Project Profile Colon Theater



COLON THEATER: A UNIQUE PIECE IN TERMS OF ART, ARCHITECTURE, AND SAFETY

Many of the major fires all throughout history have taken place in theaters. It may be their architectural design combined with large areas made up of highly combustible materials that make these spaces a tragic combination of art and beauty. These bad experiences, however, have been analyzed with a view towards prevention and protection. In Latin America, and in Buenos Aires in particular, the Colon Theater has materialized this research in a technologically modern structure becoming a theater with one of the best fire protection installations in the world.

Since its opening on May 25th, 1908, the Colon Theater's acoustics, size, and history allow for it to be in a place of honor, admired not only by opera lovers but also by architects, designers, and now – after its technological update – by physical safety and fire protection experts.

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PROTECTION DURING MAINTENANCE WORKS
Although the Colon Theater had hitherto managed to escape the tragic history of many other theaters, the place needed an advanced system to fully protect the audience, its facilities, and its history.

The technological update had to consider adapting existing means so as to minimize the impact on theater's architecture, given that certain historical elements were not to be touched at all. The new fire protection system had to respect these guidelines and the chosen facilitator had to be capable of doing so.

The project was led by Engineer Miguel Ruoti, who had worked for several other updating similar projects such as the one carried out at La Scala Theater, in Milan. During the Italian theater's renovation, a major fire occurred. This unfortunate event was taken into consideration and a fire protection system was provisionally installed and active throughout the Colon Theater's construction process.

NOTIFIER: THE IDEAL PROVIDER
Both for the provisional structure and the final one, NOTIFIER was chosen to be the fire protection system provider. Nothing was left to chance, with careful consideration paid to the theater's acoustics which have ranked the Colon Theater as the fifth best theater in the world.

One significant aspect of this project was the multi-building-constructor team leading the work. Whereas the remodeling sessions took 4 years, the theater was closed for only 2 of them; so, half of the works were carried out while the theater was open to the public with rehearsals and performances taking place simutaneously.

The Colon Theater total area is nearly 625,000 square feet (58,000 m2). With such large premises, each of the existing facilities had to be carefully examined to determine an appropriate design for the new system. One of the most significant aspects was to ensure its compliance with NFPA standards.

As all the structures involved in this remodeling were part of the original construction, each change was a challenge. Another challenging aspect was the inclination, which is cinema-like, that the theater structure has; and leveling it was a challenge that the professionals in charge faced with determination.

INTEGRATION: THE CORE OF REMODELING WORKS
The transformation the Colon Theater has undergone affected areas that included not only fire safety but also several others, a condition that turned it into an 'intelligent' building. "From a control room we handle electrical components, air conditioning and power supplies," says Carlos Parrot, Colon Theater Contingency Director. The control room, in turn, has a monitoring room that supervises security cameras. These constitute an essential element for the area that Carlos supervises.

A CCTV network consisting of 300 security cameras helps monitoring escape routes, corridors, and stairs during an emergency situation. This, together with the audio system, zoned by levels, facilitates evacuation along with the strobes, lights and sounders system. In Carlos' opinion, the technological update the theater has undergone has been a milestone in its history and has directly or indirectly impacted on surrounding areas.

For instance, in the past, the theater depended on Aguas Argentinas, the company that provides the city with drinking water, for the input it may need in case of fire. This changed when the company decided to build a tank of its own for the theater, 95 gallons (360,000 ml) would be used only for fires and a 23 gallon (90,000 ml) reserve would be used by the staff, thus providing autonomy to the institution in terms of emergency management.

TESTS AND RESULTS
Once installation was completed, each new element should be subjected to verification tests in relation to their impact on the acoustics of the place. Similarly, each element was subjected to an operation test. In this exercise, each element was given alarm status; for example aerosols were used on detectors simulating smoke to check the report triggered as a result in the control room.

The equipment installed in the fire protection system is still under warranty and, up to the moment this article was written, no issues had been reported. Although the fire protection system is now fully operational, the Theater's work schedule is not over. "Only 30% of the work has been completed, and there are still two floors to be put out to tender next year, plus its square and the rehearsal rooms," explains Carlos.

The Colon Theater is one of the only known theaters in Argentina meeting NFPA fire protection standards. Retaining the new radiance of the Theater is a long-term commitment. Therefore, a task force that meets every day and works jointly has been formed. "The most important thing is that we have grown fond of the theater," says Carlos. "Therefore, we will devote ourselves to this historical monument so that future generations can get the most out of it."

RIGHT PRODUCTS AND SUCCESSFUL INSTALLATION TO PROTECT THE ACOUSTICS
The system installed consisted of a network of two NOTIFIER NFS2-3030's, fire alarm control panels specifically designed for medium-sized to large installations. A NOTIFIER Digital Voice Command is tied into the fire alarm network to provide audio messages to occupants during emergencies. About 2,500 detectors, 1,500 modules with different functions and emergency telephone systems are tied in, as well. The network also has a head node and an OnyxWorks Workstation.

In some areas, such as in the Main Rooms inside the lighting technology boxes near the Proscenium Arch, laser detectors were installed; and also in the General Boards Room, Electric Power Cells, and Dimmers Rooms. The reliability that these products offer is determined especially by their response when it comes to the system's detection capabilities.

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