SECTION 16720

FIRE ALARM AND DETECTION SYSTEMS

PART 1 – GENERAL

1.01 Reference

A. Related Sections

1. Section 15300 – Fire Protection
2. Section 15950 – Controls
3. Division 16 – Electrical
4. Division 14 - Conveying Systems
5. Division 27 – Telecommunications

B. References

1. International Building Code
2. International Fire Code
3. National Electrical Code
4. NFPA
5. American National Standards Institute (ANSI)
6. Design engineer and contractor shall use the UCB standard symbols.

1.02 Quality Assurance

A. Manufacturer’s Qualifications: Firm regularly engages in the manufacture of fire alarm systems of types, sizes, and electrical characteristics compatible with the current campus systems, and whose products have been in satisfactory use in similar service for not less than 5 years.

B. Installers Qualifications: Firm with at least 5 years of successful fire alarm systems installation experience. Installers shall have at least 2 years documented fire alarm installation experience and a minimum of a NICET II certification for Fire Alarm Systems.

C. Pricing for all fire alarm system components and associated labor are to be submitted to the UCB Campus Fire Marshal for review in conjunction with any solicitation for work to be done on the UCB campus.

D. Codes and Standards:

1. Each and every item of the fire alarm system shall be new and listed as the product of a fire alarm system manufacturer under the appropriate
category by Underwriters Laboratory, Inc. (UL) and shall bear the UL label on all devices

2. The complete installation shall conform to the applicable sections of NFPA especially NFPA 72 and the National Electrical Code

1.03 Summary

A. Proprietary Supervising Station: Class B–SLC, Class B-NAC

B. Hardwire zones shall only be used with UCB permission and only for small systems

C. The fire alarm system and devices shall comply with ADA and UL requirements

D. At a minimum, provide manual pull stations at each building exit, adjacent to the FACP, and any stage manager consoles

E. Where feasible smoke detectors are to be provided as required by code and in electric and telecommunication/data rooms

F. The use of duct detectors shall be minimized where feasible, area detectors shall be used to accomplish the objective

G. Smoke detectors located in open areas should be used rather than duct-type detectors for the operation of any automatic smoke control system

H. Stage Manager’s Console:
   1. A “Stage Manager’s Console” shall be installed in those areas open to the public for performances or special events where special effects could be used. Areas where special effects are used shall provide a means to disable detection during performances. All switches are to be identified and activate a system trouble upon activation of any switch.
   2. Any initiating devices that are disabled from the stage manager’s console shall cause a trouble at the FACP and activate a trouble lamp at the stage manager’s console
   3. A pull station shall be located near the stage manager’s console

I. Pre-Action systems shall operate in accordance with Section 15300

J. Outside bell and strobe appliances shall track the main water flow device

K. Elevators:
   1. Shunt trip shall be activated only from the FACP, not contacts on heat detectors
   2. Where heat detectors perform elevator recall and shunt trip, smoke and heat detectors shall share the same time counter to activate the shunt trip. However, heat detector activation is required for shunt trip
3. Where required, the vent for the elevator shaft shall have a pneumatic damper where possible. Where allowed by code, the damper shall be normally closed (energize to open). The damper shall have a manual control located adjacent to the FACP and be keyed to the University standard. The damper activation shall be 24VDC powered from the fire alarm system.

4. The 120VAC power to the elevator shunt trip shall be supervised in compliance with A17.1.

L. A remote annunciator shall be required where the FACP is not readily accessible for Fire Department response in a building. At a minimum, annunciators shall have a control panel fully duplicating the functions of the FACP front panel.

M. The contractor shall install a remote reset station (provided by the Owner) adjacent to the fire alarm control panel and include the following:

1. Common alarm and common trouble lamps

2. A silence switch is required. Upon activation, this switch, through software, will silence all notification appliances in the building. This switch shall be supervised by the FACP and keyed to the University standard.

3. A single pole spring loaded remote reset switch that is supervised by the FACP and keyed to the University standard.

N. Door holders shall be non-supervised and release upon AC power loss after a maximum 30-second delay.

O. Fan shutdown shall be hardwired through the fire alarm system.

P. All remote power supplies, transponders and riser boxes shall be installed in either mechanical, electric or telecom rooms where feasible.

