Installation Guidelines

- **MINIMUM FIRE ALARM CONDUIT SIZE IS 1/2 “.**

- **IF THE FIRE PANEL IS COMPLETELY SHUT DOWN, A ROVING FIRE WATCH IS REQUIRED (CONTACT CU-FIRE ALARMS FOR DETAILS AND NECESSARY KEYS)**

- **IF BUILDING FUNCTIONS ONLY ARE BYPASSED FOR OUTAGE, A “FIRE PANEL” FIRE WATCH IS REQUIRED (CONTACT CU-FIRE ALARMS FOR DETAILS AND NECESSARY KEYS)**

- **ALL SPEAKERS TAPPED AT 2 WATTS ONLY.**

- **NO SPLICES IN JUNCTION BOXES.** Mechanical connections are to be made at either the peripheral equipment terminal strips provided for such connections or the fire panel interface terminal strips. If a splice occurs, a terminal strip must be installed and labeled, the wires must be numbered to match the terminal strip. Only one wire allowed per terminal strip connection.

- **UPON COMPLETION OF A TOTAL SYSTEM PRE-TEST WITH SIMPLEX,** the contractor should complete the fire alarm system certification and description form and building fire alarm acceptance form, and submit to FACMAN for scheduling of a final system certification.

- **IF CONNECTING TO AN EXISTING CIRCUIT AND THE WIRE COLORS DO NOT MATCH THE CURRENT COLOR CODES, THE OLD WIRE COLOR CODES MUST BE MAINTAINED.**

- **PULLING WIRE THROUGH EXISTING RACEWAYS WITH THE CIRCUITS LIVE IS NOT ALLOWED WITHOUT PRIOR CU APPROVAL.**

- **ALL DECIBEL LEVEL AUDIO TESTS ARE TO BE SCHEDULED TWO (2) WEEKS IN ADVANCE WITH FACMAN AND EHS, AND NEED TO BE DONE PRIOR TO REGULAR SCHOOL HOURS. USUALLY BETWEEN 5 AND 7 AM.**

- **WIRING COLORS FROM THE FIRE ALARM PANEL TO ANY FIELD MOUNTED INTERCONNECT RELAYS SHALL BE THE SAME AS THE CIRCUIT COLORS FOR THAT FUNCTION. (IE: BLUE AND WHITE WIRES TO A DOOR HOLDER CONTROL RELAY)**
# Installation Guidelines

## CIRCUIT TYPE

<table>
<thead>
<tr>
<th>Circuit Type</th>
<th>Colors</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRE ALARM ZONES</strong></td>
<td>RED + \ BLACK -</td>
<td>14 THHN</td>
</tr>
<tr>
<td><strong>MAPNET</strong></td>
<td>RED + \ BLACK -</td>
<td>18 TWISTED SHIELDED</td>
</tr>
<tr>
<td><strong>COMMUNICATION LINE (MINIPLEX OR LCD)</strong></td>
<td>RED + \ BLACK -</td>
<td>18 TWISTED SHIELDED</td>
</tr>
<tr>
<td><strong>AUDIO RISER (VERTICAL RUNS)</strong></td>
<td>RED + \ BLACK -</td>
<td>12 TWISTED SHIELDED</td>
</tr>
<tr>
<td><strong>HORNS</strong></td>
<td>RED + \ BLACK -</td>
<td>14 THHN JACKETED CABLE (2 CONDUCTOR)</td>
</tr>
<tr>
<td><strong>STROBES (VISUALS)</strong></td>
<td>YELLOW + \ BROWN -</td>
<td>14 THHN</td>
</tr>
<tr>
<td><strong>SPEAKERS (HORIZONTAL RUNS)</strong></td>
<td>RED + \ BLACK -</td>
<td>14 TWISTED SHIELDED</td>
</tr>
<tr>
<td><strong>24 VOLT DC POWER</strong></td>
<td>WHITE + \ BLACK -</td>
<td>14 THHN</td>
</tr>
<tr>
<td><strong>DOOR HOLDERS (24 Volts DC)</strong></td>
<td>BLUE + \ WHITE -</td>
<td>14 THHN</td>
</tr>
<tr>
<td><strong>REMOTE TEST SWITCHES</strong></td>
<td>WHITE + WHITE</td>
<td>16 THHN</td>
</tr>
<tr>
<td><strong>REMOTE LIGHTS</strong></td>
<td>RED + \ BLACK -</td>
<td>16 THHN</td>
</tr>
<tr>
<td><strong>FAN CONTROLS</strong></td>
<td>GRAY(N/C): PINK(N/O): ORANGE(COMMON)</td>
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<tr>
<td><strong>DAMPER CONTROLS</strong></td>
<td>SAME AS FANS</td>
<td>14 THHN</td>
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<tr>
<td><strong>REMOTE FIRE FIGHTERS RESET</strong></td>
<td>BLUE:BLUE</td>
<td>#18</td>
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<tr>
<td><strong>REMOTE FIRE FIGHTERS SIGNAL SILENCE</strong></td>
<td>WHITE:WHITE</td>
<td>#18</td>
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<tr>
<td><strong>REMOTE FIRE FIGHTERS TROUBLE LIGHT</strong></td>
<td>YELLOW</td>
<td>#18</td>
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<tr>
<td><strong>REMOTE FIRE FIGHTERS ALARM LIGHT</strong></td>
<td>RED</td>
<td>#18</td>
</tr>
<tr>
<td><strong>REMOTE FIRE FIGHTER LAMP COMMON</strong></td>
<td>BLACK</td>
<td>#18</td>
</tr>
<tr>
<td><strong>FIRE ALARM NETWORK CONNECTIONS</strong></td>
<td>RED AND BLACK</td>
<td>16 TWISTED SHIELDED</td>
</tr>
<tr>
<td>(2 CABLES REQUIRED)</td>
<td></td>
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<tr>
<td><strong>ELEVATOR RECALL PRIMARY</strong></td>
<td>PURPLE: PURPLE</td>
<td>16 THHN</td>
</tr>
<tr>
<td><strong>ELEVATOR RECALL ALTERNATE</strong></td>
<td>SILVER: SILVER</td>
<td>16 THHN</td>
</tr>
<tr>
<td><strong>SHUNT TRIP (#12 CONDUCTORS FOR 120 VAC)</strong></td>
<td>WHITE:BLACK</td>
<td>14 THHN</td>
</tr>
</tbody>
</table>

