

The Shape of Curve, Leicester

The £61 million 'Curve' is Rafael Viñoly Architects' first completed project in the United Kingdom. It is billed as an innovative and democratic building that respects Leicester's history, whilst helping to redefine its future. It opened in November 2008.

An anchor for the redevelopment of the St. George's Conservation Area in Leicester, the heart of the Cultural Quarter, the theatre features a four-story glazed and louvered curtain wall. Hung from a vast truss spanning the site, the glass hits the ground without interruption from structure, offering a continuous and unobstructed 4m high window revealing the two main audience volumes, a 750-seat main auditorium and a 350-seat studio, and the production and administrative facilities behind. Conceived as islands within a public foyer, a central stage sits at street level between the two coloured volumes, and a system of metal shutters enable the creative team to place the audience in a variety of configurations, creating possibilities for either conventional or technically more ambitious theatre production and design.

The continuum of stage, foyer and street at one level allows for clear visual connection between audience, actor and the public, and offers up possibilities for both traditional and unconventional uses of the space to meet the community's diverse cultural needs. No distinction is made between front and back-of-house; double-height workshops and production spaces feature glass walls that expose production activities and make them a visible part of the spectacle. A café is located at street level to attract visitors throughout the day and during the non-performance hours. An L-shaped brick volume along the north and west elevations contains dressing rooms, rehearsal spaces, production facilities, the ticket office, a recording studio, a kitchen, Leicester Theatre Trust's offices, and support spaces.

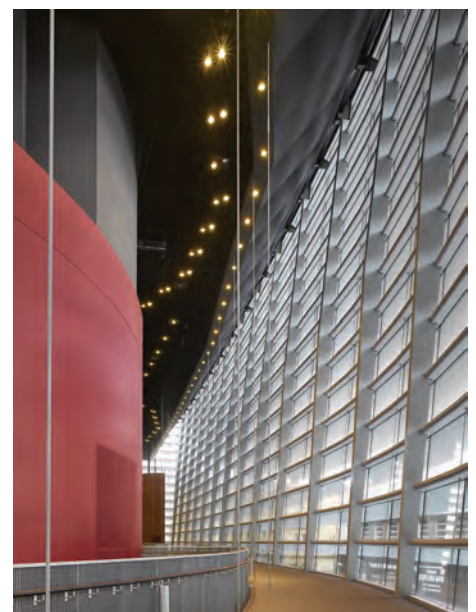
Tiers of balconies at upper levels overlook the foyer, giving physical and visual connections to staff, performers,

Rafael Viñoly Architects

Rafael Viñoly Architects PC is a critically acclaimed international practice headquartered in New York, with offices in London and Los Angeles. Founded in 1983, and now employing over 200 architects and support staff, the firm provides comprehensive services in architecture, master planning, and interior design for new facilities and renovations.



and the audience from the top to the bottom of the building's volume that activate a dramatic, engaging space. "Curve is an extraordinary contribution to the regeneration of Leicester," says Rafael Viñoly. "This could not have been if it weren't for the vision of the people involved. They were interested in this notion of a theatre being an inside-out experience, something in which the production has an interest and value as well as the performance itself." Paul Kerryson, artistic director of Leicester Theatre Trust says: "Curve's completion has seen the culmination of unparalleled expertise, ambition and dedication, and we are delighted to have a brand new home which will enable us to push the boundaries of twenty-first century theatremaking." Principal capital funding partners for Curve are Leicester City Council, Arts Council England, East Midlands Development Agency, The European Union, Leicestershire Economic Partnership.



Photos on this page: Will Pryce / Curve Leicester Press Office.

Stage Technologies Create the Magic at Curve

In March 2006, Leicester Theatre Trust, part of the Leicester City Council, took an ambitious step into the unknown by commissioning an 'inside-out' theatre as part of a plan to regenerate the cultural quarter in the inner city. Curve, as it came to be named, is not only the latest theatre to be built in the country but is perhaps the first of its kind, a new generation of buildings that will provoke audiences, producers and technicians into examining their preconceptions and thinking differently about the theatre experience.

A group of architects, civil and structural engineers, and engineering experts was given the challenge of making the vision of the Curve team a reality. How do you make theatre transparent without losing the magic? How do you turn traditional observation into interaction? Stage Technologies was awarded the role of designing and installing a futuristic engineering system to measure up to the vision.

