LEGEND HEAT DETECTOR/SENSOR FACP FIRE ALARM CONTROL PANEL FAA FIRE ALARM ANNUNCIATOR SMOKE DETECTOR/SENSOR NAC NOTIFICATION CIRCUIT POWER BOOSTER PANEL LOCAL SMOKE DETECTOR/SENSOR (120V) BATT BATTERY CABINET SMOKE/HEAT DETECTOR/SENSOR COMBINATION FATC FIRE ALARM TERMINAL CABINET SMOKE DETECTION/SENSOR FOR DUCT S SPEAKER ONLY FLOW DETECTOR/SWITCH COMBINATION SPEAKER/VISIBLE CD = CANDELA RATING/SETTING TAMPER DETECTOR/SWITCH C = CEILING MOUNT PRESSURE DETECTOR/SWITCH RI REMOTE INDICATOR - WALL MOUNT ADDRESSABLE INPUT MODULE RTS REMOTE ALARM INDICATING AND TEST SWITCH ADDRESSABLE INPUT/OUTPUT MODULE FIREFIGHTER TELEPHONE

1. REFER TO FLOOR PLAN FOR EXACT LOCATIONS AND QUANTITIES OF ALL DEVICES. REFER TO DRAWING FA00-01 FOR SYMBOLS, LEGENDS AND SCHEDULES 2. REFER TO SECTION 16000 OF THE SPECIFICATION FOR ADDITIONAL FIRE ALARM SYSTEM

REQUIREMENTS. 3. ALL FIRE ALARM SYSTEM RACEWAY SIZES AND CIRCUITRY REQUIREMENTS SHALL BE IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND ALL CODES

FIRE ALARM SYSTEM NOTES:

THAT MAY APPLY. 4. CABLING MUST BE UNIQUELY IDENTIFIED AND LABELED, AND A PERMANENT, ACCURATE RECORD OF THE IDENTIFICATION AND USE OF EACH CABLE MUST BE MADE AT THE

TIME WRAP OVER ITSELF, PROTECTING THE WRITING. 5. FACP AND OTHER PANELS SHALL BE MOUNTED WITH CLEARANCES FOR OBSERVATION AND TESTING. ALL OTHER FIRE ALARM JUNCTION BOXES SHALL BE MARKED FOR

IDENTIFICATION. 6. PROVIDE 120V, 20A DEDICATED EMERGENCY BRANCH CIRCUITS TO FIRE ALARM CONTROL PANELS, FIRE ALARM TERMINAL CABINETS, ETC. AS REQUIRED. THE CIRCUIT BREAKER SHALL HAVE A LOCK TO PREVENT ACCIDENTAL SHUT OFF AND BE CLEARLY MARKED

"FIRE ALARM CIRCUIT CONTROL" IN THE PANEL BOARD DIRECTORY.

7. SPACE DETECTORS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDED DISTANCE. PROVIDE ADDITIONAL DETECTORS WHERE REQUIRED. 8. ALL LOW VOLTAGE FIRE ALARM CIRCUITS MAY OCCUPY A COMMON CONDUIT. RUN AC POWER AND CONTROL WIRING (FAN SHUTDOWN, ETC.) IN SEPARATE CONDUIT, DO NOT RUN WITH ANY OTHER FIRE ALARM SYSTEM WIRING IN A COMMON CONDUIT.

9. ALL CONDUIT, MOUNTING BOXES AND PANELS SHALL BE HUNG AND FASTENED WITH FITTINGS TO ENSURE POSITIVE GROUNDING THROUGHOUT THE ENTIRE SYSTEM.

10. TRANSPOSING OR CHANGING COLOR CODING OF WIRES IS NOT PERMITTED. ALL CONDUCTORS IN CONDUIT CONTAINING MORE THAN ONE WIRE SHALL BE LABELED ON EACH END WITH "E-Z MARKERS".

11. CONDUCTORS IN CABINETS SHALL BE FORMED AND HARNESSED SO THAT EACH DROPS OFF DIRECTLY OPPOSITE TO ITS TERMINAL. 12. ALL WIRING SHALL BE CHECKED AND TESTED TO ENSURE THAT THERE ARE NO

13. WIRING COLOR CODES SHALL BE CONSISTENT THROUGHOUT THE SYSTEM AND SHALL ALLOW FOR EASY IDENTIFICATION OF INITIATING, INDICATING AND AUXILIARY

CONTROLS CIRCUITS. 14. LOCATE REMOTE TEST SWITCH AND PILOT LIGHT FOR ABOVE CEILING MOUNTED DUCT DETECTORS, FLUSH IN CEILING DIRECTLY BELOW DETECTOR.

