IU Building Electronic Safety & Security Design Guidelines

I. GENERAL

A. This guideline is intended for architectural, mechanical and electrical design as it pertains to Electronic Safety and Security systems and infrastructure at Indiana University. It serves to define the design process and establish specific roles and responsibilities for various elements within the process. Specific requirements related to equipment and installation can be found in the Division 28 Electronic Safety and Security Specifications document.

B. The systems and equipment included within division 28 are essential to maintaining a safe environment on Indiana University campuses and within buildings, and as such should be taken into account in the earliest stages of any design project. Security rooms are required within new buildings to house equipment for these systems. Space for these rooms should be accounted for in the preliminary design layouts for all new buildings based on the requirements within this document. Network based equipment such as surveillance cameras, or equipment requiring an analog voice connection such as emergency phones, may be terminated within building MDF or IDF rooms for the appropriate connectivity. Requirements for MDF and IDF spaces are contained within the IU Telecomm Design Guide.

C. Proper coordination is required on all projects to ensure full compatibility between access control systems and door hardware. For all IU projects which involve electronic access control, the design team is required to include an Electrified Hardware Consultant as certified by DHI (Door and Hardware Institute).

II. DESIGN DOCUMENTS

A. Design documents shall include, at minimum, the following elements:

1. Floor plans identifying Security Room Locations and detailing equipment and component locations.

2. Enlarged room layouts detailing locations of racks, cabinets and enclosures within Security Rooms.

3. Riser pathway and riser cabling diagrams detailing conduit and cabling requirements.

4. Functional diagrams to detail system topologies and connectivity requirements.

5. Schedules identifying individual component attributes and requirements.

6. Detail drawings showing installation requirements for system components.

7. Division 28 Specifications, edited for the requirements of the project.

III. ROLES AND RESPONSIBILITIES

A. Indiana University

1. At the onset of each project the University will designate a Project Team Leader to be the primary liaison between the University, the Design Team and the Construction Team. The Project Team Leader will designate additional University personnel as required to fulfill various roles. Throughout this document, the term “Owner’s Representative” shall be used to represent the IU Project Team Leader or any person designated by the IU Project Team Leader.
B. Design Team

1. The design team shall be responsible for providing all design documents. Throughout the
design process the design team shall coordinate with the appropriate University departments
and representatives as detailed in this document and as requested by the IU Project Team
Leader.

C. Indiana University utilizes a preferred Security Systems Integrator for certain portions of the
installation and integration of University Security Systems. The following list identifies the
University designated Security Systems Integrators and the campuses at which they are utilized.

1. ECT Services
   IU Southeast

2. Kratos Public Safety and Security Solutions
   IU Bloomington
   IU East
   IU Kokomo
   IU Northwest
   IU South Bend
   IUPUI Indianapolis

D. Specific responsibilities related to the installation of system components shall be detailed elsewhere
in this document, however it will be critical that close coordination with the appropriate Security
Systems Integrator is maintained throughout the design process to ensure all infrastructure, products,
and installation methods are provided as required for the installation of system controllers or servers
as well as the successful integration of new equipment into existing University software platforms.

E. Refer to Appendix 1: Roles and Responsibilities Matrix for additional details.

IV. SECURITY ROOMS

A. The initial design for any new Indiana University building project shall include a minimum of one
(1) Security room per building floor. Mechanical penthouses shall not be considered as a floor for
the purposes of determining the need for a security room. Any deviation from this standard shall
require pre-approval by the University. The design team shall submit the proposed layout with a
narrative detailing the reasons for the deviation to the Owner's Representative. Ideally, Security
rooms should be located in proximity to telecommunications rooms, however this is not required.
For renovation projects it shall be acceptable to provide security rooms only on alternating floors if
necessary due to space limitations.

B. The primary function of a Security room is to house system controllers, servers, recorders, power
supplies and other equipment as required for building security systems, as well as the termination of
associated cabling into hardware components or appropriate termination blocks or panels, and
grounding and bonding of cabling and equipment. The rooms must be environmentally controlled as
required to maintain an optimum temperature for electronic devices within the room. Security rooms
shall not contain equipment for other building systems (e.g. Network switches) with the exception of
fire alarm systems as described below.

