The Palladium

The Art of Door Hardware

By David Glorioso, AHC, CSI

PRESERVING THE ART OF EGRESS AND ACCESS control while upholding the design and acoustical integrity of The Palladium, a world-class performing arts center, were primary goals for this project. Ingersoll Rand Security Technologies partnered with CSO Architects to specify hardware that provided both form and function.

Project Description

The Palladium is the cornerstone of the downtown arts district in Carmel, Indiana. Designed by David M. Schwarz Architects and Artec Consultants, Inc., The Palladium is a one-of-a-kind performance arts center in the Midwest. The concert hall—with its traditional shoebox shape, high ceilings and massive, sound-reflecting walls—is modern, clean and streamlined. What makes this 21st-century performing arts center truly unique are classical accents throughout that give it a grand, ornate style.

CSO Architects was commissioned to serve as the Architect of Record during all phases of The Palladium's construction. The CSO team was led by Brandon D. Bogan, RA, LEED A.P., principal, and Randy Robison, LEED A.P., senior associate. The sheer size of this 1,600-seat concert hall, coupled with its unique décor and special acoustic requirements, complicated the choice of hardware. I was hired as the hardware spec writer and collaborated with the architectural firm on recommendations for the 400-plus openings—many of which were sound-rated or required the installation of sound seals. With 29 years in the hardware industry and a musician's background, I had both the hardware expertise and an artist's appreciation of the acoustic demands for the concert venue.

Photos Courtesy of Lori Greene, Ingersoll Rand Security Technologies

Objectives

When making recommendations for door hardware, I considered five key objectives:

1. ***Design:*** The door hardware couldn't detract from a space where every architectural detail was intentional. We didn't want to distract from the beauty of all of the doors or space in any way, so wherever possible, I concealed the hardware.
2. ***Durability:*** Because it is a high-traffic, high-use public facility that seats 1,600 in its concert hall, the building needed hardware choices that could withstand repeated use and require little maintenance and upkeep.
3. ***Security and Access Control:*** While the design is reminiscent of Old World elegance, The Palladium needed the flexibility and control of today's door and security hardware.
4. ***Egress/Code Compliance:*** As a place of public assembly, The Palladium's hardware needed to comply with various egress and code requirements that ensure the safety of its occupants.
5. ***Sound Requirements:*** Sound-rated doors and doors requiring the installation of sound seals often have different requirements when it comes to hardware components. Each door had to be carefully considered for its own sound integrity as well as its impact on the overall acoustical performance of the hall.

Solutions

In order to specify hardware that met not only the functional demands of the facility but the form and design demands as well, I collaborated closely with the architect and client to fully understand the various uses of the building, the primary needs in terms of security and egress, and the desires for style and finish. The primary door hardware solutions that were chosen for The Palladium follow.

1. Design

LCN 2010 SERIES: Wherever possible, concealed door closers and other components such as independently adjusted door bottoms and overhead stops were specified to minimize the presence of door hardware and maintain focus on the architecture. The LCN 2010 Series was a natural choice because it provides complete concealment. Its single lever arm and roller assembly provide smooth, quiet door control, as well as a choice of finishes and track functions that satisfied the architectural requirements.

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Unique Application: Door Closer on Opera Box Doors

Dozens of opera boxes, each with its own white door, prominently accent the concert hall's interior design. I realized that placing door closers inside the opera box—per customary industry practices—would affect the entire look of the concert hall. Since there were no safety or egress concerns, I chose instead to place the closers on the corridor side and preserve the visual simplicity of the hall's grand design. Because the opera boxes were located just off an interior light-lock corridor (instead of a main corridor), the door closers were only visible to patrons with box tickets.

2. Durability

L 9000 SERIES MORTISE LOCK: The Schlage L-Series Extra Heavy Duty Mortise Lock is built to withstand the rigors of daily commercial use in a high-traffic public facility. The lock's fully-wrapped, heavy-gauge steel case protects against door edge attacks, and its two-piece anti-friction tongue reduces wear and tear. The outside and inside trim, thru-bolted together and through the door, only adds to its strength and durability. The Primus patented key system of the L-Series guarantees that no other facility in the same geographic region will ever have the same keyway. As a high-quality, durable lock, the L-Series 9000 is also stylish and attractive. With more than 100 styles and finish choices, the design team had more options when it came to blending locks into the décor.

3. Security and Access Control

AD SERIES 200 WITH KEYPAD: The AD-Series was a simple solution for offline openings where there was no need for integration with the building's networked access control system. Schlage's AD-Series hardware includes many features found in a networked system, including request-to-exit/enter sensors, interior cover tamper guard and a door position switch. Plus, with its modular design, the AD-Series met the facility's current needs but offered upgrade potential for future needs—without removing the lock from the door.

