

PROJECT FEATURE

Stage Technologies' Technical Transformation at London's Royal Festival Hall

Over 100 axes of automation control and machinery have been installed at the Royal Festival Hall, transforming the functional properties of the venue. ISG Interior Exterior, the main contractor for the project, contracted Stage Technologies to design, manufacture and install the over-stage suspension machinery and control system, as well as the control systems for the stage elevators and the variable acoustic elements.

The Royal Festival Hall, Southbank Centre is a busy venue with a huge variety of performances, many of which are just a few days long or even for one night only. This poses huge logistical issues for the production staff who must often do the 'get-in', rehearsals, performance and 'get-out' in a single day. The major refurbishment carried out at the Royal Festival Hall over the last few years presented an opportunity to add to the infrastructure of the venue to make this process easier and quicker, and to add to the flexibility of the venue. Stage Technologies worked with theatre consultants Carr & Angier, the South Bank Centre management and architects Allies and Morrison to develop the scheme that has now been implemented.

The huge number of moving elements inside this world famous venue are controlled



by just five Solo handheld controllers. Stage Technologies' small portable controllers offer an interface that is extremely easy for the stage crew to learn and enables them to

operate the system from the most suitable location, by connecting to one of the many control points located around the venue. As well as being flexible and easy to use, the





A Solo hand-held controller. Five units are in use at the Royal Festival Hall.

Solo handheld controllers also offer all the benefits of Stage Technologies' Chameleon software, such as variable speed moves and synchronised groups.

During the refurbishment the auditorium ceiling and all the services above it were completely stripped out and the 1950's asbestos was removed, creating a new working space over the stage area. The floor of this attic is formed of precast concrete planks with many openings to allow suspension and electrical cables to be lowered. Suspended above this technical floor is a network of secondary steel which supports the winches that move the equipment suspended below.

Four large movable lighting bridges were



A BigTow 2 winch as installed at the Royal Festival Hall.

installed in the Hall, three of which can also be traversed up and down stage. Concert lighting bars are attached to the three traversing bridges. These can be lowered to stage floor level for crew to position platform lighting, to maintain a safe working height. The Solo handheld controllers, running Chameleon software, make it possible to synchronise a number of axes for load sharing and use

the combined lifting capacity of the bridges. This is extremely useful for lifting large mother trusses for a touring production for example, significantly decreasing the get in time and cost, and increasing the range of events that can be staged without the need for lots of custom rigging. Further over-stage suspensions are provided by three hoists for loudspeaker clusters, which can be moved up

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and down stage to set the optimum position. There are also three flying bars provided just in front of the refurbished organ for suspension of drapes or lighting equipment. All the flown items are wired with a mixture of lighting circuits, audio and data circuits for maximum production flexibility. To help the technical staff move production equipment into the attic, a goods hoist was fitted that descends from the centre of the ceiling in the auditorium to ground level where equipment can be wheeled on and off.

Three large acoustic reflectors, specified by acoustic consultants Kirkegaard Associates, were also installed. These can be raised and lowered, and changed in angle from near horizontal to near vertical to change the acoustic properties of the hall. In addition to the three reflectors there are 32 roller banners, four concertina banners and 10 tapestries that can all be deployed to change the acoustical properties of the auditorium. These variable acoustic elements were provided by J&C Joel (*see separate story*).

Delstar Engineering supplied 11 lifts to form the stage platform. These allow the stage layout to be reconfigured in many ways to suit the nature of the performance taking place. Each lift is driven by two motors so that if, in the unlikely event, either motor fails, the lift can still be moved using the other. Two small lifts are also provided in the auditorium to create a small pit for a sound desk when needed.

www.stagetechnology.com

J&C Joel and Triple E Assist with the Acoustic Solution

J&C Joel has designed, manufactured and fitted 36 acoustic elements into the newly refurbished Royal Festival Hall. The project includes the supply of four concertina banners and 32 acoustic roller blinds, plus ten chain-driven tapestry tracks to which the Hall's famous Hilary Bourne designed tapestries have been re-attached following restoration. The movement of all these elements is integrated into the Stage Technologies automation control system.

Acoustic consultants Kirkegaard Associates were responsible for transforming the room acoustics into a perfect environment for staging world class events of all types and productions of all sizes, and they specified all the various treatments. Getting the acoustics right was a major part of the whole refurbishment scheme, and the overall project was led by architects Allies and Morrison.

J&C Joel's team was headed by Mark Taylor. The installation process took place over a 12 month period, with the J&C Joel team varying in numbers from four to 10 people, dependant on which stage of the install process was taking place.

The four black acoustic wool serge concertina banners, located in front of the organ doors, are the Triple E Concertina banner system. Each measures 5 metres wide by 10 metres drop and moves up and down in front of the organ doors. The 32 roller banners are mainly positioned over the stage area. These have been manufactured from bespoke black bonded serge, involving two layers of the material being bonded together in a special J&C Joel process. Twenty-two of the banners (arranged in three banks) are fastened to the underside of the 'production attic'. The other 10 are deployable on the rear wall of the 2,800 seat auditorium, on levels 5 and 6.

A total of 10 tapestry tracks are installed on levels 5 and 6 – six on the actor's right and four on the actor's left – all utilising special Triple E chain-driven track.

A major installation challenge, explains Taylor, was the logistics of unloading lots of heavy pieces of equipment and moving them some considerable distance to the roof space of the main hall – with the building under refurbishment – and many obstacles en route!

In addition to the main work in the Royal Festival Hall itself, J&C Joel supplied a number of blinds, tracks and drapes to other areas in the complex. In the Terraces, a seven-suite function area, 25 Silent Gliss electric roller blinds were fitted. Within the same area, a number of custom chestnut dyed wool serge drapes were installed on Triple E 3 way tracks recessed into the ceiling space. The rehearsal rooms also feature various tracks and drapes.

Taylor concludes: "It was a real honour for J&C Joel to be involved in such an enormous refurbishment of such a prominent London landmark venue – that is now acoustically world class."

www.jcjoel.com

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As the acknowledged leader providing innovative and creative engineering solutions to the entertainment industry, Triple E has also built a strong reputation in the field of variable acoustic solutions.

For the Royal Festival Hall refurbishment, Triple E acoustic systems were specified and were supplied through J&C Joel. Triple E equipment includes the Venetian banners that front the organ doors, the rolling banner systems in the ceiling and the motorised chain driven 3WAY tracks for the renovated tapestries in the auditorium.

