

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



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.

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



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



Vladimir Jurowski: London Philharmonic Orchestra

Harrison Parrott

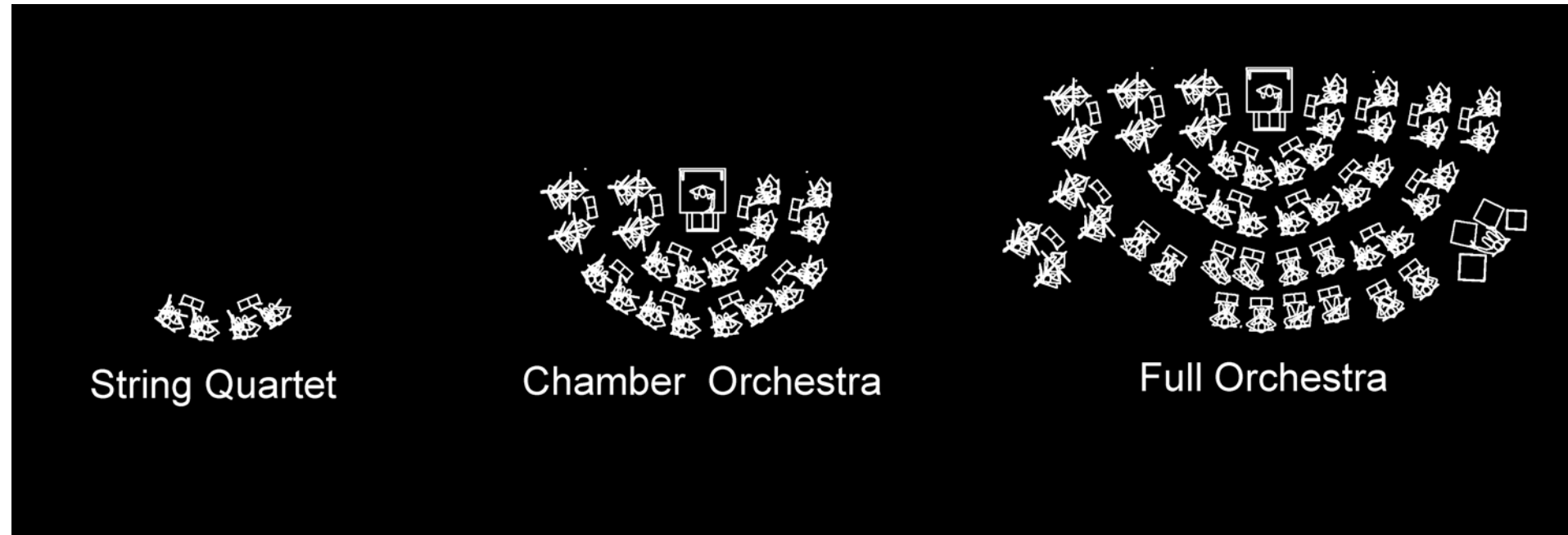
Innovation, expertise and responsiveness have been the hallmarks of HarrisonParrott ever since its foundation in 1969. Working collaboratively with our clients and partners, we continue to set the standard in every branch of our professional activities – including artist management, tours and projects,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

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.

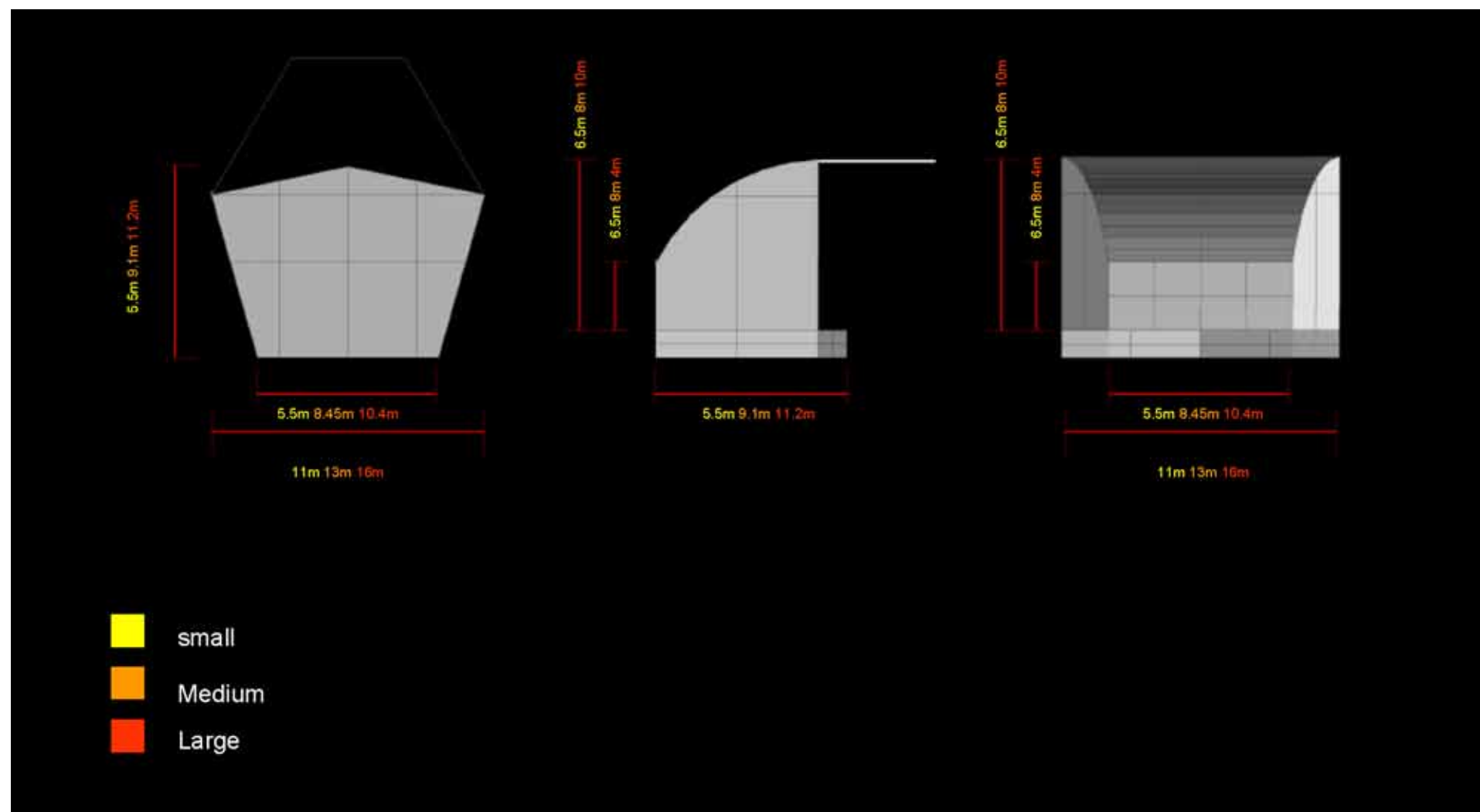
The overall dimensions of the orchestra shell are directly proportional to the size of the orchestra.

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

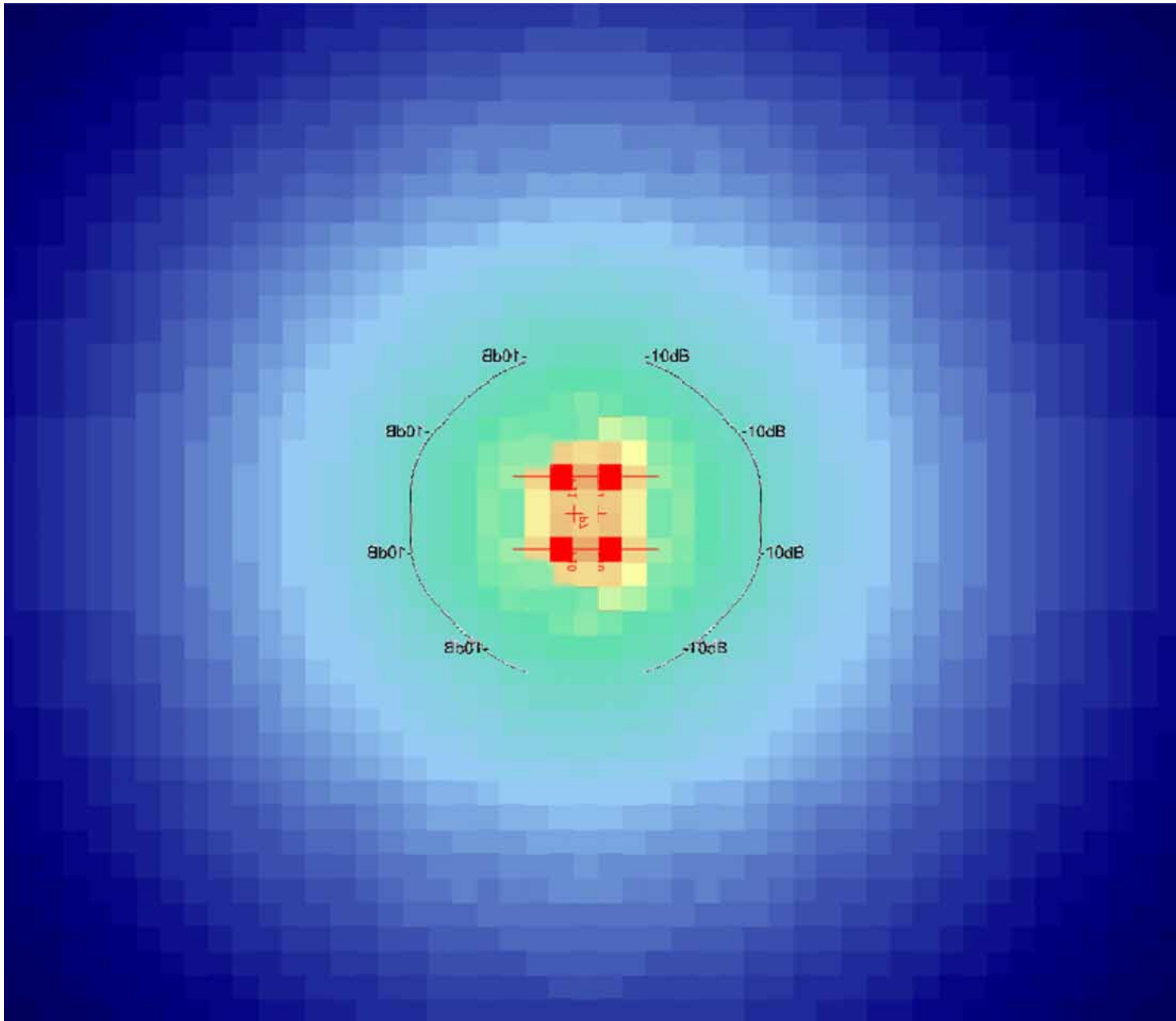
Large Shell: Romantic era orchestra, based on up to 100+ musicians.

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

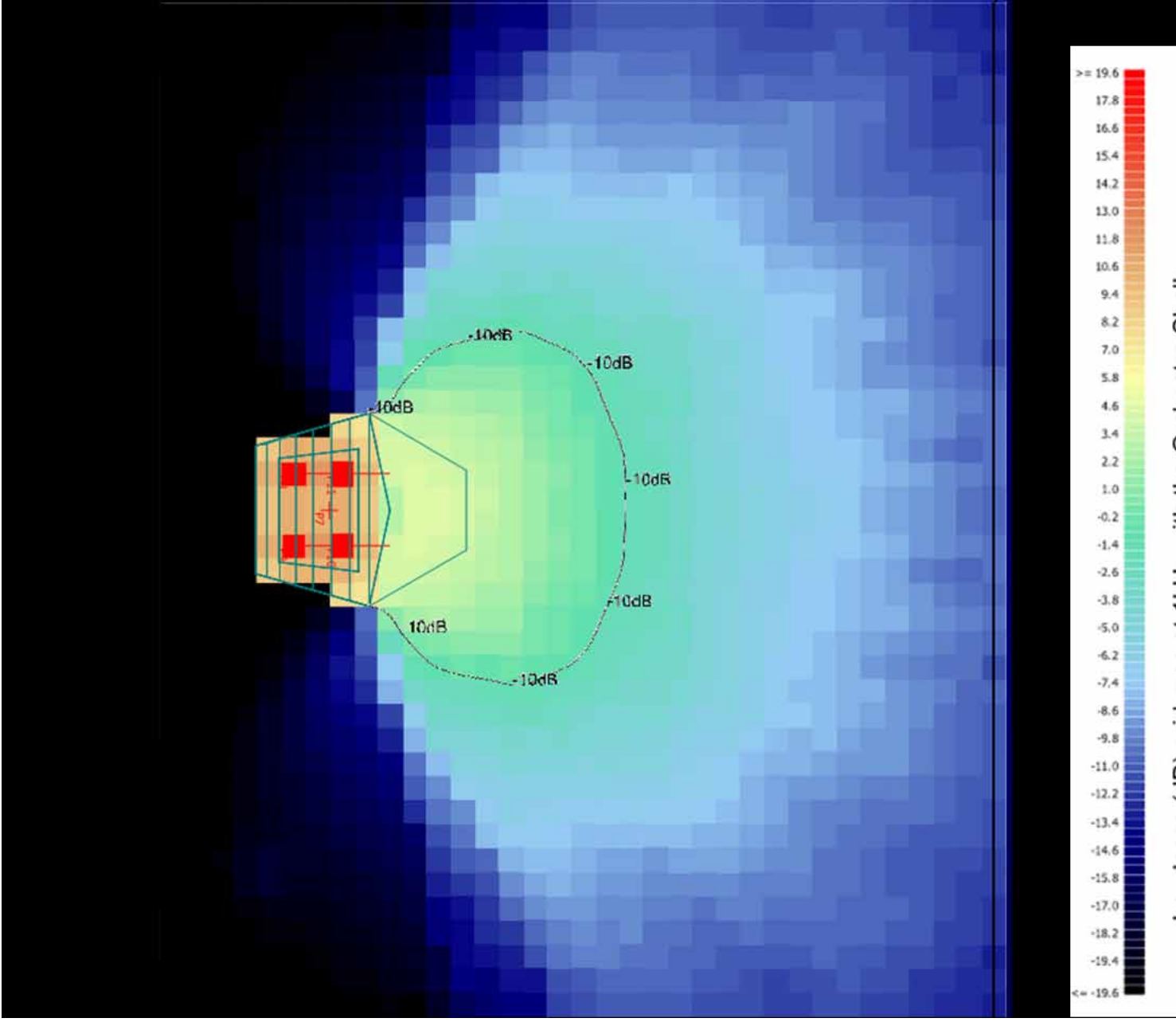
Small Shell: Small ensemble, such as a quartet or quintet, and can go up to 15 musicians.



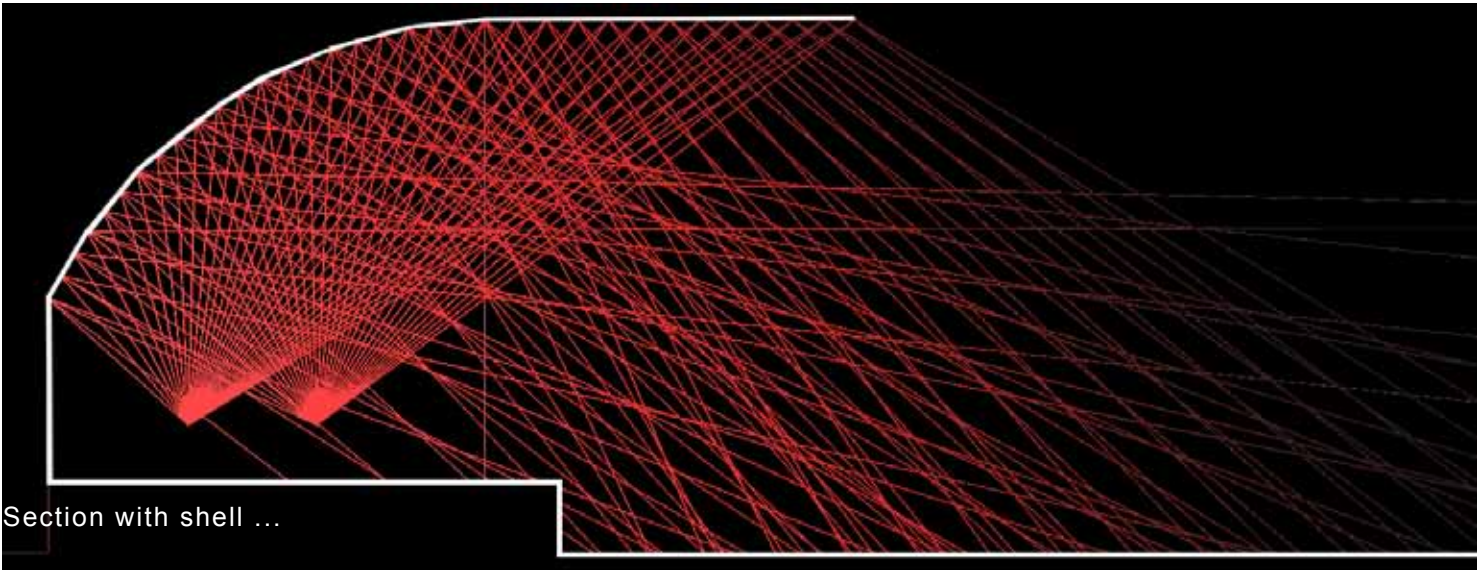
Acoustics ...



Without shell ...

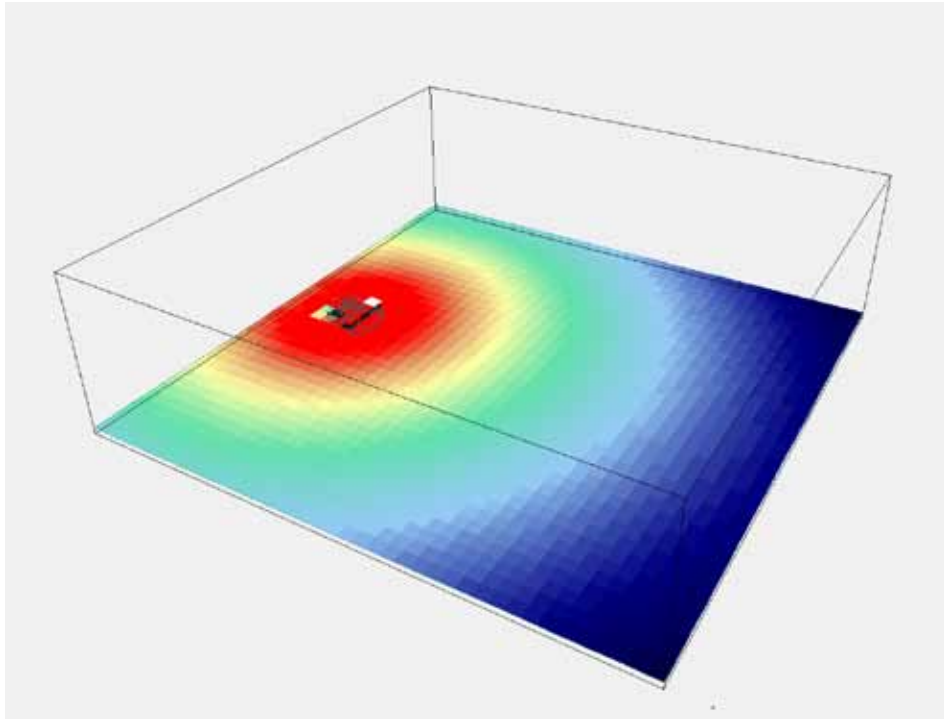


With shell ...

