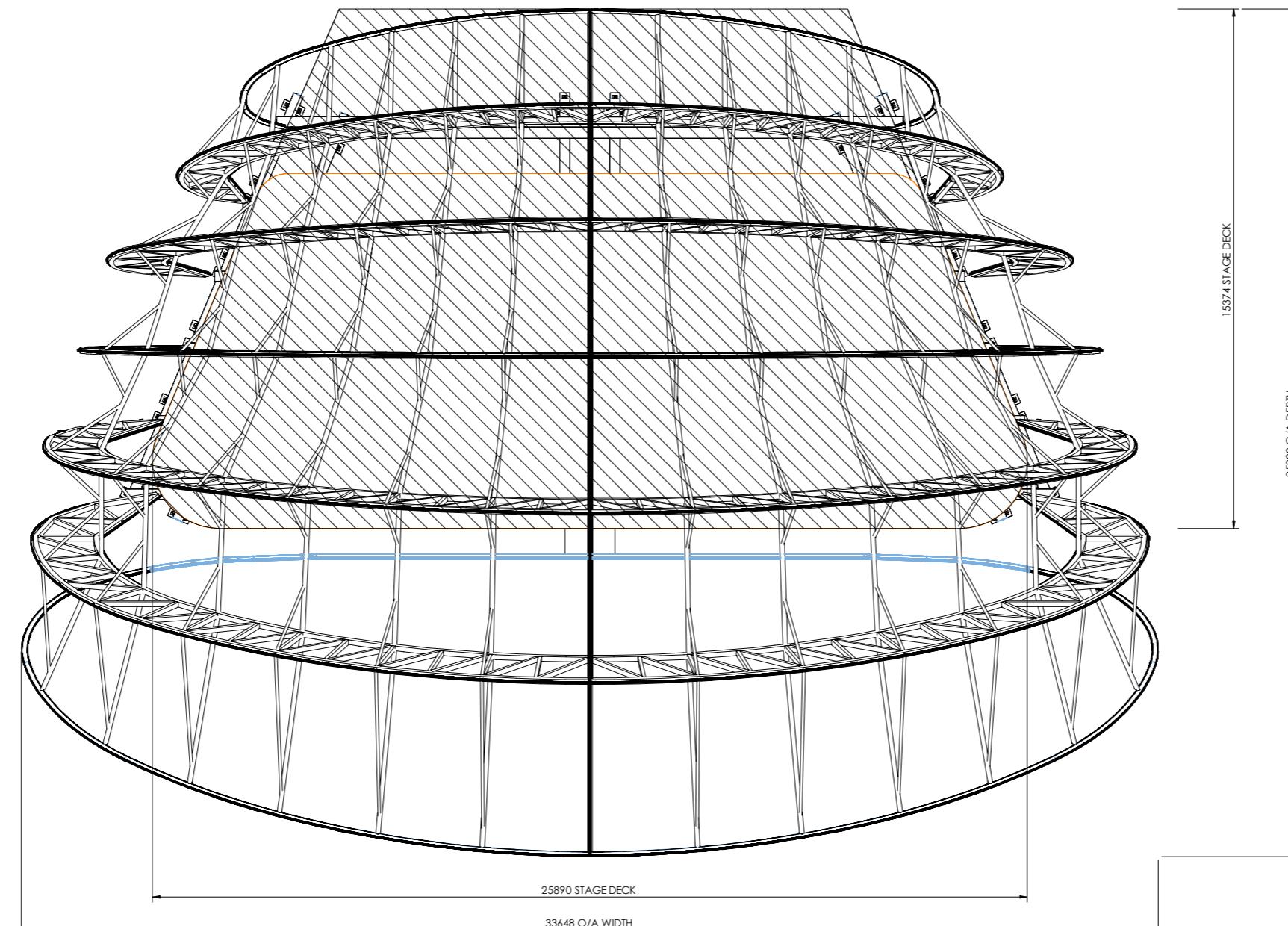
3rd Angle Projection



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NOTES



