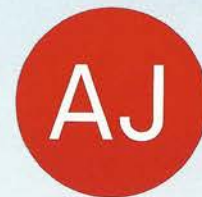


08.09.11

Garsington Opera

Snell Associates' radical, semi-Japanese pavilion
PLUS Forgotten Spaces Sheffield shortlist



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Fun palace

Snell Associates' Garsington Opera pavilion is eclectic, lightweight, demountable and connects with its landscape setting, says *Felix Mara*. Photography by *Dennis Gilbert*

Despite working longer hours than any other European nation, Britons take their leisure time very seriously, especially in the summer. Epic cricket contests, the Proms, the Serpentine Pavilion – and it often seems that money is no object. This national preoccupation, along with British architecture's penchant for eclecticism, is demonstrated in Snell Associates' Garsington Opera pavilion, which opened for its first season in June – and closed one month later.

Founded in 1989 by Leonard and Rosalind Ingrams, Garsington Opera stages summer festivals. It takes its name from their home, Garsington Manor in Oxfordshire, which they used as a venue for outdoor performances of both popular and experimental opera, accompanied by picnic and tea tents. 'It was basically an opera in a lean-to on the patio in their garden,' says Snell Associates' director Robin Snell. When Leonard Ingrams died in 2005, Anthony Whitworth-Jones became general director of Garsington Opera which, working with Snell, began to look for a new home.

After agreeing preliminary designs for a new 600-seat auditorium, they eventually found a site in Buckinghamshire, in the Getty family's Wormsley Park. Snell's proposal was awarded planning consent, and over a year the company raised £3.5 million from corporate members and devoted

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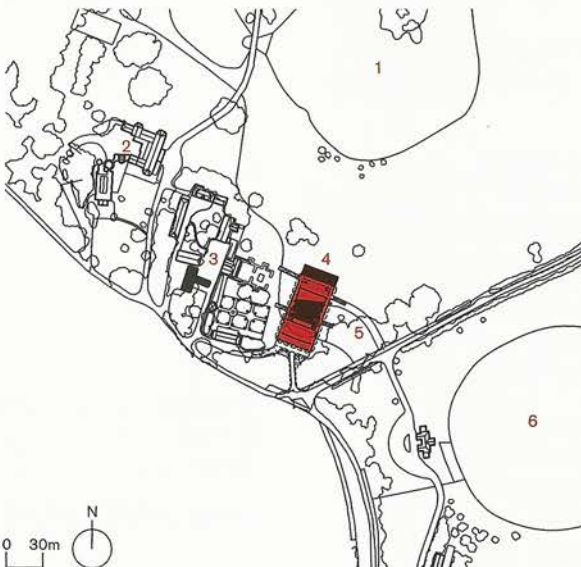