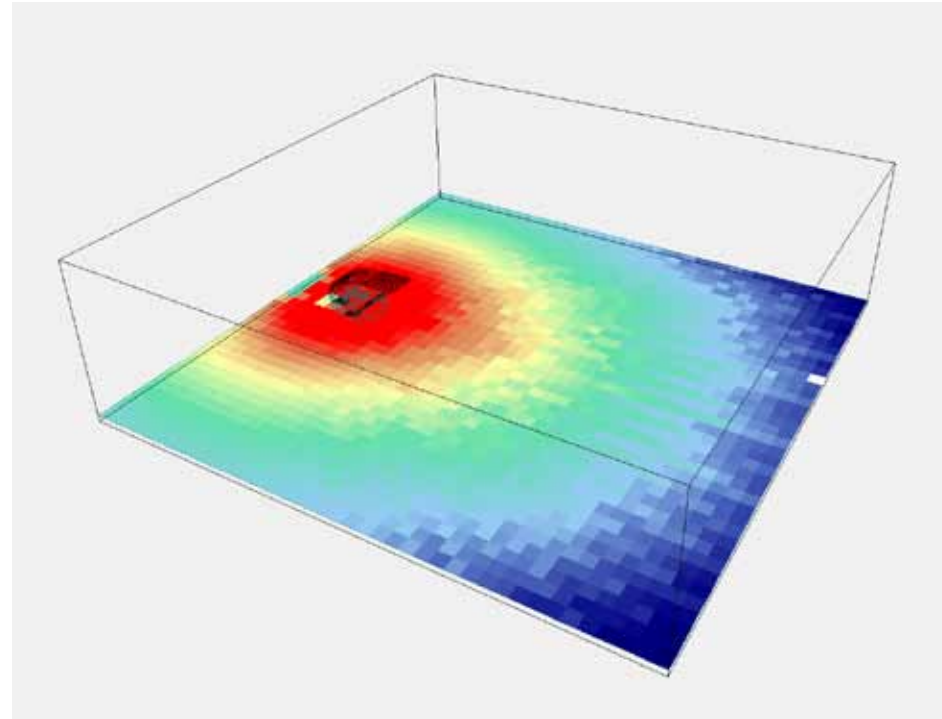


Section with shell ...

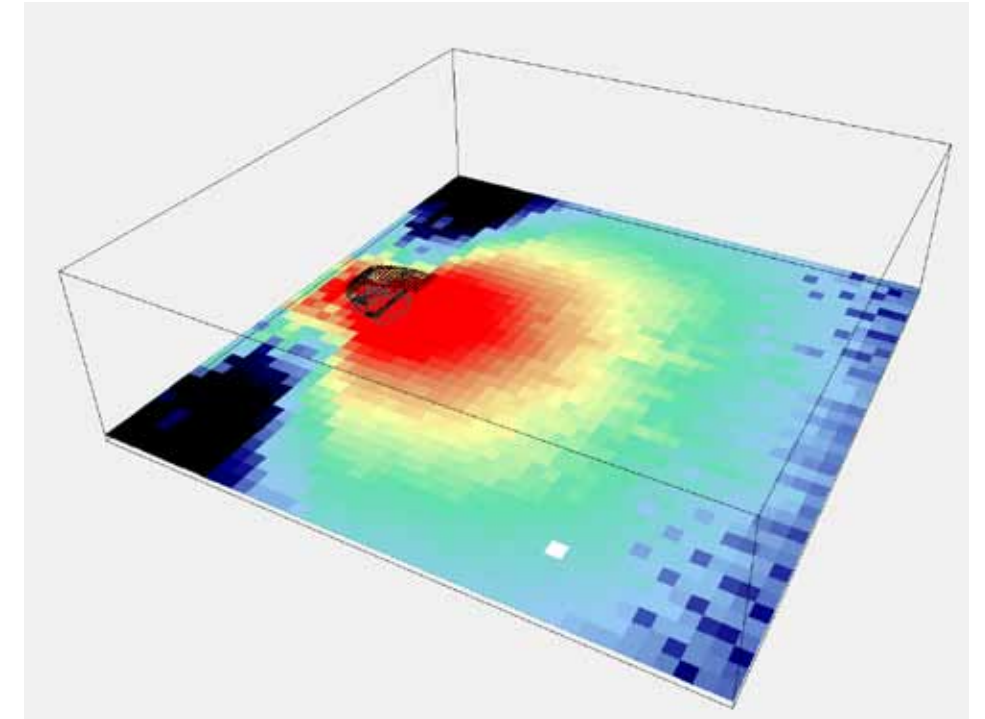
Acoustics ...



Without shell ...



With top ...



With top and sides.

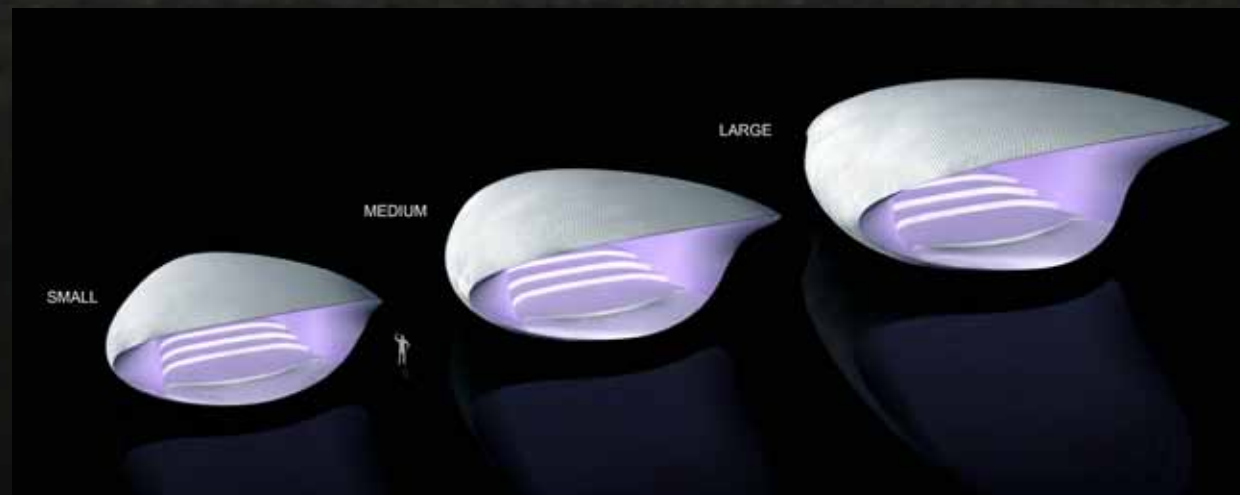


Anticipated installation ...

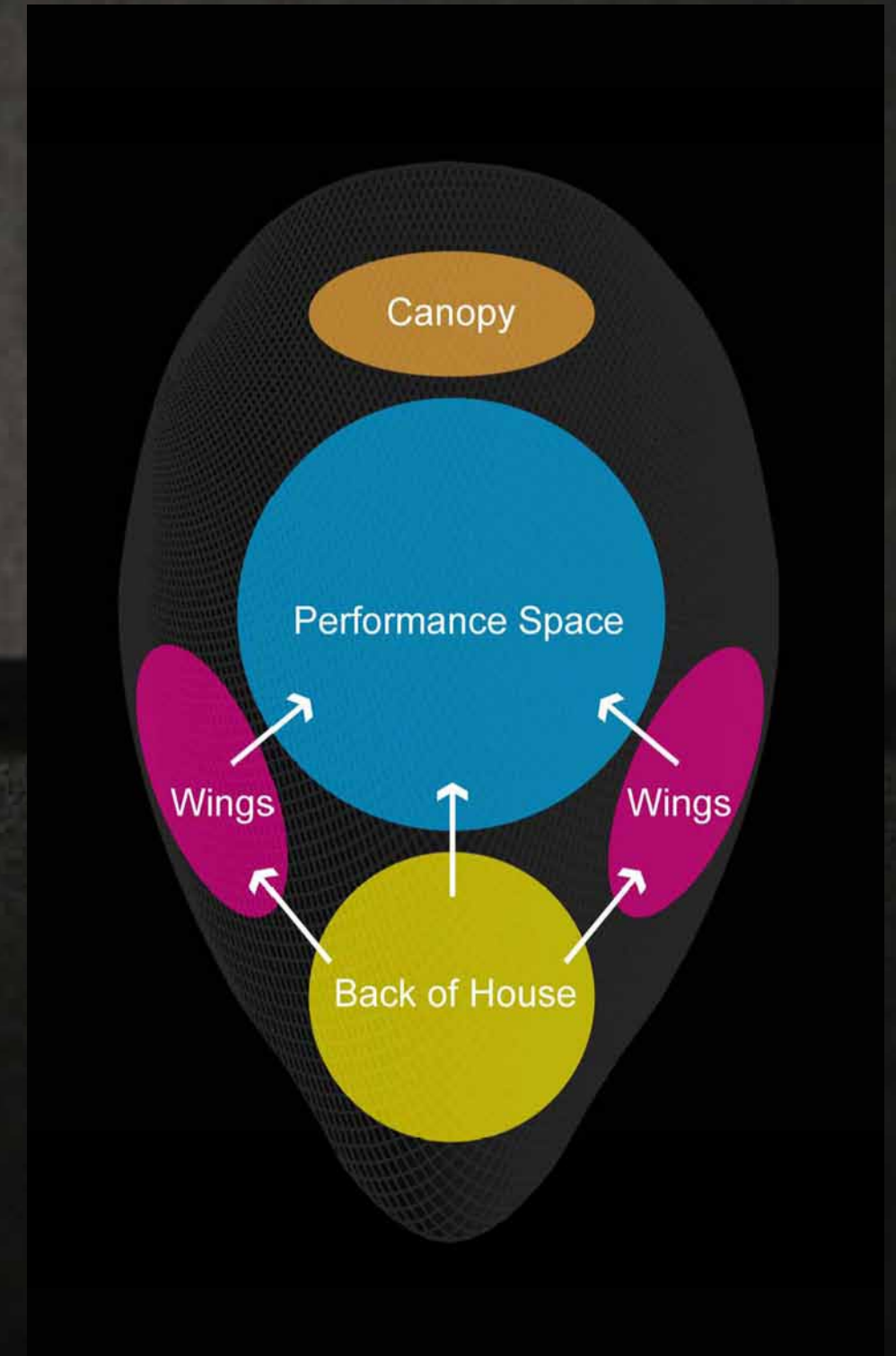
First Steps ...



3D Printed model ...

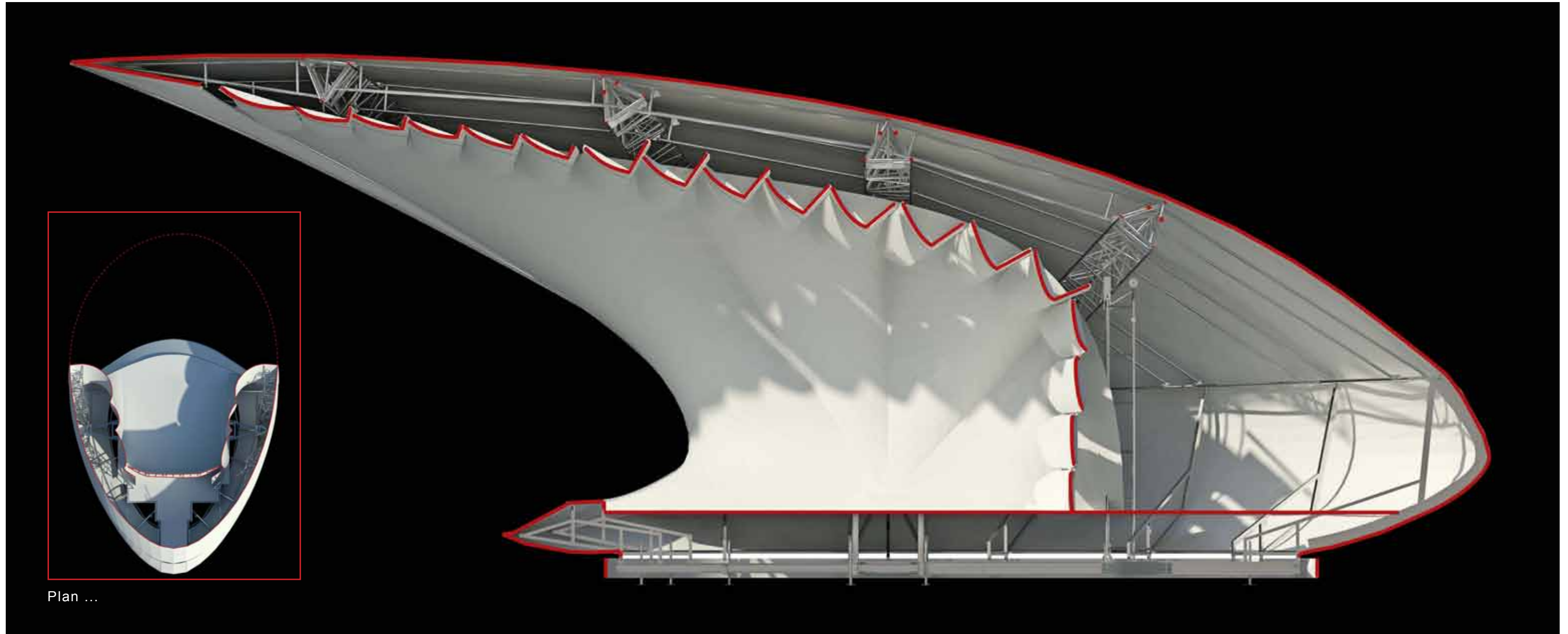


Sizes ...

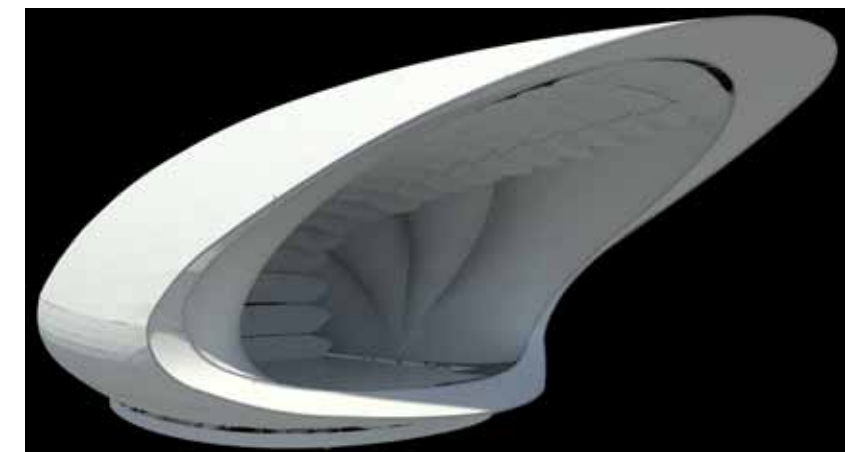
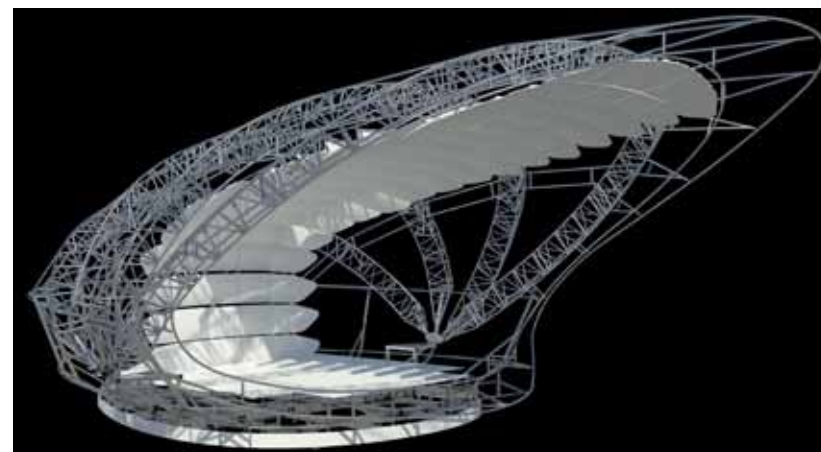
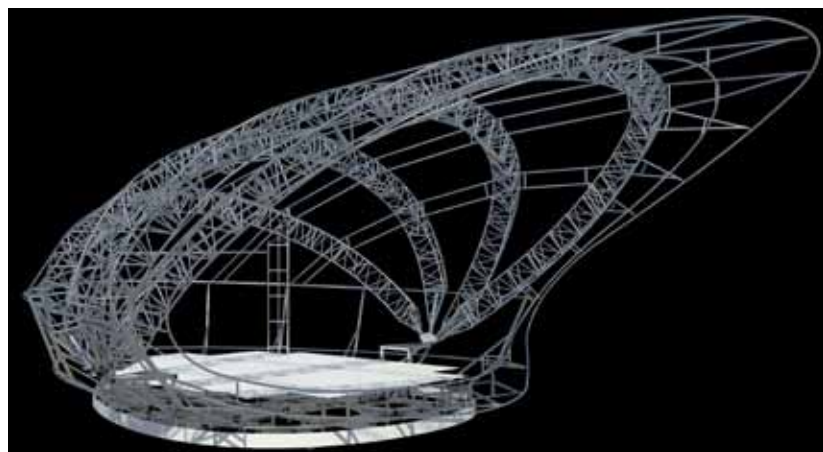


Spatial relationships ...

Scheme Development ...



Section (w/plan) ...





Acoustic test...

Soundforms: November 2014

Flanagan Lawrence



Acoustic test...

Soundforms: November 2014

Flanagan Lawrence



Olympic Park 2012 ...

Soundforms: November 2014

Flanagan Lawrence



Development

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.