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09.04.15	1:150	A3	
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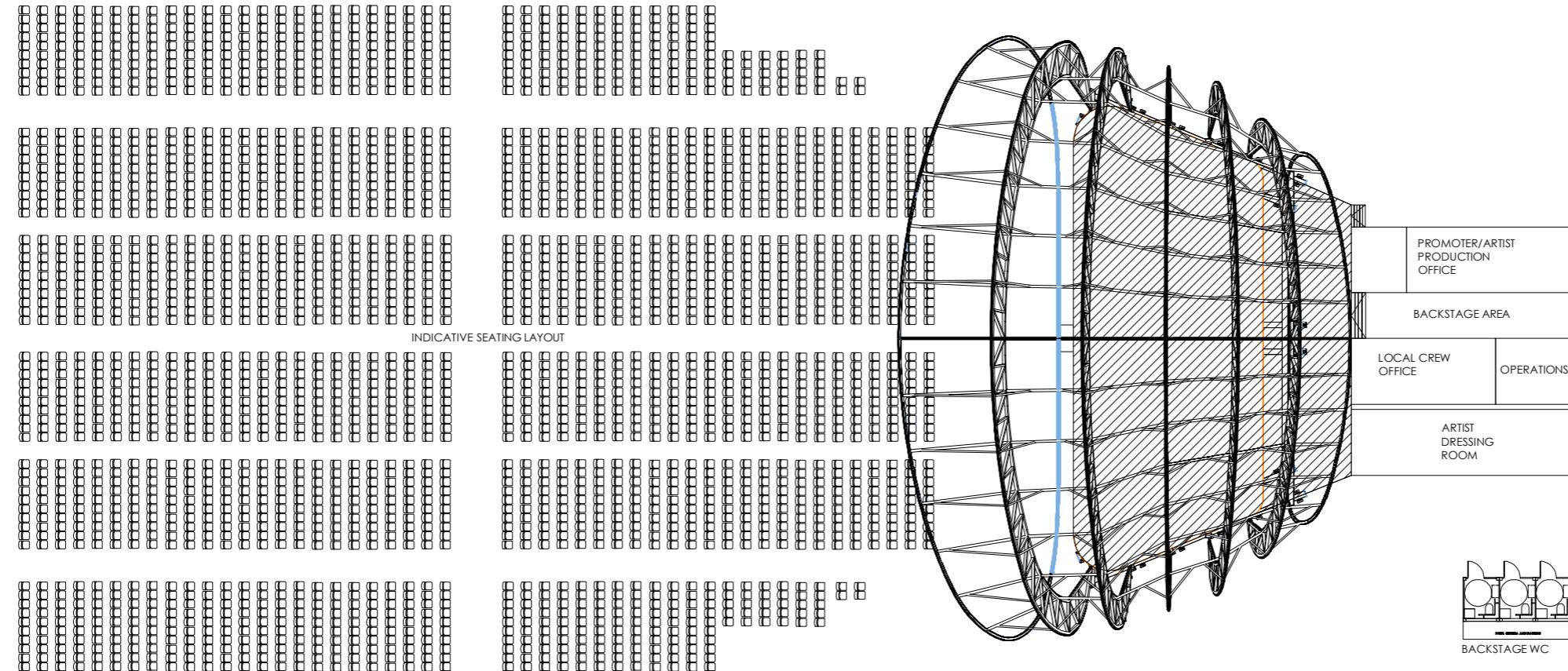