15. THE FIRE ALARM RISER DENOTES THE GENERAL ARRANGEMENT OF THE SYSTEM WITH TYPICAL DEVICES AND MINIMUM QUANTITIES OF TERMINAL CABINETS & POWER BOOSTERS.. PROVED ADDITIONAL TERMINAL CABINETS, BOOSTERS, ETC. AS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.

16. REFER TO SPECIFICATIONS FOR ADDITIONAL MONITORING POINTS.

17. ALL STROBES SHALL BE SYNCHRONIZED AT END OF CONSTRUCTION.

GROUNDS, OPENS, OR SHORTS.

FIRE FIGHTER OVERRIDE PANEL

1. SYSTEM SHALL BE AVAILABLE 24 HOURS/DAY 7 DAYS/WEEK

2. A HAND SWITCH AT THE COLD SMOKE PURGE OVERRIDE PANEL

SHALL BE UTILIZED BY THE FIREFIGHTERS TO OVERRIDE THE

1. UNDER NON-SMOKE EVENT SITUATIONS, THE FANS SHALL BE OFF

SMOKE AT SMOKE PROOF ENCLOSURE (STAIR) ENTRANCES ON ALL

ISOLATION DAMPER OPEN POSITION SHALL BE VERIFIED BY AN END

SWITCH. SYSTEM SHALL BE ENABLED WHEN FIRE ALARM SYSTEM

SHALL BEGIN ACCELERATING THE FAN TO THE VOLUME CONTROL

1. ONCE ENABLED THE VARIABLE FREQUENCY DRIVE (VFD) SHALL BE

ENCLOSURE. THE ROOF DAMPER SHALL OPEN AND EXHAUST

EXCESS AIR FROM SMOKE PROOF ENCLOSURE (STAIRS).

1. IF DUCT SMOKE DETECTOR SENSES SMOKE IN DUCT THE FAN WILL

2. IF WHEN A FAN IS COMMANDED TO RUN ITS CURRENT SENSOR

3. FAN HOA (HANDS-OFF-AUTO) IS NOT IN THE AUTOMATIC POSITION.

5. ASSOCIATED SMOKE DAMPER DO NOT PROVE OPEN OR CLOSED

4. FAN DISCONNECT IS NOT IN THE ON POSITION.

COMMAND. SCOPE OF WORK BY TRADE FOR SMOKE CONTROL SYSTEMS:

MECHANICAL/CONTROLS CONTRACTOR:

SENSES NO AMP DRAW OR INTERNAL DIAGNOSTICS IN THE VFD

INDICATE AN ALARM, AN ALARM SHALL BE GENERATED AT FRONT

SET TO SATISFY THE PRESSURIZATION OF THE SMOKE PROOF

3. IN EVENT OF A SMOKE/FIRE INCIDENT, THE FAN ISOLATION DAMPER

SHALL OPEN AND THE VFD SHALL BE ENABLED. THE FAN

4. ONCE THE FAN ISOLATION DAMPER IS OPEN, THE SUPPLY FAN

2. A SMOKE/FIRE INCIDENT SHALL BE DEFINED AS DETECTION OF

AND ASSOCIATED ISOLATION DAMPER

STAIR PRESSURIZATION

CONTROLS

CONTRACTOR.

A. GENERAL

B. FAN CONTROL

DETECTOR.

IS ACTIVATED.

C. PRESSURE CONTROL

D. SAFETIES AND ALARMS

A. DESCRIPTION REFER TO THIS SHEET FOR REQUIRED CONTROL POINTS, AND COORDINATE WITH

1. THE FIRE FIGHTERS SMOKE CONTROL PANEL (FFSCP), LOCATED IN THE FIRE COMMAND CENTER SHALL ALLOW FIRE DEPARTMENT PERSONNEL TO MONITOR AND MANUALLY CONTROL SYSTEM PROVIDED FOR THE BUILDING.