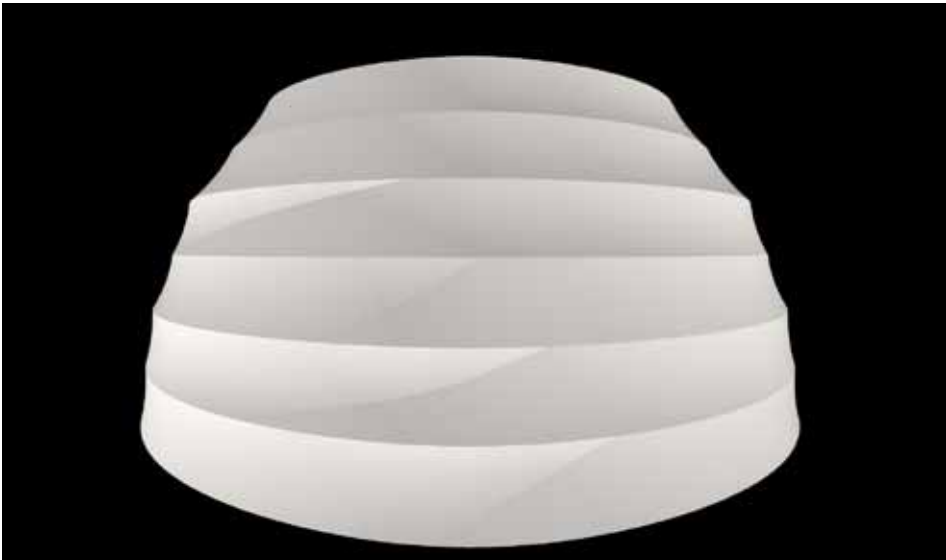
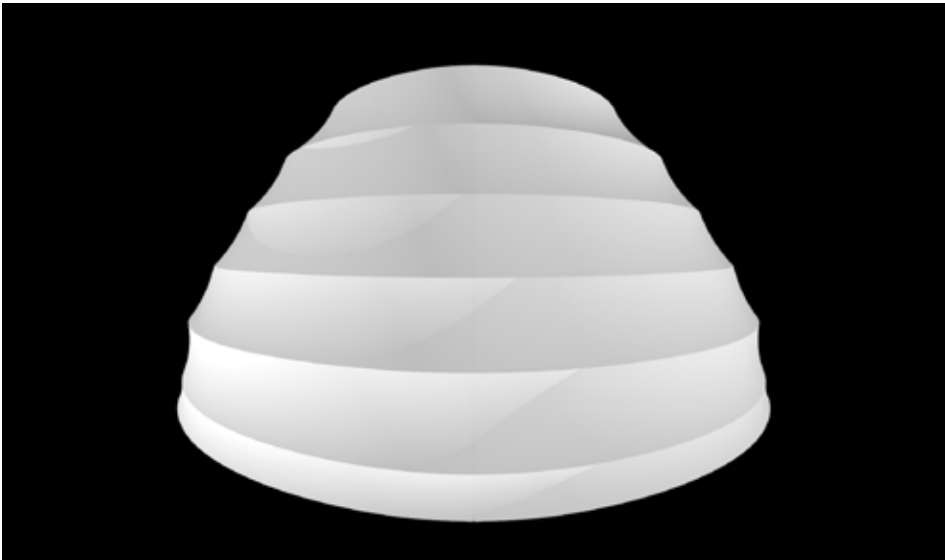
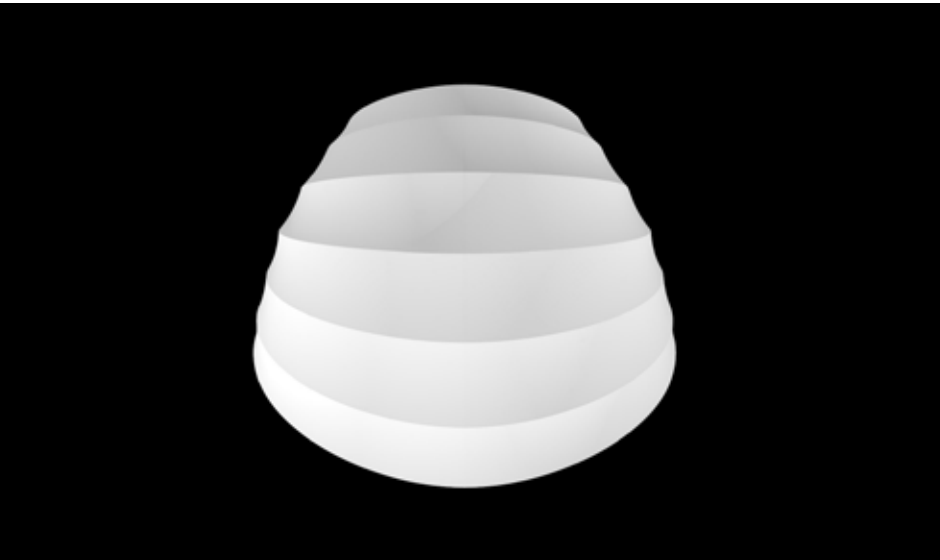
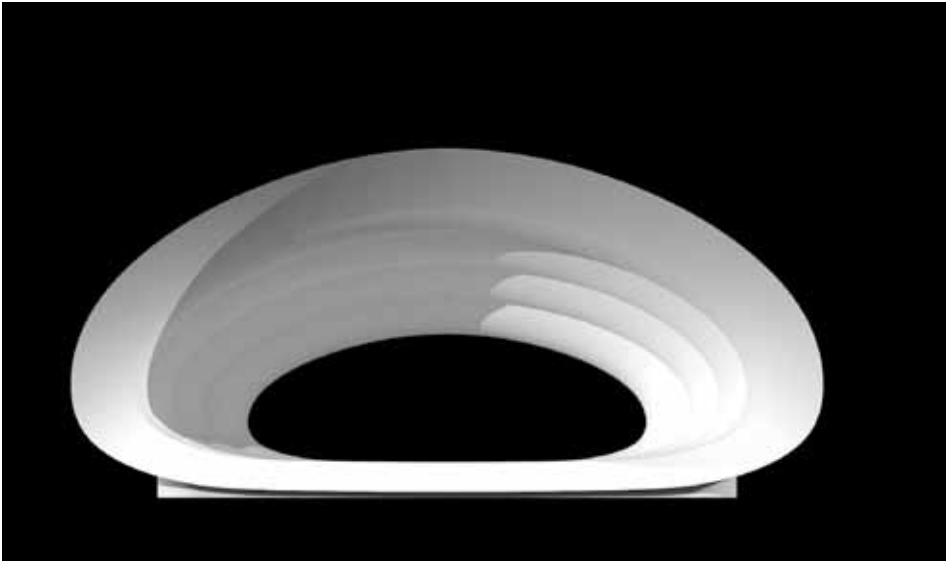
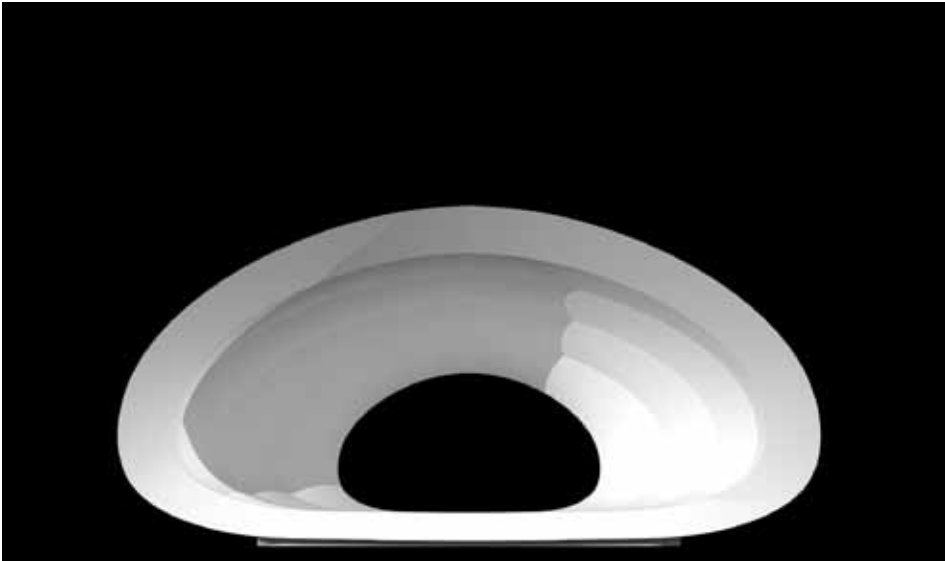
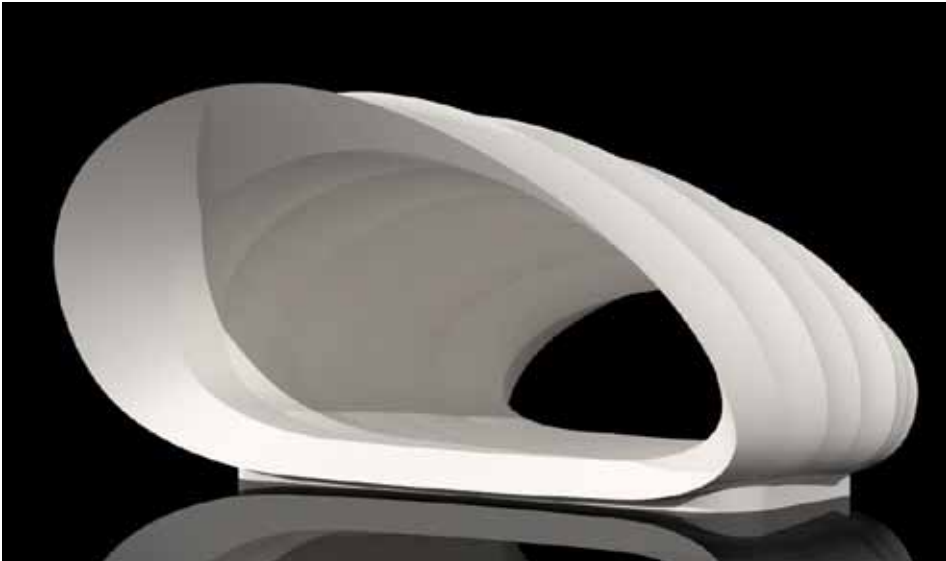
The stage space is bigger, but overall foot print has been reduced.

The acoustic panels are hidden, and easier to install.



Range ...

Soundforms
Full range



Regular

Medium

Large



Regular

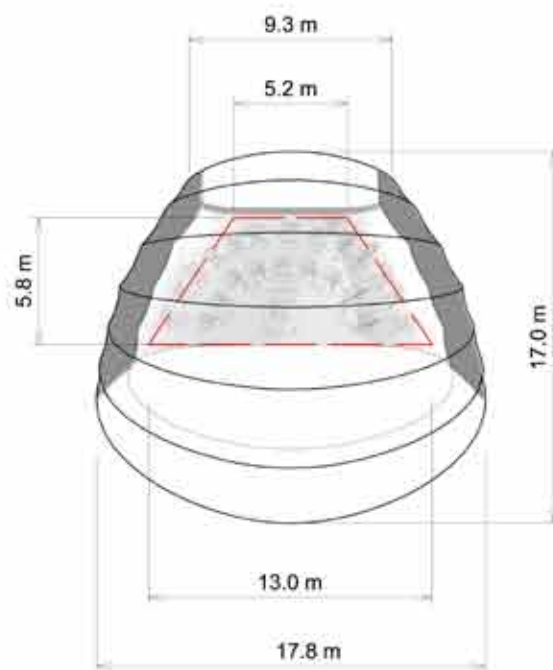
Platform size: **53 m²**

Max platform capacity: **31** Musicians

Natural Acoustic throw: **1000** persons

Payload: **10** tonnes.

Skin surface area: **300m²**



01 PLAN - REGULAR
1:200

Medium

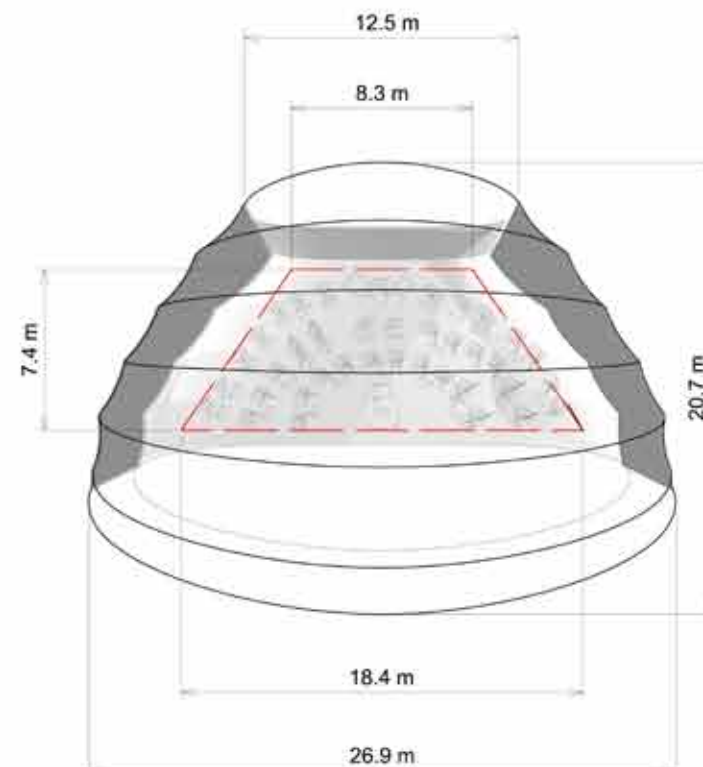
Platform size: **98 m²**

Max platform capacity: **58** Musicians

Natural Acoustic throw: **1500** persons

Payload: **20** tonnes.