1.04 Mass Notification System:

A. Mass Notification System (MNS) and Emergency Communication System (ECS) are used interchangeably in this document. In general, campus buildings shall be provided with Mass Notification System (MNS). Small buildings may not require MNS; examples include very small buildings such as pump houses, lawn equipment storage areas, single family houses on the Hill and similar places. The design team shall coordinate with the campus AHJ and determine whether the building under design needs to be provided with MNS. Only for buildings where it is determined and agreed that MNS is required and that it is combined with the fire detection and alarm system, all applicable paragraphs in this section that refer to MNS shall apply. For buildings where it is determined and agreed that MNS is not required, none of the paragraphs that refer to MNS shall apply. Where the MNS is independent of the fire detection and alarm system, please refer to applicable codes and standards, instead of using this section. Please note that Emergency Communication System (ECS) and Mass Notification Systems (MNS) are used interchangeably within this document.

1. New Buildings MNS:
a. All new buildings where a fire alarm control panel is required are to be provided with a combination Fire Alarm/Mass Notification System.
b. Speakers, instead of horns are to be used.
c. The system is to be installed in full compliance with the adopted edition of the National Fire Protection Association (NFPA) pamphlet no.72, National Fire Alarm Code.
d. The system is to be designed and installed such that announcements can be made for other emergencies on campus. The new or modified fire alarm control panel shall be capable of receiving audio inputs for announcements over the systems speakers. The panel shall be configured and programmed so that these inputs are a higher priority than a fire alarm (i.e., the audio inputs will override a current or pending fire alarm announcement).
e. The system is to be designed and installed such that campus emergency announcements can be made using a microphone at the fire alarm control panel and using microphones from two remote campus buildings, e.g., possibly University of Colorado Police Department (CUPD) and the Service Center.
f. The combination systems need to be tested and maintained by CU personnel in accordance with the testing and maintenance procedures and frequencies required by NFPA-72. If in-house maintenance and testing expertise are not available, outside agencies need to be hired to ensure compliance with testing and maintenance requirements.
g. Currently, CU Dispatch can use a dial-in system to access the public address system of several campus buildings. As an intermediate measure, all new systems should have this feature, allowing CUPD dispatch to communicate with the occupants via a dial-in connection. However, in the long term, the objective is to provide CUPD dispatch with a control panel which would allow the CUPD dispatch to readily select any number of buildings (that have a Public Address system) for announcements. The details of this long term plan will be established by an outside consultant.
h. Speakers shall be provided in compliance with the Emergency Voice/Alarm Communications system from NFPA 72.
i. For emergency voice/alarm communication systems, contractor shall perform intelligibility testing for the building. All large and/or complicated spaces and a random sample of remaining areas shall be tested. Testing shall be performed in accordance with Annex B, Clause B1, of IEC 60849. The system is to exceed the equivalent of a common intelligibility scale (CIS) score of 0.70. Alternatively, the use of subject-based tests methods as described in ANSI S3.2, Method for Measuring the Intelligibility of Speech Over Communication Systems, may be used if pre-approved by the University and detail testing procedures are provided.
j. Interior emergency voice/alarm systems shall have speakers installed in accordance with NFPA 72. Speakers are to be provided with integral strobe visual alarm where appropriate. Mounting of all devices shall comply with ADA requirements. Speakers shall be designed and installed to provide voice intelligibility throughout all areas of the building. Areas where voice intelligibility cannot be provided due to high ambient noise
levels (e.g., mechanical spaces) shall be separately evaluated by
the Engineer to determine appropriate design requirements.
Engineers are encouraged to use an acoustical program (e.g.,
EASE from Renkus-Heinz or Modeler from Bose) to determine
speaker layout for large and/or complicated spaces. Provide
Wheelock E70/E90 or ET70/ET90 series speakers or as
approved by the University.

2. Existing Buildings MNS:

a. The fire alarm system construction activities in existing
   buildings fall under three categories as explained below.
   i. Fire alarm system replacements:
   ii. The new system is to comply with the requirements for
       new buildings (see section #3 above).

