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Industry insights

## Balancing security and accessibility in mixed-use facilities

*By: Ann Matheis, Marketing Director, Multi-Family, Allegion*

The design process for any building involves a great deal of conflict resolution. A careful balance must be struck between convenience, security, life safety and aesthetics, particularly at the openings. This is a complicated goal to achieve in any setting, but mixed-use facilities present a very particular set of challenges.

Unlike traditional office space, these buildings typically have a mix of retail, office and dining spaces on the ground level and living space above, either in the form of apartments and condominiums or hotel rooms. Without the right door hardware and security solutions in place, it can be difficult to strike the proper balance that will feel welcoming to customers and guests while maintaining the safety and security of residents and staff.

Access control systems can help mitigate many of these issues, but it's important to be aware of some of the ways in which these systems can also impair the authorized access of the elderly and people with disabilities. Working with hardware and security experts can help mitigate many of these issues, but some are not currently addressed by the codes. By being aware of these particular challenges and including appropriate access control solutions as part of the design process, architects can play a vital role in creating a space that balances the safety, security and convenience of all occupants. What follows are a number of best practices that can be incorporated to ensure the specified hardware provides the proper balance of safety, security and functionality within a mixed-use facility.

### **Plan ahead**

In any facility, there are multiple openings to secure, and multiple people who need varying levels of access. But to that list of challenges, you must also add that these facilities have multiple uses, each of which have distinctly different demands. So, where to begin?





One of the most frequent mistakes made by designers is failing to incorporate doors and hardware into the early stages of their design process. The later in the process issues like access control and accessibility are addressed, the more likely they are to create problems for the architect as they both directly impact door specifications, which ultimately determine how an opening must be constructed in order to comply with the relevant fire and life safety codes.

Access control should be planned for after the initial architectural plans and building layout is complete. “Ideally, access control planning should occur in conjunction with the hardware design,” says Derek Ommert, PSP, Safety and Security Consultant at Allegion.

However, it’s crucial to include the relevant experts in the planning process. Typically, this involves the hardware consultant, the security consultant, the integrator and possibly an electrical engineer.

“By relying on industry subject matter experts early in the process, architects are better able to consider the reliability of access control as well as the environment for which it’s planned,” says Ommert. As an example, he points to a mixed-use facility where access control considerations must provide a secure residential area while at the same time allowing customers and staff varying levels of access to other parts of the same facility. Consulting with experts in these issues will go a long way towards ensuring a satisfactory outcome.

### Ensure accessibility

Once your team is assembled, be sure to emphasize the importance of ensuring accessibility as a guiding principle for the planning process. Below are some common issues to be aware of as plans are being made:

- Operable hardware that is “easy to grasp with one hand and does not require tight grasping, pinching, or twisting of the wrist to operate,” must be mounted within the allowable range—either less than 48 inches above the floor, or between 34 inches and 48 inches above the floor depending on which standard is used. California requires operable hardware to be mounted between 34 and 44 inches above the floor.
- The 2010 ADA operable force requirements state that door and gate hardware must operate with 5 pounds of force, maximum. This currently conflicts with International Building Code requirements of 15 pounds of force, but compliance with the more stringent requirement will prevent costly ADA violations and improve accessibility for all occupants.
- Standby power for automatic operators is required for automatic doors if the proper maneuvering clearance isn’t provided. However, automatic operators on fire-rated doors are required to be deactivated upon fire alarm. Therefore, an automatic operator with standby power should not be used on a fire-rated door to overcome maneuvering clearance problems because it will not be functional when the fire alarm is sounding.
- The 2002 edition of ANSI/BHMA A156.19 introduced a requirement for power-assist and low-energy-power-operated doors to be activated by a ‘knowing act,’ such as a push-plate actuator or an access control device like a card reader, keypad or keyswitch.
- Stepping into the field of a motion sensor is not considered a knowing act. If automatic operation via a motion sensor is desired, automatic doors must comply with the standard for full power operators—ANSI/BHMA A156.10, instead of A156.19. This means that even though the door may have a low-energy operator, it has to meet the same requirements as a full-power operator, including the safety sensors or control mats and guide rails.
- Maneuvering clearance for recessed doors must be provided when there is an obstruction within 18 inches of the latch side of a door that projects more than eight inches beyond the face of the door. Without this clearance, a person using a wheelchair may not be able to open a door that is recessed in an alcove. A frame with a large jamb depth (approximately 10 inches or more) can create the same situation.