C. Security rooms shall also be utilized as the location for installation of fire alarm systems equipment,
including but not limited to Fire Alarm Control Panels, Fire Alarm NAC Panels and graphic
annunciators.
V. SPECIFIC SECURITY ROOM REQUIREMENTS

A. Security rooms must be able to be locked by both key core and card access system. Card access for Security rooms shall be part of the general building system.

B. Security room doors shall be equipped with a door position sensor to allow notification from the access control system when the door is opened without presentation of a valid credential or held open for a given length of time.

C. Each building shall contain one (1) Security MDF and one (1) supplemental Security Room per floor, or every other floor if necessary in a renovation project. Rooms shall meet the following minimum requirements:

1. All Security Rooms shall be directly accessible from a corridor with outward swinging doors.

2. Security MDF Rooms shall be sized at a minimum of 60 square feet, with no dimension less than required to allow for seven (7) feet of clear floor space. In the initial design the room should include one (1) equipment rack, however additional racks may be required if it is determined during the design process that the equipment required will necessitate additional rack space. Minimum room height shall be 8' 6" with walls extended to the deck and no ceiling. Minimum door dimensions shall be 36" wide and 80" tall.

3. Supplemental Security Rooms shall be sized at a minimum of 21 square feet with a minimum depth of 3 feet and outward swinging double doors no less than 6 feet in width.

4. If space programming constraints do not allow for dedicated supplemental Security Rooms as described above, space may be allocated within a mechanical room for installation of security equipment. Pre-approval is required from the Owner's Representative.

D. Rooms shall be clear of mechanicals, including but not limited to ventilation ducts, water, sewer, steam pipes and high voltage electric.

E. Rooms shall not be located near alternating current (AC) switch gear.

F. Plywood backboards shall be mounted at 4" above finished floor on all walls. Boards shall be 4' wide, 8' tall and ¾" thick, and shall be painted with a light colored fire retardant paint.

G. Control of heat and humidity is essential, and shall be maintained between 64° F and 75° F with relative humidity between 25% and 60% non-condensing.

H. Consideration should be given to the critical nature of systems served from each security room, to determine if Security room cooling should be connected to the building emergency power source(s) such as UPS or generator system.

I. Lighting fixtures shall be fluorescent or LED and shall provide a minimum light level of 30-40 foot candles. Emergency lighting should be provided within Security rooms.

J. Provide data jacks within the room as required for security component network connectivity.

K. Provide standard 120 VAC duplex electrical outlets around the room.

L. Specialty electrical outlets shall be provided as required by equipment included in design.

M. Equipment rack(s) shall be attached to the floor and stabilized with overhead runway to a wall.
VI. VIDEO SURVEILLANCE SYSTEMS

A. Indiana University currently utilizes two different Video Management Systems (VMS). The following list identifies the VMS and the campuses at which they are utilized.

1. Lenel
   IU Southeast

2. Milestone XProtect
   IU Bloomington
   IU East
   IU Kokomo
   IU Northwest
   IU South Bend
   IUPUI Indianapolis

B. All new equipment and components installed for all Indiana University projects shall be fully compatible with the appropriate existing VMS. Components may be installed and connected by the project Contractor, however all integration and licensing shall be performed by the designated Security Services Integrator for the campus.

C. The design of video camera systems, including but not limited to camera locations, fields-of-view, mounting heights, camera model, and lens selection, shall be initially provided by the University. In order to facilitate the initial layout of system components, the Consultant shall provide floorplans to the Owner's Representative in PDF format. The layouts will then be sent back to the Consultant and incorporated into the design drawings. If changes are made to the building floor plan during design, the Consultant shall provide updated floor plans to the Owner's Representative for review. The Architect and Consultant shall coordinate with the Owner's Representative throughout the design process to ensure that the design intent is properly integrated into the bid documents.

VII. ACCESS CONTROL SYSTEMS

A. Indiana University currently utilizes multiple access control systems for various campuses and also for specific purposes within buildings. The following list identifies the Access Control System, the campuses at which they are utilized or the purpose for which they are utilized.