Skin surface area: **600m²**



02 PLAN - MEDIUM
1:200

Large

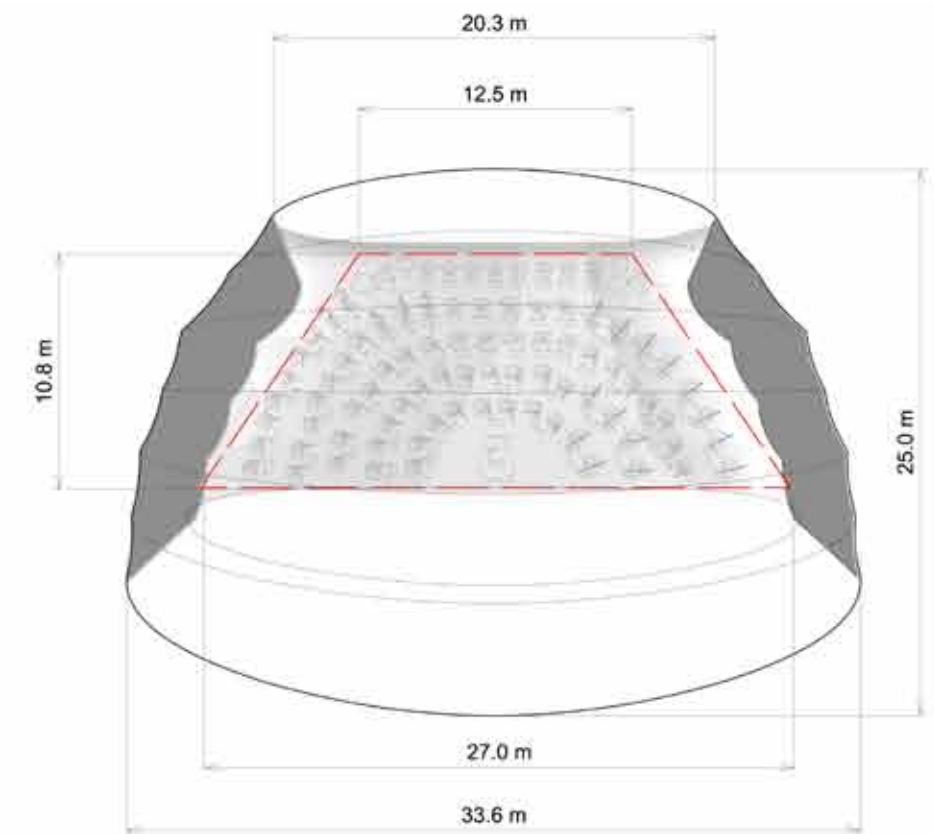
Platform size: **211 m²**

Max capacity: **124** Musicians

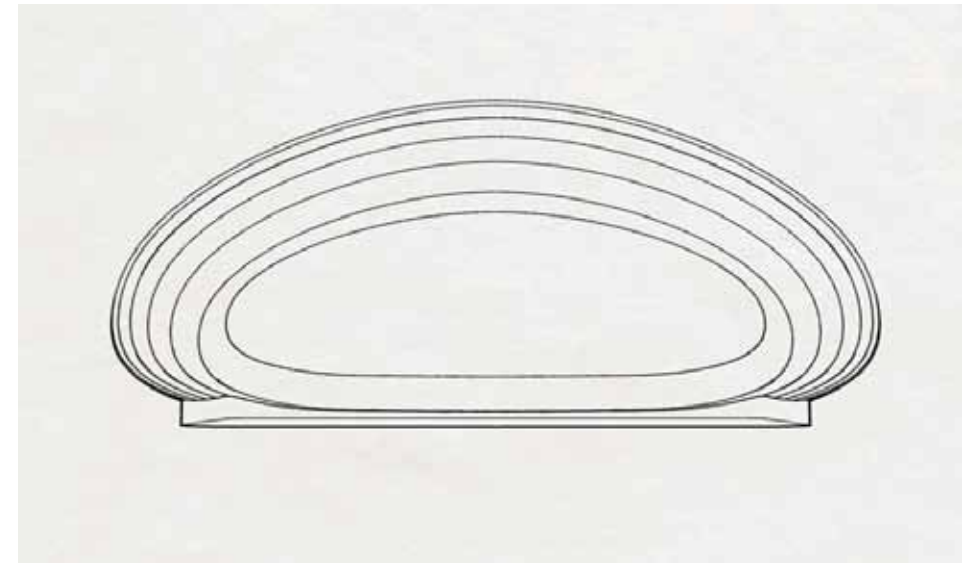
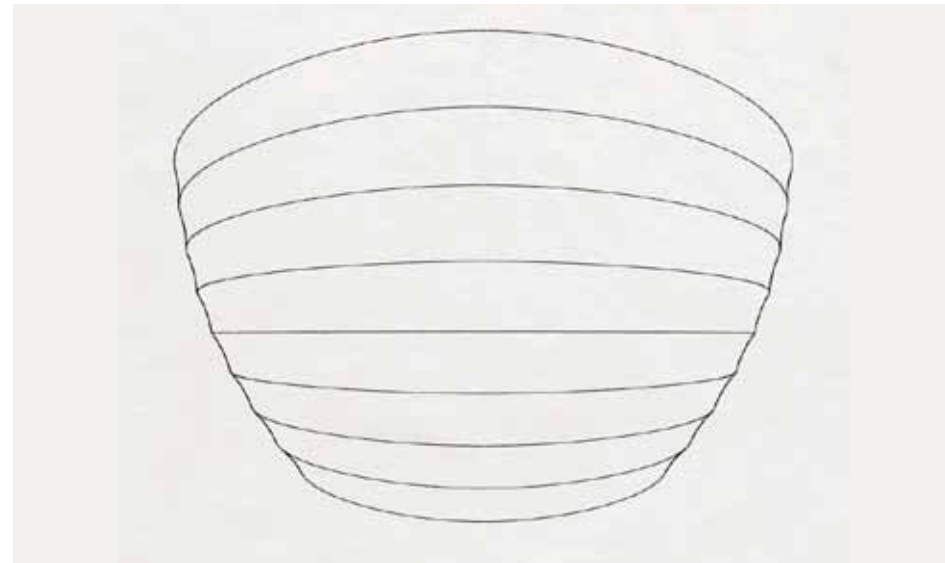
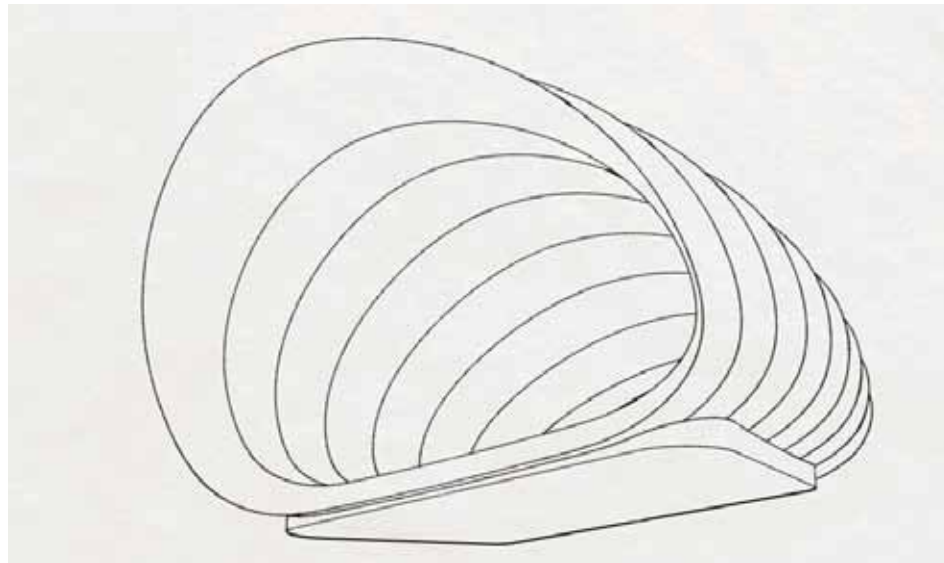
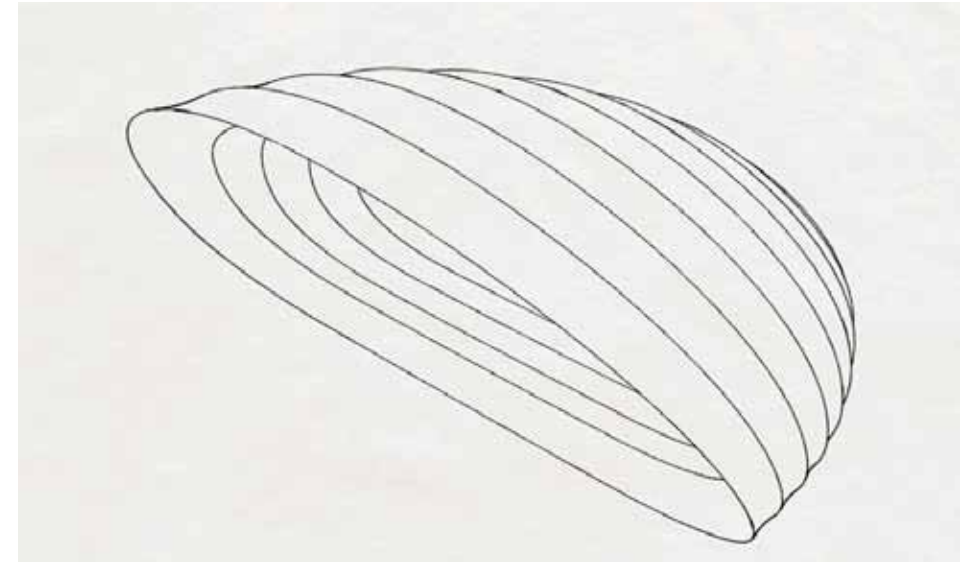
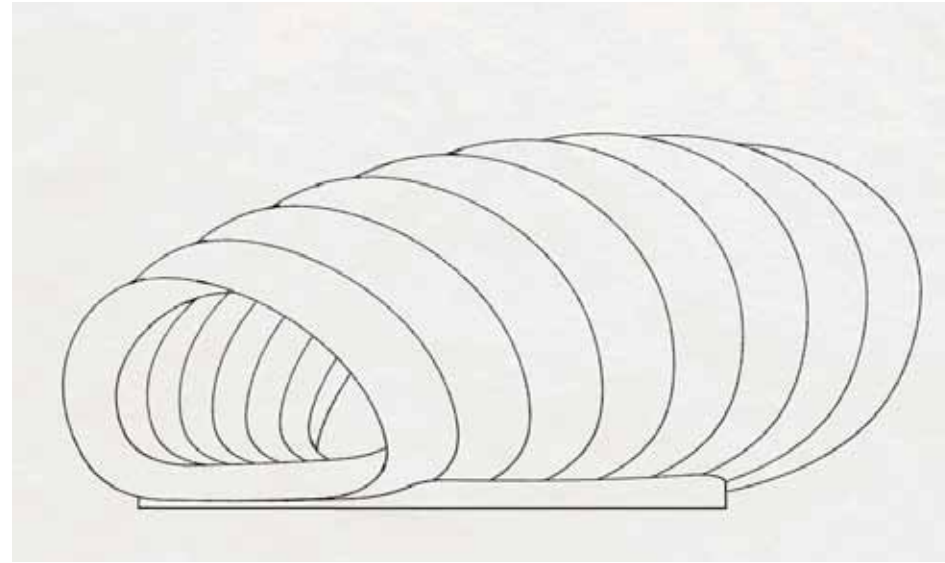
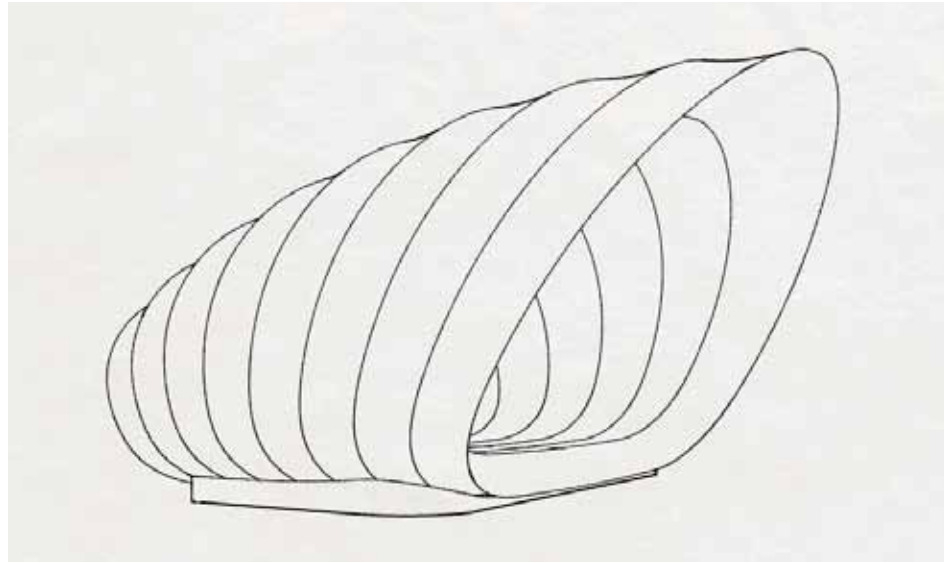
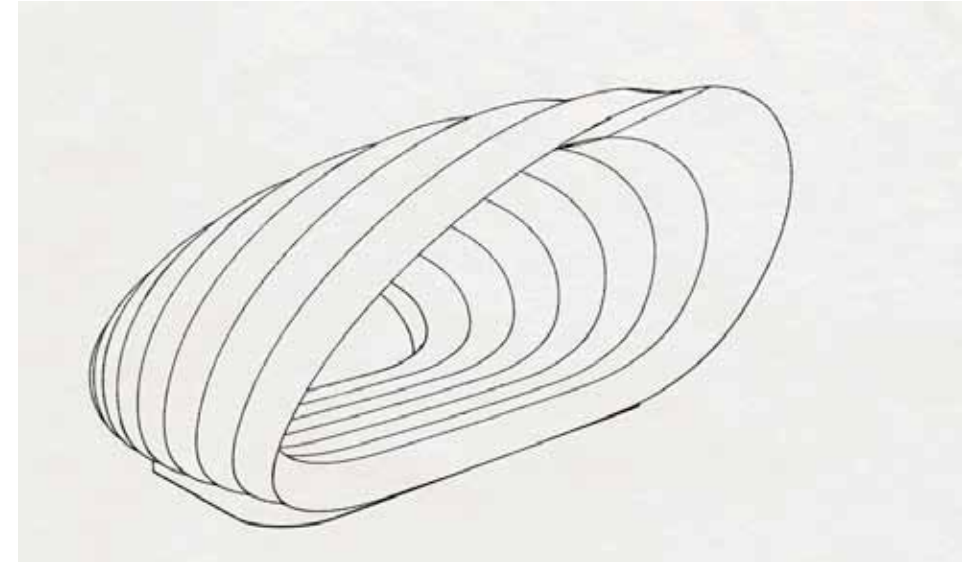
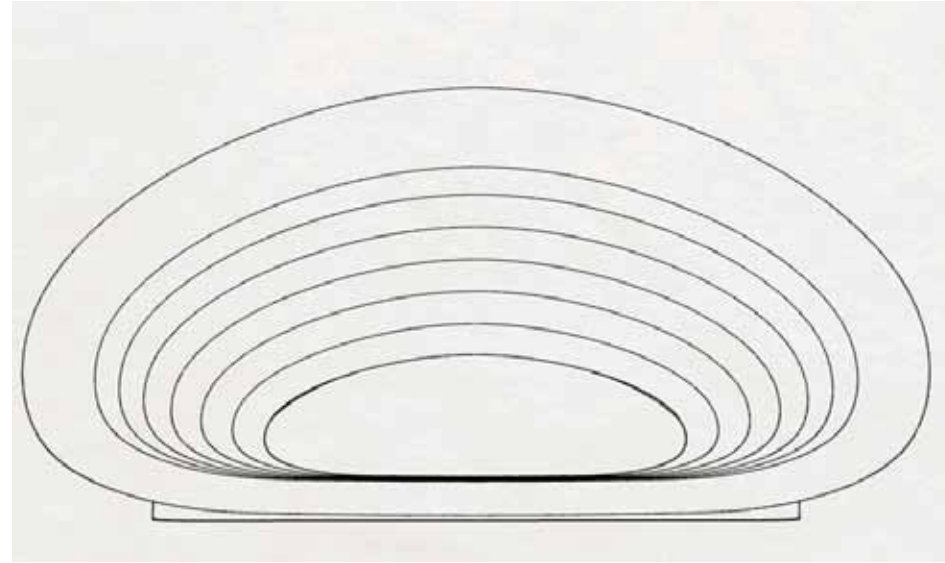
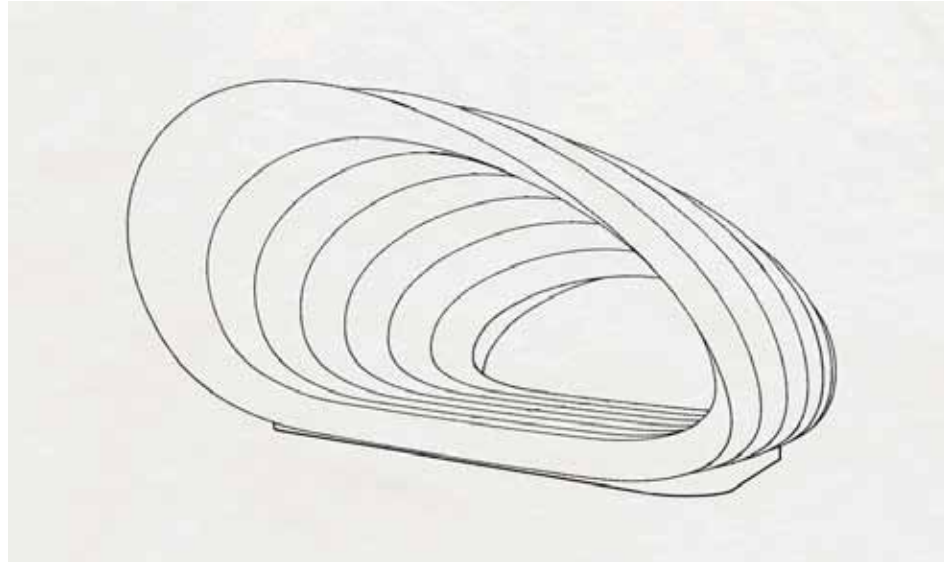
Natural Acoustic throw: **2000** persons

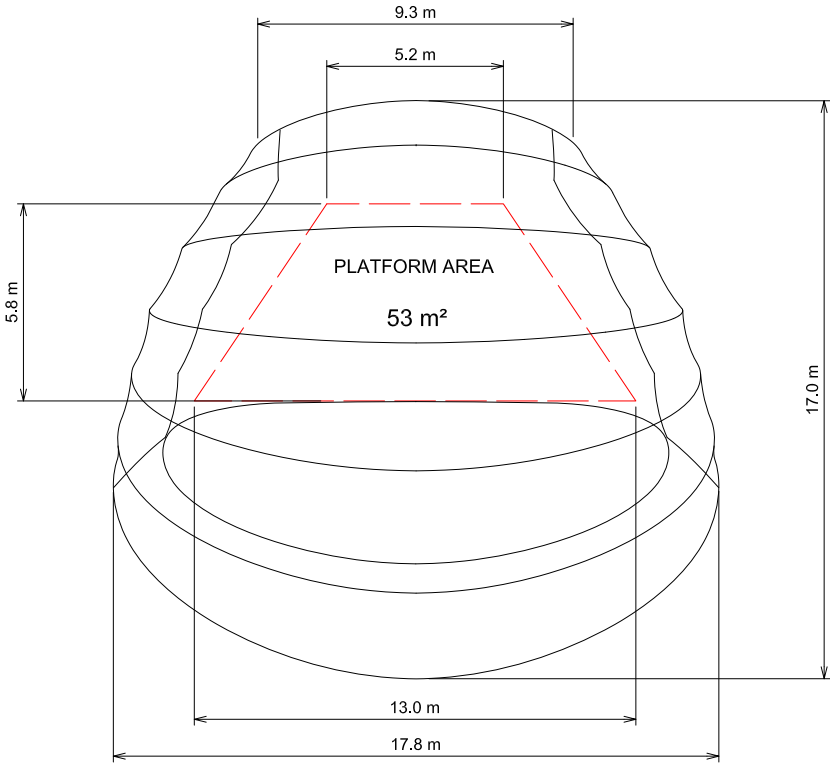
Payload: **30** tonnes.

Skin surface area: **1000m²**

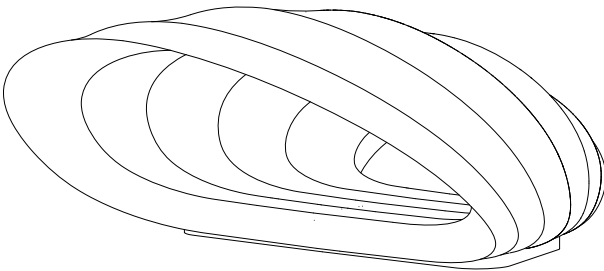


03 PLAN - LARGE
1:200





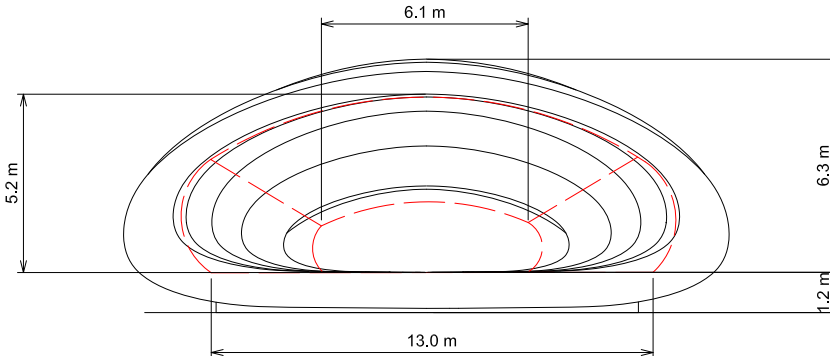
01 PLAN
1:100



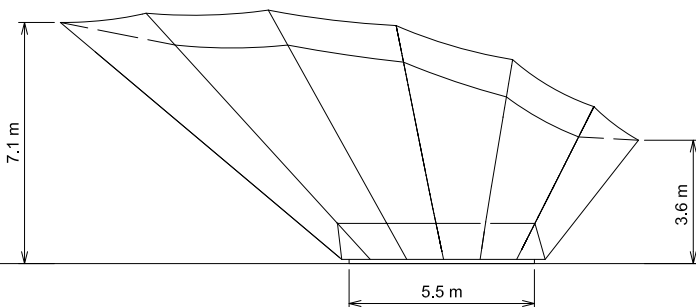
02 PERSPECTIVE
1:100

PERFORMANCE		
PLATFORM AREA		53 m ²
MUSICIANS	x 2.5 m ²	21
	x 2.1 m ²	25
	x 1.7 m ²	31

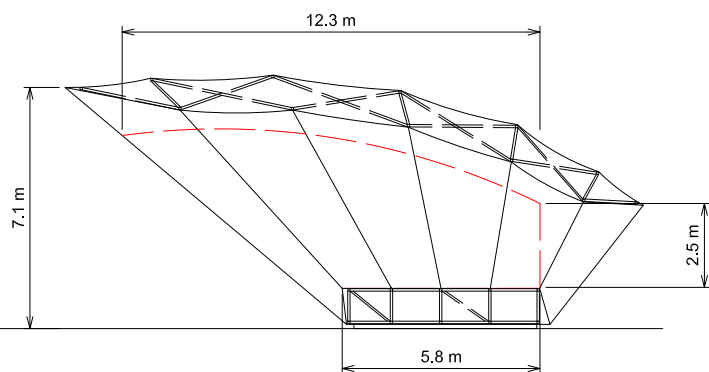
ACOUSTIC BRIEF



03 FRONT ELEVATION
1:100



04 SIDE ELEVATION
1:100



05 SECTION
1:100

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Notes:

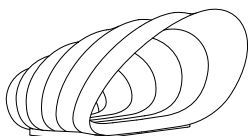
[illegible]

Consultants:

EXPEDITION

ESG

ARUP ACOUSTICS



SOUNDFORMS

Soundforms Ltd,
Unit 54,
235 Earls Court Road,
London
SW5 9FE

Registered Company: Soundforms Ltd
(Company No: 06904328)
www.soundforms.co.uk

Client:

Project:

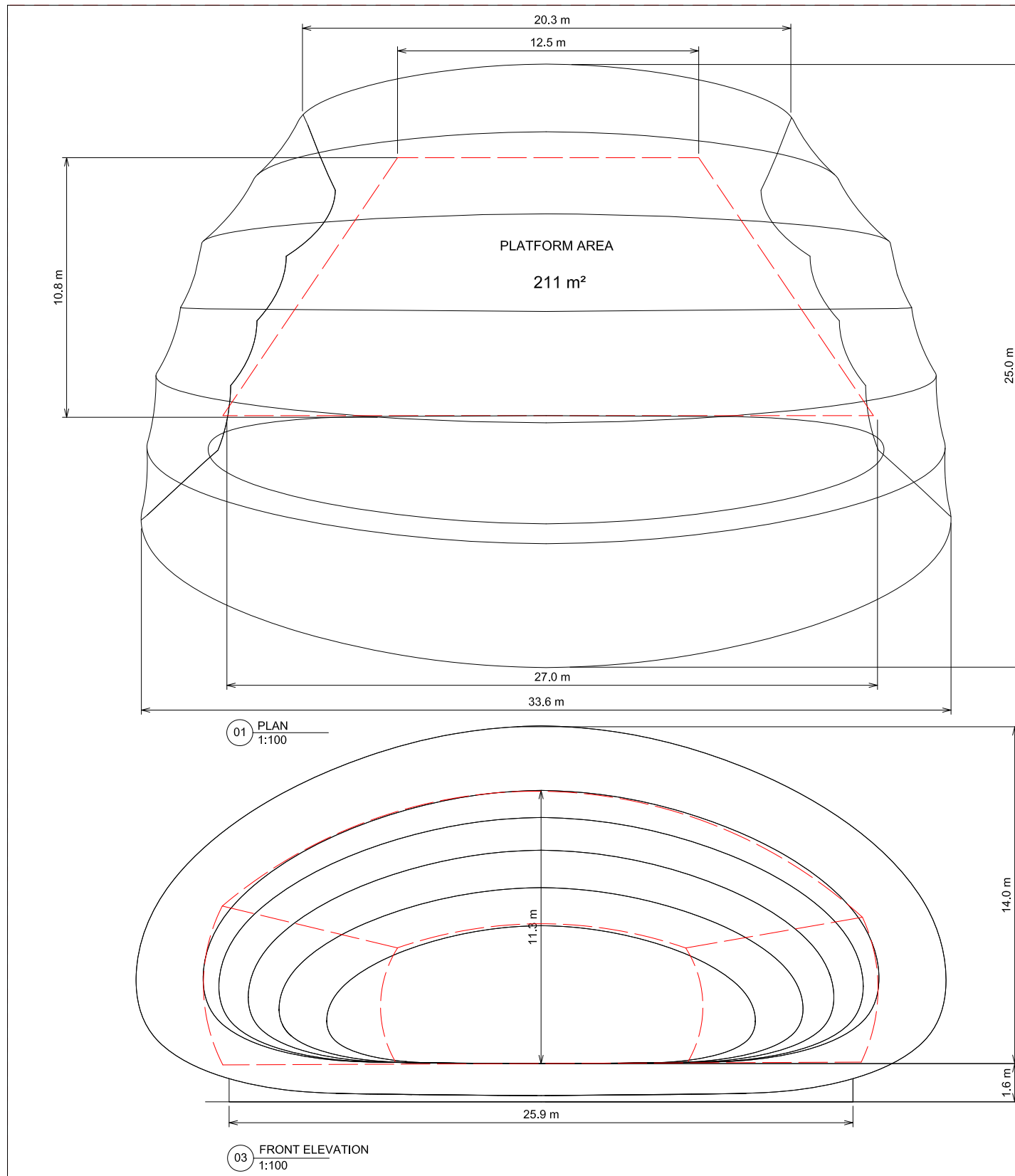
SOUNDFORMS

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REGULAR SHELL

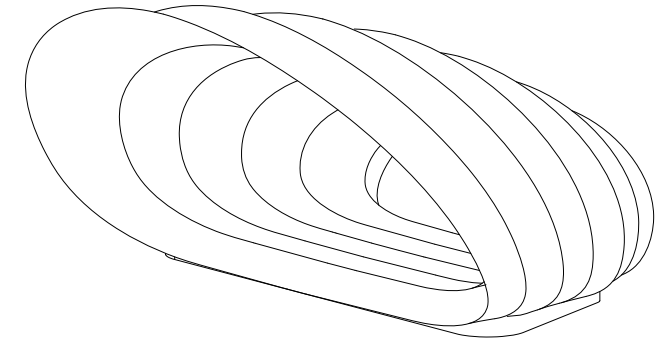
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NK	PB	21.10.2014