In addition to the AD-Series, sensors were placed on every exterior door to allow monitored access of the facility for the sake of security. Electromagnetic locks were added to certain openings such as balcony doors, controlling access when the building is not open for a performance or private event.

4. Egress/Code Compliance

VON DUPRIN EXIT DEVICES: As a place of public assembly, The Palladium required exit devices throughout the facility. Von Duprin devices—designed to meet U.S. and international building code standards—provide quality and reliability while blending with the building's ornate design.

98 SERIES (EXTERIOR): This modern-style push pad was used on the doors leading into the facility. With its modern touchbar for heavy traffic applications and its deadlatching latchbolt for enhanced security, this exit device provides the functionality and versatility needed for the center's primary public entrances and exits.

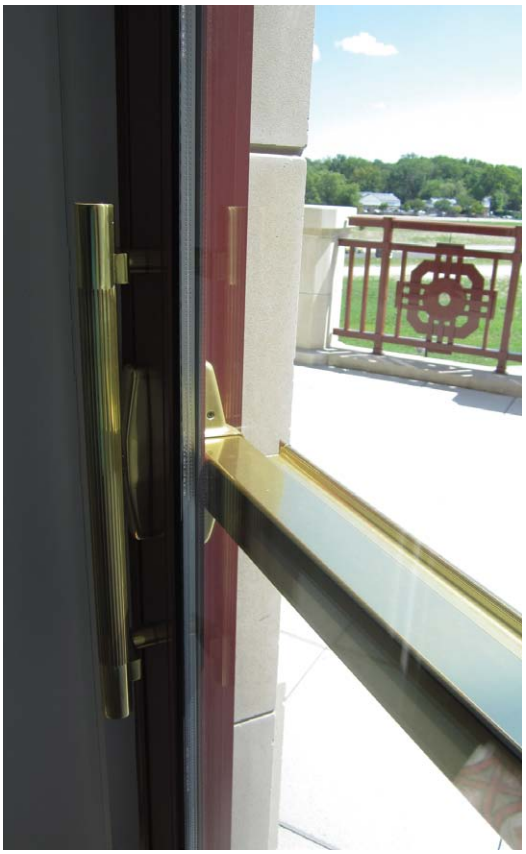
55 SERIES (INTERIOR): This standard crossbar exit device was used throughout the facility's interior. Its simple style blended well with the concert hall's design. All 55 Series exit devices are UL listed for Accident Hazard or Fire Exit Hardware and are tested in accordance to ANSI A156.3, 1994, Grade 1.

LCN 2610 AUTO EQUALIZER: This pneumatically powered operator provides easy access for people with disabilities, the elderly or the frail. Designed primarily for

manual applications that require an automatic opening, the LCN 2610 has a 10 million-cycle usage. As a bonus, this closer—concealed in the head of the frame to minimize its impact on design—uses a remotely located compressor that makes the operators virtually silent.

Unique Application: Exit Devices on Balcony Doors

There are a handful of exterior balconies large enough to be considered "places of assembly." To meet the requirement for egress, LCN 98 Series Exit Devices were placed on the outside of these balcony doors, giving occupants an easy way to re-enter the building. The devices were used in conjunction with electrified security measures to prevent entrance via the balcony doors when the building is not in use.



5. Sound Requirements

While I sought to conceal door hardware as much as possible, sound-rated doors and doors with sound seals were necessary exceptions. With a door that has acoustical value to it, you can't use concealed closers or vertical rods because it can destroy the sound integrity of the door.

To keep sound in a room and prevent sound from a lobby or back area from seeping into the concert hall, a number of recommendations were made, including:

- ***Concealed Automatic Door Bottoms:*** Automatic door bottoms were installed on all doors leading into the concert hall. These door bottoms, which close the gap under the door by sealing to the floor, serve as a reliable barrier for sound. The door bottoms can be adjusted over the life of the door.
- ***Gravity Coordinator:*** A flat bar coordinator would normally be used on certain doors in a facility like this one. However, with some of the sound-rated doors in The Palladium, it was impossible to apply hardware without negatively impacting sound integrity. On side-by-side STC 54 doors, I specified a gravity coordinator that mounts on the pull side, allowing the doors to close almost soundlessly in succession of one another.
- ***L-9000 Lock with Extended Spindles:*** Because the sound booth door is more than three inches thick, a normal mortise lock was insufficient. Ingersoll Rand Security Technologies extended the spindles of its current L-9000 lock to accommodate the thickness of the door.

Final Thoughts

Despite the enormity and complexity of the facility, the hardware specification process was a smooth one, thanks in large part to the early collaboration with the architect. The partnership allowed us to address the most basic hardware needs and also to find solutions for unique applications that required more than a standard solution.

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