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Site plan

1. Lake
2. Wormsley House
3. Home Farm
4. Garsington Opera
5. Box office, WC and picnic tents
6. Cricket ground

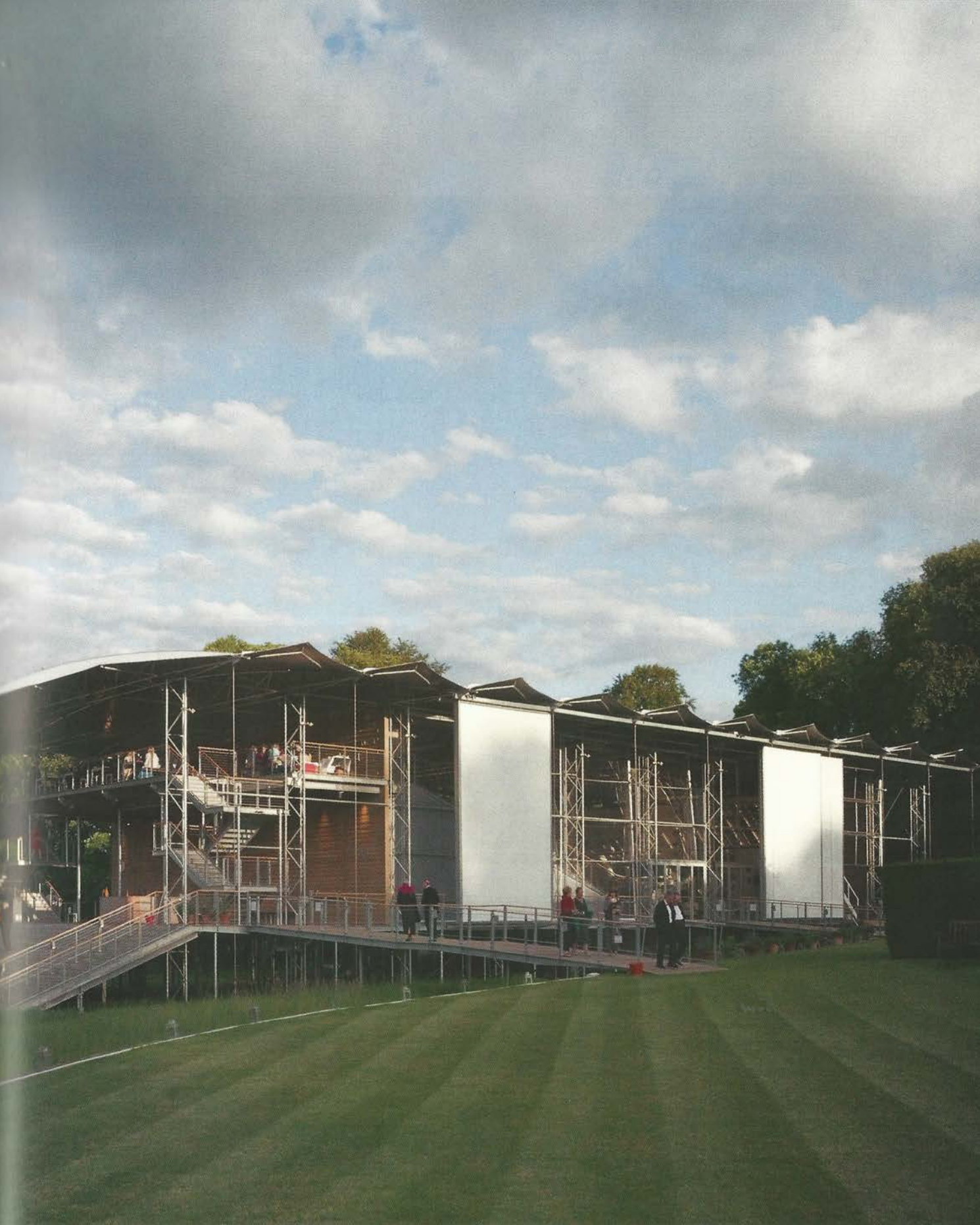


audiences, who pay upwards of £100 a ticket. Following the American model of cultural financing, it did not apply for public funding, and so enjoys a high degree of autonomy.

The condition was that it should be a temporary home: the lease lasts 15 years and the planning consent is for a temporary building. Also, both landlord and planners require Garsington Opera to dismantle its venue at the end of every season and move it offsite. So it was clear from the start that, like its previous incarnation, this was not going to be a conventional opera venue.