Project No:	Scale @ A1:
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Drawing No:	Revision:
A003	00

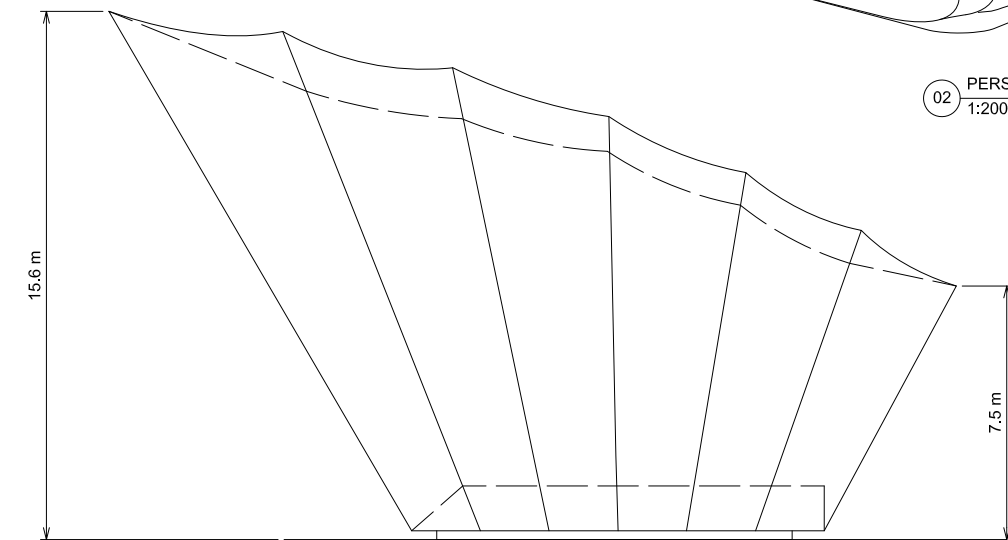


PERFORMANCE		
PLATFORM AREA		211
MUSICIANS	x 2.5 m ²	85
	x 2.1 m ²	101
	x 1.7 m ²	124

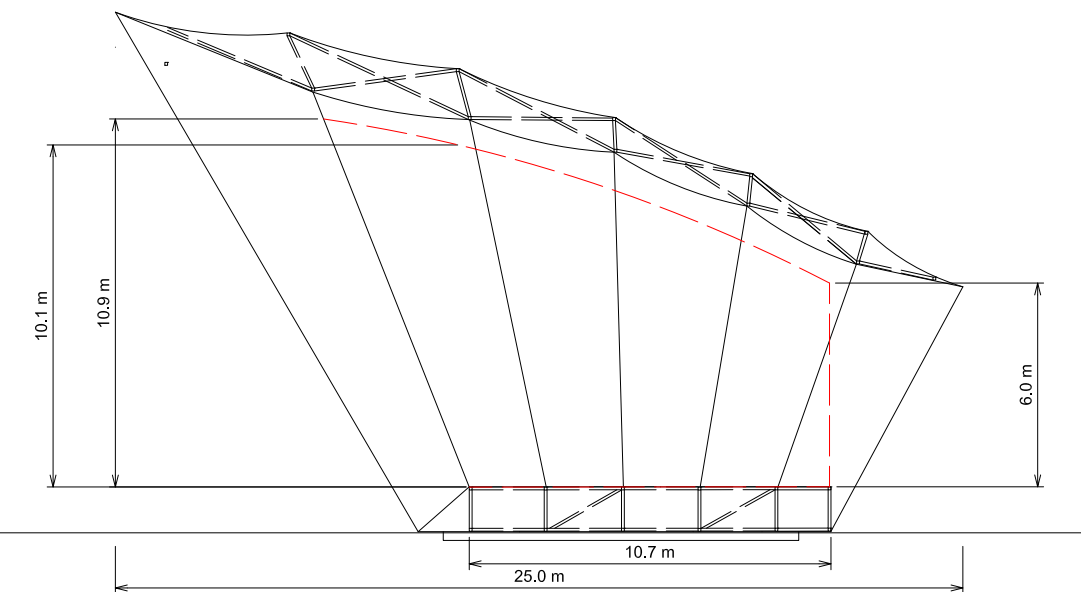
ACOUSTIC BRIEF



02 PERSPECTIVE
1:200



04 SIDE ELEVATION
1:100



05 SECTION
1:100

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Notes:

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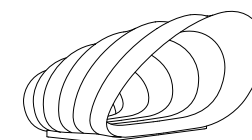
	Consultants
--	-------------

EXPEDITION

ESG

ARUP ACOUSTICS

	Key / Location:
--	-----------------



SOUNDFORMS

Soundforms Ltd,
Unit 54,
235 Earls Court Road,
London
SW5 9FE
Registered Company: Soundforms Ltd
(Company No: 06904328)
www.soundforms.co.uk

	Client
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Project:
SOUNDFORMS

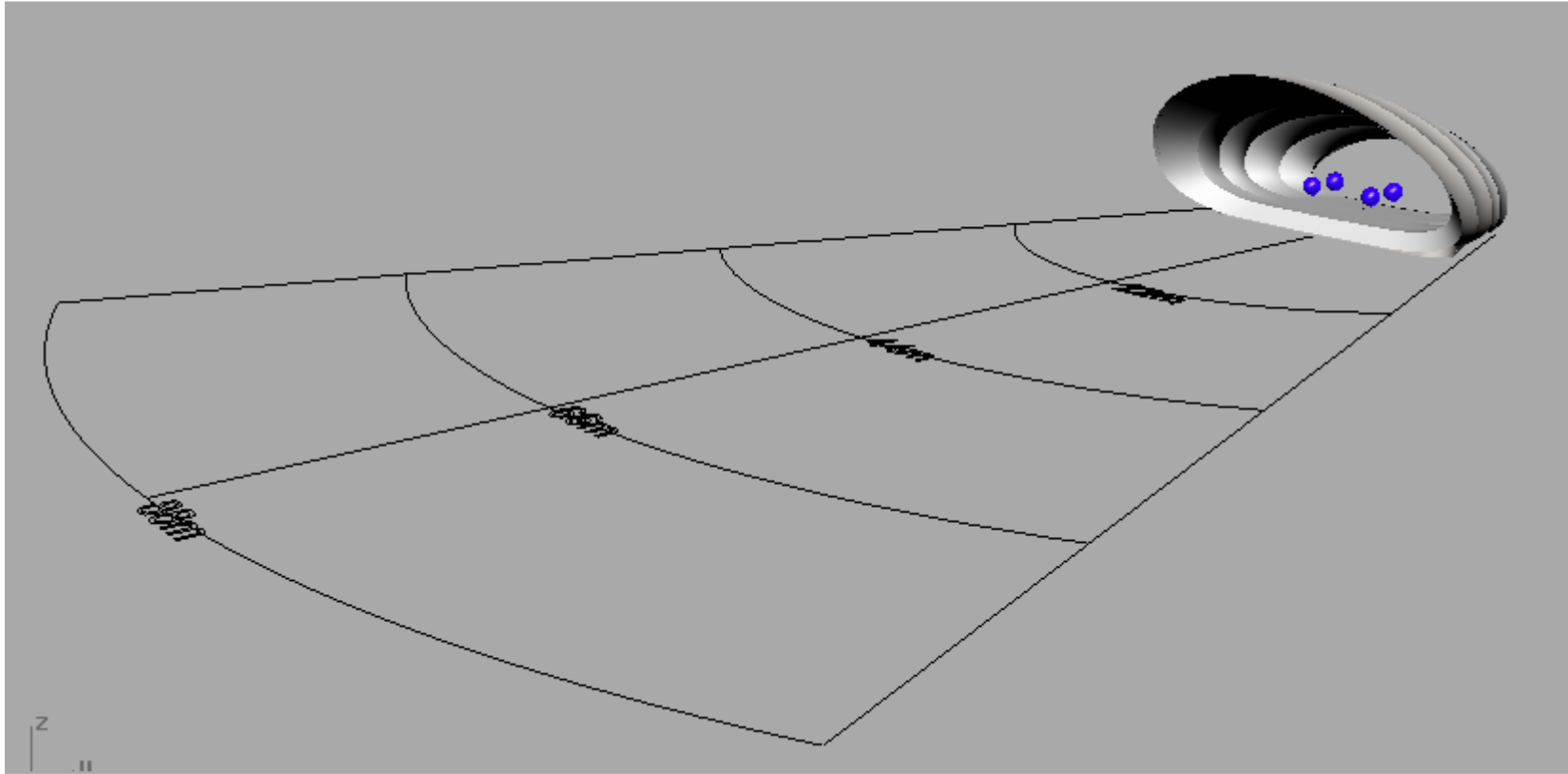
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LARGE SHELL

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

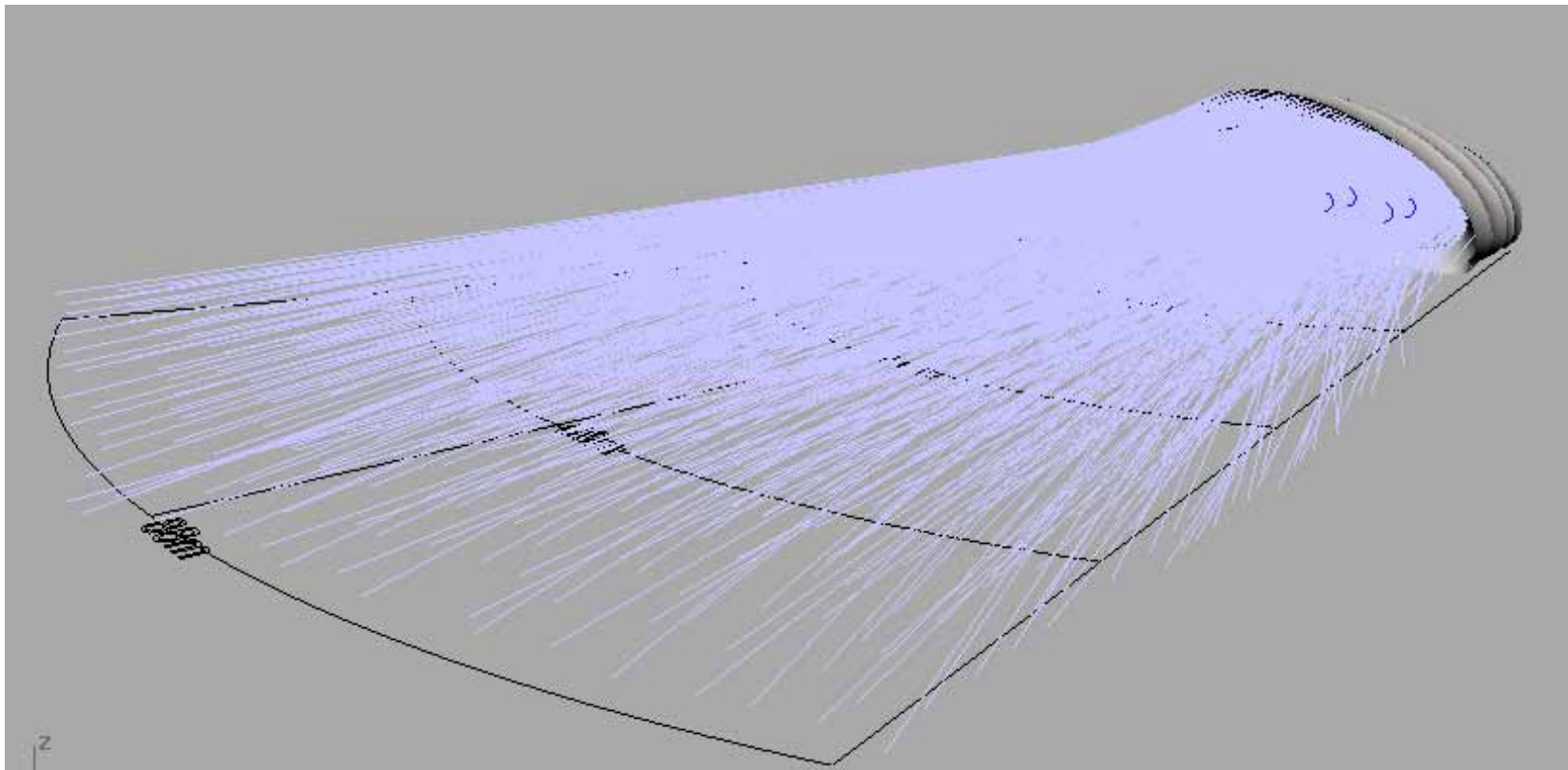
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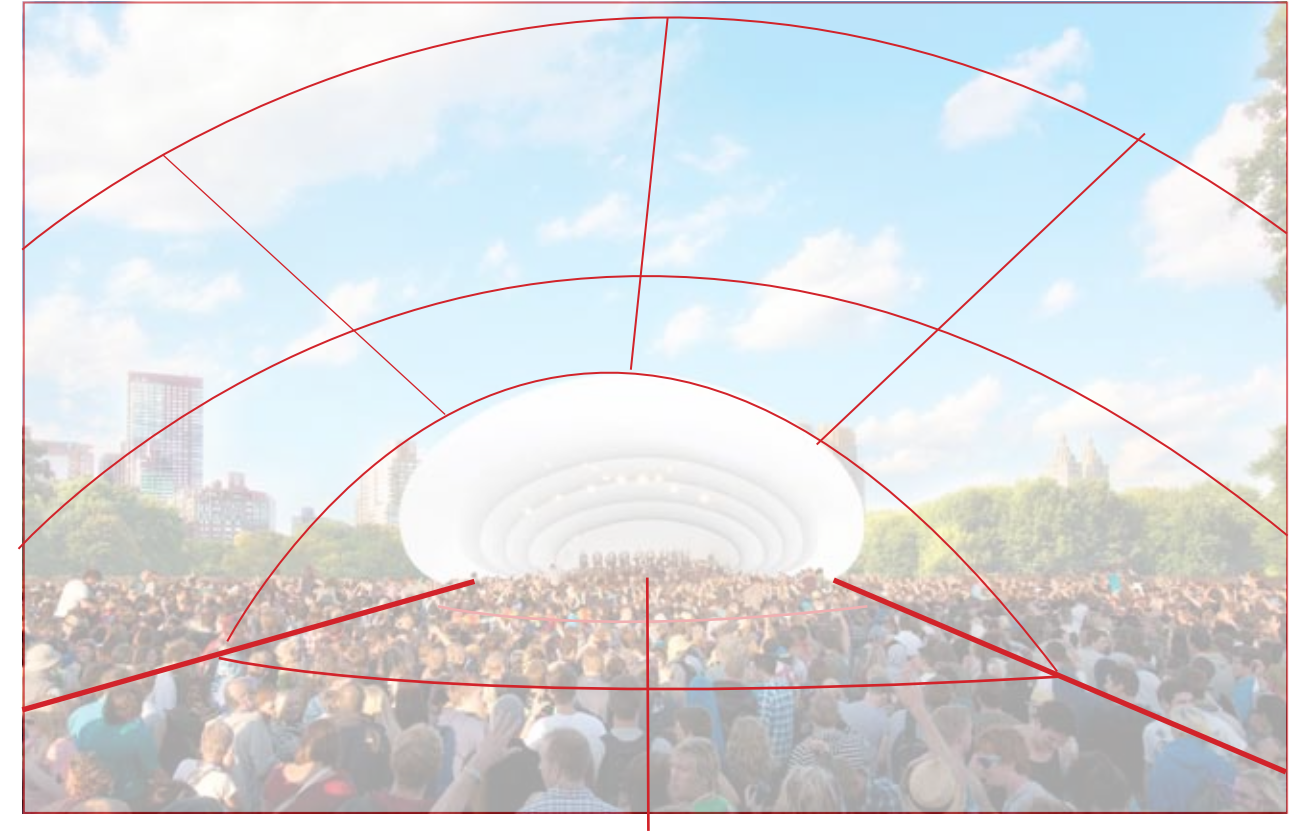
Site acoustic brief ...



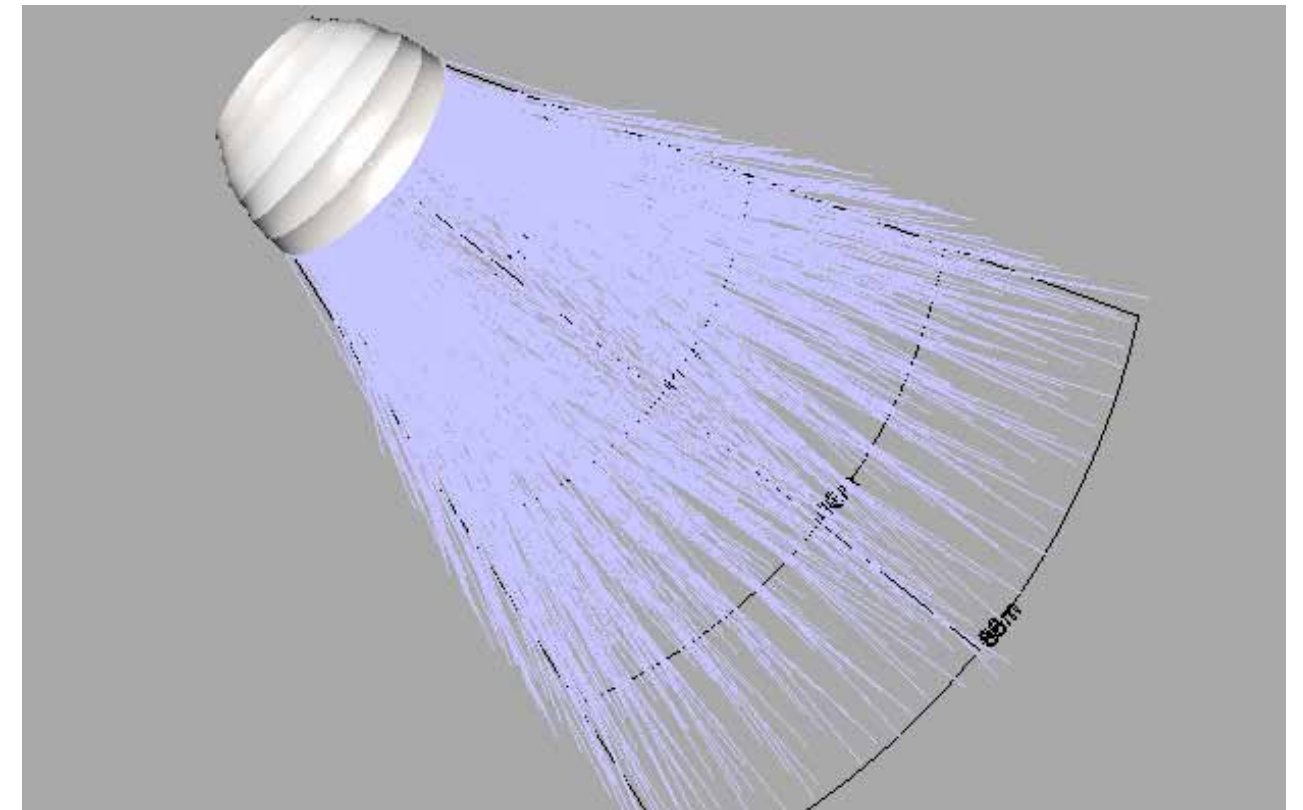
Sound sources and anticipated range ...



80m range ...



On site ...