3rd Angle Projection



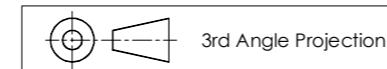
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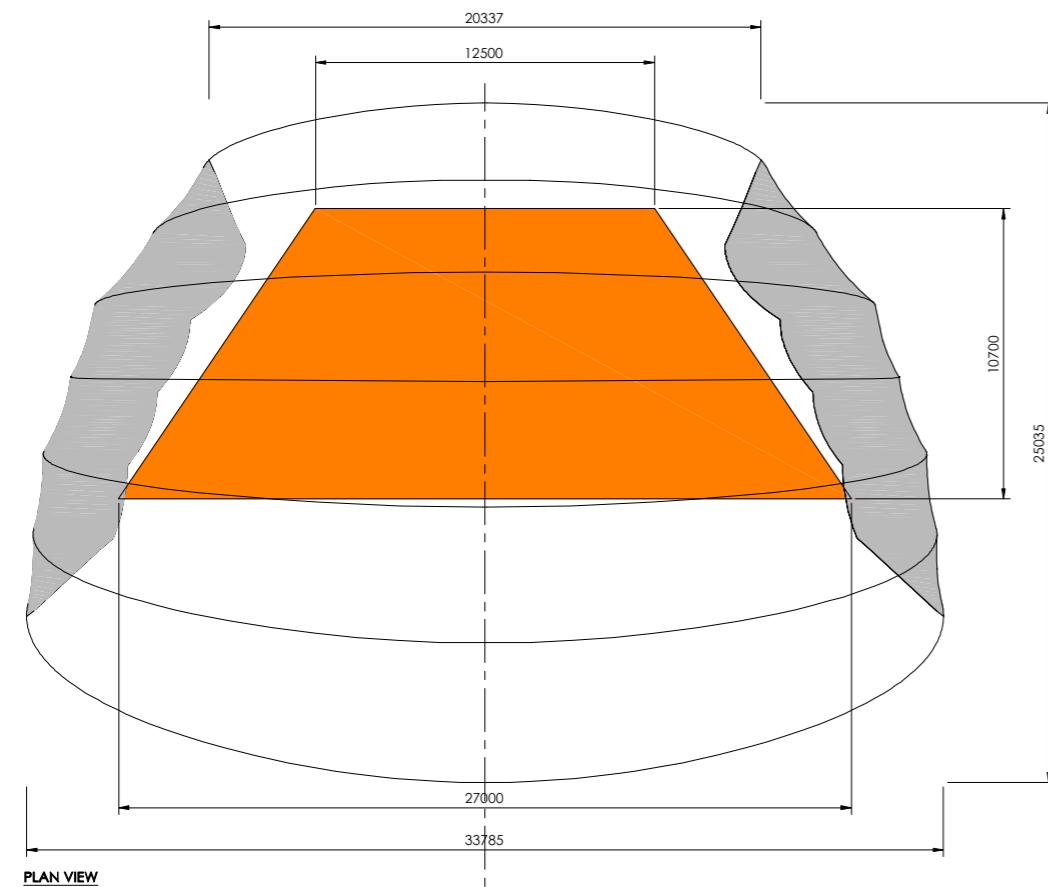
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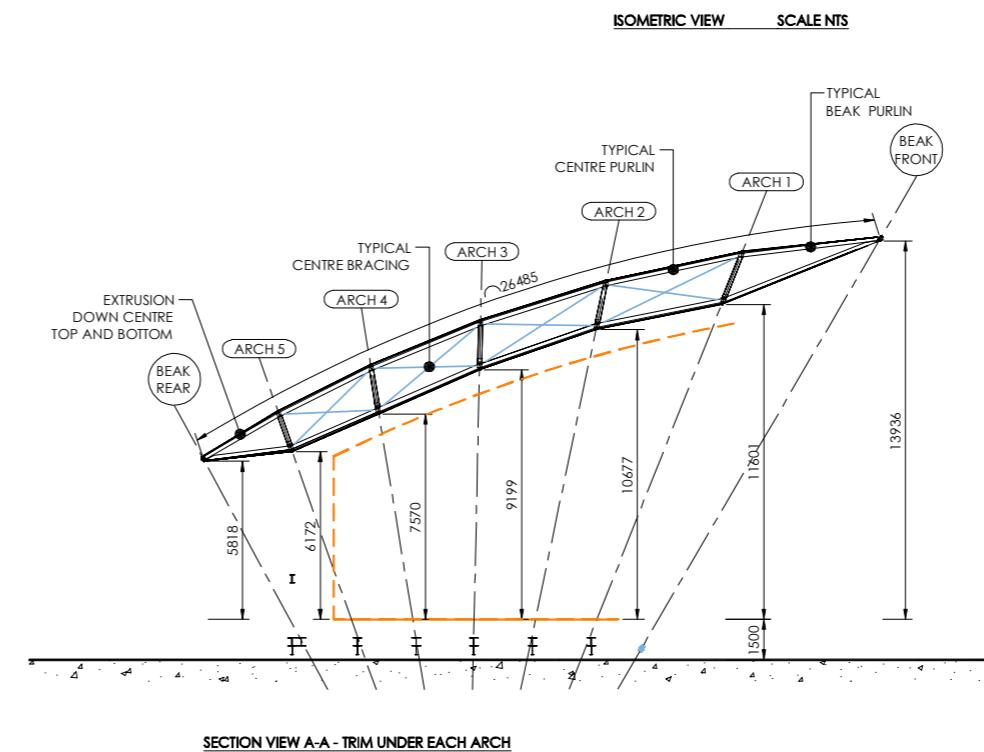