Snell drew on his experience of lightweight construction, acquired >>







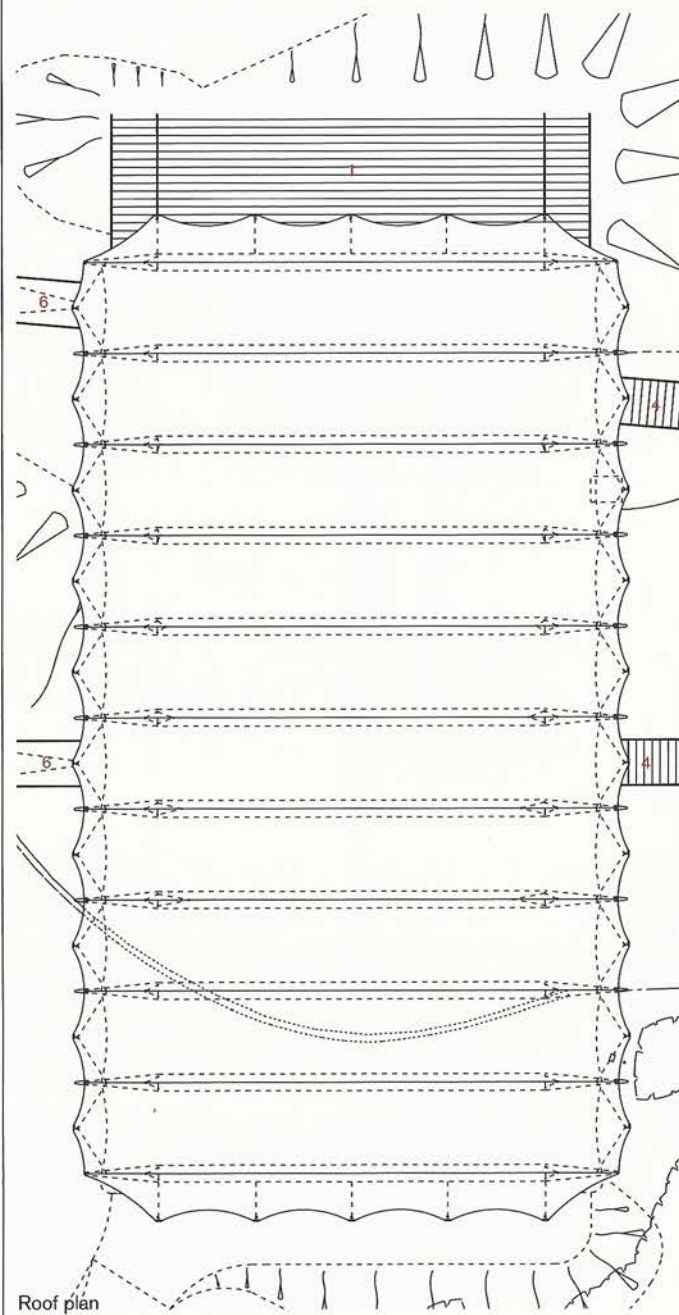
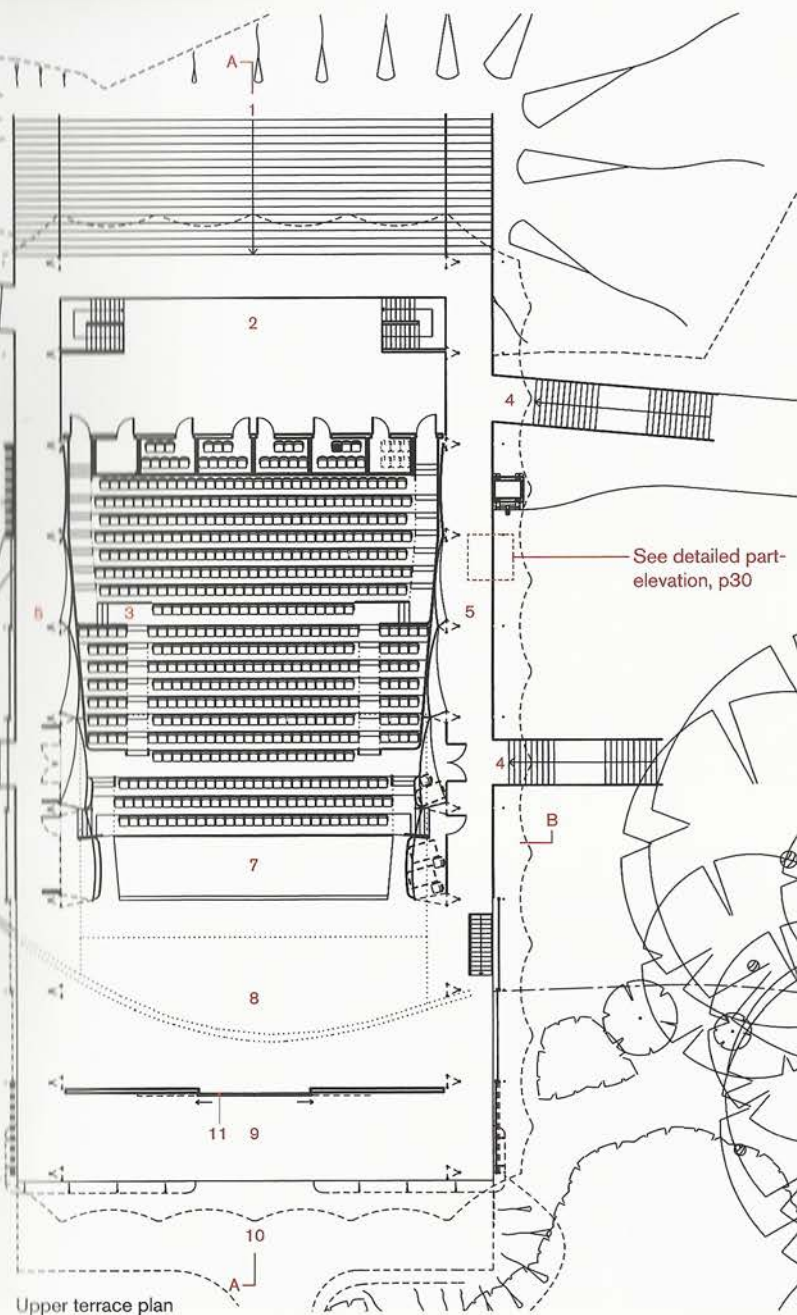
while working at Hopkins Architects on the Teflon-coated glassfibre-roofed Schlumberger Cambridge Research Centre, as well as on Snell Associates projects such as the Water Activities Centre near Norwich (AJ 22.09.05). The result was a lightweight fabric envelope, timber decking and trussed steel framework with split pin connections throughout, erected in under four weeks, taking as long again to dismantle and remove. Along with theatre and acoustics specialists, Snell also consulted rock concert designers. 'They were less worried about the architecture,' he says, 'but here, we were going to be worried about the architecture'.