*All wiring sizes indicated are minimum*

Contractor: ________________________________ Date: ________________________________

CU Fire Tech: ______________________________ Date: ________________________________

Document1 REVISED: 05/11/00
FIRE ALARM CONTROL PANEL
LABELING GUIDELINES

Directions:
N - North
S - South
E - East
W - West

Floor Designation:
Floor abbreviations are to be consistent with buildings method of floor designation.
FLR - Floor
2B - Sub-basement
1B - Basement
MEZZ - Mezzanine
FLR1 - floor one
FLR2 - floor two, etc.

Sprinkler Systems:
TS - Tamper Switch
WFS - Water Flow Switch
APS - Alarm Pressure Switch (Water Flow)
LOWAIR - Low Air Pressure Switch
PA - Preaction Sprinkler System
DRY - Dry Pipe Sprinkler System
SOLENOID - no abbreviation
WATER FLOW BELL - no abbreviation

General:
CORR - Corridor
ELEV - Elevator
RM - Room
STAIR - Stairway
MACH - Machine
MECH - Mechanical
HIGHVOLT - High voltage room
ADDRESS LABELING
General Procedures:
1. All labels shall have:
   - University of Colorado 2-5 Digit Building code abbreviation
   - Mapnet number or Zone
   - Floor
   - Location/description (as further defined elsewhere)
2. Example:
   STAD M1-26 FLR1 N STAIR EXIT
3. Locations within buildings are to be readily distinguishable to emergency
   response personnel. Wings or areas of buildings are to be identified by direction,
   e.g., N, S, or SW.
4. Even if there is room to indicate a more descriptive label, standardized
   abbreviations are to be used to maintain consistency.
5. Specific devices do not need to be indicated since "Point Type" is normally
   indicated in a separate line on the readout. Exception to this is water flow
   switches and all sprinkler supervisory devices, e.g., tamper switches and low air
   switches.
6. The initial fire alarm shop drawing is to include device address as they will be
   show in the fire alarm panel.
7. Originally submitted addresses are to be as close as possible to the actual
   installation and are to be based on the above guidelines.
8. University personnel will review submitted addresses. Minor changes will be
   indicated in review report. However, if considerable revision is required, the
   submittal will be returned to the contractor for complete revision.
9. Field revision is to be maintained to an absolute minimum and is to be reviewed
   and accepted by University personnel.

Water Flow Switches:
1. Primary information to be indicated is area of sprinkler control, e.g., FLR1 or
   SUB-B N END.
2. Secondary information is to indicate system type, e.g., preaction (PA) or dry
   system (DRY).
3. Additional information includes location of devices itself.
4. Examples:
   ENVYD M2-45 FLR2 E WING WFS RM 256, i.e., floor two east wing water flow
   in room 256.
   ECEE M1-23 BSMT HIGH VOLTAGE PA APS 2B-23, i.e., basement high
   voltage room preaction water flow pressure switch with the valve located in room
   2B-23.
DUAN M5-10 SUB-B WFS W CORR, i.e., subbasement water flow with the device located in the west corridor.