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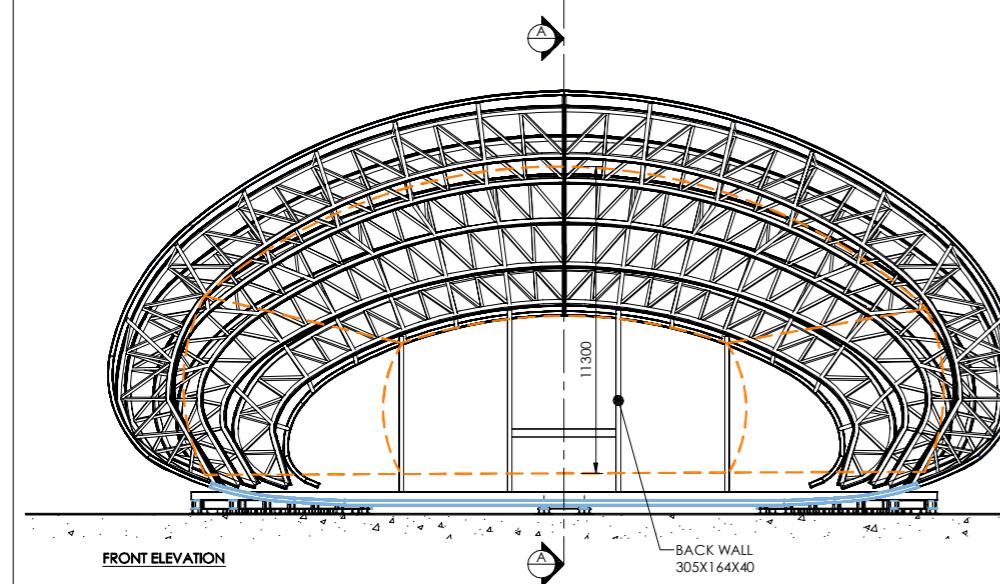
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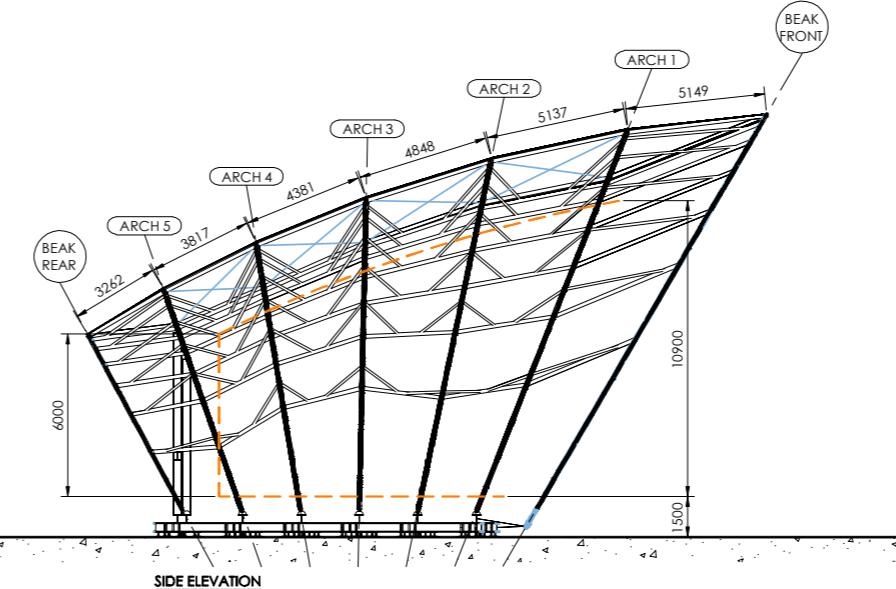
PLAN VIEW