1. Lenel OnGuard
   IU Southeast

2. CBORD CS Access
   IU Bloomington Residential Programs & Services (RPS) facilities, except MDF/IDF/Security rooms

3. Open Options DNA Fusion
   IU Bloomington, including MDF/IDF/Security rooms at RPS facilities but not including all other rooms at RPS facilities.
   IU East
   IU Kokomo
   IU Northwest
   IU South Bend
   IUPUI Indianapolis
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B. All new equipment and components installed for all Indiana University projects shall be fully compatible with the appropriate existing Access Control System. Components (including controller enclosures but not including system control boards) and cabling may be installed by the project Contractor, including termination of cabling at endpoint devices such as card readers, request to exit devices or door position sensors. Termination of all cabling into system control boards and integration of devices into existing system shall be performed by the designated Security Services Integrator for the campus.

C. The design of access control systems, including but not limited to card reader locations, electronic locking requirements, request to exit device locations, door position sensor locations, equipment mounting heights and locations, and equipment models, shall be initially provided by the University. In order to facilitate the initial layout of system components, the Consultant shall provide floorplans to the Owner's Representative in PDF format. The layouts will then be sent back to the Consultant and incorporated into the design drawings. If changes are made to the building floor plan during design, the Consultant shall provide updated floor plans to the Owner's Representative for review. The Architect and Consultant shall coordinate with the Owner's Representative throughout the design process to ensure that the design intent is properly integrated into the bid documents.

VIII. EMERGENCY PHONES

A. Indiana University currently utilizes emergency phone equipment from multiple manufacturers. The following list identifies the manufacturers and the campuses at which they are utilized.

1. Stentofon
   IU Southeast

2. Code Blue
   IU Northwest
   IUPUI Indianapolis

3. Ramtel
   IU Bloomington
   IU East
   IU Kokomo
   IU South Bend

B. All new equipment and components installed for all Indiana University projects shall match the manufacturer of the existing emergency phone equipment for the campus. Components may be installed and connected by the project Contractor, however all integration and licensing shall be performed by the selected Security Services Integrator for the campus.

C. The design of emergency phone systems, including but not limited to interior and exterior phone locations, video surveillance requirements for phone locations and mounting requirements shall be initially provided by the University. In order to facilitate the initial layout of system components, the Consultant shall provide floorplans to the Owner's Representative in PDF format. The layouts will then be sent back to the Consultant and incorporated into the design drawings. If changes are made to the building floor plan during design, the Consultant shall provide updated floor plans to the Owner's Representative for review. The Architect and Consultant shall coordinate with the Owner's Representative throughout the design process to ensure that the design intent is properly integrated into the bid documents.
IX. DURESS ALARMS

A. The requirements for duress alarms, including but not limited to locations, mounting requirements and video surveillance requirements for duress alarm locations shall be initially provided by the University. In order to facilitate the initial layout of system components, the Consultant shall provide floorplans to the Owner's Representative in PDF format. The layouts will then be sent back to the Consultant and incorporated into the design drawings. If changes are made to the building floor plan during design, the Consultant shall provide updated floor plans to the Owner's Representative for review. The Architect and Consultant shall coordinate with the Owner's Representative throughout the design process to ensure that the design intent is properly integrated into the bid documents.
### APPENDIX 1

#### ROLES AND RESPONSIBILITIES MATRIX

Responsible parties:
- **UAO** = University Architects Office
- **PSIA** = Public Safety and Institutional Assurance
- **IUES** = Indiana University Engineering Services
- **IUPPE** = Indiana University Physical Plant Electronics
- **UITS** = University Information Technology Services
- **IUCM** = Indiana University Construction Management
- **ULA** = Indiana University Landscape Architect
- **IUPD** = Indiana University Police Department
- **AC** = Architect/Consultant
- **GC** = General Contractor
- **SI** = Security Systems Integrator (Refer to section III for details)

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<tr>
<th>DESCRIPTION</th>
<th>DESIGN</th>
<th>INSTALLATION/TESTING</th>
<th>INTEGRATION/PROGRAMMING</th>
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