Garsington was beginning to take shape as a very eclectic project – a heady mix of transferred technologies; more traditional concerns of European architecture; and, as we shall see, the English landscape tradition, Japanese theatre, architecture and gardens, and of course opera – itself an eclectic mixture of singing, orchestra, theatricality and design. The question was whether this would be an eclecticism that simply mixes its sources, or one that melds them as well.

Snell responded to the picturesque qualities of Wormsley Park, its rolling landscape, flooded valley and the nearby flint and brickwork buildings

of Home Farm – all visible from the auditorium. 'The building almost positioned itself,' says Snell, who chose a level area of the site where the pavilion nestles against the surrounding woodlands and faces the lake, like Henry Flitcroft's Pantheon at Stourhead. Early designs submitted to the planners, who were extremely supportive, are like a Modernist take on a peripteral Greek temple, with lofty white CHSs along its flanks, which were eventually replaced by triangular galvanised steel trusses that are much easier to manoeuvre on site. But its temple steps, designated for picnics, remained in what is otherwise a very subdued north front.

Previous spread
The entrance foyer is an external space featuring twin processional baroque staircases leading to the auditorium
Top The auditorium's steep seating rake and tapered shoebox volume help to optimise sightlines and room acoustics
Above left Snell was inspired by Japanese Kabuki theatre seating
Above right View from Katsura Detached Palace, Kyoto



Upper terrace plan

Roof plan

Snell dropped the classical image of a white frame contrasting with its Virgilian setting and opted for something more harmonious, with galvanised steel, a silver-grey PVC soffit and hardwood. 'It doesn't draw attention to itself,' says Whitworth-Jones. White is reserved for external sliding screens and here the pavilion begins to resemble the Japanese *shoin* idiom of Katsura Detached Palace in Kyoto. Snell was initially interested in the *hanamichi*, or flower paths, which feature in Japanese Kabuki theatre – an interesting connection because Kabuki, like opera, is a hybrid that combines singing and dancing. Snell noticed the way its performers, rather

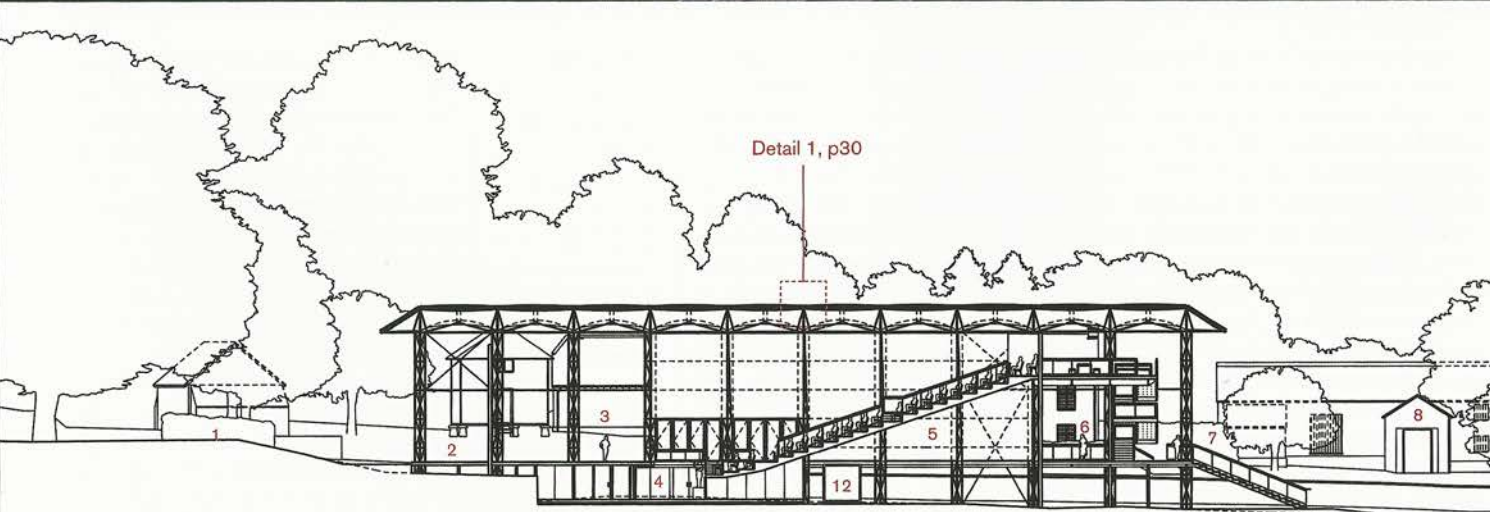
than being rooted on the stage, use the *hanamichi* to pass through the audience, and although this idea never took shape in Garsington's auditorium, it is redeployed in its perimeter verandas and bridges. Snell's focus then migrated from Kabuki to *shoin* architecture, which connects with the idea of a pavilion, a raised deck and a large internal space enclosed by lightweight sliding screens, as well as Garsington's setting next to a lake, although Katsura is flatter, with more confined external spaces.