SECTION VIEW A-A - TRIM UNDER EACH ARCH



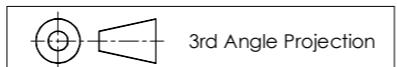
FRONT ELEVATION



SIDE ELEVATION

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DEVELOPMENT	OW			
DRAWING NO				REV
NXXXX-DD-100				0

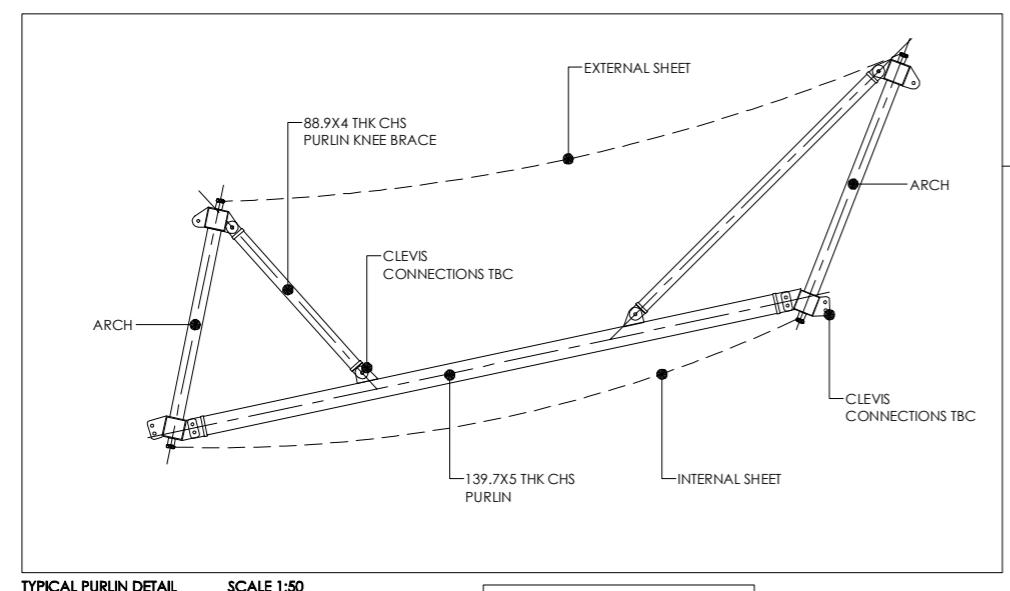