From the outside, the building is all clean lines and glass; inside it is air and light circulating around the heart of the central theatre structure. Visibility was paramount to the ethos of the project, in essence to expose the gears and cogs of the theatre machine, from costumes to sound-rigging, from scene-building to the actors. To reflect this, two Delstar Engineering, automated, 32-tonne, L-shaped steel perimeter walls cloak each side of the stage house and separate the stage and the foyer. When these are lifted, the stage can be seen, and even accessed if required, from street level, offering passers-by a tantalising glimpse of a technical or performer rehearsal in mid-flow.

Flexibility was another keystone feature of the concept. With this in mind, the grid covers the entire performance area, meaning that anyone or anything can be lifted at any location in the main stage or studio. A total of 76 winches are employed to provide the versatile power flying system, and another 12 portable point hoists add an extra resource to the theatre technicians' armoury. Flown rails frame the four sides of the main theatre and the 60 flying bars are managed using the micro-accurate Stage Technologies' Chameleon software, which itself raises the bar of industry standards. The equipment is precision controlled by two portable Nomad desks and two handheld Solo consoles, which can be operated via no less than 21 control points throughout the building.

Sometimes the mandate for visibility and flexibility merged and became one. For example, there are two auditoria, one with 750 fixed seats and a 350-seat black box. These two spaces sandwich the main stage, resulting in an audience capacity that can be cropped or expanded by lifting or dropping acoustic safety curtains, designed and built by Delstar Engineering. Acoustic separation between the theatre's various spaces is vital and so the safety curtains completely soundproof the areas they contain, enabling live shows, rehearsals and maintenance work to coincide without any disruptions. The control system for the two performance spaces is synchronised, so that despite being a considerably sophisticated process, the transition between staging alternatives is an uncomplicated matter. When not incorporated into the stall plan, the surplus seating space can be used as an additional storage facility.

It was realised fairly early on in the project, during training sessions, that there was an opportunity for both Curve and Stage Technologies to develop a working partnership which would become something bigger and better than the individual parts of a whole. Curve provides a unique venue for training workshops and open days, and Stage Technologies has a team of experts eager to get involved with programming and equipment development. So Nikki Scott and John Hastie, directors of Stage Technologies, and Graham Lister, projects director at Curve, officially formed a strategic partnership between the two organisations to ensure that Curve is given the chance to reach its full potential (see news story page 6 this issue). Their aim is to make theatre dramatically more accessible to the public, especially to a younger generation ever



The house in *Simply Cinderella* that emerges from the stage.

hungry for the opportunity to learn about the latest technologies. Following on from the success of the first open event held at Curve earlier this year, Stage Technologies plans to use Curve as the venue for its Training Academy's automation courses and to host more open days for schools and drama colleges, the first of which is planned for May 2009.

Stage Technologies recognises the value of offering after sales support to venues which have installed automation systems and will readily provide support to creative teams working with their automation systems. This has been particularly relevant at Curve, where its involvement in the artistic process has enabled the creative teams originating work to fully utilise the installed system and to interface with additional show-specific, hired-in mechanical and electrical automation equipment. By working closely with set designers, Stage Technologies hopes to foster this culture of design support and development in future projects.

Alex Hitchcock, training development manager at Stage Technologies advised on programming, rigging and safety throughout the build and for the production of the inauguration night, *Lift Off*, which showcased the extensive, exciting elements of the venue in November of last year. Compelling promenade acts delighted the public in the theatre's curvaceous atrium and the audience stood awestruck on the stage as the performance unravelled in a carnival around them. The stage spilled over into the foyer and back again, the audience rubbed shoulders with performers, creating a dissolution of formal boundaries and a crossover from front of house to stage that perfectly encapsulated the initial brief of the project.

The first public show, *Simply Cinderella*, directed and choreographed by Adam Cooper, doesn't hold back. Performers fly, a bandstand (complete with orchestra) tracks onto the stage from where it is concealed in the black box studio and a purpose-built two-storey house expands up through the stage. The modular stage floor can be removed, raised or lowered incrementally, essentially allowing any size or shape of object to be elevated; for the particularly complex requirement of *Simply Cinderella*, the lift function for raising the house was hired on a temporary basis and linked into the main system.

It's been an exciting ride for all those involved in the design and build of the flagship of the Leicester cultural quarter. Curve isn't a name you can forget easily and once you've been there, whether you're a traditionalist or a trend-setter, you'll find this is inherently true of the place itself as well.

www.stagetech.com



Stage Technologies' Big Tow winches in the machine room.



A Stage Technologies Nomad desk and Solo hand console.



A section of the auditorium.
photo: Will Pryce.



ABTT members visit Curve, Leicester.