There's also a resonance with Jean Prouvé's *Maisons Tropicales*, designed as prototype accommodation for French West African colonies. Though

1. Picnic steps
2. Upper terrace
3. Auditorium
4. Entrance staircase
5. Veranda
6. Bridge link
7. Orchestra pit
8. Stage
9. Backstage
10. Stage set down area
11. Bi-parting doors

smaller than Garsington, they have stilts and external staircases, and are demountable and prefabricated – but also bespoke. 'The contractor told us if we wanted to do it bespoke, it wouldn't make much difference to the price,' says Snell. This was an opportunity for resourceful, and in some ways low-tech, design – light fittings supported by simple curved sheet-metal brackets fixed to the vertical trusses, vertical meshed cable trays, a disabled access lift clad in perforated metal, and stainless steel gargoyles that throw rainwater onto patches of gravel below the verandas. A commercial architect would have front-loaded Garsington, probably >>





Section A-A



Left Ticket office
WC and catering
facilities are
accommodated
in tents

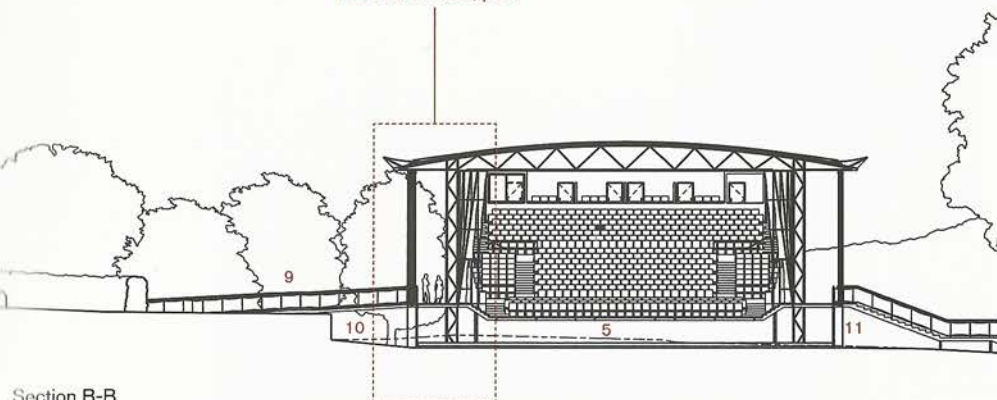
1. Back of house
garages/dressing
rooms
2. Backstage
3. Stage
4. Orchestra pit
5. Auditorium
6. Champagne bar
and terrace
7. Picnic steps
8. Garden room barn
9. Bridge link
10. Ha-ha
11. Entrance staircase
12. Electrical plant
room in sea
container

0 5m

with an 'iconic' foyer. But what is noticeable about Snell's approach is the way he uniformly spreads his modest budget throughout the building fabric, paying careful attention to the radius of clamping member arrises so that it's easier to install the fabric membrane, and developing customised seating that is comfortable and slots out of Halfen channels when the pavilion is struck. There's something very open about this approach that the pavilion's users have responded to. Rather than rejecting it as 'industrial', they appreciate its frankness and the ease with which the venue can be adapted. 'The whole thing is a bit like a rig for opera – it's a fun palace,' says Snell, using a phrase coined by his tutor, the radical visionary Cedric Price.