Although access control products must comply with the same code requirements as mechanical hardware, architects and security consultants should also take into account some of the accessibility concerns that may not be addressed by codes. For instance, there are several types of readers and credentials that are difficult, if not impossible, for people with certain disabilities to operate. A keypad that requires a high degree of manual dexterity to enter a code will prove far more challenging than a proximity (prox) reader. Be sure to consider whether the use of potential products will be appropriate for occupants of all ages and abilities before making any decisions.

### Maintain flexibility

Planning for access control early on also ensures the access control system will not only be appropriate for the current needs of that facility, but flexible enough to adapt to future changes. A common concern among clients is that the solution they select today will need to be upgraded and expanded over time as their needs change. They want a system that can meet current safety and security issues, as well as accommodate emerging technologies that will allow the system to expand and adapt as needed in future.

The best way to address this concern is with open architecture electronic locking systems. By design, this type of system easily accepts additions, upgrades and replacement of components to the security system—or the system itself. The structure eliminates proprietary constraints and employs open standards to provide access to critical data and information within the system. It also helps to protect an access control investment for years to come. As security needs change, the access control system can be changed, by adding new credential technologies, a variety of network protocols, increased security levels and system expansions. Upgrades do not require replacing all the locks or even taking locks off doors to retrofit.

### Avoid costly delays

Another benefit of bringing together stakeholders early is that it gives architects the opportunity to avoid many of the unpleasant surprises that are common during the building process and typically lead to delays and dissatisfaction. “One of the biggest surprises is the length of time it takes to incorporate access control into design,” says Ommert. “That surprise usually comes when access control is treated as an afterthought—an add-on, after the design has been finalized.” When access control is added later in the construction process, it often results in additional circuits extra raceways, and power and conduit layout changes. “This often leads to change orders—and more time and money,” he says.

- **Main entrances :** Types of openings common to mixed-use facilities
- **Resident entrances:** A single credential provides access to multiple openings:
- **Stairwells and emergency exits:** Residents require strong and secure locks at main entrances, paired with stylish interior door hardware:
- **Media rooms and common areas:** These openings require strong, durable door hardware that perform reliably with minimal maintenance
- **Conference centers and business offices:** When implementing an access control system in common areas, the goal is to balance ease of use with proper egress compliance
- **Miscellaneous areas:** These areas typically remain unlocked and accessible during business hours, while the rest of the building remains secure

Some multi-use buildings include other spaces that need to be considered such as pool and/or fitness room access, daycare facilities, and parking garages.



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Planning for access control early on also ensures the access control system will not only be appropriate for the current needs of that facility, but flexible enough to adapt to future changes. Because today's systems frequently extend access control into parking garages, warehouses, storage units and other areas, plans must also take into account the potential needs of the system outside the main building. Failure to incorporate access control into the design phase can result in situations such as an owner wanting access control on a walkway that connects a building and a parking garage, but the design of the walkway limits what's possible from an access control standpoint because of egress requirements dictated by building codes.

### Check code compliance

Once a tentative solution has been reached, be sure that it will not conflict with any of the relevant codes. When considering which code requirements to follow, first identify which category the hardware falls into, and refer to the applicable code section. Keep in mind that state or local requirements could differ from those of the IBC or NFPA 101. Refer to the published codes for the detailed code requirements, and consult the Authority Having Jurisdiction for more information about the local requirements.

### Conclusion

Taking the time to consult with all the relevant stakeholders and properly incorporate access control into the design process will help architects avoid many of the costly mistakes and frustrations that occur when it is overlooked. It will also ensure that future upgrades can be made easily and the that facility has the appropriate balance of security and accessibility for all occupants, regardless of their level of ability.

#### *About the Author*

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