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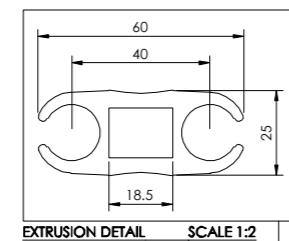
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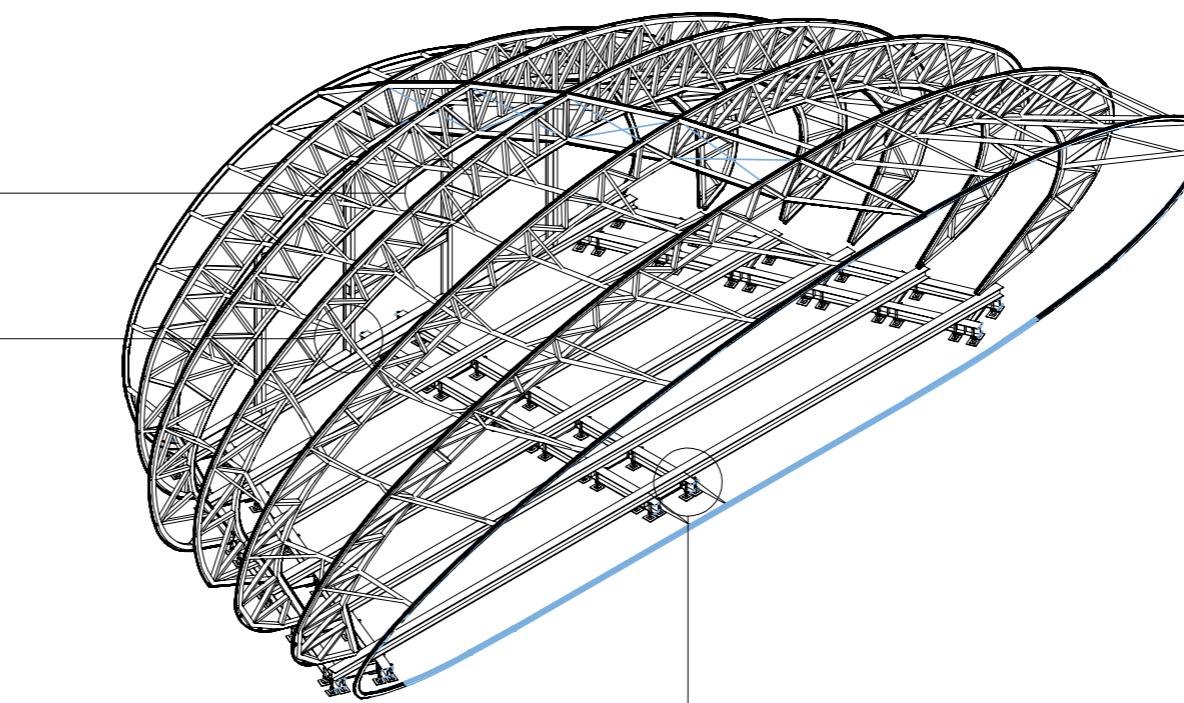
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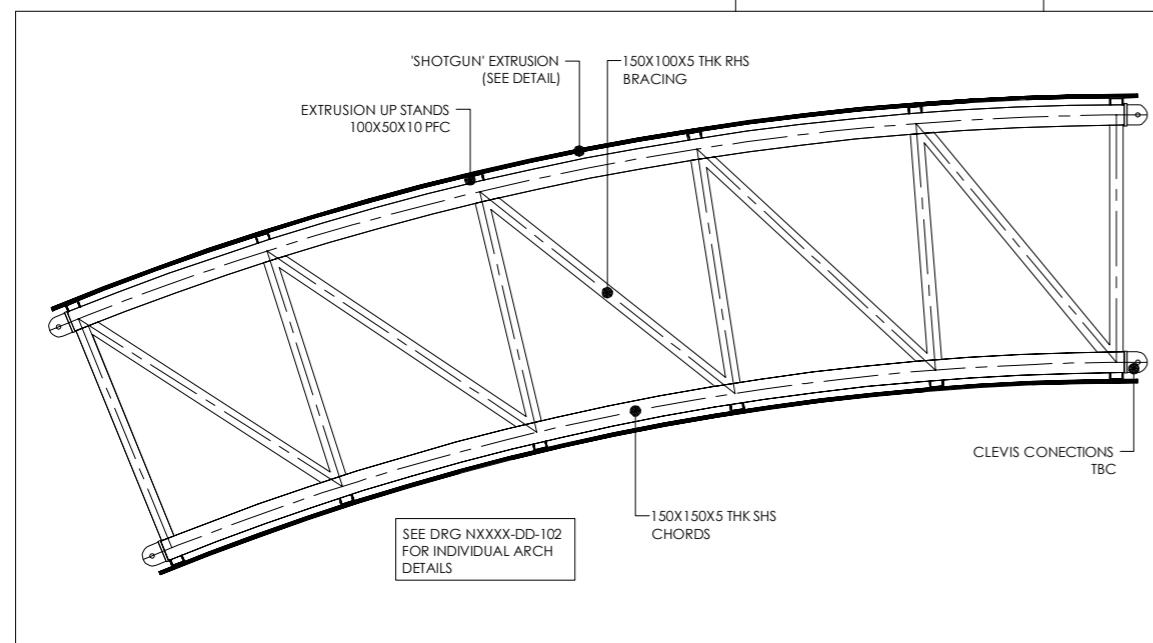
TYPICAL PURLIN DETAIL SCALE 1:50



