

Case Study: Victoria Palace Theatre

When the Victoria Palace Theatre decided to upgrade their existing analogue public address system they had a clear list of requirements.

The new system had to be a fully digital, evacuation compliant, emergency sound system, that combined bespoke technology with ease of use and was fully integrated with existing equipment, including the fire detection system.

This case study details how NTE designed, supplied and project managed the installation of a Bosch Praesideo emergency sound system for the Victoria Palace Theatre.



Customer Background

Originally known as Moy's Music Hall, there has been a theatre on the site at 126 Victoria Street since 1832. The Victoria Palace Theatre opened its doors in 1911 and was designed by the accomplished theatre architect Frank Matcham and built by Henry Lovatt.

The current production of "Billy Elliot" opened to great acclaim in March 2005 and has gone on to collect every best musical award possible.



Based on the smash hit film, Billy Elliot the Musical is an inspirational story of one boy's dream to realise his ambitions against the odds. The story is set in the coal fields of County Durham in the North East of England against the background of the bitter and historic 1984/85 miners' strike. Billy pursues his passion for dance in secret to avoid disapproval of his struggling family.

Having accidentally seen Billy dance, his father realises that his son is truly gifted and is willing to do whatever it takes to help him realise his dream. He attempts to cross the picket line to pay for Billy's training, but is stopped by his older son. Instead, his fellow miners and the neighbours raise money for Billy. His father takes Billy to London to audition for the Royal Ballet School. Billy is accepted to the Royal Ballet, and leaves home at age 11 to attend the school.

The Project Brief

The theatre moved into the new millennium with an adventurous building upgrade programme; enlarging the foyer, toilet facilities and increasing the dressing room space, while maintaining the feel and character of a famous historic West End theatre. The building will see further building works over the next few years including a planned upgrade of the evacuation system.

The installed analogue public address system that provided announcements to both “front of house” (public areas) and backstage was at the end of its product life and did not meet the current regulations for emergency sound systems.

The theatre was in need of a system that could be easily integrated with existing installed equipment and the fire detection system, while offering digital technology and flexibility. The theatre's IT Manager Charles Baird explained, “we needed a fully approved evacuation system that would satisfy our current and future requirements and our research has indicated that Praesideo is the system we need”.

- The system would have to be installed during a very tight window without disruption to rehearsals and performances.
- The system would have to combine everything the old system could do with scope for additional expansion as building works continue.
- The system would have to provide a larger number of desk type, custom built call stations and fireman's panels.
- The system would require multiple audio channels and an automated message system for multiple languages.
- The system had to be networked for remote maintenance and diagnostics.
- The system had to be extremely flexible for changing needs.
- The system design and equipment would have to satisfy EN60849 and the local fire department's requirements.

The Solution

Praesideo is a fully digital public address system that meets all of the requirements placed by professional users on a public address/emergency system and has been certified as compliant to EN/IEC/BS 60849.

Praesideo brings highly innovative and advanced digital technology to the public address market. The processing and communication of both audio signals and control data entirely in the digital domain makes the system superior to other currently available public address and emergency sound systems.

Digital signal processing allows significant improvements in audio quality to be achieved. Praesideo is designed for configuration from a laptop or PC, which makes installation and setting of operating parameters very simple and user friendly.



Creating a pleasant atmosphere for customers and ensuring their safety in the event of an evacuation are crucial considerations for a PA system in theatres.

Praesideo includes standard international alarm tones, and interfaces with fire detection systems, security alarms and other third party equipment.

TUV, the independent German quality and safety organisation has certified Praesideo as compliant to IEC60849, EN 54-16, ISO 7240-16, BS60849 and BS5839 standards.

The system design included a Praesideo NC (Network Controller) with multiple loudspeaker zones. Each loudspeaker zone would be divided into 'A' and 'B' loudspeaker circuits and powered from amplifiers 'A' and 'B'. This would ensure that in the event of a fault to an amplifier or a loudspeaker cable, the message would still be delivered to the loudspeaker zone affected.

Additional amplifiers would be installed to allow for planned building work that was anticipated over the next couple of years.

The system would be required to 'relay' the live performance to backstage areas for the theatre staff and actors, with automatic volume control override so that emergency messages would be broadcast at full load.

The system would be connected to the fire detection system so that evacuation messages and alarm tones could be transmitted in the event of a fire alarm. Two custom built fire panels would be installed and additional desk type Callstations would be installed for general purpose public address.

The system would be assembled into two 19-inch equipment racks with a battery management system to provide emergency power in the event of primary mains failure.

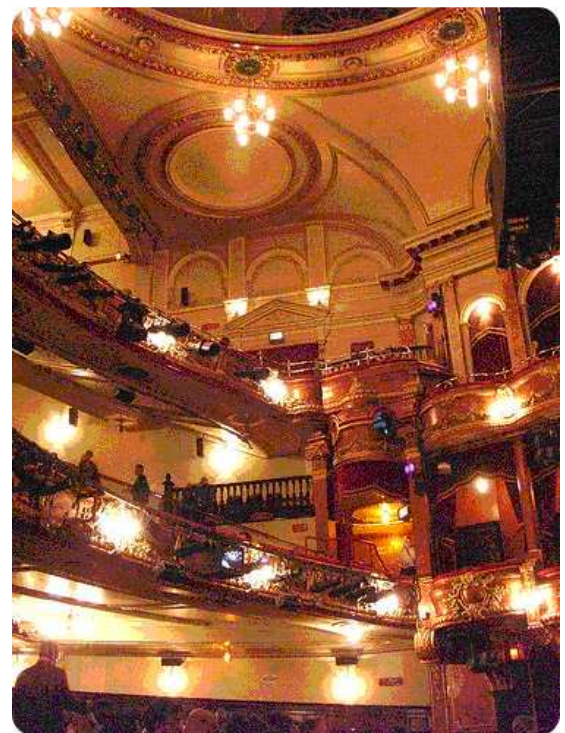
Training would be provided to users of the system and the system administrator.

The installation

The system was assembled into equipment racks at the NTE factory in Peterlee, Co Durham. Two custom built fireman panels with microphone and system reset facilities were manufactured and a full system factory test carried out when completed.

New cables were installed for the new Praesideo Callstations and a new building loudspeaker termination enclosure installed prior to delivery of the equipment. The new termination enclosure reduced the downtime between removal of the old system and installation of the new system and would simplify ongoing maintenance and future changes.

The system was delivered to the theatre and the Racks re-assembled in the equipment room. All Callstations and emergency fireman panels were connected to Praesideo.



When all external cables had been connected and the system had been programmed, a full test was carried out. Once theatre staff were satisfied with the new equipment, the old system was isolated and disconnected with all remaining cables connected to Praesideo.

Praesideo was tested for sound levels and the system was ready for the first live performance within three hours of the old system being isolated. Once the emergency system was completed, the rest of the non-emergency system or general public address was installed, commissioned and tested.



The on-site installation was carried out over a 5-day period with minimum disruption to normal theatre business, which included a pre-arranged 'swap-over' downtime period lasting three hours when the emergency system was transferred from the old system to Praesideo.

Training was provided to users of the system and the system administrator and a full documentation pack and electrical schematic drawings provided.

For more information about Praesideo or the products and services that NTE offer please do not hesitate to contact us.

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