A temporary, lightweight, demountable building, with a semi-exposed environment and no mechanical ventilation, heated by a few suspended radiant panels, seems an unlikely venue for professional opera. But Whitworth-Jones is adamant that this is a serious undertaking. 'I was absolutely determined to get the best possible standards,' he says. 'It's very, very comfortable.' Acoustician Bob Essert, director of Sound Space Design, concedes that performers are likely to be young with fairly lightweight voices, and that the repertoire will concentrate on smaller operatic works. He also makes no promises to eliminate background noise, which is free to pass through large openings in the pavilion's fabric: 'The birds are what they are, the thunderstorms are what they are and the wind is what it is.' But, with other design team members, he has >>

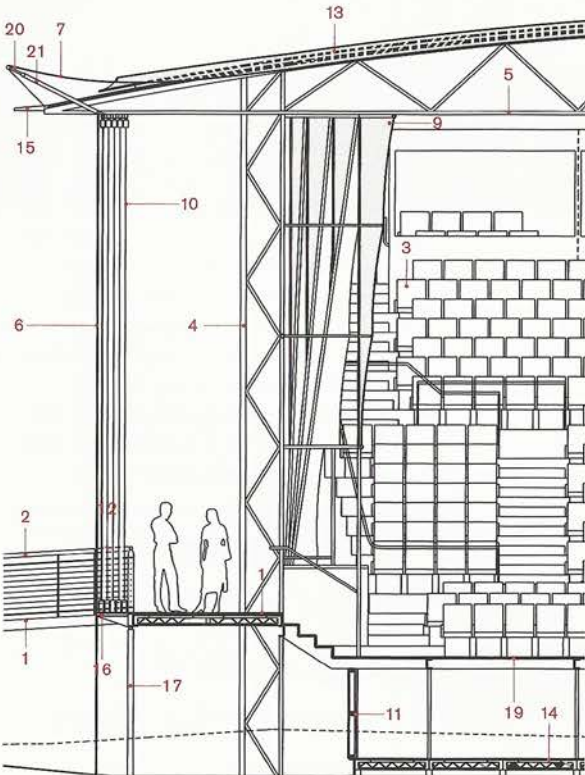
Detailed section, p28



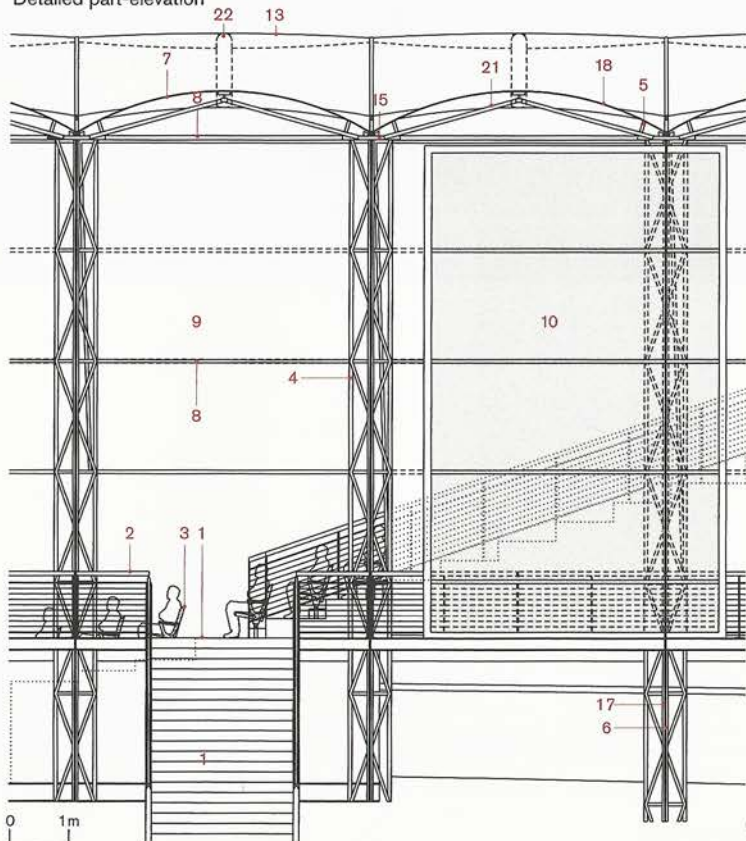
The convex PVC
roof augments
and controls
sound reflection



Detailed section



Detailed part-elevation



Left The staircase and lift connect from the car park and tents to the veranda **Below** PVC sails enclose the auditorium and reflect sound

