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CAAMS

A. CAAMS – Campus Automated Access Management System

Basis of Design

This section applies to the design, rough-in, and installation of automated access control systems for University facilities. These systems control access at building entrances and at the doors that lead into specified controlled zones within a building.

Background

The University of Washington has created a Campus Automated Access Management System (CAAMS) that is a centralized access control system for all buildings on campus. CAAMS is a standardized system for gaining access to University facilities using an access card rather than a brass key.

The primary functions of CAAMS are:

1. To allow access privileges for each building user to be custom tailored.
2. To allow access privileges to be quickly cancelled in case an access card is lost or stolen.
3. To allow building access activities to be monitored and documented.
4. To allow doors to be automatically locked and unlocked according to a pre-established time schedule.

CAAMS is intended as an automated access control system and not as a building “security system”.

Scope

This section establishes guidelines for the design and installation of CAAMS in all new buildings and major remodel projects.

Programming

CAAMS is used to control access at all exterior (zone) doors and at certain interior access control zones, such as computer labs, office suites, audio/visual equipment rooms, and other zones with specific access concerns. To facilitate CAAMS, certain programming issues need consideration during design. These include:

1. Physical separation between public/non-public areas.
2. Physical separation between different departments/operating units in the same building.
3. Access to the public after hours.
4. Conflicts between access control and life safety, i.e., egress, latching of fire doors.
5. Conflicts between access control and ADA accessibility.

At a minimum, all exterior doors of University buildings shall be controlled and/or monitored by CAAMS. Specific interior doors to be controlled shall be identified during conferencing with user representatives from the departments who will occupy the building.

Design Criteria

CAAMS equipment at each building consists of central control equipment within the building as well as specific devices at each door controlled by the system.

Central Control Equipment

The central control equipment is installed at a "CAAMS Backboard" which is located in a dedicated closet within the building. Each building controlled by CAAMS shall have at least one CAAMS backboard. Where CAAMS controlled doors are located on multiple floors of a building, a separate CAAMS backboard shall be provided on each floor. Each CAAMS backboard typically includes the following items:

1. Intelligent Controller.
2. Card Reader Interface Modules.
3. Input Modules.
4. Output Modules.
5. Power Supplies and related accessories.
6. Power Supply Network Interface
7. Network Switch.
8. Equipment Enclosures.

The specific quantity and types of equipment to be provided at each CAAMS Backboard shall be determined during the design phase based on the number and types of CAAMS doors to be controlled. Equipment shall be designed at 75% capacity to allow for future expansion.

(See drawing at end of CAAMS Standard Specifications for typical arrangement of CAAMS Backboard.)

Door Devices

The types of devices provided at each door are determined by the access control function required. The four major access control functions and the devices required for each function are as follows:

1. CARD READER DOOR: Allows entry using access card, scheduled locking and unlocking, and door status monitoring. Devices required include:
    a. Multi-technology card reader.
    b. Door contact switch.
    c. REX (request to exit motion detector).
    d. Sounder.
    e. Electric lock or electric exit device.
    f. Power transfer hinge.

2. AUTO-LOCK DOOR: Allows scheduled locking and unlocking and door status monitoring. Devices required include:
    a. Door contact switch.
    b. REX (request to exit motion detector).
    c. Sounder.
    d. Electric lock or electric exit device.
    e. Power transfer hinge.
3. EXIT-ONLY DOOR: Allows door status monitoring. Devices required include:
    a. Door contact switch.
    b. REX (request to exit motion detector).
    c. Sounder.
4. EMERGENCY EXIT-ONLY DOOR: Allows door status monitoring, provides audible alarm when door is used. Devices required include:
    a. Door contact switch.
    b. Sounder or horn.

These door functions may be applied to single doors and pairs of doors, with or without center dividing mullions.

- Typical Card Reader Controlled Single Door
- Handicap Exit Device Card Reader Controlled Double Door
- Typical Exit Device Card Reader Controlled Double Door
- Typical Equipment Arrangement

Elevator Control

Where required, CAAMS may be used to control elevators. This function requires the installation of card readers at elevator hall call stations and/or in the elevator car itself. The use of elevator control also requires that special provisions be made within the elevator equipment itself to accommodate the CAAMS installation.

Space Requirements

There shall be at least one dedicated closet in each building for the installation of CAAMS related equipment. In multi-story buildings where CAAMS equipment is located above grade, there shall be a closet on each floor where CAAMS controlled doors are located. Each closet shall have a minimum dimension from the panel board(s) of 3' 0" clear. Minimum usable wall space for equipment shall be 6’-0” wide by 8’-0” high.