3. Fire alarm major upgrades:

a. If feasible, the upgraded system is to comply with the
   requirements for new buildings (see section #3 above).
   Feasibility is to be determined by the project administrator and
   FLS. At a minimum, all new Fire Alarm Control Panels (FACP)
   and devices added are required to be compatible with a
   combination Fire Alarm/Public Address System so that the
   system is more readily convertible to a Combination system
during future upgrades.

4. Fire alarm system minor upgrades:

a. Compliance with new building requirements, listed under item I
   above, is not required. If feasible, all new panels and devices
   added are to be compatible with a combination Fire
   Alarm/Public Address System so that the system will be readily
   convertible to a Combination system during future upgrades

1.05 Submittals

A. Shop drawings must be submitted within 30 days after award of contract and
   shall include the following:

1. Locations of alarm initiating and notification appliances

2. Alarm control equipment

3. Annunciation

4. One line diagram for the complete system including device addresses and
   room numbers

5. Power connections

6. Battery calculations

7. Network connections
8. Voltage drop calculations
9. Manufacturer’s model numbers, and listing information for equipment, devices and material
10. The interface of fire control functions and sequence of operations
11. UCB wiring installation guide
12. Graphic Command Center (GCC) graphic screens

B. Operations and maintenance manuals (O&M’s) shall be submitted within 30 days of the final accepted fire alarm test and shall contain:

1. Four sets of complete as-built drawing the same size as the original drawings and two CAD disk containing all items of “A” above corrected to include all shop drawing comments and reflect actual space installation. The CAD drawings shall be based on campus CAD standards available from the Facilities Management CAD office
2. Complete schematic and interconnection wiring diagrams, internal and external, including junction box wiring with all terminal strip and wire numbers
3. Parts list including complete parts price list and recommended spare parts list

1.06 Delivery, Storage, and Handling
A. Store fire alarm equipment in a clean, dry place. Protect from weather, dirt, fumes, water, construction debris, and physical damage
B. Do not install damaged equipment or components; replace with new

1.07 Products
A. Manufacture

1. All fire alarm equipment shall be supplied by one representative. All equipment and wiring configurations shall be reviewed and approved by the AHJ and the Owner.

2. Equipment shall be:
   a. Simplex

3. All fire alarm equipment shall be compatible with the campus fire alarm systems and networks.

4. The manufacturer’s representative and service agency supplying the equipment must have factory authorized 24 hour on-call service departments and a complete stock of spare parts. Agencies must be located within a 50-mile radius of the campus. Response time must be guaranteed within 24 hours of notification.
1.08 Fire Alarm Control Panel

A. All power and back-up power shall comply with NFPA 72 and NEC

B. The FACP shall have the following functions
   1. City disconnect
   2. Pre-action system bypass
   3. Other suppression systems bypass
   4. Elevator bypass
   5. Door holder bypass
   6. Fan/Damper bypass
   7. Voice capability where required by the AHJ

C. The control panel shall provide the following
   1. Display software revision level
   2. Battery voltage monitor for supervision of low voltage of the back-up battery
   3. Display historic logs
   4. Display card status
   5. Point list
   6. The control panel shall have a hinged front and lock that is keyed to the University standards

1.09 Addressable Communication

A. The fire alarm system shall provide communication with individual initiating and control devices, annunciated at the FACP

B. All addressable devices shall have the capability of being individually disabled and enabled by the FACP

C. Fire alarm systems that require factory reprogramming to add or delete devices are not acceptable

D. The use of jumpers to set the address shall not be acceptable

E. Device identification that rely on electrical position along the communication lines and do not use unique addresses shall not be acceptable

1.10 Fire System Devices
A. Manual Pull Stations:

1. Manual, non-coded, single action flush or surface mounted as specified

2. An indication of operation shall be visible until the device has been manually reset

3. Problem areas such as spaces for theatrical, sporting, or seminar events, etc. shall utilize dual action break glass type pull station. In dormitories, and other areas susceptible to nuisance alarms, provide a clear shielded enclosure with a battery operated sounder

