DESIGN GUIDELINE 4.7 BUILDING ACCESS CONTROL

General

This section addresses minimum functional and technical requirements of the Building Access Control (BAC) system on the University of Michigan Ann Arbor Campus. Functional requirements apply to General Fund buildings. Technical requirements apply to all buildings connecting to the campus BAC system.

The following campuses and units maintain their own respective access control systems, standards, and hardware:

- Athletics: Contact Design Manager.
- North Campus Research Center (NCRC): Contact Design Manager.
- Michigan Medicine: Contact Michigan Medicine Facilities Planning and Development.
- University of Michigan Housing (UMH): Contact Design Manager.
- University of Michigan - Dearborn campus: Contact Design Manager.
- University of Michigan - Flint campus: Contact Design Manager.

Related Sections

U-M Design Guideline Sections:
6.0 DG 087100 Door Hardware

U-M Master Specifications:
7.0 MS 087100 Door Hardware
7.0 MS 281300 Access Control and Monitoring System
7.0 MS 281600 Security Systems

U-M Standard Details:
16725 Series - Request from Design Manager

Definitions and Abbreviations

Building Access Control (BAC): Campus central electronic system (existing), local building panels, distribution and hardware that controls and monitors access to a building and areas within a building based on one or more of the following types of doors:

- *Monitored door (MON)*: Use of door monitor switch and request to exit device to detect forced door openings and door held conditions.
- *Managed door (MD)*: Use of a digital output from the access control panel to control locking and unlocking of doors plus functions described for

monitored doors.

- *Card reader (CR)*: Use of a card to unlock a door plus functions described for monitored and managed doors.

- *Card reader with auto door operator*: Use of a push button to initiate a low energy operator that is interfaced with BAC to integrate with functions described for monitored, electronically scheduled, and card reader doors.

Interconnected locking systems: Rooms with interconnected locking systems utilize BAC for both room access and room lock-down functions. Request additional system design information from Design Manager.

Mechanical or battery operated digital access control hardware: Stand alone mechanical locks that use keypads or other local methods of authentication to gain access to a secured area. See DG Technical Section 087100 Door Hardware for additional details.

Surveillance systems: Surveillance systems shall include any Closed Circuit Television (CCTV) system installed for the purpose of viewing and/or recording video images for security or system troubleshooting purposes.

BAC: Minimal Functional Requirements

General:

- Access control system is intended to control the perimeter of secured spaces or buildings, not individual doors. For example: A building contains an interior suite that has multiple access points and is requesting access control, all doors accessing the suite shall be connected to the BAC system as appropriate for their intended use. After hour access points to suite shall be card reader doors, daytime access points shall be managed doors, exit only doors shall be monitored doors. No keys will be issued to occupants for that secured area.
- Door operation for all access controlled doors:
    - Provide key cylinder and hardware capable of mechanical access on all card reader doors.
    - Do not provide handle or cylinder on exit only egress doors.
    - Provide hardware that allows manually-actuated egress requiring only a single operation at all times.
- Access control system is independent of the building fire alarm system. If connection is required at a specific opening, interface will occur at the door level, not the system level.
- Door alarms shall report through access control system.

BAC: Required Locations

New buildings, additions and major renovations
Evaluate the physical and programmatic layout of the building as related to BAC locations and security requirements. Layout should avoid egress paths through secured areas, interior connections to adjacent buildings, and control points that are required by

code to connect to the building fire alarm system. Review draft life safety egress plans

identifying security and access control points with Design Manager, representative from UM Key Shop, and other University stakeholders during schematic design phase.

Exterior Doors
Provide exterior doors that connect to the campus BAC system and meet the following minimum requirements:

- Card reader with auto door operator: At least one access point for authorized after- hour use. Locate at main accessible building entry door.
- Card reader doors: All locations needed for authorized after-hour use, including personnel doors to loading docks, mechanical, and high voltage areas.
- Managed doors: All exterior entrance doors used for ingress during building hours of operation.
- Monitored doors: All remaining exterior doors including loading dock, overhead, and roof access doors.
- Other door types:
    - Exterior doors that provide access to building services spaces (mechanical, electrical, elevator machine, and grounds rooms) but do not provide access to the building interior may not require access control capability. Review with the Design Manager.
    - Doors equipped with an intercom or other communication device to allow a momentary remote unlocking of doors is permitted in select situations only. Review with Design Manager and Division of Public Safety and Security.

Review location and quantity of each door type described above with the Design Manager.

Interior Doors
Required locations for BAC functionality:

- Telecommunications rooms housing HIPPA protected data - card reader access.
- Reflection rooms - card reader

access. Required evaluation for BAC functionality:

- Interconnected locking on new or renovated classrooms with occupancy >50: Review with Design Manager.

Contact Design Manager early in the design process to review additional project specific interior security requirements.

Elevator Doors
Do not connect elevator doors to BAC system

Special alarm systems
Contact Design Manager early in the design process to review the need for special

alarm systems.

BAC - Technical Requirements

UM Master Specification Sections 281300 Access Control and Monitoring System and 281600 Security Systems shall be used as the basis for access control specification for all

projects including access control doors connected to the campus central system. Edit to be project specific.

AEC maintains standard details for access control panel assemblies and commonly used door configurations. Request from Design manager. Edit to be project specific.

Access control system:

- Existing system: SoftwareHouse C-Cure 9000 system
- Access control panel: iStar Ultra Series
    - Locate panel assemblies in telecommunications rooms.
    - Provide pathway to F&O network switch for panel communication.
    - Consider future system expansion when determining panel distribution in building.

Related Systems and Hardware

Surveillance Systems
Contact the Design Manager early in the design process to review the need for surveillance systems.

Mechanical or battery operated digital security hardware
Provide stand alone mechanical or battery operated digital security hardware for select interior applications only. Contact the Design Manager to review interior security requirements.