1. Balau planks on modular decking
2. Hardwood handrail on steel supports with stainless steel wire infill
3. Upholstered auditorium seating on timber steps
4. Galvanised steel triangular vertical truss with CHS cords
5. Galvanised steel triangular horizontal truss with CHS cords and ties
6. Tie-down cables
7. Fabric canopy roof
8. 60mm diameter horizontal CHS tie
9. Transparent fabric walls
10. Steel-framed sliding solar screen
11. 37.5mm plywood panels on timber frame enclosing orchestra pit
12. Removable handrail section to allow passage of sliding screens
13. PVC fabric rainscreen outer membrane on raised luff tracks
14. Plywood modular deck on modular stage floor system
15. Preformed stainless steel gargoyle
16. Parallel flange channel veranda support
17. CHS veranda support
18. Webbing belt in pocket to edge of fabric roof
19. Independent support system for flooring and seats
20. Adjustable strut
21. Wishbone push-up
22. Inflated acoustic air beam

worked hard to control room acoustics. 'You need a bit of space for sound to develop and blend,' says Anne Minors, principal designer at Anne Minors Performance, who worked out the sightlines. This accounts for its proportions, which follow the shoebox model. Intimacy, she explains, is less of a priority in opera than in theatre. Although the auditorium looks deep because it has no circles, as Snell says, 'there's not one bad seat in the house'.

What's most impressive is the way that Sound Space Design and Snell have worked with the pavilion's lightweight fabric to augment and control sound reflection, using the convex PVC membrane roof and its sleek, sculpted and tilted walls of shiny, clear PVC. An outer roof membrane, which Snell describes as a 'string vest', disperses rain and reduces its noise level by 14 decibels. These are remarkable achievements for a feather-light

transformer of a building, which some even perceive as a permanent structure. 'It may well be that we go on and on,' says Whitworth-Jones.

On the whole, Garsington succeeds at melding, rather than just mixing, its multiple influences, but not always with finesse. Preliminary drawings showed scalloped roof overhangs, convex in plan, but after a form-finding exercise that addressed structural, drainage and acoustic requirements, these mutated into the spiky bat-wings that now dominate the pavilion's skyline – more expressive than graceful. And there's something loose and almost shambolic about its demeanour and the way it seems ready to clatter across the valley like the Bumblebee robot from *Transformers*, which is part of its rustic charm. But it's also remarkably consistent and disciplined and, as befits this eccentric festival, totally unique and radical. ■



Credits

START ON SITE	November 2010
COMPLETION	May 2011
GROSS INTERNAL FLOOR AREA	2,065m ²
FORM OF CONTRACT	JCT Design & Build, revision 2 2009
CONSTRUCTION COST	£1.8 million
COST PER SQUARE METRE	£872
CLIENT	Garsington Opera
ARCHITECT	Snell Associates
STRUCTURAL ENGINEER	Momentum
M&E CONSULTANT	Buro Happold
ACOUSTICIAN	Sound Space Design
THEATRE CONSULTANTS	Ian Mackintosh, Theatreplan and Anne Minors Performance Consultants
QUANTITY SURVEYOR	Gardiner & Theobald
CDM CO-ORDINATOR	Gardiner & Theobald
APPROVED BUILDING INSPECTOR	Oculus Building Consultancy
PLANNING CONSULTANT	Nathaniel Litchfield & Partners
MAIN CONTRACTOR	Unusual Rigging
STEELWORK CONTRACTOR	Sheetfabs
FABRIC ROOF AND CLADDING CONTRACTOR	Architen Landrell
ELECTRICAL WORKS	Capri Mechanical Services
AUDITORIUM SEATING	Race Furniture
TIMBER	James Latham
GLAZED ENTRANCE SCREENS	Sun Paradise
DONOR BOARDS	Rankins Glass
SIGNAGE	Glyphics
LIGHT FITTINGS	Bega
RADIANT HEATING PANELS	Solray (Comyn Ching & Co)
ACCESS LIFT	Ability Lifting Solutions
STAGE DECKING	Steeldeck (Kings Cross Manufacturing)
FOYER FURNITURE	Race Furniture
ESTIMATED ANNUAL CO ₂ EMISSIONS	Not applicable

Garsington Opera, Wormsley, Bucks

Snell Associates

Acoustic fabric roof and enclosing walls



MARCUS DAWES

The main driver for the fabric forms is their acoustic performance requirements. The shapes are engineered to suit and use fabric with a mass of 1kg/m^2 to satisfy the acoustic criteria.