B. Heat Sensors:

1. All heat sensors shall be of the addressable type unless environmental conditions prohibit their use. If non restorable detectors are used, an addressable module shall be located in an area not subject to the adverse environment

2. Rate of rise detectors will be used with UCB permission only. Fire alarm reset shall be required to restore a rate of rise detector to normal

C. Smoke Detectors:

1. Smoke detectors shall be analog and capable of alarm verification

2. Smoke detectors shall have environmental compensation and provide a trouble at the FACP when the sensor’s value reaches a predetermined value

3. Smoke detector/control unit shall be arranged so that the detector causes a signal at the control unit when its sensitivity is outside its listed range

4. Duct detectors shall have duct sampling tubes, remote indicator and test switch. Units shall be able to reset at the FACP

5. Horns used in sensitive animal research areas shall be Silentone MKII or AHJ approved equal

6. All notification devices shall be simplex or Wheelock

1.11 Identification

A. All new and reused junction boxes shall be painted red and labeled “Fire Alarm”

B. All conductors shall be numbered and their numbers shall correspond to the terminal block numbering they are connected to

C. Device labeling:

1. All initiating and notification devices shall be labeled with the appropriate circuit number(s)
2. Labels shall be 3/8” high lettering, black on clear background

1.12 Installation of Basic Wiring Systems

A. All cable and wiring shall be installed in conduit by a Colorado licensed electrician and in compliance with Division 16

B. All wiring shall be in conduit

C. Provide basic wiring materials that comply with Division 16.

D. Use only copper conductors

E. Provide conductors which are UL listed for installation and location, and approved for fire alarm use

F. Wire color and size shall be per the University Standards, see attachment “Installation Guidelines”. If inconsistent with the existing building fire alarm wiring, the contractor shall match the existing wire colors and note it on the as-built drawings

G. Install wire and cables in accordance with the manufacturer’s requirements and in compliance to NEC.

H. All junction boxes 8” x 8” or larger shall be provided with numbered terminal strips with all wires numbered and landed on corresponding terminals. One conductor per terminal

I. Only one extension ring is allowed on a 4” x 4” box

J. Provide a ¾” conduit from the FACP to the building main telephone room for the campus fire alarm network connection. Run 4 multimode or single mode fiber strands or 4 copper conductors as appropriate for the fire alarm system between the FACP and the fire alarm network. Verify the connection type with UCB personnel prior to installation

K. All riser conduits shall be a minimum 1” to 8” x 8” minimum junction boxes

L. Contractor shall not pull wire through existing raceways with live circuits without prior CU approval

1.13 Installation of Fire Alarm Systems

A. All outside bells, horns, and strobes shall be installed a minimum of 10’0” above finished grade

B. All outside audible appliances shall have an audible level no less than 90db at 10’

C. All conduit and boxes within 6’0” of tamper and water flow switches shall be watertight

D. All Remote test switches shall be located in common areas at a height of 7’0” above finished floor
1.14 Fire Alarm Network

A. Graphic Command Center

B. All additions and/or changes to the fire alarm system shall be updated at the
   supervising station and all appropriate (as determined by Facilities Operations
   Fire Systems Group) graphic command centers to include graphic screens

C. All new or updated FACP’s shall use fiber optics to tie into the campus fire alarm
   network

D. All graphics shall include initiating devices, room numbers, indication of North
   and the current building footprint.

1.15 Field Quality Control

A. Make all connection to the control equipment under UCB personnel or
   manufacturer’s supervision

B. Notify the University Fire Systems Group a minimum of 2 days prior to any
   interruption or modification of any existing fire alarm system for scheduling of
   work (303-492-0791)

C. Final Acceptance Testing:

   1. Before the final test, the contractor shall perform a complete system
      check with the manufacturer’s representative present. This test shall be
      completed without the involvement of the Owner. The test of the fire
      alarm system, initiating devices, notification appliances, and all functions
      of the FACP shall comply with NFPA 72. This “preliminary” test shall
      be documented as to what was tested and the test procedures used. This
      test documentation, NFPA 72 Record of Completion, and the attached
      Fire Alarm Application for Final Acceptance Test shall be submitted to
      the Owner prior to scheduling a final test