Tamper Switches:
1. Primary information to be indicated is location of device, e.g., IN RM 367.
2. Examples:
   CASA M7-42 FLR1 TS W WING RM 109, i.e., floor one tamper switch located in west wing room 109.
   LSTR M1-15 BSMT TS W CORR, i.e., basement tamper switch in west corridor.

Alarm pressure switches for preaction or dry systems:
1. Primary information to be indicated is area of sprinkler coverage.
2. Secondary information includes type of system and location of valve.
3. Examples:
   IBG M2-34 APS LVL2 ANIMAL TESTING PA RM 2-45, i.e., alarm pressure switch activated for the level 2 animal testing preaction system, valve located in 2-45.

Low air pressure switch for preaction and dry systems:
1. Primary information to be indicated is the location of the valve.
2. Secondary information includes type of system and area of sprinkler coverage.
3. Examples:
   COMP M1-45 LOWAIR IN RM 00-23 PA FOR HIGHVOLT, i.e., low air pressure switch for the high voltage room valve located in room 00-23.
University of Colorado
APPLICATION FOR FINAL ACCEPTANCE TEST

Building ____________________________

Date of PRE-TEST: __________________

Project Name: ________________________ Project/Work Order #: __________________

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
___ Other
___ Tamper Switches Tested for Supervisory
___ Other
___ Duct Detectors Tested for Alarm

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
___ Damper operations
___ Primary Elevator recall
___ Alternate Elevator recall
___ Elevator Shunt
___ Door Holder Operations
___ Other _________________________________

Fan Shutdown Bypass ___

Damper Bypass ___

Elevator Recall Bypass ___

Elevator Shunt Bypsss ___

Door Holder Bypass ___

Service Desk Bypass ___

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.

Revision 05/11/00

FINAL ACCEPTANCE COMPLETE SET-newest.doc
University of Colorado
CERTIFICATION OF SYSTEM OPERATION

Building ____________________________

Date ____________________________

Contractor: ________________________ System Model ________________________

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
___ Pre-Action Low Air for Supervisory
___ 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: ____________________________

Revision 05/11/00

FINAL ACCEPTANCE COMPLETE SET-newest.doc
University of Colorado

FIRE ALARM FINAL ACCEPTANCE TEST

OBSERVATION REPORT

Building: ___________________ Project Name: ___________________

Project Manager: ___________________ WO#: ___________________

Contractor (s): ___________________ Manufacturer: ________________

FIRST ACCEPTANCE TEST: □ PASSED □ FAILED

FAILURE REASON(S):
1. _______________________________________________________
2. _______________________________________________________
3. _______________________________________________________
4. _______________________________________________________
5. _______________________________________________________
6. _______________________________________________________
7. _______________________________________________________
8. _______________________________________________________
9. _______________________________________________________
10. ______________________________________________________

INSPECTOR: ___________________ DATE: ___________________

INSPECTOR: ___________________ DATE: ___________________

SECOND ACCEPTANCE TEST: □ PASSED □ FAILED

FAILURE REASON(S):
11. _______________________________________________________
12. _______________________________________________________
13. _______________________________________________________
14. _______________________________________________________
15. _______________________________________________________
16. _______________________________________________________
17. _______________________________________________________
18. _______________________________________________________
19. _______________________________________________________
20. _______________________________________________________

INSPECTOR: ___________________ DATE: ___________________

INSPECTOR: ___________________ DATE: ___________________
<table>
<thead>
<tr>
<th>BLOCK NAME</th>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>FP1</td>
<td>🔄</td>
<td>MANUAL FIRE ALARM PULL STATION</td>
</tr>
<tr>
<td>FP2</td>
<td>🔄</td>
<td>RATE-OF-RISE HEAT DETECTOR</td>
</tr>
<tr>
<td>FP2</td>
<td>🔄</td>
<td>FIXED TEMPERATURE HEAT DETECTOR</td>
</tr>
<tr>
<td>FP2A</td>
<td>🔄</td>
<td>COMBINATION RATE-OF-RISE/FIXED TEMPERATURE HEAT DETECTOR</td>
</tr>
<tr>
<td>FP2</td>
<td>🔄</td>
<td>PHOTOELECTRIC SMOKE DETECTOR</td>
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<td>🔄</td>
<td>IONIZATION SMOKE DETECTOR</td>
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<td>🔄</td>
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<td>END OF LINE RESISTOR</td>
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<td>PHONE LINE CONNECTION TO SERVICE DESK</td>
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**SUBLABEL ABBREVIATIONS**

- BF - BELOW FLOOR
- AC - ABOVE CEILING