Centre Stage Engineering at Curve

The Curve at Leicester is probably the most prestigious project that Centre Stage Engineering been involved in during their ten years in the stage engineering business. As a Bovis LendLease preferred sub-contractor, Centre Stage was invited to bid for a significant part of the stage machinery package back in 2004. In 2006 they were awarded a contract to provide an orchestra pit elevator, forestage catwalk system, hydraulic paint frame elevator, proscenium wall-mounted hinged acoustic shutter weighing four tons and mobile beams for point hoists for both the 750 and 350 spaces. Later that year Bovis invited Centre Stage to bid for supplying and installing the technical galleries, lighting bridges and spiral staircases for both the 750 and 350 spaces. Never having installed this type of equipment before, the task was approached with some caution and much checking of calculations. The fact that all the metalwork was fabricated in Centre Stage's factory meant that the equipment was assembled and checked prior to installation thus smoothing the installation task.

The orchestra pit elevator, with its 5.3 metre travel and 6,000kg dynamic load utilises the unique Spiralift transmission system with a variable speed drive for close control, provides a swift method of transporting the seating wagon, manufactured by Jezet, from its store to the auditorium level. The paint frame elevator, a facility that seems to have gone out of fashion over the last few years, allows in-house painting of fabrics and flats with a minimum of fuss and the acoustic shutter, controlled by Stage Technology's Nomad system provides a rapid and repeatable method of changing the acoustic envelope of the main auditorium.

Halfway through the main contract Centre Stage were successful in bidding for the contract to install a combination of 41 power and data cable reelers in mobile frames that run on tracks either side of the overstage grid. The reelers with cables were supplied by Meetool UK Ltd and the mobile frames provide a unique way of ensuring that every power flying bar can be converted into a dedicated lighting bar when required. The installation of this equipment had to be carried out while the new theatre staff were familiarising themselves with their new building with Bovis coordinating the various sub-contractors still working in the building. This project is one that Centre Stage are proud to have been associated with and they have continued their working relationship with Bovis LendLease by being awarded the contract to install 22 stage lifts in the new BBC Philharmonic Studio in Media City, Salford Quays, Manchester.



The inner theatre construction and spiralling corridors.

White Light at Curve



A versatile building such as Curve obviously needed a highly versatile stock of lighting equipment to expand upon the range of equipment which was moved to the new venue from the Haymarket. Curve's 'wish list' was arrived at following long discussions between theatre consultants Charcoalblue, Graham Lister, the theatre's development director, production electrician Ian Moulds, acting as a lighting consultant for the venue, and others involved in lighting, particularly

those with a connection with Leicester's theatres – most notably designer Chris Ellis who has lit many shows at the Haymarket.

The final package includes conventional lighting, moving lights, followspots, scrollers, rigging, portable dimming and more. Much of the equipment is being sourced from the companies for which White Light is the exclusive UK distributor. This includes a comprehensive selection of Robert Juliat equipment (RJ710 profiles, LeCin'k, 329 and Lutin fresnels, Aramis and Super Korrigan followspots), colour scrollers from Rainbow (6" Pro, 8" Pro, 12" Pro, 15" Pro), smoke and haze from Look Solutions (Viper and Unique machines) and dimming from LSC (Redback six-way dimmer racks).

Demonstrating that White Light can offer the widest possible range of equipment, the rig also includes Avo ART2000 touring dimmers, Source Four profiles and battens from ETC, Pars from Thomas, beamlights from R&V, Ministrip battens from L&E, cyc lighting from Altman, Thomas and Selecon plus White Light's new 350LFX effects projector with VSFx drive units. Moving lights include MAC700 Spots and Washes from Martin Professional.

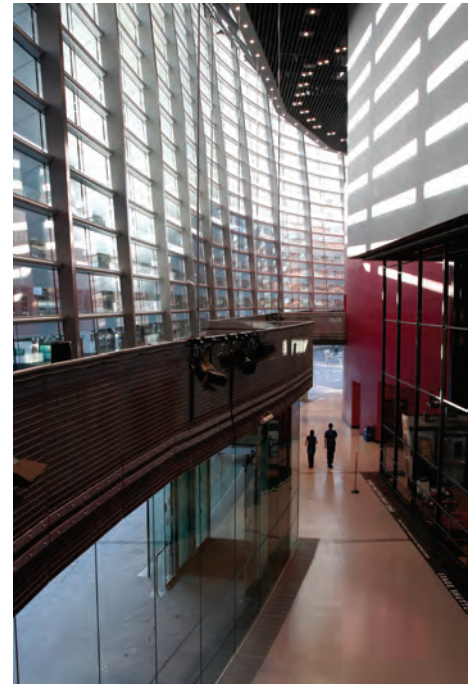
White Light also supplied the venue with a comprehensive selection of rigging, cabling and other infrastructure, including internally wired bars, meat racks for storage, DMX cabling, Socapex cabling, spiders and stage boxes, ballet towers, Doughy stands and Slick Minibeam truss.