   2. As a final test, the contractor and a manufacturer’s representative shall
      demonstrate to the design engineer and the Owner’s representative that
      the system is in full operation status. This demonstration shall include
      testing 100% of the devices and/or the systems as directed by the design
      engineer and witnessed by the Owner’s representative. The contractor
      shall furnish all test equipment necessary to complete the testing. In
      cases where a system was remodeled or added to, all new devices shall
      be 100% tested and a representative quantity of existing devices, as
      determined by the Owner’s representative, shall be re-tested to ensure
      proper operation of the system.

1.16 Warranty

A. The contractor shall guarantee all equipment and wiring free from inherent
   mechanical and electrical defects for a period of 1 year from the date of
   acceptance as set forth in the general conditions

1.17 Operating and Maintenance Instruction
A. Conduct instruction to the Owner’s representative on all normal maintenance and trouble shooting procedures down to circuit board level of equipment included in contract (minimum of eight hours per new system, one to four hours as required for remodeled systems)

B. For major projects, when needed by the Fire Systems Group, provide one week, minimum forty hours, of factory training (component and programming) for University technicians. Training may be either at the factory or in the Denver/Boulder area. Training shall include transportation, lodging, and one meal a day for one technician.

C. Failure to comply with all contractual obligations resulting in costs incurred by the University shall result in those costs being transferred to the appropriate contractor for payment.

D. Contractor shall be financially responsible for all fees to the University by the Boulder Fire Department, and all lost research due to false alarms.

1.18 Fire Watch and Shut Down Requirements

   A. Fire Alarm Shut Down
   
   B. Except for replacement of control equipment, at no time during construction should the entire fire alarm system be disabled where the notification devices are not functioning.

   C. If the fire alarm system is out of service, fire watches shall be posted in accordance with UCB procedures. See requirements at http://www.colorado.edu/facilitiesmanagement/pdc/safety/index.html

1.19 Painting and Patching

   A. Contractor shall paint exposed conduit to match adjacent surfaces. All surfaces or finishes damaged as a result of work shall be properly patched, painted, and/or repaired by trained craftsmen of the trade involved.
## Installation Guidelines

### ALL WIRE IS SOLID COPPER

<table>
<thead>
<tr>
<th>CIRCUIT TYPE</th>
<th>COLORS</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE ALARM ZONES</td>
<td>RED - BLACK -</td>
<td>14 THHN</td>
</tr>
<tr>
<td>MAPNET</td>
<td>RED - BLACK -</td>
<td>18 TWISTED SHIELDED</td>
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<tr>
<td>COMMUNICATION LINE (MINIPLEX OR LCD)</td>
<td>RED - BLACK -</td>
<td>18 TWISTED SHIELDED</td>
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<tr>
<td>AUDIO RISER (VERTICAL RUNS)</td>
<td>RED - BLACK -</td>
<td>12 TWISTED SHIELDED</td>
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<tr>
<td>HORNS</td>
<td>RED - BLACK -</td>
<td>#1* THHN JACKETED CABLE (2 CONDUCTOR)</td>
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<td>STROBES (VISUALS)</td>
<td>YELLOW - BROWN -</td>
<td>14 THHN</td>
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<tr>
<td>SPEAKERS (HORIZONTAL RUNS)</td>
<td>RED - BLACK -</td>
<td>14 TWISTED SHIELDED</td>
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<td>24 VOLT DC POWER</td>
<td>WHITE - BLACK -</td>
<td>14 THHN</td>
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<tr>
<td>DOOR HOLDERS (24 VOLTS DC)</td>
<td>BLUE - WHITE -</td>
<td>14 THHN</td>
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<tr>
<td>REMOTE TEST SWITCHES</td>
<td>WHITE - WHITE</td>
<td>16 THHN</td>
</tr>
<tr>
<td>REMOTE LIGHTS</td>
<td>RED - BLACK -</td>
<td>16 THHN</td>
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<tr>
<td>FAN CONTROLS</td>
<td>GRAY(N-C), PINK(N-O), ORANGE(COMMON)</td>
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<tr>
<td>DAMPER CONTROLS</td>
<td>SAME AS FANS</td>
<td>14 THHN</td>
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<td>REMOTE FIRE FIGHTERS RESET</td>
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<td>#18</td>
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<td>REMOTE FIRE FIGHTERS SIGNAL SILENCE</td>
<td>WHITE - WHITE</td>
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<td>REMOTE FIRE FIGHTERS TROUBLE LIGHT</td>
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<td>REMOTE FIRE FIGHTERS ALARM LIGHT</td>
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<tr>
<td>REMOTE FIRE FIGHTER LAMP COMMON</td>
<td>BLACK -</td>
<td>#18</td>
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<tr>
<td>FIRE ALARM NETWORK CONNECTIONS (2 CABLES REQUIRED)</td>
<td>RED AND BLACK -</td>
<td>10 TWISTED SHIELDED</td>
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### ELEVATOR RECALL PRIMARY