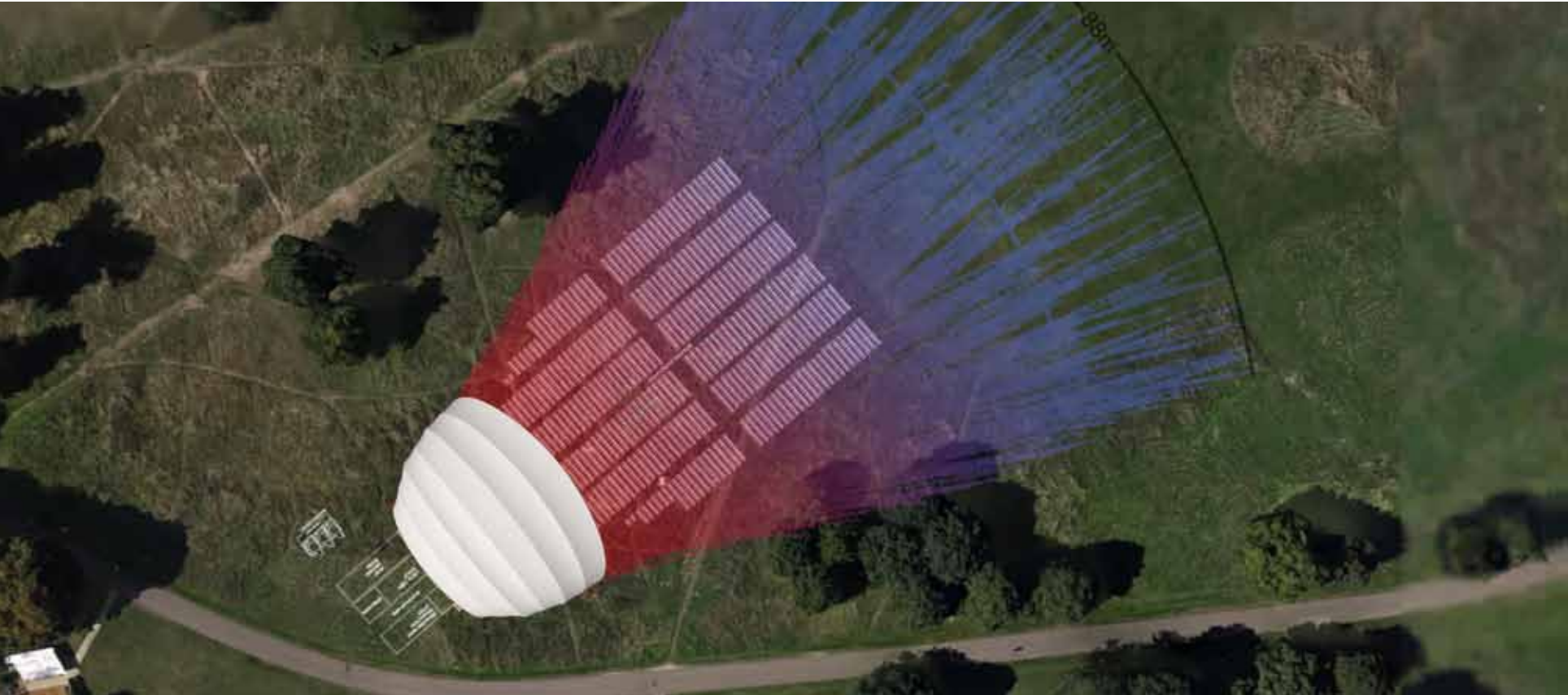


Plan ...

Typical installation ...



Typical layout ...



Typical acoustic throw ...



Integration into landscape ...

Typical installation ...









Appendix.

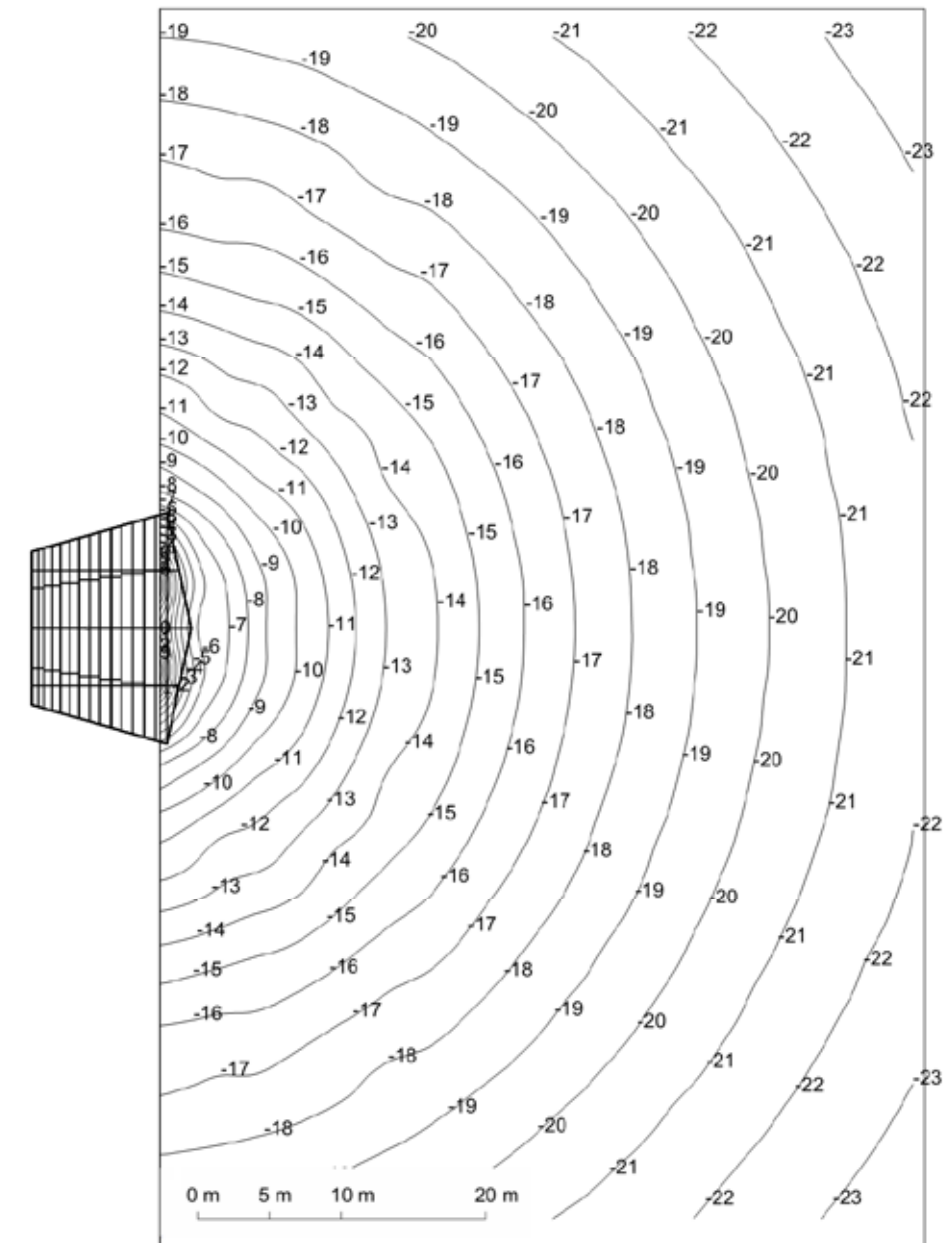
- 01. Arup large shell contour Diagrams
- 02. ES Global technical information

B1 Large Orchestra Shell – Acoustic Diagrams

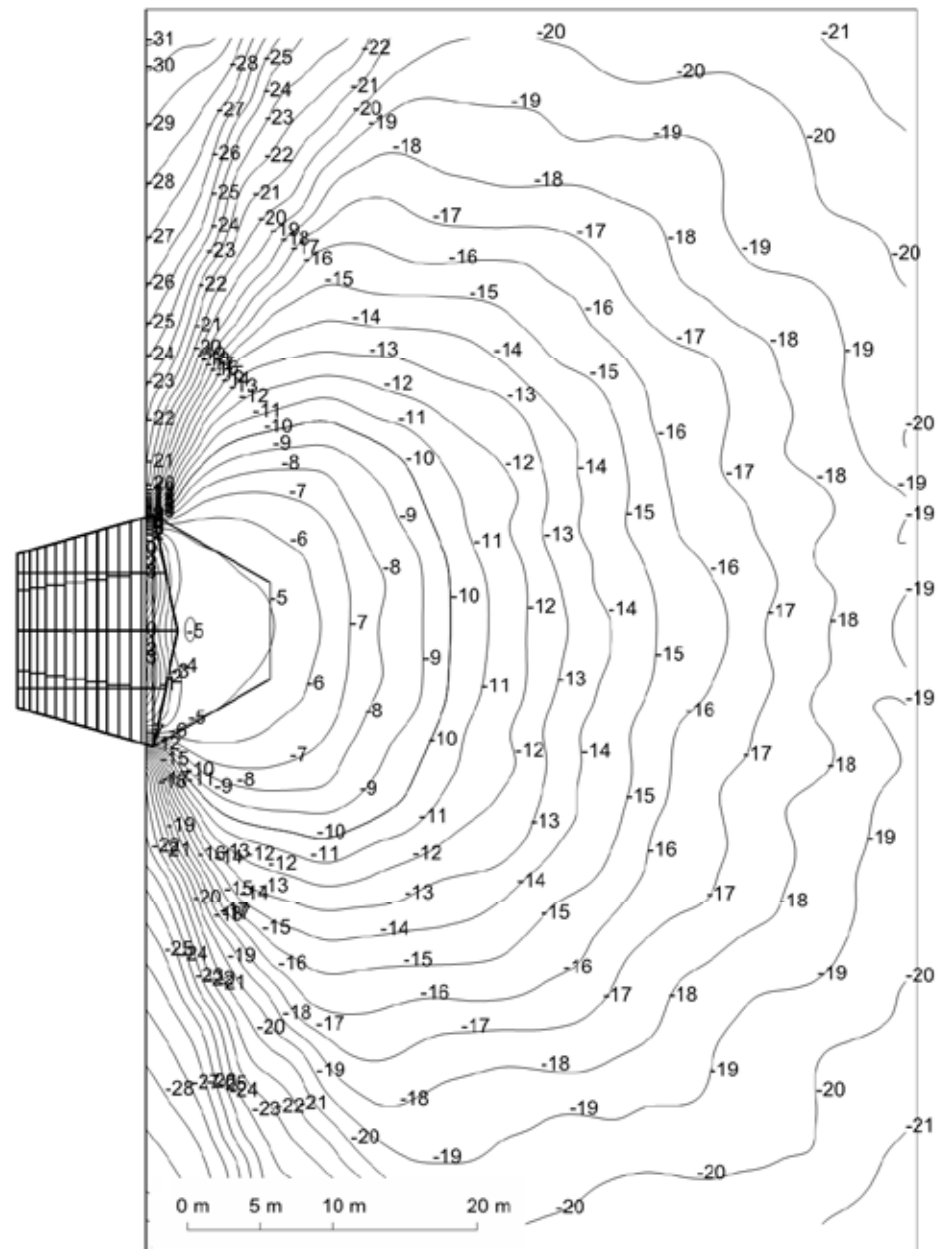
ArupAcoustics

Appendix B

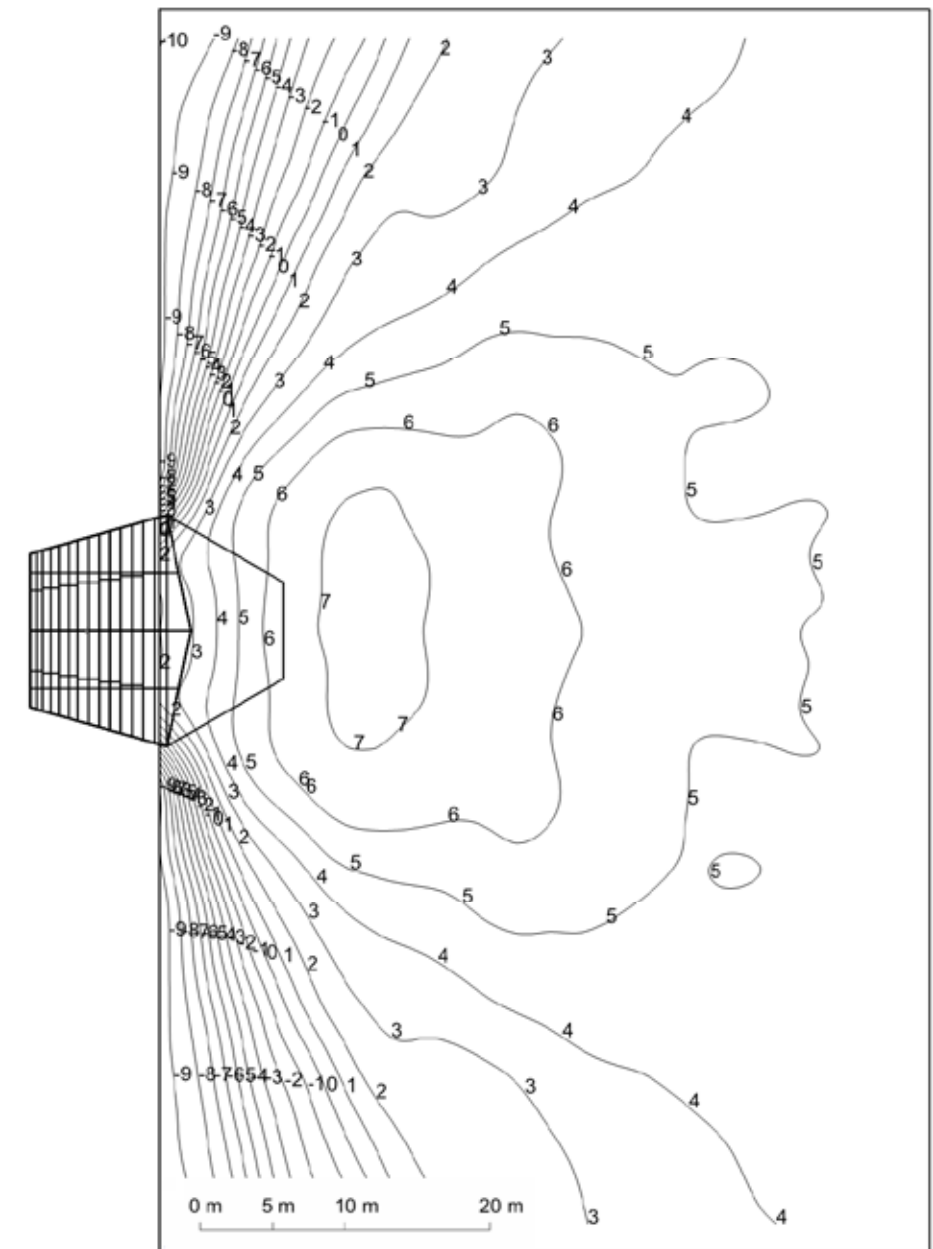
Large Orchestra Shell



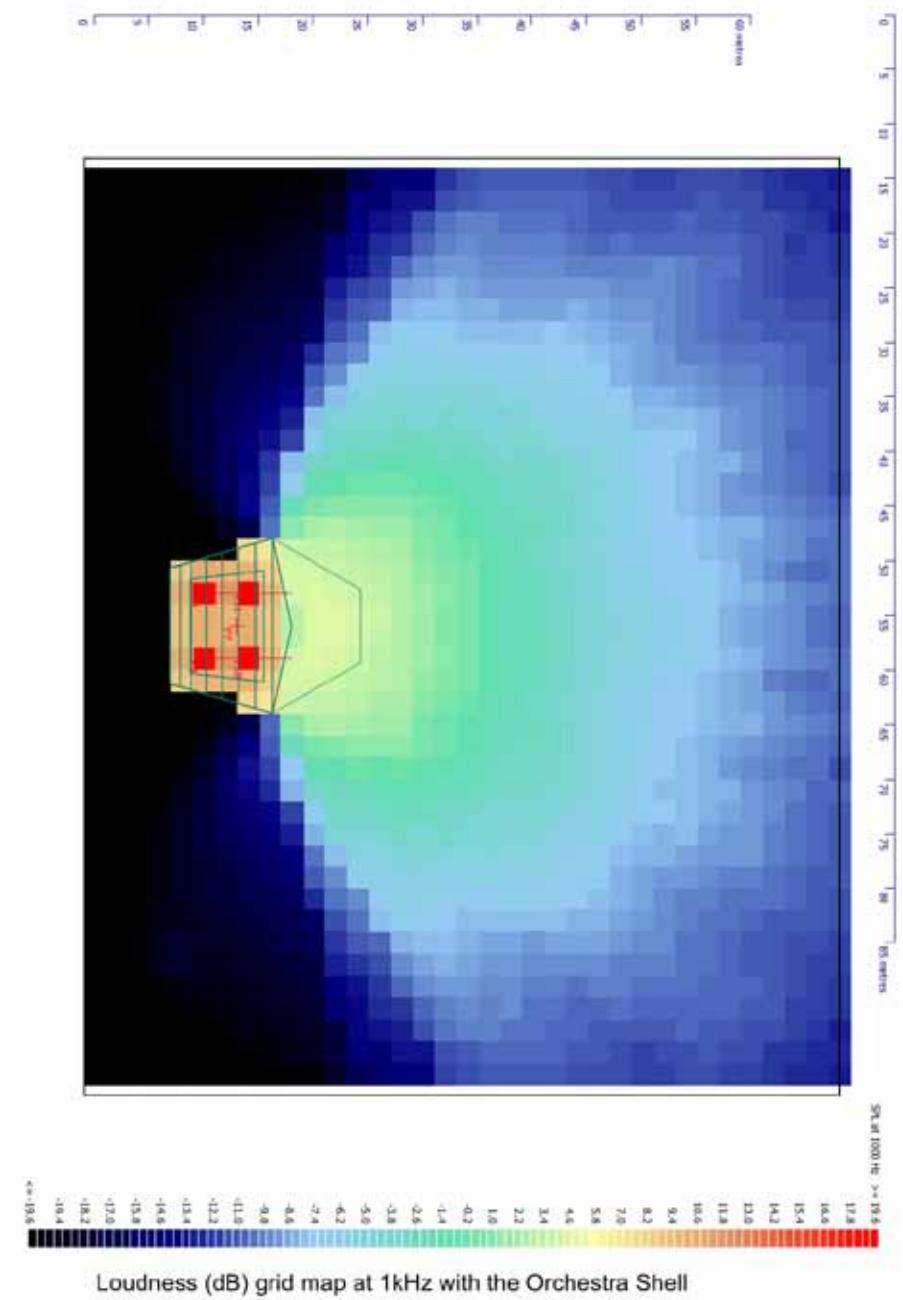
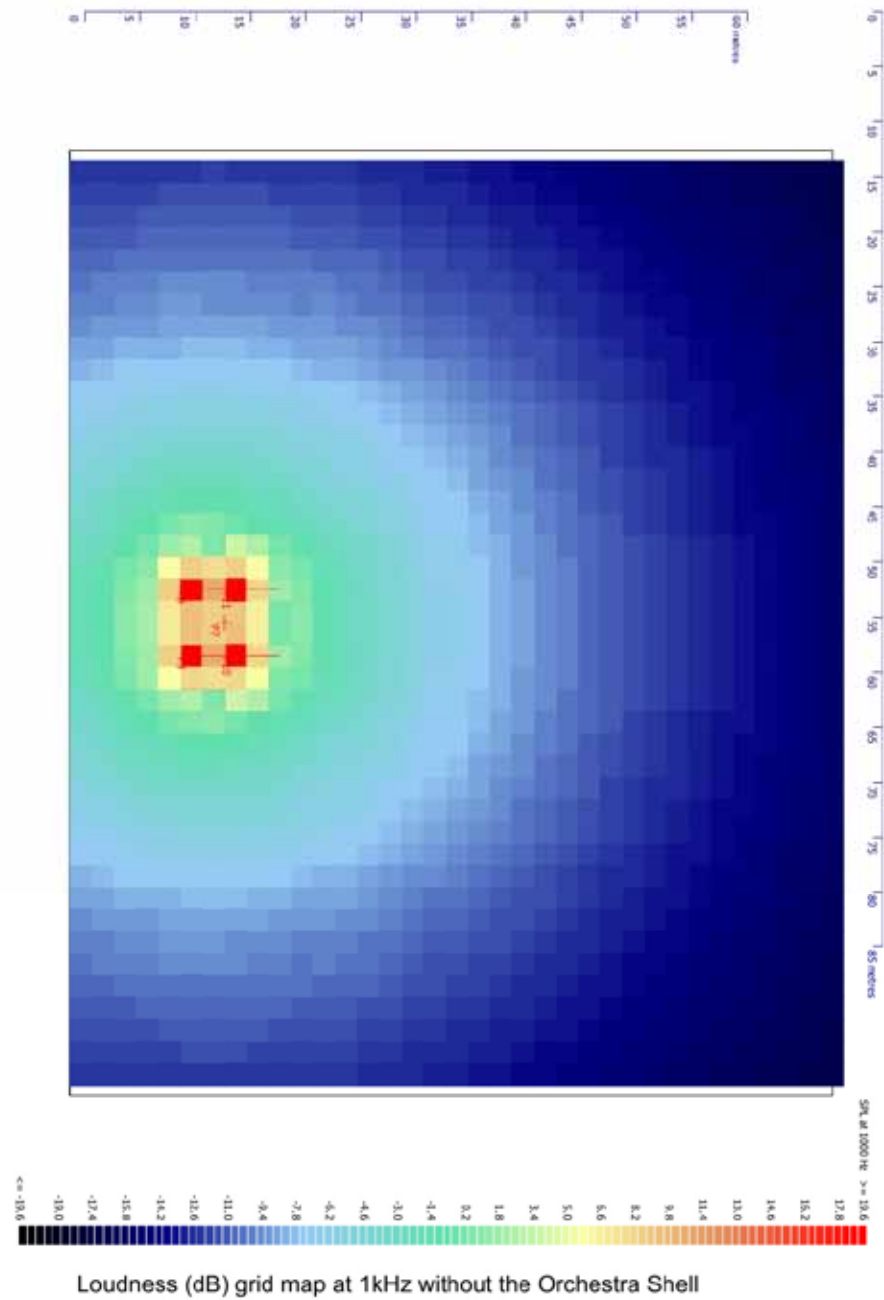
Relative Sound Levels (dB) in audience area to Conductor's position on platform without Orchestra Shell