"We are delighted to have worked with Graham and all of the team at Curve," comments White Light's sales director, Peter Threadgold.

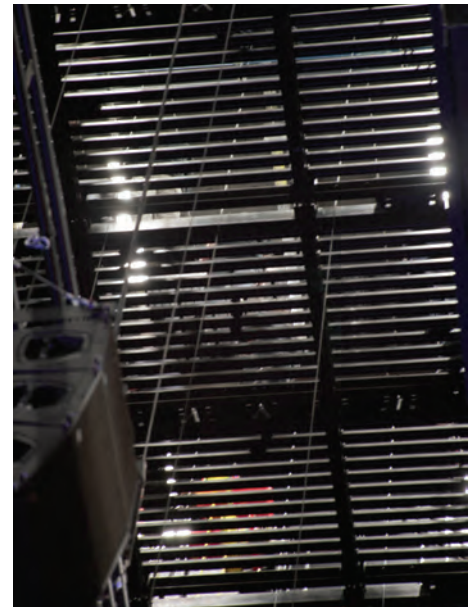
White Light's managing director Bryan Raven said: "Our involvement with Curve demonstrates clearly that we are a great choice for equipment sales for even the biggest projects and able to offer the widest range of gear at competitive prices, all carefully prepared and ready to use. We are delighted that Leicester chose us, and look forward to a long working relationship with this exciting new theatre."

In picture: John Hastie of Stage Technologies with Peter Threadgold of White Light.

www.whitelight.ltd.uk



Natural daylight in the public areas.



Line arrays rigged from the grid.



The 1930's ballroom scene from *Simply Cinderella*.



Detail of the machine room



The ETC Eos lighting control system.



Footbridge access between foyer and auditorium.

Audio-Visual and Recording at Curve

The audio visual equipment supplied by Oxford Sound & Media included all loose sound, video and comms equipment for the performance spaces, foyers, seminar rooms, etc. The very comprehensive specification included Yamaha PM5D and MC7L-48 mixers, Yamaha DME64 DSP devices, d&b audiotechnik sound system (Q range speaker arrays, Q-sub, B2 subs, E3s, E0, Ci80s speaker, D6 & D12 amplifiers – 26 in total), 44 channels of Sennheiser EM3532 radio mics all network controlled, Aviom mixer systems, Clearcom wired and wireless comms systems, Sennheiser Infra red systems, and a great deal of top quality microphones and all cables and accessories. Everything was delivered ready to use in flightcases with all initial configurations done, tested and working.

For recording, the audio and video suites provide world-class facilities for editing, web streaming and post-production including loose equipment such as cameras, large format video projectors (Panasonic), video servers (Green Hippo), etc. Again, all equipment was delivered ready to use.

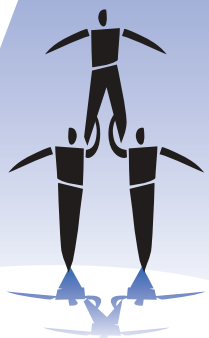
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Northern Light at Curve

From the Curve project's outset, Dave Webster, technical director of Northern Light, spent three years, during the planning stages of the project, as part of the design team. Thereafter, contracted directly by main contractor Bovis Lend Lease, Northern Light worked on site for 14 months in partnership with Bovis and with consultants Ducks Sceno and theatre consultants Charcoalblue to deliver cabling infrastructure, racks, dimmers and lighting control.

David Vandeppear, Northern Light's project manager for Curve, said: "This was a fascinating project to work on and I'm extremely proud of what we achieved. The main challenge we faced was planning the containment routes – the 360-degree sightlines, and the fact that there is no back stage to speak of, meant that traditional routes of getting containment to the prompt and OP corners were not an option."

Overall, Northern Light were responsible for the installation of sound infrastructure, supply of sound racks and panels, supply of dimmers and socket boxes, production lighting infrastructure, houselight and worklight control systems and termination and testing before practical completion.

Equipment installed by Northern Light included ETC Sensor dimmers, ETC Unison control and Bi-Amp Audia to control the performance paging and show relay. Installation of facilities panels included over 230 for lighting and 150 for the sound system. In total, over 240 kilometres of cabling was used for the lighting system and 75 kilometres was used for the sound system during installation of containment.

Dave Webster concluded: "We are in the business of helping to turn empty spaces into exciting performance venues. Our involvement in this new build project since the very beginning is a fantastic example of that philosophy."

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