| ELEVATOR RECALL PRIMARY               | PURPLE - PURPLE         | 16 THHN        |
| ELEVATOR RECALL ALTERNATE            | SILVER - SILVER         | 16 THHN        |
| SHUNT TRIP (#1 CONDUCTORS FOR 120 VAC) | WHITE - BLACK          | 14 THHN        |

*All wiring sizes indicated are minimums*
The following requirements are to apply to any new building, major renovation, or other project that will have an Emergency Communication System (ECS) interface in the future; See UCB Standard 16720 for details. Please note that ECS and Mass Notification System (MNS) are used interchangeably within this document and UCB Standards 16720.

1. The fire alarm and detection system is to be installed to be fully compliant with the current edition of NFPA 72 for an Emergency Voice/Alarm Communications System including intelligibility requirements.

2. If the new or renovated panel is a Simplex 4100U, the panel is to be provided with a Simplex 4100-1240 Auxiliary Audio Input Module, which is provided to accommodate external audio inputs to the FACP. This card will allow multiple inputs of audio signal. If the panel is not a Simplex 4100U, the panel is to be configured to accept 10 Volts Root Mean Squared (VRMS), 25 VRMS, 70.7 VRMS, and/or Line Level (.707 VRMS) Audio inputs.

3. The following language is to be modified by the project Engineer of Record based on the specifics of the project and provided in the project fire alarm specifications:

   “Fire Alarm Voice Communication panels shall be capable of accepting a dry contact input from an Emergency Communication System (ECS) to alert the fire alarm panel that an ECS message is forthcoming. The Fire Alarm Panel shall be capable of being programmed so that while this input is active (contact closed) the fire alarm panel shall route audio provided by the ECS interface directly to all connected fire alarm speakers. The system shall be capable of being programmed so this external audio input will receive the highest priority and override all fire alarm notification so long as the input is active. When the input goes inactive (contact open) the external audio routing will cease and the fire alarm panel shall automatically return to the prior notification program that was active before the ECS message.”

   Note that based on communication from SimplexGrinnell, the Simplex 4100U is capable of meeting this programming configuration.

Building features necessary to support a ECS

The ECS interface equipment (transceiver) will be installed in the immediate area as the FACP. The interface equipment will require 110/120 volt power, which may be hard wired to a circuit breaker (preferred) or powered from a standard 20 amp outlet. The interface equipment will require a roof mounted antenna to communicate with the system head end equipment. It is preferred that the distance from the transceiver to the roof mounted antenna not exceed 100 feet, but may be a maximum of 200 feet of wire distance. A ¾” conduit should be provided between the transceiver and the proposed location of the antenna.
CERTIFICATION OF SYSTEM OPERATION

PART II. Building _______________________________________________

PART III. Date ______________________

PART IV. Contractor: _____________________________ System Model__________________________

PART V.

7.01 All operational features and functions of this system were tested and found to be operating properly (checked below) in accordance with the job specifications.