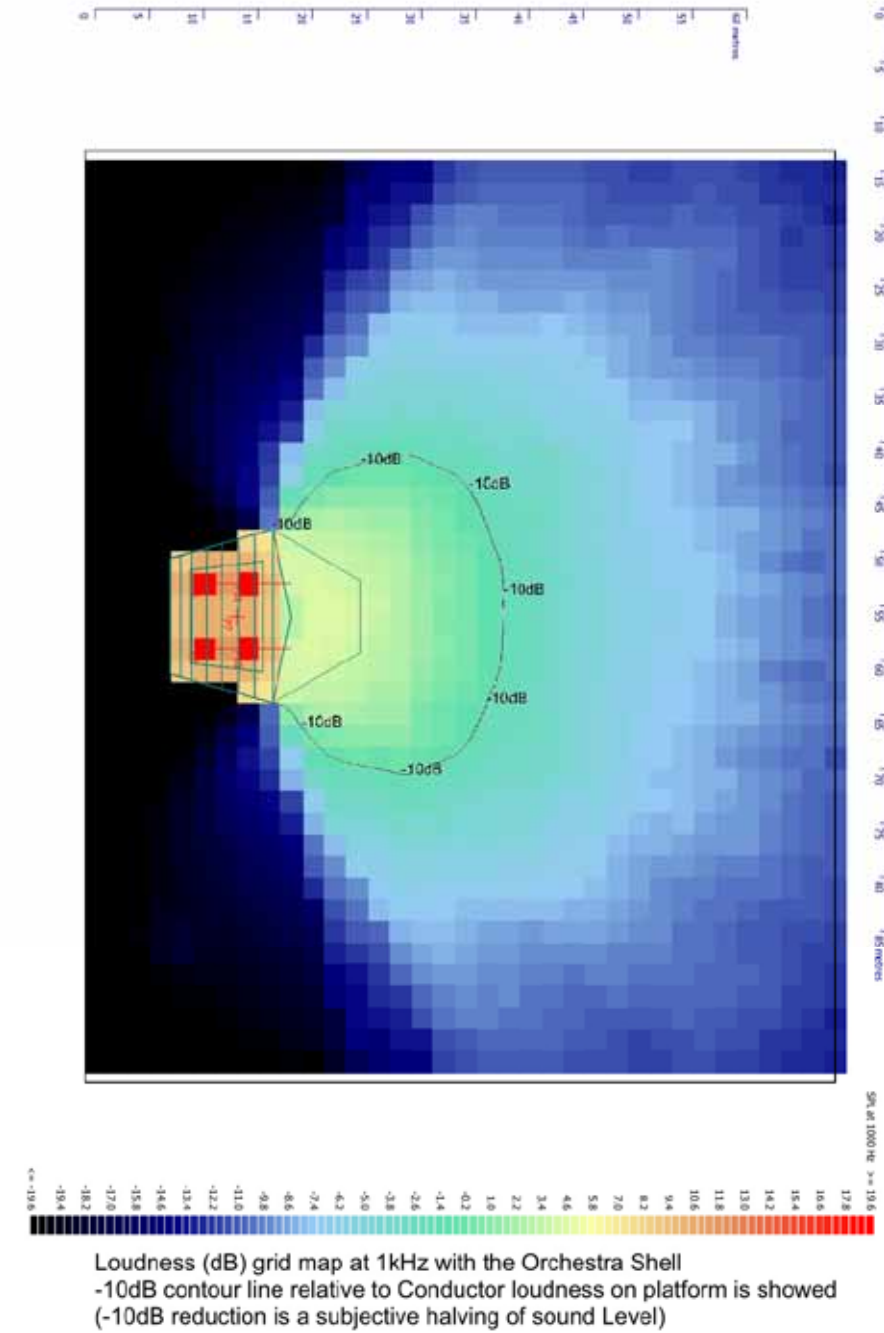
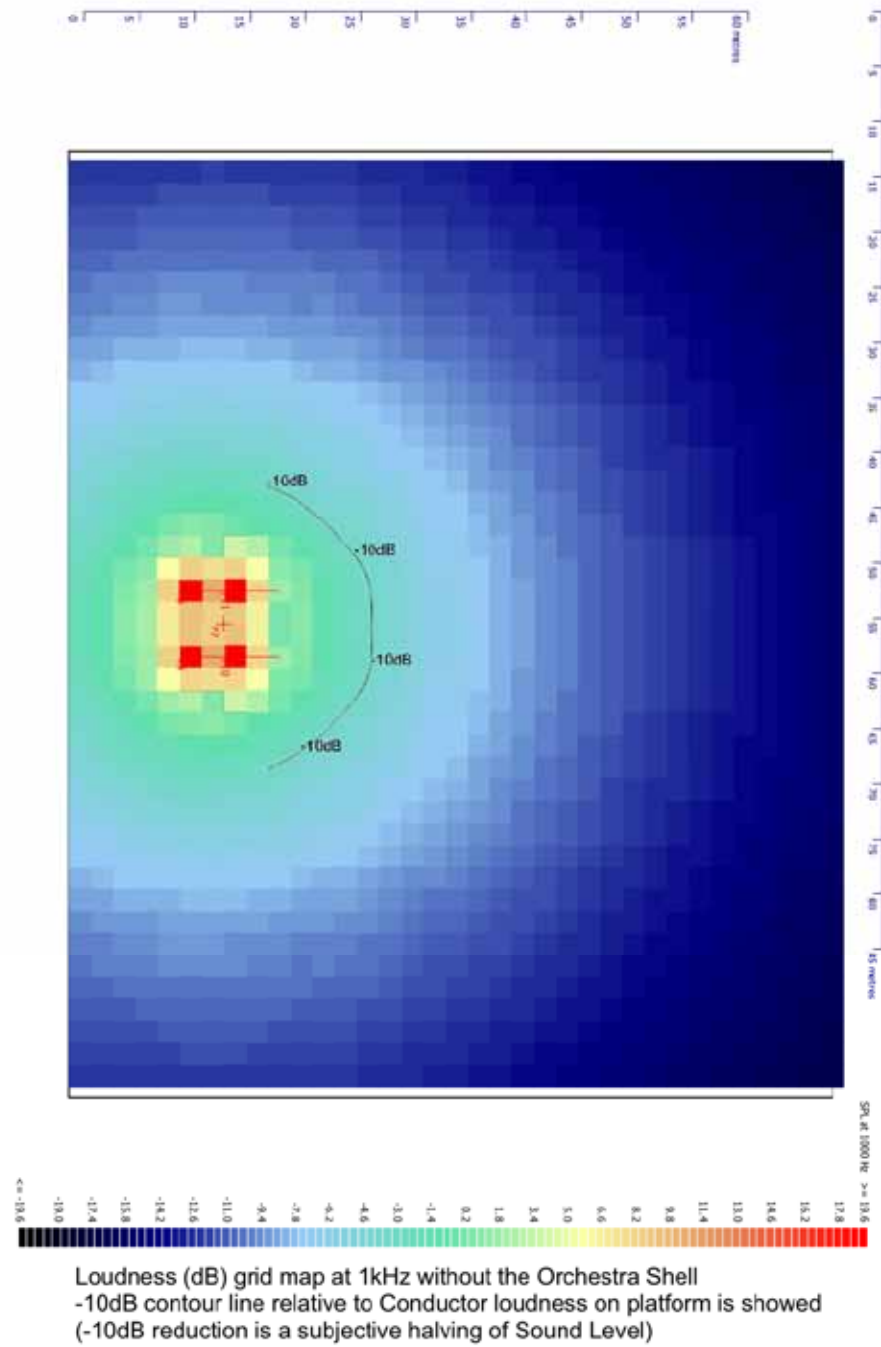


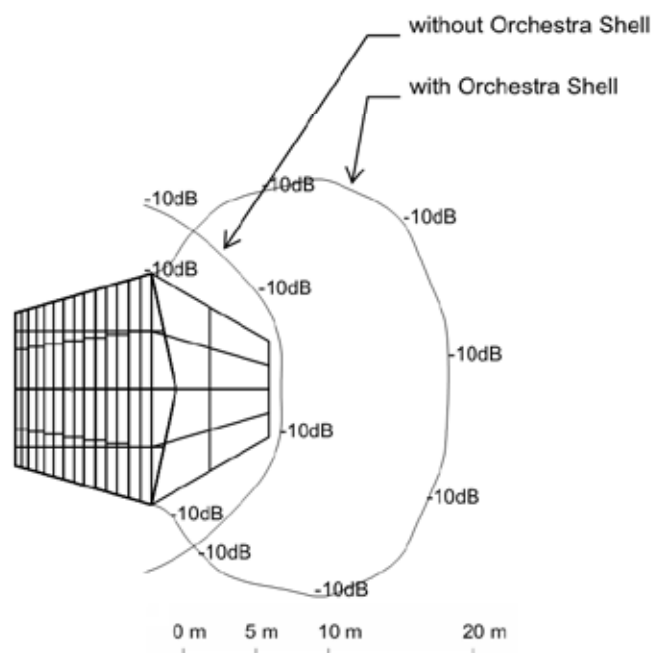
Relative Sound Levels (dB) in audience area to Conductor's position on platform with Orchestra Shell



Loudness (dB) difference contours plot - improvement contours resulting from the effect of the Orchestra Shell







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

NOTE:
ARRANGEMENT SHOWN PRODUCED FOR ILLUSTRATION/QUOTATION PURPOSES ONLY.
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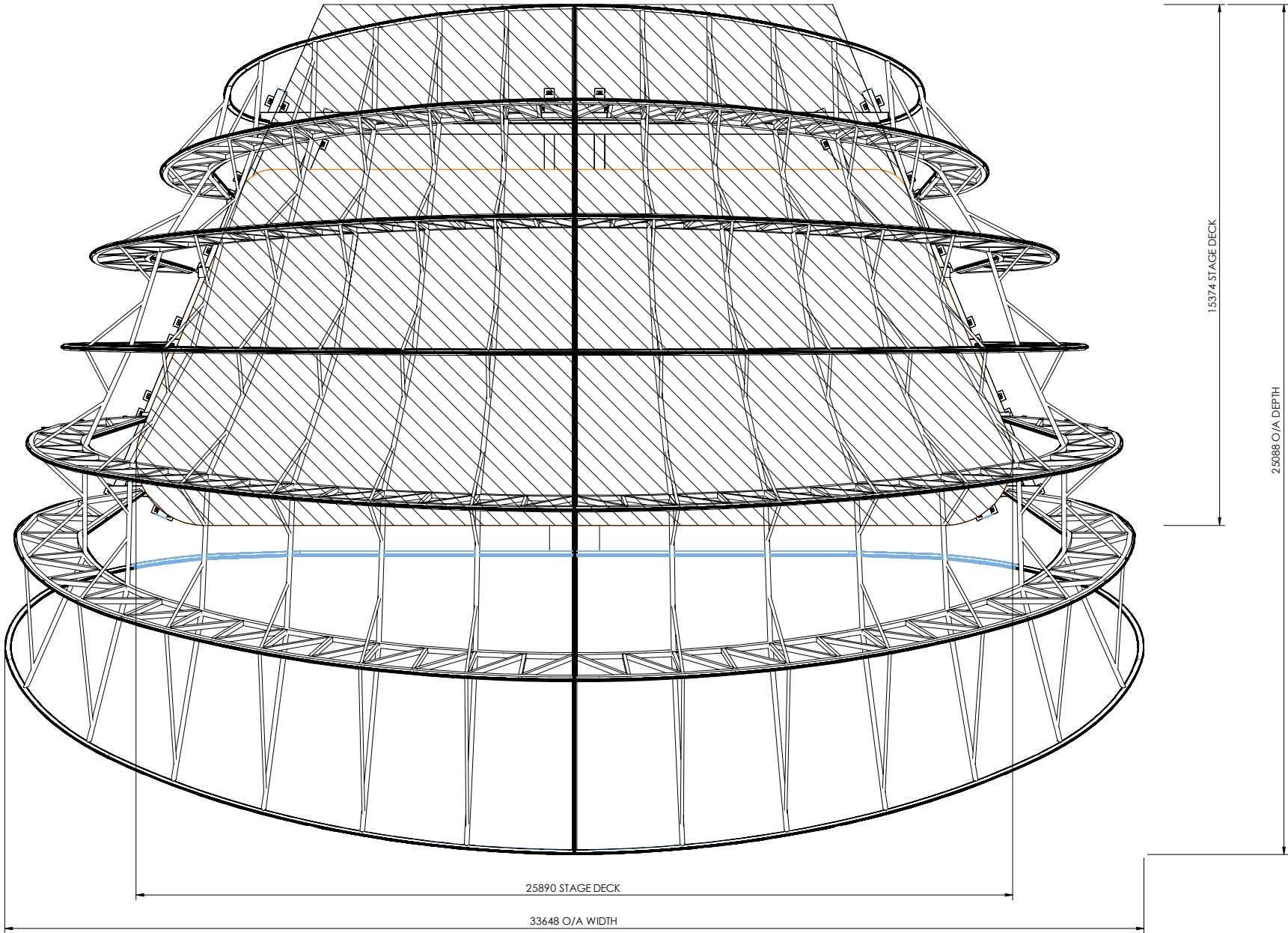
3rd Angle Projection



ES Global Ltd.
3 Vyner Street London E2 9DG
T. +44 (0)20 7055 7200 F. +44 (0)20 7055 7201
E. info@esglobalsolutions.com
W. esglobalsolutions.com

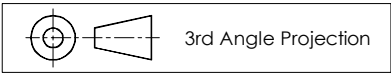
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CLIENT PREPARED BY ES GLOBAL ON BEHALF OF: SOUNDFORMS				
PROJECT TITLE SOUNDFORMS LARGE SHELL				
DRAWING TITLE TYPICAL PLAN VIEW PLAN VIEW				
DATE 09.04.15	SCALE 1:150	PAPER SIZE A3		
ISSUE STATUS DEVELOPMENT PURPOSES ONLY		APPROVED BY OW		
DRAWING NO NXXXX-DD-104				REV 0

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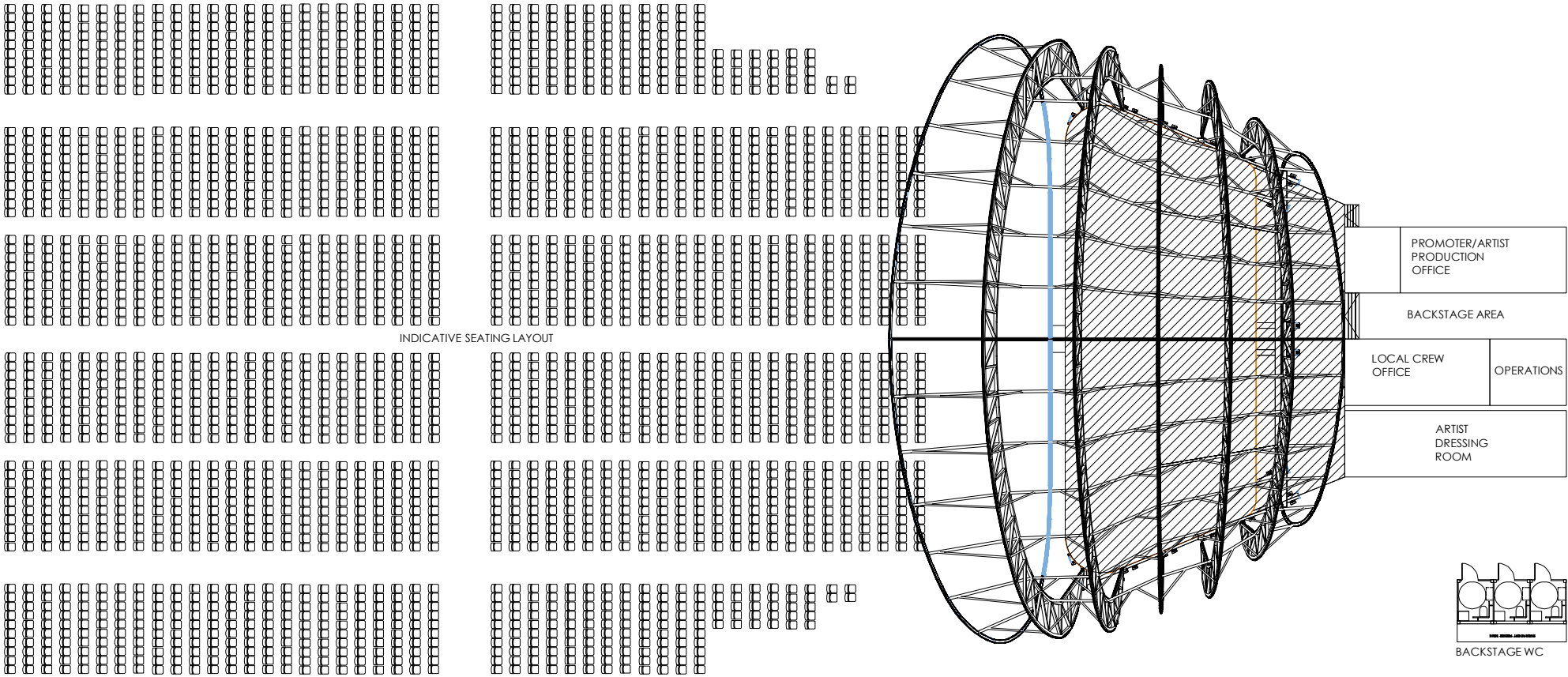
3rd Angle Projection



ES Global Ltd.
3 Vyner Street London E2 9DG
T: +44 (0)20 7055 7200 F: +44 (0)20 7055 7201
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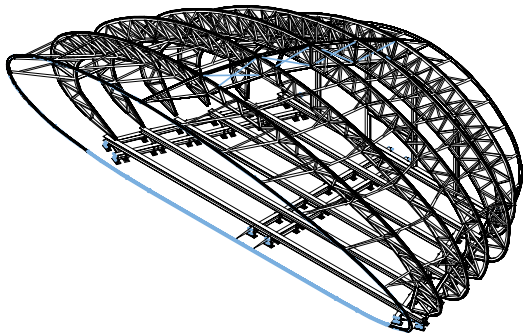