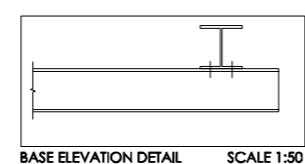
EXTRUSION DETAIL SCALE 1:2



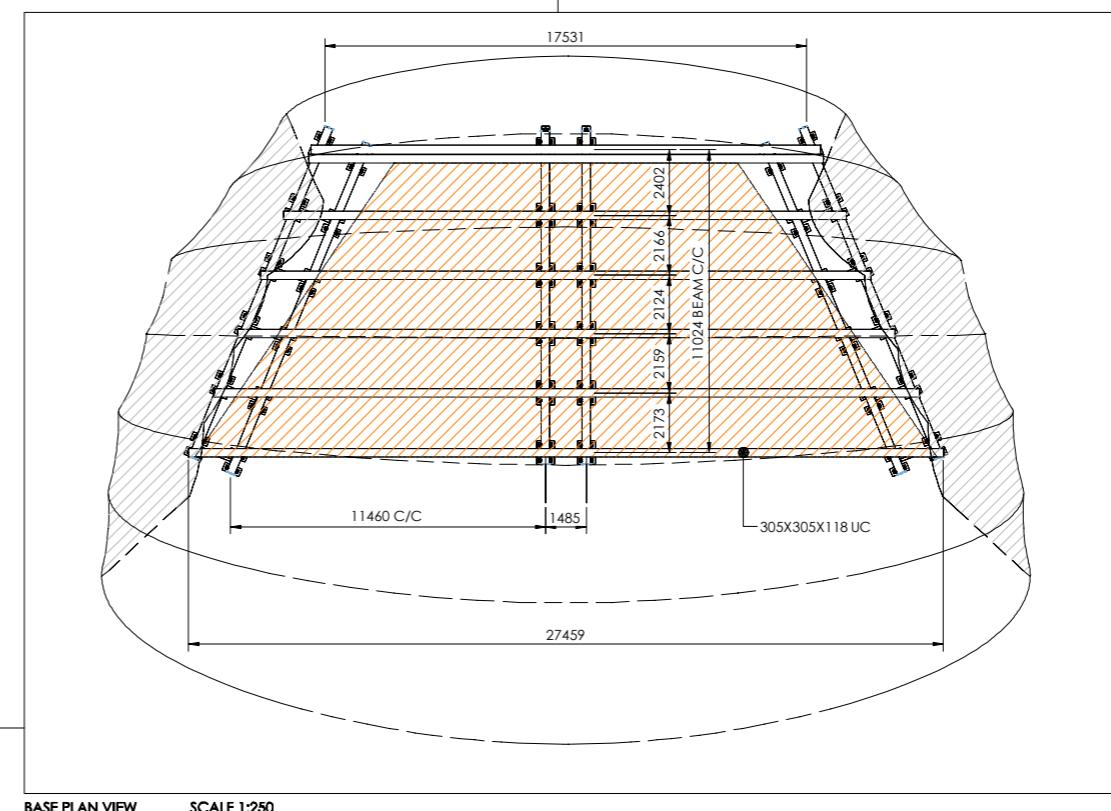
ISOMETRIC VIEW SCALE NTS



TYPICAL TRUSS SECTION DETAIL SCALE 1:50



BASE ELEVATION DETAIL SCALE 1:50



BASE PLAN VIEW SCALE 1:250

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DRAWING TITLE						
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GENERAL ARRANGEMENT						
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Sound Forms Ltd (registered company no: 06904328) own all the IP Rights of its Mobile Acoustic Performance Shells and operates as the main manufacturing contractor and sales point internationally.

Product is built to order, customer deposit paid, completion payments
Received ex-factory. ES Global is the Sound Forms Ltd Delivery and Installation Partner.



Flanagan Lawrence

www.flanaganlawrence.com

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



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 Plc.



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