2. THE FFSCP SHALL CONFORM TO THE REQUIREMENTS OF THE

LATEST EDITION ON NFPA 92A "SMOKE CONTROL SYSTEMS". 3. PROVIDE AND WIRE FFSCP UNDER THIS DIVISION AND COORDINATE

ALL WORK WITH DIVISION 23. 4. THE FIRE FIGHTERS OVERRIDE PANEL SHALL CONTAIN A BUILDING DIAGRAM THAT CLEARLY INDICATES THE TYPE AND LOCATION OF ALL SMOKE CONTROL EQUIPMENT (FANS, DAMPERS, ETC.). THE

BUILDING AREAS AFFECTED BY THE EQUIPMENT SHALL ALSO CLEARLY INDICATED. 5. THE ACTUAL STATUS OF THE SYSTEMS AND EQUIPMENT THAT ARE ACTIVATED OR ARE CAPABLE OF ACTIVATION FOR SMOKE CONTROL

SHALL BE CLEARLY INDICATED AT THE FIRE FIGHTERS SMOKE

CONTROL PANEL. 6. STATUS INDICATION SHALL BE PROVIDED FOR ON AND OFF STATUS OF EACH INDIVIDUAL FAN USED FOR SMOKE CONTROL. "ON" STATUS SHALL BE SENSED BY PRESSURE DIFFERENCE OR PROOF OF AMP

7. STATUS INDICATION OF OPEN, CLOSED, OPENING AND CLOSING SHALL BE PROVIDED FOR EACH DAMPER INVOLED IN SMOKE

B. SMOKE CONTROL CAPABILITY

1. THE FFSCP SHALL PROVIDE CONTROL CAPABILITY OVER ALL SMOKE CONTROLS SYSTEM EQUIPMENT WITHIN THE BUILDING AS FOLLOWS: a. ON-AUTO-OFF CONTROL OVER EACH INDIVIDUAL

> THAT CAN ALSO BE CONTROLLED FROM OTHER SOURCES WITHIN THE BUILDING. b. ON-OFF OR OPEN-CLOSE CONTROL OVER ALL

SMOKE CONTROL AND OTHER CRITICAL EQUIPMENT ASSOCIATED WITH A FIRE OR SMOKE EMERGENCY AND THAT CAN ONLY BE CONTROLLED FROM FFSCP.

PIECE OF OPERATING SMOKE CONTROL EQUIPMENT

c. OPEN-AUTO-CLOSE CONTROL OVER ALL INDIVIDUAL DAMPERS RELATING TO SMOKE CONTROL AND THAT ARE ALSO CONTROLLED FROM OTHER SOURCES

d. OPEN-AUTO-CLOSE CONTROL OVER ALL INDIVIDUAL OPERABLE LOUVERS RELATING TO SMOKE CONTROL AND THAT ARE ALSO CONTROLLED FROM OTHER SOURCES WITHIN THE BUILDING.

C. CONTROL ACTION AND PRIORITIES

1. THE FFSCP CONTROL ACTION SHALL BE AS FOLLOWS:.

WITHIN THE BUILDING.

a. ON-OFF, OPEN-CLOSE - THESE CONTROL ACTIONS HAVE THE HIGHEST PRIORITY OF ANY CONTROL POINT WITHIN THE BUILDING. ONCE ISSUED FROM THE FFSCP, NO AUTOMATIC OR MANUAL CONTROL FROM ANY OTHER CONTROL POINT WITHIN THE BUILDING SHALL OVERRIDE THE FFSCP CONTROL

b. AUTO - ONLY THE AUTO POSITION OF EACH 3-POSTION FFSCP CONTROL SHALL ALLOW AUTOMATIC OR MANUAL CONTROL ACTION FROM OTHER CONTROL POINTS WITHIN THE BUILDING. THE AUTO POSITION SHALL BE THE NORMAL, NON-EMERGENCY, BUILDING CONTROL POSITION. WHEN AN FFSCP CONTROL IS IN THE AUTO POSITION, THE ACTUAL STATUS OF THE DEVICE (ON, OPEN, CLOSED, NORMAL, FAULT) SHALL CONTINUE TO BE INDICATED BY THE STATUS INDICATOR(S) DESCRIBED

THE SAME AS FOR AUTOMATIC OR MANUAL SMOKE CONTROL ACTION INITIATED FROM ANY OTHER BUILDING CONTROL POINT. d. FFSCP PILOT LAMP INDICATION OF THE ACTUAL

e. FFSCP SHALL BE BY SPACE AGE ELECTRONICS

OR EQUAL. SHOP DRAWING OF PANELS SHALL

INCLUDE ARTWORK, OPERATORS INSTRUCTIONS LEGEND AND OTHER INFORMATION REQUIRED BY

c. FFSCP RESPONSE TIME: FOR PURPOSES OF SMOKE

CONTROL . THE FFSCP RESPONSE TIME SHALL BE

STATUS OF EACH PIECE OF EQUIPMENT SHALL NOT EXCEED 15 SECONDS AFTER OPERATION OF THE RESPECTIVE FEEDBACK DEVICE.