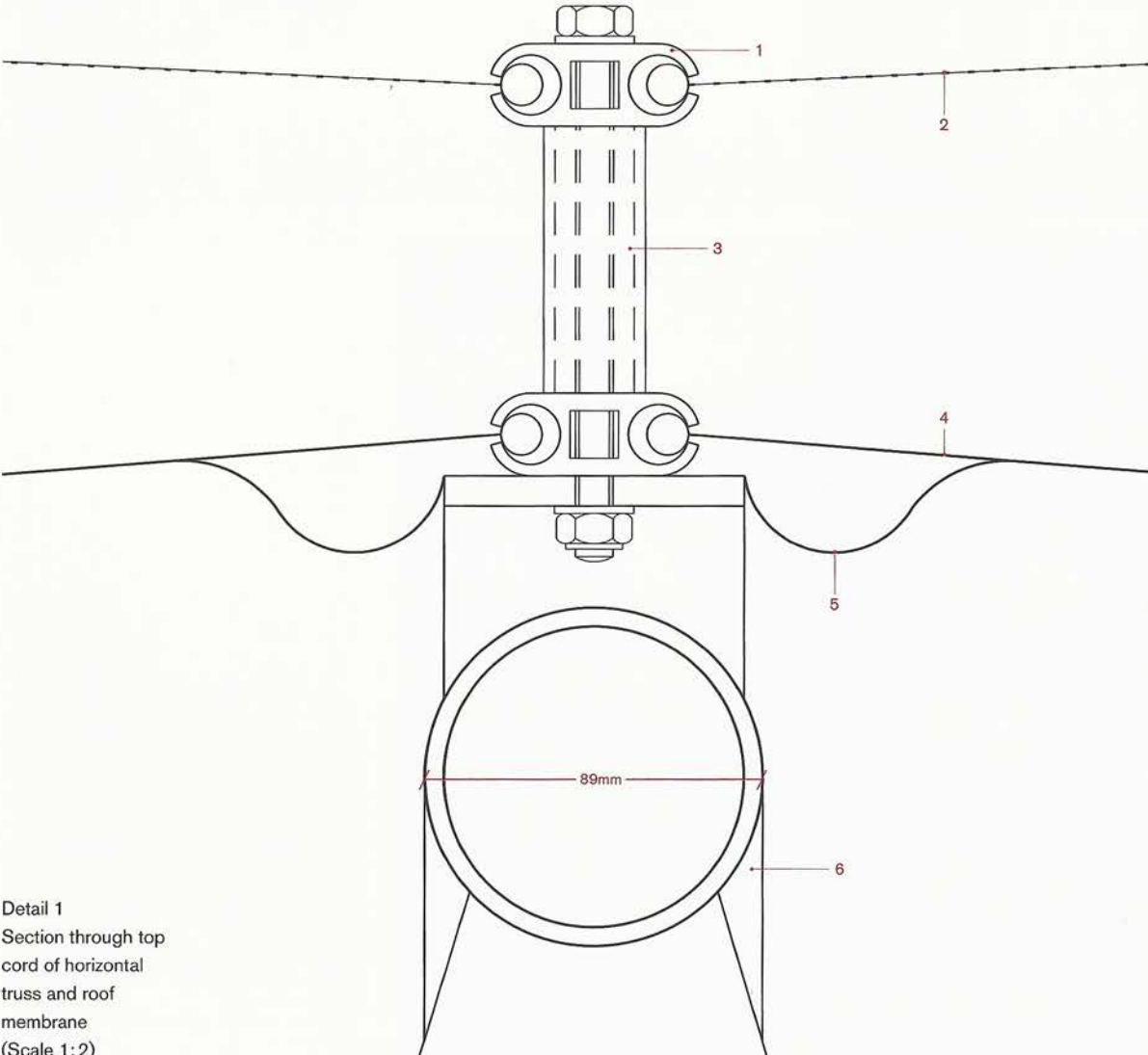
The roof is a double-skin acoustic roof divided into modular bays spanning between roof trusses at 4.8-metre centres. It comprises two PVC fabric skins with different performance properties separated by an inflated 'air beam', to avoid the two layers touching in high winds. The upper fabric absorbs the impact of the rain and is perforated, allowing the

rainwater to fall gently to the lower surface and be drained away. Under test conditions this reduces rain impact noise by 50 per cent (or 14 decibels).

To enable views out of the auditorium, the acoustic walls of the pavilion are clear PVC, stretched over 60mm diameter horizontal steel spars at 1800mm centres. They are shaped into curved scalloped sails, 4.8-metres wide in plan, like windsurfer sails and inclined inwards in section, to enhance the room acoustics through sound reflection.

Stephen Haben, project architect, Snell Associates

Left Snell Associates wanted to use fabric membranes for their architectural and acoustic quality



Detail 1
Section through top
cord of horizontal
truss and roof
membrane
(Scale 1:2)

1. Aluminium extrusion for mesh layer bolted through aluminium extrusion for PVC membrane
2. PVC perforated fabric mesh rain attenuator
3. Aluminium CHS spacer
4. 1kg/m^2 tensioned double-sided PVC membrane roof. Colour: white externally, silver-grey internally
5. Fabric gutter to underside of extrusion
6. 89mm CHS top chord of steel truss