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PROJECT TITLE: SOUNDFORMS LARGE SHELL				
DRAWING TITLE: TYPICAL SITE LAYOUT PLAN VIEW				
DATE: 08.04.15	SCALE: 1:300	PAPER SIZE: A3		
ISSUE STATUS: DEVELOPMENT PURPOSES ONLY		APPROVED BY: OW		
DRAWING NO NXXXX-DD-103				REV 0

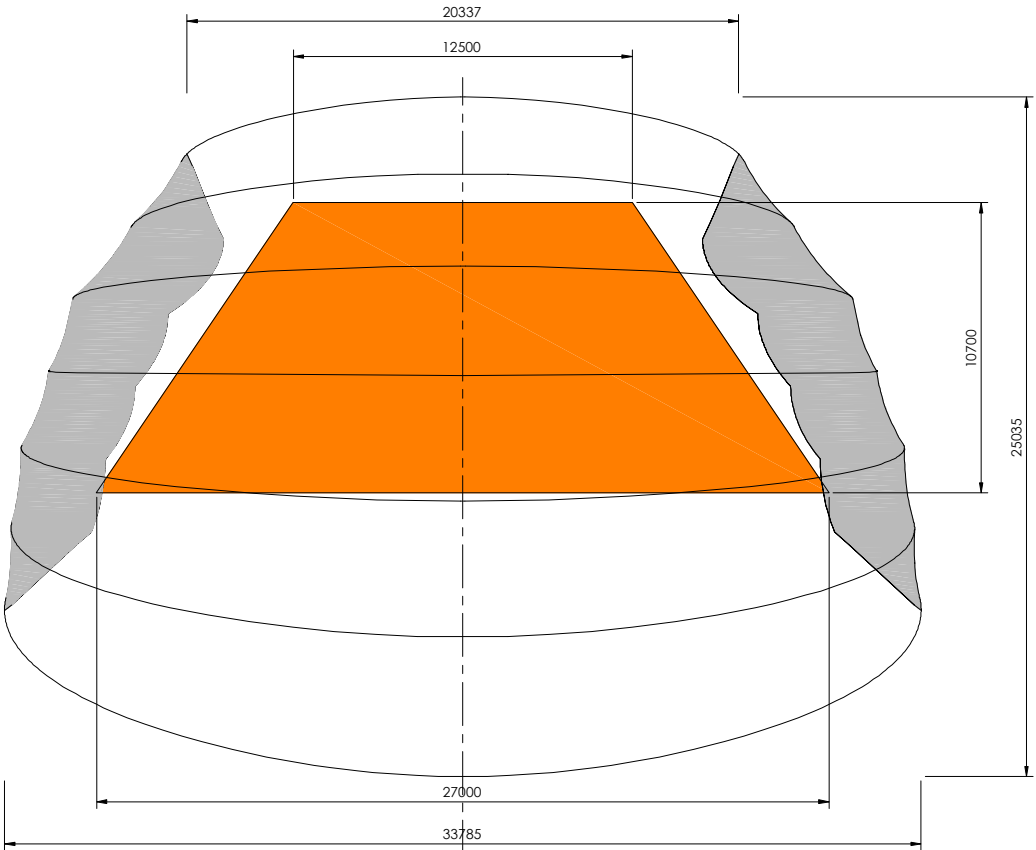
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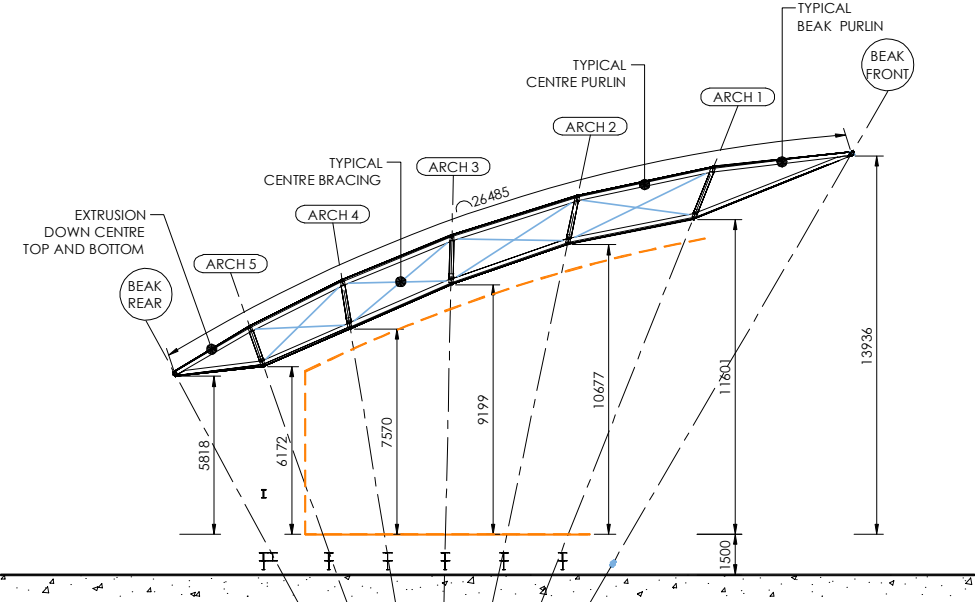
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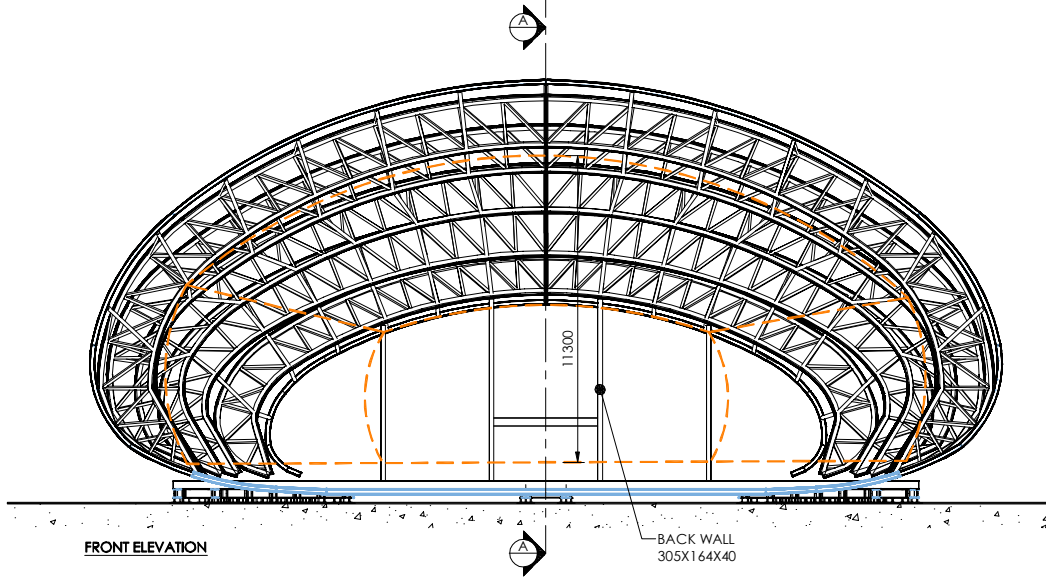
ISOMETRIC VIEW SCALE NTS



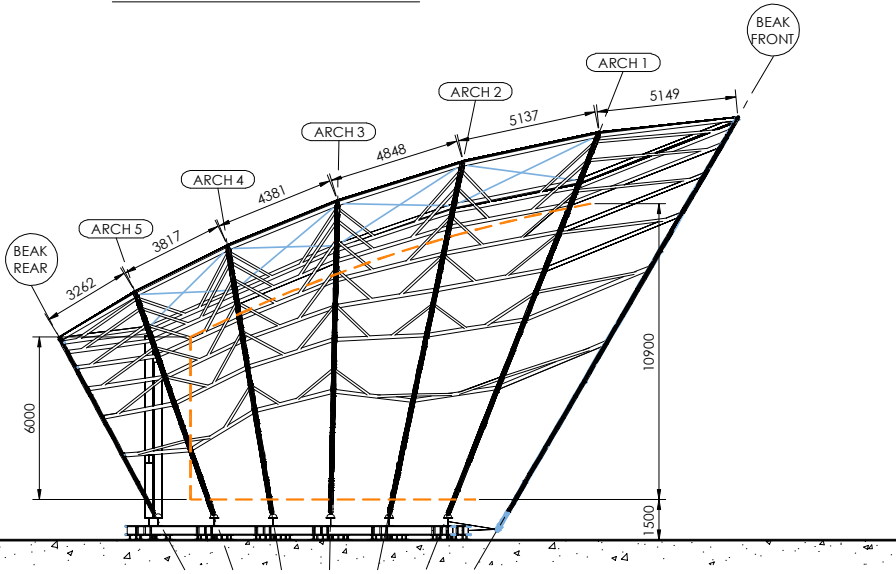
PLAN VIEW



SECTION VIEW A-A - TRIM UNDER EACH ARCH



FRONT ELEVATION



SIDE ELEVATION



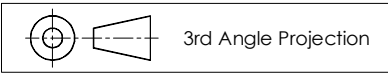
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3 Viner Street London E2 9DG
T: +44 (0)20 7055 7200 F: +44 (0)20 7055 7201
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DATE 14.11.14	SCALE 1:250	PAPER SIZE A3		
ISSUE STATUS DEVELOPMENT PURPOSES ONLY		APPROVED BY OW		
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3rd Angle Projection

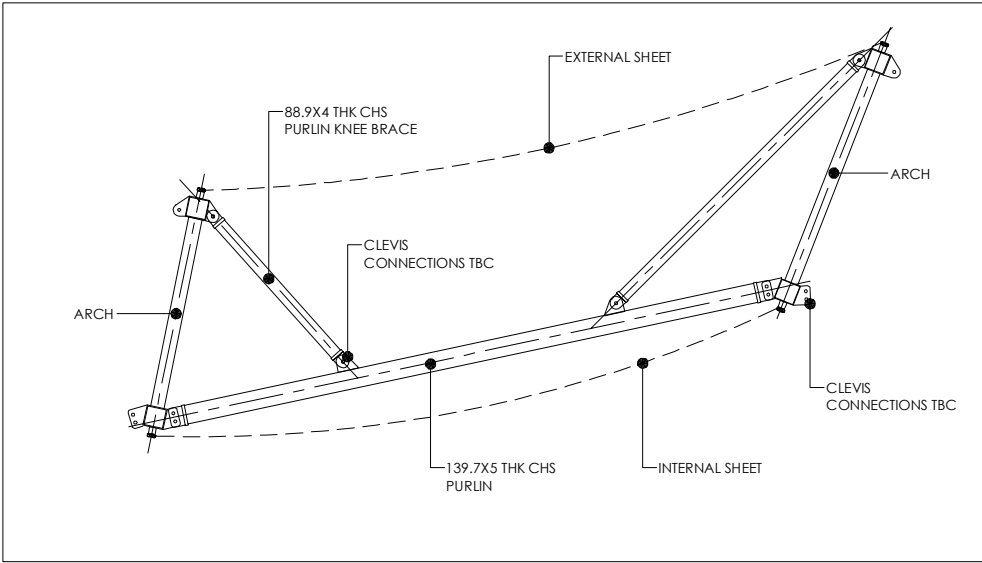


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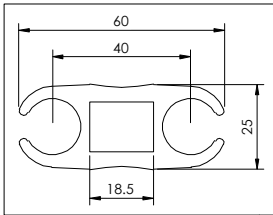
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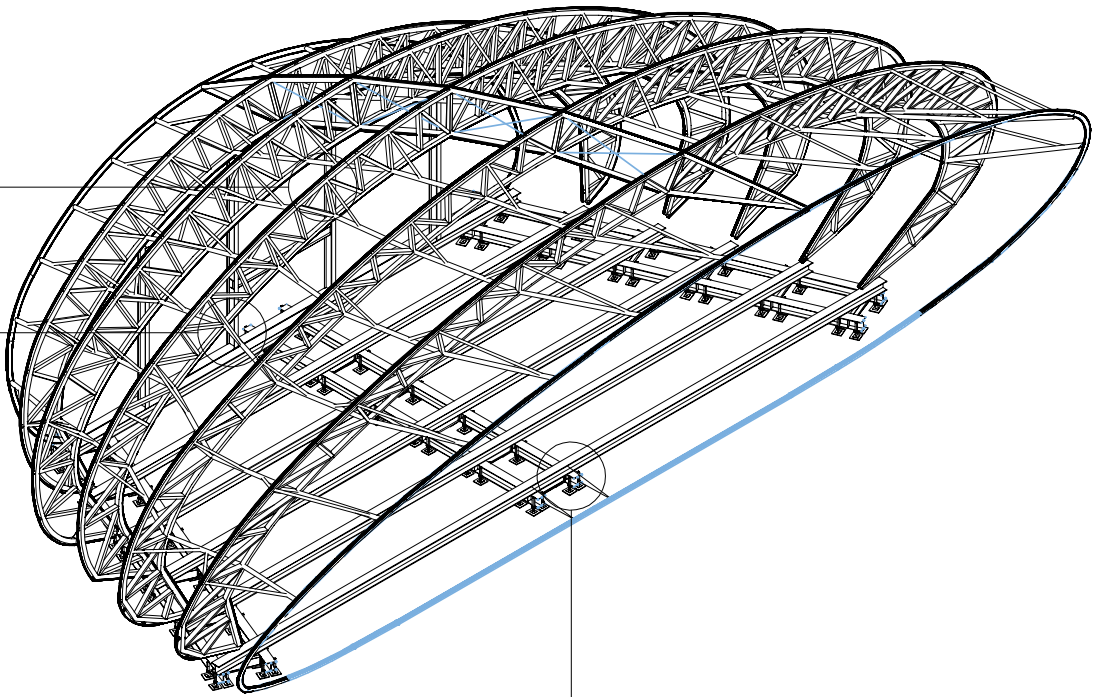
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REV	DESCRIPTION	DRAWN	CHKD	DATE
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PROJECT TITLE SOUNDFORMS LARGE SHELL				
DRAWING TITLE GENERIC MAKE-UP GENERAL ARRANGEMENT				
DATE 14.11.14	SCALE AS STATED	PAPER SIZE A3		
ISSUE STATUS DEVELOPMENT PURPOSES ONLY		APPROVED BY OW		
DRAWING NO NXXXX-DD-101	REV 0			



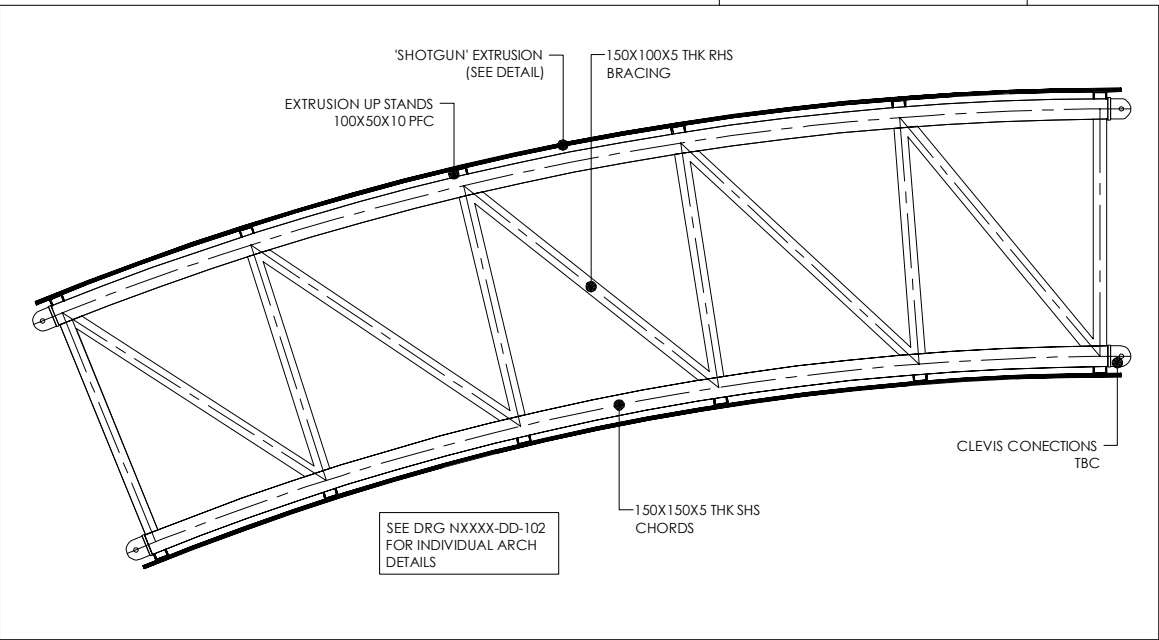
TYPICAL PURLIN DETAIL SCALE 1:50



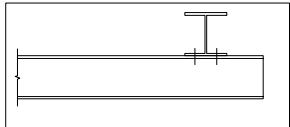
EXTRUSION DETAIL SCALE 1:2



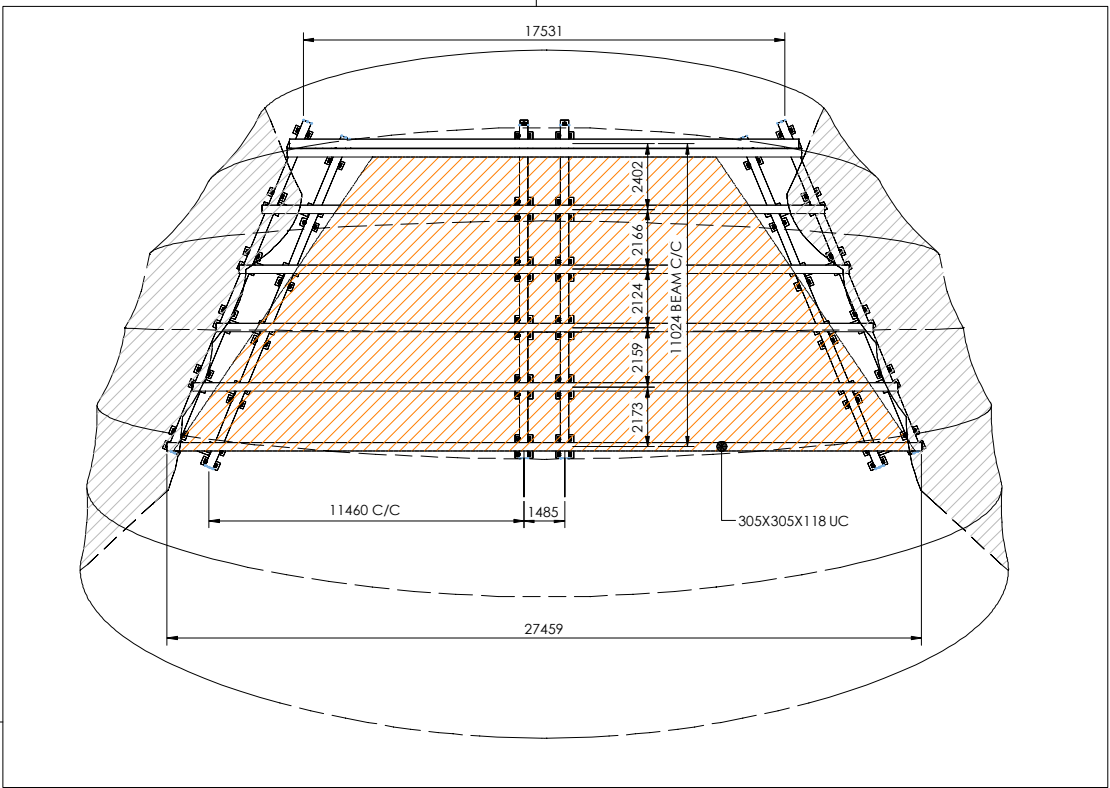
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TYPICAL TRUSS SECTION DETAIL SCALE 1:50



BASE ELEVATION DETAIL SCALE 1:50



BASE PLAN VIEW SCALE 1:250

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



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