____ Smoke detectors tested for Alarm
____ Heat detectors tested for Alarm
____ Duct Detectors tested for Alarm
____ Manual Pull Stations tested for Alarm
____ Water Flow Switches tested for Alarm
____ Tamper Switches tested for Supervisory

7.02 _____ Pre-Action Low Air for Supervisory

7.03 _____ Pre-Action APS tested for Alarm

____ Duct Detector Remote LED/Test Switches
____ Audible appliances for audibility and operation
____ Visual appliances for operation
____ Fan shutdown operations
____ Damper operations
____ Primary Elevator recall
____ Alternate Elevator recall
____ Elevator Shunt
____ Door Holder Operations
____ Other ______________________________________
____ Other ______________________________________

Department of Facilities Management Fire and Life Safety (Audible and Water Flow):
Signed:_____________________________________    Date:______________________

Department of Facilities Management Fire Systems (Devices and Functions):
Signed:_____________________________________    Date:______________________

Department of Facilities Management:
Signed:_____________________________________    Date:______________________

APPLICATION FOR FINAL ACCEPTANCE TEST

PART VIII. Building / Project ________________________ Date of Pre-Test:  _______________________
Project Manager: ___________________________  PR / WO #: __________________

General Contractor: _________________________  Foreman: __________________

Installation Contractor: ______________________  Foreman: __________________

System Manufacturer: ________________________  Technician: _________________

Alarm Devices
____ Smoke detectors tested for alarm                 ____ Manual pull stations tested for alarm
____ Water flow switches tested for alarm                ____ Preaction / Dry APS tested for alarm
____ Duct detector remote LED / test switches            ____ Preaction / Dry low air for supervisory
____ Heat detectors tested for alarm/supervisory       ____ Tamper switches tested for supervisory
____ Duct detectors tested for alarm/supervisory       ____ other __________________________

Indicating Circuits
____ Audible appliances for audibility and operation  ____ Visual appliance for operation
____ Water flow bell/strobe track main water flow switch operation  ____ Signal Bypass

Control Functions
____ Fan shutdown operations                       Fan Shutdown Bypass ____
____ Damper operations                                Damper Bypass ____
____ Primary Elevator recall                           Elevator Recall Bypass ____
____ Alternate Elevator recall                         Elevator Shunt Bypsss ____
____ Elevator Shunt                                             Door Holder Bypass ____
____ Door Holder Operations                           Service Desk Bypass ____
____ Other __________________________________________

The above listed Contractor and Manufacturers Representative hereby acknowledge that they have completely Pre-tested the following devices and functions for proper operation (check mark indicates completion of testing for all devices in listed category):

We are applying for a final acceptance test with the University of Colorado Fire Systems and Life Safety groups. The requested date of the final acceptance test is ____/____/____, starting at (time) ___________.

Foreman: ___________________________  Date: __________________

Manufacturer Rep: _________________________  Date: __________________

Note: No exceptions are allowed—all devices and functions to be 100% tested PRIOR to applying for final acceptance test.
## PART X

**Building:** ________________ **Project Name:** __________________________________

**Project Manager:** ________________________ **WO#:** ________________________

**Contractor (s):** ________________________ **Manufacturer:** ___________________________

### FIRST ACCEPTANCE TEST: PASSED FAILED

1. ___________________________________________________________________________
2. ___________________________________________________________________________
3. ___________________________________________________________________________
4. ___________________________________________________________________________
5. ___________________________________________________________________________
6. ___________________________________________________________________________
7. ___________________________________________________________________________
8. ___________________________________________________________________________
9. ___________________________________________________________________________
10. ___________________________________________________________________________

**INSPECTOR:** ________________________________________ **DATE:** _________________

**INSPECTOR:** ________________________________________ **DATE:** _________________

## SECOND ACCEPTANCE TEST: PASSED FAILED

11. ___________________________________________________________________________
12. ___________________________________________________________________________
13. ___________________________________________________________________________
14. ___________________________________________________________________________
15. ___________________________________________________________________________
16. ___________________________________________________________________________
17. ___________________________________________________________________________
18. ___________________________________________________________________________
19. ___________________________________________________________________________
20. ___________________________________________________________________________

**INSPECTOR:** ________________________________________ **DATE:** _________________

**INSPECTOR:** ________________________________________ **DATE:** _________________