THE LOCAL FIRE DEPARTMENT.

TO ADDITIONAL FIRE 5-ALARM DEVICES

TO ADDITIONAL FIRE ALARM DEVICES

ALARM DEVICES

TO ADDITIONAL FIRE ALARM DEVICES

ALARM DEVICES

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PROJECT TITLE

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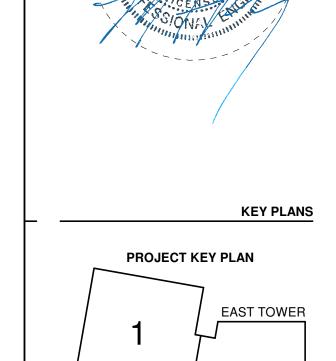
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CLIENT



RICHARDS -BUILDING | **OVERALL KEY PLAN** 1 - GILMAN GARAGE 2 - CONGRESS STREET 3 - VISITOR GARAGE 4 - EAST TOWER 5 - CENTRAL UTILITY PLANT 6 - BEAN BUILDING 7 - RICHARDS BUILDING

CONSTRUCTION DOCUMENTS JANUARY 26, 2018

B150312-000 MFR MFR

FIRE ALARM RISER **DIAGRAM**

TITLE

SHEET NUMBER

FA20-01

TWO WAY COMMUNICATION SYSTEM SEE SPECIFICATION SECTION 283111.11 FOR PERFORMANCE BASED INFORMATION ON RADIO REPEATER/BIDIRECTIONAL AMPLIFIER