Each closet shall contain the following provisions:

1. One fire-retardant treated plywood "backboard" with minimum dimensions of 5' 6” wide x 7' 0" high.
2. Minimum of one 120V, 20A 4-plex electrical outlet on dedicated circuit.
3. Minimum of two Ethernet connection ports.

Design Assistance

The University CAAMS Manager will work with clients, project managers, and the University shops to incorporate the design of CAAMS into new construction and major renovation projects. The CAAMS Manager should be notified of new projects as early as possible in the design process.

Architects and Engineers (A/Es) are required to engage the services of a University-approved CAAMS consultant to design the building's CAAMS. For the current University of Washington CAAMS consultant, contact UW Campus Engineering Services.

Interdisciplinary Coordination

The work of this section shall be closely coordinated with other members of the design team. Specific areas requiring coordination include, but are not limited to the following:

1. Electrical engineer: coordinate requirements for conduits, back boxes, cable trays, and electrical power.
2. Hardware consultant: coordinate requirements for electric lock hardware.
3. Architect: coordinate space requirements for CAAMS Backboards, preparation of doors and frames, and any special construction items needed (such as pedestals for card readers).
4. Elevator consultant: coordinate requirements for elevator travelling cable, card reader placement in elevator cars, and modification of elevator control equipment.
5. Telecommunications consultant: coordinate requirements for network connections at CAAMS Backboards.

Departmental Responsibilities

University departments who will be using CAAMS shall appoint designated representatives who will be responsible for managing CAAMS and coordinating access needs with other members of their department. These representatives shall receive training on CAAMS and act as CAAMS operator for their department. At least two representatives shall be appointed; one that will serve as primary operator, and one that will serve as back-up operator.

Design Evaluation

The following information is required to evaluate the design:

1. Programming Phase: Statement of intent to use CAAMS, or to rough-in only for control of access to facility and/or portions of the facility. Identify unique access zones under either scenario. Determine relationships with University CAAMS consultant(s) and vendor(s).
2. Schematic Design Phase: Plan showing boundaries of access control zones. Outline specification identifying basic access control function for each zone. Locate and size CAAMS closets.
3. Design Development Phase: Plan drawing showing access control zones, the location of controlled doors and other wall openings, an elevation view of doors showing locations of CAAMS equipment and other hardware. Show location of CAAMS closets and draw elevation of CAAMS equipment backboards. Draft specification listing specific functions for each controlled

opening (see opening "functions" above). List proposed products. Coordination with the hardware schedule. Note "points-of-connection" for power and signal. Prepare "sequence of operations" diagrams for each CAAMS function. Status Matrix.

4. Contract Document Phase: In addition to the DD requirements, prepare a schedule of doors and openings receiving CAAMS, listing all related equipment. Provide diagrams of conduit and raceway systems, power supply, data circuits, and show “points of connection” between work by University forces and work by Contractor. Final specification for the system.

Construction Submittals

The following minimum submittals are required from the Contractor:

1. Refer to CAAMS Standard Specifications, Access Control System section.

Related Sections

1. Facilities Services Design Standard - Interior Doors
2. Facilities Services Design Standard - Exterior Doors
3. Facilities Services Design Standard - Finished Hardware
4. Environmental Health & Safety Design Guide - Fire Alarm System
5. Facilities Services Design Standard - Elevators
6. University of Washington CAAMS Manual
7. UW Technology Design Guide

Products, Materials and Equipment

1. The A/E shall work with University CAAMS Manager and the approved CAAMS consultant, designing each individual building system to insure system compatibility with University CAAMS. The A/E shall be responsible for the design of the complete system.
2. The A/E shall work closely with representatives from the individual University departments who will occupy the building to determine CAAMS requirements for interior doors.
3. Equipment furnished under this section may be by any manufacturer who is approved by CAAMS Manager prior to completion of Contract Documents. The A/E shall submit a list of proposed equipment and vendors to the CAAMS Manager for approval.
4. Refer to the CAAMS Standard Specifications, Access Control System section.
5. Specifications for CAAMS-related door hardware to be provided under Section 08 70 00.

Installation, Fabrication and Construction

1. Some equipment will be installed by University CAAMS vendor.
2. Design must clearly show “points of connection” between University and Contractor forces.
3. Refer to CAAMS Standard Specifications, Access Control Systems and Details.