1. PROVIDE SMOKE CONTROL FAN WITH MINIMUM OF 2 BELTS 1.5 TIMES THE NUMBER OF BELTS REQUIRED FOR DESIGN 18. ALL FIRE ALARM WIRING SHALL BE "CLASS A". DUTY, WHICHEVER IS GREATER. 19. PROVIDE NEW PAGING ZONE CONTROLS FOR NEW FLOORS AND 2. FURNISH FAN VARIABLE FREQUENCY DRIVE (VFD). VFD SHALL NOT NEW ZONES FOR STAIRS AT FACP. HAVE MAINTENANCE 20. AS PER NFPA 72 SMOKE DETECTORS SHALL NOT BE INSTALLED UNTIL AFTER PROVIDE CURRENT SENSOR. THE CONSTRUCTION CLEANUP OF ALL TRADES IS COMPLETE AND FINAL. 4. INSTALL DUCT SMOKE DETECTORS SAMPLE TUBES WHERE 21. PROVIDE STAIR PRESSURIZATION FAN START MODULES AND INTERFACE WITH HVAC CONTROLS SUCH THAT AN HOA SWITCH LOCATED AT THE MAIN FFSCP REQUIRED. WILL CONTROL EACH STAIR FAN (SEE HVAC DRAWINGS FOR QUANTITIES) AND 5. PROVIDE FAN ISOLATION DAMPER AND ACTUATOR. FIRE ALARM RISER DIAGRAM KEY NOTES: 22. PROVIDE STAIR PRESSURIZATION FAN POWER MONITORING. MONITORS SHALL 6. CONTROL WIRING BETWEEN FAN VFD AND FAN ISOLATION DAMPER (1) FIRE SMOKE DAMPER CONNECTIONS. INCLUDE A RELAY AT THE LINE SIDE OF FAN STARTERS TO PROVIDE FOR A IN CONDUIT. ANY WIRING OUTSIDE OF THE 2 HOUR RATED TROUBLE SIGNAL AT THE FACP AND FFSCP IF POWER IS NOT PRESENT AT THE FAN ENCLOSURE SHALL BE 2 HOUR TO SMOKE CONTROL FAN OPERATION AND INDICATORS. 23. UPON CONTRACT BID APPROVAL, AND PRIOR TO THE START OF SYSTEM INSTALLATION, **ELECTRICAL/FIRE ALARM (FA) CONTRACTOR:** TO HOISTWAY VENT DAMPERS. THE CONTRACTOR SHALL SUBMIT A COMPLETE RISER DIAGRAM AND LAYOUT OF THE ENTIRE FIRE ALARM/LIFE SAFETY SYSTEM, SHOWING ALL INTERCONNECT WIRING AND 1. SMOKE CONTROL POWER WIRING SHALL BE WIRED IN 2 HOUR FIRE RE-WIRE TO PROVIDE STAIR ONE-WAY COMMUNICATIONS CIRCUITS EQUIPMENT. THE RISER DIAGRAM SHALL BE PROJECT SPECIFIC WITH ACTUAL WIRING RATED WIRING - MINERAL INSULATED INDICATED FOR FIRE ALARM EQUIPMENT TO BE UTILIZED ON THIS PROJECT. (3)TS,(3)FS AT FOAM SUPPRESSION SYSTEM 2. LOCATE ALL CONTROL EQUIPMENT IN 2 HOUR RATED ROOMS OR 3. PROVIDE SMOKE CONTROL FAN DISCONNECT SWITCH AT FAN WITH STAIR-42 **ELEVATOR LOBBY** OPEN/CLOSED STATUS SWITCH AND MONITORING MODULE (MM) STAIR-43-1 AND ANNUNCIATE ON TO SMOKE 4. PROVIDE FIRE FIGHTERS OVERRIDE PANEL (FFSCP).. CONTROL TO ADDITIONAL FIRE ___ 5. PROVIDE FIRE ALARM CONTROL MODULE (CM) ADJACENT TO FAN ALARM DEVICES TO SMOKE VARIABLE FREQUENCY DRIVE (VFD) AND WIRE DIRECTLY TO VFD. CONTROL CM SHALL CALL COMMAND FANS ON AND 6. PROVIDE MM AT FAN CURRENT SENSOR AND WIRE FROM FAN CURRENT SENSOR TO FFSCP FOR FAN TO ADDITIONAL FIRE ALARM DEVICES 7. PROVIDE SMOKE DETECTOR TO INITIATE SMOKE CONTROL SYSTEM <u>PENTHOUSE</u> (INSTALLED BY MECHANICAL IF DUCT SMOKE 8. INDICATE SMOKE DETECTOR STATUS AND PROVIDE OVERRIDE AT STAIR-42 **ELEVATOR LOBBY** TO SMOKE CONTROL 9. PROVIDE FA MM ADJACENT TO RELIEF DAMPER AND WIRE DIRECTLY TO RELIEF DAMPER ACTUATOR. MM SHALL INDICATE RELIEF DAMPER OPEN AND AlO ALARM DEVICES TO ADDITIONAL FIRE ALARM DEVICES 7TH FLOOR - OFFICES, ENCLOSED ROOMS, UTILITY ROOMS, STORAGE ROOMS, CORRIDORS AND ECT. ELEC. ROOM 7032 7TH FLOOR - OFFICES, ENCLOSED ROOMS, UTILITY ROOMS, STORAGE ROOMS, CORRIDORS AND ECT. TEL/DATA 2168 STAIR-43-1 STAIR-42 ELEVATOR LOBBY IDF ROOM 7734K FIRE ALARM CONTROLLER PANEL ____ AIM AIM TS WF STAIR-42 **ELEVATOR LOBBY** 6TH FLOOR - OFFICES, ENCLOSED ROOMS, UTILITY ROOMS, STAIR-43-1 6TH FLOOR - OFFICES, ENCLOSED ROOMS, UTILITY ROOMS, IDF ROOM 2755 FIRE ALARM CONTROLLER PANEL AIM AIM Z

7TH FLOOR

FIRE ALARM CONTROLLER PANEL

TO FIRE ALARM CONTROL PANEL "FACP"

PROVIDE NEW HONEYWELL XLS NETWORKED PANEL AT THE FIRE COMMAND CTR AND CUT OVER ALL CIRCUITS FROM EXISTING PANEL.

TO BASEMENT/SUB-BASEMENT

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6TH FLOOR

5TH FLOOR

1ST FLOOR

2ND, 3RD,4TH FLOOR